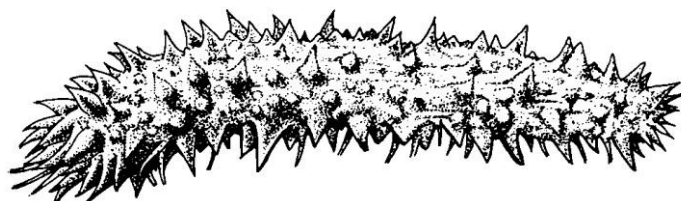


PACIFIC REGION

**INTEGRATED FISHERIES
MANAGEMENT PLAN**

**SEA CUCUMBER
BY DIVE**

**OCTOBER 1, 2022 TO SEPTEMBER
30, 2023**



Sea Cucumber: *Apostichopus californicus*



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

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

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1. OVERVIEW

1.1. Introduction

In this document, ‘Sea Cucumber’ refers to the Giant Red (California) Sea Cucumber (*Apostichopus californicus*, formerly *Parastichopus californicus*).

The 2022/23 Pacific Region Sea Cucumber Integrated Fisheries Management Plan (IFMP) encompasses the period of October 1, 2022 to September 30, 2023.

The Sea Cucumber Commercial Harvest Plan is attached as Appendix 1 to this IFMP. Commercial fish harvesters are advised to review the attachments for harvest information.

1.2. History

The Giant Red Sea Cucumber (*Apostichopus californicus*) is the only Sea Cucumber species harvested in British Columbia (BC) and is harvested commercially under the authority of a limited “ZD” licence.

The commercial dive fishery began in BC in 1971. An experimental fishery occurred in southern waters during the early 1980s during which time markets were established for BC Sea Cucumbers. As a result, there was rapid escalation in effort during the 1980s which led to conservation concerns and the implementation of various management actions. Licence limitation came into effect in 1991 in an attempt to control an increase in fishing effort, and the number of licence eligibilities was set at 85. In 1992 the commercial industry formed the Pacific Sea Cucumber Harvesters Association (PSCHA) which represents the interests of licence eligibility holders with regards to marketing and fishery sustainability. The PSCHA is a member of the Sea Cucumber Sectoral Committee (see Appendix 13) and provides advice and comments on this IFMP and other issues related to the commercial fishery.

A rotational style fishery began in 1993 in order to reduce the impacts of harvest by allowing a two year recovery period between openings and an Individual Quota (IQ) program was adopted for the commercial Sea Cucumber fishery in 1995. The implementation of the IQ program was beneficial for the BC Sea Cucumber industry since it gave an equal share of the Total Allowable Catch (TAC) to each licence eligibility holder which in turn promoted a safer fishery and reduced issues with quota overages.

An Adaptive Management Plan (AMP) was undertaken in the Sea Cucumber fishery from 1997/2007 (see section 2.3). Under the AMP, the Department restricted the commercial fishery to approximately 25 percent of the BC coastline. This restriction was not meant to be permanent and the PSCHA was told that areas closed for the AMP would be considered for reopening pending

results from data collected during the plan. The fishery also moved from a rotational style fishery to an annual style fishery in order to allow the collection of time-series fishery dependent data. Arbitrary quotas in place prior to the AMP were replaced by a precautionary baseline TAC that was calculated using baseline density estimates and a precautionary fixed harvest rate. Provisions were built into the AMP that allowed increases in TAC based on data collected from stock assessment surveys. The TAC steadily increased from 1998 to 2005 due to a number of surveys that were completed and due to the doubling of the baseline density estimate in 2002. The TAC was set at approximately 1.2 million pounds in 2006 and remained constant until an increase of approximately 9.5% in 2011.

In 2008, after reviewing the results of the 10 year AMP (Hand et al. 2009), the Department began allowing the commercial fishery to return into areas that were closed during the AMP. In 2011 the commercial fishery moved from an annual style fishery to a 3-year rotational style fishery. For the Adaptive Rotational Fishing Strategy (ARFS), each Sea Cucumber Quota Management Area (QMA) is harvested once every three years. Some QMAs were returned to an annual style harvest in 2017. The ARFS continues with a fourth round spanning 2020 to 2022.

Sea Cucumbers are important to coastal First Nations, who harvest them for food, social and ceremonial purposes. Recreational harvest of Sea Cucumbers is undocumented but is considered minimal.

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 Aboriginal communal licence or a harvest document if under treaty. The communal licence or harvest document may contain provisions for the designation of individuals by the First Nation or First Nation organization but the number harvesting Sea Cucumber is otherwise unknown.

1.3.2. Recreational

A BC Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish, including Sea Cucumbers. There were 272,800 anglers participating in BC's tidal waters recreational fishery in 2020/21. Most (90%) were BC residents, with the remainder divided amongst Canadian residents from other provinces and territories. The number of recreational harvesters taking advantage of the bag limit for Sea Cucumbers is unknown. However, based on information from the Sport Fishing Advisory Board (SFAB), it is thought to be minimal.

1.3.3. Commercial

The commercial fishery is a limited entry fishery with 85 licence eligibilities. There is currently one communal commercial licence that is available for First Nations participation in the commercial fishery. First Nation organizations also hold regular commercial licences in this fishery. Vessel sizes in the commercial fishery range from 8 metres to 12 metres in length. It is common practice within the industry for vessels to stack multiple licence eligibilities in order to make fishing more economical.

A typical crew on a Sea Cucumber vessel consists of a vessel master and one or two crew members. One crew member will act as a dive tender while the others dive to harvest Sea Cucumbers.

1.3.4. Aquaculture

There is a keen interest by industry and investors to develop Sea Cucumber aquaculture technologies and methodologies both for aquaculture and enhancement of wild stocks. Further research, in the areas of hatchery and grow-out techniques for Sea Cucumber species native to BC, are required to support the growth of this sector. Further policy development is required to define DFO's approach to Sea Cucumber aquaculture interest.

Aquaculture licence conditions include pre-harvest notification and the provision of an aquaculture landing log when harvest occurs. Sea Cucumbers are a candidate species for integrated multitrophic aquaculture systems, where they can be cultivated in containers below finfish and shellfish farms to feed on deposition material.

For more information, listing of licensed sites and Conditions of the Shellfish Aquaculture Licence see the Fisheries and Oceans Canada Pacific Aquaculture website at:

www.dfo-mpo.gc.ca/aquaculture/index-eng.htm

1.4. Location of Fishery

1.4.1. First Nations and Recreational

Aboriginal and recreational harvest may occur coast-wide, where appropriately licensed.

1.4.2. Commercial

The commercial fishery occurs in units called Quota Management Areas. These Sea Cucumber specific management areas are a defined portion of Pacific fisheries waters. Areas and Subareas, as described in the *Pacific Fishery Management Area Regulations*, are referenced in describing each management area. (see Appendices 1, 9 and 10).

1.5. Fishery Characteristics

1.5.1. First Nations

First Nations' harvest of Sea Cucumbers for FSC or domestic purposes is open year round.

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, the United Nations Declaration on the Rights of Indigenous Peoples Act, 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 United Nations Declaration on the Rights of Indigenous Peoples Act see <https://laws-lois.justice.gc.ca/eng/acts/u-2.2/>

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

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

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

Information on Indigenous fisheries and reconciliation is available at: <http://www.pac.dfompo.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>

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.

FSC Fisheries:

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.

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

Five Nations Right-Based Sale Fishery

For more information, see Appendix 2 (First Nations Harvest Plan).

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.dfompo.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.

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). DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to 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, Oceans and the Canadian Coast Guard 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 framework 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 reconciliation agreement includes substantive commitments the Parties have agreed to implementing and governs the relationship between the Parties for its term of the agreement.

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

Framework Agreements:

- *GayGahlida "Changing Tide" Framework Agreement* between Haida 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 *Reconciliation Agreements:*
- *Hailcístut Incremental House Post Agreement* between Heiltsuk and Canada

- *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 open year-round (except for areas closed to fishing) and is an open entry fishery with a daily limit and a two-day possession limit. There is no size limit for recreational harvesters and the type of gear permitted is limited to hand picking only.

A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of Sea Cucumbers. Tidal Waters Sport Fishing Licences can be purchased over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee), or 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>

1.5.3. Commercial

The commercial licence year runs from October 1 to September 30 of the following year. The fishery opens on October 1 in the north coast licence area and a week later in the other licence areas. The season is scheduled for approximately 8 weeks. Harvest is by hand picking while diving.

The fishery operates under a Total Allowable Catch (TAC) with Individual Quotas (IQ). All commercial landings are tracked using a coast-wide Dockside Monitoring Program (DMP). Other management measures include limited entry licensing, area quotas and area licensing. For more information see Appendix 6.

1.5.4. Aquaculture

Sea Cucumber aquaculture is at an early stage of development in BC. Currently aquaculture harvests have consisted of wild Sea Cucumbers that have settled as juveniles on floating gear such as oyster strings and shellfish trays. Hatchery techniques are also under development, with some early indication of success. There is also keen interest by industry in outplanting hatchery raised juvenile Sea Cucumbers and in 'ocean ranching' methods. DFO is working to develop phased, integrated approaches for the development of aquaculture involving new and emerging species. Until these

phased approaches are in place, DFO will not be considering new applications for Sea Cucumber aquaculture licences. See Appendix 4.

1.6. Governance

1.6.1. Fisheries Management

The Sea Cucumber fishery is 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 (MPAs) 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, 2. 18). Marine National Wildlife Areas may be established under the *Canada Wildlife Act* (1985, c. W-9).

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 derivative of an individual.

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

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

<https://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 committee called the Centre for Science Advice - Pacific (CSAP) (formerly, the Pacific Scientific Advice Review Committee (PSARC)). Information about the CSAP and publications are available at: <http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm>

DFO engages in a variety of consultation, engagement and collaborative harvest planning processes with First Nations. These exchanges and involvement may include bilateral consultations, advisory processes, management boards, technical groups and other roundtable forums. Consultation is an important part of good governance, sound policy development and decision-making. It is also a component of modern treaties established between First Nations and provincial and federal governments. In addition to good governance objectives, Canada has statutory, contractual, and common law obligations to consult with First Nations groups.

The Sea Cucumber Sectoral Committee (Appendix 13) is the primary body guiding management decision-making processes for the Sea Cucumber fishery. The Sea Cucumber Sectoral Committee meets once a year in June for a post-season review and pre-season planning.

1.7. Approval Process

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

2. STOCK ASSESSMENT AND SCIENCE

2.1. Biological Synopsis

The Giant Red or California Sea Cucumber (*Apostichopus californicus*) is a member of the phylum Echinodermata, which includes sea stars and sea urchins. It is the largest of over 40 sea cucumber species in BC and is the only one that is commercially harvested. The species range is from the Gulf of Alaska to southern California, in water depths ranging from the intertidal to 250 m. Sea Cucumbers occupy the seabed in a wide variety of substrate and current regimes, but are most abundant in areas of moderate current on complex boulder or bedrock substrates. Individuals have limited mobility, move an average of 4 metres per day while feeding, and are reputed to undertake seasonal migrations to different depths. Sea Cucumbers feed by picking up organic detritus with their mop-shaped adhesive tentacles as they move over the sea floor.

Sea Cucumbers have separate sexes and spawning occurs from spring through summer. Eggs and sperm are released directly into the water and the developing larvae remain planktonic for two to four months. Juveniles are 0.25 mm in length at settlement and grow to approximately 1 cm in one year and 4 to 10 cm at the end of two years. During this early life-stage, they have been observed attached to the underside of rocks, in mats of stringy red algae in calm bays and among solitary tunicates, although juveniles have been reported from many different habitats. Adult populations tend to be uniform in size and rarely contain individuals less than 15 cm in length. Age at recruitment to the fishery is thought to be at least 4 years, since year classes can be distinguished through analysis of length frequency data for only the first three years.

The life history characteristics of importance to understanding the productivity of *Apostichopus californicus* are largely unavailable. No method has yet been found to age the animals, and

therefore basic parameters for stock assessments (natural mortality and age at recruitment) are speculations. The body shape is plastic, and hence measurements of body dimensions are difficult to obtain. Furthermore, the animals undergo annual fluctuations in body mass, skin thickness and muscle weight from their yearly cycle of resorbing and regenerating their internal organs.

2.2. Ecosystem Interactions

Sea Cucumbers move slowly over the sea floor feeding on the organic component of detritus. They function in the ecosystem as nutrient recyclers. Adult Sea Cucumbers have few known predators, with the exception of Sea Otters (*Enhydra lutris*) and several species of sea stars. Sea stars can induce a violent escape response whereby the Sea Cucumber undulates its body, creating a swimming motion that allows it to move away from the predatory threat. Juveniles are probably more vulnerable and this may explain their cryptic behaviour. Greater numbers of juvenile Sea Cucumbers have been reported over the last few years and it is suspected that one contributing factor could be the impact that ‘sea star wasting disease’ has had on one of their main predators, the sunflower star (*Pycnopodia helianthoides*). Sea Otters eat Sea Cucumbers even though their caloric value is much less than other food sources such as clams, crabs, etc. This is likely due several factors: Sea Cucumbers lack a protective shell, do not have harmful defensive mechanisms (like claws or spines) and don’t require energetically costly excavation to harvest (Larson et al. 2013).

2.3. The Adaptive Management Plan (Phase 1 Fishery) 1997 to 2007

Due to the data-limited nature of the Sea Cucumber fishery, a phased approach for new and developing fisheries, following Perry et al. 1999, was recommended in order to evaluate the fishery. ‘Phase 0’ (collecting existing information) started in 1995 and a review of all existing data from the BC and Alaska fisheries was undertaken. Knowledge gaps were identified during Phase 0 and it was then recommended that the fishery enter ‘Phase 1’ (collecting new information) in order to collect important time-series fishery-independent and fishery-dependent data. In order to implement Phase 1, an Adaptive Management Plan (AMP) was developed and implemented for the Sea Cucumber fishery in 1997. This approach was based on advice from PSARC (*Boutillier et al 1998, Scientific Advice for the Management of the Sea Cucumber Fishery in British Columbia*). The AMP limited commercial fishing activity to approximately 25 percent of the BC coast.

After extensive research over a ten year period, analysis of harvest data, experimental fishery data and density survey data, risk-adverse sustainable exploitation rates were recommended that would ensure a sustainable fishery (*Hand et al. 2009; An Evaluation of Fishery and Research Data Collected During the Phase 1 Sea Cucumber Fishery in British Columbia 1998 to 2007*). Hand et al. (2009) made several recommendations, among which was to re-open areas that were closed during the AMP and to consider a rotational harvest strategy. The commercial Sea Cucumber fishery started ‘Phase 2’ (fishing for commerce) in 2008 and since then large portions of the BC coast that were closed for the AMP have reopened. The experimental fishery area research continued until 2015 and the additional 8 years of data were analysed in Hajas et al. (in press).

2.4. Stock Assessment

The Department, in collaboration with First Nations and the Pacific Sea Cucumber Harvesters Association (PSCHA), continues to conduct stock assessment research leading towards an improved understanding of Sea Cucumber populations. Scientific research and stock assessment surveys are of

vital importance to this fishery as it continues to be managed under the precautionary approach to Canadian fisheries.

Surveys of selected PFMA Subareas are conducted annually to obtain estimates of the density of *Apostichopus californicus*, expressed in number of Sea Cucumbers per metre of shoreline. Individual Sea Cucumbers are also collected and weighed to calculate the mean Sea Cucumber weight. From these parameters, the total population biomass is estimated for each Subarea (see Appendix 6).

Density data from transect surveys have been collected in areas along the British Columbia coast (Hand et al. 2009, Duprey et al. 2011; Duprey 2011, 2012, 2014; Duprey and Stanton 2015, 2018). Estimates from these surveys have shown that many areas have densities higher than the initial conservative assumption of 2.5 Sea Cucumbers per metre of shoreline.

In 2008, all survey data were reviewed and baseline densities for un-surveyed Subareas were calculated by region. This resulted in baseline densities of 6.0, 4.1, and 1.9 Sea Cucumbers per meter shoreline for the North Coast/Central Coast, East Coast Vancouver Island, and West Coast Vancouver Island, respectively. Newly opened areas are surveyed before opening and their densities are estimated using the collected survey data. The results of all surveys to date have been incorporated into this IFMP.

In 1997, four Experimental Fishing Areas (EFA) were implemented along the BC coast. These four EFAs (Laredo Inlet, Tolmie Channel, Zeballos, and Jervis Inlet) were used to compare differing harvest rates and the effects on the local population (Hand et al. 2009). Four sites at each EFA were harvested annually at different rates and density surveys were conducted at 2 and 4 year intervals including a fifth site which was never harvested. The results from 10 years of data were analyzed and modelled. The results indicated that it is highly probable that a 4.2% harvest rate would be sustainable for 75 years in all four EFAs (Hand et al. 2009). The EFA project was discontinued in 2017 due to several factors that compromised the survey design and created uncertainty in the advice being provided. DFO Science is analyzing the entire time series of EFA data (1998 to 2015) and results will be published in a CSAS Research Document in 2022. DFO Science is now moving towards a new, multispecies approach for providing science advice (see Section 2.9).

An updated assessment by Hajas et al. (in press) incorporated data collected from 1997-2015 and indicated that annual harvest rates should not exceed the range of 2.0 to 8.0% of estimated preharvest biomass, and triennial harvest amounts should not exceed the range of 5.7 to 18.8% of estimated pre-harvest biomass, with the caveat that the upper ranges may only be appropriate for highly productive areas.

A Limit Reference Point (LRP) was also recommended for the Sea Cucumber fishery using these survey and model results. The LRP of 50% B₀ (Hand et al. 2009) is being updated to an empirical LRP of 0.029 sea cucumbers m⁻² on sea cucumber habitat (Hajas et al. in press). This equates to 1.20 sea cucumbers m⁻¹; the linear density is provided for context, however, spatial units are recommended for the reference points (Hajas et al. in press).

2.5. Stock Scenarios

There is no indication of concern for Sea Cucumber stocks at this time. The Sea Cucumber fishery is managed conservatively, and stocks generally appear healthy. A precautionary approach to management, which ensures the Department is meeting its conservation goals, will continue for the

foreseeable future. This, in turn, will ensure sustainable harvests by all user groups. The long-term goal of the Department is to develop an ecologically-based management regime for a sustainable fishery through a better understanding of stock dynamics of the resource. Through collaboration with the PSCHA and coastal First Nations, tremendous gains have been made in the knowledge of the *Apostichopus californicus* population in BC.

Upon acceptance of the recommendations in the CSAS paper presented in 2007, the Department moved ahead with reopening sections of the coast that were closed for the Adaptive Management Plan. All new areas are surveyed prior to reopening to ensure that there are sufficient densities of Sea Cucumbers to support a commercial harvest. For more information on Sea Cucumber stock assessment see Appendices 6 and 7.

2.6. Precautionary Approach

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

- identify three stock status zones – Healthy, Cautious, and Critical – delineated by an upper stock reference point and a limit reference point;
- set the removal rate at which fish may be harvested within each stock status zone; and
- adjust the removal rate according to fish stock status (i.e., spawning stock biomass or another index/metric relevant to population productivity), based on pre-agreed decision rules.

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is 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 having a high probability of the stock growing 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 amendments are available at:

<https://www.parl.ca/LegisInfo/en/bill/42-1/C-68>

Information on the proposed regulation to prescribe major fish stocks and describe requirements for rebuilding plans is available at:

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

Publication of Canada Gazette, Part I, Volume 155, Number 1: Regulations Amending the Fishery (General) Regulations on January 2, 2021 is available at:

<https://gazette.gc.ca/rp-pr/p1/2021/2021-01-02/html/reg1-eng.html>

This regulatory amendment to prescribe major fish stocks and describe requirements for rebuilding plans was registered and came into force on April 3, 2022 and published in Canada Gazette, Part II and is available at:

<https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html>

A Limit Reference Point (LRP) has been set for the Sea Cucumber fishery and is based on survey and model results from the Phase 1 fishery. A Limit Reference Point (LRP) is currently in place but recent work recommends an empirical reference point of 0.029 sea cucumbers m^{-2} on sea cucumber habitat (Hajas et al. in press). This equates to 1.20 sea cucumbers m^{-1} , the linear density is provided for context, however, spatial units are recommended for the reference points (Hajas et al. in press).

In order for the LRP to be useful, Sea Cucumber harvest areas must be monitored on a regular basis to see whether changes are occurring. The time, money and effort required to survey all Sea Cucumber harvest areas multiple times would be prohibitive, so reference points are of limited use within the current assessment framework. DFO Science is developing a coast wide multispecies monitoring program, intended to collect the data necessary to assess stock status against reference points (see Section 2.9).

DFO Science has developed a peer-reviewed scientific paper that analyzes the full time-series of data from the Experimental Fishing Area research that occurred from 1998 to 2015. This paper provides advice on a range of harvest rates, updates the current LRP, and recommends an Upper Stock Reference (USR) for the commercial fishery, thereby further aligning this fishery with the DFO Precautionary Approach Framework and the legislated requirements of Bill C-68. This paper is anticipated to be published on the CSAS website in late 2022.

More detailed information may be obtained by contacting DFO Science Branch personnel (see Appendix 15).

2.7. Commercial No-Take Reserves

Commercial No-take Reserves (CNTRs) are a management tool meant to provide an alternative to reference points, insurance against uncertainties in stock assessment and management, anticipated spill-over of adults and larvae into commercially harvested areas, and research opportunities. There are a number of other closures currently in place around the BC coast such as parks and marine reserves that likely also provide these same functions. The only difference between these types of closures and CNTRs is that CNTRs are surveyed prior to implementation to ensure there are Sea Cucumbers present. Since a survey is required prior to designation, CNTRs have only been placed in the reopened portions of the coast to date. The criteria currently used by the Department to choose CNTR locations are: the area must be surveyed, have clear boundaries (for enforceability) and be

based on best judgement of which areas would be representative of the surrounding commercially harvested area.

In 2011 resource managers requested advice from DFO Science to provide guidance on development of a coast-wide network of CNTRs. In 2013 the CSAS paper *Simulation Modelling Tools to Evaluate Alternative Fishery Closure Network Designs for Shallow-water Benthic Invertebrates in British Columbia* was presented and accepted by the Centre for Science Advice Pacific (Duprey et al., 2016). Model results from the CSAS paper indicate that CNTRs may not be needed given the current precautionary management regime in place for the Sea Cucumber fishery. Despite these results, the Department still sees value in placing a limited number of CNTRs around the BC coast. There are currently twenty CNTRs in place around the BC coast that include a total of 930 kilometers of shoreline.

2.8. Precautionary Exploitation Rate (Harvest Rate)

In 1997, the harvest rate for the Sea Cucumber fishery was set at 4.2% of the estimated biomass, based on conservative estimates of *Apostichopus californicus* harvest rates in the Alaska and Washington State fisheries. Experimental fisheries were undertaken throughout coastal British Columbia in collaboration with the PSCHA and First Nations. These experiments were designed to evaluate the effect of different exploitation rates on *Apostichopus californicus* populations. Results of these experiments led to the conclusion that the 4.2 percent annual harvest rate appears to be precautionary and is suitable for a variety of habitats and densities. If unproductive, low-density areas are avoided, a conservative annual harvest rate of 6.7 percent is recommended (Hand et al. 2009). From 2008 to 2010 a harvest rate of 6.7 percent was applied to newly surveyed and reopened areas and the 4.2 percent harvest rate continued to be applied to all areas open during the Phase 1 fishery.

In 2011 the fishery moved to a rotational style fishery in which each quota management area is fished once every three years. Instead of tripling the harvest rate for each quota management area as is done in most rotational style fisheries, managers chose a harvest rate within the range of 3.5 to 10.3 percent recommended in Hand et al. (2009) for an annual style fishery. A rotational harvest strategy and a triennial harvest rate of approximately 10 percent is used on some QMAs. Other QMAs are harvested annually with a harvest rate of between 2.2 and 4.2 percent. An adaptive management approach is employed with regards to harvest rate since not all QMAs have the same level of stock productivity. This approach allows the harvest rate to be adjusted as needed based upon harvester feedback and/or stock assessment information.

Upon further analysis of the experimental fishery areas, Hajas et al (in press) recommended that annual harvest rates should not exceed the range of 2.0 to 8.0% of estimated pre-harvest biomass, and triennial harvest amounts should not exceed the range of 5.7 to 18.8% of estimated pre-harvest biomass, with the caveat that the upper ranges may only be appropriate for highly productive areas.

2.9. Research

The Department is working in collaboration with the PSCHA and First Nations to determine means of examining and measuring abundance, growth, recruitment, settlement, and mortality in Sea Cucumber populations.

Commercial no-take reserves are also being established along the coast as new areas are opened to commercial harvesting. These areas will provide an excellent opportunity to monitor the natural trends in local populations, which will be ideal for comparisons to neighbouring harvested areas and for province wide comparisons of population trends over time. Some initial work on quantifying deep water populations (50-250 metres) has been conducted using remotely operated vehicles to compare near shore densities to deep water densities. This is an important link to harvestable densities as the deep water population acts as a pseudo-reserve, being at depths unattainable by commercial divers.

DFO Science is developing a multispecies benthic invertebrate survey protocol that will promote an ecosystem approach to stock assessment and gain efficiencies by combining single species survey protocols for the commercial dive fisheries. This may allow more spatial and temporal coverage than is possible under the current single species approach, and is intended to monitor coast wide stock abundance over time. These new survey methods are also intended to allow assessment of stock status relative to the three zones (Healthy, Cautious, Critical) as identified in the DFO Precautionary Approach Framework and as legislated in Bill C-68. A CSAS research document with peer reviewed recommendations on this approach is expected to be delivered by 2022.

More detailed information about ongoing research projects and papers may be obtained by contacting DFO Science Branch personnel (see Appendix 15).

3. INDIGENOUS KNOWLEDGE

In 2019, the *Fisheries Act* was amended to include provisions where the Minister may, or shall consider provided Indigenous knowledge 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. ECONOMIC PROFILE OF THE FISHERY

The intent of this section is to provide a socio-economic context for the Sea Cucumber fishery in BC. An overview of First Nations, recreational and commercial sectors of the fishery is provided.

4.1. First Nations

The Allocation Transfer Program (ATP) and Pacific Integrated Commercial Fishery Initiative (PICFI) have relinquished existing commercial licence eligibilities from fish harvesters on a voluntary basis and re-issued these to eligible First Nation organizations as communal commercial licences.

As a result of these programs, three of the 85 commercial Sea Cucumber licence eligibilities are communal commercial licences. First Nation organizations also hold a number of regular commercial Sea Cucumber licence eligibilities received during the licence limitation process in 1991.

For more information on the Aboriginal Fisheries Strategy Allocation Transfer Program, contact a resource manager listed in Appendix 15 or see the internet at:

www.pac.dfo-mpo.gc.ca/abor-autoc/atp-ptaa-eng.html More

information on PICFI is available on the internet at:

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

4.2. Recreational

Recreational fishing may occur to provide food for personal use, as a leisure activity, or as a combination of the two. The recreational community includes local residents, multi-species charter operators and lodges, and visiting anglers and boaters. In the 2021/2022 recreational angling season, 272,800 anglers were licensed to fish in BC's tidal waters recreational fishery. These activities provide a range of benefits to the participants as well as contribute directly and indirectly to economic activity.

Recreational fishing interests for harvesting shellfish species is directed mainly at crab, prawns and bivalves. The recreational harvest of Sea Cucumbers is believed to be minimal.

4.3. Commercial

The Pacific Region is home to the only commercial *Apostichopus californicus* (Giant Red Sea Cucumber) fishery within Canada. There are also commercial fisheries for *Apostichopus californicus* in the states of Washington, California and Alaska in the U.S. as well as a drag fishery for Orange-footed Sea Cucumbers (*Cucumaria frondosa*) on the east coast of Canada.

The 85 commercial Sea Cucumber licences are party-based, meaning that each licence eligibility holder may designate their licence to a registered commercial vessel of their choice each season. Licences are stackable, such that each vessel may hold numerous licences. In 2020, 85 licences were distributed across 31 vessels. Most of the vessels were also licensed for one or more other dive fisheries such as Geoduck, Green Sea Urchin or Red Sea Urchin. Overall, the dive fleet generates slightly more revenue from its harvest of non-Sea Cucumber species than from Sea Cucumber (Nelson 2011).

The annual Sea Cucumber fishery commences in October, when product quality is higher and weather conditions are still conducive to harvesting. The fishery is scheduled for eight weeks and the majority of the TAC is usually harvested within the first three or four weeks of the opening.

The commercial Sea Cucumber fishery in BC has gone through a significant number of changes since 2008 when it moved from a Phase 1 fishery to a Phase 2 fishery (see section 2.3) in 2008. The

fishery has expanded from approximately 25% of the BC coastline set aside in the Adaptive Management Plan (AMP) to approximately 53% in 2021. Since 2008 approximately 6,700 km of shoreline has reopened to commercial harvest and this number continues to grow as more areas are surveyed. The amount of quota available for harvest has increased as a result of reopening portions of coastline and has allowed for an increase of approximately 9.5% in the commercial TAC and the implementation of a rotational style fishery (see Appendix 14). Another significant change has been the distribution of effort between the four licence areas (north coast, central coast, east coast of Vancouver Island and west coast of Vancouver Island). During the Phase 1 fishery, most (around 84%) of the coastwide commercial TAC was in the north and central coast licence areas and approximately 8% in the east coast Vancouver Island licence area (Figure 1). Once the Phase 2 fishery started, effort started to spread more evenly amongst the licence areas. In 2020, the north and central coasts accounted for only 66% of the TAC. The rest of the TAC was distributed mainly to the east coast Vancouver Island and some to the west coast of Vancouver Island.

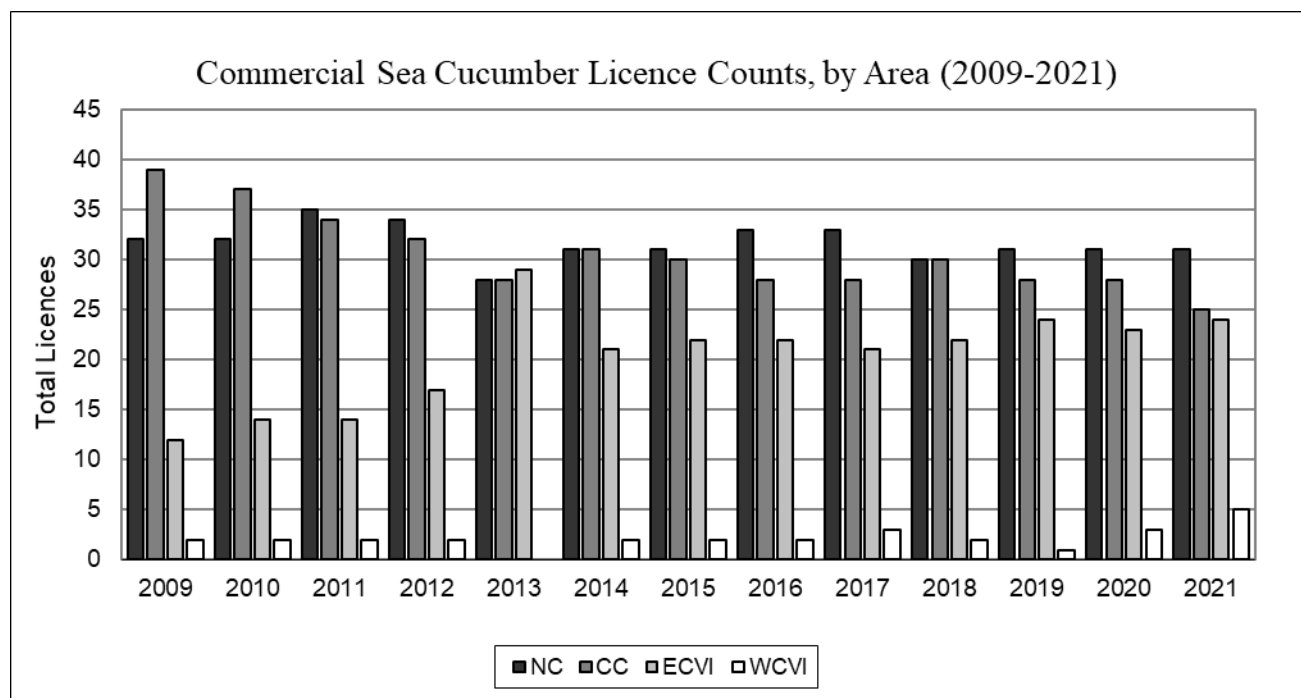


Figure 1. The number of commercial licences in each licence area from 2007 to 2021. NC = north coast licence area, CC = central coast licence area, ECVI = east coast of Vancouver Island licence area, WCVI = west coast of Vancouver Island licence area. The number of licences represents the share of the coast-wide commercial TAC in each licence area.

4.3.1. Viability and Market Trends

The total allowable catch (TAC) remained relatively constant from 2006 to 2010 (Figure 2). In 2011, the TAC increased from approximately 1.2 million pounds (split) to 1.36 million pounds (split) due to an increase in quota made available from portions of coastline that have been reopened since 2008 (see section 2.3). In 2020, the TAC was temporarily lowered to 1.275 million pounds (split) at the request of the PSCHA due to market demand issues but returned to its previous level of 1.36 million pounds for the 2021-22 and 2022-23 seasons.

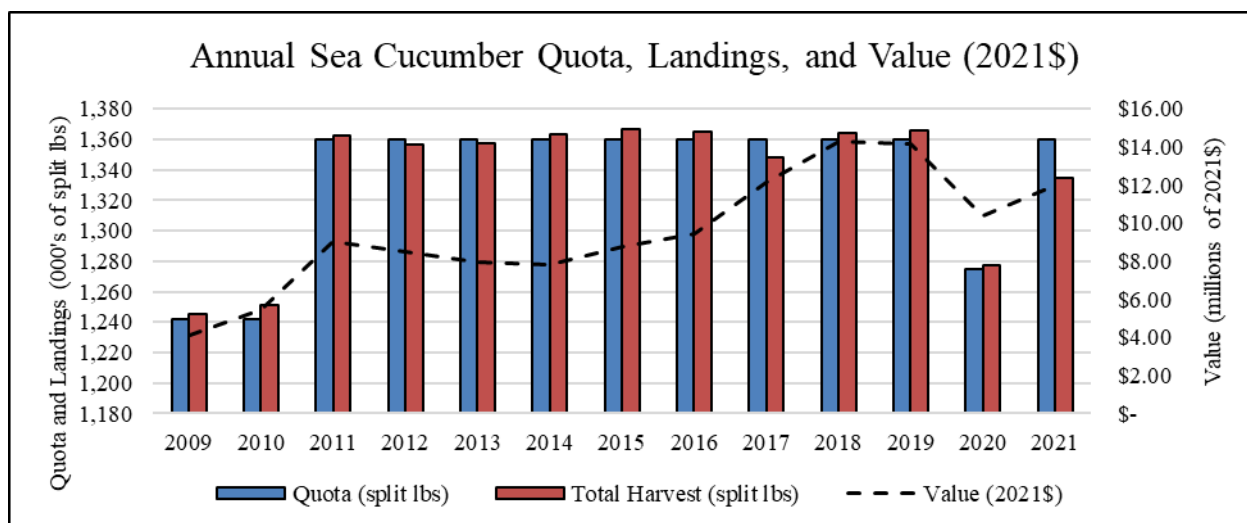


Figure 2. Annual Sea Cucumber quota (split lb.), landings (split lb.) and value for British Columbia, 2008 to 2021. Source: DFO logbooks and fish slips. Average price from 2010 to present is based upon advice from the PSCHA.

Licence values for the fishery have increased nearly 5-fold between 2010 and 2020 (\$300,000 vs. \$1.462M) (Fisheries and Oceans, 2022; Nelson, 2011) likely riven by a combination of factors. Sea Cucumber harvesters have reliable fishery access, with a catch share of a fairly consistent fisherywide TAC when considering recent years. The average price (per split pound) of Sea Cucumbers has also increased drastically over the same period – from \$3.50 in 2010 to \$9.00 in 2021 (a 157% increase). This rapid climb in prices would imply a decade of growth for fleet returns, even assuming moderate increases in harvest costs.

4.3.2. Processing & Exporting

There is more to the economic contribution of the Sea Cucumber fishery than harvesting employment and revenue; the processing and exporting of Sea Cucumbers landed in the province are other sources of economic value and jobs. The most recent processing linkages survey found that Sea Cucumbers require 24 hours of human labour per metric tonne for processing (GS Gislason, 2017). Excluding 2020, landings have consistently met the TAC for the past several years, which equates to employing approximately 7 full time employees each year in the processing of B.C. sea cucumbers (~\$370,000 in wages).

Sea Cucumbers are hand picked off the sea floor by SCUBA divers and brought to tender vessels. Once on the tender vessel, Sea Cucumbers are cut open longitudinally to remove water and viscera in a process called 'splitting.' Sea Cucumbers are landed in split form and therefore the commercial TAC is calculated in split pounds.

Sea Cucumbers are then processed into two products: frozen muscle strips and dried skin. The skin is semi-processed in plants where it is boiled, salted and then shipped to China where it is dried either outdoors or in drying machines. The meat is removed from the skin and then frozen and shipped to

Asian markets. According to the 2021 BC Seafood Industry Year In Review, the annual wholesale value of Sea Cucumbers processed in BC in 2020 was \$5.88 million.¹

COVID-19 pandemic (Figure 3). In 2021, total value and quantity of exports rebounded, with exported value increasing by 22% (total \$9.77M), and quantity exported increasing nearly 75.76% YoY (total 636,000 lbs). A large contributor to this recovery was the return of U.S. imports. While non-existent in 2020, United States imports of B.C. sea cucumber products totaled \$1.41M in 2021. Despite these increases, however, both values remain below pre-COVID levels.

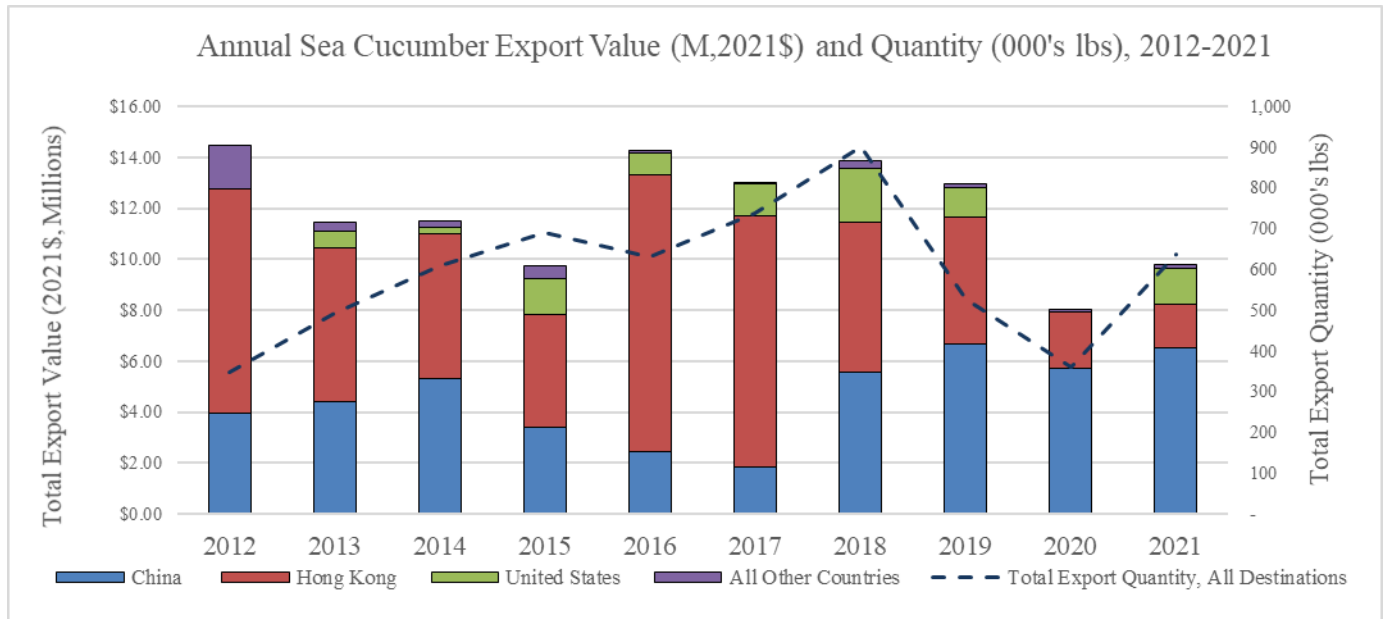


Figure 3. Value of British Columbia (BC) Sea Cucumber by Key Export Markets, 2012-2021. Source: Statistics Canada EXIM Database, multiple years.

¹ At the time of writing, the 2021 BC Seafood Year In Review is unpublished and information provided above is preliminary and subject to change. The 2018 report can be found here: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/statistics/industry-and-sector-profiles/year-in-review/bcseafood_yearinreview_2018.pdf

The demand for B.C. sea cucumber is mainly overseas in parts of Asia, with modest domestic consumption. The largest export markets for the product include China and Hong Kong, who together have accounted for an average of 74% of B.C.'s total sea cucumber exports over the past 5 years, peaking at 99% of the total export quantity in 2020. In 2019, China surpassed Hong Kong as the largest importer of B.C. sea cucumbers, where the skins (called trepang) have been used for centuries as a medicinal food. Many different species of Sea Cucumber from around the world compete with BC Sea Cucumber in Asian markets, with the highest value species coming from China and Japan.

In 2020, total value of B.C. Sea Cucumber exports declined to a level roughly 37% lower the previous 5-year average (\$8.03M in 2020 vs. \$12.76M avg. 2015-2019). Exported quantity likewise fell 31% in 2020, both declines being largely explained by the logistical challenges imposed by the

5. MANAGEMENT ISSUES

The following emerging issues may impact the management measures in place for the Sea Cucumber fishery.

5.1. Conservation and Sustainability

5.1.1. Collection of Biological Information

The life history characteristics of importance to understanding the productivity of *Apostichopus californicus* are still largely unavailable and may lead to uncertainties in Sea Cucumber stock assessment. More research focusing on the life history, population dynamics and depth distribution of Sea Cucumbers is needed to better understand the effects of harvesting on Sea Cucumber populations.

5.1.2. Localized Over harvesting

The concentration of fishing effort in relatively small areas may lead to local depletion of Sea Cucumbers. The impact of localized depletions on Sea Cucumber populations, on the ecosystem in general, and the mechanisms involved in the re-establishment of populations are not well understood. However, repeated surveys in several locations have not shown detrimental effects on stocks from the annual harvesting that occurred during the Phase 1 fishery. In order to minimize the effects of localized over harvesting, managers may look at management measures to better spread harvest effort amongst quota management areas.

5.1.3. Sea Otters

Sea Otter populations are expanding in BC and are expected to become an issue in the management of the commercial fishery in the future. Sea Cucumbers are not generally the preferred prey of Sea Otters, but as other prey sources become scarce, they target Sea Cucumbers. A study done in southeast Alaska showed that the long-term presence of Sea Otters resulted in an up to 100% decline in Sea Cucumber densities (Larson et al. 2013). This study offers a glimpse of what may occur in BC in the future given the geographic proximity of the study area to BC and similar Sea Otter population expansion following a long period of extirpation.

5.1.4. Impacts of Climate Change

Climate change will result in a wide variety of impacts, including rising sea levels, loss of marine habitat, shifting distribution ranges for marine organisms and an imbalance between growth and recruitment within ecosystems. Ocean acidification is one of the climate impacts that could impact Sea Cucumber populations in BC. Oceans absorb carbon dioxide (CO₂) which increases the acidity of the water. There are concerns about the ability of marine ecosystems to adapt to acidification. Fecundity, juvenile survival and the ability to handle temperature stress may be impacted negatively by ocean acidification (Haigh et al. 2015). Another emerging issue has been higher than normal water temperatures over the last few years (Chandler et al. 2016). Higher water temperatures may place physiological stress on Sea Cucumbers and could lead to increased instances of disease.

5.1.5. Disease

It has been hypothesized that increasing sea temperature will lead to an increase in the frequency of disease outbreaks due to decreased host immunity, increased virulence of pathogens or pathogen range

expansion (Burge et al., 2014). There have not been any recorded disease outbreaks involving Sea Cucumbers in BC; however a few reports of dead/dying Sea Cucumbers were reported in 2015, 2016 and 2021. Preliminary results from analysis of dying Sea Cucumbers collected from Howe Sound, the Sechelt area and the Nanoose Bay area were inconclusive but did not point to the same disease that caused the ‘sea star wasting disease’ (unpublished data; Gary Meyer, Fisheries and Oceans Canada Aquatic Health Laboratory, 2021, pers comm; Ian Hewson, Cornell University, 2021, per. Comm).

5.1.6. Quota Overages

Any quota taken above the TAC is a conservation concern. Quota overages over the amount permitted on a licence may be transferred to another licence up to a limit of 500 pounds. Overages that are not transferred to another licence are considered a Non-Transferable Overage (NTO) and the limit permitted is zero. The Department will be monitoring quota overages each season and may pursue enforcement action for repeat violators.

5.1.7. Aquaculture

The practice of collecting wild-set juvenile Sea Cucumbers off of floating aquaculture gear (e.g. oyster strings) and growing them on tenures is a concern since potential impacts on wild stock and recruitment have not yet been assessed.

Stocking aquaculture sites with hatchery-raised juveniles raises additional questions for consideration. Sea Cucumbers are a mobile species and wild individuals could be attracted to tenure sites to forage or for shelter. Since cultured Sea Cucumbers cannot be distinguished from wild Sea Cucumbers, wild animals may get harvested along with cultured animals and could lead to detrimental effects to wild populations around tenures.

5.1.1. National Fishery Monitoring Policy 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 national 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”. Fish Stocks 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-despeches-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-psp-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.

5.2. Social, Cultural and Economic

5.2.1. First Nations

Coastal First Nations may have an interest in economic opportunities from the Sea Cucumber resource through access to the wild commercial fishery (see Appendix 2).

Currently there are three communal commercial Sea Cucumber licence eligibilities to provide economic access to First Nations through participation in the commercial fishery. Several First Nation organizations hold regular commercial licences as well. See section 4.1 for more information.

5.2.2. Managing the Commercial Fishery to an Appropriate Scale

DFO works collaboratively with the PSCHA to make improvements to the management regime on an annual basis. For example, most of the large QMAs that were in place during the AMP have been split into multiple smaller QMAs in order to facilitate the rotational fishery and to spread out fishing effort. Managers must consider several factors when determining the size of QMAs. They must be large enough that they are not too difficult to manage (i.e. ability to keep track of remaining quotas, hauls, effort, etc.) and yet be small enough to spread effort over larger areas in order to minimize the effects of localized overharvesting. QMAs will likely continue to change as the fishery proceeds through the Adaptive Rotational Fishing Strategy.

5.2.3. Managing a Rotational Fishery

The 2011 season was the start of a three year rotational fishery in which different areas along the BC coast are targeted in different years. There are both conservation and logistical advantages to a rotational harvest. Conservation advantages include a higher average animal weight and higher densities of spawning adults which would ultimately result in a higher number of Sea Cucumbers. Logistical advantages include concentrating harvest effort in smaller areas, reducing travel costs and reducing the cost of staffing multiple offloading ports.

The rotational fishery strategy will be adaptive since the process of reopening the sections of coastline that were closed for the Adaptive Management Plan is not complete. Harvest rate, licence distribution between licence areas, QMA size and order of QMA harvest will be examined prior to each new season.

5.2.4. Increase in the Number of Sea Cucumber Aquaculture Tenures

An increase to the number of aquaculture tenures licensed for Sea cucumber will require consideration in the biomass and TAC estimates for the wild commercial fishery. Aquaculture tenures are considered private property and Sea cucumber stocks, that include both hatchery-raised and wild that cannot be distinguished from cultured on the tenure, would be considered the property of the aquaculturist. If a large number of tenure sites are approved for Sea Cucumber aquaculture, there is potential for the wild fishery to be reduced in portions of the BC coast. However, as outlined in Appendix 4, DFO is not currently accepting new aquaculture applications for Sea Cucumbers in the marine environment.

5.3. Compliance

5.3.1. Hail Notification Infractions

In previous seasons there have been issues with certain vessels not giving adequate hail notification. This creates difficulties for managing the fishery and may result in quota overages. Hail notification infractions are reported to the Department by the Sea Cucumber service provider in incident reports and are considered a high priority for enforcement. The Department will be monitoring hail infractions throughout each season and may pursue enforcement action for repeat violators.

5.3.2. Illegal Harvest

Illegal harvest activity has increased over the last few years. The increase in the value of Sea Cucumbers has made them a target for illegal harvesters. Sea Cucumbers are vulnerable to overharvest and any harvest outside the Total Allowable Catch is a conservation concern. Any large scale harvest of Sea Cucumbers seen outside the months of October to December (the timeframe of the commercial fishery) should be considered suspicious and reported to DFO's Observe, Record and Report line as soon as possible at 1-800-465-4336 (see Section 9).

5.4. Ecosystem

5.4.1. Depleted Species Concerns

The *Species at Risk Act* (SARA) came into force in 2003. The purposes of the Act are “to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of 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”. More information on SARA can be found at <https://www.registrelep-sararegistry.gc.ca>

The commercial Sea Cucumber fishery is a selective fishery and there are no concerns or potential impacts on depleted species. Each Sea Cucumber is individually selected by the harvester which eliminates by-catch of other species. Harvest of any species other than *Aposticopus californicus* is illegal under a commercial Sea Cucumber licence.

In addition to the existing prohibitions under the *Fisheries Act*, SARA contains several prohibitions to protect species listed under the SARA and it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual (e.g shells) of a wildlife species that is listed extirpated, endangered or threatened. These prohibitions apply unless a person is authorized, by a permit, licence, or other similar document issued in accordance with the 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.

The Northern Abalone (*Haliotis kamtschatkana*) is listed as Endangered under SARA, and is a species that is sometimes found in the same habitat as Sea Cucumbers. All harvest of Northern Abalone is illegal, including commercial and recreational harvest and harvest for food, social and ceremonial harvest purposes.

If any harvest or harassment of Northern Abalone is observed, please call DFO’s Observe, Record and Report line as soon as possible at 1-800-465-4336 (see Section 10).

Endangered, threatened, and special concern species in Pacific region currently listed under SARA can be found at:

<http://dfo-mpo.gc.ca/species-especes/sara-lep/index-eng.html>

5.4.2. 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 5.4.4). 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 or reporting accidental contact through the marine mammal interaction form.

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).

5.4.3. Marine Mammal, Leatherback Sea Turtle and Basking Shark Sightings or Entanglements

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.ISAW.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

Marine Mammal Incident Reporting Hotline

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
- Species
- Animal alive/dead
- Nature of injury and supporting details (if possible)
- Location: Latitude/Longitude coordinates, landmarks
- Pictures/Video taken



5.4.4. Southern Resident Killer Whales 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.

Interim Sanctuary Zones in portions off the coasts of North Pender Island and Saturna Island prohibit vessels from entering and fishing within their boundaries (with some exceptions) from June 1 to

November 30, 2022 as per the Interim Order enacted under the Canada Shipping Act. For detailed coordinates, please see FN0523.

These closures do not apply to individuals or vessels being used to fish for food, social or ceremonial purposes, or for domestic purposes pursuant to a treaty, under a license issued under the Aboriginal Communal Fishing License Regulations.

For the 2023 fishing season, the Government of Canada intends to ensure actions for the 2023 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, 2023 in southern BC coastal waters between Campbell River and just north of Ucluelet. The *Marine Mammal Regulations* remain in effect yearround, 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. New in 2022, two new mandatory Seasonal Slowdown Areas are being piloted near Swiftsure Bank from June 1 until November 30, 2022 in portions of Subarea 121-1 and near the mouth of the Nitinat River from Carmanah Point to Longitude 125 degrees west (Subarea 21-0). This measure requires all vessels to slow down to a maximum of 10 knots while in the areas, with limited exceptions.

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 killer whale
- 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>

5.4.5 U.S. Marine Mammal Protection Act Provisions

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@dfompo.gc.ca).

5.5. Oceans and Habitat Considerations

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.dfompo.gc.ca/oceans/index-eng.html>

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:

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

To meet its 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: <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-sieng.html>.

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/managementgestion/pncima-zgicnp-eng.html>

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.dfompo.gc.ca/oceans/management-gestion/index-eng.html>

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.

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>, and in Appendix 10 of this IFMP.

Endeavour Hydrothermal Vents MPA

The Endeavour Hydrothermal Vents Marine Protected Area (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>.

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>.

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>.

Offshore Pacific Area of Interest and 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.dfompo.gc.ca/oceans/oecm-amcepz/refuges/offshore-hauturiere-eng.html>.

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.

National Marine Conservation Area Reserves (NMCARs)

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 LandSea-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/pnnp/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/indexeng.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-FisheriesManagement-Directions-](http://www.haidanation.ca/wp-content/uploads/2019/04/CHN-FisheriesManagement-Directions-FINAL.pdf#:~:text=COUNCIL%20OF%20THE%20HAIDA%20NATION%20FISHERIES%20MANAGEMENT%20DIRECTIONS,jurisdiction%20of%20the%20Council%20of%20the%20Haida%20Nation)

[FINAL.pdf#:~:text=COUNCIL%20OF%20THE%20HAIDA%20NATION%20FISHERIES%20MANAGEMENT%20DIRECTIONS,jurisdiction%20of%20the%20Council%20of%20the%20Haida%20Nation](http://www.haidanation.ca/wp-content/uploads/2019/04/CHN-FisheriesManagement-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.parks canada.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 nontidal 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.

Southern Strait of Georgia National Marine Conservation Area Reserve

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. Parks Canada consultations on the feasibility assessment are ongoing. 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>

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 republishing of the regulations in Canada Gazette 1 is expected to occur in 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-wildlifeareas/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>

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) is prohibited within portions of Subareas 28-2 and 28-4 to protect Howe Sound glass sponge reefs. Prohibition 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

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@dfompo.gc.ca.

5.5.1. 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.

5.5.2. 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, following these steps. 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>

5.5.3. 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-acsc/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.

5.6. Gear Impacts

Sea Cucumber fishing occurs in rocky or soft bottom areas in less than 20 m depth by divers who hand pick Sea Cucumbers off the sea floor and place them into large mesh bags. The mesh bags are attached to lift bags or buoys that the diver will fill with air to lift the harvested Sea Cucumbers to the surface for pick up by the tender vessel. Gear impacts on the benthic environment are believed to be negligible, since Sea Cucumbers are picked by hand and there is no gear contact with the bottom. Sea Cucumber harvest is too shallow to impact most coral and sponge species.

5.7. National Fishery Monitoring Policy 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 national 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”. Fish Stocks 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-despeches-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-psp-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.

6. OBJECTIVES

The “longer term” objectives for this and other invertebrate fisheries in BC are outlined below.

6.1. National 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

In 1994, the Biological Objectives 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 development of the national objectives around sustainable fisheries.

6.3. Sea Cucumber

6.3.1. Conservation and Sustainability

DFO's species-specific objectives for the conservation and sustainability of Sea Cucumber stocks are:

- To conduct ongoing surveys and research to improve information on Sea Cucumber stocks, biological characteristics and impacts of the commercial fishery.
- To manage the commercial fishery to an appropriate scale in order to avoid any risks of localized over-harvesting.
- To track harvest information for all users. For the commercial fishery this will be accomplished through a Dockside Monitoring Program. There are currently no programs in place for tracking First Nations and recreational sector harvests.
- To conduct surveys of areas that were open during the Phase 1 fishery. Most of these areas have not been surveyed and their quotas are calculated using an estimated baseline density.

6.3.2. Social, Cultural and Economic

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

First Nations Fishery: DFO's objective is to continue to provide opportunities for First Nations to harvest fish for food, social and ceremonial/domestic purposes, in a manner consistent with the decision of the Supreme Court of Canada in the *Sparrow Decision*, and other court decisions. For more information, see Appendix 2 or the Internet at: www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html

Recreational Fishery: 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.

DFO's objective is to develop standards for catch monitoring for all sectors, including recreational, commercial and First Nations.

For more information, see Appendix 3.

Commercial Fishery: DFO's objective is to continue to work collaboratively with the commercial industry on sustainable resource use and long-term economic viability of the Sea Cucumber seafood industry recognizing that commercial fisheries play a vital role in the 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 WorkSafeBC (Appendix 12). All parties acknowledge the role of vessel masters and crew in responsibility 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.

First Nations involvement in the commercial fishery is a shared goal between DFO and First Nations people. First Nation participation in the commercial fisheries is being addressed through the ATP and PICFI (Section 4.1).

6.3.3. Compliance

DFO's objective is to pursue opportunities to monitor and enforce the Sea Cucumber fishery in conjunction with the monitoring and enforcement priorities in the Pacific Region. For more information please see the Sea Cucumber compliance plan in section 10.

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

To date, DFO has not specified gear or catch limits in communal licences for food, social and ceremonial harvest. DFO is working together with First Nations to share First Nations' fishing plan details and remains committed to respecting First Nations' Aboriginal right to fish for food, social and ceremonial purposes, or domestic purposes under treaty, and the conservation and sustainability of the resource.

Sea Cucumbers may be allocated under treaty, but were unallocated under the Maa-nulth, Tsawassen and Nisga'a Treaties. The Tla'amin treaty came into effect on April 5, 2016 and is the first treaty in BC to include an allocation for Sea Cucumbers. The Tla'amin allocation is for a maximum of 8,500 pounds of whole Sea Cucumber.

Under the Individual Quota (IQ) program, two percent of the coast-wide TAC (CTAC) is reserved, for planning purposes, for First Nations fisheries for food, social and ceremonial purposes. The amount of Sea Cucumbers harvested for FSC purposes coastwide is unknown.

7.2. Recreational

The daily recreational limit for Sea Cucumbers is 12 with a possession limit of 24. Gear is limited to handpicking and diving. There is no size limit for the recreational fishery.

7.3. Commercial

The commercial fishery is managed using a Total Allowable Catch (TAC), limited entry licensing, Individual Quotas (IQ), area licensing, area quotas and a precautionary harvest rate. For more information please see Appendices 1 and 6. All Sea Cucumber harvested commercially is monitored through a Dockside Monitoring Program.

7.4. Aquaculture and Enhancement

The first priority in managing fish stocks is conservation, followed by First Nations obligations. Beyond that, the needs of aquaculturalists will be given equitable consideration to those of other users in the commercial and recreational sectors.

7.5. Experimental, Scientific, Educational or Public Display

DFO supports and facilitates scientific investigations related to Sea Cucumbers. 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 use-offish apply.

8. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

See the Commercial, Recreational and First Nations Harvest Plans, Appendices 1 to 3, and 6 for detail on the following:

- Total Allowable Catch (TAC), Individual Quotas (IQ);
- Fishing Season/Areas;
- Control and Monitoring of Removals
- Licensing

9. SHARED STEWARDSHIP ARRANGEMENTS

9.1. Commercial Fishery

The Pacific Sea Cucumber Harvesters Association (PSCHA) funds stock assessment activities and their costs include vessel time, diver salaries, travel costs and a salary for a biologist. Several First Nations also provide support for survey activities. DFO provides in-kind support and data analysis.

The PSCHA funds all catch reporting and monitoring requirements for the commercial fishery including a dockside monitoring program and a hail program to track all commercial Sea Cucumber landings.

Several coastal First Nations contribute time and expertise through collaborative research surveys with the PSCHA by providing biologists, vessels, and divers.

9.2. Fisheries and Oceans Canada

Two Science and two Resource Management personnel are directly involved in this fishery. Contributions to the IFMP are provided by Fisheries Management, the Science Branch, the Shellfish

Data Unit, Conservation and Protection, the Pacific Fishery Licence Unit, the Reconciliation and Partnerships Branch, the Recreational Fisheries Program, the Oceans Directorate and numerous administrative personnel. Generally, all personnel are multi-tasked, i.e. fishery managers work on all dive fisheries.

10. COMPLIANCE PLAN

General information about the Conservation and Protection (C&P) program is available at:

<https://www.dfo-mpo.gc.ca/fisheries-peches/enf-loi/index-eng.html>

C&P staff will pursue opportunities to monitor and enforce this fishery in conjunction with the monitoring and enforcement priorities directed by senior managers in the Pacific Region.

Users of the resource have a responsibility to report violations. Any suspected or actual fisheries, wildlife or pollution violations can be quickly and discretely reported to the appropriate enforcement officer by using the toll free observe, record and report hotline. This toll free number is available 24 hours a day.

OBSERVE, RECORD AND REPORT 1-800-465-4DFO (1-800-465-4336)

Enforcement enquiries can also be directed to the local field offices during regular office hours.

10.1. Enforcement Issues and Strategies

Enforcement of the Sea Cucumber fishery will be tempered by commitments to higher priority issues, such as species at risk, the Canadian Shellfish Sanitation Program and fisheries that have conservation concerns. C&P staff will pursue opportunities to monitor and enforce issues and problems related to the fishery in conjunction with the monitoring and enforcement activities dedicated to the identified priority fisheries in the Pacific Region.

Dockside validation is a key component of the management of the fishery. C&P supports dockside validation by inspecting offloads and monitoring offloading practices.

Air surveillance resources will be utilized to patrol boundaries and conduct gear and vessel counts. Charter aircraft as well as DFO aircraft may be utilized for these activities.

Underwater harvest activity is observed by fishery officers trained in the use of SCUBA. On dive patrols fishery officers check for the harvest of prohibited species and for incidences of dumped product.

C&P strives to meet with First Nations groups to build relationships. Fishery Guardians are integral to this process and are very important to the enforcement program. C&P conducts joint patrols of First Nations fisheries and strives to complete enforcement protocols to better define the working relationship.

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

Issue	Section	Strategy
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Licensing Verification <ul style="list-style-type: none"> • Vessel licensed. • Experimental licence. • No Fisher 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.
Issue	Section	Strategy
Fishing during closed time/area.	PFR S.63	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.
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.22(7)	At sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after C&P have been notified by fisheries management that a violation has occurred. The investigation will be pursued when larger priorities permit. 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 maintain a Validation & Harvest Logbook.	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist. Investigations may also occur on an opportunistic basis after C&P have been notified by fisheries management that a violation has occurred. The investigation will be pursued when larger priorities permit.

Marking and tagging of pick bags, and any other type of enclosures containing harvested Sea Cucumbers.	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist.
Landings validated at time of offloading.	F(G)R S.22(7)	Dockside inspections and monitoring will be pursued when opportunities exist.

11. PERFORMANCE REVIEW Performance indicators are reported in the Post-Season Review (Appendix 5)

11.1. Stock Assessment and Research

Stock Assessment activities undertaken during the previous season will be outlined.

11.2. First Nations Fishery

The post season review may include outcomes of meetings with First Nations on specific Sea Cucumber issues and Sea Cucumber information contributing to, or resulting from, the treaty process.

11.3. Recreational Fishery

The post season review may include interactions with the recreational fishing representatives of the SFAB. Any recommendations and action taken in response by DFO will be described.

11.4. Commercial Fishery

DFO tracks the performance of the fisheries that it manages through the Sustainability Survey for Fisheries. The fish stocks in the survey are selected for their economic, ecological and/or cultural importance. The survey reports on DFO's progress to implement its Sustainable Fisheries Framework policies (Section 2.6), which guide the management of Canada's fisheries, and provides other information about these fish stocks.

The Sustainability Survey for Fisheries is available at:

www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html

The delivery of the commercial fishery will be assessed by performance measures including the number of vessels participating in the fishery, the number of licence eligibilities fished, the amount of Sea Cucumbers landed and the value of the fishery. Input from representatives at the Sea Cucumber Sectoral Committee meetings will also be included.

11.5. Compliance

The post season review will include time spent attending to enforcement of the fishery. It should be noted that low numbers of violations may be indicative of a successful proactive program, establishing a visible presence of enforcement authority as a deterrent to non-compliance.

12. REFERENCES

- BC Ministry of Agriculture (BC SYIR 2017). 2018. British Columbia Seafood Industry Year in Review 2017. Available online at https://www2.gov.bc.ca/assets/gov/farming-naturalresources-and-industry/agriculture-and-seafood/statistics/industry-and-sector-profiles/year-inreview/bcseafood_yearinreview_2018.pdf
- Boutillier, J.A., A. Campbell, R. Harbo, and S. Neifer. 1998. Scientific advice for management of the sea cucumber (*Parastichopus californicus*) fishery in B.C. In: G.E. Gillespie and L.C. Walthers (eds.). Invertebrate Working Papers reviewed by the Pacific Stock Assessment Review Committee (PSARC) in 1996. Can. Tech. Rep. Fish. Aquac. Sci. 2221.
- Burge, C.A., Eakin, C.M., Friedman, C.S., Froelich, B., Hershberger, P.K., Hofmann, E.E., Petes, L.E., Prager, K.C., Weil, E., Willis, B.L., Ford, S.E., Harvell, C.D., 2014. Climate change influences on marine infectious diseases: implications for management and society. Ann. Rev. Mar. Sci. 6, 249-277.
- Campagna, S. and C. Hand. 2004. Sea Cucumber Quotas Based on British Columbia Survey Data. PSARC Working Paper I2002-04.
- Chandler, P.C., King, S.A., and Perry, R.I. (Eds.). 2016. State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2015. Can. Tech. Rep. Fish. Aquat. Sci. 3179: viii + 230 p.
- Duprey, N., C. Hand, J. Lothead, and W. Hajas. 2011. Assessment Framework for Sea Cucumber (*Parastichopus californicus*) in British Columbia. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/105. (<https://waves-vagues.dfo-mpo.gc.ca/Library/342503.pdf>)
- Duprey, N.M.T., Curtis, J.M.R., Finney, J.L., and Hand, C.M. 2016. Simulation Modelling Tools to Evaluate Alternative Fishery Closure Area Network Designs for Shallow-water Benthic Invertebrates in British Columbia. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/011. Vi + 81p. (<https://waves-vagues.dfo-mpo.gc.ca/Library/363952.pdf>)
- Duprey, N.M.T. 2011. Sea Cucumber biomass estimations from surveys completed June 2009 to May 2010, Can. Manusc. Rep. Fish. Aquat. Sci. 2954: viii + 97 p. (<http://www.dfompo.gc.ca/library/344269.pdf>) (last accessed 13 September 2016).
- Duprey, N.M.T. 2012. Sea Cucumber biomass estimations from surveys completed June 2010 to May 2011. Can. Manusc. Rep. fish. Aquat. Sci. 2960: xi + 150 p. (<http://www.dfompo.gc.ca/library/346266.pdf>) (last accessed 13 September, 2016)
- Duprey, N.M.T. 2014. Sea Cucumber biomass estimations from surveys completed June 2011 to May 2012. Can. Manusc. Rep. fish. Aquat. Sci. 3017: xi + 155 p. (<http://www.dfompo.gc.ca/library/355478.pdf>) (last accessed 13 September, 2016)
- Duprey, N.M.T. and Stanton, L.M. 2015. Biomass estimates for sea cucumbers (*Parastichopus californicus*, *Cucumaria miniata*, *C. pallida*) as determined through surveys conducted June 2012 to May 2013. Can. Manusc. Rep. fish. Aquat. Sci. 3083: xi + 155 p. (<http://www.dfompo.gc.ca/library/4017854.pdf>) (last accessed 13 September, 2016)

- Duprey, N.M.T. and Stanton, L.M. 2018. Biomass estimates for sea cucumbers (*Parastichopus californicus*, *Cucumaria miniata*, *C. Pallida*) as determined through surveys conducted June 2013 to May 2014. Can. Manuscr. Rep. fish. Aquat. Sci. 3112: x + 72 p.
(<http://www.dfompo.gc.ca/library/4065743.pdf>) (last accessed 4 August, 2020)
- DFO. 2011. Assessment Framework and Management Advice for the British Columbia Giant Red Sea Cucumber (*Parastichopus californicus*) fishery. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2010/080. (<https://waves-vagues.dfo-mpo.gc.ca/Library/343564.pdf>)
- Fraser & Associates. 2008. Linkages Between the Primary Fish Production and Fish Processing Sectors in British Columbia: Final Phase 2 Report. Prepared for the Department of Fisheries and Oceans, Pacific Region. Victoria, British Columbia.
- Fisheries and Oceans Canada (2022). Analysis of Commercial Fishing Licence, Quota, and Vessel Values as of December 31, 2021. Available Online at <https://waves-vagues.dfompo.gc.ca/Library/41059402.pdf>
- GS Gislason & Associates Ltd. 2017. Linkages Between Seafood Harvesting and Processing. Vancouver BC.
- Haigh R, Ianson D, Holt, C.A., Neate, H.E., Edwards, A.M. 2015. Effects of ocean acidification on temperate coastal marine ecosystems and fisheries in the northeast Pacific. PLoS ONE 10(2): e0117533. Doi: 10.1371/journal.pone.0117533.
- Hajas, W., Hansen, C., and J. Lohead. In press. Updated reference points and harvest options for the giant red sea cucumber (*Apostichopus californicus*) fishery in British Columbia using data from Experimental Fishing Areas. DFO Can. Sci. Advis. Sec. Res. Doc. 2022/xxx.
- Hand, C.M. and J. Rogers. 1999. Sea Cucumber Phase 1 Fishery Progress Report. CSAS 99/141.
- Hand, C.M., W. Hajas, N. Duprey, J. Lohead, J. Deault and J. Cladwell. 2009. An Evaluation of Fishery and Research Data Collected During the Phase 1 Sea Cucumber Fishery in British Columbia, 1998 to 2007. CSAS 2008/065. (<https://waves-vagues.dfompo.gc.ca/Library/40590136.pdf>)
- Heizer, S. R. and K. Hobbs. 1994. The Effect of Product Landing State on Setting Quotas and Monitoring Landings in the Sea Cucumber Fishery in B.C. PSARC Working Paper I94-21.
- Humble, S.R., C. M. Hand and W. K. de la Mare. 2008. Review of data collected during the annual sea cucumber (*Parastichopus californicus*) fishery in British Columbia and recommendations for a rotational harvest strategy based on simulation modelling. Can. Stock Assess. Secretariat Res. Doc. 2007/054: 47p.
- Irvine, J.R. et al. 1993. Pacific Stock Assessment Review Committee Annual Report for 1992. Can. Ms. Rpt. Fish. Aquat. Sci. 2196. iv + 199 p.
- Larson, S.D., Z.N Hoyt, G.L. Eckert and V.A Gill. 2013. Impacts of sea otter (*Enhydra lutris*) predation on commercially important sea cucumbers (*Parastichopus californicus*) in Southeast Alaska. Can. J. Fish. Aquat. Sci. 70: 1498-1507.
- Nelson, Stuart. 2011. West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values. Available online at <https://waves-vagues.dfo-mpo.gc.ca/Library/344873.pdf>

Perry, R.I., C.J. Walters and J.A. Boutillier. 1999. A Framework for Providing Scientific Advice for the Management of New and Developing Invertebrate Fisheries. Reviews in Fish Biology and Fisheries, Vol. 9, in press.

Phillips, A.C. and J.A. Boutillier. 1998. Stock assessment and quota options for the sea cucumber fishery. In: B.J. Waddell, G.E. Gillespie and L.C. Walther (eds.). Invertebrate Working Papers reviewed by the Pacific Stock Assessment Review Committee (PSARC) in 1995. Part 2. Echinoderms. Can. Tech. Rep. Fish. Aquac. Sci. 2215.

Rogers, J., E. Wylie and T. Johansson. 2003. Post-Season Review (PSARC Fishery Update) - Sea Cucumber.

Front cover drawing is from Royal B.C. Handbook on Sea Cucumbers by Philip Lambert.

13. 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 Aboriginal 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 fisheries 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.

Area Defined in Section 2 of the *Pacific Fishery Management Area Regulations*. A map of Pacific Fishery Management Areas is available on the Department's Internet site at:
<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/indexeng.htm>

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.
catch verification program	A program designed to monitor, record, and verify catches, also called the Validation Program or Dockside Monitoring Program.
Communal Licence	Issued to First Nations organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> , to carry on fishing and related activities.
communal commercial licence	Issued to First Nations organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> for participation in the general commercial fishery.
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.
enhancement	The culture and release of wild stocks for stock rehabilitation and/or to increase stock sizes above natural levels of abundance. An enhanced stock is a common property resource and is subject to the public right to fish.
Food, Social and	A fishery conducted by First Nations for food, social and ceremonial purposes.

Ceremonial (FSC)	
IFMP	Integrated Fisheries Management Plan.
IQ	Individual quota. In the Sea Cucumber fishery IQs are set at 1\85 of the commercial TAC.
Indigenous Knowledge	<p>There is no universal definition of Indigenous knowledge, and the composition of Indigenous knowledge is for Indigenous peoples to determine. 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>
invertebrate	An animal without a backbone.
landed or offloaded	The transfer of Sea Cucumbers 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 Pacific Region pursuant to Section 39 of the <i>Fishery (General) Regulations</i> .
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.

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
PSCHA	Pacific Sea Cucumber Harvesters Association
PSARC	Pacific Scientific Advice Review Committee (now called CSAP).
Quota Management Area	A defined portion of Pacific fisheries waters. Areas and Subareas, as described in the <i>Pacific Fishery Management Area Regulations</i> , are referenced in describing Quota Management Areas (QMA). Each QMA has a name, e.g. 4A West Dundas, and is assigned a maximum allowable catch in pounds (lb.).
service provider	An agency contracted by fish harvesters or their harvesters association to coordinate notification, catch validation, 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	Sports Fishing Advisory Board, which provides advice to DFO on matters of recreational (sport) fishing.
stakeholder	All people and groups with an interest in the fisheries resource.
stock assessment	Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reaction of populations to alternative management choices.
Subarea	As in Section 2 of the <i>Pacific Fishery Management Area Regulations</i>
TAC	Total allowable catch. The amount of catch that may be taken from a stock, determined by analytical procedures to achieve management objectives.

Tranship	The transfer of Sea Cucumbers from a vessel to another vessel.
Validated	Sea Cucumbers that have been weighed by an observer and the weight entered into the Sea Cucumber Validation and Harvest Logbook, or an approved alternative log.

Appendix 1: 2022/2023 Sea Cucumber by Dive Commercial Harvest Plan

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1. MANAGEMENT SUMMARY FOR 2022/2023

Fish harvesters are advised to carefully review all information in the Commercial Harvest Plan.

- 1.1. 2022/2023 Fishing Season (NEW):** The commercial fishery will take place from October 1, 2022 through December 7, 2022 subject to scheduled area openings and inseason closures. A season extension beyond December 7, 2022 will be considered by the Department if requested by the Pacific Sea Cucumber Harvesters Association (PSCHA) in writing. Requests will generally be considered only if they are due to unforeseen weather events that have prevented the Total Allowable Catch from being completed during the regular scheduled season as identified above. See Section 4.
- 1.2. Rotational Fishing Strategy:** The 3-year Adaptive Rotational Fishing Strategy (ARFS) will continue for a fourth cycle from 2020 to 2022. The AFRS has been developed collaboratively by the Department and the PSCHA. Please see Section 4 for quotas and open areas for the 2022 season and Appendix 14 for more information on the ARFS.
- 1.3. Quota Management Areas (QMAs) (NEW):** A large QMA in Management Area 7 (7E) has been split into two smaller QMAs. See Section 4 and Appendices 9 and 10 for descriptions of each QMA.
- 1.4. Precautionary Harvest Rate:** A precautionary harvest rate of up to 10 percent will be applied to most QMAs once every three years as part of the Adaptive Rotational Fishery Strategy (equivalent to an annual harvest rate of approximately 3.3 percent). A harvest rate of between 2.2 to 4.2 percent will be applied to QMAs that are on an annual harvest strategy. See Appendix 14 for details.
- 1.5. Total Allowable Catch (TAC):** 616.9 tonnes (1,360,000 pounds) split weight. See Section 4.
- 1.6. Individual Quota:** 7.2 tonnes (16,000 pounds) split weight per licence. See Section 3.1.
- 1.7. Harvest Questionnaire:** A harvest questionnaire will be added as an insert to the harvest logbook in order to get on-grounds observations from harvesters on each of the QMAs harvested in 2022. See Section 4.7.
- 1.8. Area Licensing (NEW):** North Coast, 32 licences (33 in 2021); Central Coast, 29 licences (24 in 2021); East Coast Vancouver Island, 18 licences (21 in 2021) and West Coast Vancouver Island, 6 licences (7 in 2021). See Sections 2.6 and 4.

Note: The management measures section formerly found in Section 2 of past Commercial Harvest Plans has been moved to Appendix 6.

2. LICENSING REQUIREMENTS FOR THE COMMERCIAL FISHERY

2.1. National Online Licensing System (NOLS) Client Support – Licensing Services

All fish harvesters/licence holders/vessel owners are required to use the National Online Licensing System (NOLS) to view, pay for and print their commercial fishing licences, licence conditions and/or receipts. NOLS website: <http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licencepermis-eng.htm>

Training materials, including step-by-step guides and a detailed user training manual, are available online (<http://www.dfo-mpo.gc.ca/FM-GP/SDC-CPS/licence-permis-eng.htm>) to guide users of the system in completing their licensing transactions. The Department also provides client support and assistance on how to use the system via email at fishing-peche@dfompo.gc.ca or by calling toll-free at 1-877-535-7307 (7:00AM to 8:00PM Eastern, Monday to Friday).

Information on the National Online system may be found on the DFO internet site at: <http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm>

Please visit the Pacific Region Licensing website and subscribe to fishery notices for updates on the National Online Licensing System and licensing services: <http://www.pac.dfo-mpo.gc.ca/fmgp/licence-permis/index-eng.html>

For more information on how to register and use the system, visit the Department's website at the website address above, or contact our client support.

Licence Renewal

In order to retain the privilege to be issued a commercial licence in the future, it is critical that you renew your licence and pay the applicable licence renewal fees through the online system on an annual basis, whether fishing takes place or not. Should the licence not be renewed by September 30th of the next calendar year, the licence eligibility will cease to exist and DFO will be unable to consider any licence issuance requests in the future.

2.2. Licence Category

A commercial Sea Cucumber by dive (category ZD) or communal commercial (category FZD) licence eligibility is required to commercially harvest Sea Cucumbers by dive.

Category ZC licence eligibilities are limited entry and party-based. Category FZC licences have a First Nations group as the licence eligibility holder.

2.3. Licence Application and Issuance

Renewal of a commercial Sea Cucumber licence and payment of fees must be done on an annual basis to retain the privilege to be issued a licence in the future regardless of whether or not fishing is carried out. Those commercial Sea Cucumber licences not renewed by September 30th will cease and licence issuance will be unable to be considered in the future.

Prior to annual licence issuance 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 Licensing System (NOLS). Full instructions are available at: <http://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/products-produits/requestdemande-eng.html>

Prior to licence issuance, licence eligibility holders(s) must:

- Meet any Ministerial conditions placed on the licence eligibility.
- Ensure any conditions of the previous year's licence, such as submission and approval of logbooks have been met.
- Designate a registered commercial fishing vessel eligible for a commercial or communal commercial licence for salmon, schedule II, sablefish, halibut, crab, shrimp, Prawn, Geoduck or groundfish trawl.

To avoid delays please ensure the payment and vessel designation information is submitted all at the same time through the 'Submit a Request' menu selection within the NOLS.

Vessel length restrictions for vessels used to harvest Sea Cucumbers under the IQ programs have been waived by Fisheries and Oceans Canada. Fisheries and Oceans Canada reserves the right to reinstate vessel length restrictions at the lengths associated with each licence eligibility.

The stacking limit has been discontinued. There is no limit on the number of ZD licences allowed to be designated to a vessel at any given time. Harvesters should, however, keep in mind that the season is scheduled for only 8 weeks and should plan accordingly. Season extensions will not be granted for harvesters that have not finished quotas due to attempting to complete too many Individual Quotas (licences) within the short 8 week season.

2.4. 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 or Pacific Fishery Licensing Unit office (see Contacts in Appendix 15)

2.5. Individual Quotas (IQ)

The holder of a licence eligibility to commercially harvest Sea Cucumbers is provided the opportunity to harvest up to 7.2 tonnes (16,000 pounds) split weight of Sea Cucumbers.

All diving and fishing operations must take place from the licensed vessel. All products must be brought directly onto the licensed vessel following harvest. Vessels used to hold or transport Sea Cucumbers must conform to Canadian Food Inspection Agency inspection regulations for holding or transporting fish and have appropriate licences.

2.6. Area Licensing

The commercial Sea Cucumber fishery is licensed over four geographic areas. Licence eligibilities will be assigned to one of the following licence areas: North Coast, Central Coast, East Coast of Vancouver Island or West Coast of Vancouver Island. To maintain equal individual quotas coast-wide, the distribution of licences will be as follows:

Licence Area	Number of Licences
North Coast (Areas 2, 3, 4, 5 and 6)	32
Central Coast (Areas 7, 8, 9 and 10)	29
East Coast Vancouver Island (Areas 11, 12, 13, 14, 15, 16 and 18)	18
West Coast Vancouver Island (Areas 23, 24, 25 and 26)	6
Total	85

2.7. Licence Area Selection

Licences may need to be moved between licence areas if the TAC in a licence area changes. Currently, the Department advises the PSCHA on the number of licences permitted in each licence area and the PSCHA advises the Department on which licences will move each year. If the PSCHA cannot agree on which licences will move, the Department may implement a licence area selection process.

2.8. Licence Documents

Sea Cucumber licence documents are valid from the date of issue to September 30 of the following calendar year.

2.9. Vessel Re-designation

Re-designation of Sea Cucumber licences is allowed as long as any Condition of Licence, such as the completion of logbooks have been met and accepted by the Shellfish Data Unit.

Navigate to ‘Submit a Request’ Re-Designate a vessel. Full instructions can be found:

[Online Licensing - Submitting a Request and Checking the Request Status \(dfo-mpo.gc.ca\)](https://dfo-mpo.gc.ca/online-licensing-submitting-a-request-and-checking-the-request-status)

2.10. Licence Eligibility Nominations

Category ZD Sea Cucumber licence eligibilities may be nominated from one party to another. Nominations must be completed and submitted to the Pacific Fishery Licence Unit via the National Online Licensing System (NOLS) by the licence holder. Notarized application ‘Nomination for Party-Based Licence Eligibility’. Scan the document and attach it to a ‘Submit Request’ in NOLS. PDF or standard picture formats are accepted (jpg, etc.).

The following requirements must be met:

- a) Any Condition of Licence, such as the completion of logbooks, have been submitted and approved by the Shellfish Data Unit.
- b) Communal commercial (category FZD) licence eligibilities are not eligible for Nomination.

2.11. Licence to Transport Sea Cucumbers

Any registered vessel with a commercial or communal commercial salmon, Schedule II, geoduck, sablefish, halibut, crab, shrimp, groundfish trawl and Prawn licence; a current year transporting, category D, or a herring seine (HS) licence may transport Sea Cucumbers under Conditions of Licence which are included with all vessel-based licences issued for the current fishing year. For further information contact the Pacific Fishery Licence Unit.

Note: When product is transferred from one vessel to another vessel or a vehicle, that vessel or vehicle requires a provincial Fish Buying Station licence. This licence is required for all types of vessels and vehicles including aircraft. The licence may also be required for personal vehicles in some instances, when a vehicle is carrying the catch from more than one vessel, even if the licence holder owns both vessels. Fish harvesters should check the Province of British Columbia's website for additional information:

<http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/fisheries-andaquaculture/seafood-industry-licensing>

2.12. Processing

Effective June 1998, any processing beyond that permitted in Section 14 of the *Fish Inspection Regulations* must be done in a registered fish processing facility and in full compliance with a Quality Management Program (QMP).

2.13. 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 Sea Cucumber (Category ZD) licence renewal fee may be found on the following link: <https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/fees-frais-22-23-eng.html>
There is no annual licence renewal fee for communal commercial category FZD licences.

3. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

To accompany the IQ program, an industry-funded catch monitoring and validation program was developed collaboratively between the PSCHA and Fisheries and Oceans Canada.

Fish harvesters are required to report harvest time and location information to a designated service provider prior to fishing, following fishing, and prior to landing Sea Cucumbers. In order to track daily harvests and ensure that Quota Management Area quotas are not exceeded, all catch

must be weighed and validated at the first point of landing by a Fisheries and Oceans Canada certified observer.

The agency (service provider) contracted by the PSCHA to provide notification, validation, biological sampling, and data services for the 2022/2023 Sea Cucumber fishery is:

D&D Pacific Fisheries Ltd.
Box 1445, Gibsons, BC V0N 1V0
Tel. (604) 886-4819
Fax (604) 886-8288
Hail-in Line: (800) 775-5505

The following sections mirror those in the Conditions of Licence (issued with each commercial licence) that outline the requirements for fishery control and monitoring. See Appendix 11 for an example of the Conditions of Licence.

3.1. Quantities Permitted to be Taken (Condition #3)

The Sea Cucumber IQ equals 1/85 of the coastwide commercial TAC or 16,000 pounds split weight (7.2 tonnes). Harvest of Sea Cucumbers over the IQ after the permitted quota overage adjustments (see Section 3.7.5) may be subject to prosecution and seizure of the overage.

3.2. Fishing Multiple Quota Management Areas (Condition #6)

All Sea Cucumbers caught in a Quota Management Area must be landed or transhipped prior to the commencement of fishing in a new Quota Management Area. In this way, area quotas and individual quotas are closely monitored to avoid over-harvesting of either.

3.3. Containers used to Hold or Transport Sea Cucumbers (Condition #7)

There are several requirements for:

- a) The type, size, and marking of containers used to hold or transport Sea Cucumbers.
- b) The condition of containers for food inspection purposes.

Any containers used in the transport of “fish” (including Sea Cucumbers) for export must meet the requirements outlined in Part 4 of the Safe Food for Canadians Regulations (SFCR). See CFIA’s website for further information: <https://inspection.canada.ca/food-safety-forindustry/toolkit-for-food-businesses/sfcr-handbook-for-foodbusinesses/eng/1481560206153/1481560532540?chap=0>

3.4. Transhipment (Condition #8)

All product harvested under a Sea Cucumber licence must be harvested from and retrieved by the vessel designated on the licence. If that product is to be retrieved at a later time by the licensed vessel, it must be appropriately tagged. If that product is going to be transferred to another vessel (i.e. for landing purposes), the vessel to which it is transferred must be appropriately licensed for packing purposes (see Section 3.10). At no time should unlicensed vessels be used to harvest, retrieve, store, or tranship product.

Sea Cucumbers may be transhipped from the licensed vessel to a packer vessel provided that the vessel master complies with the following conditions:

- a) All Sea Cucumbers are in tagged containers.
- b) The numbers of containers are recorded on the Validation and Harvest Log.
- c) The “packer weight” (determined by adding the weight of the Sea Cucumbers and the weight of the container), is recorded on the Log.
- d) The product is landed at a designated port and validated by an observer.

All Sea Cucumbers delivered to packers shall be in tagged containers. The container tags must provide the following information:

- a) Name of the harvesting vessel.
- b) “ZD” tab number.
- c) Vessel registration number (VRN).
- d) Harvest date.
- e) Fishery management Area and Subarea of harvest.

Transport vessel masters are reminded that there are Conditions of Licence that apply to the transhipment of Sea Cucumbers. There are several requirements, including:

- a) Hail at least 24 hours prior to landing.
- b) Transport in the tagged container received from the catcher vessel.
- c) Carry copies of the validation and harvest log received from the master of the licensed catcher vessel.

3.5. Locations Permitted for the Landing of Sea Cucumbers (Condition #9)

All Sea Cucumbers must be landed at one of the designated landing ports listed in the Conditions of Licence. The specific landing ports have been established as part of the IQ validation program. Fisheries and Oceans Canada certified observers are available at these ports to oversee offloading and validation of Sea Cucumber catch. This condition applies to both the licensed vessel and the packer vessel, if one is used.

3.6. Validation of Catch (Condition #10)

All Sea Cucumbers harvested or removed from the sea floor must be validated by a Fisheries and Oceans Canada certified observer at the point and time the fish are landed, to track daily harvests and ensure that area quotas are not exceeded.

The vessel master must be in possession of a Fisheries and Oceans Canada approved catch Validation and Harvest logbook assigned to the Sea Cucumber licence. The Validation and Harvest logbook must be on board the licensed vessel while fishing for Sea Cucumbers or while Sea Cucumbers are on board. Validation and Harvest logbooks that meet the Department’s approval are available from the service provider or from the Pacific Sea Cucumber Harvesters Association.

At the first point of offloading, all Sea Cucumbers will be weighed with a government certified scale, by a Fisheries and Oceans Canada certified observer, and the weight entered on the Validation and Harvest Log. Weights will be recorded as split and eviscerated weights. If whole product is landed then a conversion factor of 2.73 will be used to convert to split weight. The Validation and Harvest logs must remain with the licensed vessel, with copies of the validation accompanying the product to its destination.

3.6.1. Validation and Harvest Log Entries

The vessel master is responsible for completing Sections A and C of the Validation and Harvest Log. The vessel master shall also ensure that chart entries are completed showing all locations fished for that validation. The observer shall complete Section B of the Validation and Harvest Log, and confirm that Sections A and C have been completed. The service provider will collect all harvest charts and ensure that they also have been completed. The original white copy of the Validation and Harvest Log handed to the observer, along with the harvest charts for each day's harvest, must be received by the service provider contracted by the Pacific Sea Cucumber Harvesters Association within one month of the harvesting having occurred. To meet the one month requirement for submission of data, it is recommended that fish harvesters forward their information to the service provider well in advance of this time limit.

When a vessel has been assigned more than one “ZD” licence, care must be taken to complete and submit the logbook that corresponds to the licence quota being harvested. The correct “ZD” licence number is printed on the cover of the logbook. One logbook is intended to be used for all Sea Cucumber landings for a single “ZD” licence, even though the logbook may have more pages than required. Fish harvesters must provide the observer with two Validation and Harvest Logs when one licence quota is being completed and another licence quota on that vessel is to be started.

3.6.2. Examination of Logbooks

The vessel master must produce the Validation and Harvest log on the request of a fishery officer, fishery guardian or an observer.

3.6.3. Biological Sampling

Fish harvesters will, from time to time, be required to assist Fisheries and Oceans Canada personnel and Fisheries and Oceans Canada certified observers in the sampling of Sea Cucumbers for fishery management and stock assessment purposes.

3.6.4. Quota Confirmation

Prior to fishing, the vessel master must confirm the remaining vessel quota from the Validation and Harvest Log.

3.6.5. Quota Overages

The amount of quota overage permitted to be transferred to another Sea Cucumber licence (referred to as a Same Vessel Transfer (SVT) or a Different Vessel Transfer (DVT)) has increased from a limit of 200 pounds to a new limit of 500 pounds. This increase in the transferable overage limit reflects a change in the size of totes used to land Sea Cucumbers. When the 200 pound limit was first implemented, the industry landed Sea Cucumbers in smaller containers such as geoduck cages. Over time industry has moved to larger containers such as barrels and totes and it has become more difficult to estimate (at the time of harvest) the weight of Sea Cucumbers in these containers within 200 pounds.

Overages that are not transferred to another licence are considered a Non-Transferable Overage (NTO) and the limit for this type of overage is zero. The Department will be monitoring NTO quota overages and may pursue enforcement action for repeat offenders.

Any Quota Management Area TAC overages may be deducted from the next year's Quota Area TAC.

Small quantities of Sea Cucumbers which exceed the licence's annual IQ (up to 500 pounds) may be transferred to another Sea Cucumber licence provided the following conditions are fulfilled. If all of these conditions are not met, observers will not transfer the overage to another licence. In the following descriptions, the Sea Cucumber licence which has exceeded its IQ is called Licence "A" and the licence to which landings are being transferred is called Licence "B".

Harvest of Sea Cucumbers over the IQ after the permitted quota overages adjustments may be subject to prosecution and seizure of the overage.

- a) Transfer of landings to a Second Licence on the Same Vessel - If two or more licences are assigned to the same vessel then landings in excess of quota from one licence may be transferred to another Sea Cucumber licence on that vessel which has quota remaining. Overage of the last Sea Cucumber licence on the same vessel may be transferred to another vessel's Sea Cucumber licence in accordance with procedure described below.
- b) Maximum Allowable Transfer of Landings between Licences on Different Vessels - In the event of a quota overage on Sea Cucumber Licence "A", a maximum of 500 pounds of Sea Cucumber may be transferred to another vessel's Sea Cucumber licence (Licence "B"). Only one transfer of quota overage is allowed per licence. The quota overage cannot be divided between a number of licences.
- c) Remaining Quota on Second Licence - The amount of landings transferred from licence "A" cannot exceed the remaining quota of Sea Cucumber Licence "B".
- d) Sea Cucumber Licence Area - Both vessels involved in a transfer of landings must be licensed to fish in the same area and have active licences for that licence year.
- e) Documentation - The Sea Cucumber Validation and Harvest Log for each of the licences involved in the transfer must be present at the time of the validation. Both vessel masters must make their intention to transfer or receive overage clear to the Observer prior to unloading. In the event of a packer landing, a note signed by both vessel masters should accompany the product to advise the observer that there is a mutual agreement to transfer.

3.7. Oral Reports (Condition #11)

Fishing notification requirements that are described in the Conditions of Licence must be followed by each licensed vessel in order for the service provider and the Department to track effort and harvest on a daily basis.

When vessels do not hail into a harvest area, there is a risk of exceeding the quota. In order to maintain a sustainable fishery, it is extremely important that effort and landings in a particular harvest area be reported and recorded accurately.

Observer phone numbers are available from D&D Pacific Fisheries Ltd. If weather results in a change in arrival time the vessel master must immediately advise the observer via telephone of these changes.

3.8. Catch and Fishing Data (Condition #12)

It is a Condition of Licence and the responsibility of the licence holder to ensure that harvest and chart information is received by Fisheries and Oceans Canada Shellfish Data Unit and meets the conditions outlined below. Fish harvesters having validation services completed by D&D Pacific Fisheries Ltd. will receive these services as part of that contract.

Validation and Harvest Logbooks meeting Fisheries and Oceans Canada requirements (see example in Appendix 8) are available from service providers. The service provider will, for a fee, provide the Validation and Harvest Log coding and keypunch service, including the electronic capture of harvest chart location information into Geographic Information System (GIS), (as well as fishing notification and catch validation). Thus, the service providers provide compliance with the licence requirements for a hard (paper) and electronic copies, including fishing location information, for harvest log data.

Fish harvesters are required to have their portions of both the validation and harvest sections completed before validation, or by midnight of the day on which fishing occurred, whichever comes first. An accurate chart record must be completed for each Validation and Harvest log entry.

3.8.1. Harvest Data

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

The vessel master is also responsible for the provision of a daily harvest chart record of each location fished by each diver. This harvest chart must have marked directly on it the VRN, the licence tab number and validation ID numbers. The harvest site must be clearly marked on the chart with dive or record numbers pertaining to each harvest log catch record and dates that fishing activity occurred at each site. The vessel master is also responsible for the electronic capture of harvest location data into GIS. This chart must be completed and a copy submitted in

both hard copy (paper) and electronic form in an approved format as defined by Fisheries and Oceans Canada, Shellfish Data Unit.

The original white page copy of the log, the accompanying chart record, and the electronic copies must be available to the Department within one month of the harvesting having occurred. Fish harvesters who have validation services completed by D&D Pacific Fisheries Ltd. will receive this service as part of that contract.

3.8.2. Submission and Release of Harvest Log Data

The licence holder of record with the Pacific Fishery Licensing Unit is responsible to ensure that the vessel master has completed and submitted a copy of the harvest data. Fisheries and Oceans Canada can only release harvest data to the licence holder of record and only upon written request.

3.8.3. Nil Report for Harvest Log - Licence Issued But Not Fished

In the event that a licence is issued and designated to a vessel 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 issuing 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 wishes to remind fish harvesters that harvest logs must be completed accurately during fishing operations and submitted to Fisheries and Oceans Canada in accordance with the timing set out in Conditions of Licence. Delay of completion or submission of logs is a violation of a Condition of Licence.

3.8.4. Confidentiality of Harvest Data

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

3.9. Fish Slip Data (Condition #13)

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.

3.10. Export Requirements

It is important to note that Sea Cucumbers being processed for export out of the province must be processed at a federally registered facility. Each country receiving Sea Cucumbers may have different import requirements. See the Canadian Food Inspection Agency's website for further information:

<https://inspection.canada.ca/food-safety-for-industry/toolkit-for-food-businesses/sfcr-handbookfor-food-businesses/eng/1481560206153/1481560532540?chap=0>

Requirements can vary so exporters of Sea Cucumbers are encouraged to verify foreign country import requirements through their customers prior to export.

The Dive Harvest Log and fish slip Conditions of Licence must be complied with, even for Sea Cucumbers exported from British Columbia, which have not gone through a federally registered processing plant.

4. OPEN TIMES AND QUOTA MANAGEMENT AREAS

4.1. General Information

The 2022/2023 fishery will be conducted from October 1, 2022 through December 7, 2022. The North Coast licence area will open on October 1, 2022 and is scheduled to remain open until November 30, 2022. The Central Coast, and West Coast Vancouver Island licence areas will open on October 8, 2022 and are scheduled to remain open until December 7, 2022. For the 2022 season certain QMAs in the East Coast Vancouver Island licence area will open on October 1, 2022 and the rest will open on October 8, 2022. The East Coast of Vancouver Island licence area is scheduled to remain open until December 7, 2022. Licence areas may close prior to their scheduled end dates if licence area TACs are completed earlier than the scheduled season end. An extension to the scheduled season will be considered by the Department only if requested by the Pacific Sea Cucumber Harvesters Association in writing. Requests will generally be considered only if they are due to unforeseen weather events that have prevented the TAC from being completed during the regular scheduled season.

For proper management of the fishery, Quota Management Areas will be opened and fished in the sequence shown below. **Due to the many changes to the commercial Sea Cucumber fishery in the last few years, harvesters are advised to maintain good contact with the fishery manager, the service provider, or the On-Grounds Co-ordinators, to avoid fishing in a closed area.**

4.2. Quota Management Area Table

IMPORTANT: Please see Section 5 for descriptions of all closures and Appendix 9 for a full description of all Quota Management Areas (QMA). Ptn. = Portion of a Subarea.

Opening Schedule	Quota Management Area	Name	Description (by Subarea)	Quota (t)*	Quota (lb.)*
North Coast Licence Area (32 licences)					
TBA	5E	Anger Island	5-16	45.3	99,814
TBA	5F	Principe North	5-13 to 5-15	36.4	80,193
TBA	5G	Principe South	5-17 to 5-19	39.6	87,400
TBA	6A	Gil Island	6-5, 6-26, 6-27	60.0	132,273
TBA	6C	Trutch Island	6-9, 6-10	42.5	93,732
TBA	6E	Princess Royal Channel	Ptn of 6-20; 6-21, 6-22, 6-24	4.1	8,989
TBA	6J	Surf Inlet	6-12	4.3	9,599
North Coast Total				232.2	512,000
Central Coast Licence Area (29 licences)					
TBA	7H	Upper Mathieson	Ptn. 7-9, 7-10	5.6	12,370
TBA	7I	Lower Mathieson	Ptn. 7-9	8.3	18,364
TBA	7L	Roscoe Inlet	Ptn 7-15; 7-16	21.6	47,630
TBA	7O	Finlayson South	7-4	3.9	8,603
TBA	7P	Milbanke Sound	Ptn. 7-2 and 7-3	3.6	8,000

TBA	7Q (NEW)	Seaforth Channel	Ptn. 7-2 and 7-3; 712, 7-20 to 7-22, 7-24 and 7-32	40.0	88,153
TBA	7R (NEW)	Queens Sound North	Ptn. 7-18; 7-19, 7-23	22.7	50,000

TBA	7S (NEW)	Queens Sound South	Ptn. 7-18; 7-25	9.1	20,000
TBA	8C	Spider/Kildidt	7-26, 7-27, 7-28	24.4	53,708
TBA	9B	South Rivers Inlet	9-2, 9-3, 9-10, 9-11	71.3	157,172
Central Coast Total				210.5	464,000

East Coast Vancouver Island Licence Area (18 licences)

TBA	12G	SW QC Strait	12-7, 12-8, 12-17	14.1	31,067
TBA	12H	Turnour Island	12-20, ptn 12-26	40.1	88,439
TBA	12I	Gilford Island North	12-38, 12-39	51.9	114,494
TBA	15A	West Redonda	Ptn. 15-5	2.3	5,000
TBA	15B	East Redonda	Ptn. 15-5	2.3	5,000
TBA	15C	South Desolation	15-4, ptn. 15-5	2.3	5,000
TBA	16A	Sechelt Inlet	16-6 to 16-8, ptn. of 16-9	3.6	8,000

TBA	16B	Jervis Inlet	16-10, ptn. 16-11; 16-12, 16-13	2.7	6,000
TBA	16C	Texada Island	15-1, 16-18, 16-21, 16-22	6.8	15,000
TBA	16D	Lasqueti Island	14-3, 16-19, 16-20	4.5	10,000
ECVI Total				130.6	288,000
West Coast Vancouver Island Licence Area (6 licences)					
October 8	24A	North Clayoquot	24-4 to 24-6, 24-14	9.1	20,000
October 8	24B	South Clayoquot	24-7, 24-10	5.4	12,000
October 8	25A	Nootka/Tahsis	25-6, 25-8, 25-9, 25- 12, 25-15	9.1	20,000
October 8	25B	Muchalat/Tlupana	25-1 to 25-5	12.7	28,000
October 8	23A	Southeast Barkley Sound	23-3, ptn. 23-5, ptn. 23-6	7.2	16,000
WCVI Total				43.5	96,000
Coastwide Commercial Total Allowable Catch				616.9	1,360,000

**All weights are in split pounds or split tonnes.*

*Quota amounts in **bold** have changed from last season.*

Note:

- a) Vessel masters must ensure there is quota remaining in a Quota Management Area prior to, and during fishing in that area. This is particularly important on the final days of fishing when it may be necessary for a vessel to change Quota Management Areas midday once the area quota is attained.

- b) Any area quota overruns may be deducted from the next year's Quota Management Area quota.

4.3. Fallback Quota

For the 2022 season, fallback quota has been set aside in the Central Coast, East Coast of Vancouver Island and West Coast of Vancouver Island licence areas.

The use of fallback quota will be considered by DFO only if recommended in writing by the Pacific Sea Cucumber Harvesters Association. For more information on fallback quota and how it is calculated please see Appendix 14.

2022 Fallback Quota in Central Coast Licence Area			
Quota Management Area		Description (by Subarea)	Fallback Quota (lb.)*
7Q	Seaforth Channel	Ptn. 7-2 and 7-3; 7-12, 7-20 to 7-22, 724 and 7-32	16,233
10A	Smith Inlet	10-3, 10-4, ptn of 10-5; 10-6 to 10-11, ptn of 10-12	27,762

**All weights are in split pounds*

2022 Fallback Quota in ECVI Coast Licence Area			
Quota Management Area		Description (by Subarea)	Fallback Quota (lb.)*
11A	Belize Inlet	11-4, 11-5, 11-6	12,696
11B	Seymour Inlet	11-3, 11-10	13,626
11D	Slingsby Channel	Ptn of 11-2	5,598
15A	West Redonda	Ptn. 15-5	21,364
15B	East Redonda	Ptn. 15-5	25,810
15C	South Desolation	15-4, ptn. 15-5	33,683
16A	Sechelt Inlet	16-6 to 16-8, ptn. of 16-9	10,291

16B	Jervis Inlet	16-10, ptn. of 16-11; 16-12, 16-13	14,537
16C	Texada Island	15-1, 16-18, 16-21, 16-22	10,221
16D	Lasqueti Island	14-3, 16-19, 16-20	19,845
18A	Gulf Islands South	18-1, 18-2, 18-4, 18-5, 18-9, 18-11	18,738

**All weights are in split pounds*

2022 Fallback Quota in WCVI Licence Area			
Quota Management Area		Description (by Subarea)	Fallback Quota (lb.)*
25A	Nootka/Tahsis	25-6, 25-8, 25-9, 25-12, 25-15	1,400
25B	Muchalat/Tlupana	25-1 to 25-5	4,525

**All weights are in split pounds*

4.4. Disruptions Due to Unforeseen Issues (Environmental Contamination, Other)

The Department may, at its discretion and upon request from the PSCHA, transfer quota inseason between QMAs not included in this IFMP. For example, an impacted QMA may be substituted with a QMA from a different year in the Adaptive Rotational Fishing Strategy. In this scenario, quota is ‘borrowed’ from a QMA not included in the current rotation, and paid back in the appropriate year either by reducing quota in the QMA in the future or by foregoing harvest in the QMA. Other scenarios may be considered as well. Industry is advised that in-season changes due to unforeseen issues must be made through written request by the PSCHA to the lead manager for the fishery (see Contacts, Appendix 15).

4.5. On-grounds Communication

The PSCHA has designated certain members to act as “On-Grounds Co-ordinators” for the 2022/2023 fishing season in order to aid in keeping track of fleet movement and QMA quotas. For a list of On-Grounds Co-ordinators please contact the service provider. Information on open areas, remaining quotas, and upcoming closures can be obtained by contacting the service provider or a fishery manager. See Contacts in Appendix 15.

4.6. Harvest Questionnaire

The Department and the PSCHA are seeking on-grounds observations from harvesters about each of the QMAs. To gather this important information, a harvest questionnaire will be inserted into the harvest logbook. Harvesters are encouraged to fill out the questionnaire and return it to the Service Provider along with the harvest logbook. The questionnaires will be provided to the Department and will provide important information to be considered in the management of the fishery.

4.7. Harvesting on Aquaculture Tenures

Aquaculture leases are considered private property. Aquaculture licences of occupation are activity (or species) specific and do not legally restrict access unless there are impacts to the species being cultured. The Department recommends that commercial fishers familiarize themselves with the location of aquaculture tenures in fishing areas and, if harvest is being considered from the tenure area, that explicit permission be sought from the aquaculturist to access Sea Cucumbers for commercial purposes.

4.8. Human Waste Containment Regulation

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 by spillage or leakage.
- The contents of toilets or other designated human waste receptacles shall be emptied only into an approved sewage disposal system.

5. CLOSURES

It is the harvester's responsibility to ensure that an area is open to harvesting.

5.1. Notification of Closures

Additional closures may be announced in-season by Fishery Notice. Prior to fishing in an area, fish harvesters are advised to contact the local Fisheries and Oceans Canada office or to contact a resource manager listed in the Contacts section of the IFMP (Appendix 15).

5.2. Closures

The following areas will be closed to commercial Sea Cucumber harvest.

5.2.1. Area 2E

5.2.1.1. 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°19.074'N and 131°43.794'W, thence northwesterly to a point in water at 52°38.115'N and 132°09.939'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. [Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)]

5.2.1.2. 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. [SGang Gwaay (Wailing Island)]

5.2.1.3. 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°50.163'N and 130°53.208'W, thence southwesterly to a point in water at 51°47.954'N and 130°53.612'W, thence northwesterly to a point in water at 51°54.940'N and 131°07.779'W, and thence northeasterly to the beginning point. [Gangxid Tllgaay (South Kunghit Island)]

5.2.1.4. 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 (unnamed islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.591'N and 130°56.348'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°10.222'N and 130°49.514'W, thence southwesterly to a point in water at 52°02.635'N and 130°50.918'W, thence northwesterly back to the beginning point. [Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point)]

5.2.1.5. 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°17.735'N and 130°55.064'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. [Kayjuu Kun (Benjamin Point)]

5.2.1.6. Head of Flamingo Inlet: 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. [St'aa K'ii GawGa (Flamingo Inlet) – Head]

5.2.1.7. Head of Louscoone Inlet: 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. [GawGajaang (Louscoone Inlet) – Head]

5.2.1.8. Head of Rose Inlet: 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. [K'insiGid (Rose Inlet) – Head]

5.2.1.9. Head of Huston Inlet: 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. [GawGan (Huston Inlet) – Head]

5.2.1.10. 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°25.979'N and 131°04.470'W, thence southeasterly to a point in water at 52°22.829'N and 131°00.867'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. [Suu Kaahlíi sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)]

5.2.1.11. 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. [Gid Gwaa GyaaGa GawGa (Poole Inlet)]

5.2.1.12. Mathieson 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 Gaaduu Gwaay (Huxley Island) at 52°28.066'N and 131°21.772'W, thence southerly following the western shoreline of Gaaduu 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. [Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island)]

5.2.1.13. 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°41.070'N and 131°14.485'W, thence southeasterly to a point in water at 52°38.677'N and 131°12.957'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 following the shoreline to 52°34.116'N and 131°25.603'W, thence southwesterly following the shoreline 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'ii Gwaay.yaay (Bischof Islands) at 52°34.143'N and 131°33.379'W, thence easterly following the southeastern shoreline of Kings'ii 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. [Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)]

5.2.1.14. 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. [Didxwahxyangs (Darwin Sound)]

5.2.1.15. 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°48.606'N and 131°39.403'W northeasterly to a point in water at 52°49.405'N and 131° 29.042'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. [T'aanuu K'aadxwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands)]

5.2.2. Area 3

5.2.2.1. Nasoga Gulf CNTR: Subarea 3-9. (Established 2010: Commercial No-Take Reserve)

5.2.2.2. Winter Inlet: That portion of Subarea 3-11 South of a line starting at the entrance to Winter Inlet at 54° 50.328' N and 130° 27.857' W across to a point at 54° 50.455' N and 130° 27.461' W. (Established 2011: Fisheries Management Closure)

5.2.3. Area 4

5.2.3.1. West Stephens Island CNTR: Portion of Subarea 4-2 North of a line starting at the subarea boundary at View Point on Arthur Island [54° 03.249' N and 130° 37.544' W] then West to a point at 54° 04.000' N and 130° 42.500' W, then Southwest to the surfline at 53° 59.983' N and 130° 52.025' W, excluding a portion in Stephens Passage East of a line from 54° 07.388' N and 130° 38.755' W to 54° 07.197' N and 130° 38.449' W. (Established 2010: Commercial NoTake Reserve)

5.2.4. Area 5

5.2.4.1. Kitkatla Inlet and adjacent waters: Subarea 5-3 and Subarea 5-10. (First Nations access for food, social and ceremonial purposes)

5.2.4.2. Kumealon Inlet, Baker Inlet, Kxngeal Inlet, and Klewnuggit Inlet in Subarea 5-23 and Lowe Inlet in Subarea 5-24 (Established 1998: Fisheries Management Closure).

5.2.5. Area 6

5.2.5.1. Giltoyees and Miskatla Inlets: That portion of Subarea 6-1 north of a line from Point Ashton [53° 46.245'N/128° 56.920'W] west to a point at 53° 46.092'N and 128° 58.589'W. (Established 2015: Fisheries Management Closure – created after discussion with the Haisla First Nation)

5.2.5.2. Sue Channel CNTR: That portion of Subarea 6-1 that encompasses both Sue Channel and Loretta Channels within the following boundaries:

Easterly of the Subarea boundary between Maitland Island [53° 41.197'N/129° 04.789'W and Hawkesbury Island [53° 40.494'N/129° 04.797'W] and westerly of a line that begins at 53° 41.205'N/129° 04.898'W (Kersey Point) then to 53° 45.620'N/128° 50.849'W (Walbran Point) then following the easterly shoreline of Loretta Island to 53° 43.341'N/128° 49.939'W then to 53° 42.645'N/128° 50.071'W (Gaudin Point). (Established 2015: Commercial No-Take Reserve – created after discussion with the Haisla First Nation)

5.2.5.3. Hartley Bay: Those portions of Subareas 6-2, 6-6 and 6-28 in the vicinity of Hartley Bay, Promise Island and Coghlin Anchorage, inside the 20 fathom depth contour running from Halsey Point at the entrance to Hartley Bay, around Cape Farewell on Promise Island, then to Sainty Point on the mainland coast as shown on Charts No. 3711 and 3742 published by the Canadian Hydrographic Service. (Established 2005: First Nations access for food, social and ceremonial purposes)

5.2.5.4. Kitkiata Inlet: That portion of Subarea 6-2 that is Kitkiata Inlet West of a line from Gertrude Point to Helen Point. (Established 2006: First Nations access for food, social and ceremonial purposes)

5.2.5.5. Kiskosh Inlet: That portion of Subarea 6-2 that is Kiskosh Inlet West of a line running across the entrance of the inlet. (Established 2006: First Nations access for food, social and ceremonial purposes)

5.2.5.6. Bishop Bay: That portion of Subarea 6-3 that is Bishop Bay East of a line from Riordan Point to Tomkinson Point. (Established 2006: First Nations access for food, social and ceremonial purposes)

5.2.5.7. Cornwall and Drake Inlets: Subarea 6-8. (Established 2006: First Nations access for food, social and ceremonial purposes)

5.2.5.8. Northwest Price Island CNTR: That portion of Subarea 6-17 along the western shoreline of Price Island from the Subarea boundary at 52° 27.488'N and 128° 45.802'W south to the Subarea boundary at 52° 24.222'N and 128° 45.690'W. (Established 2014: Commercial No-Take Reserve)

5.2.5.9. Mid Princess Royal Channel: That portion of Subarea 6-20 South of a line from a point at Nomel Creek (53° 07.106'N and 128° 36.006'W) then East to the Subarea boundary at (53° 07.123'N and 128° 34.164'W). North of a line from point at Big Creek (53° 02.029'N and 128° 31.508'W), West to a point at 53° 01.924'N and 128° 32.560'W. (Established 2014: First Nations access for food, social and ceremonial purposes)

5.2.5.10. Tolmie Channel CNTR: That portion of Subarea 6-20 south of a line starting at the Subarea boundary at Netherby Point (52° 55.314'N and 128° 30.007'W) west to a point at 52° 55.320'N and 128° 31.540'W and north of a line starting from the Subarea boundary at Sarah Head (52° 53.012'N and 128° 30.634'W) west to a point on Tolmie Head at 52° 53.068'N and 128° 31.796'W. (Established in 2011: Commercial No-Take Reserve)

5.2.5.11. Khutze Inlet CNTR: Subarea 6-23. (Established 2011: Commercial No-Take Reserve)

5.2.5.12. Meyers Pass: Subarea 6-25. (Established 2014: First Nations access for food, social and ceremonial purposes)

5.2.6. Area 7

5.2.6.1. Mid-Finlayson Channel: Subarea 7-5. (Established 2014: First Nations access for food, social and ceremonial purposes)

5.2.6.2. Mussel Inlet CNTR: Subarea 7-7 (Established 2014: Commercial No-Take Reserve)

5.2.6.3. Oscar Pass CNTR: That portion of Subarea 7-9 west of a line starting at Miall Point (52° 29.595'N and 128° 16.147'W) and a point along Buckley Head at 52° 28.494'N and 128°

16.494'W (Established 2014: Commercial No-Take Reserve)

5.2.6.4. Berry Inlet CNTR: Subarea 7-8 (Established 2011: Commercial No-Take Reserve – formerly designated as a research area).

5.2.7. Area 9

5.2.7.1. Sandell Bay CNTR: That portion of Subarea 9-4 North of a line from 51° 38.340' N and 127° 32.880' W to 51° 38.460' N and 127° 32.040' W. (Established 2008: Commercial NoTake Reserve)

5.2.7.2. Moses Inlet CNTR: Subareas 9-7 and 9-8. (Established 2008: Commercial No-Take Reserve)

5.2.7.3. Kilbella Bay: That portion of Subarea 9-6 East of a line at 127° 21.90' W latitude. (Established 2008: Fisheries Management Closure)

5.2.8. Area 10

5.2.8.1. Margaret Bay CNTR: That portion of Subarea 10-5 East of a line from Ripon Pt. (51° 19.32' N and 127° 32.40' W) to Olive Pt. (51° 20.22' N and 127° 32.16' W). (Established 2008: Commercial No-Take Reserve)

5.2.8.2. Takush Harbour CNTR: That portion of Subarea 10-12 West of 127° 35.52' W latitude and South of the Subarea Boundary Line (Wakas Pt. (51° 17.46' N and 127° 38.16' W) to Gikumi Pt. (51° 17.70' N and 127° 36.78' W). (Established 2008: Commercial No-Take Reserve)

5.2.9. Area 11

5.2.9.1. Nugent Sound CNTR: Subarea 11-8. (Established 2012: Commercial No-Take Reserve)

5.2.10. Area 12

5.2.10.1. Lower Queen Charlotte Strait CNTR: Subarea 12-6. (Established 2009: Commercial No-Take Reserve)

5.2.10.2. Port Neville CNTR: Subarea 12-25. (Commercial No-Take Reserve)

5.2.11. Area 13

5.2.11.1. 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)

5.2.11.2. Mitlenatch Nature Park: (As described in Area 15 Closures).

5.2.11.3. Okisollo Channel CNTR: Subarea 13-10. (Established 2008: Commercial No-Take Reserve)

5.2.12. Area 14

5.2.12.1. 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 degrees true for 0.5 nautical miles, thence 126 degrees true for 3.5 nautical miles, thence 64 degrees true for 4.9 nautical miles, thence 304 degrees true for 2.9 nautical miles, thence 213 degrees true for 0.5 nautical miles to Cape Gurney on Hornby Island. (Marine Reserve)

5.2.12.2. Mitlenatch Nature Park: (As described in Area 15 Closures).

5.2.13. Area 15

5.2.13.1. 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)

5.2.13.2. 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)

5.2.13.3. All waters within 0.25 nautical miles of Dinner Rock, located 2.5 nautical miles south of Lund in Subarea 15-2. (Marine Reserve)

5.2.13.4. 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)

5.2.13.5. All waters within 1.0 nautical mile of Mitlenatch Island, located in the upper Strait of Georgia intersected by the Subareas 15-2, 13-1, 13-3 and 14-13. (Marine Reserve)

5.2.13.6. All waters within a 0.25 nautical mile radius of the southerly end of the Beach Gardens breakwater in Subarea 15-2. (Marine Reserve)

5.2.13.7. Toba Inlet CNTR: Subarea 15-6 (Established 2012: Commercial No-Take Reserve).

5.2.14. Area 16

5.2.14.1. Subareas 16-3 (Bargain Bay), 16-4 (Pender Harbour) and 16-5 (Head of Sechelt Inlet). (Navigational Closure)

5.2.14.2. 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 degrees true to a point on the foreshore on the mainland; and the East by a line from Raland Point on Sechelt Peninsula, thence 50 degrees true to a point on the foreshore on the mainland. (Park)

5.2.14.3. Jervis Inlet CNTR: Subarea 16-14. (Established 2011: Commercial No-Take Reserve)

5.2.14.4. Malaspina CNTR: Subareas 16-2 and 16-17 (Established 2012: Commercial No-Take Reserve).

5.2.15. Area 18

5.2.15.1. Satellite Channel CNTR: Subarea 18-6. (Established 2011: Commercial No-Take Reserve)

5.2.15.2. Subareas 18-7 (Sansum Narrows, Burgoyne Bay and Maple Bay) and 18-8 (Cowichan Bay). (Conservation Closure).

5.2.16. Area 19

5.2.16.1. 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)

5.2.16.2. 10 Mile Point: Those waters of Subareas 19-4 and 19-5 within 0.4 nautical miles of Cadboro Point navigation light. (Marine Reserve)

5.2.16.3. Race Rocks: Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rocks. (Marine Reserve)

5.2.17. Area 20

5.2.17.1. Race Rocks: Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rocks. (Marine Reserve)

5.2.17.2. 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)

5.2.17.3. 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)

5.2.18. Area 23

5.2.18.1. 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)

5.2.18.2. Bamfield Marine Station Research Area Closure: Those waters of Pacific Fishery Management Subareas 23-4, 23-5, 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)

5.2.19. Area 24

5.2.19.1. Pacific Rim National Park, Grice Bay and McBey Islets: The waters of Tofino Inlet within Pacific Rim National Park including McBey Islets and Dinner Island in Tsapee Narrows, Browning Passage in Subarea 24-9 and Grice Bay west and south of Indian Island in Subarea 24-11. (Park)

5.2.20. Area 25

5.2.20.1. Subareas 25-8 and 25-9: Zeballos Experimental Fishing Area (Established 1997: Research).

5.2.21. Area 26

5.2.21.1. 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 the coordinates 49 degrees 59 minutes to 50 degrees 6.3 minutes north and 127 degrees 26 minutes to 127 degrees 39 minutes west. (Ecological Reserve)

5.2.21.2. Kyuquot Bay: A portion of 26-6 inside or northerly of a line from White Cliff Head to Racoon Point. (Research Closure)

5.2.21.3. Entrance to Crowther Channel: A portion of 26-6 on the west side of Union Island commencing at position 50 degrees 0.4 minutes north, 127 degrees 19.3 minutes west. (Research Closure)

5.2.22. Area 28

5.2.22.1. Horseshoe Bay: That portion of Subarea 28-2 bounded by a line commencing from Whytecliff Point, thence in a straight line to the most southerly point of Bowyer Island, thence in a straight line 112 degrees true to the mainland. (Navigational Closure)

5.2.22.2. 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 metres east of the most southeasterly point of Whyte It.; thence following the southern shoreline of Whyte It. at a distance of 100 metres to a point lying 100 metres from the most southwesterly point of Whyte It.; thence in a straight line to a point lying 100 metres west of White Cliff Point; thence following the shoreline at a distance of 100 metres in a northerly direction to a point 100 metres north of Lookout Point; thence following the shoreline at a distance of 100 metres in an easterly direction to a point 100 metres perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

5.2.22.3. 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)

5.2.23. Portions of Subareas 101-1 and 142-2

5.2.23.1. Bowie Seamount: Area bounded by a series of rhumb lines drawn from a point 53° 03.076' N, 135° 50.259' W, to a point 53° 16.209' N, 134° 59.554' W, then to a point 53° 39.492' N, 135° 17.049' W, then to a point 53° 39.180' N, 135° 53.465' W, then to a point 53° 52.167' N, 136° 30.231' W, then to a point 53° 49.196' N, 136° 47.331' W, then to a point 53° 40.025' N, 136° 57.035' W, then to a point 53° 13.592' N, 136° 10.000' W, then back to the point of commencement as laid out in the Bowie Seamount Marine Protected Area Regulations. (Marine Protected Area)

6. WORKSAFEBC

Jurisdiction over health and safety on commercial fishing vessels in Canada is the mandate of the provinces. In British Columbia, jurisdiction over health and safety issues on commercial fishing vessels falls to WorkSafeBC. Health and safety issues on fishing vessels include the health and safety of the crew and design, construction and use of fishing equipment on the vessel. Matters of transportation and shipping fall to the federal government and are administered by Transport Canada, Marine Safety (TCMS). WorkSafeBC and TCMS have entered into a Memorandum of Understanding on fishing vessel safety that addresses, as much as possible, jurisdiction. The document also contemplates that each party will work co-operatively to ensure that vessels and their crew remain healthy and safe.

The Sea Cucumber fishery, and other dive fisheries, is legislated by the requirements for occupational divers, found in Part 24 of the *Occupational Health and Safety Regulation* (OHSR) and as commercial fishing ventures, also found in Part 24 of the OHSR. Many of the general sections of the Regulation also apply, for example: Part 8 - Personal Protective Equipment, addresses issues related to safety head gear, safety footwear, and personal floatation devices. Part 17 addresses issues on rigging and Part 5 addresses issues of exposure to chemical and biological substances. The entire regulation can be acquired from the Provincial Crown Printers or by visiting the WorkSafeBC Internet Site at:

www.worksafebc.com

For further information please see contacts in Appendix 15.

Appendix 2: 2022/2023 Sea Cucumber by Dive First Nations Harvest Plan

1. OVERVIEW OF THE FISHERY

Fish and marine resources are central to the culture, society, well-being, and economy 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 users of the resource.

DFO 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, in addition to outlining First Nation involvement in a range of co-management activities and economic development opportunities which may include, but not be limited to, habitat enhancement, FSC catch monitoring and enforcement, fish management and community research.

Communal licences and, under Treaty, harvest documents (domestic purposes) are issued annually to First Nations under the authority of the *Aboriginal Communal Fishing Licences Regulations* made under the *Fisheries Act*. Communal licences and harvest documents can be amended inseason for resource conservation purposes. Where an agreement cannot be concluded, Fisheries & Oceans Canada still issues communal fishing licences to First Nations organizations.

First Nations may also participate in the commercial fishery (see Section 4.1 of the Integrated Fishery Management Plan).

2. MANAGEMENT MEASURES FOR THE FIRST NATIONS FISHERY

Under the Individual Quota (IQ) program for the commercial Sea Cucumber fishery, two percent of the coast-wide Total Allowable Catch (CTAC) for Sea Cucumber is reserved, for planning purposes, for First Nations fisheries for food, social and ceremonial purposes. Additional allocations of Sea Cucumbers will be provided to First Nations who demonstrate that their food, social and ceremonial needs are not being met. Fisheries and Oceans Canada is confident that with the precautionary approach to this fishery, the reserved allocation of TAC, and the provision of additional allocations where necessary, First Nations in all areas will have sufficient opportunities to harvest Sea Cucumbers for food, social and ceremonial purposes.

A number of closures to the commercial fishery have been implemented for First Nations' access to Sea Cucumbers for FSC purposes – see Appendix 1, Section 5 for a list of these closures.

3. OPEN TIMES

First Nations food, social and ceremonial fisheries can occur year-round in all areas.

4. LICENSING

First Nations access to fish for FSC purposes is managed through a communal licence, or under treaty, a harvest document which can permit the harvest of Sea Cucumbers. These licences are issued under the authority of the *Aboriginal Communal Fishing Licences Regulations*.

5. CONTROL AND MONITORING OF ABORIGINAL FISHING ACTIVITIES

First Nation harvests for food, social and ceremonial purposes are the first priority after conservation. This fishery is regulated through the issuance of communal licences to First Nations organizations. These licences are issued under the authority of the *Aboriginal Communal Fishing Licences Regulations*. Further arrangements for FSC fishing may be identified in agreements between the Department and individual First Nations organizations.

Communal licences and Fisheries Agreements may contain provisions for the designation of individuals by the First Nations organization 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.

First Nation access to fish for food, social and ceremonial purposes is managed through a communal licence which can permit the harvest of Sea Cucumbers. For additional information on communal licences, see the Internet at: <http://www.pac.dfo-mpo.gc.ca/abor-autoc/licences-permis-eng.html>

5.1. Treaty Fisheries

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

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 BC.

More information on the Treaty and the Nisga'a annual fishing plan can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1100100031292/1542998607479>

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 of 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 Treaty can be found at:

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

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 comprise 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'atł First Nation on the west coast of Vancouver Island.

More information on the Treaty can be found at:

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

Tla'amin Domestic Fishing

The Tla'amin fishery for domestic (FSC) purposes under the Tla'amin 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.

This treaty includes an allocation for Sea Cucumber. The allocation is for 8,500 pounds of whole Sea Cucumber from within the Tla'amin Fishing Area which includes portions of Management Areas 13, 14, 15 and 16.

More information on the Treaty can be found at:

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

5.2. Ahousaht, Ehattesaht, Hesquiaht, Mowachat/Muchalaht, Tla-o-qui-aht

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 an Aboriginal rights to fish for any species of fish, with the exception of Geoduck, within their Fishing Territories and to sell that fish. Their fishing territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 26/126, 124 and all of PFMA 24.

The Department has developed a 2022/23 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 2022/23 FMP by DFO where possible.

The implementation of the Five Nations' right-based sale fishery continues to be an ongoing process. The 2022/23 FMP is the fourth Multi-Species FMP developed to implement the

rightbased multi-species fishery to accommodate the Five Nations' Aboriginal rights consistent with the British Columbia Supreme Court's 2018 decision. Version 2 of the 2021 FMP, issued on December 2, 2021, was the first Multi-Species FMP developed following the British Columbia Court of Appeal (BCCA) decision of April 19, 2021, in Ahousaht Indian Band and Nation v. Canada, 2021 BCCA 155, but it only partially implemented it. The 2022/23 FMP addresses most of the remaining issues raised by the BCCA decision, leaving some items left to review. It is DFO's intention to continue to review the FMP and make further changes in-season and amend the FMP if required.

For further information see the 2022-23 FMP at:

<https://waves-vagues.dfo-mpo.gc.ca/Library/41047977.pdf>

Appendix 3: 2022/2023 Sea Cucumber by Dive Recreational Harvest Plan

1. INTRODUCTION

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

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 (or date of purchase, whichever is later) to March 31 the following year. The annual licence fee is not pro-rated for annual licences purchased midseason. 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. There were over 272,800 adult fishers participating in BC's tidal waters recreational fishery in 2021/22.

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>

Online Regulations

The regulations for recreational fishing are provided online in the British Columbia Tidal Waters Sport Fishing Guide, which lists open and closed times, catch limits, size limits (where applicable), and open and closed areas.

Changes to regulations are issued in Fishery Notices which are posted online and sent to subscribers by email.

The printed Sport Fishing Guide booklet is no longer being produced or distributed to reduce costs and environmental impacts. The online Sport Fish Guide allows for in-season regulations to be accurately provided and ensures all the regulations are up to date. Staff at local DFO fishery offices can also provide regulatory information for an area of interest.

The British Columbia Tidal Waters Sport Fishing Guide is available at:

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

To view or subscribe to receive Fishery Notice notifications by email is available at:

<http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm>

Local DFO fishery office contact information is available at:

<https://www.dfo-mpo.gc.ca/contact/regions/pacific-pacifique-eng.html> or

call 604-666-0384 or email info@dfo-mpo.gc.ca

Using Mobile Devices and the FishingBC App

The FishingBC App, developed by the Sport Fishing Institute of BC, can 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 functionalities).

Please note: the DFO Sport Fishing Guide 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 online DFO Sport Fishing Guide 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 the licence – may be used on a mobile device but there are restrictions on its use.

Please consider these licensing requirements before a fishing trip:

- For all recreational tidal waters fishers that do not have an electronic copy of their licence on their mobile device, fishers must have a paper copy of their licence with proof of licence purchase to show to a fishery officer;
- For users of the FishingBC App, or on any electronic device, a PDF copy of their licence on the device is acceptable and must be immediately presented to a fishery officer upon request. Please note catch recording requirements below;
- Immediately upon retention of Chinook, Halibut, or Lingcod, fishers must record these catches on their paper licence (preferred) or in their National Recreational Licensing System account (requires internet access).
- For all fishers retaining Chinook, Halibut, or Lingcod, even with an e-licence and catch details in the FishingBC App or in their mobile device, fishers must immediately record catch for these three species on their paper licence or in their National Recreational Licensing System

Account and show these records to a fishery officer upon request.

- a paper copy of their licence; or

- their National Recreational Licensing System account (where internet access for their mobile device is available). Fishers may find it helpful to immediately take a screenshot of their catch records when they have internet access should they subsequently move out of cell range.

Supporting Sustainable Fisheries - Catch Reporting

The Sport Fishing Advisory Board (SFAB) is the primary consultative body for the recreational fishing community, and includes individual representatives from all geographic regions in BC as well as delegates from a number of fishing and service provider organizations. 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 fishers are required as a condition of the Tidal Waters Sport Fishing Licence to report accurate information on their recreational fishing activity and catch upon request of DFO representatives including creel surveyors, fishery officers and fishery guardians and if selected to the online iREC reporting program (see below).

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 July 2012. All 2022/23 adult Tidal Water Recreational Fishing licences will be selected to iREC reporting program and randomly assigned to report for one month. Licence holders are required to report for only one month to limit the reporting burden. Information regarding completing the iREC report, including the month selected for reporting, the website at which to report, a unique iREC Access ID and reporting deadline are printed on each licence. Further, licence holders with a valid email address in the National Recreational Licensing system will receive emails reminding them to complete their iREC reports. Providing complete and accurate information to the iREC program when selected is a condition of licence (i.e. mandatory requirement).

The iREC reporting program is one of the sources used in developing DFO official catch and effort estimates. The iREC reporting program methodology was peer reviewed and published 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 invertebrates in all Pacific Fishery Management Areas based on responses by Tidal Waters Sport Fishing Licence holders. The recreational fishing 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 developed 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.

More information about the iREC reporting program is available at: <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/index-eng.html>

Internet Annual Recreational Catch (iARC) Reporting program

A separate online reporting program - the internet Annual Recreational Catch (iARC) reporting program – was 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 licence(s). This program ran for 8 years between 2014/15 and 2021/22. It provided 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>

2. LOCATION OF THE FISHERY

Recreational harvest of Sea Cucumbers occurs coast-wide.

3. OPEN TIMES AND AREAS

Recreational fisheries are open year-round in all areas, or as described in the British Columbia Tidal Waters Sport Fishing Guide for the recreational fishery. All commercial and recreational fisheries are closed within the following areas within the Gwaii Haanas National Marine Conservation Area:

1. 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°19.074'N and 131°43.794'W, thence northwesterly to a point in water at 52°38.115'N and 132°09.939'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. [Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)]
2. 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. [SGang Gwaay (Wailing Island)]

3. 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°50.163'N and 130°53.208'W, thence southwesterly to a point in water at 51°47.954'N and 130°53.612'W, thence northwesterly to a point in water at 51°54.940'N and 131°07.779'W, and thence northeasterly to the beginning point. [Gangxid Tllgaay (South Kunghit Island)]

4. 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 (unnamed islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.591'N and 130°56.348'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°10.222'N and 130°49.514'W, thence southwesterly to a point in water at 52°02.635'N and 130°50.918'W, thence northwesterly back to the beginning point. [Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point)]

5. 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°17.735'N and 130°55.064'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. [Kayjuu Kun (Benjamin Point)]

6. Head of Flamingo Inlet: 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. [St'aa K'ii GawGa (Flamingo Inlet) – Head]

7. Head of Louscoone Inlet: 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. [GawGajaang (Louscoone Inlet) – Head] 8. Head of Rose Inlet: 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. [K'insiGid (Rose Inlet) – Head]

9. Head of Huston Inlet: 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. [GawGan (Huston Inlet) – Head]

10. 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°25.979'N and 131°04.470'W, thence southeasterly to a point in water at 52°22.829'N and 131°00.867'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. [Suu Kaahlíi sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)]

11. 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. [Gid Gwaa GyaaGa GawGa (Poole Inlet)]

12. Mathieson 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 Gaaduu Gwaay (Huxley Island) at 52°28.066'N and 131°21.772'W, thence southerly following the western shoreline of Gaaduu 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. [Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island)]

13. 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°41.070'N and 131°14.485'W, thence southeasterly to a point in water at 52°38.677'N and 131°12.957'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 following the shoreline to 52°34.116'N and 131°25.603'W, thence southwesterly following the shoreline 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'ii Gwaay.yaay (Bischof Islands) at 52°34.143'N and 131°33.379'W, thence easterly following the southeastern shoreline of Kings'ii 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. [Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)]

14. 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. [Didxwahxyangs (Darwin Sound)]

15. 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°48.606'N and 131°39.403'W northeasterly to a point in water at 52°49.405'N and 131° 29.042'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. [T'aanuu K'aadxiwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands)]

4. LICENSING

A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish.

5. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES

The recreational harvest of shellfish is regulated via the *British Columbia Sport Fishing Regulations, 1996* made under the *Fisheries Act*. The regulations are summarized in the British Columbia Tidal Waters Sport Fishing Guide which lists closed times, daily and possession limits and some closed areas. A copy of the Sport Fishing Guide is available online at:

www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html

5.1. Gear

Sea Cucumbers may be harvested by handpicking.

5.2. Daily Limits

The daily recreational limit for Sea Cucumbers is 12.

5.3. Possession Limits

Possession limits for Sea Cucumbers are two times the daily limit.

5.4. Size Limit

There is no size limit for the recreational Sea Cucumber fishery.

Appendix 4: 2022/2023 Sea Cucumber Aquaculture Management Measures

1. MANAGEMENT APPROACH

Current Status of Sea Cucumber Aquaculture Management

There is significant interest in Sea Cucumber aquaculture in British Columbia (BC). Given the range of issues and potential uncertainty regarding Sea Cucumber aquaculture, DFO is not currently accepting new applications for Sea Cucumber in the marine environment. The Department is developing a new management approach that will provide additional opportunities for the culture of Sea Cucumber in the marine environment while managing potential concerns related to environmental impacts and interaction between cultivated and wild stocks. Development of this approach will incorporate a review of current science regarding Sea Cucumber aquaculture.

There are a small number of existing shellfish aquaculture licenses issued for Sea Cucumber in the marine environment, as well as several land-based hatchery licences.

The collection of broodstock for hatchery aquaculture purposes is facilitated through an Access to Wild Aquatic Resources licence and a licence from the Introductions and Transfers Committee to permit transfer of broodstock to a hatchery. The Access to Wild Aquatic Resources policy can be found at: http://www.dfo-mpo.gc.ca/aquaculture/ref/AWAR_e.pdf.

Further information regarding shellfish aquaculture can be obtained from the following website: <http://www.dfo-mpo.gc.ca/aquaculture/index-eng.htm>

Harvesting on Aquaculture Tenures

Licensed aquaculture facilities are considered private property. Under the *Fisheries Act*, fishing within an aquaculture facility already under federal licence (PAR aquaculture licence) is prohibited unless otherwise permitted by the occupant under the licence. The Department recommends that commercial and recreational harvesters familiarize themselves with the location of aquaculture tenures in fishing areas and that permission be sought from the aquaculturist for access.

Regulatory Regime

In December 2010 the *Pacific Aquaculture Regulations* came into effect, giving DFO the authority to govern the management and regulation of aquaculture activities at marine finfish, shellfish, freshwater/land-based and enhancement facilities. The Province of BC continues to have authority over land tenures and workplace safety related to aquaculture in BC. New applications, amendments and related referrals are coordinated through Front Counter BC. More information is available on the BC government's website: <http://www.frontcounterbc.gov.bc.ca/>.

DFO assesses, makes decisions and issues aquaculture licences.

DFO requires comprehensive environmental monitoring to be undertaken by the marine finfish industry, and the department also conducts additional monitoring, audits, and investigations (where warranted). Public reporting is undertaken to ensure the transparency and accountability

of the management of aquaculture in BC. Associated reporting can be found on the DFO web pages: <http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/index-eng.html>.

Within the BC Aquaculture Regulatory Program there is a Compliance and Enforcement Unit, dedicated to aquaculture compliance, as well as an Aquaculture Environmental Operations Unit, which monitors the activities of industry on an on-going basis. The Program provides oversight and works to ensure the orderly management of the industry, including planning and licencing, linkages with national and regional policy, as well as consultation and communications. Contact information for staff with responsibilities related to aquaculture management within DFO can be found in the Departmental Contacts section of this plan.

Integrated Management of Aquaculture Plans

Integrated Management of Aquaculture Plans (IMAPs) provide an overview of each aquaculture sector and associated management and regulation. IMAPs are available on the DFO Consultations web pages: <http://www.pac.dfo-mpo.gc.ca/consultation/aquaculture/index-eng.html>. IMAPs complement IFMPs and the two are reviewed periodically to ensure consistency of management approaches.

Aquaculture Management Advisory Committees

Aquaculture Management Committee Meetings (AMACs) engage the aquaculture industry, First Nations, and other stakeholders in development of IMAPs and on-going feedback relevant to the management of Aquaculture. Information relating to AMAC meetings is posted on the DFO Consultations web pages: <http://www.pac.dfo-mpo.gc.ca/consultation/aquaculture/index-eng.html>. Meetings are open to the public.

More information on IMAPs and AMACs is available through IMAPS@dfo-mpo.gc.ca.

Appendix 5: Sea Cucumber Post Season Review for 2021

1. Stock Assessment and Research

There were transect surveys completed in portions of Management Area 7 in 2021. For past survey results and more information, please see Appendices 6 and 7.

DFO Science concluded the long term Experimental Fishing Areas (EFA) project in 2017 due to several changes that compromised the integrity of the experimental design. A CSAS research document was accepted in the Spring of 2022 that provided:

- A Limit Reference Point (LRP) of 0.029 sea cucumbers m^{-2} on sea cucumber habitat was recommended (Hajas et al. in press). This equates to 1.20 sea cucumbers m^{-1} ; the linear density is provided for context, however, spatial units are recommended for the reference points (Hajas et al. in press),
- A Upper Stock Reference (USR) of 0.038 sea cucumbers m^{-2} on sea cucumber habitat was recommended (Hajas et al. in press). This equates to 1.95 sea cucumbers m^{-1} ; the linear density is provided for context, however, spatial units are recommended for the reference points (Hajas et al. in press), and
- updated recommended annual and triennial harvest rates using data from all the years of the EFA (1998 to 2015). Annual harvest rates should not exceed the range of 2.0 to 8.0% of estimated pre-harvest biomass, with the caveat that the upper ranges may only be appropriate for highly productive areas. Triennial harvest amounts should not exceed the range of 5.7 to 18.8% of estimated pre-harvest biomass, with the caveat that the upper ranges may only be appropriate for highly productive areas.

This research document will be published on the CSAS website in 2022.

For more information please contact Science branch personnel (see contacts in Appendix 15).

DFO Science is also working on the development of a coast wide multispecies monitoring program. The objective of the program is to collect the data necessary to assess stock status against reference points. Recommendations on survey design are scheduled to be delivered in a CSAS research document in 2022.

2. First Nations Fishery

Catch information is collected by some First Nations, by fisheries program personnel or by Band administration offices. DFO is working on initiatives to receive, store and manage shellfish FSC harvest information.

3. Recreational Fishery

No advice or comments were received from the recreational sector in 2021/22. The amount of Sea Cucumbers harvested by the recreational sector is unknown but is believed to be minimal.

4. Commercial Fishery

Sea Cucumber Sectoral Committee Meeting

The annual Sea Cucumber Sectoral Committee meeting was held on June 22, 2021 via a Microsoft Teams online chat. Representatives from DFO (Resource Management, Science and C&P), the Pacific Sea Cucumber Harvesters Association (PSCHA), D&D Pacific Fisheries, Nisga'a Fisheries Program, Kitasoo Fisheries Program, Malahat First Nation and the Central Coast Indigenous Resources Alliance participated. Key issues discussed included: a review of the 2020 season, the Integrated Fisheries Management Plan timeline for 2021/22 and proposed fishing areas for the 2021 season.

Sea Cucumber Research Subcommittee Meeting

A Sea Cucumber Research Subcommittee Meeting was held on March 16, 2021 via Microsoft Teams online chat. Representatives from DFO (Resource Management and Science), the Pacific Sea Cucumber Harvesters Association (PSCHA), Kitasoo Fisheries Program, Ha'oom Fisheries Society, Nisga'a Nation and Haida Fisheries Program participated. Key issues discussed included: Phase 2 fishery progress to date, possible areas to reopen and biomass surveys for 2021 and an update from DFO Science.

Meeting records from previous Sectoral Committee and Research Subcommittee meetings are available from a resource manager (see contacts, Appendix 15).

Overview of the 2021 season

The 2021 season was the second year of the fourth application of the 3-year Adaptive Rotational Fishing Strategy (ARFS) that began in 2011.

The fishery opened in the North Coast licence area on October 1, 2021. All remaining licence areas opened on October 8, 2020. Approximately 98% of the TAC was achieved by December 7, 2021. 83 of the 85 licences were active and were fished by 31 vessels. Approximately 25 thousand pounds of the TAC remained in the North Coast licence area since two FZD tabs were not issued to First Nations organizations and remained in DFO PICFI inventory for the 2021 season.

North Coast Licence Area

The North Coast licence area opened on October 1, 2021 and fishing started in Management Area 6. The fleet worked north to portions of Management Area 4. A total of 13 vessels fished and the licence area was open for a total of 39 fishing days. 33 licence eligibilities were assigned to the North Coast licence area in 2021. 94.4% of TAC was achieved for the North Coast licence area. The licence area was closed on November 8, 2021.

Quota Management Area	Open	Close	Days Fished	Number of Vessels	Landings (lb.)*
4C North Porcher	Oct 8	Nov 8	12	8	68,115
5A West Banks	Oct 8	Nov 8	3	11	65,578
5D South Porcher	Oct 8	Oct 23	4	12	72,088

5I Grenville South	Oct 8	Oct 14	1	15	32,613
6E Princess Royal Channel	Oct 1	Nov 6	8	2	20,582
6G Kitimat Arm	Oct 1	Oct 5	4	14	54,772
6H Douglas Channel	Oct 1	Oct 13	3	15	79,310
6I Gribbell Island	Oct 5	Oct 13	2	17	93,864
6J Surf Inlet	Oct 1	Oct 26	1	2	6,716
6K Laredo Channel	Oct 1	Nov 6	3	2	4,874

* Landings should be considered preliminary, all weights are split pounds.

Central Coast Licence Area

The central coast licence area opened on October 8, 2021 in Management Area 7 but harvest did not commence until October 10, 2021. Harvest was paused in the first week of November for several days due to staffing shortages at processing plants in Vancouver. Fishing occurred in portions of Management Areas 7, 8 and 10 in 2021. A total of 14 vessels fished and the licence area was open for a total of 31 fishing days. 24 licence eligibilities were assigned to the Central Coast licence area in 2021. 100.5% of the TAC was achieved for the Central Coast licence area. Sea Cucumbers were landed in Port Hardy and Klemtu in 2021. The Central Coast licence area closed on November 8, 2021.

Quota Management Area	Open	Close	Days Fished	Number of Vessels	Landings (lb.)*
7F Denny Island	Oct 8	Oct 26	10	11	172,407
7N Finlayson North	Oct 8	Nov 2	3	2	10,984
7O Finlayson South	Oct 8	Nov 6	5	2	12,106
7P Milbanke Sound	Oct 8	Oct 24	1	2	5,573
8B Calvert Island	Oct 22	Nov 2	7	10	156,134
10A Smith Inlet	Oct 22	Nov 8	4	3	28,530

* Landings should be considered preliminary, all weights are split pounds.

East Coast of Vancouver Island Licence Area

The East Coast of Vancouver Island (ECVI) licence area opened on October 1, 2020 and fishing occurred in portions of Management Areas 11, 12, 13, 15 and 16 in 2021. A total of 10 vessels fished and the licence area was open for a total of 31 fishing days. Extremely poor visibility in Seymour and Belize inlets made harvest in these areas extremely difficult so fallback quota was opened in Management Area 16. 21 licence eligibilities were assigned to the East Coast of Vancouver licence area in 2021. The TAC was 100.3% completed in the ECVI licence area in 2021 and it closed on November 21, 2021.

Quota Management Area	Open	Close	Days Fished	Number of Vessels	Landings (lb.)*
11A Belize Inlet	Oct 8	Oct 18	1	2	3,092
11B Seymour Inlet	Oct 8	Oct 18	0	0	0
11E Allison Harbour	Oct 8	Oct 13	4	6	35,008
12K Port Harvey	Oct 26	Oct 28	2	8	29,709
12M Port Hardy	Oct 8	Oct 28	5	9	44,174
12N Goletas Channel	Oct 8	Oct 28	5	10	66,238
12O Walker/Deserters	Oct 10	Oct 18	2	6	23,071
13B North Area 13	Oct 8	Nov 6	4	5	33,826
13C East Thurlow Island	Oct 8	Nov 2	4	9	59,182
15A West Redonda	Nov 5	Nov 6	1	2	5,359
15B East Redonda	Nov 6	Nov 21	2	3	5,033
15C South Desolation	Nov 7	Nov 8	1	2	4,709
16A Sechart Inlet	Nov 8	Nov 15	2	2	9,028
16B Jervis Inlet	Nov 8	Nov 16	2	2	5,970

16C Texada Island	Nov 8	Nov 17	3	2	7,942
16D Lasqueti Island	Nov 8	Nov 20	2	1	4,581

* Landings should be considered preliminary, all weights are split pounds.

West Coast of Vancouver Island Licence Area

The West Coast of Vancouver Island licence area opened on October 8, 2021 but harvest did not commence until October 15, 2021. A new QMA was available in Management Area 26 and 7 licence eligibilities were assigned to the WCVI licence area in 2021. The TAC was achieved by 5 vessels in 67 fishing days. The TAC was 98.1% completed in the WCVI licence area in 2021 and it closed on November 19, 2021.

Quota Management Area	Open	Close	Days Fished	Number of Vessels	Landings (lb.)*
24A North Clayoquot	Oct 8	Nov 20	10	2	19,840
24B South Clayoquot	Oct 8	Nov 7	4	2	12,342
25A Nootka/Tahsis	Oct 8	Dec 6	4	2	20,224
25B Muchalat/Tlupana	Oct 8	Dec 6	5	3	28,636
26A Kyuquot	Oct 8	Nov 2	6	1	32,099

* Landings should be considered preliminary, all weights are split pounds.

Issues encountered during the 2021 season In

the North Coast Licence Area:

No issues reported.

In the Central Coast Licence Area:

No issues reported.

In the East Coast Vancouver Island Licence Area:

Water visibility was an issue in Seymour and Belize inlets which meant the quota could not be achieved in QMAs 11A and 11B. Fallback quota was utilized in Management Area 16 instead.

In the West Coast Vancouver Island Licence Area:

No issues reported.

5. 2021 Harvest Questionnaire Results

DFO Fisheries Management included a harvest questionnaire with the 2021 harvest logbook with the hopes that harvesters would take time to record any observations they may have had on each QMA they harvested. Of the 100 questionnaires distributed, 11 were returned.

Harvesters noted that some of the QMAs had smaller Sea Cucumbers than before. Water visibility was a challenge in QMA 6G Kitimat Arm. Good Sea Cucumber densities were seen in the North Coast QMA. It was challenging to achieve the quota in QMA 6K Laredo Channel.

On-grounds observations from each QMA are extremely helpful and will be considered in management decisions.

6. Compliance

In general compliance with the catch validation program and other management programs was considered good. The majority of non-compliance issues are dealt with during the course of the fishery by the service provider, fishery officers or fishery managers.

Table 1. History of Management Actions for the Commercial Sea Cucumber Fishery

Year	Management Actions
1971	Commercial exploitation of Sea Cucumbers began in British Columbia (the first landings were recorded)
1980	Fishery began as an experimental fishery
1985	Fishery licensed under category "Z-D"
1986	First quotas in round pounds and pieces.
1987	Area quotas and time and area openings set for management of the commercial Sea Cucumber fishery
1989	A consultative process, which included the Sea Cucumber Sectoral Committee, was initiated and is a major part of the planning for the commercial fishery
1989	Designated vessels must have a vessel survey on record with the Pacific Fishery Licence Unit
1991	Licence limitation to a total of 85
1993	Rotational fishery began to reduce the impacts of harvest by allowing a two year recovery period between openings
	Reduced quotas in south coast areas to address conservation concerns
	The Department and the Kitasoo Fisheries Program developed a survey methodology for Sea Cucumbers, based on the protocol used in Alaska, and conducted multiple transect surveys to determine optimal sampling frequency
1995	First year of DFO-sanctioned IQ program (2 year pilot program of IVQ's). Individual quota (IQ) set to 6049 lb.
	Dockside monitors began to conduct product-weight surveys to estimate the average weight of Sea Cucumbers, by geographical area
	Quota overage not permitted
1996	150 lb. Quota overage permitted
1997	Introduction of adaptive management plan - 25% coast open, 25% coast for research, 50% coast closed for long term.
	Baseline precautionary TAC established
	200 lb. Quota overage permitted (through until 2009)
1998	Survey in Area 7; IQ increase to 7150 lb.
1999	Survey in Area 6; IQ increase to 9,000 lb.
	On-grounds communication through voluntary industry representatives facilitates the transmission of information (continued through 2011)

2000	Survey in Area 12; IQ increase to 9,600 lb.
	Survey in Area 6 and 24; IQ increase to 10,000 lb.
2001	Survey in Area 8; IQ increase to 11,000 lb.
2002	Doubling of the baseline density estimate used to calculate the TAC in un-surveyed open fishery areas, from 2.5 to 5.08 Sea Cucumbers per metre of shoreline
	Re-survey in Area 7
2003	Licence stacking allowed to a maximum of 5 active licences per vessel
	Survey in Area 6 and new PSARC paper on BC data - large increase in available TAC; PSCHA chose to take only a small increase, so as to not flood markets; IQ increase to 13,500 lb.
	Survey in Area 12; IQ kept the same as markets not wanting more product at this time.
2004	Survey in Area 6 and 24; TAC decreased from 2004, but still room to increase IQ as full allocation was not taken in previous years. IQ increase to 15,225 lb.
2005	Experimental fisheries were designated and implemented on the Central Coast
	Experimental fisheries were designated and implemented on the west coast of Vancouver Island
2006	Survey in Areas 7 and 8. Decrease in densities from 2002 survey, IQ decrease to 14,615 lb.
	Survey in Area 6. No change in IQ.
	Re-survey in Areas 7 and 8
2007	Five new Quota Management Areas (QMAs) created (these include PFMA's 9, 10 and new portions of PFMA's 7, 12 and 13). Within these new QMA zones, designation of "no take zones" where no commercial cucumber harvesting will be permitted and Area Quota reductions occurred in QMA's 8A and 13B in exchange for the opening of new QMA's.
2008	Large QMAs in the north and central coast were split into smaller QMAs in order to prepare for a rotational style fishery and to spread out harvester effort.
	All survey data reviewed and baseline densities were calculated by Region. This resulted in baseline densities of 6.0, 4.1 and 1.9 Sea Cucumbers per metre of shoreline for the North Coast, East Coast Vancouver Island and West Coast Vancouver Island respectively.
2009	Four new QMA's created including PFMA's 3, 4 and new portions of PFMA 12. Several existing QMAs were rotated out of and fishing effort moved to the new QMAs.
	Three new QMA's created in PFMA 3. Several existing QMAs were rotated out of and fishing effort moved to the new QMAs.
2010	
2011	Adaptive Rotational Fishery Strategy put into place: Each QMA will be harvested once every three years. A precautionary harvest rate of 10% will be applied to all QMAs once every three years (equivalent to a 3.3% annual harvest rate). The WCVI QMAs will retain the 4.2% harvest rate.
	Five new QMAs created in PFMA's 3, 6, 16 and 18. Subareas were added to QMA 12C. No-Take Zones created in PFMA's 6, 16 and 18.
2012	Commercial TAC was increased from 1.24 million pounds to 1.36 million pounds (an increase of approximately 9.5%).
	Year 2 of the 2011-2013 Adaptive Rotational Fishing Strategy. In year 2 the WCVI QMAs were not harvested. Eight new QMAs created in PFMA's 2, 11, 15 and 16. No-Take Zones created in PFMA's 11, 15 and 16.
	The commercial TAC remained at 1.36 million pounds.
2013	The licence stacking limit was waived as a pilot program for the 2012 season.
	Year 3 of the 2011-2013 Adaptive Rotational Fishing Strategy. The WCVI licence area was returned to an annual style fishery as requested by the PSCHA. No new QMAs reopened in 2013 due in most part to DFO Science's transition from Larocque Relief Funding to Industry Funding for Sea Cucumber surveys. As a result of this transition, Sea Cucumber surveys were not completed in time to be included in the 2013 IFMP. The licence stacking limit was waived as a pilot program for the 2013 season. The transferable overage amount was raised from 200 lb. per licence to 500 lb. per licence.

2014	Year 1 of the 2014-2016 Adaptive Rotational Fishing Strategy. A new QMA was created in portion of Management Area 6 and several large QMAs were split into smaller QMAs. The commercial TAC remained at 1.36 million pounds. 3 new Commercial No-Take Reserves (previously known as No-Take Zones) and 3 new closures for First Nations Food, Social and Ceremonial (FSC) purposes were created. Harvest questionnaires were added as an insert to the harvest logbook in order to get on-grounds observations from harvesters. Licence stacking limit was waived once again.
2015	Year 2 of the 2014-2016 Adaptive Rotational Fishing Strategy. New QMAs were created in portions of Management Area 6 and 11 and one large QMA in Management Area 6 was split into two smaller QMAs. 1 new CNTR and fisheries management closure was created in Management Area 6 as the result of discussions with the Haisla First Nation. The requirement to fill out a separate harvest logbook page for every Subarea fished was waived. The licence stacking limit was waived indeterminately. The commercial TAC remained at 1.36 million pounds. Harvest questionnaires were added as an insert to the harvest logbook once again.
2016	Year 3 of the 2014 to 2016 Adaptive Rotational Fishing Strategy. New QMA created in Management Area 23. 2 large QMAs in Management Area 7 were split into smaller QMAs. A diesel spill occurred in the Central Coast licence area in October 2016 and led to a closure of the commercial fishery in the Seaforth Channel and lower Mathieson Channel areas for the remainder of the 2016 season. The fishery was reopened in January 2017 in the ECVI licence area to allow those with quota remaining in the Central Coast to finish their Individual Quota.
2017	Year 1 of the 2017 to 2019 Adaptive Rotational Fishing Strategy. New QMA created in Management Area 12. Large QMA in Management Area 12 was split into 3 smaller QMAs. The commercial TAC remained at 1.36 million pounds. Harvest questionnaires were added as an insert to the harvest logbook once again.
2018	Year 2 of the 2017 to 2019 Adaptive Rotational Fishing Strategy. Large QMAs in Management Areas 5, 7 and 9 were split into smaller QMAs.
2019	Year 3 of the 2017 to 2019 Adaptive Rotational Fishing Strategy. Changes made to the boundary between QMA 11D and 11E.
2020	Year 1 of the 2020 to 2022 Adaptive Rotational Fishing Strategy. The coastwide TAC was dropped from 1.36 million pounds to 1.275 million pounds at the request of the PSCHA due to concerns about how the pandemic might have impacted overseas markets. A large QMA in Management Area 8 was split into two smaller QMAs. Four new QMAs were created in Management Areas 7 and 25. Several QMAs in the North Coast and Central Coast licence areas were moved from a rotational harvest strategy to an annual harvest strategy.
2021	Year 2 of the 2020 to 2022 Adaptive Rotational Fishing Strategy. The coastwide TAC was returned to 1.36 million pounds in 2021 after being temporarily reduced in 2020 due to the pandemic. Boundary changes were made to several QMAs in 2021. QMA 6D was split into 6J and 6K, QMA 7B was split into 7P and 7Q and QMA 12A was split into 12M, 12N and 12O. A new QMA was created in Management Area 26.

Table 1 Annual sea cucumber landings (split lb.), value and effort for British Columbia, 1983 to 2019 as reported on Validation and Harvest Logs. Since 2002, harvest logs have provided the best estimate of catch and fish slips are no longer used.

Year	Licences Issued	# Vessels	Quota Split (lb)	Quota Split (t)	Landings Split (lb) ¹	Landings Split (t) ¹	\$/lb	\$/kg	Calculated Value (\$)	Dive Time (hours)	Effort (lb/hr)
1983		16			969,850	439.9	0.27	0.59	260,068	855.4	1,133.8
1984		12			175,980	79.8	0.29	0.63	50,210	210.1	837.6
1985	Z 40	17			490,203	222.4	0.34	0.75	165,786	498.3	983.8
1986	Z 63	39	1,211,319	549.5	1,229,894	557.9	0.37	0.82	457,265	1,516.7	810.9
1987	Z 151	63	1,211,319	549.5	2,553,457	1,158.2	0.55	1.22	1,410,274	3,365.5	758.7
1988	Z 160	97	1,211,319	549.5	3,307,134	1,500.1	0.63	1.40	2,097,264	4,387.9	753.7
1989	Z 245	115	646,037	293.0	1,873,628	849.9	0.97	2.15	1,823,526	2,787.4	672.2
1990	Z 215	132	646,037	293.0	1,556,729	706.1	1.66	3.67	2,588,095	3,157.3	493.1
1991	Z 78	108	646,037	293.0	1,158,535	525.5	0.95	2.10	1,101,823	2,538.2	456.4
1992	Z 84	102	646,037	293.0	1,079,033	489.4	1.19	2.62	1,280,543	2,091.3	516.0
1993	Z 84	102	524,695	238.0	705,322	319.9	1.50	3.30	1,056,251	1,726.3	408.6
1994	^{5,6} Z 85	77	464,068	210.5	480,816	218.1	2.31	5.08	1,108,516	1,189.0	404.4
1995	⁷ Z 85	47	514,165	233.2	479,040	217.3	2.01	4.43	961,733	1,315.4	364.2
1996	Z 85	45	514,165	233.2	530,748	240.7	2.22	4.88	1,175,858	1,204.9	440.5
1997	Z 85	41	514,165	233.2	506,736	229.9	2.01	4.43	1,017,786	1,300.3	389.7
1998	Z 85	41	607,750	275.7	608,963	276.2	1.79	3.95	1,090,880	1,518.7	401.0
1999	Z 85	39	765,000	347.0	766,857	347.8	2.51	5.52	1,921,135	1,959.4	391.4
2000	Z 85	34	816,000	370.1	819,833	371.9	2.75	6.07	2,255,868	2,119.5	386.8
2001	Z 85	32	850,000	385.6	841,491	381.7	2.04	4.50	1,717,805	2,100.4	400.6
2002	Z 85	33	935,000	424.1	928,818	421.3	1.91	4.21	1,775,601	2,289.9	405.6
2003	Z 85	32	1,147,500	520.5	1,148,040	520.7	1.85	4.09	2,127,643	2,730.0	420.5
2004	Z 85	31	1,149,217	521.3	1,149,217	521.3	2.41	5.31	2,769,613	2,569.9	447.2
2005	Z 85	33	1,295,833	587.8	1,295,833	587.8	2.48	5.48	3,218,661	3,135.5	413.3
2006	Z 85	33	1,242,307	563.5	1,240,643	562.8	2.13	4.69	2,639,895	3,167.4	391.7
2007	Z 85	31	1,242,307	563.5	1,245,456	564.9	1.97	4.35	2,457,969	3,411.4	365.1
2008	Z 85	28	1,242,275	563.5	1,244,650	564.6	2.30	5.07	2,863,658	3,374.7	368.8
2009	Z85	28	1,242,275	563.5	1,245,556	565.0	2.59	5.72	3,230,660	3,173.5	392.5
2010	⁹ Z85	30	1,242,275	563.5	1,250,885	567.4	3.50	7.72	4,378,098	3,141.3	398.2
2011	⁹ Z85	33	1,360,000	616.9	1,362,865	618.2	5.50	12.13	7,495,758	3,946.3	345.4
2012	⁹ Z85	30	1,360,000	616.9	1,356,166	615.2	5.25	11.57	7,119,872	4,293.1	315.9
2013	⁹ Z85	32	1,360,000	616.9	1,357,541	615.8	5.00	11.02	6,787,705	3,621.9	374.8
2014	⁹ Z85	30	1,360,000	616.9	1,363,468	618.5	5.00	11.02	6,817,340	4,064.4	335.5
2015	⁹ Z85	32	1,360,000	616.9	1,366,641	619.9	5.50	12.13	7,516,526	3,883.0	352.0
2016	^{9,10} Z85	31	1,360,000	616.9	1,365,028	619.2	6.00	13.23	8,190,168	4,001.5	341.1
2017	^{9,10} Z84	31	1,360,000	616.9	1,348,526	611.7	8.00	17.64	10,788,208	4,294.9	314.0
2018	⁹ Z85	35	1,360,000	616.9	<u>1,363,918</u>	618.7	9.50	20.94	12,957,221	4,127.3	330.5
2019*	⁹ Z85	35	1,360,000	616.9	<u>1,365,913</u>	619.6	9.50	20.94	12,976,174	4,079.6	334.8
2020*	Z85	31	1,275,000	578.3	1,277,274	579.4	9.00	19.84	11,495,466	4,261.0	299.8

¹ Quota, landings and CPUE for 1986 to 1991 were reported in round weight. Quota, landings and CPUE are all converted to split weight.

Conversion factor of 2.73 (round to split weight) used.

² Number of pieces calculated from standardized wet weight per sea cucumber, 1.4 lb (0.635 kg).

⁵ Quota was reduced by 27.5 t split weight due to overages in the 1992 Inside Waters fishery.

⁶ A reported 20,255 lb were spoiled and dumped - it is not known if they are included in this landing record.

⁷ Total # active vessels does not equal # vessels per area as several vessels harvested quotas in 2 fishing areas and have been counted twice.

⁸ Figures preliminary - extrapolated from validation logs.

⁹ Price information estimated by the President of the Pacific Sea Cucumber Harvesters Association. Fish slip data no longer available.

¹⁰ Part of 2016 TAC achieved in January and February of 2017 due to environmental incident. 53,195 lbs moved from 2017 landings to 2016 landings to reflect this.

¹¹ TAC reduced at the request of the PSCHA due to market impacts from COVID-19 global pandemic.

* Data Preliminary

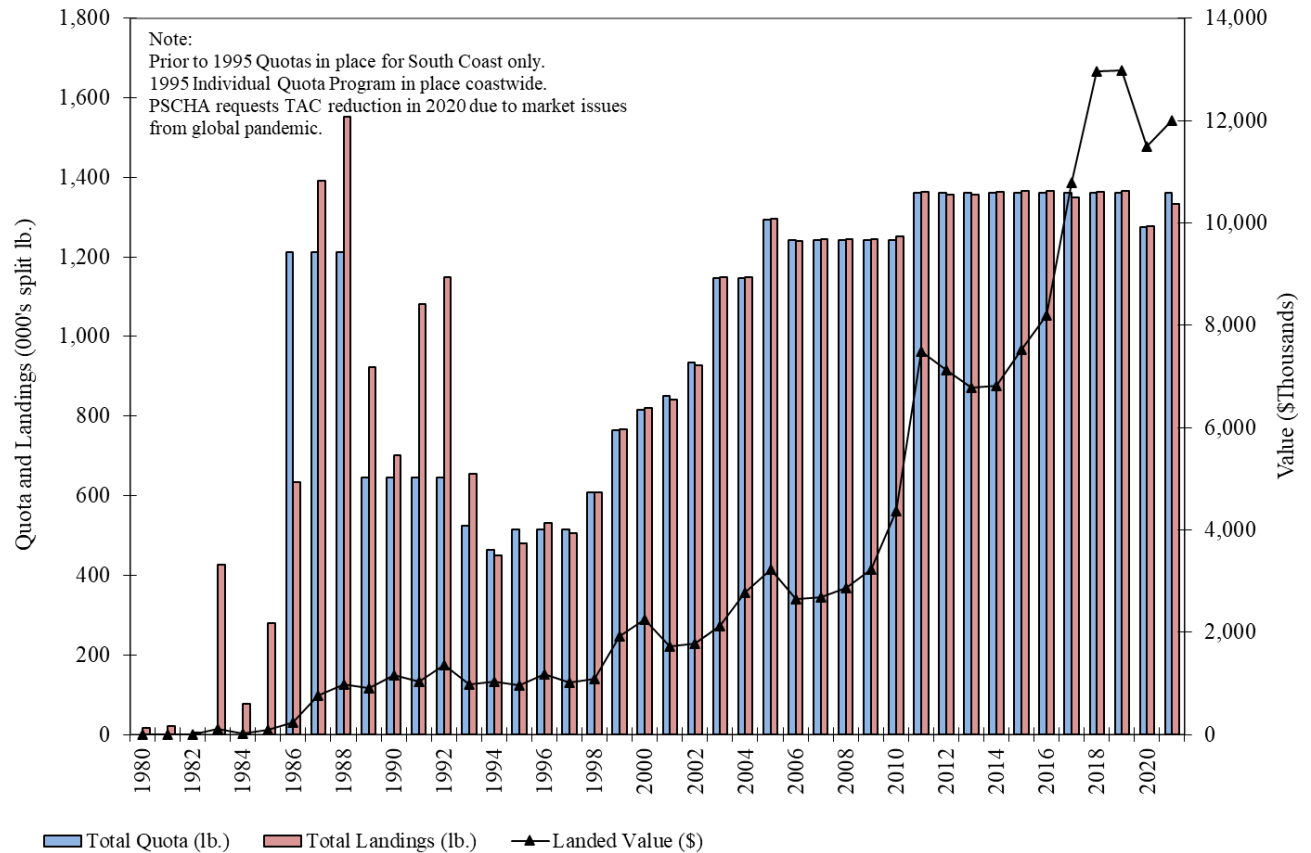


Figure 1. Annual Sea Cucumber applied quota, landings (split lb.) and value for British Columbia, 1980 to date. Note: 1983 to 1994 Landings from fish slips. 1995 to date landings from harvest logs. Annual value calculated using harvest log landings and fish slip price per pound. Value from 2010 onwards is calculated using harvest logs and average price information from the PSCHA.

Appendix 6: Management Measures for the Commercial Sea Cucumber Fishery – 2022/2023

The purpose of this section is to bring all the management measures currently in use for the commercial Sea Cucumber fishery into one document. More information on many of the topics below can be found throughout the IFMP and Commercial Harvest Plan (Appendix 1).

1. SCIENTIFIC BASIS OF THE CURRENT MANAGEMENT REGIME

The current management regime is based on recommendations from the following peer-reviewed scientific papers:

An Evaluation of Fishery and Research Data Collected during the Phase 1 Sea Cucumber Fishery in British Columbia (Hand et al. 2009).

http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2008/2008_065-eng.htm

Assessment Framework for Sea Cucumber (*Parastichopus californicus*) in British Columbia (Duprey et al. 2011)

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2010/2010_105-eng.html

There are a number of other important scientific papers that have contributed to our knowledge of Sea Cucumbers and to the current management regime. Please see section 12 in the IFMP for a full list of references.

2. MANAGEMENT MEASURES TO CONTROL HARVEST EFFORT

2.1. Limited Entry Licensing

Licence limitation was implemented in 1991 in order to control fishing effort. There are currently 85 licence eligibilities for the commercial fishery.

2.2. Area Licensing

Area licensing is a measure put in place to spread harvest effort over a wide geographic area. Every year each of the 85 licence eligibilities is assigned to one of four geographic areas: West Coast of Vancouver Island (Areas 23 to 26), East Coast Vancouver Island (Areas 11, 12, 13, 14, 15, 16 and 18), Central Coast (Areas 7, 8, 9 and 10), and North Coast (Areas 2, 3, 4, 5 and 6). The number of licences that can be accommodated in each licence area is dependent on the quota available for an area in any given year. The PSCHA advises Fisheries and Oceans Canada regarding annual licence area selections by providing a list of licence holders and their desired licence area. If the licence requests for a given area cannot be accommodated by the quota available in the area, discussions with the PSCHA occur to move licences to areas where there is sufficient quota. If the PSCHA is unable to provide advice regarding the licence area selections, the Department will

determine area designation through a process of voluntary placement and lottery for over-subscribed areas.

2.3. Quota Management Areas

The commercial fishery is managed in units called Quota Management Areas (QMA). QMA's are comprised of entire Pacific Fishery Management Subareas, or in combination with portions of Subareas. QMA's are much smaller than licence areas and are used to further spread fishing effort within each licence area. Each QMA has a name, e.g. 4A West Dundas Island, and is assigned a quota. For a complete list of QMA's please see Appendix 9.

3. MANAGEMENT MEASURES TO CONTROL HARVEST

3.1. Total Allowable Catch

The amount of Sea Cucumbers harvested commercially in BC is limited by a Coast-wide Total Allowable Catch (CTAC). Two percent of the CTAC is reserved, for planning purposes, for First Nations use for food, social and ceremonial purposes. The commercial TAC has been fixed at 1.36 million pounds since 2011 (with the exception of a small decrease in 2020 due to a global pandemic). See section 4 for information on how the commercial TAC is calculated.

3.2. Individual Quota Program

Each of the 85 licence eligibilities is assigned 1/85 of the commercial TAC as an Individual Quota (IQ). The use of IQs in the commercial Sea Cucumber fishery has resulted in a more orderly fishery, a safer fishery, has given the industry more flexibility in opening times and locations, and allows the Department to better meet conservation goals.

3.3. Area Quotas

In conjunction with area licensing, the commercial TAC is divided into licence area quotas. The licence area quota is directly related to the number of licences allocated to each licence area. The commercial TAC is further divided into QMA quotas which are based on biomass estimates provided by DFO Science.

4. CALCULATION OF TOTAL ALLOWABLE CATCH

Transect surveys are conducted, following the Sea Cucumber density survey protocol, to estimate the density and biomass of Sea Cucumber populations. The survey results are used to calculate annual CTAC. Quota is calculated for each PFM Subarea as follows:

CTAC = ER * PDE * SL * ASW Where:

ER = Exploitation Rate (Harvest Rate)

The Exploitation Rates (ER) applied in the commercial Sea Cucumber fishery are considered precautionary as they are in the lower one percentile range of model results and recommendations documented in Hand et al. 2009. Hand et al. 2009 recommends an ER within the range of 3.5 and 10.3% for an annual style fishery. The recommended range of ERs was updated in Hajas et al. (in

press) to 2.0 to 8.0% of estimated pre-harvest biomass, with the caveat that upper ranges may only be appropriate for highly productive areas. An annual rate of between 2.2 and 4.2% is applied to QMAs that are fished annually.

As per the Adaptive Rotational Fishing Strategy, a rate of approximately 10% is applied to most QMAs once every three years, which is within the triennial range recommended in Hajas et al. (in press). This triennial rate is roughly equivalent to an annual exploitation rate of 3.3%.

PDE = Precautionary Density Estimate

The Precautionary Density Estimate (PDE) is a linear density estimate of the number of Sea Cucumbers per metre of shoreline (c/m-sh). In many areas of the coast surveys have been completed in order to establish Subarea-specific density estimates. Many of the Subareas open throughout the Phase 1 fishery have not yet been surveyed and as such, continue to use a baseline PDE.

The Precautionary Density Estimate (PDE) used in quota calculations depends on whether or not survey information is available for a given Subarea. The PDE by Subarea is selected based on the following conventions:

a) For Subareas that have been surveyed:

- Use the lower 90 percent confidence limit of estimated density for shoreline classified as ‘protected’.
- Use 2.5 c/m-sh or survey estimate if lower for shoreline classified as ‘exposed’.
- Use 0 c/m-sh for shoreline classified as ‘very exposed’.

b) For Subareas that have not been surveyed: • Use a precautionary baseline density estimate for shoreline classified as ‘protected’: 6.0 c/m-sh for North Coast and Central Coast licence areas, 4.1 c/m-sh for the East Coast of Vancouver Island licence area and 1.9 c/m-sh for the West Coast of Vancouver Island.

- Use 2.5 c/m-sh or baseline density estimate if lower for shoreline classified as ‘exposed’.
- Use 0 c/m-sh for shoreline classified as ‘very exposed’.

Baseline density estimates for non-surveyed Subareas have been calculated from all available survey data collected to date. The lowest 90% CB calculated for any surveyed Subarea within a Region was used as the baseline density estimate for non-surveyed Subareas in that Region.

Sea Cucumbers deeper than 15 metres are not included in density estimates. These deeper Sea Cucumber stocks likely act as an additional spawning reserve.

Only Sea Cucumbers larger than 15cm (the length of a pencil) are included in density estimates. Sea cucumbers less than 15 cm in length are considered to be juveniles. Sea Cucumber harvesters generally target larger animals as they are preferred by Sea Cucumber processors. Appendix 7 shows the most recent PDEs used to calculate the CTAC.

SL = Shoreline Length

In 1996 the shoreline length used to calculate Sea Cucumber quota was estimated using a rasterbased GIS system. Although vector-based GIS and more accurate basemaps have become

available over time, the original raster-based measurements are still used in quota calculation since they are more precautionary. Vector-based GIS measurements of shoreline are approximately 10% longer than raster-based measurements (Duprey et al. 2011).

Shoreline length estimates for non-navigable areas, unsuitable habitat and areas that were open during the Phase 1 fishery but not fished are excluded from quota calculations.

Shoreline used to calculate quota is classified according to exposure (Duprey et al. 2011) and different precautionary density estimates are applied to each exposure classification. Three types of exposure are used to classify shoreline: Protected, Exposed and Very Exposed.

ASW = Average Split Weight

Average Split Weight (ASW) is used in the calculation of the commercial TAC. ASW by Subarea is determined using biosample data obtained during density surveys, or from ‘bio-transect’ data which are permanent transects, independent of surveys, where Sea Cucumbers are collected. For Subareas that lack survey data, the most conservative estimate of mean weight is used when calculating biomass. Appendix 7 shows the most recent ASW estimates used to calculate the CTAC.

How Allocated Commercial Total Allowable Catch (TAC) is Calculated:

Two percent of the CTAC is reserved, for planning purposes, for First Nations use for food, social and ceremonial (FSC) purposes. The amount of quota available for commercial harvest (available commercial quota) is calculated by subtracting the two percent FSC set aside amount from the CTAC. The PSCHA has requested that IQs remain equal coastwide and that the IQ amount remain at the same level each season if possible. In order to address this request, a harvest strategy has been set for each of the Sea Cucumber QMAs under the Adaptive Rotational Fishing Strategy (ARFS - see Appendix 14) to ensure there is enough available commercial quota to allow for a consistent IQ of 16,000 pounds (split weight) each season within each ARFS cycle. The allocated commercial Total Allowable Catch (TAC) is calculated by multiplying the number of commercial licences by the IQ amount. The amount of available commercial quota generally exceeds the amount of TAC needed so there is usually quota left unallocated. Unallocated available commercial quota may be made available to harvesters as fallback quota (see Appendix 14 for more information on fallback quota).

Available Commercial Quota = CTAC – (CTAC * 0.02 FSC Set-aside).

IQ for the 2020 to 2022 ARFS cycle = 16,000 pounds (split)

Allocated Commercial Quota (TAC) = IQ * 85 licences

Fallback Quota (unallocated quota) = Available Commercial Quota – TAC

5. OTHER MANAGEMENT MEASURES

5.1. Catch Monitoring and Reporting Requirements

The Dockside Monitoring Program (DMP) is a catch verification (validation) program designed to monitor, record and verify all Sea Cucumbers harvested in the commercial fishery. A DMP is required to ensure proper management and control of the IQ program. Third party validation of all catch is required at the first point of landing.

Commercial harvesters are responsible for keeping an accurate record of their daily harvest operations in a harvest logbook and a record of each location fished by each diver on a harvest chart. Additional harvest information is collected from fish slips. Harvest data are submitted to DFO for use in the proper assessment, management and control of the Sea Cucumber fishery. For more details see Section 3 in Appendix 1.

5.2. Adaptive Rotational Fishing Strategy

An adaptive management regime called the Adaptive Rotational Fishing Strategy (ARFS) is in place for the commercial Sea Cucumber fishery. Adaptive management allows flexibility when new information becomes available. In the case of the ARFS it is especially important to be flexible since the reopening process is not yet complete. New information is continually becoming available, often from new surveys or from research projects. Advice received from commercial harvesters is also an important piece of information that is considered in the management of the fishery.

A rotational-style fishery has been adopted for a number of reasons. There are possible conservation advantages such as a higher average Sea Cucumber size and higher densities of spawning adults which may lead to a higher number of Sea Cucumbers within harvest areas. The logistical advantages include concentrating harvest into smaller areas that reduces travel costs and the cost of staffing multiple offloading ports.

Not all QMAs are equally productive and may benefit from different harvest strategies. A threeyear rotational cycle seems to work well for most QMAs but an annual harvest strategy or other rotational periods seems to work better for some QMAs. Sea Cucumber size and fishery logistics are other factors considered when deciding a harvest strategy for each QMA.

For more information on the ARFS please see Appendix 14.

5.3. Survey Requirement for all Re-opened Areas

As of 2009, each Subarea considered for reopening as part of the Phase 2 fishery/Reopening Process, must be surveyed first. This is to ensure that there are commercially harvestable densities of Sea Cucumbers present and that quotas are precautionary and based on biological information.

5.4. Minimum Density Threshold

All Subareas considered to reopen for commercial harvest as part of the Phase 2 fishery (Reopening Process) must have a precautionary density estimate (based on survey information) of at least 2.5 Sea Cucumbers per metre of shoreline. The minimum density threshold is for areas that have been surveyed and that were closed for the Phase 1 fishery only. Sea Cucumber populations in areas

closed during the Phase 1 fishery are considered to be at a 'virgin' state as they have not been harvested in ten or more years.

Since 2008 a number of Subareas that have been open since the start of the Phase 1 fishery have been surveyed for the first time. A few of these Subareas have had density estimates below 2.5 cucumbers per metre of shoreline. In these cases the minimum density threshold does not apply since these Subareas have been open throughout the Phase 1 fishery. Since their 'virgin' biomass is unknown, it is not possible to ascertain whether the low density is due to harvest, or due to some other factor. A low density is not necessarily an indication of overharvest, as it is likely that some areas are naturally more productive than others. Phase 1 fishery Subareas with low densities are examined on a case-by case basis. Often harvest information is queried to look at harvest levels in the area over time and in all cases observations and advice from the PSCHA is requested.

5.5. Limit Reference Point

A main aspect of the Precautionary Approach is the use of reference points and stock status zones.

A Limit Reference Point (LRP) of 0.029 sea cucumbers m^{-2} was recommended. This equates to 1.20 sea cucumbers m^{-1} ; the linear density is provided for context, however, spatial units are recommended for the reference points (Hajas et al. in press). In order for reference points to be useful, the resource needs to be assessed multiple times to get an idea of whether stock status changes over time. The time, money and effort required to survey all Sea Cucumber QMAs multiple times would be prohibitive, so reference points are of limited use within the current assessment framework.

DFO Science is developing a multispecies coast wide monitoring program intended to collect the data necessary to assess stock status against reference points. A CSAS research document with peer reviewed recommendations on this approach is expected to be delivered in 2022. DFO Science has developed a scientific paper that provides advice on a range of harvest rates, updates the current LRP, and recommends a USR for the commercial fishery, thereby aligning this fishery with the DFO Precautionary Approach Framework and the legislated requirements of Bill C-68. This paper is anticipated to be published on the CSAS website in late 2022. For more information see Section 2 of the IFMP.

5.6. Commercial No-Take Reserves

Commercial No-Take Reserves (CNTRs) are used in the management of the commercial Sea Cucumber fishery. They are used in addition to reference points and provide Sea Cucumber refuge areas for additional insurance against uncertainties in stock assessment information and management decisions. It is anticipated that they also provide spill-over of adults and larvae into commercially harvested areas and provide areas for research opportunities (Duprey et al. 2011). CNTRs to date have been placed in the portions of the coast that have reopened to commercial harvest since 2008 (Phase 2), totalling approximately 3.2% (930 km) of the coastal shoreline in BC. CNTRs are listed in Section 5 of Appendix 1.

5.7. Enforcement

DFO's Conservation and Protection (C&P) program is informed of any enforcement issues that may arise in the commercial fishery. For more information on the compliance plan for the Sea Cucumber fishery please see Section 9 in the IFMP.

6. OTHER IMPORTANT INFORMATION

6.1. No Size Limit

The use of a size limit for the Sea Cucumber fishery is not feasible since Sea Cucumbers have a plastic body shape that makes it very difficult to obtain measurements of body dimensions. Sea Cucumbers also undergo annual fluctuations in body mass, skin thickness and muscle weight from their yearly cycle of resorbing and regenerating their internal organs.

6.2. Gear

Sea Cucumbers are collected by hand by SCUBA divers. Gear impacts on the benthic environment are believed to be negligible since Sea Cucumbers are picked by hand and there is no gear contact with the bottom. Handpicking also eliminates any by-catch concerns since Sea Cucumbers are individually selected by harvesters.

Appendix 7: Sea Cucumber Stock Assessment Information – 2022/2023

Open surveys are the standard survey method used in BC to assess the *Apostichopus californicus* population and are used to estimate density and biomass. Please see the *Assessment Framework for Sea Cucumber (Parastichopus californicus) in British Columbia* (Duprey et al. 2011) for more information.

Table 1. Precautionary Density Estimates (PDE). The lower 90 percent confidence interval of mean density estimates from all surveys to date are shown in the table below.

Survey Year	PFM Subareas	Density Estimate (Lower 90%) (Sea Cucumbers per Metre of Shoreline)
1998	7-15, 7-17, 7-30	6.6, 13.4, 11.94 respectively
1999	6-3, 6-5, 6-6, 6-7, 6-27, 6-28	17.0 overall
2000	12-40, 12-41	6.43 and 5.08 respectively
2001	6-9	5.76
2001	24-4 to 24-10, 24-14	5.45 overall
2002	7-15, 7-17, 7-30	8.84, 11.66, 10.25 respectively
2002	8-3 & 8-4, 8-5, 8-6, 8-16	14.25, 12.29, 21.46, 10.54 respectively,
2003	6-3, 6-5, 6-6, 6-7, 6-27, 6-28	17.85 overall; separated in 2005: 11.68, 16.01, 16.55, 13.53, 16.01, 9.75 respectively
2004	12-40, 12-41	5.44 overall; adjusted in 2005: 4.04 and 7.54 respectively; recalculated to 4.1 and 7.8 in 2008
2005	6-9	5.76; recalculated to 6.0 in 2008
2005	24-4 to 24-10, 24-14	5.45 overall; adjusted in 2006: 8.46, 5.12, 2.27, 3.55, 1.90, 2.90 respectively (excluding 24-8 & 24-9);
2006	8-3 & 8-4, 8-5, 8-6, 8-16 7-15, 7-17, 7-30	9.67, 8.98, 27.4, 7.71 respectively 6.23, 12.41, 8.94 respectively
2007	6-3, 6-5, 6-6, 6-7, 6-27, 6-28	11.90, 13.80, 16.40, 15.2, 10.31, 10.23 respectively; 6-27 and 6-28 combined in 2008 11.7

2008	(9-3 to 9-6), (9-7 to 9-9), 9-11	2.7, 3.5, 10.1 respectively
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Survey Year	PFM Subareas	Density Estimate (Lower 90%) (Sea Cucumbers per Metre of Shoreline)
2008	(10-3 to 10-5), 10-6, 10-7, (10-8 to 10-10), 10-12	2.0, 2.2, 2.6, 2.2, 2.6 respectively
2008	(13-7 to 13-9), 13-25, (13-24,-26,-27), (13-35, -36), (13-37 to 13-39), (13-40,-41), 13-42, 13-43	3.6, 3.7, 5.8, 2.8, 2.2, 5.7, 5.0, 2.0 respectively
2009	3-1	4.1
2009	4-1, 4-2, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-12, 4-13, 4-14	4.7, 4.8, 5.3, 11.2, 11.6, 11.6, 11.6, 5.3, 4.0, 1.0, 11-6 respectively
2009	12-1, 12-2, 12-6,12-20, 1222, 12-23, 12-24 , 12-26, 12-38, 12-39	3.0, 4.7, 6.3, 6.3, 5.7, 3.6, 3.0,, 5.1, 4.4, 4.4 respectively
2009	6-9	3.1
2010	3-3, 3-4, 3-6, 3-7, 3-8, 3-9, 3-10	8.1, 11.1, 7.8, 7.6, 7.6, 6.8, 3.2 respectively
2010	4-5, 4-9	11.6, 9.0 respectively
2010	7-7, 7-9, 7-10, 7-11, 7-24, 7-29	6.0, 9.7, 10.8, 5.7, 9.7, 11.6 respectively
2010	12-3, 12-4, 12-5, 12-18, 12-19, 12-21	3.6, 3.6, 1.1, 1.6, 1.0, 3.6 respectively
2010	17-3, 17-4, 17-5, 17-18, 17-19, 17-20, 17-21	2.3, 0, 0.1, 8.1, 0.7, 0.7, 8.1 respectively
2011	3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17	7.5, 1.1, 2.4, 0.2, 0.7, 0.0, 1.0 respectively
2011	6-20, 6-21, 6-22, 6-23, 6-24	11.7, 4.2, 7.4, 3.4, 7.5 respectively
2011	15-4, 15-5, 15-6	4.3, 16.3, 3.6 respectively

2011	14-3, 15-1, 16-1, 16-2, 16-3, 16-4, 16-16, 16-17, 16-18, 16-19, 16-20, 16-21, 16-22	9.8, 6.0, 2.0, 5.1, 0.2, 0.2, 1.2, 5.1, 10.9, 4.8, 6.9, 7.4, 7.4 respectively
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Survey Year	PFM Subareas	Density Estimate (Lower 90%) (Sea Cucumbers per Metre of Shoreline)
2011	16-5, 16-6, 16-7, 16-8, 16-9, 16-10, 16-11, 16-12, 16-13, 16-14, 16-15	2.3, 13.0, 3.5, 5.0, 19.3, 7.2, 6.5, 5.3, 5.4, 4.5, 1.7 respectively
2011	17-9, 18-7	0, 1.1 respectively
2011	18-1, 18-2, 18-3, 18-4, 18-5, 18-6, 18-9, 18-10, 18-11	11.3, 5.7, 0.4, 3.7, 3.4, 2.5, 5.7, 0.1, 4.7 respectively
2012	2-3, 2-4, 2-5, 2-6	0.4, 0.6, 0.8, 5.6 respectively
2012	11-3, 11-4, 11-5, 11-6, 11-7, 11-8, 11-10	12.0, 8.8, 4.2, 3.1, 1.3, 5.4, 4.5 respectively
2012	28-1, 28-2, 28-3, 28-4, 28-5, 28-6, 29-3	0.8, 1.8, 2.4, 1.8, 0.3, 1.8, 0.8 respectively
2012	5-14, 5-16, 5-17	4.9, 7.9, 5.8 respectively
2012	6-9, Portion of 6-13	4.8, 3.2 respectively
2012	7-12, 7-13, 7-22, 7-23	6.2, 3.0, 2.1, 2.1 respectively
2013	12-35, 12-36, 12-37, 12-42, 12-43, 12-45, 12-46, 12-47, 12-48	2.5, 0.4, 2.5, 1.1, 0.5, 0.6, 0.6, 0.2, 0.2 respectively
2013	27-7, 27-8, 27-9, 27-10	0.1, 0, 0.1, 0, 0 respectively
2013	6-11, 6-12, 6-14, 6-15, 6-16	2.8, 3.2, 2.8, 1.5, 2.5 respectively
2013	7-18, 7-19, 7-25	2.4, 0.0, 3.8 respectively
2014	6-1	4.6
2014	19-3, 19-4, 19-5, 20-5	1.4, 1.3, 1.0, 1.9 respectively
2015	8-13, 8-14, 11-2, 12-27 to 12-29	5.6, 8.2, 6.4, 1.0, 0.4, 0.4, 0.1 respectively

2016	23-2 to 23-6	2.0, 2.6, 1.3, 4.4, 2.6 respectively
2017	13-7, (13-8, 13-9), 13-12, (13-13, 13-14), 13-15, 13-16, 13-24, 13-26, (13-27, 13-28)	4.5, 6.3, 7.8, 7.8, 1.2, 13.8, 1.7, 3.6, 4.9, 2.6 respectively
2017	7-4, 7-6	8.5, 11.5
Survey Year	PFM Subareas	Density Estimate (Lower 90%) (Sea Cucumbers per Metre of Shoreline)
2019	23-8, 23-9, 23-10 25-1, 25-2, 25-3, 25-4, 25-5, 25-6, 25-8, 25-9, 25-10, 25-11, 25-12, 25-13, 25-15	0.04, 0.3, 2.3 respectively 6.6, 10.2, 6.8, 7.7, 6.7, 5.3, 5.7, 6.7, 2.5, 2.8, 6.2, 2.2, 4.4 respectively
2020	26-2 to 26-6	3.0, 3.2, 5.3, 8.7, 0.4 respectively
2021	6-12, 6-14, 6-15, 6-16, 7-5	8.2, 4.6, 6.3, 3.7, 13.0 respectively
2021	7-18, 7-23, 7-25, 7-27, 7-28	5.6, 7.6, 2.7, 2.6, 6.0 respectively
2022	7-7, 7-9, 7-10, 7-11, 7-29	11.2, 11.2, 7.1, 8.9, 15.9 respectively

Table 2. The Average Split Weight (ASW) of surveyed Subareas is shown in the table below.

Survey Year	PFM Subareas	Average Split Weight (g)
2004	12-40, 12-41	405, 314
2005	6-9	319
2005	24-4 to 24-10, 24-14	377, 489, 313, 346, 322, 322, 419, 373
2006	8-3, 8-4, 8-5, 8-6, 8-16 7-15, 7-17, 7-30	236, 285, 258, 252, 340 355, 310, 313
2007	6-3, 6-5, 6-6, 6-7, 6-27, 6-28	248, 239, 237, 228, 244, 224
2008	(9-3 to 9-6), 9-7, 9-8, 9-9, 9-11	321, 224, 280, 224, 307
2008	(10-3 to 10-5), 10-6, 10-7, (10-8 to 10-10), 10-12	278, 391, 162, 215, 165

2008	(13-7 to 13-9), 13-25, (13-24,-26,-27), (13-35, -36), (13-37 to 13-39), (13-40,-41), 13-42, 13-43	328, 299, 285, 265, 210, 308, 231, 363
2009	3-1	228
2009	4-1, 4-2, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-12, 4-13, 4-14	298, 225, 286, 269, 269, 269, 269, 286, 354, 186, 269

Survey Year	PFM Subareas	Average Split Weight (g)
2009	12-1, 12-2, 12-6,12-20, 1222, 12-23, 12-24 , 12-26, 12-38, 12-39	297, 253, 237, 237, 307, 193, 297, 304, 358, 358
2009	6-9	307
2010	3-3, 3-4, 3-5,3-6, 3-7, 3-8, 3-9, 3-10	290, 281, 269, 176, 212, 245, 249
2010	4-5, 4-9	299, 343
2010	7-7, 7-9, 7-10, 7-11, 7-24, 7-29	206, 251, 177, 255, 277, 170
2010	12-3, 12-4, 12-5, 12-18, 12-19, 12-21	306, 205, 286, 351, 205, 205
2010	17-3, 17-4, 17-5, 17-18, 17-19, 17-20, 17-21	263, 218, 218, 234, 234, 218, 218
2011	3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17	254, 174, 313, 280, 180, 174, 174
2011	6-20, 6-21, 6-22, 6-23, 6-24	166, 184, 254, 208, 381,
2011	15-4, 15-5, 15-6	244, 188, 160
2011	14-3, 15-1, 16-1, 16-2, 16-3, 16-4, 16-16, 16-17, 16-18, 16-19, 16-20, 16-21, 16-22	182, 175, 223, 248, 175, 175, 269, 215, 182, 236, 244, 210, 202
2011	16-5, 16-6, 16-7, 16-8, 16-9, 16-10, 16-11, 16-12, 16-13, 16-14, 16-15	138, 176, 153, 212, 138, 172, 197, 200, 188, 152, 181

2011	17-9, 18-7	263, 212
2011	18-1, 18-2, 18-3, 18-4, 18-5, 18-6, 18-9, 18-10, 18-11	176, 176, 176, 191, 240, 233, 176, 298,
2012	2-3, 2-4, 2-5, 2-6	340, 481, 319, 319
2012	11-3, 11-4, 11-5, 11-6, 11-7, 11-8, 11-10	103, 109, 137, 130, 130, 155, 111
2012	28-1, 28-2, 28-3, 28-4, 28-5, 28-6, 29-3	276, 205, 243, 171, 159, 159, 159
Survey Year	PFM Subareas	Average Split Weight (g)
2012	5-14, 5-16, 5-17	259, 310, 270
2012	6-9, Portion of 6-13	344, 259
2012	7-12, 7-13, 7-22, 7-23	252, 320, 332, 314
2013	12-35, 12-36, 12-37, 12-42, 12-43, 12-45, 12-46, 12-47, 12-48	193, 380, 162, 193, 203, 162, 162, 162
2013	27-7, 27-8, 27-9, 27-10	303, 263, 263, 263
2013	6-11, 6-12, 6-14, 6-15, 6-16	264, 274, 332, 316, 279
2013	7-18, 7-19, 7-25	325, 325, 327
2014	6-1	195
2014	19-3, 19-4, 19-5, 20-5	243, 279, 243, 243
2015	8-13, 8-14, 11-2, 12-27, 12- 28, 12-29, 12-30	163, 158, 274, 346, 298, 298, 298
2016	23-2 to 23-6	258, 216, 294, 241, 215
2017	13-7, (13-8, 13-9), 13-12, 13-13, 13-14, 13-15, 13-16, 13-24, 13-25, 13-26, 13-27, 13-28	357, 298, 217, 237, 239, 232, 205, 379, 232, 283, 192, 234
2017	7-4, 7-6	308, 204

2019	23-8 & 23-9, 23-10 25-1, 25-2, 25-3, 25-4, 25-5, 25-6, 25-8, 25-9, 25-10, 25- 11, 25-12, 25-13, 25-15	188, 196 192, 206, 281, 293, 151, 255, 231, 254, 144, 262, 254, 190, 161
2020	26-2 to 26-6	152, 226, 219, 186, 206
2021	6-12, 6-14, 6-15, 6-16, 7-5	169, 202, 148, 206, 148
2021	7-18, 7-23, 7-25, 7-27, 7-28	219, 233, 213, 211, 237
2022	7-4, 7-7, 7-9, 7-10, 7-11, 7- 29	213, 169, 192, 167, 126, 130

SECTION 'A' | SECTION 'B'

PLEASE PRINT - USE PEN				SECTION 'B' - TO BE COMPLETED BY PORT OBSERVER				PLEASE PRINT - USE PEN			
OBSERVER NAME		No. of CONTAINERS				GROSS DOCK WT. (lb.)	CONTAINER WT. (lb.)	CONVERSION FACTOR	PREVIOUS R.Q. (lb.)		
		BAGS	CAGES	TOTES	OTHER						
								2.73	NET DOCK WT. (lb.)		
									SPLIT FORM		
PRODUCT FORM		OVERAGE lb.		TRANSFER: TO / FROM		RELINQUISHMENT lb.		SITUATION REPORT #		NEW R.Q. (lb.)	
Split											
Round				ZD #:							
LANDING PORT		START TIME		OFFLOAD SEQUENCE		CHECK LIST :			HARVEST INFO. COMPLETE		No. of TRANSPORT CONTAINERS
						FISH HOLD CHECK <input type="checkbox"/> Y <input type="checkbox"/> N MATH CHECK <input type="checkbox"/> Y <input type="checkbox"/> N BAG ID TAGS <input type="checkbox"/> Y <input type="checkbox"/> N TOTE ID LABELS <input type="checkbox"/> Y <input type="checkbox"/> N TOTE COUNT <input type="checkbox"/> Y <input type="checkbox"/> N					
LANDING DATE		FINISH TIME		SAMPLING : (one cage per offload)				Complete <u>ONLY</u> if other weights are available at time of offload			
mm / dd / yy				NET SAMPLE WT. (nearest 10th of a lb.)		PIECE COUNT		TOTAL NET DOCK WT. OF ALL LOADS (lb.)			
COMMENTS :											

HARVEST INFORMATION - COMPLETE A SEPARATE LINE FOR EACH DIVE - USE NEXT PAGE IF MORE SPACE REQUIRED										
DIVE No.	DIVE SITE	HARVEST DATE (mm / dd / yy)	MGMT AREA	SUB AREA	HARVEST LOCATION (DESCRIPTION, TOP / LAT. & LONG., BOTTOM)	DIVER NAME (FIRST NAME, TOP / LAST NAME, BTM)	DIVE TIME (minutes)	DEPTH (ft)		No. of PIECES
								min.	max.	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
PLEASE ENSURE YOUR HARVEST CHART IS MARKED ~ PIECE COUNTS ARE : (check one)							ACTUAL		ESTIMATED	

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Appendix 8. Example of Sea Cucumber Validation and Harvest Logbook

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Appendix 9: 2022/2023 Sea Cucumber Quota Management Area Descriptions

An asterisk (*) indicates a change in Quota Management Area (QMA) boundaries for 2022/2023.

(NEW) indicates a new QMA created for 2022/2023

Descriptions of closures that fall within these QMAs are shown in Appendix 1, Section 6.

Harvesters are reminded that these area descriptions and the maps in Appendix 10 are to be used for reference only. The final authority of these descriptions of Areas, Subareas and portions thereof is as set out in the *Pacific Fishery Management Area Regulations*.

1. NORTH COAST (PRINCE RUPERT DISTRICT)

QMA	Name	Description
2A	Louise Island	Subarea 2-6. <i>Reopened in 2012.</i>
3A	Work Channel	Subarea 3-6. <i>Reopened in 2010.</i>
3B	Portland Inlet	Subarea 3-7. <i>Reopened in 2010. Boundary change in 2011.</i>
3C	Steamer Pass	Subareas 3-8 and 3-10. <i>Reopened in 2010.</i>
3D	Pearse Canal	Subarea 3-3 and Subarea 3-11 excluding that portion South of a line starting at the entrance to Winter Inlet at 54° 50.328' N and 130° 27.857' W across to a point at 54° 50.455' N and 130° 27.461' W. <i>Reopened in 2011.</i>
4A	West Dundas Island	Subareas 3-1 and 4-1. <i>Reopened in 2009.</i>
4B	East Dundas Island	That portion of Subarea 4-5 West of a line that runs from the subarea boundary at 54° 34.788' N and 130° 45.352' W [East Dundas Island] to a point at 54° 04.447' N and 130° 19.836' W [Northeast McMicking Island]. <i>Reopened in 2009.</i>

QMA	Name	Description
4C	North Porcher Island	<p>a) That portion of subarea 4-2 South of a line starting at the subarea boundary at View Point on Arthur Island [54° 03.249' N and 130° 37.544' W] then West to a point at 54° 04.000' N and 130° 42.500' W, then Southwest to the surfline at 53° 59.983' N and 130° 52.025' W, including a portion in Stephens Passage West of a line from 54° 07.388' N and 130° 38.755' W to 54° 07.197' N and 130° 38.449' W.</p> <p>b) Subareas 4-3 and 4-4</p> <p>c) That portion of subarea 4-9 West of a line that runs from the subarea boundary at 54° 34.788' N and 130° 45.352' W [Dundas Island] to a point at 54° 04.447' N and 130° 19.836' W [Northeast McMicking Island].</p> <p>d) That portion of subarea 4-12 West of a line that runs from the subarea boundary at 54° 34.788' N and 130° 45.352' W [East Dundas Island] to a point at 54° 04.447' N and 130° 19.836' W [Northeastern McMicking Island] then east to the northwestern point of Hammer Island [54° 03.889' N and 130° 14.979' W] then Southwest along the shoreline to the light on the southern point on Hammer Island then to the northeastern point of Lewis Island [54° 01.582' N and 130° 15.496' W], then to a point adjacent to the Spiller River on East Porcher Island [54° 01.070' N and 130° 17.088' W].</p> <p><i>Reopened in 2009. Boundary change in 2010.</i></p>
5A	West Banks Island	<p>Subareas 5-20 to 5-22.</p> <p><i>Open during Phase 1 fishery. Split from QMA 5A Porcher Island/West Banks in 2009.</i></p>
5D	South Porcher Island	<p>Subareas 5-2, 5-4, 5-5, 5-7, 5-11 and 5-12.</p> <p><i>Open during Phase 1 fishery. Split from QMA 5A Porcher Island/Banks Island in 2009.</i></p>
5E	Anger Island	<p>Subarea 5-16.</p> <p><i>Open during Phase 1 fishery. Split from QMA 5B Principe Channel in 2013.</i></p>
5F	Principe North	<p>Subareas 5-13, 5-14 and 5-15.</p> <p><i>Open during Phase 1 fishery. Split from 5B Principe Channel in 2013.</i></p>

QMA	Name	Description
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5G	Principe South	Subareas 5-17, 5-18, 5-19. <i>Open during Phase 1 fishery. Split from 5B Principe Channel in 2013.</i>
5H	Grenville North	a) Subarea 5-1. b) Subarea 5-23 excluding Kumealon Inlet East of a line across the mouth of the inlet; Baker Inlet East of a line across the mouth of the inlet; Kxngeal Inlet East of a line across the mouth of the inlet; and Klewnuggit Inlet East of a line across the mouth of the inlet. <i>Open during Phase 1 fishery. Split from QMA 5B Principe Channel/Grenville Channel in 2009. Split from QMA 5C Grenville Channel in 2018.</i>
5I	Grenville South	a) Subarea 5-24 excluding that portion of Lowe Inlet East of a line across the mouth of the inlet. b) That portion of subarea 6-28 outside the 20 fathom contour line from Cape Farewell on Promise Island, to Sainty Point on the mainland coast as shown on Charts No. 3711 and 3742 published by the Canadian Hydrographic Service. <i>Open during Phase 1 fishery. Split from QMA 5B Principe Channel/Grenville Channel in 2009. Split from QMA 5C Grenville Channel in 2018.</i>
6A	Gil Island	Subareas 6-5, 6-26 and 6-27. <i>Open during Phase 1 fishery.</i>
6C	Trutch Island	Subareas 6-9 and 6-10. <i>Open during Phase 1 fishery. Split from QMA 6C Caamano Sound/Laredo Channel in 2009.</i>
6E	Princess Royal Channel	a) That portion of subarea 6-20 North of a line starting at Netherby Point west to a point at 52° 55.320' N and 128° 31.540' W and that excludes a portion of South of a line from a point at Nomel Creek (53° 07.106' N and 128° 36.006' W) then East to the Subarea boundary at (53° 07.123' N and 128° 34.164' W). North of a line from point at Big Creek (53° 02.029' N and 128° 31.508' W), West to a point at 53° 01.924' N and 128° 32.560' W. b) Subareas 6-21, 6-22, and 6-24. <i>Reopened in 2011. Boundary change in 2014.</i>

QMA	Name	Description
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6F	West Aristazabal Island	<p>That portion of subarea 6-13 north of a line starting at a point on the western shoreline of Aristazabal Island at 52° 30.970'N and 129° 04.249'W to a point on the Surfline at 52° 30.000'N and 129° 05.831'W [excludes Weeteeam Bay].</p> <p><i>Reopened in 2014</i></p>
6G	Kitimat Arm	<p>Subarea 6-1 excluding:</p> <ul style="list-style-type: none"> a) Giltoyees and Miskatla Inlets: North of a line from Point Ashton [53° 46.245'N/128° 56.920'W] west to a point at 53° 46.092'N and 128° 58.589'W. b) Sue and Loretta Channels: Easterly of the Subarea boundary between Maitland Island [53° 41.197'N/129° 04.789'W and Hawkesbury Island [53° 40.494'N/129° 04.797'W] and westerly of a line that begins at 53° 41.205'N/129° 04.898'W (Kersey Point) then to 53° 45.620'N/128° 50.849'W (Walbran Point) then following the easterly shoreline of Loretta Island to 53° 43.341'N/128° 49.939'W then to 53° 42.645'N/128° 50.071'W (Gaudin Point). c) The head of Kitimat Arm: North of a line running from a point at 53° 57.767'N and 128° 42.212'W to a point at 53° 56.967'N and 128° 39.741'W. <p><i>Reopened in 2015</i></p>
6H	Douglas Channel	<ul style="list-style-type: none"> a) Subarea 6-2 excluding Kitkiata Inlet West of a line from Gertrude Point to Helen Point; Kishkosh Inlet West of a line running across the entrance of the inlet and the vicinity of Hartley Bay, Promise Island and Coghlin Anchorage, inside the 20 fathom depth contour running from Halsey Point at the entrance to Hartley Bay, around Cape Farewell on Promise Island, then to Sainty Point on the mainland coast as shown on Charts No. 3711 and 3742 published by the Canadian Hydrographic Service. b) Subarea 6-6 excluding the portion in the vicinity of Hartley Bay, Promise Island and Coghlin Anchorage, inside the 20 fathom depth contour running from Halsey Point at the entrance to Hartley Bay, around Cape Farewell on Promise Island, then to Sainty Point on the mainland coast as shown on Charts No. 3711 and 3742 published by the Canadian Hydrographic Service. <p><i>Open during Phase 1 fishery. Split from QMA 6B Gribbell Island in 2015</i></p>
QMA	Name	Description

6I	Gribbell Island	<p>a) Subarea 6-3 excluding the portion that is Bishop Bay East of a line from Riordan Point to Tomkinson Point.</p> <p>b) Subarea 6-7.</p> <p><i>Open during Phase 1 fishery. Split from QMA 6B Gribbell Island in 2015</i></p>
6J	Surf Inlet	<p>Subarea 6-12.</p> <p><i>Open during Phase 1 fishery. Split from QMA 6C Caamano Sound/Laredo Channel in 2009. Split from QMA 6D Laredo Channel in 2021.</i></p>
6K	Laredo Channel	<p>Subareas 6-11, 6-14 and 6-16.</p> <p><i>Open during Phase 1 fishery. Split from QMA 6C Caamano Sound/Laredo Channel in 2009. Split from QMA 6D Laredo Channel in 2021.</i></p>

2. CENTRAL COAST

QMA	Name	Description
7C	Fisher Channel/ Dean Channel	<p>Subareas 7-30, 8-5 to 8-7.</p> <p><i>Open during Phase 1 fishery. Split from QMA 7C Denny Island in 2009.</i></p>
7F	Denny Island	<p>Subarea 7-17. <i>Open during Phase 1 fishery. Split from QMA 7C Denny Island in 2009.</i></p>
7G	Sheep Pass	<p>a) That portion of Subarea 7-9 North of the parallel passing through 52° 41.90' N Latitude [Northern Griffith Pass].</p> <p>b) Subarea 7-29.</p> <p><i>Reopened in 2008. Split from 7D Mathieson Channel in 2016.</i></p>
7H	Upper Mathieson	<p>a) That portion of Subarea 7-9 South of the parallel passing through 52° 41.90' N Latitude and North of a line that runs from 52° 31.233'N and 128° 16.734'W to 52° 31.388'N and 128° 14.492'W [Includes Jackson Passage]</p> <p>b) Subarea 7-10.</p> <p>c) Subarea 7-11 – closed for 2016 (see below)</p> <p><i>Reopened in 2008. Split from 7D Mathieson Channel in 2016. Boundary change in 2014 – Subarea 7-7 changed into a CNTR, Subarea 7-11 will be closed for 2016 at the request of the PSCHA.</i></p>

QMA	Name	Description
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7I	Lower Mathieson	<p>a) That portion of Subarea 7-9 South of a line that runs from 52° 31.233'N and 128° 16.734'W to 52° 31.388'N and 128° 14.492'W [south of Jackson Passage] and East of a line starting at Miall Point (52° 29.595'N and 128° 16.147'W) and a point along Buckley Head at 52° 28.494'N and 128° 16.480'W [excludes Oscar Passage].</p> <p><i>Reopened in 2008. Split from 7D Mathieson Channel in 2016. Boundary change in 2014 - CNTR moved from Jackson Passage to Oscar Passage.</i></p>
7J	Spiller	<p>a) Subarea 7-13</p> <p>b) Subarea 7-14 excluding those waters north of a line from Coldwell Point (52° 19.177'N and 128° 01.551'W) to Florence Peninsula (52° 19.085'N and 128° 00.469'W) [Briggs Inlet].</p> <p><i>Open during Phase 1 fishery. Split from 7A Seaforth Channel/Spiller Channel in 2009. Split from 7A Spiller Channel in 2016.</i></p>
7L	Roscoe Inlet	<p>a) That portion of Subarea 7-15 east of a line from Jagers Point (52° 18.288'N and 127° 58.041'W) to a point on Florence Peninsula (52° 18.844'N and 127° 58.039'W).</p> <p>b) Subarea 7-16.</p> <p><i>Open during Phase 1 fishery. Split from 7A Seaforth Channel/Spiller Channel in 2009. Split from 7A Spiller Channel in 2016. Split from 7K Florence Peninsula in 2018.</i></p>
7M	Chatfield/ Briggs	<p>a) That portion of Subarea 7-14 north of a line from Coldwell Point (52° 19.177'N and 128° 01.551'W) to Florence Peninsula (52° 19.085'N and 128° 00.469'W) [Briggs Inlet].</p> <p>b) That portion of Subarea 7-15 west of a line from Jagers Point (52° 18.288'N and 127° 58.041'W) to a point on Florence Peninsula (52° 18.844'N and 127° 58.039'W).</p> <p><i>Open during Phase 1 fishery. Split from 7A Seaforth Channel/Spiller Channel in 2009. Split from 7A Spiller Channel in 2016. Split from 7K Florence Peninsula in 2018.</i></p>
7N	Finlayson North	<p>That portion of Subarea 7-6 south of a line from a point on the mainland at 52° 50.687' N and 128° 27.213' W to a point on Sarah Island at 52° 50.576' N and 128° 27.963' W.</p> <p><i>Reopened in 2020.</i></p>
7O	Finlayson South	<p>Subarea 7-4.</p> <p><i>Reopened in 2020.</i></p>

QMA	Name	Description
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7P	Milbanke Sound	That portion of Subareas 7-2 and 7-3 west of a line originating from a point on Jorkins Point [52° 25.937'N and 128° 29.895'W] south to a point in water at 52° 09.375'N and 128° 33.162'W. <i>Open during Phase 1 fishery. Boundary change in 2009 . Split from QMA 7B Milbanke Sound/ Seaforth Channel in 2021.</i>
7Q	Seaforth Channel (NEW)	a) That portion of Subareas 7-2 and 7-3 east of a line originating from a point on Jorkins Point [52° 25.937'N and 128° 29.895'W] south to a point in water at 52° 09.375'N and 128° 33.162'W. b) Subareas 7-12, 7-20 to 7-22, 7-24 and 7-32 <i>Open during Phase 1 fishery. Boundary change in 2009 . Split from QMA 7B Milbanke Sound/ Seaforth Channel in 2021.</i>
7R	Queens Sound North (NEW)	a) That portion of Subarea 7-18 north of a line that runs from a point on Campbell Island at 52° 01.60'N and 128° 14.71'W, southwest to a point in water at 52° 00.25'N and 128° 25.28'W and then west to 52° 00.25'N and 128° 25.28'W (Goose Island). b) Subareas 7-19 and 7-23. <i>Open during Phase 1 fishery. Originally part of 7B Milbanke Sound which was split in 7E Queens Sound in 2009. Split again from 7E Queens Sound in 2022</i>
7S	Queens Sound South (NEW)	a) That portion of Subarea 7-18 south of a line that runs from a point on Campbell Island at 52° 01.60'N and 128° 14.71'W, southwest to a point in water at 52° 00.25'N and 128° 25.28'W and then west to 52° 00.25'N and 128° 25.28'W (Goose Island). b) Subarea 7-25. <i>Open during Phase 1 fishery. Originally part of 7B Milbanke Sound which was split in 7E Queens Sound in 2009. Split again from 7E Queens Sound in 2022</i>
8B	Calvert Island	Subareas 8-2, 8-3, 8-16, 9-1 and 9-12. <i>Open during Phase 1 fishery. Split from 8A Queens Sound/Fitz Hugh Sound in 2009.</i>
8C	Spider / Kildidt	Subareas 7-26 to 7-28. <i>Open during Phase 1 fishery. Split from 8A Queens Sound/Fitz Hugh Sound in 2009. Split again from 8A Fitz Hugh Sound in 2014.</i>
QMA	Name	Description

8E	Fitz Hugh / Burke South	<p>a) Subarea 8-4.</p> <p>b) That portion of Subarea 8-13 south of a line running between a point on King Island at 52° 08.43'N and 127° 36.90'W and Kelkpa Point [52° 07.28'N and 127° 36.41'W].</p> <p><i>Open during Phase 1 fishery. Split from 8A Queens Sound/Fitz Hugh Sound in 2009. Split again from 8A Fitz Hugh Sound in 2014. Split from 8D FitzHugh/Burke in 2020.</i></p>
8F	Burke North	<p>a) That portion of Subarea 8-13 north of a line running between a point on King Island at 52° 08.43'N and 127° 36.90'W and Kelkpa Point [52° 07.28'N and 127° 36.41'W].</p> <p>b) Subarea 8-14.</p> <p><i>Open during Phase 1 fishery. Split from 8A Queens Sound/Fitz Hugh Sound in 2009. Split again from 8A Fitz Hugh Sound in 2014. Split from 8D Fitz Hugh/Burke in 2020.</i></p>
9B	South Rivers Inlet	<p>a) Subareas 9-2, 9-3, 9-10 and 9-11.</p> <p><i>Reopened in 2008. Split from 9A Rivers Inlet in 2018.</i></p>
9C	North Rivers Inlet	<p>a) Subarea 9-4 except that portion north of a line from 51° 38.340' N and 127° 32.880' W to 51° 38.460' N and 127° 32.040' W [excludes Sandell Bay].</p> <p>b) Subareas 9-5 and 9-9.</p> <p>c) That portion of Subarea 9-6 West of a line at 127° 21.90' W latitude [excludes Kilbella Bay].</p> <p><i>Reopened in 2008. Split from 9A Rivers Inlet in 2018.</i></p>
10A	Smith Inlet	<p>a) Subareas 10-3, 10-4 and 10-6 to 10-11.</p> <p>b) That portion of Subarea 10-5 East of a line from Ripon Pt. (51° 19.32' N and 127° 32.40' W) to Olive Pt. (51° 20.22' N and 127° 32.16' W) [excludes Margaret Bay].</p> <p>c) That portion of Subarea 10-12 East of a line at 127° 35.32'W latitude and North of the Subarea boundary line at Wakas Point [51° 17.46'N\127° 38.16'W] to Gikumi Point [51° 17.70'N\127° 36.78'W] (excludes Takush Harbour).</p> <p><i>Reopened in 2008.</i></p>

3. EAST COAST OF VANCOUVER ISLAND

QMA	Name	Description
11A	Belize Inlet	Subareas 11-4 to 11-6. <i>Reopened in 2012.</i>
11B	Seymour Inlet	Subareas 11-3 and 11-10. <i>Reopened in 2012.</i>

11D	Slingsby Channel	<p>That portion of Subarea 11-2 east of a line from Laschelles Point [51° 05.217'N/127° 39.449'W] to Dalkeith Point on the westernmost Island in the Fox Islands Group [51° 04.793'N/127° 38.790'W], east of a line from Dalkeith Point [51° 04.766'N/127° 38.767'W] to McKewan Point on Bramham Island [127° 36.919'N/127° 36.680'W], and north of a line from Goose Point on Bramham Island [51° 05.089'N/127° 30.836'W] to a point on the Mainland at [51° 05.079'N/127° 30.637'W].</p> <p><i>Reopened in 2015. Split from 11C in 2017. Boundary change in 2019.</i></p>
11E	Allison Harbour	<p>That portion of Subarea 11-2 west of a line from Laschelles Point [51° 05.217'N/127° 39.449'W] to Dalkeith Point on the westernmost Island in the Fox Islands Group [51° 04.813'N/127° 38.758'W], west of a line from Dalkeith Point [51° 04.766'N/127° 38.767'W] to McKewan Point on Bramham Island [127° 36.919'N/127° 36.680'W] and south of a line from Goose Point on Bramham Island [51° 05.089'N/127° 30.836'W] to a point on the Mainland at [51° 05.079'N/127° 30.637'W].</p> <p><i>Reopened in 2015. Split from 11C in 2017. Boundary change in 2019.</i></p>
12E	Broughton	<p>Subarea 12-40.</p> <p><i>Open during Phase 1 fishery. Split from 12B in 2013.</i></p>
12F	Wells Passage	<p>Subarea 12-41.</p> <p><i>Open during Phase 1 fishery. Split from 12B in 2013.</i></p>
12G	SW Queen Charlotte Strait	<p>Subareas 12-7, 12-8 and 12-17.</p> <p><i>Open during Phase 1 fishery. Split from 12B in 2013.</i></p>
12H	Turnour Island	<p>a) Subarea 12-20.</p> <p>b) That portion of Subarea 12-26 north of a line from 50° 35.717'N/126° 16.269'W and the Mainland [50° 35.874'N/126° 15.955'W]</p> <p><i>Reopened in 2009. Split from 12D in 2013.</i></p>
12I	Gilford Island North	<p>Subareas 12-38 and 12-39.</p> <p><i>Reopened in 2009. Split from 12D in 2013.</i></p>

QMA	Name	Description
12J	Johnstone Strait	<p>a) Subareas 12-1, 12-3, 12-4, 12-21, 12-24.</p> <p>b) That portion of Subarea 12-2 south of a line from Domville Point [50° 31.623'N/126° 17.058'W] west to a point on West Cracroft Island [50° 31.623'N/126° 18.806'W].</p> <p>c) That portion of Subarea 13-35 west of a line from Hardwicke Point on Hardwicke Island [50° 26.435'N/125° 58.234'W] north to a point on the Mainland at [50° 28.197'N/125° 58.234'W]</p> <p><i>Reopened in 2007. Subareas 12-4 and 12-21 reopened and added in 2011. Split from QMA 12C in 2017.</i></p>
12K	Port Harvey	<p>a) Subareas 12-22 and 12-23</p> <p>b) That portion of Subarea 12-2 north of a line from Domville Point [50° 31.623'N/126° 17.058'W] west to a point on West Cracroft Island [50° 31.623'N/126° 18.806'W].</p> <p>c) That portion of Subarea 12-26 south of a line from 50° 35.717'N/126° 16.269'W and the Mainland [50° 35.874'N/126° 15.955'W]</p> <p><i>Reopened in 2007. Split from QMA 12C in 2017.</i></p>
12L	Tribune Channel	<p>Subareas 12-35 and 12-37.</p> <p><i>Reopened in 2017.</i></p>
12M	Port Hardy	<p>a) Subarea 12-9</p> <p>b) That portion of Subarea 12-16 east of a line running from Duval Point [50° 45.950/127° 29.114] to the Subarea boundary at the southern end of the Gordon Group [50° 48.325/127° 27.652].</p> <p><i>Open during Phase 1 fishery. Split from QMA 12A in 2021.</i></p>
12N	Goletas Channel	<p>a) Subarea 12-11</p> <p>b) That portion of Subarea 12-16 west of a line running from Duval Point [50° 45.950/127° 29.114] to the Subarea boundary at the southern end of the Gordon Group [50° 48.325/127° 27.652].</p> <p><i>Open during Phase 1 fishery. Split from QMA 12A in 2021.</i></p>
12O	Walker/ Deserters	<p>Subareas 12-10 and 12-13.</p> <p><i>Open during Phase 1 fishery. Split from QMA 12A in 2021.</i></p>
13A	Quadra/ Cortes	<p>Subareas 13-12 to 13-16.</p> <p><i>Open during Phase 1 fishery.</i></p>

QMA	Name	Description
13B	North Area 13	Subareas 13-17 to 13-20 and 13-23. <i>Open during Phase 1 fishery.</i>
13C	East Thurlow Island	Subareas 13-7 to 13-9, 13-24 to 13-28. <i>Reopened in 2008.</i>
13D	Loughborough	a) That portion of Subarea 13-35 east of a line from Hardwicke Point on Hardwicke Island [50° 26.435'N/125° 58.234'W] north to a point on the Mainland at [50° 28.197'N/125° 58.234'W] b) Subareas 13-36 to 13-43. <i>Reopened in 2007. Split from QMA 12C in 2017.</i>
15A	West Redonda Island	That portion of Subarea 15-5: a) North of a line running from the light at Junction Point [50° 08.374'N/124° 53.696'W] to the light at Refuge Cove [50° 06.970'N/124° 50.974'W]. b) West of a line running from a light in Pryce Channel located at 50° 18.411'N/124° 49.825'W to the light at Dean Point [50° 17.145'N/124° 47.178'W]. <i>Reopened in 2012.</i>
15B	East Redonda Island	That portion of Subarea 15-5: a) East of a line running from a light in Pryce Channel located at 50° 18.411'N/124° 49.825'W to the light at Dean Point [50° 17.145'N/124° 47.178'W]. b) North of a line running from Marytebone Point [50° 09.684'N/124° 45.084'W] to Price Point [50° 09.362'N/124° 39.329'W]. <i>Reopened in 2012.</i>

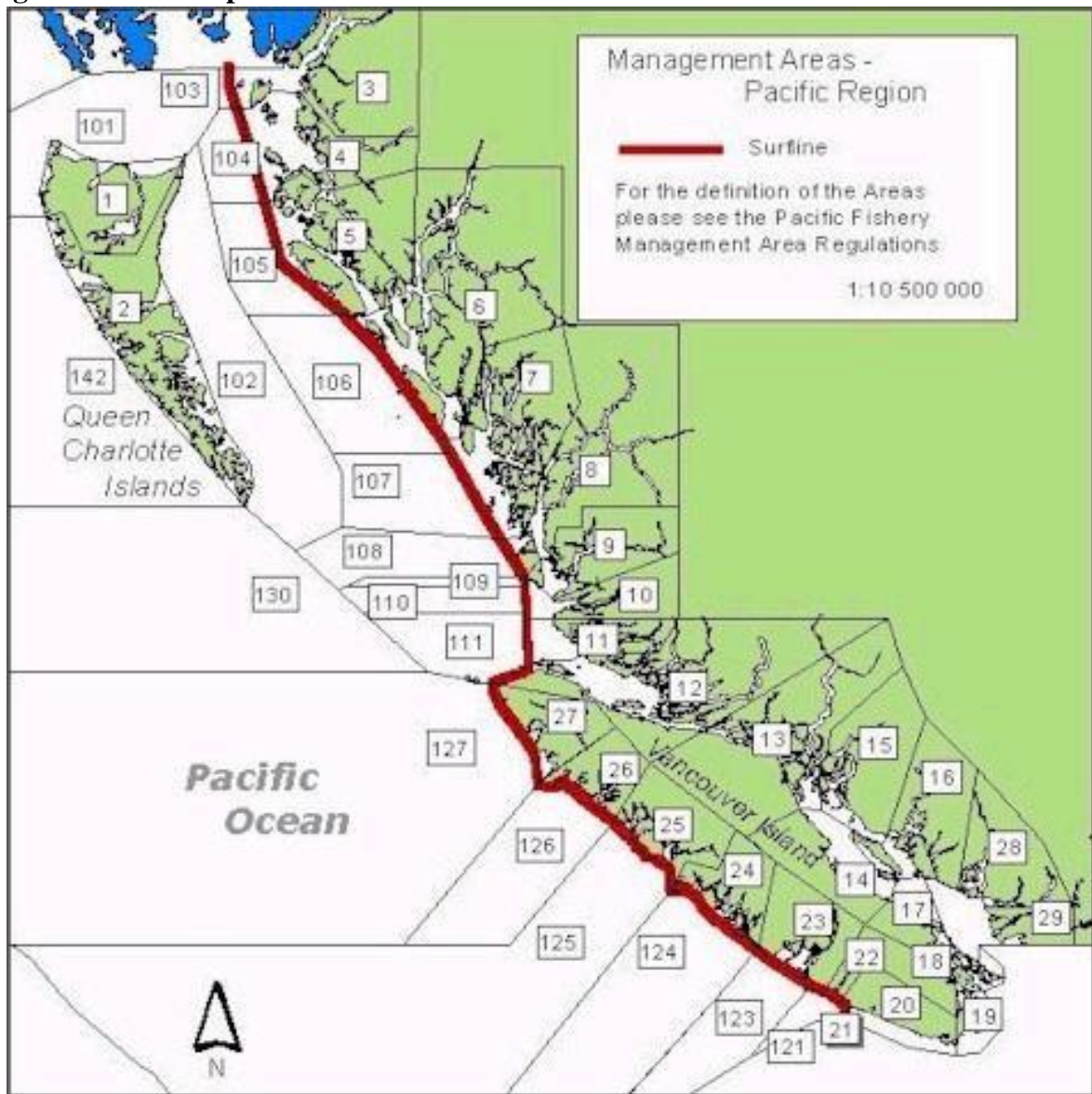
15C	South Desolation	<p>Subarea 15-4 and that portion of Subarea 15-5:</p> <p>a) South of a line running from Marytebone Point [50° 09.684'N/124° 45.084'W] to Price Point [50° 09.362'N/124° 39.329'W].</p> <p>b) South of a line running from the light at Junction Point [50° 08.397'N/124° 50.974'W] to the light at Refuge Cove [50° 06.970'N/124° 50.974'W].</p> <p><i>Reopened in 2012.</i></p>
QMA	Name	Description
16A	Sechelt Inlet	<p>a) Subareas 16-6 to 16-8.</p> <p>b) Subarea 16-9 excluding those waters of Skookumchuck Narrows and Sechelt Rapids 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 degrees true to a point on the foreshore on the mainland; and the east by a line from Raland Point on Sechelt Peninsula, thence 50 degrees true to a point on the foreshore on the mainland [Skookumchuck Provincial Park].</p> <p><i>Reopened in 2011.</i></p>
16B	Jervis Inlet	<p>a) Subareas 16-10, 16-12 and 16-13.</p> <p>b) Subarea 16-11 excluding the portion shoreward of the 30 metre depth contour line from Scotch Fir Point to Culloden Point [the entire mainland portion of Subarea 16-11], as shown on Chart 3514 published by the Canadian Hydrographic Service. [Jervis Inlet Experimental Fishing Area].</p> <p><i>Reopened in 2011.</i></p>
16C	Texada Island	<p>Subareas 15-1, 16-18, 16-21 and 16-22.</p> <p><i>Reopened in 2012.</i></p>
16D	Lasqueti Island	<p>Subareas 14-3, 16-19 and 16-20.</p> <p><i>Reopened in 2012.</i></p>
18A	Gulf Islands South	<p>Subareas 18-1, 18-2, 18-4, 18-5, 18-9 and 18-11.</p> <p><i>Reopened in 2011.</i></p>

4. WEST COAST VANCOUVER ISLAND

QMA	Name	Description
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23A	SE Barkley Sound	<p>a) Subarea 23-3.</p> <p>b) Subareas 23-5 and 23-6 except:</p> <p>(1) Those portions inside a line that starts at the light at Whittlestone Point then to the southern tip of Haines Island then following the shore of Haines Island to the northwestern tip of Haines Island; from the northwest 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; 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; [Bamfield Marine Station Research Area closure] and (2) those waters of the Broken Group Islands in Barkley Sound within park boundaries as shown, since 1989, on Canadian Hydrographic Service Chart 3671. [Broken Islands Group Closure] <i>Reopened in 2016.</i></p>
24A	North Clayoquot	<p>Subareas 24-4 to 24-6 and 24-14.</p> <p><i>Open during Phase 1 fishery.</i></p>
24B	South Clayoquot	<p>Subareas 24-7 and 24-10.</p> <p><i>Open during Phase 1 fishery.</i></p>
25A	Nootka/Tahsis	<p>Subareas 25-6, 25-8, 25-9, 25-12, 25-15.</p> <p><i>Reopened in 2020.</i></p>
25B	Muchalat/Tlupana	<p>Subareas 25-1 to 25-5.</p> <p><i>Reopened in 2020.</i></p>
26A	Kyuquot	<p>26-2 to 26-5</p> <p><i>Reopened in 2021</i></p>

Appendix 10: Pacific Fishery Management Areas and 2022/2023 Sea Cucumber Quota Management Area Maps



Harvesters are reminded that these maps and the area descriptions in Appendices 1 and 9 are to be used for reference only. The final authority of these descriptions of Areas, Subareas and portions thereof is as set out in the *Pacific Fishery Management Area Regulations*. More detailed maps and descriptions of Areas and Subareas are available on the Internet at:

www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.html

Please note permanent area closures listed in Appendix 1, Section 5. **Permanent area closures are not illustrated on these maps.**

Cross-hatched/Stippled polygons represent Quota Management Areas (QMA). Full QMA descriptions are listed in Appendix 9.

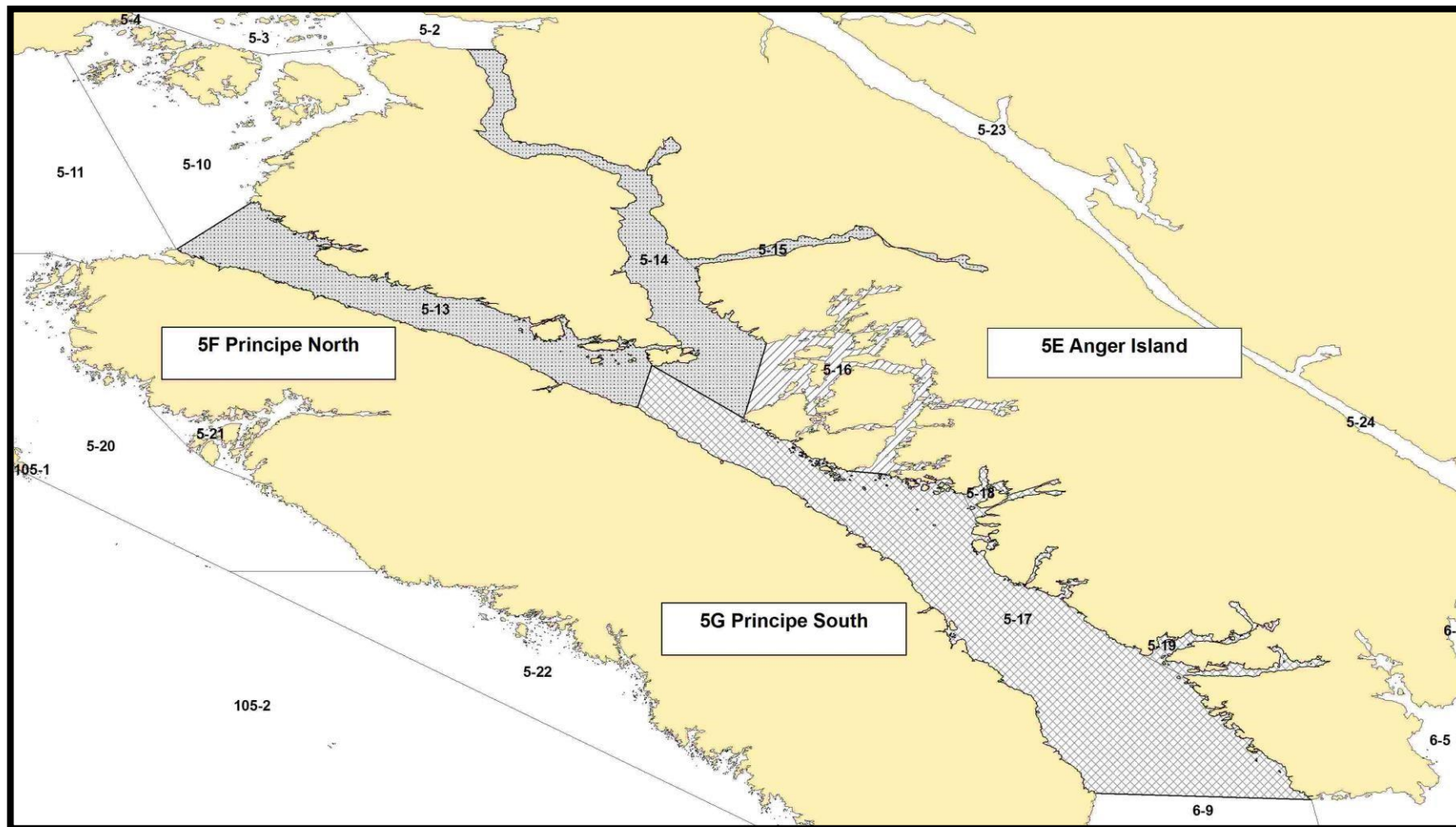


Figure 1. QMA 5E Anger Island: Subarea 5-16. QMA 5F Principe North: Subareas 5-13 to 5-15. QMA 5G Principe South: Subareas 5-17 to 5-19. See section 5 in Appendix 1 for a full description of all closures.

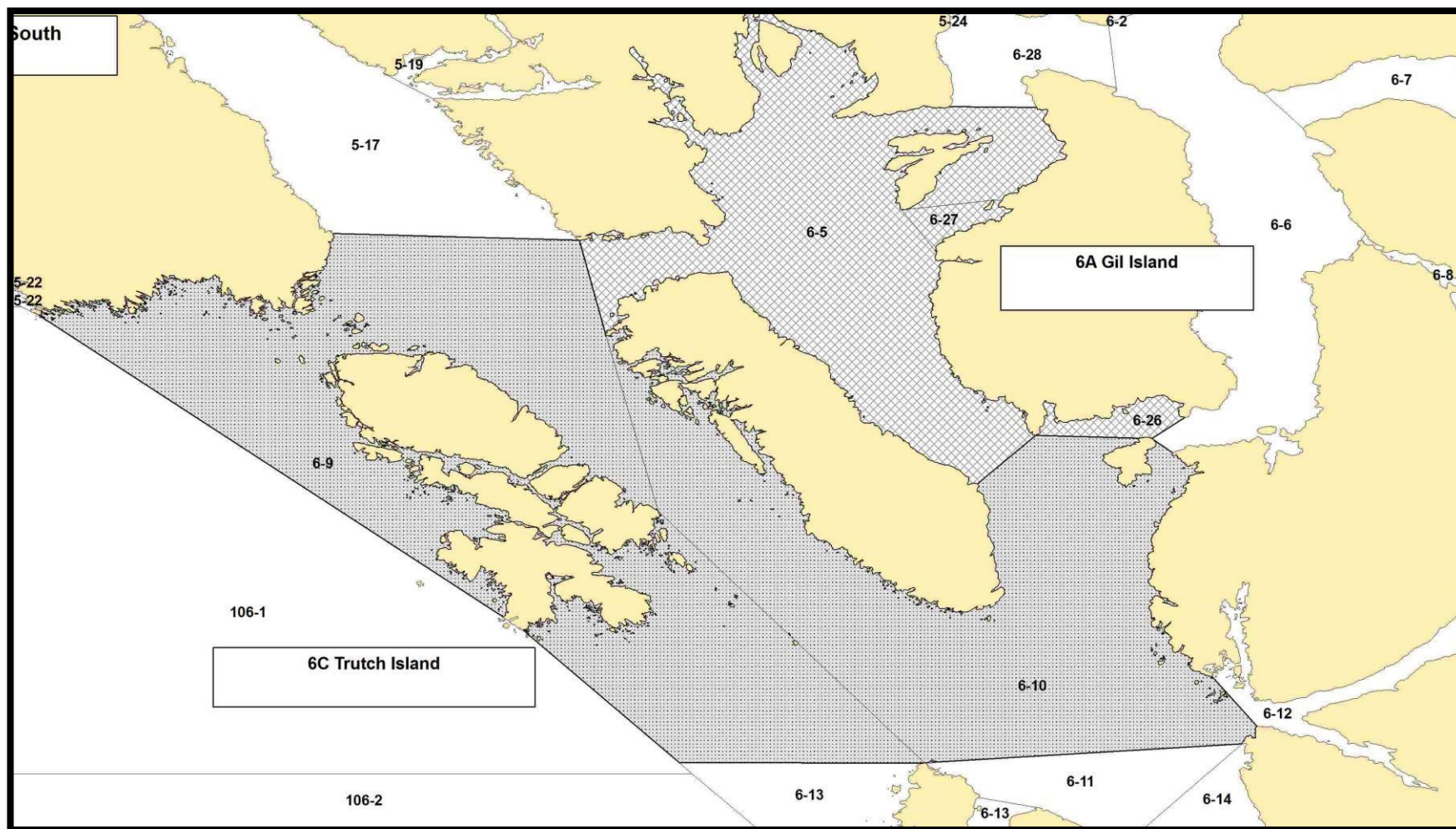


Figure 2. QMA 6A Gil Island: Subareas 6-5, 6-26 and 6-27. QMA 6C Trutch Island: Subareas 6-9 and 6-10. See section 5 in Appendix 1 for a full description of all closures.

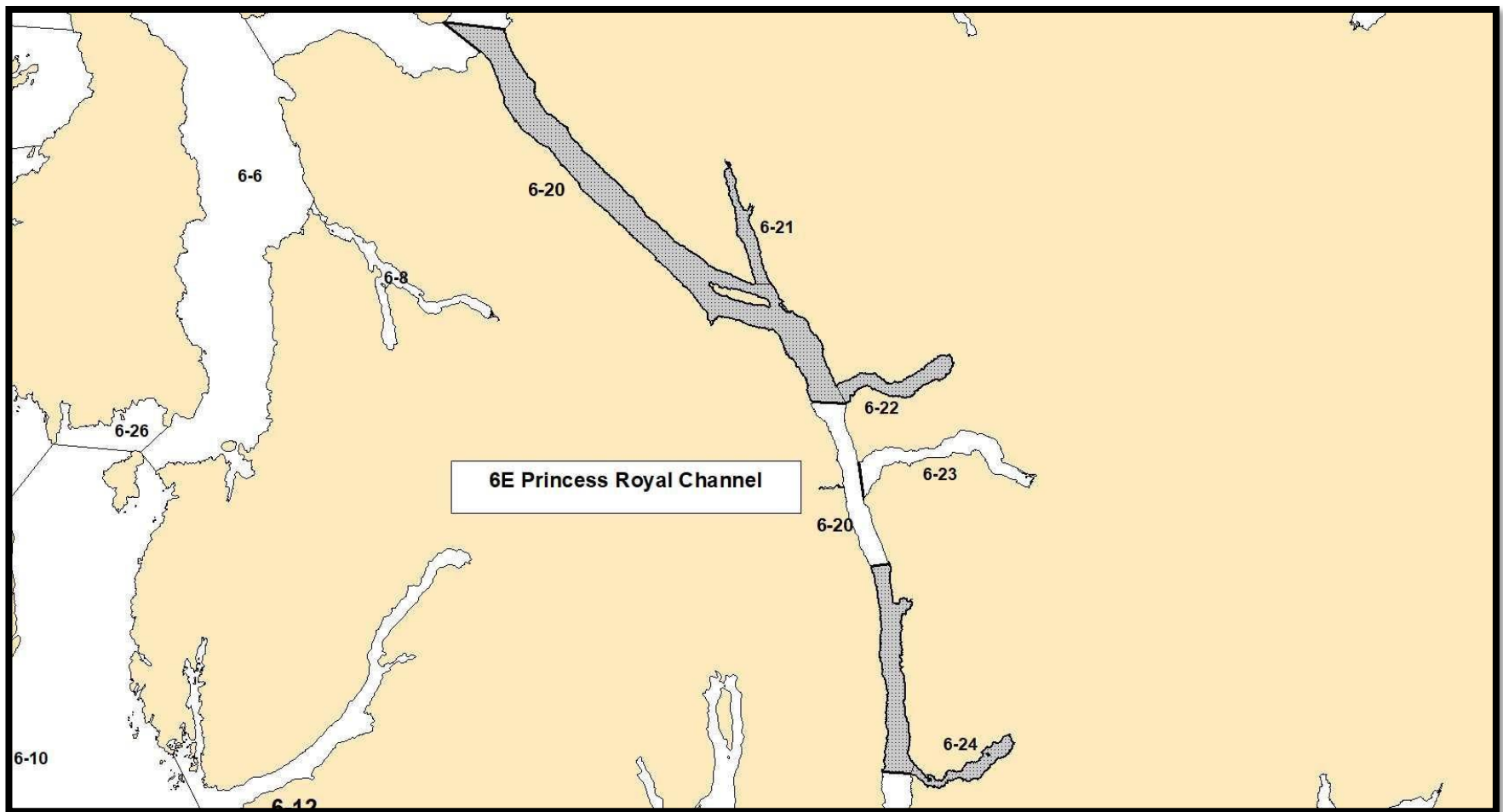


Figure 3. QMA 6E Princess Royal Channel: Portion of Subarea 6-20; Subareas 6-21, 6-22 and 6-24. For descriptions of all closures see Appendix 1, Section 5.

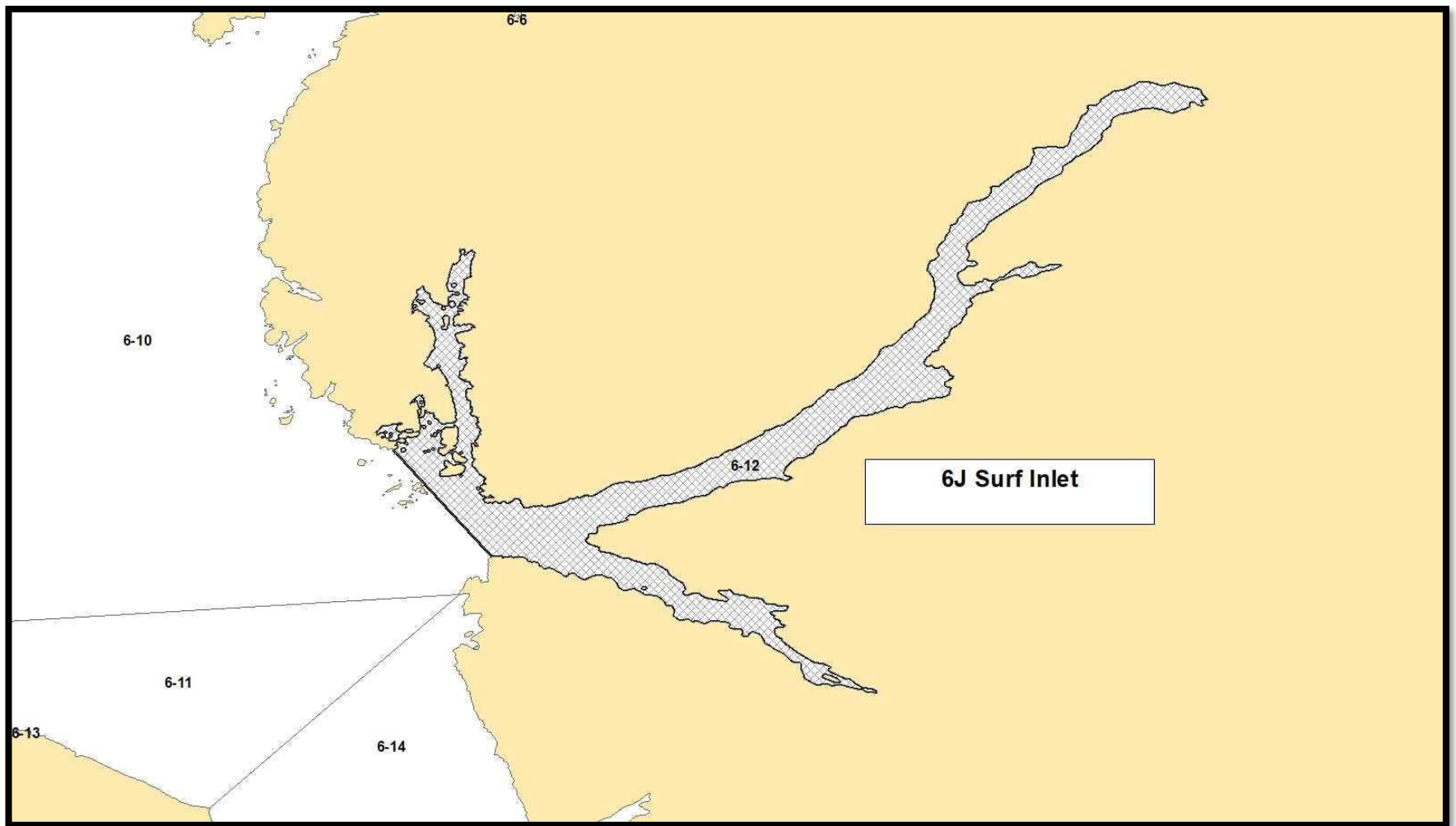


Figure 4. QMA 6J Surf Inlet: Subarea 6-12. For description of closures please see Appendix 1 section 5.

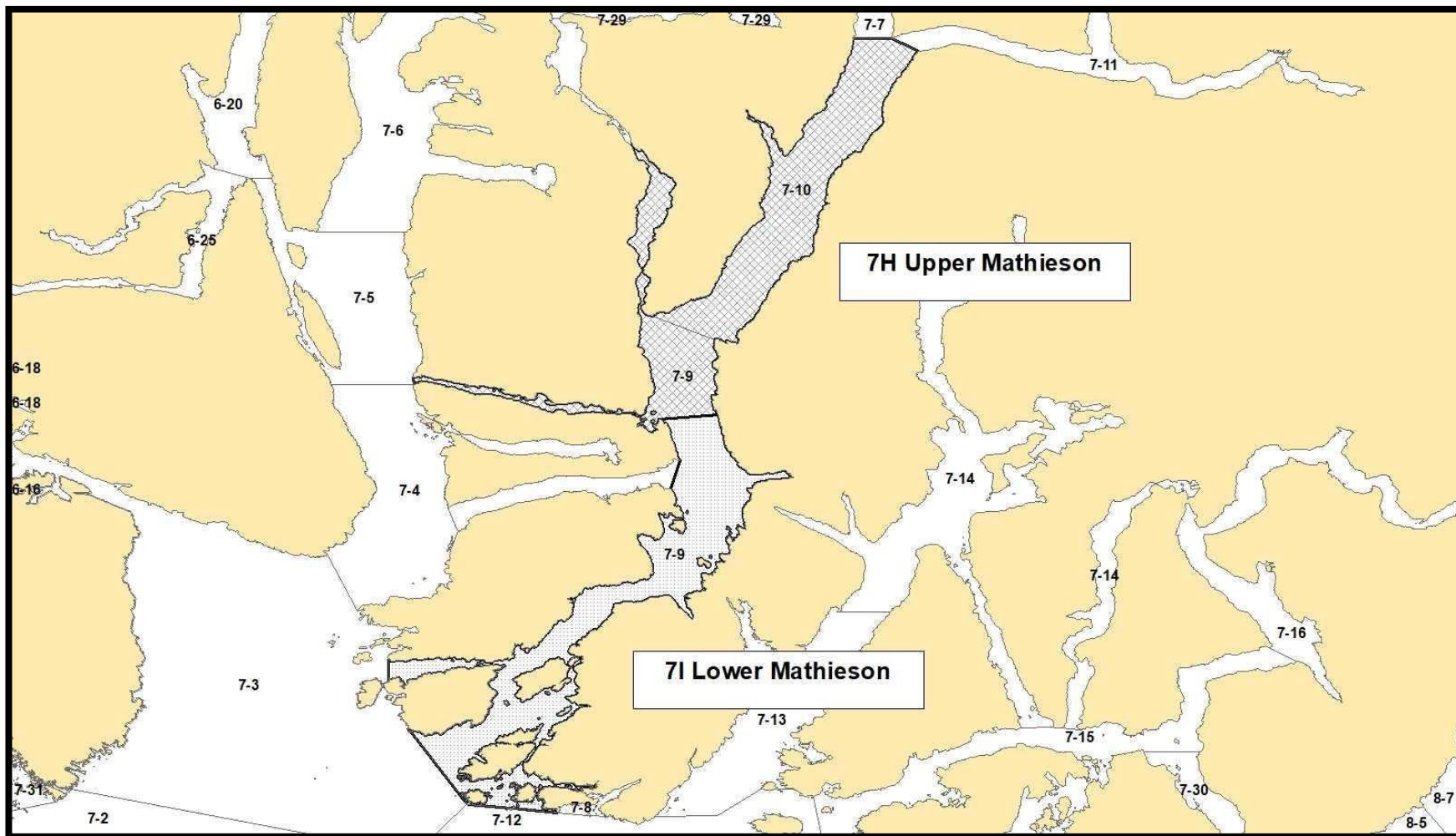


Figure 5. QMA 7H Upper Mathieson: Portion of Subarea 7-9; Subarea 7-10. QMA 7I Lower Mathieson: Portion of Subarea 7-9. For descriptions of all closures see Appendix 1, Section 5.

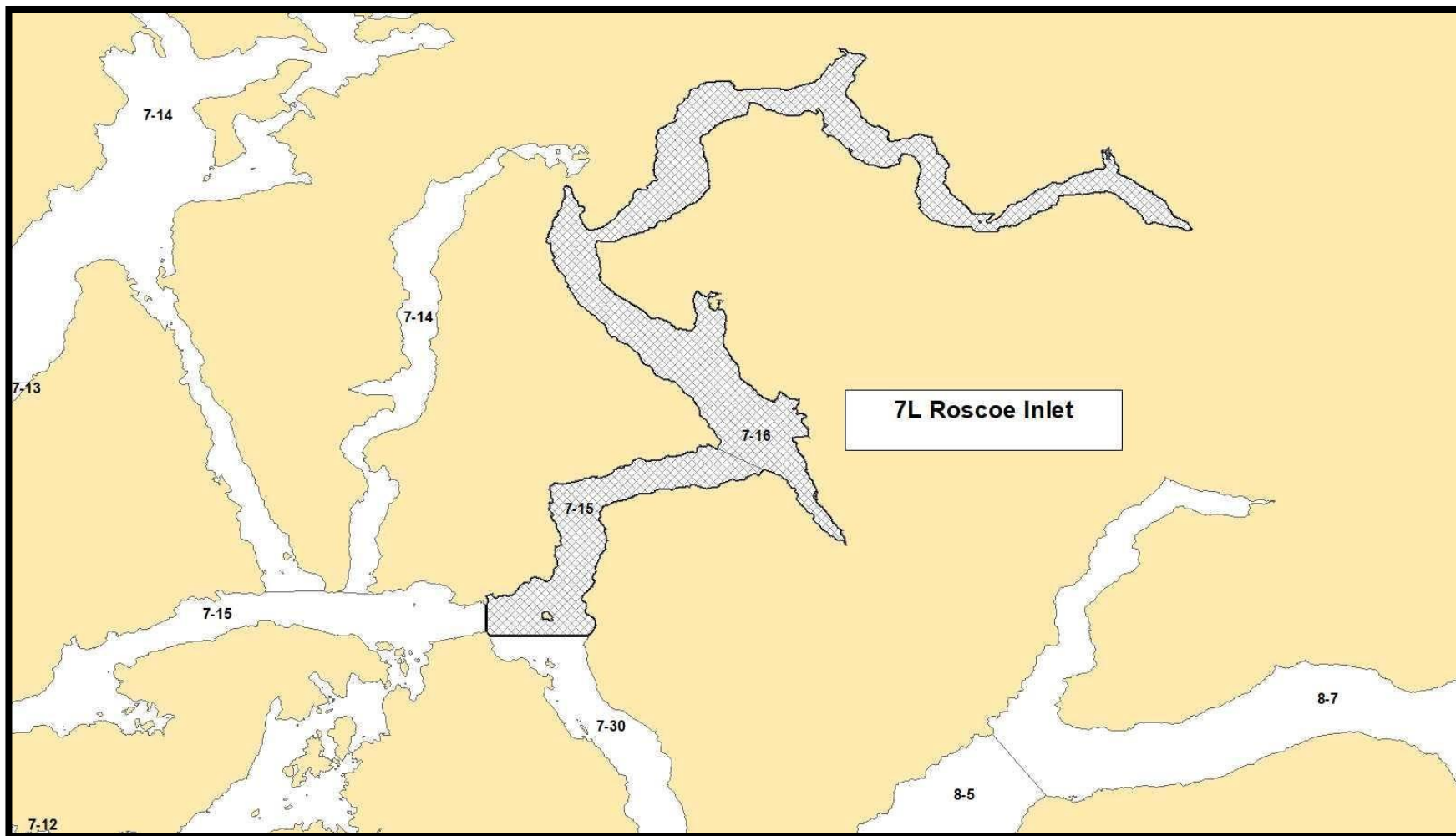


Figure 6. QMA 7L Roscoe Inlet: Portion of Subarea 7-15 ; Subarea 7-16. For description of closures please see Appendix 1 section 5.

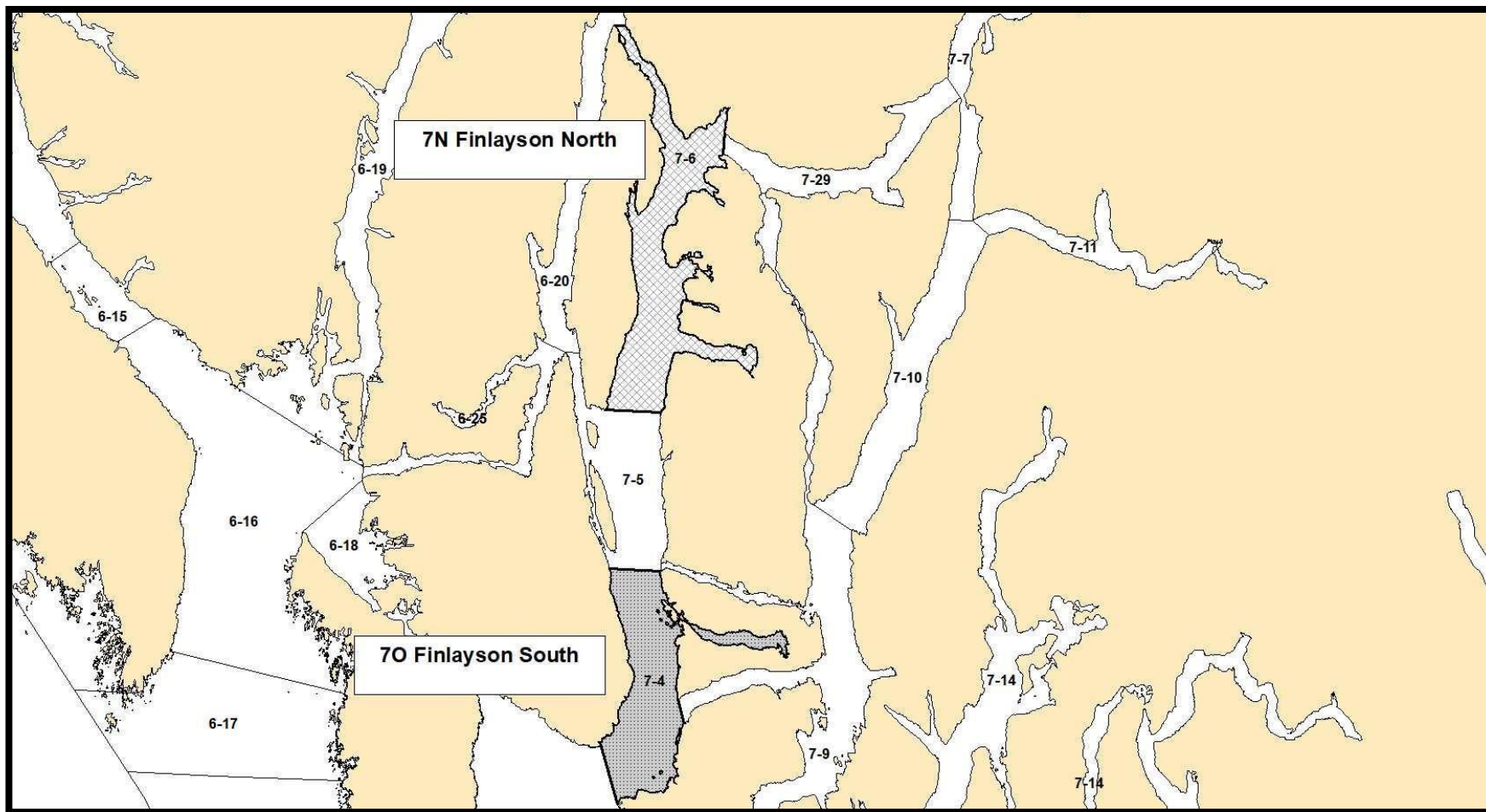


Figure 7. QMA 7N Finlayson North: Portion of Subarea 7-6. QMA 7O Finlayson South: Subarea 7-4. For description of closures please see Appendix 1 section 5.

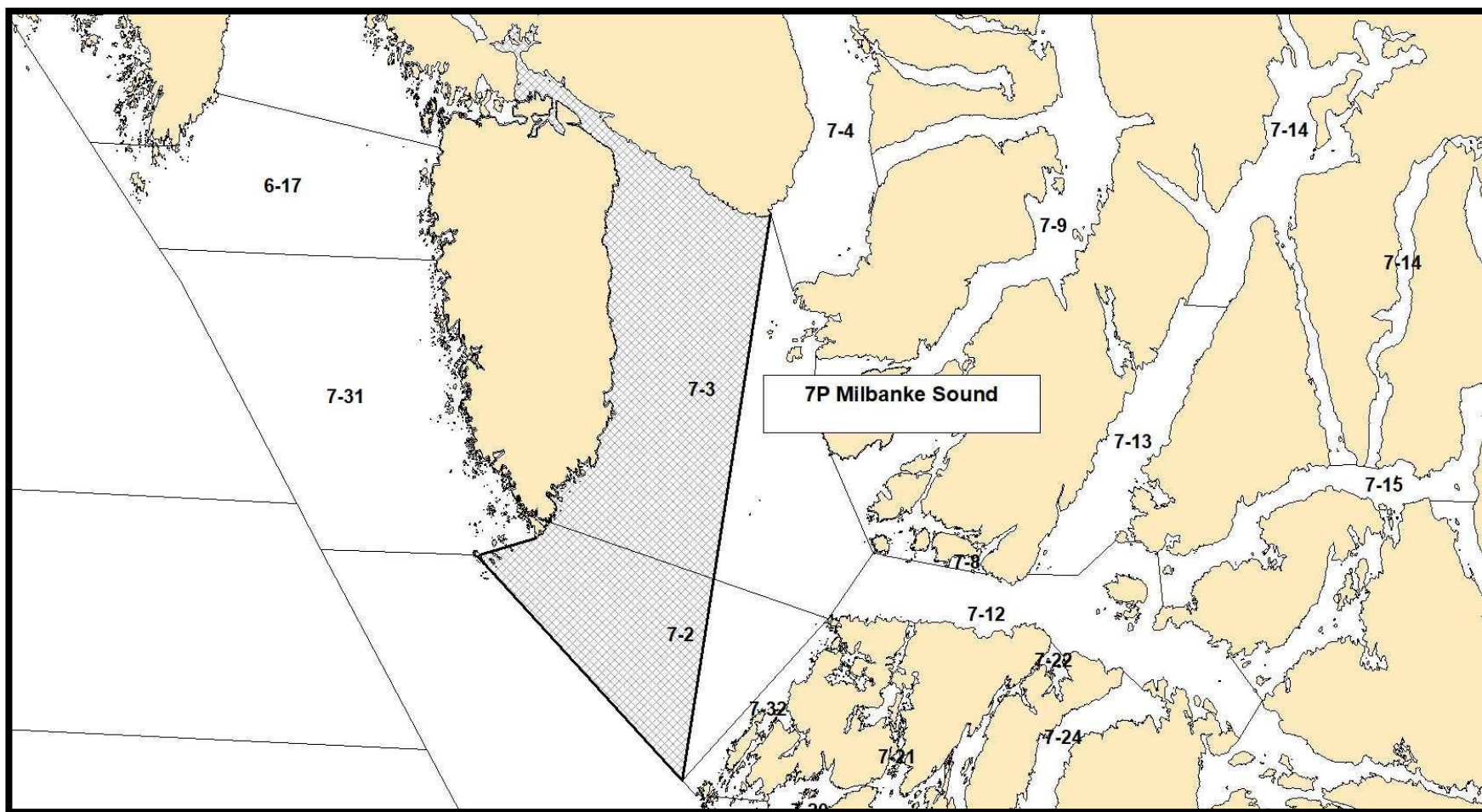


Figure 8. QMA 7P Milbanke Sound: Portion of Subareas 7-2 and 7-3. For description of closures please see Appendix 1, Section 5.

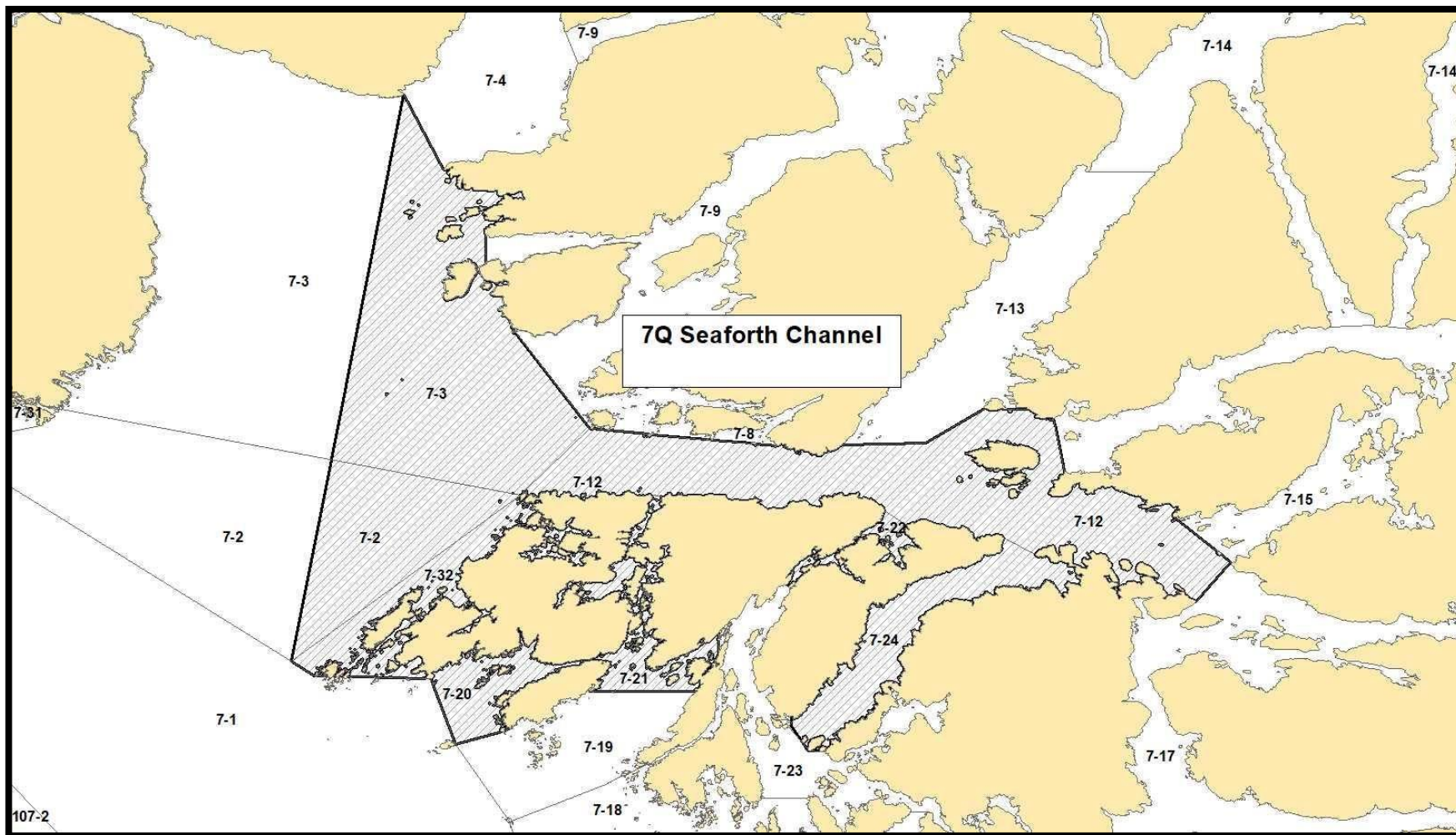


Figure 9. QMA 7Q Seaforth Channel: Portion of Subarea 7-2 and 7-3; Subareas 7-12, 7-20 to 7-22, 7-24 and 7-32. For description of closures please see Appendix 1 section 5.

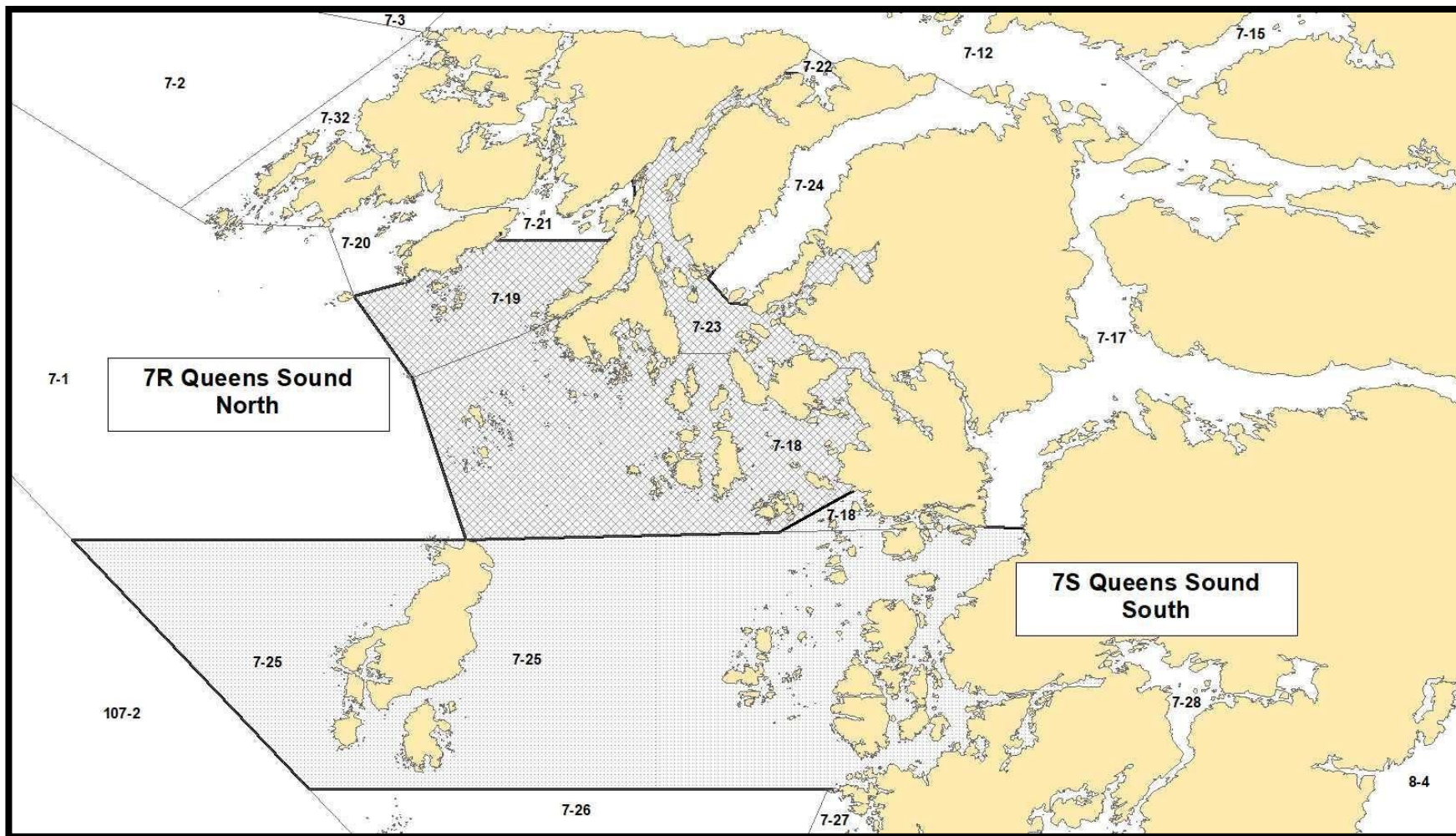


Figure 10. QMA 7R Queens Sound North (NEW): Portion of Subarea 7-18; Subareas 7-19 and 7-23. QMA 7S Queens Sound South (NEW): Portion of Subarea 7-18; Subarea 7-25. For description of closures please see Appendix 1, Section 5.

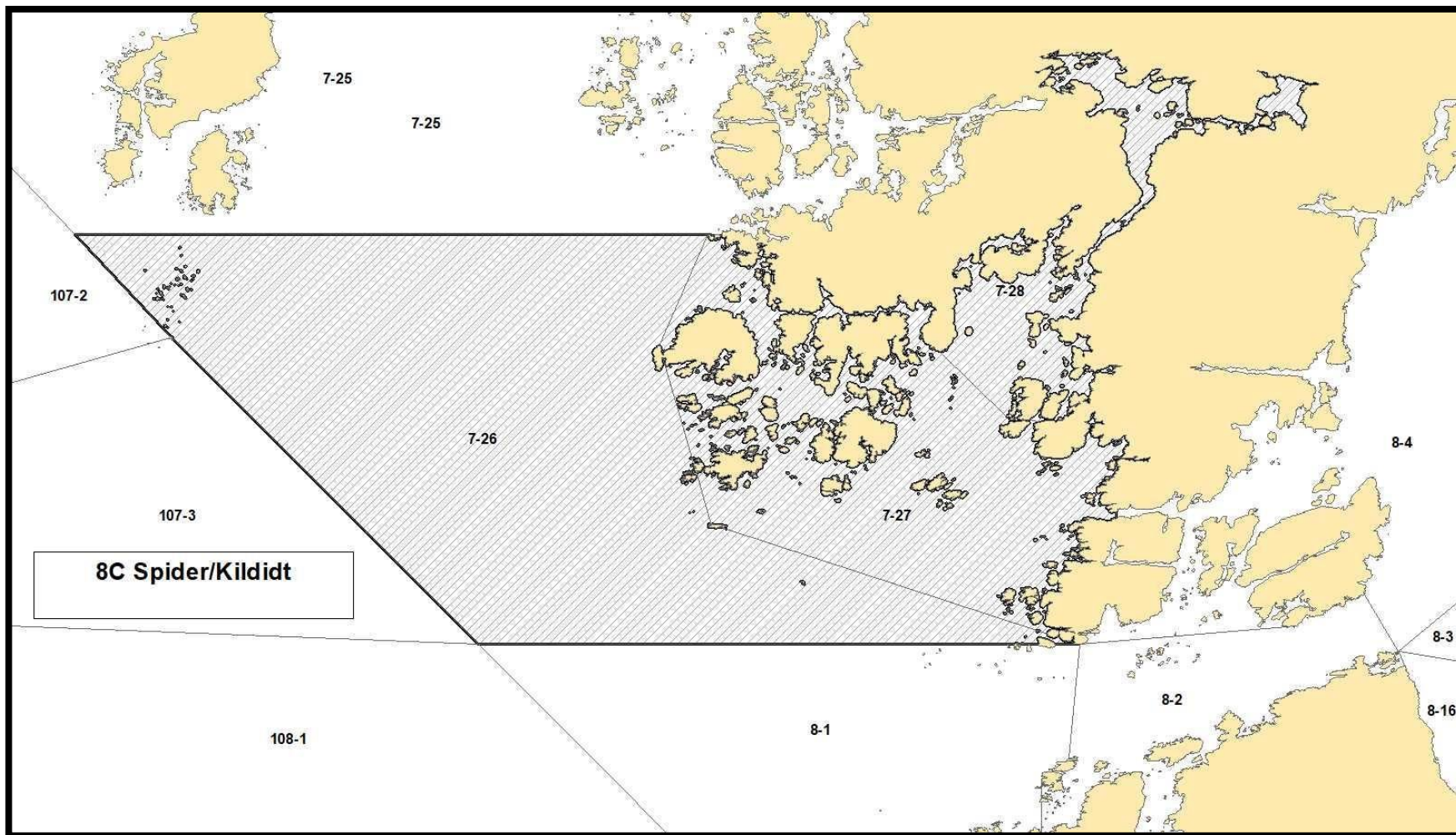


Figure 11. QMA 8C Spider/Kildidt: Subareas 7-26, 7-27 and 7-28. For description of closures please see Appendix 1 section 5.

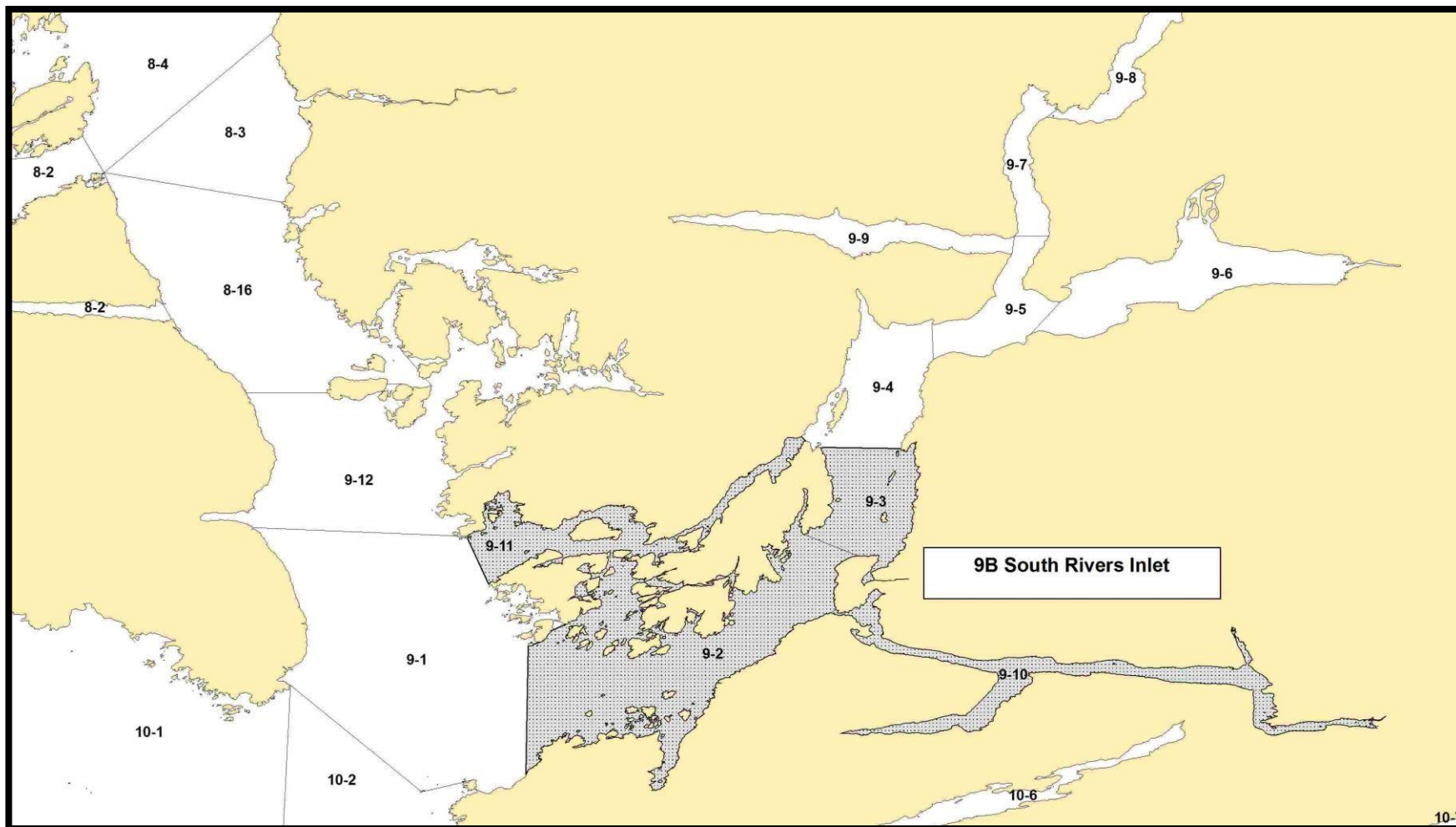


Figure 12. QMA 9B South Rivers Inlet: Subareas 9-2, 9-3, 9-10 and 9-11. For description of closures please see Appendix 1, Section 5.

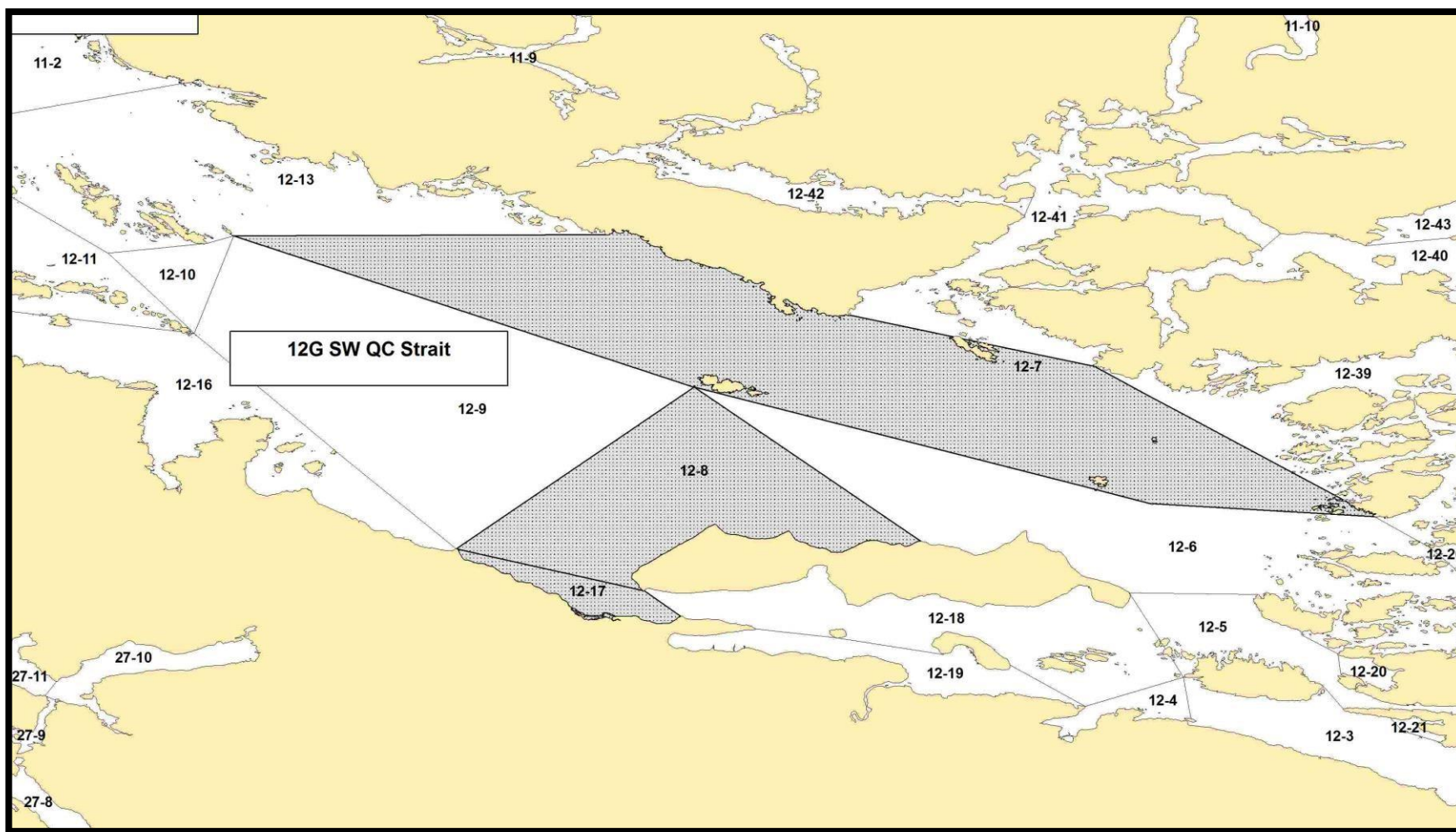


Figure 13. QMA 12G SW QC Strait: Subareas 12-7, 12-8 and 12-17. For description of closures please see Appendix 1 section 5.

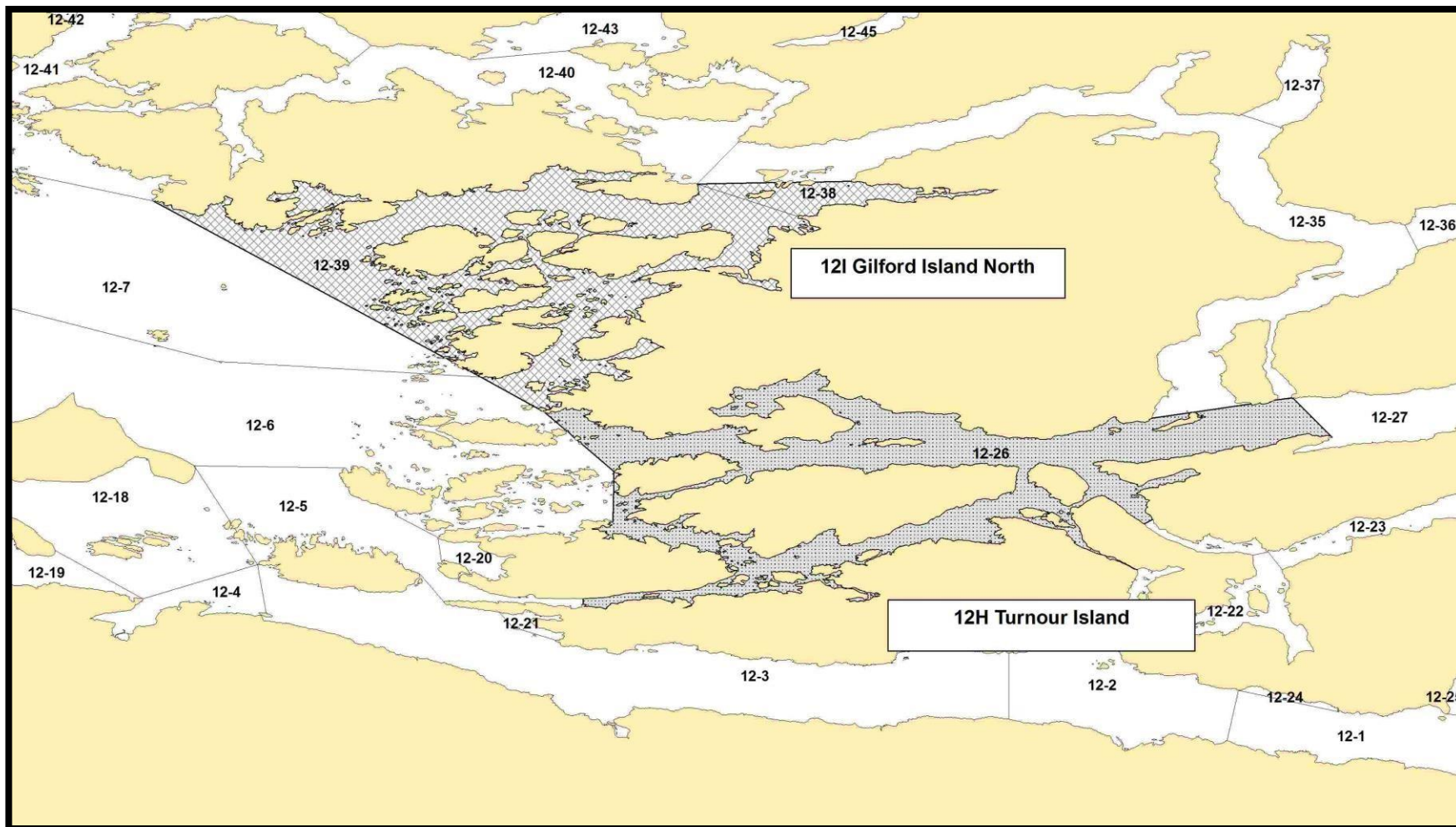


Figure 14. QMA 12H Turnour Island: Subarea 12-20 and portion of Subarea 12-26. QMA 12I Gilford Island North: Subareas 12-38 and 12-39. For description of closures please see Appendix 1, Section 5.

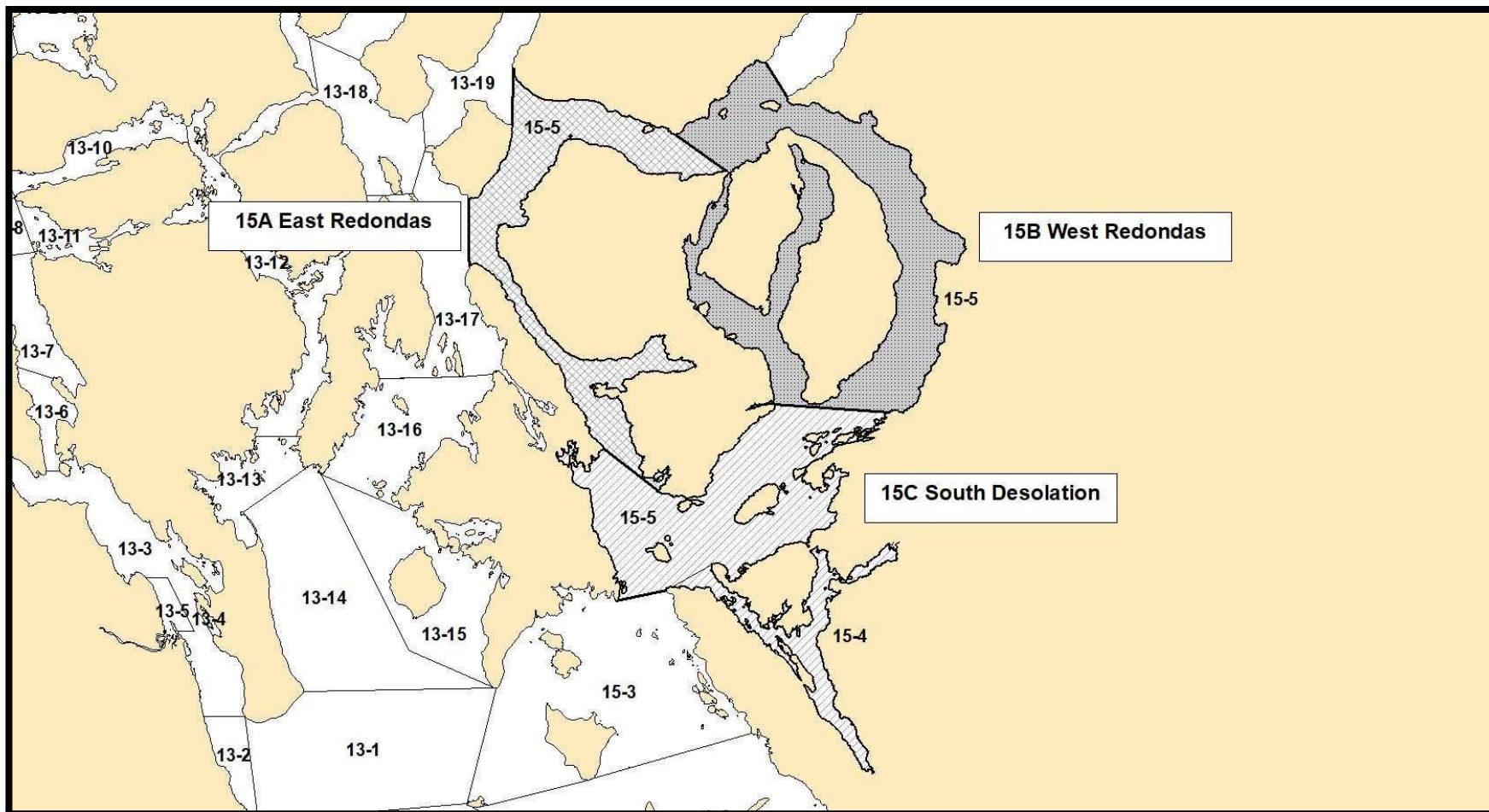


Figure 15. QMA 15A West Redonda Island: Portion of Subarea 15-5. QMA 15B East Redonda Island: Portion of Subarea 15-5. QMA 15C South Desolation: Subarea 15-4; Portion of Subarea 15-5. For description of closures please see Appendix 1, Section 5.

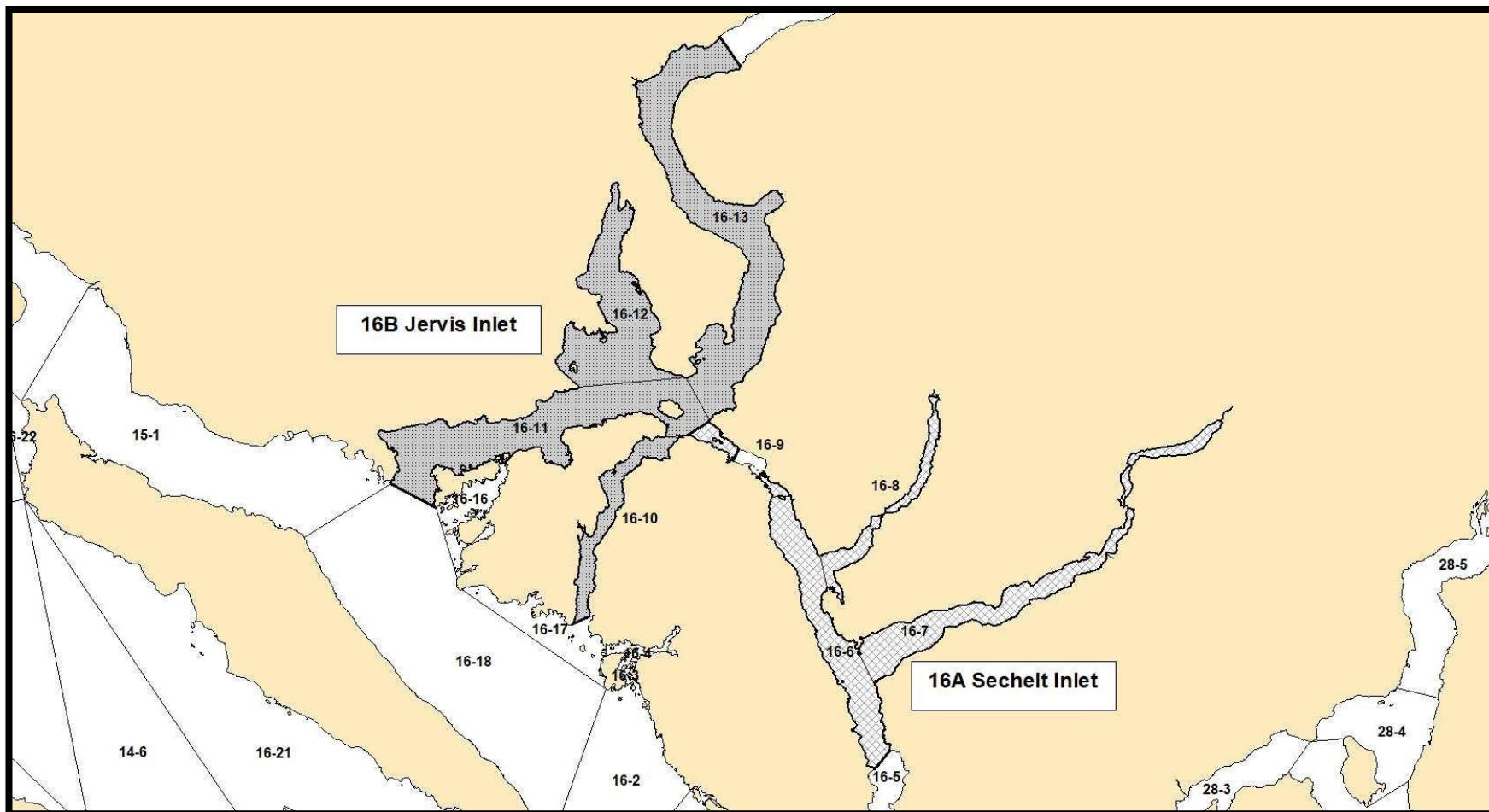


Figure 16. QMA 16A Sechelt Inlet: Subareas 16-6 to 16-8; Portion of Subarea 16-9 (closed within Skookumchuck Provincial Park).
QMA 16B Jarvis Inlet: Subareas 16-10 to 16-13. For description of closures see Appendix 1, Section 5.

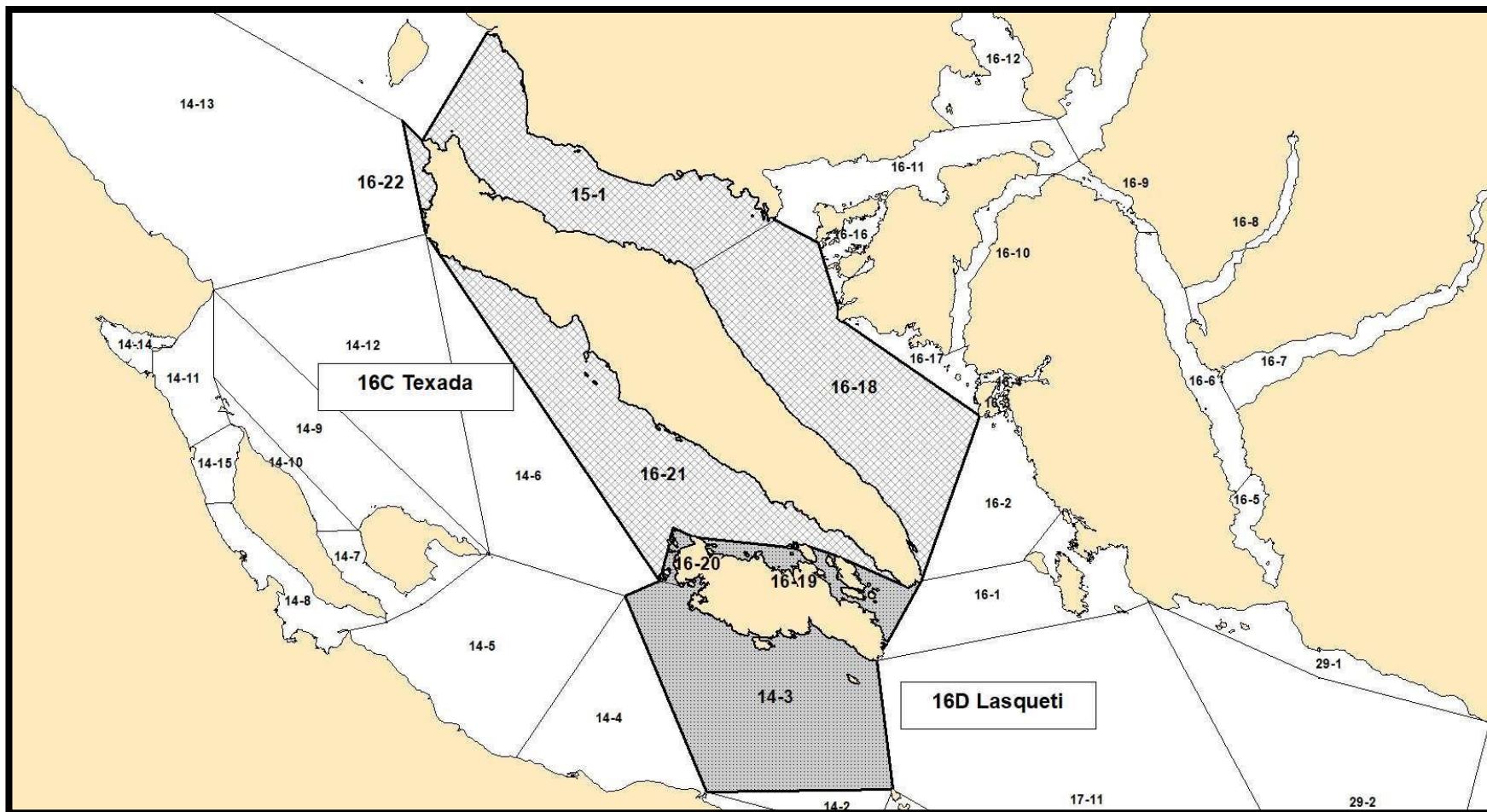


Figure 17. QMA 16C Texada Island: Subareas 15-1, 16-18, 16-21, 16-22. QMA 16D Lasqueti Island: Subareas 14-3, 16-19 and 16-20. For description of closures please see Appendix 1, Section 5.

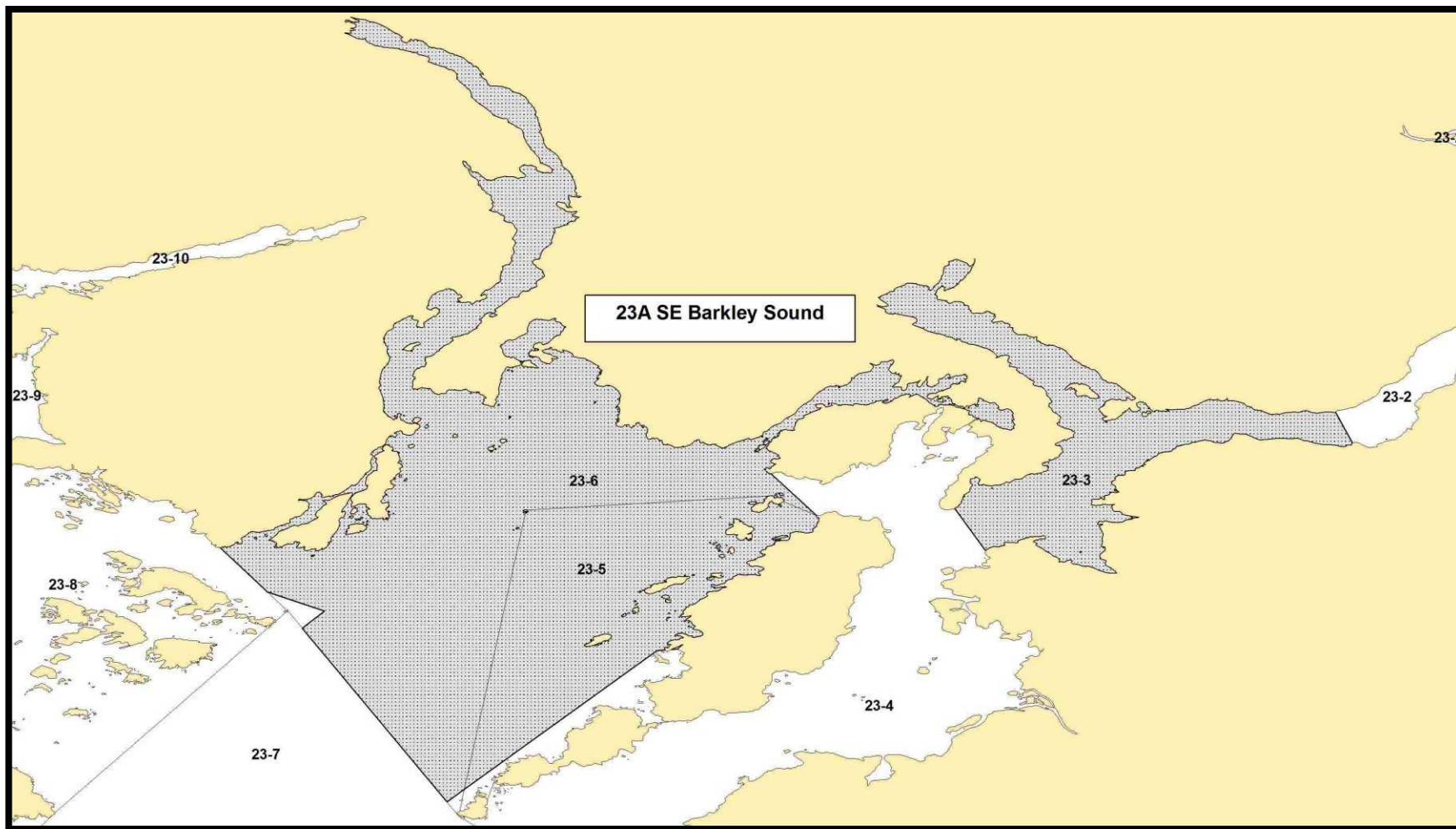


Figure 18. QMA 23A SE Barkley Sound: Subarea 23-3, portion of Subarea 23-5 and Subarea 23-6.

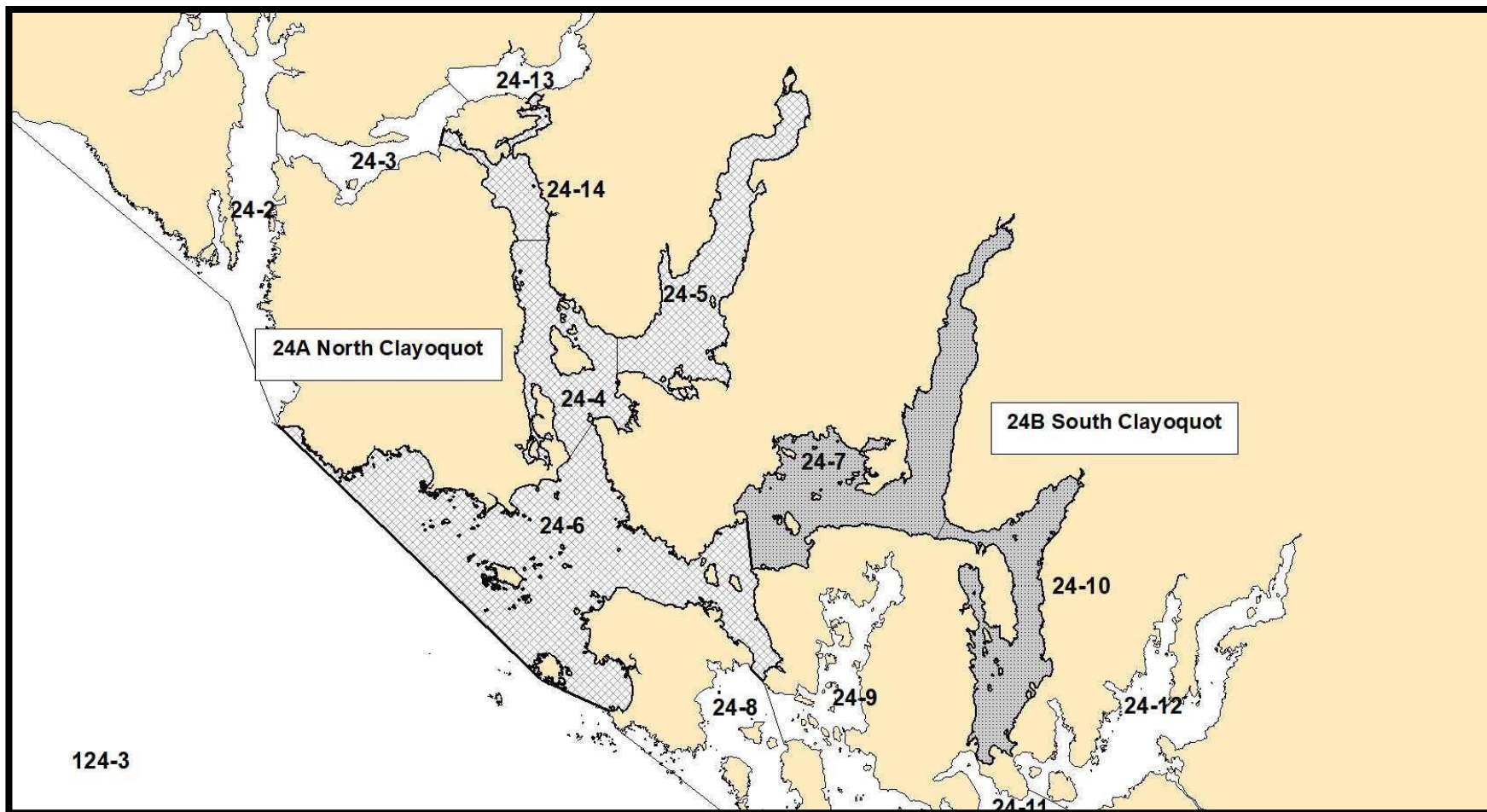


Figure 19. QMA 24A North Clayoquot: Subareas 24-4 to 24-6 and 24-14. QMA 24B South Clayoquot: Subareas 24-7 and 24-10. For description of closures please see Appendix 1, Section 5.

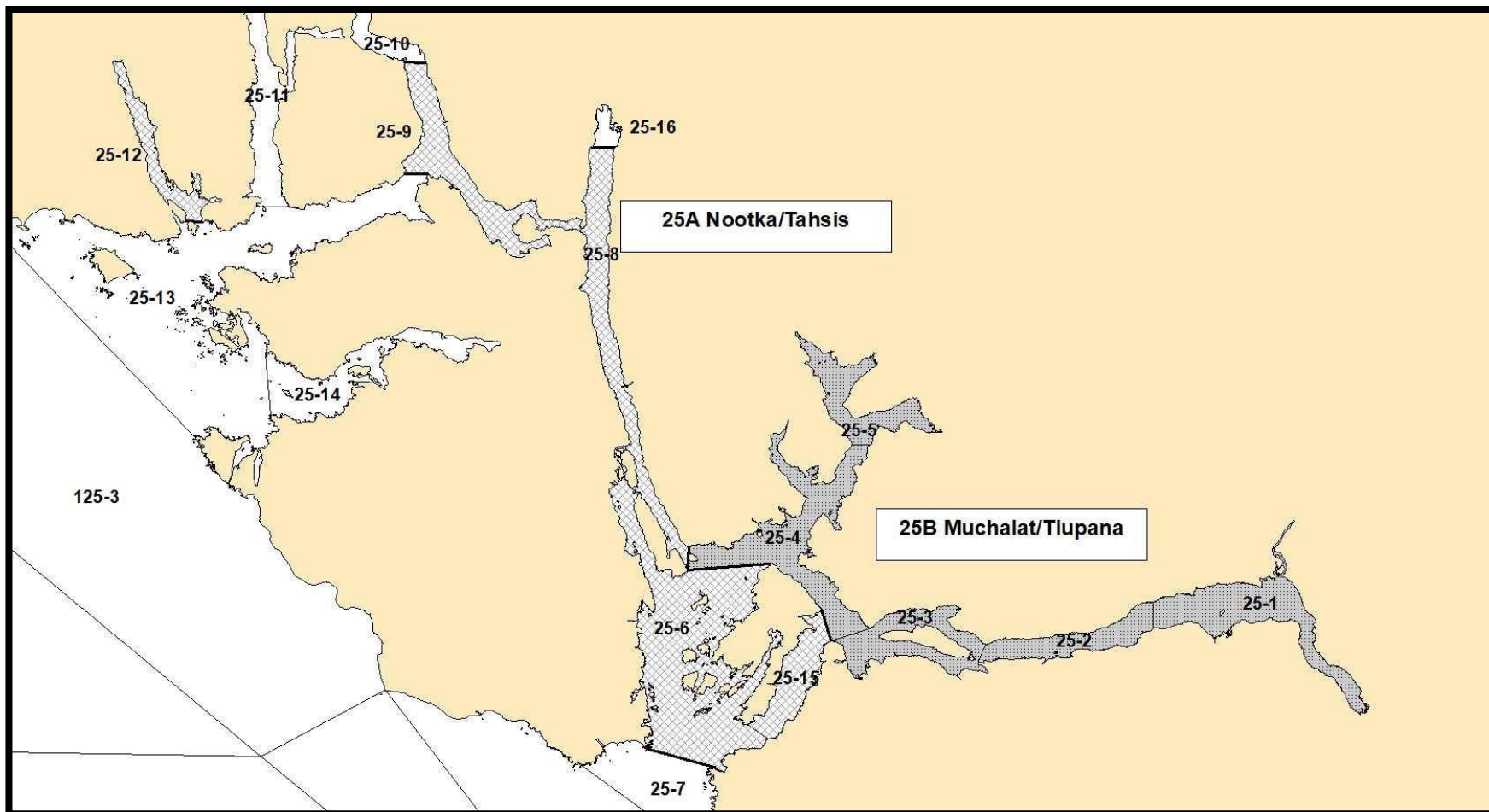


Figure 20. QMA 25A Nootka/Tahsis: Subareas 25-6, 25-8, 25-9, 25-12, 25-15. QMA 25B Muchalat/Tlupana: Subareas 25-1 to 25-5. For description of closures please see Appendix 1, Section 5.

Appendix 11: Example of Sea Cucumber Conditions of Licence

This example of conditions of licence is provided for your information only. These conditions of licence are generic and may not be the same as those provided when a licence is issued. The actual conditions of licence will be attached to the licence issued by the National Online Licensing System (NOLS).

CONDITIONS OF [YEAR] SEA CUCUMBER LICENCE

Licence Period: October 1, [YEAR] to September 30, [YEAR]

Authority

The Department of Fisheries and Oceans has authority to set licensing conditions under subsection 22(1) of the *Fishery (General) Regulations* for the proper management and control of fisheries and the conservation and protection of fish.

Persons fishing under authority of this licence may only do so in accordance with the Conditions stated below.

Also, it is the responsibility of individual fishers to be informed of, and comply with, the *Fisheries Act* and the Regulations made thereunder, in addition to these Conditions.

For information on management of the Sea Cucumber fishery obtain a copy of the [Year] Sea Cucumber - Integrated Fisheries Management Plan (IFMP) from a Pacific Fishery Licensing Unit Office. The IFMP is intended for general information purposes only. Where there is a discrepancy between the IFMP and the *Fisheries Act* and Regulations or these Conditions, the *Fisheries Act* and Regulations and these Conditions prevail.

Definitions:

“Area” and “Subarea” have the same meaning as in the Pacific Fishery Management Area Regulations.

“container” means a mesh pick bag, a mesh transport bag, a plastic tote or cage used for the gathering, handling, or transportation of Sea Cucumber.

“Department (DFO)” means the Department of Fisheries and Oceans.

“Designated service provider” means D&D Pacific Fisheries Ltd., the private sector company authorized by the Department for the purpose of assisting licence holders and vessel masters in meeting these conditions of licence with regards to reporting of information.

“fishing trip” means the time between leaving port to commence commercial Sea Cucumber fishing and the return to a port or offloading of catch that results in a discontinuation of fishing for 24 hours or longer.

“Hail-out Report” means the report made to a designated Sea Cucumber service provider prior to embarking on a fishing trip.

“Hail-in Report” means the report made to a designated Sea Cucumber service provider prior to landing Sea Cucumber or after a fishing trip.

“harvested” means removing, by any means, Sea Cucumber from the substrate of the ocean floor.

“harvest log” means a log of all harvest operations that meets the requirements of the Department’s Stock Assessment and Research Division Shellfish Data Unit and available from the designated service provider who provides logbook and data keypunch service.

“landed” or “landing” means the transfer of Sea Cucumber from a vessel in the water to land.

“observer” means an individual who has been designated as an observer by the Director-General for Pacific Region pursuant to section 39 of the *Fishery (General) Regulations*.

“Quota Management Area” means those areas enumerated and described in Appendix 1 of the [Year] Sea Cucumber – Integrated Fisheries Management Plan.

“tranship” means the transfer of Sea Cucumber from a vessel to another vessel.

“validated” means Sea Cucumber have been weighed by an observer and the weight entered into the Sea Cucumber Validation & Harvest Logbook (see sections 10 and 12) or an alternative log approved by the Department of Fisheries and Oceans.

“vessel master” means the individual embarked on the vessel and responsible for the operation of the vessel and the fishing activities carried out under authority of this licence.

“vessel registration number” or “VRN” means the number assigned to a vessel by the Department at the time the vessel is registered as a fishing vessel;

1. Species of fish permitted to be taken:

Sea Cucumber (*Apostichopus californicus*, formerly *Parastichopus californicus*)

2. Licence Expiry Date:

This licence expires on September 30, [Year].

3. Quantities permitted to be taken:

The maximum quantity of Sea Cucumber authorized to be taken under this licence shall not exceed XX tonnes (XX lb.) of split and eviscerated sea cucumber harvested from within the area set out in this licence subject to all applicable regulations.

4. Waters in which fishing is permitted:

Area of fishing is as set out in this licence.

5. Fishing gear permitted to be used:

Hand picking by divers only. Suction devices are not permitted to be used.

6. Fishing multiple Quota Management Areas

All Sea Cucumber caught in a Quota Management Area must be landed or transhipped prior to the commencement of fishing in a new Quota Management Area.

7. The type and size of containers to hold or transport Sea Cucumber and the marking of such containers:

(1) All Sea Cucumber delivered to designated landing ports or transhipped to another vessel shall be placed in containers which are labelled. The label must be waterproof and shall provide the following information written in water resistant ink:

- (a) vessel name and vessel registration number;
- (b) licence tab number;
- (c) harvest date;
- (d) harvest Subarea;
- (e) location of catch; and
- (f) common product name, i.e. Sea Cucumber.

(2) All harvested Sea Cucumber that are contained in “pick bags” or any other type of container and left unattended in the water must be labelled. The label must be waterproof and marked with the vessel name and the vessel registration number of the vessel used to harvest that product. Floats attached to containers left unattended in the water must also be marked with the vessel registration number.

8. Transhipment:

Sea Cucumber may be transhipped from the licensed vessel to another vessel licensed for the transportation of fish provided the vessel master complies with the following conditions:

- (1) all Sea Cucumber are in containers and tagged as per section 7;
- (2) the number of containers are recorded in the log;
- (3) the “packer weight”, (determined by adding the weight of the Sea Cucumber to the weight of the container), is recorded in the log; and
- (4) a copy of the log accompanies the Sea Cucumber to port; and
- (5) the Sea Cucumber is landed at one of the locations listed in section 9 and validated by an observer.

9. Locations permitted for the landing of Sea Cucumber:

Sea Cucumber must be landed at one of the following ports:

- (1) For fisheries in waters off the east coast of Vancouver Island: Port Hardy, Port McNeill, Herriot Bay, French Creek, Powell River, Lund, Campbell River, Kelsey Bay, Sechelt, Egmont, Pender Harbour and Sidney.
- (2) For fisheries in waters off the west coast of Vancouver Island: Tofino, Ucluelet, Port Alberni and Gold River.
- (3) For fisheries in waters north of Cape Caution: Prince Rupert, Port Edward, Queen Charlotte City, Moresby Camp, Klemtu, Bella Bella, and Port Hardy.

This condition applies to both the licensed vessel and, if the vessel master chooses to tranship his catch to another vessel, to the vessel receiving the Sea Cucumber.

10. Validation:

(See Explanatory Note after section 14)

- (1) All Sea Cucumber harvested or removed from the sea bed floor must be validated at the point and time the fish are landed.
- (2) All weights must be determined using a scale approved by Industry Canada.
- (3) Weights will be recorded as split and eviscerated weights. If the whole product is landed then a conversion factor of 2.73 will be used to convert to split weight.
- (4) The vessel master of the licensed vessel or, if the catch is transhipped to another vessel, the vessel master of that vessel shall provide the observer with a hard copy of the Sea Cucumber Validation and Harvest Log and the chart information upon completion of each validation.
- (5) The vessel master of the licensed vessel or, if the catch is transhipped to another vessel, the vessel master of that vessel shall provide to the observer at the point of landing, access to the vessel's fish holds, freezers and other fish storage areas at any time during the landing.

11. Oral Reports:

(1) Hail-out Report

Not less than 24 hours before a fishing trip, the vessel master shall make a Hail-out Report by contracting the designated Sea Cucumber service provider at (800) 775-5505 and report the following information:

- (a) vessel name, vessel master's name, and vessel registration number;
- (b) species to be fished, (i.e. Sea Cucumber);
- (c) Subarea(s) to be fished;
- (d) anticipated time of arrival at the fishing location; and
- (e) anticipated time that fishing will begin.

- (2) Upon failure to arrive at fishing location within 24 hours of time stated in subsection 11(2), the vessel master shall report the following information to the designated Sea Cucumber service provider:
- (a) vessel name and vessel registration number; and (b) details of change in fishing plans.
- (3) At least 24 hours prior to moving to a new Quota Management Area, the vessel master shall report the following information to the designated Sea Cucumber service provider:
- (a) vessel name, vessel master's name, and vessel registration number;
 - (b) species to be fished (i.e. Sea Cucumber);
 - (c) Subarea(s) to be fished;
 - (d) anticipated time of arrival at the fishing location; and (e) anticipated time that fishing will begin.
- (4) Cancellation of fishing trip:

Should the vessel master decide not to fish after having made a Hail-out Report, the vessel master shall make a Hail-in Report by contacting the Sea Cucumber service provider to indicate that no fishing occurred within 24 hours of the time stated in subsection 11(1).

(5) Hail-in Report:

- (a) Where the vessel is not landing Sea Cucumber (i.e. Sea Cucumber has been transhipped at sea):

Not more than 24 hours after a fishing trip, the vessel master shall make a Hail-in Report by contacting the designated Sea Cucumber service provider at (800) 775-5505 to report the following information:

- (i) vessel name, vessel master's name, and vessel registration number;
- (ii) species fished (i.e. Sea Cucumber); (iii) Subarea(s) that were fished; and (iv) time that fishing stopped.

- (b) Where the vessel is landing Sea Cucumber ashore *:

At least 24 hours prior to landing Sea Cucumber, the vessel master shall make a Hail-in Report by contacting the designated Sea Cucumber service provider at (800) 775-5505 to report the following information:

- (i) vessel name, vessel master's name, and vessel registration number;
- (ii) species to be landed (i.e. Sea Cucumber);
- (iii) name of the designated landing port and location therein where the catch shall be landed;
- (iv) anticipated time of landing;
- (v) name of fish processor or buyer that is buying or transporting the catch; and (vi) if applicable, the method of transporting the catch to a fish processor.

* If weather results in a delay in arrival time or an earlier arrival time the observer must be contacted as soon as possible. Contact numbers for observers are available by calling (800) 7755505.

12. Harvest Logs and Chart Data:

(See Explanatory Note after section 14)

It is a condition of this licence that the licence holder ensures that harvest log and chart information is received by Fisheries and Oceans Canada Shellfish Data Unit.

- (1) The vessel master must maintain a log of all harvest operations and provide this information in both hard (paper) copy and electronic copy to the Department in accordance with the timing set out in subsection 12(8). The content and format of this log (paper and electronic) shall meet the requirements as defined by the Department's Stock Assessment and Research Division Shellfish Data Unit for the current licence year.
- (2) The harvest and fishing location information recorded in the log shall be complete and accurate.
- (3) The information for each day's harvest operations shall be recorded in the log no later than midnight of that day.
- (4) The log must be kept on board the licensed vessel.
- (5) The log must be produced for examination on demand of a fishery officer, a fishery guardian, or an observer.
- (6) The vessel master shall provide a chart record for each day's harvest operations, indicating the locations, to the service provider contracted by the Pacific Sea Cucumber Harvesters Association (PSCHA), within one month of the harvesting having occurred.
 - (a) The chart must be marked with:
 - (i) the vessel registration number;
 - (ii) the licence tab number; and
 - (iii) the validation I.D. numbers.

The validation I.D. number is the unique page number assigned to each validation page of the Sea Cucumber Validation and Harvest Logbook.

- (b) Each harvest site must be clearly marked on the chart with dive numbers and dates that fishing activity occurred at each site. The dive numbers on the chart record must correspond to the dive numbers in the log.
- (c) The information for each day's harvest operations shall be recorded on the chart record no later than midnight of that day and provided to the service provider within one month of that day's harvest operations.

- (7) The vessel master must make provisions to have the chart information referred to in subsection 12(6) electronically captured into Geographical Information System (GIS) software and forwarded to the Pacific Biological Station, Nanaimo.
- (8) The licence holder shall ensure that the completed log pages (white original copy), and electronic copy of the log are forwarded no later than 28 days following the end of each month in which fishing occurred, to:

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

- (9) In the event that a licence holder does not fish the [Year] fishing season, the licence holder is responsible for submitting a nil report. 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.

13. Reporting catch on fish slips:

- (1) A complete and accurate written report of all fish and shellfish caught and retained under the authority of this licence shall be submitted by the vessel master on a fish slip.
- (2) The record shall contain the following information:
 - (a) buyer's name, address and telephone number;
 - (b) harvester's name and address;
 - (c) processing plant name;
 - (d) landing date;
 - (e) vessel name and VRN;
 - (f) gear used to harvest the fish;
 - (g) Area(s) where fishing occurred and days spent fishing in each Area;
 - (h) the individual species of each fish sold or offloaded;
 - (i) the description of the product or landed form of each species sold or offloaded;
 - (j) the weight of each species sold or offloaded;

- (k) the price paid for each species sold; and
 - (l) the total value of each species sold or offloaded.
- (3) A report shall be made even if the fish or shellfish landed are used for bait, personal consumption or disposed of otherwise.
- (4) The report shall be mailed not later than seven days after the offloading and sent to:

Fisheries and Aquaculture Management Branch
FM Data Unit
Suite 200 – 401 Burrard Street
Vancouver, BC
V6C 3S4

Fish slips may be downloaded and printed at

<http://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/fishslips-carnets/index-eng.html>

Fish slip books may also be ordered from the printer at user cost at

<http://www.dfompo.gc.ca/fisheries-peches/sdc-cps/fishslips-carnets/index-eng.html> Phone (604) 666-2716 for more information.

14. Workers' Compensation Board Requirements:

All Sea Cucumber divers shall be in possession of a valid commercial dive certification or a Workers' Compensation Board Seafood Harvesting Diving Certificate.

Explanatory Note - Harvest Log, Chart Data, and Validation: The Sea Cucumber Validation & Harvest Logbook issued by the service provider contracted by the Pacific Sea Cucumber Harvesters' Association is approved for both form and content by the Shellfish Data Unit. This service provider will provide, for a fee, the logbook and coding, data entry, electronic chart data capture and validation services.

Appendix 12: 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-15393eadequate-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/etudesstudies/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 a 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* and M18A0425 – *Charlene A* and M18A0425 *Charlene A*.

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, M150189, 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.ccgcc.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 flotation 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/newsreleases/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	Field Services	Vancouver/Richmond/Delta (604) 244-6477
Cody King	Field Services	Courtenay (250) 334-8733
Paul Matthews	Field Services	Courtenay (250) 334-8741
Wayne Tracey	Field Services	Central (604) 232-1939

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 Helen Chandler, OHS Consultant at (604) 276-3174 or by email: helen.chandler@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

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Appendix 13: Sea Cucumber Fishery Consultation

SEA CUCUMBER SECTORAL COMMITTEE AND RESEARCH SUBCOMMITTEE

1. A consultative process exists for the Sea Cucumber fishery and is a major part of the planning for the fishery. The primary consultative body for Sea Cucumbers is the Sea Cucumber Sectoral Committee. This committee includes representatives from Fisheries and Oceans Canada, commercial vessel owners, processors, First Nations, BC Ministry of Agriculture, Food and Fisheries. Members of the Pacific Sea Cucumber Harvesters Association (PSCHA) represent commercial fish harvesters on this committee.

The Sectoral Committee meets annually in the spring to review and provide advice to the Department regarding management issues pertaining to the fishery and on the proposed IFMP. The Sectoral Committee and Research Subcommittee meetings are announced publicly via Fishery Notice. Discussion arising from the Sectoral Committee meeting may result in some final changes to the plan, which then progresses through an internal DFO approval process.

Members of the PSCHA provide valuable information and observations with regards to the harvest plan. All advice, where practical and useful, is considered.

The draft IFMP incorporates new science advice and all practical advice on quota options, and is made available to all interested parties: PSCHA, First Nations, recreational organizations, DFO (Science Branch, Conservation and Protection, Commercial Licensing, the Oceans Directorate, the Aquaculture Division, Reconciliation & Partnerships, Policy Branch), other Federal agencies such as CFIA, ECCC and the Province for review and comment.

Appendix 14: Adaptive Rotational Fishing Strategy 2020 to 2022 – Year 3

The commercial Sea Cucumber fishery has utilized a rotational fishing strategy, referred to as an Adaptive Rotational Fishing Strategy (ARFS), since the 2011 fishing season. The ARFS will continue for a fourth cycle beginning with the 2020 fishing season. This strategy needs to be adaptive since the process of reopening sections of coastline that were closed for the Adaptive Management Plan has not yet been completed. An adaptive strategy will also allow for change when new information becomes available. Biomass surveys will continue to be conducted and may lead to the reopening of more sections of coastline and the creation of additional Quota Management Areas (QMAs). As available quota changes in future years, many aspects of the commercial harvest plan will be re-examined.

After reviewing the first three cycles of the ARFS, a number of changes were implemented. Some QMAs have returned to an annual harvest strategy based upon a recommendation from the PSCHA. These areas have naturally small Sea Cucumbers which are not desired by Sea Cucumber processors and buyers. The PSCHA hopes to harvest small amounts of Sea Cucumbers out of these areas every year to avoid having certain years in the ARFS where there are more small Sea Cucumbers harvested than others. The WCVI has remained as an annual fishery since the start of the ARFS not due to concerns about Sea Cucumber size or abundance, but because there is currently not enough quota available there to facilitate a rotational-style fishery. If additional biomass surveys in the future lead to more coastline reopening for harvest in the WCVI, this may change.

Not all QMAs are equally productive and may benefit from different harvest strategies. A threeyear rotational cycle seems to work well for most QMAs but an annual harvest strategy or other rotational periods seem to work better for some QMAs. Sea Cucumber size and fishery logistics are other factors considered when deciding a harvest strategy for each QMA.

See Table 1 for the planned harvest schedule for each QMA.

Table 1. Quota Management Areas and Harvest Schedule as of 2022.

Last time harvested	Next possible harvest	Quota Management Area	Name	Description (by Subarea)
North Coast Licence Area (NC)				
2012	TBA	2A	Louise Island	2-6
2020	2023	3A	Work Channel	3-6
2020	2023	3B	Portland Inlet	3-7
2020	2023	3C	Steamer Pass	3-8, 3-10
2020	2023	3D	Pearse Canal	3-3, ptn 3-11
2020	2023	4A	West Dundas Island	3-1, 4-1
2020	2023	4B	East Dundas Island	Ptn 4-5

2021	2024	4C	North Porcher Island	Ptn 4-2, 4-3, 4-4, ptn 4-9 and ptn 4-12
2021	2024	5A	West Banks Island	5-20 to 5-22

Last time harvested	Next possible harvest	Quota Management Area	Name	Description (by Subarea)
2021	2024	5D	South Porcher Island	5-2, 5-4, 5-5, 5-7, 5-11 and 5-12
2019	2022	5E	Anger Island	5-16
2019	2022	5F	Principe North	5-13 to 5-15
2019	2022	5G	Principe South	5-17 to 5-19
2020	2023	5H	Grenville North	5-1, ptn 5-23
2021	2024	5I	Grenville South	Ptn 5-24, ptn 6-28
2019	2022	6A	Gil Island	6-5, 6-26, 6-27
2019	2022	6C	Trutch Island	6-9, 6-10
2020	Annual Harvest	6E	Princess Royal Channel	Ptn of 6-20; 6-21, 6-22, 6-24
2020	2023	6F	West Aristazabal Island	Ptn of 6-13
2021	2024	6G	Kitimat Arm	Ptn of 6-1
2021	2024	6H	Douglas Channel	6-2, 6-6
2021	2024	6I	Gribbell Island	6-3, 6-7
2021	Annual Harvest	6J	Surf Inlet	6-12
2021	Annual Harvest	6K	Laredo Channel	6-11, 6-14 and 6-16
Central Coast Licence Area (CC)				
2020	2023	7C	Fisher Channel / Dean Channel	7-30, 8-5 to 8-7
2021	2024	7F	Denny Island	7-17
2019	2023	7G	Sheep Pass	Ptn. 7-9; 7-29
2019	Annual Harvest	7H	Upper Mathieson	Ptn. 7-9, 7-10
2019	Annual Harvest	7I	Lower Mathieson	Ptn. 7-9
2019	TBA	7J	Spiller	7-13, Ptn. 7-14
2018	2022	7L	Roscoe Inlet	Ptn 7-15; 7-16
2020	2023	7M	Chatfield/Briggs	Ptn 7-14, ptn 7-15
2020	Annual Harvest	7N	Finlayson North	Ptn. 7-6
2020	Annual Harvest	7O	Finlayson South	7-4
2019	Annual Harvest	7P	Milbanke Sound	Ptn. 7-2 and 7-3

2019	2022	7Q	Seaforth Channel	Ptn. 7-2 and 7-3; 7-12, 7-20 to 7-22, 724 and 7-32
2017	2022	7R (NEW)	Queens Sound North	Ptn. 7-18, 7-19, 7-23
2017	2022	7S (NEW)	Queens Sound South	Ptn. 7-18, 7-25
2021	2024	8B	Calvert Island	8-2, 8-3, 8-16, 9-1, 9-12

Last time harvested	Next possible harvest	Quota Management Area	Name	Description (by Subarea)
2017	2022	8C	Spider/Kildidt	7-26, 7-27, 7-28
2020	2023	8E	Fitz Hugh/Burke South	8-4, ptn. 8-13
2020	2023	8F	Burke North	Ptn. 8-13; 8-14
2019	2022	9B	South Rivers Inlet	9-2, 9-3, 9-10, 9-11
2020	2023	9C	North Rivers Inlet	Ptn of 9-4; 9-5, ptn 9-6; 9-9
2021	Annual Harvest	10A	Smith Inlet	10-3, 10-4, ptn of 105; 10-6 to 10-11, ptn of 10-12

East Coast Vancouver Island Licence Area (ECVI)

2021	Annual Harvest	11A	Belize Inlet	11-4, 11-5, 11-6
2021	Annual Harvest	11B	Seymour Inlet	11-3, 11-10
2020	Annual Harvest	11D	Slingsby Channel	Ptn of 11-2
2021	2024	11E	Allison Harbour	Ptn of 11-2
2020	2023	12E	Broughton	12-40
2020	2023	12F	Wells Passage	12-41
2019	2022	12G	SW QC Strait	12-7, 12-8, 12-17
2019	2022	12H	Turnour Island	12-20, ptn 12-26
2019	2022	12I	Gilford Island North	12-38, 12-39
2020	2023	12J	Johnstone Strait	12-1, ptn 12-2; 12-3, 12-4, 12-21, 12-24, ptn 13-35
2020	2023	12K	Port Harvey	Ptn 12-2; 12-22, 12-23, ptn 12-26
2020	2023	12L	Tribune Channel	12-35, 12-37
2021	2024	12M	Port Hardy	12-9, ptn 12-16
2021	2024	12N	Goletas Channel	12-11, ptn 12-16
2021	2024	12O	Walker/Deserters	12-10, 12-13

2020	2023	13A	Quadra/Cortes	13-12 to 13-16
2021	2024	13B	N. Area 13	13-17 to 13-20, 13-23
2021	2024	13C	East Thurlow Island	13-7 to 13-9, 13-24 to 13-28
2020	2023	13D	Loughborough	Ptn 13-35; 13-36 to 13-43
2021	Annual Harvest	15A	West Redonda Island	Ptn. 15-5
2021	Annual Harvest	15B	East Redonda Island	Ptn. 15-5
2021	Annual Harvest	15C	South Desolation	15-4, ptn. 15-5
Last time harvested	Next possible harvest	Quota Management Area	Name	Description (by Subarea)
2021	Annual Harvest	16A	Sechelt Inlet	16-6 to 16-8, ptn. 16-9
2021	Annual Harvest	16B	Jervis Inlet	16-10, ptn. 16-11; 16-12, 16-13
2021	Annual Harvest	16C	Texada Island	15-1, 16-18, 16-21, 16-22
2021	Annual Harvest	16D	Lasqueti Island	14-3, 16-19, 16-20
2020	Annual Harvest	18A	Gulf Islands South	18-1, 18-2, 18-4, 18-5, 18-9, 18-11
West Coast Vancouver Island Licence Area (WCVI)				
2019	2022	23A	Southeast Barkley	23-3, ptn. 23-5, ptn. 23-6
2020	Annual Harvest	24A	N. Clayoquot	24-4 to 24-6, 24-14
2020	Annual Harvest	24B	S. Clayoquot	24-7, 24-10
2020	Annual Harvest	25A	Nootka/Tahsis	25-6, 25-8, 25-9, 25-12, 25-15
2020	Annual Harvest	25B	Muchalat/Tlupana	25-1 to 25-5
2021	2024	26A	Kyuquot	26-2 to 26-5

Table 2. Licence Distribution for 2020 to 2022 (at an Individual Quota of 15,000 pounds for 2020 and 16,000 pounds for 2021 and 2022).

	Year 1 (2020)		Year 2 (2021)		Year 3 (2022)	
Licence Area	#Licences	TAC	#Licences	TAC	#Licences	TAC
North Coast	31	465,000	33	496,000	32	496,000
Central Coast	25	375,000	24	400,000	29	400,000

ECVI	24	360,000	21	384,000	18	368,000
WCVI	5	75,000	7	80,000	6	96,000
Total	85	1,275,000	85	1,360,000	85	1,360,000

Fallback Quota

Fallback quota does not increase the TAC of a licence area. The use of fallback quota in 2022 will be considered by DFO only if recommended in writing by the Pacific Sea Cucumber Harvesters Association.

For the 2022 season fallback quota will be available in three of the licence areas. Fallback quota is the quota available within certain QMAs in which the available commercial quota is higher than the allocated commercial quota. In some cases additional QMAs may be added for fallback purposes. This is mainly possible in the ECVI licence area where there is more quota available than is needed to facilitate the 2020 to 2022 ARFS. See Appendix 1, section 4 for possible fallback quota options for the 2022 season.

Example of how fallback quota is calculated:

ECVI Licence Area: 18 licences (Total Allowable Catch required: 288,000 lb.)			
Quota Management Area	Available Commercial Quota (lb.)*	Allocated Commercial Quota in 2022 (lb.)*	Quota available for Fallback (lb.)*
11A	12,696	0	12,696
11B	13,626	0	13,626
11D	5,598	0	5,598
12G	31,067	31,067	0
12H	88,439	88,439	0
12I	114,760	114,494	266
15A	26,364	5,000	21,364
15B	30,810	5,000	25,810
15C	38,683	5,000	33,683
16A	18,291	8,000	10,291
16B	20,537	6,000	14,537
16C	25,221	15,000	10,221
16D	29,845	10,000	19,845

18A	18,738	0	18,738
Total	474,675	288,000	186,675

**All weights are in split pounds*

Rotational Harvest Schedule

In the first two cycles of the ARFS, most QMAs were placed on a schedule in which they were harvested once every three years. The three year harvest schedule was meant to be a starting point since stock productivity varies in different areas. This spatial variation in productivity may be due to differences in habitat, exposure, recruitment patterns or other unknown factors. As a result, some QMAs may benefit from a longer rest between harvests and/or a lower harvest rate. After review of comments from harvest questionnaires and discussion with the PSCHA, some QMAs have been identified that will be rested for a longer period of time or that will be placed on an annual harvest strategy. Please see table 1 for proposed QMA harvest schedules.

Appendix 15: Contacts 2022/23

Observe, Record and Report (Enforcement Line) (800) 465-4336
Fisheries Information and Shellfish Contamination Closure Update (24 Hours) (866)431-3474
or (for Greater Vancouver) (604) 666-2828

Invertebrate Internet Page: www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/index.htm

Resource Management

Regional Resource Manager - Invertebrates	Lisa Mijacika	(604) 666-3869
Lead Sea Cucumber Resource Manager	Pauline Ridings	(250) 618-8699
Regional Recreational Fisheries Co-ordinator	Greg Hornby	(604) 666-3271

North Coast Area, Areas 1 through 10	General Inquiries	(250) 627-3499
417 2nd Avenue West, Prince Rupert	Fax	(250) 627-3427
Resource Management Biologist	Pauline Ridings	(250) 618-8699
Aboriginal Affairs Advisor	Melanie Anthony	DFO.NCAP-PA.CN.MPO@dfo-mpo.gc.ca

South Coast Area, Areas 11 through 27	General Inquiries	(250) 756-7270
3225 Stephenson Point Road, Nanaimo	Fax	(250) 756-7162
Resource Management Biologist, Nanaimo	Erin Wylie	(250) 756-7271
Resource Manager – First Nations Fisheries (North East VI)	Kent Spencer	(250) 268-5885
Resource Manager – First Nations Fisheries (South East VI)	Jorn Meier	(250) 756-7280
Resource Manager – First Nations Fisheries (West Coast VI)	Kevin Conley	(250) 756-7196

Lower Fraser Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway, Delta	Fax	(604) 666-7112
Resource Manager – Non-Salmon Fisheries	Hong Tjhie	(236) 330-3240

Science Branch

Stock Assessment & Research Division
Pacific Biological Station
Hammond Bay Road, Nanaimo, BC V9T 6N7

Sea Cucumber Biologist	Jill Campbell	Jillian Campbell@dfo- mpo.gc.ca (778) 268-2079
Echinoderms Program Head	Christine Hansen	
Program Head, Shellfish Data Unit	Rob Flemming	PACSDU@dfo-mpo.gc.ca (604) 666-0566
Commercial Licensing		
Pacific Fishery Licence Unit		
200 - 401 Burrard Street		
Vancouver, BC V6C 3S4		
National On-line Licencing System (NOLS)		
E-mail		SDC-CPS@dfo-mpo.gc.ca
Telephone		1-877-535-7307
Fax		613-990-1866
TTY		1-800-465-7735
Aquaculture		
Shellfish Aquaculture Resource Manager	Melinda Scott	(250) 754-0399
Environment Canada		
Growing Water Quality Classification and Surveys		(604) 903-4475
Canadian Food Inspection Agency		
Pacific Shellfish Desk		(604) 666-3737
BC Ministry of Agriculture and Lands		
Aquaculture Development		(250) 387-9574
BC Ministry of Environment		
Oceans and Marine Fisheries Division		(250) 387-7183
WorkSafe BC		
Occupational Safety Officer, Field Services:		
Vancouver / Richmond / Delta	Bruce Logan	(604) 244-6477
Courtenay	Cody King	(250) 334-8733
Courtenay	Paul Matthews	(250) 334-8741

Central	Wayne Tracey	(604) 232-1939
Manager of Interest for Marine and Fishing	Pat Olsen	(250) 334 8777
Projects Related to Commercial Fishing	Tom Pawlowski	(604) 233-4062
	Helen Chandler	(604) 276-3174

Pacific Sea Cucumber Harvesters' Association

www.pscha.org

President	Thom Liptrot	(250) 714-3511
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Sea Cucumber Service Provider

D&D Pacific Fisheries Ltd.	Darin Macey	(604) 886-4819
Box 1445	Fax	(604) 886-8288
Gibsons, BC V0N 1V0	Hail-line	(800) 775-5505

Sea Cucumber Processors

Evergreen International Foodstuffs Ltd.	Paul DeMee	(604) 253-8835
Territory Seafoods Ltd.	Mike Crawford	(604) 322-7712
Grand Hale Marine Products Ltd.	Francis Cheung	(604) 325-9393
Seagate Fisheries	Alice Tse	(604) 278-8684
Premium International Food Sales Ltd.	Paddy Wong	(604) 821-0133
United Seafoods, Hookah Harvesters Ltd.	Charlie Greaves	(250) 287-1955
Moon Enterprises Ltd.	Thomas Lee	(604) 270-0088
RBS Seafoods	William Strong	(250) 893-9451
Sea World Fisheries Ltd.	Tony Wong	(604) 254-0525
Wen Lian Aquaculture Co. Ltd.	Bruce Qiu	(778) 724-1801

Sighting Networks

BC Cetacean and Sea Turtle Sighting Network	(866) 472 9663
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Email: sightings@ocean.org

On the internet at: www.wildwhales.org/

App: WhaleReport

Basking Shark Sighting Network

1 (877) 50 SHARK

Email: BaskingShark@dfo-mpo.gc.ca

On the internet at: www.pac.dfo-mpo.gc.ca/SharkSightings

DFO welcomes assistance in the reporting of any whale, leatherback sea turtle or basking shark entanglement or sighting. 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*.

Marine Mammal Incident Reporting Hotline

1 800 465 4336 or VHF Channel 16

DFO 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 Marine Mammal Incident Reporting Hotline immediately and report your name and contact information, date and time of the incident, species, whether the animal is alive or dead, nature of injury, location latitude/longitude coordinates and landmarks, and whether any pictures or video were taken.