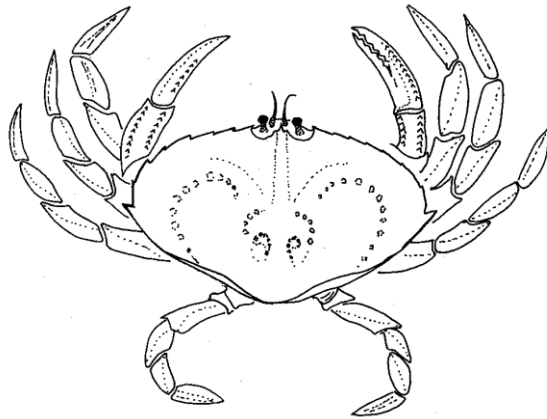


PACIFIC REGION INTEGRATED FISHERIES MANAGEMENT PLAN

CRAB BY TRAP

APRIL 1, 2022 TO
MARCH 31, 2023



Dungeness crab: *Cancer magister*



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada

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

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FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Crab by Trap 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) 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 that can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

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

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1 OVERVIEW

1.1 Introduction

This Integrated Fisheries Management Plan (IFMP) for Crab by Trap covers the period April 1, 2022 to March 31, 2023.

This IFMP provides a broad context to the management and interrelationships of all fishing sectors of the Dungeness crab (*Cancer magister*), Red Rock crab (*Cancer productus*), Red King crab (*Paralithodes camtschatic*) and Golden King crab (*Lithodes aequispinus*) trap fishery in the Pacific Region (British Columbia, Canada). However, at this time, this plan primarily focuses on Dungeness crab as over 99% of all crab harvesting by all sectors is this species.

The main body of the IFMP covers the general aspects of the fisheries including the background, science, management, objectives and allocation. Many aspects are similar among the seven crab management areas and those are detailed in the main body of the IFMP. Section 1 provides an overview of the commercial, recreational and First Nations fisheries. Section 2 presents a biological synopsis and stock assessment. Section 3 presents Indigenous Knowledge. Section 4 provides a socio-economic profile. Section 5 describes the emerging management issues that may impact management measures in the fishery. Section 6 describes objectives for the fishery reflecting stock status presented in Section 2 and to address the issues identified in Section 5. Section 7 discusses access and allocation. Section 8 directs to the Appendices for the fishery management procedures that will be employed during the year to meet the objectives. Section 9 describes shared stewardship arrangements to achieve objectives. Section 10 provides enforcement information. Section 11 provides a running summary of key issues that have occurred in previous crab fishing seasons. Sections 12, 13 and 14 provide references, internet sites and a glossary to define terms.

The appendices detail the difference between the harvester sectors and variances in the seven crab management areas. The First Nations Harvest Plan is attached to this IFMP as Appendix 1. Appendix 2 is the Recreational Harvest Plan. Appendix 3 is the Commercial Harvest Plan for Crab by Trap. Appendix 4 discusses vessel safety. Appendix 5 provides an example of the crab trap commercial harvest log. Appendix 6 contains diagrams on where to determine crab soft-shell and correct rot cord placement. Appendix 7 contains maps of the licence areas, restricted areas and Crab Management Area A soft-shell management areas. Appendix 8 contains DFO, Service Provider, and Sectoral Committee contact information. Appendix 9 contains the commercial fishery monitoring and catch reporting standards for electronic monitoring, catch reporting, biological sampling, Area A hails, and plastic trap tag requirements. Appendix 10 contains the guidelines for the Area A soft shell monitoring program. Appendices 11 contains maps of closed areas in Gwaii Haanas, and Appendix 12 contain the Fishery Monitoring & Catch Reporting Recreational Risk Assessment Tool.

1.2 History

Dungeness crab is the most important crab species of British Columbia and is harvested coastwide for First Nation, recreational and commercial purposes. The inception of the commercial fishery

occurred before the turn of the 19th century with the first recorded landings in 1885 (Butler, 1984). The recreational fishery has an equally long history and coastal First Nations have traditionally harvested Dungeness crab for food, social and ceremonial purposes since time immemorial.

Size restrictions have been the primary management tool for Dungeness crab since 1906, when a 6 inch (153 mm) size limit was initiated. This limit was changed to 6.5 inches (165 mm) in 1914. The 165 mm minimum size limit (measured across the maximum width of the carapace, commonly called “spine to spine”) was designed to protect sexually mature male crabs for at least one year prior to harvest.

Few females reach the size limit but were protected from the commercial fishery by a regulation from 1926 to 1957 that prohibited the retention of ovigerous females. This regulation was revoked in 1957 as it was considered largely redundant with the size limit; however, it was reintroduced as a condition of licence in the commercial fishery prohibiting the retention of all females in 1991. Since 2007, recreational harvesters have been required to release all female crab. Prior to this, the release of females was voluntary.

Licensing of the commercial crab fishing fleet began in 1966 with the licensing of other commercial fisheries. All three of the initial salmon licence categories issued, A, B, and N, were authorized to harvest crab. Subsequent licence categories C (General), G (Geoduck), K (Sablefish), L (Halibut), S (Shrimp Trawl), and T (Groundfish Trawl) also included the authority to harvest crab using traps. This gave a potential fleet of over 6000 vessels.

An “R” category licence for crab was initiated by the Department in 1990 in response to high levels of fishing effort on crab. The licence eligibility criterion was 15,000 lbs. cumulative crab landings from 1987 to 1989. There are now 220 crab licence eligibilities for this fishery.

The fishery is currently managed under a precautionary regime whereby the productive potential of crab is protected. This regime includes a minimum harvestable size limit, limited commercial licensing, area licensing, trap limits, soak limits, sex restrictions, soft-shell restrictions, closure areas, closed periods and gear restrictions.

1.3 Type of Fishery and Participants

1.3.1 First Nations

First Nations’ harvest for food, social and ceremonial purposes may occur where authorized by an Indigenous communal licence, harvest document, or under treaty fishery agreements. First Nations will typically designate harvesters from their communities under their communal licence. For more information please refer to the First Nations Harvest Plan in Appendix 1.

The Nisga’a, Tsawwassen, Maa-nulth and Tla’amin First Nation Treaties came into effect in 2000, 2009, 2011 and 2016 respectively. Under these Treaties, Fisheries Operation Guidelines (FOG) set out the operational principles, procedures and guidelines needed to assist Canada, BC, and First Nations in implementing Fisheries Chapters of their respective treaties and managing Treaty fisheries on an annual basis. The FOGs provide guidance on how management decisions, with respect to treaty fisheries, will be made via the Joint Fisheries Committee (JFC), how abundance

is estimated, biological and harvesting considerations, fisheries monitoring and catch reporting requirements, etc. Each year the JFC, established under each treaty, make recommendations to the Minister on the issuance of specific ‘Harvest Documents’ to licence the fisheries for Domestic (food, social and ceremonial) harvests.

More information on the Treaties can be found at: <http://www.BCtreaty.net/>

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 for any species, with the exception of Geoduck, within their Fishing Territories and to sell that fish. The Department has developed a 2021/22 Five Nations Multi-species Fishery Management Plan (FMP). The FMP includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting. Feedback provided by the Five Nations during consultations was considered and incorporated into the 2021/22 FMP by DFO where possible.

The implementation of the Five Nations’ right-based sale fishery continues to be an ongoing process. The 2021/22 FMP was developed to implement the right-based multi-species fishery to accommodate the Five Nations’ Aboriginal rights consistent with the British Columbia Supreme Court’s 2018 decision. On April 19, 2021, the British Columbia Court of Appeal released its decision in relation to the appeal brought forward by the Five Nations. As a result, the department announced a number of in-season changes via fishery notice.

In 2021, DFO reassessed the Five Nations’ crab trap allocation in light of the BCCA decision, and commercial trap totals will be reduced in 2022 to provide for an increased allocation for the Five Nations’ right-based crab fishing opportunity in the applicable Subareas within Area E. For further information, see the revised 2021/22 FMP at: <https://waves-vagues.dfo-mpo.gc.ca/Library/41018588.pdf>.

In February of 2017, the Heiltsuk, Kitasoo/Xai’Xais, Nuxalk and Wuikinuxv Nations and Fisheries and Oceans Canada signed a Letter of Intent (LOI) that commits the parties to working together to develop and undertake a collaborative process for identifying and recommending management objectives (starting with conservation and sufficient First Nation food, social, and ceremonial access) and measures that will achieve healthy crab populations and sustainable crab fisheries on the Central Coast. In 2020, the governance partners (consisting of members of DFO and Central Coast First Nations) issued a joint recommendation to the executive-level decision makers in which they proposed commercial and recreational crab fishing closures in 17 sites within the Central Coast. Upon review of the joint recommendation and associated data/documentation, DFO implemented 11 new commercial closures and 15 year-round recreational closures on April 1, 2021, and two seasonal recreational crab closures on June 1, 2021. Next steps for the governance partners will be the development of a monitoring and evaluation strategy to determine if the closures are effective at improving FSC access to legal male crab, continuing work on recreational and FSC catch and effort monitoring, and working on a strategy for engaging stakeholders. The governance partners will be transitioning the Central Coast Collaborative Crab Management Process (CCCCMP) in 2022 to align with the implementation of the Fisheries Resources

Reconciliation Agreement (FRRA) between DFO and the Coastal First Nations (including the Central Coast First Nations).

1.3.2 Recreational

Recreational fishing may occur to provide food for personal use, as a leisure activity, or as a combination of the two. The recreational fishery includes harvest by local BC residents, residents within Canada and non-residential anglers outside of Canada. A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of crab. Tidal Waters Sport Fishing Licences can be obtained via the internet at: <https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/application-eng.html>. For more information please refer to the Recreational Harvest Plan in Appendix 2.

1.3.3 Commercial

The commercial fishery is a limited entry fishery with 220 licence eligibilities distributed throughout the Pacific coast in seven management areas. For 2022/23, 34 of these licences have been designated as communal commercial licences for First Nations participation in the commercial fishery. All licences in the commercial fishery are single-licensed vessels and vessel size ranges from 4.42 m to 20.47 m. For more information please refer to the Commercial Harvest Plan in Appendix 3.

1.3.4 Aquaculture

The Department currently licenses aquaculture activities for two hatchery facilities for Dungeness Crab culture in BC. However, these facilities are not actively culturing the species and nor has any crab aquaculture ever occurred.

DFO is the lead federal department for sustainable management of fisheries and aquaculture. Under the *Fisheries Act*, *Pacific Aquaculture Regulations*, *Aquaculture Activities Regulations* and *Fishery (General) Regulations*, DFO regulates finfish, shellfish and freshwater aquaculture operations in BC. Cultivation of fish within the province requires a federal aquaculture licence issued under the *Pacific Aquaculture Regulations*, and, where applicable, a federal *Navigable Waters Protection Act* permit and a provincial Crown Lands tenure. Other government agency approvals may also be necessary.

Applications currently under review by the Department are available on the DFO website at: <https://www.pac.dfo-mpo.gc.ca/aquaculture/licence-permis/index-eng.html#applications>.

To view the *Pacific Aquaculture Regulations*: <https://www.pac.dfo-mpo.gc.ca/aquaculture/regs-eng.html>

As part of the aquaculture regulatory framework in British Columbia, DFO has developed Integrated Management of Aquaculture Plans (IMAPs). IMAPs are modelled after Integrated Fisheries Management Plans, which are used to govern wild harvest fisheries. Consultations with First Nations, interested parties, and stakeholders were and continue to be important to the IMAP

process, allowing for the integration of advice, as well as environmental and social interests, into the management objectives for each aquaculture sector.

For further information refer to the following web link: <http://www.dfo-mpo.gc.ca/aquaculture/aquaculture-eng.html>.

1.4 Location of Fishery

Maps of the seven commercial crab management areas in the Pacific Region, commercial restricted areas and Commercial Management Area A soft-shell management areas can be found in Appendix 7.

1.4.1 First Nations

First Nations' communal licences and harvest documents identify the location where First Nations may fish for food, social and ceremonial (FSC) harvest. Harvest areas are generally located within First Nation traditional territories, and may also take place alongside recreational harvesters in areas designated to improve non-commercial access to crab. More information can be found in Appendix 1.

1.4.2 Recreational

Recreational crab fishing occurs predominately in nearshore areas in close proximity to BC coastal communities. Traditionally, it is a vessel-based fishery, which takes place in waters shallower than 100ft. Shore and Pier based fishing for recreational crab does take place in many locations, some of which are designated for improving non-commercial crab access. More information can be found in Appendix 2.

1.4.3 Commercial

Commercial fishing for Dungeness crab and Red Rock crab occurs throughout BC waters. Golden King crab and Red King crab fishing occasionally occurs in Area B where it is permitted under special arrangement with the North Coast DFO Crab Manager and amended Crab Conditions of Licence. Non-retention of graceful crab (*Cancer gracilis*) has been in effect since 2004 due to lack of stock assessment data and there are no other species of crab permitted for commercial harvesting. The Commercial Harvest Plan can be found in Appendix 3.

1.5 Fishery Characteristics

1.5.1 First Nations

First Nations' fishing for food, social and ceremonial (FSC) purposes is the first priority after conservation and is open coast-wide throughout the year. First Nations fishing effort for an FSC domestic purpose has not been limited by catch quantity, except in those Nations where the Council or fisheries program has established their own catch limits for band members, or where allocated under treaty. Gear marking is required and the main target species are Dungeness and Red Rock crab. First Nations are subject to the same size limit as the recreational and commercial fisheries:

a minimum of 165mm for Dungeness crab, and 115mm for Red Rock crab. In support of sustainable fishing, many First Nations have developed their own best management practices and includes additional conditions that are not currently part of their communal licence requirements such as the release of females, and inclusion of trap escape rings. A consultation process to review their current licence requirements and consulting on new conservation measures began in 2017, and some measures will be implemented as of the 2022/23 season. For more First Nations harvesting information please refer to the First Nations Harvest Plan in Appendix 1.

Commitment to Reconciliation

DFO is committed to the recognition and implementation of Indigenous and treaty rights related to fisheries, oceans, aquatic habitat, and marine waterways in a manner consistent with section 35 of the *Constitution Act, 1982*, the United Nations Declaration on the Rights of Indigenous peoples, and the federal Principles Respecting the Government of Canada's Relationship with Indigenous peoples. DFO-CCG Reconciliation Strategy provides a guidance document to better understand why and how reconciliation informs the work of the Department.

For further details on the United Nations Declaration on the Rights of Indigenous peoples see <https://www.justice.gc.ca/eng/declaration/index.html>

For further details on the Principles Respecting the Government of Canada's Relationship with Indigenous peoples see <https://www.justice.gc.ca/eng/csjsjc/principles-principes.html>

DFO's Reconciliation Strategy can be found at <https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/reconciliation-eng.html>

For further details on reconciliation in British Columbia and Yukon, refer to <https://www.pac.dfo-mpo.gc.ca/abor-autoc/reconciliation-pacific-pacifique-eng.html>

Information on Indigenous fisheries and reconciliation is available at: <http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html>

Information on the Government of Canada work to advance reconciliation can be found here: <https://www.rcaanc-cirnac.gc.ca/eng/1400782178444/1529183710887>

FSC Fisheries

Fish and marine resources are central to the culture, society, and well-being of First Nations and provide a critical connection to language, traditional knowledge, and health of communities. Fisheries & Oceans Canada (DFO) remains committed to respecting First Nations' Aboriginal right to fish for food, social and ceremonial (FSC) purposes, or domestic purposes under Treaty which has priority – after conservation – over other uses of the resource.

Section 35(1) of the *Constitution Act* recognizes and affirms the existing Aboriginal and Treaty rights of the Aboriginal Peoples in Canada. However, it does not specify the nature or content of the rights that are protected. In 1990, the Supreme Court of Canada issued a landmark ruling in the Sparrow decision which found that the Musqueam First Nation has an Aboriginal right to fish for food, social and ceremonial (FSC) purposes. The Supreme Court found that where an Aboriginal group has a right to fish for FSC purposes, it takes priority, after conservation, over

other uses of the resource. The Supreme Court has also indicated the duty to consult with Aboriginal Peoples when their fishing rights might be affected.

The Aboriginal Fisheries Strategy (AFS) was implemented in 1992 to address several objectives related to First Nations and their access to the resource. These included:

- Improving relations with First Nations
- Providing a framework for the management of the First Nations fishery in a manner that was consistent with the Supreme Court of Canada's 1990 *Sparrow* decision
- Greater involvement of First Nations in the management of fisheries
- Increased participation in commercial fisheries (Allocation Transfer Program (ATP))

AFS continues to be one of the principal mechanisms – in addition to Treaties and reconciliation agreements - to support the development of relationships with First Nations including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.

Five Nations Right-Based Sale Fishery

For more information, see Section 1.3.1 and Appendices 1 and 3 (First Nation Harvest Plan and Commercial Harvest Plan).

Canada and First Nation Long-term agreements: Treaties and Reconciliation Agreements:

Treaties and Self Government Agreements

There are six modern treaties and self-government agreements in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), Maa-nulth First Nations Final Agreement (MNA), Tla'amin (Sliammon) Nation Final Agreement, Sechelt Self-government Act, and Westbank First Nation Self-government Agreement. Through these treaties, Nations work with DFO to manage treaty fisheries on an annual basis. There are also historic treaties in British Columbia (Douglas Treaties and Treaty 8). For a detailed list of long-term fisheries arrangements in BC and Yukon, please see the internet at <https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html>.

Fisheries chapters in modern treaties may articulate a treaty fishing right for domestic purposes that are protected under Section 35 of the *Constitution Act*, 1982. Negotiated through a side agreement, some modern treaty First Nations have commercial access through a Harvest Agreement outside of the constitutionally protected treaty. Crabs were unallocated under the Maa-nulth, Tsawwassen, and Nisga'a Treaties, and are allocated under the Tla'amin Treaty.

Reconciliation Agreements

In addition to negotiating treaties, the Government of Canada and Indigenous peoples can also negotiate Recognition of Indigenous Rights and Self-Determination (RIRSD) agreements, to explore new ways of working together to advance the recognition of Indigenous rights and self-determination. These agreements are led by Crown-Indigenous Relations and Northern Affairs

Canada (CIRNAC). With participation from relevant departments. DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to advance reconciliation with First Nations. These agreements seek to advance reconciliation and enhance First Nations and DFO collaborative governance and management on fisheries, marine and aquatic matters.

Reconciliation agreements work within the legislative framework of the *Fisheries Act*. The Act provides the Minister of Fisheries and Oceans Canada with the legislative authority for the proper management and control of the fisheries, the conservation and protection of fish, and regulation of the fishery.

Since 2019, the Government of Canada entered into several agreements with First Nations that lay the foundation for incremental development and implementation of new arrangements for collaborative governance on fisheries and marine matters. A ‘framework agreement’ sets out the subject matter for negotiation and describes how negotiations will proceed towards a final agreement. A ‘final agreement’ includes detailed commitments the Parties have agreed to implementing and governs the relationship between the Parties for its term.

See the BC Treaty Commission at <https://www.bctreaty.ca/index.php> and CIRNAC for more information on current treaty tables at <https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231> and for current RIRSD tables at <https://www.rcaanc-cirnac.gc.ca/eng/1511969222951/1529103469169>.

Framework Agreements:

- *GayGahlda “Changing Tide” Framework Agreement* between Haida and Canada
- *Hałt̓c̓stut Incremental House Post Agreement* between Heiltsuk and Canada
- *Reconciliation Framework Agreement for Fisheries Resources* between A-Tlegay Member Nations (We Wai Kai Nation, Wei Wai Kum First Nation, Kwiakah First Nation, Tlowitsis Nation, and K’ómoks First Nation) and Canada

Final Agreements:

- *Coastal First Nations Fisheries Resource Reconciliation Agreement* between Canada and Metlakatla, Gitxaala, Gitga’at, Kitasoo/Xai-Xais, Nuxalk, Heiltsuk, Wuikinuxv, and Haida Nations
- *Gwet’sen Nilt’I Pathway Agreement* between T̓silhqot’in, Canada and BC
- *Burrard Inlet Environmental Science and Stewardship Agreement* between Tsleil-Waututh Nation and Canada

As DFO and First Nations develop and implement new fisheries and collaborative governance arrangements, DFO works with these Nations to engage neighbouring First Nations and stakeholders (e.g. commercial and recreational sectors).

1.5.2 Recreational

The recreational fishery is an open entry fishery open all year in most areas. It typically targets Dungeness crab, although Red Rock crabs are retained. The majority of recreational crab fishing takes place during daylight hours, in conjunction with other recreational fishing activities.

Management measures in the recreational fishery include female non-retention, size limits for Red Rock and Dungeness crab, specific buoy and trap regulations, and area specific daily and possession limits. There are also additional regulations within select areas. As of 2019, recreational crab traps are required to have two 105mm escape rings installed to allow the escape of female and undersized male crabs. To enhance sustainable fishing, best management practices have also been developed for recreational harvesters. For more recreational harvesting information please refer to the Recreational Harvest Plan in Appendix 2.

1.5.3 Commercial

The commercial crab fishery is a limited entry, competitive fishery for legal male crab. It is divided into seven crab management areas having specific management rules. Some of these regulations include size, sex, and shell hardness restrictions, seasonal closures, trap limits, gear marking and gear size requirements, daily fishing time restrictions and weekly haul limits. The catch is 99% Dungeness crab and this fishery has fishery monitoring and catch reporting requirements to address conservation, harvest allocation and theft issues. In 2020, all active harvesters hired a service provider to meet biosampling, electronic monitoring, gear identification, and harvest logbook requirements for the 2020-2023 licence area selection period. To enhance sustainable fishing, best management practices have also been developed for commercial harvesters. For more commercial harvesting information please refer to the Commercial Harvest Plan in Appendix 3.

1.6 Governance

The Minister of Fisheries, Oceans and the Canadian Coast Guard has ultimate and final responsibility for the management of fisheries in Canadian waters, and for the conduct of Canadian vessels operating in international waters. Ministerial functions are assisted and administered by the Department at the national level in Ottawa, and by the regional structure in the following regions: Newfoundland-Labrador, Arctic, Ontario and Prairie, Gulf, Maritimes, Quebec, and Pacific.

The Crab by Trap fisheries are governed by the *Fisheries Act* (R.S., 1985, c. F-14) and regulations made thereunder, including the *Fishery (General) Regulations* (e.g., conditions of licence), the *Pacific Fishery Regulations* (e.g., open times), the *British Columbia Sport Fishing Regulations*, the *Aboriginal Communal Fishing Licences Regulations* and the *Pacific Aquaculture Regulations*. Areas and Subareas are described in the *Pacific Fishery Management Area Regulations*.

Marine Protected Areas may be established under the *Oceans Act* (1996, c. 31). National marine conservation areas may be established under the *Canada National Marine Conservation Areas Act* (2002, c. 18).

Species listed as extirpated, endangered, threatened or special concern are governed by the *Species At Risk Act* (2002, c. 29) (SARA) which has implications for the management of fisheries that impact listed species. In addition to existing prohibitions under the *Fisheries Act*, it is illegal under the SARA to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual.

The documents listed above are available on the internet at:

<https://www.dfo-mpo.gc.ca/acts-lois/index-eng.htm>

More information on the SARA is available at:

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.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 policies include:

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

Along with other 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>

As required under the SFF, DFO annually tracks the performance of major fish stocks that it manages through the Sustainability Survey for Fisheries. The fish stocks are selected for their economic, environmental and/or cultural importance. The vast majority of the landings from fisheries managed by DFO come from these fish stocks. The survey reports on DFO's progress to implement its SFF policies, which guide the management of Canada's fisheries, and on other

information about these fish stocks. The results of previous Sustainability Surveys are available online: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html>

Scientific advice for this fishery is peer-reviewed primarily through a process managed under the Canadian Science Advisory Secretariat (CSAS).

1.7 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.

For more information on the consultative process for crab, please visit: <https://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/csc/index-eng.html>

1.7.2 Indigenous People of British Columbia

The Department consults with Indigenous nations on the annual Pacific Crab IFMP and the management of Pacific Crab more broadly to ensure that the duty to consult is fulfilled and that the proposed plans are informed by the best available information, including Indigenous Knowledge and understanding of fisheries practices. Consultation occurs through a variety of means including through bi-lateral discussions, group advisory processes and other processes that may be available or requested. Consultation, as provided for under Final Agreements (currently the Tla'amin Final Agreement, Tsawwassen First Nation Final Agreement, Maa-nulth First Nations Final Agreement and Nisga'a Final Agreement) are also undertaken.

1.7.3 Crab Sectoral Committee (CSC)

The Crab Sectoral Committee (CSC) is the primary multi-stakeholder body providing input and advice to DFO's decision making processes for Pacific crab fisheries. The CSC was established by DFO to promote a more streamlined, representative, cross-sectoral advisory process related to crab harvest planning, management, and post-season review. The Sectoral Committee meets annually in October (or more frequently as required).

The goal of the CSC is to support the development of fishing plans that are coordinated and integrated, to identify potential conflicts, and to make recommendations for resolving disputes. The committee operates on a consensus basis where possible. Membership in the CSC is comprised of representatives from Indigenous communities, the area crab industry advisory boards, the Sport Fishing Advisory Board (SFAB), the Province of BC, commercial licence eligibility holders, processors and DFO. See Appendix 8 for committee members.

Crab Sectoral participants have requested a review of the existing committee format and to have an opportunity to propose a new format that better meets the needs of the participants. A

subcommittee of Crab Sectoral participants is being established to develop recommendations on a new process for consideration in 2022 and subsequent years.

The committee terms of reference are available from the Resource Managers (see Appendix 8) or from the Department's consultation Internet site at:

<https://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/csc/index-eng.html>

Additional consultations may also occur bilaterally with First Nations, Recreational, or Commercial representatives or other stakeholder groups at any point throughout the year as required.

1.7.4 Area Crab Industry Committees and Regional Crab Industry Committee

The seven crab management areas have area based meetings that occur in the summer and occasionally once more per year. Each Area has one elected crab representative that sits on the Regional Crab Industry Committee and the CSC, and some areas have identified a second alternate representative. In addition to the elected representatives, there are two processors, one or more Indigenous advisors, one recreational and other representatives, if necessary, selected to represent other significant interests in the fishery (e.g., parks, aquaculture, crew).

Beginning in 2010, the Regional Crab Industry Committee has met annually (or more frequently as required) to address commercial harvesting issues and discuss conflicts with other fisheries. A report on topics discussed is provided to Crab Sectoral participants at the CSC.

1.8 Approval Process

The Regional Director General for the Pacific Region approves this plan.

2 STOCK ASSESSMENT AND SCIENCE

2.1 Biological Synopsis for Dungeness Crab

Dungeness crab are distributed along the west coast of North America from Mexico to Alaska and occur from the low intertidal to depths of 230 m. During spring months, adult males and females generally move inshore into shallower water and then back into deeper water in late summer or early winter, all the while remaining segregated from one another. Females are relatively inactive during the winter; they do not feed and remain buried in the bottom sediment for much of the time. Adult Dungeness crabs inhabit substrates comprised of sand, mud or silt, and eelgrass beds. When incubating their eggs, females prefer sandy substrate. Sub-adults require littoral habitats as important foraging areas. Megalopae larvae often settle out in favourable inshore intertidal and subtidal habitats, which are often estuaries with freshwater input. Zoea larvae can be found in offshore areas in the water column.

Mating is generally synchronous within a region in BC, normally occurring in the summer, but can vary between regions depending on female softshell timing (D.Curtis, personal communication, March 2020). Adult males usually moult during the spring, while adult females

usually moult during the summer. Moulting timing differs between males and females, because males can only breed newly moulted (soft) females and will carry them around in a mating embrace when they are about to moult, and even several days after to ensure no other males mate with her. Females store the sperm so they can fertilize the eggs at a later date. In October and November the eggs are fully developed and are fertilized as they are extruded. Since females can fertilize at least two successive batches of eggs from one breeding event, they can skip-moult (only need to breed every second year). Females can produce 200,000 to two million eggs depending on her size. The eggs adhere to the abdomen and are protected and aerated by the female throughout the winter. The eggs hatch late winter/early spring depending on the area and water temperature. Dungeness crab larvae emerge first into the water as prezoae, but moult quickly (within one hour) to the first zoea stage. The spined zoeae are distributed by ocean currents for up to four months and move offshore and alongshore during late winter and the winter-to-spring transition period. Upwelling occurs around April/May and, after five zoea stages, megalopae appear in large near-shore concentrations between May and September. Megalopae look like little crabs, are strong swimmers, and seek out favourable habitat to settle on where they metamorphose into the first post-larval instar.

Dungeness crab grow by moulting, a process whereby the old shell is shed. The new shell underneath absorbs water and swells to a new size 15-30% larger, and then hardens over a period of several months. Juvenile crabs moult many times throughout the year. It takes about two years—and more than 10 moults—for a juvenile crab to reach sexual maturity (120 mm carapace width) after which males moult annually. Males do not effectively breed much below about 140 mm carapace width, and breeding success improves with size. It takes 12 to 16 moults and 3 to 4 years from time of settlement for a crab to reach legal size after which crabs usually moult only once more. Larger males frequently skip-moult. Females grow more slowly than males because most of their energy is devoted to egg-production rather than growth and often skip-moult once they become sexually mature (100 mm carapace width). Dungeness crabs live about six to nine years. Males generally do not grow larger than 215 mm, and females 165 mm carapace width (Dunham et al., 2011).

2.2 Ecosystem Interactions for Dungeness Crab

Dungeness crab occupy ecological niches in both marine and estuarine waters and are ecologically important as both prey and predator at all life stages. The planktonic zoea and megalopae larval stages are preyed upon by many fish, including Coho and Chinook salmon, whales, and other predators. Juvenile crabs are consumed by demersal fish, such as flatfish like the starry flounder, English sole, and rock sole. Crabs and birds also eat juvenile Dungeness crabs. Adults are consumed by octopi, lingcod, cabezon, wolf-eels, rockfish, halibut, dogfish, sculpin, sturgeon, crabs, and sea otters.

Dungeness crab zoea larvae are believed to feed offshore in the water column on zooplankton and phytoplankton. Juvenile crabs actively forage in littoral habitats where they consume bivalves (clams and mussels), small fish, molluscs, shrimp, and other crabs. Adult crabs are often found in sandy/silty substrates in bays and estuaries where they prey on bivalves, crustaceans, worms, and fish. Dungeness crabs often remain buried during the day and become more active at night.

Climate change affects Dungeness crab populations in several ways. One such consequence of climate change is warmer ocean temperatures which may influence egg development and mortality (D. Curtis, personal communication, December 2019). Eggs generally develop faster in warmer water, but experience higher mortality. Warm currents, such as those produced from El Niño events, bring non-native predators like mackerel to BC, which feed on zooplankton that includes crab larvae. A warmer ocean is also likely to alter the timing of moulting periods. Ocean acidification, through the burning of fossil fuels, also poses a significant threat to crustaceans. Ocean acidification occurs through seawater absorption of atmospheric carbon dioxide and results in a significant reduction in Dungeness crab larval survival, delays development in early life stages, and may impede the ability of crustaceans to produce calcareous structures (Bednarsek et al., 2020).

Warmer ocean temperatures can lead to an increased frequency of algal blooms. Domoic acid contamination in Dungeness and Red Rock crab has been detected in British Columbia in recent years. Domoic acid is a neurotoxin caused by a marine diatom (*Pseudo-nitzschia*) and can cause seizures, coma, and death if consumed by humans or animals. For more information, see <https://inspection.canada.ca/food-safety-for-consumers/fact-sheets/specific-products-and-risks/fish-and-seafood/toxins-in-shellfish/eng/1332275144981/1332275222849>.

2.3 Stock Assessment & Research

Dungeness crab stock assessment is done by DFO, Service Providers hired by Industry, the Area A Crab Association, and several First Nation groups. Commercial style traps with closed escape ports are set on ground lines or attached to single floats at depths ranging between 5 and 100 m. Biological data collected from crabs caught in traps include: sex, shell condition, injuries, mating marks, and size. The catch per unit effort (CPUE) can be determined when standardized fishing gear are used.

DFO conducts Dungeness Crab stock assessment surveys in Areas I and J on the Fraser River delta during spring and fall months before and after the commercial fishery takes place to improve understanding about stock composition and abundance, moult timing, injury rates, and diseases. Such survey work has been conducted regularly since the early 1990s. This unique long-term data time series, from one of BC's most important Dungeness crab fishing grounds, provides valuable insights into crab population dynamics. Historically, DFO also conducted research surveys during the 1990s out of Tofino and on an ad hoc basis in other remote locations. In other areas of the coast the commercial biosampling program is the primary method used to collect crab data.

Service providers hired by the commercial fleet collect fishery dependent biological sampling data from Areas I and J and fisheries dependent and independent data from Areas A, B, E, G, and H. A manual for surveying Dungeness Crab in BC can be found at <https://waves-vagues.dfo-mpo.gc.ca/Library/345188.pdf>. Biological data can be requested from the Shellfish Data Unit at PACSDU@dfo-mpo.gc.ca.

Biological data is also collected by harvesters in Area A during years of an established soft-shell sampling program. Upon approved request, harvesters, in cooperation with the Department and their service provider, collect data between February 15 and August 1st to determine the timing of

the male moult and the corresponding soft shell period. This sampling program maximizes harvesting opportunity while protecting vulnerable soft crab. The Area A Association, DFO Stock Assessment, and Fisheries Management staff have been involved with developing this program and interpreting the information collected. More recently, the Area A sampling program has utilized designated observers to verify crab shell hardness. Analysis of this information helps to ensure that no major detrimental biological fishery changes are occurring.

Several First Nations conduct their own crab stock assessment surveys in their traditional territories in conjunction with FSC fishing. Current studies include addressing conservation concerns, understanding impacts of commercial and recreational fishing, and determining the timing of soft-shell periods.

The Department remains interested in co-developing research priorities and interests with First Nations, Recreational, and Commercial representatives.

For more information on anything covered in this section please contact DFO Science and Fisheries Management Staff, (see Appendix 8).

2.4 Stock Scenarios

Individual Dungeness crab populations are sustained by larvae originating over a large geographical area. A stock/recruitment relationship is difficult to demonstrate considering the wide range of potential donors to the larval pool. Crab populations and recruitment are generally controlled by marine environmental conditions and therefore naturally experience year-to-year fluctuations, but are generally cyclical over time with periods of higher abundance followed by periods of lower abundance.

2.5 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 FSC fishing: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm>

In general, the precautionary approach in fisheries management requires caution when scientific knowledge is uncertain. The absence of adequate scientific information should not result in postponed 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 – delimited by an upper stock reference point and a limit reference point;
- 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.

Work is currently underway to determine precautionary approach components for CMAs I and J, and the applicability of the methodology to other CMAs and/or the coast.

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 in the Healthy Zone, 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 letting the stock recover out of the Critical Zone within a reasonable timeframe:

<http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm>

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019 and include new authorities to amend the *Fishery (General) Regulations* and requirements to maintain major fish stocks at sustainable levels, and develop and implement rebuilding plans for stocks that have declined to their critical zone. The proposed regulatory amendments draw upon the 2013 Guidance for the development of rebuilding plans under the Precautionary Approach Framework: Growing stocks out of the critical zone.

Information on the regulatory proposal regarding fish stocks and rebuilding plans is available at:

<https://www.dfo-mpo.gc.ca/fisheries-peches/consultation/consult-maj-pri-eng.html>

The regulatory proposal was consulted on from December 2018 to March 2019 with pre-publication of the proposed regulation in Canada Gazette Part I on January 2, 2021. The regulation will come into effect upon publication in Canada Gazette Part II. The publication is available at: <https://gazette.gc.ca/rp-pr/p1/2021/2021-01-02/html/reg1-eng.html>

3 INDIGENOUS KNOWLEDGE

In 2019, the *Fisheries Act* was amended to include provisions for where the Minister may, or shall consider Indigenous knowledge (IK) in making decisions pertaining to fisheries, fish and fish habitat, as well as provisions for the additional protection of that knowledge when shared in confidence.

The term Indigenous knowledge may not be universally used, and other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge, or Aboriginal Traditional Knowledge, which all convey similar concepts, may be used instead.

Indigenous knowledge can inform and fill knowledge gaps related to the health of fish stocks, and aid decision making related to fisheries management. The Government of Canada and the scientific community acknowledge the need to access and incorporate IK in meaningful and respectful ways. Work is underway at a National level to develop processes for how DFO receives Indigenous

knowledge and applies it to inform decision making. This will include consideration of how to engage knowledge holders, and how to ensure that the knowledge can be shared and considered in a mutually acceptable manner by both knowledge holders and the broader community of First Nations, stakeholders, managers, and policy makers involved in the fisheries. This work will be an iterative process done in collaboration with First Nations, Indigenous groups and knowledge holders, to ensure protection of the knowledge provided.

4 ECONOMICS OF THE FISHERY

The intent of this section is to provide a socio-economic context of the crab by trap fisheries in BC. An overview of commercial, recreational, and Indigenous sectors of the fishery is provided.

4.1 Commercial

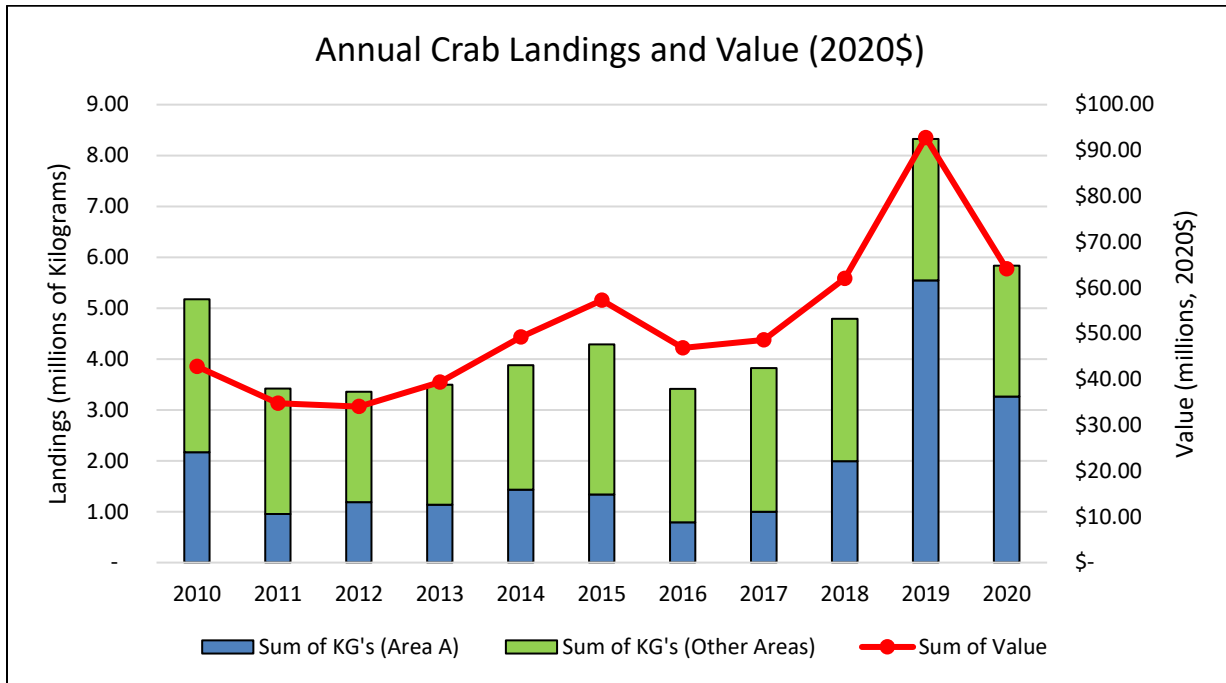
British Columbia's commercial crab fishery is one of the most important fisheries, accounting for over 18% of the wholesale value of the province's wild shellfish products in 2019¹ and supporting a sizeable share of the province's wild shellfish processing employment. While a few species of crab are caught along British Columbia's coast, most of the crabs caught (99.9%) are Dungeness crabs.

Between 2012 and 2015, the trend in this fishery was generally one of increasing volume and prices, resulting in increasing landed values on a year-over-year basis. This was likely caused by high demand from China which created optimism in the industry and perpetuated strong participation and low diversification into other fisheries by licence holders. In 2016, landings declined from its 2015 peak before beginning their upward trend in subsequent years. This resulted in 2019 having the highest landings and value in the last ten years (Figure 1). In 2020, both landed values and landed kilograms of crab declined.

Catch and landed value for the last 11 years is shown in Figure 1, with landed value adjusted for inflation reported in 2020 constant Canadian dollars. The 2020 coast-wide commercial landed value is estimated to be \$64.2M which is a slight increase from the previous five year average. Between the years of 2010-2015, landed values have been partially buoyed by increases in the average prices, which hit several highs before plateauing in the latter half of the decade. Nonetheless, landed value continued to climb due to the increase in landed kilograms, which increased by 74% to a decade high 8.3 million kilograms harvested in 2019.

¹ Internal figures calculated using unpublished 2020 BC Seafood Year In Review.

Figure 1: Annual Crab Landings and Value. Total landed value is an estimate calculated from harvester logbook and sales slip data. Source: Harvester logbook and sales slip data for years 2010-2020.



In terms of geographical distribution of crab landings, Area A has historically dominated crab landings in BC prior to 2010. For example, in 2007 and 2008, approximately 61% of the total coast-wide crab landings were attributable to this area on average. However, between 2009 and 2018, only 34% of the average total coast-wide crab landings were attributable to this area. In 2019 and 2020, harvest in Area A rebounded to represent to 67% and 56% of total coast-wide catch, respectively.

Participation levels in the crab fishery is high. Approximately 91% of licenced vessels participated in the fishery in 2020 (196 out of 216 licensed vessels). Additionally, it has been found that nearly 87% of crab vessels participate strictly in the crab fishery only, showing very little diversification in the fishery².

Viability and Market Trends

Figures 2 and 3 present the trends of monthly average landings by area and coast-wide average monthly price between 2010 and 2014, and between 2015 and 2020, respectively. Although it varied year-to-year, between 2010 and 2014 the majority of crab harvest occurred in June and July. A similar trend is seen in more recent years; however, there has been a shift in harvest patterns with more landings occurring outside of these months, particularly in late spring and early fall, which allows harvesters to sell their catch when prices are higher. Typically, the average price is higher in the early part of the year, with a reduction taking place in early summer (May-June) as

² Source: Diversification Tables DFO (Year 2019).

large quantities of crab hit the market. Price often recovers in late summer (August-September) and dips again in late fall and winter.

Between the two time periods, the 5-year-average monthly price increased significantly. Over the two periods, there was a 17% increase in price on average (i.e. the average price between 2015 to 2020 is 17% greater than the average between 2010 to 2014). As noted previously, this higher price seems to be buoying the landed value of the fishery, especially when considering the lower harvest volumes in recent years, with the exception of 2019 which was a decade high harvest.

Figure 2

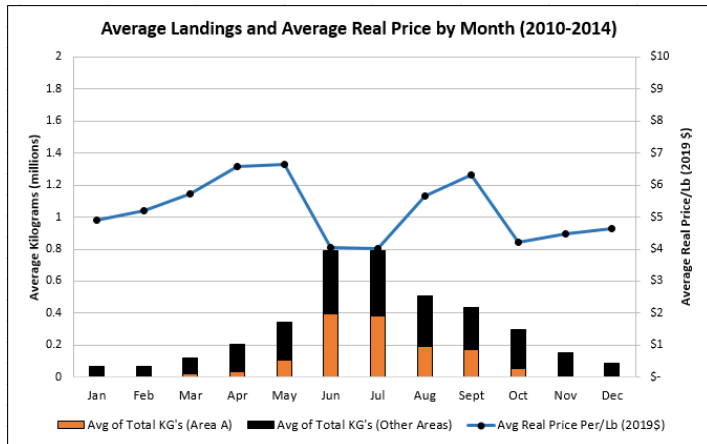
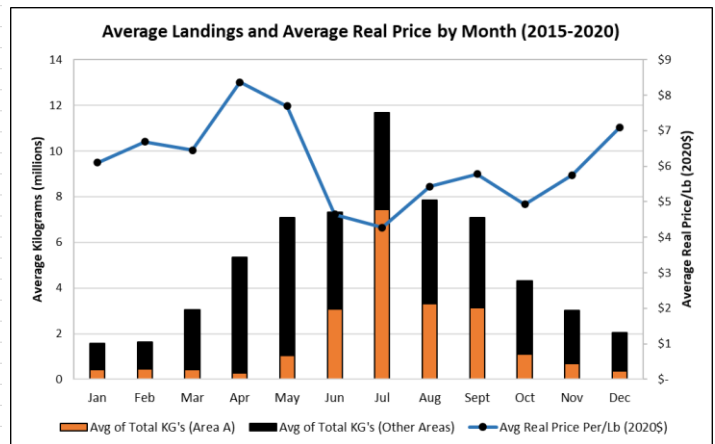


Figure 3



Source: Harvester logbook and sales slip data, years 2010-2020.

The BC Fish Processing Employment³ reports that wild shellfish processing employment contributed 526 jobs in 2016. A 2010 study of the economics of BC’s crab fishery reports that 43% of wild shellfish processing employment is related to crab (although a more recent estimate is not available)³. Based on estimates presented in GSGislason and Associates (2017), this processing labour would result in approximately \$2.6M in wages.⁴

In addition to supporting commercial fisheries and seafood processing employment, the crab fishery in British Columbia significantly contributes to provincial exports. In 2020, the value of crab exports was \$187.2M, which represented over 14% of all BC seafood exports⁵. A decade-high quantity of crabs were harvested in 2020. However, the value of crab exports decreased by 10%, compared to 2019. This implies that the price of crabs decreased in 2020, likely driven by worldwide stay at home orders due to COVID-19.

Figure 4 illustrates the export volume and average price of all crab exports from BC from 2010-2020. Starting in 2010, the average real price of crab exports climbed steadily starting from nearly \$6 per pound to just over \$11 per pound in 2016. Afterwards, from 2017 to 2020, the quantity of

³ British Columbia Fish Processing Employment (2016), (31/Aug/2018), p. 6

⁴ GSGislason & Associates (2017) estimates that the wages associated with crab processing is around \$0.45 per kilogram. Applying this to the estimate for 2020 landings yields about \$2.6M in processing wages.

⁵ Statistics Canada (EXIM) Data.

crab exports steadily increased, while the real price of crab exports decreased. By 2020, the real price of crab exports was \$7.50 per pound, 32% less than in 2016.

Figure 4: Quantity and Price of All Crab Exports by Year. (Source: Statistics Canada (EXIM) data.)

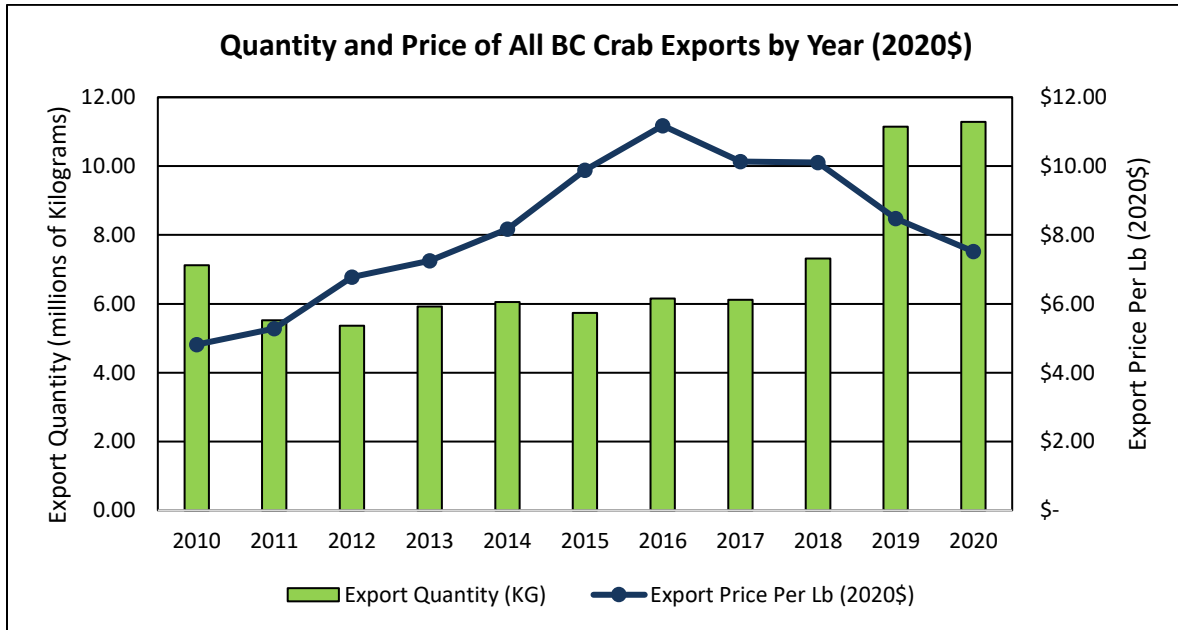
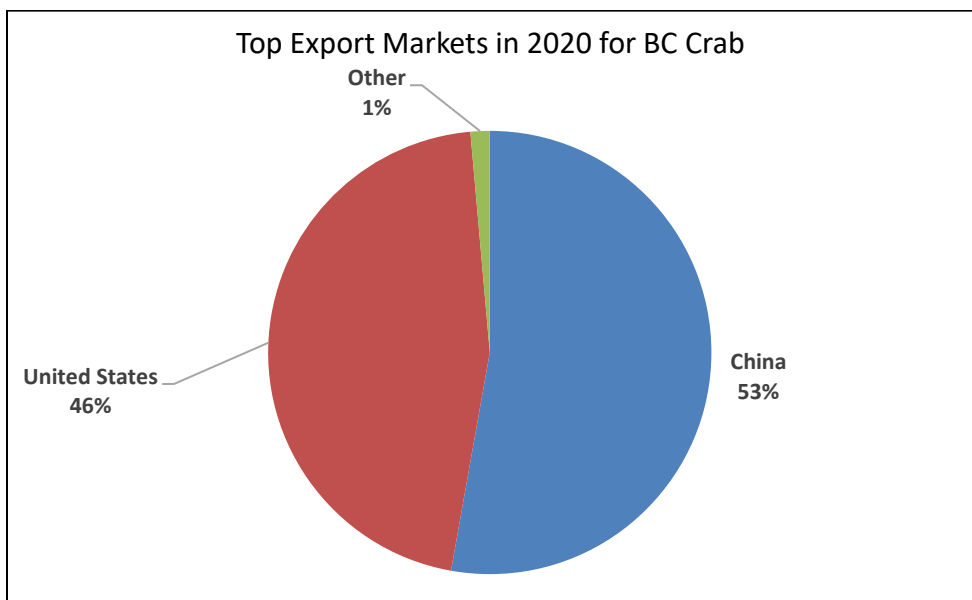


Figure 5 shows the distribution of crab exports by quantity from BC to its biggest export markets. Historically, the top international markets for BC crab exports have been China and the United States. Both these countries account for around 99% of BC’s crab exports. Other countries that import BC crab include: Hong Kong, Taiwan, Singapore, Netherlands and Japan.

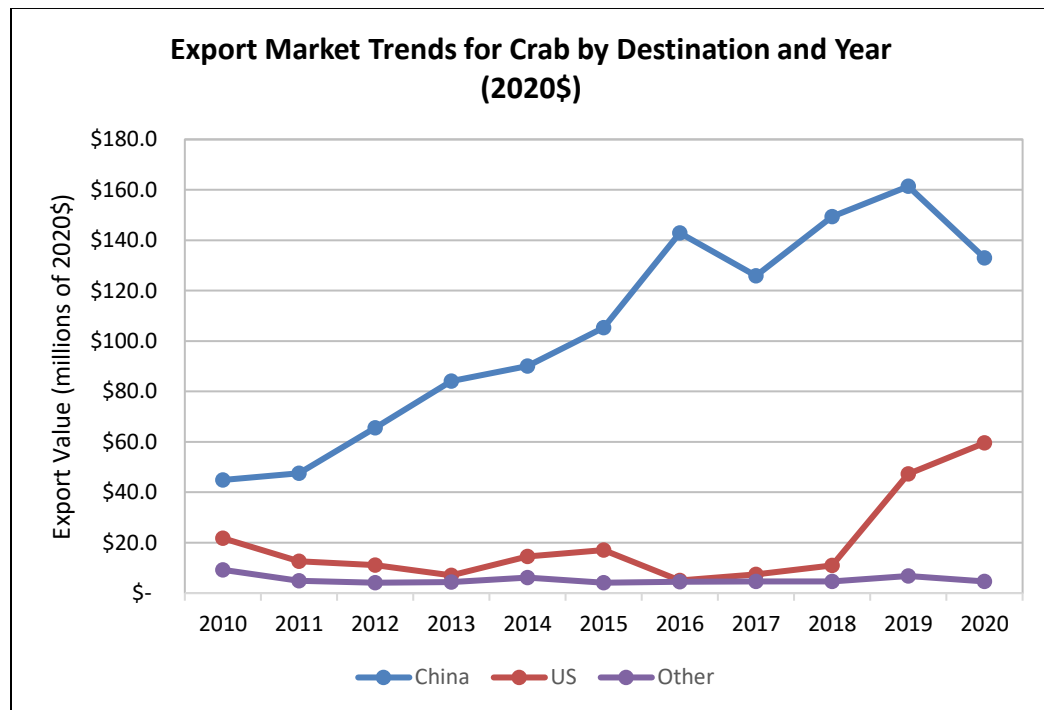
Figure 5: Top Export Markets in 2020 for BC Crab. (Source: Statistics Canada (EXIM) Data)



Despite having a trading partner directly to the south, exports of BC crab to the Chinese market have been growing over the past decade, likely due to demand from China’s growing middle class during this time frame. As such, the implicit price that exporters were able to fetch for BC crab was nearly double when exporting to China compared to the United States in 2020.

Figure 6 below shows the export market trends for crab by value. In 2016, 94% of BC’s crab exports were sold to China (by total value in dollars). However, in recent years, BC’s exports have been shifting back towards the United States. By 2020, 27.5% of exports were to the United States and 70.5% to China. It remains to be seen whether or not this trend will continue.

Figure 6: Export Markets for Crab by Destination and Year. (Source: Statistics Canada (EXIM) data.)



4.2 Recreational

Recreational fishing may occur to provide food for personal use, as a leisure activity, or both. The recreational community includes local residents, multi-species charter operators and lodges, and visiting anglers and boaters. In the 2020/2021 recreational angling season, 238,600 anglers were licensed to fish in BC’s tidal waters recreational fishery. Most (90%) were BC residents, with the remainder being Canadians from outside BC. Due to COVID-19, no licences were sold to visitors outside of Canada. These activities provide a range of social, cultural, and health benefits to the participants as well as contribute directly and indirectly to economic activity.⁶

⁶ Survey of Recreational Fishing in Canada, 2015, DFO, p. 16.

The National Survey of Recreational Fishing in Canada⁷, last conducted in 2015, provides an estimate of individual expenditures and major purchases for recreational fishing. Typically, BC's tidal water recreational fishery has been the third largest recreational fishery in Canada in terms of direct expenditures and major purchases⁸.

Resident anglers, who make up the majority of anglers in BC's tidal waters, had the largest expenditures at \$443 million (2020\$) in 2015 with non-resident direct expenditures (including fishing packages) and major purchases totalling \$159 million (2020\$). Expenditures by non-residents add money to the provincial economy, beyond the \$159 million directly attributable to their fishing experience⁹.

While opportunities for recreational fishing in BC's tidal waters attract international anglers¹⁰, they are coming in smaller numbers (see Figure 7), even as the number of resident anglers remained relatively stable until recent years¹¹. The 2019/20 recreational fishing season saw a 30% decline in licences sold to resident anglers, but a 55% increase in licences sold to non-resident anglers. In 2020/21, with COVID-19 restrictions, the number of licences sold to non-resident anglers decreased by 71% as no licences were sold to visitors outside of Canada. This resulted in a small uptake (7%) of licences sold to resident anglers. Recreational fishing continues to be important to the BC economy, but the rate of growth is slowing. In real terms, total direct expenditures and major purchases grew by nearly 15% from 2000 to 2005, increased by only 1% from 2005 to 2010, and decreased by 26% from 2010 to 2015¹². This slowdown is due mainly to a drop in expenditures by international anglers, which fell by 48% between 2005 and 2010, and an additional 12% decrease from 2010 to 2015. Expenditures by resident anglers, on the other hand, increased by 17% between 2005 and 2010, but decreased by 32% from 2010 to 2015.

⁷ Fisheries & Oceans Canada, multiple years.

⁸ Based on the Survey of Recreational Fishing in Canada, multiple years.

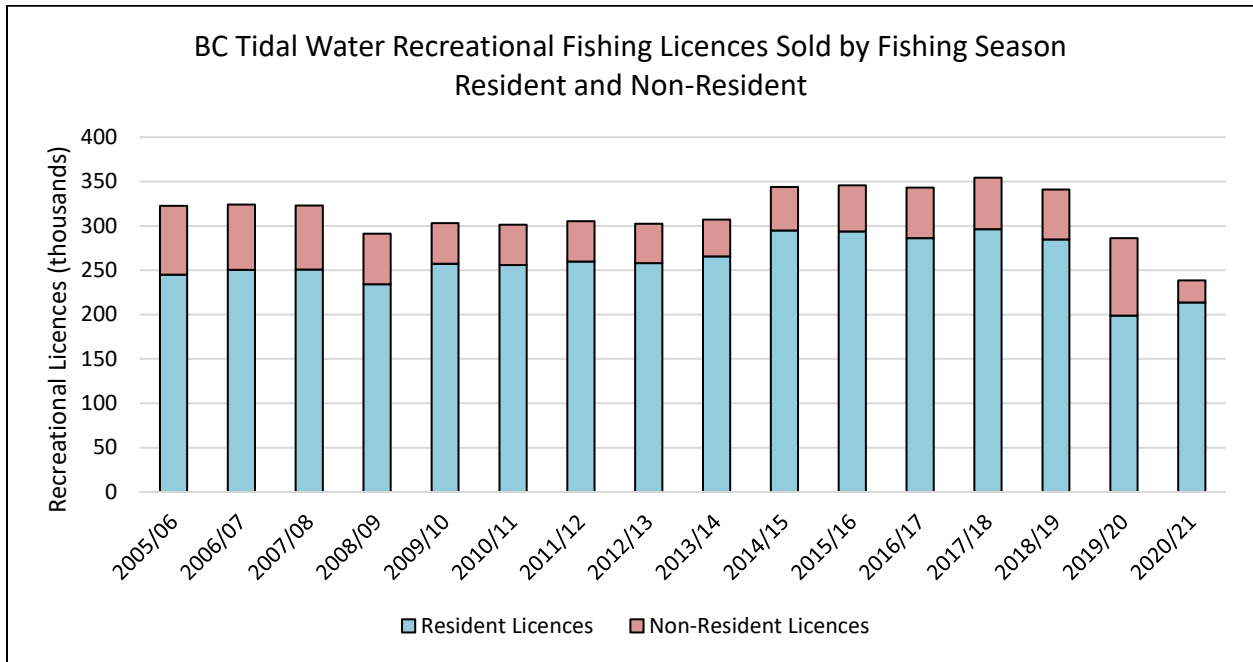
⁹ British Columbia's Fisheries and Aquaculture Sector (2007) reports that non-resident participants in recreational tidal water fishing also spend money on, for example, shopping, cultural events and attractions (such as museums and the theatre), and sightseeing at locations other than where they go fishing.

¹⁰ For example, 47% of international anglers reported that had there not been tidal water fishing opportunities they would not have chosen British Columbia as their travel destination (Survey of Recreational Fishing in Canada, 2010).

¹¹ Note that while the graph shows that nearly 300,000 licences were sold in 2011/12, not all of these were annual licences. Many were licences for 1-5 days.

¹² Growth rates reported in this section are real growth rates based on expenditures adjusted to account for inflation, measured in 2020 constant dollars.

Figure 7: BC Tidal Water Recreational Fishing Licences Sold by Fishing Season: Resident and Non-Resident. Note: Data for 2020/21 is preliminary and should be treated as such. (Source: DFO Internal Recreational Licensing data.)



Most of the direct expenditures, major purchases, and package expenditures were attributable to salmon fishing¹³ but interest in shellfish has increased (DFO 2015). The Survey of Recreational Fishing in Canada shows that fishing days spent on recreational shellfish harvesting increased by 13% from 2005 to 2010.

4.3 First Nation Communal Commercial Access

Two DFO programs, the Allocation Transfer Program (ATP) and Pacific Integrated Commercial Fishery Initiative (PICFI), use relinquished commercial licence eligibilities from fish harvesters on a voluntary basis to re-issue access to eligible First Nation organizations as communal commercial licences.

As a result of these programs, there are currently 34 communal commercial crab by trap licence eligibilities to provide economic opportunity to First Nations through participation in the commercial fishery.

For more information on the Aboriginal Fisheries Strategy (AFS) ATP, contact the resource manager listed in Appendix 8 or see the Internet at:

<https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/afs-srapa-eng.html>

More information on the PICFI is available on the Internet at:

¹³ Based on analysis of the 2015 data.

<http://www.pac.dfo-mpo.gc.ca/fm-gp/picfi-ipcip/index-eng.html>

Five Nations Right-Based Sale Fishery:

For more information, see Section 1.3.1 and Appendices 1 and 3 (First Nation Harvest Plan and Commercial Harvest Plan).

5 MANAGEMENT ISSUES

The following section identifies emerging issues which may impact the management measures in place for the crab by trap fishery.

5.1 Conservation and Sustainability

Improved understanding of the biology related to crab recruitment, growth, moulting, and migration is required to better understand and manage the impacts of crab fishing. Biological sampling by the commercial fisheries sector will continue in all crab areas. For more information please refer to the Biosampling annex in Appendix 9.

There is a concern that undersized, female and soft-shell crab are being removed through either illegal harvests or incidental mortality due to intensive fishing. Due to increased injury and mortality, the capture and handling of undersized, female, and soft-shell crab raises conservation and sustainability concerns. Illegal crab trap gear continues to be a concern. Crab traps having undersized, missing, or closed escape rings contribute to higher undersized, female, and soft-shell mortalities. If lost, these traps can continue to fish until the rot cord or the structure deteriorates or becomes buried in the substrate. Fishing in excess of trap allocations also threatens the sustainability of the resource and creates access issues for other harvesters.

Managers are concerned that discrepancies in the application of conservation management measures between different user groups (Commercial, Recreational, and First Nations Food, Social, and Ceremonial) may result in localized impacts to stock productivity. Therefore, in 2018 the Department sought input from all users on specific conservation issues and possible initiatives to support a more effectively managed fishery for conservation and sustainability. It is anticipated the results of the First Nation and recreational consultation will be available and incorporated into First Nation fishing plans and recreational regulations. For more information, please see Appendix 1 and 2 for changes in 2022/2023.

5.2 Sea Otters

For more than a decade there have been reports of sea otter impacting crab and other invertebrate populations along the west coast of Vancouver Island. In 2009, Sea Otters were down listed from threatened to a species of special concern. For more information on their status and management please visit the Species at Risk public registry <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

5.3 Aquatic Invasive Species

Green crab may pose a serious threat to estuarine and marine ecosystems on the West Coast of North America as they are voracious predators feeding on a variety of intertidal animals, including oysters, mussels, clams and juvenile crabs. Green crabs are such efficient predators that they out-compete native crab species for food. For more information go to: <http://www.dfo-mpo.gc.ca/species-especes/ais-eae/index-eng.html>. To see the most current confirmed sightings map, you can visit the UBC European Green Crab Monitoring Network at <http://www.sogdatacentre.ca/biota/aquatic-invasive-species>.

5.4 Social, Cultural and Economic Issues

5.4.1 First Nations

The Department continues to receive requests from First Nations to improve food, social, and ceremonial (FSC) access, using management measures such as non-commercial and FSC-exclusive harvest areas. However, some First Nations have limited catch and effort information on FSC fishing, which remains an issue when assessing these requests. Some information on FSC harvesting is provided to the Department through various catch monitoring programs.

The Department is concerned about unreported and unauthorized fishing and selling activities, which contradict conditions set out in FSC licences, and is concerned about the impact this may have on the resource, particularly in Areas I and J.

In 2018, the Department requested input from First Nations about the implementation of a number of conservation management measures across all fisheries, including mandatory escape rings, release of females, marking of holding cages, rot cord and the banning of night setting and hauling in the southern Strait of Georgia and Fraser River areas.

Some First Nations are concerned about the implementation of regulatory changes that may impact their priority FSC fishing opportunities, such as trap limits and rules around the use of commercial fishing gear. While recognizing that First Nations fishing for FSC purposes is the first priority after conservation, potential accommodations to address conservation concerns will include the implementation of some conservation measures in 2022, continued engagement on remaining conservation measures in some areas, FSC “best practices” educational brochures distributed by First Nations to their membership, and development of a supplemental licence to authorize activities such as nighttime fishing when requested (see Appendix 1).

First Nations have also raised concerns about ongoing coastwide issues of gear theft and vandalism, as well as instances of gear conflict. Commercial and recreational crab harvesters are reminded to keep crab traps and floats away from First Nation and coastal communities. Harvesters that observe illegal activity are encouraged to call the Observe, Record, Report hotline at 1-800-465-4336. This and other important contacts can be found in Appendix 8.

5.4.2 Recreational

The Department has received a number of requests from the Sport Fishing Advisory Board (SFAB) for non-commercial harvest areas. The stated goal of these proposed closures is to improve First Nation FSC and recreational access to crabs in those areas where crab resources are highly utilized by all stakeholders. However, limited catch and effort information on recreational crab harvest remains an issue when assessing these requests and the Department is exploring other options such as voluntary commercial change and/or reduction in harvesting (best management practices) for improving recreational crab harvest catch rates in some areas. Some information on recreational crab harvesting is acquired through iREC, (a mandatory on-line reporting program for all licenced recreational harvesters). However, estimates from iREC are provided at a large scale and can be highly variable. In less remote areas, some crab information is gathered during dockside creel surveys; however these surveys are more commonly designed to gather salmon, halibut, and rockfish information and, due to lack of funds, focus less on shellfish harvesting activities. Recreational estimates are also acquired by a national survey of recreational fishing conducted every five years.

From 2009 to 2012 buoy count surveys were conducted in key areas of the south coast. However, it was proven difficult to use the buoy count survey data in estimating catch due to variability between seasons, weekends versus weekdays, and weather.

In 2014, recreational boaters raised safety concerns with commercial harvesters fishing among anchored pleasure boats. In 2015 the SFAB requested that the Department review and consider the implementation of a larger legal crab size limit for the commercial fleet. In 2018, at the Crab Sectoral Committee (CSC), a working group of commercial and recreational representatives was formed to increase understanding of the implications.

In 2015, the Department implemented a number of voluntary seasonal commercial exclusion zones to improve First Nation and recreational access to crab. The Department continues to inform commercial harvesters of the existence of these closures. More information on Best Management Practices can be found in Section 2.16 of Appendix 3: Commercial Harvest Plan.

Floating line continues to be a navigational risk and a hazard to marine mammals. Household plastic jugs, bottles, and Styrofoam can be hard to see, difficult to print on, and can also deteriorate and sink. Absence of buoys marked with a phone number makes it difficult for the Conservation and Protection (C&P) staff to contact the owner or for harvesters to return lost gear. During the 2021/22 season, DFO and the SFAB discussed buoy requirements to address the types of floats used by recreational harvesters. Voluntary buoy requirements have been introduced for 2022/23, which will be mandatory in 2023/24 (see Appendix 2).

In 2019, after consulting with the SFAB, the Department implemented a number of conservation management measures in the recreational crab fishery, including mandatory escape rings, non-retention of female king crab and the banning of night setting and hauling of gear in the southern Strait of Georgia and Fraser River areas. These measures continue to be in place.

In 2021, after consulting with the SFAB, the Department implemented 15 year-round closures and two seasonal closures in the Central Coast to support FSC access as a result of the Central Coast Collaborative Crab Process (CCCCMP). For more information, see Appendix 2: Recreational Harvest Plan.

5.4.3 Commercial

The Department and commercial harvesters remain concerned about unauthorized fishing activities, particularly in Areas I and J. This includes the selling of illegal crab that is either undersized, female and/or having a soft-shell. These activities affect the sustainability of the resource, and impacts market access and prices.

Illegal sales that involve crab harvested from dioxin closure areas (particularly Howe Sound), also remain a concern as the selling and consumption of contaminated crab is both an economic and public health issue. A request to review the crab closure in Wainwright Basin due to dioxin concerns has been received. Crabs from the basin have been collected and Health Canada advice has been requested for that area as well in 2021.

The commercial sector is concerned about the implementation of regulatory changes without extensive consultation and/or scientific study. This includes the implementation of additional measures to support conservation concerns such as hanging bait bans and soft-shell closures, and measures such as increasing the legal commercial size limit of crab or commercial fishery closures to improve FSC and Recreational access.

The Department and many harvesters also remain concerned about high commercial competition amongst active licence holders. Area re-selection changes were significant for the 2016 to 2019 period and have resulted in an unprecedented number of commercial vessels fishing in Areas B, E-Tofino and Area H. These changes are largely due to reductions in commercial catch success in Areas A and I. However, the area selection for the 2020-2023 period have helped to mitigate these concerns by allowing commercial harvesters to move from areas of high effort and competition to lesser utilized areas.

The Department continues to conduct educational outreach to improve harvester compliance with commercial crab fishery monitoring programs. For 2022/23, the Department is focusing on reducing data gaps, improving radio frequency identification (RFID) chip scanning, and improving logbook accuracy, including development of electronic logs. Improved compliance with all of these components of the monitoring programs is needed for the proper assessment, management, and control of the crab fishery. If compliance is not improved, the Department may implement alternative measures, such as video monitoring for all licence areas or reduced fishing opportunities.

The Department continues to see recurrent low compliance rates in logbook reporting in the Area J commercial crab fishery; fishing over the international US boundary; failing to scan RFID chips on traps; and exceeding trap limits in place in the fishery. Following consultations in 2021/22, the Department has implemented mandatory video monitoring in addition to the existing management measures in Area J, beginning in the 2022/23 season to address these issues.

5.4.4 International

The US share of the Canadian crab export market has rapidly declined over the past few years and the exporting of crab to China has significantly increased. This change is likely to do with increased Chinese demand, resulting in higher prices for Dungeness crab. Historically, when crab destined for the United States dominated the export market, concerns were raised that legal Canadian crab, considered undersized by US domestic fishing regulations, could affect US market demand for Canadian crab.

5.5 Compliance

The Department's Conservation and Protection (C&P) program is concerned about the following enforcement issues:

- The increasing use of commercial vessels and gear outside of the commercial fishing season;
- Illegal crab sales and monitoring of non-daylight fishing activities;
- The effectiveness of electronic monitoring (EM) in commercial licence areas B through J, (see Appendix 9) to monitor fishing in closed areas, trap allocations, and trap haul restrictions. EM effectiveness has been compromised by data gaps, trap retrieval without scanning radio frequency identification (RFID) chips, and utilization of RFID chips in excess of allowed number of chips.
- For other enforcement issues please refer to the Compliance Plan in Section 10.

5.6 National Fishery Monitoring and Catch Reporting

Robust fishery monitoring information is essential for stock assessment and to effectively implement management measures such as target and bycatch limits, quotas and closed areas. Fishery monitoring information is also needed to support the long-term sustainable use of fish resources for Food, Social, and Ceremonial and other Indigenous fisheries, commercial fisheries, recreational fisheries, and to support market access for Canadian fish products.

Following multi-sectoral consultations, DFO released the national Fishery Monitoring Policy in 2019, replacing the regional "Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries" (2012). The Fishery Monitoring Policy seeks to provide dependable, timely and accessible fishery information through application of a common set of procedural steps used to establish fishery monitoring requirements across fisheries. Policy principles include respecting Indigenous and Treaty rights, linkage of monitoring requirements to the degree of risk and complexity of fisheries, linkage of monitoring programs to fishery and policy objectives while accounting for cost-effectiveness and practicality of implementation, and shared accountability and responsibility between DFO, Indigenous groups and stakeholders.

To ensure consistent national application of the Fishery Monitoring Policy, further guidance is provided through the "Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy". Fisheries are first prioritized for assessment through collaboration with Indigenous groups and Stakeholders. Risk and data quality assessments are then conducted on

priority stocks and associated fisheries and monitoring programs. Next, monitoring objectives are set in alignment with the Fishery Monitoring Policy, followed by specifying monitoring requirements and then monitoring programs are operationalized. Finally, a review and evaluation of the fishery monitoring programs against the monitoring objectives will be conducted and reported on.

The Fishery Monitoring Policy is part of DFO's Sustainable Fisheries Framework and is available at:

<https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm>

The "Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy" is available at:

<https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-ppm-mise-en-oeuvre-eng.htm>

In cases where assessment of monitoring programs identifies a gap between the current and target level of monitoring, discussions will be held between DFO Indigenous groups and stakeholders to identify options to address the monitoring gap, and the feasibility of these options (e.g. cost, technical considerations, etc.). To support Fishery Monitoring Policy principles, a collaborative approach is required.

Where monitoring options are determined to be feasible, the monitoring and reporting regime will be revised to incorporate these options, providing resource managers with sufficient information to meet Fishery Monitoring Policy objectives. Where monitoring options are not feasible, alternative management approaches are required to reduce the risk posed by the fishery. If there is no gap between the current and target level of monitoring, the management approach will not require any change.

The Department has drafted the risk assessment for the coastwide recreational and FSC Crab fisheries. A summary and key findings from these draft risk assessments for this fishery are highlighted in Appendix 12. Comments on the findings from all resource users are welcome and the risk assessment for the Recreational or FSC fisheries are available on request. Comments and requests for the full risk assessments can be made to Dillon Buerk (Dillon.Buerk@dfo-mpo.gc.ca). Comments on the draft risk assessments will be incorporated where possible. A risk assessment for the commercial crab fishery will be undertaken in the future.

To discuss the national Fishery Monitoring Policy with regional staff, please contact the Regional Catch Monitoring Coordinator at (604) 666-1082. We welcome your feedback and questions, as your contributions and participation are valuable to the implementation of this national policy.

6 OBJECTIVES

Sections 6.1 to 6.3 outline the “longer term” objectives for this and other invertebrate fisheries in the Pacific Region. Section 6.4 describes the species-specific “shorter-term” objectives for the crab by trap fisheries.

6.1 National Objectives

DFO aims to:

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

6.2 Pacific Region Objectives

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

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

The objectives remain relevant today, particularly in light of national objectives for sustainable fisheries.

6.3 Crab by Trap Objectives

6.3.1 Conservation and Sustainability Objectives

6.3.1.1 To maintain crab productivity in areas and times where high levels of handling result in mortality of female, undersized and soft-shell crab.

Natural fluctuations in Dungeness crab populations do not allow for a steady state equilibrium harvest. Consequently fisheries are not currently managed to a total allowable catch (TAC). Conservation objectives have been met partially through maintenance of the reproductive potential of crab stocks using the fundamental goals of protecting female crab and only harvesting male crab

after they have had the opportunity to breed. The Department will continue to evaluate and consider the effectiveness of management rules such as seasonal closures, haul restrictions, and hanging bait bans that have been implemented in some crab management areas and excluded from other areas.

6.3.1.2 To maintain sustainability of the fishery through trap allocations.

Increased effort by the commercial fishery is a concern that is partially addressed through trap limits and vessel length restrictions. The intensive nature of the fishery may have significant negative impacts on stock productivity due to mortality associated with handling and releasing of female, undersize, and soft-shell crab. Increased effort in the commercial fishery led to questions around the sustainability and viability of commercial crab fishing. Trap limits came into effect May 1, 2000 to help address this problem. The objectives of trap limits are to reduce trap inventories, to reduce the abandonment, loss, and neglect of traps, to reduce congestion of the grounds, and to reduce overall effort. The Department will continue to consider trap reductions and haul restrictions in areas where effort and hauling frequency has increased.

The Department will continue to evaluate and consider further refinements to vessel and area trap allocations. Please refer to the commercial harvest plan in Appendix 3 for the most recent and proposed changes to commercial harvesting.

6.3.1.3 To obtain accurate catch records

Lack of compliance with catch log submission or inaccurate and fraudulent catch reporting creates problems with the analysis of catch data from the commercial crab fishery.

Fish slips and harvest log program standards will be maintained. The Department will also accept data submitted to the Department, (providing data delivery formats are maintained) from e-log technologies developed with their service provider. The national standard for e-logs has been finalized, and service providers are currently developing e-logs for the Pacific crab fishery.

6.3.1.4 To maintain fishery monitoring and catch reporting

The commercial crab fisheries occur in accordance to Fishery monitoring and catch reporting program standards (see Appendix 9 for rationale and standards).

6.3.2 Social, Cultural and Economic Objectives

DFO's objective is to continue to work collaboratively with the Crab Sectoral Committee to ensure sustainable fisheries and to collect input from all fishing sectors and First Nations in the annual development of the IFMP.

6.3.2.1 First Nations Objectives

DFO's objective is to continue to provide opportunities for First Nations to harvest fish for food, social and ceremonial purposes, in a manner consistent with the decision of the Supreme Court of Canada in *R. vs. Sparrow* and subsequent court decisions. For more information, see the internet at: <http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html>

Collaborative management strategies are also being developed through the Aboriginal Aquatic Resource Oceans Management Program, (AAROM), see internet at: <https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/aarom-pagrao/index-eng.html>

The Nisga'a, Tsawwassen, Maa-nulth and Tla'amin First Nation Treaties came into effect in 2000, 2009, 2011 and 2016 respectively. Under these Treaties, Fisheries Operation Guidelines (FOGs) set out the operational principles, procedures and guidelines needed to assist Canada, BC, and First Nations in implementing Fisheries Chapters of their respective treaties and managing Treaty fisheries on an annual basis. The FOGs provide guidance on how management decisions, with respect to treaty fisheries, will be made via the Joint Fisheries Committee (JFC), how abundance is estimated, biological and harvesting considerations, fisheries monitoring and catch reporting requirements, etc. Each year the JFC, established under each treaty, make recommendations to the Minister on the issuance of specific 'Harvest Documents' to licence the fisheries for Domestic (food, social and ceremonial) harvests.

More information on the Treaties can be found at: <http://www.BCtreaty.net/>

First Nations involvement in the commercial fishery is a shared goal between DFO and Indigenous people. First Nation participation in the commercial fisheries is partially addressed through the ATP and PICFI.

Options to resolve FSC crab harvest access requests will continue to be developed including recommendations for potential management change approval. For the period of this plan, the Department will continue to review and share details associated with First Nation and recreational requests to increase the commercial size limit of Dungeness crab, as well as other management options.

The Department will continue to develop catch monitoring programs and standards in collaboration with First Nations organizations.

The Department will continue:

- To discuss conservation, management and collaboration, reasonable FSC needs, and options to meet shared interests.
- To discuss the addition of trap limits to licence conditions as a measure to address concerns about commercial style vessels and gear being used to harvest crab for FSC purposes.
- To encourage First Nation representatives to share any issues or needs pertaining to FSC Crab fishing in their communal areas.

The Department has worked to create an environment within the advisory process in which First Nation representatives are welcome to express their concerns and opinions at the table and to establish working mechanisms in conjunction with the other fishing sectors to reduce conflict and mitigate issues. The Department will continue to collaborate with First Nations and other fishing sectors on efforts to improve the advisory process. Direct bilateral consultation between DFO and individual First Nations is also available upon request.

6.3.2.2 Recreational Objectives

DFO's objective is to affirm the social and economic importance of the recreational fishery, provide sustainable recreational harvesting opportunities as part of integrated management plans consistent with DFO's policies, to create an environment within the advisory process in which recreational fishing representatives are welcome to express their concerns and opinions at the table and to establish working mechanisms in conjunction with the other fishing sectors to reduce conflict and mitigate issues.

The document "Recreational Fisheries in Canada, An Operational Policy Framework" is available at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/op-pc-eng.htm>

To improve recreational fishery monitoring and to potentially assess crab access requests, some information on recreational crab harvesting is gathered during dockside creel surveys. Recreational estimates are also acquired by a national survey of recreational fishing conducted every five years.

To improve recreational fishery monitoring and catch reporting, the Internet recreational catch and effort reporting program (iREC) was made mandatory in April of 2013. In 2022, iREC will continue to randomly request, (via email) licence holder activity and catch information.

In 2015, the Department gained commercial support for a number of voluntary seasonal commercial exclusion zones to improve First Nation and recreational access to crab in a number of south coast high use areas, (for more information please refer to the Best Practices section of Appendix 3: Commercial Harvest Plan).

For the period of this plan, the Department will continue evaluate the effectiveness of voluntary commercial closures in Silva Bay, Lang Bay-Brew Bay, Savary Island, Tofino (southern Millar Channel), and Sooke (Otter Point).

For the period of this plan the Department will continue to review and share details associated with the First Nations and Recreational requests to increase the commercial size limit of Dungeness crab.

6.3.2.3 Commercial Objectives

DFO's objective is to continue to work collaboratively with the commercial industry on sustainable resource use and long-term economic viability of the crab seafood industry recognizing that commercial fisheries play a vital role in Canada's economy. This will include adapting to changing resource and market conditions and extracting optimal value from world markets.

Vessel safety is an objective shared between DFO, Transport Canada, Transportation Safety Board, and WorkSafe BC (Appendix 4). All parties acknowledge the role of vessel masters and crew in being responsible for their own decisions regarding fishing vessel operations. DFO's objective, in conjunction with other responsible agencies, is to adopt an affirmative action profile in respect of vessel safety considerations.

To reduce commercial effort and competition, which may have an impact on the resource, the Department will continue to consider licence and vessel trap stacking options. This opportunity

will continue to be available to licence areas B, E-Sooke, E-Tofino, E-Tofino outside option, G, H, and J in 2022/23.

For the period of this plan, management change requests from Area A, I and J will continue to be reviewed and consulted upon in order to improve commercial access to legal hard-shelled crab and to optimise the economic value of the fishery while maintaining sustainable resource use and reasonable First Nation FSC and recreational harvesting access.

6.4 Compliance Objectives

For the period of this plan, the Department's crab enforcement priorities will continue to be illegal sales investigations and the illegal use of commercial gear.

DFO's crab enforcement objectives, in conjunction with the monitoring and enforcement priorities in the Pacific Region, include:

- 1.) Enforcement of Licence Conditions, Regulations, and Orders
- 2.) Fairness and civility on grounds
- 3.) Timeliness of access to information for court
- 4.) Enforce / monitor US boundary and area closures
- 5.) Monitoring / enforcement of health and safety (i.e. Area contamination closures)
- 6.) Support outside agency investigation (CRA, RCMP, HRDC, etc.)

6.5 Ecosystem Objectives

DFO's objective is to use the Ecological Risk Assessment Framework drafted under the Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas to determine the level of risk and whether mitigation measures are required in any areas. Ecosystem objectives may also arise with initiatives under the *Oceans Act*. In the interim, it is a shared objective with the commercial fishery to avoid sponge reefs and cloud sponges in areas identified in the Commercial Harvest Plan (Appendix 3), including the Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs (Appendix 3: Section 5.2).

In addition to the above shared objective, the Department is also requiring all harvesters targeting crab, or utilizing other bottom contact fishing gear, to avoid the glass sponge reefs identified in the Strait of Georgia. Following an ecological risk assessment process in 2015, which included consultation with First Nations, industry and other stakeholders, these Strait of Georgia glass sponge reef areas are now closed to bottom contact fishing activity. A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas

Benthic ecosystems provide habitat, support food webs and are an important source of biodiversity. They also support many aquatic species that play an important social, cultural and economic role in the lives of many Canadians. It is imperative that these ecosystems are considered when managing oceans activities, including the harvest of fisheries resources. This includes the consideration of target species, non-target species, the ecosystems of which they are a part and the impact of fishing on these ecosystems when making management decisions. This is the basis of an ecosystem approach to fisheries management, which, along with a precautionary approach, is key to the Sustainable Fisheries Framework.

To avoid serious or irreversible harm to sensitive benthic habitat, species, and communities, and to otherwise address impacts to benthic habitat, communities and species, this policy follows a five (5) step process. Following these steps, ongoing fishing activities in historically fished areas will be managed to address impacts of fishing on sensitive benthic areas through existing processes, including the advisory processes in place for the given fishery. The management of proposed new fishing activities in frontier areas will be addressed through a separate procedure, also using these steps. For more information on this Policy, please visit the following web site: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/benthi-eng.htm>.

6.6 Other Species Concerns

6.6.1 Species at Risk Act

The *Species at Risk Act* (SARA) came into force in 2003 “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.”

SARA contains several prohibitions to protect species listed on Schedule 1 of SARA. Under Sections 32 and 33 of SARA, it is an offence to: 1) kill, harm, harass, capture or take an individual of a wildlife species listed as extirpated, endangered or threatened under SARA; 2) possess, collect, buy, sell or trade an individual (or any part or derivative of such an individual) of a wildlife species listed as extirpated, endangered or threatened under SARA; and 3) damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with SARA, to engage in an activity affecting the listed species or the residences of its individuals. Species listed as special concern are not included in these prohibitions. Section 58(1) contains provisions to prohibit the destruction of any part of the critical habitat of listed endangered or threatened species or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species in the wild in Canada. Critical habitat is the habitat necessary for the survival or recovery of a listed wildlife species and is identified in the recovery strategy or an action plan for the species.

To view the list of endangered, threatened, and special concern species currently listed under Schedule 1 of SARA, please visit: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

The process to list a wildlife species on Schedule 1 of SARA is initiated after an assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for that species is completed. The listing process formally begins when the Minister of Environment and Climate Change issues a response statement, detailing how he/she intends to proceed with the COSEWIC species designations. Response statements can be found at: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/response-statements.html#:~:text=Species%20at%20risk%20public%20registry%20Response%20statements%20A,the%20Status%20of%20Endangered%20Wildlife%20in%20Canada%20%28COSEWIC%29>.

SARA Listing process for Pacific Coast Feeding Group and Western Pacific Grey Whale populations

The Grey Whale is a medium- to large-sized baleen cetacean. As of 2017, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recognizes three Grey Whale populations in Canadian Pacific waters. The Eastern North Pacific population, currently Special Concern on Schedule 1 of SARA, was split into two populations. A broader North Pacific Migratory population, which migrates from winter breeding grounds in Mexico to summer feeding areas in the Bering Sea and Arctic waters, was assessed by COSEWIC as Not at Risk. A small population which over-winters in Mexico and resides and feeds in British Columbia waters in summer and fall, the Pacific Coast Feeding Group, was assessed as Endangered. A new Western Pacific population, which was recently found to contain individuals that migrate through British Columbia waters to breeding areas in Mexico, was also assessed as Endangered.

The two COSEWIC-assessed Endangered Grey Whale populations are under consideration for SARA listing. Consultations on these proposed amendments under SARA and the potential impacts of SARA listing will be held in 2022. For further information, please contact the Species at Risk Program at SARA.XPAC@dfo-mpo.gc.ca.

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

6.6.2 Committee on the Status of Endangered Wildlife Species (COSEWIC)

COSEWIC was formed in 1977 to provide Canadians with a single, scientifically sound classification of wildlife species at risk of extinction. COSEWIC began its assessments in 1978 and has met each year since then to review information collected to assess wildlife species.

With the proclamation of SARA, COSEWIC has been established as an independent advisory panel responsible for identifying and assessing wildlife species considered to be in danger of disappearing in Canada. The assessments are carried out in accordance with section 15 of SARA, which, among other provisions, requires COSEWIC to determine the status of species it considers

and to identify existing and potential threats. This is the first step towards protecting wildlife species at risk. Subsequent steps include COSEWIC reporting its results to the Canadian government and the public, and the Minister of the Environment and Climate Change's official response to the assessment results. Wildlife species that have been designated by COSEWIC may then qualify for legal protection and recovery under SARA.

For a full list of species identified and assessed by COSEWIC, please visit:

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-list-species-assessed.html>

6.6.3 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. In Canadian waters, the primary threats to SARA-listed shark species have been identified as bycatch and entanglement. In order to address 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 and recreational fisheries, and aquaculture. These guidelines include boat handling procedures during visual encounters with Basking Sharks, and best practices for handling Canadian Pacific shark species during entanglement encounters.

These documents have been posted online and can be found at the following URL links.

Code of conduct for sharks: <https://www.dfo-mpo.gc.ca/species-especies/publications/sharks/coc/coc-sharks/index-eng.html>

Code of conduct for Basking Sharks: <https://www.dfo-mpo.gc.ca/species-especies/publications/sharks/coc/coc-basking/index-eng.html>

6.6.4 Whale, Turtle and Basking Shark Incident and Sight Reports

The Department is responsible for assisting marine mammals and sea turtles in distress. If your vessel strikes a whale, or if you observe an entangled, sick, injured, distressed, or dead marine mammal in B.C. waters, please contact the B.C. Marine Mammal Response Network Incident Reporting Hotline immediately:

1-800-465-4336 OR VHF CHANNEL 16

What to report:

- Your name and contact information
- Date and time of incident
- Location: Latitude/Longitude coordinates, landmarks
- Species
- Animal alive/dead (animal condition)
- Nature of injury and supporting details (if possible)
- Pictures/Video taken



SIGHTING REPORTING

The Department appreciates your assistance in tracking the sightings of live cetaceans (whales, dolphins and porpoises), sea turtles and Basking Sharks. While there are many whale species found in Pacific Canadian waters, sightings of Basking Shark and Leatherback Sea Turtles are infrequent. The collection of sighting data is useful to scientists in determining population size and species distribution and aids in recovery efforts under the Species at Risk Act (SARA).

To report whale or turtle sightings contact the BC Cetacean Sighting Network:

Toll free: 1.866.I.SAW.ONE (1-866-472-9663)

Email: sightings@ocean.org

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

App : WhaleReport

To report basking shark sightings contact the Basking Shark Sightings Network:

Toll free: 1-877-50-SHARK (1-877-507-4275)

Email: BaskingShark@dfo-mpo.gc.ca,

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

6.6.5 Southern Resident Killer Whale Management Measures

The Government of Canada is taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with direction provided in *Species at Risk Act* (SARA) recovery documents. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard and Minister of Environment and Climate Change determined the Southern Resident Killer Whale population faces imminent threats to its survival and recovery. Given the status of the population and ongoing threats to Southern Resident Killer Whale recovery, DFO implemented a number of measures in 2018 through 2021, including measures aimed at increasing prey availability and accessibility for Southern Resident Killer Whales - particularly Chinook salmon—

and reducing threats related to physical and acoustic disturbance with a focus in key foraging areas within Southern Resident Killer Whale critical habitat.

Since 2018, Indigenous groups, the Indigenous and Multi-Stakeholder Advisory Group (IMAG), Technical Working Groups (TWGs) and stakeholders have provided recommendations and feedback to Ministers and Departments on a range of measures (including measures related to increasing prey availability, sanctuaries, vessel disturbance [both noise and physical disturbance], and contaminants) to support Southern Resident Killer Whale recovery.

For the 2022 fishing season, the Government of Canada intends to ensure actions for the 2022 season to mitigate threats of prey availability and acoustic and physical disturbance can be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to Canadian Pacific waters. Any in-season changes will be announced via Fishery Notices.

To address vessel disturbance in the presence of whales, a mandatory 400-metre vessel approach distance for all killer whales is in effect until May 31, 2022 in southern BC coastal waters between Campbell River and just north of Ucluelet. The *Marine Mammal Regulations* remain in effect year-round, and require maintaining a minimum 200 metre approach distance from all killer whales in Canadian Pacific waters other than those described above, and, 100 metres for other whales, porpoises and dolphins or 200 metres when the animal is in resting position or with a calf.

The Government of Canada is asking vessel operators to respect the following voluntary measures:

- Stop fishing (do not haul gear) within 1,000 metres of killer whales and let them pass;
- Reduce speed to less than 7 knots when within 1000m of the nearest marine mammal
- When safe to do so, turn off echo sounders and fish finders
- Place engine in neutral idle and allow animals to pass if your vessel is not in compliance with the approach distance regulations
- For more information on the best ways to help whales while on the water, when on both sides of the border, please visit: bewhalewise.org

For information regarding the Southern Resident Killer Whale management measures to support recovery, please contact the Marine Mammal Team (DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca) or visit <https://www.canada.ca/southern-resident-killer-whales>.

6.6.6 Marine Mammal Protection Act

In 2016, the U.S. published new regulations (80 FR 54390) pursuant to the *Marine Mammal Protection Act* which focus on the reduction of marine mammal bycatch in foreign commercial fishing operations. Under these regulations, harvesting nations intending to continue to export fish and fish products to the USA after January 1, 2023, must apply to the U.S. National Oceanic and Atmospheric Administration (NOAA) for a comparability finding for each of its commercial

fisheries listed in the US List of Foreign Fisheries. The harvesting nation must 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 mandatory reporting of marine mammal bycatch, monitoring programs and management/mitigation measures where appropriate.

Depending on information provided, foreign commercial fisheries that export fish and fish products to the United States can be classified as either “export” or “exempt” based on the frequency and likelihood of incidental mortality and serious injury of marine mammals.

DFO will continue to share information about the U.S. *Marine Mammal Protection Act* Import Provisions and the process for ensuring continued access to US markets. Further information can be found on the [NOAA website](#), or by contacting the Regional Fisheries Coordinator or the DFO Marine Mammal Unit (MMU) (Contact: Lee Harber, Marine Mammal Advisor; Lee.Harber@dfo-mpo.gc.ca).

6.6.7 Marine Mammal Regulations

The *Marine Mammal Regulations* provide direction on conservation and protection of marine mammals, provide guidance for recovery of Endangered Species under the *Species at Risk Act*, and set out provisions related to reducing human disturbance of marine mammals (e.g. viewing of marine mammals) and mandatory reporting requirements in the case there is accidental contact with a marine mammal and a vessel or fishing gear. These regulations were amended in 2018 and now specify mandatory requirements to prevent disturbance of marine mammals.

As per section 7(2) of the *Marine Mammal Regulations*, disturbance is defined as a number of human actions including:

- Feeding, swimming or interacting with a marine mammal.
- Moving a marine mammal (or enticing/causing it to move).
- Separating a marine mammal from its group or going between it and a calf.
- Trapping a marine mammal or a group either between a vessel and the shore, or between a vessel and other vessels.
- Tagging or marking a marine mammal.
- Checking nautical charts for the locations of various protected areas and no go zones.
- Ensure to check nautical charts for the locations of various protected areas and no go zones.

Boats are required to maintain a minimum approach distance of 100 m for whales, dolphins or porpoises, 200m when whales, dolphins or porpoises are in a resting position or with a calf, and 200m from all Killer Whales in Pacific Canadian waters except when in southern BC coastal waters which requires a 400m minimum approach distance to all killer whales (please see section 6.6.5).

For more information on safe boating behavior around whales please visit: [Watching Marine Mammals and Be Whale Wise](#).

Any operator of a vessel or fishing gear involved in accidental contact with a marine mammal must notify DFO of the incident, as per section 39 of the *Marine Mammal Regulations*. Incident reporting includes:

- Reporting an injured, stranded, entangled or dead marine mammal to the [BC Marine Mammal Response Network \(Observe, Record, Report\): 1-800-465-4336](#).
- Reporting as bycatch in a log book.
- [Reporting accidental contact through the marine mammal interaction form](#)
- Depredation reporting to DFO by email at MarineMammals@pac.dfo-mpo.gc.ca or by calling [1-800-465-4336](tel:1-800-465-4336).

Please note, incidents involving abuse or harassment of a marine mammal should be reported as a [fisheries violation](#), while injured, stranded, entangled or dead marine mammals should be reported to the [BC Marine Mammal Response Network](#) to enable a response if appropriate.

Further information regarding the *Marine Mammal Regulations* can be obtained by contacting the DFO Marine Mammal Unit (MMU) (MarineMammals@pac.dfo-mpo.gc.ca).

6.7 Oceans and Habitat Considerations

Oceans Act

The *Oceans Act* provides a foundation for an integrated and balanced national oceans policy framework supported by regional management and implementation strategies. The *Oceans Act* was amended in May 2019 to include interim protection measures, time limits for establishment, the precautionary principle, and to strengthen enforcement powers.

The *Oceans Act*, the *Canada Wildlife Act*, and the *National Marine Conservation Areas Act* have given rise to several initiatives on the BC coast, which are listed below. As goals, objectives, and management plans are finalized for these initiatives, the Department's management of fisheries will be adapted as appropriate, in consultation with interested parties through Integrated Fisheries Management processes. Other important mandate commitments that inform the implementation of spatial marine conservation efforts include the considerations under the *Fisheries Act*, Sustainable Fisheries Policy suite, and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

For more information on the *Oceans Act*, please visit the following site: <http://www.dfo-mpo.gc.ca/oceans/index-eng.html>

6.7.1 Canada's Marine and Coastal Areas Conservation Mandate

In August 2019, the Government of Canada surpassed its milestone of protecting 10% of Canada's marine and coastal areas by 2020, a target which is a reflection of Canada's United Nation Convention on Biological Diversity Aichi Targets commitments, collectively referred to as Canada's marine conservation targets. The Government of Canada further committed domestically to protecting 25% by 2025, and working towards 30% by 2030.

More information on the background and drivers for Canada’s marine conservation targets is available at the following link: <http://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html>.

To meet our marine conservation 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 at the following link: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-si-eng.html>.

6.7.2 Pacific North Coast Integrated Management Area (PNCIMA)

Endorsed in February 2017, the Pacific North Coast Integrated Management Area (PNCIMA) plan was developed, in collaboration with the Province of British Columbia, First Nations and stakeholders to help coordinate various ocean management processes and to complement existing processes and tools including IFMPs. High level and strategic, the plan provides direction on integrated, ecosystem-based and adaptive management of marine activities and resources in the planning area as opposed to detailed operational direction for management. The plan outlines an ecosystem-based management (EBM) framework for PNCIMA that has been developed to be broadly applicable to decision-makers, regulators, community members and resource users alike, as federal, provincial and First Nations governments, along with stakeholders, move together towards a more holistic and integrated approach to ocean use in the planning area.

The endorsement of the PNCIMA plan supports the Government of Canada’s commitment to collaborative oceans management for the Pacific North Coast and provides a joint federal-provincial-First Nations planning framework for conservation and the management of human activities in the Pacific North Coast. One of the key priorities for the plan is the development of a marine protected area network. The planning for this network is well underway in the Northern Shelf Bioregion. It is anticipated that the network development will contribute to the Government of Canada’s commitment to protecting 25% of Canada’s oceans by 2025, and working toward 30% by 2030.

The PNCIMA Plan is available online at: <https://www.dfo-mpo.gc.ca/oceans/management-gestion/pncima-zgicnp-eng.html>

6.7.3 Northern Shelf Bioregion Marine Protected Area Network

The Government of Canada, the Province of BC and 18 First Nations are working together to develop a Network of marine protected areas for the Northern Shelf Bioregion which 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 the Pacific North Coast Integrated Management Area. The planning process is being developed under the policy direction outlined in the National Framework for Canada’s Network of MPAs, the Canada-British Columbia MPA Network Strategy, and is informed by previously developed First Nation marine plans.

Draft MPA network design scenario 1, which consists of areas proposed for conservation as well as their proposed management measures, was shared with non-partnering First Nations, who are not part of the collaborative governance arrangement, and with members of the Network Integrated and Ocean Advisory Committees in February 2019.

Governance partners considered all the input received about the first network scenario and developed scenario 2, which was discussed and further revised by partners and stakeholders during workshops held during the winter and spring of 2021. Throughout the summer and fall 2021, significant technical work was undertaken to develop a draft Network Action Plan which describes the draft network design scenario, as well as additional information such as proposed designation tools, implementation timelines, and monitoring recommended governance frameworks. Considerations are underway with respect to next steps for the process, including timelines for consultation and engagement. The Department will share more information as it becomes available. More information on MPA Network Planning is available at:

<http://www.mpanetwork.ca>

The Pacific North Coast Integrated Management Area Plan is available at:

<https://www.dfo-mpo.gc.ca/oceans/management-gestion/index-eng.html>

6.7.4 Southern BC Marine Spatial Planning South

As part of a national marine spatial planning initiative, DFO is in pre-planning phase, collaborating with Indigenous groups and organizations, the Province of BC, and other federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks Canada and others), to gather information and data relevant to a marine spatial planning process in southern BC, which includes the Strait of Georgia and Southern Shelf bioregions. The concept of marine spatial planning is to improve coordination across jurisdictions and activities in the marine space. Deliverables by 2023 include: recommendations for a trilateral governance model/approach, a Marine Atlas (working draft), and a Framework to inform future planning phases, including the development of a marine spatial plan.

6.7.5 Marine Protected Areas (MPAs)

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://www.dfo-mpo.gc.ca/oceans/conservation/areas-zones/index-eng.html>.

6.7.5.1 Endeavour Hydrothermal Vents (EHV) MPA

The EHV MPA was designated in 2003 with the objective of conserving the unique hydrothermal vent ecosystems. The hydrothermal vents lie in waters 2,250 m deep 250 km southeast of Vancouver Island. For more information on the EHV MPA—including maps, boundaries, and

restrictions to other fisheries or human activities—please visit: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/endeavour/index-eng.html>.

6.7.5.2 SGaan Kinghlas-Bowie Seamount (SK-B) MPA

The SGaan Kinghlas – Bowie Seamount Marine Protected Area (SK-B MPA) was designated under the *Oceans Act* in 2008 and was established to conserve and protect the unique biodiversity and biological productivity of the area’s marine ecosystem, including three seamounts (SGaan Kinghlas – Bowie, Hodgkins, and Davidson) and the surrounding waters, seabed, and subsoil. The SK-B MPA is cooperatively managed by DFO and the Council of the Haida Nation (CHN) through the SK-B Management Board, and the SK-B MPA Management Plan guides the conservation and protection of the MPA. The SK-B MPA is closed to all bottom-contact fishing activities. For more information on the SK-B MPA—including maps, boundaries, and restrictions to other fisheries or human activities—please visit: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/bowie-eng.html>.

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

The Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area (Hecate MPA) was designated under the *Oceans Act* in February 2017 to conserve the biological diversity, structural habitat and ecosystem function of four glass sponge reefs off the coast of British Columbia. The Hecate MPA protects rare glass sponges from human activities that may break their silica (glass) structure, or may result in smothering through increased suspended sediment. Under the Hecate MPA Regulations, human activities are regulated/managed using three different management zone types:

- I. Core Protection Zones (CPZs) include the water columns surrounding the glass sponge reefs--extending from the seafloor to depths that vary depending on the Reef (100 m in Northern Reef, 120 m in the Central Reefs, 146 m in the Southern Reef).
- II. Vertical Adaptive Management Zones (VAMZs) include water columns immediately above the CPZs, and each extends from that boundary to the sea surface.
- III. Adaptive Management Zones (AMZs) are buffers around the CPZ/VAMZ water columns at each reef.

The CPZs are closed to anchoring and all fishing activities. In addition, the VAMZ and AMZs are closed to some commercial and recreational fishing activities. For more information on the Hecate MPA—including maps, boundaries, and restrictions to fisheries or human activities—please visit: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html>.

6.7.6 Offshore Pacific Area of Interest & Fishery Closure

In May 2017, DFO announced the new Pacific Offshore Area of Interest (AOI) with the intention of making it one of Canada’s largest Marine Protected Areas (MPAs) by 2021. The proposed MPA will provide protection to ecologically and biologically significant seamount and hydrothermal vent features within the Offshore Pacific Bioregion. Although the AOI has not yet been designated as an MPA, much of it is protected from under the Offshore Pacific Seamounts and Vents Closure (Offshore Fishery Closure). For more information on the Offshore Fishery Closure—including

maps, boundaries and restrictions to other fisheries—please visit: <https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/refuges/offshore-hauturiere-eng.html>

Offshore Pacific Seamounts and Vents Closure

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 protects and conserves 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. Specific details of the closure can be found in the [Fishery Notice](#).

More information on the Offshore Pacific seamounts and vents closure can be found on the internet here: <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/offshore-hauturiere-eng.html>

6.7.7 Race Rocks Area of Interest

Race Rocks, an area off Rocky Point, south of Victoria (currently designated as a Provincial Ecological Reserve), has been identified as an area of interest.

6.7.8 National Marine Conservation Area Reserves (NMCARs)

6.7.8.1 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 are prohibited.

The zoning plan can be found at:

<https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/%20info/%20consultations/gestion-management-2018>.

Refer to Fishery Notice 0536, released June 13, 2019 for a detailed description of the Strict Protection Zones and can be found at:

https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=222098&ID=all

Council of the Haida Nation Fisheries Management Directions for the Gwaii Haanas Haida Heritage Site can be found at:

<http://www.haidanation.ca/wp-content/uploads/2019/04/CHN-Fisheries-Management-Directions-FINAL.pdf#:~:text=COUNCIL%20OF%20THE%20HAIDA%20NATION%20FISHERIES%20MANAGEMENT%20DIRECTIONS,jurisdiction%20of%20the%20Council%20of%20the%20Haida%20Nation>.

A monitoring plan will be developed to assess the effectiveness of zoning in achieving ecological and cultural objectives. Regular monitoring within and outside of strict protection zones will illustrate ecosystem responses and facilitate adaptive management of the Gwaii Haanas marine area.

Implementation of the Land-Sea-People plan will also involve cooperative management of fisheries using an ecosystem-based management framework, and monitoring activities will be supported through partnerships. For more information on Gwaii Haanas and the Archipelago Management Board, visit www.parkscanada.gc.ca/gwaiihaanas. The Land-Sea-People plan can be downloaded at <https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/info/consultations/gestion-management-2018>.

Users of the Gwaii Haanas marine area should be aware that, as specified in the *Gwaii Haanas Agreement*, 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 Gwaii Haanas terrestrial area and advanced planning is

necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information.

6.7.8.2 Southern Strait of Georgia National Marine Conservation Area Reserve (feasibility assessment)

Parks Canada, in partnership with the Government of British Columbia, launched a feasibility assessment for a National Marine Conservation Area Reserve (NMCAR) in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011.

Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the feasibility assessment. If the results of the feasibility assessment indicate that establishment of a NMCAR is practical and feasible, an establishment agreement between the Governments of Canada and British Columbia will be negotiated and an interim management plan developed. If the NMCAR is determined to be feasible, further consultations related to establishment agreements and Indigenous rights will also take place with First Nations. Commercial and recreational fishing sectors, communities, landowners, recreation and environmental organizations and other stakeholders will also have opportunities to provide input to the development of the interim management plan.

Parks Canada information on the proposed NMCAR in the southern Strait of Georgia is available on the internet at: <https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca/dgs-ssg>

6.7.8.3 Scott Islands Marine National Wildlife Area

The Scott Islands Marine National Wildlife Area (mNWA) is the first protected marine area established by Environment and Climate Change Canada (ECCC) under the *Canada Wildlife Act*. 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. A Notice of Intent was published in Canada Gazette Part 1 in June 2018 indicating 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 groundfish bottom trawling (in portions of the mNWA consistent with existing commercial closures). The anticipated pre-publishing of the regulations in Canada Gazette 1 is expected to occur in early 2022.

For further information on this, please contact - DFO.ScottIslands-IlesScott.MPO@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>

6.7.8.4 Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges

17 marine refuges were established between 2016 and 2019 under the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative, which aims to protect glass sponge reefs from all bottom-contact fishing activities in alignment with DFO's Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas. All commercial, recreational and Indigenous food, social and ceremonial (FSC) bottom-contact fishing activities for prawn, shrimp, crab and groundfish, are prohibited within the 17 marine refuges as well as the use of downrigger gear for recreational salmon trolling (restricted via Condition of Licence) are prohibited within the 17 marine refuges within Subareas 28-2 and 28-4 to protect Howe Sound glass sponge reefs. Prohibited fishing activities include:

- prawn and crab by trap
- shrimp and groundfish by trawl
- groundfish by hook and line
- use of downrigger gear in recreational salmon trolling

In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound. As glass sponge reefs are slow growing and vulnerable to physical disturbances, the report suggested the reefs be closed to bottom-contact fishing. Between September 2020 and February 2021, DFO officials undertook consultation and engagement on proposed commercial and recreational and Indigenous FSC closures to invertebrate trap, groundfish trawl, groundfish hook and line, and the use of downriggers within the new sites with the aim of establishing marine refuges. Commercial and recreational bottom-contact fishery closures went into effect on January 17, 2022 within the five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect these five additional Howe Sound glass sponge reefs. The use of downrigger gear in recreational salmon trolling will also be prohibited within the five sites and at one existing site (Queen Charlotte Channel) via a Condition of Licence, which will come into effect on April 1, 2022. The listing of individual Strait of Georgia and Howe Sound Sponge Reef commercial closure descriptions have been removed from the closure section of the commercial and recreational harvest plan and replaced with a web link containing official closure description boundaries as well as updated reference maps. The following link contains the closure information regarding all of the Sponge Reef Closures within the Strait of Georgia and Howe Sound:

<https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

For further information on this, please contact Danielle Derrick at Danielle.Derrick@dfo-mpo.gc.ca.

6.7.9 Ghost Gear Initiative

One of the biggest threats to oceans internationally is marine litter, and in particular, ghost fishing gear. Ghost gear refers to any fishing equipment or fishing-related litter that has been abandoned, lost or otherwise discarded and is some of the most harmful and deadly debris found in oceans.

In support of international efforts to reduce marine litter, in 2018, Canada signed the G7 Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities. In doing so:

- Canada committed to accelerating the implementation of the 2015 Oceans Plastics Charter; and,
- Strengthened our domestic and international commitment to addressing marine litter by signing onto the Global Ghost Gear Initiative.

These commitments were further strengthened in the Canada-Wide Action Plan on Zero Plastic Waste Phase 2 developed by the Canadian Council of Ministers of the Environment, available from: <https://ccme.ca/en/current-activities/waste>.

Conditions of Licence to Report Lost and Retrieved Gear

In the spring of 2020 it became a condition of licence for commercial harvesters to report lost and retrieved fishing gear. While the Department is taking a stewardship approach to ghost gear and working with harvesters to reduce the effects of ghost fishing, the inclusion of the reporting requirement as a condition of licence means that not reporting lost and/or retrieved gear is now a chargeable offence.

Lost gear reporting forms can be found at: <https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/reporting-declaration-eng.html>

The Ghost Gear Fund (Sustainable Fisheries Solutions and Retrieval Support Contributions Program)

For 2020-2022, the DFO Ghost Gear Fund has provided over \$18 million in funding to projects falling under four pillars of activity:

- Abandoned, lost or otherwise discarded fishing gear (ALDFG) retrieval
- Responsible disposal
- Acquisition and piloting of currently available innovative technologies
- International leadership

To learn more about the DFO Ghost Gear Fund, go to: <https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/program-programme/projects-projets-eng.html>

6.7.10 Cold-Water Coral and Sponge Conservation Strategy

DFO's Pacific Region Cold-water Coral and Sponge Conservation Strategy encompasses short and long-term goals and aims to promote the conservation, health and integrity of Canada's Pacific Ocean cold-water coral and sponge species. The Strategy also takes into consideration the need to balance the protection of marine ecosystems with the maintenance of a prosperous economy. It was created with input from stakeholders throughout the Pacific Region and will help regional partners and stakeholders to understand how DFO's existing programs and activities tie into cold-water coral and sponge conservation.

Rockfish Conservation Areas

There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350km² of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat.

DFO is currently undertaking a multi-year review of the conservation effectiveness of RCAs, including meeting the national criteria and standards for marine refuges to better conserve sensitive areas and contribute towards Canada's Marine Conservation Targets (MCT). To meet these standards, the risks to inshore rockfish, their habitat, and benthic communities will need to be avoided or mitigated. Peer-reviewed science advice also recommends that boundary changes to some RCAs will improve their spatial design by better capturing rockfish habitat features. RCAs in the Northern Shelf Bioregion have been selected for the first phase of engagement to align with the MPA network planning process in that area. Workshops with First Nations and stakeholders and online consultations were held in 2019. A summary of what we heard is available online at: <https://www.pac.dfo-mpo.gc.ca/consultation/ground-fond/rca-ac/2020-heard-entendu-eng.html#6>. There will be more opportunities to provide feedback on Rockfish Conservation Areas in the Northern Shelf Bioregion in the near future. DFO is also planning to review Rockfish Conservation Areas in other regions of British Columbia at a later date.

For further information on this, please contact DFO.RCA-ACS.MPO@dfo-mpo.gc.ca.

7 ACCESS AND ALLOCATION

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

7.1 First Nations Access

First Nations FSC fisheries have a minimum harvestable size limit, gear restrictions. DFO is implementing non-retention of female crab beginning in 2022/23, and participants are requested to release females with the least possible harm. To date, no species retention or trap limits have been implemented.

The Department will continue to provide FSC opportunities for First Nations to harvest crab, in a manner consistent with the decision of the Supreme Court of Canada in *Sparrow*, and other decisions.

From time to time, DFO receives requests from First Nations to improve access to shellfish for FSC purposes. First Nations interested in bilateral discussion with DFO regarding FSC access issues should contact the resource manager for their area (Appendix 8 Contacts).

Please refer to Appendix 1 for the First Nation Harvest Plan.

7.2 Recreational Access

The Recreational fishery has gear restrictions, a minimum harvestable size limit, and non-retention of females. See Appendix 2 for the Recreational Harvest Plan.

The Department will continue to explore ways of improving recreational access. If any changes are approved after the IFMP is finalized they may be implemented in season.

Requests for improved recreational access are directed to DFO through the Sport Fishing Advisory Board (SFAB) process and the representatives to the Crab Sectoral Committee (Appendix 8). The SFAB usually meets twice a year (in the late spring and mid-winter) to discuss and advise DFO on recreational fishing plans, recreational fishery regulations, and any areas of concern to the recreational fishing community. Information on the SFAB is available at:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/index-eng.html>

7.3 Commercial Access

The commercial fishery has a minimum harvestable size limit, limited commercial licensing, area licensing, area and vessel trap limits, soak limits, sex restrictions, soft-shell restrictions, gear restrictions, and permanent and seasonal closure areas. See Appendix 3 for the Commercial Harvest Plan.

7.4 Experimental, Scientific, Educational or Public Display

DFO supports and facilitates scientific investigations related to crab. Scientific licence requests received from scientific, educational, and public display institutions, including biological collecting firms, are considered. Existing policies with respect to scientific licences and the *Larocque* court decision apply.

Co-operative scientific assessment programs of mutual interest and agreement between DFO and industry may be established with a commercial harvesters association named as the scientific licence holder. Industry representatives will undertake vessel selection and provide advice to DFO on aspects of the assessment program.

8 MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

See the First Nations, Recreational, and Commercial Harvest Plans, Appendices 1 to 3, for detail on Fishing Seasons and Areas, Control and Monitoring of Removals, Decision Rules, and Licensing.

9 SHARED STEWARDSHIP ARRANGEMENTS

9.1 Commercial

Vessel owners/licence eligibility holders are required to make arrangements with an industry-funded service provider for the delivery of in-season information to DFO as required by conditions

of licence regarding electronic monitoring, biological sampling, and catch reporting. The approved 2022/23 service providers are Ecotrust Canada for all Area A programs and Pacific Coast Fishery Services for all other Crab Management Areas (B through J inclusive). Please refer to Appendix 8 for contact information.

9.2 Fisheries and Oceans Canada

Contributions to the IFMP are provided by Fisheries Management in the areas and regional headquarters, Science Branch, the Shellfish Data Unit, Conservation and Protection, the Treaty and Indigenous Policy Directorate, the Pacific Fishery Licence Unit, the Recreational Fisheries Division, the Oceans Directorate and numerous administrative personnel.

10 COMPLIANCE PLAN

10.1 Overview

At the start of each fiscal year an operational work plan for the Conservation and Protection (C&P) Program, which is the program that conducts enforcement for the Department of Fisheries and Oceans, is developed. In developing operational priorities, factors to be considered include:

- Direction from regional or national headquarters;
- Whether the impacts of illegal harvest of a particular fishery has impact to human health (e.g. Canadian Shellfish Sanitation Program, Crab Dioxin Closures);
- Whether the fishery contains a stock of concern (identified with input from managers of respective disciplines such as Resource Management, Fish And Fish Habitat Protection Program, etc.);
- Past and known compliance issues within the fisheries;
- Timing: Do C&P have staff available and is it a year-round activity or periodic (e.g. habitat versus early timed Fraser Chinook); and
- Funding availability, Reconciliation priorities, and access for First Nations.

Enforcement activities can be conducted either on an opportunistic basis or through dedicated enforcement patrols depending on the operational priority assigned to this fishery.

The level of enforcement effort expended in ensuring compliance in the crab fishery will depend on the level of the priority set for this fishery in the seasonal priority setting as identified above. The commercial crab fishery is Region-wide and enforcement effort may vary depending on fishing pressure identified in particular areas. In-season consultation with the fishery managers may identify areas of concern that can elevate the priority level for enforcement staff. Where enforcement activities are undertaken, the scope and deployment of resources will encompass those areas outlined in the sections below (see Sections 10.2 to 10.3).

10.2 Main Program Activities

10.2.1 Priorities

Where enforcement is conducted in the crab fishery, the priorities for the term of this plan will be to:

- investigate landings of undersize, female and soft-shell crab,
- investigate illegal sale, purchase, barter and trade of crab not harvested under a licence,
- survey closed areas for illegal activity,
- check compliance with conditions of licence such as gear requirements, trap allocations, harvest log and trap soak limits,
- work with fishery managers to investigate fraudulent reporting of crab landings in fish slips and harvest logs, and
- investigate irregularities reported by observers and service providers.

10.2.2 Dockside Monitoring

Fishery officers will conduct dockside monitoring checks for size limit, soft-shell crab, female crab, and prompt completion of harvest logs as per the Conditions of Licence (*Fisheries [General] Regulations* Section 22).

10.2.3 Vehicle Inspections

Transportation vehicles will be checked en route from off-loading sites to processors. Fishery officers will also conduct checks at processing facilities.

10.2.4 Fishery Patrol Vessels

Fishery officers will conduct monitoring and compliance patrols at-sea using program vessels and Canadian Coast Guard (CCG) vessels. Vessel boarding will be conducted to ensure compliance with both vessel and individual licence requirements. Both open and closed area patrols will be conducted.

Fishery officers will respond in support of the service providers and any at-sea observers that may be used. Fishery officers may also co-ordinate patrols with First Nations guardians and fishery managers when available.

10.2.5 Air Surveillance

DFO contracts a surveillance plane with a Fishery Officer onboard to conduct compliance patrols by air to cover a vast area in a short period of time. The plane works in collaboration with the local C&P detachments to relay observations, conduct investigations and deploy resources where needed.

10.2.6 Crab Traceability

DFO will be consulting with recreational, First Nation, and industry groups to develop a program that will track crab from the point of landing until the final destination.

10.3 Enforcement Issues and Strategies

Below is a list of common enforcement issues and strategies. Most commercial regulations are outlined in the Conditions of Licence, which are attached to the licence. Failing to comply with the conditions of licence is a violation of s.43(4) of the *Fishery (General) Regulations*, which is a court appearance. These conditions must be on board when the vessel is engaged in commercial fishing. With modern day technology and electronic licences, the conditions of licence must be downloaded to a device or printed on paper and will remain on the vessel while engaged in commercial fishing. They must be produced to a Fishery Officer or Fishery Guardian when requested.

In the following table: PFR: *Pacific Fisheries Regulations, 1993*. F(G)R: *Fisheries (General) Regulations* Section:

Licensing Verification - Vessel licensed - Experimental licence - No Harvesters Registration Card (FRC). - Fail to produce FRC.	PFR S.22 F(G)R S.52 F(G)R S.68(1) PFR S.25 F(G)R S.11	At-sea and dockside inspections will occur when opportunities exist. These inspections may include checks of all licensing documents on board the vessel to ensure compliance with the regulations.
Fish during closed time/area	PFR S.63 FGR 43.4(1)	Patrols utilizing patrol vessels will be pursued when opportunities exist. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for Priority fisheries.
Size limit.	PFR S. 66	At sea and dockside inspections will be pursued when opportunities exist.

Fail to provide proper landing and hail information, lack of notification for change of area, cancellation of trip, or incorrect reporting of area fished	F(G)R S. 43.4(1) (4)	At sea and dockside inspections will occur when opportunities exist. Investigations may occur on an opportunistic basis after C&P has been notified by fisheries management that a violation has occurred. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for priority fisheries, to track vessels in the fishery.
Fail to have an operational Electronic Monitoring System	F(G)S. 43.4(1)	At sea and dockside inspections will occur to measure compliance with this provision. Investigations may also occur after C&P has been notified by Fisheries Management that a violation has occurred as result of service provider findings.
Fail to maintain “Validation and Harvest Logbook”	F(G)R S. 43.4(1)	At sea and dockside inspections will occur when opportunities exist. Investigations may also occur after C&P has been notified by Fisheries Management that a violation has occurred.
Exceed allowable trap limits	F(G)R S. 43.4(1)	At sea inspections to determine compliance with this provision. Investigations may also occur after C&P has been notified by Fisheries Management that a violation has occurred as result of service provider findings.
Fail to use appropriate biodegradable escape mechanisms.	F(G)R S. 43.4(1)	At sea and dockside inspections will occur when opportunities exist.
Fail to use appropriate escape rings.	F(G)R S. 43.4(1)	At sea and dockside inspections will occur when opportunities exist.

Fail to report crab exports.	F(G)R S. 43.4(1)	Dockside and transporting inspections will occur when opportunities exist.
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2020-21 Compliance Summary

Enforcement action took place during the season relating to the Conditions of Licence. It was focused on compliance with trap construction, buoy marking, the harvesting of soft-shell and undersize crab, logbook records, and fishing in areas closed to harvest. Canadian and United States enforcement staff conducted patrols along the International boundaries to ensure compliance with that boundary.

Enforcement action was also conducted on the recreational crab fishery. Violations consisted mainly of undersize, over limits, retention of females, lack of biodegradable escapement mechanisms and unmarked gear.

Problems that remain a concern in all areas of crab fishing are the amount of unmarked, sunken traps with no biodegradable escapement mechanisms that are routinely recovered by dragging. As well, buoys are often unreadable due to names being washed off or covered by organic material.

There needs to be increased compliance with accurate and timely completion and submission of harvest logs, as well as completing the annual Fishing Activity Location Reports (Hails).

There appears to be an increasing concern with respect to Canadian product entering the United States that is not compliant with United States size restrictions. While this issue is not an enforcement concern in Canada it may have long term implications that may affect market share for United States destined product.

Enforcement staff will pursue opportunities to enforce the regulations and conditions of licence applicable to this fishery while engaged in enforcement activities directed to other fisheries in the Pacific Region.

Fishery managers, resource management biologists, and shellfish assessment biologists have prepared impact statements for use in court cases. These have been useful in allowing the courts to understand the implications of the offence and for increasing the resultant fines clearly. Recently, impact statements pertaining to crab have included a section that suggests the Judge direct fines to a special purpose account, held by the Department, to fund research, education, equipment, and investigations pertaining to crab biology and management of the fishery.

11 POST-SEASON REVIEW

To obtain Crab sectoral meeting records or an update on any of the issues mentioned in this plan please contact your local fishery manager, (see Contacts in Appendix 8).

In 2022, commercial service provider performance evaluations and subsequent reviews of Electronic Monitoring, Biosampling, and Harvest Log programs will be conducted to improve regulations and compliance. Annual catch landings will be shared with the Crab Sectoral Committee, as well as a review of DFO stated objectives and in-season management changes. Please contact your local area crab manager (Appendix 8) for further information.

11.1 Conservation and Sustainability

Concerns with increased mortality from handling soft-shell crab and, from the industry perspective, with the marketing of inferior product, led to the non-retention of soft-shell crab. In 2001, a soft-shell crab was defined as a crab having a durometer measurement of 65 units or less. Shortly after implementation, commercial harvesters, crab buyers, and DFO staff re-assessed shell condition, meat content, injuries and mortalities on hundreds of crab during several offloads to come up with a legal definition of 70 units for licence conditions. Feedback has indicated that this value is better and more representative of a hard crab available to the fishery. For biological sampling, soft-crabs are defined as being springy soft, crackly soft, plastic soft, or moulting and durometers are not used.

To address some of these concerns, electronic monitoring (EM) or 100 percent at-sea observer coverage was required on all commercial crab vessels commencing April 1, 2006. To date, all vessels have selected the electronic monitoring option over the more costly observer monitoring approach. However, in cases where EM hardware requirements are not being met, observers have been deployed as an interim measure to fulfill monitoring requirements and enable further fishing activity. Since the spring of 2013 the electronic monitoring service provider for all areas, excluding Area A, has monitored commercial vessel trap hauling activity through recording vessel positions every 10 seconds and provided daily vessel position and activity data to the Department. Area A employs a different EM service provider to fulfill these requirements.

Several commercial management changes were made in 2008 to reduce handling mortality. These included a ban on hanging bait and the use of bait cups in some areas, reduced trap limits and seasonally reduced trap limits. In 2009 there was a requirement for an additional escape ring and larger escape rings. In 2010, additional haul restrictions during portions of the year in certain areas of the commercial fishery were introduced. Introduced in 2012, at least two escape rings of 105 mm or greater in diameter are now required on all crab traps fished. For 2013, biological sampling targets were amended in all areas to better assess population characteristics and soft-shell timing.

Maximum trap allowances occur for all commercial areas and for all commercial vessels. The final number of traps permitted to be fished per vessel is dependent on the number of vessels that have chosen to fish within each crab management area. For more information please refer to Section 2.5 of the Commercial Harvest Plan (Appendix 3). In 2013, a new cap was established for both Sooke Harbour and Sooke Basin and in 2016, a new cap was established for Area E Sooke vessels fishing

the outside common areas of Area E. In 2017, a new cap was established for Area E Tofino vessels fishing the outside common areas of Area E. In future, additional trap limits for select areas or portions may also be implemented.

For more details please refer to Appendix 3: The Commercial Harvest Plan, Section 1: Commercial Changes and Highlights.

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13 INTERNET SITES

Fisheries & Oceans Canada Pacific Region Crab page, and links to the Crab by trap fishing plan:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/crab-crabe/index-eng.html>

Crab Fisheries Consultation Webpage:

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

Pacific Region Area and Subarea maps:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm>

Pacific Region, Fisheries Management, Commercial Openings and Closures notices:

www-ops2.pac.dfo-mpo.gc.ca/xnet/content/fns/index.cfm

Pacific Region, Recreational Fisheries information web site:

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

Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice and Review Committee (PSARC)) research documents, proceedings and Invertebrate stock status reports, including crab:

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

Pacific Region, Science, Infectious diseases of shellfish:

<http://www.dfo-mpo.gc.ca/science/aah-saa/diseases-maladies/index-eng.html>

14 GLOSSARY

AAROM	Aboriginal Aquatic Resources and Oceans Management (AAROM) program - DFO's AAROM funds aggregations of First Nation groups to build the capacity required to coordinate fishery planning and program initiatives and is focused on developing affiliations between First Nations to work together at a broad watershed or ecosystem level where there are common interests and where decisions and solutions can be based on integrated knowledge of several Indigenous communities.
AFS	Aboriginal Fisheries Strategy - DFO's AFS was implemented in 1992 to address several objectives related to First Nations and their access to the resource and continues to be the principal mechanism that supports the development of relationships with First Nations including consultation, planning and implementation of fisheries, and development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.
abundance	Number of individuals in a stock or a population.
aquaculture	As defined by the United Nations Food and Agriculture Organization (FAO), aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Aquaculture implies some form of intervention in the rearing process to increase production, such as regular stocking, feeding, protection from predators, etc. It also implies individual or corporate ownership of the cultivated stock.
Area and Subarea	Defined in Section 2 of the <i>Pacific Fishery Management Area Regulations</i> . A map of Pacific Fishery Management Areas is available on the DFO internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
ATP	Allocation Transfer Program - DFO's ATP facilitates the voluntary relinquishment of commercial licence eligibilities and the designation of the equivalent commercial fishing capacity to eligible Indigenous groups as communal commercial licence eligibilities.
By-catch	The unintentional catch of one species when the target is another.
C&P	Fisheries & Oceans Canada, Conservation and Protection Branch.
carapace	The exoskeleton that covers the head and thorax, upon which fishing size limits are based.

communal commercial licence	Issued to First Nation organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> for participation in the commercial fishery.
communal licence	Issued to First Nation's organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
COSEWIC	The Committee on the Status of Endangered Wildlife in Canada.
crustaceans	A biologically related group of the class Crustacea that includes crabs, lobsters and shrimps.
Centre for Scientific Advice - Pacific (CSAP)	Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice Review Committee), chaired by DFO and including other federal and provincial government agency representatives and external participants.
Canadian Science Advisory Secretariat (CSAS)	Canadian Science Advisory Secretariat - coordinates the peer review of scientific issues for Fisheries & Oceans Canada. The different Regions of Canada conduct their resource assessment reviews independently, tailored to regional characteristics and stakeholder needs. CSAS facilitates these regional processes, fostering national standards of excellence, and exchange and innovation in methodology, interpretation, and insight.
DFO	Fisheries & Oceans Canada. On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.
electronic monitoring	Equipment to digitally record: individual trap hauls; fishing activity; and fishing location, date, and time while the vessel is fishing. A licensed vessel is considered to be fishing while it has traps in the water.
Food, Social and Ceremonial (FSC)	A fishery conducted by First Nations for food, social and ceremonial purposes.
ghost fishing	A situation where fishing gear continues to cause mortalities after it has been lost, abandoned, or discarded. This commonly occurs in trap fisheries when the trap is lost and animals in the trap die and thereby bait the trap with their bodies attracting more animals.

Harvest document	Issued to a First Nation pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> in respect of a First Nation’s fishing right defined under treaty to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
iARC	Internet Annual Recreational Catch reporting program
IFMP	Integrated Fishery Management Plan
Indigenous Knowledge	<p>There is no universal definition of Indigenous knowledge, and the composition of Indigenous knowledge should be determined by Indigenous peoples themselves. Indigenous knowledge is intricately tied to Indigenous worldviews and ways of life, rather than knowledge in a western sense.</p> <p>The term Indigenous knowledge may not be universally used, and other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge, or Aboriginal Traditional Knowledge, which all convey similar concepts, may be used instead. When working with Inuit, the term Inuit Qaujimajatuqangit (IQ) is more likely to be used than Indigenous knowledge. Similarly, when working with Métis knowledge holders, the term Métis Traditional Knowledge is more likely to be used than Indigenous knowledge. The term Indigenous knowledge is used throughout this document in line with the terminology in the <i>Fisheries Act</i>.</p>
inshore	Coastal waters landward of the “surflines”.
invertebrate	An animal without a backbone.
landed or off-loaded	The transfer of crab from a vessel in water to land.
landed value	Value of the product when landed by a licensed fishing vessel.
landings	Quantity of a species caught and landed.
Observer	An individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries & Oceans Canada pursuant to Section 39 of the <i>Fishery (General) Regulations</i> .
offshore	Coastal waters seaward of the “surflines”.
pelagic	Belonging to the upper layers of the open sea.

PICFI	Pacific Integrated Commercial Fisheries Initiative - DFO's PICFI is an initiative aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported.
population	Group of individuals of the same species, forming a breeding unit, and sharing a habitat.
Precautionary Approach (PA)	In resource management, the PA is, in general, about being cautious when scientific information is uncertain, unreliable or inadequate and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to the resource. Information on the adoption of a PA framework for fisheries management in Canada is available at: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm
PSARC	See CSAP.
recruitment event	A large survival of crab from a single spawning or year class or group of year classes that enter a population.
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.
service provider	An agency contracted by vessel owners or their harvesters association to co-ordinate notification, fishery monitoring, biological sampling, and data submission requirements. The service provider may train and recommend candidates for certification by Fisheries and Oceans Canada as observers.
SFAB	Sport Fishing Advisory Board, which provides advice to DFO on matters of recreational (sport) fishing.
single trap gear	Crab fishing gear where each trap is equipped with a buoy line and buoy and is not connected by line to other traps.
shellfish	Any species of invertebrate that may be harvested in commercial, recreational or First Nations fisheries.
soft-shell management areas	Sixteen smaller management units within Crab Management Area A from which biological data are collected. These areas open and close independently of one another.

<i>Species at Risk Act (SARA)</i>	A federal Act to prevent wildlife species from being extirpated or becoming extinct and to provide for their recovery. It provides the legal protection of wildlife species and the conservation of their biological diversity.
stakeholders	Individuals or groups with an interest in a particular fishery or activity.
stock	Describes a population of individuals of one species found in a particular area, and is used as a unit for fisheries management.
stock assessments	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.
Subarea	A subdivision of an Area, as described in the Pacific Fishery Management Area Regulations. (See maps at Area or Subarea internet link above).
substrate	The ground (often the ocean bottom) and its composition, in or on which animals live.
tonne (t)	Metric tonne, which is 1000 kg or 2204.6 lbs.

APPENDIX 1: FIRST NATIONS HARVEST PLAN

1 OVERVIEW OF THE FISHERY

The Department's policy on the management of First Nations' fishing identifies First Nations harvests for food, social and ceremonial (FSC) purposes as the first priority after conservation. The Department seeks to provide for the effective management and regulation of the First Nation fishery through negotiation of mutually acceptable and time-limited agreements which outline provisions pertaining to the fisheries and co-management activities. The agreements include provisions by which First Nations manage fishing by their members for FSC purposes. The agreements also outline First Nation involvement in a range of co-management activities and economic development opportunities which may include, but not be limited to, habitat enhancement, catch monitoring and enforcement, fish management and community research.

First Nations' harvest for FSC purposes may occur where authorized by an Aboriginal communal licence or, under treaty, a harvest document. Communal licences and harvest documents can be amended in-season for resource conservation purposes.

For First Nations social, cultural, and economic issues, please refer to Section 5.4 of the 2022/23 Crab by Trap Integrated Fisheries Management Plan (IFMP).

For an update on the Pacific North Coast Integrated Management Area, Marine Protected Areas, National Marine Conservation Areas, (i.e. Gwaii Haanas), and National Marine Wildlife Areas, please refer to Section 6.7 of the 2022/23 Crab IFMP.

2 LICENSING

First Nations' harvest for FSC purposes may occur where authorized by an Aboriginal communal licence or, under treaty, a harvest document which can permit the harvest of crabs. These licences are issued under authority of the *Aboriginal Communal Fishing Licences Regulations*.

3 MANAGEMENT MEASURES FOR THE FIRST NATIONS FSC FISHERY

Changes for 2022

Fisheries and Oceans Canada (DFO) is continually evaluating existing and emergent management measures to ensure the long term sustainability of the crab fishery in the Pacific Region. Since 2017, DFO has been consulting on conservation measures for the FSC fishery including conservation of female crab, marking of gear (including holding cages), use of escape rings and rot cord on gear and restricting night setting and hauling in the Strait of Georgia and Vancouver Area. Many First Nations have adopted these conservation measures as a best practice and some already have these communal licence conditions. It is the intention to standardize conservation management measures across all fisheries and make changes to align all fisheries as an important component of crab management. While some measures will be implemented for 2022/23,

consultations on the remaining conservation measures will continue to determine the current use, cost, size and appropriate phase-in period.

In February of 2017, the Heiltsuk, Kitasoo/Xai'Xais, Nuxalk and Wuikinuxv Nations and the Department of Fisheries and Oceans signed a Letter of Intent (LOI) that commits the parties to working together to develop and undertake a collaborative process for identifying and recommending management objectives (starting with conservation and sufficient First Nation food, social, and ceremonial access) and measures that will achieve healthy crab populations and sustainable crab fisheries on the Central Coast. This commitment is based on the shared interest of managing crab in a precautionary manner, and supported by the Government of Canada's 2015 commitments to the Indigenous Peoples of Canada, emphasizing renewed "Nation-to-Nation" relationships based on recognition of rights, respect, cooperation and partnerships. The LOI outlines a collaborative governance process and recognizes that rigorous, meaningful and consistent engagement of communities and stakeholders is necessary to achieve the objectives of the LOI. In 2020, the governance partners (consisting of members of DFO and Central Coast First Nations) issued a joint recommendation to the executive-level decision makers in which they proposed commercial and recreational crab fishing closures in 17 sites within the Central Coast. Upon review of the joint recommendation and associated data/documentation, DFO implemented 11 new commercial closures and 15 year-round recreational closures on April 1, 2021, and two seasonal recreational crab closures on June 1, 2021. Next steps for the governance partners will be the development of a monitoring and evaluation strategy to determine if the closures are effective at improving FSC access to legal male crab, continuing work on recreational and FSC catch and effort monitoring, and working on a strategy for engaging stakeholders. The governance partners will be transitioning the Central Coast Collaborative Crab Management Process (CCCCMP) in 2022 to align with the implementation of the Fisheries Resources Reconciliation Agreement (FRRA) between DFO and the Coastal First Nations (including the Central Coast First Nations).

In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound. New commercial and recreational bottom-contact fishery closures went into effect on January 17, 2022 for these five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect additional Howe Sound glass sponge reefs. Consultations with First Nations on proposed Indigenous FSC closures are ongoing. A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website, here: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

Size Limits

First Nation harvesters shall not harvest any Dungeness Crab that measures less than 165 mm or any Red Rock Crab that measures less than 115 mm.

Crabs are measured in a straight line through the greatest breadth of the carapace. Undersized crabs must be returned to the water immediately, in a manner that causes the least harm possible.

Non Retention of Female Crabs

Retention of female crab or their roe (eggs or larvae) represents a threat to conservation of crab stocks. Following consultations with First Nations, DFO is implementing non-retention of female crab for FSC fisheries beginning in 2022/23.

Gear

All traps used to harvest crabs must be equipped with a biological escape mechanism to allow crab to escape and prevent ghost fishing in the event that a trap is lost. Biological escape mechanisms (rot cord) for hinged lid traps are further described in Appendix 6.

Rot cord specifications may be different on different communal licence conditions and First Nations harvest plan documents. It is our intention to standardize conservation management measures across all fisheries and make changes to align all fisheries as an important component of crab management.

In 2022, the Department will be engaging with First Nations to ensure gear use is meeting conservation objectives. This will include restricting night time setting and hauling in PFMA's 14, 16 through 19, 28 and 29, use of rot cord, and requirements around the marking of gear including holding cages.

After consultation with First Nations, all traps will be required to have escape holes beginning in 2022/23. All traps fished in all areas must have two escape rings of 105 mm or larger in diameter to allow the escape of female and undersized male crabs.

4 MANAGEMENT AND MONITORING OF FIRST NATIONS FISHING ACTIVITIES

The Department negotiates Aboriginal Fisheries Strategy (AFS) agreements annually with over 70 Aboriginal Organizations that represent 164 of the 200 First Nations in British Columbia and the Yukon. Several of these agreements include provisions for the harvest of crab for FSC purposes. The amount harvested by some First Nations is reported to DFO; however, coast-wide it remains largely unknown. First Nations access to fish for FSC purposes is managed and regulated through the issuance of communal licences to First Nations and/or First Nations Organizations. These licences are issued under the authority of the *Aboriginal Communal Fishing Licences Regulations*.

Communal licences and Fisheries Agreements may contain provisions for the designation of individuals by the First Nation, or First Nations organizations, to access the allocation provided under the communal licence, as well as provisions for monitoring and reporting by the group of the First Nations fishery in co-operation with the Department. As a condition of the communal licences, First Nations are required to provide shellfish harvest quantities by species to the Fisheries and Oceans Canada Resource Manager as per reporting requirements. First Nations will typically designate harvesters from their communities under their communal licence.

First Nations communal licences specify the locations permitted for use by First Nations for FSC harvests. Harvest areas are generally located within claimed First Nation traditional territories and

catch monitoring and harvest reporting requirements are in accordance with communal licence conditions.

The Department has observed an increase in the number of commercial vessels using commercial gear to harvest FSC crab and is concerned about the impact this may have on the resource due to a lack of catch reporting, which impairs the ability for the Department to manage the fishery effectively. The Department will continue to have discussions with First Nations on this topic, (particularly in Areas I and J) to develop a management approach to address the issue.

Maa-nulth Domestic Fishing

The Maa-nulth First Nations fishery for domestic (FSC) purposes under the Maa-nulth First Nations Final Agreement (Treaty) came into effect on April 1, 2011. The Maa-nulth First Nations is comprised of five individual First Nations; Huu-ay-aht First Nations, Ka:'yu:k't'h'/Che:k'tles7et'h' First Nations, Toquaht Nation, Uchucklesaht Tribe and the Yuułu?ił?ath First Nation on the west coast of Vancouver Island. More information on the Maa-nulth Treaty can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1100100030588/1542730442128#Ts>

Tla'amin Domestic Fishing

The Tla'amin fishery for domestic (FSC) purposes under the Tla'amin (Sliammon) Final Agreement (Treaty) came into effect on April 5, 2016. The Tla'amin Nation is located near the City of Powell River, 130 km northwest of Vancouver. More information on the Tla'amin (Sliammon) Treaty can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1397152724601/1542999321074>

Tsawwassen Domestic Fishing

The Tsawwassen fishery for domestic (FSC) purposes under the Tsawwassen Final Agreement (Treaty) came into effect on April 3, 2009. The Tsawwassen First Nation is located in the lower mainland near the city of Vancouver, and their territory spans portions the Strait of Georgia near the mouth of the Fraser River as well as portions of the lower Fraser River and Boundary Bay. More information on the Tsawwassen Treaty can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1100100022706/1617737111330>

Nisga'a Domestic Fishing

The Harvest agreement for domestic (FSC) purposes under the Nisga'a Final Agreement (Treaty) came into effect on May 11, 2000. The Nisga'a territory is located within the Nass River valley on the northwest coast of British Columbia. More information on the Treaty and the Nisga'a annual fishing plan can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1100100030588/1542730442128>

Five Nations Right-Based Sale Fishery

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 for any species, with the exception of Geoduck, within their Fishing Territories and to sell that fish. Over the course of 2021/22, the Department developed and consulted on a 2021/22 Five Nations Multi-species Fishery Management Plan (FMP). The FMP includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting. Feedback provided by the Five Nations was considered and incorporated into the 2021/22 FMP by DFO where possible.

The implementation of the Five Nations' right-based sale fishery continues to be an ongoing process. On April 19, 2021, the British Columbia Court of Appeal released its decision in relation to the appeal brought forward by the Five Nations. As a result, the department announced a number of in-season changes via fishery notice. For 2022/23, any further changes will be announced by fishery notice and/or in the 2022/23 FMP which will be available in the spring of 2022.

Marine Protected Areas and National Marine Conservation Areas

For information on Marine Protected Areas and Marine Conservation Areas, including harvesting restrictions and area coordinates, please see Sections 6.7 of the main IFMP.

Crab Consumption Advisories

There are some areas that are either closed to crab harvest or have consumption advisories because of contamination from heavy metals or dioxins and furans. These closures and advisories are listed below, but may change during the year. Please refer to Appendix 8 for local area contact information.

Area 4

The harvesting of crab is prohibited in those waters of Porpoise Harbour and Wainwright Basin, (Subarea 4-11) inside a line from the southernmost point of Kaien Island to the northwesternmost point of Ridley Island, thence southerly along the eastern shoreline to the southernmost point of Ridley Island, thence to the westernmost point of Lelu Island, thence northerly along the shoreline to the northernmost point of Lelu Island, thence to a boundary sign on the shore of Tsimpsean Peninsula opposite and bounded to the north by the Hwy 16 Bridge at Galloway Rapids. (Dioxin contamination).

Area 13

Consumption of **crab hepatopancreas** harvested in Discovery Passage should not exceed **100 g/week**. This area includes those waters north of a line from the Cape Mudge Lighthouse on Quadra Island true west to the shore of Vancouver Island and south of a line from Separation Head (Quadra Island) true west to Vancouver Island.

Consumption of **crab hepatopancreas** harvested in Deepwater Bay should not exceed **100 g/week**. This area includes those waters southeast of a line from Separation Head on Quadra Island 50° true to the opposite shore.

No consumption of **crab hepatopancreas** harvested in the waters bounded by the eastern shore of Quadra Island from Francisco Point, thence 5 km north along the shore, thence east from the shoreline to the 200 m contour.

Consumption of **crab hepatopancreas** harvested in the waters east of a line on Quadra Island from Chonat Point south to the opposite bay (Chonat Bay) and from Kanish Bay, Quadra Island, east of a line from Granite Point to Bodega Point **should not exceed 135 g/week**.

Consumption of **crab hepatopancreas** harvested in the waters north of a line extending from Walters Point on Sonora Island true east to a point on the opposite shore (Owen Bay) **should not exceed 135 g/week**.

Area 17

Consumption of **crab hepatopancreas** harvested in a portion of Stuart Channel **should not exceed 40 g/week**. This area of Stuart Channel is bounded on the north by a line from Donckele Point on Kuper Island to the point at the southeastern entrance to Preedy Harbour on Thetis Island, thence to the most southern point of Dayman Island, thence to the most southern point of Scott Island, westerly to Sharpe Point on Vancouver Island, thence southwesterly across Ladysmith Harbour to a point on the shore 230° true from Sharpe Point; thence southerly along the shore of Vancouver Island to Grave Point; thence north of a line to Erskine Point on Saltspring Island; thence northerly along the shore to Parminter Point, thence west of a line to Josling Point on Kuper Island, thence northerly along the shore to the point of commencement at Donckele Point.

Consumption of **crab hepatopancreas** harvested in the waters west of a line from Reynolds Point to Miami Islet to a point at the entrance to Kulleet Bay true south of Deer Point **should not exceed 105 g/week**.

Area 18

Consumption of **crab hepatopancreas** harvested in Burgoyne Bay, Saltspring Island **should not exceed 60 g/week**.

Consumption of **crab hepatopancreas** harvested in Maple Bay **should not exceed 125 g/week**.

Area 19

Victoria Harbour: Consumption of **crab hepatopancreas** harvested in those waters of Victoria Harbour north of a line from Macaulay Point to the navigation light at the western end of the Ogden Point breakwater to a line from Chapman Point southwesterly to the opposite shore **should not exceed 135 g/week**.

Esquimalt Harbour (19-2): PLEASE NOTE: As a precautionary measure, Esquimalt Harbour (Subarea 19-2) was closed on May 10th, 2016 to all fishing due to a fuel spill (see

Fisheries Notices FN0393 & FN0700). This closure will remain in place until testing can be done to determine that all species are safe for human consumption. In the event the closure is lifted during the duration of this plan, if no new advisory is provided, the following consumption advisory will remain in place:

For those waters north of a line connecting Fisgard Light House, Scroggs Rocks, and Duntze Head, the recommended maximum weekly intakes for a variety of invertebrate species are listed below:

Table 1: Recommended maximum weekly consumption

<u>Seafood</u>	<u>Toddlers</u> <u>(1 to 4 years old)</u> Recommended maximum consumption: (grams per week)	<u>Adults</u> Recommended maximum consumption: (grams per week)
Dungeness crab hepatopancreas	24 g	109 g
Dungeness crab muscle	200 g	905 g
Red rock crab hepatopancreas	22 g	102 g
Red rock crab muscle	416 g	1,879 g
Sea urchin roe	288 g	1,302 g
Rockfish muscle	182 g	825 g

NOTE: The recommended maximum amounts that could be consumed per week of a specific seafood assumes that none of the other seafood types would be consumed in the same week.

Area 25

Consumption of **crab hepatopancreas** harvested from Muchalat Inlet **should not exceed 70 g/week**. This area includes those waters of Muchalat Inlet lying east of the Gold River Harbour limit, and in those waters of Muchalat Inlet lying east of a line between Anderson Point and Atrevida Point.

Area 28 & Area 29

Area 28

Consumption of **crab hepatopancreas** harvested in Howe Sound in subarea 28-3 and portions of subarea 28-1, in the waters of Thornbrough Channel, bounded on the north by a line from McNab Point on the mainland southwest to Ekins Point on Gambier Island, and on the south by a line from Gower Point to the southern tip of Home Island, thence north to Keats Island and along the western and northern shore to Cotton Point, thence west of a line to the government wharf at Gambier Harbour on Gambier Island, **should not exceed 55 g/week**.

Consumption of **crab hepatopancreas** harvested **should not exceed 130 g/ week** in the following areas:

Area 28 & 29

Consumption of **crab hepatopancreas** harvested in Howe Sound and the Strait of Georgia in subareas 28-2 and 29-1 and portions of subareas 28-1, 29-2 and 29-3, in the waters bounded:

- on the north by a line from Brunswick Point west to Irby Point on Anvil Island and along the shoreline to Domett Point on Anvil Island, west to McNab Point on the mainland,
- on the west by a line from McNab Point to Ekins Point on Gambier Island that follows the eastern and southern shoreline to the government wharf at Gambier Harbour, then proceeds south to Cotton Point on Keats Island and along the eastern and southern shoreline, south to Home Island and continues from southern tip of Home Island west to Gower Point, then follows the shoreline north and west to Reception Point,
- then on the south by a line that goes from Reception Point east to a point 1.5 km true south of Cape Roger Curtis on Bowen Island, and finally east to Point Atkinson **should not exceed 130 g/week.**

5 HUMAN WASTE CONTAINMENT REGULATIONS

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers. In accordance with the Canadian Shellfish Sanitation Program (CSSP) and Regulations administered by Transport Canada, raw sewage (Human wastes, sewage or refuse) shall not be discharged from vessels while in or adjacent to shellfish areas. Vessels operating at a distance which does not allow for timely access to on-shore washroom facilities are expected to have a designated human waste receptacle on board. Receptacles could include a portable toilet, a fixed toilet, or other containment device as appropriate. Such devices must be made of impervious, cleanable materials and have a tight-fitting lid. (Refer to Division 4 of the *Vessel Pollution and Dangerous Chemicals Regulations* under the *Canada Shipping Act*):

- Portable toilets or other designated human waste receptacles shall be used only for the purpose intended, and shall be so secured and located as to prevent contamination of the shellfish area or any harvested shellfish on board by spillage or leakage.
- The contents of toilets or other designated human waste receptacles shall be emptied only into an approved sewage disposal system.
- Every person onboard a shellfish harvest vessel must wash and sanitize their hands after using or cleaning a waste receptacle, or after using an onshore washroom facility.

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site: <https://www.inspection.gc.ca/preventive-controls/fish/cssp/questions-and-answers/eng/1563470479199/1563470589053>

APPENDIX 2: RECREATIONAL HARVEST PLAN

1. INTRODUCTION

There are five Guiding Principles for recreational fisheries in Canada which are outlined in “An Operational Policy Framework, Fisheries and Oceans Canada, 2001”, with more details available on the Internet at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/op-pc-eng.htm>

These Principles are:

1. Recreational fishing is a socially and economically valuable and legitimate use of fishery resources.
2. Fisheries and Oceans Canada is responsible for providing sustainable recreational harvesting opportunities as part of integrated management plans consistent with its policies.
3. Recreational harvesters have responsibility for shared stewardship for resource conservation and enhancement.
4. Mechanisms for federal/provincial cooperation in areas of shared jurisdiction will be established and strengthened.
5. Fisheries and Oceans has a leadership role to coordinate policies/programs with the federal government which relate to recreational fishing.

BC Recreational regulations are described in the British Columbia Tidal Waters Sport Fishing Guide, found online at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

2. RECREATIONAL MANAGEMENT HIGHLIGHTS FOR 2022/23

In February of 2017, the Heiltsuk, Kitasoo/Xai'Xais, Nuxalk and Wuikinuxv Nations and the Department of Fisheries and Oceans signed a Letter of Intent (LOI) that commits the parties to work together to develop and undertake a collaborative process for identifying and recommending management objectives (starting with conservation and sufficient First Nation food, social, and ceremonial access) and measures that will achieve healthy crab populations and sustainable crab fisheries on the Central Coast. In 2020, the governance partners (consisting of members of DFO and Central Coast First Nations) issued a joint recommendation to the executive-level decision makers in which they proposed commercial and recreational crab fishing closures in 17 sites in order to rapidly increase FSC access to crab. Upon review of the joint recommendation and associated data/documentation, DFO implemented 11 new commercial closures and 15 year-round recreational closures on April 1, 2021, and two seasonal recreational crab closures on June 1, 2021. Next steps for the governance partners will be the development of a monitoring and evaluation strategy to determine if the closures are effective at improving FSC access to legal male crab, continuing work on recreational and FSC catch and effort monitoring, and working on a strategy for engaging stakeholders. The governance partners will be transitioning the Central Coast Collaborative Crab Management Process (CCCCMP) in 2022 to align with the implementation of the Fisheries Resources Reconciliation Agreement

(FRRA) between DFO and the Coastal First Nations (including the Central Coast First Nations). These area closures are detailed in Section 3.6 below.

For more Recreational Issues and Objectives please refer the main body of the Crab by Trap Integrated Fisheries Management Plan (IFMP), Sections 5.4 and 6.3, respectively.

Recreational bottom-contact fishery closures went into effect on January 17, 2022 for five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect additional Howe Sound glass sponge reefs. In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound. A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website, here: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

Beginning in 2022/23, voluntary buoy requirements are introduced to address the types of containers and objects that are used as recreational crab floats, such as household plastic jugs, bottles, and pieces of styrofoam. Recreational Conditions of Licence will be updated for 2023 to specify crab float requirements.

3. OPEN TIMES AND CLOSURES

Recreational harvest of crab occurs year-round. There are some areas that are either closed to crab harvest or have consumption advisories. Please see the Tidal Waters Sport Fishing Guide, or visit the DFO website for more contamination details:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/biotox/index-eng.html>

For more information on open and closed areas where you may be planning to harvest crab or other species, visit the Sport Fish Guide for your species and area of interest at:

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

3.1 Marine Protected Areas and National Marine Conservation Areas

For an update on the Pacific North Coast Integrated Management Area, Marine Protected Areas, National Marine Conservation Areas, (i.e. Gwaii Haanas), and National Marine Wildlife Areas, including harvesting restrictions and area coordinates, please refer to Section 6.7 of the main IFMP.

3.2 Roberts Bank/Deltaport/Tsawwassen BC Ferries

To ensure and maintain a safe approach for deep-sea vessels, ferries and berthing tugs transiting in and out of the Roberts Bank/Deltaport and BC Ferries terminal, crab fishing is prohibited within the area described below: The waters inside a line drawn from a point on land at 49°01.567'N and 123°08.787'W to the TB Yellow Marker at 49°01.464'N and 123°08.633'W, thence to the T8 Red Marker at 49°01.214'N and 123°08.578'W, thence to the T6 Red Marker at 49°00.887'N and 123°08.644'W, thence to the T4 Red Marker at 49°00.696'N and 123°08.922'W, thence to the T2 Red Marker at 49°00.489'N and 123°09.201'W, thence

southeasterly to the BC Ferry Western docking pylon at 49°00.323'N and 123°08.189'W, thence following the BC Ferry property coastline to 49°00.470'N and 123°07.582'W, thence southeasterly to the most northeasterly point of the Tsawwassen Breakwater at 49°00.230'N and 123°07.440'W, thence to the southwesterly point of the Tsawwassen Breakwater at 49°00.134'N and 123°07.725'W, thence westerly to a point in water at 49°00.133'N and 123°11.270'W, thence due north to a point in water at 49°00.913'N and 123°11.270'W, thence due east to the west end of the Delta Port Dock at 49°00.666'N and 123°10.082'W, thence northeasterly following the Delta Port causeway to 49°00.822'N and 123°09.533'W, thence following the Delta Port property coastline to the point of commencement.

Port Metro Vancouver proposes the construction and operation of a new three-berth marine container terminal located at Roberts Bank in Delta to be located next to the existing Deltaport and Westshore Terminals. This proposed project known as Roberts Bank Terminal 2, is undergoing an environmental assessment by a joint federal and provincial review panel to identify and evaluate potential effects associated with the construction and operation of the Project (e.g. proposed 110ha+ infill and associated vessel exclusion zone) and to develop mitigation measures that will be used to avoid and/or minimize potential negative effects. Should this project proceed, further stakeholder consultation would be required. Parties interested in providing input for consideration by the Review Panel are encouraged to consult the Canadian Environmental Assessment Agencies project-specific web site at <http://www.ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=80054> for information relevant to the status of the project review and to learn more about how you may engage in the process.

Additional information can be found on the Port Metro Vancouver website: www.robertsbankterminal2.com

3.3 Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site:

Portions of the Gwaii Haanas National Marine Conservation Area, identified by the management plan as fully protected areas, will remain closed to commercial and recreational harvest in 2022. See Section 6.7 in the main IFMP section for closure information or Appendix 11 for a map and coordinates.

3.4 Hecate Strait Queen Charlotte Sound Glass Sponge Reef Areas:

The Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected area was implemented in February 2017. Please see Section 6.7 in the main IFMP for more information and Appendix 7 for maps.

3.5 Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges

Since April 1st, 2020 all commercial, recreational and First Nations food, social and ceremonial (FSC) bottom-contact fishing activities for prawn, shrimp, crab and groundfish, and the use of downrigger gear, are prohibited within portions of Subareas 28-2 and 28-4 to protect Howe Sound glass sponge reefs. In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound.

Commercial and recreational bottom-contact fishery closures went into effect on January 17, 2022 for these five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect additional Howe Sound glass sponge reefs. For more information see Section 6.7 of the main IFMP.

A description and maps of the closures are provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website, here: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

3.6 Race Rocks Marine Protected Area

Consultation regarding the boundaries for the Race Rocks Marine Protected Areas (MPA) is ongoing. The description of the Race Rocks MPA is likely to be modified from the description given in this IFMP and may be changed in-season if required, (see Section 5.4.2.2. or 5.6.1.16 of the Commercial Harvest Plan for more details).

3.7 Central Coast Collaborative Crab Process Closures

Engagement with stakeholders will continue in 2022 on the list of sites below, which have been closed year-round to recreational crab fishing as of April 1, 2021, except for Doc Creek and Bullock Channel, which will close from June 1 to September 30 each year.

Mussel Inlet Closure:

Subarea 7-7

Those portions of Mussel Inlet lying easterly of a line that begins at 52°54.608550' N 128°7.088569' W [Carse Point] then south to 52°53.891016' N 128°6.686082' W [east of David Bay].

Khutze Inlet:

A portion of Subarea 6-23 lying southerly of a line that begins at 53°05.7887' N 128°27.1974' W [Pardoe Point] then to due east to 53°05.7865' N 128°25.7469' W.

Kynoch Inlet Closure

The portion of Subarea 7-11 that is east of a line starting on the south shore at 52°44.5728' N 127°57.9885' W due north to a point at 52°45.0973' N 127°57.9743' W. This closure includes the eastern portion of Kynoch Inlet and Culpepper Lagoon.

Higgins Passage Closure:

Those portions of Subareas 6-16 and 7-3 lying inside of a line that begins at 52°29.074586' N 128°45.836113' W [southwest Swindle Island], then southwest to 52°28.658625' N 128°47.783029' W, then south to 52°27.752182' N 128°47.957771' W, then east to 52°27.505255' N 128°45.896523' W [west Price Island], then following the northern shoreline of Price Island to 52°27.564212' N 128°37.583357' W, then 52°27.919086' N 128°36.925324' W then following the southern shoreline of Swindle Island to the beginning point.

Griffin:

Those waters in a portion of Subarea 7-9 inside a line that begins at 52°46.0240' N 128°20.9051'

W, then due east to 52°46.0175' N 128°19.9661' W then following the eastern shoreline to the south to the point 52°40.5787' N 128°16.3566' W and then due west to 52°40.5787' N 128°17.2617' W and then following the west shore north to the beginning point.

Bottleneck:

Those waters of Subarea 7-6 within Bottleneck Inlet: Defined by those waters inside a line that begins at 52°42.7' N 128°25.5' W, then to 52°42.8' N 128°25.5' W, then following the shoreline back to the beginning point.

Doc Creek Closure (seasonal June 1 to Sept 30th):

Those waters within Subarea 8-13 of Burke Channel inside a line that begins at 51°57.9781' N 127°40.4324' W then southwest to 51°57.0328' N 127°41.3889' W. This closes the estuaries of Doc Creek and Nootsum River.

Troup Passage Closure:

Those portions of Subarea 7-15 lying inside of a line that begins at 52°18.201' N 127°57.968' W [Jagers Point], then following the westerly shoreline of Cunningham Island to 52°12.252' N 128°05.718' W [Dumas Point], then to 52°13.595' N 128°07.398' W [Chatfield Island], then following the northerly shoreline of Chatfield Island to 52°18.201' N 128°00.831' W, then due east to the beginning point.

Hauyet:

A portion of Subarea 7-17 including Hauyet: Those waters of Lama Passage and adjacent waters inside a line that begins at 52°4.2' N 128°5.6' W (Westminster Point), then to 52°3.9' N 128°3.0' W (Harbourmaster Point), then following the southern shoreline to the beginning point.

Bullock (seasonal June 1 to Sept 30th):

A portion of Subarea 7-14 within Bullock Channel inside a line that begins at 52°24.8034' N 128°04.7689' W, then due east to 52°24.8034' N 128°04.4230' W then following the eastern shoreline to the south to the point 52°22.3772' N 128°03.4271' W and then due west to 52°22.3729' N 128°03.9442' W and then following the west shore north to the beginning point.

Koeye Inlet Closure

The portion of Subarea 8-3 that is east of a line starting Koeye Point due north to the shoreline. This closes Koeye River estuary.

Rivers Inlet:

Subareas 9-5 to 9-9.

Johnston Bay:

That portion of Subarea 9-3 including Johnston Bay: Those waters of Rivers Inlet inside a line that begins at 51°30.4' N 127°32.2' W, then to 51°30.5' N 127°31.5' W, following the southerly shoreline back to the beginning point.

South Bentinck 1:

That portion of Subarea 8-12 within the south end of Bentinck arm: South of a line that begins at

52°03.4381' N 126°41.3674' W, then to 52°02.6243' N 126°43.1459' W.

South Bentinck 2:

That portion of Subarea 8-12 within Bentinck Arm inside a line that begins at 52°08.3851' N 126°49.8189' W, then due north to 52°09.9041' N 126°49.7904' W then following the eastern shoreline to the south to the point 52°03.4381' N 126°41.3674' W and then due west to 52°02.6243' N 126°43.1459' W and then following the west shore north to the beginning point.

Kimsquit:

That portion of Subarea 8-8 within the north end of Dean Channel: North of a line that begins at 52°35.3013' N 127°09.7818' W, then to 52°34.4591' N 127°08.9307' W and subarea 8-9.

Kwatna:

That portion of Subarea 8-14 within Kwatna Bay: East of a line that begins at 52°07.0781' N 127°26.0781' W, then to 52°06.4534' N 127°26.0781' W.

Kwatalena:

That portion of Subarea 8-14 within Kwatna Inlet: South of a line that begins at 52°03.5732' N 127°36.0804' W, then to 52°03.3190' N 127°34.8727' W.

4. LICENSING

Tidal Water Sport Fishing - Licensing and Regulations

The recreational harvest of all fish and invertebrates, including crab 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.

Crab species may generally be fished by crab traps under the regulations, as well as by dip net, hand picking, and ring net. To review the current regulations for your area and species of interest please visit the BC Tidal Waters Sport Fishing Guide online at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html> (more details below). Fishers should also review the recreational Conditions of Licence, as printed on the licence, as these may advise other restrictions for crab species.

Tidal Waters Sport Fishing licences may be purchased for a 1 day, 3 day, or 5 day period, or as an annual licence, covering the period April 1 to March 31 the following year. The annual licence fee is not pro-rated for annual licences purchased mid-season. Fees depend on licence duration, age (senior, adult, juvenile) and residency status. Licences for juveniles (ages 15 and under) are free. Concessionary fees are not otherwise available.

Alternatively licences may be purchased over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee).

Licences may be purchased online via the National Recreational Licensing System:

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

A list of IAPs is available at:

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

On March 31, 2020, Fisheries and Oceans Canada was required to implement the *Service Fees Act*, which requires that all Government of Canada departments and agencies annually adjust service fees by the rate of inflation subject to certain exemptions. This change is applicable to all licensing fees associated with all federally regulated commercial and recreational fisheries across Canada. The annual rate of inflation is determined by the All-items year-over-year Consumer Price Index (CPI) for Canada, published by Statistics Canada. Fisheries and Oceans Canada implemented the first inflationary increase (2.2 per cent) on March 31, 2020, for all fishing seasons that start on or after April 1, 2020. For 2021 onwards, the annual increase will be applied when licences are issued. Fisheries and Oceans Canada last increased licence fees in 1996.

Online Regulations

The regulations for recreational fishing are summarized online in the British Columbia Tidal Waters Sport Fishing Guide, which lists open and 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>. You may also call your local fishery office to obtain regulatory information for your area of interest – visit us at <http://www.dfo-mpo.gc.ca/contact/regions/pacific-pacifique-eng.html> to find a local area office, or call 604-666-0384 or email info@dfo-mpo.gc.ca.

Using mobile devices and the FishingBC App

The FishingBC App, as developed by the Sport Fishing Institute of BC, may be downloaded to a mobile device to assist with having access to regulatory information for species, areas, fishing gear while out on the water (along with other functionality).

The DFO ‘Recreational Fishing in British Columbia’ website is the official site for regulatory information in the event of a discrepancy with the FishingBC App.

The FishingBC App may be downloaded at:

<http://www.fishingbcapp.ca/>

The DFO ‘Recreational Fishing in British Columbia’ website is available at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

E-licences and Paper licences

At this time most fishers continue to use the traditional paper copy of their licence; however an e-licence – which is an electronic/pdf copy of your licence – may be used on a mobile device.

Please consider these licensing requirements before your fishing trip:

- For all recreational tidal water fishers that do not have an electronic copy of their licence on their mobile device - you must still have a paper copy of your licence with you as proof of licence purchase to show to a fishery officer.
- For users of the FishingBC App, or on any electronic device, you may have a pdf copy of your licence on the device which must be immediately producible to show to a fishery officer; however please note catch recording requirements below.
- For all fishers wishing to retain chinook, halibut, or lingcod, even if you have your e-licence and catch details in the App or in your mobile device, you must immediately record catch for these three species to either:
 - a paper copy of your licence, or
 - your National Recreational Licensing System account (where internet access for your mobile device is available). It can be helpful to immediately take a screenshot of your catch records should you subsequently move out of cell range.
- Your licence and catch records must be immediately available for inspection upon request of a fishery officer or guardian.

Supporting Sustainable Fisheries - Catch Reporting and the iREC Reporting Program

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 reporting program. Recreational harvesters may be requested by a Fishery Officer or designated DFO representative at the dock, or through a creel or internet reporting program to provide catch/effort information on their recreational fishing activities.

Internet Recreational Effort and Catch (iREC) Reporting program

The internet Recreational Effort and Catch (iREC) reporting program is an online program that has been collecting effort and catch information from tidal waters sport fishing licence holders since 2012. As of April 2020, all licences are selected for one month of iREC reporting program or the internet Annual Recreational Catch (iARC) program (see below). Licence holders are advised at time of licence purchase which program their licence has been selected for. The iREC website, a unique iREC access id and reporting deadline are printed on each licence and licence holders who provide a valid email address to the National Recreational Licencing system receive emails reminding them to complete their iREC reports. Providing complete and accurate

information to the iREC (or iARC) reporting program when selected is a condition of licence (mandatory requirement).

The responses to the iREC reporting program are self-reported without any direct data verification. Although the program design protects against certain biases, response data and resulting estimates are still subject to a variety of biases. In some cases, estimates may be bias-corrected based on comparison of iREC and creel estimates. The estimates are subject to revision based on review of the response data, consideration of alternative analytical methods and data from other sources.

The iREC reporting program is one of the sources that may be used in developing Fisheries and Oceans' official catch and effort estimates. The iREC reporting program methodology was peer reviewed and approved by the Canadian Science Advisory Secretariat (CSAS) in 2015. This program provides monthly estimates of effort for 6 fishing methods and catch for over 80 species of sport caught finfish and shellfish in all Pacific Fishery management areas based on responses by tidal waters sport fishing licence holders. The methods covered by the iREC reporting program include boat-based angling, angling from shore, shellfish trapping from boat and shore, beach collecting, and diving. iREC estimates are used for methods and species not covered by the marine creel surveys which cover only boat-based angling, and for months and areas not covered by marine creel surveys. Learn more about the iREC reporting program at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/index-eng.html>

Internet Annual Recreational (iARC) Reporting program

A separate online reporting program - the Internet Annual Recreational Catch (iARC) reporting program – is held at the end of the season to collect the catch records of Chinook, lingcod, and halibut from tidal waters sport fishing licence holders as written on their licences. This program has been running since 2014/15 and provides information for Chinook, lingcod and halibut on annual quota, annual and monthly catch estimates, and halibut length statistics. More information about the iARC reporting program is available at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/iarc-eng.html>

5. MANAGEMENT MEASURES FOR THE RECREATIONAL FISHERY

The regulations are summarized in the BC Sport Fishing Guide which lists closed times, daily and possession limits and some closed areas. A copy of the BC Sport Fishing Guide is available online at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

5.1 Size Limits

Recreational harvesters may not harvest any Dungeness Crab that measures less than 165 mm or any Red Rock Crab that measures less than 115 mm.

Crab are measured in a straight line through the greatest breadth of the carapace. Harvesters are advised to measure crab using a calliper device. Harvesters are responsible for ensuring they only harvest crab that meet minimum size limits. Undersized crab must be returned to the water

immediately, in a manner that causes least harm possible. For retained crab, the carapace must remain attached until consumed or until the crab arrives at your ordinary residence.

5.2 Non Retention of Female Crab

Recreational harvesters are required to release all female Dungeness, Red Rock and King Crab immediately, in a manner that causes the least harm possible. The female's abdomen has a wide "beehive" shape; the male's has a narrow "lighthouse" shape.

5.3 Gear

Crab may be harvested using dip nets, ring nets, traps, or handpicking. It is illegal for an individual to use more than two rings, two dip nets or two traps or more than two of these in combination to fish for crab. It is illegal to use snares, rakes, spears or other pointed instruments to catch or attempt to catch crab.

Crab traps are required to have two unobstructed circular escape holes or rings, measuring a minimum of 105 mm in diameter. All crab traps must have a section in the top or sidewall that has been secured by a single length of untreated cotton twine no greater than No. 120 (approximately 5 mm or 3/16 inch diameter). This twine is often referred to as rot cord. On deterioration this must produce a rectangular opening with a minimum size of 7 cm x 20 cm, or a square opening with a minimum size of 11 cm x 11 cm. This regulation is intended to ensure that if the trap is lost, the section secured by the cord will rot, allowing captive crabs to escape, and preventing the trap from continuing to fish. On traps with a rigid frame and a freely opening hinged lid the trap lid must be secured by a single length of untreated cotton twine no greater than No. 120 so that the trap lid will open freely when the rot cord is broken. No other fastenings may impede the hinged lid of the trap from opening. Rot cord for hinged lid traps are further illustrated in Appendix 6.2.

During the 2021/22 season, DFO and the SFAB discussed buoy requirements to address the types of floats used by some recreational harvesters, including household plastic jugs, bottles, and pieces of Styrofoam. Beginning in 2022/23, voluntary buoy requirements are introduced. Under the new requirements, floats attached to crab traps must be bullet shaped cylindrical floats to a minimum of 27 cm in length and 12 cm in diameter. Multiple floats of this type may be used on a single line, and floats must be made of durable material. Containers such as bleach, antifreeze, detergent bottles, paint cans, etc. are not permitted. This requirement will be mandatory for 2023/24.

5.4 Daily Limits

- The aggregate daily limit of Dungeness, Red Rock, Box, Puget Sound, and Alaska King Crab in Areas 1-10 and 21-27 is 6; and in Areas 11-20, 28 and 29 is 4.
- The daily limit for Alaska King Crab is two per day.
- The daily limit for box crab and Puget Sound King Crab is one per day coast wide.

- The daily limit for shore crab is 75 per day, except in Areas 28 and 29 where retention is 0.
- The daily limit for all other species of crab not listed is 4 per day coastwide.

5.5 Possession Limits

- Possession limits for all crab species are two times the daily limit.

5.6 Crab Consumption Advisories

There are some areas that are either closed to crab harvest or have consumption advisories because of contamination from heavy metals or dioxins and furans. These closures and advisories are listed below, but may change during the year. Please refer to Appendix 8 for local area contact information.

Area 4

The harvesting of crab is prohibited due to dioxin contamination in that portion of Subarea 4-11 west of the Highway #16 bridge at Galloway Rapids, which includes Wainwright Basin, Porpoise Harbour, and Porpoise Channel.

Area 13

Consumption of **crab hepatopancreas** harvested in Discovery Passage should not exceed **100 g/week**. This area includes those waters north of a line from the Cape Mudge Lighthouse on Quadra Island true west to the shore of Vancouver Island and south of a line from Separation Head (Quadra Island) true west to Vancouver Island.

Consumption of **crab hepatopancreas** harvested in Deepwater Bay should not exceed **100 g/week**. This area includes those waters southeast of a line from Separation Head on Quadra Island 50° true to the opposite shore.

No consumption of **crab hepatopancreas** harvested in the waters bounded by the eastern shore of Quadra Island from Francisco Point, thence 5 km north along the shore, thence east from the shoreline to the 200 m contour.

Consumption of **crab hepatopancreas** harvested in the waters east of a line on Quadra Island from Chonat Point south to the opposite bay (Chonat Bay) and from Kanish Bay, Quadra Island, east of a line from Granite Point to Bodega Point **should not exceed 135 g/week**.

Consumption of **crab hepatopancreas** harvested in the waters north of a line extending from Walters Point on Sonora Island true east to a point on the opposite shore (Owen Bay) **should not exceed 135 g/week**.

Area 17

Consumption of **crab hepatopancreas** harvested in a portion of Stuart Channel **should not exceed 40 g/week**. This area of Stuart Channel is bounded on the north by a line from Donckele Point on Kuper Island to the point at the southeastern entrance to Preedy Harbour on Thetis Island, thence to the most southern point of Dayman Island, thence to the most southern point of Scott Island, westerly to Sharpe Point on Vancouver Island, thence southwesterly across Ladysmith Harbour to a point on the shore 230° true from Sharpe Point; thence southerly along the shore of Vancouver Island to Grave Point; thence north of a line to Erskine Point on Saltspring Island; thence northerly along the shore to Parminter Point, thence west of a line to Josling Point on Kuper Island, thence northerly along the shore to the point of commencement at Donckele Point.

Consumption of **crab hepatopancreas** harvested in the waters west of a line from Reynolds Point to Miami Islet to a point at the entrance to Kulleet Bay true south of Deer Point **should not exceed 105 g/week**.

Area 18

Consumption of **crab hepatopancreas** harvested in Burgoyne Bay, Saltspring Island **should not exceed 60 g/week**.

Consumption of **crab hepatopancreas** harvested in Maple Bay **should not exceed 125 g/week**.

Area 19

Victoria Harbour: Consumption of **crab hepatopancreas** harvested in those waters of Victoria Harbour north of a line from Macaulay Point to the navigation light at the western end of the Ogden Point breakwater to a line from Chapman Point southwesterly to the opposite shore **should not exceed 135 g/week**.

Esquimalt Harbour (19-2): **PLEASE NOTE: As a precautionary measure, Esquimalt Harbour (Subarea 19-2) was closed on May 10th, 2016 to all fishing due to a fuel spill (see Fisheries Notices FN0393 & FN0700)**. This closure will remain in place until testing can be done to determine that all species are safe for human consumption. In the event the closure is lifted during the duration of this plan, if no new advisory is provided, the following consumption advisory will remain in place:

For those waters north of a line connecting Fisgard Light House, Scroggs Rocks, and Duntze Head, the recommended maximum weekly intakes for a variety of invertebrate species are listed below:

Table 1: Recommended maximum weekly consumption

<u>Seafood</u>	<u>Toddlers</u> <u>(1 to 4 years old)</u> Recommended maximum consumption: (grams per week)	<u>Adults</u> Recommended maximum consumption: (grams per week)
Dungeness crab hepatopancreas	24 g	109 g
Dungeness crab muscle	200 g	905 g
Red rock crab hepatopancreas	22 g	102 g
Red rock crab muscle	416 g	1,879 g
Sea urchin roe	288 g	1,302 g
Rockfish muscle	182 g	825 g

NOTE: The recommended maximum amounts that could be consumed per week of a specific seafood assumes that none of the other seafood types would be consumed in the same week.

Area 25

Consumption of **crab hepatopancreas** harvested from Muchalat Inlet **should not exceed 70 g/week**. This area includes those waters of Muchalat Inlet lying east of the Gold River Harbour limit, and in those waters of Muchalat Inlet lying east of a line between Anderson Point and Atrevida Point.

Area 28 & Area 29

Area 28:

Consumption of **crab hepatopancreas** harvested in Howe Sound in subarea 28-3 and portions of subarea 28-1, in the waters of Thornbrough Channel, bounded on the north by a line from McNab Point on the mainland southwest to Ekins Point on Gambier Island, and on the south by a line from Gower Point to the southern tip of Home Island, thence north to Keats Island and along the western and northern shore to Cotton Point, thence west of a line to the government wharf at Gambier Harbour on Gambier Island, **should not exceed 55 g/week**.

Consumption of **crab hepatopancreas** harvested **should not exceed 130 g/ week** in the following areas:

Areas 28 and 29:

Consumption of **crab hepatopancreas** harvested in Howe Sound and the Strait of Georgia in Subareas 28-2 and 29-1 and portions of Subareas 28-1, 29-2 and 29-3, in the waters bounded:

- on the north by a line from Brunswick Point west to Irby Point on Anvil Island and along the shoreline to Domett Point on Anvil Island, west to McNab Point on the mainland,
- on the west by a line from McNab Point to Ekins Point on Gambier Island that follows the eastern and southern shoreline to the government wharf at Gambier Harbour, then proceeds south to Cotton Point on Keats Island and along the eastern and southern shoreline, south to

Home Island and continues from southern tip of Home Island west to Gower Point, then follows the shoreline north and west to Reception Point,
- then on the south by a line that goes from Reception Point east to a point 1.5 km true south of Cape Roger Curtis on Bowen Island, and finally east to Point Atkinson **should not exceed 130 g/week.**

6. BEST MANAGEMENT PRACTICES

For the benefit of managing and protecting the long-term sustainability of the resource, recreational Crab harvesters are being advised by the Department to undertake the following activities when recreationally fishing for Crab:

1. Review the Fishing for Shellfish section of your British Columbia Sport Fishing Guide.
2. Ensure all buoys are marked in accordance with licence conditions.
3. Ensure your buoy line does not float. Utilise sinking line as an alternative to line weights for all crab traps fished.
4. Ensure compliant rot cord type and check that your trap has escape rings; crab traps are required to have two unobstructed circular escape holes or rings, measuring a minimum of 105 mm in diameter.
5. Immediately release females and undersized crab back to their place of origin with the least possible harm.
6. Fish away from navigation channels and communities.
7. Ensure your shellfish harvesting details are included in iREC or dockside creel survey requests.
8. Crab can be known to contain industrial and biological toxins within their viscera. To avoid ingestion of potentially harmful toxins remove the gills and organs from crab prior to cooking. For more information go to: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/dioxin-eng.php>.
9. A seasonal gear conflict between the Food Social and Ceremonial (FSC) salmon gillnet and recreational crab fisheries has been identified in the Selma Park/Davis Bay area near Sechelt (Subarea 29-1). The Department will continue to work with local First Nation representatives and the SFAB to help facilitate discussions and work towards a solution.

7. HUMAN WASTE CONTAINMENT REGULATIONS

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers. In

accordance with the Canadian Shellfish Sanitation Program (CSSP) and Regulations administered by Transport Canada, raw sewage (human wastes, sewage or refuse) shall not be discharged from vessels while in or adjacent to shellfish areas. Vessels operating at a distance which does not allow for timely access to on-shore washroom facilities are expected to have a designated human waste receptacle on board. Receptacles could include a portable toilet, a fixed toilet, or other containment device as appropriate. Such devices must be made of impervious, cleanable materials and have a tight-fitting lid. (Refer to Division 4 of the *Vessel Pollution and Dangerous Chemicals Regulations* under the *Canada Shipping Act*):

- Portable toilets or other designated human waste receptacles shall be used only for the purpose intended, and shall be so secured and located as to prevent contamination of the shellfish area or any harvested shellfish on board by spillage or leakage.
- The contents of toilets or other designated human waste receptacles shall be emptied only into an approved sewage disposal system.
- Every person onboard a shellfish harvest vessel must wash and sanitize their hands after using or cleaning a waste receptacle, or after using an onshore washroom facility.

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site: <https://www.inspection.gc.ca/preventive-controls/fish/cssp/questions-and-answers/eng/1563470479199/1563470589053>

APPENDIX 3: COMMERCIAL HARVEST PLAN (APRIL 1, 2022 – MAR 31, 2023)

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1. COMMERCIAL CHANGES AND HIGHLIGHTS (APRIL 1, 2022 - MARCH 31, 2023)

1.1. Management Changes and Updates:

- Reminder to mark gear properly with floats (see Sections 4.4 to 4.6) as there is a concern regarding unmarked, abandoned and lost gear in the crab fisheries, notably in Boundary Bay (Area J). Reporting of suspected violations or unmarked, abandoned and lost gear can be made to the to ORR: Observe, Record, Report line: 1-800-465-4336 or <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/ORR-ONS-eng.html>
- Conditions of Licence will continue to include mandatory reporting requirements of lost and retrieved gear, with the additional option of using a new reporting website for the 2022/2023 season.
- Area A: The Area A Association has expressed interest in creation of a North-South shipping and cruise ship lane to minimize impacts between vessel traffic and fishing gear. Conversations with Transport Canada will proceed in 2022.
- Area B: Due to concerns with softshell crab encounters in the spring, the Area B fleet has shifted its schedule to open from April 1- Dec 18.
- Area E: DFO will be engaging with the commercial Area E fleet to discuss options around consolidating the “Area E Common” areas in 2022-23.
 - Becher Bay First Nations have requested an adjustment to the Becher Bay Inside and Outside closures. DFO is consulting with Becher Bay and the Area E Sooke commercial representatives. The boundaries or times for this closure may be changed prior to the fishery start or in season.
 - Area E Quatsino will implement a unique buoy colour registry in 2022.
- 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 for any species, with the exception of Geoduck, within their Fishing Territories and to sell that fish. The April 2021 BC Court of Appeal Decision in *Ahousaht Indian Band and Nation v. Canada*, 2021 BCCA 155, resulted in changes to commercial trap allocations prior to the licensing and opening of the commercial fishery (see Section 2, and Section 1.3.1 of the main IFMP). In winter 2021/22, DFO met with Commercial Crab Area Representatives and commercial service providers to discuss the change to trap allocations for 2022/23. As a result of those meetings, no additional changes to management measures other than revised trap allocations will be in place for April 1, 2022. The Department is working to mitigate the additional crab access provided to the Five Nations through voluntary licence relinquishment; however, this will take time and full mitigation for the overall crab amount will not be in place for April 1, 2022.
- Following consultations in 2021/22, due to continued low compliance rates in the Area J commercial crab fishery, the Department will implement mandatory video monitoring as an addition to the existing management measures in Area J beginning in the 2022/23 season. Low compliance rates include logbook reporting, fishing over the international US boundary, failing to scan RFID chips on traps, and exceeding trap limits in place in the fishery.

1.2. Closure Updates

- The Roberts Bank Terminal 2 Project is undergoing an environmental assessment. The Project includes expansion of the Roberts Bank/Deltaport Navigational Closure. For further information please visit the Canadian Impact Assessment Registry <https://iaac-aeic.gc.ca/050/evaluations/proj/80054>.
- In February of 2017, the Heiltsuk, Kitasoo/Xai'Xais, Nuxalk and Wuikinuxv Nations and the Department of Fisheries and Oceans signed a Letter of Intent (LOI) that commits the parties to work together to develop and undertake a collaborative process for identifying and recommending management objectives (starting with conservation and sufficient First Nation food, social, and ceremonial access) and measures that will achieve healthy crab populations and sustainable crab fisheries on the Central Coast. In 2020, the governance partners on the CCCCMP Steering Committee (consisting of members of DFO and Central Coast First Nations) issued a joint recommendation to the executive-level decision makers in which they proposed recreational and commercial fishing area closures in 17 sites (11 of which are new commercial crab closures) in order to rapidly increase FSC access to crab. Upon review of the joint recommendation and associated data/documentation, DFO implemented 11 new commercial closures and 15 year-round recreational closures on April 1, 2021, and two seasonal recreational crab closures on June 1, 2021. These area closures are detailed in Section 5.3.1 below.
- New fishing closures to protect glass sponge reefs in the Strait of Georgia and Howe Sound have been implemented. In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound. Commercial bottom-contact fishery closures went into effect on January 17, 2022 for these five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect additional Howe Sound glass sponge reefs. For more information see Section 6.7 of the main IFMP. A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

1.3. Licensing Updates:

- Requirements for service provider arrangement and submission of previous year's harvest logs prior to annual licence renewal are required.
- Licence transferring ("trap stacking") will be allowed again in Area B, E-Sooke, E-Tofino and E-Tofino Outside option, G, H and J for 2022/23. Licences that stack will be allowed to use 66% of the traps from the 2nd licence.

2. MANAGEMENT MEASURES FOR THE COMMERCIAL FISHERY

2.1 Species

Dungeness Crab (*Cancer magister*)

Red Rock Crab (*Cancer productus*)

Red and Golden King Crab (*Paralithodes camtschatica* & *Lithodes aequispinus*), are permitted to be retained in the north and central coast only, under amended crab conditions of licence and local area crab manager specifications. Please contact the local area manager for more details (see Appendix 8).

Fish harvesters are authorized to incidentally catch and retain octopus *Enteroctopus dofleini* while crab trap fishing, except in octopus closure areas (Section 5.9). Conditions of Licence require all fish harvesters to accurately complete octopus catch and retention information in the crab trap logbook, including any nil catch reports.

Crab-by-trap licence eligibility holders are also permitted to fish for species described in Schedule II Part 2 of the *Pacific Fishery Regulations*. Conditions of Licence for these species are included with crab-by-trap licences. Schedule II Conditions of Licence apply even if the catch is only intended for bait. For information regarding the harvest of Schedule II, Other Species please refer to the IFMP for lingcod, dogfish, sole and flounder, skate and pacific cod. For information regarding transporting please refer to Part III of the Conditions of Licence.

2.2 Size Limits

Undersized crab must be returned to the water immediately upon capture with the least possible harm in the location from which they were caught. It is the responsibility of each harvester to ensure that their measuring gauge is accurate.

The minimum size limit for Dungeness Crab is 165 mm, measured as the maximum distance in a straight line through the greatest breadth of the shell.

The minimum size limit for Red Rock Crab is 115 mm, measured as the maximum distance in a straight line through the greatest breadth of the shell.

The voluntary minimum size limit for King Crab is 178 mm, measured as the maximum distance in a straight line through the greatest breadth of the shell, including the spine. King Crab is only permitted to be retained in the North and Central coast (Crab Management Area B) only, under amended crab conditions of licence and local area crab manager specifications.

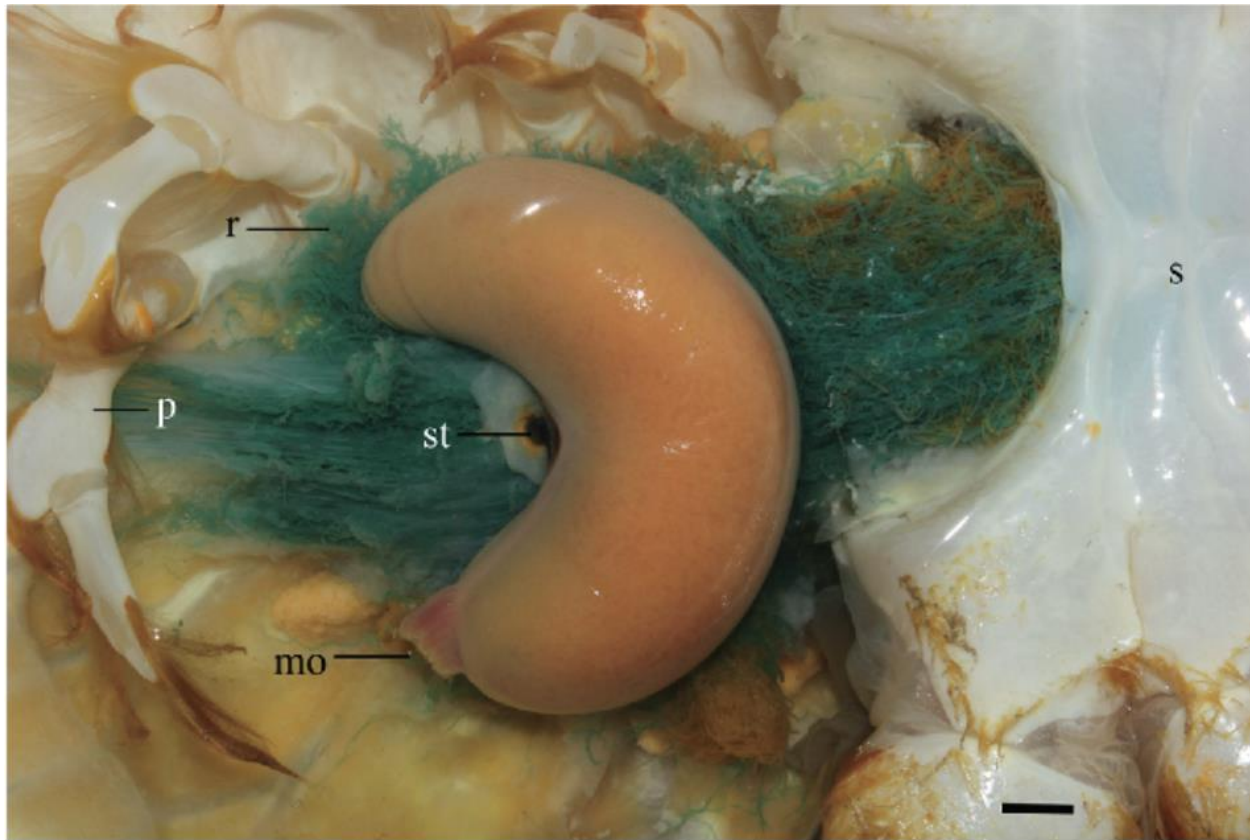
2.3 Non-retention of Female Crabs

Every person engaged in commercial crab fishing shall immediately return all female crabs to the water in the location from which they were caught, in a manner that will cause least harm, with the exception below.

No person shall catch and retain or possess any female crab unless the crab is infected by the parasite *Briarosaccus callosus* and is being brought ashore to avoid the further spread of that parasite. Dungeness Crab found with this parasite should be frozen and shipped to Gary Meyer at the Pacific Biological Station. Please call 1-250-756-7034.

Briarosaccus callosus is identified by a reddish-brown, 1 to 2 cm diameter capsule(s), which is the egg sac of the parasite, located under the abdomen (i.e. where the crab eggs would normally be carried). See Figure 1 for a photo of this parasite. Retention of female crabs or their roe (eggs or larvae) represents a threat to conservation of crab stocks.

Figure 1: *Briarosaccus callosus* parasite



2.4 Non-retention of Soft-shell Crabs

Soft-shell crabs may not be retained. A crab is considered soft-shell if the underside of the shell (carapace) yields or flexes under pressure. Crab shell hardness is measured with a durometer, which is a spring driven device specifically designed to measure the shell hardness of Dungeness crab. Durometers are available from PTC Instruments, 2301 Federal Avenue, Los Angeles, CA 90064 (<http://www.ptci.com/>). The Dungeness crab durometer is model 307LCRB-4. The appropriate place on a crab to determine if the crab shell is soft is on the underside of the carapace between the widest point of the carapace and the attachment of the leg bearing the claw. The durometer should be positioned just anterior to the shell suture line as indicated in Appendix 6. The durometer shall be applied to this location on the crab as per the manufacturer's instructions. The indenter of the durometer should be pressed to the crab shell until the foot of the durometer is flush with the surrounding shell. Soft-shell crabs are those crabs that do not exceed a durometer measurement of 70 units.

Crab harvesters are generally aware of the difference between hard and soft-shell crabs. Crabs can be tested with digital pressure in the same location on the shell as indicated in Appendix 6. The legal hardness standard will be the durometer measurement. If the harvester is unsure whether the crab shell is hard enough the crab shall be returned to the water.

In many areas, harvesters have advised the Department that the use of fish frames or "hanging bait" may increase the catch of soft-shell crab. Commercial harvesters should avoid fishing during soft-shell periods in order to minimize damage to crab populations, and to maximize the landed

value of harvested product. In-season closures may be implemented in locations where a high incidence of soft-shell is observed. Soft-shell crabs left in traps are subject to increased risk of mortality through cannibalism.

Fisheries and Oceans Canada requires that commercial crab harvesters carefully handle and release soft-shell crab. All undersized crab and soft-shell crab must be removed from the trap and released immediately in the location where they were caught, in a manner that will cause least harm. Harvesters are asked to release soft-shell crab back into the water as close to the surface as possible. Dropping soft-shell crab from any height or throwing them over the side will substantially increase damage and mortality.

2.5 Area Licences

In 2020, crab licence holders selected an area to fish for the three-year period commencing April 1, 2020 and ending March 31, 2023. Provided below in Table 1 are licence area selection details from 2000 to 2023.

The next area selection process, (whereby licenced commercial crab vessels choose one crab management area to fish in) is expected in 2023.

Table 1 Crab Licence Area Selection and distribution

Selection Period	A	B	E Quat	E Sooke	E Tofino	E Total	G	H	I	J	Total
2000	48	19				39	14	47	36	19	222
2001-2002	48	19				39	13	48	36	19	222
2003-2005	41	17				42	13	55	36	18	222
2006	56	11				35	14	43	41	22	222
2007-2008	56	12				35	14	42	41	22	222
2009	52	17	2	6	18	26	19	45	42	21	222
2010-2012	53	13	2	6	18	26	20	40	51	18	221
2013-2015	47	16	2	10	24	36	19	51	32	20	221
2016-2018	32(3)*	24(6)	2	7(1)	32(2)	41(3)	17(6)	62(8)	21(5)	24(1)	221
2019**	32(3)*	24(6)	2	7(1)	32(2)	41(3)	16(5)	62(8)	21(5)	24(1)	220
2020-2023	36(3)*	21(6)	3	7(1)	33(2)	43(3)	19(5)	54(8)***	23(5)****	24(1)	220

*PICFI/ATP First Nation Crab (FR) Licences in brackets

**Licence FR33 was moved from Area G to Area E and retired to partially account for an allocation to the Five Nuu-chah-nulth First Nations.

*** Licence R370 was taken from Area H in 2018 to mitigate for Tla’amin Treaty allocations. There are 55 licences in the licencing system, but currently only 54 vessels licenced to fish in Area H.

**** In 2021/22, DFO received a request for an area change for a commercial licence outside the normal process, to move a licence from Area H to Area I. Upon analysis, a decision was made to allow this move. The move outside of the regular process enabled a Treaty Nation to include a communal commercial crab licence that is consistent with the intent of the negotiated Harvest Agreement. Area H licences reduced from 55 to 54, and Area I licences increased from 22 to 23.

Table 2 Crab Management Areas

Area	Description	Management Area
A	Haida Gwaii	Areas 1, 2, 101 to 110 inclusive, 130 and 142.
B	North and Central Coast Mainland	Areas 3 to 10 inclusive & a portion of the Nass Estuary.
E_Common	West Coast Vancouver Island	Area 21, 22, 25, 26, 121, 123-1, 125, 126
E_Quatsino Option		Area 27, 127, and E_Common
E_Sooke Option		Area 20 and E_Common
E_Tofino Option		Area 23, 24, 123-2 to 123-9, 124 and E_Common
G	Johnstone Strait	Areas 11, 12, 13, 15 and 111.
H	Strait of Georgia	Areas 14, 16 to 19 inclusive and Subarea 29-5.
I	Fraser River	Areas 28 and 29 excluding Subareas 29-5 and 29-8.
J	Boundary Bay	Subarea 29-8.

A map of these areas has also been provided in Appendix 7.

2.6 Service Provider & Licensing Requirements

Prior to annual licence issuance, all licence holders must make arrangements with an approved service provider in order to fulfill fishery monitoring and catch reporting program requirements as specified in Appendix 9 on biological sampling, electronic monitoring or observing, harvest logbooks, plastic trap tags, and mid-year and year-end summary reports.

Commercial Service Provider program evaluations have been conducted for 2020 and will continue in 2022/23.

2.7 Trap Limits

Compliance with trap limits is monitored through several programs including electronic monitoring or at-sea observers, plastic trap tags, and on-grounds compliance checks. Harvesters

must take an active role in ensuring compliance with trap limits by meeting their trap tagging, reporting and monitoring requirements. Trap limits have been established in each area coast-wide:

2.7.1 Area A Trap Allocations

Table 3 Area A Trap Allocation

Vessel Length	Licences	Share	Area Limit/ Licence	Area Limit Totals	Vessel Maximum	Vessel Maximum Totals	Final Licence Limit	McIntyre Bay Limit (Softshell Opening – Nov. 1)	McIntyre Bay Limit (Nov. 2 Softshell Closure)
<13m	20	1	729	14583	600	12000	600	300	600
13-14m	4	1.33	972	3889	800	3200	800	400	800
14-15.8m	4	1.67	1215	4861	1000	4000	1000	500	1000
>15.8m	8	2	1458	11667	1200	9600	1200	600	1200
Total	36			35000		28800			

2.7.2 Area B to J Trap Allocations

Table 4 Area B to J Trap Allocations

Area & Portion	Area Trap Limit	Right-Based Fishery	Remaining Trap Limit	Max Traps / Licence	Licences 2020-2022	Final Traps / Licence
Crab Management Area B	7,600			400	21	361
B_Nass Estuary	3,800			200		180
Crab Management Area E				350	-	
E_Quatsino 27-7 to 27-11				200	3	200
Jan 1-Jun 30 & Nov 16-Dec 31	600			200		200
Jul 1-Nov 15	75			75		25
E_Sooke	2,800			350	7	350
E_Sooke 20-6 (Harbour)	420			350		60
E_Sooke 20-7 (Basin)	420			350		60
E_Tofino	8,400	1,317	7,083	350	32	216*
E_Tofino Area 24	1,600	485	1,115	350		37*
E_Tofino Area Amphitrite Hole	3,200	500	2,700	350		84
Crab Management Area G	5,600			400	19	294
Crab Management Area H	12,900			300	54	238**
Crab Management Area I	8,400			200	23	200
Jun 15-Jul 5				100		100
Crab Management Area J	3,600			200	24	150

* For 2022, 2 vessels have chosen the Outside Option. See Table 5 below.

** In 2021/22, DFO received a request for an area change for a commercial licence outside the normal process, to move a licence from Area H to Area I. Upon analysis, a decision was made to allow this move. The move outside of the regular process enabled a Treaty Nation to include a communal commercial crab licence that is consistent with the intent of the negotiated Harvest Agreement. As a result, the trap allocations for Area H were increased from 234 to 238 final traps per licence, however the additional licence did not alter final trap per licence allocations for Area I.

Table Definitions:

Area Trap Limit – The maximum number of traps allowed in that Area or portion of Area.

Max Traps/Licence – The maximum number of traps that are allowed per vessel, regardless of the number of licences.

Final Traps per Licence – The number of traps allowed per vessel for this year given the Area Limit and number of licences. Based on the Area Limit per Licence and the Vessel Limit, the lesser number is chosen. These trap limits are for a single licence. For stacked licence limits, see Section 1.3.

2.7.3 Area E Sub-Area Licensing

Sub-area licensing within crab management Area E, known as “Options”, has been in place since 2008. Licence holders selecting to fish in Area E are required to choose a Quatsino, Sooke, or Tofino fishing option. Each Option has exclusive fishing areas, as well as common areas shared among all Area E licence holders. (Please refer to Table 4)

Each licensed vessel in Area E vessel may fish a maximum of 350 crab traps inclusive of the common areas, with the following exceptions.

Sooke Option

A maximum of 60 traps per licence eligibility may be fished in Subarea 20-6 (Sooke Harbour) and 60 traps per licence eligibility in Subarea 20-7 (Sooke Basin). These traps form part of the total 350 traps allocated to each vessel in Area E.

Each vessel operator must register one unique buoy colour combination (photo required), at the beginning of each fishing year at the Fisheries and Oceans Canada Licensing office, prior to commencing any fishing. The vessel operator may only fish with buoys of the registered colour combination.

Tofino Option

No vessel licensed for Area E shall fish more than 37 traps in total in Subareas 24-1 through 24-14 inclusive (all of Area 24). These traps form part of the total traps allocated to each vessel for the Tofino Option in Area E.

Each vessel operator must register one unique buoy colour combination (photo required), at the beginning of each fishing year at the Tofino Fisheries and Oceans Canada office, prior to commencing any fishing. The vessel operator may only fish the above Subareas with buoys of the registered colour combination. A buoy line and buoy must be attached to each trap fished in the Trap Limit Area.

“Amphitrite Hole Trap Limit Area”

Those waters outside Tofino lying within a line that begins at 48°55.268’N 125°32.470’W [Amphitrite Point] then westerly to 48°51.200’N 125°48.000’W then northerly to 49°6.591’N 125°55.377’W [Lennard Island] then southerly to 49°5.680’N 125°53.375’W [Cox Point] then following the shoreline to the beginning point. A 84 trap limit per vessel to a maximum 3200 trap limit minus the Five Nations right-based commercial fishery trap allocation for the Hole will be implemented for 2022/23 to reduce trap congestion in this area.

2.7.4 Area E Tofino Outside Option

In recent years, DFO has heard concerns from commercial harvesters about the current fishery in the Area E-Tofino licence option with respect to small vessel viability, reduced trap limits and the inability to explore the potential for an offshore Dungeness crab fishery in areas not currently fished.

After consultations with commercial harvesters and local First Nations in the area, in 2022-23 Area E-Tofino licenced vessels may choose an “Outside Option” to fish offshore waters only, and forgo fishing in Areas 23 or 24. In exchange for not fishing in Areas 23 or 24 these vessels will be allowed to fish 30% more traps in the offshore areas. The traps that Outside Option vessels forgo in Area 24 will be split among the vessels to use in Area 24 that do not choose the Outside Option. Vessels that do not choose the Outside Option will have their overall trap limit reduced depending on the number of vessels that choose the Outside Option (see table below).

Vessels that do not choose the Outside Option will be allowed to fish in all of the Tofino Option Areas (23, 24, 123-2 to 123-9 and 124) as well as the common areas. Vessels that choose the Outside Tofino Option will not be allowed to fish in Areas 23 or 24.

This management change is intended to make Area E-Tofino Licence Option more economically viable for all vessels by separating small vessels, which choose to fish in inshore areas, from larger vessels that may have the ability to fish more traps in the offshore waters.

Under this plan, the trap caps for Area E-Tofino remain at their current levels. The Area E-Tofino trap cap is 8400 minus the Five Nations right-based commercial fishery trap allocation. Area 24 has a trap cap of 1600 minus the Five Nations right-based sale fishery trap allocation for Area 24. For the area known as the “Amphitrite Hole” the trap cap is 3200 minus the Five Nations right-based commercial fishery trap allocation.

The Outside Option will be a pilot and be chosen on an annual basis. Vessels will need to notify DFO Licencing Unit before licences are issued. Please refer to the Notice to Industry for more information and the deadline date.

Below is a table showing the potential scenarios based on an increasing number of vessels choosing the Area E Tofino Outside option:

Table 5 Area E Tofino Outside Option Scenarios

Total Traps	Regular Tofino Licence	Number of Vessels to Select Outside Option	Traps allowed in Area 24	Total Traps for Regular Tofino Vessels	Total Traps for Outside Vessels
7083	32	0	34	221	-
7083	31	1	36	219	287
7083	30	2	37	216	287
7083	29	3	38	214	287
7083	28	4	39	211	287
7083	27	5	41	209	287
7083	26	6	42	206	287
7083	25	7	44	202	287
7083	24	8	46	199	287
7083	23	9	48	195	287

7083	22	10	50	191	287
7083	21	11	53	186	287
7083	20	12	55	181	287
7083	19	13	58	176	287
7083	18	14	61	170	287
7083	17	15	65	163	287
7083	16	16	69	155	287

***For 2022-23, 2 vessels (licences) selected the Outside Option and is in bold font above.**

Quatsino Option

During the period from January 1 to June 30 and November 16 to December 31, a maximum of 200 traps per vessel may be fished within Subareas 27-7 to 27-11 of which a maximum of 93 traps may be fished in Subareas 27-10 and 27-11. During the period of July 1 to November 15 a maximum of 25 traps per vessel may be fished in Subareas 27-7 to 27-11.

A trap cap of 600 traps is in effect for Subareas 27-7 to 27-11, with a maximum vessel trap limit of 200 traps not to be exceeded.

2.8 Trap Haul Restrictions & Soak Times

Restrictions on the frequency that traps may be hauled will be in place in Areas E, G, and H. These restrictions are described below. At all other times and areas, traps may be hauled only once per day.

2.8.1 Area A

Area	Dates	Status	Comments	Haul Restrictions
A	Jan 1 – Mar 1 & Aug 1 – Dec 31	Open	All areas excluding McIntyre Bay and Naden Harbour	Not greater than 18 days
	Mar 1 – Aug 1	Potential Closure	Fishery is closed or Soft-Shell Fishing Program	
A_McIntyre Bay	Sept 1 – Mar 1	Open	Half trap vessel limit on all dates <u>EXCEPT</u> Nov. 1 – Spring Softshell Closure	
	Mar 1 – May 1	Potential Closure	Fishery is closed or Soft-Shell Fishing Program	
	May 1 – Sept 1	Closed	Conservation, FSC & Rec Harvest Access closure	

A_Naden Harbour	Jan 1 – Mar 1 & Oct 15 – Dec 31	Open	Ring-nets only	
	Mar 1 – Oct 15	Closed	Fishery is closed or Soft-Shell Fishing Program	

2.8.2 Area B

Area B Commercial Harvesters have proposed that daily haul restrictions be implemented in all seasonal areas to reduce trap turnover. Area B opening and closing dates are subject to change in-season due to concerns around high abundances of softshell crab. For 2022, Area B will continue with the schedule change implemented in-season in 2021 and open from April 1 – December 18.

Due to concerns in the Nass Estuary from the Kincolith Community regarding domestic catches, the Area B harvesters shortened the Nass Estuary fishery from 7 weeks to 3 weeks in 2019 and 2020, and 2021. The Nass Estuary fishery will continue to be limited to 3 weeks in 2022.

Area	Dates	Status	Comments	Haul Restrictions
B	Jan 1 – Mar 31 & Dec 19 – 31*	Winter Closure		Closed
	April 1 – Dec 18*	Open		Not greater than 18 days
B_Seasonal Areas (see exceptions below)	Oct 1 – Dec 18	Open	Closed Dec 19 to Sept 30 Half Gear Restriction	Not to exceed once per day
B_Area 6 Seasonal Areas	Oct 1 – Dec 18	Open	Closed Dec 19 to Sept 30 Half Gear Restriction	
B_Nass Estuary Seasonal	Oct 1 – Oct 22	Open	Half Gear Restriction	
Khutzeymateen Inlet Seasonal	April 1 – Nov 15	Open	Closed Nov 16 to March 31 Half Gear Restriction	
B_Kitkatla	April 1 until after Herring Fishery	Closed	Opens after the spring Herring Roe on Kelp Fishery Half Gear Restriction for first 14 days	Not to exceed once per day for the first 14 days of the fishery

*These dates are subject to in-season changes.

2.8.3 Area E

For all areas, a calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday evening. The following is based on a calendar year;

All Common Areas (Area 21, 22, 25, 26, 121, 123-1, 125 and 126):

- From February 1 to April 30, harvesters may only haul their traps once per calendar week.

Sooke (20-1 to 20-2)

- From February 1 to April 30, harvesters may only haul their traps once per calendar week.
- From January 1 to January 31 and from May 1 to December 31, harvesters may only haul their traps three times per calendar week.

Sooke (Subareas 20-3 to 20-7)

- From February 1 to April 30, harvesters may only haul their traps once per calendar week.
- From January 1 to January 31, and from May 1 to December 31, harvesters may only haul their traps twice per calendar week.

Tofino: Areas 23, 24, Subareas 123-2 to 123-9, and Area 124

- From January 1 to March 31 harvesters may only haul their traps once per calendar week.

Quatsino (Subareas 27-1 to 27-11, and Area 127)

- From April 1 to June 30 harvesters may only haul their traps once per calendar week.

Area	Dates	Commercial Haul Restrictions:			
		1 Haul / Day	3 Hauls / Week	2 Hauls / Week	1 Haul / Week
E_Common	May 1, 2022 - Jan 31, 2023	X			
	Feb 1, 2022 to April 30, 2022				X
E_Quatsino option area 27-7 to 27-11	Mar 1 to May 1				X
	May 2 to Feb 28, 2023		X		
E_Sooke 20-1 & 20-2	April 1 - April 30, 2022 & Feb 1 - March 31, 2023				X

	May 1, 2022 - Jan 31, 2023		X		
E_Sooke 20-3 to 20-7	May 1, 2022 - Jan 31, 2023			X	
	April 1 - April 30, 2022 & Feb 1 - March 31, 2023				X
E_Tofino option area	Jan 1 - Mar 31				X
	April 1 - Dec 31	X			

2.8.4 Areas G, H, I, J

Area	Dates	Status	Haul Restrictions
G	June 1 to Jan 14	Open	Not to exceed twice per week.
	Jan 15 – April 15	Open	Not to exceed once per week
	April 16 to May 31	Open	Not to exceed once per day
H	Jan 1 – Jan 14 & Apr 16 – Dec 31	Open	Not to exceed once per day. Daylight only.
	Jan 15 – Apr 15	Open	Not to exceed once per week. Daylight only.
H_Seasonal Areas	Please refer to Section 5.6		
I	Jan 1 – Jun 15 & Nov 30 – Dec 31	Closure	N/A
	June 15 – Nov 30	Open	Not to exceed once per day. Daylight only.

J	Jan 1 – July 15 & Nov 30 – Dec 31	Closure	N/A
	July 15 – Nov 30	Open	Not to exceed once per day. Daylight only.

2.9 Trap Size Limit

The total volume of traps fished for Dungeness crab will not exceed 400 litres. Harvesters requesting openings to fish for king crab in Crab Management Area B will be permitted to fish traps in excess of 400 litres if desired.

2.9.1 Area I and J Trap Size Limit

Trap size will have a diameter no greater than 44 inches (112 cm) and a height no greater than 14 inches (36 cm); this is 355 litres in volume. This maximum trap size was phased in over a four-year period beginning in 2008 for Areas I and J.

2.10 Escape Holes

All traps fished in all areas must have two escape rings of 105 mm or larger in diameter situated not more than 100mm below the top of the frame. This requirement for escape holes was phased in over a three-year period beginning in 2009.

2.11 Biodegradable Escapement Mechanisms

Every trap fished under the authority of a crab licence eligibility must be equipped with a biodegradable escape mechanism in the form of a rot cord, rot panel, or rot panel alternative as described below. These mechanisms are designed to minimize the effects of ghost fishing by lost or abandoned traps. In order to be effective these mechanisms must be under **tension**. These mechanisms do not apply to ring nets.

2.11.1 Rot Cord

Rot cords may only be used on traps with a rigid frame, a freely opening hinged lid, and a **volume less than 400 litres**. (400 litres is approximately equal to a circular trap 117 cm in diameter and 36 cm high.) The trap lid must be secured by a loop of no greater than **#120 untreated cotton twine** such that the trap lid will open freely when the rot cord is broken. The rot cord must be attached to the rubber strap by a cow hitch and attached to the hook by a cow hitch (Appendix 6). If the hook is attached permanently to the trap, the trap lid shall close using a single loop of the rot cord from the rubber strap. The rubber strap shall be under tension. No other fastenings may impede the hinged lid of the trap from opening. **The opening area created by the hinged lid must exceed the rot panel area requirement (described below), or exceed the size of the largest trap entrance.**

2.11.2 Rot Panel

All traps without hinged lids secured by a rot cord (as described above), must have a biodegradable (rot) panel. The rot panel must consist of a section in a trap side wall that has been laced, sewn, or otherwise secured by a single strand of no greater than **#120 untreated cotton twine**, such that the entire panel remains under **tension** when the panel is intact but on deterioration or parting produces an unrestricted opening. In Areas A and B, the opening must exceed a square 35cm by 35cm to protect king crab. In all other areas the opening must exceed a square 11cm by 11cm.

2.11.3 Rot Panel Alternative

Soft-web traps requiring a rot panel may use the following alternative:

A trap side wall must contain a cut in the web greater than 20cm in length. The cut shall be made in a “V” pattern with each leg of the “V” greater than 11 cm in length. A single strand of no greater than **#120 untreated cotton twine**, must be used to lace the cut in the web such that the entire panel remains under tension when the panel is intact but on deterioration or parting produces an unrestricted triangular opening no less than 11 cm on each side.

2.12 Hanging Bait

The use of hanging bait is prohibited in Areas B, H, I, J and the portion of Area E Tofino Option known as the Tofino Trap Limit Area.

Hanging bait is permitted in management Areas A, G and the portions of Area E outside of the Tofino Trap Limit Area.

All bait in hanging bait prohibited areas must be placed within a hard plastic bait cup with a screw-top lid. The bait cups may have holes drilled in them but holes can be no larger than 8 mm in diameter.

All other bait containers, (i.e. bait cages) are not permitted in the hanging bait prohibited areas. Prohibiting the use of hanging bait in areas where it remains permitted is under consideration. The use of hanging bait is said to increase trap catches of soft, undersized, and female crab, which could pose a conservation concern.

2.13 Maximum Soak Time of 18 days

No person shall set a trap and leave the trap in the water for more than 18 consecutive days without lifting the trap from the water and removing all of the crab from it. For more soak time details please see Section 2.8.

2.14 Daylight Fishery - Areas H, I, and J

The setting and hauling of crab traps is permitted only between one hour before sunrise and one hour after sunset in Areas H, I, and J.

2.15 Packers, Barges and Mother Ships

All crab taken under authority of a crab licence shall be transported to land by the vessel named in the licence. All crab traps, holding cages, lines and buoys used by the crab licensed vessel, shall be transported by the vessel named in the licence to and from land, with the exception noted below.

In **Area I**, harvesters may use another vessel to bring traps, holding cages, lines, and buoys to the grounds on opening day, June 15, 2022 and/or August 1, 2022 to bring the remainder of the trap limit onto the grounds.

In **Areas J**, harvesters may use another vessel to bring traps, holding cages, lines, and buoys to the grounds on **opening day only**. Opening day will be July 15, 2022 in Area J. **All gear must be fished from the licensed vessel.**

2.16 Best Management Practices

General:

1. Release all by-catch species with the least possible harm. Retention of flatfish, finfish, and soft, female, and/or undersized Dungeness crab is prohibited.
2. To improve First Nations FSC access and to reduce conflicts, keep gear away from areas fronting First Nation communities and reserves.
3. Buoy lines should be appropriate for water depth and tide cycles.
4. Keep crab buoys brightly painted and in accordance with licence conditions, (Section 4.4).
5. Minimise wake in harbours, particularly at boat launches, marinas and other wharves.
6. Avoid pulling crab traps through beds of eel grass.
7. If commercial harvesters are replacing active crab traps with ones that have been inactive for more than 18 days they must transfer the RFID chip from the active trap to the replacement trap. This RFID replacement activity will help minimise violation errors associated with over-soak and trap allocation calculations.

Area A

- For several years now, a voluntary ferry lane closure between Prince Rupert and Skidegate has been in effect year-round, (see map in Appendix 7). This closure was developed in cooperation with the Area A Crab Association, the B.C. Ferries Corporation and the Department. To ensure continued participation success, Ecotrust Canada (the Area A electronic monitoring service provider) also provides immediate software feedback to harvesters deploying traps within this closure and further notifies them with monthly vessel compliance summary updates.
- To avoid gear conflicts with Mid-water Trawl vessels, harvesters fishing in the vicinity of Goose Bank are being requested to limit the depth to which they fish. The current depth limit is approximately 40 fathoms. For a more current update on this agreement please contact the Area A Association representative (see Appendix 8).

- To minimise loss of gear, Area A harvesters have asked for the development of a shipping lane within Hecate Strait.
- To further minimise gear conflicts, co-development of best practices with the Area F Troll fleet is anticipated.
- The Hecate Strait Glass Sponge Reef areas were finalised and implemented in February 2017. (See Appendix 7).

Area B

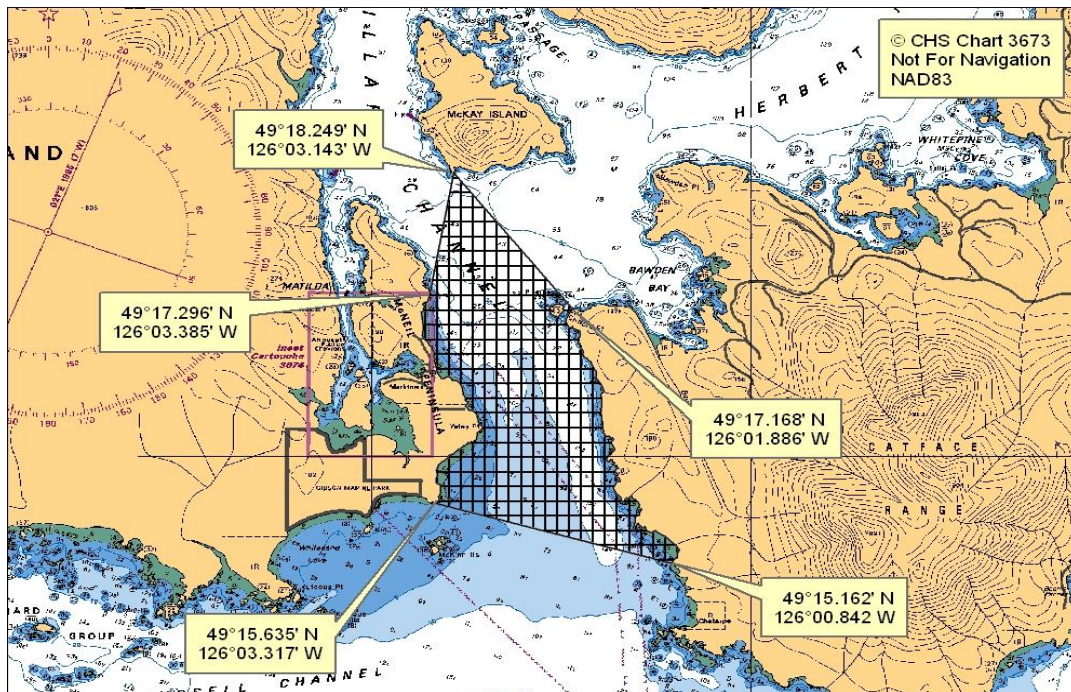
- To improve First Nations FSC access, harvesters are being requested to keep gear away from the areas fronting First Nation communities and reserves.

Area E – Port Renfrew (20-2)

- To minimize noise, harvesters are requested to refrain from fishing near communities between the hours of 10pm and 6am.

Area E - Tofino

- To improve First Nations FSC access, harvesters are being requested to keep gear away from the areas fronting First Nation communities and reserves.
- Commercial crab gear is to be removed or not set during the months of June, July, and August in the area indicated on the map below. The purpose of this best practice is to minimise gear conflict issues associated with First Nations FSC Salmon fishing.



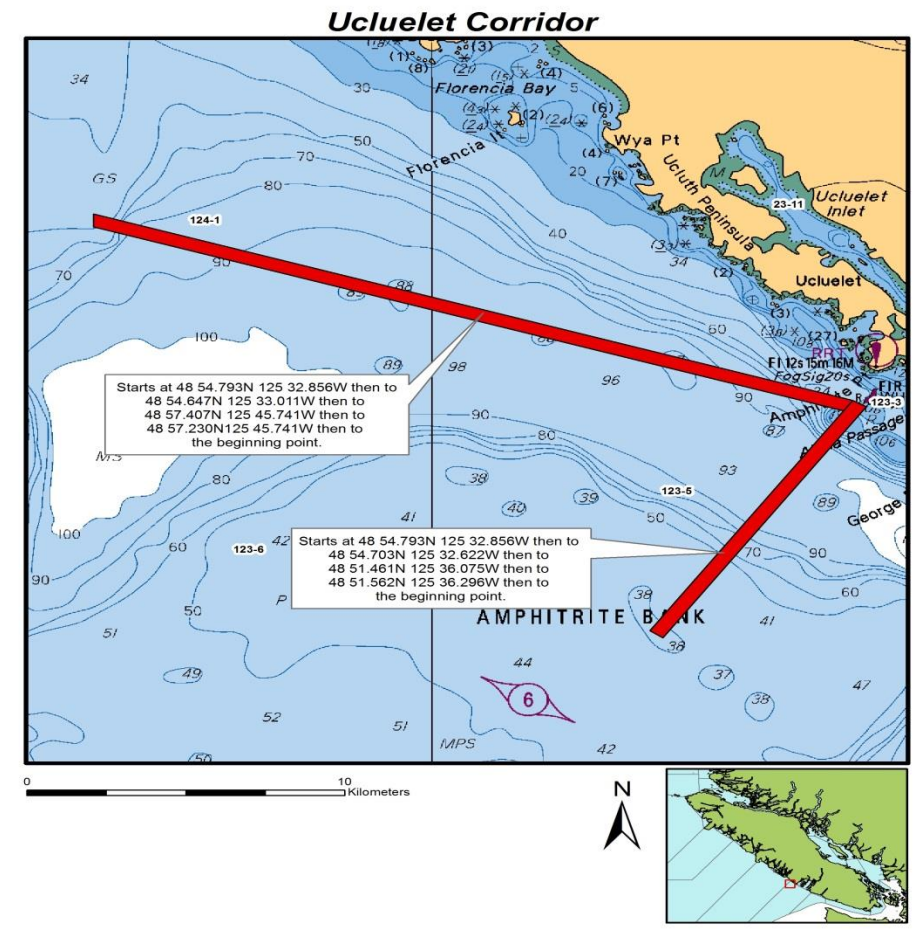
Area E Tofino.

To reduce gear impact for vessels leaving or returning to Ucluelet, the Area E crab harvesters have agreed to not place crab floats in the described corridor

- Starts at 48 54.793N 125 32.856W then to 48 54.647N 125 33.011W then to
- 48 57.407N 125 45.741W then to
- 48 57.230N 125 45.741W then to
- The beginning point.

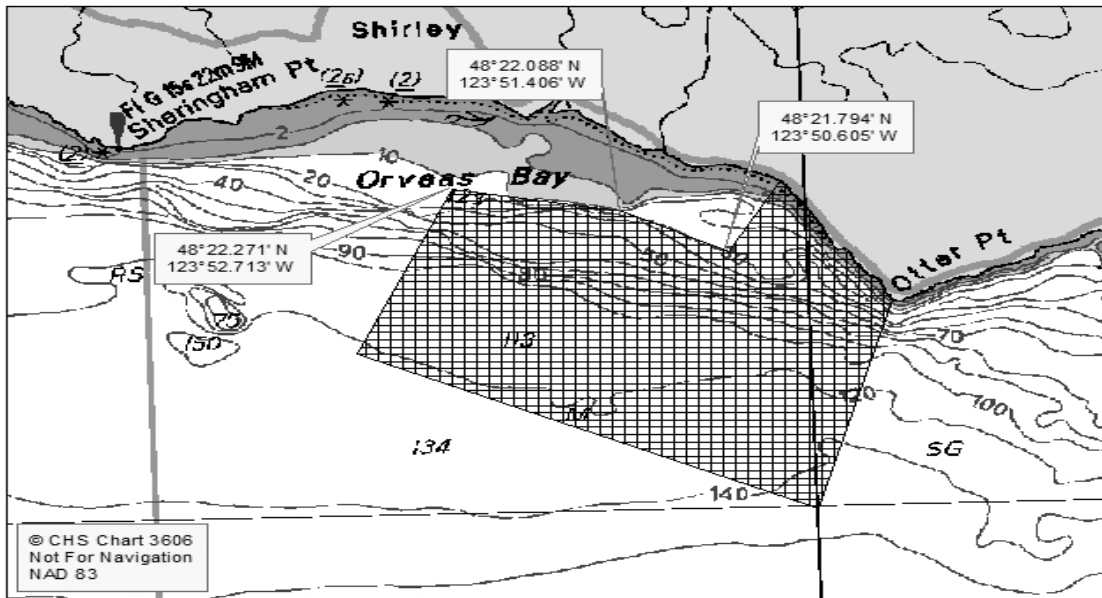
and

- Starts at 48 54.793N 125 32.856W then to
- 48 54.703N 125 32.622W then to
- 48 51.461N 125 36.075W then to
- 48 51.562N 125 36.296W then to
- the beginning point



Area E – Sooke

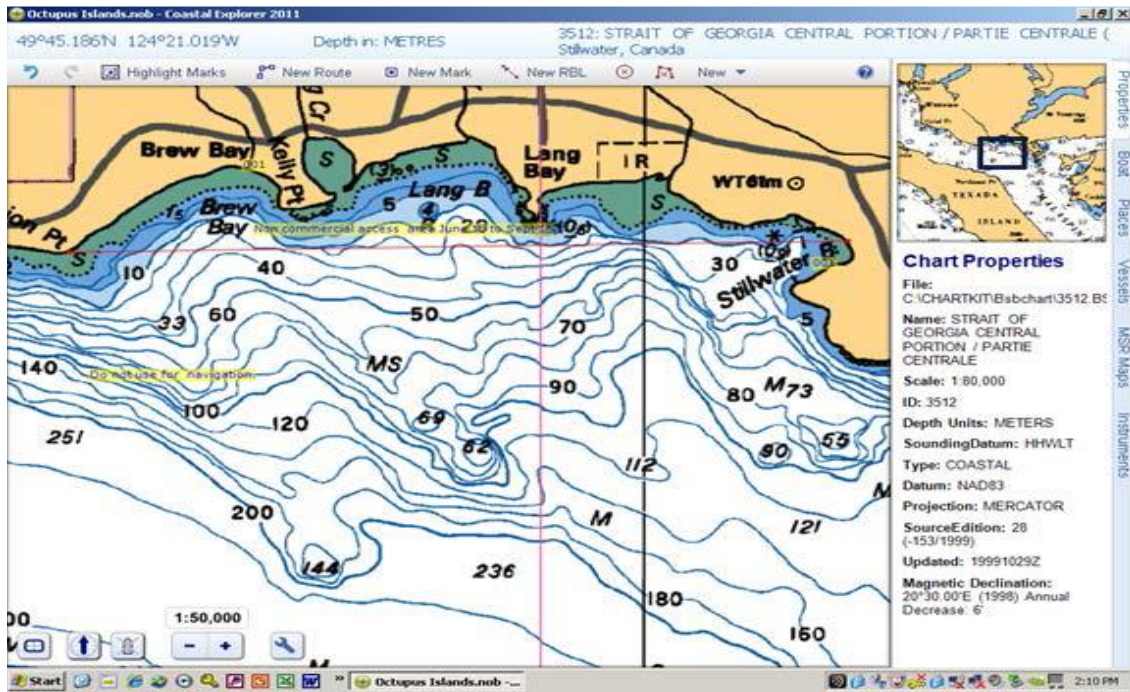
- To improve First Nations FSC access, harvesters are being requested to keep gear away from the areas fronting First Nation communities and reserves.
- Set string gear in an East- West fashion or paralleling gear already set with the shoreline.
- Strings of gear should not converge at the ends.
- Mark the West ends of all string gear with trailer corks.
- When fishing in 90 foot depths or less, the distance between ends of strings should not exceed 250 fathoms or 1500 feet.
- Do not exceed the harbour cap of 220 traps for either Pedder Bay or Becher Bay.
- When the following area is open to recreational harvest of salmon, commercial crab fishing is not to occur from June 15 through to September 8 in waters deeper than 90 feet from Otter Point to Sheringham Point described as starting at 48° 21.794'N and 123° 50.605' West, Northerly to a mid-point at 48°22.088' N and 123° 51.406' W and then to 48°22.271' N and 123° 52.713' W as outlined below. The purpose of this best practice is to minimise conflicts with recreational salmon harvesters during the summer Chinook fishery.



Area G

- To improve First Nations FSC access, harvesters are being requested to keep gear away from the areas fronting First Nation communities and reserves.
- To minimize gear tangles, set gear in a straight line or in a way so other harvesters can tell where the gear is set.

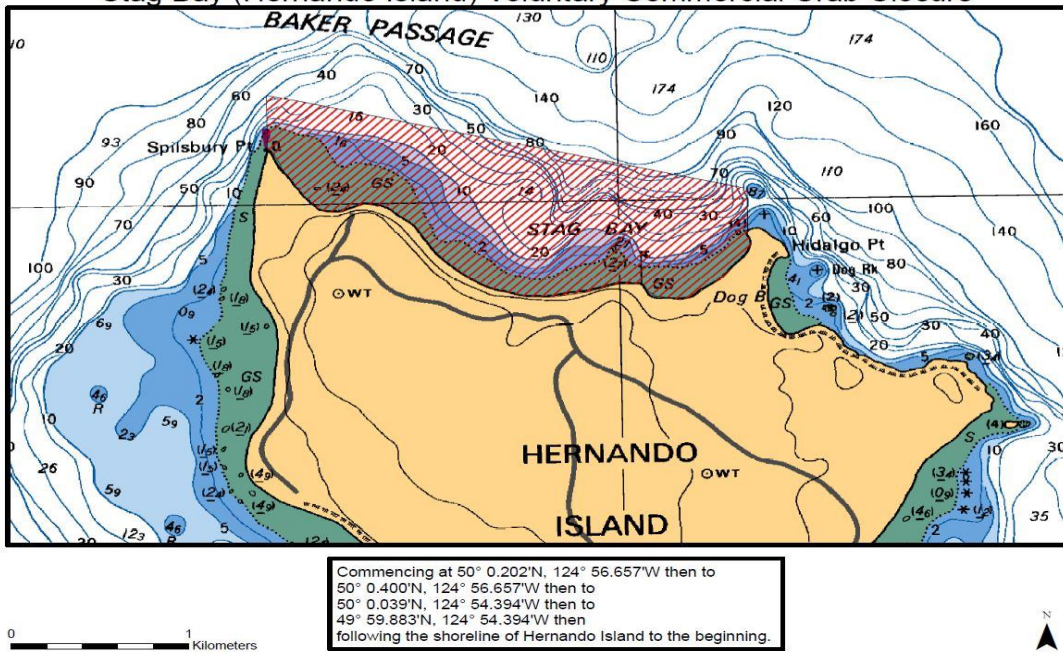
- To minimize noise, harvesters are requested to refrain from fishing near communities between the hours of 10pm and 6am.
- Commercial crab gear is to be removed or not set between June 15 and September 15 in Brew Bay and Lang Bay inside of a line drawn from Albion point 49.46.014'N and 124.23.729'W then Southerly to a point in Stillwater Bay at 49.46.054'N and 124.18.687'W (see map below).



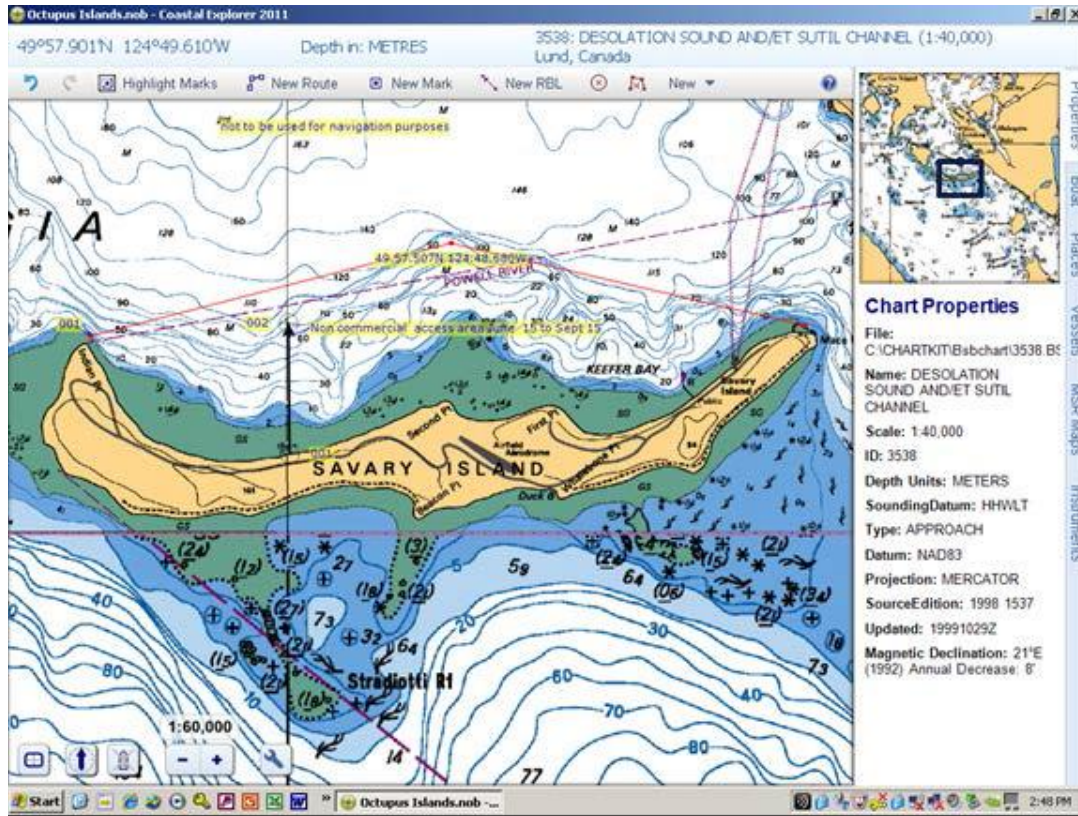
- Area G harvesters have agreed as part of their Best Management plans to not set their gear in Stag Bay at Hernando Island at a location starting at the Spilsbury Point Commencing at 50° 0.202'N, 124° 56.657'W then to 50° 0.400'N, 124° 56.657'W then to 50° 0.039'N, 124° 54.394'W then to 49° 59.883'N, 124° 54.394'W then following the shoreline of

Hernando Island to the beginning from March 15 to September 15.

Stag Bay (Hernando Island) Voluntary Commercial Crab Closure



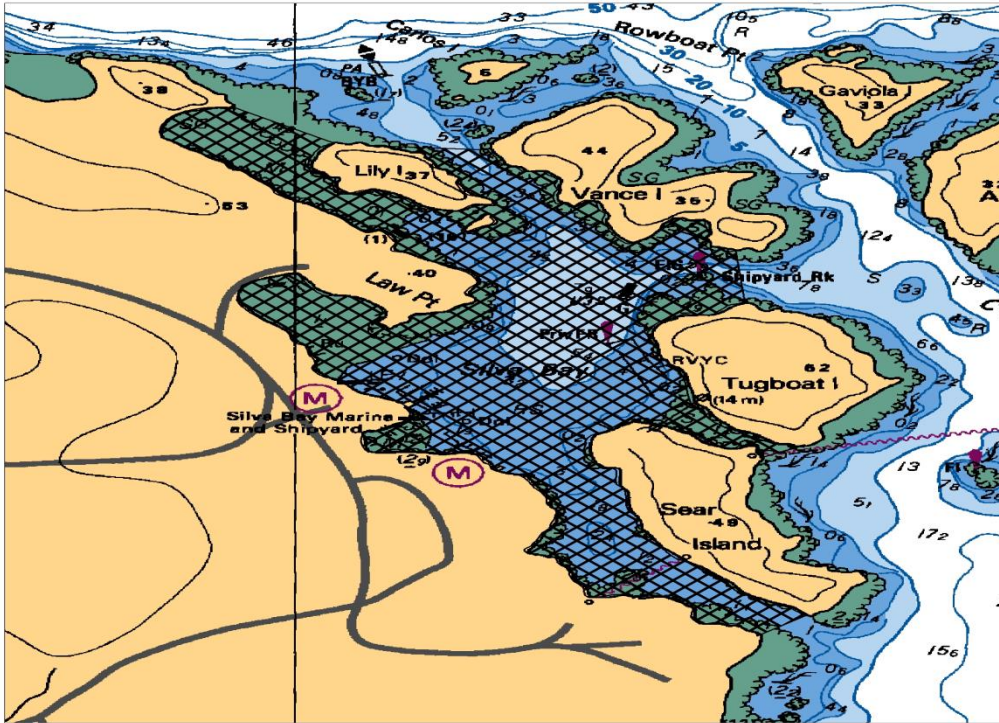
- Commercial crab gear to be removed or not set between June 15 and September 15 near Savary Island inside a line starting at 49.57.022N and 124.51.607'W Easterly to a point at 49.57.508,N and 124.48.680'W then to Mace Point at 49.57.093'N and 124.45.795'W.



Area H

- Fishers are encouraged to use highly visible floats, particularly in areas with high vessel traffic. This is to ensure navigation by other vessels is not hindered.
- Fishers are reminded that in the Sidney Channel area there is a minimum **20LT float size regulation** in place to help prevent entanglement with recreational Salmon Fishers. The area running along the eastern side of James Island and southwards is of particular concern. Within this multi-user area, crab floats must remain on the surface at all times.
- Fishers are also asked to keep crab floats clear of **BC ferries traffic lanes** and docking facilities. There are also regulated **No float zones** in both Ganges and Tsehum Harbour (see Appendix 7) to allow for the safe transit of motor vessels. Failure to respect **traffic lanes** or **no float zones** may result in seizure and or forfeiture of the problem gear.
- Vessel VRN numbers must be of the correct size and contrasting background for the length of the commercial vessel, and must be clearly displayed with an **unobstructed view** as to allow for a clear aerial sighting on both the port and starboard.
- Commercial crab gear to be removed or not set from May 1 to August 31 in the waters of Silva Bay on Gabriola Island described as beginning at 49°09.500'N 123°42.175'W then to 49°09.434'N 123°42.020'W then to 49°09.424'N 123°41.796'W then southerly following the shoreline to 49°09.258'N 123°41.452'W then to 49°09.154'N 123°41.436'W then southerly following the shoreline to 49°08.925'N 123°41.352'W then to 49°08.900'N 123°41.426'W then southerly following the shoreline to 49°08.640'N 123°41.344'W then

to 49°08.600'N 123°41.424'W then northerly following the shoreline to the beginning point.



3. OPEN TIMES

With exception of those permanent and seasonal closures noted in Section 5 of this plan, the closed time for the harvest of crab shall be varied to permit fishing from April 1, 2022 to March 31, 2023. Harvesters are advised to check local area charts and public notices for no fishing zones or no access zones for navigational and military purposes.

4. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

4.1 Octopus Retention

All harvesters are required to accurately report information about octopus caught and retained in their logbooks. There is no longer a separate octopus logbook. Octopus catch information is now included as part of the Crab by Trap Logbook and all octopus catch must be recorded (including nil catches, if none are caught). This information is required to develop a further understanding of the distribution and abundance of octopus species caught by commercial trap harvesters. Octopus may not be retained if caught in octopus closure areas. All octopus caught in octopus closure areas must be removed from the trap and released immediately in the location where they were caught, in a manner that will cause least harm. See Section 5.9 for further information.

4.2 Traps

All crab traps fished in **Area A** must be marked either by engraving the vessel registration number (VRN) on the escape hole strut, or on the tunnel, or by applying a brightly coloured plastic tag bearing the VRN to the trap. The VRN on the trap shall match the registration number of the vessel fishing the gear. The Crab Sectoral Committee and Fisheries and Oceans Canada suggest that harvesters in all areas mark their traps with their VRN by engraving or stamping the VRN into the tunnel or escape hole strut. Traps recovered without proper identification could be seized or destroyed.

No person shall fish crab with any gear except ring nets in Naden Harbour (Subarea 1-4).

4.3 Trap Tags

Approved trap tags are required on all commercial crab traps fished in B.C. These include RFID chips for all Licence Areas, and plastic tags for Licence Areas B, E, G, H, I, and J.

4.3.1 Radio Frequency Identification (RFID) Chips:

For vessels participating in an electronic vessel monitoring program, (see Section 4.8.2) radio frequency identification (RFID) chips are required. One RFID chip shall be attached to each trap, or to the buoy if using single buoyed gear. Vessel operators are required to scan every RFID chip as the trap is hauled on-board, with an RFID chip scanner, to record RFID information from each trap hauled. All aspects of RFID chip procurement, distribution, administration, and data entry are the responsibility of the vessel owner/licence holder to arrange with the service provider.

Vessel operators are required to use and scan only those RFID chips registered in the vessel's inventory. Detailed requirements for RFID chip inventory management are provided in Appendix 9 (Annex 1).

Chips shall be replaced if they become unreadable by the scanner. When a trap is taken out of the water and replaced, the vessel master is responsible for switching the RFID chips so that all traps in the water are fitted with RFID chips in that vessel's inventory for the current year.

When RFID chips are replaced, only the valid chip shall remain on the trap. Old chips must be removed and destroyed and replaced with the replacement chips at the first opportunity the gear is hauled. Only traps tagged with working (readable) RFID chips are permitted to be on-board the licensed vessel utilizing electronic monitoring. For vessels utilizing on-board observers instead of EM, only plastic trap tags are required.

4.3.2 Plastic Trap Tags

In order to help ensure vessel trap limits are adhered to in the commercial crab fishery, new DFO approved plastic trap tags that are unique to each vessel are required in Areas B, E, G, H, I, J for each fishing season.

The vessel master shall arrange to have tag numbers for tags that meet the requirements of the Department entered into a database. Data delivery requirements for plastic tags are further described in Appendix 9.

In Areas B through H, each vessel will be issued a total number of tags equal to their trap limit plus 10% to allow for replacement of lost traps. In Areas I and J, each vessel will be issued a total number of tags equal to their trap limit plus 20% for replacement of lost traps. In 2022, Areas I and J will use combination tags that fulfil the purpose of both RFID tags and plastic inventory tags.

If the vessel master requires more replacement tags than the 10% or 20% allotted for lost traps, the vessel master must contact their service provider for instructions on obtaining more tags. The service provider will then contact the crab manager regarding issuing a complete new set of replacement tags for all traps allocated to that licence. New replacement tags shall be marked with the letters “RP” and be a different colour than the original set issued. New replacement tags shall also indicate the licence year and be unique to each individual vessel. Old tags must be removed and replaced with the replacement tags at the first opportunity the gear is hauled. When trap tags are replaced, only the valid tag shall remain on the trap. All the old tags must be returned to the nearest DFO office within 21 days of the new tags being issued. Note: replacement tags will only be issued if lost, stolen or damaged and not in the event of seizure by enforcement personnel.

Two trap tag colours for Area E Tofino harvesters for traps fished inside and outside of Area 24 are no longer required.

4.4 Buoy

Buoys must exceed a minimum diameter of 12 cm and have a volume greater than 2.5 litres. (This is approximately equivalent to a cylinder 12 cm in diameter and 22cm long or a sphere 17cm in diameter.) All buoy lines, trap lines and ground lines shall be non-floating so that the lines remain below the surface of the water in order to minimize navigational hazards. This regulation is in place to avoid potential gear conflict between resource user groups. Utility cans, bleach bottles and other domestic containers are not permitted.

Buoy Registration

Area A: Licence holders fishing within Area A must register buoys with a unique colour combination with their service provider.

Area B: Licence holders fishing within Area B must register buoys with a unique colour combination with their service provider.

Area G, E (Quatsino) & E (Sooke): Licence holder fishing within Area G, Area E-Quatsino (new requirement for 2022-23) and the Area E-Sooke Trap Limit Areas must register buoys with a unique colour combination with the DFO Area Crab Manager. A colour photograph is required.

Area E (Tofino): Licence holder fishing within Area E-Tofino Trap Limit Area must register buoys with a unique colour combination with the local DFO C&P Department. A colour photograph is required.

Other Areas: Discussions will occur with harvesters regarding requiring vessels to register individual buoy colours such that gear belonging to each vessel can be easily identified.

A standards document on Buoy registry programs will be developed sometime in the near future.

4.4.1 Special Buoy Requirements

4.4.1.1 Subarea 19-5 - Waters of Sidney and Cordova Channels

Within the waters of Sidney and Cordova Channels, larger minimum buoy sizes have been adopted to improve gear visibility in these multi-use channels. A minimum buoy size of 10 litres is now required for commercial crab trap gear. This is equivalent to a buoy of 26.7 cm diameter.

The portion of Subarea 19-5 in which this requirement applies has been set to ensure that all channel areas and their approaches will have improved trap gear marking, makes use of landmarks that are distinguishable by commercial and recreational boaters without the need for electronic aids, and are locations which can be located on a chart. The southern boundary extends from Cowichan Head on the east shore of Saanich Peninsula to D'Arcy Shoals to the southernmost point of Sidney Island. The northern boundary extends from a point on Saanich Peninsula true west of the light at the north end of James Island, to the light on the north end of James Island, then to the light on the U2 navigation buoy in Sidney Channel, then true east to Sidney Island.

It should be noted that a poorly marked recreational fishing buoy is just as difficult to see and as dangerous as a poorly marked commercial trap buoy. The overall intent is to work towards improved buoy marking in the commercial crab fishery and in the recreational crab and prawn fisheries.

All trap harvesters are recommended to set gear in such a way that channel areas remain free of buoys and lines in order to provide for safe navigation, while allowing for the continuation of the trap fisheries while minimizing conflicts with other user groups.

4.5 Buoy and Trap Lines

All **buoy lines** must be of a non-floating material so that the lines remain below the surface of the water while fishing, to minimize navigational hazards. String gear is permitted with the following exceptions:

4.5.1 Areas A, J, and E (Tofino Trap Limit Area) – Single Traps and Buoys

A buoy and buoy line shall be attached to each trap fished in Areas A, J and E Tofino in Areas 24-1 to 24-14. The traps must not be connected with lines.

4.5.2 Area G Maximum Trap Per String

In Area G, no more than 25 traps can be on one line.

4.6 Standard Buoy Marking

The VRN must be painted, branded or affixed to each buoy, such that it is visible at all times without raising the gear from the water. The VRN shall be in solid block Arabic numerals, without ornamentation, no less than 75 mm in height and in a colour that contrasts with their background. The VRN on the buoy shall match the registration number of the vessel licensed to fish the gear for crab.

4.7 Holding Cages

In 2022, additional language will be included in the Commercial Conditions of Licences clarifying the marking and use requirements of holding cages. Additionally, a unique set of RFID tags for holding cages will be distributed to commercial harvesters in 2022. These RFID tags must be attached to all holding cages and scanned whenever the holding cage is hauled. Further amendments may be developed throughout the year following consultation with harvesters.

4.7.1 Marking of Holding Cages

All holding cages must be identified with a buoy with the registration number of the crab licensed vessel which harvested the impounded crabs. Harvesters must maintain holding cages so that crab mortalities are minimized. Holding cages must not be left in the water for more than 18 consecutive days without lifting the trap from the water and removing all of the crab from it. If holding cages are unmarked, or if significant crab mortalities are observed in cages, the crabs may be seized or released by Fishery Officers.

4.7.2 Transportation of Holding Cages

Each licenced vessel must transport its own holding cages to and from land.

4.7.3 Storage of Holding Cages

Holding cages containing crab may only be left unattended if the area is open to fishing and within an area that the licence holder is eligible to fish unless tied to the licensed vessel or to a dock. Holding cages cannot be stored in dioxin and furan closure areas.

4.8 Fishery Monitoring Programs

Full fishery monitoring, either through an at-sea observer or an electronic monitoring (EM) system, has been required in this fishery since April 1, 2006. This requirement will continue for the commercial fishery. For the 2022 season, vessel owners/licence eligibility holders in all crab management areas may elect one of the following two options for full (100 percent) fishery monitoring:

- Participation in an at-sea observer monitoring program; or
- Participation in an approved EM program.

During 2022, crab monitoring programs will provide reports to Fisheries and Oceans Canada on fishing activity (hails) for Area A and plastic trap tags for all other licence areas, in order to review compliance with trap limits. In all crab management areas, harvest logbooks and on-grounds biological sampling are also required.

Prior to licence issue, the vessel owner/ licence eligibility holder must sign up with the approved program service provider chosen for each of these programs by the area representative and/or the commercial harvesters for that area.

For more information on these programs, please contact a local area manager (Appendix 8) or see the 2022/23 Fishery Monitoring and Catch Reporting Program Standards (Appendix 9).

4.8.1 At-sea Fishery Monitoring

Vessel owners/licence eligibility holders electing to meet the full monitoring requirements by participating in an at-sea fishery monitoring program must ensure the program includes a method to accurately monitor each individual trap haul, to accurately record trap identification, and to accurately record fishing activity, fishing location, date, and time. At-sea observers must participate in a training program specific to crab trap monitoring, and must be designated under Section 39 of the *Fishery (General) Regulations*. If vessels opt to utilize an at-sea observer program instead of an EM program they must contact the Department for a complete list of requirements. Data delivery requirements for an at-sea observer program are provided in Appendix 9 (Annex 2).

4.8.2 Electronic Monitoring

The requirement for electronic monitoring (EM), or full at-sea-observer coverage, was established in 2006. To date, all licence holders have elected to participate in an EM program, whereas at-sea observers have been used only on a temporary basis where EM systems were not fully functioning. The rationale for establishing an EM program was to improve compliance with trap limits and to improve accuracy of fishing location data. The EM program also monitors compliance with a range of licence conditions including maximum soak time, area closures, and weekly trap haul restrictions.

Vessel owners/licence eligibility holders electing to participate in an EM program must adhere to the standards provided in detail in Appendix 9 (Annex 1), which includes requirements for system equipment, data collection, and data delivery including compliance reporting. EM equipment must accurately monitor the vessel 24 hours per day, seven days per week while it is engaged in fishing, where fishing is defined as the entire period of time that traps are in the water. Specifically, equipment must accurately monitor vessel position and activity through a GPS, identify trap-hauling activity, and identify individual traps using a radio frequency identification (RFID) chip on each trap (or on each buoy, when using single buoyed gear), and an RFID chip scanner to record RFID information. On behalf of the licence holder, a service provider will install and maintain EM equipment, carry out the required data analysis, and deliver both raw data and summary data including reports of non-compliance to the Department. The service provider must be trained in the requirements of category R and FR licensed fishing vessels as outlined in this IFMP and Conditions of Licence, and approved by DFO, and a single service provider is required for each licence area for the EM program.

The vessel master of a vessel participating in an EM program must ensure the EM system on their vessel is installed and fully operational for the entire period when traps are in the water. The Conditions of Licence reflects the option to participate in these programs and vessel masters must ensure that their Conditions of Licence are met. For a complete description of what meets the requirements for EM programs and data delivery requirements including compliance reporting, please see Appendix 9.

Camera electronic monitoring is required in Area A and B and may be implemented in other areas if overall compliance with non-video systems is poor. Specifically, improved compliance with scanning RFID chips on all traps is needed.

Electronic Monitoring data, including vessel position data, hydraulic data, and individual trap haul locations (RFID chip data), are used by the Department in the proper assessment, management and

control of the fishery. Upon receipt by the Department of electronic monitoring data supplied by the fish harvester in accordance with the Conditions of Licence, Section 20(1)(b) of the *Access to Information Act* prevents the Department from disclosing to a third party, records containing financial, commercial, scientific or technical information that is confidential information. Further, Section 20(1)(c) of the Act prevents the Department from giving out information, the disclosure of which could reasonably be expected to prejudice the competitive position of the licence holder.

The Department can only release EM data to the reported licence holder, and only upon written request.

4.9 On-Board Biological Sampling

The introduction of a biological sampling component to on-grounds inspections was implemented in 2005. On-board monitoring and biological data collection will occur throughout the 2022/23 fishing season, and must be completed by DFO certified At-Sea Observers. Agents of the service provider will report significant violations of Conditions of Licence immediately to the local crab fishery manager or to the O.R.R. line at 1-800-465-4336.

The biological information collected shall be entered into a Fisheries and Oceans Canada approved database and submitted to the Department in electronic form no later than seven (7) days following the end of the month when data were collected.

For area specific biological sampling details please refer to Annex 5 of Appendix 9.

4.10 Fishery Notification Procedures – Hails

The requirement for Area “A” trip hails will continue in 2022/23. Data delivery requirements for the hail program are detailed in Appendix 9 (Annex 6).

For all areas excluding Area A, daily activity reports that include the vessels location meets hail program objectives. As Area A has a camera program in which all data is stored on hard drives, the hail program will continue to support program objectives.

4.11 Catch and Fishing Data

4.11.1 Harvest Log Data

The vessel master/licence holder is responsible for the provision and maintenance of an accurate record, a “log” of daily harvest operations. This log must be completed and a copy submitted in both hard (paper) copy and electronic form in an approved format as defined by Fisheries and Oceans Canada Stock Assessment and Research Division’s Shellfish Data Unit.

Since 2018, vessel masters are required to print their name and provide a signature and FIN for every line entry. (See Appendix 5 for a draft example of the new Harvest Log).

To fulfil stock assessment objectives, it is imperative that a very fine resolution of fishing location be reported in this fishery. The vessel master/licence holder is responsible for reporting latitude/longitude position on harvest logs in the “location” field for each string or group of traps.

Logbooks meeting the requirements of the Department are available from service providers who, for a fee, will provide the logbook coding and data entry service, thus complying with the requirements for a hard (paper) copy and an electronic copy of harvest data.

The original white page copy of the log and the electronic copy must be forwarded within 28 days following the end of each month in which fishing occurred. This information must be sent to:

Fisheries and Oceans Canada
Shellfish Data Unit
Pacific Biological Station
3190 Hammond Bay Road
Nanaimo, B.C., V9T 6N7
Phone: (250) 756-7022
Email: PACSDU@dfo-mpo.gc.ca

As an alternative to harvest log provision through a service provider, the vessel master/licence holder may provide a hard copy log in the same form and providing the same particulars as shown in the fishing log sample attached as Appendix 5 Example of Crab Fishery Harvest Log. The vessel master/licence holder must also provide an electronic copy of the harvest data, which is required to be a true and accurate transcription of the hard copy data, delivered on a Shellfish Data Unit approved media. The media will remain the property of Fisheries and Oceans Canada. The electronic copy must be a database table of specific design created by Microsoft Access 2010 (or earlier version).

Contact the Shellfish Data Unit at the above address to obtain the full requirements and acceptable data formats that meet the Conditions of Licence. The hard copy and the electronic copy of the harvest log must be forwarded within 28 days following the end of the month in which fishing occurred. This information must be sent to the above address.

Catch information must be recorded in the harvest log by midnight of the day of fishing. The logbook must be kept aboard the licensed vessel. Logbooks must be produced for examination on demand of a fishery officer, or guardian.

4.11.1.1 Submission and Release of Harvest Log Data

The licence holder of record, as reported to the Pacific Fishery Licence Unit, is responsible to ensure that the vessel master has completed and submitted a copy of the harvest log data. The Department can only release harvest log data to the reported licence holder, and only upon written request.

4.11.1.2 Nil Report for Harvest Log - Licence Issued but Not Fished

In the event that a licence is issued but not fished, the licence holder is responsible for submitting a Nil Report for the season. The Nil Report must be submitted prior to the issue of approval for licence renewal. One page from the harvest logbook 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.

Fisheries and Oceans Canada reminds harvesters that harvest logs must be completed accurately during fishing operations and submitted to the department in accordance with the timing set out in

Conditions of Licence. Delay of completion or submission of logs is a violation of a condition on licence.

4.11.1.3 Confidentiality of Harvest Data

Harvest data, including fishing location data supplied through latitude/longitude co-ordinates, collected for use under the harvest logbooks for shellfish fisheries programs, are used by the Department in the proper assessment, management and control of the fisheries. Upon receipt by the Department of harvest log data and/or fishing location information, supplied by the fish harvester in accordance with the Conditions of Licence, Section 20(1)(b) of the *Access to Information Act* prevents the Department from disclosing to a third party, records containing financial, commercial, scientific or technical information that is confidential information. Further, Section 20(1)(c) of the *Act* prevents the Department from giving out information, the disclosure of which could reasonably be expected to prejudice the competitive position of the licence holder.

4.11.2 Octopus

Octopus retention and release information has been incorporated into the crab harvest logbook. A separate log specific to octopus is no longer required. The retention privilege of octopus currently permitted in the crab trap fishery may be reviewed if unsatisfactory compliance with octopus catch reporting requirements occurs. Please ensure a nil report or zero catch is specified in this section if no octopus was caught.

4.11.3 Fish Slip Requirements

It is a Condition of Licence that an accurate written report shall be furnished on a fish slip of all fish and shellfish caught under the authority of this licence. A report must be made even if the fish and shellfish landed are used for bait, personal consumption, or otherwise disposed. This includes all crab and octopus retained under authority of the licence. The written report shall be posted not later than seven days after the offloading and sent to:

Fisheries and Oceans Canada
Regional Data Unit
Suite 200 - 401 Burrard Street
Vancouver, B.C., V6C 3S4
(604) 666-3784

5. CLOSURES

5.1 Navigation Channels and Restricted Areas, *Navigable Waters Protection Act*

The *Navigable Waters Protection Act* (NWPA) is a federal statute designed to protect the public right of navigation by prohibiting the building or placement of works in, on, over, under, through, or across any waterway without approval of the Minister of Transport Canada. The Navigable Waters Protection Division, which is a directorate of Transport Canada - Marine, is responsible for administering the NWPA.

For Navigational issues, contact Navigable Waters Protection Division, Transport Canada-Marine at (604) 775-8867.

Harvesters are reminded to keep navigation channels clear of buoys and lines. The number of complaints to Transport Canada, the Coast Guard, Conservation and Protection and Fishery Management offices, has significantly increased in recent years. The Tofino area is one area that continues to have issues with respect to the crab fishery and maintaining navigation channels. Maps of these areas are also posted around the Tofino community and specifically at the 4th Street dock. The designated navigation channels in the Tofino area are identified in Appendix 7.

There are a number of restricted Areas identified through the Navigable Waters Protection Division. The purpose of the restricted areas described below is to maintain a safe navigation passage for small vessels transiting in and out of the harbour by restricting the use of floats within the prescribed channel. Please note that this restriction is for floats and not traps. However lines to the traps must be made of a non-floating material and kept as close to the bottom as possible. Floats identifying fishing gear shall be of a size and marked in accordance with the appropriate regulations. All fishing gear must have a float of sufficient size such that it will not submerge with tidal or current change.

Regardless of what area it is in, any fishing gear or private mooring buoy that hinders or impedes safe navigation may be removed under the NWPA.

Transport Canada will be implementing further closures for the purpose of safe navigation in other high traffic, high density areas, and subject to further consultation. These may include approaches to Pedder Bay, Nanaimo Harbour, Sidney, and Cordova Channels.

The Navigational restricted area around Roberts Bank/Deltaport/Tsawwassen BC Ferries will continue to be a navigational closure in 2022. The description of this closure is provided below. A map describing this closure is provided in Appendix 7.

The Area “A” Crab Association, through consultations with BC Ferries, has developed a transportation corridor through Area A crab fishing grounds. This route is described in 5.1.1.4. below and shown on a chart in Appendix 7.

5.1.1 Restricted Areas

The restricted areas described below, Ganges Harbour and Tsehum Harbour are reserved for navigation only. Crab floats must remain outside of the restricted area at all times. Maps of the restricted areas are in Appendix 7.

5.1.1.1 Ganges Harbour, Chart 3478, NAD 83

The channel is 110 meters wide by two nautical miles long; bearing 308° true inbound and 128° outbound. The entrance to the channel is just off Sister Island and Ganges Shoal in 12.5 meters of water at LLW. The north side of the channel follows the marked submarine cable for approximately 2/3 its length. The channel ends inside the harbour at 90° to the second green navigation light off of the fuel dock in approximately 5.5 meters of water at LLW. At present, there are no navigational marks for this channel.

Restricted area description:

Outer North, Latitude 48°50.096, Longitude 123°27.191'W

Outer South, Latitude 48°50.057'N, Longitude 123°27.251'W

Inner North, Latitude 48°51.134'N, Longitude 123°29.241'W
Inner South, Latitude 48°51.127'N, Longitude 123°29.367'W

5.1.1.2 Tsehum Harbour, Chart 3476, NAD 83

A dogleg channel approximately 112 meters across at the most Easterly point, which is located at the 10m LLW contour mark on chart 3476 on the following locations:

North East point Latitude 48°40.234'N, Longitude 123°23.850'W
South East point Latitude 48°40.183'N, Longitude 123°23.916'W
Bearing 290° True Inbound
Bearing 110° True Outbound

Restricted area description:

Travelling westerly for approximately 1050 meters the north side of the channel is bounded by the starboard hand red buoy showing QR directly across from the breakwater, and further into the harbour by the Starboard hand day marks (red triangles). The Southern side of the channel is in line with the northern tip of the breakwater at the entrance to Tsehum Harbour.

At latitude 48°40'25"N / 123°24'33"W is on a transit from the marked wreck on the south shore to the small Islet just south of Kingfisher Point. The channel turns north and narrows to approximately 30 meters, staying within the bounds of the marked navigation channel. The Channel terminates at its northern end at latitude 48°40'43"N, longitude 123°24'45"W which is at the port hand day mark (square green/white).

5.1.1.3 Roberts Bank/Deltaport/Tsawwassen BC Ferries Terminal and Proposed Roberts Bank Terminal 2 Project

To ensure and maintain a safe approach for deep-sea vessels, ferries and berthing tugs transiting in and out of the Roberts Bank/Deltaport and BC Ferries terminal, crab fishing is prohibited within the area described in Section 5.7.1.2 and shown on a map in Appendix 7.

Port Metro Vancouver proposes the construction and operation of a new three-berth marine container terminal located at Roberts Bank in Delta to be located next to the existing Deltaport and Westshore Terminals. This proposed project known as Roberts Bank Terminal 2, is undergoing an environmental assessment by a federal review panel to identify and evaluate potential effects associated with the construction and operation of the Project (e.g. proposed 110ha+ infill and associated vessel exclusion zone) and to develop mitigation measures that will be used to avoid and/or minimize potential negative effects. Should this project proceed, further stakeholder consultation would be required. Parties interested in providing input for consideration by the Review Panel are encouraged to consult the Canadian Environmental Assessment Agencies project-specific web site at : <http://www.ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=80054> or by sending an email to RobertsBank@ceaa-acee.gc.ca. Additional information can be found on the Port Metro Vancouver website: www.robertsbankterminal2.com

5.1.1.4 Dogfish Bank BC Ferries Lane

A one nautical mile wide corridor, one-half nautical mile on either side of a line between 53° 56.0' N, 130° 55.7' W and 53° 45.3' N, 131° 16.2' W Then one-half nautical mile wide corridor, with one-quarter nautical mile on either side of a line between 53° 45.3' N, 131° 16.2' W and 53° 39.9' N, 131° 26.2' W. This half-mile corridor is eight miles long and traverses "Dog's Head" After this, another one nautical mile wide corridor, with one-half nautical mile on either side of a line between 53° 39.9' N, 131° 26.2' W and 53° 27.58' N, 131° 49.3' W.

For a complete description of all points that form the boarder of this corridor see the chart in Appendix 7.

5.2 Haida Gwaii - Area A

5.2.1 Area A Year Round Crab Closures

The following areas are closed permanently to commercial crab harvesting:

5.2.1.1 Portions of Area 2:

Subarea 2-1

Those waters of Skidegate Inlet and adjacent waters lying westerly of a line that begins at 53°25.854'N 131°54.640'W [Lawn Point] then southerly following the surfline to 53°15.632'N 131°46.232'W [surfline] then true west to 53°15.632'N 131°49.290'W [Spit Point] and easterly of the meridian passing through 132°16.966'W at McLellan Point (First Nations FSC and Recreation Closure).

Subarea 2-2

Those waters inside a line that begins at 53°15.632'N 131°49.290'W [Spit Point] then true east to 53°15.632'N 131°46.232'W [surfline] then southerly following the surfline to 53°06.533'N 131°38.748'W [Gray Point] then northerly following the shoreline to the beginning point (First Nations FSC and Recreation Closure).

Subarea 2-3

Those waters of Cumshewa Inlet and adjacent waters lying westerly of a line that begins at 53°06.533'N 131°38.748'W [Gray Point] then southerly following the surfline to 52°57.832'N 131°32.897'W [surfline] then true west to 52°57.832'N 131°36.199'W [Skedans Point] and easterly of the meridian passing through 131°50.320'W at Conglomerate Point (First Nations FSC and Recreation Closure).

Subarea 2-4

Those waters of Cumshewa Inlet and adjacent waters lying westerly of the meridian passing through 131°50.320'W at Conglomerate Point and easterly of a line that begins at 53°01.476'N 131°57.690'W [near Barge Point] then to 53°00.859'N 131°55.969'W [Louise Island] (First Nations FSC and Recreation Closure).

Subarea 2-63

Those waters of Buck Channel and adjacent waters inside a line that begins at 53°09.121'N 132°37.757'W [surfline] then true east to 53°09.121'N 132°35.137'W [Tcenakun Point] then following the southerly shoreline of Chaatl Island to 53°07.576'N 132°24.043'W [Chaatl Island] then true east to 53°07.576'N 132°23.622'W [Demariscove Point] then

westerly following the shoreline to 53°05.732'N 132°34.496'W [Buck Point] then northerly following the surfline to the beginning point (First Nations FSC and Recreation Closure).

Subarea 2-64

Those waters of Skidegate Channel inside a line that begins at 53°10.603'N 132°33.832'W [Ells Point] then southeasterly following the shoreline to 53°09.163'N 132°30.818'W [Mercer Point] then to 53°08.687'N 132°29.959'W [Newton Point] then true south to 53°07.704'N 132°29.959'W [Chaatl Island] then following the northerly shoreline to 53°09.121'N 132°35.137'W [Tcenakun Point] then to the beginning point (First Nations FSC and Recreation Closure).

Subarea 2-65

Those waters of Dawson Inlet and Dawson Harbour lying northerly of a line that begins at 53°09.163'N 132°30.818'W [Mercer Point] then to 53°08.687'N 132°29.959'W [Newton Point] (First Nations FSC and Recreation Closure).

Subarea 2-66

Those waters of Skidegate Channel lying easterly of the meridian passing through 132°29.959'W at Newton Point and westerly of a line that begins at 53°07.576'N 132°24.043'W [Chaatl Island] then true east to 53°07.576'N 132°23.622'W [Demariscove Point] then true north to 53°08.316'N 132°23.622'W [Graham Island] (First Nations FSC and Recreation Closure).

Subarea 2-67

Those waters of Skidegate Channel and adjacent waters lying easterly of the meridian passing through 132°16.966'W at McLellan Point and westerly of the meridian passing through 132°23.622'W at Demariscove Point (First Nations FSC and Recreation Closure).

Subarea 2-77

Those waters of Shields Bay inside a line that begins at 53°20.424'N 132°26.568'W [Dawson Head] then true north to 53°21.050'N 132°26.569'W [Graham Island] then following the shoreline of Shields Bay to 53°19.419'N 132°27.322'W [Graham Island] then true north to 53°19.476'N 132°27.322'W [Shields Island] then following the westerly shoreline of Shields Island to the beginning point (First Nations FSC and Recreational Access Closure).

5.2.1.2 Bowie Seamount:

Area 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 as laid out in the Bowie Seamount Marine Protected Area Regulations. (Marine Protected Area)

5.2.1.3 Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site

Until the new zoning plan is implemented and communicated through subsequent Fishery Notices, the following commercial and recreational closures remain in effect. See Appendix 11 for maps of these areas.

(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]

5.2.1.4 Hecate Strait Queen Charlotte Sound Glass Sponge Reef Areas:

The MPA's regulations establish the outer boundaries of the three MPA areas, consisting of the seabed, the subsoil to a depth of 20 meters and the water column above the seabed, that are bounded by a series of rhumb lines as follows:

The Northern Reef Area is described as bounded by a series of rhumb lines drawn from a point 53°11'52.9" North latitude and 130°19'47.2" West longitude, to a point having coordinate values of 53°09'22.0" North latitude and 130°18'53.0" West longitude, then to a point having coordinate values of 53°02'54.5" North latitude and 130°25'16.2" West longitude, then to a point having coordinate values of 53°03'06.9" North latitude and 130°30'35.6" West longitude, then to a point having coordinate values of 53°07'17.8" North latitude and 130°42'03.2" West longitude, then to a point having coordinate values of 53°07'44.5" North latitude and 130°46'26.5" West longitude, then to a point having coordinate values of 53°13'28.7" North latitude and 130°47'28.7" West longitude, then to a point having coordinate values of 53°19'20.0" North latitude and 130°54'24.2" West longitude, then to a point having coordinate values of 53°24'05.4" North latitude and 130°48'37.8" West longitude then to a point having coordinate values of 53°23'40.7" North latitude and 130°42'52.2" West longitude then to a point having coordinate values of 53°18'42.5" North latitude and 130°38'09.3" West longitude, then to a point having coordinate values of 53°15'20.6" North latitude and 130°33'01.3" West longitude, then back to the point of Commencement.

The Northern Reef Area Core Protection Zone (CPZ) is described as bounded by a series of rhumb lines drawn from a point having coordinate values of 53°18'40.4" North latitude and 130°52'46.5" West longitude, to a point having coordinate values of 53°22'12.1" North latitude and 130°47'01.7" West longitude, then to a point having coordinate values of 53°22'20.2" North latitude and 130°43'12.5" West longitude, then to a point having coordinate values of 53°17'22.8" North latitude and 130°38'18.2" West longitude, then to a point having coordinate values of 53°15'01.7" North latitude and 130°36'35.5" West longitude, then to a point having coordinate values of 53°10'55.2" North latitude and 130°20'19.3" West longitude, then to a point having coordinate values of 53°04'30.2" North latitude and 130°25'53.6" West longitude, then to a point having coordinate values of 53°04'58.0" North latitude and 130°32'16.9" West longitude then to a point having coordinate values of 53°07'22.2" North latitude and 130°37'37.6" West longitude, then to a point having coordinate values of 53°08'36.6" North latitude and 130°39'29.5" West longitude, then to a point having coordinate values of 53°08'41.8" North latitude and 130°45'40.0" West longitude, then to a point having coordinate values of 53°13'51.2" North latitude and 130°46'41.2" West longitude, then back to the point of Commencement.

The Central Reefs Area is described as bounded by a series of rhumb lines drawn from a point 52°00'24.4" North latitude and 129°14'12.6" West longitude, to a point having coordinate values of 51°55'50.5" North latitude and 129°18'13.8" West longitude, then to a point having coordinate values of 51°51'32.5" North latitude and 129°36'37.4" West longitude, then to a point having coordinate values of 51°53'00.7" North latitude and 129°44'03.4" West longitude, then to a point having coordinate values of 52°05'14.1" North latitude and 129°36'14.1" West longitude, then to a point having coordinate values of 52°08'46.0" North latitude and 129°33'33.5" West longitude, then to a point having coordinate values of 52°15'42.6" North latitude and 129°44'12.3" West longitude, then to a point having coordinate values of 52°29'35.4" North latitude and 129°52'32.7"

West longitude, then to a point having coordinate values of 52°32'05.4" North latitude and 129°53'06.2" West longitude, then to a point having coordinate values of 52°34'05.6" North latitude and 129°47'51.4" West longitude, then to a point having coordinate values of 52°25'42.7" North latitude and 129°35'12.2" West longitude, then to a point having coordinate values of 52°20'02.8" North latitude and 129°29'51.7" West longitude, then to a point having coordinate values of 52°09'52.3" North latitude and 129°25'29.5" West longitude, then back to the point of Commencement.

The Central Reefs Area Core Protection Zone (CPZ) Zone 'A' is described as bounded by a series of rhumb lines drawn from a point having coordinate values of 52°14'03.4" North latitude and 129°38'33.2" West longitude, to a point having coordinate values of 52°16'54.8" North latitude and 129°43'13.4" West longitude, then to a point having coordinate values of 52°21'57.1" North latitude and 129°43'56.5" West longitude, then to a point having coordinate values of 52°24'24.5" North latitude and 129°47'22.8" West longitude, then to a point having coordinate values of 52°29'05.9" North latitude and 129°50'59.4" West longitude, then to a point having coordinate values of 52°31'05.2" North latitude and 129°50'13.9" West longitude, then to a point having coordinate values of 52°31'06.7" North latitude and 129°47'40.9" West longitude, then to a point having coordinate values of 52°27'42.0" North latitude and 129°40'25.1" West longitude, then to a point having coordinate values of 52°25'22.9" North latitude and 129°37'24.0" West longitude, then to a point having coordinate values of 52°19'47.0" North latitude and 129°32'43.2" West longitude, then to a point having coordinate values of 52°16'18.2" North latitude and 129°33'22.8" West longitude, then back to the point of Commencement.

The Central Reefs Area Core Protection Zone (CPZ) Zone 'B' is described as bounded by a series of rhumb lines drawn from a point having coordinate values of 51°54'43.1" North latitude and 129°41'22.2" West longitude, to a point having coordinate values of 52°01'22.5" North latitude and 129°35'48.4" West longitude, then to a point having coordinate values of 52°05'13.5" North latitude and 129°34'32.5" West longitude, then to a point having coordinate values of 52°08'48.5" North latitude and 129°31'44.1" West longitude then to a point having coordinate values of 52°08'51.3" North latitude and 129°29'18.0" West longitude, then to a point having coordinate values of 52°04'27.1" North latitude and 129°21'17.3" West longitude, then to a point having coordinate values of 51°59'40.8" North latitude and 129°15'23.9" West longitude, then to a point having coordinate values of 51°56'04.5" North latitude and 129°18'46.2" West longitude, then to a point having coordinate values of 51°52'55.7" North latitude and 129°36'49.8" West longitude, then back to the point of Commencement.

The Southern Reef Area is described as bounded by a series of rhumb lines drawn from a point 51°24'44.2" North latitude and 128°47'58.3" West longitude, to a point having coordinate values of 51°18'32.5" North latitude and 128°40'35.6" West longitude, then to a point having coordinate values of 51°14'57.6" North latitude and 128°47'01.2" West longitude, then to a point having coordinate values of 51°14'33.9" North latitude and 128°55'45.5" West longitude, then to a point having coordinate values of 51°17'42.3" North latitude and 129°00'29.0" West longitude, then to a point having coordinate values of 51°19'24.5" North latitude and 129°00'53.6" West longitude, then back to the point of Commencement.

The Southern Reef Area Core Protection Zone is described as bounded by a series of rhumb lines drawn from a point having coordinate values of 51°17'59.2" North latitude and 128°57'31.9" West

longitude, to a point having coordinate values of 51°19'30.8" North latitude and 128°58'22.7" West longitude, then to a point having coordinate values of 51°23'41.9" North latitude and 128°48'50.9" West longitude, then to a point having coordinate values of 51°19'17.5" North latitude and 128°42'33.6" West longitude, then to a point having coordinate values of 51°18'24.5" North latitude and 128°42'37.7" West longitude, then to a point having coordinate values of 51°15'56.0" North latitude and 128°47'04.2" West longitude, then to a point having coordinate values of 51°15'52.2" North latitude and 128°54'20.4" West longitude, then back to the point of Commencement.

5.2.2 Area A Seasonal Crab Closures

5.2.2.1 Area A (excluding McIntyre Bay, Naden Harbour):

Area A closes due to soft-shell crab 00:01 hours March 1 to 08:00 hours August 1, 2022. The Department may endorse a monitoring program in accordance with the soft-shell guidelines, (see Appendix 10). If a program is in place and testing commences no later than February 15th, the Area, or portions of the Area (see Appendix 7 for a map and a description of the Area A Soft-shell Management Areas), could close earlier or later than March 1 if sampling indicates a change to the closing date is appropriate. If a program is in place, the Area, or portions of the area, could also open earlier or later than August 1 if sampling indicates a change to the opening date is appropriate. (Soft-shell Closure).

5.2.2.2 McIntyre Bay,(Soft-shell Area 10):

Those portions of Subareas 1-5 and 101-4 to 101-10 that lie east of the meridian passing through 132°04' west longitude, and west of the meridian passing through 131°30' west longitude, except for that portion of Subarea 101-10 that lies southeasterly of a line that begins at 54°09' N 131°40' W [Rose Spit] then to 54°12'N 131°38' W then to 54°14.9' N 131°30.7' W, closed 00:01 hours, March 1 to 08:00 hours, September 1, 2022. The Department may endorse a monitoring program in accordance with the soft-shell guidelines, (see Appendix 10). If a program is in place and testing commences no later than February 15th, the area may close no later than May 1, 2022 if soft-shell sampling indicates a change to the closure date is appropriate. McIntyre Bay may re-open at the earliest 0800 hours September 1, 2022 (Conservation, First Nation FSC and Recreational Access).

The maximum number of traps permitted to be fished in McIntyre Bay between the Spring Softshell Opening and November 1, 2022 is one-half the total trap allocation indicated on the vessel licence.

5.2.2.3 Naden Harbour

Subarea 1-4

Those waters of Naden Harbour and adjacent waters lying southerly of a line that begins at 54°02.830'N 132°34.166'W [Mary Point] then to 54°03.010'N 132°32.731'W [Deepwater Point] closed 00:01 hours March 1 to 08:00 hours October 15, 2022. **Ring net fishery only.** (Soft-shell Closure)

5.2.3 Area A Crab Closure Requests

Details and status on the requests for commercial closures in portions of Area A can be obtained upon request to the Area Crab Manager.

5.3 North Coast Mainland - Area B

All areas within Area B are closed from Dec 19 to April 1 of each calendar year.

Note - Central Coast Collaborative Crab Management Process Closures: The 11 new closure areas below came into effect April 1, 2021.

5.3.1 Area B Year Round Crab Closures

The following areas are closed year-round to commercial crab harvesting:

5.3.1.1 Kincolith:

Subarea 3-12

Those portions of Subarea 3-12 and the Nass River estuary inside a line that begins at 55°00.626'N 130°00.329'W [Nass Point] then to 55°00.000'N 130°01.000'W then to 54°58.200'N 129°55.000'W then to 54°59.082'N 129°55.053'W [Fort Point navigation marker] then following the shoreline to the beginning point (First Nations FSC and Recreational Access Closure).

5.3.1.2 Stewart:

Subarea 3-15

That portion of 3-15 lying northerly of the parallel passing through 55°37.617'N [Green Islets] and easterly of the international boundary between Canada and the United States (First Nations FSC and Recreation Closure).

Subarea 3-16

Those waters of Portland Canal and adjacent waters lying northerly of the parallel passing through 55°47.807'N at Engineers Point and easterly of the international boundary between Canada and the United States (First Nations FSC and Recreational Access Closures).

5.3.1.3 Prince Rupert:

Subarea 4-9

That portion of Subarea 4-9 inside a line that begins at 54°20.141'N 130°27.678'W [Observation Point] then to 54°19.921'N 130°29.696'W [Doolan Point] then following the easterly shoreline of Tugwell Island to 54°19.125'N 130°30.980'W [Dawes Point] then to 54°18.447'N 130°28.457'W [Straith Point] then to the beginning point (First Nations FSC and Recreational Access Closures).

Subarea 4-10

Those waters of Prince Rupert Harbour and adjacent waters inside a line that begins at 54°20.141'N 130°27.678'W [Observation Point] then following the shoreline of Tuck Inlet to 54°20.197'N 130°16.490'W [Pethick Point] then to 54°20.052'N 130°17.009'W [Ritchie Point] then following the westerly shoreline of Kaien Island to 54°14.079'N 130°20.085'W [near Bishop Island] then to 54°14.113'N 130°22.665'W [Lima Point] then following the easterly shoreline of Digby Island to 54°18.447'N 130°28.457'W [Straith Point] then to the beginning point (First Nations FSC and Recreational Access Closures).

Subarea 4-11

Those waters of Porpoise Harbour, Wainwright Basin, Morse Basin, and adjacent waters lying southerly of a line that begins at 54°20.052'N 130°17.009'W [Ritchie Point] then to 54°20.197'N 130°16.490'W [Pethick Point] and northerly of a line that begins at 54°12.152'N 130°18.514'W [Ridley Island] then to 54°12.097'N 130°18.142'W [Lelu Island] then northerly following the shoreline to 54°12.634'N 130°17.485'W [Lelu Island] then true east to 54°12.634'N 130°17.199'W [Tsimpsean Peninsula] (First Nations FSC Recreational Access Closure and Dioxin closures). Please refer to the First Nations Harvest plan or the BC Tidal Water Sport Fishing Guide for the Dioxin Closure information.

5.3.1.4 Kitkatla:

Subarea 5-3

Those waters of Kitkatla Channel and adjacent waters inside a line that begins at 53°50.268'N 130°30.206'W [Chief Point] then easterly following the shoreline to 53°49.704'N 130°20.488'W [Sparrowhawk Point] then to 53°47.766'N 130°18.771'W [McCauley Island] then to 53°47.308'N 130°23.724'W [Browning Island] then to 53°47.490'N 130°24.571'W [Dolphin Island] then following the northerly shoreline of Dolphin Island to 53°47.819'N 130°25.981'W [Kitkatla Village on Dolphin Island] then to 53°49.194'N 130°30.009'W [Goschen Island] then to the beginning point. (First Nations FSC and Recreational Access Closure)

Subarea 5-10

Those waters of Browning Entrance and adjacent waters inside a line that begins at 53°49.194'N 130°30.009'W [Goschen Island] then to 53°47.819'N 130°25.981'W [Kitkatla Village on Dolphin Island] then following the southerly shoreline of Dolphin Island to 53°47.490'N 130°24.571'W [Dolphin Island] then to 53°47.308'N 130°23.724'W [Browning Island] then to 53°47.766'N 130°18.771'W [McCauley Island] then southerly following the shoreline to 53°40.427'N 130°24.525'W [Baird Point] then to 53°38.261'N 130°27.990'W [Banks Island] then to 53°47.291'N 130°33.162'W [Viscount Point] then northeasterly following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.5 Kitimat:

Subarea 6-1

Those waters of Douglas Channel, Devastation Channel, Kitimat Arm, and adjacent waters lying northeasterly of a line that begins at 53°45.238'N 129°01.852'W [Paisley Point] then to 53°41.498'N 129°05.121'W [Grant Point] then following the shoreline to 53°41.197'N 129°04.789'W [Maitland Island] then to 53°40.494'N 129°04.797'W [Hawkesbury Island] then following the easterly shoreline of Hawkesbury Island to 53°33.600'N 128°53.406'W [Eva Point] then to 53°34.147'N 128°49.007'W [Staniforth Point] then to 53°33.903'N 128°46.107'W [mainland]. (First Nations FSC and Recreational Access Closure)

5.3.1.6 Coghlan Anchorage:

Subarea 6-2

That portion of Subarea 6-2 west of a line begins at 53°25.478'N 129°14.242'W [Halsey Point] then to 53°24.728'N 129°14.214'W [Dawson Point] then following the westerly shoreline of Promise Island to 53°22.022'N 129°15.699'W [Thom Point] then to 53°21.878'N 129°16.208'W [Waterman Point] then northerly following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.7 Kitkiata Inlet:

That portion of Subarea 6-2 west of a line begins at 53°37.876'N 129°13.853'W [Gertrude Point] then to 53°36.798'N 129°14.411'W [Helen Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.8 Kiskosh Inlet:

That portion of Subarea 6-2 west of a line begins at 53°31.180'N 129°13.955'W then to 53°30.579'N 129°14.140'W. (First Nations FSC and Recreational Access Closure)

5.3.1.9 Higgins Passage:

Subarea 6-16 and 7-3

Those portions of Subareas 6-16 and 7-3 lying inside of a line that begins at 52°29.074586'N 128°45.836113'W [southwest Swindle Island], then southwest to 52°28.658625'N 128°47.783029'W, then south to 52°27.752182'N 128°47.957771'W, then east to 52°27.505255'N 128°45.896523'W [west Price Island], then following the northern shoreline of Price Island to 52°27.564212'N 128°37.583357'W, then 52°27.919086'N 128°36.925324'W then following the southern shoreline of Swindle Island to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.10 Khutze Inlet (New CCCCMP closure):

Subarea 6-23:

A portion of Subarea 6-23 lying southerly of a line that begins at 53°05.7887' N 128°27.1974' W [Pardoe Point] then to due east to 53°05.7865' N 128°25.7469' W.

5.3.1.11 Bottleneck (New CCCCMP closure):

Subarea 7-6

Those waters of PFMA 7-6 within Bottleneck Inlet: Defined by those waters inside a line that begins at 52°42.7' N 128°25.5' W, then to 52°42.8' N 128°25.5' W, then following the shoreline back to the beginning point.

5.3.1.12 Mussel Inlet:

Subarea 7-7

Those portions of Mussel Inlet lying easterly of a line that begins at 52°54.608550'N 128°7.088569'W [Carse Point] then south to 52°53.891016'N 128°6.686082'W [east of David Bay]. (First Nations FSC and Recreational Access Closure)

5.3.1.13 Griffin (New CCCCMP closure):

Subarea 7-9

Those waters in a portion of 7-9 inside a line that begins at 52°46.0240' N 128°20.9051' W, then due east to 52°46.0175' N 128°19.9661' W then following the eastern shoreline to the south to the point 52°40.5787' N 128°16.3566' W and then due west to 52°40.5787' N 128°17.2617' W and then following the west shore north to the beginning point.

5.3.1.14 Kynoch Inlet:

Subarea 7-11

Those waters of Kynoch Inlet lying easterly of a line that begins at 52°46.109'N 128°07.820'W [Garvey Point] then to 52°45.582'N 128°06.788'W [Kynoch Point]. (First Nations FSC and Recreational Access Closure). This closure includes the eastern portion of Kynoch Inlet and Culpepper Lagoon.

5.3.1.15 Bullock (New CCCCMP closure):

Subarea 7-14:

A portion of 7-14 within Bullock Channel inside a line that begins at 52°24.8034' N 128°04.7689' W, then due east to 52°24.8034' N 128°04.4230' W then following the eastern shoreline to the south to the point 52°22.3772' N 128°03.4271' W and then due west to 52°22.3729' N 128°03.9442' W and then following the west shore north to the beginning point.

5.3.1.16 Troup Passage:

Those portions of Subarea 7-15 lying inside of a line that begins at 52°18.201'N 127°57.968'W [Jagers Point], then following the westerly shoreline of Cunningham Island to 52°12.252'N 128°05.718'W [Dumas Point], then to 52°13.595'N 128°07.398'W [Chatfield Island], then following the northerly shoreline of Chatfield Island to 52°18.201'N 128°00.831'W, then due east to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.17 Hauyet (New CCCCMP closure):

Subarea 7-17:

A portion of 7-17 including Hauyet: Those waters of Lama Passage and adjacent waters inside a line that begins at 52°4.2' N 128°5.6' W (Westminster Point), then to 52°3.9' N 128°3.0'W (Harbourmaster Point), then following the southern shoreline to the beginning point.

5.3.1.18 Fitz Hugh Sound/Koeye Inlet:

Subarea 8-3:

Those waters of Fitz Hugh Sound including the Koeye River estuary inside a line that begins at 51°44.011'N 127°59.798'W [Kelpie Point Light] then to 51°48.949'N 127°53.842'W [Uganda Point] then southerly following the shoreline to 51°42.967'N 127°53.462'W [Whidbey Point] then to the beginning point. (First Nations FSC and Recreational Access Closure). This closes Koeye River estuary.

5.3.1.19 Dean Channel

Subarea 8-7:

Those waters of Dean Channel and adjacent waters lying northeasterly of a line that begins at 52°16.065'N 127°47.100'W [Boscowitz Point] then to 52°14.759'N 127°45.956'W [Rattenbury Point] and southwesterly of a line that begins at 52°27.297'N 127°17.586'W [north of Eucott Bay] then to 52°26.354'N 127°16.415'W [Edward Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.20 Kimsquit (New CCCCMP closure):

Subarea 8-8:

That portion of subarea 8-8 within the north end of Dean Channel: North of a line that begins at 52°35.3013' N 127°09.7818' W, then to 52°34.4591' N 127°08.9307' W and subarea 8-9.

5.3.1.21 North Bentinck Arm

Subarea 8-11:

Those waters of North Bentinck Arm and adjacent waters lying easterly of a line that begins at 52°19.948'N 126°59.164'W [Loiyentsi Point] then to 52°18.084'N 127°00.457'W [near Menzies Point] then to 52°18.727'N 126°57.905'W [Tallheo Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.22 South Bentinck (New CCCCMP closure):

Subarea 8-12:

That portion of subarea 8-12 within the south end of Bentinck arm: South of a line that begins at 52°03.4381' N 126°41.3674' W, then to 52°02.6243' N 126°43.1459' W.

South Bentinck 2:

That portion of 8-12 within Bentinck Arm inside a line that begins at 52°08.3851' N 126°49.8189' W, then due north to 52°09.9041' N 126°49.7904' W then following the eastern shoreline to the south to the point 52°03.4381' N 126°41.3674' W and then due west to 52°02.6243' N 126°43.1459' W and then following the west shore north

to the beginning point.

5.3.1.23 Burke Channel/Doc Creek

Subarea 8-13:

Those waters within Subarea 8-13 of Burke Channel inside a line that begins at 51°57.9781' N 127°40.4324' W then southwest to 51°57.0328' N 127°41.3889' W. This closes the estuaries of Doc Creek and Nootsum River.

5.3.1.24 Kwatna (New CCCCMP closure):

Subarea 8-14:

That portion of subarea 8-14 within Kwatna Bay: East of a line that begins at 52°07.0781' N 127°26.0781' W, then to 52°06.4534' N 127°26.0781' W.

5.3.1.25 Kwatalena (New CCCCMP closure):

That portion of subarea 8-14 within Kwatna Inlet: South of a line that begins at 52°03.5732' N 127°36.0804' W, then to 52°03.3190' N 127°34.8727' W.

5.3.1.26 Rivers Inlet (New CCCCMP closure)

Subareas 9-5 through 9-9.

5.3.1.27 Johnston Bay (New CCCCMP closure)

Subarea 9-3:

That portion of subarea 9-3 including Johnston Bay: Those waters of Rivers Inlet inside a line that begins at 51°30.4' N 127°32.2' W, then to 51°30.5' N 127°31.5' W, following the southerly shoreline back to the beginning point.

5.3.2 Area B Seasonal Crab Closures

Please see Section 2.8.2 for the applicable open times.

5.3.2.1 Khutzeymateen Inlet:

Subarea 3-10:

Those waters of Khutzeymateen Inlet and adjacent waters lying easterly of a line that begins at 54°42.989'N 130°13.731'W [Keemein Point] then to 54°43.589'N 130°13.050'W [Welgeegenk Point] opens to commercial crab fishing at 08:00 hours April 1, and closes 00:01 hours November 16 (Winter Ice Closure).

5.3.2.2 Nass Estuary (with half trap vessel limit and one haul per day):

Those portions of Subareas 3-12, 3-18 and the Nass River estuary inside a line begins at 54°58.995'N 130°06.270'W [Ramsden Point Light] then to a 54°56.5'N 130°04.2'W located three nautical miles southwest of Arrandale on Mylor Peninsula then following the shoreline to 54°58.933'N 129°50.385'W [Leading Point] then to 54°59.620'N 129°53.467'W [east of Mill Bay] then following the shoreline to 55°00.626'N 130°00.329'W [Nass Point] then due west to 55°00.626'N 130°03.350'W, (on the opposite mainland shore) then following the shoreline to the beginning point closed January 1 to 08:00 hours October 1 of each year and from 00:01 hours, October 23 to December 31 of each calendar year. (First Nations FSC and Recreational Access Closure). The opening date of October 1, closure date of October 22, and closure area boundary may be changed pre-season based on consultation.

5.3.2.3 Stewart:

That portion of 3-15 lying southerly of the parallel passing through 55°37.617'N [Green Islets] and easterly of the international boundary between Canada and the United States. (First Nations FSC and Recreational Access Closure)

5.3.2.4 Big Bay:

That portion of Subarea 4-8 east of a line that begins at 54°28.461'N 130°25.712'W [Shattock Point] then to 54°27.342'N 130°27.049'W [Simpson Point]. (First Nations FSC and Recreational Access Closure)

5.3.2.5 Prince Rupert:

That portion of Subarea 4-9 inside a line that begins at 54°21.803'N 130°29.243'W [Ryan Point] then to 54°20.355'N 130°30.519'W [Chapman Point] then following the easterly shoreline of Tugwell Island to 54°19.921'N 130°29.696'W [Doolan Point] then to 54°20.141'N 130°27.678'W [Observation Point] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.2.6 Kitkatla:

The following areas are closed by variation order and notice to industry during the herring seine and roe-on-kelp fisheries. Since 2018, half trap limits and daily haul restrictions will be in place for the first 14 days of the commercial crab fishery.

Subarea 5-4

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°53.961'N 130°41.984'W [Porcher Peninsula] then true east to 53°53.961'N 130°39.758'W [Gurd Island] then following the southerly shoreline of Gurd Island to 53°53.765'N 130°35.208'W [Gurd Island] then to 53°53.765'N 130°33.400'W [Snass Point] then to

53°52.233'N 130°30.941'W [Whiteley Point] then southerly following the shoreline to 53°50.268'N 130°30.206'W [Chief Point] then to 53°49.194'N 130°30.009'W [Goschen Island] then following the northeasterly shoreline of Goschen Island to 53°51.024'N 130°33.962'W [Nubble Point] then to 53°51.333'N 130°35.312'W [Coquitlam Island] then to 53°51.542'N 130°36.661'W [Porcher Peninsula] then northerly following the shoreline to the beginning point. (Herring Seine and Roe-on-Kelp Closure)

Subarea 5-5

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.438'N 130°35.062'W [Porcher Island] then southerly following the shoreline to 53°53.765'N 130°33.400'W [Snass Point] then true west to 53°53.765'N 130°35.208'W [Gurd Island] then northerly following the shoreline to 53°55.237'N 130°37.984'W [Gurd Point] then to the beginning point. (Herring Seine and Roe-on-Kelp Closure)

Subarea 5-6

Those waters of Dries Inlet and adjacent waters lying northerly of a line that begins at 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.438'N 130°35.062'W [Porcher Island]. (Herring Seine and Roe-on-Kelp Closure)

Subarea 5-7

Those waters of Serpentine Inlet and adjacent waters lying northerly of a line that begins at 53°55.060'N 130°40.843'W [Porcher Peninsula] then to 53°56.184'N 130°38.170'W [Porcher Island]. (Herring Seine and Roe-on-Kelp Closure)

Subarea 5-8

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°55.060'N 130°40.843'W [Porcher Peninsula] then to 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.237'N 130°37.984'W [Gurd Point] then southerly following the shoreline to 53°53.961'N 130°39.758'W [Gurd Island] then true west to 53°53.960'N 130°41.984'W [Porcher Peninsula] then northerly following the shoreline to the beginning point, (Herring Seine and Roe-on-Kelp Closure).

5.3.2.7 Portions of Area 6 (with half trap vessel limit and one haul per day):

Subarea 6-3

Those waters of Verney Passage, Ursula Channel, and adjacent waters inside a line that begins at 53°33.600'N 128°53.406'W [Eva Point] then to 53°34.147'N 128°49.007'W [Staniforth Point] then southerly following the shoreline to 53°18.723'N 128°53.302'W [mainland] then to 53°18.867'N 128°56.685'W [Pilot Point] then following the northerly shoreline of Gribbell Island to 53°22.910'N 129°07.364'W [Gribbell Island] then true west to 53°22.910'N 129°09.921'W [Money Point] then following the easterly shoreline of Hawkesbury Island to the beginning point. (First Nations and Recreational Access Closure)

Subarea 6-4

Those waters of Gardner Canal and adjacent waters lying southerly of a line that begins at 53°34.147'N 128°49.007'W [Staniforth Point] then to 53°33.903'N 128°46.107'W [mainland]. (First Nations and Recreational Access Closure)

5.3.2.8 Khutze Inlet:

Subarea 6-23

Those waters of Khutze Inlet lying easterly of a line that begins at 53°05.259'N 128°33.381'W [Asher Point] then to 53°04.041'N 128°33.051'W [Griffin Point].(First Nations FSC and Recreational Access Closure).

5.3.2.9 Portions of Area 7:

Subarea 7-6

Those waters of Finlayson Channel inside a line that begins at 52°53.012'N 128°30.634'W [Sarah Head] then true east to 52°53.012'N 128°29.883'W [mainland] then following the shoreline to 52°49.124'N 128°23.499'W [Carter Point] then to 52°48.316'N 128°23.541'W [Fawn Point] then following the westerly shoreline of Roderick Island to 52°38.529'N 128°26.799'W [Roderick Island] then true west to 52°38.529'N 128°30.330'W [Pering Point] then northerly following the shoreline to the beginning point (First Nations and Recreational Access Closure)

Subarea 7-10

Those waters of Mathieson Channel and adjacent waters inside a line that begins at 52°46.109'N 128°09.358'W [Pooley Island] then true east to 52°46.109'N 128°07.820'W [Garvey Point] then to 52°45.582'N 128°06.788'W [Kynoch Point] then southerly following the shoreline to 52°34.310'N 128°14.752'W [Hird Point] then to 52°35.229'N 128°17.203'W [Charles Head] then northerly following the shoreline to the beginning point (First Nations and Recreational Access Closure)

Subarea 7-13

Those waters of Spiller Channel and adjacent waters lying southerly of the parallel passing through 52°23.665'N near Mosquito Bay and northerly of a line that begins at 52°15.694'N 128°17.072'W [Don Peninsula near Foote Islets] then to 52°15.735'N 128°14.647'W [Hyndman Reefs Light] then to 52°16.773'N 128°12.912'W [Grief Island] then following the northerly shoreline of Grief Island to 52°16.742'N 128°12.261'W [Grief Island] then true east to 52°16.742'N 128°11.656'W [Yeo Island] (First Nations and Recreational Access Closure)

Subarea 7-14

Those waters of Spiller Channel, Bullock Channel, Briggs Inlet and adjacent waters lying northerly of a line that begins at 52°23.665'N 128°09.896'W [near Mosquito Bay] then true east to 52°23.665'N 128°07.908'W [Yeo Island] then following the northerly shoreline of Yeo Island to 52°19.144'N 128°02.819'W [Ettershank Point] then to 52°19.177'N 128°01.551'W [Coldwell Point] then to 52°19.085'N 128°00.469'W [Florence Peninsula] (First Nations and Recreational Access Closure)

Subarea 7-15

Those waters of Return Channel and adjacent waters inside a line that begins at 52°19.144'N 128°02.819'W [Ettershank Point] then to 52°19.177'N 128°01.551'W [Coldwell Point] then to 52°19.085'N 128°00.469'W [Florence Peninsula] then easterly following the shoreline to 52°22.251'N 127°53.051'W [Roscoe Point] then to 52°21.764'N 127°52.023'W [Clatse Point] then southerly following the shoreline to 52°18.201'N 127°55.805'W [near Albert Islet] then true west to 52°18.201'N 127°57.968'W [Jagers Point] then following the westerly shoreline of Cunningham Island to 52°18.071'N 127°59.275'W [northwest point of Cunningham Island] then due west to Chatfield Island to 52°18.080'N 128°00.686'W [northwest point of Troup Narrows] then following the northerly shoreline of Chatfield Island to 52°14.911'N 128°10.574'W [Noon Point] then to 52°16.477'N 128°10.894'W [Yeo Island] then easterly following the shoreline to the beginning point. (First Nations and Recreational Access Closure)

Subarea 7-16

Those waters of Roscoe Inlet and adjacent waters lying north-easterly of a line that begins at 52°22.251'N 127°53.051'W [Roscoe Point] then to 52°21.764'N 127°52.023'W [Clatse Point] (First Nations and Recreational Access Closure)

Subarea 7-17

Those waters of Hunter Channel, Lama Passage, and adjacent waters inside a line that begins at 52°11.109'N 128°06.733'W [Dryad Point] then to 52°12.252'N 128°05.718'W [Dumas Point] then following the southerly shoreline of Cunningham Island to 52°11.355'N 127°53.653'W [Madigan Point] then to 52°11.111'N 127°53.058'W [Georgie Point] then following the westerly shoreline of Denny Island to 52°04.549'N 127°56.547'W [Start Point] then to 52°03.829'N 127°57.056'W [Kaiete Point] then following the northerly shoreline of Hunter Island to 52°00.589'N 128°09.961'W [Hunter Island] then true west to 52°00.589'N 128°11.012'W [Soulsby Point] then northerly following the shoreline to the beginning point. (First Nations and Recreational Access Closure)

5.3.2.10 Portions of Area 9:

Subarea 9-2

Those waters of Rivers Inlet inside a line that begins at 51°30.536'N 127°41.792'W [Penrose Island] then to 51°30.246'N 127°41.186'W [Walbran Island] then following the southerly shoreline of Walbran Island to 51°31.166'N 127°34.918'W [Walbran Island] then to 51°30.398'N 127°32.954'W [west of Johnston Bay] then southerly following the shoreline to 51°28.498'N 127°33.745'W [north shoreline of Draney Narrows] then to 51°28.375'N 127°33.947'W [south shoreline of Draney Narrows] then southwesterly following the shoreline to 51°22.624'N 127°44.777'W [Mainland, near Open Bight] then to 51°27.209'N 127°44.705'W [Dimsey Point] then to 51°27.348'N 127°44.219'W [Joachim Island] then following the easterly shoreline of Joachim Island to 51°27.762'N 127°43.838'W [Joachim Island] then to 51°27.982'N 127°43.341'W [Penrose Island] then following the easterly shoreline of Penrose Island to the beginning point (First Nations and Recreational Access Closure)

Subarea 9-3

Those waters of Rivers Inlet inside a line that begins at 51°34.251'N 127°34.217'W [Walbran Island] then to 51°34.210'N 127°31.450'W [near Ida Island] then southerly following the shoreline to 51°30.398'N 127°32.954'W [west of Johnston Bay] then to 51°31.166'N 127°34.918'W [Walbran Island] then northerly following the shoreline to the beginning point (First Nations and Recreational Access Closure)

Subarea 9-4

Those waters of Rivers Inlet inside a line that begins at 51°38.657'N 127°30.325'W [near Whannock Cove] then to 51°37.393'N 127°30.284'W [Stone Point] then southerly following the shoreline to 51°34.210'N 127°31.432'W [near Ida Island] then to 51°34.251'N 127°34.217'W [Walbran Island] then westerly following the shoreline to 51°34.477'N 127°34.820'W [McLeod Point] then to 51°34.638'N 127°34.982'W [near Dawsons Landing] then northerly following the shoreline to the beginning point. (First Nations and Recreational Access Closure)

Subarea 9-6

Those waters of Rivers Inlet and adjacent waters lying easterly of a line that begins at 51°39.432'N 127°25.749'W [McAllister Point] then to 51°38.301'N 127°26.792'W [near Scandinavia Bay]. (First Nations and Recreational Access Closure)

5.3.3 Area B Crab Closures Requests

Details and status on the requests for commercial closures in portions of Area B can be obtained upon request to the Area Crab Manager. Consultation will continue and may result in in-season management action.

5.4 West Coast Vancouver Island - Area E

5.4.1 Area E Year Round Crab Closures

The following areas are closed permanently to commercial crab harvesting:

5.4.1.1 Port Renfrew:

That portion of Subarea 20-2 northerly of a line that begins at 48°32.574'N 124°29.861'W [Owen Point] then to 48°34.395'N 124°24.440'W. (First Nations and Recreational Access Closure)

5.4.1.2 Race Rocks:

Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve) This closure is within both Area 'H' and Area 'E'.

5.4.1.3 Becher Bay – Inside:

That portion of Subarea 20-5 inside a line that begins at 48°20.111'N 123°36.205'W then to 48°20.010'N 123°35.511'W then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure). Becher Bay First Nations have requested an adjustment to this closure. DFO is consulting with Becher Bay and the area E Sooke commercial

representatives. The boundaries or times for this closure may be changed prior to the fishery start or in season.

5.4.1.4 Alberni Inlet - Subarea 23-1:

Those waters of Alberni Inlet lying northerly of the parallel passing through 49°06.222'N. (First Nations FSC and Recreational Access Closure)

5.4.1.5 Pacific Rim National Park, Broken Group Islands:

Those portions of Subareas 23-6, 23-7, 23-8, 23-9 and 23-11 inside a line that begins at 48°57.752'N 125°19.689'W then to 48°55.575'N 125°12.795'W then to 48°50.221'N 125°18.865'W then to 48°51.757'N 125°23.699'W then to 48°54.318'N 125°23.719'W then to the beginning point. (Park)

5.4.1.6 Ahousaht/Millar Channel:

That portion of Subarea 24-4 inside a line that begins at 49°18.030'N 126°04.140'W [northern end of McNeill Peninsula] then to 49°18.030' N 126°03.710' W then to 49°17.483' N 126°03.024' W then to 49°16.814' N 126°02.960' W then to 49°16.439' N 126°02.608' W then to 49°16.226' N 126°02.823' W [Yates Point]. (Navigational and First Nations and Recreational Access Closure)

5.4.1.7 Tofino Navigation Channel:

No buoys are permitted in those portions of Subareas 24-4, 24-6, 24-8, 24-9 and 124-3 shown in Appendix 7. (Navigation Closure)

5.4.1.8 Muchalat Inlet:

Subarea 25-1

Those waters of Muchalat Inlet lying easterly of the meridian at 126°12.867'W at the Muchalat Inlet south shore Light. (Dioxin Closure)

Subarea 25-2

Those waters of Muchalat Inlet lying westerly of the meridian at 126°12.867'W at the Muchalat Inlet south shore Light and easterly of a line that begins at 49°38.680'N 126°20.888'W [Muchalat Inlet Light] then to 49°38.150'N 126°21.250'W [Ous Point].

Subarea 25-3

Those waters of King and Williamson Passages lying westerly of a line that begins at 49°38.680'N 126°20.888'W [Muchalat Inlet Light] then to 49°38.150'N 126°21.250'W [Ous Point] and easterly of a line that begins at 49°39.178'N 126°26.457'W [Atrevida Point Light] then to 49°38.767'N 126°28.292'W [Anderson Point Light]. (Dioxin Closure)

5.4.2 Area E Seasonal Crab Closures

5.4.2.1 Becher Bay – Outside:

That portion of Subarea 20-5 north of a line that begins at 48°20.196'N 123°37.377'W then to 48°19.848'N 123°37.243'W [Lamb Islet] then to 48°19.848'N 123°35.568'W then following the

shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure). Becher Bay First Nations have requested an adjustment to this closure. DFO is consulting with Becher Bay and the area E Sooke commercial representatives. The boundaries or times for this closure may be changed prior to the fishery start or in season.

5.4.2.2 Pedder Bay:

That portion of Subarea 20-5 north of a line that begins at 48°19.927'N 123°32.892'W [Manor Point] then to 48°20.245'N 123°32.458'W then following the Pedder Bay shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15.

5.4.2.3 Sooke Harbour:

That portion of Subarea 20-6 inside a line that begins at 48°22.500'N 123°42.012'W [Trollope Point] then to 48°22.651'N 123°42.643'W then to 48°22.770'N 123°42.684'W then following the shoreline to 48°22.684'N 123°41.487'W [Billings Point] then to 48°22.444'N 123°41.487'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.4.2.4 Ucluelet Harbour:

That portion of Subarea 23-11 north of a line that begins at 48°55.289'N 125°30.572'W then to 48°55.295'N 125°31.429'W [Francis Island] then following the southerly shore of Francis Island to 48°55.313'N 125°31.572'W then to 48°55.329'N 125°31.711'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:00 hours January 1 to 23:59 hours March 31 and 00:01 hours October 1 to 23:59 hours December 31. (First Nations FSC and Recreational Access Closure)

5.4.3 Area E Crab Closure Requests

Details and status on the requests for commercial closures in portions of Area E can be obtained upon request to the Area Crab Manager. Consultations will continue and may result in in-season management action.

5.5 Johnstone Strait - Area G

5.5.1 Areas G Year Round Crab Closures

The following areas are closed permanently to commercial crab harvesting:

5.5.1.1 Nimpkish:

Subarea 12-19

Those waters of Broughton Strait inside a line that begins at 50°36.260'N 127°04.710'W [Ledge Point] then to 50°35.910'N 127°01.490'W [Haddington Island South Light] then to 50°35.213'N 126°57.052'W [Yellow Bluff Light] then following the southerly shore of Cormorant Island to 50°34.791'N 126°54.329'W [Gordon Bluff] then to 50°33.108'N 126°51.257'W [Lewis Point Light] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.5.1.2 Discovery Passage:

Subarea 13-3

Those waters of Discovery Passage inside a line that begins at 50°07.837'N 125°21.532'W [Wilfred Point Light] then to 50°07.830'N 125°20.870'W [Maud Island Light] then northerly following the shoreline to the dam, then across the dam to the shoreline of Quadra Island, then southerly following the shoreline to 50°03.142'N 125°13.866'W [north entrance to Quathiaski Cove] then to 50°02.496'N 125°13.287'W [south entrance to Quathiaski Cove] then southerly following the shoreline to 49°59.913'N 125°11.737'W [Cape Mudge Light] then true west to 49°59.913'N 125°13.794'W [Vancouver Island] then northerly following the shoreline to 50°02.664'N 125°15.037'W [Tye Spite] then true east to 50°02.664'N 125°14.215'W [Discovery Passage] then to 50°04.392'N 125°15.510'W [Discovery Passage] then true west to 50°04.392'N 125°16.608'W [Orange Point] then northerly following the shoreline to the beginning point. (Dioxin Closure)

Subarea 13-4

Those waters of Quathiaski Cove on Quadra Island lying easterly of a line that begins at 50°03.142'N 125°13.866'W [north entrance to Quathiaski Cove] then to 50°02.496'N 125°13.287'W [south entrance to Quathiaski Cove]. (Dioxin Closure)

Subarea 13-5

Those waters of Discovery Passage and the Campbell River lying westerly of a line that begins at 50°04.392'N 125°16.608'W [Orange Point] then true east to 50°04.392'N 125°15.510'W [Discovery Passage] then to 50°02.664'N 125°14.215'W [Discovery Passage] then true west to 50°02.664'N 125°15.037'W [Tye Spite]. This includes the tidal portion of the Campbell River. (Dioxin Closure)

Subarea 13-6

Those waters of Discovery Passage inside a line that begins at 50°11.181'N 125°22.914'W [Vancouver Island] then to 50°10.827'N 125°21.137'W [Separation Head] then southerly following the shoreline to 50°07.830'N 125°20.870'W [Maud Island Light] then to 50°07.837'N 125°21.532'W [Wilfred Point Light] then northerly following the shoreline to the beginning point. (Dioxin Closure)

Subarea 13-11

Those waters of Kanish Bay lying easterly of a line that begins at 50°16.644'N 125°23.000'W [Granite Point] then to 50°14.883'N 125°22.016'W [Bodega Point]. (Dioxin Closure)

That portion of Subarea 13-7 southeast of a line that begins at 50°10.827'N 125°21.137'W [Separation Head] then to 50°11.487'N 125°20.344'W. (Dioxin Closure)

That portion of Subarea 13-10 east of a line that begins at 50°17.702'N 125°18.922'W [Chonot Point] then to 50°17.367'N 125°18.922'W. (Dioxin Closure)

That portion of Subarea 13-14 inside a line that begins at 50°00.696'N 125°08.802'W [Francisco Point] then northerly along the shore for 5 km to 50°03.208'N 125°10.347'W then true east to the 200 m contour then following the 200 m contour south to 50°00.696'N 125°06.956'W then to the beginning point. (Dioxin Closure)

5.5.1.3 Owen Bay:

That portion of Subarea 13-12 north of a line from 50°18.872'N 125°14.203'W [Walters Point] to 50°18.872'N 125°13.339'W. (Dioxin Closure)

5.5.1.4 Heydon Bay:

That portion of Subarea 13-43 westerly of a line that begins at 50°35.649'N 125°33.219'W then to 50°34.700'N 125°33.652'W. (First Nations FSC and Recreational Access Closure)

5.5.2 Area G Crab Closure Requests

Details and status on the requests for commercial closures in portions of Area G can be obtained upon request to the local Area Crab Manager.

5.6 Strait of Georgia - Area H

5.6.1 Area H Year Round Crab Closures

The following areas are closed permanently to commercial crab harvesting:

5.6.1.1 Strait of Georgia Glass Sponge Reefs

In accordance with the *Sensitive Benthic Areas Policy* and its *Ecological Risk Assessment Framework (ERAF) for Cold-water Corals and Sponge Dominated Communities*, DFO has conducted a risk assessment regarding the potential impacts of bottom-contact fisheries on nine glass sponge reef areas in the Strait of Georgia. The Department consulted with First Nations, commercial and recreational fishers and other interested groups on proposed protection measures for the reefs. Formal closures of bottom contact fishing activities in these areas were put in place in-season in 2015.

A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website:

<http://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

5.6.1.2 Comox Harbour:

Subarea 14-11

Those waters of Comox Harbour inside a line that begins at 49°42.059'N 124°51.581'W [Cape Lazo] then to 49°38.488'N 124°51.685'W [Comox Bar Light and Bell Buoy P54] then to 49°36.540'N 124°50.647'W [Longbeak Point] then to 49°35.613'N 124°53.240'W [near Hart Creek] then northerly following the shoreline to 49°38.707'N 124°55.541'W [Gartley Point] then to 49°39.618'N 124°55.505'W [Goose Spit Light] then northerly following the shoreline to the beginning point.

Subarea 14-14

Those waters of Comox Harbour inside a line that begins at 49°39.618'N 124°55.505'W [Goose Spit Light] then to 49°38.707'N 124°55.541'W [Gartley Point] then following the shoreline to the beginning point.

5.6.1.3 Pender Harbour:

Subarea 16-4

Those waters of Pender Harbour lying easterly of a line that begins at 49°37.878'N 124°03.443'W [Henry Point] then true south to 49°37.497'N 124°03.443'W [Francis Peninsula] then following the easterly shoreline of Francis Peninsula to 49°36.995'N 124°01.988'W [Bargain Narrows] then true south to 49°36.985'N 124°01.988'W [Bargain Narrows], (First Nations FSC and Recreational Access Closure)

5.6.1.4 Porpoise Bay:

That portion of Subarea 16-5 inside a line that begins at 49°29.917'N 123°44.798'W then to 49°29.917'N 123°46.401'W then following the shoreline to the beginning point, (First Nations FSC and Recreational Access Closure).

5.6.1.5 Stuart Channel South:

Those waters in portions of Subareas 17-6, 17-7 and all of Subarea 17-9 lying inside a line that begins at 48°57.934'N 123°39.673'W [Donckele Pt] 48°58.155'N 123°40.417'W [south-eastern entrance to Preedy Harbour, Thetis Island] then to 48°58.241'N 123°41.441'W [Dayman Island] then to 48°58.283'N 123°41.706'W [Scott Island] then to 48°58.882'N 123°46.105'W [Sharpe Point] then to 48°58.296'N 123°47.239'W then following the westerly shoreline of Vancouver Island to 48°50.851'N 123°35.530'W [Grave Point] then to 48°51.000'N 123°34.242'W [Erskine Point] then following the easterly shoreline of Saltspring Island to 48°53.963'N 123°35.559'W [Parminter Point] then to then to 48°56.031'N 123°37.921'W [Josling Point]] then following the westerly shore of Kuper Island to the beginning point. (Dioxin Closure).

5.6.1.6 Stuart Channel North:

Those portions of Subareas 17-4 and 17-5 west of a line that begins at 49°05.799'N 123°48.039'W [Reynolds Point] then to 49°02.255'N 123°42.580'W [Miami Islet] then to 49°00.466'N 123°45.806'W [south of Kulleet Bay]. (Dioxin Closure)

5.6.1.7 Satellite Channel:

Those portions of Subareas 18-6 and 18-7 that begins at 48°42.472'N 123°30.216'W then to 48°42.815'N 123°28.800'W then to 48°41.883'N 123°28.285'W then to 48°41.540'N 123°29.699'W then to the beginning point. (British Columbia Provincial Ecological Reserve #67) Note: some electronic charts do not correspond to these boundaries. You must ensure that you use the above coordinates when determining the closure area.

5.6.1.8 Burgoyne Bay:

That portion of Subarea 18-7 east of a line that begins at 48°47.259'N 123°33.235'W [Bold Bluff Point] then to 48°48.820'N 123°33.235'W. (Dioxin Closure)

5.6.1.9 Maple Bay:

Those waters of Subarea 18-7 westerly of a line from 48°48.500'N 123°35.322'W [Paddy Mile Stone] to 48°49.257'N 123°35.318'W [Arbutus Point]. (Dioxin Closure)

5.6.1.10 Cowichan Bay:

Subarea 18-8

Those waters of Cowichan Bay lying westerly of a line that begins at 48°44.564'N 123°34.203'W [Separation Point] then to 48°42.945'N 123°33.292'W [Cherry Point]. (First Nations FSC and Recreational Access Closure)

5.6.1.11 Fulford Harbour:

Subarea 18-10

Those waters of Fulford Harbour inside a line that begins at 48°43.998'N 123°25.533'W [Isabella Point] then to 48°45.220'N 123°23.219'W [Eleanor Point] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.6.1.12 Sidney Spit:

Those waters easterly of a line that begins at 48°39.223'N 123° 20.763'W [navigation light at the north end of Sidney Island] then to 48°38.245'N 123°20.437'W then following the shoreline to the beginning point. (Recreational Access Closure)

5.6.1.13 Patricia Bay:

Commercial crab harvesters are advised to avoid setting gear within in that portion of Patricia Bay in Saanich Inlet (portion of Subarea 19-8) inside a line that begins at 48°39.18'N 123°29.35'W then to 48°39.18'N 123°29.02'W then to 48°38.97'N 123°29.02'W then to 48°38.97'N 123°29.35'W then returning to the beginning point in order to avoid entanglement with sea bed oceanographic instruments deployed by the University of the Victoria Venus project. Please note that there is also a power and data cable from this location running to shore in Pat Bay, as described in a notice to mariners. For additional information see: www.venus.uvic.ca/index.html

5.6.1.14 Victoria Harbour:

That portion of Subarea 19-1 inside a line that begins at 48°26.444'N 123°23.267'W [Chapman Point] then to 48°26.409'N 123°23.317'W then following the shoreline to 48°25.024'N 123°24.494'W [Macauley Point] then to 48°24.814'N 123°23.633'W [the light at the western end of the Ogden Point breakwater] then following the shoreline to the beginning point. (Dioxin Closure)

5.6.1.15 Ogden Point:

Those portions of Subarea 19-3 inside a line that begins at 48°24.814'N 123°23.633'W [the light at the western end of the Ogden Point breakwater] then to 48°24.387'N 123°23.280'W [Brotchie Ledge Light] then to 48°24.649'N 123°22.701'W [Holland Point]. (Marine Reserve)

5.6.1.16 Race Rocks:

Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve) This closure is within both Area 'H' and Area 'E'.

5.6.1.17 Ganges Harbour:

No buoys are permitted in that portion of Subarea 18-3 shown in Appendix 7. (Navigation Closure)

5.6.1.18 Dinner Bay:

That portion of 18-2 inside a line from 48°50.427'N 123°19.984'W then to 48°50.010'N 123°19.675'W [Dinner Point] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.6.1.19 Horton Bay:

That portion of 18-5 inside a line that begins at 48°50.123'N 123°14.703'W then to 48°50.062'N 123°14.571'W then following the shoreline to 48°49.566'N 123°14.230'W then to 48°49.481'N 123°14.206'W then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.6.1.20 Esquimalt Harbour

As a precautionary measure, Esquimalt Harbour (Subarea 19-2) was closed on May 10th, 2016 to all fishing due to a fuel spill (see Fisheries Notices FN 0393 & FN0700). This closure will remain in place until testing can be done to determine that all species are safe for human consumption. Please check fisheries notices for status updates on this closure for the duration of this plan. (Fuel Spill)

5.6.1.21 Tsehum Harbour:

No buoys are permitted in that portion of Subarea 19-5 shown in Appendix 7. (Navigation Closure)

5.6.1.22 Cordova Channel:

Those waters of Subarea 19-5 inside a line that begins at 48°35.990'N and 123°23.400'W [Turgoose Point] then to 48°37.040' N 123°22.780' W [light off NW point of James Island] then following the shoreline of James Island to 48°35.370' N 123°20.960' W then to 48°33.490'N 123°21.750'W [Cowichan Head] then northerly following the shoreline to the beginning point, (First Nations FSC and Recreational Access Closure)

5.6.2 Area H Seasonal Crab Closures

5.6.2.1 Kuper Island:

That portion of Subarea 17-8 that begins at 48°59.397'N 123°39.126'W [Thetis Island] then to 48°59.181'N 123°38.201'W [navigational buoy near Centre Reef] then to 48°58.897'W 123°37.627'W [Norway Island] then following the northerly shoreline of Norway Island to 48°58.549'N 123°37.021'W then to 48°58.121'N 123°36.838'W then to 48°57.981'N 123°36.575'W then to 48°56.031'N 123°37.921'W [Josling Point] then following the easterly shoreline of Kuper Island to 48°59.043'N 123°39.648'W then to 48°59.122'N 123°39.648'W then following the southerly shoreline of Thetis Island to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.2.2 Sechelt Inlet:

That portion of Subarea 16-5 inside a line that begins at 49°31.389'N 123°46.759'W [Four Mile Point] then to 49°31.943'N 123°47.393'W [Carlson Point] then following the

shoreline to 49°29.917'N 123°46.401'W then to 49°29.917'N 123°44.798'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.2.3 Nanaimo Harbour:

Subarea 17-14:

Those waters of Newcastle Channel and Nanaimo Harbour lying southerly of a line that begins at 49°11.598'N 123°56.936'W [Pimbury Point] then to 49°11.677'N 123°56.829'W [Shaft Point] then following the southwesterly shoreline of Newcastle Island to 49°11.023'N 123°55.553'W [Newcastle Island] then true south to 49°10.638'N 123°55.553'W [Protection Island] then following the southwesterly shoreline of Protection Island to 49°10.226'N 123°55.082'W [Gallows Point] then to 49°09.996'N 123°53.676'W [Jack Point] and northerly of the parallel passing through 49°06.952'N at the Cedar Road Bridge on the Nanaimo River closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.3 Area H Crab Closure Requests

Details and status on the requests for commercial closures in portions of Area H can be obtained upon request to the Area Crab Manager. Consultations will continue and may result in season management action.

5.7 Fraser River - Area I

5.7.1 Area I Year Round Crab Closures

The following areas are closed permanently to commercial crab harvesting:

5.7.1.1 Strait of Georgia Glass Sponge Reefs

In accordance with the *Sensitive Benthic Areas Policy* and its *Ecological Risk Assessment Framework (ERAF) for Cold-water Corals and Sponge Dominated Communities*, DFO has conducted a risk assessment regarding the potential impacts of bottom-contact fisheries on nine glass sponge reef areas in the Strait of Georgia. The Department consulted with First Nations, commercial and recreational fishers and other interested groups on proposed protection measures for the reefs. Formal closures of bottom contact fishing activities in these areas were put in place in-season in 2015. A description of the closures is provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website:

<http://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

Howe Sound:

Subarea 28-1

Those waters of Howe Sound inside a line that begins at 49°25.664'N 123°28.767'W [near Langdale ferry landing] then to 49°26.083'N 123°26.853'W [Gambier Island] then following the southerly shoreline of Gambier Island to 49°26.735'N 123°19.302'W [Halkett Point] then to 49°25.189'N 123°18.962'W [Hood Point] then following the westerly shoreline of Bowen Island to 49°20.397'N 123°25.979'W [Cape Roger Curtis] then to 49°20.907'N 123°27.903'W [Worlcombe Island] then to 49°21.500'N 123°29.157'W [Popham Island] then to 49°23.021'N 123°32.166'W [Gower Point] then northerly following the shoreline to the beginning point, (Dioxin Closure)

Subarea 28-2

Those waters of Howe Sound inside a line that begins at 49°32.108'N 123°22.823'W [Ekins Point Light] then to 49°33.251'N 123°21.500'W [east of McNab Creek] then to 49°33.348'N 123°19.415'W [Domett Point] then following the westerly shoreline of Anvil Island to 49°30.614'N 123°18.214'W [Irby Point] then to 49°31.558'N 123°15.673'W [Brunswick Point] then southerly following the shoreline to 49°19.823'N 123°15.880'W [Point Atkinson Light] then to 49°20.135'N 123°21.643'W [Point Cowan] then following the easterly shoreline of Bowen Island to 49°25.189'N 123°18.962'W [Hood Point] then to 49°26.735'N 123°19.302'W [Halkett Point] then northerly following the easterly shoreline of Gambier Island to the beginning point, (Dioxin Closure);

Subarea 28-3

Those waters of Thornbrough Channel inside a line that begins at 49°33.251'N 123°21.500'W [east of McNab Creek] then to 49°32.108'N 123°22.823'W [Ekins Point Light] then following the westerly shoreline of Gambier Island to 49°26.083'N 123°26.853'W [Gambier Island] then to 49°25.664'N 123°28.767'W [near Langdale ferry landing] then northerly following the shoreline to the beginning point, (Dioxin Closure);

Subarea 29-1

Those waters of the Strait of Georgia inside a line that begins at 49°28.409'N 123°53.287'W [Reception Point] then southeasterly following the shoreline to 49°23.021'N 123°32.166'W [Gower Point] then to 49°25.100'N 123°42.717'W [White Islets Light] then to the beginning point, (Dioxin Closure);

Those portions of 29-2 and 29-3 north of a line that begins at 49°28.409'N 123°53.287'W [Reception Point] to 49°19.615'N 123°25.979'W then to 49°19.823'N 123°15.880'W [Point Atkinson Light], (Dioxin Closure).

Point Atkinson Reef:

That portion of Subarea 28-6 bounded by a line commencing at the southwest entrance to Starboat Cove thence seaward in a southwest direction for 85 m, thence westerly following the shoreline for 100 m, thence in a northeast direction to a point on land. (Conservation Closure)

Burrard Inlet:

Subarea 28-10

Those waters of Burrard Inlet lying easterly of a line from 49°19.023'N 123°08.230'W [First Narrows Bridge] to 49°18.796'N 123°08.440'W [First Narrows Bridge] and westerly of a line from 49°17.959'N 123°01.590'W [Second Narrows Bridge] to 49°17.561'N 123°01.582'W [Second Narrows Bridge]. (Navigational Closure)

False Creek:

Subarea 28-8

Those waters of English Bay lying southeasterly of a line that begins at 49°18.069'N 123°09.526'W [Ferguson Point] then to 49°16.554'N, 123°12.113'W [near Jericho Dock]. (Navigational Closure)

Whytecliff Park:

That portion of Subarea 28-2 bounded by a line commencing from the most southerly point of Whytecliff Park; thence in a straight line to a point located 100 m east of the most south-easterly point of Whyte Inlet; thence following the southern shoreline of Whyte Inlet at a distance of 100 m to a point lying 100 m from the most south-westerly point of Whyte Inlet; thence in a straight line to a point lying 100 m west of White Cliff Point; thence following the shoreline at a distance of 100 m in a northerly direction to a point 100 m north of Lookout Point; thence following the shoreline at a distance of 100 m in an easterly direction to a point 100 m perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

Porteau Cove:

That portion of Subarea 28-4, east of a line drawn from a white fishing boundary sign located on the south shore of Porteau Cove to a white fishing boundary sign located on the north shore of Porteau Cove. (Marine Reserve)

Howe Sound Glass Sponge Reef Closure Areas: Since April 1st, 2020 all commercial, recreational and First Nations food, social and ceremonial (FSC) bottom-contact fishing activities for prawn, shrimp, crab and groundfish, and the use of downrigger gear, are prohibited within portions of Subareas 28-2 and 28-4 to protect Howe Sound glass sponge reefs. In 2020, a DFO Canadian Science Advisory Secretariat publication confirmed the presence of five additional live sponge reefs and one dead reef in Howe Sound. Commercial bottom-contact fishery closures went into effect on January 17, 2022 for these five sites in portions of Subareas 28-1, 28-2 and 28-3 to protect additional Howe Sound glass sponge reefs. For more information see Section 6.7 of the main IFMP.

A description and maps of the closures are provided on the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative website, here: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html>

5.7.1.2 Roberts Bank/Deltaport/Tsawwassen BC Ferries:

Portions of Subarea 29-7 are closed to commercial fishing in 2022. To ensure and maintain a safe approach for deep sea vessels, ferries, and berthing tugs transiting in and

out of the Deltaport and BC Ferries terminals, crab fishing is prohibited with those waters bounded by the following coordinates:

Commencing from the in-shore end of the turning basin:

49° 1.567' North Latitude 123° 08.783' West Longitude
49° 1.467' North Latitude 123° 8.533' West Longitude
49° 0.950' North Latitude 123° 8.450' West Longitude
49° 0.933' North Latitude 123° 8.183' West Longitude
49° 0.600' North Latitude 123° 7.767' West Longitude
49° 0.433' North Latitude 123° 7.983' West Longitude
49° 0.367' North Latitude 123° 7.833' West Longitude
49° 0.467' North Latitude 123° 7.583' West Longitude
49° 0.117' North Latitude 123° 7.117' West Longitude
49° 0.117' North Latitude 123° 11.267' West Longitude
49° 0.917' North Latitude 123° 11.267' West Longitude
49° 0.767' North Latitude 123° 10.583' West Longitude
49° 1.083' North Latitude 123° 10.317' West Longitude
49° 0.817' North Latitude 123° 9.533' West Longitude
then to the beginning point.

Please refer to Section 5.1.1.3 for an update on the proposed Roberts Bank Terminal 2 project.

5.7.1.3 Fraser Delta - Venus Project:

Harvesters are advised that the installation of sea bed oceanographic monitoring equipment by the University of Victoria VENUS project occurred in May 2013. The location of the instrument arrays are available from the VENUS project website and harvesters are advised to familiarize themselves with the locations of the instruments prior to the 2022 fishery. For additional information see: <http://venus.uvic.ca/>

5.7.2 Area I Seasonal Crab Closures

5.7.2.1 Fraser River:

Areas 28 and 29, excluding Subareas 29-5 and 29-8 are closed January 1 to 08:00 hours June 15, 2022 and from 16:00 hours November 30 to December 31, 2022, (Soft-shell and Conservation Closure).

5.8 Boundary Bay - Area J

5.8.1 Area J Seasonal Crab Closures

5.8.1.1 Boundary Bay:

Subarea 29-8 is closed January 1 to 08:00 hours July 15, 2022 and 16:00 hours November 30 to December 31, 2022. For 2022, the two day bait ban has been removed. (Soft-shell and Conservation Closure)

5.9 Octopus Closures

All octopus caught in octopus closure areas must be removed from the trap and released immediately in the location where they were caught, in a manner that will cause least harm. The retention of incidentally caught octopus species is prohibited within the following areas:

5.9.1 Area 6

Subarea 6-2 (First Nations FSC access closure)

5.9.2 Area 13

5.9.2.1 Discovery Passage:

Subareas 13-3, 13-4, 13-5 and a portion of 13-6. Those waters of Discovery Passage bounded on the north by a straight line drawn true west from North Bluff on Quadra Island, across Seymour Narrows to a fishing boundary sign on Vancouver Island, and on the south by a line from the Cape Mudge light true west to Vancouver Island. (Marine Reserve)

5.9.2.2 Mitlenatch Island

All waters within 1.0 nautical mile of Mitlenatch Island, located in the upper Strait of Georgia intersected by the Subareas 13-1, 14-13, 15-2 and 15-3. (Marine Reserve)

5.9.3 Area 14

5.9.3.1 Hornby Island:

Those waters of Lambert Channel and the Strait of Georgia, Subarea 14-7, inside a line commencing at Shingle Spit on Hornby Island, thence 239° true for 0.5 nautical miles, thence 126° true for 3.5 nautical miles, thence 64° true for 4.9 nautical miles, thence 304° true for 2.9 nautical miles, thence 213° true for 0.5 nautical miles to Cape Gurney on Hornby Island, thence following the southerly shoreline of Hornby Island to the beginning point. (Marine Reserve)

5.9.3.2 Mitlenatch Island

All waters within 1.0 nautical mile of Mitlenatch Island, located in the upper Strait of Georgia intersected by the Subareas 13-1, 14-13, 15-2 and 15-3. (Marine Reserve)

5.9.4 Area 15

5.9.4.1 Vivian Island

All waters within 0.5 nautical miles of Vivian Island, located approximately 5.0 nautical miles west of Powell River in Subarea 15-2. (Marine Reserve)

5.9.4.2 Rebecca Rock

All waters within 0.25 nautical miles of Rebecca Rock, located 2.5 nautical miles west of Powell River in Subarea 15-2. (Marine Reserve)

5.9.4.3 Dinner Rock

All waters within 0.25 nautical miles of Dinner Rock, located 2.5 nautical miles south of Lund in Subarea 15-2. (Marine Reserve)

5.9.4.4 Emmonds Beach

All waters within 0.5 nautical miles of the unnamed reef off Emmonds Beach, located approximately 4.0 nautical miles south of Lund in Subarea 15-2. (Marine Reserve)

5.9.4.5 Mitlenatch Island

All waters within 1.0 nautical mile of Mitlenatch Island, located in the upper Strait of Georgia intersected by the Subareas 13-1, 14-13, 15-2 and 15-3. (Marine Reserve)

5.9.4.6 Beach Gardens

All waters within a 0.25 nautical mile radius of the southerly end of the Beach Gardens breakwater in Subarea 15-2. (Marine Reserve)

5.9.5 Area 16

5.9.5.1 Skookumchuck Narrows Provincial Park

Those waters of Skookumchuck Narrows and Sechelt Rapids in Subarea 16-9 bounded on the west by a line from a point on the foreshore at the westerly limit of Secret Bay on Sechelt Peninsula thence 50° true to a point on the foreshore on the mainland; and the east by a line from Raland Point on Sechelt Peninsula, thence 50° true to a point on the foreshore on the mainland. (Park)

5.9.6 Area 19

5.9.6.1 Ogden Point

Those waters of Subarea 19-3 inside a line from the navigation light at the western end of the Ogden Point Causeway thence to Brotchie Ledge Light, thence to Holland Point on Vancouver Island. (Marine Reserve)

5.9.6.2 10 Mile Point

Those waters of Subareas 19-4 and 19-5 within 0.4 nautical miles of Cadboro Pt. navigation light. (Marine Reserve)

5.9.6.3 Race Rocks

Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rocks. (Marine Reserve)

Note: Consultation regarding the boundaries for the Race Rocks Marine Protected Areas will be ongoing in 2022. Changes to boundary descriptions resulting from consultations may occur in season.

5.9.6.4 Saanich Inlet

Subareas 19-7 to 19-12 inclusive. (First Nations FSC and Recreational access closure)

5.9.7 Area 20

5.9.7.1 Botanical Beach Provincial Park

That portion of Subarea 20-3 between the lowest low water on record and the highest high water on record from San Juan Point thence following the Vancouver Island shoreline easterly to the mouth of Tom Baird Creek. (Marine Reserve)

5.9.7.2 Pacific Rim National Park, Juan de Fuca

That portion of Subarea 20-1 between the lowest low water on record and the highest high water on record from Bonilla Light thence following the shoreline of Vancouver Island easterly to Owen Point. (Park)

5.9.8 Area 21

5.9.8.1 Pacific Rim National Park

That portion of Area 21 between the lowest low water on record and the highest high water on record from Pachena Point thence following the Vancouver Island shoreline easterly to Bonilla Point. (Park)

5.9.9 Area 23

5.9.9.1 Pacific Rim National Park, Broken Group Islands

Those waters of the Broken Group Islands in Barkley Sound within park boundaries as shown, since 1989, on Canadian Hydrographic Service Chart 3671. (Park)

5.9.9.2 Pacific Rim National Park

That portion of Subarea 23 between the lowest low water on record and the highest high water on record from Whittlestone Point to Cape Beale. (Park)

5.9.9.3 Bamfield Marine Station Research Area Closure

Those waters of Pacific Fishery Management Subareas 23-4, 23-6 and 23-7 bounded by a line commencing at the light at Whittlestone Point and running directly to the southern tip of Haines Island; from the northwestern tip of Haines Island to the southern tip of Seppings Island; from the northwestern tip of Seppings Island to Kirby Point on Diana Island; from Kirby Point directly to the northwest tip of Fry Island; from the northwestern tip of Fry Island to the nearest adjacent point on Tzartus Island; from Foucault Bluff on Tzartus Island to the northwest tip of Nanat Island; from the eastern tip of Nanat Island to the nearest adjacent point on Vancouver Island and thence along the coastline of Vancouver Island to the point of commencement. (Research Area)

5.9.10 Area 26

5.9.10.1 Checleset Bay Fishery Closure Area

Those waters of Checleset Bay within Subareas 26-7, 26-8 and 26-10 and 126-1 on the northwest coast of Vancouver Island enclosed by a line drawn from a point on the Brooks Peninsula at 50°05.18' N and 127°49.58' W, then true south to the intersection with the parallel passing through 50°00.0' N, then easterly to Alert Point on Lookout Island, then northeasterly to 50°02.1' N and 127°25.03' W on Vancouver Island, then northwesterly following the shore of Vancouver Island to 50°05.53' N and 127°28.95' W at Malksope Point, then true west to a point midchannel on the southeast end of Gay Passage at 50°05.53' N and 127°30.1' W, then to 50°06.7' N and 127°31.8' W, then to 50°07.7' N

and 127°32.8' W, near Theodore Point, then westerly following the Vancouver Island shore to 50°08.75' N and 127°38.6' W on the east side of Nasparti Inlet, then westerly across Nasparti Inlet to 50°08.7' N and 127°37.8' W on Vancouver Island, then following the shoreline of Vancouver Island to the beginning point (Ecological Reserve); and those waters consisting of a portion of Subarea 26-6 inside or northerly of a line from White Cliff Head to Racoon Point; and from the western point of Union Island at 50°0.35' N and 127°19.29' W, northerly along the shoreline to 50°0.50' N and 127°19.25' W, then westerly to a point on an island at 50°0.52' N and 127°19.29' W, then along the western shoreline to 50°0.58' N and 127°19.35' W, then westerly to a point on an island at 50°0.58' N and 127°19.40' W, then along the western shoreline to 50°0.71' N and 127°19.60' W, then south-westerly to a drying rock at 50°0.45' N and 127°20.18' W, then south-easterly to the point of commencement (Research Area);

5.9.10.2 Kyuquot Sound Marine Communities Study Area

Kyuquot Bay: A portion of 26-6 inside or northerly of a line from White Cliff Head to Racoon Point and identified on the Kyuquot map attached to this plan, and:

Entrance to Crowther Channel: A portion of 26-6 on the west side of Union Island commencing at position 50° 0.4' N, 127° 19.3' W and identified on the map attached to this plan. (Research Closures)

5.9.11 Area 28

5.9.11.1 Porteau Cove

That portion of Subarea 28-4, east of a line drawn from a white fishing boundary sign located on the south shore of Porteau Cove to a white fishing boundary sign located on the north shore of Porteau Cove. (Marine Reserve)

5.9.11.2 Whytecliff Park

That portion of Subarea 28-2 bounded by a line commencing from the most southerly point of Whytecliff Park; thence in a straight line to a point located 100 m east of the most southeasterly point of Whyte It.; thence following the southern shoreline of Whyte It. at a distance of 100 m to a point lying 100 m from the most southwesterly point of Whyte It.; thence in a straight line to a point lying 100 m west of White Cliff Point; thence following the shoreline at a distance of 100 m in a northerly direction to a point 100 m north of Lookout Point; thence following the shoreline at a distance of 100 m in an easterly direction to a point 100 m perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

5.9.11.3 Burrard Inlet

Subarea 28-10. (Navigational Closure)

5.9.11.4 False Creek

Subarea 28-8. (Navigational Closure)

6. LICENCING

6.1 Licence Category

A crab by trap, category R or communal commercial category FR licence is required to commercially harvest crab by trap gear. Category R licence eligibilities are limited entry and vessel based. Category FR licence eligibilities are limited entry and party based; a First Nations group is the licence eligibility holder and the eligibility must be designated annually at the time of licensing to a commercially registered fishing vessel that meets maximum vessel length restrictions.

6.2 Licence Issuance

Renewal of a category R licence and payment of fees must be done on an annual basis to retain the privilege to be issued the licence in the future, regardless of whether or not fishing is carried out. The category R licences not renewed by March 31 will cease and licence issuance requests will be unable to be considered in future.

Prior to annual licence issuance of a communal commercial licence, licence eligibility holders are required to annually designate the fishing vessel to hold the licence. This must be done by navigating to the 'Submit a Request' menu selection within the National Online Licencing System (NOLS). Full instructions are available at: <http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm>).

Prior to annual licence issuance, vessel owners/licence eligibility holders are required to ensure:

- a.) Any Ministerial conditions placed on the licence eligibility are met;
- b.) Any conditions of the previous year's licence, such as submission and approval of logbooks, have been met and approved by the Shellfish Data Unit;
- c.) Any application for re-allocation of a traps be submitted **by March 1, 2022**.

6.3 Licence Documents

Crab by Trap licence documents are valid from the date of issue to March 31 of the following calendar year. Replacement for lost or destroyed licence documents may be obtained by reprinting the licence document through the licence holders account via the National Online Licencing System.

6.4 Trap Re-allocation

Temporary crab trap re-allocation (stacking) will be permitted on an annual basis in Areas B, E-Tofino, E-Sooke, G, H and J. The reallocated licence must come from the same licence area.

Where traps are reallocated to another vessel within the same fishing area, 100% of the traps associated with the crab licence eligibility reallocating the traps will be relinquished, and the trap allocation will be zero for the licence year. Whereas the receiving vessel may then fish a maximum

of 66% of the relinquished traps. All trap reallocations will be reverted back to the original crab licence eligibility at the end of the licence year.

All request to temporarily reallocate the crab traps must be submitted through the National Online Licensing System before licences are issued. No exceptions. Please refer the Notice to Industry for more information and the deadline date.

Trap reallocations cannot be reversed once the transaction has been completed.

6.5 Vessel Replacement

The owner(s) of a category R licence may make an application to replace the commercial fishing vessel. Both the replacement vessel and the vessel being replaced must have a survey on file with the Pacific Fishery Licence Unit (PFLU) or submitted with the vessel replacement application. Vessel measurement must be surveyed in accordance to Department guidelines.

The replacement vessel may not exceed the overall length of the vessel being replaced. A vessel may hold only one crab by trap licence eligibility.

Category R licence eligibilities become married to other vessel based licence eligibilities when combined on a vessel.

6.6 Designation of Harvesters to Fish a Communal Commercial Licence

Under the *Aboriginal Communal Fishing Licence Regulations*, every person working on a vessel that is fishing under authority of a Communal Commercial Licence must be designated by the First Nation that holds the licence. The designation must be made in writing and include the person's name and reference the Communal Commercial Licence. The designation must be carried on-board and be produced on request of any Fishery Officer.

First Nations licence holders interested in obtaining an example template to use to designate their fish harvesters may contact a DFO Resource Manager (see Contacts in Appendix 8 of the Integrated Fishery Management Plan for Crab by Trap).

6.7 Licence Renewal Fees

In accordance with the *Service Fees Act*, annual licence renewal fees will be adjusted by the annual rate of inflation determined by the Consumer Price Index (CPI) published by Statistics Canada.

The commercial Crab by Trap (Category R) licence renewal fee may be found on the following link:

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

There is no annual licence renewal fee for communal commercial (Category FR) licences.

7. OTHER RESTRICTIONS AND GENERAL INFORMATION

7.1 Domoic Acid and Paralytic Shellfish Poison

In some areas, high levels of naturally occurring toxins such as domoic acid (DA) and paralytic shellfish poison (PSP) have been found in the viscera of Dungeness crabs. DA can cause a variety of gastrointestinal symptoms and also fatigue, disorientation, and memory loss. In extreme circumstances, ingestion of high concentrations of PSP and DA can be fatal to humans. Crab harvesters should be aware of the potential for PSP and DA accumulation in crabs harvested in areas where there are concerns or closures due to increased marine biotoxin levels, which could lead to fishery closures. Fishers may be called upon to help prevent fishery closures by contributing to area sampling programs and should always keep accurate harvest information.

7.2 Violations and Licence Suspensions

The Crab Sectoral Committee has recommended the application of court imposed licence suspensions in cases of serious violations in this fishery.

7.3 Human Waste Containment Regulations

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers. In accordance with the Canadian Shellfish Sanitation Program (CSSP) and Transport Canada Regulations, raw sewage (Human wastes, sewage or refuse) shall not be discharged from vessels while in or adjacent to shellfish areas. Vessels operating at a distance which does not allow for timely access to on-shore washroom facilities are expected to have a designated human waste receptacle on board. Receptacles could include a portable toilet, a fixed toilet, or other containment device as appropriate. Such devices must be made of impervious, cleanable materials and have a tight-fitting lid. (Refer to Transport Canada's Regulations for Vessel Pollution and Dangerous Chemicals Regulations under the *Canada Shipping Act*):

Portable toilets or other designated human waste receptacles shall be used only for the purpose intended, and shall be so secured and located as to prevent contamination of the shellfish area or any harvested shellfish on board by spillage or leakage.

The contents of toilets or other designated human waste receptacles shall be emptied only into an approved sewage disposal system.

Every person onboard a shellfish harvest vessel must wash and sanitize their hands after using or cleaning a waste receptacle, or after using an onshore washroom facility.

Information on human waste containment receptacle requirements can be found at the following CFIA internet site: <https://www.inspection.gc.ca/preventive-controls/fish/cssp/questions-and-answers/eng/1563470479199/1563470589053>

7.4 Groundfish Taken for Bait

Harvesters are reminded that any groundfish taken for bait must be taken in accordance with the appropriate groundfish licence and attached licence conditions. Dockside monitoring is an

essential element of groundfish stock monitoring and quota management. Therefore, it is important that harvesters using any groundfish for bait (e.g. dogfish, rockfish, and flatfish), land and validate that groundfish catch prior to using it for bait, in accordance with the Schedule II Conditions of Licence under which authority that groundfish species are taken.

7.5 Vessel Safety & Stability

- Please see Appendix 4.

APPENDIX 4: FISHING VESSEL SAFETY

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1. 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. The Transportation Safety Board is an independent agency that advances transportation safety by investigating selected occurrences in the air, marine, pipeline and rail modes of transportation including fishing vessel occurrences. 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).

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, adequate number of properly trained crew, 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 (Subsidized rate for BC commercial fishers provided)
- Fish Safe – *Safest Catch* program – **FREE** for BC commercial fishers
- Fish Safe *Safe At Sea* DVD Series – Fish Safe
- Fish Safe Stability Handbook – *Safe at Sea* and *Safest Catch* – DVD Series
- Fish Safe *Safest Catch* Log Book
- Fish Safe *Safety Quiz*
- First Aid training
- Radio Operators Course (Subsidized rate for BC commercial fishers provided)
- Fishing Masters Certificate training
- Small Vessel Operators Certificate training

Publications:

- *Gearing Up for Safety* - WorkSafeBC
- <https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15393e-adequate-stability-safety-guidelines-fishing-vessels> TP 15393E - Adequate stability and safety guidelines for fishing vessels
- TP 15392E - Guidelines for fishing vessel major modification or a change in activity. <https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15392e-guidelines-fishing-vessel-major-modification-change-activity>
- 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>)
- Safety Issues Investigation into Fishing Safety in Canada report can be accessed: <https://www.tsb.gc.ca/eng/rapports-reports/marine/etudes-studies/M09Z0001/M09Z0001.html>

For further information see: <https://tc.canada.ca/en/marine-transportation>
www.fishsafebc.com
www.worksafebc.com
www.tsb.gc.ca/eng/rapports-reports/marine/index.html

2. IMPORTANT PRIORITIES FOR VESSEL SAFETY

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

2.1. 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 to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability (e.g. 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 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.

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, new regulations pertaining to stability assessments to be performed by a competent person came into effect, as follows:

- A new fishing vessel that has a hull length of more than 9 m where the vessel construction was started or that a contract was signed for the construction after July 13, 2018;
- 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 vessel 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
- For an existing fishing vessel that is not required to undergo a stability assessment, the owner shall be capable of demonstrating that their vessel has 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
- Two good resources can be found here: [TP 15393 - Adequate stability and safety guidelines for fishing vessels \(2018\)](#) and [TP 15392 – Guidelines for fishing vessel major modification or a change in activity \(2018\)](#)

Further, the new Regulation requires a “Stability Notice” to be developed after a stability assessment. This notice includes a simple diagrammatic of the vessel, its tanks and fish holds, or deck storage as the case may be. It is intended to assist fishing vessel crews in quickly determining the safe carriage limits of the vessel without having to reference a complicated Trim and Stability Book.

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 a stability assessment, or to receive guidance on obtaining competent assessor.

In 2019, TC provided an updated [SSB 03/2019](#), 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*,

[M17P0052](#) – Miss Cory, [M18P0073](#) – Western Commander, [M18A0425](#) – Charlene A and [M18A0454](#) – Atlantic Sapphire.

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 Regulations (OHSR) require owners of fishing vessels to provide documentation on board, readily accessible to crew members, which describes vessel characteristics, including stability.

Fish Safe has developed a code of best practices for the food and bait/roe herring fisheries and the prawn fishery: These Best Practices are available on Fish Safe's website for convenient download here: <https://www.fishsafebc.com/best-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 – office: (604) 261261-9700 - Email: ryan@fishsafebc.com.

2.2. 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.

To assist fishers in meeting their crew training requirements, Fish Safe has created a downloadable '*New Crew Orientation Form and How To Guide*' available on Fish Safe's website here: <https://www.fishsafebc.com/downloadable-tools>

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 crew member to cover all emergencies, including the following: crew member overboard, fire on board, flooding of the vessel, abandoning ship, and calling for help. Fishing vessel masters are also required to conduct emergency drills at the start of each fishing season, when there is a change of

crew, and at periodic intervals to ensure that crewmembers are familiar with emergency procedures.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The report's 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.

2.3. 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).

Under the recently amended (June 2019) OHS Regulation, section 24.96.1, a crewmember must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure or when on the deck of a fishing vessel that has a deck or deck structure. 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.

Section 8.26, which requires workers to wear a PFD or lifejacket when working "under conditions which involve a risk of drowning", would continue to apply to fishing crewmembers and other workers (e.g. when they are working on shore, docks and other vessels). The specific requirements can be found on WorkSafeBC's PFD Primer provided on Fish Safe's website here: <https://www.fishsafebc.com/cold-water-survival>.

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.

2.4. Other Issues

2.4.1. 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

2.4.2. Emergency Radio Procedures, EPIRB's and AIS

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). All fishing vessels greater than 20m in length must carry a Class A AIS, as well as a float free 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons must be registered with the Canadian Beacon Registry. 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 coordinate rescue resources. The TSB notes that there have been several recent occurrences on board vessels not equipped with an EPIRB, and that were either unable or did not use any other means of emergency signaling distress (e.g. [M14P0121](#), [M14A0289](#), [M15A0189](#), [M16A0327](#), [M18A0076](#), [M18A0303](#), [M18A0078](#), M18P0184, M19A0082, M19P0242, [M20A0258](#), [M20A0160](#), [M21A0315](#)) which resulted in 26 fatalities. The carriage of both AIS and EPIRB is strongly encouraged for all fishing vessels who do not fall under the mandatory threshold.

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. Further information is available at [Radio Aids to Marine Navigation General](#)

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 DSC can be found

here: [TC DSC Safety Bulletin](#). Questions regarding Coast Guard DSC capabilities can be obtained by contacting your local MCTS centre (Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333).

2.4.3. 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 either Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333 or from the Coast Guard website: <https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-arnm/part3-eng.html>

2.4.4. 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.

3. WORKSAFEBC

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, the requirement to wear personal floatation devices (PFDs), 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, eye and face protection, limb and body protection and personal floatation devices (PFDs) when working on the dock. Part 12 addresses issues related to tools, machinery and equipment, including safeguarding. Part 15 addresses issues related to rigging.

Both owners and masters of fishing vessels are considered to be employers. Under the *Workers Compensation Act* and the OHS Regulation (OHSR) they have varying and overlapping duties and responsibilities. Masters, because they have the most control during fishing and related activities, are considered to be the employer with primary responsibility for the health and safety of the crew.

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
Paul Matthews	Courtenay	(250) 334-8741
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, OHS Consultation and Education Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com or Tim Pryde, OHS Consultant at (604) 802-2954 or by email: tim.pryde@worksafebc.com.

4. 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.

As referenced throughout the above documentation, Fish Safe provides a broad range of courses, programs and services that are either free for BC commercial fishers or highly subsidized.

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

5. 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 pacific region 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 pacific region released one investigation report:

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

In 2018 the TSB pacific region 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

In 2020 the TSB pacific region is currently investigating the fatal accident involving the [Arctic Fox II](#) on August 11.

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 harvesters 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 harvesters still do not wear them. TC regulations currently require that PFDs be worn only

if harvesters identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC 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. In June 2019, WorksafeBC amended its fishing regulation related to the use of PFDs. Under the amendments, crewmembers must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure, or when on the deck of a fishing vessel that has a deck or deck structure. Crewmembers are not required to wear lifejackets or PFDs below deck or when inside a deck structure where there is risk of entrapment. This amendment removes the need for a risk of drowning to be present before a PFD must be worn.

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/2020/marine-01.html>

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.

Recently the TSB produced a Safe at Sea: Activity book on fishing safety intended for the next generation of fish harvesters (ages 4-7). Download a copy.
www.tsb.gc.ca > [eng](#) > [medias-media](#) > [prudence-safe](#) > [safe-at-sea](#)

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

CRAB TRAP HARVEST LOG

 V.R.N. Vessel Registration No.

 Vessel Vessel Name

 Year 2 0 1 8

Page No.

Fishing Method: Singles Ground Lines
 (check all that apply)

Depth: (check one)
 Fathoms
 or
 Meters

Catch Weight: (check one)
 Pounds
 or
 Kilograms

Bait Fastener: (check all that apply)
 Jars
 Cages
 Clips / Hooks

Bait Type:
Herring
Section A: Fishing Information - make a new entry for each day, where sub-area, soak time and depth range fished are the same

DATE HAULED		SOAK TIME (days or hours)		Give one representative point for each sub-area where the soak time and depths fished are the same		PACIFIC FISHERY MANAGEMENT		DEPTH		Dungeness Crab <input checked="" type="checkbox"/>	CATCH INFORMATION		No. of Traps Pulled	Vessel Master Name (printed)	Vessel Master Signature	Vessel Master FIN	PBS Code							
month	day	Days	Hours	Latitude dd° mm.mmm	Longitude ddd° mm.mmm	Area	Sub-area	Min.	Max.	(specify if other)	No. of Pieces	Weight												
0	3	1	5	2	51° 03.123'	127° 18.421'	1	1	3	1	4	2	0	√	9	6	1	5	6	195	Joe Happy	Joe Happy	54321	
	↓	↓	↓	↓	50° 54.316'	127° 16.523'	1	2	1	3	4	8		√	2	4	3	8	50	Joe Happy	Joe Happy	54321		
	↓	1	8	3	51° 03.123'	127° 18.421'	1	1	3	1	4	2	0	√	7	2	1	1	7	195	John Smith	John Smith	12345	

INSTRUCTIONS FOR COMPLETING CRAB HARVEST LOG WITH EXPLANATION OF CRAB LOG TERMS

Each entry must be completed by midnight of the day that fishing occurred. Each entry must include the name, signature and FIN of the vessel master.

SECTION A: FISHING INFORMATION

TERM	DESCRIPTION	TERM	DESCRIPTION
Fishing Method	Indicate if the traps were attached to a Ground line, Single-buoyed or a mix of both (check all that apply)	Depth	Check off if reporting in Fathoms or Meters. Record minimum and maximum depth of traps set.
Bait Fastener	Indicate if bait is in a Jar (container), in Cages or held on by a Clip or Hook (check all that apply)	Bait Type	Indicate bait used; for example herring, squid, salmon heads, etc.
Catch Weight	Check off if reporting weights in Pounds or Kilograms	Catch Information	Record the total count of crab retained and/or total weight of crab retained
Date Hauled	Month and day that gear was HAULED. Month (01 to 12); Day (01 to 31)	Soak Time	Length of time that traps were in water fishing. Records as total DAYS soaked OR total HOURS soaked.
Latitude/Longitude	The vessel master shall record a position to represent the fishing location in the Pacific Fishery Management sub-area, for traps with equal soak times being fished at equal depth ranges. See example above for format.	Pacific Fishery Management	Boundaries are defined in the <i>Pacific Fishery Management Area Regulations, 2007</i> . Must correspond to Latitude and Longitude recorded.
Species	Use check mark to indicate Dungeness Crab as species of crab retained. Describe if other: RR = Red Rock, RK = Red King Crab, GK = Golden King Crab	Area/Sub-area	
		No. of Traps Pulled	Total number of traps pulled. Not to exceed total allowable limit.

Section B: Incidental Octopus Catch - report by number and weight

Line Number	Count of Octopus	Total Weight
2	2	3 0
3	1	1 0

Section C: Description of Traps - must complete at beginning of every season and each time trap descriptions change during the season

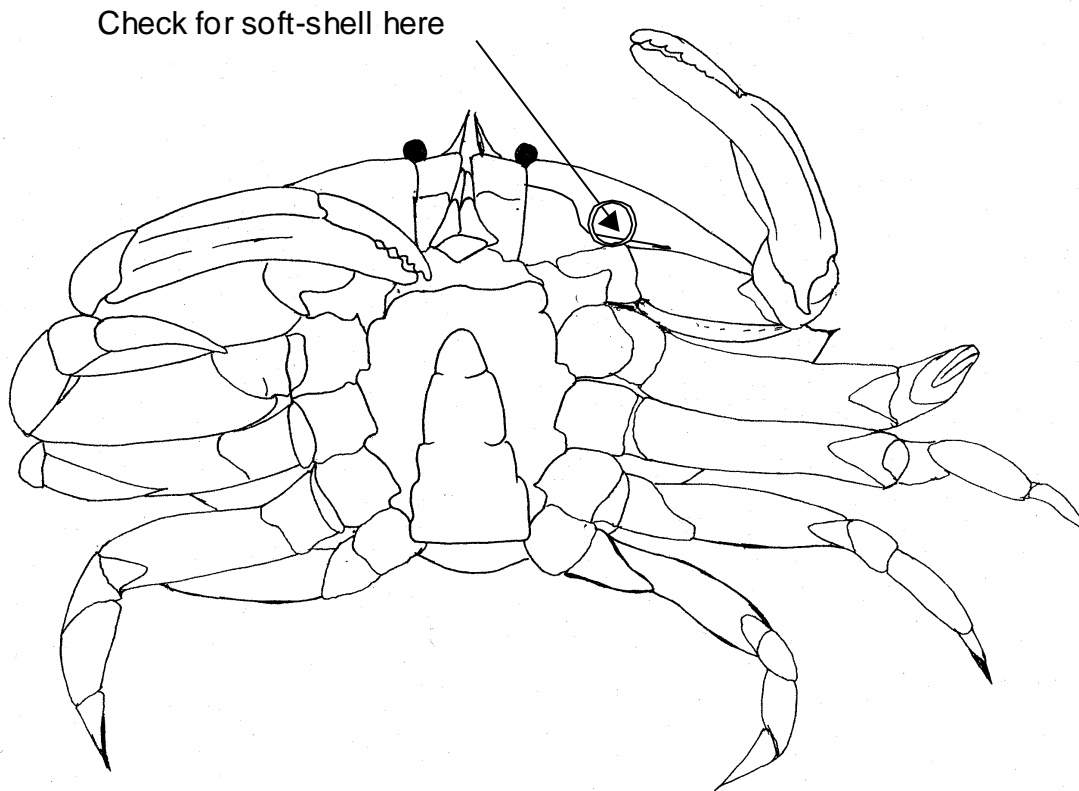
 Trap information same as previous page? (check box for yes)

Trap Type	No. of Traps	Trap Shape (circle one)	Frame Type (circle one)	Diameter (inches)	Height (inches)	Mesh Type (circle one)	Escape Ring Size (mm)
#1	2 0 0	circ ^o square conical	Iron Iron+Stainless Stainless	3 6	1 2	Stainless Synthetic	110
#2	9 5	circ ^o square conical	Iron Iron+Stainless Stainless	3 6	1 2	Stainless Synthetic	105
#3		circ ^o square conical	Iron Iron+Stainless Stainless			Stainless Synthetic	

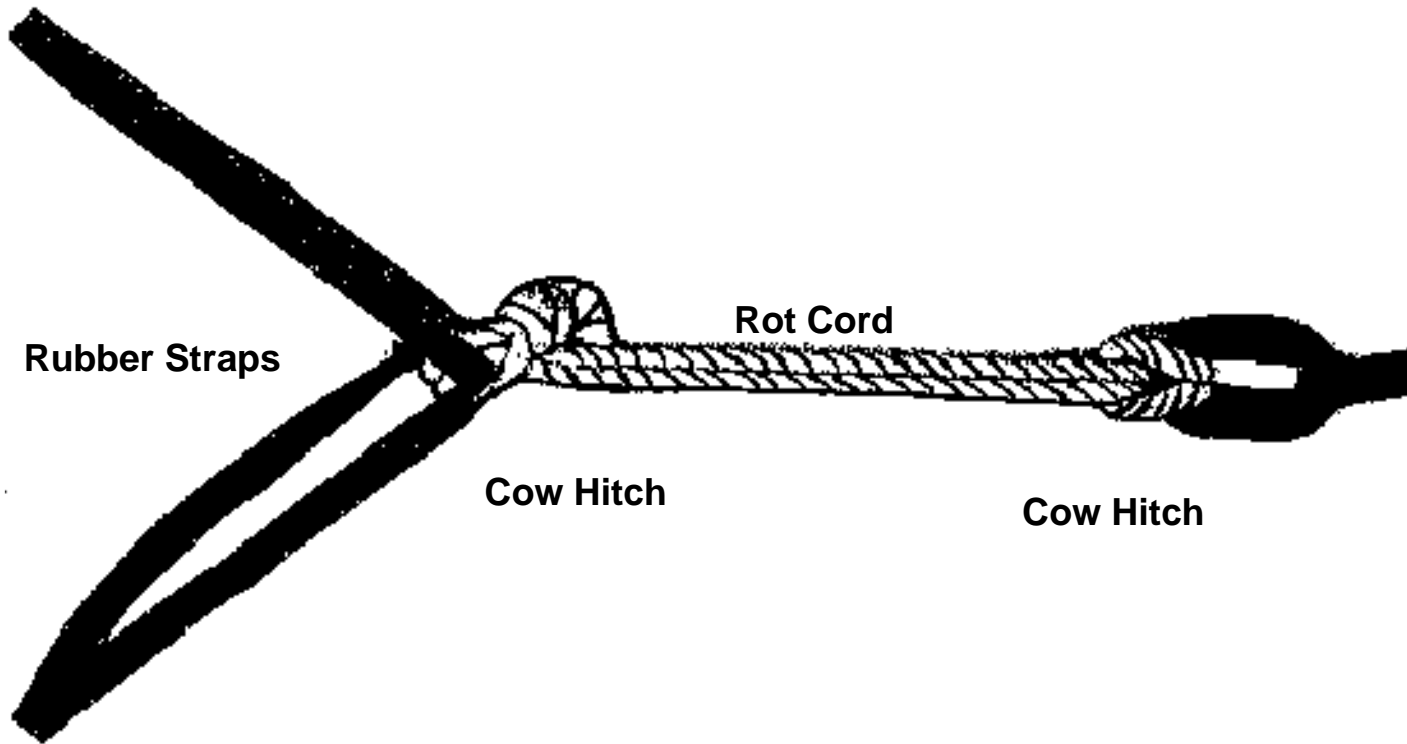
APPENDIX 6: DIAGRAMS

APPENDIX 6.1 DIAGRAM OF WHERE TO CHECK CRAB FOR SOFT-SHELL

This diagram is of the underside of a male Dungeness crab. The arrow indicates the location where a crab shall be checked for soft-shell. The circle indicates the correct position for the placement of the foot of the durometer when measuring shell hardness. The adjacent curved line is the suture line.



APPENDIX 6.2 ROT CHORD DIAGRAM PLACEMENT



APPENDIX 7: MAPS

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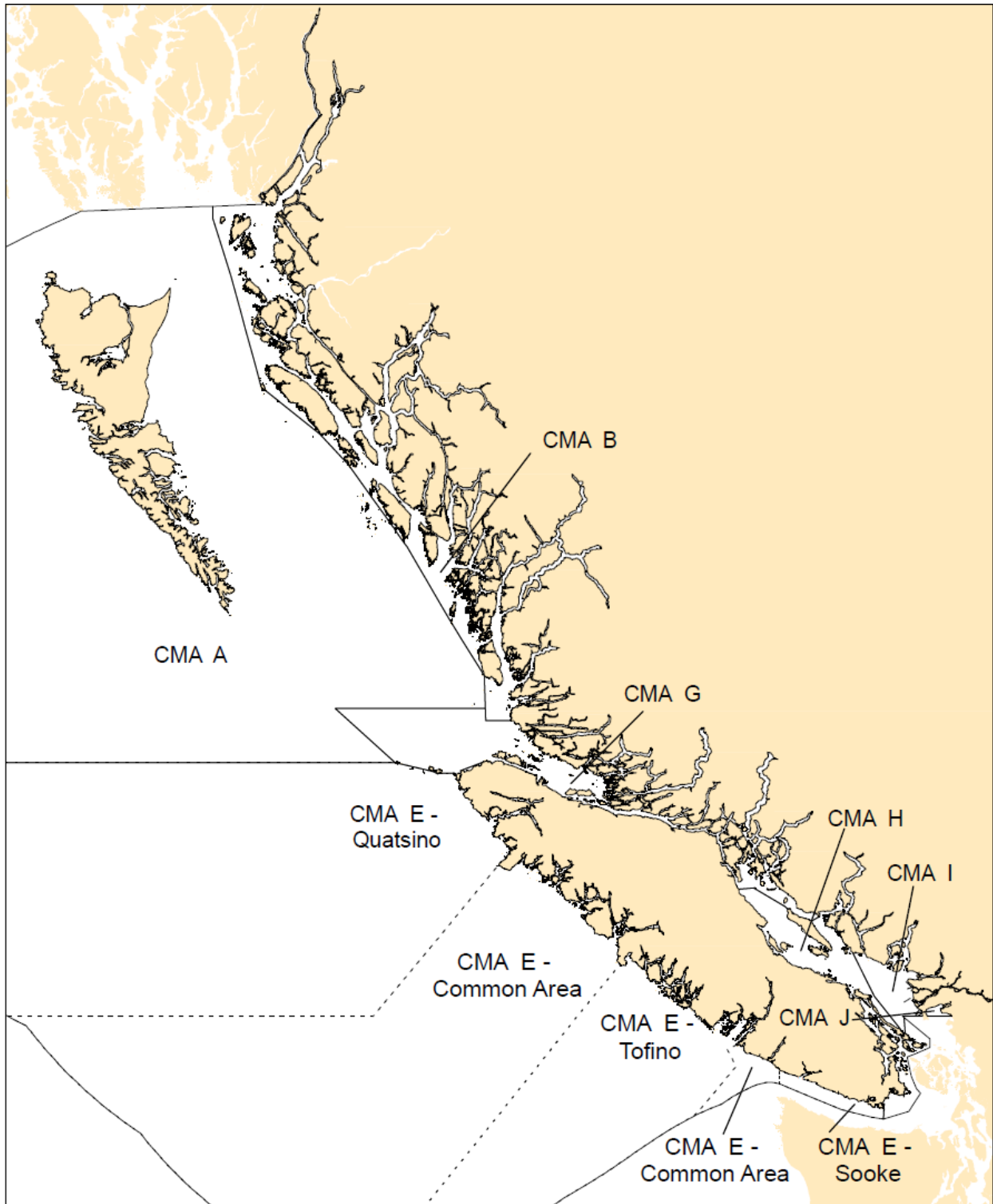
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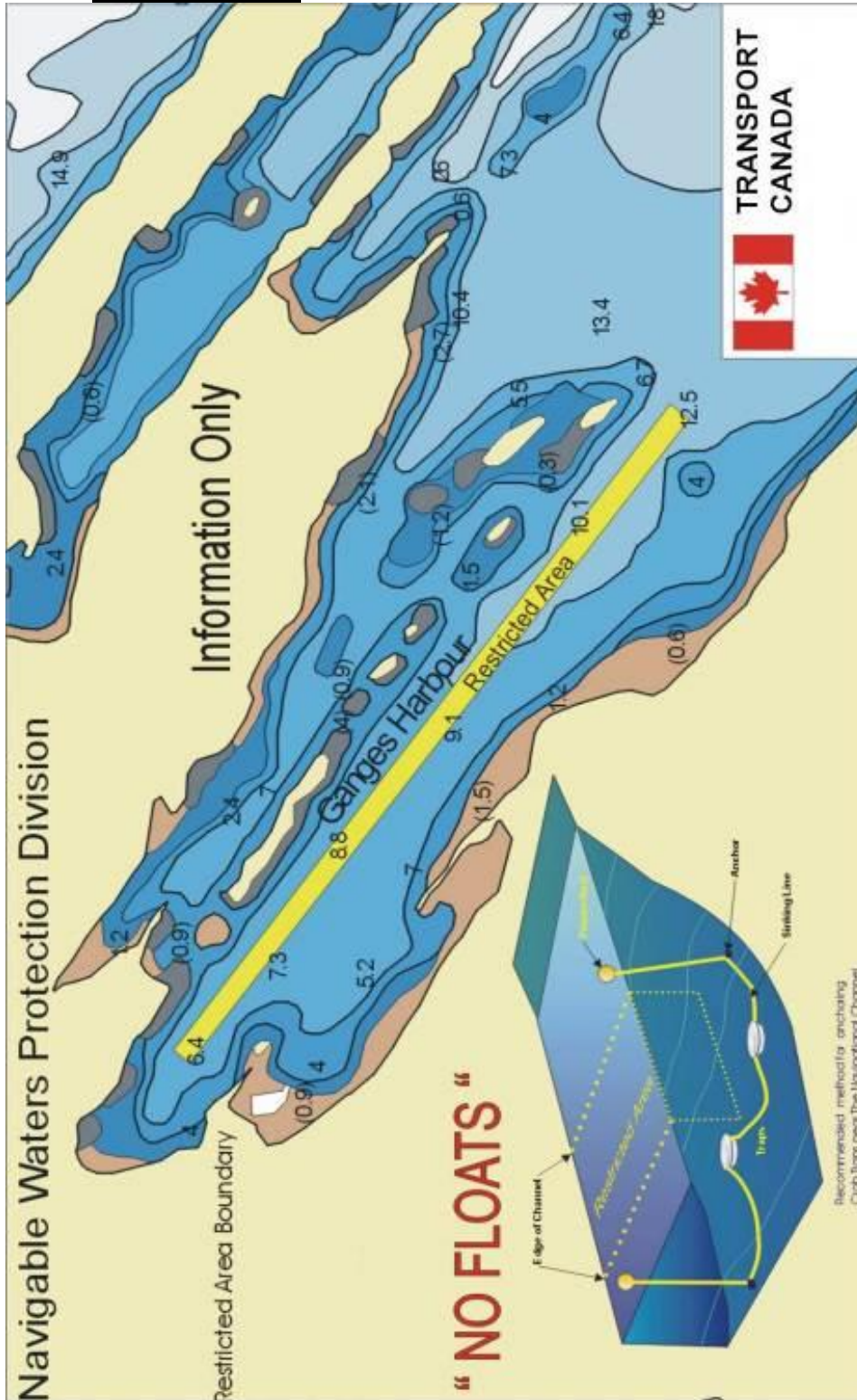
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7.1 Map of Commercial Crab Management Areas

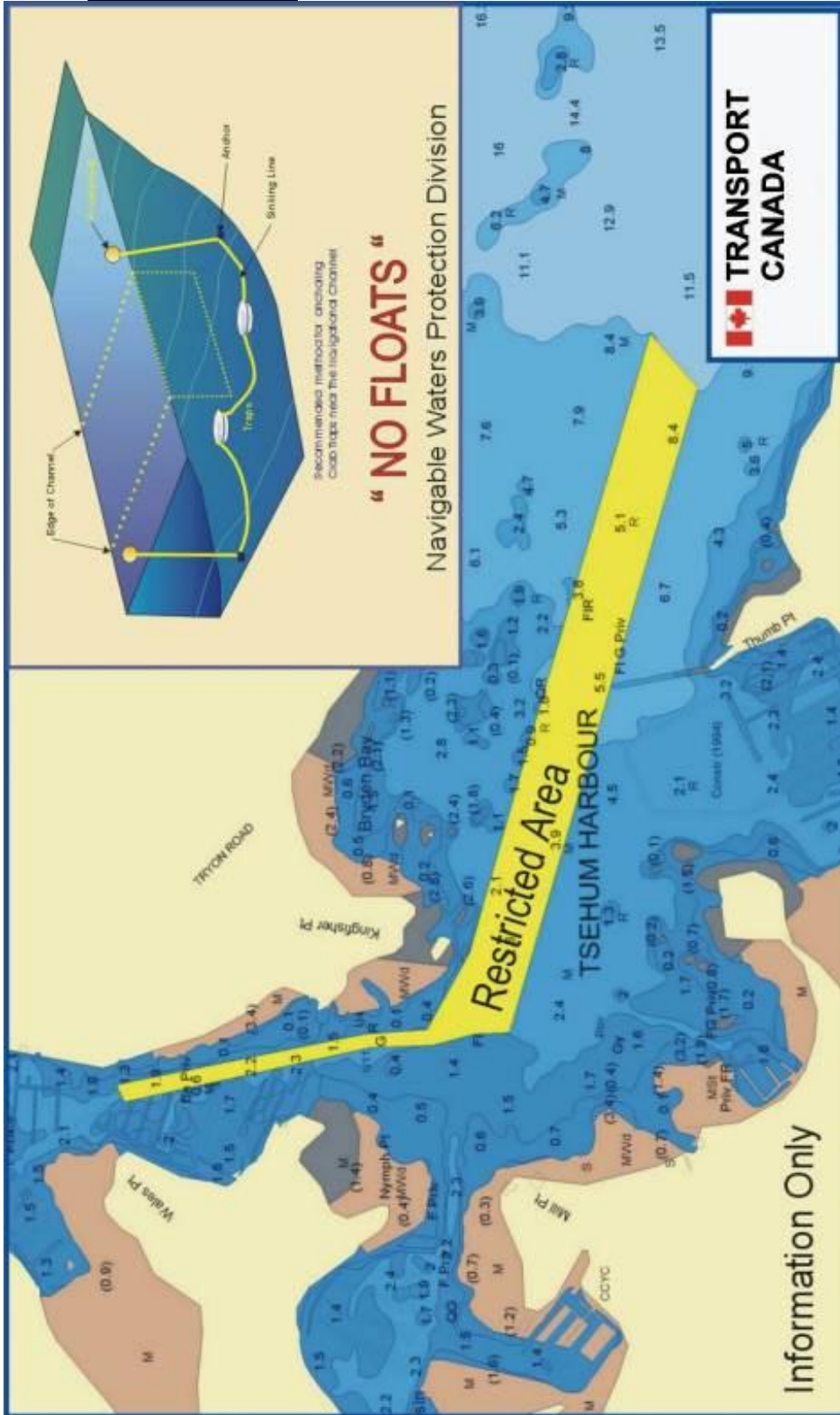


7.2 Maps of Restricted Fishing Areas

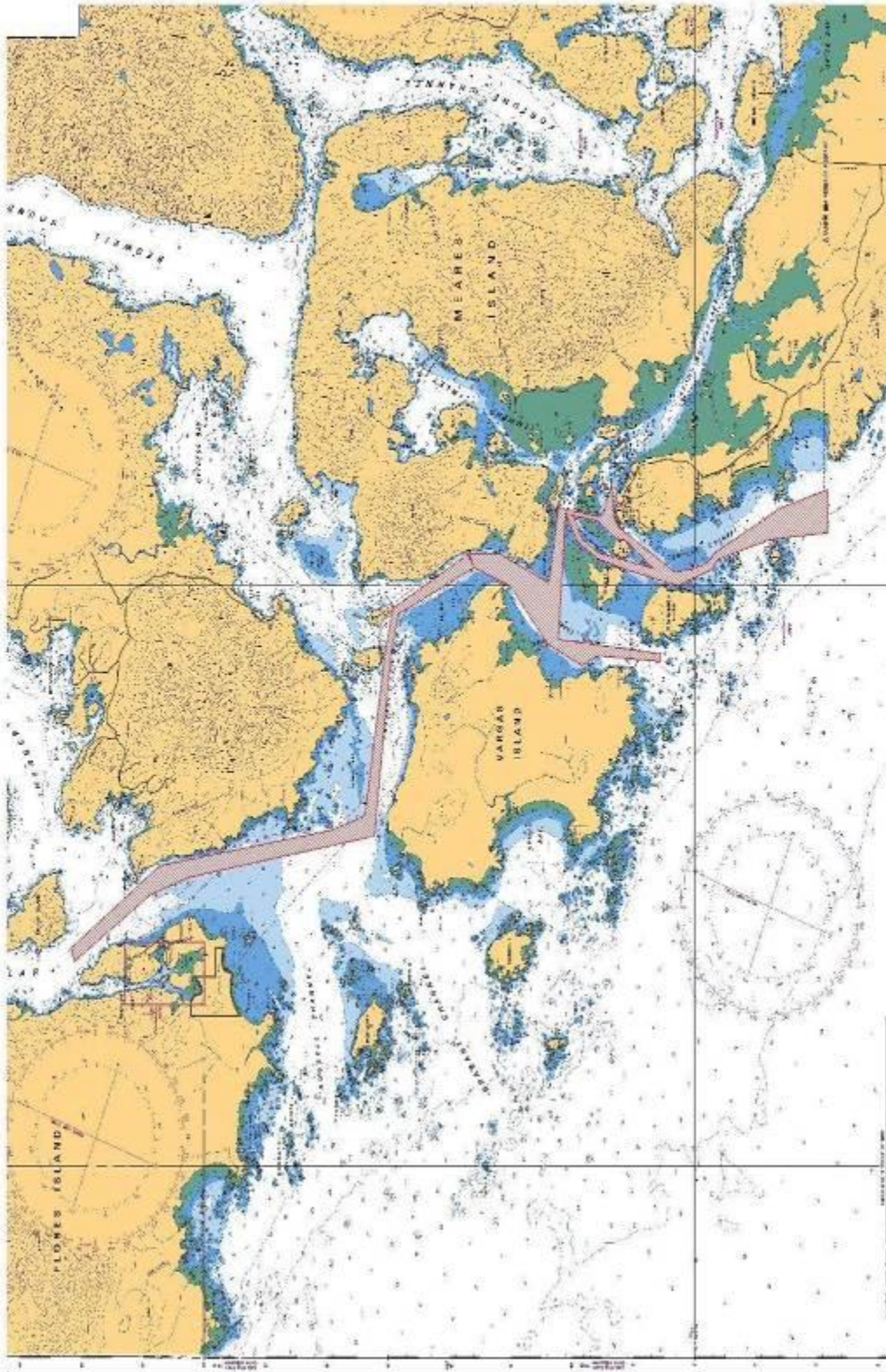
Ganges Harbour



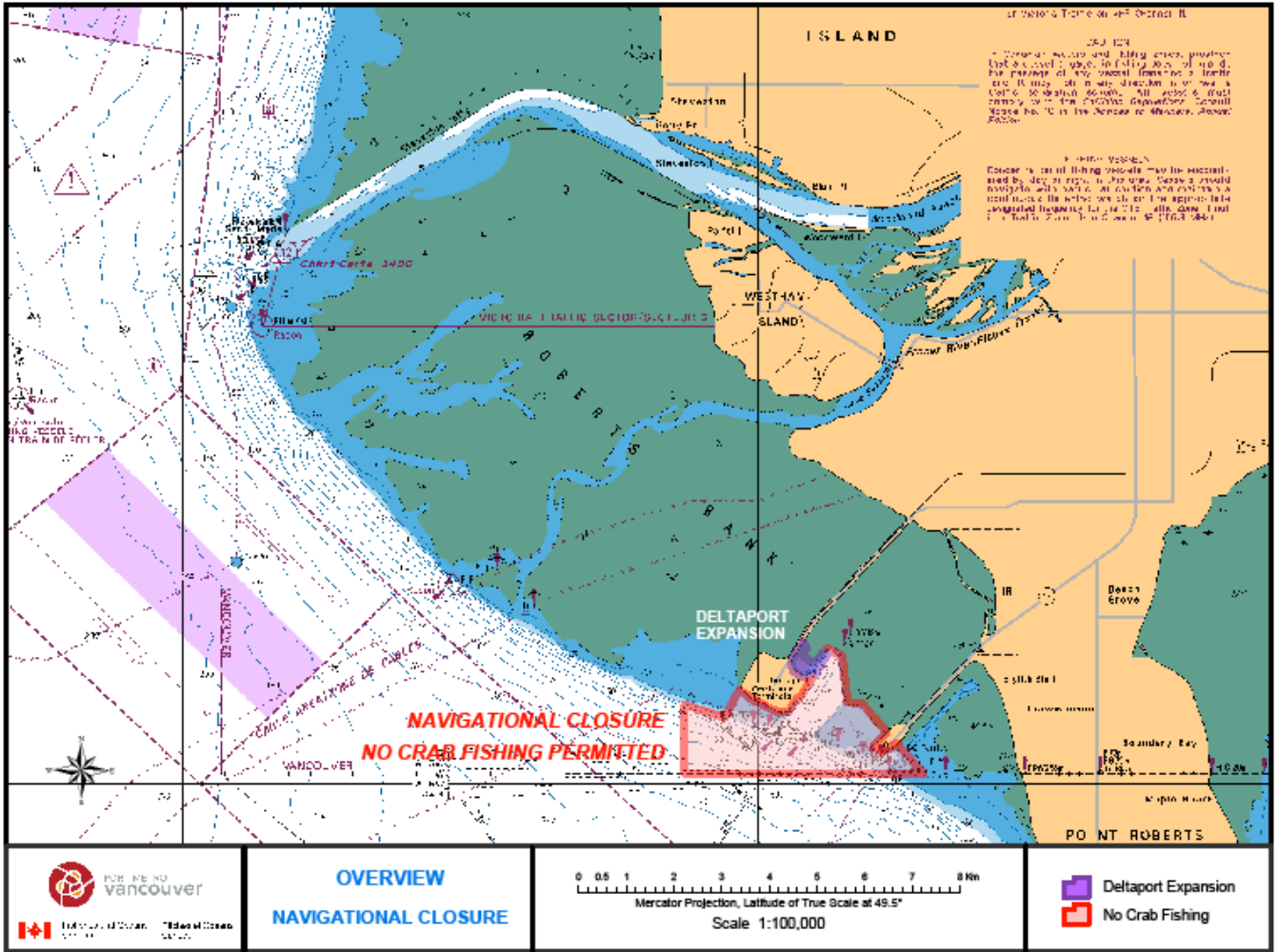
Tsehum Harbour



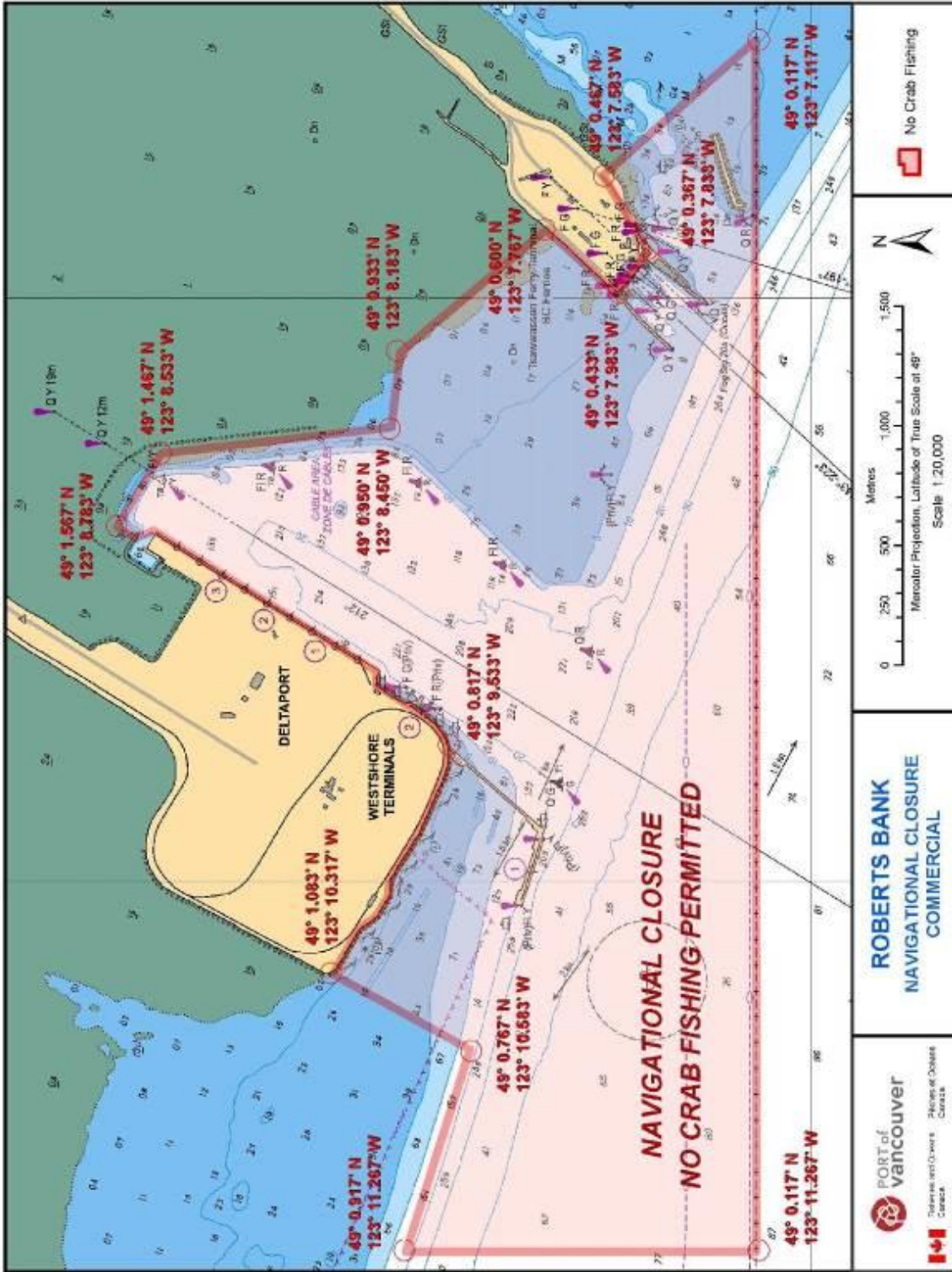
Tofino Area



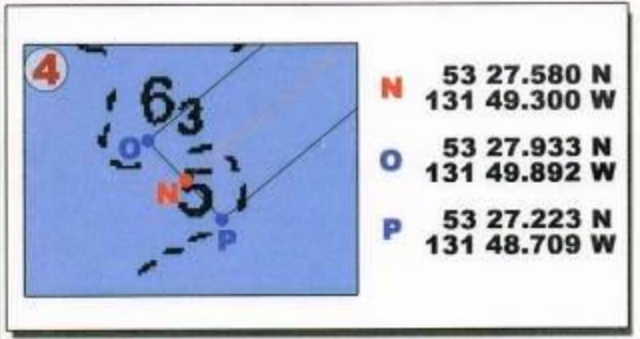
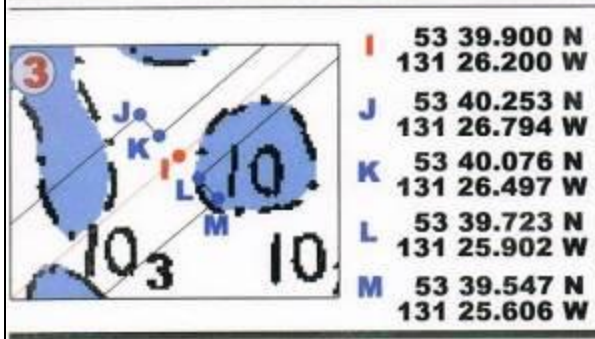
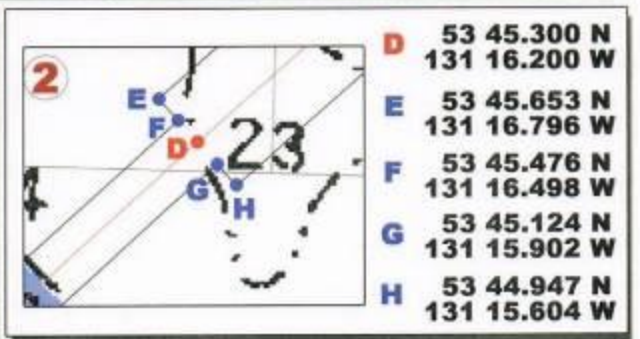
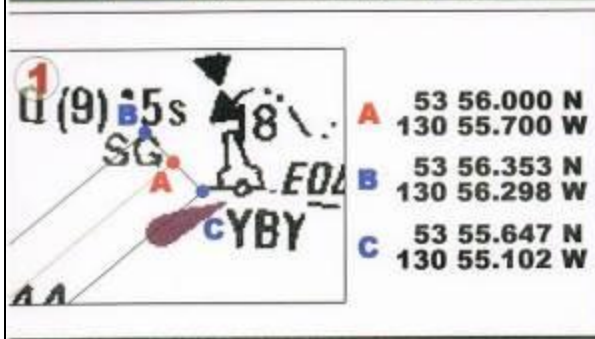
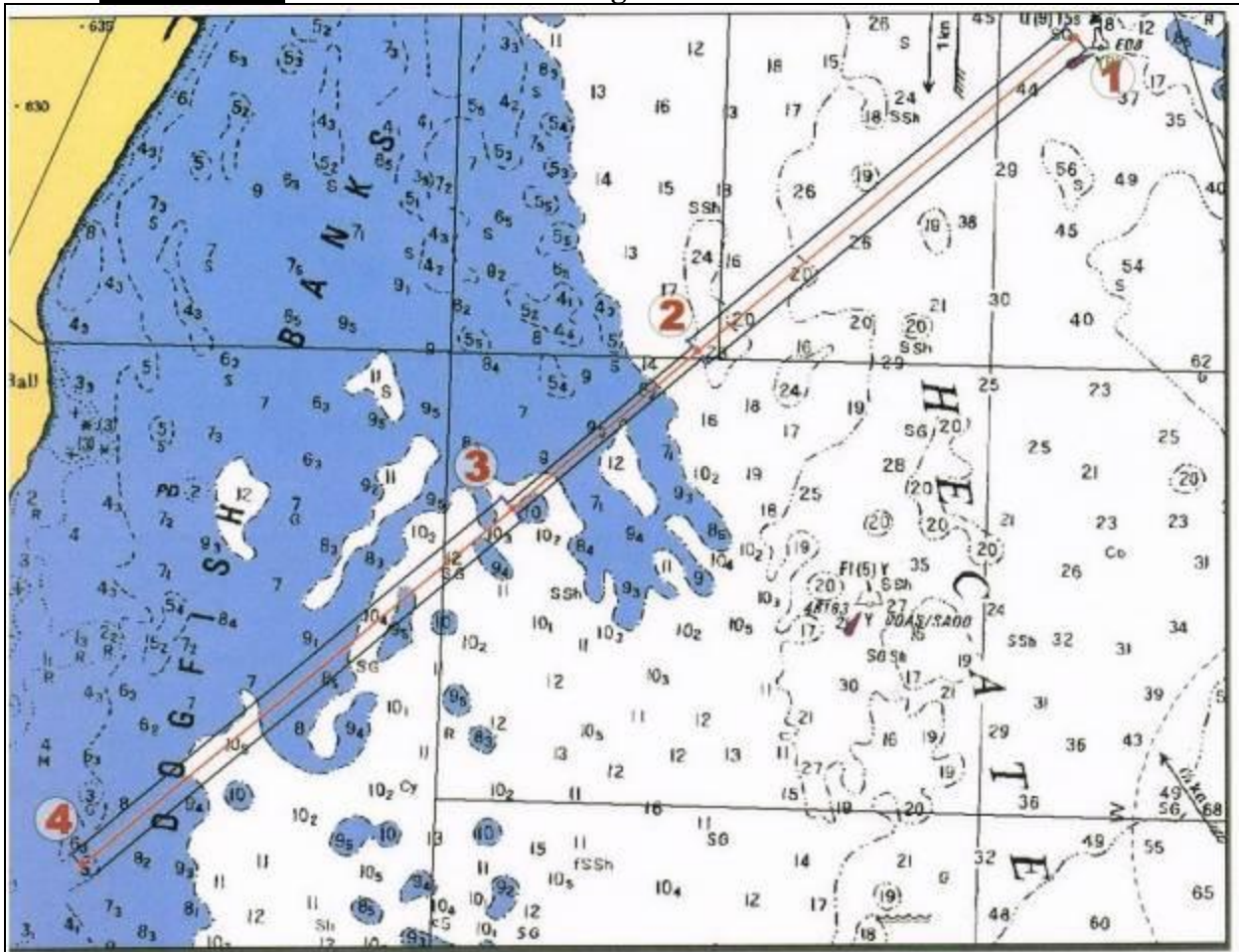
Deltaport, Roberts Bank: No Fishing Zone Overview



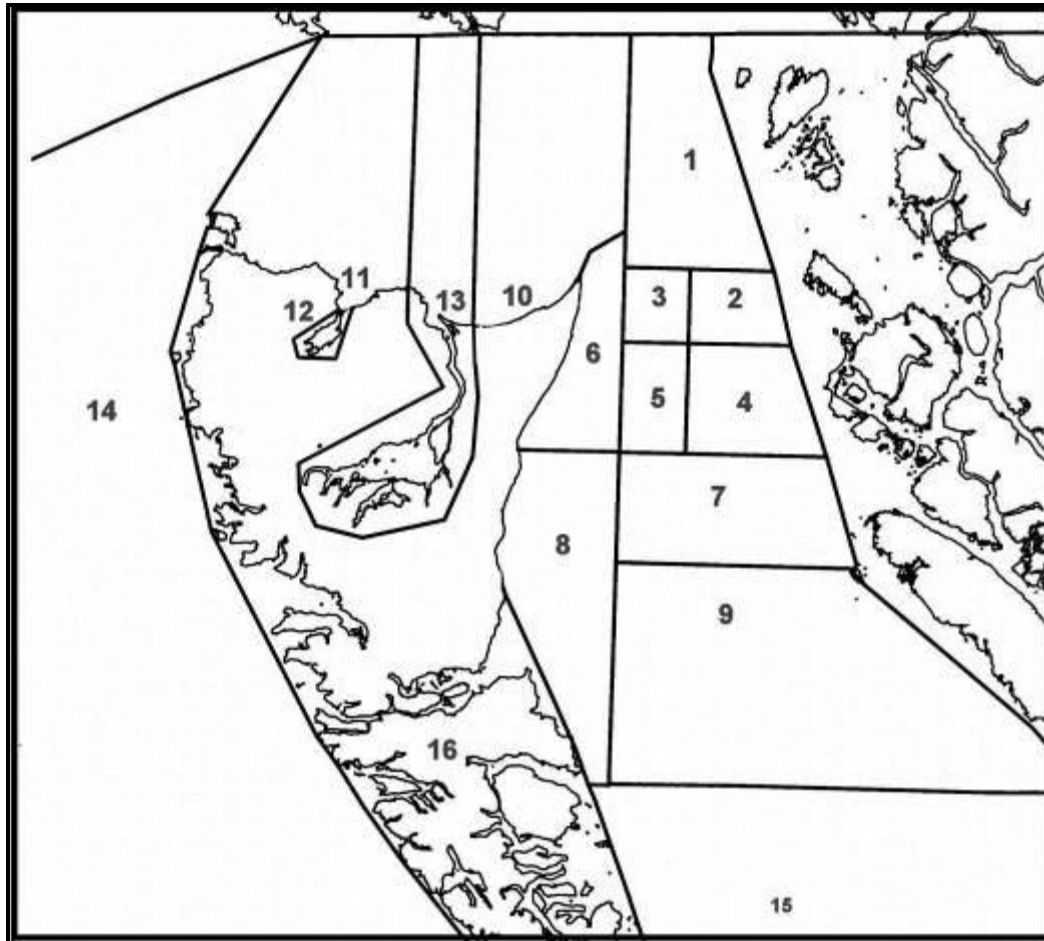
Deltaport, Roberts Bank: No Fishing Zone



Dogfish Bank: BC Ferries Lane through Area A.



7.3 Map of Area A Softshell-Management Areas



Area A soft-shell descriptions:

1. Area 103, Subarea 104-1, those portions of Subareas 101-8 to 101-10 east of the meridian running through $131^{\circ}30'$ west longitude and those portions of Subareas 104-2, 104-4 and 104-5 that are north of the parallel running through $54^{\circ}10'$ north latitude.
2. Those portions of Subareas 104-2 and 104-3 that lie:
 - south of the parallel passing through $54^{\circ}10'$ north latitude
 - north of the parallel passing through $54^{\circ}00'$ north latitude, and
 - east of the meridian passing through $131^{\circ}15'$ west longitude.
3. Those portions of Subareas 102-1, 104-3 and 104-5 that lie inside a line:
 - that begins at $54^{\circ}10'$ N $131^{\circ}30'$ W
 - then true east to $54^{\circ}10'$ N $131^{\circ}15'$ W
 - then true south to $54^{\circ}00'$ N $131^{\circ}15'$ W
 - then true west to $54^{\circ}00'$ N $131^{\circ}30'$ W
 - then to the beginning point.

4. Those portions of Subareas 104-3 and 105-1 that lie:
 - south of the parallel passing through 54°00' north latitude,
 - north of the parallel passing through 53°45' north latitude, and
 - east of the meridian passing through 131°15' west longitude.

5. Those portions of Subareas 102-1, 104-3, 104-5 and 105-1 that lie inside a line:
 - that begins at 54°00' N 131°30' W
 - then true east to 54°00' N 131°15' W
 - then true south to 53°45' N 131°15' W
 - then true west to 53°45' N 131°30' W
 - then to the beginning point.

6. That portion of Subarea 101-10 that lies southeasterly of a line:
 - that begins at 54°09' N 131°40' W [Rose Spit]
 - then to 54°12' N 131°38' W
 - then to 54°14.9' N 131°30.7' W
 - and that portion of Subarea 102-1 that lies north of the parallel passing through 53°45' north latitude and west of the meridian passing through 131°30' west longitude.

7. Those portions of Subareas 102-1 and 105-1 that lie:
 - south of the parallel passing through 53°45' north latitude
 - north of the parallel passing through 53°30' north latitude, and
 - east of the meridian passing through 131°30' west longitude.

8. Those portions of Subareas 102-1 and 102-2 that lie:
 - south of the parallel passing through 53°45' north latitude
 - north of the parallel passing through 53°00' north latitude, and
 - west of the meridian passing through 131°30' west longitude.

9. Those portions of Area 105 and Subareas 102-1, 102-2 and 106-1 that lie:
 - south of the parallel passing through 53°30' north latitude
 - north of the parallel passing through 53°00' north latitude, and
 - east of the meridian passing through 131°30' west longitude.

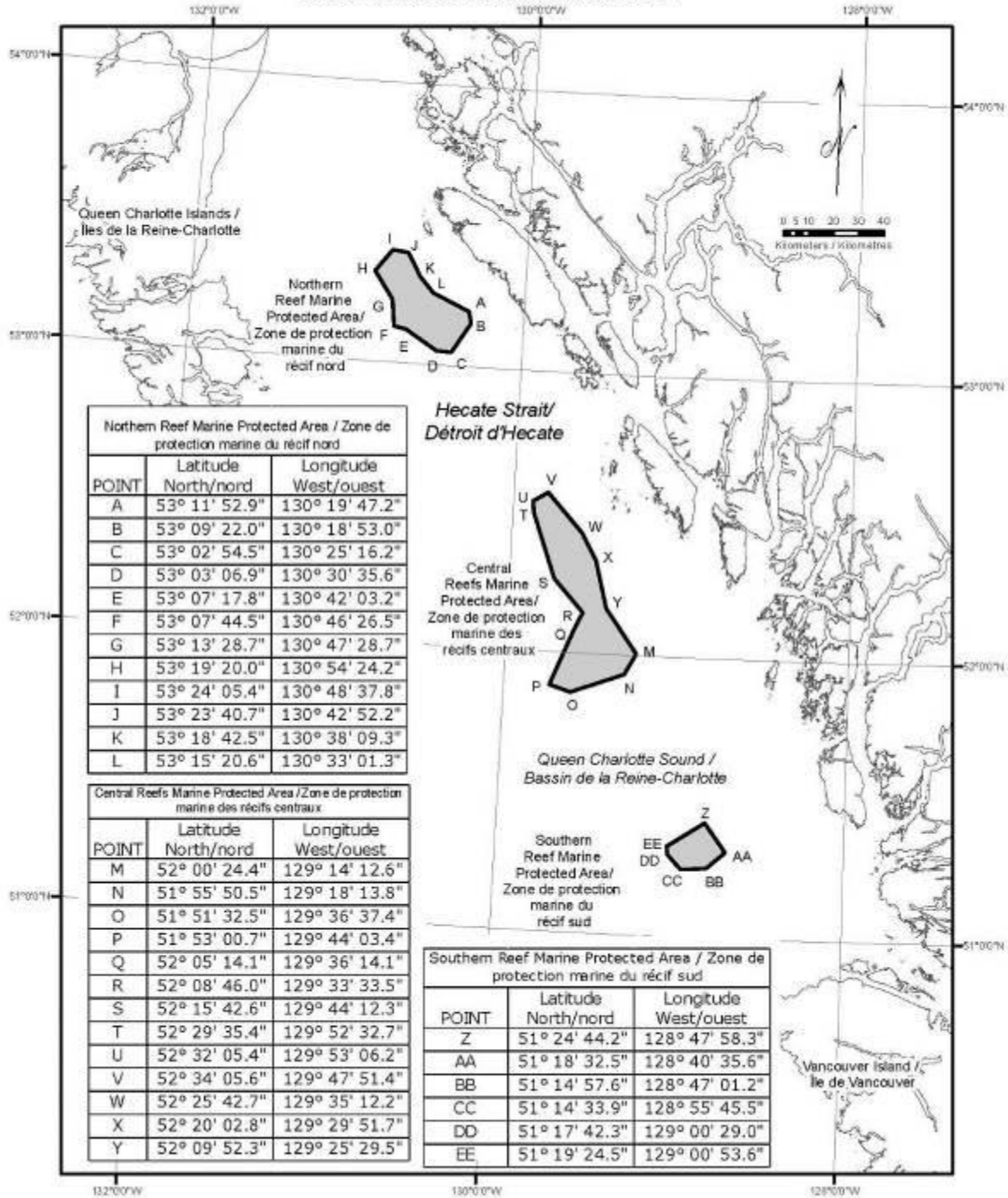
10. Those portions of Subareas 1-5 and 101-4 to 101-10 that lie:
 - east of the meridian passing through 132°04' west longitude at Skonun Point, and
 - west of the meridian passing through 131°30' west longitude,
 - except for that portion of Subarea 101-10 that lies southeasterly of a line
 - that begins at 54°09' N 131°40' W [Rose Spit]
 - then to 54°12' N 131°38' W
 - then to 54°14.9' N 131°30.7' W.

11. Subareas 1-2, 1-3, 1-7 and those portions of Subareas 101-4 to 101-7 that lie west of the meridian passing through 132°19' west longitude at Wiah Point.
12. Subarea 1-4 (Naden Harbour).
13. Subarea 1-6 those portions of Subareas 1-5, and 101-4 to 101-7 that lie:
 - east of the meridian passing through 132°19' west longitude, and
 - west of the meridian passing through 132°04' west longitude.
14. Areas 130 and 142, and Subareas 101-1, 101-2 and 101-3 (WCQCI)
15. Areas 107 to 110, Subareas 102-3 and 106-2 and those portions of Subareas 102-2, and 106-1 that lie south of the parallel passing through 53°00' north latitude (SHS)
16. Subareas 1-1, 2-5 to 2-62, 2-68 to 2-76, 2-78 to 2-100 (QCI)

7.4 Hecate Strait Glass Sponge Reefs Marine Protected Area

SCHEDULE 1 / ANNEXE 1

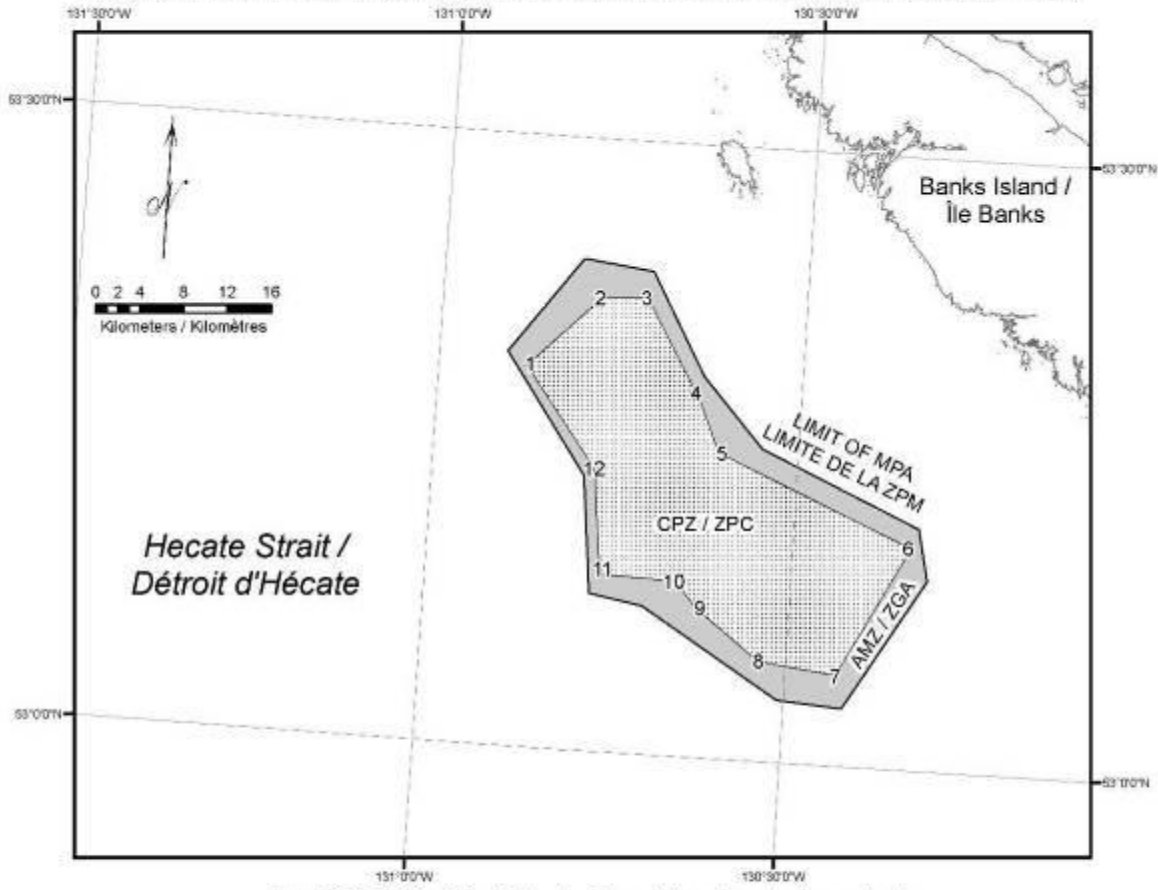
HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HECATE ET DU BASSIN DE LA REINE-CHARLOTTE



Northern Reef Area

SCHEDULE 2 / ANNEXE 2

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
 ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE
 ET DU BASSIN DE LA REINE-CHARLOTTE
 NORTHERN REEF MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DU RÉCIF NORD

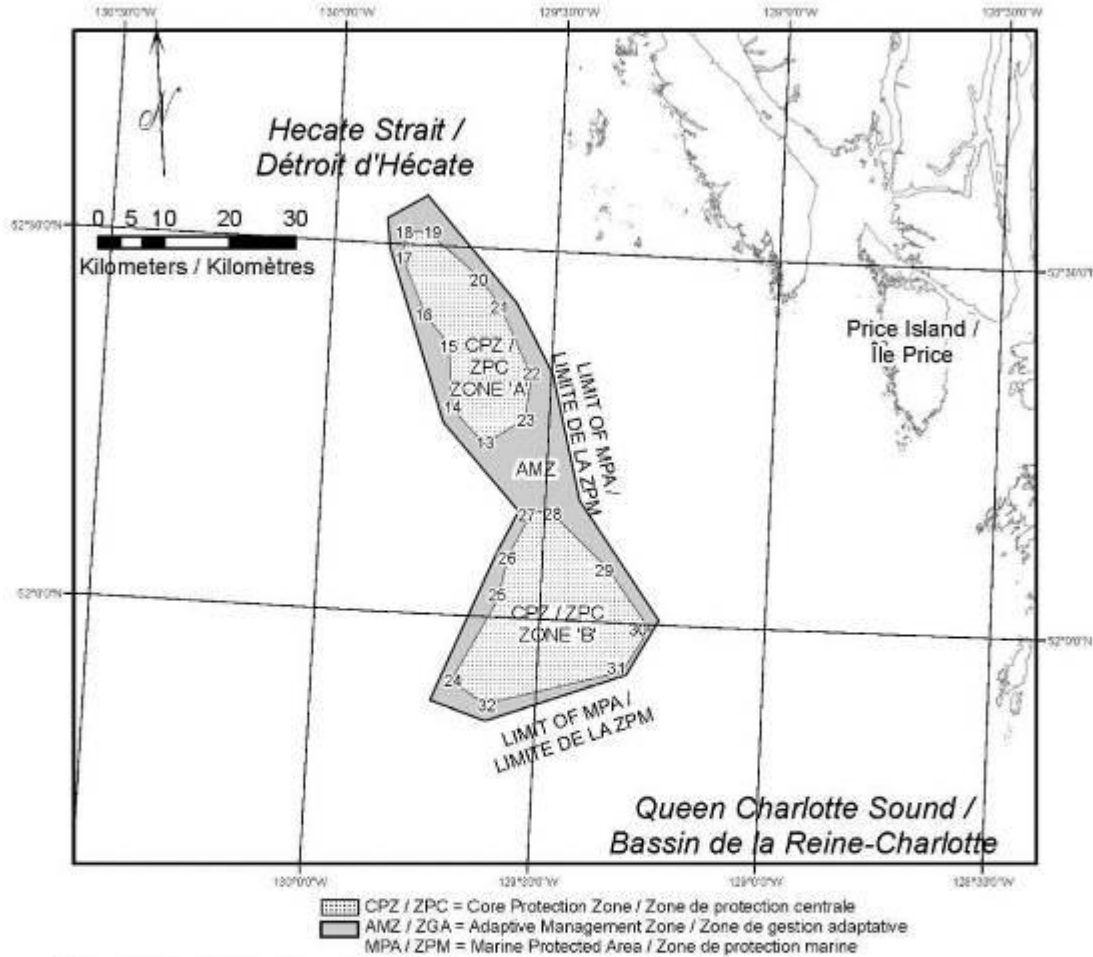


CPZ / ZPC = Core Protection Zone / Zone de protection centrale
 AMZ / ZGA = Adaptive Management Zone / Zone de gestion adaptative
 MPA / ZPM = Marine Protected Area / Zone de protection marine

Northern CPZ / ZPC nord		
POINT	Latitude North/nord	Longitude West/ouest
1	53° 18' 40.4"	130° 52' 46.5"
2	53° 22' 12.1"	130° 47' 01.7"
3	53° 22' 20.2"	130° 43' 12.5"
4	53° 17' 22.8"	130° 38' 18.2"
5	53° 15' 01.7"	130° 36' 35.5"
6	53° 10' 55.2"	130° 20' 19.3"
7	53° 04' 30.2"	130° 25' 53.6"
8	53° 04' 58.0"	130° 32' 16.9"
9	53° 07' 22.2"	130° 37' 37.6"
10	53° 08' 36.6"	130° 39' 29.5"
11	53° 08' 41.8"	130° 45' 40.0"
12	53° 13' 51.2"	130° 46' 41.2"

Central Reef Area

SCHEDULE 3 / ANNEXE 3
 HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
 ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE
 ET DU BASSIN DE LA REINE-CHARLOTTE
 CENTRAL REEFS MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DES RÉCIFS CENTRAUX



CPZ / ZPC = Core Protection Zone / Zone de protection centrale
 AMZ / ZGA = Adaptive Management Zone / Zone de gestion adaptative
 MPA / ZPM = Marine Protected Area / Zone de protection marine

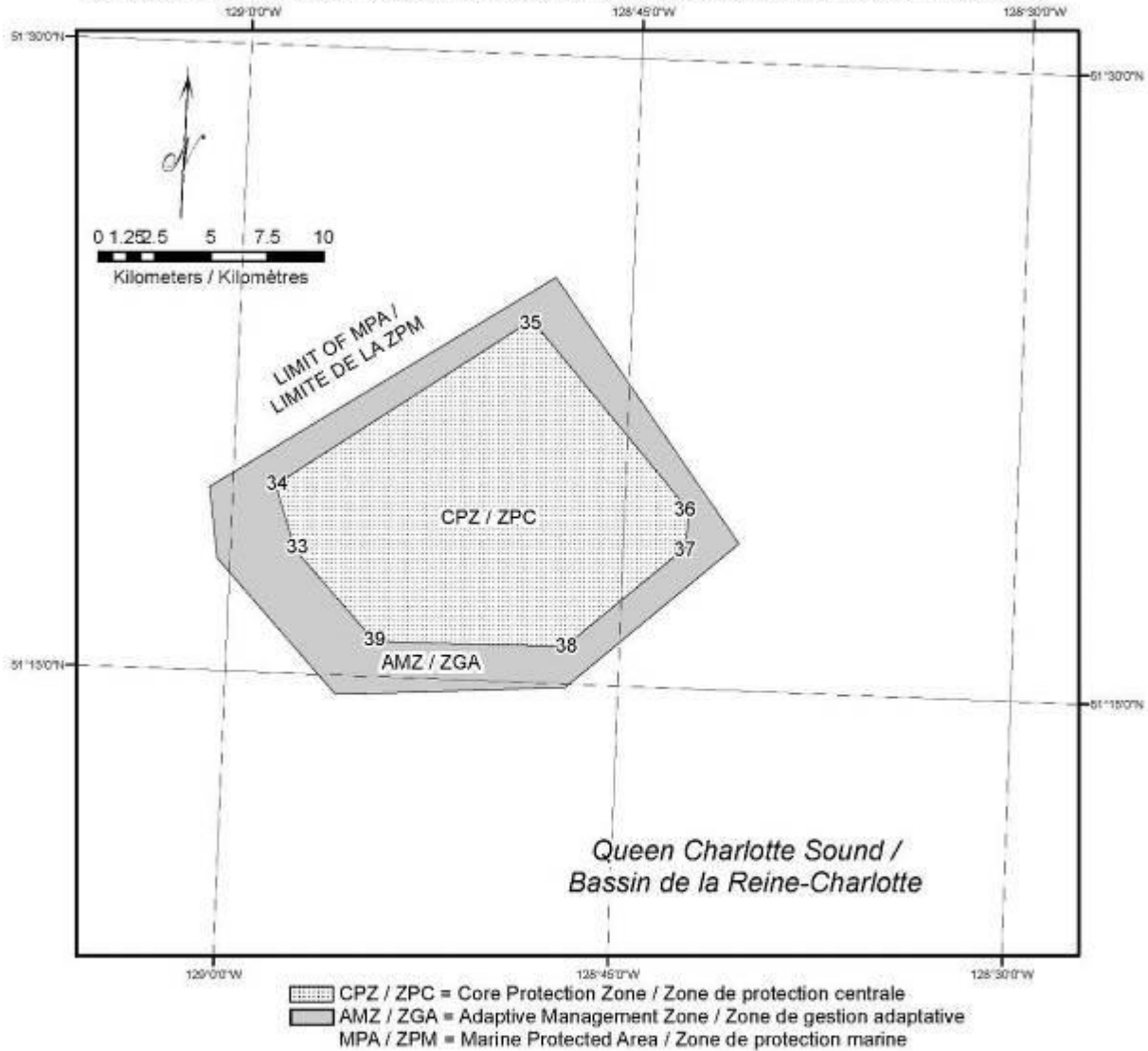
Central CPZ / ZPC centrale - Zone 'A'		
POINT	Latitude North/nord	Longitude West/ouest
13	52° 14' 03.4"	129° 38' 33.2"
14	52° 16' 54.8"	129° 43' 13.4"
15	52° 21' 57.1"	129° 43' 56.5"
16	52° 24' 24.5"	129° 47' 22.8"
17	52° 29' 05.9"	129° 50' 59.4"
18	52° 31' 05.2"	129° 50' 13.9"
19	52° 31' 06.7"	129° 47' 40.9"
20	52° 27' 42.0"	129° 40' 25.1"
21	52° 25' 22.9"	129° 37' 24.0"
22	52° 19' 47.0"	129° 32' 43.2"
23	52° 16' 18.2"	129° 33' 22.8"

Central CPZ / ZPC centrale - Zone 'B'		
POINT	Latitude North/nord	Longitude West/ouest
24	51° 54' 43.1"	129° 41' 22.2"
25	52° 01' 22.5"	129° 35' 48.4"
26	52° 05' 13.5"	129° 34' 32.5"
27	52° 08' 48.5"	129° 31' 44.1"
28	52° 08' 51.3"	129° 29' 18.0"
29	52° 04' 27.1"	129° 21' 17.3"
30	51° 59' 40.8"	129° 15' 23.9"
31	51° 56' 04.5"	129° 18' 46.2"
32	51° 52' 55.7"	129° 36' 49.8"

Southern Reef Area

SCHEDULE 4 / ANNEXE 4

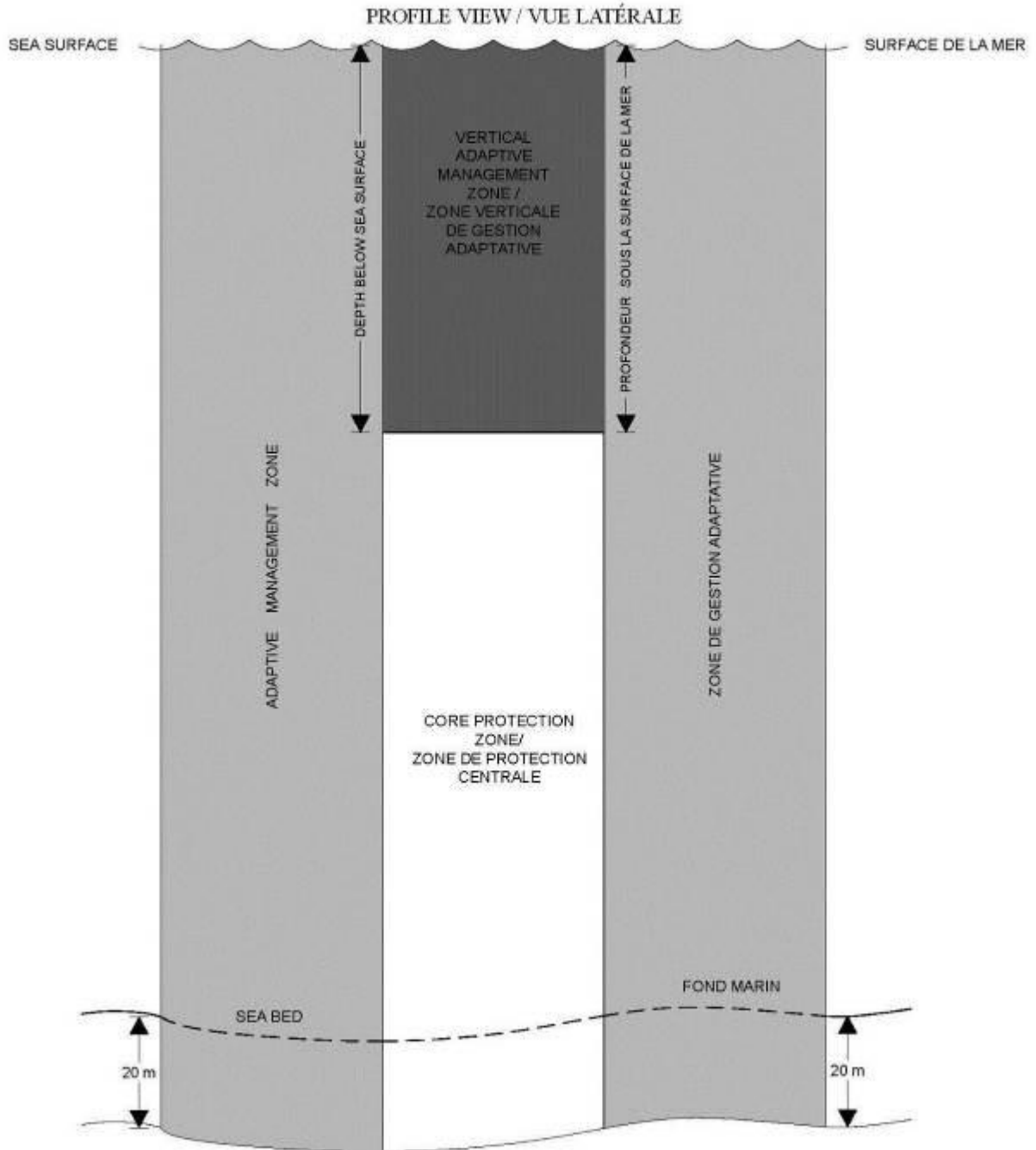
HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE ET DU BASSIN DE LA REINE-CHARLOTTE SOUTHERN REEF MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DU RÉCIF SUD



Southern CPZ / ZPC sud		
POINT	Latitude North/nord	Longitude West/ouest
33	51° 17' 59.2"	128° 57' 31.9"
34	51° 19' 30.8"	128° 58' 22.7"
35	51° 23' 41.9"	128° 48' 50.9"
36	51° 19' 17.5"	128° 42' 33.6"
37	51° 18' 24.5"	128° 42' 37.7"
38	51° 15' 56.0"	128° 47' 04.2"
39	51° 15' 52.2"	128° 54' 20.4"

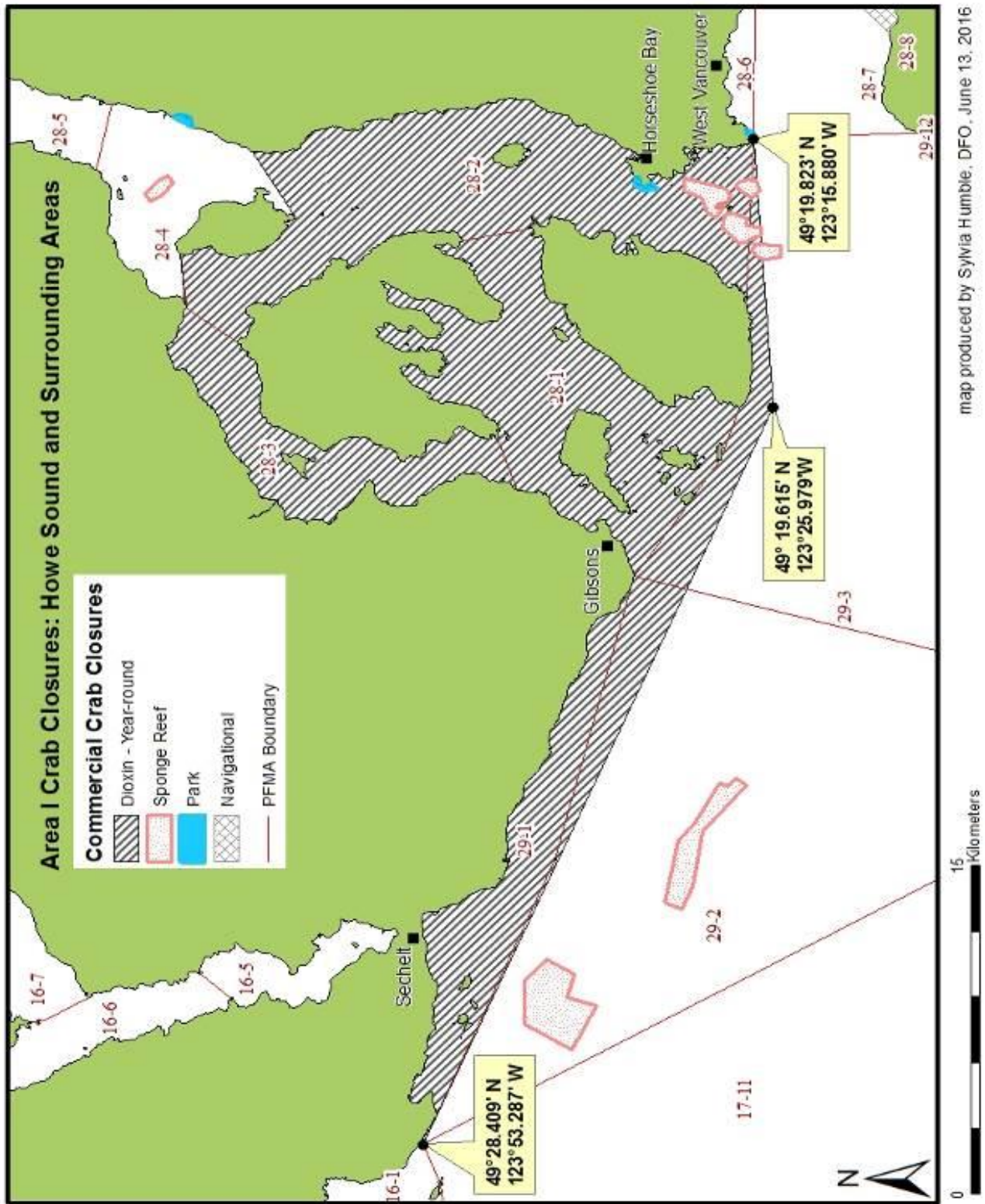
SCHEDULE 5 / ANNEXE 5

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE
ET DU BASSIN DE LA REINE-CHARLOTTE



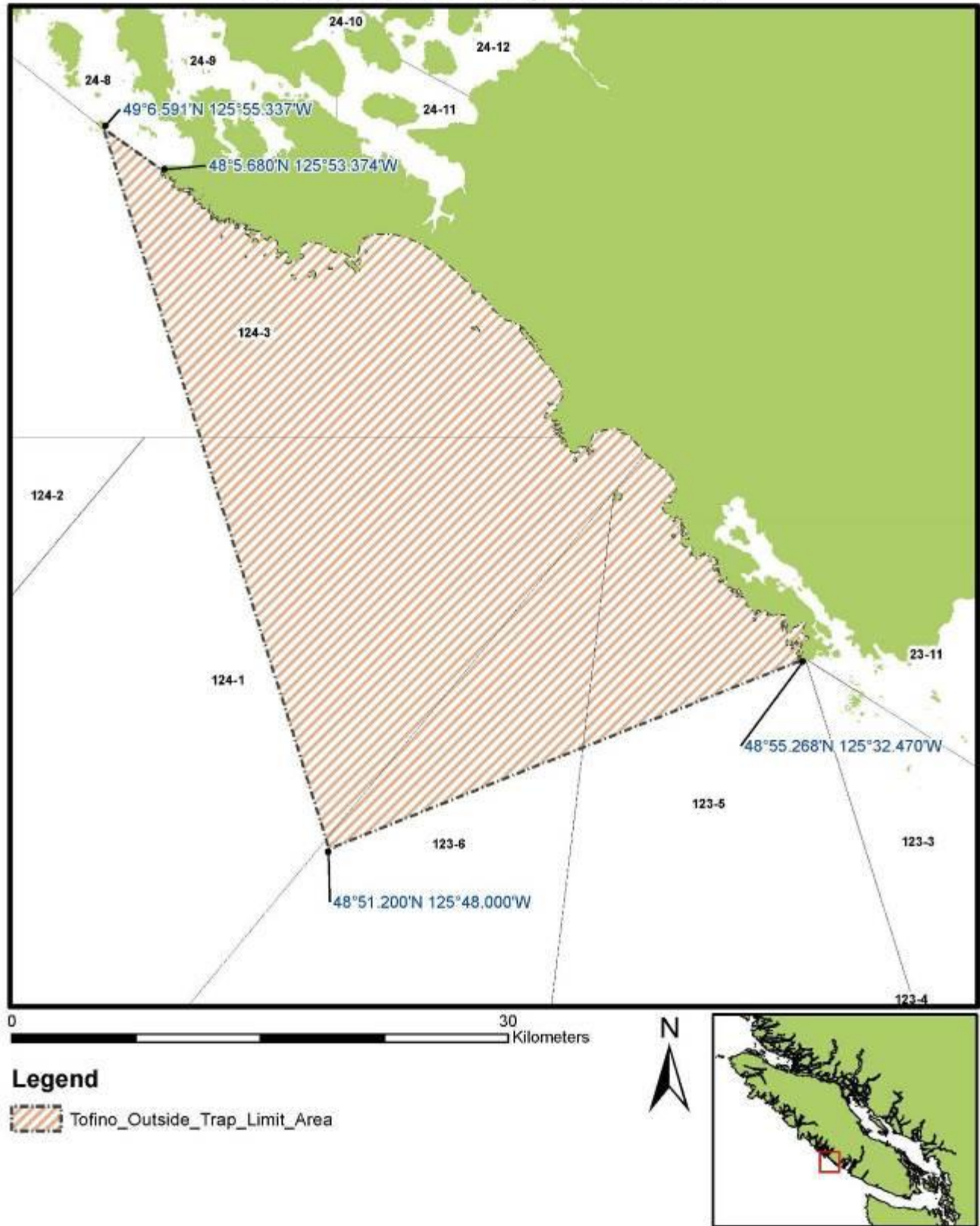
NOT TO SCALE / NON À L'ÉCHELLE

7.5 Howe Sound and Surrounding Area Closures



7.6 Area E (Tofino) – New Outside Tofino Trap Limit Area (“the Hole”)

Outside Tofino Trap Limit Area



APPENDIX 8: CRAB CONTACTS

APPENDIX 8.1: CRAB SECTORAL COMMITTEE 2022/23

The Sectoral Committee terms of reference and members are available from the Resource Managers (see Appendix 8.2) or from the Department's consultation Internet site at:

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

Commercial Crab Area Representatives

Area A – Haida Gwaii/Hecate Strait

Area A Crab Association

Chelsey Ellis, CEO

Phone: 250-816-8454

Email: chelseyellis13@gmail.com

Area B -North Coast

Le Tung Mong

Phone: 778-884-5591

Fax: 250-627-4444

Area E -Sooke

Jamie Heggelund

Phone: 250-883-9969

Area E -Tofino

Robbie Heggelund (Tofino)

Phone: 778-425-3316

Cell : 250-213-9779

Area E-Quatsino

William S. Benton

Phone: 250-230-1534

Email: abenton@recn.ca

Danielle Benton

Phone: 250-230-5768

Email: danielleleighbenton@hotmail.com

Area G -Johnstone Strait

Lance Underwood

Phone: 250-710-7344

Email: captnlance@gmail.com

Area H -Strait of Georgia/Gulf

Kelvin Campbell

Phone: 250-656-7445

Email: kcfishing@shaw.ca

Area I -Fraser River

Peter Policnick Phone: 604-813-6187

Email: policnick@outlook.com

Loc Nguyen Phone: 604-760-3503

Email: sellingmybrain@hotmail.com

Area J -Boundary Bay

Dien Nguyen

Phone: (604) 315-1126

Email: DienNguyen88@gmail.com

Commercial Crab Service Providers:

Ecotrust Canada

Dianne Villeseche

Suite 425-309 2nd Avenue West

Prince Rupert, BC V8J 3T1

Phone: 250-624-4191

Fax: 604-682-1944

dianne@ecotrust.ca

Pacific Coast Fishery Services Inc.

Willem Buitendyk

270 Suneagle Dr.

Saltspring Island BC, V8K 1E5

Phone: 250-931-7686

willem@pcfsh.ca

First Nations Representatives

One or more advisors selected to represent each First Nation is available upon request

Recreational Fishing Representatives

Sport Fishing Advisory Board

Pat Ahern:

Ted Brookman:

Martin Paish:

pat.ahern@shaw.ca

teddystackle@shaw.ca

martinpaish1@gmail.com

APPENDIX 8.2: CRAB BY TRAP CONTACTS 2022/23

Observe, Record and Report (Radio Room)

1-800-465-4336

Fisheries Information and Shellfish Contamination Closure Update (24 Hours) (866)-431-3474
(Greater Vancouver) 604-666-2828

Invertebrate Internet Page:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/index-eng.htm>

Fisheries Management

Regional Shellfish Co-ordinator	Lisa Mijacika	604-666-3869
Lead Fishery Manager, Crab	Dillon Buerk	250-627-3477
Regional Fisheries Management Officer	Sophie Roth	236-334-0615
Regional Recreational Fisheries Coordinator	Greg Hornby	604-666-3271

North Coast Area

417 2 nd Avenue West, Prince Rupert, BC V8J 1G8	General Inquiries	250-627-3499
Shellfish Section Head	Fax	250-627-3427
Resource Management Biologist – Crab	Vacant	
Aboriginal Affairs Advisor	Dillon Buerk	250-627-3477
	Melanie Anthony	DFO.NCAP-PACN.MPO@dfo-mpo.gc.ca

South Coast Area

3225 Stephenson Point Road, Nanaimo, BC V9T 1K3	General Inquiries	250-756-7270
Resource Manager – Shellfish, Nanaimo	Fax	250-756-7162
Resource Manager – Shellfish, Comox	Mike Kattilakoski	250-756-7315
Resource Manager – First Nations Fisheries (North East VI)	Jenny Smith	236-330-2963
Resource Manager – First Nations Fisheries (South East VI)	Kent Spencer	250-286-5885
Resource Manager – First Nations Fisheries (West Coast VI)	Gerry Kelly	250-756-7122
	Kevin Conley	250-756-7196

Fraser and Interior Area

Unit 3, 100 Annacis Parkway, Delta, BC V3M 6A2	General Inquiries	604-666-8266
A/Non-salmon Resource Manager	Fax	604-666-7112
	Hong Tjhie	236-330-3240

Conservation and Protection

North Coast Area

Masset	250-626-3316
1590 Old Beach Rd, Masset, BC V0T1M0	
Queen Charlotte City	250-559-4413
137 Bay St., Queen Charlotte City V0T1S0	
Prince Rupert	250-627-3499
417 2 nd Avenue West, Prince Rupert, BC V8J1G8	
Terrace	250-615-5350
5235-A Keith Ave, Terrace, BC, V8G1L2	
Bella Coola	250-799-5345
McKenzie Hwy 20, PO Box 130, Bella Coola, BC, V0T1C0	

South Coast Area

Campbell River	250-287-9564
315-940 Alder St., Campbell River, BC, V9W 2P8	
Duncan	250-746-6221
5245 Trans Canada Hwy, Duncan, BC, V0R2C0	
Nanaimo	250-756-7270
3225 Stephenson Point Rd, Nanaimo, BC, V9T1K3	
Victoria	250-363-3252
4520 Commerce Circle, Victoria, BC, V8Z4M2	

Fraser and Interior Area

Langley	604-607-4150
5550 268th St., Langley, BC, V4W 3X4	
Steveston	604-664-9250
12551 No. 1 Rd., Steveston, BC, V7E 1T7	

Science

Pacific Biological Station		
3190 Hammond Bay Road		
Nanaimo, B.C. V9T 6N7		
Crustacean Program Head	Andres Araujo	250-713-0268
Crustacean Biologist	Brendan Aulthouse	
Program Head, Shellfish Data Unit	Rob Flemming	PACSDU@ dfo-mpo.gc.ca

Licensing

Pacific Fishery Licence Unit	Phone	1-877-535-7307
200-401 Burrard Street	Fax	604-666-5855
Vancouver, B.C. V6C 3S4		

Canadian Food Inspection Agency

Vancouver Island, Central, and
North Coasts

Timothy Delange 250-248-4772 ext. 221

BC Mainland, Interior

604-666-2245

BC Ministry of Agriculture

250-356-5362

Darah Gibson

250-893-0260

WorkSafe BC

Manager of Interest for Marine and Fishing
Occupational Safety Officer, Courtenay
Occupational Safety Officer, Courtenay
Occupational Safety Officer, Courtenay
Occupational Safety Officer, Courtenay
Occupational Safety Officer, Victoria
Occupational Safety Officer, Richmond

Pat Olsen 250-334-8777
Mark Lunny 250-334-8732
Cody King 250-334-8733
Gregory Matthews 250-334-8734
Paul Matthews 250-334-8741
Jessie Kunce 250-881-3461
Bruce Logan 604-244-6477

Focus Sector Manager for Fishing, Richmond

7563)

Mark Peebles 604-279-7563
toll free 1-888-621-7233 (ext.

Projects related to commercial fishing contact:

Ellen Hanson 604-233-4008
toll free 1-888-621-7233 (ext. 4008)

Sighting Networks

BC Cetacean and Sea Turtle Sighting Network
Toll free: 1.866.I.SAW.ONE (1-866-472-9663)
Email: sightings@ocean.org
Internet: <http://wildwhales.org/>
App : WhaleReport

Basking Shark Sighting Network
Toll free: 1-877-50-SHARK (1-877-507-4275)
Email: BaskingShark@dfo-mpo.gc.ca,
Internet: www.pac.dfo-mpo.gc.ca/SharkSightings

Report All Poachers and Polluters (RAPP):

1 877 9527277 (RAPP)

or Report online: <http://www.env.gov.bc.ca/cos/rapp/form.htm>

Available 24 hours a day, seven days a week, RAPP allows the public to report known or suspected poachers and polluters – anonymously and without risk of confronting the offender.

APPENDIX 9

British Columbia Commercial Crab Fishery Monitoring and Catch Reporting Program Standards For the Licence Year 2022/23

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Annex 1 – Electronic Monitoring Specifications / Reporting Standards

Annex 2 – At-Sea Observer Specifications

Annex 3 – Plastic Trap Tag Database Specifications

Annex 4 – Crab Harvest Logbook Program (Paper) Data Specifications

Annex 5 – Biological Monitoring Specifications

Annex 6 – Licence Area ‘A’ Hail Report Specifications

1. PURPOSE OF THIS DOCUMENT

This document describes the official Fisheries and Oceans Canada standards for fishery monitoring and catch reporting in the commercial crab fishery, including data collection, data submission, and reporting. The document defines the requirements for the 2022/23 licence year and will be adapted for subsequent seasons as necessary. Through conditions of licence commercial harvesters are required to establish programs for:

- Vessel activity monitoring through an electronic monitoring system or through at-sea observer coverage;
- Trap limit compliance through plastic trap tags (Licence Areas B, E, G, H, I, and J);
- Harvest logbook reporting;
- Fish Slip reporting;
- Biological sampling;
- Fishing Hail reporting (Licence Area 'A' only); and
- Buoy Marking Registry (Licence Areas 'A', 'B', 'G', and portions of 'E')

This document is intended to be used by commercial licence holders in discussions with third-party service providers who may be interested in bidding on the opportunity to provide these programs and requirements on behalf of licence holders.

Persons applying for a licence for the 2022/23 season will be required to demonstrate that they have made arrangements, either individually or through an area association, for an approved service provider to conduct each element of the fishery monitoring programs on their behalf.

All program components must be in place for April 1, 2022 or the start of the fishery in a particular licence area.

All biological sampling conducted at-sea must be conducted by an approved DFO-designated Observer.

The Department requires that all licence holders within a single crab licence area choose a single service provider for the electronic monitoring program in that licence area. A single service provider for each licence area must also be established for the biological sampling program and for the harvest log program. The electronic monitoring, biological sampling, and harvest log programs do not have to be provided by the same service provider.

To assist the Department and crab licence holders in evaluating the efficiency and effectiveness of the programs, it is expected that service providers will participate in a post-season review and performance evaluation of the programs (see Sections 4 and 5).

2. MONITORING OBJECTIVES FOR COMMERCIAL CRAB FISHERY

Over-arching objectives for monitoring of the fishery were developed at the beginning of the electronic monitoring program, and have been recently updated to include:

- Collect accurate harvest and effort data
- Collect accurate and timely data on vessel activity
- Collect data to support compliance with conditions of licence
- Collect biological data on target and non-target catch
- Collect economic data from the fishery

3. MONITORING PROGRAMS

The monitoring of the commercial crab fishery during the 2022/23 fishing season will be accomplished through seven programs. It is expected that most harvesters will meet the monitoring requirements through electronic monitoring, plastic trap tags, harvest logbook, fish slip, biological sampling, hail reporting, and buoy marking programs. Detailed reporting standards for each of these programs are provided in Annexes 1 through 6.

3.1. Fishery Monitoring

3.1.1. Electronic Monitoring

Harvesters may choose to use an electronic monitoring program to meet the objectives of collecting accurate and timely data on vessel activity and compliance with conditions of licence.

Electronic monitoring system equipment must accurately record vessel activity, identify trap-hauling activity, and accurately identify individual traps. A radio frequency identification (RFID) chip is required on each trap fished by licensed crab vessels (in addition to plastic tags) and harvesters must scan each trap as it is hauled on board. The detailed information on equipment and data collection requirements are provided in Annex 1.

Data delivery requirements consist of providing raw data as well as reports based on the analysis of these data, including potential violations of conditions of licence, and summary reports providing details of fishing activity for each vessel. The detailed information on data delivery requirements, including fields and formats required for raw data and summary reports, and the required timeliness of delivering these data and reports, is provided in Annex 1.

3.1.2. At-Sea Observers

Vessel owners/licence holders electing not to participate in the electronic monitoring programs must arrange for 100% at-sea observer designated by the Regional Director General for monitoring, and must ensure the program includes a method to accurately

monitor and report on all the detailed standards outlined in this document. At-sea observers must participate in a training program specific to crab trap monitoring, and must be designated under Section 39 of the *Fishery (General) Regulations*. Details on required information reports are provided in Annex 2. Contact a Resource Manager for more information (see Section 6).

3.1.3. Plastic Trap Tags

In order to help ensure vessel trap limits are adhered to, each licence holder in Crab Areas B, E, G, H, I, and J shall purchase a limited number of new plastic trap tags for the 2022/23 fishing season. Each trap active in the fishery shall have an approved plastic trap tag attached to the trap. The tags shall indicate the licence year and have an identification number unique to each individual vessel. Each vessel will be issued a total number of tags equal to their trap limit plus 10% to allow for replacements (except in Areas I and J, which receive 20% extra tags). Extra replacement tags may only be used to replace lost tags. If the vessel master requires more replacement tags than the 10% allotted for lost traps (or 20% in Areas I and J), a request for more tags must be made to the local Area service provider. The service provider will then contact the area crab manager regarding issuing a complete new set of replacement tags. New replacement tags shall be marked with the letters “RP” and be a different colour than the original set issued. New replacement tags shall also indicate the licence year and be unique to each individual vessel. Old tags must be removed and replaced with the replacement tags at the first opportunity the gear is hauled. When trap tags are replaced, only the valid tag shall remain on the trap. All the old tags must be returned to the nearest DFO office within 21 days of the new tags being issued. Trap tag inventory data must be reported to the Department following the specific data format and reporting timelines detailed in Annex 3. Information must be updated within 24 hours of tags being issued. Note: replacement tags will only be issued if lost, stolen or damaged and not in the event of seizure by enforcement personnel. In 2022, Areas I and J may introduce new RFID tags which will also serve as inventory trap tags, and will no longer require separate plastic trap tags (depending on availability of the components).

3.2. Catch Reporting

3.2.1. Harvest Logbooks

The goal of this program is to obtain accurate harvest and effort data in the commercial crab fishery. As a Condition of Licence, the vessel master/licence holder is responsible for the provision and maintenance of an accurate record, a “log” of daily harvest operations. This log must be completed and a copy submitted in both hard (paper) copy and electronic form in an approved format as defined by Fisheries and Oceans Canada Stock Assessment and Research Division’s Shellfish Data Unit, within 28 days following the end of the month in which fishing activity occurred. Licence holders must use a service provider to meet the requirement for provision of electronic data (see Annex 4).

3.2.2. Fish Slips

The fish slip program is intended to collect economic data from the fishery. Service providers are not required in order to fulfill program requirements. Licence holders are responsible for ensuring fish slips are submitted. It is a Condition of Licence that an accurate written report shall be furnished on a fish slip of all fish and shellfish caught under the authority of this licence. A report must be made even if the fish and shellfish landed are used for bait, personal consumption, or otherwise disposed.

This includes all crab and octopus retained under authority of the licence. The written report shall be posted not later than seven days after the offloading and sent to:

Fisheries and Oceans Canada
Regional Data Unit
Suite 200 - 401 Burrard Street
Vancouver, B.C., V6C 3S4
(604) 666-3784

In 2022/23, DFO will be consulting with recreational, First Nation, and industry groups to develop a program that will track crab from the point of landing until the final destination.

3.3. Biological Sampling

The collection of biological data on crab populations is required in each licence area. Each licence holder must make arrangements for a designated Observer to collect and submit data to DFO according to the standards outlined in Annex 5. During a sampling event, the observer must be positioned in such a way as to accurately collect all required data. Generally, this means the observer will need to be onboard the commercial vessel while the samples are being removed from the commercial traps, in order to collect accurate gear information and ensure proper sampling by trap. Observers must have access to the traps being sampled if requested in order to collect necessary data on the fishing gear.

The intention of the sampling is to collect information on biological characteristics of crab populations which will be used to evaluate future management options. Data will help support development of management approaches in accordance with the Precautionary Approach, as well as help to determine soft-shell periods.

The biological information collected shall be entered into a Fisheries and Oceans Canada approved database and submitted to the Department in electronic form no later than seven (7) days following the end of the month when data were collected. Detailed requirements are outlined in Annex 5.

3.4. Hail Program – Licence Area ‘A’

Vessels fishing within Licence Area ‘A’ during the 2022/23 season shall arrange to have hail information on fishing activity reported prior to leaving port when intending to haul

fishing gear; prior to moving to a new fishing location; and a minimum of 2 hours prior to returning to port.

The data fields to be reported are detailed in Annex 6.

3.5. Registration of Unique Buoy Colour Designs

Licence holders fishing within Licence Areas A, B, G, and the Quatsino and Tofino trap limit areas of Licence Area E must register with the Department their unique colour buoy design for the 2022/23 fishing season. A colour photograph is required. Only the colour combination registered with the Department for a particular licence may be used during fishing.

Licence holders within Licence Area ‘A’ and ‘B’ must make arrangements for the registry of their buoy with their service provider.

Licence holders within Licence Area ‘G’ must provide a colour photograph to their local DFO crab manager. See contact list in Section 6.

Licence holders within the special Quatsino and Tofino Trap Limit Areas of Licence Area ‘E’ must register their buoy design with the local Tofino DFO office.

4. MID-YEAR AND YEAR-END SUMMARY REPORTS

As a condition of licence each licence holder is responsible for providing a report to the Department on fishing activity during the course of the season. In practice, it is expected that most licence holders will arrange with a service provider to prepare a summary report on their behalf that may be combined with other licence holders’ information into a licence area report. A mid-year report must be completed by November 21, 2022 for the fishing period of April 1, 2022 to October 31, 2022. A year-end report shall be completed by April 30, 2023 covering the period of the entire fishing season. A copy of these reports shall be provided to the Department lead crab resource manager in electronic format by the required completion dates. A public copy of the report shall also be provided to licence holders for which the service provider is contracted to perform duties on their behalf. Confidential information on individual vessels may be provided to the Department. It is expected that no confidential fishing information on individual vessel’s harvest or economic information will be shared or released in the public version of the report, nor will it be released to any party other than DFO or the authorized licence holder of record for that crab fishing licence.

Mid-year and year-end reports shall include:

- For each of the program elements (Electronic Monitoring, plastic trap tags, logbooks, and biological sampling), a description of duties performed by the service provider (excluding confidential information in the public version).
- Summary of program elements completed and not completed on behalf of licence holders.

- Summary of Incident/Occurrence Reports by month and occurrence type, excluding confidential information in public versions.
- Issues or problems encountered during the period.
- Recommendations to licence holders and the Department on possible management changes to the fishery, or changes to the monitoring programs.

5. PROGRAM EVALUATION CRITERIA

The performance of the service providers in meeting the requirements of the monitoring programs will be evaluated against program criteria during the 2022/23 licence year. Service providers failing to meet a minimum level of performance in a particular program during the 2022/23 season may not be approved by the Department to perform those duties in 2023/24.

The Department is not responsible for third-party contracts or other arrangements between individual licence holders and service providers. It is the responsibility of licence holders to ensure that arrangements are in place to meet all DFO licence conditions for the 2022/23 commercial crab licence.

The Department reminds all licence holders that licence conditions and program designs may change in 2022/23 or subsequent years.

DFO performance evaluations against the evaluation criteria will continue in 2022/23 and feedback will be provided to both the service provider(s) and local area licence holder representative(s). Opportunities to improve performance will be documented during the first 8 months of the year.

5.1. Electronic Monitoring

- Success of data collection and transmission / delivery within the specified timeframe
- Availability of updated raw data to DFO on a daily basis
- Documentation of equipment issues, malfunctions and repair as defined in Annex 1
- Rate of equipment malfunctions, and timeliness of equipment repair
- Timeliness and completeness of reporting occurrences (potential violations) as defined in Annex 1
- Timeliness and completeness of providing summary reports as defined in Annex 1
- Accuracy of RFID tag inventory, and timeliness of update and delivery to DFO

5.2. Biological Sampling

The biological sampling program meets the minimum amount of sampling required by DFO Science. Therefore, DFO requires 100% sampling success by service providers. Sufficient flexibility has been built into the program to ensure all sampling targets can be met. DFO will be monitoring and evaluating service provider performance. Sampling success under 100% by a service provider will be considered unacceptable by DFO without reasonable explanation.

Service Providers are required to submit to the DFO monthly sampling summary reports, separate for commercial vessel and fishery independent sampling, for each Crab Management Area. Such reports should summarize the following:

- Sampling dates
- Names of vessels sampled
- Number of traps examined
- Total number of Dungeness crabs sampled
- Details regarding which sampling goals were not met and reasons why.

5.3. Harvest Logbooks

- Timeliness of data entry and delivery
- Accuracy of data transcription (measured in error rate per page)

5.4. Plastic Trap Tags

- Documentation and tracking of plastic tag issuance as required in Annex 3

6. CONTACT INFORMATION FOR MORE INFORMATION

Electronic Monitoring	Rachel McGuinness	(250) 729-8367
Biological Sampling	Andres Araujo	(250) 713-0268
Harvest Logbook Data	Rob Flemming	(250) 756-7014
Area Resource Managers	Dillon Buerk, Prince Rupert	(250) 627-3477
	Jenny Smith, Nanaimo	(236) 330-2963
	Mike Kattilakoski, Nanaimo	(250) 756-7315
	Hong Tjhie, Lower Fraser Area	(236) 330-3240



Project Name:	PacFish Information Management Framework
Document Title:	DFO Data Transfer Specifications: Electronic Monitoring
File Number:	
Author:	Sylvia Humble
Organization:	Fisheries and Oceans Canada
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This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data.

- ▶▶ **Fishery(s):** Commercial Crab by Trap
- ▶▶ **Fishery Season:** 2022/23
- ▶▶ **Data Collection Program Name:** Electronic Monitoring (EM)
- ▶▶ **Associated Fishery Data Manager:** Resource Management - Invertebrates, South Coast Area

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Equipment and Data Collection Requirements

1. EQUIPMENT REQUIREMENTS

System equipment shall:

- Accurately monitor the vessel 24 hours per day, seven days per week while it is engaged in fishing. Fishing is defined as the entire period of time that traps are in the water.
- Accurately record and store data.
- Have Global Positioning System (GPS) capable of Wide Area Augmentation System (WAAS) differential GPS with typical position errors of less than three metres.
- For vessels within all Licence Areas except Area A:
 - automatically transmit the collected data to the approved service provider prior to midnight each day where possible, with a maximum of 14 days between successful transmissions to the service provider;
 - provide a feedback mechanism to indicate to the vessel master if the data has not been sent within the last 24 hours;
 - where requested for enforcement purposes, and where possible, automatically transmit the data to the service provider throughout the day as data are collected (with ability to make this change in transmission frequency via remote command by the service provider);
 - where cellular data transmission is not possible for a particular vessel due to remote location of its home port, alternative arrangements can be made for data delivery within a maximum of 14 days from data collection.
- Provide a feedback mechanism to indicate to the vessel master if the system is operational and functioning properly;
- Include an independent and reliable power supply capable of meeting program standards; and
- Be tamper-proof.

For vessels within all Licence Areas except Area A, if the collected data cannot be transmitted within 14 days since the last transmission, the vessel master shall notify the service provider as soon as possible (explanation is required in occurrence report:

Table 8.

2. VESSEL ACTIVITY

System equipment must accurately record vessel location, date, time, and speed (vessel position data) at a minimum frequency of every two minutes while the vessel is active (travelling, setting, or hauling traps). A higher frequency is required to identify trap hauling activity (see section 3) if a hydraulic sensor is not employed. If the vessel is within 50 metres of the southern Canada/USA international border and travelling at a speed of less than four knots, the equipment shall record data at a minimum of every 10 seconds.

While the vessel is not active (not engaged in travelling, setting, or hauling traps), equipment shall record vessel position data at a minimum of every 60 minutes.

As per conditions of licence, The vessel master is responsible for ensuring that their EM system is turned on before leaving port, and is left on until they return to port, in order to ensure the required data is recorded and delivered.

3. TRAP HAULING ACTIVITY

The electronic monitoring program must accurately identify trap-hauling activity by one of two means:

- A hydraulic sensor that allows trap hauling activity to be identified independently of RFID chip scans. The equipment shall collect data every time the vessel is engaged in hauling traps; or
- If the vessel is travelling at a speed of less than four knots, the equipment shall collect vessel position data at a minimum of every 10 seconds.

4. TRAP IDENTIFICATION: RFID CHIPS

The electronic monitoring program must accurately identify individual traps. A radio frequency identification (RFID) chip is required on each trap and holding cage fished by licensed crab vessels. Vessel operators are required to scan every RFID chip as the trap or holding cage is hauled onboard, with an RFID chip scanner to record RFID information from each trap hauled. System equipment shall provide a feedback mechanism to indicate to the vessel master if the scanner is functioning properly (RFID chips are successfully scanned and recorded). System equipment shall also differentiate between trap RFID tags and holding cage RFID tags.

All aspects of RFID chip procurement, distribution, administration, and data entry are the responsibility of the vessel owner/licence holder to arrange with the service provider. The service provider will enter the trap RFID chip inventory data into a database that they provide, and submit it to the Department within 24 hours of issuing chips. The database will contain all inventory data for all vessels within a licence area.

Vessel operators are required to use and scan only those RFID chips registered in the vessel's inventory for the current licence year. RFID chip inventories for each vessel must be updated at the beginning of each fishing season. For Licence Areas open to fishing year-round, the operator is responsible for arranging for the service provider to update the vessel's entire RFID chip inventory within the first 30 days of fishing for the 2022/23 licence year. Each vessel's RFID chip inventory will include three classifications of RFID chips (or four if traps are lost):

1. "Main": main set of RFID chips (actively fished traps), limited to the vessel's trap limit. The service provider will define the main chips based on the chips scanned at the beginning of the licence year/ season, until the trap limit has been reached. Any lost traps will be redefined as "lost", and new chips defined as "main" chips in the vessel's inventory only after the lost traps are identified as such.
2. "Spare": secondary set of RFID chips, limited to a maximum of 10% of the vessel trap limit (20% in Areas I and J). The service provider will define the spare chips to be those scanned over and above the trap limit, up to a maximum of 10% spare chips (20% in I and J).
3. "Over-Limit": Any RFID chips scanned during the licence year over and above the 10% allowable inventory of spare chips will be defined as 'over-limit' chips (20% in I and J).

4. "Lost": Any 'main' or 'spare' RFID chips not scanned in over 30 days will be defined as 'lost' chips and will no longer be deemed part of the valid inventory of RFID chips.

The RFID chip inventory for each vessel must be provided to DFO within seven days of the 30-day requirement for completing initial inventories for the licence year, and within 24 hours of updating the inventory during the fishing year.

The vessel master is responsible for ensuring that each trap is fitted with a working RFID chip, and must arrange with the service provider to replace any RFID chips that are no longer scanning successfully. As per conditions of licence, the vessel master is responsible for scanning the RFID chip on every trap they haul onboard,

When a trap is taken out of the water and replaced, the vessel master is responsible for switching the RFID chips so that all traps in the water are fitted with RFID chips in that vessel's inventory for the current licence year. When new traps and RFID chips are used to replace lost traps, the vessel master is responsible for removing the lost traps with the RFID chips from the water, if they are found, and communicating with the service provider to ensure that the vessel's RFID chip inventory is updated to identify the lost and replaced traps/ RFID chips.

5. VIDEO CAMERAS (AREAS A, B AND J)

In Licence Areas A, B and J, the electronic monitoring program must accurately monitor fishing activity by camera as described below:

- EM equipment capable of collecting video data.
- Digital video recording of all deck activity while the vessel is outside of harbour limits. This shall be collected by a minimum of one camera. Multiple cameras may be required if vessels have more than one hauling station.
- While the vessel is travelling, setting, or hauling traps/gear, the equipment shall collect data at a minimum of every 10 seconds and video shall be recorded continuously at a frame rate and quality adequate to monitor onboard activities. Camera quality shall be sufficient such that unique buoy colours can be determined, by-catch species can be identified and activity such as gear tangles and line cutting can be observed.
- While the vessel is not engaged in travelling, setting, or hauling traps and the vessel is within harbour limits, video data collection is not required. If video data collection is disabled at the dock, the EM system must automatically restart video collection as the vessel departs harbour limits. Vessel tracking information must be continually collected at all time the vessel has gear deployed.
- Accurately identify trap-hauling activity using video recording of activity focused on the hauling stations in addition to the hydraulic sensor.

Potential violations identified (or "flagged") through a cursory review of EM data shall be investigated via review of video data, and details of observed occurrences (potential violations) shall be reported to the Department within 31 days of retrieving data indicating an occurrence.

In addition, for every vessel, a minimum of 10% of the video data collected while fishing will be reviewed. If the “flagged” video analysis comprises less than 10% of the fishing time, additional video will be selected at random (from periods of fishing) for review, to identify any violations of the conditions of licence. Where a compliance problem is identified, additional video data review over 10% must be conducted as needed to document the extent of the problem.

Video data for a suspected or observed violation shall be saved by the service provider for potential use in enforcement actions for at least one year; when the Department notifies the service provider of an investigation, the video data shall be saved by the service provider until the Department notifies them that the file is closed. Video data for which no suspected or observed violations have occurred is not required to be stored and is not required to be submitted to the Department.

For further details on video monitoring requirements in Crab Management Areas A, B, and J, contact the local area manager.

Data Transfer Requirements

The electronic monitoring program is comprised of five types of data delivery processes. Data transfer requirements and format are described in the following five sections. All data submitted is subject to the *Privacy Act* and *Access to Information Act*.

For all tables, all fields are mandatory unless they are not applicable or values are unknown, in which case a null (blank) value is to be entered.

1. DAILY RAW DATA DELIVERY

The vessel owner / licence holder shall ensure the service provider provides the raw fishing data for each of the three fishing data types (vessel position data, hydraulic data if applicable, and RFID chip data), as well as a record of data transmission, as described below.

- ▶▶ **Format:** Comma Separated Value (*.csv).
- ▶▶ **Medium:**
 - DFO File Transfer Protocol (FTP) site (DFO's internet server for the exchange of files between DFO staff and external groups; site and login details will be provided)
- ▶▶ **Timeliness:**
 - For vessels in Area A, the licence holder shall ensure that the service provider retrieves and delivers to the Department all data from the vessel within 30 days of hard drive collection.
 - For vessels within all Licence Areas except Area A, raw data must be automatically transmitted to the approved service provider prior to midnight each day where possible, with a maximum of 14 days between successful transmissions to the service provider (as per section 1, Equipment Requirements, p. 3). If data cannot be delivered within 14 days, the vessel master shall notify the service provider as soon as possible (explanation is required in occurrence report: Table 8).
 - For vessels within all Licence Areas except Area A, all data received by the service provider shall be made available to DFO on a daily basis (no more than 24 hours after data received)
 - For vessels within all Licence Areas except Area A, where requested for enforcement purposes, and where possible, raw data for particular vessels must be accessible to the Department on a near real-time basis, throughout the day as data are collected (see Equipment Requirements, section 1)

Tables posted on FTP for DFO download shall be updated daily to meet the timeliness requirement of delivery within 24 hours of service provider receipt. These tables shall include all data to date for at least the current month (thus replacing previous versions of data files for the current month). Tables for previous months that have been updated in the past 30 days must also remain posted (i.e., tables for previous months that have not been updated with new data in the past 30 days are not required to be posted)

Table 1: Vessel position data

- ▶▶ **File Naming Conventions:** [licence area]_TRACK_[month: 2 digits]_[year: 4 digits] (e.g., B_TRACK_01_2022.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date and time of vessel location record	YYYY-MM-DDTHH:MM:SS (e.g. 2022-03-31T23:59:59) (corrected for UTC offset)
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal (e.g. 222.1)
Speed	Speed (nautical miles per hour)	Decimal, one decimal place (e.g. 2.1)
Sat_num	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite Quality ¹	Integer
HDOP	Horizontal Dilution of Precision ² :	Decimal
EPE	Estimated Position Error ³ (metres)	Decimal

Table 2: Hydraulic data

► **File Naming Conventions:** [licence area]_HYD_[month: 2 digits]_[year: 4 digits] (e.g., B_HYD_01_2022.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date of hydraulic pressure record	YYYY-MM-DDTHH:MM:SS (e.g. 2022-03-31T23:59:59) (corrected for UTC offset)
Pressure	Hydraulic pressure	Integer
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal
Speed	Speed (nautical miles per hour)	Decimal
Sat_number	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite quality	Integer
HDOP	Horizontal Dilution of Precision	Decimal

¹ Satellite Quality is an indication of satellite fix type i.e. 0 = fix not available, 1 = Non-differential GPS fix is available, 2 = Differential GPS (WAAS) fix available, 6 = Estimated (definitions taken from Garmin GPS specifications)

² HDOP is a measure of the relative GPS receiver/satellite geometry and corresponding accuracy (GPS industry standard). Lowest value (1) represents the highest precision, and values >20 are considered poor.

³ EPE is a measure of horizontal position error in meters (GPS industry standard).

Field Name	Description	Field Type/Size
EPE	Estimated Position Error (metres)	Decimal

Table 3: Trap RFID Chip Data.

- ▶▶ **File Naming Conventions:** [licence area]_RFID_[month: 2 digits]_[year: 4 digits] (e.g., B_RFID_01_2022.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date and time of RFID chip scan	YYYY-MM-DDTHH:MM:SS (e.g. 2022-03-31T23:59:59) (corrected for UTC offset)
Chip_num	Unique RFID chip identification number	Text
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal
Speed	Speed (nautical miles per hour)	Decimal
Soak	Number of days since last scan of this RFID chip	Integer
Sat_num	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite quality	Integer
HDOP	Horizontal Dilution of Precision	Decimal
EPE	Estimated Position Error (metres)	Decimal

2. DAILY TRAP SCAN LOCATION REPORTS

The vessel owner/licence holder shall ensure the service provider prepares daily trap scan location reports from the electronic data as described below. These reports are not required for Area A where fishing activity is monitored through a hail program.

Table 4: Summary of Trap Scans (RFID chip scans) by Sub Area and Date.

- ▶▶ **Format:** Microsoft Excel (*.xlsx OR *.xls)
- ▶▶ **Medium:** DFO FTP site or service provider website
- ▶▶ **Timeliness:**
 - Trap scan location reports shall be provided or updated within 24 hours of receiving data indicating RFID chip scans.
 - Table must be updated on a daily basis to include all trap haul location reports for the year to date.
- ▶▶ **File Naming Conventions:** Activity_[year: 4 digits] (e.g., Activity_2022.xlsx)

- ▶▶ **Special Requirements:** For each vessel and fishing date, at least one record is required; a separate record is required for each Sub Area⁴ fished on a given fishing date.

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Year	Year of RFID chip scans	Integer (4 digits)
Month	Month of RFID chip scans	Integer (2 digits)
Day	Day of RFID chip scans	Integer (2 digits)
PFMA	Pacific Fishery Management Area ⁴ in which trap scans recorded on given date	Integer (e.g. 24)
Sub Area	Pacific Fishery Management Sub Area ⁴ in which trap scans recorded on given date	Integer (e.g. 9)
Chip_Scans	Number of RFID chips scanned in given Sub Area on given fishing date	Integer

3. DAILY EQUIPMENT STATUS REPORTS

The vessel owner / licence holder shall ensure the service provider reports all malfunctions or suspected malfunctions of EM equipment (e.g. GPS, scanner, hydraulics, data storage or transmission hardware, etc.), any repair or servicing of equipment, and any information relevant to equipment status (e.g. vessel is not fishing). EM system failures must be repaired as soon as possible after the date of detection. Data requirements are described below.

Table 5: Equipment Status

- ▶▶ **Format:** Microsoft Excel (*.xlsx OR *.xls)
- ▶▶ **Medium:** DFO FTP site or Service Provider website
- ▶▶ **Timeliness:**
 - Must be reported within 24 hours of the service provider becoming aware of any malfunction or required repair / servicing. Update record within seven days of occurrence to report Fishing Comments (see Special Requirements).
 - If, after initial report, the EM system is serviced, or the service provider acquires new information on the status of the malfunction, the record must be updated with details (or a new record added) within 24 hours.
 - Table must be updated with new records as per the above timelines, to include all equipment reports for the year to date.
- ▶▶ **Special Requirements:** If a malfunction has occurred, comment is required as to whether fishing continued while the EM system was not functioning properly (see Fishing Comments field).
- ▶▶ **File Naming Conventions:** Equipment_[year: 4 digits] (e.g., Equipment_2022.xls)

⁴ Areas and Sub Areas are described in the Pacific Fishery Management Area Regulations

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Incident_ID	Unique identification number for this record	Integer
Date_of_Detection	Date on which the service provider became aware of the issue or required repair / servicing	Short Date (month/day/year, e.g. 12/31/16)
Mode_of_Detection	How the service provider became aware of the malfunction (i.e. reported by fisher, detected from data analysis)	Text
Date_of_Malfunction	Date on which the malfunction occurred If date is not known, enter 'unknown'	Short Date (month/day/year, e.g. 12/31/16) Or text: 'unknown'
Type_of_Malfunction	Select type from MALFUNCTION TYPE* table	Text
Date_of_Service	Date of repair or service	Short Date (month/day/year, e.g. 12/31/16)
Technician_Name	Name of person completing repair or service	Text
Description	Description of equipment issue or required service, and details of any repair or service completed.	Memo
Fishing_Comments	Confirmation of whether the vessel continued to fish (set or haul gear) without a fully functioning EM system (e.g., yes, no, unknown, or any relevant comment)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

MALFUNCTION TYPES*
Hardware
Software
Hardware & Software
Sensor(s)
Camera
RFID Scanner
Other

4. OCCURRENCE REPORTS

From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares reports of occurrences (potential violations) as described below. All occurrences (including eight types defined below) must be reported in a summary table (Table 6), and detailed reports are required for each type of occurrence, as described under Table 7 through Table 14.

- ▶▶ **Format:** Microsoft Excel (*.xlsx OR *.xls). Table 7 through Table 14 are to be included as separate worksheets in an Excel workbook; worksheet names for each table are provided below.. Each sheet is to include all occurrences reported for the year to date.
- ▶▶ **Medium:** DFO FTP site or Service Provider website
- ▶▶ **File Naming Conventions:** [Licence Area]_Occurrences_2022.xls
- ▶▶ **Special Requirements:** DFO will provide direction to Service Providers on additional analysis that may be required for occurrence reporting and enforcement purposes.

Table 6: Occurrence Summary Data

- ▶▶ **Description:** This table provides a summary of occurrences by vessel and month, including all occurrences reported in Table 7 through Table 14.
- ▶▶ **Timeliness:** Table must be updated whenever a new occurrence is reported; to include all occurrences reported to date (see timeliness requirements for each type of occurrence).
- ▶▶ **Worksheet name:** Occurrence_Summary

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
occurrence_Type	Type of occurrence reported. Use the name of the worksheet specified for each of the following occurrence tables	Text
Number_occurrences	Number of occurrences of this type of occurrence in the current month (number of records in specific occurrence table)	Integer

Table 7: Closed Area Occurrences

- ▶▶ **Description:** Occurrences are defined as any fishing inside a closed area boundary while the closure is in effect. Occurrences are to be reported by individual dates. Where fishing occurs inside an area that is closed seasonally, only those occurrences during the closed period are to be reported.

- ▶▶ **Timeliness:**
- For Areas A and B, report within 31 days of retrieving data indicating an occurrence, including comments/ verification of the occurrence.
 - For all other Licence Areas, report within 24 hours of the service provider receiving data indicating an occurrence. Update record to provide verification/ comment within seven days of occurrence.
- ▶▶ **Worksheet name:** Closed_Areas

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Occurrence ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Day	Day of occurrence	Integer (2 digits)
Closure Name	Closed area name	Text
Traps_less_50m	Number of RFID chips scanned less than 50 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Traps_50_100m	Number of RFID chips scanned from 50 to 100 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Traps_100m_plus	Number of RFID chips scanned) more than 100 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Tracks_less_50m	Number of vessel positions less than 50 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer
Tracks_50_100m	Number of vessel positions from 50 to 100 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer
Tracks_100m_plus	Number of vessel positions more than 100 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer

Field Name	Description	Field Type/Size
Comments	Comments/ verification of occurrence, including a description of where the fishing occurred (how far inside the closure boundary, and a geographical description with place names if possible)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

Table 8: Data Delivery Occurrences

- ▶▶ **Description:** Occurrences are defined as:
 - For Area A, raw data not provided to DFO within 31 days of data retrieval.
 - For all Licence Areas except Area A, raw data not delivered to service provider within 14 days since last data delivery.
- ▶▶ **Timeliness:**
 - Report in
 - Table 8 within 24 hours of occurrence.
 - Update record to provide investigation/ comment within seven days of occurrence. Comments must be updated when the reason for the problem is discovered, and when action is taken.
 - When data received, update record with data receipt date and time, and total lag time (data fields: Next_Date, Next_Time, Delivery_Lag_Time).
- ▶▶ **Special Requirements:** If an equipment problem is indicated, it must also be reported in Table 5.
- ▶▶ **Worksheet name:** Data_Delivery

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Last_Date	Date of last data delivery	Short Date (month/day/year, e.g. 12/31/22)
Last_Time	Time of last data delivery	hh:mm:ss (e.g. 23:59:59)

Field Name	Description	Field Type/Size
Next_Date	Date of next data delivery (to be entered when data received)	Short Date (month/day/year, e.g. 12/31/22)
Next_Time	Time of next data delivery (to be entered when data received)	hh:mm:ss (e.g. 23:59:59)
Delivery_Lag_Time	Number of days between subsequent data receipt events (to be entered when data received).	Decimal (2 decimal places)
Comments	Comments must include an explanation or possible reason for the data delivery occurrence, and the action taken to retrieve data.	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

Table 9: Time Gaps

- ▶▶ **Description:** Occurrences are defined as any gap in vessel position data that is:
 - greater than one hour while in port; or
 - greater than 10 minutes while at sea.
- ▶▶ **Timeliness:**
 - For vessels in Area A, report occurrences within 31 days of retrieving data indicating a time gap, including investigation/ comments.
 - For all other Licence Areas, report within seven days of the service provider receiving data indicating a time gap, and update record to provide investigation/ comments within 15 days of receiving data for the end of the fishing month for that vessel.
- ▶▶ **Special Requirements:**
 - If an equipment problem is indicated, it must also be reported in Table 5.
 - If more than one type of gap (harbour or outside) occurs on a given day, two separate records are required.
 - False reports due to missing data that has since been delivered must be excluded.
- ▶▶ **Worksheet name:** Time_Gaps

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of time gap	Integer (4 digits)

Field Name	Description	Field Type/Size
Month	Month of time gap	Integer (2 digits)
Day	Day of time-gap end (this may be later than the day of time-gap start, depending on the length of the gap)	Integer
Num_gaps	Number of time gaps ending on the given day	Integer
Max_previous_time	For the longest time gap ending on the given day: Date and time of last vessel position recorded before the interruption	YYYY-MM-DDTHH:MM:SS (e.g. 2022-03-31T23:59:59) (corrected for UTC offset)
Max_time_gap	Length (hours) of the longest time gap ending on the given day	Decimal (1 decimal place)
Min_time_gap	Length (hours) of the shortest time gap ending on the given day	Decimal (1 decimal place)
Avg_time_gap	Average length of the time gaps ending on the given day	Decimal (1 decimal place)
Total_time_gaps	Total length of all time gaps ending on the given day	Decimal (1 decimal place)
Event_type	Location of vessel when the gap commenced (“harbour” or “outside”)	Text
Comments	Comments must include an explanation or possible reason for the time gap, and the action taken to retrieve data. If an equipment problem is indicated, it must also be reported in Table 5.	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

Table 10: Weekly Trap Haul Occurrences

- ▶▶ **Description:** Occurrences are defined as any number of traps hauled more than the maximum number of times allowed in a calendar week⁵, when weekly trap haul restrictions are in effect in Licence Areas E, G, and H. Please see the IFMP for details of trap haul restrictions and their timing.
- ▶▶ **Timeliness:** Must be reported within 24 hours of the service provider receiving data from the given vessel indicating an occurrence (end of calendar week). Update record to provide verification/ comment within seven days of occurrence.
- ▶▶ **Worksheet name:** Weekly_Hauls

⁵ A calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday.

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Haul_Area_Code*	Portions of licence area E with specific trap haul restrictions. Required only for occurrences in Area E	Text
Stat_Week	Calendar week of the year (DFO to provide definitions of numbered weeks)	Integer, 2 digits
Traps_Hauled_2 times	Number of unique RFID chips scanned twice during the week, in the licence area or special area where the restriction applies	Integer
Traps_Hauled_3_ times_plus	Number of unique RFID chips scanned three or more times during the week, in the licence area or special area where the restriction applies	Integer
Comments	Comments/ verification of occurrence based on manual data review.	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

* Codes defined as follows:

Haul Area Code	Description
COMMON_PLUS	PFMA 21, 22, 25, 26, 121, 123-1, 125, 126 (Common Areas, i.e. areas common to all sub-area licence Options); Sub Areas 20-1 to 20-5 (portion of the Sooke Option); and Sub Areas 27-1 to 27-6 and Area 127 (portion of the Quatsino Option).
SOOKE_20_1_2	Sub Areas 20-1 and 20-2 (portion of the Sooke Option).
SOOKE_20_3_5	Sub Areas 20-3 to 20-5 (portion of the Sooke Option).
SOOKE_20_6_7	Sub Areas 20-6 and 20-7 (portion of the Sooke Option).
TOFINO_23_24	Areas 23, 24, 123-2 to 123-9, and 124 (portion of the Tofino Option)

Table 11: Soak Limit Occurrences

- ▶▶ **Description:** Occurrences are defined as any number of traps soaked longer than 18 days, as indicated by the number of days between subsequent scans of RFID chips. Given that time between subsequent trap scans may exceed 18 days without a true soak time violation, “false” reports must be excluded for the following cases:
 - where these traps have been moved (last scanned in a different location, i.e. more than one kilometre away or in a different PFM Sub Area).
 - where the RFID chips have not previously been used, or have not been used for more than six months.
 - where the traps represent individual missed trap scans on a string of gear (i.e. the RFID chip that is “over soak” is within 100 metres of other RFID chips that were scanned more recently by the same vessel).

- ▶▶ **Timeliness:**
 - For vessels in Areas A and B, report occurrences within 31 days of retrieving data indicating an occurrence, including comments / verification of the occurrence.
 - For all other Licence Areas, report occurrences for each vessel within seven days of receiving data for the end of the fishing month for that vessel. Update record to provide verification/ comment within seven days of occurrence.

- ▶▶ **Special Requirements:**
 - If soak time occurrences are detected in multiple Sub Areas for a given vessel and date, they must be reported as separate records of soak time occurrences by date and Sub Area.
 - Any apparent soak time occurrences that are due to an EM equipment issue or malfunction (i.e. not recording or storing data while the vessel was hauling traps, or scanner malfunction) must also be reported in Table 5.
 - False reports due to missing data that has since been delivered must be excluded or corrected.

- ▶▶ **Worksheet name:** Soak_Limit

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Day	Day of occurrence	Integer (2 digits)
PFMA	Pacific Fishery Management Area in which the Occurrence was detected.	Integer
Sub Area	Pacific Fishery Management Sub Area in which the occurrence was detected.	Integer
Soak_19_29_days	Number of trap hauls (RFID chip scans) on this date, that show between 19 and 29 days since last scan, excluding “false” reports of soak occurrences*	Integer
Soak_30_days_plus	Number of trap hauls (RFID chip scans) on this date, that show 30 or more days since last scan, excluding “false” reports of soak occurrences*	Integer
Comments	Comments/ verification of occurrence based on manual data review, including a description of the incident (numbers of traps, locations, dates, and soak times)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

* “false” reports to be excluded are defined above (see Description)

Table 12: Trap Limit Occurrences

- **Description:** Occurrences are defined as:
- Number of traps fished (unique RFID chips scanned) in the month is in excess of the trap limit per vessel for the licence area, or for areas within Licence Areas A, B, and E where specific trap limits apply. Please see the IFMP for details on area-specific trap limits and their timing.
 - For areas where specific trap limits are in effect only during specific months, occurrence reports must include only those incidents where vessels exceed the area-specific trap limits during the months when the limits are in effect.

- ▶▶ **Timeliness:**
- For vessels in Areas A and B, report occurrences within 31 days of retrieving data for the end of the fishing month for that vessel, including comments / verification of the occurrence.
 - For all other Licence Areas, report occurrences for each vessel within seven days of receiving data for the end of the fishing month for that vessel, and update record to provide verification/ comments within 15 days of receiving data for the end of the fishing month for that vessel.
 - The numbers of traps reported on the initial trap limit occurrence report must be updated within 15 days of receiving data for the end of the fishing month for each vessel, so that the numbers of traps fished in the month are accurately reported for these occurrences.

▶▶ **Worksheet name:** Trap_Limit

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Trap_Area_Code*	Areas within Licence Areas A, B, and E where trap limits differ from licence area trap limits	Text
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Day	Day of occurrence	Integer (2 digits)
Traps_total	Number of actively fished traps (unique RFID chips scanned) in the current month. This number should equal the sum of the number of traps reported in the categories below.	Integer
Traps_main	Number of unique RFID chips scanned in the current month that are categorized as “main” in this vessel’s RFID chip inventory	Integer
Traps_spare	Number of unique RFID chips scanned in the current month that are categorized as “spare” in this vessel’s RFID chip inventory	Integer
Traps_over_limit	Number of unique RFID chips scanned in the current month that are categorized as “over-limit” in this vessel’s RFID chip inventory.	Integer

Field Name	Description	Field Type/Size
Traps_lost	Number of unique RFID chips scanned in the current month that have not been scanned in over a month	Integer
Comments	Comments/ verification of occurrence based on manual data review	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

* Codes for these specific areas are defined as follows:

Trap Area Code	Description
A_MCINTYRE	McIntyre Bay (see IFMP for timing of trap limit)
B_NASS	Nass Estuary (during seasonal opening)
E_SOOKE_20_6	Sub Area 20-6
E_SOOKE_20_7	Sub Area 20-7
E_TOFINO	Area 24 inclusive
E_TOFINO_OUTSIDE	See description in Section 2.7.2 (Area B to J Trap Allocations) of Appendix 3: Commercial Harvest Plan
E_QUATSINO	Sub Areas 27-7 to 27-11
None	Areas that do not have a trap code (whole licence area)

Table 13: Non-Inventory traps

- ▶▶ **Description:** Occurrences are defined as any RFID chips scanned that are registered to another vessel's RFID inventory.
- ▶▶ **Timeliness:**
 - For vessels in Areas A and B, report occurrences within 31 days of recording data indicating an occurrence, including comments/ investigation of the occurrence.
 - For all other Licence Areas, report occurrences for each vessel within 24 hours of receiving data indicating an occurrence, and update record to provide verification/ comments within 15 days of receiving data for the end of the fishing month for that vessel.
- ▶▶ **Worksheet name:** Non_Inventory_Traps

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer

Field Name	Description	Field Type/Size
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Day	Day of occurrence	Integer (2 digits)
Registered_VRN	VRN of vessel to which the scanned RFID chips were registered.	Integer
Registered_Vessel	Name of vessel to which the scanned RFID chips were registered.	Integer
Comments	Comments/ verification of occurrence, based on manual data review	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

Table 14: Fishing without scanning RFID chips on traps

- ▶▶ **Description:** Full reporting of fishing without scanning RFID chips is required, based on analysis of RFID chip and hydraulic / vessel position data for each vessel. All incidents of apparent fishing activity without associated chip scans must be reported.
- ▶▶ **Timeliness:**
 - For vessels in Areas A and B, report occurrences within 31 days of recording data indicating an occurrence, including description / verification of the occurrence in the “Description” field.
 - For all other Licence Areas, report occurrences for each vessel within seven days of receiving data indicating an occurrence, and update record to provide verification/ comments within 15 days of receiving data for the end of the fishing month for that vessel.
- ▶▶ **Special Requirements:**
 - Occurrences must be listed and detailed by date and PFM Sub Area. If a vessel fails to scan RFID chips in multiple PFM Sub Areas on a given day, these incidents must be reported as separate records by PFM Sub Area.
 - If a scanner problem is indicated, it must also be reported as an equipment malfunction in Table 5.
 - Descriptions are required for significant occurrences, including any detail on attempts to contact the harvester to resolve the problem, and communications with the harvester.
 - False reports due to missing data that has since been delivered must be excluded.
- ▶▶ **Worksheet name:** Non_Scanning

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer

Field Name	Description	Field Type/Size
Vessel_Name	Vessel Name	Text
Occurrence_ID	Unique identification number for this incident (must be unique among all occurrence types)	Integer
Year	Year of occurrence	Integer (4 digits)
Month	Month of occurrence	Integer (2 digits)
Day	Day of occurrence	Integer (2 digits)
PFMA	Pacific Fishery Management Area in which the occurrence was detected.	Integer
Sub Area	Pacific Fishery Management Sub Area in which the occurrence was detected.	Integer
Description	Description of the extent of the occurrence (apparent # strings or traps fished and not scanned), and details of fishing locations. Communications with the harvester (attempted or successful) must be documented here.	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/22)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/22)

5. MONTHLY EM DATA SUMMARY REPORTS

From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares monthly reports as described below.

- ▶▶ **Format:**
 - Microsoft Excel (*.xlsx OR *.xls).
 - Table 15 through Table 18: Summary of monthly trap haul frequency

- ▶▶ **Medium:** DFO FTP site or Service Provider website

- ▶▶ **Timeliness:**
 - For vessels in Area A, monthly summary tables to be delivered within 31 days of the end of the month in which fishing occurred.
 - For all other Licence Areas, monthly summary tables to be delivered within 15 days of the end of the month in which fishing occurred.
 - Records for previous months must be updated if and when data for those months are received late, to provide up-to-date summary statistics for each month of the year to date.

- ▶▶ **File Naming Conventions:** EM_Summary_2022.xls

Table 15: Summary of electronic monitoring status.

- ▶▶ **Special Requirements:** All licensed vessels must be listed in this table for each month of the year.
- ▶▶ **Worksheet Name:** EM_Status

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel	Vessel name	Text
Active_Hours	Total number of hours the electronic monitoring system was required to be collecting information per month (based on the number of hours in the month)	Integer
Working_Hours	Total number of hours the electronic monitoring system was collecting information per month.	Integer
Time_Gaps	Total time gaps: number of hours the electronic monitoring system was not collecting information per month	Integer
Active_Tracks	Number of vessel positions recorded while in “active” mode (travelling)	Integer
Sleep_Tracks	Number of vessel positions recorded while in “sleep” mode (at port)	Integer
Average_Active_Track_Time	Average time between recorded positions while in “active” mode (minutes)	Integer
Average_Sleep_Track_Time	Average time between recorded positions while in “sleep” mode (minutes)	Integer
Track_Days	Total number of days on which vessel position data were collected	Integer
Hyd_Days	Total number of days on which hydraulic data were collected	Integer
RFID_Days	Total number of days on which RFID chip scan data were collected	Integer
Last_Data_Date	Last day of the month on which track data were present. If blank, no data were submitted	Integer

Table 16: Summary of total numbers of trap RFID chips scanned

- ▶▶ **Worksheet Name:** Traps_Fished

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Trap_Limit	total trap allocation	Integer
Unique_Traps_Month	Number of actively fished traps (unique RFID chips scanned) in the current month	Integer
Unique_Traps_Year	Cumulative number of traps fished (unique RFID chips scanned) in the current year to date	Integer
Traps_main	Number of unique RFID chips scanned in the current month classified in the vessel's current inventory as "main"	Integer
Traps_spare	Number of unique RFID chips scanned in the current month classified in the vessel's current inventory as "spare"	Integer
Traps_over_limit	Number of unique RFID chips scanned in the current month classified in the vessel's current inventory as "over-limit"	Integer
Traps_lost	Number of unique RFID chips scanned in the current month that have not been scanned in over a month	Integer
Traps_non_inventory	Number of unique RFID chips scanned in the current month that are registered to another vessel	Integer

Table 17: Summary of trap hauls and soak time

» **Worksheet Name:** Soak_Time

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Haul Count	Total number of trap hauls (RFID chip scans) in the fishing month	Integer

Field Name	Description	Field Type/Size
Soak_18_days_less	Number of trap hauls (RFID chip scans) showing 18 days or less since last scan, in the fishing month	Integer
Soak_19_22_days	Number of trap hauls (RFID chip scans) showing between 19 and 22 days since last scan, in the fishing month, excluding “false” reports of soak occurrences*	Integer
Soak_23_29_days	Number of trap hauls (RFID chip scans) showing between 23 and 29 days since last scan, in the fishing month, excluding “false” reports of soak occurrences*	Integer
Soak_30_days_plus	Number of trap hauls (RFID chip scans) showing 30 or more days since last scan, in the fishing month, excluding “false” reports of soak occurrences*	Integer
Number_hauls_excluded	Number of trap hauls showing more than 18 since last scan, in the fishing month, that were excluded (not reported in the last two categories)*	Integer

* “false” reports to be excluded are defined under Table 11: Soak Limit Occurrences (see Description).

Table 18: Summary of monthly trap haul frequency

▶▶ **Worksheet Name:** Haul_Frequency

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel	Vessel name	Text
Unique Traps Month	Number of actively fished traps (unique RFID chips scanned) in the current month	Integer
5_times_less	Number of traps hauled (scanned) 5 times or less during the month	Integer
6_15_times	Number of traps hauled more than 5 times and up to 15 times during the month	Integer
16_30_times	Number of traps hauled more than 15 times and up to 30 times during the month	Integer
31_times_plus	Number of traps hauled 31 times or more during the month	Integer

6. EM HARD DRIVE TRACKING (AREAS A AND B)

From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares reports as described below.

- ▶▶ **Format:**
 - Microsoft Excel (*.xlsx OR *.xls).
 - Table 19 and 20 are to be included as separate worksheets in an Excel workbook, with worksheet names provided below for each table. Each table shall include a record for each vessel in each licence area, for each month of the year to date.
- ▶▶ **Medium:** DFO FTP site or Service Provider website
- ▶▶ **Timeliness:**
 - Data shall be made available to DFO on a daily basis.
- ▶▶ **File Naming Convention:** EM_Hard Drive Tracking_2022.xls

Table 19: Summary of hard drive installation, removal and replacement on vessels

- ▶▶ **Worksheet Name:** Hard_Drive_Tracking

Field Name	Description	Field Type/Size
Hard_Drive_Action	Indicate whether hard-drive was installed, replaced or removed using Hard Drive Action* from table below	Text
Hard-drive_Unique_Identifier	Unique identification number of hard-drive	Integer
Date_of_Action	Date of hard drive installation, removal or replacement on vessel	Short Date (month/day/year, e.g. 12/31/22)

HARD DRIVE ACTION*
Install
Replace
Remove

Table 20: Manual Analysis (Areas A and B)

- ▶▶ **Description:** In cases where a vessel’s hydraulic sensor or RFID scanner was not working, resulting in inability to identify potential violations via an automated process, “Manual” analysis of the EM and video data is required to identify violations. A minimum of 10% of the video data must be reviewed. If non-compliance is apparent, additional video must be reviewed as necessary to document the problem.

▶▶ **Special Requirements:** EM review must be completed within 30 days of the end of the fishing month, including EM reviews that are greater than 10% video footage reviews. In addition, all equipment problems must be reported in Table 5.

▶▶ **Worksheet Name:** Manual_Analysis

Field Name	Description	Field Type/Size
Hard-drive_Unique_Identifier	Unique identification number of hard-drive	Integer
EM_Hard-drive_Start_Date	Date of hard-drive installation	Short Date (month/day/year, e.g. 12/31/22)
EM_Hard-drive_End_Date	Date of hard-drive removal	Short Date (month/day/year, e.g. 12/31/22)
10%_Manual_Review	Rationale for 10% manual analysis	Text
Date_of_10%_Manual_Review	Date of 10% manual analysis	Short Date (month/day/year, e.g. 12/31/22)
Greater_Than_10%_Manual_Review	Rationale for greater than 10% manual analysis	Text
Date_of_Greater_Than_10%_Manual_Review	Date of greater than 10% manual analysis	Short Date (month/day/year, e.g. 12/31/22)
Comments	Comments must include details of why EM review occurred as well as equipment malfunction information or occurrence information as appropriate	Memo

7. COMPLIANCE REVIEW LETTERS

Vessel Compliance Review Letters must summarize individual vessel compliance for each month the vessel is active. These reports must document all non-compliance occurrences that have been verified via review of EM and video data. From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares reports which are sent to both the vessel owner/licence holder and DFO Crab Lead Manager for each month as described below.

- ▶▶ **Format:**
 - Microsoft Word (*.docx or *.doc) or Adobe (*.pdf).
- ▶▶ **Medium:** Emailed to DFO Crab Lead Manager and licence holders, and any other requested DFO staff.
- ▶▶ **Timeliness:**
 - Vessel Compliance Review Letters will be generated within 15 days of EM hard drive review for Area A, and within 30 days of the end of the month for Areas B - J.
- ▶▶ **File Naming Convention: (vessel name) (period of review).xls**
- ▶▶ **Content – Area A**
 - Name and email of the licence holder(s) to whom the Compliance Review Letter is being sent.
 - Name of vessel master.
 - Port of offload.
 - Unique Reference number for the compliance letter.
 - Hails:
 - Letters will use TRIP STATUS terminology from Annex 6 and indicate how many hails were missed during the review period. For example: “Vessel X had 10 trips during this review period, and missed 1 hail during this time”.
 - Compliance review periods will always begin with a ‘START’ TRIP STATUS.
 - Trap hauling and scanning: (scan attempted – RFID not read, failure to scan, gear tangle, hauling strays, hauling other vessels gear and retaining catch, total number of gear hauls, and retaining prohibited species).
 - Traps fished over allocated trap threshold (including traps scanned and traps not scanned as identified above).
 - Oversoaked traps .
 - Fishing in Closures.
 - Time gaps at the dock. Must include data type (vessel position) and both start location and end location in latitude & longitude for each time gap.
 - Time gaps while fishing. Must include data type (vessel position, hydraulic, RFID chip, or video) and both start location and end location in latitude & longitude for each time gap.
 - Prohibited species (species retained, number retained, GPS location, date and time).
 - Any other infractions observed.
- ▶▶ **Content – Areas B, E, G, H, I, and J:**

- Name and of the licence holder(s) to whom the Compliance Review Letter is being sent.
- Name of vessel master.
- Main Port of offload.
- Unique Reference number for the compliance letter.
- Fishing in Closures- provide verification including number of traps scanned, hauling traps without scanning (for Area B include the number of traps hauled based on video data review) and geographical description of where the fishing occurred inside the closure).
- Total number of unique traps scanned in the month.
- Failure to scan traps – description of fishing without scanning verified via EM data, (and video footage review for Area B). Details should include date, PFM Subarea, and a description of the approximate number of traps not scanned. For Area B, details based on video data review should include: number of strings reviewed, number of traps hauled and not scanned in each string, scan attempted – RFID not read, failure to scan, gear tangle, hauling other vessels gear and retaining catch). Communications with the harvester (or attempts to contact) to try to resolve the problem must be included in the description.
- Traps fished over allocated trap threshold (including traps scanned and traps not scanned as identified above for Area B) in the licence area as a whole, and in specific trap limit areas within the licence area (e.g. Nass, Sooke, Inside Tofino, Outside Tofino, Quatsino).
- Hauling other vessels gear - include non-inventory RFID-chips scanned, and the vessel to which the chips are registered (for Area B, include any retaining of catch from other vessels gear, based on video review).
- Oversoaked Traps (provide comment on the last fishing date, how long traps were soaked, verification of the occurrence based on manual review of EM and video data).
- Fishing in Closures (provide verification including number of traps scanned, number of traps hauled, and geographical description of where the fishing occurred inside the closure).
- Time gaps at the dock. Must include data type (vessel position) and both start location and end time and location in latitude & longitude for each time gap.
- Time gaps while fishing. Must include data type (vessel position, hydraulic, RFID chip, or video) , both start location and end time and location in latitude & longitude for each time gap, and explanation or comment on why the gap may have occurred, such as evidence of turning the EM system off.
- Data delivery occurrences: cases where vessel position, hydraulic, or RFID chip data were not delivered within 14 days, including explanation, follow up, and resolution.
- Prohibited species (species retained, number retained, GPS location, date and time).
- Any other infractions observed.



Project Name:	PacFISH Information Management Framework
Document Title:	DFO Data Transfer Specifications: At-sea Observers
Author:	
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	December 17, 2018

This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data. All data submitted becomes the exclusive property of Fisheries and Oceans Canada

- ▶▶ **Fishery(s):** Commercial Crab by Trap
- ▶▶ **Fishery Season:** 2022/23
- ▶▶ **Data Collection Program Name:** At-Sea Observers
- ▶▶ **Associated Fishery Data Manager:** Resource Management – Invertebrates, Pacific Region

Data Transfer Requirements

On each fishing day, information shall be recorded in the following two tables.

- ▶▶ **Format:** Microsoft Excel (*.xls or *.xlsx)
- ▶▶ **Medium:** DFO ftp site or Email to Local Area Crab Manager
- ▶▶ **Timeliness:** The observer shall prepare information reports within seven days of fishing activity. Data recorded for the week should be appended into each table (i.e. one of each of Table 1 and Table 2 is submitted for the week)

Table 1: Daily Fishing Trip Information

► **File Naming Conventions:** [VRN]_Trip_[Date of weekly data delivery] (e.g. 311288_Trip_06_30_2022)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text, 1 char, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Name of Vessel	Text
Vessel_Mast_Name	Name of Vessel Master	Text
Observer_Name	Name of Onboard Observer	Text
Conf_Log	Confirmation of a valid logbook on board	Memo
Conf_Log_current	Confirmation that logbooks are up to date	Memo
Conf_fish_activ	Confirmation that the vessel fishing activity location report is up to date (Licence Area A only)	Memo
Fish_activ_verf_num	Fishing activity location report verification number (Licence Area A only)	Integer
Crabs_retained	An estimate of the total number of crabs retained on board the vessel from all the traps hauled on this date	Integer
Crabs_released	An estimate of the total number of crabs released by the vessel from the traps hauled on this date	Integer
Octopus_num	Total number of Octopus caught in all the traps hauled on this date	Integer
Num_traps	Total number of traps hauled on this date	Integer

Table 2: Trap Information

► **File Naming Conventions:** [VRN]_Trap_[Date of data delivery] (e.g. 311288_Trap_06_30_2022)

Field Name	Description	Field Type/Size
VRN	Vessel Registration Number	Integer
Date	Date of fishing	Short Date (month/day/year)
Latitude	Latitude (decimal degrees) of trap (where traps are on a string, record this field only for the first and last trap on the string)	Decimal (e.g. 54.1923416)

Field Name	Description	Field Type/Size
Longitude	Longitude (decimal degrees) of trap (where traps are on a string, record this field only for the first and last trap on the string)	Decimal, negative (e.g. -130.338375)
Conf_tag	Confirmation of plastic tag on trap	Memo
Tag_num	Plastic tag number	Integer
Conf_buoy	Confirmation that buoys labeled with VRN and proper colours (where traps are on a string, record this field only for the first and last trap on the string)	Memo



Project Name:	PacFISH Information Management Framework
Document Title:	DFO Data Transfer Specifications: Plastic Trap Tags
File Number:	
Author:	Sylvia Humble
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This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data. All data submitted becomes the exclusive property of Fisheries and Oceans Canada.

- ▶▶ **Fishery(s):** Commercial Crab by Trap
- ▶▶ **Fishery Season:** 2022/23
- ▶▶ **Data Collection Program Name:** Plastic Trap Tags
- ▶▶ **Associated Fishery Data Manager:** Resource Management – Invertebrates, South Coast Area

Plastic Trap Tag Issuance

All aspects of plastic trap tag procurement, distribution, administration, and data entry are the responsibility of the vessel owner/licence holder to arrange with the service provider. The service provider will issue plastic trap tags to licence holders at least two weeks in advance of the beginning of the 2022/23 fishing season for each licence area, where contracts are in place with licence holders. See Commercial Harvest Plan for procedures for issuing spare plastic tags (when a number of traps up to 10% of the vessel trap limit are lost, or 20% in Areas I and J) and replacement plastic tags (when a number of traps over 10% of the trap limit are lost).

Data Transfer Requirements

The service provider shall notify the DFO Licence Area crab manager via email when replacement plastic tags are requested by a licence holder. In addition, the following data shall be reported.

- ▶▶ **Format:** data will be entered directly into a DFO website application. Please note that DFO may be updating the Department’s Fisheries Operating System data delivery system during the 2022/23 licence year. In the event of changes, a new data delivery mechanism may be required.
- ▶▶ **Medium:** Direct data entry into the approved Departmental Database.
- ▶▶ **Timeliness:** within 24 hours of issuing the crab trap tags
- ▶▶ **Data Ownership:** All data submitted becomes the exclusive property of Fisheries and Oceans Canada.

Data Transfer Format

Please note that all trap tag data are to be entered into the web-based Fishery Operation System. The Departmental database specifications and screen shot below will provide an overview of the data to be entered. For fields that are not applicable, a null (blank) value is to be entered.

The following table describes the fields to be entered on the FOS web application:

Field Name	Description	Mandatory?	Form Type
Item Type	Item Type is always "Trap Tag" (select this option from form)	Y	Drop down
Licence	Licence tab number (select from licence search form)	Y	Licence search
Item Number	Numbers printed on the series of plastic tags issued (e.g. 001-300)	Y	Textbox
Quantity Issued	Number of tags issued on this date	Y	Textbox
Primary Tag Colour ¹	Colour of primary tags (enter if issuing primary tags at this time)	N	Drop down
Extra Tag Colour ²	Colour of extra tags (enter if issuing extra tags at this time)	N	Drop down
Effective Date	Date on which the tags will be valid (e.g. the latter of Jan. 1 or issue date)	Y	Date picker
Invalid Date	Date on which the tags will become invalid (e.g. Dec. 31)	Y	Date picker
Issuer's Name	Issuer's Name	Y	Textbox

Field Name	Description	Mandatory?	Form Type
Comments	Any relevant information (e.g. number of primary vs. extra tags, Item Numbers specific to each)	N	Textbox

¹ Primary Tag Colour Options

ORANGE
WHITE
YELLOW
PINK
RED
GREY
GREEN
BLUE-DARK
BEIGE
BLUE-LIGHT
BLACK
PURPLE
GOLD
BROWN
FL.PINK
BURGUNDY

² Extra Tag Colour Options

ORANGE
WHITE
YELLOW
PINK
RED
GREY
GREEN
BLUE-DARK
BEIGE
BLUE-LIGHT
BLACK
PURPLE
GOLD
BROWN
FL.PINK
BURGUNDY



Project Name:	PacFish Information Management Framework
Document Title:	Crab Harvest Log Program (Paper) Data Specifications
File Number:	
Author:	Leslie Barton, Sandra Bassett
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	October 31, 2017 revised

This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data, including Service Providers hired by harvesters or harvester associations to support compliance with Conditions of Licence.

Tombstone

- ▶▶ **Fishery(s):** Commercial Crab
- ▶▶ **Fishery Season:** 2022/23
- ▶▶ **Data Collection Program Name:** Shellfish Crab Harvest Log Program (paper-based)
- ▶▶ **Associated Fishery Data Service:** Shellfish Data Unit

Document Change History

<i>Author</i>	<i>Date</i>	<i>Description of Change</i>
Lorne Collicutt	Sept 7, 2011	First draft of template
Leslie Barton	October 20, 2011	Addition of specifics for crab harvest log program
Leslie Barton	Jan 5, 2012	Review and inclusion of Service Provider accumulated instructions
Leslie Barton	Feb 3, 2012	Incorporated G. Jorgensen edits
Sandra Bassett	Jan 14, 2015	Addition of trap information, data collected on harvest logs commencing 2015
Sandra Bassett	October 15, 2015	Incorporated edits to harvest logs and data specification

Data Transfer Requirements

- ▶▶ **Format:** MS Access 2010 (or earlier version) database file following the prescribed data transfer format (below) + hardcopy (paper) from which electronic data were transcribed.
 - A separate file must be created for each calendar year.
 - Hardcopy (paper) must be sorted by Vessel Registration Number (VRN) (ascending), with multiple pages for a single vessel paper clipped together. For any given vessel with multiple pages for the batch, the pages should be sorted in chronological order.
 - Hardcopy (paper) must be separated by calendar year.
 - Hardcopy (paper) must be accompanied by a batch summary report, consisting of the batch number/id, a listing of the VRN's contained in the batch, sorted in ascending order, with a count of records associated with each VRN. The total number of records associated with the batch must also be provided.
- ▶▶ **Conduit:** Data transfer to DFO to be effected via the DFO Contractor Data Exchange FTP site or other FTP service approved by the Shellfish Data Unit. Service Provider is to notify Shellfish Data Unit via email each time a file is posted to an FTP site.
- ▶▶ **Medium:** In the absence of data transfer via FTP, contact the Shellfish Data Unit to determine an acceptable physical medium for data transfer.
- ▶▶ **Hardcopy delivery:** All deliveries of hardcopy and physical media must be via courier service, in-person or by a Shellfish Data Unit approved alternative. The mailing address is:
 - Fisheries and Oceans Canada
 - Shellfish Data Unit
 - Pacific Biological Station
 - 3190 Hammond Bay Road
 - Nanaimo, BC, V9T 6N7
- ▶▶ **Timeliness:** Within three weeks of the date of receipt of hardcopy by the Service Provider.
- ▶▶ **Data Ownership:** All data submitted becomes the exclusive property of Fisheries and Oceans Canada.
- ▶▶ **File Naming Conventions:** Files should be named such that the Service Provider, Fishery, Origin (paper-based [P]) Unique Batch number and year (YYYY) are all present in the file name (e.g. ABCCo_Crab_P_B389_2017).
- ▶▶ **Special Requirements:**
 - The electronic version must be a true and accurate transcription of the hardcopy data. Each record will represent, gear within a Pacific Fisheries Management Sub-Area, where all traps have the same soak time and depth.
 - The database file submitted must consist of only one table named '**new_logs**', with the fields and field characteristics as shown in the 'DATA TRANSFER FORMAT' section in this document. Regardless of the table design and relationships defined by the external group or Service Provider system for

proprietary purposes, data transferred to DFO must be extracted in a manner which conforms to the design described in the 'DATA TRANSFER FORMAT' section.

- To support consistency in interpretation of harvest log content, Shellfish Data Unit will review harvest logs received from harvesters in advance of the harvest logs being sent to the Service Provider for electronic data capture. Any modifications to the content of harvest log undertaken by the Shellfish Data Unit will be indicated using red pen.

Data Transfer Format

More extensive descriptions of data fields marked with an asterisk are available following the table.

Note: When data is missing on the harvest logs, key the value from the column ‘Value if N/A or Unknown’

Field Name	Description	Mandatory	Field Type/Size	Value if N/A or Unknown	Validation Rules
CFV	Vessel Registration Number (VRN) of Vessel	Yes	Long Integer		
FIN	Vessel Master Fisher Identification Number (FIN)		Long Integer	Null	
YEAR	Year of fishing event	Yes	Integer		
PAGE_NUM	Page Number	Yes	Long Integer		
FISHING_METHOD	*Fishing Method	Yes	Text – 1 character	U	
BAIT_METHOD	*Bait Attachment: Jars, Clips or Cages	Yes	Text – 1 character	U	
BAIT_CODE	*Bait code for type of bait used	Yes	Text – 3 characters	UNK	
DEPTH_UNIT	*Depth Unit	Yes	Text – 1 character	U	
WEIGHT_UNIT	*Weight Unit	Yes	Text – 1 character	U	
NUM_TRAP1	Number of traps - Trap type 1		Integer	Null	
FRAME1	*Frame – Trap Type 1		Text – 2 characters	Null	
DIAMETER1	Diameter in inches - Trap type 1		Byte	Null	
HEIGHT1	Height in inches – Trap type 1		Byte	Null	
MESH1	*Mesh – Trap type1		Text – 2 characters	Null	

RING_SIZE1	Escape Ring size in mm - Trap type 1		Integer	Null	
Field Name	Description	Mandatory	Field Type/Size	Value if N/A or Unknown	Validation Rules
NUM_TRAP2	Number of traps - Trap type 2		Integer	Null	
FRAME2	*Frame – Trap type 2		Text – 2 characters	Null	
DIAMETER2	Diameter in inches - Trap type 2		Byte	Null	
HEIGHT2	Height in inches – Trap type 2		Byte	Null	
MESH2	*Mesh – Trap type2		Text – 2 characters	Null	
RING_SIZE2	Escape Ring size in mm - Trap type 2		Integer	Null	
NUM_TRAP3	Number of traps – Trap type 3		Integer	Null	
FRAME3	*Frame – Trap type 3		Text – 2 characters	Null	
DIAMETER3	Diameter in inches – Trap type 3		Byte	Null	
HEIGHT3	Height in inches – Trap type 3		Byte	Null	
MESH3	*Mesh – Trap type 3		Text – 2 characters	Null	
RING_SIZE3	Escape Ring size in mm - Trap type 3		Integer	Null	
LINE_NUM	Line Number	Yes	Integer or byte		
MONTH	Month of fishing event	Yes	Integer or byte	0	1-12
DAY	Day of fishing event	Yes	Integer or byte	0	Valid calendar day (1-31)
SOAK_DAYS	* Soak Time in Days		Integer or byte	0	

SOAK_HOURS	* Soak Time in Hours		Integer	0	
Field Name	Description	Mandatory	Field Type/Size	Value if N/A or Unknown	Validation Rules
LAT_DEG	*Degrees of Latitude		Integer or byte	Null	
LAT_MIN	*Minutes of Latitude		Single (floating point)	Null	
LONG_DEG	*Degrees of Longitude		Integer or byte	Null	
LONG_MIN	*Minutes of Longitude		Single (floating point)	Null	
STAT_AREA	*Statistical Area		Integer or byte	0	Valid PFM Area from PacFish Data Standard list
SUB_AREA	*Statistical Sub-area		Integer or byte	0	Valid PFM Sub-area from PacFish Data Standard list
MIN_DEPTH	Minimum Depth reported		Integer	0	
MAX_DEPTH	Maximum Depth reported		Integer	0	
SPECIES_CODE	* Species Code	Yes	Text – 3 characters		Valid PacCode from PacFish Data Standard list
CATCH_NUMBER	Number of crabs landed		Integer	0	
WEIGHT	Total landings		Integer	0	
NUM_TRAPS	Number of traps pulled		Integer	0	
OCT_NUM_REL	Number of Octopus Released		Integer	Null	
OCT_WGT_REL	*Weight of Octopus Released		Single Float	Null	
OCT_NUM_KPT	Number of Octopus Kept		Integer	Null	

OCT_WGT_KPT	*Weight of Octopus Kept		Single Float	Null	
PBS_CODE	*Usability /Remarks		Integer or byte	0	
REC_STATUS	*Status of Record	Yes	Integer or byte		0,1,2

Fishing Method

Use the following codes to report what the traps are attached to.
Enter 'G' for Ground Lines, 'S' for Singles (individually buoyed), 'B' for Both, 'U' if Unknown.

Bait Fastener

Use the following codes to report how bait is held: 'J' for Jars or Containers, 'K' for Cages, 'C' for Clips or Hooks, 'V' for various (more than one selected), 'B' for Bags, 'O' for other (none of the above), or 'U' for unknown.

Bait Type

Use the following codes for the type of bait most commonly used:

QID ----- Squid	TIN ----- Tinned Fish	SAL ----- Salmon (all species + heads + frames)
GEO ----- Geoducks	ZOR ----- Razor Clams	FRA ----- Fish Frames (not Salmon)
HER ----- Herring	CLA ----- Clams	AST ----- Fish Paste
OCT ----- Octopus	DOG ----- Dogfish	EUL ----- All Smelt species
ROC ----- Whole Rockfish	XXX ----- Experimental	MIX ----- Mixed Fish Species (and offal and scraps)
KKK ----- Hake	UNK ----- Unknown	
PEL ----- Pellets	YYY ----- Other	

A mixture of two baits listed above can be coded as first code letter (**W**)ith first code letter. For example, squid and razor clams would be coded as **QWZ**. A mix of herring and squid would be coded as **HWQ**. For a mixture of greater than 2 types of bait, use the most dominant/common type (if possible) with mixed fish species (and offal and scraps) e.g. **HWM**, (see exception codes below).

Bait Type – additional codes

These codes are for rarely encountered bait types and should **not be used in mixture situations** as described in the previous paragraph.

PIL ----- Pilchards **TBT** ----- Turbot **KOD** ----- Codfish **TUN** ----- Tuna

In the event that these items are indicated as mixed with another bait type, code as 'bait type from common list above' (W)ith 'Y' (other), e.g. Clam with codfish = **CWY**

Bait Type – exception codes

Codes for 3 way mixtures include:

HCQ ----- Herring with clam and squid **HDB** ----- Herring with dogfish and gurdy

Depth Unit

Enter '**M**' for depths in Meters, or '**F**' for Fathoms, '**U**' if Unknown.

Weight Unit

Enter '**P**' for weights reported in Pounds, '**K**' for weights reported in Kilograms, '**M**' for weights reported in Mixed units e.g. crab in Kilograms and octopus in Pounds or vice versa (this is mainly to be consistent with the prawn fishery and may not get used), '**U**' if Unknown.

Frame Type

Use the following codes for the type of Frame most commonly used:

'**SS**' = **Stainless**, '**MS**' = **Rubber Wrapped Iron**, '**RS**' = **Rubber Wrapped Iron with Stainless top**, '**OT**' = **Other**, '**UN**' = **Unknown**

Mesh Type

Use the following codes for the type of Mesh most commonly used:

'**SS**' = **Stainless**, '**NW**' = **Synthetic**, '**BO**' = **Both**, '**UN**' = **Unknown**

Soak Time (Days or Hours)

Fish harvesters have an option to report Soak Times in one of two ways, either as days for soaks of 1 or more days, or hours for soaks of less than a day. Use only one and enter 0 in the other. Sometimes fish harvesters will report something like 1 day, 4 hours, which can be recorded as 28 hours. Sometimes fish harvesters will report 1 day 24 hours, which is interpreted to mean the fish harvester has reported the same time in both places, and is recorded as 1 day, 0 hours.

Latitude/Longitude Position Fields

The latitude and longitude data are to be entered as degrees and decimal minutes. For instance, for latitude of 49 degrees, 10 minutes, 15 seconds, you would enter 49 in the LAT_DEG field and 10.25 in the LAT_MIN field (15 divided by 60 gives 0.25 minutes). Values for longitude are entered as positive values.

Statistical Area / Sub-Area

This is the Pacific Fisheries Management Area (PFMA) and Sub-Area as specified in the *Fisheries Act*, Pacific Fishery Management Area Regulations, 2007.

Species Codes

Use the following Hart codes for crab species type being reported.

<u>Species</u>	<u>Species Code</u>	<u>Species</u>	<u>Species Code</u>	<u>Species</u>	<u>Species Code</u>
Dungeness	XKG	Brown (Golden) King	VMC	King (Unidentified)	VIA
Red Rock	XLA	Red King	VNH		

Weight of Octopus Released

The total or combined weight of all octopus released in a string or group of traps.

Weight of Octopus Kept

The total or combined weight of all octopus retained in a string or group of traps.

PBS Code

Use default value of 0 or use code 99 to indicate that the data entry person has a problem (interpretation or other) with the record. Data entry person is to use pencil to write ‘99’ in the PBS Code column of the paper log and include a sticky note affixed to the log page with a brief description of the issue. The sticky note must project up from the page such that it is easily seen. Example problems: ‘handwriting hard to interpret’, ‘damage to page’, etc.

Occasionally Shellfish Data Unit staff will enter a numeric code in the PBS Code column of the harvest log (identified by red pen). These codes are to be transcribed to the electronic version of the data.

Status of Record

Use the following codes for the status of each record.

Status	Code
Record Newly Submitted to Shellfish Data Unit	0
Record has been Previously Submitted and is Unchanged	1
Record has been Edited and Re-submitted to Shellfish Data Unit	2

**British Columbia Commercial Crab Fishery
Biological Sampling Program**

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1. Introduction

The objective of a biological sampling program in the commercial Dungeness Crab (*Metacarcinus magister*) trap fishery is to collect biological data on target and non-target catch. The commercial fishery is managed with a minimum size limit (165 mm carapace width point-to-point), non-retention of females and soft shell crabs, and in certain areas there are seasonal closures to protect moulting male crabs. The fishery targets large male Dungeness crabs. Non-target catch or bycatch include discarded Dungeness crabs such as sublegal males, females, and soft crabs, and species other than Dungeness crabs.

For management purposes, the British Columbian (BC) coast is divided into seven crab management areas (CMAs) (Fig. 1).

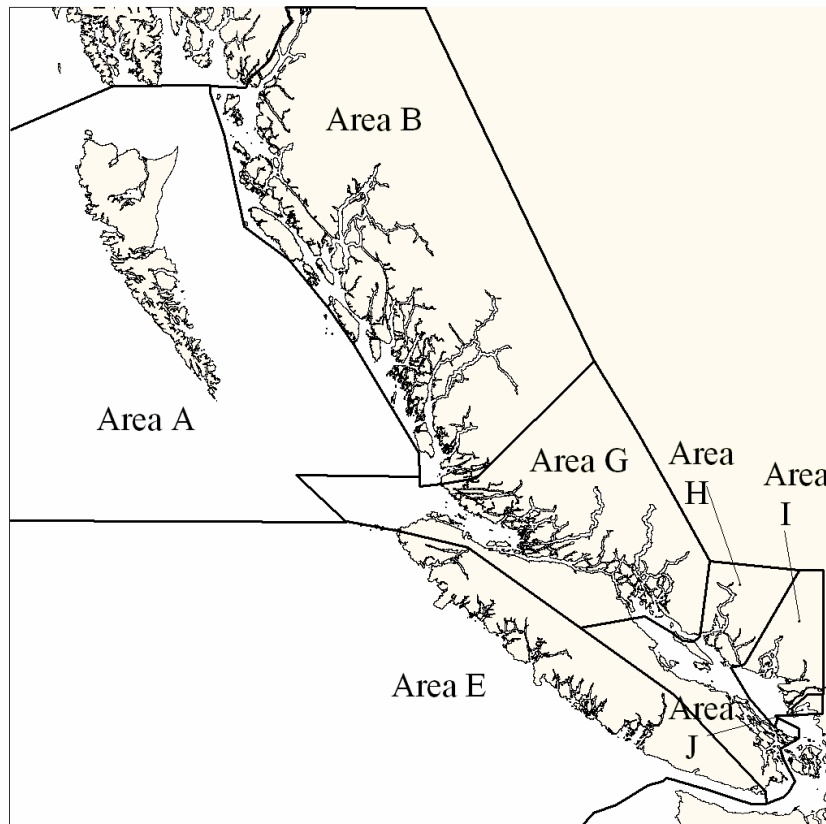


Figure 1. Crab Management Areas (CMAs) in British Columbia.

A particular commercial vessel must choose and fish in only one CMA for a three year period. Not all management measures are consistent between CMAs.

Management concerns in crab fisheries include: unbalanced allocation between sectors, excessive handling mortality, over-exploitation, and unknown moult timing in certain

areas. Ecosystem-based management policies falling under the Sustainable Fisheries Framework, including the Precautionary Approach, Managing Bycatch, Sensitive Benthic Areas and Forage Species policies, will guide management direction in the future and the types of biological information required. The crab biological sampling program will continue to evolve as Science, Fisheries Management, First Nations and Stakeholders work together to ensure BC's crab resources remain healthy and the fisheries sustainable and economically prosperous.

There are two important documents that compliment this one. The crab survey manual by Dunham et al. (2011) provides much detail about the collection of crab biological information and it should be used in conjunction with this document. The Crab By Trap Integrated Fisheries Management Plan (IFMP) provides additional detail regarding management of various crab fisheries (Fisheries and Oceans Canada 2022). Please contact the appropriate Area Manager to obtain copies.

2. Crab Biological Sampling Program

The crab biological sampling program has two components:

- 1) commercial catch sampling,
- 2) fishery independent (standardized) sampling.

Please note sampling programs vary depending on the CMA. The department's (DFO) goal is to move toward a consistent coast-wide biological sampling program.

Catch sampling on commercial vessels is done by trained, certified observers during the commercial fishing season throughout the CMA to gather catch information on target and bycatch species and to monitor gear compliance. Commercial catch sampling should be spread equitably throughout the duration of the fishing season.

Fishery independent sampling using standardized trap gear tracks changes in crab abundance, especially females and sublegal males, over time at particular locations scattered throughout the coast. Standardized trap gear means the fishing gear is similar in terms of trap type, bait type, and soak time. Fishing standardized gear allows trap catches to be compared between different locations and time periods. Standardized sampling is done by service providers, DFO, First Nations, and other groups.

There is interest by certain groups, primarily First Nations, to conduct their own crab stock assessment surveys in local areas. In anticipation of this, DFO Marine Ecosystems and Aquaculture Division (MEAD) has produced a crab survey protocols manual that will help to standardize crab surveys done by various parties (see Dunham et al. 2011).

2.1 Area A

2.1.1 *Commercial catch sampling*

Four sampling events on four different vessels are required during the fishing season. A sampling event should occur once every two months beginning within one month of the fishery opening in the summer and another event in February/March or upon consultation with the Department. A certified observer will live aboard a commercial vessel for a fishing trip (3-6 days in duration) and collect crab biological data from approximately every sixth trap that is hauled.

2.1.2 *Fishery independent standardized sampling*

At present, fishery independent standardized sampling is not required in Area A.

2.2 Areas B to J

2.2.1 *Commercial catch sampling*

Sampling occurs throughout each management area and is to be carried out according to the following requirements:

1. Sample size:
 - Minimum 200 crabs collected per month.
 - Minimum 50 crabs or 10 traps sampled per vessel during a sampling event.
 - Each trap sampled must be sampled in its entirety.

2. Sampling frequency:
 - >6 month fishing season: number samples = 2 × number vessels.
 - ≤6 month fishing season: number samples = 1 × number vessels.
 - Every vessel must be visited at least once during the fishing season by the service provider (twice in areas where the fishing season is more than 6 months).
 - Vessel sampling should be spread as equitably as possible throughout all months of the fishing season (Table 1).

The above requirements are to be met within the service provider’s control. If the requirements cannot be met, justification must be provided at the time of data delivery.

Table 1. Number of vessels to be sampled each month during the fishing season to collect crab biological data, assuming that all vessels licensed for an area are active.

Date	Area B	Area E	Area G	Area H	Area I	Area J
January		7	3	9		
February		7	3	9		
March		7	3	9		
April	5	7	3	9		
May	5	7	3	9		
June	5	8	4	10	4	
July	5	8	4	10	4	5
August	5	7	3	9	4	5
September	5	7	3	9	4	5
October	5	7	3	9	3	5
November	4	7	3	9	3	4
December	3	7	3	9		
Total	42	86	38	110	22	24

Please refer to Table 2 for area specific commercial vessel crab biological sampling requirements.

Table 2. Fishery independent and commercial vessel crab biological sampling program requirements, assuming that all vessels licensed for an area are active.

Area	Sampling Type	Index Site	Fishing Season (months)	No. Boats	Visits Per Boat	Sampling Events Per Year
B	Indep	Skeena River (4-12, 15)				5
	Comm		9	21	2	42
E	Indep	Tofino (24-6, 8, 9)				6
	Comm		12	43	2	86
G	Indep	Village Is (12-6, 26)				6
	Comm		12	19	2	38
H	Indep	Sidney (19-5, 6)				6
	Comm		12	55	2	110
I	Indep	Fraser River (28, 29)				DFO ^a
	Comm		5.5	22	1	22
J	Indep	Boundary Bay (29-8)				DFO ^a
	Comm		4.5	24	1	24

^aDFO has been conducting research surveys on the Fraser River delta for approximately 20 years. Trap surveys are done twice a year, pre- and post commercial fishery. In the event DFO cannot continue to conduct such surveys, the service provider will be requested to collect fishery independent data in the future.

2.2.2 Fishery independent standardized sampling

Sampling is to occur at index sites (one site per crab management area). The service provider must respect any commercial crab fishing closures currently existing in index site subareas as outlined in the 2022/23 Crab by Trap IFMP. Sampling is to be carried out in accordance with the following requirements:

1. Sample size
 - Minimum 200 crabs per sampling event.
 - Each trap sampled must be sampled in its entirety.

2. Sampling Frequency:

- Minimum one sampling event for every two month block during the fishing season (Jan/Feb, Mar/Apr, May/June, July/Aug, Sept/Oct, Nov/Dec); 6 sampling events per year. Ideally sampling should occur in the middle of each two month block and be consistently spaced throughout the year.
- Sampling occurs ≥ 4 weeks apart at each site.

3. Standardized Fishing

- Standardized fishing gear and practices are to be employed in accordance with the details outlined in Dunham et al. (2011).
- Standardized fishing gear is briefly defined as:
 - i. commercial style circular stainless traps 90 centimetres (36 inches) diameter by 26 centimetres (10 inches) high with two opposing tunnels, each with a single set of triggers. The frames are steel, rubber wrapped on the bottom ring, and covered by stainless steel mesh with approximately 6 centimetre (2½ inch) squares or diamonds.
 - ii. existing escape ports are closed with rot cord.
 - iii. two large herring torn in half are placed in a 500 millilitre bait jar with small (one millimetre in diameter) holes in the lid and sides. The bait jar is suspended not touching the ground in the center of the trap.
 - iv. traps are soaked overnight between 16 and 28 hours, as close to 24 hours as possible.

Please refer to Table 2 for area-specific fishery independent crab biological sampling requirements. Note there are only five fishery independent sampling events required in Area B because the commercial fishery is closed mid December thru March. No fishery-independent sampling is required in Areas I and J in 2022 because DFO conducts research surveys there.

The above requirements are to be met within the service provider's control. If the requirements cannot be met, justification must be provided at the time of data delivery.

3. Crab Biological Information

Biological sampling must be conducted by DFO employees or DFO certified at-sea observers who have participated in a training program for crab biological sampling. Observers must be designated under Section 39 of the *Fishery (General) Regulations*. Direction of observers on the grounds will be done by the service provider in conjunction with the local crab fishery manager and vessel masters (Fisheries and Oceans Canada 2021).

To ensure data quality, DFO Science suggests two people, one of whom is a certified observer, should work together to collect crab biological data. Typically one person (the observer) holds and measures the crabs; the other person records biological data either on waterproof data sheets or electronically.

Trap catches must be sampled separately and not combined with other trap catches to ensure catch per unit effort (CPUE) can be estimated. All species of crabs caught in each trap should be described with respect to species, sex, shell condition, injuries, mating marks, various other observations, and the maximum carapace width exclusive of spines (notch-to-notch) measured. Although the crab fisheries target Dungeness crabs, the information is applicable to all species of crabs with the exception of King crabs (Golden King, *Lithodes aequispinus*; Red King, *Paralithodes camtschaticus*; Puget Sound King, *Lopholithodes mandtii*) where length is substituted for the width measurement. Please refer to Dunham et al. (2011) for more details regarding the collection of crab biological information. Normally all crabs in all traps are measured during research sampling, or all crabs in selected traps when commercial sampling. The information for individual crabs is recorded by trap. Traps that are selected and empty should not be ignored; they should be recorded as empty traps.

Collecting crab biological data provides information about: sex composition, injury rates, size structure, discard ratios, Catch Per Unit Effort (CPUE), soft shell periods, mating periods, egg production, larval release times, and year-to-year variation and trends.

Bycatch is an important component of all fisheries and needs to be documented. Observers are responsible for identifying and recording all bycatch species caught in traps.

4. Recording Crab Survey Information

When recording crab biological data in the field, the following forms should be completed for every group/string of traps (singles or ground lines):

- a) Fishing Gear Header Form
- b) Crab Biological Data Form
- c) Bycatch Form.

The Fishing Gear Header Form provides general information about each string. This form is linked to the Crab Biological Data Form where individual trap and crab data are recorded. The Bycatch Form is where catch data of species other than crabs are recorded.

4.1 Fishing Gear Header Form

For each group of traps, information such as general location, date, GPS position, details about the fishing gear, depth, and soak time is collated on the Header Form and will be linked to all traps and crabs in the sample. Please refer to Appendix 9.1 for form fields and codes. The Fishing Gear Header Form is called “Headers” in Access.

4.2 Crab Biological Data Form

Individual trap catch information for a particular group of traps is recorded on the Crab Biological Data Form along with individual crab biological data. Relevant crab biological information includes species, sex, shell condition, injuries, mating marks, observations, and size. Please refer to Appendix 9.2 for form fields and codes. The Crab Biological Data Form is based on the underlying “LF” table in Access.

4.3 Bycatch Form

Bycatch is pooled for all traps sampled in a particular string and recorded on the Bycatch Form. Please refer to Appendix 9.3 for form fields and codes. The Bycatch Form is called “ByCatch” in Access.

5. Data Delivery

Complete data (header, biological, and by-catch forms) shall be made available to the Shellfish Data Unit in an acceptable electronic format (Microsoft Access 2010 or earlier) via the DFO Contractor Data Exchange FTP site within seven days following the end of the month when data were collected. Please note electronic data are the responsibility of the service provider and any data lost before they have been safely stored in the Shellfish Data Unit will have to be collected again by the service provider.

6. References

Dunham, J.S., Phillips, A., Morrison, J., and Jorgensen, G. 2011. A manual for Dungeness crab surveys in British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 2964: viii + 68 p.

Fisheries and Oceans Canada. 2022. Pacific Region Integrated Fisheries Management Plan. Crab by Trap. April 1 2022 to March 31, 2023.

7. Appendix 1: Fishing Gear Header Form (Headers in Access)

Vessel – name of the vessel being sampled.

VRN – Vessel Registration Number, aka CFV.

Vessel Master – name.

Observer name or identification – name and contact information.

Source – source of fishing, either commercial vessel or service provider. See listed codes.

Stat Area – Pacific Fishery Management Area (e.g. 17).

Subarea – Pacific Fishery Management Subarea (e.g. 13).

Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.

Set Number – unique identifier for each group of traps. Should start at 01 and be consecutive.

Set Year (e.g. 2022)

Set Month – month when the trap gear was set. Months are numbered 1 to 12 (e.g. 08 would be August).

Set Day – day when the trap gear was set. Days are numbered 1 to 31 (e.g. 22).

Set Time – time when traps entered the water. Use the 24-hour clock (e.g. 10:15).

Haul Year (e.g. 2022).

Haul Month – month when the trap gear was hauled (e.g. 08 would be August).

Haul Day – day when the trap gear was hauled (e.g. 23).

Haul Time – time when traps were hauled. Use the 24-hour clock (e.g. 09:25).

Start Latitude Degrees – GPS position at one end of the string. Record in degrees.

Start Latitude Minutes – GPS position at one end of the string. Record in minutes and thousandths of minutes (e.g. 12.579).

Start Longitude Degrees – GPS position at one end of the string. Record in degrees.

Start Longitude Minutes – GPS position at one end of the string. Record in minutes and thousandths of minutes (42.681).

End Latitude Degrees – GPS position at other end of the string. Record in degrees.

End Latitude Minutes – GPS position at other end of the string. Record in minutes and thousandths of minutes.

End Longitude Degrees – GPS position at other end of the string. Record in degrees.

End Longitude Minutes – GPS position at other end of the string. Record in minutes and thousandths of minutes.

Fix Type – How was position determined? See listed codes.

Min Depth – minimum depth gear fished in a set. Record in meters.

Max Depth – maximum depth gear fished in a set. Record in meters.

Soak Hours – time between the Set Time and Haul Time, rounded to the nearest hour (e.g. 21 hours).

Bait Code – type of bait used in traps. See listed codes.

Fishing Method – are trap gear set on ground lines or as singles? See listed codes.

Number Traps in String – total number of traps fished on the string being sampled (e.g. 15).

Trap Spacing – spacing between traps in meters.

Number Traps Sampled – number of traps sampled from the entire string (e.g. 5).

Gear Code – describes the type of traps being fished. On commercial vessels all samples should come from the same trap type. See listed codes.

Trap Height – height of trap measured in inches.

Trap Dimensions – diameter of trap measured in inches.

Mesh Type – distinguish between stainless and synthetic mesh traps. See listed codes.

Ring Number – number of escape rings on the trap (e.g. 2).

Ring Size 1 – diameter of one escape ring in millimetres.

Ring Size 2 – diameter of the second escape ring in millimetres.

Corresponding page number from Commercial Crab Harvest Log (integer)

Comments – record anything about the set that may influence how someone will interpret the data (e.g. lost 2 traps in the set or lots of juvenile flatfish in the traps, etc.).

Fishing Gear Header Form Codes

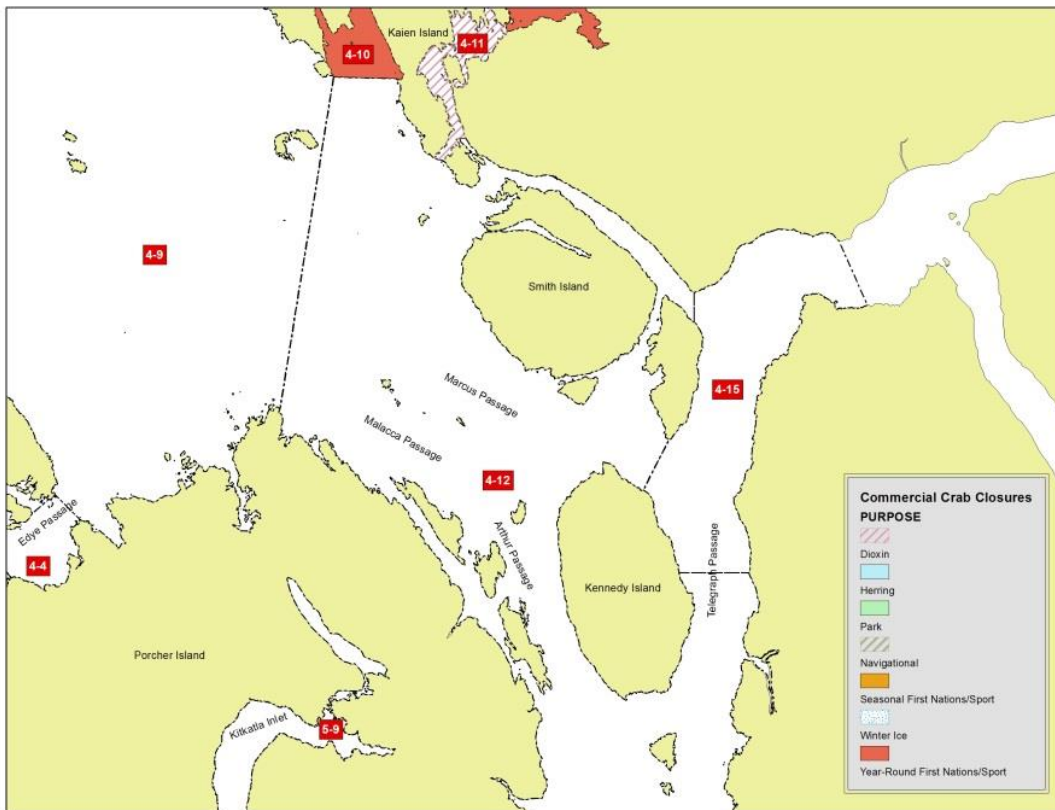
Source

Code	Description
IL	Independent index length
CL	Commercial index length

Index Sites

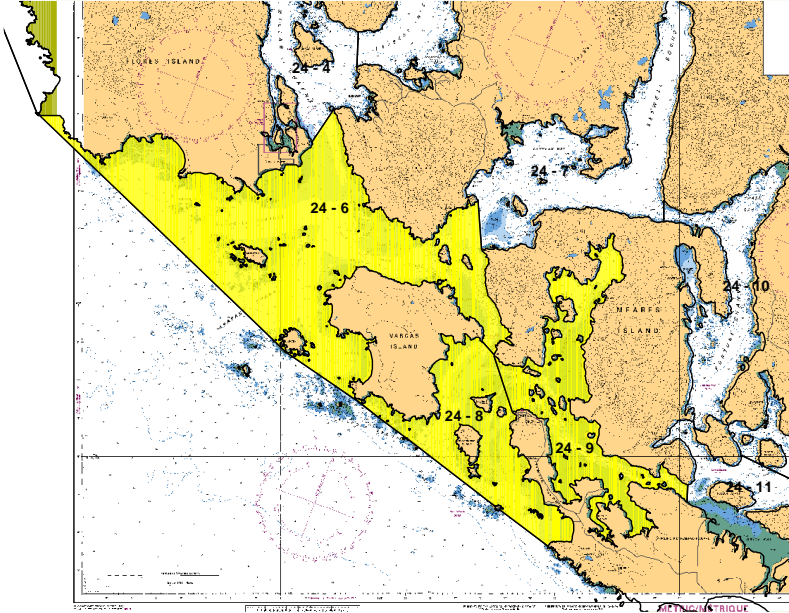
Area B

Skeena River mouth (northern portion of PFMA 4-12 around Smith Island and 4-12, -15 around Kennedy Island).



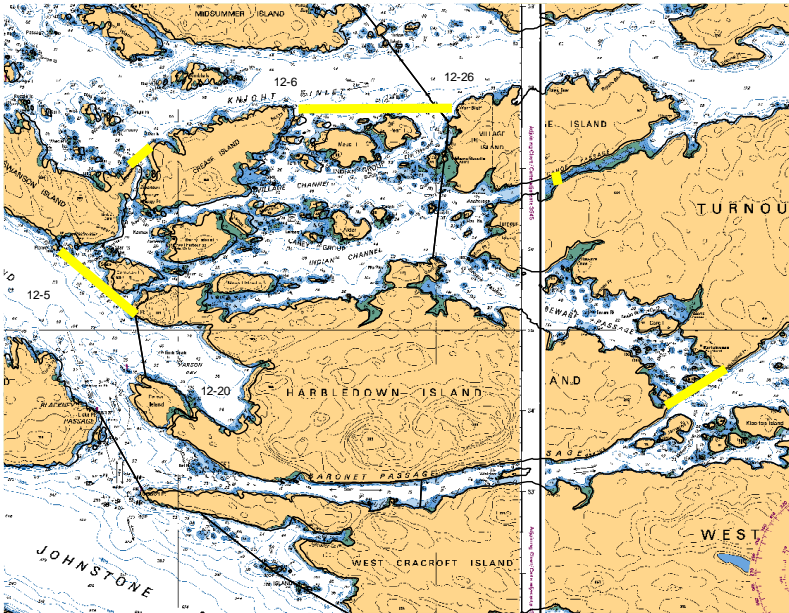
Area E

Tofino (PFMAs 24-6, -8, -9)



Area G

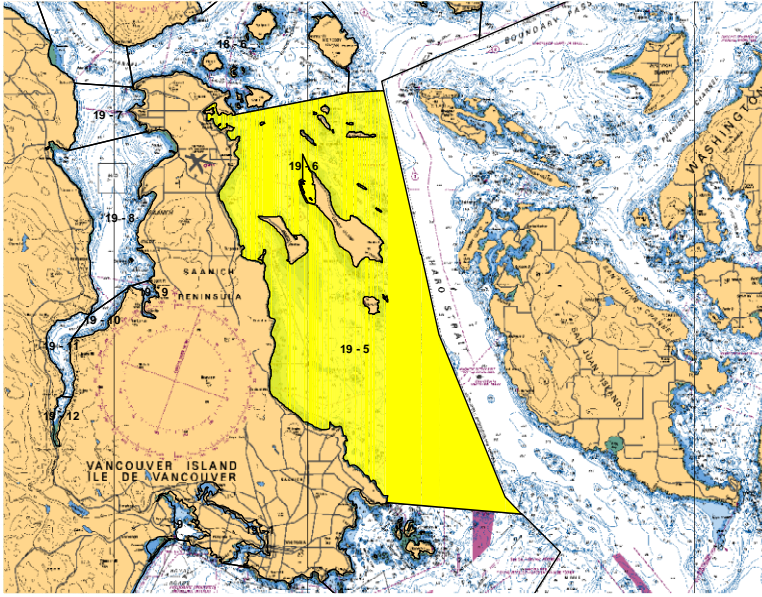
Village and Indian Channel, and Beware Passage (portions of PFMA 12-6, -26). Includes Indian and Carey Groups. Enclosed by the following islands: Village, Crease, Swanson, Compton, Harbledown, and Turnour.



Area H

Sidney (PFMAs 19-5, -6)

Please note sampling shall not occur around Sidney Spit (19-6) and a portion of Cordova Channel (19-5) which are closed to commercial fishing.



Fix

Code	Description
C	Chart
D	Differential GPS
G	GPS
L	Loran
W	WAAS

Bait

Code	Description
CLA	Clams
DOG	Dogfish
EUL	Eulachons (not smelt)
XXX	Experimental
FRA	Fish Frames (not salmon)
AST	Fish Paste
GEO	Geoducks
KKK	Hake
HER	Herring
MIX	Mixed Fish Species (and offal and scraps)
OCT	Octopus
YYY	Other
PEL	Pellets
ZOR	Razor Clams
SAL	Salmon (all species and heads and frames)
QID	Squid
TIN	Tinned Fish
UNK	Unknown
ROC	Whole Rockfish

A mixture of two baits listed above can be coded as first code letter (W)ith first code letter. For example, squid and herring would be coded as QWH. A mix of herring and hake would be coded as HWK. For a mixture with more than two types of bait, use the most dominant/common type (if possible) with “mixed fish species (and offal and scraps)” e.g. HWM (see exception codes below).

Additional codes for rarely encountered bait types include:

Code	Description
KOD	Codfish
PIL	Pilchards
TBT	Turbot

These codes should not be used in mixture situations as described in the previous paragraph. In the event these items are indicated as mixed with another bait type, code as “bait type from common list above” (W)ith “Y”(other), e.g. Clam with codfish = CWY.

Exception codes for three way mixtures include:

Code	Description
HCQ	Herring with clams and squid
HDB	Herring with dogfish and gurdy

Fishing Method

Code	Description
S	Single
G	Ground line

Gear Code

Code	Description
70	Commercial Crab Trap with regulation escape ports
71	Circular Crab Traps, 40" × 12" light rubber wrapped steel frame, synthetic mesh, open ports
71A	Circular Crab Traps, 40" × 12" steel rubber wrapped frame, stainless mesh, 2 soft mesh tunnels, no escape ports
72	42" diameter circular Crab Trap, ocean type, Hecate Strait heavy steel frame
73	Tanner Crab Trap, commercial, square pyramidal large top loading traps (with 120 mm escape ring), 2.75" mesh
73H	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted HIGH, 2.75" mesh
73L	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted LOW, 2.75" mesh
73M	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted MIDDLE, 2.75" mesh
74	Tanner Crab Trap, square pyramidal research trap, no escape ring, 2.75" mesh
75	Research Crab Trap, inlet type, 36" diameter, escape ports open, stainless (same as code 76 but with ports open)
76	Research Crab Trap, inlet type, 36" diameter, no escape ports, stainless, regular survey traps used by DFO
80	Crab Ring
82	Conical Nesting Snow Crab Trap, top loading, 48" × 18" with A1 mesh
82A	Conical Nesting Snow Crab trap, side loading, 48" × 18" with 2" synthetic mesh
83	Service Provider Dungeness Crab trap, 36" diameter × 10" high, stainless, no escape ports
99	Unknown or Other

Mesh Type

Code	Description
SS	Stainless
NW	Synthetic

8. Appendix 2: Crab Biological Data Form (LF in Access)

Vessel – name of the vessel being sampled.

VRN – Vessel Registration Number, aka CFV.

Haul Year (e.g. 2022)

Haul Month – month when trap gear was hauled (e.g. 08).

Haul Day – day when trap gear was hauled (e.g. 23). This field relates the Data Form to the Header Form.

Set Number – unique identifier for each group of traps. This field relates the Data Form to the Header Form. Should start at 01 and be consecutive.

Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.

Trap Number – consecutive, starting at 01.

Trap Usability – identifies circumstances that may influence trap catch. See listed codes. Normally the trap usability code = 0 (no problems with the trap).

Species – codes for various crab species captured in the trap. See listed codes (e.g. XKG for Dungeness Crab, or 848 for an empty trap).

Sex – male or female. See listed codes.

Shell Condition – an indicator of shell hardness and age. See listed codes.

Injury – codes for various injuries. See listed codes. Leave blank if no injuries are observed.

Claws Missing – number of missing claws. Note injuries that occur during sampling are not recorded. Can be 1 or 2. Leave blank if claws are intact.

Legs Missing – number of missing legs. Note injuries that occur during sampling are not recorded. Can be 1 to 8. Leave blank if legs are intact.

Marks – mating marks on the insides of the claws on older shell males. See listed codes. Leave blank if no mating marks are observed.

Observation – a list of a variety of observations. See listed codes. Leave blank if not applicable.

Notch Width – width of the crab measured in millimetres, notch-to-notch, excluding the spines (e.g. 158).

Notes

Durometer – a device designed to measure shell hardness (e.g. 70). Only required in the Area A sampling program.

Biological Data Form Codes

Trap Usability

Codes	Description
0	Trap is fishing normally, no problems. This is the default.
1	Hole in trap.
2	Trap malfunction (triggers open, trap upside down, lid sprung, etc.)
3	No bait.
4	Freshly dead fish in trap causes unusual attraction.
5	Trap contents stolen by someone else.
6	Cannibalism event. Crabs in trap have been dismembered and eaten by other crabs. Most common with soft shell crabs. Shell and body parts show claw marks, meat incompletely extracted. Marked difference from octopus predation.
7	Octopus predation. Remains of dismembered shells present, but some parts may be intact with all the meat gone. Octopus enzymes dissolve all the meat. Few to no live crabs in the trap.
8	Octopus in trap. Usually empty shells and a notable absence of live crabs.
11	Live fish in trap.
12	Starfish in trap. Sometimes starfish, especially sunflower stars, smother the bait and reduce attraction. Crabs may not enter or the starfish kills and eats them. Record this usability code only if there is a noticeable effect in trap catch.
15	Functional trap empty. Nothing wrong with the trap, but no crabs caught. Note when code 15 is used, 848 should be entered as the species code.

Species (crab)

Code	Common Name	Scientific Name
VMI	Brown Box	<i>Lopholithodes foraminatus</i>
XKG	Dungeness	<i>Metacarcinus magister</i>
VMC	Golden King	<i>Lithodes aequispinus</i>
XKE	Graceful	<i>Cancer gracilis</i>
ZCA	Graceful Decorator	<i>Oregonia gracilis</i>
XMB	Green	<i>Carcinus maenas</i>
XAF	Helmet (Horse)	<i>Telmessus cheiragonus</i>
VAC	Hermit sp.	Family Paguridae
ZGE	Longhorn Decorator	<i>Chorilia longipes</i>
ZDF	Northern Kelp	<i>Pugettia producta</i>
ZBA	Pacific Lyre	<i>Hyas lyratus</i>
VMJ	Puget Sound King	<i>Lopholithodes mandtii</i>
VNI	Red King	<i>Paralithodes camtschaticus</i>
XLA	Red Rock	<i>Cancer productus</i>
VIF	Scaled	<i>Placetron wossnessenskii</i>
ZGC	Sharp Nose	<i>Scyra acutifrons</i>
ZAF	Southern Tanner	<i>Chionoecetes bairdi</i>
VLC	Spiny Lithode	<i>Acantholithodes hispidus</i>
VSA	Squat Lobster	Family Galatheidae
848	Only used with Trap Usability = 15. Signifies no crabs caught.	

Sex

Code	Description
1	Male
3	Female
4	Female with eggs
5	Female spent (eggs hatching)

Shell Condition

Code	Description
1	New hard shell. No deflection on underside of carapace with heavy pressure from thumb. Very little claw wear and tips of claws are sharp and hooked. Few signs of wear or abrasions on carapace. May have barnacles, but these may be small.
2	New springy soft shell. Evident by slight shell deflection with heavy pressure on underside of carapace. Little epiphytic growth, fouling, or abrasion. Barnacles, if present, will be small. Underside of carapace still has dense orange or yellowish hair.
3	New crackly soft shell. Shell is easily deformed by finger pressure. Usually there is bright orange downy hair on underside of carapace.
4	New plastic soft shell. Shell is extremely soft. Crab has moulted within the past few days.
5	Moulting crab. The shell has split at the suture line at the back; however, the crab has not yet exited the old shell. Generally this stage lasts only one day. Shell conditions 4 and 5 indicate a moult is in progress and tend to be rare in data because crabs often avoid traps when moulting. The exception is in abandoned traps which act as a refuge for moulting crabs.
6	Old hard shell. Shows claw wear and often barnacle encrustation or other fouling growth. In exposed conditions the shell may appear clean and bright, but the claws will show signs of wear. Carapace spines will also be blunted as may be tips of walking legs.
7	Very old hard shell. Much claw wear, fouling growth. Males typically show old mating marks which have worn through claw; may have shell disease; tips of walking legs may be black or rotting off. Crab is lethargic and likely will not moult again or may soon die.
8	Between a new (code 1) and old (code 6) hard shell. Shell shows signs of wear, especially on teeth and tips of claws, but the crab is still relatively clean and vigorous. Typically the shell is hard, although prior to a moult the shell will soften slightly. Many crabs with this code indicate a moult is imminent.
9	Carapace in trap. Possible reasons include: a newly moulted crab was so soft it managed to squeeze out of the trap, a crab was cannibalized or devoured by an octopus, or a crab died and washed out of the trap as it was hauled to the surface.

Injuries

Code	Description
1	Deformed shell. Occurs at time of moult. Often misshapen shell or point rounded. Cannot obtain an accurate width measurement and should not be used for shell width analysis.
2	Hole or crack in shell.
3	Torn abdomen.
4	Regenerating claw(s).
5	Regenerating leg(s).
6	Regenerating both claw(s) and leg(s).
7	Multiple injuries. Record when more than one injury code is required.
8	Shell disease. Black spots on legs, claws, and underside of shell.
9	Dead. Crab died in the trap. Likely to occur with moulting, soft-shell, or very old shell crabs. May also be the result of octopus predation or amphipod kill. Even if sex is not apparent (due to missing body) measure the crab anyway. Ensure the shell is actually from a dead crab and not from a new moult. If this were the case, the gills and usually the lower portion of the shell will be attached and there will be a very soft crab of larger size in the sample.

Missing Claw(s) and/or Leg(s)

- Record the number of missing claws and/or legs. Only older injuries, those missing limbs where the stump end has a black sheath covering it, are recorded.

Mating Marks

Code	Description
1	Old (yellow)
2	New (white)

Observations

Code	Description
1	Moulting pair. When a moulted shell and the new crab are linked in the same trap. Data are recorded as if they are two separate crabs. The moulted shell is shell 9, the new crab is shell 4 and a 1 is entered for both crabs in the observation column.
2	Mating pair. Record in similar manner as for a moulting pair.
3	Limb bud. A fleshy miniature limb extruded sometime before a moult takes place. The bud indicates the crab is planning to moult as opposed to skip moulting. Record with the appropriate injury code.
4	Pink joints. Possible indication of microsporidia infection in the musculature.

9. Appendix 3: ByCatch Form (ByCatch in Access)

Vessel – name of the vessel being sampled.

VRN – Vessel Registration Number, aka CFV.

Haul Year (e.g. 2022)

Haul Month – month when trap gear was hauled (e.g. 08).

Haul Day – day when trap gear was hauled (e.g. 23).

Set Number – unique identifier for each group of traps. Should start at 01 and be consecutive. This field relates the By-Catch Form to Header and Data Forms.

Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.

Species – species captured other than crabs. See listed codes. Note this list is not exhaustive. Please contact the Data Unit for questions about bycatch codes.

Number Caught – total number of each species other than crabs collected from the set (all traps pooled).

Weight – collective weight in kilograms of each species other than crabs collected from the set (all traps pooled). Can be estimated if no scale is available.

Weight Estimated? – Is the weight estimated and not measured using a scale? Enter “Y” for yes and “N” for no.

ByCatch Form Codes

Cephalopods	Code	Common Name	Scientific Name
	98E	Pacific Giant Octopus	<i>Enteroctopus dofleini</i>
	98D	Octopus	Order Octopoda
	98G	Red Octopus	<i>Octopus rubescens</i>
	98F	Smooth Skin Octopus	<i>Benthoctopus leioderma</i>
	91G	Stubby Squid	<i>Rossia pacifica pacifica</i>
Echinoderms	Code	Common Name	Scientific Name
	4PD	Bat Star	<i>Asterina miniata</i>
	4RA	Blood Star	<i>Henricia leviuscula</i>
	5HA	Brittle Stars	Class Ophiuroidea
	4XF	Fish-Eating Star	<i>Stylasterias forreri</i>
	6BB	Green Urchin	<i>Strongylocentrotus droebachiensis</i>
	4OC	Leather Star	<i>Dermasterias imbricata</i>
	4GD	Rainbow Star	<i>Orthasterias koehleri</i>
	4HC	Mud Star	<i>Ctenodiscus crispatus</i>
	4ZC	Giant Pink	<i>Pisaster brevispinus</i>
	4ZA	Purple Star	<i>Pisaster ochraceus</i>
	4GD	Sand Star	<i>Luidia foliolata</i>
	6NA	Sea Cucumbers	Class Holothuroidea
	4AB	Sea Lilies	Class Crinoidea
	4GA	Sea Stars	Class Asteroidea
	4TA	Sun Star	Family Solasteridae
	4XE	Sunflower Star	<i>Pycnopodia helianthoides</i>
	4JD	Vermillion Star	<i>Mediaster aequalis</i>
Flatfish	Code	Common Name	Scientific Name
	596	Pacific Sanddab	<i>Citharichthys sordidus</i>
	625	Slender Sole	<i>Lyopsetta exilis</i>
Rockfish	Code	Common Name	Scientific Name
	407	Copper	<i>Sebastes caurinus</i>
	410	Darkblotched	<i>Sebastes crameri</i>
	414	Greenstriped	<i>Sebastes elongatus</i>
	424	Quillback	<i>Sebastes maliger</i>
	442	Yelloweye	<i>Sebastes ruberrimus</i>

Bycatch Form codes

Roundfish	Code	Common Name	Scientific Name
	455	Sablefish	<i>Anoplopoma fimbria</i>
	225	Pacific Hake	<i>Merluccius productus</i>
	467	Lingcod	<i>Ophiodon elongatus</i>
	319	Northern Ronquil	<i>Ronquilus jordani</i>
	222	Pacific Cod	<i>Gadus macrocephalus</i>
	228	Pollock Walleye	<i>Theragra chalcogramma</i>
	230	Red Brotula	<i>Brosmophycis marginata</i>
	461	Kelp Greenling	<i>Hexagrammos decagrammus</i>
	466	Whitespotted Greenling	<i>Hexagrammos stelleri</i>
Sculpins	Code	Common Name	Scientific Name
	519	Blackfin	<i>Malacocottus kincaidi</i>
	499	Buffalo	<i>Enophrys bison</i>
	508	Dusky	<i>Icelinus burchami</i>
	521	Great	<i>Myoxocephalus polyacanthocephalus</i>
	502	Red Irish Lord	<i>Hemilepidotus hemilepidotus</i>
	491	Roughback	<i>Chitonotus pugetensis</i>
	522	Sailfin	<i>Nautichthys oculofasciatus</i>
	472	Sculpins	Family Cottidae
	497	Spinyhead	<i>Dasycottus setiger</i>
	513	Spotfin	<i>Icelinus tenuis</i>
	518	Pacific Staghorn	<i>Leptocottus armatus</i>
	510	Threadfin	<i>Icelinus filamentosus</i>
Selachii	Code	Common Name	Scientific Name
	044	Spiny Dogfish	<i>Squalus acanthias</i>
	066	Spotted Ratfish	<i>Hydrolagus colliei</i>

10. Appendix 4: Data Entry Database Field Descriptions

Sampling data are to be supplied to DFO in an electronic format consisting of a Microsoft Access database file (Version 2010 or earlier) containing at least three tables with the following names (in bold): **Headers** (this is all data collected on the Fishing Gear Header Form; Appendix 1), **LF** (this is all data collected on the Crab Biological Data Form; Appendix 2) and **ByCatch** (this is all data collected on the ByCatch Form; Appendix 3).

Filenames should indicate, at least: sampling year, batch number or ID, and who the Service Provider is.

For compatibility purposes, all fields listed here must be included and named as indicated, whether they contain data or not. Other tables, such as look-up tables, may be included at the service provider's discretion. Additional fields may be added to the three main tables as well at the service provider's discretion.

Sample Tables/Database may be obtained from the Shellfish Data Unit at DFO.

Field Names and Data Typing for Table 'HEADERS' (see Appendix 1)

Item	Field Name	Type	Size
Artificial number, index key and link to Dependent tables LF and ByCatch	Key	LongInteger	4
Source of the data (code)	Source	Text	2
Set Number, or Sample Number	SetNum	Integer	2
Year when gear Hauled.	Year	Integer	2
Month when gear Hauled.	Month	Byte	1
Day when gear Hauled	Day	Byte	1
Trap soak time in hours.	Soak_hrs	Integer	2
Soak time days (where applicable).	Soak_days	Byte	1
Hours of soak, Same thing as "Soak_hrs", Included for historic compatibility.	HoursSoak	Integer	2
Minimum depth in meters.	MinDepth	Integer	2
Maximum depth in meters	MaxDepth	Integer	2
PFMA Statistical Area,	StatArea	Byte	1
PFMA Statistical Sub-Area.	SubArea	Byte	1
Sub-Sub-Area (Not Used, included for historic database compatibility only)	Locality	Byte	1
Chart Reference for where the Set was Located (for cross-reference purposes)	GeogLoc	Text	50
Integer Degree of Latitude at start of string.	StartLatDeg	Integer	2
Decimal Minutes of Latitude at start of String (recorded to 3 decimal places, e.g. 23.975)	StartLatMin	Single	4
Integer Degree of Longitude at start of string.	StartLongDeg	Integer	2
Decimal Minutes of Longitude at start of String (recorded to 3 decimal places e.g. 42.468)	StartLongMin	Single	4
Integer Degrees of Latitude, end of string.	EndLatDeg	Integer	2
Decimal Minutes of Latitude, end of string.	EndLatMin	Single	4
Integer Degrees of Longitude, end of string.	EndLongDeg	Integer	2
Decimal Minutes of Longitude, end of string.	EndLongMin	Single	4
How position was obtained. G = GPS, etc.	FixType	Text	1
Who took the sample and did the measuring.	SamplerCode	Byte	1
Who entered this set into the computer form or onto the hardcopy form.	CoderCode	Byte	1
Unused – for historic compatibility only.	VesselCode	Integer	2
VRN (CFV) of commercial boat sampled (or Vessel ID of service provider boat where doing Independent Lengths)	CFV	Long Integer	4
3 character code for type of bait used.	BaitCode	Text	3

Item	Field Name	Type	Size
Distance in meters between traps on string.	TrapSpacing	Integer	2
Unused – for historic compatibility only.	FrameType	Text	2
Code for type of Mesh on the traps.	MeshType	Text	2
Unused – for historic compatibility only.	TrapShape	Byte	1
Trap diameter (or length of side if square), in Inches.	TrapDimension	Byte	1
Trap Height in Inches.	TrapHeight	Byte	1
Number of escape port rings (where exist)	RingNumber	Byte	1
Size in MM of diameter of escape ports	RingSize	Byte	1
Size in MM of diameter of escape ports (if ports exist of different size than RingSize).	RingSize2	Byte	1
Unused – for historic compatibility only.	TriggerNumber	Byte	1
Code how bait is normally attached	BaitMethod	Text	1
Code, Groundlines or Single traps used ?	FishingMethod	Text	1
Number of traps in the string (where known)	NumTrapsInString	Byte	1
Number of traps Sampled in this set.	NumTrapsSampled	Byte	1
Total number of Dungeness crabs sampled in this string.	NumCrabsSampled	Integer	2
Number of legal size male Dungeness crabs sampled in this string.	NumLegalMales	Integer	2
Number of sub-legal size male Dungeness crabs sampled in this string.	NumSubLegalMales	Integer	2
Number of female Dungeness crabs sampled in this string.	NumFemales	Integer	2
Unused – for historic compatibility only.	VaxCode	Byte	1
Unused – for historic compatibility only.	CardCode	Byte	1
Unused – for historic compatibility only.	YearSet	Byte	1
Unused – for historic compatibility only.	MonthSet	Byte	1
Unused – for historic compatibility only.	DaySet	Byte	1
Any relevant Comment noted by Sampler or Coder.	Comment	Text	1
Flag whether data has been uploaded to main DFO database (always = NO)	Uploaded	Yes/No	1

Field Names and Data Typing for Table 'LF' (see Appendix 2)

Item	Field Name	Type	Size
Link to Header table key field	Hkey	Long Integer	4
Counter to create a unique index key with, possibly indicates line number on H/C page.	Line	Integer	2
Code Sex of crab sampled	Sex	Byte	1
Width measurement type, (should always be N=notch to notch)	WidthType	Text	1
Unused – for historic compatibility only.	WidthSpine	Byte	1
Width in mm, notch to notch (rounded down to the nearest mm)	WidthNotch	Byte	1
Code for Shell Hardness.	Shell	Byte	1
Code for Injuries.	Injury	Byte	1
Number of Claws missing, (except where caused by sampling)	ClawsMissing	Byte	1
Number of Legs Missing, (except where caused by sampling)	LegsMissing	Byte	1
Code Mating marks	Marks	Byte	1
Code Unusual information about the crab.	Observation	Byte	1
Order in which the sampled traps are pulled in the string, '1' is the first trap in string.	TrapNum	Byte	1
Code type of Trap being Sampled	GearCode	Text	4
Code problems/malfunction with the trap (Default is "0" if trap is OK).	TrapUsability	Byte	1
Pacific Region Species Code XKG = Dungeness, XLA = Red Rock, etc.	Species	Text	3

Field Names and Data Typing for Table 'ByCatch' (see Appendix 3)

Item	Field Name	Type	Size
Link to Header table key field	H_key	Long Integer	4
Counter to create a unique index key with,	Line	Integer	2
Pacific Region Species Code	Species	Text	3
Weight caught in Kilograms	Weight	Single	4
Is the Weight Estimated (Yes) or was it Actually Weighted (No).	Estimated	Yes/No	1
Number of individuals of this species	Num_Caught	Integer	2
Unused – for historic compatibility only.	Num_per_kg	Integer	2



Project Name:	PacFISH Information Management Framework
Document Title	DFO Data Transfer Specifications: Hail Program
Author:	
Organization:	Fisheries and Oceans Canada
Date:	December 17, 2018

This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data. All data submitted becomes the exclusive property of Fisheries and Oceans Canada

- ▶▶ **Fishery(s):** Commercial Crab by Trap
- ▶▶ **Fishery Season:** 2022/23
- ▶▶ **Data Collection Program Name:** Hail Notification (Area A)
- ▶▶ **Associated Fishery Data Manager:** Resource Management – Invertebrates, Pacific Region

Rationale

The Commercial Crab trip hail program is integral to the following activities:

- ▶▶ Downloading of vessel hard drive data
- ▶▶ Electronic monitoring system maintenance and upgrades
- ▶▶ Immediate information on time, effort, and fleet distribution
- ▶▶ Fishery-dependent biosampling objectives
- ▶▶ Seasonal soft-shell closure decisions

Data Transfer Requirements

- ▶▶ **Format:** Microsoft Access (*.mdb or *.accdb) or Microsoft Excel (*.xls or *.xlsx)
- ▶▶ **Medium:** DFO ftp site or Email to Local Area Crab Manager
- ▶▶ **Timeliness:**
 - The vessel master shall arrange to have a fishing activity report entered into the database:
 - (a) prior to leaving port when intending to haul trap gear;
 - (b) prior to moving to a new location; and
 - (c) as soon as practical once fishing activities have been completed for each fishing trip, and prior to returning to port.
 - All data shall be made available to DFO no more than 24 hours after the data has been received by the service provider.
- ▶▶ **File Naming Conventions:** Area_Hail_2022

The following information shall be recorded for each fishing activity report:

FIELD NAME	DESCRIPTION	FIELD TYPE/SIZE
CONFIRM_NUM	Confirmation Number	Number
TRIP_COMPLETE	Trip completed?	YES OR NO
FISHING_COMPLETE	Fishing completed?	YES OR NO
CALL_DATE	Date call made	Short Date (month/day/year, e.g. 12/31/22)
CALL_TIME	Time call made	Short Time (e.g. 23:59)
CALLER_IDENTIFICATION	Caller's Fisher Identification Number	Integer
VESSEL_NAME	Name of Vessel	Text
VESSEL_VRN	VRN # of Vessel	Text
VESSEL_MASTER_NAME	Vessel Master's Name	Text
VESSEL_MASTER_FIN	Vessel Master's Fisher Identification Number	Integer
TRIP_STATUS	Trip Status ¹	Text
TRIP_TYPE	Type of Trip ²	Text
PFMA	PFMA ³	Number
PFM_SUB_AREA	PFM Subarea ³	Number
COMMENTS	Comments	Memo
HAIL_OP	Hail Operator	Memo

¹ TRIP STATUS
START FISHING (FOR THE SEASON)
START TRIP
END TRIP
LOCATION CHANGE
UPDATE
CANCEL
END FISHING (FOR THE SEASON)

² TRIP TYPE
COMMERCIAL
COMMERCIAL W/ SAMPLING
SAMPLING

³ Areas and Sub Areas are described in the Pacific Fishery Management Area Regulation. The hail operator shall provide additional sub-areas intended to be fished during the same trip.

APPENDIX 10: AREA A SOFT SHELL SAMPLING GUIDELINES

Guidelines for Closing and Opening the Commercial Dungeness Crab Fishery

Prepared by DFO Science Branch Crab Program, (Expert Advice) January 9, 2014

The purpose of this document is to provide guidelines to fishery managers and industry regarding closing and opening the Dungeness crab fishery in Area A based on the existing soft shell sampling program. Goals of the soft shell program include:

- a) protecting soft shell male Dungeness crabs in Hecate Strait during the spring moulting period from fishery related injuries and mortality, and
- b) providing a mechanism to extend the fishing season beyond set closing and opening dates as outlined in the Crab By Trap Integrated Fisheries Management Plan (IFMP) as there is considerable variability in the timing of the major spring moult.

Relevant Documents

There are three additional documents that complement this one:

- 1) Protocols for the Area A soft shell sampling program - provides program details to charter vessels.
- 2) The Crab By Trap IFMP - provides details regarding management of various crab fisheries.
- 3) The crab survey manual – provides details about the collection of crab biological information (Dunham, J.S., Phillips, A., Morrison, J., and Jorgensen, G. 2011. A manual for Dungeness crab surveys in British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 2964: viii + 68 p.).

Please contact the Area A Crab Manager for copies of these documents.

Soft Shell Program Sampling

- Sampling begins mid-February to ensure initial crab biological data are collected and analyzed before the March 1 fishery closure date as outlined in the IFMP.
- Sampling should occur approximately every 2 weeks, and ideally should continue until both fishery closing and opening dates are determined. Sampling can also be suspended during the closure period.
- A minimum 5 sites should be sampled. Core sites consistent with previous years are #2, 3, 4, 5, and 7 in Hecate Strait. Sites may be moved at times of low crab abundance to find crab in other locations. Sites should be spread out as much as logistically possible throughout the fishing area.
- A minimum 15 traps should be set at each site, 75 traps in total over the 5 sampling locations. If crab abundance is high at a particular site and subsampling fewer traps is possible, then those ‘extra’ traps may be allocated elsewhere.
- For detailed sampling protocols, please refer to the Protocols document listed above.

Dungeness Crab Biological Data

- Biological data are collected by trap.
- Biological data are collected from individual Dungeness crabs for all crab types (legal male, sublegal male, female). Legal male crabs are ≥ 154 mm carapace width notch-to-notch; sublegal male crabs are < 154 mm carapace width notch-to-notch.
- Crab biological data includes: sex, shell condition (see Table 1), injuries, mating marks, carapace width notch-to-notch. Please refer to the crab survey manual listed above for more details.
- Sample size per site should be a minimum 50 legal size male Dungeness crabs. If fewer legal crabs are collected during a sampling event, please refer to options outlined in the “sampling when crab abundance is low” section.
- Bycatch (i.e., those species captured in traps other than Dungeness crabs) should be identified to species and numbers and weights (kg) recorded for each species per trap.
- For the purpose of determining moult timing, crab biological data should be summarized by sampling site, date, proportions of legal male crabs in each shell condition code, total number of legal male crabs sampled, number of traps sampled.
- Once the charter vessel has returned to port after a sampling event, copies of raw data sheets must be provided to DFO and the service provider immediately, with data summaries provided to all interested parties within 3 days.

Guidelines for Closing and Opening the Fishery

The following management guidelines are based closely on those previously used in Area A (Appendix A). These guidelines are to assist in the interpretation of the results from the soft shell sampling program.

Rationale for changes from the previous guidelines are:

- provides additional clarity and context for opening and closing decisions.
- shell condition 3 (crackly soft) should be included in the closing guidelines since crabs in shell condition 4 (plastic soft) and 5 (moulting) are often absent in test traps.
- closing guidelines were made to complement existing opening guidelines, which already incorporate crabs in shell condition 3.
- opening guidelines have essentially been left unchanged.

Closing

Greater than or equal to 5% legal male crabs with very soft shells (shell codes 5, 4, 3).

This indicates the start of the male moult period.

A decreasing trend in the proportion of old shell (shell codes 8, 6, 7) legal male crabs may also signal the onset of the moulting period.

When 35% or more of the legal male crabs have soft shells (shell codes 5, 4, 3, 2), consideration should be given to closing the fishery quickly as this situation can be interpreted as being in the middle of the major moult.

Opening

Less than 5% legal male crabs with very soft shells (shell codes 5, 4, 3).

An increasing trend in the proportion of new hard shell (shell code 1) (and possibly springy soft; shell code 2) legal male crabs may also signal the end of the moulting period.

When more than 65% of the legal male crabs have hard shells (shell codes 1, 8, 6, 7), the fishery can open as this situation can be interpreted as being the end of the major moult period.

Sampling when crab abundance is low

If crab abundance is low and the moult signal unclear, then sample size can be increased by:

- 1a) leaving traps at a particular site in anticipation of more crabs moving into the area.
- 1b) selecting new sampling sites and moving traps.
- 2) pooling data for all sampling sites by date.
- 3) using male crabs >143 mm notch width to determine moult timing.

Table 1. Dungeness crab shell condition codes.

Shell Code	Shell Description	Time Since Last Moulting	Shell Plasticity	Shell Age
5	Moulting	0	Soft	New
4	Plastic soft	Few days		
3	Crackly soft	1 week to 1 month		
2	Springy soft	1 to 3 months		
1	New hard	3 to 6 months	Hard	Old
8	Transition	6 to 12 months		
6	Old hard	12 to 24 months		
7	Very old hard	>24 months		
9	Shell only			

Appendix A

Previous closing and opening guidelines in Area A

Closing

An increasing trend in the percentages of shell code 6 and 7 coupled with:

- greater than 1% of crabs in shell code 5 (actually in the process of moulting)
- And/or
- greater than 3% of crabs in shell code 4 (newly moulted, plastic soft)

Opening

- greater than 65% of crabs in shell code 1 and 6 (hard shell)
- less than 5% in shell codes 3 and 4 (crackly soft and plastic soft)

APPENDIX 11: FISHERY CLOSURES FOR GWAII HAANAS NATIONAL MARINE CONSERVATION AREA

Gwaii Haanas and Southern Strait of Georgia National Marine Conservation Area Reserve

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5,000 km² land-and-sea protected area in the southern portion of Haida Gwaii, approximately 100 kilometres off the north coast of BC. The Haida Nation declared 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 the two parties have been managing the area cooperatively since 1993. In 2010, following an extensive public consultation process, the marine area of Gwaii Haanas was given the designation of National Marine Conservation Area Reserve.

Gwaii Haanas is managed by the Archipelago Management Board, a cooperative body made up of representatives of the Council of the Haida Nation and the Government of Canada (DFO and Parks Canada). The Archipelago Management Board is guided by the *Gwaii Haanas Agreement* and the *Gwaii Haanas Marine Agreement*, 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. The final zoning plan includes several areas of strict protection, where commercial and recreational fishing is prohibited, including prawn and shrimp fishing (Appendices 1 and 2). An overview map is provided in Appendix 13. A monitoring plan will be developed to assess the effectiveness of zoning in achieving ecological and cultural objectives. Regular monitoring within and outside of the strict protection zones will illustrate ecosystem responses and facilitate adaptive management of the Gwaii Haanas marine area. Implementation of the Land-Sea-People plan will also involve cooperative management of fisheries using an ecosystem-based management framework and monitoring activities will be supported through partnerships.

Parks Canada, in partnership with the Government of BC, launched a feasibility assessment for a National Marine Conservation Area Reserve in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011. Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the feasibility assessment. If the results of the feasibility assessment indicate that establishment of a National Marine Conservation Area Reserve is practical and feasible, an establishment agreement between the Governments of Canada and BC will be negotiated and an interim management plan developed. If the National Marine Conservation Area Reserve is determined to be feasible, further consultations related to establishment agreements and Indigenous rights will also take place with First Nations. Commercial and recreational fishing sectors, communities, landowners, recreation and

environmental organizations and other stakeholders will also have opportunities to provide input to the development of the interim management plan.

The Land-Sea-People plan is available at:

<https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/info/consultations/gestion-management-2018>

More information on Gwaii Haanas and the Archipelago Management Board is available at:

<https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/index>

More information on National Marine Conservation Areas is available at:

<https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnmca>

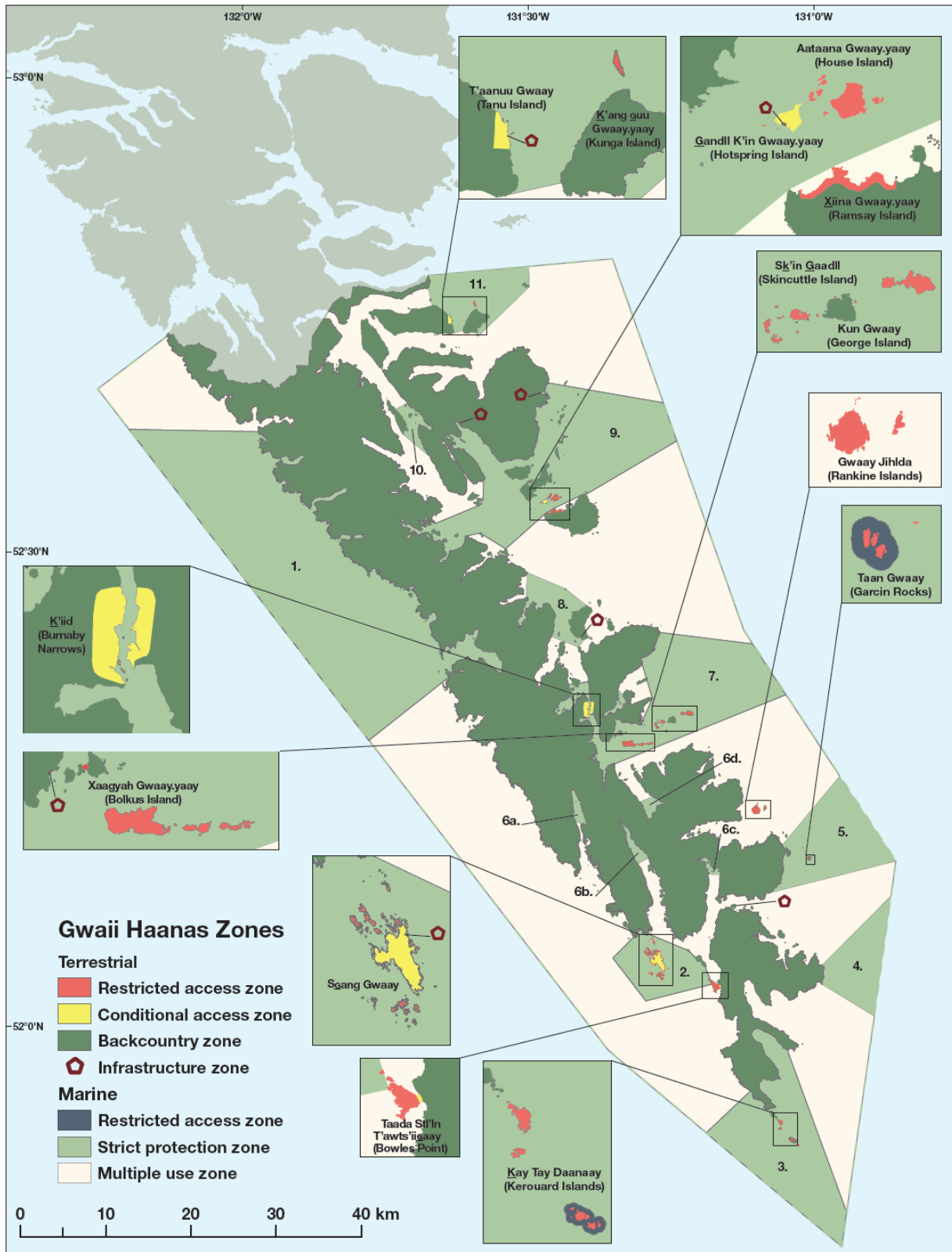


Figure 1. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Current closures)

Area 2 Closures

Harvesting of all species is prohibited within Strict Protection Zones of Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site identified in the Gina ‘Waadluxan KilGuhlGa Land-Sea-People Management Plan. This management plan was approved by Canada and the Haida Nation in November 2018. Strict Protection Zones include areas such as Gowgaia Bay, SGang Gwaay, Cape Saint James, Flamingo Estuary Louscoone Estuary, Rose Estuary, Huston Estuary, Burnaby Strait, Skincuttle Inlet, Pool Inlet, Matheson Inlet, Juan Perez Sound, Shuttle Passage and Klue Passage. Descriptions of strict protection areas are as follows:

Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)

Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311’N and 131°35.794’W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340’N and 131°35.859’W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52° 23.489’N and 131°36.092’W, thence southwesterly to a point in water at 52° 18.982’N and 131°43.957’W, thence northwesterly to a point in water at 52° 38.114’N and 132°10.004’W, thence southeasterly to a point on land on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177’N and 131°56.374’W, and thence southerly following the western shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point.

SGang Gwaay (Wailing Island)

Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210’N and 131°15.838’W easterly following the shoreline to 52° 07.440’N and 131°14.307’W, thence southeasterly to a point on the northern shoreline of K’il (Flatrock Island) at 52°06.468’N and 131°10.300’W, thence easterly following the shoreline to 52°06.388’N and 131°10.079’W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018’N and 131°09.391’W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884’N and 131°09.283’W, thence southeasterly to 52°05.806’N and 131°09.208’W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787’N and 131° 09.097’W, thence northeasterly to the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788’N and 131°08.938’W, thence easterly following the shoreline and thence crossing the channel to 52°05.778’N and 131°08.861’W, thence southeasterly following the shoreline to 52°05.741’N and 131°08.788’W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52° 05.708’N and 131°08.697’W, thence easterly across the channel to 52°05.709’N and 131°08.673’W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468’N and 131°08.425’W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414’N and

131°07.720'W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52° 04.366'N and 131° 07.720'W, thence southwesterly to a point in water at 52° 03.175'N and 131°14.399'W, thence northwesterly to a point in water at 52° 05.826'N and 131°17.913'W, and thence northeasterly back to the beginning point.

Gangxid Tllgaay (South Kunghit Island)

Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689'N and 131°03.375'W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343'N and 130° 59.788'W, thence southeasterly to a point in water at 51°50.159'N and 130° 53.207'W, thence southwesterly to a point in water at 51°47.954'N and 130° 53.613'W, thence northwesterly to a point in water at 51°54.927'N and 131° 07.801'W, and thence northeasterly to the beginning point.

Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point)

Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T'awts'iiGaay (islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.598'N and 130°56.368'W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652'N and 130°56.414'W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734'N and 130° 56.365'W, thence northeasterly to a point in water at 52°10.225'N and 130° 49.512'W, thence southwesterly to a point in water at 52°02.632'N and 130° 50.910'W, thence northwesterly back to the beginning point.

Kayjuu Kun (Benjamin Point)

Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262'N and 131°01.993'W northerly following the eastern shoreline to 52°13.232'N and 131°00.777'W, thence northeasterly to a point in water at 52°17.724'N and 130°55.078'W, thence southeasterly to a point in water at 52°12.476'N and 130°49.103'W, and thence southwesterly back to the beginning point.

St'aa K'ii GawGa (Flamingo Inlet) – Head

Those waters of Subarea 2-37 north of a line drawn from a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455'N and 131°22.232'W southeasterly across St'aa K'ii GawGa (Flamingo Inlet) to a point on land on the opposite shore at 52°14.228'N and 131°21.503'W.

GawGajaang (Louscoone Inlet) – Head

Those waters of Subarea 2-34 north of a line drawn from a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.841'N and 131° 15.670'W northeasterly across the inlet to a point on the opposite shoreline of GawGajaang (Louscoone Inlet) at 52°12.245'N and 131°14.568'W.

K'insiGid (Rose Inlet) – Head

Those waters of Subarea 2-18 north of a line drawn from the western shoreline of K'insiGid (Rose Inlet) on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.327'N and 131°08.370'W northeasterly across the inlet to a point on the opposite shore at 52°11.328'N and 131°07.115'W.

GawGan (Huston Inlet) – Head

Those waters of Subarea 2-15 south of a line drawn from a point on the western shoreline of GawGan (Huston Inlet) at 52°15.732'N and 131°15.643'W northeasterly across the inlet to a point on the opposite shore at 52°16.111'N and 131°14.231'W.

Suu Kaahlii sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)

Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521'N and 131°14.153'W southeasterly to a point in water at 52°25.980'N and 131°04.477'W, thence southeasterly to a point in water at 52°22.825'N and 131°00.885'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124'N and 131° 18.347'W, thence northerly following the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°23.055'N and 131°23.441'W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52° 23.082'N and 131°22.916'W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147'N and 131°22.260'W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276'N and 131°21.333'W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949'N and 131° 15.569'W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315'N and 131°14.689'W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377'N and 131°14.683'W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494'N and 131°15.832'W, and thence following the eastern shoreline to the beginning point.

Gid Gwaa GyaaGa GawGa (Poole Inlet)

Those waters of Subarea 2-14 south of a line drawn from a point on the shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) in Gid Gwaa GyaaGa GawGa (Poole Inlet) at 52°22.764'N and 131°18.249'W southeasterly across the inlet to a point on the opposite shore at 52°22.505'N and 131°17.665'W.

Kuuniisii Xaw GawGa sda Gaadu Gwaay (Matheson Inlet to Huxley Island)

Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038'N and 131°28.071'W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone Island) at 52°29.081'N and 131°24.042'W, thence southeasterly to a point on the northern shoreline of Gaadu Gwaay (Huxley Island) at 52°28.066'N and 131°21.772'W, thence southerly following the western shoreline of Gaadu Gwaay (Huxley Island) to 52°25.934'N and 131°21.927'W, thence southwesterly to the northern shoreline of GaysiiGas K'iidsii Gwaay (Section Island) at 52°25.435'N and 131°22.425'W, thence westerly following the northern shoreline of GaysiiGas K'iidsii Gwaay (Section Island) to 52°25.460'N and 131°22.513'W, thence northwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°26.039'N and 131° 25.343'W, thence northerly following the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°28.460'N and 131°27.972'W, and thence northerly to the beginning point.

Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)

Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074'N and 131° 26.535'W southeasterly to a point in water at 52°41.073'N and 131°14.523'W, thence southeasterly to a point in water at 52°38.666'N and 131°12.987'W, thence southwesterly to 52°35.106'N and 131°22.254'W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964'N and 131° 22.963'W, thence southwesterly across to 52°34.116'N and 131°25.603'W, thence southwesterly across to 52°33.844'N and 131°26.324'W, thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498'N and 131° 30.354'W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) at 52°32.405'N and 131°32.946'W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) to 52°32.435'N and 131°33.055'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211'N and 131° 34.475'W, thence easterly following the eastern shoreline to 52°32.956'N and 131°37.729'W, thence northeasterly to a point on the shoreline of Kings'tii Gwaay.yaay (Bischof Islands) at 52°34.143'N and 131°33.379'W, thence easterly following the southeastern shoreline of Kings'tii Gwaay.yaay (Bischof Islands) to 52°34.340'N and 131°33.098'W, thence northeasterly to a point on an islet at 52°34.530'N and 131°32.890'W, thence northeasterly to a point on the southern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°35.767'N and 131° 32.891'W, and thence easterly and northerly following the shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to the beginning point.

Didxwahxyangs (Darwin Sound)

Those waters of Subarea 2-10 inside a line commencing at a point on land on Shuttle Island at 52°40.053'N and 131°42.328'W northeasterly to a point on the western shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°40.466'N and 131° 41.105'W, thence southerly following the western shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to 52°37.301'N and 131°38.800'W, thence northwesterly to a point on land of Gwaay DaaGaaw (Shuttle Island) at 52°38.522'N and 131° 41.409'W, and thence following the eastern shoreline of Shuttle Island to the beginning point.

T'aanuu K'aadxwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands)

Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°48.570'N and 131°39.433'W northeasterly to a point in water at 52° 49.383'N and 131°29.039'W, thence southeasterly to a point in water at 52° 48.148'N and 131°28.849'W, thence southwesterly to a point in water at 52° 44.898'N and 131°34.035'W, thence northwesterly to 52°45.113'N and 131° 34.125'W, thence following the northern shoreline of K'ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220'N and 131°35.574'W, thence southwesterly to a point on T'aanuu Gwaay (Tanu Island) at 52°45.002'N and 131°36.770'W, thence northerly following the eastern shoreline of T'aanuu Gwaay (Tanu Island) to 52° 46.725'N and 131°38.878'W, thence northwesterly across to a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837'N and 131°39.371'W, and thence northerly following the eastern shoreline to the beginning point.

APPENDIX 12. MONITORING RISK ASSESSMENTS (DRAFT)

A risk assessment tool has been used to assess monitoring levels required for the Recreational and the Food, Social and Ceremonial (FSC) Crab fisheries, completed in 2018. A summary and key findings from the draft risk assessments for this fishery are highlighted here. Comments on the findings are welcome and can be directed to Dillon Buerk (Dillon.Buerk@dfo-mpo.gc.ca). Comments on the draft risk assessments will be considered where possible and, following this, these crab risk assessments will be finalized in future years. Risk assessments for commercial crab fisheries will be undertaken in the future. Refer to Section 5.6 of the Integrated Fisheries Management Plan for Crab by Trap for more information.

1 Food, Social, and Ceremonial (FSC) Crab

1.1 Fishery Overview

The FSC crab fishery is fished by trap, handpicking or ringnet gear only and occurs coastwide. The fishery takes place year-round. Dungeness crab is the primary species targeted, but Red Rock, Tanner, King, Box and shore crab are also sometimes retained. The fishery is not managed on a quota basis, and relies on size restrictions and voluntary female non-retention in order to meet conservation targets. The size of the fishery is currently unknown, as there is no coastwide estimate of FSC catch or effort available except for limited data available through First Nations surveys and catch monitoring programs.

1.2 Ecosystem Risks

The stock status of crab is considered to be of low concern, and is likely that the FSC fishery has a low impact on the life-history of the stock. Additionally, there is a low likelihood of the fishery causing disruption to the behavior of crab. In terms of bycatch, the FSC fishery targets crab only, and bycatch of other species are unlikely to include species at risk. Released bycatch has a low likelihood of causing small impacts on the productivity of those species but there is a higher likelihood to have small impacts on the productivity of those bycatch species that are retained. Entanglement of marine mammals rarely occurs in the FSC fishery. Finally, the fishery has a low impact on crab as a key predator/prey species. There are a few direct or indirect habitat impacts in this fishery due to lost gear and sedimentation related to contacting ocean floor substrate or potential destruction of fragile habitat features.

From this assessment, the preliminary fishery risk (comprised of risk to main species, bycatch, and community and habitat) was identified as moderate. Further analysis of additional resource management issues not incorporated into the preliminary risk calculations indicate there is a low potential to over-harvest in this fishery, but because of compliance and public relations concerns, the overall risk that the fishery poses to the stock was scored as moderate.

1.3 Monitoring Level

An overall risk score of moderate requires an “generic” monitoring level. The Risk Assessment for the FSC fishery also identifies that the fishery currently has low monitoring, with key information gaps identified around lack of catch and effort information. Increased monitoring and reporting is required to better describe FSC harvest and effort in order to inform and support discussions regarding access and management priorities.

1.4 Next Steps

As the fishery does not currently meet the generic target monitoring level prescribed by the risk assessment, further development of a FSC catch monitoring program is required. Information gaps that may be used for future assessment of the risks of this fishery include the uncertain impact of the fishery on smaller spatial stock areas, and an unknown amount of crab mortality from releases— especially during vulnerable life-history stages such as molting and softshell. There has also been recent discussion about crab stock recruitment in isolated habitats, such as remote fjords where crab larvae are slower to repopulate after significant removal.

Fishery Monitoring & Catch Reporting Risk Assessment Tool

Column Comments

1 PART A: FISHERY DESCRIPTION & LICENCING INFORMATION

1.1 Licencing

Column	Comments
DFO Mgmt Area	DFO management areas, Pacific Fishery Management Area. e.g., SC (South Coast); NC (North Coast); LFA (Lower Fraser Area); BCI (BC Interior); UFR (Upper Fraser River); YKTB (Yukon-Transboundary)
Name of Fishing Group	A name to describe the fishing group. e.g., First Nation name or aggregate (band, tribal council, permitting authority, etc), San Juan, Recreational, Area E commercial, etc
Licence Type	Licence type e.g., Food, social, ceremonial (FSC), commercial, Economic Opportunity, Recreational, etc

1.2 Description

Column	Comments
Gear Type	e.g., boat based angling, seine, trawl, etc.
Fish Species for Analysis	The fish species that is being analysed by this row. For example, in a directed or multi-species fishery, it would refer to the target species that is retained. In an opportunistic fishery, such as some recreational and FSC fisheries, multiple rows will analyse the impacts of the fishery. In a multi-stock fishery, please note the stock that is driving the fishery in brackets. e.g., Chinook (Spring 4-2), Sockeye (Fraser), chum salmon, geoduck, etc
Timing of Analysis	If the analysis is seasonally dependent, then note the timeframe. e.g., Recreational fisheries may have a larger impact from May-August and so separate rows should specify the timing of analysis. If the fishery is year round: "June-May" or "year round"

1.3 Size of Fishery

Column	Comments
Mean Catch (pcs/lbs)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average catch in appropriate units, over a representative time span for the fishery (the time period may differ between species).

	e.g., 40,000 lbs/yr, 2010-2014
Mean Effort (boat-days, fishers, etc)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average effort (number of boats, number of fishers, etc.) over a representative time span for the fishery.
% TAC	e.g., 2000 boat-days per year, 2012-2014 Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. -Record the range of percentages that the fishery takes of the total exploitation rate (e.g., 50-75%), or provide the mean total exploitation rate over a specified time period (e.g., 25%, 2005-2010)

2 PART B: ECOSYSTEM RISKS

2.1 Main Species

Could the mortality caused by fishery threaten the main fish species or stock that is being assessed?

"Main" can also be referred to as "target".

Column	Comments
Main Species or Stock Status	<p>Does the fishery target a species/stock that is thought to be of concern in some way (e.g., Is it healthy and abundant? Is it listed under the <i>Species at Risk Act</i> (SARA)? Has it been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Wild Salmon Policy (WSP)? Has it been identified as a concern according to the Salmon Outlook or its Integrated Fisheries Management Plan status or another assessment grouping? Or is the species or stock status presumed to be low but data deficient? Is there a co-migrating stock amongst the main species that is sensitive in some way?), and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= There are minor concerns with how the fishery will impact the health of the main fish population being analyzed (but it is not listed or presumed to be weak). 2= The fishery may impact a species/stock that is of medium concern (e.g. listed as "of special concern" or "amber status"). 3= The fishery may impact a species/stock of high concern (e.g. listed as, "threatened" or "endangered" or "red status").</p> <p>Likelihood: E.g. 0 = This question isn't applicable 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, the consequence value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Vulnerability of Main Species or Stock	<p>Can the fishery cause long-term harm to the main species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the life-history of the species. 2= The fishery may have medium impacts on the life-history of the species. 3= The fishery may have high impacts on the life-history of the species. NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Species or Stock Behavioral Changes	Are there disruptions to the behaviour of the main species/stock resulting from fishing activities (e.g., noise, displacement and/or interruption to breeding, migration changes due to gillnets, etc.)?

Consequence:
 E.g. 0= no disruptions (e.g. marine land-based angling, for instance from a rock where one line won't impact behaviour of a school of fish)
 1= yes but minor (e.g. boat based angling causes noise that may cause fish to dive deeper, etc.)
 2= yes, medium impact (e.g. gillnets in Fraser temporarily impact migration patterns)
 3= yes, major impact.

NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.

Likelihood:
 E.g., 0= This question is not applicable.
 1= The fishery has a low likelihood of causing the consequence listed above.
 2= The fishery has a medium likelihood of causing the consequence listed above.
 3= The fishery has a high likelihood of causing the consequence above.

2.2 By-Catch

Could the mortality caused by fishery threaten a non-target fish species / stock?

Column	Comments
Retained By-Catch Status	<p>Does the fishery retain a by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the by-caught species, not the individual.</p> <p>Identify in cell comment all retained by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=not applicable. 1= yes, minor concerns with health of by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via the Canadian Science Advisory Secretariat (CSAS). 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= Not applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Vulnerability of Retained By-Catch	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the productivity of species/stock. 2= The fishery may have medium impacts on the productivity of species/stock. 3= The fishery may have high impacts on the productivity of species/stock.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

Released By-Catch Status	<p>Does the fishery impact a released by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the released by-caught species, not the individual.</p> <p>Identify in cell comment all released by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=no 1= yes, minor concerns with health of released by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via CSAS. 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This questions isn't applicable 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Vulnerability of Released By-Catch	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the productivity of species/stock. 2= The fishery may have medium impacts on the productivity of species/stock. 3= The fishery may have high impacts on the productivity of species/stock.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

2.3 Community & Habitat

Could the mortality caused by fishery threaten other components of the eco-system, such as predators or prey or habitat?

Column	Comments
Key Predator or Prey	<p>Does the fishery impact an important predator (e.g. resident orca) or prey (e.g. forage fish such as herring, sardine, eulachon, etc.)? Will removals in the fishery have a demonstrated impact on the survival of other species in the community?</p> <p>Consequence: e.g., 0= No (e.g. sea cucumber) 1= Minor impact. For instance, a fishery might discard a small amount of a plentiful forage fish (e.g. hake fishery impact on herring). Or discarded species has minor ecosystem role (e.g. sea urchins are food source for sea otters, but many alternatives) 2= Medium impact. For instance, fishery targets forage fish at low level, or discarded forage fish is large but not putting population at risk. Or entanglement of marine mammals in fishing gear can occur. 3= High/worrisome impact. For instance, the fishery has an impact on forage fish of low abundance (e.g. shrimp trawl impact on eulachon). Or the impact is on SARA listed species (e.g. chinook fishery limits resident killer whale diet).</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact an important predator or prey.</p>

	<p>1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Direct Habitat Impacts	<p>Are there direct NEGATIVE changes to structure or composition of the habitat or is there destruction as a result of fishing activity? (e.g. impacts on identified sensitive areas, impacts on spawning habitat due to disturbing redds, ghost gear, overlap with marine protected areas, national marine conservation areas, marine parks, other protected areas, etc.)</p> <p>Consequence: e.g. 0= No impact (e.g. marine land-based angling) 1= Minor impact (e.g. clam digging by small digging crew) 2= Moderate impact (e.g. bottom contact gear such as crab traps) 3= Major impact (e.g. trawl impact on glass sponge coral)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above. It can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Indirect Habitat Impacts	<p>Are there indirect NEGATIVE changes to habitat feature/function due to indirect impacts of fishing activity? (e.g. sedimentation, displacement of marine mammal, pollution, noise from vessel traffic, accumulation of lead from lost fishing gear, etc.)</p> <p>Consequence: E.g. 0= no 1= yes but minor (e.g. marine boat-based angling noise) 2= yes, medium impact (e.g.) 3= yes, major impact (e.g.)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

3 PART C: RESOURCE MANAGEMENT ISSUES

Column	Comments
Fishery Type	<p>Is the fishery SHARE-BASED, DERBY, or OTHER?</p> <p>DERBY (i.e., Effort-based) SHARE (e.g., Quota, IVQ, ITQ) OTHER (e.g., other allocation type) N/A (Does not always apply to Recreational or FSC fisheries, unless there is a defined share)</p>
Potential to Over-Harvest	<p>Under current management conditions, does the fishery under consideration (not all of the impacting fisheries) have the potential/capacity to overharvest the fish species or stock that is being assessed and put it at risk biologically? For instance, does the fishery have the capacity (e.g., sufficient boats, nets, etc.) to catch more than its Total Allowable Catch (TAC) if quota overruns or unreported fishing occurs? Can the fishery be managed (e.g., through up-to-date catch accounting) to avoid overharvest? Is the expected level of impact that removals will have on species/stock size and productivity expected to be low, medium or high?</p> <p>NOTE: We are not considering cumulative impacts of multiple fisheries at this time.</p>
Compliance & Enforcement	<p>Are there routinely compliance or enforcement concerns (e.g. low reporting, using barbed hooks, using wrong sized mesh, selling recreational or FSC fish, etc.) that may impact the monitoring of the fishery? Are there incentives for non-compliance?</p>

	(Y/N) This variable is not scored so please explain concerns in the comment box if they exist.
International or Treaty Requirements	Are there any international/treaty information requirements, such as Pacific Salmon Treaty (PST), Marine Stewardship Certification (MSC), traceability, First Nations Treaties, etc. that would require a higher level of monitoring? (Y/N) This variable is not scored but please explain relevant treaties and associated requirements for monitoring in the comment box.
Info to Manage Other Sectors or Fisheries	Is information required in-season to plan for other fisheries, such as FSC, recreational, commercial? (Y/N) This variable is not scored but please explain in-season reporting requirements in the comment box.
Public Relations	Is there a need for higher monitoring due to public requirements for more detailed explanation about the impacts of the fishery? (Y/N) For instance, there are examples of fisheries where a low level of monitoring is probably appropriate due to ecosystem risk, but DFO implements higher levels of monitoring because the public needs it (example is Area 6 seine). This variable is not scored but please provide information about public's concern for monitoring in the Comment field.

4 PART D: PRELIMINARY RISK SCORING (CALCULATED)

Column	Comments
Risk to Main Species	Auto-calculated from MAIN SPECIES CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Risk to By-Catch	Auto-calculated from BY-CATCH CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Risk to Community and Habitat	Auto-calculated from COMMUNITY & HABITAT CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Overall Fishery Risk	Auto-calculated from maximum value of CALCULATED RISK SCORES PROTECTED: user may NOT over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECED: user man not over-ride

5 PART E: FINAL RISK SCORING (ASSIGNED)

Column	Comments
Risk to Main Species	DEFAULTS to preliminary MAIN SPECIES RISK SCORE; user may over-ride.
Risk to By-Catch	DEFAULTS to preliminary BY-CATCH SPECIES RISK SCORE; user may over-ride.
Risk to Community and Habitat	DEFAULTS to preliminary COMMUNITY & HABITAT RISK SCORE; user may over-ride.
Overall Fishery Risk	DEFAULTS to maximum value of FINAL RISK SCORES; user may over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECTED: User many NOT override

6 PART F: RISK ASSESSMENT NOTES

Column	Comments
Current Monitoring Level	What is the current monitoring level?
Information Gaps	Are there any specific information gaps in the monitoring program? E.g. Need to record by-catch. Should sample 10% of scales
Comments	Further comments and suggestions pertaining to current monitoring level, apparent quality and comprehensiveness of Catch Monitoring & Reporting effort, data gaps, issues of current and future risk, etc
Contact Info – Name & Date	Who supplied this information and when.

Risk Assessment Tool - Working Draft

Crab for FSC by Non-commercial trap, ringnet

Part A: Fishery Description & Licensing Information

Licensing

DFO MGMT AREA	Coastwide
NAME of FISHING GROUP	All FSC Harvesters
LICENCE TYPE	FSC

Description

GEAR TYPE	trap, ringnet (non-commercial gear)
FISH SPECIES for ANALYSIS	Crab
TIMING of ANALYSIS	Year- Round

Size of Fishery

MEAN CATCH (pcs/lbs)	Unknown
MEAN EFFORT (boat-days, fishers, etc)	Unknown
% TAC	N/A

Part B: Ecosystem Risks

Main Species

MAIN SPECIES or STOCK STATUS	0
VULNERABILITY OF MAIN SPECIES or STOCK SPECIES or STOCK BEHAVIOURAL CHANGES	3
	1

By-Catch

RETAINED BY-CATCH STATUS	0
VULNERABILITY OF RETAINED BY-CATCH	1
RELEASED BY-CATCH STATUS	3
VULNERABILITY OF RELEASED BY-CATCH	1

Community & Habitat

KEY PREDATOR or PREY	1
DIRECT HABITAT IMPACTS	2
INDIRECT HABITAT IMPACTS	1

Part C: Resource Management Issues

FISHERY TYPE	N/A
POTENTIAL to OVER-HARVEST	No
COMPLIANCE and ENFORCEMENT	Yes
INTERNATIONAL or TREATY REQUIREMENTS	Yes
INFO to MANAGE OTHER SECTORS or FISHERIES	Yes
PUBLIC RELATIONS	Yes

Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	3
RISK to BY-CATCH (D)	3
RISK to COMMUNITY and HABITAT (D)	2
OVERALL FISHERY RISK (D)	3

TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D) Generic

Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E) 3
RISK to BY-CATCH (E) 2
RISK to COMMUNITY and HABITAT (E) 2
OVERALL FISHERY RISK (E) 3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E) Generic

Risk Assessment Notes

CURRENT MONITORING LEVEL (Low, Generic, Enhanced) Low
INFORMATION GAPS - require spatial information with respect to areas fished- lack of catch and effort info in general
COMMENTS increased monitoring and reporting is required to better describe FSC and recreational harvest and effort, to inform and support discussions regarding access and management priorities

Risk Assessment Tool - Working Draft

Crab for FSC by Commercial trap, ringnet

Part A: Fishery Description & Licensing Information

Licensing

DFO MGMT AREA	Coastwide
NAME of FISHING GROUP	All FSC Harvesters
LICENCE TYPE	FSC

Description

GEAR TYPE	trap, ringnet (commercial vessel or gear use)
FISH SPECIES for ANALYSIS	Crab
TIMING of ANALYSIS	Year- Round

Size of Fishery

MEAN CATCH (pcs/lbs)	Unknown
MEAN EFFORT (boat-days, fishers, etc)	Unknown
% TAC	N/A

Part B: Ecosystem Risks

Main Species

MAIN SPECIES or STOCK STATUS	0
VULNERABILITY OF MAIN SPECIES or STOCK SPECIES or STOCK BEHAVIOURAL CHANGES	3
	1

By-Catch

RETAINED BY-CATCH STATUS	0
VULNERABILITY OF RETAINED BY-CATCH	1
RELEASED BY-CATCH STATUS	3
VULNERABILITY OF RELEASED BY-CATCH	1

Community & Habitat

KEY PREDATOR or PREY	1
DIRECT HABITAT IMPACTS	2
INDIRECT HABITAT IMPACTS	1

Part C: Resource Management Issues

FISHERY TYPE	N/A
POTENTIAL to OVER-HARVEST	No
COMPLIANCE and ENFORCEMENT	Yes
INTERNATIONAL or TREATY REQUIREMENTS	Yes
INFO to MANAGE OTHER SECTORS or FISHERIES	Yes
PUBLIC RELATIONS	Yes

Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	3
RISK to BY-CATCH (D)	3

RISK to COMMUNITY and HABITAT (D)	2
OVERALL FISHERY RISK (D)	3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Generic

Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E)	3
RISK to BY-CATCH (E)	2
RISK to COMMUNITY and HABITAT (E)	2
OVERALL FISHERY RISK (E)	3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E)	Generic

Risk Assessment Notes

CURRENT MONITORING LEVEL (Low, Generic, Enhanced)	Low
INFORMATION GAPS	- require spatial information with respect to areas fished- lack of catch and effort info in general
COMMENTS	Increased monitoring and reporting is required to better describe FSC and recreational harvest and effort, to inform and support discussions regarding access and management priorities

2 Recreational Crab

2.1 Fishery Overview

The recreational crab fishery is fished by trap or ringnet gear only and occurs coastwide. The fishery takes place year-round and requires a recreational tidal fishing licence issued by Fisheries and Oceans Canada. Dungeness crab is the primary species targeted, but retention of Red Rock, Tanner, King, Box and shore crab are also permitted. The fishery is not managed on a quota basis, and relies on size and sex restrictions as well as individual trap and possession limits in order to meet conservation targets. The size of the fishery is currently unknown, as there is no estimate of recreational catch or effort available except for limited data available through the iREC survey.

2.2 Ecosystem Risks

The stock status of crab is considered to be of low concern, and is likely that the recreational fishery has a low impact on the life-history of the stock. Additionally, there is a low likelihood of the fishery causing disruption to the behavior of crab. In terms of bycatch, the recreational fishery targets crab only, and bycatch of other species are unlikely to include species at risk. Released bycatch has a low likelihood of causing small impacts on the productivity of those species but there is a higher likelihood to have small impacts on the productivity of those bycatch species that are retained. Entanglement of marine mammals rarely occurs in the recreational fishery. Finally, the fishery has a low impact on crab as a key predator/prey species. There are a few direct or indirect habitat impacts in this fishery due to lost gear and sedimentation related to contacting ocean floor substrate or potential destruction of fragile habitat features.

From this assessment, the preliminary fishery risk (comprised of risk to main species, bycatch, and community and habitat) was identified as moderate. Further analysis of additional resource management issues not incorporated into the preliminary risk calculations indicate there is a low potential to over-harvest in this fishery, but because of compliance and public relations concerns, the overall risk that the fishery poses to the stock was scored as moderate.

2.3 Monitoring Level

An overall risk score of moderate requires an “generic” monitoring level. The Risk Assessment for the recreational fishery also identifies that the fishery currently has low monitoring, with key information gaps identified around lack of catch and effort information. Increased monitoring and reporting is required to better describe recreational harvest and effort in order to inform and support discussions regarding access and management priorities.

2.4 Next Steps

As the fishery does not currently meet the generic target monitoring level prescribed by the risk assessment, further development of a recreational catch monitoring program is required. Information gaps that may be used for future assessment of the risks of this fishery include the uncertain impact of the fishery on smaller spatial stock areas, and an unknown amount of crab mortality from releases— especially during vulnerable life-history stages such as molting and softshell. There has also been recent discussion about crab stock recruitment in isolated habitats, such as remote fjords where crab larvae are slower to repopulate after significant removal.

Fishery Monitoring & Catch Reporting Risk Assessment Tool

Column Comments

7 PART A: FISHERY DESCRIPTION & LICENCING INFORMATION

7.1 Licencing

Column	Comments
DFO Mgmt Area	DFO management areas, Pacific Fishery Management Area. e.g., SC (South Coast); NC (North Coast); LFA (Lower Fraser Area); BCI (BC Interior); UFR (Upper Fraser River); YKTB (Yukon-Transboundary)
Name of Fishing Group	A name to describe the fishing group. e.g., First Nation name or aggregate (band, tribal council, permitting authority, etc), San Juan, Recreational, Area E commercial, etc
Licence Type	Licence type e.g., Food, social, ceremonial (FSC), commercial, Economic Opportunity, Recreational, etc

7.2 Description

Column	Comments
Gear Type	e.g., boat based angling, seine, trawl, etc.
Fish Species for Analysis	The fish species that is being analysed by this row. For example, in a directed or multi-species fishery, it would refer to the target species that is retained. In an opportunistic fishery, such as some recreational and FSC fisheries, multiple rows will analyse the impacts of the fishery. In a multi-stock fishery, please note the stock that is driving the fishery in brackets. e.g., Chinook (Spring 4-2), Sockeye (Fraser), chum salmon, geoduck, etc
Timing of Analysis	If the analysis is seasonally dependent, then note the timeframe. e.g., Recreational fisheries may have a larger impact from May-August and so separate rows should specify the timing of analysis. If the fishery is year round: "June-May" or "year round"

7.3 Size of Fishery

Column	Comments
Mean Catch (pcs/lbs)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average catch in appropriate units, over a representative time span for the fishery (the time period may differ between species). e.g., 40,000 lbs/yr, 2010-2014
Mean Effort (boat-days, fishers, etc)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average effort (number of boats, number of fishers, etc.) over a representative time span for the fishery. e.g., 2000 boat-days per year, 2012-2014
% TAC	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. -Record the range of percentages that the fishery takes of the total exploitation rate (e.g., 50-75%), or provide the mean total exploitation rate over a specified time period (e.g., 25%, 2005-2010)

8 PART B: ECOSYSTEM RISKS

8.1 Main Species

Could the mortality caused by fishery threaten the main fish species or stock that is being assessed?

"Main" can also be referred to as "target".

Column	Comments
Main Species or Stock Status	<p>Does the fishery target a species/stock that is thought to be of concern in some way (e.g., Is it healthy and abundant? Is it listed under the <i>Species at Risk Act</i> (SARA)? Has it been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Wild Salmon Policy (WSP)? Has it been identified as a concern according to the Salmon Outlook or its Integrated Fisheries Management Plan status or another assessment grouping? Or is the species or stock status presumed to be low but data deficient? Is there a co-migrating stock amongst the main species that is sensitive in some way?), and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= There are minor concerns with how the fishery will impact the health of the main fish population being analyzed (but it is not listed or presumed to be weak). 2= The fishery may impact a species/stock that is of medium concern (e.g. listed as "of special concern" or "amber status"). 3= The fishery may impact a species/stock of high concern (e.g. listed as, "threatened" or "endangered" or "red status").</p> <p>Likelihood: E.g. 0 = This question isn't applicable 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, the consequence value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Vulnerability of Main Species or Stock	<p>Can the fishery cause long-term harm to the main species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the life-history of the species. 2= The fishery may have medium impacts on the life-history of the species. 3= The fishery may have high impacts on the life-history of the species.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Species or Stock Behavioral Changes	<p>Are there disruptions to the behaviour of the main species/stock resulting from fishing activities (e.g., noise, displacement and/or interruption to breeding, migration changes due to gillnets, etc.)?</p> <p>Consequence: E.g. 0= no disruptions (e.g. marine land-based angling, for instance from a rock where one line won't impact behaviour of a school of fish) 1= yes but minor (e.g. boat based angling causes noise that may cause fish to dive deeper, etc.) 2= yes, medium impact (e.g. gillnets in Fraser temporarily impact migration patterns) 3= yes, major impact.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question is not applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

8.2 By-Catch

Could the mortality caused by fishery threaten a non-target fish species / stock?

Column	Comments
Retained By-Catch Status	<p>Does the fishery retain a by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the by-caught species, not the individual.</p> <p>Identify in cell comment all retained by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=not applicable. 1= yes, minor concerns with health of by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via the Canadian Science Advisory Secretariat (CSAS). 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= Not applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Vulnerability of Retained By-Catch	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the productivity of species/stock. 2= The fishery may have medium impacts on the productivity of species/stock. 3= The fishery may have high impacts on the productivity of species/stock.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

Released By-Catch Status	<p>Does the fishery impact a released by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the released by-caught species, not the individual.</p> <p>Identify in cell comment all released by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=no 1= yes, minor concerns with health of released by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via CSAS. 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This questions isn't applicable 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
Vulnerability of Released By-Catch	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the productivity of species/stock. 2= The fishery may have medium impacts on the productivity of species/stock. 3= The fishery may have high impacts on the productivity of species/stock.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

8.3 Community & Habitat

Could the mortality caused by fishery threaten other components of the eco-system, such as predators or prey or habitat?

Column	Comments
Key Predator or Prey	<p>Does the fishery impact an important predator (e.g. resident orca) or prey (e.g. forage fish such as herring, sardine, eulachon, etc.)? Will removals in the fishery have a demonstrated impact on the survival of other species in the community?</p> <p>Consequence: e.g., 0= No (e.g. sea cucumber) 1= Minor impact. For instance, a fishery might discard a small amount of a plentiful forage fish (e.g. hake fishery impact on herring). Or discarded species has minor ecosystem role (e.g. sea urchins are food source for sea otters, but many alternatives) 2= Medium impact. For instance, fishery targets forage fish at low level, or discarded forage fish is large but not putting population at risk. Or entanglement of marine mammals in fishing gear can occur. 3= High/worrisome impact. For instance, the fishery has an impact on forage fish of low abundance (e.g. shrimp trawl impact on eulachon). Or the impact is on SARA listed species (e.g. chinook fishery limits resident killer whale diet).</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact an important predator or prey.</p>

	<p>1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Direct Habitat Impacts	<p>Are there direct NEGATIVE changes to structure or composition of the habitat or is there destruction as a result of fishing activity? (e.g. impacts on identified sensitive areas, impacts on spawning habitat due to disturbing redds, ghost gear, overlap with marine protected areas, national marine conservation areas, marine parks, other protected areas, etc.)</p> <p>Consequence: e.g. 0= No impact (e.g. marine land-based angling) 1= Minor impact (e.g. clam digging by small digging crew) 2= Moderate impact (e.g. bottom contact gear such as crab traps) 3= Major impact (e.g. trawl impact on glass sponge coral)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above. It can be 1, 2, or 3 depending on presumed consequence of impact.</p>
Indirect Habitat Impacts	<p>Are there indirect NEGATIVE changes to habitat feature/function due to indirect impacts of fishing activity? (e.g. sedimentation, displacement of marine mammal, pollution, noise from vessel traffic, accumulation of lead from lost fishing gear, etc.)</p> <p>Consequence: E.g. 0= no 1= yes but minor (e.g. marine boat-based angling noise) 2= yes, medium impact (e.g.) 3= yes, major impact (e.g.)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

9 PART C: RESOURCE MANAGEMENT ISSUES

Column	Comments
Fishery Type	<p>Is the fishery SHARE-BASED, DERBY, or OTHER?</p> <p>DERBY (i.e., Effort-based) SHARE (e.g., Quota, IVQ, ITQ) OTHER (e.g., other allocation type) N/A (Does not always apply to Recreational or FSC fisheries, unless there is a defined share)</p>
Potential to Over-Harvest	<p>Under current management conditions, does the fishery under consideration (not all of the impacting fisheries) have the potential/capacity to overharvest the fish species or stock that is being assessed and put it at risk biologically? For instance, does the fishery have the capacity (e.g., sufficient boats, nets, etc.) to catch more than its Total Allowable Catch (TAC) if quota overruns or unreported fishing occurs? Can the fishery be managed (e.g., through up-to-date catch accounting) to avoid overharvest? Is the expected level of impact that removals will have on species/stock size and productivity expected to be low, medium or high?</p> <p>NOTE: We are not considering cumulative impacts of multiple fisheries at this time.</p>
Compliance & Enforcement	<p>Are there routinely compliance or enforcement concerns (e.g. low reporting, using barbed hooks, using wrong sized mesh, selling recreational or FSC fish, etc.) that may impact the monitoring of the fishery? Are there incentives for non-compliance?</p>

	(Y/N)
	This variable is not scored so please explain concerns in the comment box if they exist.
International or Treaty Requirements	Are there any international/treaty information requirements, such as Pacific Salmon Treaty (PST), Marine Stewardship Certification (MSC), traceability, First Nations Treaties, etc. that would require a higher level of monitoring?
	(Y/N)
	This variable is not scored but please explain relevant treaties and associated requirements for monitoring in the comment box.
Info to Manage Other Sectors or Fisheries	Is information required in-season to plan for other fisheries, such as FSC, recreational, commercial?
	(Y/N)
	This variable is not scored but please explain in-season reporting requirements in the comment box.
Public Relations	Is there a need for higher monitoring due to public requirements for more detailed explanation about the impacts of the fishery?
	(Y/N)
	For instance, there are examples of fisheries where a low level of monitoring is probably appropriate due to ecosystem risk, but DFO implements higher levels of monitoring because the public needs it (example is Area 6 seine).
	This variable is not scored but please provide information about public's concern for monitoring in the Comment field.

10 PART D: PRELIMINARY RISK SCORING (CALCULATED)

Column	Comments
Risk to Main Species	Auto-calculated from MAIN SPECIES CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Risk to By-Catch	Auto-calculated from BY-CATCH CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Risk to Community and Habitat	Auto-calculated from COMMUNITY & HABITAT CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Overall Fishery Risk	Auto-calculated from maximum value of CALCULATED RISK SCORES PROTECTED: user may NOT over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECED: user man not over-ride

11 PART E: FINAL RISK SCORING (ASSIGNED)

Column	Comments
Risk to Main Species	DEFAULTS to preliminary MAIN SPECIES RISK SCORE; user may over-ride.
Risk to By-Catch	DEFAULTS to preliminary BY-CATCH SPECIES RISK SCORE; user may over-ride.
Risk to Community and Habitat	DEFAULTS to preliminary COMMUNITY & HABITAT RISK SCORE; user may over-ride.
Overall Fishery Risk	DEFAULTS to maximum value of FINAL RISK SCORES; user may over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECTED: User many NOT override

12 PART F: RISK ASSESSMENT NOTES

Column	Comments
Current Monitoring Level	What is the current monitoring level?
Information Gaps	Are there any specific information gaps in the monitoring program? E.g. Need to record by-catch. Should sample 10% of scales
Comments	Further comments and suggestions pertaining to current monitoring level, apparent quality and comprehensiveness of Catch Monitoring & Reporting effort, data gaps, issues of current and future risk, etc
Contact Info – Name & Date	Who supplied this information and when.

Risk Assessment Tool - Working Draft

Crab for Recreational by Non-commercial trap, ringnet

Part A: Fishery Description & Licensing Information

Licensing

DFO MGMT AREA	Coastwide
NAME of FISHING GROUP	All Recreational Harvesters
LICENCE TYPE	Recreational

Description

GEAR TYPE	trap, ringnet
FISH SPECIES for ANALYSIS	Crab
TIMING of ANALYSIS	Year- Round

Size of Fishery

MEAN CATCH (pcs/lbs)	Unknown
MEAN EFFORT (boat-days, fishers, etc)	Unknown
% TAC	N/A

Part B: Ecosystem Risks

Main Species

MAIN SPECIES or STOCK STATUS	0
VULNERABILITY OF MAIN SPECIES or STOCK SPECIES or STOCK BEHAVIOURAL CHANGES	3
	1

By-Catch

RETAINED BY-CATCH STATUS	0
VULNERABILITY OF RETAINED BY-CATCH	1
RELEASED BY-CATCH STATUS	3
VULNERABILITY OF RELEASED BY-CATCH	1

Community & Habitat

KEY PREDATOR or PREY	1
DIRECT HABITAT IMPACTS	2
INDIRECT HABITAT IMPACTS	1

Part C: Resource Management Issues

FISHERY TYPE	N/A
POTENTIAL to OVER-HARVEST	No
COMPLIANCE and ENFORCEMENT	Yes
INTERNATIONAL or TREATY REQUIREMENTS	No
INFO to MANAGE OTHER SECTORS or FISHERIES	Yes
PUBLIC RELATIONS	Yes

Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	3
RISK to BY-CATCH (D)	3
RISK to COMMUNITY and HABITAT (D)	2
OVERALL FISHERY RISK (D)	3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Generic

Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E)	3
RISK to BY-CATCH (E)	2
RISK to COMMUNITY and HABITAT (E)	2
OVERALL FISHERY RISK (E)	3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E)	Generic

Risk Assessment Notes

CURRENT MONITORING LEVEL (Low, Generic, Enhanced)	Low
INFORMATION GAPS	- require spatial information with respect to areas fished- lack of catch and effort info in general
COMMENTS	increased monitoring and reporting is required to better describe FSC and recreational harvest and effort, to inform and support discussions regarding access and management priorities