

# **PACIFIC REGION**

# **INTEGRATED FISHERIES**

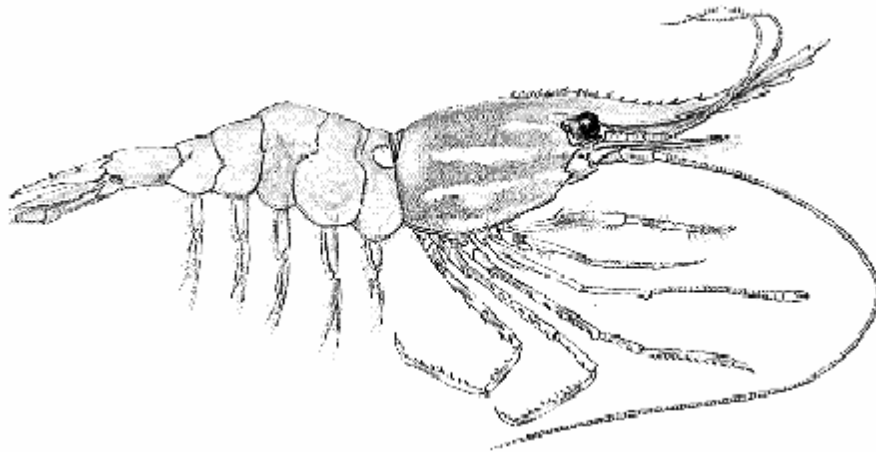
# **MANAGEMENT PLAN**

## **PRAWN AND SHRIMP**

## **BY TRAP**

**MAY 1, 2021 TO**

**APRIL 30, 2022**



*Pandalus platyceros*



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

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



## FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Prawn and Shrimp by Trap fishery in the Pacific Region, as well as the management measures that will be used to achieve these objectives. This document also serves to communicate the basic information on the fishery and its management to Fisheries & Oceans Canada (DFO) staff, legislated co-management boards, First Nations and 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**

This Integrated Fisheries Management Plan (IFMP) for Prawn and Shrimp by Trap covers the period May 1, 2021 to April 30, 2022.

This IFMP provides a broad context to the management and interrelationships of all fishing sectors of the prawn (*Pandalus platyceros*) and shrimp (Humpback, Coonstripe, and pink shrimp) trap fishery in the Pacific Region (British Columbia [BC], Canada). Section 1 provides an overview of the commercial, recreational and First Nations fisheries. Section 2 presents a biological synopsis and stock assessment. Section 3 describes new considerations for Indigenous knowledge. Section 4 provides a socio-economic profile. Section 5 describes the emerging management issues that may impact on management measures in the fishery. Section 6 describes objectives for the fishery, reflecting stock status presented in Section 2 and to address the issues identified in Section 5. Section 7 discusses access and allocation. Section 8 directs to the Appendices for the fishery management measures and procedures that will be employed during the year to meet the objectives. Section 9 describes shared stewardship arrangements in place to achieve objectives. Section 10 describes the enforcement measures to achieve the objectives. Section 11 describes the ways and means by which the achievement of the objectives will be assessed in the following year. Sections 12, 13 and 14 provide references, internet sites and a glossary to define terms. Sections 15 and 16 provide contacts and information on the Prawn Advisory Board, the multi-sector consultation body for the fisheries. Section 17 provides an annual review of the fisheries in the previous year based on the performance indicators provided in Section 11.

The Commercial Harvest Plan for Prawn and Shrimp by Trap is attached to this IFMP as Appendix 1. Appendix 2 is the Recreational Harvest Plan. Appendix 3 is the First Nations Harvest Plan. Appendix 4 has diagrams of commercial prawn size limits and traps. Appendix 5 is an example of a prawn and shrimp trap commercial harvest log. Appendix 6 discusses fishing vessel safety. Appendix 7 provides a diagram of prawn life stages. Appendix 8 provides a map of Pacific Fishery Management Areas (PFMA). Appendix 9 provides overview maps of the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Areas. Appendix 10 provides draft risk assessments for fishery monitoring and catch reporting.

### **1.2. History**

The commercial prawn and shrimp by trap fishery began around 1914 in Howe Sound and reached prominence in the mid 1970s. Trapping began in Knight and Kingcome Inlets in the early 1950s and these inlets led BC's prawn production until about 1970. The fishery experienced a period of growth between 1979 and 1989 following a series of exploratory prawn surveys (1976-1979) to assist development of the fishery in the north and central coasts of BC, with the number of vessels reporting landings increasing from approximately 50 to 305 vessels out of an eligible 900 licences issued in 1989. In 1990, licence limitation was implemented. There are currently 245 commercial licence eligibilities. The recent history of the management of the commercial fishery is one of incremental steps to improve conservation of prawns and sustainability of the associated fisheries. Collectively these changes represent a significant and sustained effort to improve management and stock assessment in the last two decades. The Pacific Region's commercial trap caught prawns are recognized by the Vancouver Aquarium's OceanWise program as a "Good Alternative" choice.

First Nations' participation in the commercial fishery under the Allocation Transfer Program began in 1998 with a licence issued to the Nuu-chah-nulth Tribal Council, Ahousaht First Nation. By 2006 (to 2009), seven licences were held by First Nations (Ahousaht, Tla'amin, Tseshaht, Haisla, Tseycum, Huu-ay-aht and Tsawout). Twenty new First Nations' commercial fishing enterprises became involved in the fishery in 2010 as a result of the Pacific Integrated Commercial Fishery Initiative in response to First Nations' economic interests to become involved in the fishery. First Nations currently hold 23% of the 245 commercial licence eligibilities. Most coastal BC First Nations are involved through one or multiple licences. 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.

Recreational effort was low until the mid-1990s. Recreational interest grew with increased prawn abundances in the south coast and with declines in salmon and rockfish stocks.

The target species is prawns (Spot Prawn, *Pandalus platyceros*), with a small incidental catch of other shrimp species and small commercial fisheries directed at Coonstripe Shrimp (*P. danae*) and Humpback Shrimp (*P. hypsinotus*). A fixed escapement model, the prawn 'spawner index', was first introduced in 1979 as the assessment and management framework to provide for sustainability of the fisheries and conservation of prawn stocks.

Information in addition to that presented here is available in the Canadian Manuscript Report of Fisheries and Aquatic Sciences series (Harbo and Wylie 2006).

### **1.3. Type of Fishery and Participants**

The Pacific Region prawn and shrimp by trap fisheries include commercial, recreational and First Nations fisheries.

The commercial fishery is a limited entry fishery with 245 licence eligibilities. Of these, four are non-transferable (i.e. the eligibility expires when the licence eligibility holder leaves the fishery) and 59 have been acquired for First Nations participation in the commercial fishery. Two commercial licence eligibilities were acquired for mitigation of treaty allocations for domestic harvest. Vessel sizes in the commercial fishery range from 4.88 m to 20.68 m. The number of crew varies with the size of the vessel. A single person may operate smaller vessels while larger vessels may operate with a captain and three or four crewmembers. The number of vessels actively fishing on an annual basis is reduced from 245 by allowing the seasonal transfer of a trap allotment to another licenced vessel.

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehatesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish.

A BC Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish, including shellfish. There were 340,856 anglers participating in BC's tidal waters recreational fishery in 2018/19 (Section 4.3). Most (83%) were BC residents, with the remainder divided between Canadians from outside BC and visitors to Canada. Crabs, prawns and shrimp, clams and oysters are the main species of shellfish harvested. Prawn and shrimp fishing was estimated to

occur on 14.5% (or 297,780 days) of total angler days<sup>1</sup> in 2010. BC residents account for most (93% in 2010) of the recreational fishing effort directed at prawns and shrimp (Fisheries & Oceans Canada 2012).

First Nations' harvest for FSC purposes may occur where authorized by an Aboriginal communal licence or, under treaty, a harvest document for domestic purposes. Fifty-four communal licences and 4 harvest documents may be issued annually in the Pacific Region including harvest for a number of shellfish species. At least 26 First Nations or their organizations have identified that they harvest prawns for FSC or domestic purposes.

#### **1.4. Location of Fishery**

The Pacific Region prawn and shrimp trap fishery takes place along the BC coastline in near-shore areas in depths of 40 to 100 m.

The majority of commercial landings have historically come from the fishing areas inside of Vancouver Island (>60%), with the remainder from the West Coast of Vancouver Island (WCVI) (10%) and north and central coasts (25%). The presence of prawns in areas offshore (PFMA 101 to 111, and 121 to 143) is known from shrimp trawl and groundfish trawl fisheries, however, the short commercial fishing season provides insufficient time and incentive for the prawn fleet to search for additional fishing opportunity in these areas. While there have been a number of proposals for surveys of offshore areas, these surveys did not find any concentrations of prawns of particular note.

A small directed trap fishery for Humpback Shrimp occurs in Prince Rupert Harbour (PFMA Subareas 4-10 and 4-11) and, rarely, Masset Inlet (PFMA Subarea 1-6). A small directed trap fishery for Coonstripe Shrimp may occur in Sooke Harbour and Basin (PFMA Subareas 20-6 and 20-7).

Most of the recreational prawn catch comes from the south coast in the Strait of Georgia (80%) and the WCVI (15%). The highest recreational prawn fishing effort is in Saanich Inlet, Stuart Channel, Alberni Inlet and Howe Sound, and includes also the waters around, Quadra / Cortes Islands, Powell River and Sechelt, Nanaimo, Barkley Sound, and Gold River / Tahsis.

First Nations' communal licences and harvest documents identify the area where First Nations may fish for FSC or domestic purposes.

Permanent area closures are listed in Appendix 1 for the commercial fishery. Permanent area closures for the recreational fishery are listed in Appendix 2 and in the BC Tidal Waters Sport Fishing Guide available on the internet at:

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

Permanent area closures in the First Nations fisheries under communal (FSC) licences or, under treaty, harvest documents for domestic purposes are listed in Appendix 3.

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<sup>1</sup> Recreational fishing effort is measured in angler days. More than one species may be fished per angler day.



## **1.5. Fishery Characteristics**

### **1.5.1. Commercial**

The commercial fishery is a limited entry, competitive fishery with seasonal closures, in-season area closures, gear limits, gear marking requirements, trap mesh size requirements, minimum size limits, non-retention of prawns with eggs, daily fishing time restrictions and a daily single haul limit. Over 97% of the catch is prawns, with a small incidental catch of Humpback Shrimp, Coonstripe Shrimp and Pink Shrimp (Northern and Smooth).

An escapement-based model, referred to as the Spawner Index Model (Boutillier and Bond 2000), is the primary tool used to assess prawn stocks and manage the commercial fishery season. This is a standardized catch per unit effort (CPUE) model based on ensuring a minimum number of female spawners are available at time of egg hatch, which normally occurs around the end of March. Seasonal closures are implemented as fishing effort approaches the monthly index. Once implemented, the area remains closed to commercial fishing to the end of the spawning cycle and the opening date of the commercial season the following year. The closure protects the remaining egg bearing females from commercial fishing mortality through to the end of the larval hatching period. The commercial fishery opens no earlier than May 1 to allow for the spawning cycle to complete and for increased growth of the prawns prior to harvest, improving catch weight and value. The commercial season generally closes by the end of June.

Small directed commercial fisheries occur in the fall to the end of December for Humpback Shrimp in Prince Rupert Harbour (usually five vessels) and, rarely, Masset Inlet and for Coonstripe Shrimp in Sooke Harbour and Basin.

### **1.5.2. Recreational**

The recreational fishery is an open entry fishery with a daily limit, two-day possession limit, gear limits and gear marking requirements. The main target species is prawns. Prawns with eggs cannot be retained. There is no size limit. Humpback Shrimp and Coonstripe (or Dock) Shrimp may also be caught in localized areas. Pink Shrimp (Northern and Smooth) may also be caught incidentally.

The recreational fishery is open for most of the coast throughout the year. Seasonal closures are implemented to protect egg bearing female prawns from recreational fishing mortality during the critical winter spawning period, January 1 to March 31, through to the end of the larval hatching period (which normally occurs around the end of March). Spawner index sampling conducted in the fall prior to spawning helps to determine whether winter recreational harvest may be permissible in selected areas where most recreational prawn effort occurs (Section 1.4).

Special measures are in place in three high use recreational fishing areas; Saanich Inlet and Stuart Channel since 2006 and Alberni Inlet since 2007. At these locations, additional management measures include a one-week closure in May, higher spawner index targets, and “pulse fishing” (two weeks closed, two weeks open) beginning in September. These measures were developed collaboratively by the commercial and recreational sectors and with agreement of local First Nations in effort to leave more female prawns carrying eggs on the spawning grounds, with an anticipated benefit of more prawns for all harvest sectors beginning two years later and a reduction in the need for winter recreational fishing closures.

BC Tidal Waters Sport Fishing Licences are available for purchase online and through point-of-sale retailers, such as tackle stores and marinas. Information is available at:

### **1.5.3. First Nations**

Pre-season, DFO engages in a variety of consultation and collaborative harvest planning processes with First Nations at the community level, or at broader tribal or watershed (for salmon) levels. Fisheries are then authorized via a communal licence or, under treaty, a harvest document issued by DFO under the *Aboriginal Communal Fishing Licences Regulations*. These licences are typically issued to individual bands or tribal groupings, and describe the details of authorized fisheries including date, times, methods and locations of fishing. Communal licences, or harvest documents under treaty, and Aboriginal Fisheries Strategy (AFS) agreements (where applicable) include provisions that allow First Nations' designation of individuals to fish for the group and, in some cases, vessels that will participate in fisheries.

First Nations' fishing for FSC or, under treaty, domestic purposes is the first priority after conservation and is currently open coast-wide throughout the year. First Nations fishing effort for FSC purposes is currently not limited by catch quantity, except in those First Nations where the Council or fisheries program has established their own catch limits for band members, or where allocated for domestic purposes under treaty. Designation and gear marking are required. The main target species is prawns. Humpback Shrimp and Coonstripe (or Dock) Shrimp may also be caught in localized areas.

While prawns and shrimp were not allocated under the Maa-nulth, Tsawwassen or Nisga'a treaties, harvesting for domestic (FSC) purposes is permitted. The Tla'amin fishery for domestic purposes under the Tla'amin Final Agreement (Treaty) includes an allocation of prawns.

### **1.5.4. Aquaculture**

There are currently limited culture projects for prawns or shrimp (Pandalidae). Two land-based hatchery facilities are licensed to culture prawns but are currently inactive.

## **1.6. Governance**

The prawn and shrimp by trap fisheries are governed by the *Fisheries Act* (R.S., 1985, c. F-14) and regulations made thereunder, including the *Fishery (General) Regulations* (e.g. conditions of licence), the *Pacific Fishery Regulations* (e.g. open times), the *British Columbia Sport Fishing Regulations* (1996), 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, c. 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 part or derivative of an individual.

These documents are available on the internet at:

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

More information on the SARA is available at:

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

In addition, the Sustainable Fisheries Framework is a toolbox of policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. It provides planning and operational tools that allow these goals to be achieved in a clear, predictable, transparent, inclusive manner, and provides the foundation for 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, Guidance for the Development of Rebuilding Plans under the Precautionary Approach Framework: Growing Stocks out of the Critical Zone, and Fishery Monitoring Policy. Along with other economic and shared stewardship policies, these help DFO meet objectives for long-term sustainability, economic prosperity, and improved governance.

The Sustainable Fisheries Framework is available on the internet at:

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

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

Information about the CSAS and publications are available on the internet 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 the provincial and federal governments. In addition to good governance objectives, Canada has statutory, contractual, and common law obligations to consult with Aboriginal groups.

### **1.7. Approval Process**

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

## **2. STOCK ASSESSMENT AND SCIENCE**

### **2.3. Biological Synopsis**

Seven species of shrimp are harvested in BC in commercial, recreational and First Nations fisheries: *Pandalus platyceros* (Spot Prawn), *P. hypsinotus* (Humpback Shrimp), *P. danae* (Coonstripe or Dock Shrimp), *P. jordani* (Smooth Pink Shrimp), *P. borealis eous* (Northern or

Spiny Pink Shrimp), *P. goniurus* (Flexed Shrimp), and *Pandalopsis dispar* (Sidestripe Shrimp). All are members of the family Pandalidae.

The trap fisheries primarily target Spot Prawns with limited effort directed towards Humpback and Coonstripe Shrimp. Spot Prawns are the largest of the Pacific coast shrimp species and are generally found on rocky or hard bottom. The global distribution of *P. platyceros* ranges from Unalaska Island AK in the north to San Diego CA in the south, and westward to Vladivostok, the Sea of Japan and the Korea Strait. Most commercial fishing in BC waters occurs in depths of 40 to 100 m in near-shore waters.

All pandalid shrimp species undergo a change of sex in midlife. They mature first as males and mate. Their sexual characteristics change during a transition phase and they become females in the final year or two of their lives. The biological term for this sex change is protandric hermaphroditism.

Spawning typically occurs in late autumn or early winter and the females externally carry the developing eggs until the eggs hatch in spring. Larvae are then released into the water column and are thought to have a three month pelagic phase prior to settlement.

Spot Prawns live to four years of age in BC (Butler 1980 and Boutillier and Bond 2000). Following release of the larvae, spent female mortality is rapid, usually within several weeks. Few if any prawns survive past the fourth year. Most prawns are harvested at age 2+ and 3+.

## **2.4. Ecosystem Interactions**

Spot Prawns, like all other organisms, play a role in ecosystem interactions. Species-specific ecosystem linkages are difficult to identify owing to the multivariate nature of ecosystem function. Once prawns have settled to the bottom, after their larval stage, and have found suitable protective habitat, natural mortality is likely reduced (Butler 1980; Marliave and Roth 1995). At this stage they are preyed upon by bottom fish and octopuses (Bergstrom 2000).

Spot Prawns are opportunistic foragers, consuming fresh, moribund or dead organic material. Stomach contents of Spot Prawns near Vancouver held remains of polychaete worms and unidentified crustaceans (Butler 1980).

## **2.5. Stock Assessment**

Spot Prawn stocks are managed and assessed based on an escapement-based model (Boutillier and Bond 2000) (Section 1.5). Growth and mortality parameters for the model are obtained through semi-annual fishery independent surveys. Fishery independent index surveys are also conducted in the fall to monitor stock status prior to spawning. During the commercial fishing season, a subset of the commercial traps hauled are sampled by independent observers to monitor stock status relative to the in-season management targets.

Currently, an industry-led initiative funded by the BC Salmon Restoration and Innovation Fund aims to develop a management strategy evaluation (MSE) for the fishery. The objective of this process is to motivate DFO to adopt a more robust management procedure to improve the sustainability (e.g. conservation and long term catches) of the BC Spot Prawn fishery. The MSE is undertaken by Landmark Fisheries Research.

## **2.6. Stock Scenarios**

Annual commercial fishery landings are considered a reasonable proxy of overall stock abundance. Annual landings generally showed an increasing trend from the development of the fishery up to 2009 (Section 4.1). Since 2009, annual catches have been variable. A large decrease in catch was observed in 2010 followed by a high annual catch in 2011. From 2012 to 2015, prawn landings remained relatively consistent ranging from approximately 1,648 t to 1,842 t. In 2016 and 2017, commercial landings declined to approximately 1,219 t and 1,178 t, respectively. The commercial catch estimate for 2018 was 1,657 t, and for 2019 is approximately 1,982 t. There is no estimate available for 2020 (logbooks not available at time of publication). The primary indicator of stock status for 2021 will be the sample results obtained at the start of the 2021 commercial prawn season.

## **2.7. Precautionary Approach**

Provisional Harvest Control Rules (HCR) compliant with the Precautionary Approach (PA) have been developed. The limit reference point is expressed as the base spawner index value and removal reference is accomplished through sequential Subarea closures. A detailed description of the PA for Spot Prawns is available in Proceedings of the PA workshop on Canadian shrimp and prawn stocks and fisheries, CSAS Proceedings Series 2008/031 available on the internet at:

<http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp>

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019 and include new authorities to amend the *Fishery (General) Regulations* and requirements to maintain major fish stocks at sustainable levels, and develop and implement rebuilding plans for stocks that have declined to their critical zone. The proposed regulatory amendments draw upon the 2013 Guidance for Developing Rebuilding Plans Under the Precautionary Approach (Section 1.6). In anticipation of these amendments, re-evaluating previous work by Smith (2013) on the performance of the current management procedures against conservation objectives is a priority.

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

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

## **2.8. Research**

Several research projects are ongoing that include: improving understanding of Spot Prawn population dynamics, addressing juvenile rockfish by-catch issues (Rutherford et al. 2009), and gear standardization studies (Rutherford et al. 2004; Rutherford et al. 2010). Release of National policies may prompt new research into understanding ecosystem function and evaluating benthic impacts as they relate to prawns and prawn harvest.

## **3. INDIGENOUS KNOWLEDGE**

In 2019, the *Fisheries Act* was amended to include provisions for where the Minister may, or shall consider 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 Indigenous knowledge 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 illustrative, and it provides a socio-economic context of the prawn and shrimp by trap fisheries in BC. Overviews of commercial, recreational, and First Nations sectors of the fishery are included.

##### **4.1. Commercial**

Historically, the commercial prawn and shrimp by trap fishery has been one of the most valuable fisheries in the Pacific Region with landed value in the range of \$36 - \$52 million between 2011-2014. This changed in 2016 when the estimated landed value of the fishery sharply dropped due to a drop in both landings and price. Prices and landings seem to have rebounded in 2017 and 2018, with both measures showing year-over-year improvements. In 2019, the total landings reached its highest since 2011, but low market prices seem to have put downward pressure on the total landed value in 2019. Currently the 2019 data is preliminary and does not include any potential bonus payments that some processors may pay to harvesters after the sale of the product.

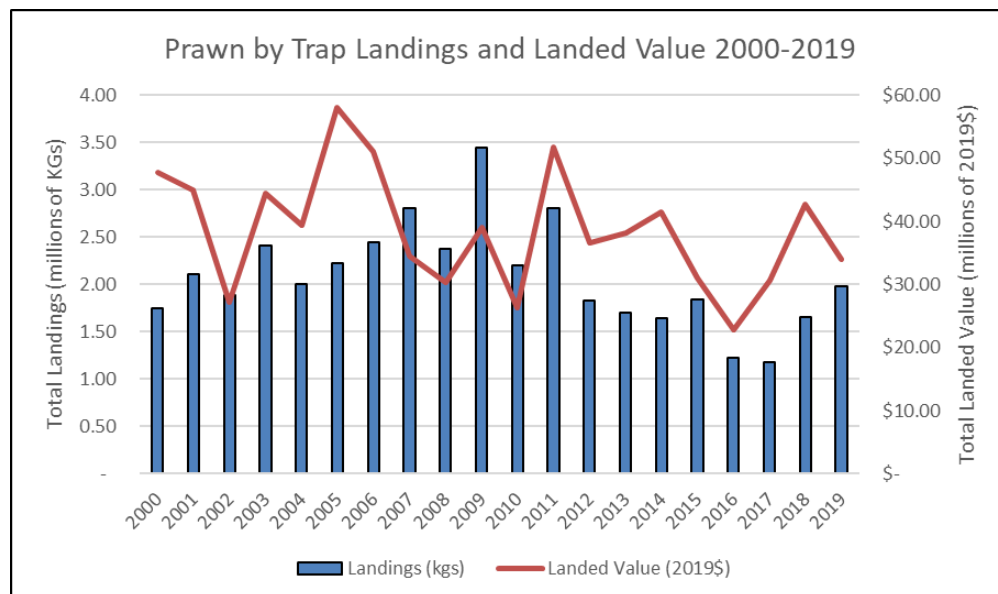
Landed value in 2011 was the highest of the past decade, mainly due to a high volume of landings. While the 2011-2014 landed value shows a high level of variability, prawn prices remained strong (average \$21.5/kg (2019\$)) until 2015, when they fell to \$16.81/kg. Prices significantly grew in 2017 and 2018, with prices peaking in 2017 at \$26/kg (2019\$), the highest price since 2005. The total landed value (in 2019\$) of the fishery dropped by approximately 27% from 2015 to 2016, but increased by nearly 90% by 2018, mainly due to increased harvest. Although landings continued to increase in 2019, landed value fell by 21% due to low market prices.

The prawn by trap fishery also includes catch of Coonstripe Shrimp and Humpback Shrimp (not shown in the figure below). Since 2015 on average, shrimp catch and landed value in this fishery has equated to nearly 35,000 kilograms and over \$450,000 (2019\$). This represents just over 2% and 1% of the fisheries landings and landed value, respectively.

The commercial harvest does not reflect the total contribution of the prawn and shrimp fishery to the provincial economy; the processing of prawns and shrimps landed in the province is another source of economic value. In 2018, the wholesale value of prawns processed in BC was about \$59.2 million (2019\$) (BC Seafood Industry Year In Review (SYIR) data), which was about 29%

higher than in 2017. However, it is possible that this figure includes prawns and shrimp that are imported for further processing and value added.

A 2017 report on linkages between seafood harvesting and processing estimated that 2016 wages stemming from the processing of prawns is ~\$2,400 (or 133 hours) per metric tonne.<sup>2</sup> In 2019, direct prawn labour processing costs (i.e. wages paid to employees working in the prawn processing sector) were about \$5.04 million (2019\$). These estimates show the importance of spillover economic impact that this fishery has on the whole provincial economy. The same report also found that prawn landings and processing occur mainly on Vancouver Island (38% and 32%, respectively) and in the Lower Mainland (53% and 59%, respectively). Only about 9% of landings and processing happens on the North Coast of BC.



Source: Landings from logbooks; Landed value: 2000-2018 from BC Agriculture, BC Seafood Industry Year in Review, landed value for 2019 is preliminary and is based on prices from sales slips and does not include post-season price adjustments

## 4.2. Viability and Market Trends

Once almost totally reliant on the Japanese market, the prawn sector has diversified its market channels and enjoys a high profile in local, domestic, and other export markets (Nelson 2011). Live and fresh prawns are sold to local markets, local restaurants, or directly to consumers through dock sales. Fresh prawns and some frozen prawns may be sold as whole or tailed product. BC Spot Prawns have been recognized by the OceanWise program as a “Sustainable” choice, and as a “Good Alternative” by the Monterey Bay Aquarium’s Seafood Watch program. Such recommendations create marketing opportunities and raise the profile of Spot Prawns in local, domestic, and growing export markets such as China, Hong Kong, and Taiwan. However, participation in the export market means that BC’s commercial fisheries are influenced by foreign price fluctuations, currency exchange rates, and market competition.

In this section prawn and shrimp exports are reported together as the harmonized system codes, which record and categorize exports, do not disaggregate exports of prawn and shrimp. The average annual value of prawn and shrimp exports from BC was \$50.6 million, between 2015 and

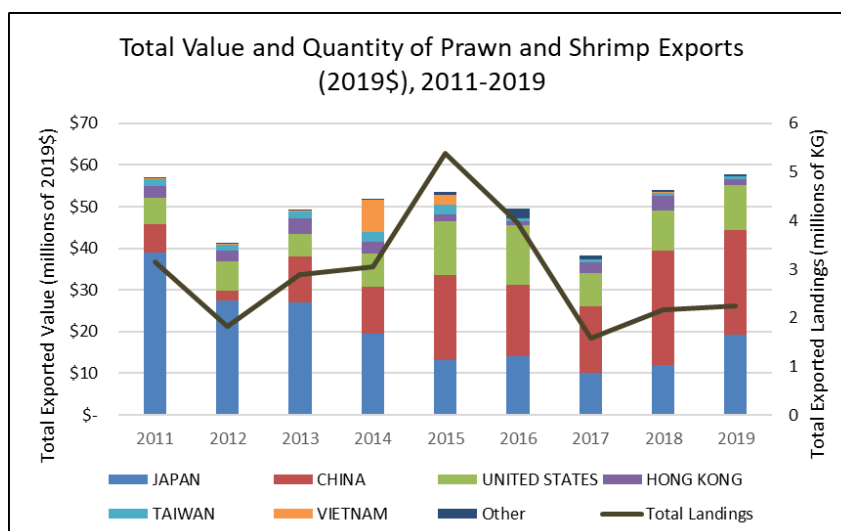
<sup>2</sup> GSGislason & Associates Ltd. (2017): Linkages Between Seafood Harvesting and Processing



2019 (in 2019\$). Of the prawn and shrimp exported from 2017-2019, 95% of it was frozen in shell and only 5% was exported fresh. Average value per kilogram from prawn and shrimp exports over the past five years (2015-2019) was \$19.49/kg (2019\$). In 2015, the export price declined to its lowest in 9 years, but increased to \$25.70/kg in 2019, topping the 2018 price of \$25.10/kg (2019\$). In 2017, BC reported its lowest total export value despite relatively high global export prices for prawn and shrimp. This was due to BC exporting the lowest volume of catch in 2017 during the 2011-2019 period.

Over the last decade, particularly in 2015, a major shift in BC's prawn and shrimp trading partners occurred. Historically, Japan was one of the largest export markets for BC prawn and shrimp. For example, in 2011 and 2012, 69% of prawn and shrimp exports were bound to Japan. As the decade progressed, exports to the Japanese market declined, hitting a decade-low of 12% in 2015 before slightly recovering to 33% in 2019. Meanwhile, between 2014 and 2015, export volume of shrimp and prawns to the United States of America (USA) increased more than ten-fold, while exports to China nearly doubled during the same period.

In 2019, over 38% of all exported prawn and shrimp are sent to the Chinese market, followed by 33% to the Japanese market and nearly 24% to the USA.



Source: Statistics Canada (EXIM), Accessed on September 29, 2020

### 4.3. Recreational

Recreational fishing is a leisure activity that may also provide food for personal use. These activities provide benefits to the individual participants as well as contribute directly and indirectly to the economy through fishery related expenditures. This section focuses primarily on economic activity rather than the economic benefits to individual anglers or businesses. Catch levels in the recreational shellfish fisheries are managed using area-specific openings and retention limits. There are no restrictions on the number of tidal water recreational licences.

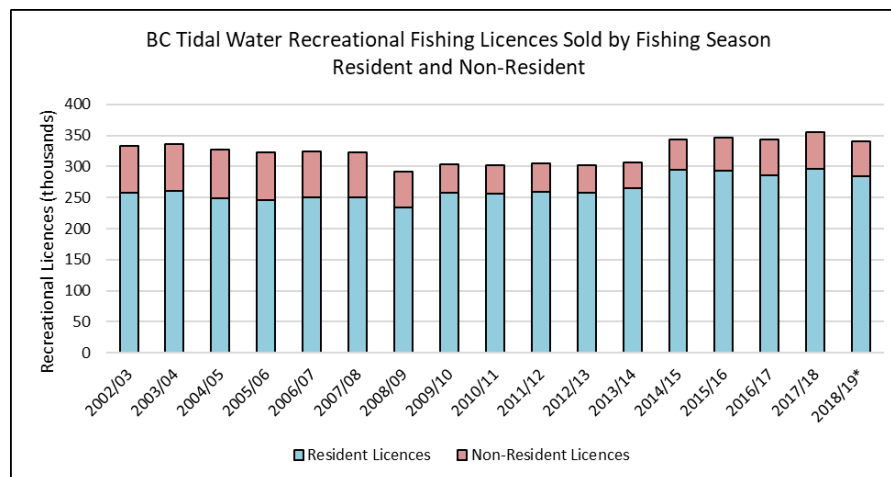
Tidal water recreational licences permit access to all marine species, including many shellfish, under the conditions described in the BC Sport Fishing Guide. The number of tidal water licences sold for access in BC decreased from around 333,000 in 2002 to a low of 300,000 in 2008 where it remained until a sharp increase to about 343,000 in 2014 (see Figure below). Since 2015, the



number of tidal water licences has remained relatively stable. The majority of the decline was due to a decrease in the sale of licences to non-Canadian residents, while the recent increase was due to increased sales to residents.

The National Recreational Fishing Survey provides estimates of trip-related expenditures and major purchases for recreational fishing. It is conducted every five years, and therefore the latest available data is from 2015<sup>3</sup>. Typically, BC's tidal water recreational fishery has been the third largest recreational fishery in Canada in terms of expenditures and major purchases<sup>4</sup>. Readers should note, however, that expenditures are not a measure of economic value, and cannot be compared across sectors<sup>5</sup>.

Resident and non-resident anglers fished an estimated 2 million days in BC tidal waters in 2015. The number of businesses in BC that provide recreational fishing services directly to anglers (e.g. guides and charters) is unknown. According to the 2015 survey, resident anglers make up the majority of anglers in BC's tidal waters.



*\*Data for 2018/2019 is preliminary and should be treated as such.*

Source: DFO Recreational Licensing data.<sup>5</sup>

The 2015 expenditures attributable to recreational fishing in BC tidal waters are estimated at \$597.9M (2019\$), with \$87.1M attributable to recreational fishing for shellfish. Most of the direct expenditures, major purchases, and package expenditures are attributable to salmon fishing, but interest in prawn is sizeable, with 9% of resident anglers indicating prawns as one of their top three preferred species<sup>6</sup> (Fisheries & Oceans Canada, 2010).

From 2010-2015, the number of tidal water resident anglers increased by 6% to 176,819, and the number of Canadian non-resident and foreign anglers (outside of BC) also increased by 15% to 70,600 anglers. Since 2015, the number of resident and non-resident anglers has been stable, as

<sup>3</sup> DFO. National Recreational Fishing Survey in Canada. 2015 information online at <https://www.dfo-mpo.gc.ca/stats/rec/can/2015/index-eng.html>

<sup>4</sup> Based on the Survey of Recreational Fishing in Canada, multiple years.

<sup>5</sup> Recreational fishing expenditures are not measures of economic value because they represent the value of final goods and services produced in other industries, rather than the value added to the economy as a result of recreational fishing.

<sup>5</sup> <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/Stats/99tocurrent-eng.html>

<sup>6</sup> Based on 2010 data. Survey respondents were asked to list their top three preferred species. This means that while 9% reported that prawns are a preferred species, they may also fish recreationally for other finfish or shellfish species.

indicated in the graph above. Recreational fishing continues to be important to the BC economy, but the rate of growth is slowing.

National and provincial summary information from the Survey of Recreational Fishing in Canada for 2015 is available on the internet at:

<http://www.dfo-mpo.gc.ca/stats/rec/canada-rec-eng.htm>

#### **4.4. 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 Nations organizations as communal commercial licences. The PICFI, announced in 2007, is 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. The Government of Canada committed \$175 million over the first five years (2007-2012) to implement the initiative. The program was renewed on a temporary basis until Budget 2017 when it was announced that PICFI is to receive permanent long term funding of \$22.05 million annually.

As a result of these programs, an average of 23% of commercial prawn and shrimp by trap licence eligibilities are held by First Nations for participation in the commercial fishery (2015-2019).

For more information on the ATP, contact a resource manager listed in Section 14 or see the internet at:

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

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

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

### **5. MANAGEMENT ISSUES**

The following emerging issues may impact the management measures in place for the prawn and shrimp by trap fisheries.

#### **5.1. Conservation and Sustainability**

##### **5.1.1. Fishery Monitoring and Catch Reporting**

Robust fishery monitoring information is essential for stock assessment and to effectively implement fisheries 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 FSC and other Indigenous fisheries, commercial fisheries, recreational fisheries, and to support market access for Canadian fish products.

Following multi-sectoral consultations, DFO released the national Fishery Monitoring Policy in 2019, replacing the regional "Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries" (2012). The Fishery Monitoring Policy seeks to provide dependable, timely and accessible fishery information through application of a common set of procedural steps used to establish fishery monitoring requirements across fisheries. Policy principles include

respecting Indigenous and Treaty rights, linkage of monitoring requirements to the degree of risk and complexity of fisheries, linkage of monitoring programs to fishery and policy objectives while accounting for cost-effectiveness and practicality of implementation, and shared accountability and responsibility between DFO, Indigenous groups and stakeholders.

To ensure consistent national application of the Fishery Monitoring Policy, further guidance is provided through the “Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy”. Fisheries are first prioritized for assessment through collaboration with Indigenous groups and stakeholders. Risk and data quality assessments are then conducted on priority stocks and associated fisheries and monitoring programs. Next, monitoring objectives are set in alignment with the Fishery Monitoring Policy, followed by specifying monitoring requirements and then monitoring programs are operationalized. Finally, a review and evaluation of the fishery monitoring programs against the monitoring objectives will be conducted and reported on.

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.

Appendix 10 provides draft risk assessments results prioritized for the recreational and First Nations FSC or, under Treaty, domestic prawn and shrimp trap fisheries under the Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries (2012) for further review, comment and revision with the Sport Fishing Advisory Board (SFAB) and First Nations, respectively.

The Fishery Monitoring Policy is part of the Sustainable Fisheries Framework and available at:

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

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

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

Fisheries catch data may be requested from the DFO Regional Data Services Unit at:

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

## **5.2. Social, Cultural and Economic**

### **5.2.1. Commercial**

DFO has implemented several additional measures for the commercial fishery in recent years to more closely manage the fishery, including a reduced fishing season. Changes to trap limits have been brought forward for further discussion. Commercial prawn industry representatives continue to support improvements for conservation and ways to reduce conflicts and mitigate issues in lockstep with changes in other sectors.

In 2016, the USA published new regulations implementing import provisions pertaining to the reduction of marine mammal bycatch in foreign commercial fishing operations. DFO will be working closely with the commercial fishing industry to facilitate the process under the new regulatory requirements in the USA (Section 5.4.5).

The Transportation Safety Board (TSB) has investigated several fishing vessel accidents since 2002 and found that vessel modifications and loading of traps have been contributing factors in the capsizing of prawn vessels, F/V *Fritzi-Ann* ([M02W0102](#)) in 2002, F/V *Morning Sunrise* ([M05W0110](#)) in 2005, and F/V *Jesse G* ([M12W0054](#)) and F/V *Pacific Siren* ([M12W0062](#)) in 2012. The TSB expressed concern about the DFO maximum vessel length policy based on length of the buoyant hull and felt that it put constraints on vessel replacements and influenced fish harvester's decisions to make vessel bow alterations and stern extensions to meet maximum length constraints that may negatively impact on their vessel's stability. A code of best practices for the prawn fishery was developed in 2013 and is intended to address unsafe work practices that continue to put fishermen, their crew, and vessels at risk (contact Pacific Prawn Fishermen's Association, Section 15). Following the capsizing of the trawl vessel F/V *Caledonian* ([M15P0286](#)) in 2016 and subsequent fatalities, the TSB issued recommendations aimed at ensuring all crews have access to adequate stability information that meets their needs. Fishing vessel safety considerations are provided in Appendix 6. DFO remains open to discussions raised by industry on changes to established vessel length restrictions.

In BC, roughly 70% of all fishing-related fatalities in the past decade came while not wearing a personal flotation device (PFD). Wearing a PFD was recommended also following drownings in 2014 in the prawn, F/V *Diane Louise* ([M14P0110](#)), and crab, F/V *Five Star* ([M14P0121](#)), fisheries.

TSB marine investigation reports are available on the internet at:

<http://www.tsb.gc.ca/eng/rapports-reports/marine/index.asp>

### **5.2.2. Recreational**

Sampling conducted in the fall prior to spawning helps DFO to determine whether winter recreational harvest is permissible in selected areas where most recreational prawn effort occurs. Nine of the surveys were cancelled in 2020 due to the coronavirus COVID-19 global pandemic. The Pacific Prawn Fishermen's Association (PPFA) has advised DFO of their intent to re-initiate the sampling in the three high use areas, Saanich Inlet, Stuart Channel and Alberni Inlet in 2021 if the data is of scientific value to DFO and subject to health and safety risks due to the ongoing pandemic. DFO conducts the tenth survey in Howe Sound.

In 2016, the Prawn Advisory Board members (Section 16) recommended the adoption of standardized buoys to differentiate prawn and crab fishing. This will eliminate the use of household plastic containers or blocks of Styrofoam that can often deteriorate in sunlight or waves and sink

which contributes to garbage washing up on the shoreline and loss of trap(s), which will continue to “ghost fish” for years to come. Further work is being done with the SFAB Catch Monitoring Working Group to specify what the standardized buoys will be for the recreational fishery.

### **5.2.3. First Nations**

Since 2012, DFO has been seeking First Nations input on management measures for the use of commercial vessels and gear to harvest prawns for FSC purposes. Since 2016, for those First Nations that have an interest in using commercial vessels or gear for harvesting prawns for FSC purposes, DFO is working together with the First Nation to request details about how this will occur (Appendix 3). These details are requested so that there can be a common understanding of the size, scope and timing of the fisheries. This will allow DFO to better assess any potential impacts to the conservation and sustainability of the resource in a given area (2016/17 Prawn and Shrimp by Trap Integrated Fisheries Management Plan). Ongoing work is focused through bilateral discussions on a range of management measures for the FSC prawn fisheries and building on a common goal of fisheries sustainability to develop FSC fishing plans that First Nations support. At least 26 First Nations or their organizations have identified to DFO that they are using commercial vessels or gear to harvest prawns for FSC purposes. First Nations have stressed the importance of maintaining sufficient spawners to meet First Nations food needs looking seven generations ahead.

Catch monitoring programs are being developed in collaboration with some First Nations organizations and standards for all fishery monitoring programs are being developed (Section 4.1.1). Further work may be anticipated with those First Nations who are interested in adopting standardized buoys in their FSC or domestic fisheries to differentiate prawn and crab fishing and eliminate the use of household plastic containers or blocks of Styrofoam that can often deteriorate in sunlight or waves and sink which contributes to garbage washing up on the shoreline and loss of trap(s) which will continue to “ghost fish” for years to come.

Information on Indigenous fisheries and reconciliation is available at:

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

### **5.3. Compliance**

DFO is concerned about the increasing use of commercial vessels and gear outside the commercial fishing season. The investigation of illegal sales of prawns is an important enforcement priority.

There are no other emerging issues for enforcement other than those already highlighted in the Compliance Plan (Section 10).

### **5.4. Ecosystem**

#### **5.4.1. Depleted Species Concerns**

By-catch of most non-target species has not been a concern in the prawn and shrimp by trap fisheries due to the nature of trap fishing and the minimal diversity of by-catch. Non-target species are easily sorted and quickly returned to the water with presumed low mortality, and by-catch must be returned to the water immediately and in a manner that causes the least harm. However, juvenile rockfish (*Sebastes* spp.) that are small enough to be able to enter trap tunnels and that do not leave

before being brought to the surface are presumed not to survive release due to their inability to equilibrate air bladders to rapid changes in depth (Rutherford et al. 2009).

A rockfish conservation strategy was first proposed in 1998, and measures were implemented in 2002 to protect inshore rockfish populations. These measures included catch restrictions, fishery monitoring, assessment programs and establishment of areas closed to certain fishing activities. Rockfish encounters in the commercial prawn and shrimp by trap fishery are a rare event (0.000 to 0.045 rockfish/trap) and the prawn and shrimp by trap fisheries were allowed to continue in the Rockfish Conservation Areas (RCAs) with the collection of by-catch information. The sampling program estimates total rockfish by-catch in the commercial fishery (Rutherford et al. 2009).

The prawn fishery was permitted to continue under the existing management measures based on the recovery potential assessment conducted for Quillback Rockfish (*S. maliger*), which was assessed as “Threatened” by the Committee on the Status of Endangered Wildlife in Canada (CSAS Science Advisory Report 2011/072). Quillback Rockfish is the most frequent rockfish species encountered in the prawn fishery (Rutherford et al. 2009).

As of 2017, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recognized three Grey Whale populations in Canadian Pacific waters. The Eastern North Pacific population, currently Special Concern under the SARA, was split into two populations. A broad North Pacific Migratory population, which migrates from winter breeding grounds in Mexico to summer feeding areas in the Bering Sea and Arctic waters, was assessed as Not at Risk. A small population, the Pacific Coast Feeding Group, which over-winters in Mexico and resides and feeds in BC waters in summer and fall, was assessed as Endangered. A new Western Pacific population was also assessed as Endangered as individuals from this population were recently shown to migrate through BC waters to breeding areas in Mexico. The two COSEWIC-assessed Endangered Grey Whale populations are under consideration for listing under the SARA. In-season changes to manage threats to these populations may be considered as part of the listing process.

SARA-listed rockfish species in Pacific Region are available at:

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

Maps of RCAs are available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acis/index-eng.html>

Further information about Grey Whales listing is available by email from SARA.XPAC@dfo-mpo.gc.ca

#### **5.4.2. 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.

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.



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>

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-si-eng.html>

#### *5.4.2.1. Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area*

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 the glass sponge reefs. The Hecate MPA is located in the Northern Shelf Bioregion of the Pacific Region southeast of Haida Gwaii, North and South of the entrance to the Douglas Channel, covering an area of approximately 2,410 square kilometers.

The Hecate MPA zoning approach involves different management measures within each zone. Under the Hecate MPA regulations, each glass sponge reefs Core Protection Zone (CPZ) is closed to all commercial, recreational, and Aboriginal fishing. Anchoring, cable installation, maintenance and repair are also prohibited in the CPZ. The Vertical Adaptive Management Zone (VAMZ) and Adaptive Management Zone (AMZ) is currently closed to all commercial bottom contact fishing activities for prawn, shrimp, crab and groundfish (including halibut), as well as for midwater trawl for hake. Scientific research, monitoring and educational activities are allowed in the Hecate MPA if a proponent submits an activity plan to DFO and it receives Ministerial approval.

A recently published paper in the journal *Marine Ecology Progress Series* assessed the impact of suspended sediment created from trawl gear on the pumping rate of three species of glass sponges in the Hecate MPA. The research suggests that a larger AMZ prohibiting bottom trawl fishing activities in some instances would better protect these glass sponge reefs from the impacts of sedimentation.

For more detail on the fishery closure within the Hecate MPA, Fishery Notice FN0198 is available at:

[https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?DOC\\_ID=194216&ID=all&pg=view\\_notice](https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?DOC_ID=194216&ID=all&pg=view_notice)

Further information on the Hecate MPA is available at:

<http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html>

MPA regulations and management plans articulate any restrictions on activities taking place within the MPA, where applicable. More information on MPAs can be found at:

<http://dfo-mpo.gc.ca/oceans/mpa-zpm/index-eng.html>

The Cold-water Coral and Sponge Conservation Strategy is available at:

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

#### *5.4.2.2. Northern Shelf Bioregion Marine Protected Area Network*

The Province of BC, the Government of Canada and 16 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 Brooks Peninsula) 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 as well as the Canada-British Columbia MPA Network Strategy.

A draft MPA network design, which consists of a map of areas proposed for conservation as well as potential management measures for proposed sites, was shared with First Nations, who are currently not part of the collaborative governance arrangement, and with members of the Network Advisory Committees in February 2019. The various sectors engaged in a review of the draft network design provided substantial input by January 30, 2020. A stakeholder forum was held in February 2020 to present and discuss feedback received. DFO completed its internal review of the draft design scenario and presented the report to the MPA Technical Team in March 2020. Governance partners are considering all input received to date and reporting out to stakeholders in late fall 2020. Revising the draft scenario will occur during the winter 2021 after which there will be further consultations, including public engagement in coastal communities, on scenario #2 and the accompanying socio-economic analysis.

More information on MPA Network Planning is available at:

<http://www.mpanetwork.ca>

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

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

#### *5.4.2.3. Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges*

All commercial, recreational and FSC/domestic bottom-contact fishing activities for prawn, shrimp, crab and groundfish are prohibited within 17 areas in Howe Sound and the Strait of Georgia to protect glass sponge reefs as marine refuges, contributing <0.01% to Canada's marine conservation target or approximately 32.5 km<sup>2</sup> of sensitive benthic areas. This includes prohibitions of the following fishing activities: prawn and crab by trap, shrimp and groundfish by trawl, groundfish by hook and line, and use of downrigger gear in recreational salmon trolling (restricted via condition of licence in 8 of the 17 areas).

In 2019, nine remaining areas in Howe Sound were ground-truthed to assess their ecological significance. The presence of five new live glass sponge reefs has been confirmed. A sixth site within an existing reef complex where only dead reef habitat was observed may have recovery potential. Consultations are underway on restrictions to all commercial, recreational and FSC and domestic bottom-contact fishing activities, and the use of downrigger gear for recreational salmon troll in these reefs. New management measures are anticipated in Spring 2021.

Overview maps of the Strait of Georgia and Howe Sound Glass Sponge Reefs are provided in Appendix 9.

Closure locations and more information are available at:

<http://www.canada.ca/glass-sponge-closures>

The results of ground-truthing the latest set of glass sponge reefs in Howe Sound to delineate the reefs and assess their status (CSAS Science Response 2020/026) are available at:



[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020\\_026-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_026-eng.html)

#### 5.4.2.4. Gwaii Haanas National Marine Conservation Area Reserve

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5,000 km<sup>2</sup> land-and-sea protected area in the southern portion of Haida Gwaii, approximately 100 kilometres off the north coast of BC. The Haida Nation declared the area a Haida Heritage Site in 1985. The terrestrial part of Gwaii Haanas was designated a National Park Reserve by the Government of Canada soon after, and the two parties have been managing the area cooperatively since 1993. In 2010, following an extensive public consultation process, the marine area of Gwaii Haanas was given the designation of National Marine Conservation Area Reserve.

Gwaii Haanas is managed by the Archipelago Management Board, a cooperative body made up of representatives of the Council of the Haida Nation and the Government of Canada (DFO and Parks Canada). The Archipelago Management Board is guided by the *Gwaii Haanas Agreement* and the *Gwaii Haanas Marine Agreement*, which describes how Canada and the Haida Nation will manage Gwaii Haanas cooperatively.

In November 2018, following an extensive consultation process, a new management plan for Gwaii Haanas was approved by Canada and the Haida Nation. The Gina 'Waadluxan KilGuhlGa Land-Sea-People plan includes a shared vision, guiding principles based on Haida cultural values, goals and objectives, and zoning for the land and the sea. The plan will be in place for the next decade. The final zoning plan includes several areas of strict protection, where commercial and recreational fishing is prohibited, including prawn and shrimp fishing (Appendices 1 and 2). A monitoring plan will be developed to assess the effectiveness of zoning in achieving ecological and cultural objectives. Regular monitoring within and outside of the strict protection zones will illustrate ecosystem responses and facilitate adaptive management of the Gwaii Haanas marine area. Implementation of the Land-Sea-People plan will also involve cooperative management of fisheries using an ecosystem-based management framework and monitoring activities will be supported through partnerships.

The Land-Sea-People plan is available at:

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

More information on Gwaii Haanas and the Archipelago Management Board is available at:

<https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/index>

More information on National Marine Conservation Areas is available at:

<https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca>

#### 5.4.2.5. 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 in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011.

Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the

feasibility assessment. If the results of the feasibility assessment indicate that establishment of a National Marine Conservation Area Reserve is practical and feasible, an establishment agreement between the Governments of Canada and BC will be negotiated and an interim management plan developed. If the National Marine Conservation Area Reserve is determined to be feasible, further consultations related to establishment agreements and Indigenous rights will also take place with First Nations. Commercial and recreational fishing sectors, communities, landowners, recreation and environmental organizations and other stakeholders will also have opportunities to provide input to the development of the interim management plan.

Parks Canada information on the proposed National Marine Conservation Area Reserve in the southern Strait of Georgia is available on the internet at:

<https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca/dgs-ssg>

#### **5.4.2.6. *Rockfish Conservation Areas***

There are 162 Rockfish Conservation Areas (RCAs) in BC, covering roughly 4,350km<sup>2</sup> 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. 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 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 (Section 5.4.2.2). Workshops with First Nations and stakeholders and online consultations were held in 2019. There will be more opportunities to provide feedback on RCAs in the Northern Shelf Bioregion in the near future. Plans are to review RCAs in other regions of BC at a later date.

A summary of what was heard about the Northern Shelf Bioregion RCAs is available at:

<https://www.pac.dfo-mpo.gc.ca/consultation/ground-fond/rca-ac/2020-heard-entendu-eng.html#6>

Further information on RCAs and the boundary proposals are available online at:

<http://dfo-mpo.gc.ca/rockfish-conservation> or email DFO.RCA-ACS.MPO@dfo-mpo.gc.ca

#### **5.4.3. Marine Spatial Planning South Coast**

As part of a national marine spatial planning initiative, DFO in collaboration with the Province of BC, federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks Canada) and Indigenous groups, have begun marine spatial planning efforts on the South Coast, including the Strait of Georgia and Southern Shelf bioregions. The intent of marine spatial planning is to improve coordination across jurisdictions and activities in the marine space, and work is underway to define scope and objectives of the project. In the early phases, engagement on governance is taking place internally with Government of Canada partners, and externally with the Province of BC and local First Nations, beginning with representative

organisations like the First Nations Fisheries Council. National marine spatial planning deliverables include: governance, a bioregional atlas, and a marine spatial plan.

Harvesters can expect updates on this process via Advisory Boards in the future.

#### **5.4.4. Southern Resident Killer Whales Interim Sanctuary Zones**

The Government of Canada is taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with direction provided in the *SARA* recovery documents for the species. In May 2018, the Minister of Fisheries and Oceans 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 from 2018 to 2020, including measures aimed at increasing prey - particularly Chinook salmon - availability and accessibility for Southern Resident Killer Whales and reducing threats related to physical and acoustic disturbance in key foraging areas.

Since 2018, Indigenous groups, the Indigenous and Multi-Stakeholder Advisory Group, Technical Working Groups and stakeholders have provided recommendations and feedback to the Ministers and respective 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 2021 season, DFO will be reviewing the 2020 fisheries management measures and discussing potential measures with Indigenous groups, the Southern Resident Killer Whale Prey Technical Working Group, the Indigenous Multi-Stakeholder Advisory Group, and key stakeholder groups. DFO intends to ensure that any updates to actions for the 2021 season can be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to the Salish Sea. Measures will be announced in-season.

Information regarding the Southern Resident Killer Whale management measures to support recovery is available at:

[www.pac.dfo-mpo.gc.ca/southern-resident-killer-whale](http://www.pac.dfo-mpo.gc.ca/southern-resident-killer-whale) or email DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca

Information to help whales while on the water when on both sides of the Canada-USA border is available at:

<https://www.bewhalewise.org/>

#### **5.4.5. Gear Impacts**

There are over 80 species of cold-water corals and some 250 species of sponges (Gardner 2009) that exist on Canada's Pacific Coast. Cold-water corals and sponges occur in both shallow coastal and deep offshore waters. Traps can impact biogenic structures, including corals and sponges, through crushing, entanglement or scouring. The potential impact of traps on marine habitats is dependent on a variety of factors, including characteristics of the bottom where they are set, weight, size and construction of traps, retrieval methods, sea state, weather, tides and currents, and ground line length. An evaluation of the nature and scale of impacts is an important step in identifying appropriate mitigation measures.

A scientific review of the potential impacts of fishing gears, excluding mobile bottom-contacting gears but including traps, on marine habitats and communities (CSAS Proceeding Series 2010/002 and CSAS Science Advisory Report 2010/003) is available on the internet at:

<http://www.isdm-gdsi.gc.ca/csas-sccs/applications/publications/index-eng.asp>

Whales have entangled in trap ground lines and buoy lines. Sea turtles and Basking Sharks may also entangle in trap lines but sightings of sea turtles and Basking Sharks are infrequent in Pacific Canadian waters. Prohibitions under the SARA make it illegal to kill, harm, harass or capture Leatherback Sea Turtles or Basking Sharks and measures must be taken to avoid incidental capture and entanglement of these species.

DFO coordinates a network of government and non-government experts in disentangling and to assist in response to sick, injured, distressed, or dead animals (Section 15). Encounter protocols to reduce the risk of entanglement and assist in response have been adopted by the commercial fishery (Appendix 1). Modification of fishing gear has been successful in mitigating entanglement rates for whales elsewhere (i.e. USA and Atlantic Canada) and recommendations to enact cost-effective modifications to gear may be considered in the future.

In 2016, the USA published new regulations (80 FR 54390) implementing the USA's *Marine Mammal Protection Act* (MMPA) import provisions pertaining to the reduction of marine mammal bycatch in foreign commercial fishing operations. Every four years, the USA publishes information on all fisheries that export to the USA in the List of Foreign Fisheries. A harvesting nation intending to export fish and fish products to the USA after December 31, 2022, must receive a comparability finding for each of its commercial fisheries listed in the List. To receive a comparability finding for a fishery, the import provisions mandate that the harvesting nation demonstrate: 1) the prohibition of intentional mortality or serious injury of marine mammals in the course of commercial fishing operations; and 2) the implementation of a regulatory program comparable in effectiveness to the USA, including bycatch estimates from at-sea observer programs and management/mitigation measures. DFO is working closely with the commercial fishing industry to facilitate the process under these new regulatory requirements. The USA National Oceanic and Atmospheric Association is proposing that the deadline for comparability finding submissions be extended to November 30, 2021.

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 SARA (see Section 15 to report sightings).

One of the biggest threats to oceans internationally is marine litter, and in particular, ghost fishing gear. Ghost gear refers to any fishing equipment or fishing-related litter that has been abandoned, lost or otherwise discarded and is some of the most harmful and deadly debris found in oceans. In support of international efforts to reduce marine litter, Canada signed the G7 Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities in 2018. In doing so, Canada committed to accelerating the implementation of the 2015 Oceans Plastics Charter and strengthened its domestic and international commitment to addressing marine litter by signing onto the Global Ghost Gear Initiative.

Assessment by the Monterey Bay Aquarium Seafood Watch of BC commercial trap-caught prawns as “good alternative” is available at:

<https://www.seafoodwatch.org/>

## **6. OBJECTIVES**

Sections 6.1 to 5.3 and 6.5 outline the “longer term” objectives for this and other invertebrate fisheries in the Pacific Region. Section 6.4 describes the species-specific “shorter-term” objectives for the prawn and shrimp by trap fisheries.

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

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

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

### **6.3. Prawn and Shrimp by Trap**

#### **6.3.1. Conservation and Sustainability**

DFO’s species-specific objectives for the conservation and sustainability of prawn and shrimp stocks are:

To ensure a minimum number of female spawners are available at the time of egg hatch by using a fixed escapement model, the prawn spawner index. The spawner index model meets DFO's objective to adopt harvest control rules that are compliant with the PA.

To limit directed fisheries for Humpback and Coonstripe Shrimp to the existing fisheries in Prince Rupert / Masset Inlet and Sooke, respectively, until basic biological parameters to develop a biologically-based management strategy are determined. Any directed fishery for Humpback or Coonstripe Shrimp in non-historical areas, or with new or modified trawl or trap gear, is subject to the New Emerging Fisheries Policy (Section 1.6).

To develop standards for fishery monitoring for all fisheries, including commercial, recreational and First Nations (Section 5.1.1).

Information on the New Emerging Fisheries Policy is available at:

<http://www.dfo-mpo.gc.ca/reports-rapports/regs/efp-pnp-eng.htm>

### **6.3.2. Social, Cultural and Economic**

**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 prawn seafood industry recognizing that commercial fisheries play a vital role in Canada's economy. This will include adapting to changing resource and market conditions and extracting optimal value from world markets.

Vessel safety is an objective shared between DFO, Transport Canada, TSB, and WorkSafeBC (Appendix 6). 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 Aboriginal people. First Nation participation in the commercial fisheries is being addressed through the ATP and PICFI (Section 4.3).

**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, and to establish working mechanisms in conjunction with the other fishing sectors to reduce conflict and mitigate issues.

"Recreational Fisheries in Canada, An Operational Policy Framework" is available at:

<http://www.dfo-mpo.gc.ca/reports-rapports/regs/op-pc-eng.htm>

Recreational fisheries in the Pacific Region are also guided by "A Vision for Recreational Fisheries in British Columbia 2009-2013" developed cooperatively by DFO, the Province of BC and the SFAB for "a vibrant and sustainable recreational fishery in British Columbia, providing broad social and economic benefits through diverse opportunities that recognize and respect other users of the resource".

**First Nations Fisheries:** DFO is committed to the recognition and implementation of the rights of Indigenous peoples related to fisheries, oceans, aquatic habitat and marine waterways in a



manner consistent with the Principles Respecting the Government of Canada's Relationship with Indigenous Peoples.

DFO's objective is to continue to provide opportunities for First Nations to harvest fish for FSC purposes, in a manner consistent with the decision of the Supreme Court of Canada in *R. vs. Sparrow* and subsequent court decisions.

Information on Indigenous fisheries and reconciliation is available at:

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

### **6.3.3. Compliance**

DFO's objective is to pursue opportunities to monitor and enforce these fisheries, in conjunction with the monitoring and enforcement priorities in the Pacific Region.

### **6.3.4. Ecosystem**

DFO's objective is to support, in conjunction with Environment and Climate Change Canada and Parks Canada, the Government of Canada's strategy for reaching its marine conservation target (Section 5.4.2).

DFO's objective is to use the Ecological Risk Assessment Framework for Coldwater Corals and Sponge Dominated Communities, guided by the Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas (Section 1.6), to determine the level of risk in these fisheries and whether mitigation measures are required in any areas.

DFO's objectives with respect to rockfish were identified through the rockfish/lingcod conservation strategy (May 2002). Objectives may also be defined in a recovery strategy, action plan, or management plan with SARA-listing.

DFO's objectives with respect to managing by-catch is to ensure that all Canadian fisheries are managed in a manner that supports the sustainable harvesting of aquatic species, that minimizes the risk of fisheries causing serious or irreversible harm to by-catch species and to account for total catch, including retained and non-retained by-catch.

## **7. ACCESS AND ALLOCATION**

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

### **7.1. Commercial**

The commercial fishery is limited entry, with seasonal and area closures, gear limits, minimum size limits, non-retention of prawns with eggs, daily fishing time restrictions, and a single haul limit.

### **7.2. Recreational**

The recreational fishery has a daily limit for prawns and shrimp species combined. The possession limit is two-times the daily limit. Gear limits, non-retention of prawns with eggs, and seasonal area closures apply.

### **7.3. First Nations**

To date, DFO has not specified gear or catch limits in communal licences for FSC 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 FSC purposes, or domestic purposes under treaty, and the conservation and sustainability of the resource (Section 5.2.3).

Prawns and shrimp may be allocated under treaty, but were unallocated under the Maa-nulth, Tsawassen and Nisga'a Treaties. The Tla'amin fishery for domestic (FSC) purposes under the Tla'amin Final Agreement (Treaty) includes a domestic allocation for prawns.

### **7.4. Aquaculture**

Consideration is given for aquaculturist access to relatively low numbers of wild juvenile or adult prawns and shrimp (e.g. for broodstock development) for limited time periods where populations would face insignificant to low risk from the additional harvest pressure (DFO 2004).

### **7.5. Experimental, Scientific, Educational or Public Display**

DFO supports and facilitates scientific investigations related to prawns and shrimp. Scientific licence requests received from scientific, educational, and public display institutions, including biological collecting firms, are considered. Policies with respect to scientific licences and the use-of-fish apply.

Co-operative scientific assessment programs of mutual interest and agreement between DFO and industry may be established with the Pacific Prawn Fishermen's Association (PPFA) named as the scientific licence holder. The Association undertakes vessel selection and provides advice to DFO on aspects of the assessment program.

## **8. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN**

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

- Fishing Seasons/Areas;
- Control and Monitoring of Removals;
- Decision Rules; and
- Licensing.

## **9. SHARED STEWARDSHIP ARRANGEMENTS**

### **9.1. Commercial Fishery**

A collaborative agreement is negotiated annually between DFO and the Pacific Prawn Fishermen's Association (PPFA) for delivery of co-management programs supportive of the commercial fishery. The PPFA contributed \$25K for enhanced in-season support by science personnel and \$25K for in-season Fishery Officer activities throughout the coast, including plant, restaurant and retail inspections in 2020 (the fisheries management component was not funded due to health orders and a hiatus on field work during the coronavirus COVID-19 global pandemic). Unused funds are returned to the PPFA annually.



An agreement is negotiated annually between DFO and the PPFA for delivery of a fall sampling program.

Vessel owners/licence eligibility holders are required to make arrangements with an approved industry service provider for the delivery of in-season information to DFO as required by conditions of licence regarding trap tags, vessel and gear locations, vessel and gear characteristics, and spawner index information. The cost of this service to licence eligibility holders is established by the service company and is negotiated by the PPFA on behalf of licence eligibility holders. Harvest logbook costs may be included or provided separately. The PPFA distributed a Request for Proposals in November 2011 to private sector companies interested in providing in-season management services for licence eligibility holders. The industry service provider for 2021 is J.O. Thomas and Associates, Ltd. of Vancouver, BC.

## **9.2. Fisheries & Oceans Canada**

Four Science (Aquatic Resources Research and Assessment Division) and five Fisheries Management personnel are directly involved in this fishery for some part of their activities. Contributions to the IFMP are provided by Fisheries Management in the areas and at Regional Headquarters, the Science Branch and its Shellfish Data Unit, Conservation & Enforcement, the Pacific Fishery Licence Unit, and numerous administrative personnel. Generally, all personnel are multi-tasked.

## **10. COMPLIANCE PLAN**

General information about the Fisheries Enforcement program is available at:

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

Fishery officers pursue opportunities to monitor and enforce this fishery, in conjunction with the monitoring and enforcement priorities directed by senior managers in the Pacific Region.

On-grounds monitors provide an “observe, record and report” capability.

### **10.1. Priorities**

The investigation of illegal sales of prawns is an important enforcement priority.

Other enforcement effort may be directed to monitoring for early setting before the season opening, patrolling for fishing in local closures announced in-season, protection of glass sponge reefs (closed areas), vessel monitoring system (VMS) reporting, undersize prawns and follow up on delinquent logbook reporting.

Funding for a compliance assessment related to new programs provided to DFO from industry within the terms of the collaborative agreement is negotiated annually (Section 9.1).

## **11. PERFORMANCE REVIEW**

Performance indicators are reported in the Post-season Review (Section 17).

### **11.1. Stock Assessment**

The number of spawner index samples will be compared to previous years and DFO Science research projects will be reported.

### **11.2. Sustainable Fisheries Survey**

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 1.6), which guide the management of Canada's fisheries and provides other information about these fish stocks.

The Sustainability Survey for Fisheries is available at:

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

### **11.3. Commercial Fishery**

The delivery of the commercial fishery will be reviewed annually through the timing of closures, catch and value compared to previous years, problems encountered with management or enforcement of the fishery that may necessitate changes, and for timely and accurate catch and effort data to monitor and enforce the fishery. This will include monitoring the directed fisheries for Humpback Shrimp and Coonstripe Shrimp for changes in fishing effort.

### **11.4. Recreational Fishery**

The delivery of the recreational fishery will be reviewed annually through the timing of closures, problems encountered with management of the fishery that may necessitate changes, and for improvements to collect annual catch and effort data to monitor the fishery.

### **11.5. First Nations Fisheries**

Improvements are needed to the collection of annual catch and effort data to monitor the fisheries.

### **11.6. Compliance**

Evaluation will include time spent attending to enforcement of the fisheries, counts of infractions by type, and counts of prosecutions initiated. Patrol hours will measure effort to achieve compliance, for monitoring of fishing activity outside of daily fishing time limits and for assessing closure compliance. 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.

### **11.7. Ecosystem**

Progress on initiatives related to the Government of Canada's goal to reach its marine conservation targets will be summarized where they may relate to the prawn and shrimp fisheries. This includes changes arising as a result of initiatives under the *Oceans Act* or the Ecological Risk Assessment Framework for Coldwater Coral and Sponge Dominated Communities under the Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas. The results of the rockfish by-catch program will also be described.

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### 13. INTERNET SITES

Fisheries & Oceans Canada Pacific Region Prawn page:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/prawn-gcrevette/index-eng.html>

Federal Science Library, Fisheries & Oceans Canada Library of Integrated Fisheries Management Plans:

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

Pacific Region Fishery Management Area and Subarea maps:

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

Fisheries, licences, permits and funding programs related to fish and seal harvesting in Canada:

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

BC Sport Fishing Guide:

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

Centre for Scientific Advice, Pacific, research documents, proceedings and Invertebrate stock status reports, including prawn and shrimp:

<http://www.isdm-gdsi.gc.ca/csas-sccs/applications/publications/index-eng.asp>

### 14. GLOSSARY

AAROM	Aboriginal Aquatic Resources and Oceans Management (AAROM) program - DFO's AAROM funds aggregations of First Nation groups to build the capacity required to coordinate fishery planning and program initiatives and is focused on developing affiliations between First Nations to work together at a broad watershed or ecosystem level where there are common interests and where decisions and solutions can be based on integrated knowledge of several 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 resource and continues to be the principal mechanism that supports the development of relationships with First Nations including consultation, planning and implementation of fisheries, and development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.
abundance	Number of individuals in a stock or a population.
aquaculture	As defined by the United Nations Food and Agriculture Organization (FAO), aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans and aquatic

	plants. Aquaculture implies some form of intervention in the rearing process to increase production, such as regular stocking, feeding, protection from predators, etc. It also implies individual or corporate ownership of the cultivated stock.
Area and Subarea	Defined in Section 2 of the <i>Pacific Fishery Management Area Regulations</i> . A map of Pacific Fishery Management Areas is available on the DFO internet site at: <a href="http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm">www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm</a>
ATP	Allocation Transfer Program - DFO's ATP facilitates the voluntary relinquishment of commercial licence eligibilities and the designation of the equivalent commercial fishing capacity to eligible Aboriginal groups as communal commercial licence eligibilities.
berried prawns	Refers to adult females carrying eggs under their tail (ovigerous). The eggs are visible and appear like a cluster of tiny red "berries" each about 1 mm in size. A female prawn will carry 2,000 to 4,000 eggs.
by-catch	The unintentional catch of one species when the target is another.
C&P	Fisheries & Oceans Canada, Conservation and Protection Branch.
carapace	The exoskeleton that covers the head and thorax, upon which commercial fishing size limits are based.
communal commercial licence	Issued to First Nation organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> for participation in the commercial fishery.
communal licence	Issued to First Nation's organizations pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
COSEWIC	The Committee on the Status of Endangered Wildlife in Canada.
crustaceans	A biologically related group of the class Crustacea that includes crabs, lobsters and shrimps.
Centre for Scientific Advice - Pacific (CSAP)	Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice Review Committee), chaired by DFO and including other federal and provincial government agency representatives and external participants.
Canadian Science Advisory Secretariat (CSAS)	Canadian Science Advisory Secretariat - coordinates the peer review of scientific issues for Fisheries & Oceans Canada. The different Regions of Canada conduct their resource assessment reviews independently, tailored to regional characteristics and stakeholder needs. CSAS facilitates these regional processes, fostering national standards of excellence, and exchange and innovation in methodology, interpretation, and insight.

DFO	Fisheries and Oceans Canada is the federal lead for safeguarding our waters and managing Canada's fisheries, oceans and freshwater resources. DFO supports economic growth in the marine and fisheries sectors, and innovation in areas such as aquaculture and biotechnology, and help ensure healthy and sustainable aquatic ecosystems through habitat protection and sound science.
escapement	The number of fish escaping the fishery and reaching the spawning grounds.
FAS	Frozen at sea.
fishing mortality	Death caused by fishing, often symbolized by the mathematical symbol <i>F</i> .
Food, Social and Ceremonial (FSC)	Fishing by First Nations for food, social and ceremonial purposes.
forager	An animal searching (foraging) for food.
Harvest document	Issued to a First Nation pursuant to the <i>Aboriginal Communal Fishing Licences Regulations</i> in respect of a First Nation's fishing right defined under treaty to carry on fishing and related activities for domestic (FSC) purposes.
Indigenous knowledge	There is no universal definition of Indigenous knowledge, and the composition of Indigenous knowledge should be determined by Indigenous peoples themselves. Indigenous knowledge is intricately tied to Indigenous worldviews and ways of life, rather than knowledge in a western sense. 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> .
IFMP	Integrated Fisheries Management Plan.
inshore	Coastal waters landward of the "surflines".
invertebrate	An animal without a backbone.
iREC	The Internet Recreational Effort and Catch Survey used to estimate monthly and total recreational catch and effort statistics, by area, type of fishing, and species.
landed value	Value of the product when landed by a licensed commercial fishing vessel.
landings	Quantity of a species caught and landed. "Landing" means the transfer of fish from a licensed vessel to land.

larvae	The stage of development between egg and juvenile; in prawns this is the planktonic stage.
moribund	The state of being dead; dead.
mortality	Relating to cause of dying; death.
natural mortality	Mortality due to natural causes, symbolized by the mathematical symbol <i>M</i> .
Observer	An individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries & Oceans Canada pursuant to Section 39 of the <i>Fishery (General) Regulations</i> .
offshore	Coastal waters seaward of the “surflines”.
PAB	Prawn Advisory Board, formerly Prawn Sectoral Committee, providing advice and recommendations to DFO on policy and management issues related to the prawn and shrimp by trap fisheries in the Pacific Region.
pelagic	Belonging to the upper layers of the open sea.
PICFI	Pacific Integrated Commercial Fisheries Initiative - DFO's PICFI is an initiative aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported.
plankton / planktonic	The chiefly microscopic organisms drifting or floating in the sea.
polychaete worms	An aquatic worm of the class Polychaeta.
population	Group of individuals of the same species, forming a breeding unit, and sharing a habitat.
PPFA	Pacific Prawn Fishermen's Association, registered in 2000, which enters into collaborative agreements with DFO for delivery of the commercial fishery.
prawn and shrimp	<i>Pandalus</i> and <i>Pandalopsis</i> species: In this plan, the term prawn refers solely to Spot Prawn, <i>Pandalus platyceros</i> , while the generic term shrimp refers to the other species of <i>Pandalus</i> and <i>Pandalopsis</i> . Prawns are the largest shrimp harvested on Canada's Pacific coast.
Precautionary Approach (PA)	In resource management, the precautionary approach 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 Fishery Decision-Making Framework Incorporating the Precautionary Approach for fisheries in Canada (PA) is available at: <a href="http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-back-fiche-eng.htm">http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-back-fiche-eng.htm</a>



protandric hermaphrodism	All pandalid shrimp species undergo a change of sex in midlife. They mature first as males and mate. Their sexual characteristics change during a transition phase and they become females in the final year or two of their lives. The biological term for this sex change is protandric hermaphrodism.
“pulse” fishing	Fishing closures for the first half of a month and openings for the remainder of the month.
quota	Portion of the total allowable catch that a fishing licence eligibility is permitted to take from a stock in a given period of time.
recruitment	The process whereby young animals are added to a fishable stock or population.
sampling program	A program in which representative samples of animals are collected for the calculation of parameter estimates that describe such things as weight, length or age within the general population.
SFAB	Sport Fishing Advisory Board, which provides advice to DFO on matters of recreational (sport) fishing.
shellfish	Any species of invertebrate that may be harvested in commercial, recreational or First Nations fisheries.
SMA	Special Management Areas include Saanich Inlet, Alberni Canal, Howe Sound and Indian Arm, and Salmon and Sechelt Inlets. Reduced trap limits apply.
spawner	Sexually mature individual. For prawns, this refers to females.
spawner index	The biological reference point to which the prawn fishery is assessed and managed. It is a measure of the average number of females or transitions (pre-females) caught per standard trap with standard bait fished for a 24-hour period (soak).
spawning stock	The sexually mature individuals in a stock. For prawns, this refers to females.
<i>Species at Risk Act (SARA)</i>	A federal Act to prevent wildlife species from being extirpated or becoming extinct and to provide for their recovery. It provides the legal protection of wildlife species and the conservation of their biological diversity.
stakeholders	Individuals or groups with an interest in a particular fishery or activity.
stock	Describes a population of individuals of one species found in a particular area, and is used as a unit for fisheries management.
stock assessments	Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reactions of populations to alternative management choices.

Subarea	A subdivision of an Area, as described in the Pacific Fishery Management Area Regulations. (See maps at Area or Subarea internet link above).
substrate	The ground (often the ocean bottom) and its composition, in or on which animals live.
tailed prawn	Prawns that have had the head and thorax removed which is the part covered by the carapace (shell). A minimum telson length is specified for tailed prawns.
telson	Middle segment of the prawn tail fan, at the most posterior portion of the tail.
tonne (t)	Metric tonne, which is 1000 kg or 2204.6 lbs.

## 15. CONTACTS

Observe, Record, and Report	1 800 465 4336
Fisheries Information and Shellfish Contamination Closure Update (24 Hours):	
Toll free	1 866 431 3474
Lower Mainland	(604) 666 2828
Commercial Fishery Hail Line	1 866 930 4000
Marine Mammal and Sea Turtle Incident Reporting Hotline	1 800 465 4336

### **Fisheries Management**

Regional Shellfish Co-ordinator	Lisa Mijacika	(604) 666 3869
Regional Fisheries Management Officer	vacant	(604) 666-7089
A/Regional Recreational Fisheries Co-ordinator	Greg Hornby	(250) 286-5886
National Fishery Monitoring Policy	Caroline Wells	(778) 939-8503

Resource Management Biologist  
3225 Stephenson Point Road, Nanaimo, B.C. V9T 1K3

Laurie Convey (250) 756 7233

North Coast Area	General Inquiries	(250) 627 3499
417 2nd Avenue West, Prince Rupert, B.C. V8J 1G8		
Resource Manager - Shellfish, Prince Rupert	Coral Cargill	(250) 627 3021
Aboriginal Affairs Advisor - First Nations Fisheries	Melanie Anthony	(250) 847 5108
Resource Manager - Recreational Fisheries	Darren Chow	(250) 627 3441

South Coast Area	General Inquiries	(250) 756 7270
3225 Stephenson Point Road, Nanaimo, B.C. V9T 1K3		
Resource Manager - Shellfish, Georgia Basin	Mike Kattilakoski	(250) 756 7315
Resource Manager - Shellfish, WCVI	David Fogtmann	(250) 339 3799
Resource Manager - First Nations Fisheries (North Is.)	Rachel Saraga	(250) 286 5807
Resource Manager - First Nations Fisheries (G. Basin)	Jonathan Joe	(250) 756 7243
Resource Manager - First Nations Fisheries (WCVI)	Kevin Conley	(250) 756 7196
Resource Manager - Recreational Fisheries	Erika Watkins	(250) 286 5882

Lower Fraser Area	General Inquiries	(604) 666 8266
Unit 3, 100 Annacis Parkway, Delta, B.C. V3M 6A2		
Resource Manager – Shellfish, Howe Sound / Area 16	Karen Vaudry	(604) 666 7089
Resource Manager - First Nations Fisheries	Brian Matts	(604) 666 2096
Resource Manager - Recreational Fisheries	Barb Mueller	(604) 666 2370

### **Science**

Pacific Biological Station	Andres Araujo	(250) 756 3367
Hammond Bay Road		
Nanaimo, B.C. V9T 6N7		

### **Conservation and Protection**

4250 Commerce Circle	Mya Cormie	(250) 363 3252
Victoria, B.C.		

### **Licensing**

Pacific Fishery Licence Unit	Phone	1 877 535 7307
401 Burrard Street, Vancouver, B.C. V6C 3S4	E-Mail:	fishings-peche@dfo-mpo.gc.ca

### **Aquaculture**

Shellfish Advisor, Aquaculture Division	Melinda Scott	(250) 754 0399
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### **Canadian Food Inspection Agency**

150-3001 Wayburne Drive, Burnaby B.C.	(604) 666 9904
103 – 4475 Viewmont Avenue, Victoria, B.C	(250) 363 3618
457 E. Stanford Avenue, Parksville, B.C.	(250) 248 4772

### **BC Ministry of Agriculture**

Industry Specialist, Marine Fisheries & Seafood	Darah Gibson	(604) 893 0260
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### **WorkSafeBC**

Manager, Prevention Field Services, Courtenay	Pat Olsen	(250) 334 8777
Occupational Safety Officer, Courtenay	Mark Lunny	(250) 334 8732
Occupational Safety Officer, Courtenay	Greg Matthews	(250) 334 8734
Occupational Safety Officer, Courtenay	Cody King	(250) 334 8733
Occupational Safety Officer, Victoria	Jessie Kunc	(250) 881 3461
Occupational Safety Officer, Lower Mainland	Bruce Logan	(604) 244 6477

Manager of Interest for Marine	Pat Olsen	(250) 334 8777
	toll free	1 888 621 7233 (ext. 8777)

Projects related to commercial fishing	Bruce Logan	(604) 244 6477
	toll free	1 888 621 7233 (ext. 6477)

### **Sighting Networks**

BC Cetacean and Sea Turtle Sighting Network  
Email: sightings@vanaqua.org or turtles@vanaqua.org  
On the internet at:  
<http://wildwhales.org/sightings/>  
<https://www.bcreptiles.ca/reportsightings.htm#1>

(866) 472 9663

Basking Shark Sighting Network  
Email: BaskingShark@dfo-mpo.gc.ca  
On the internet at:  
<http://dfo-mpo.gc.ca/species-especes/sharks/report-eng.html>

1 (877) 50 SHARK

## **16. CONSULTATION**

DFO undertakes consultations in order to improve decision-making processes, promote understanding of fisheries, oceans and marine transport issues, and strengthen relationships. Policy guidance and strategic direction for DFO's consultation activities is provided by the DFO Consultation Secretariat in the Policy Branch.

The multi-sector consultation body, the Prawn Advisory Board, includes participant members from First Nations, commercial licence eligibility holders, processors, and the SFAB. The Province of BC also participates as an ex-officio member.

The Prawn Advisory Board addresses issues that affect multiple interests and is not intended to interfere with bilateral processes related to Aboriginal and treaty rights. DFO engages in a variety of consultation and collaborative harvest planning processes with First Nations at the community level, or at broader tribal or watershed (for salmon) level in authorizing FSC fisheries under a communal licence or, under treaty, a harvest document for domestic purposes. Items from bilateral and local consultations with First Nations affecting multiple interests is brought forward to the Prawn Advisory Board's attention. DFO Resource Managers meet regularly with First Nations. First Nations interested in bilateral discussions with DFO should contact the Resource Manager for their area (Section 15 Contacts).

Improvements to manage the recreational and commercial fisheries are brought forward to the Prawn Advisory Board's attention, respectively, through the SFAB and commercial industry representatives.

Prawn Advisory Board meetings are held twice annually to provide advice to DFO regarding management issues pertaining to the fishery and on the proposed IFMP. Meetings are usually held in September (post-season review) and November (pre-season planning). Consensus recommendations on changes being considered to improve management and address emerging issues identified in the post-season review are the focus of pre-season planning. Following the pre-season planning meeting, the draft IFMP is prepared by DFO incorporating any new science advice and advice received through the advisory and bilateral process, and is made available to all interested parties for review and comment. The IFMP then progresses through an internal DFO approval process considering all advice received.

The Board's terms of reference is available from DFO's consultation internet site at:

<https://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/pab-ccc/tor-man-eng.html>

**Fisheries & Oceans Canada**

	<b><u>Name</u></b>	<b><u>Phone</u></b>
Chairperson, Resource Management Biologist	Laurie Convey	(250) 756 7233
North Coast Area	Coral Cargill	(250) 627 3021
South Coast Area, WCVI	David Fogtmann	(250) 339 3799
South Coast Area, ECVI	Mike Kattilakoski	(250) 756 7315
Fraser River Area	Karen Vaudry	(604) 666-7089
Science	Andres Araujo	(250) 756 3367
Conservation & Protection	Mya Cormie	(250) 363 3252

**Province of BC**

Marine Fisheries & Seafood	Darah Gibson	(604) 893 0260
WorksafeBC	Jesse Kunce	(250) 881 3461

**Participant Members**

	<b><u>Name</u></b>	<b><u>Phone</u></b>
Ahousaht Fisheries Corporation	Marion Campbell	(250) 670 2338
A-Tlegay Fisheries Society	Christa Rusel	(250) 203 4719
Haida Fisheries / Council of Haida Nation	Vanessa Bellis	(250) 626 3302
Ka:'yu:'k't'h'/Chek'tles7et'h' First Nations	Ron Frank	(250) 334 7997
Ka:'yu:'k't'h'/Chek'tles7et'h' First Nations	Anna Horel (alternate)	
Maa-nulth Fisheries Committee	Larry Johnston	(250) 927 3331
'Namgis First Nation	Brian Svanvik	(250) 974 5556
Nisga'a Fisheries and Wildlife	Blair Stewart	(250) 641 2865
Nuu-chah-nulth Ha'wiih and Nations	Jim Lane	(250) 724 1225
Pacific Prawn Fishermen's Association	Mike Atkins	(250) 802 3483
Pacific Prawn Fishermen's Association	Dennis Rutherford	(250)
Q'ul-Ihanumtsun Aquatic Resources Society	Chad Ormond	(250) 210 2255
Sea Plus Foods Ltd.	Ian Leitch	(604) 273 6686
Sport Fishing Advisory Board	Pat Ahern	(250) 954 8060
Sport Fishing Advisory Board	Ted Brookman	(250) 246 9704
Sport Fishing Advisory Board	Wayne Harling	(250) 753 1864
Tla'amin Nation	Cathy Galligos	(604) 483 9646

DFO appreciates the participant members participation in the advisory board meetings. Their commitment to the resource is acknowledged.

More information about First Nations consultation and other DFO consultative processes is available at:

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

**17. POST-SEASON REVIEW****17.1. Stock Assessment****17.1.1. In-season Spawner Index Sample Analysis**

During the 2020 commercial fishing season, the DFO Stock Assessment and Research Division (StAR) received a total of 1,813 spawner index samples for processing, which was down from 3,295 spawner index samples in 2019. The average number of samples per week was 343 which

was slightly lower than the most recent years (399 in 2019, 363 in 2018). This decrease in sampling is a side effect of COVID-19 health and safety restrictions imposed on the at-sea observer program. The spawner index sample data were processed and analyzed by StAR and in-season advice on stock strength was provided to fishery managers based on sample results.

These data are available from the Government of Canada's Open Data Portal on the internet at:

<https://open.canada.ca/en/open-data>

### 17.1.2. Post-season Spawner Index Surveys

Fall spawner index surveys were cancelled for the 2020 season due to COVID-19 restrictions. However, DFO conducted the survey in Howe Sound under safety protocols.

These fishery-independent surveys have been conducted since 2001 to monitor stocks prior to the spawning season relative to the spawner index reference points. DFO Science updated the CSAS Science Response 2012/041 to include new data from 2012 to 2019. The review of the 2001 to 2019 sampling results in relation to spawner index reference points found that the number of fall survey areas below the base (plus 10% for uncertainty) at least half the time to be 19 (out of 54) or 35%. Advice on stock strength was provided to fishery managers based on sample results.

These data are available from the Government of Canada's Open Data Portal on the internet at:

<https://open.canada.ca/en/open-data>

CSAS Science Response 2012/041 is available at:

<http://www.meds-sdmm.dfo-mpo.gc.ca/csas-sccs/applications/publications/index-eng.asp>

### 17.1.3. Rockfish By-catch

The rockfish by-catch monitoring program continued for the 2020 commercial fishery. The program has been in place since 2002 (Rutherford et al. 2009). The data collection for this program is funded by industry. At-sea observers are responsible for the collection of rockfish by-catch data as part of the in-season spawner index sampling program.

The annual number (point estimate) of juvenile rockfish incidentally caught between 2002 to 2019 ranged from a low of 13,564 in 2014 to a high of 32,023 in 2011. The 2019 mean estimate of juvenile rockfish by-catch is 18,670 pieces, which was down from 19,027 pieces estimated in 2018 (DFO, unpublished data 2019). The 2020 data are not available as not all logbooks are available at the time of IFMP publication.

Year	Mean Estimate	Upper 95% CI
2004	16,635	23,143
2005	14,385	20,244
2006	16,451	22,544
2007	18,078	24,949
2008	18,799	24,898
2009	28,658	35,352
2010	29,312	36,265
2011	32,023	39,786
2012	25,829	32,637
2013	21,568	27,192
2014	13,575	18,116

Year	Mean Estimate	Upper 95% CI
2015	21303	27,362
2016	17,351	22,241
2017	15,348	20,126
2018	19,027	23,446
2019	18,670	22,656

#### 17.1.4. Howe Sound Study Area

DFO StAR continued its semi-annual survey of Howe Sound prawn stocks with surveys in February and November, 2020. Established in 1985, this represents a unique and invaluable time series data set for understanding prawn recruitment and productivity parameters.

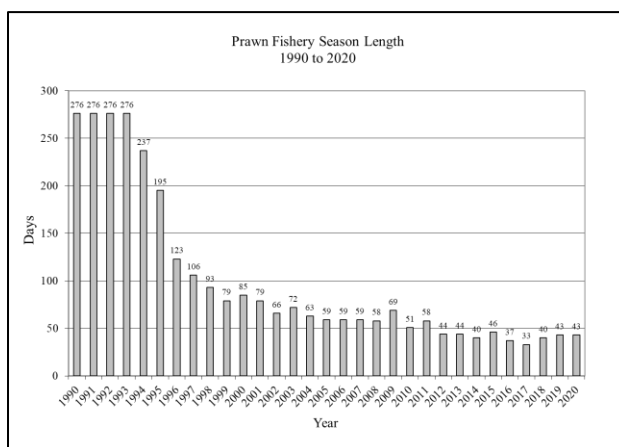
#### 17.2. Sustainability Fisheries Survey

The 2018 Sustainability Survey for Pacific Prawn is available at:

<http://dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html>

#### 17.3. Commercial Fishery

A post-season review of the 2020 commercial prawn fishing season was undertaken at the Prawn Advisory Board meeting October 8, 2020. The commercial season commenced June 4, 2020 and closed July 16, 2020 (43 days). The 2020 season, originally scheduled to open no earlier than May 7, 2020, was delayed due to the ongoing Coronavirus Disease 2019 (COVID-19) global pandemic. Due to market uncertainties, the Province of BC's declaration of a provincial state of emergency (March), and the suspension by the Minister of Fisheries and Oceans Canada of all at-sea observers to help control the spread of COVID-19, the PPFA in collaboration with the prawn industry caucus representatives, the BC Seafood Alliance and the major prawn processors in BC requested a delay to the start of the prawn season until June 4, 2020. A delayed season provided time for vessel operators and processors to work through the new guidelines for safe operations and for the PPFA and J.O. Thomas and Associates Ltd. (JOT) to work with DFO on safety protocols for the at-sea sampling program. Due to the season delay, the preliminary commercial prawn catch for 2020 (all logbooks) and price data (sales slip data) were not available at time of publication.

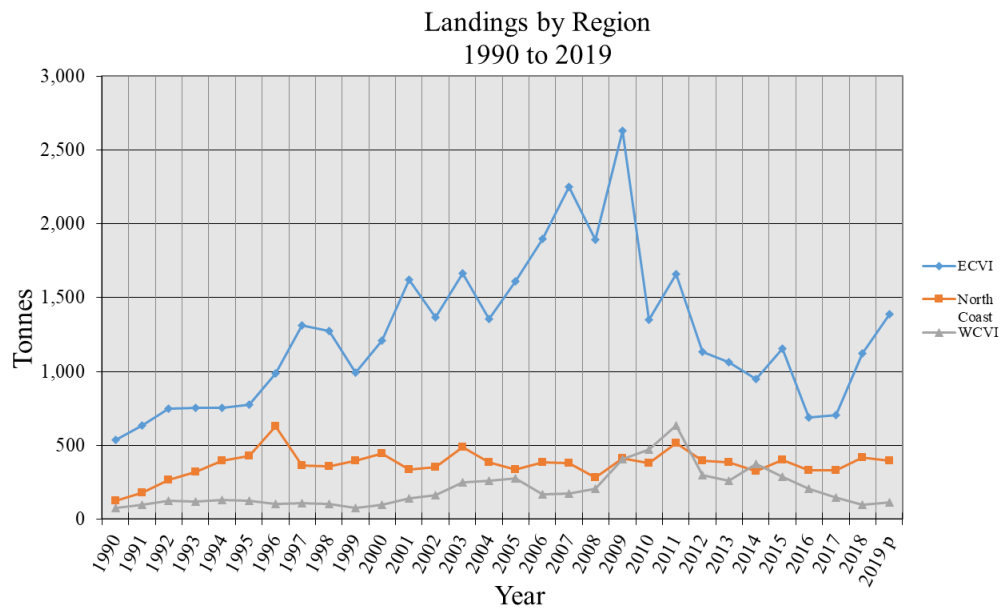


A summary of commercial prawn landings (from logbooks), price (average from fish slips) and landed value from 2001 to 2018 is provided in the following table. Section 4.1 provides a graph of annual landings and value adjusted for inflation to compare trends and is presented in 2019

constant dollars (2019\$). The economic impact of the global COVID-19 pandemic is not yet known on the frozen-at-sea export markets. Most prawns and shrimp are frozen-at-sea for export markets to China, USA and Japan, which have also been under states of emergency. The PPFA and processors were reporting prawns in inventory from 2019 with the cancellation of the Olympics in Japan and New Years in China due to the pandemic. The delayed 2020 season appeared to have provided time for some local markets to meet the new BC health guidelines for local sales of live, fresh and frozen prawns.

Year	Landings (t)	Price (\$/kg)	Landed Value (2019\$)
2019	1,982	\$17.15	\$33.9 M
2018	1,657	\$25.76	\$42.7 M
2017	1,178	\$25.98	\$30.6 M
2016	1,227	\$18.54	\$22.7 M
2015	1,842	\$16.81	\$31.0 M
2014	1,648	\$25.13	\$41.4 M
2013	1,706	\$22.40	\$38.2 M
2012	1,827	\$20.07	\$36.7 M
2011	2,804	\$18.44	\$51.7 M
2010	2,198	\$11.99	\$26.3 M
2009	3,446	\$11.33	\$39.0 M
2008	2,376	\$12.79	\$30.4 M
2007	2,801	\$12.31	\$34.5 M
2006	2,449	\$20.83	\$51.0 M
2005	2,228	\$26.05	\$58.0 M
2004	2,003	\$19.66	\$39.4 M
2003	2,408	\$18.47	\$44.5 M
2002	1,885	\$14.42	\$27.2 M
2001	2,104	\$21.35	\$44.9 M

*Note: Sources of data are the same as in Section 3.1; landed value for 2019 is preliminary and is based on prices from sales slips and does not include post-season price adjustments.*



Source: DFO commercial logbooks (2019 preliminary).



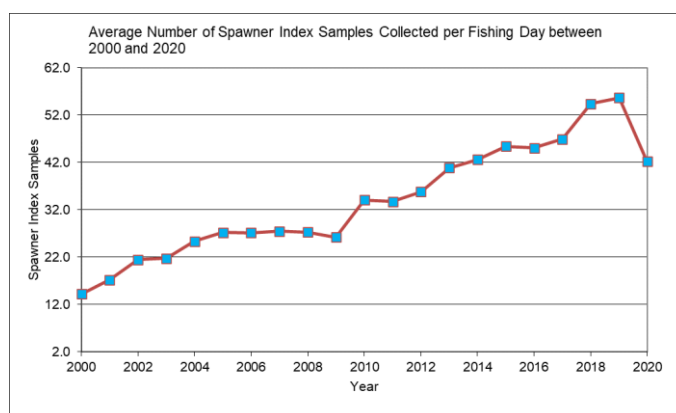
JOT delivered at-sea monitoring components of the fishery in 2020. JOT issued trap tags to 202 active vessels (212 in 2019), of which 167 (183 in 2019) were licenced for a single trap allotment and 35 (29 in 2019) were licenced with the additional trap allotment transferred from another licence.

Spawner index sampling methods usually involve at-sea observers onboard the working decks of active fishing vessels. On April 2, 2020, the Minister of Fisheries and Oceans temporarily suspended all at-sea observers nationally from boarding fishing vessels to help control the spread of COVID-19. This necessitated the development of alternative methods to collect spawner index data safely, which considered COVID-19 risks, and with enough intensity and coverage to satisfy fisheries management requirements. No “ride along” assignments were used in 2020. Assignments used work skiffs as sampling platforms, either tied alongside (33% of sets sampled) or standing off (6% of sets sampled) active fishing vessels, some with 2 observers, and restricted onboard sampling under safety protocols on larger vessels with physical distancing (61% of sets sampled).

Twenty-one at-sea observers were deployed coast-wide. This included four north and central coast assignments and eight south coast assignments. Some observers have participated annually since monitors have been an integral component of the commercial fishery. Their experience and contribution to delivery of the fishery and on-board training of new observers has been invaluable. The DFO field team did not deploy in 2020 with cancellation of all field work under the provincial state of emergency at that time due to the COVID-19 pandemic.

Vessel position and set and haul position reports were received near real time and used to direct at-sea observers for spawner index sampling. A total of 471,000 position reports (389,000 vessel position reports and 82,000 set and haul position reports) were received during the June 4 to July 16, 2020 season. This position information is used in-season for decision-making related to vessel and fishing effort, sampling planning and in-season closures. It also provides location information to direct enforcement effort. Position reporting was reduced to every 30 minutes (from 15 minutes) with costs redirected toward safely conducting the at-sea sampling.

In 2020, 1,813 strings were sampled for spawner index data. On average, 42.2 strings/fishery day were sampled. The following graph compares the number of samples collected per day compared to previous years (2000-2020). 196 of the 202 active fishing vessels (97%) were sampled. A total of 569 person-days of on-grounds monitoring occurred for this year’s 43-day fishery. Sampling commences early in priority interest areas in Saanich Inlet, Stuart Channel, Alberni Canal, and Howe Sound.



Source: J.O. Thomas and Associates Ltd.

At-sea observers also provided vessel gear inspections of 77% (156) of the 202 active vessels. Inspections provide an “observe, record and report” function for assessment of each vessel’s compliance with basic licence requirements for trap tagging, trap mesh size, buoy identification and logbook completion. At-sea observers continued to collect information about rockfish by-catch (since 2002).

The 2020 season was the 19<sup>th</sup> year in which delivery of the commercial fishery was supported by industry funding arrangements between DFO and the PPFA (Section 9).

There is a limited trap fishery for Humpback Shrimp in Prince Rupert Harbour open from September 1 to December 31, annually, upon application. Prawns may not be retained in this fishery. Six vessels opted to fish in 2020. Masset Inlet in Haida Gwaii may open on request for Humpback Shrimp but fishing in this area is rare.

Sooke Harbour and Basin is open for Coonstripe Shrimp in the fall but has received little to no effort since 2007.

Incidental octopus retention is permitted in the prawn and shrimp trap fishery. The PPFA encourages all prawn and shrimp trap harvesters to accurately record octopus catch so that this privilege may be retained.

#### **17.4. Recreational Fishery**

A Survey of Recreational Fishing in Canada is conducted every five years and shows trends over the survey period but is not considered to provide official catch figures due to one year memory recall. The estimated recreational catch of prawns and shrimp was 326 t in 2010, which was 13% of the combined recreational and commercial catch of prawns and shrimp (Fisheries and Oceans Canada 2012). Regional results from the 2015 survey are not available.

DFO met with SFAB to discuss the survey shortfall and options for the areas that were not sampled in fall 2020 due to COVID-19 health risks (Section 17.1.2 and Appendix 2). As a precautionary approach in the absence of stock information, Quadra/Cortes Islands (Subareas 13-12, 13-16, and 13-17), Lund (Subareas 15-2 and 15-3), Madeira Park (Subareas 16-1, 16-2, 16-9, 16-10, and 16-16 to 16-18), Sechelt Inlet (Subareas 16-5 and 16-8), Stuart Channel (Subareas 17-5, 17-6, and 17-9), inside Nanaimo (Subarea 17-16), Saanich Inlet (19-7 to 19-12), Alberni Inlet /Barkley Sound (Subareas 23-1 to 23-4) and Tahsis/Muchalaht Inlets (Subareas 25-1 to 25-5 and 25-16) were closed during the spawning season this year (January 1 to March 31, 2021). Where the frequency of being below the spawner index was lower (about one in three years) in past surveys, pulse fishing closures (closed from the 1<sup>st</sup> to the 15<sup>th</sup> and open from the 16<sup>th</sup> to the end of each month) were applied to parts of Quadra/Cortes Island (Subareas 13-1 and 13-13 to 13-15), Powell River (Subarea 15-1), Sechelt Inlet (Subareas 16-6, 16-7, and 16-11), Nanaimo (Subareas 17-10 to 17-13, 17-15, and 17-18) and Tahsis Inlet (Subarea 25-8). The SFAB’s first preference was to keep these areas open year-round to recreational fishing, stating that requirements to release prawns with eggs and reductions in the daily limit mitigate conservation risks. In the alternative, the SFAB was generally supportive of the management measures, with the exception of requesting that part of Saanich Inlet, Alberni Inlet, and Muchalaht Inlet (Subareas 19-7, 23-2, and 25-2) remain open to pulse fishing and part of Nanaimo and Quadra Island (Subareas 13-14, 17-10, and 17-11) fully open through the spawning period. They also recommended all areas re-open to recreational fishing March 16, 2021, before spawning completes.

A Recreational and First Nation prawn and crab buoy survey program was conducted from 2009-2012 to provide DFO with improved knowledge of recreational and First Nations FSC fishing effort and locations in key prawn and crab fishing areas on the south coast of BC. The program was conducted by working collaboratively between DFO, First Nations, and volunteers from the recreational fishing sector who had offered to conduct buoy counts and carry out the data collection. (For a summary of the buoy count program see Section 6.3 of the 2019/20 Integrated Fisheries Management Plan for Prawn and Shrimp by Trap).

### **17.5. First Nations Fisheries**

DFO has been working with First Nations since 2012 about measures for the FSC and domestic prawn fisheries to manage the harvesting capacity of commercial vessels and gear (Section 5.2.3). These bilateral discussions between DFO and individual First Nations or organizations focus on FSC and domestic needs, current practices, and management measures that may work for First Nations and DFO. Most (75%) of the conversations to date have been about the First Nation's fishing plan details to use their commercial prawn vessels (27 of 36 vessels) to harvest prawns for FSC or, under treaty, domestic purposes. Most of the activity and catch has been in April-May, prior to the commercial prawn season in the south coast.

Quarterly catch reporting is required under AFS agreements but shellfish catch information is reported only by some First Nations, through fisheries program personnel or by Band administration offices. Based on the available reports, 19.7 t of prawns caught were reported in 2020.

Areas previously identified as important by First Nations continue to be monitored with special attention. This included Saanich Inlet, Village Island area in Johnstone Strait, Uchucklesaht Inlet in Alberni Canal, Cumsheewa Inlet in Haida Gwaii and Loughborough Inlet northeast of Campbell River.

DFO released in 2019 the first Five Nations Multi-Species Fishery Management Plan (FMP), developed in consultation with the Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island that have an aboriginal right to fish for any species, with the exception of Geoduck, within their court-defined fishing territories and to sell that fish. A post-season review of 2020 was held on November 9, 2020.

The Five Nations Multi-species Fishery Management Plan, April 1, 2020 - March 31, 2021 for salmon, groundfish, crab, prawn, and gooseneck barnacle is available at:

<https://science-catalogue.canada.ca/record=4091920~S6>

### **17.6. Compliance**

DFO Conservation & Protection is focused on building its capacity to conduct intelligence-led "major case" investigations and seeking higher success in prosecutions.

#### **17.6.1. Conservation and Enforcement**

DFO Conservation & Protection was provided \$25K of funding under the collaborative agreement with the PPFA in 2020 (Section 9). This was mobilization funding, intended for additional surveillance; day, evening and weekend patrols, evidence collection, and preparation of case materials and

attendance at court for an enhanced compliance assessment to identify improvements and new directions related to the program.

Fishery Officers dedicated a total of 1,775.5 patrol and non-patrol enforcement hours to the 2020 commercial prawn fishery and conducted 405 vessel, 1,195 gear, 905 persons, and 2 vehicle checks. Approximately 43 restaurant/retail/plant inspections were also conducted for illegal sales. Twenty-five violations were encountered during the commercial fishery for fishing during closed time/area, registration/licence, reporting, gear illegal/used illegally.

Fishery Officers dedicated a total of 1,785.25 patrol and non-patrol enforcement hours to the recreational shellfish (non-bivalve) fisheries to date, which includes prawn and shrimp and crab by trap, and conducted 145 vessel, 362 gear, 589 persons, and 25 vehicle checks. One hundred and fifty-four violations were encountered for fishing during closed time/area, obstruct, gear illegal/used illegally, gear conflict, registration/licence, quota/bag limit and illegal buy/sell/possess.

Fishery Officers dedicated a total of 1,480.75 patrol and non-patrol enforcement hours to the Aboriginal shellfish (non-bivalves) fisheries to date, which includes prawn and shrimp, and conducted 109 vessel, 614 gear, 174 persons, and 38 vehicle checks. Ten violations were encountered for area/time, gear illegal/used illegally and registration/licence.

#### **17.6.2. At-sea Observers**

In 2020, JOT at-sea observers collected biological samples from 196 of the 202 commercial vessels. In so doing, they provide also an Observe, Record and Report (ORR) function, including 156 limited (under COVID-19 safety protocols) at-sea gear and logbook inspections. In all, 77% of the commercial fleet was checked for general compliance by at-sea observers during the season.

### **17.7. Ecosystem**

At-sea observers continued to collect information about rockfish by-catch (since 2002). The collection of marine mammal by-catch information was added to the observers' duties in 2019.

Five new live glass sponge reefs in Howe Sound and a sixth reef site with no observed live sponge cover were confirmed by DFO Science through remote operated vehicle (ROV) and drop camera surveys (CSAS Science Response 2020/026). Consultations began in late 2020 toward protecting these sites through closures to all bottom contact fishing, including prawn and shrimp trap, in 2021.

DFO is undertaking a multi-year review of the conservation effectiveness of RCAs, including meeting the new national criteria and standards for marine refuges to conserve sensitive areas and contribute towards Canada's marine conservation targets. In late 2020, phase II began its focus starting with consultations in conjunction with the Howe Sound Glass Sponge Reefs on 22 RCAs in the South Coast Inlets from Jervis Inlet to Indian Arm. RCAs may contribute <1% to Canada's marine conservation target. More than 17% of prawn and shrimp fishing occurs in RCAs.

One young transient killer whale entangled in recreational prawn gear off Nanaimo in June and was able to free itself as the DFO rescue team arrived on scene.

In 2019 it became a condition of license for commercial harvesters to report lost and retrieved fishing gear. Not reporting lost and or retrieved gear is now a chargeable offence that can have international trade implications. In 2020, DFO funded seven organizations in Pacific Region to

work on the retrieval, collection and responsible disposal of lost or otherwise discarded fishing gear.

DFO worked with the commercial fishing industry to submit a progress report to the USA NOAA in preparation for the final submission for comparability finding under the USA *MMPA* that will be required to maintain continued USA market access (Section 5.4.5).

Information about the Sustainable Fisheries Solutions and Retrieval Support Contributions Program (Ghost Gear Fund) is available at:

<https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/program-programme/projects-projets-eng.html>

State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2019 is available at:

<https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2019/index-eng.html>

## Appendix 1: 2021/22 Prawn and Shrimp by Trap Commercial Harvest Plan

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## **1. COMMERCIAL HARVEST PLAN CHANGES FOR 2021**

- 1.1. The 2021 commercial season is scheduled to open no earlier than 12:00, noon, May 14, 2021. This delay is to allow for increased biomass growth, while also allowing time between the prawn season and other summer fisheries. All openings are tentative until confirmed by issuance of a variation order accompanied by a fishery notice (Section 2.1 and 3.5).
- 1.2. DFO implemented a number of measures in 2018 for Southern Resident Killer Whales, including measures aimed at increasing prey availability and accessibility – particularly Chinook salmon – and reducing threats related to physical and acoustic disturbance in key foraging areas. DFO is reviewing previous measures, in consultation First Nations and stakeholders, with a view to determining whether different, adjusted, and/or additional measures may be required by June 2021. These measures may include fishery closures or other area-based measures implemented pre-season or (in some cases) in-season. DFO is currently exploring the use of spatially-based measures to help protect Southern Resident Killer Whales. More information and longer term measures will be posted online as it becomes available (<https://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/srkw-ers/index-eng.html>).
- 1.3. Glass Sponge Reefs Marine Refuges are proposed for closure to all bottom-contact fishing, including prawn and shrimp trap, in Howe Sound in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island. Closures and coordinates will be announced by fishery notice (Section 3.3.28).
- 1.4. The boundaries of the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Areas Adaptive Management Zones may be revisited based on a review of new science information on sediment suspension from mobile bottom-contact fishing gear. Changes may be announced in-season by fishery notice (Section 3.3.30).
- 1.5. In addition to specifying the trap and groundline limit, DFO is still considering changes to place a limit on the maximum number of traps that may be set on each groundline to support enforcement compliance of trap limits (Section 4.5).
- 1.6. A single identifying number shall be added to the pair of buoys or PVC pipe at each end of a groundline so that other vessels can tell where the groundline is located, and help to reduce oversetting (Section 4.5.8).
- 1.7. Prawns and shrimp must be transported by the licensed vessel directly to land (Sections 4.8, 5.1, 5.2).
- 1.8. Vessel masters are reminded that the vessel monitoring system (VMS) must be turned on and operational all season. It is a violation of the licence condition to turn off or power off the VMS equipment at night time or at any time during the fishing season (Section 7.2).
- 1.9. Licence holders and vessel masters are reminded that for each VMS unit installation, replacement, transfer, or change to the licence holder, a completed National Vessel Monitoring System (VMS) Form must be forwarded to DFO before commencing fishing. This includes any change to the FW licence (and licence holder) designated, or “leased”, to your vessel. Transfer refers to transfer of the VMS unit from one vessel to another (Section 7.2).



- 1.10. Please see Section 6.4.2 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap for additional initiatives under the Government of Canada's commitment to meeting marine conservation targets.
- 1.11. Please see Section 6.4.3 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap for information about the comparability finding that will be required to meet USA *Marine Mammal Protection Act* provisions for the import of seafood products into the USA.

## **2. OPEN TIMES**

### **2.1. Coast-wide**

The commercial prawn and shrimp by trap fishing season is scheduled to open no earlier than 12:00, noon, May 14, 2021. This will include in-shore and offshore areas and the Special Management Areas (SMA).

All openings referred to in this plan are tentative until confirmed by issuance of a variation order accompanied by a fishery notice.

### **2.2. Prince Rupert Harbour**

The Prince Rupert Harbour Humpback Shrimp fishery will open no earlier than 12:00 hours (noon), September 1, 2021 and will remain open until further notice or until 19:00 hours, December 31, 2021, whichever occurs first. The opening will be confirmed by a variation order accompanied by a fishery notice.

Fish harvesters are required to request and receive amended Conditions of Licence from the National Online Licensing System (NOLS). Amended Conditions of Licence are required once arrangements have been made to provide observer coverage and sampling for this fishery as described in Section 5.1. Standardized biological sampling information for Humpback Shrimp is being collected.

### **2.3. Masset Inlet**

The Masset Inlet Humpback Shrimp fishery will open on request to the North Coast Area Resource Manager (see Contacts in Section 14 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap) no earlier than 12:00, noon, May 14, 2021 (Section 2.1) and will remain open until further notice or until 19:00 hours, December 31, 2021, whichever occurs first. The opening will be confirmed by a variation order accompanied by a fishery notice.

### **2.4. Sooke Harbour and Basin**

Sooke Harbour and Basin (Subareas 20-6 and 20-7) will open at 12:00 hours (noon), November 1, 2021 for a Coonstripe Shrimp trap fishery and will remain open until further notice or until 19:00 hours, December 31, 2021, whichever occurs first. Alternative opening dates for a two month fishery will be considered if recommended by the industry representatives. The opening will be confirmed by a variation order accompanied by a fishery notice.

### **2.5. Daily Fishing Hours**

Other than the first day of any opening, trap gear may only be set, hauled, handled, or re-set between 07:00 hours and 19:00 hours. On the first day of an opening, trap gear may only be set, hauled, handled, or re-set between 12:00 hours (noon) and 19:00 hours. Only one haul per day of each string is permitted.

### **3. CLOSURES**

#### **3.1. In-season Closures**

There is no fixed date for the closure of the commercial fishery. In-season commercial fishery closures of local areas will be announced as spawner indices in those areas drops to a level 10% above the minimum monthly index (Boutillier and Bond 2000). A level 25% above the minimum monthly index is applied in Howe Sound and Indian Arm (Subareas 28-1 to 28-7, 28-9, 28-11 to 28-14), Powell River (Subareas 15-1, 15-2, 15-3), Malaspina Strait / lower Jervis (Subareas 16-1, 16-2, 16-10, 16-16 to 16-18) and Nanaimo (Subareas 17-10 to 17-13, 17-15, 17-16, 17-18). A level that equates to 50% above the minimum monthly index is applied in Saanich Inlet (19-7 to 19-12), Stuart Channel (17-5, 17-6, 17-9) and Alberni Inlet (Subareas 23-1 to 23-3) under the adaptive management strategy developed collaboratively by recreational and commercial fishing representatives in 2006. Sampling coverage, time to next achievable sampling and fishing effort are also considered. Subareas adjacent to sampled areas may also close (Section 3.2).

Closure of the commercial fishery in all other areas occurs when the remaining open fishing grounds are considered by DFO fishery managers to be too limited in extent to support continued fishing by the remainder of the fleet. Based on recent seasons (2016-2020 average), the commercial fishery is anticipated to be about 40 days long in 2021.

All closures will take effect at 19:00 hours unless otherwise announced.

#### **3.2. Procedure for In-season Decision Making**

During the commercial fishery, there are twice weekly in-season conference calls at which time DFO fishery managers and Science (Stock Assessment and Research Division) personnel and a representative of the industry service provider co-ordinating at-sea observers review the available spawner index sample results and fishing effort (set/haul and vessel position reports). Comments that have been received from the at-sea observers, fish harvesters, and buyers are considered. Vessel movement patterns in the past week are summarized to assess changing distribution of effort. The ability to sample areas showing signs of fishing effort is determined. Decisions are made by DFO about areas for closure and sampling. Subareas close in-season as required on the basis of the following:

- a.) Approaching spawner index values;
- b.) Approaching spawner index values in an adjacent Subarea where prawn grounds are contiguous;
- c.) To provide a stock reservoir for adjacent areas having low spawner indices;
- d.) Adequacy of spawner index sampling and time to next achievable sampling by at-sea observers;
- e.) If DFO is of the opinion that there is too great a concentration of vessels such that the fishery in an area is considered to be unmanageable;
- f.) If non-compliance is occurring and enforcement cannot be achieved;
- g.) If there are insufficient funds to continue to manage and monitor the fishery, or to continue in a specific remote coastal area;
- h.) At the end of the season as determined by DFO.

The time from sampling to closure is usually four to six days. On occasion, closures may be put into effect within a week of sampling and in some cases within 48 hours.

As individual coastal areas close during the season, fleet mobility increases, and vessel effort is concentrated into the remaining open areas. The effect of fishing may be seen as more variable spawner index results. Manageability of the remaining fishing effort becomes increasingly challenging due to the concentration of gear contributing to the decision for a final coast-wide closure. A coast-wide closure decision is made when the remaining open coastal areas are showing signs of being fished to the target index. Fish harvesters' and buyers' comments from the fishing grounds may also be considered to direct sampling and inform the decision for final closure of the prawn fishing season.

Areas remain closed until the prawn spawning cycle completes and the fishery opens in the following year.

### **3.3. Area Closures, Octopus Closures and Advisories**

Unless otherwise noted, the following areas are closed to prawn and shrimp trap fishing. In areas noted for octopus closures, all octopus must be released unharmed.

#### **3.3.1. Area 1 Closure**

3.3.1.1. Masset Inlet (Subarea 1-6): Closed to retention and possession of prawns at all times. Closed until 12:00, noon, May 6, 2021 (earliest) for Humpback Shrimp trap fishing. (Humpback Shrimp trap fishing area)

#### **3.3.2. Area 2 Closures**

Users of the Gwaii Haanas marine area should be aware that, as specified in the *Gwaii Haanas Agreement*, there is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise". 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.

3.3.2.1. Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay): Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311'N and 131°35.794'W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340'N and 131°35.859'W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52° 23.489'N and 131°36.092'W, thence southwesterly to a point in water at 52° 18.982'N and 131°43.957'W, thence northwesterly to a point in water at 52° 38.114'N and 132°10.004'W, thence southeasterly to a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177'N and 131°56.374'W, and thence southerly following the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point.

3.3.2.2. SGang Gwaay (Wailing Island): Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210'N and 131°15.838'W easterly following the shoreline to 52° 07.440'N and 131°14.307'W, thence southeasterly to a point on the northern shoreline of K'il (Flatrock Island) at 52°06.468'N and 131°10.300'W,

thence easterly following the shoreline to 52°06.388'N and 131°10.079'W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018'N and 131°09.391'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884'N and 131°09.283'W, thence southeasterly to 52°05.806'N and 131°09.208'W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787'N and 131° 09.097'W, thence northeasterly to the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788'N and 131°08.938'W, thence easterly following the shoreline and thence crossing the channel to 52°05.778'N and 131°08.861'W, thence southeasterly following the shoreline to 52°05.741'N and 131°08.788'W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52° 05.708'N and 131°08.697'W, thence easterly across the channel to 52°05.709'N and 131°08.673'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468'N and 131°08.425'W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414'N and 131°07.720'W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52° 04.366'N and 131° 07.720'W, thence southwesterly to a point in water at 52° 03.175'N and 131°14.399'W, thence northwesterly to a point in water at 52° 05.826'N and 131°17.913'W, and thence northeasterly back to the beginning point.

3.3.2.3. Gangxid Tllgaay (South Kunghit Island): Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689'N and 131°03.375'W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343'N and 130° 59.788'W, thence southeasterly to a point in water at 51°50.159'N and 130° 53.207'W, thence southwesterly to a point in water at 51°47.954'N and 130° 53.613'W, thence northwesterly to a point in water at 51°54.927'N and 131° 07.801'W, and thence northeasterly to the beginning point.

3.3.2.4. Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point): Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T'awts'iiGaay (islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.598'N and 130°56.368'W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652'N and 130°56.414'W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734'N and 130° 56.365'W, thence northeasterly to a point in water at 52°10.225'N and 130° 49.512'W, thence southwesterly to a point in water at 52°02.632'N and 130° 50.910'W, thence northwesterly back to the beginning point.

3.3.2.5. Kayjuu Kun (Benjamin Point): Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262'N and 131°01.993'W northerly following the eastern shoreline to 52°13.232'N and 131°00.777'W, thence northeasterly to a point in water at 52°17.724'N and 130°55.078'W, thence southeasterly to a point in water at 52°12.476'N and 130°49.103'W, and thence southwesterly back to the beginning point.

3.3.2.6. St'aa K'ii GawGa (Flamingo Inlet) – Head: Those waters of Subarea 2-37 north of a line drawn from a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455'N and 131°22.232'W southeasterly across St'aa K'ii GawGa

(Flamingo Inlet) to a point on land on the opposite shore at 52°14.228'N and 131°21.503'W.

3.3.2.7. GawGajaang (Louscoone Inlet) – Head: Those waters of Subarea 2-34 north of a line drawn from a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.841'N and 131° 15.670'W northeasterly across the inlet to a point on the opposite shoreline of GawGajaang (Louscoone Inlet) at 52°12.245'N and 131°14.568'W.

3.3.2.8. K'insiGid (Rose Inlet) – Head: Those waters of Subarea 2-18 north of a line drawn from the western shoreline of K'insiGid (Rose Inlet) on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.327'N and 131°08.370'W northeasterly across the inlet to a point on the opposite shore at 52°11.328'N and 131°07.115'W.

3.3.2.9. GawGan (Huston Inlet) – Head: Those waters of Subarea 2-15 south of a line drawn from a point on the western shoreline of GawGan (Huston Inlet) at 52°15.732'N and 131°15.643'W northeasterly across the inlet to a point on the opposite shore at 52°16.111'N and 131°14.231'W.

3.3.2.10. Suu Kaahlia sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island): Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521'N and 131°14.153'W southeasterly to a point in water at 52°25.980'N and 131°04.477'W, thence southeasterly to a point in water at 52°22.825'N and 131°00.885'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124'N and 131° 18.347'W, thence northerly following the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°23.055'N and 131°23.441'W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52° 23.082'N and 131°22.916'W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147'N and 131°22.260'W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276'N and 131°21.333'W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949'N and 131° 15.569'W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315'N and 131°14.689'W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377'N and 131°14.683'W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494'N and 131°15.832'W, and thence following the eastern shoreline to the beginning point.

3.3.2.11. Gid Gwaa GyaaGa GawGa (Poole Inlet): Those waters of Subarea 2-14 south of a line drawn from a point on the shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) in Gid Gwaa GyaaGa GawGa (Poole Inlet) at 52°22.764'N and 131°18.249'W southeasterly across the inlet to a point on the opposite shore at 52°22.505'N and 131°17.665'W.

3.3.2.12. Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island): Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038'N and 131°28.071'W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone

Island) at 52°29.081'N and 131°24.042'W, thence southeasterly to a point on the northern shoreline of Gaadu Gwaay (Huxley Island) at 52°28.066'N and 131°21.772'W, thence southerly following the western shoreline of Gaadu Gwaay (Huxley Island) to 52°25.934'N and 131°21.927'W, thence southwesterly to the northern shoreline of GaysiiGa K'iidsii Gwaay (Section Island) at 52°25.435'N and 131°22.425'W, thence westerly following the northern shoreline of GaysiiGa 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.

3.3.2.13. Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island: Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074'N and 131° 26.535'W southeasterly to a point in water at 52°41.073'N and 131°14.523'W, thence southeasterly to a point in water at 52°38.666'N and 131°12.987'W, thence southwesterly to 52°35.106'N and 131°22.254'W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964'N and 131° 22.963'W, thence southwesterly across to 52°34.116'N and 131°25.603'W, thence southwesterly across to 52°33.844'N and 131°26.324'W, thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498'N and 131° 30.354'W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) at 52°32.405'N and 131°32.946'W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) to 52°32.435'N and 131°33.055'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211'N and 131° 34.475'W, thence easterly following the eastern shoreline to 52°32.956'N and 131°37.729'W, thence northeasterly to a point on the shoreline of Kings'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.

3.3.2.14. Didxwahxyangs (Darwin Sound): Those waters of Subarea 2-10 inside a line commencing at a point on land on Shuttle Island at 52°40.053'N and 131°42.328'W northeasterly to a point on the western shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°40.466'N and 131° 41.105'W, thence southerly following the western shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to 52°37.301'N and 131°38.800'W, thence northwesterly to a point on land of Gwaay DaaGaaw (Shuttle Island) at 52°38.522'N and 131° 41.409'W, and thence following the eastern shoreline of Shuttle Island to the beginning point.

3.3.2.15. T'aanuu K'aadxwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands): Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at

52°48.570'N and 131°39.433'W northeasterly to a point in water at 52° 49.383'N and 131°29.039'W, thence southeasterly to a point in water at 52° 48.148'N and 131°28.849'W, thence southwesterly to a point in water at 52° 44.898'N and 131°34.035'W, thence northwesterly to 52°45.113'N and 131° 34.125'W, thence following the northern shoreline of K'ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220'N and 131°35.574'W, thence southwesterly to a point on T'aanuu Gwaay (Tanu Island) at 52°45.002'N and 131°36.770'W, thence northerly following the eastern shoreline of T'aanuu Gwaay (Tanu Island) to 52° 46.725'N and 131°38.878'W, thence northwesterly across to a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837'N and 131°39.371'W, and thence northerly following the eastern shoreline to the beginning point.

### **3.3.3. Area 4 Closure**

3.3.3.1. Prince Rupert Harbour (Subareas 4-10 and 4-11): Closed to retention and possession of prawns at all times. Closed until 12:00, noon, September 1, 2021 (earliest) for Humpback Shrimp trap fishing. (Humpback Shrimp trap fishing area)

### **3.3.4. Area 6 Octopus Closure**

3.3.4.1. Subarea 6-2. (First Nations access for food, social and ceremonial purposes)

### **3.3.5. Area 12 Closure**

3.3.5.1. Robson Bight - Michael Bigg Ecological Reserve: Subarea 12-3 (portion). From a point on shore due north to a point at 50°30.33' N and 126°37.47' W then east to a point at 50°29.65' N and 126°30.23' W then due south to the shoreline. (Ecological Reserve).

Information about the Robson Bight - Michael Bigg Ecological Reserve and a map are available at:

[http://www.env.gov.bc.ca/bcparks/eco\\_reserve/robsonb\\_er.html](http://www.env.gov.bc.ca/bcparks/eco_reserve/robsonb_er.html)

### **3.3.6. Area 13 Octopus Closures**

3.3.6.1. 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 and Research Closure)

3.3.6.2. Mitlenatch Nature Park: As described in Area 15 Octopus Closures.

### **3.3.7. Area 14 Octopus Closures**

3.3.7.1. Hornby Island: Those waters of Lambert Channel and the Strait of Georgia, Subarea 14-7, inside a line commencing at Shingle Spit on Hornby Island, thence 239° true for 0.5 nautical miles, thence 126° true for 3.5 nautical miles, thence 64° true for 4.9 nautical miles, thence 304° true for 2.9 nautical miles, thence 213° true for 0.5 nautical miles to Cape Gurney on Hornby Island. (Marine Reserve)

3.3.7.2. Mitlenatch Nature Park: As described in Area 15 Octopus Closures.



### **3.3.8. Area 14 Glass Sponge Reef Closures**

3.3.8.1. Parksville: Those portions of Subareas 14-2 and 14-3 that lie inside a line that begins at 49°21.680'N and 124°19.762'W, then southeasterly to 49°21.514'N and 124°18.893'W, then to 49°21.191'N and 124°17.723'W, then to 49°21.064'N and 124°17.724'W, then to 49°20.725'N and 124°18.380'W, then to 49°21.432'N and 124°19.811'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.8.2. East of Hornby Island: That portion of Subarea 14-6 that lies inside a line that begins at 49°33.490'N and 124°29.230'W, then southerly to 49°32.701'N and 124°28.760'W, then to 49°31.657'N and 124°29.434'W, then to 49°31.663'N and 124°29.896'W, then to 49°32.651'N and 124°29.752'W, then to 49°33.340'N and 124°29.935'W, then to 49°33.498'N and 124°29.773'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

### **3.3.9. Area 15 Octopus Closures**

3.3.9.1. Vivian Island: All waters within 0.5 nautical miles of Vivian Island, located approximately 5.0 nautical miles west of Powell River in Subarea 15-2. (Marine Reserve)

3.3.9.2. Rebecca Rock: All waters within 0.25 nautical miles of Rebecca Rock, located 2.5 nautical miles west of Powell River in Subarea 15-2. (Marine Reserve)

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

3.3.9.4. Emmonds Beach Reef: 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)

3.3.9.5. Mitlenatch Nature Park: 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)

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

### **3.3.10. Area 16 Octopus Closure**

3.3.10.1. Skookumchuck Narrows Provincial Park: Those waters of Skookumchuck Narrows and Sechelt Rapids in Subarea 16-9 bounded on the west by a line from a point on the foreshore at the westerly limit of Secret Bay on Sechelt Peninsula thence 50° true to a point on the foreshore on the mainland; and the east by a line from Raland Point on Sechelt Peninsula, thence 50° true to a point on the foreshore on the mainland. (Park)

### **3.3.11. Area 17 Glass Sponge Reef Closure**

3.3.11.1. Gabriola (Entrance) Island: That portion of Subarea 17-11 that lies inside a line that begins at 49°13.672'N and 123°47.577'W, then southerly to 49°13.235'N and 123°47.429'W, then to 49°13.185'N and 123°47.882'W, then to 49°13.391'N and 123°48.119'W, then to 49°13.623'N and 123°48.166'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

### **3.3.12. Area 17 Department of National Defence Prohibited Area**

3.3.12.1. Winchelsea Island: Fish harvesters are advised that due to the large number of submarine cables terminating at Winchelsea Island the Department of National Defence prohibits all trap and bottom contact fishing and anchoring in a zone bounded by the following coordinates within the Military Sea Area WG: 49°18.456' N and 124°06.156' W, 49°17.128' N and 124°02.081' W, 49°17.274' N and 124°04.346' W, and 49°17.438' N and 124°05.138' W. (Department of National Defence Prohibited Area)

### **3.3.13. Area 18 Closure**

3.3.13.1. Satellite Channel: Closed year round in Subareas 18-6 and 18-7 starting at 48°42.472' N and 123°30.216' W, then to 48°42.815' N and 123°28.800' W, then to 48°41.883' N and 123°28.285' W, then to 48°41.540' N and 123°29.699' W, and then back to the point of origin. (British Columbia Provincial Ecological Reserve #67)

### **3.3.14. Area 18 Glass Sponge Reef Closures**

3.3.14.1. Outer Gulf Islands #2: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°52.588'N and 123°15.261'W, then easterly to 48°52.520'N and 123°14.537'W, then to 48°51.971'N and 123°13.768'W, then to 48°51.795'N and 123°13.947'W, then to 48°52.150'N and 123°14.444'W, then to 48°52.038'N and 123°14.678'W, then to 48°52.479'N and 123°15.521'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.14.2. Outer Gulf Islands #3: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°51.602'N and 123°13.233'W, then southerly to 48°51.309'N and 123°12.751'W, then to 48°50.913'N and 123°12.938'W, then to 48°50.844'N and 123°13.059'W, then to 48°51.163'N and 123°13.662'W, then to 48°51.579'N and 123°13.378'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.14.3. Outer Gulf Islands #4: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°50.999'N and 123°12.391'W, then southerly to 48°50.608'N and 123°11.603'W, then to 48°50.097'N and 123°10.956'W, then to 48°49.959'N and 123°11.182'W, then to 48°50.857'N and 123°12.654'W, then to 48°50.959'N and 123°12.566'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

### **3.3.15. Area 19 Sponge Reef Advisory**

3.3.15.1. Saanich Inlet: It is recommended that gear should avoid cloud sponge areas in Saanich Inlet in waters less than 40 metres depth at Henderson Point, at the mooring buoy northwest of Senanus Island, Willis Point, Repulse Rock, the point south of Misery Bay, Christmas Point, McCurdy Point and adjacent to the Bamberton cement plant.

### **3.3.16. Area 19 Saanich Inlet VENUS Advisory**

3.3.16.1. Subarea 19-8, Pat Bay: Fish harvesters are advised to avoid setting gear within Pat Bay in Saanich Inlet at locations as described in a notice to mariners to avoid entanglement with sea bed oceanographic instruments deployed by the Oceans Network Canada VENUS project. Please note that there are also power and data cables from the location running to shore. GPX formatted files available for use with Electronic Navigational Systems and additional information are available at:

<http://www.oceannetworks.ca/observatories/notices/information-mariners>

In event of fishing gear entanglement or other emergency incident, please call their 24-hour emergency line: 250-721-7599.

### **3.3.17. Area 19 Octopus Closures**

3.3.17.1. 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 Brothie Ledge Light, thence to Holland Point on Vancouver Island. (Marine Reserve)

3.3.17.2. 10 Mile Point: Those waters of Subareas 19-4 and 19-5 within 0.4 nautical miles of Cadboro Point navigation light. (Marine Reserve)

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

3.3.17.4. Saanich Inlet: Subareas 19-7 to 19-12 inclusive. (First Nations access for FSC purposes; recreational fishing permitted)

### **3.3.18. Area 20 Closure**

3.3.18.1. Sooke Harbour and Basin (Subareas 20-6 and 20-7): Closed to retention and possession of prawns at all times. Closed until 12:00, noon, November 1, 2021 for coonstripe shrimp trap fishing. (Coonstripe shrimp trap fishing area)

### **3.3.19. Area 20 Mooring Buoy Advisory**

3.3.19.1. Constance Bank: Mooring AS04 is deployed by the Institute of Ocean Sciences to help define the inflow of ocean water into the Georgia Basin along submarine depressions of Juan de Fuca Strait and Georgia Strait. The mooring is located at 48°18.00' N and 123°22.50' W in 117 metres depth. The mooring is entirely subsurface, standing only six metres tall above the bottom and consists of ocean current measuring devices, suspended from a three foot diameter yellow steel subsurface float and a cluster of one foot diameter orange plastic floats providing approximately 1/2 ton of buoyancy. It is held in place by a one ton anchor. If it is seen on the surface it will appear as a cluster of orange floats, closely attached to the large yellow float with a xenon flashing light active in the dark hours only at one flash per two seconds, and it will also transmit its location to satellite. A one kilometre clearance zone has been recommended by the Institute of Ocean Sciences.

### **3.3.20. Area 20 Octopus Closures**

3.3.20.1. Botanical Beach Provincial Park: That portion of Subarea 20-3 between the lowest low water on record and the highest high water on record from San Juan Point thence following the Vancouver Island shoreline easterly to the mouth of Tom Baird Creek. (Marine Reserve)

3.3.20.2. Pacific Rim National Park, Juan de Fuca: That portion of Subarea 20-1 between the lowest low water on record and the highest high water on record from Bonilla Light thence following the shoreline of Vancouver Island easterly to Owen Point. (Park)

### **3.3.21. Area 21 Octopus Closure**

3.3.21.1. Pacific Rim National Park: That portion of Area 21 between the lowest low water on record and the highest high water on record from Pachena Point thence following the Vancouver Island shoreline easterly to Bonilla Point. (Park)

### **3.3.22. Area 23 Closure**

3.3.22.1. 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. All commercial resource extraction is prohibited by the Park Act. (Park)

### **3.3.23. Area 23 Octopus Closures**

3.3.23.1. Pacific Rim National Park: That portion of Subarea 23 between the lowest low water on record and the highest high water on record from Whittlestone Point to Cape Beale. (Park)

3.3.23.2. Bamfield Marine Station Research Area Closure: Those waters of Subareas 23-4, 23-6 and 23-7 bounded by a line commencing at the light at Whittlestone Point and running directly to the southern tip of Haines Island; from the north-western tip of Haines Island to the southern tip of Seppings Island; from the north-western tip of Seppings Island to Kirby Point on Diana Island; from Kirby Point directly to the northwest tip of Fry Island; from the north-western 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)

### **3.3.24. Area 23 Neptune Project Advisory**

3.3.24.1. Neptune Project Advisory: The Neptune project includes data and power cables departing the shoreline just north of Polly Pt., then following the centre line of Alberni Canal and Trevor Channel to Barkley Canyon, Endeavour Ridge, and Middle Valley in the offshore. Other than the offshore, there is one instrument cluster proposed for Folger Passage near Hornby Rock in 23-7. Alberni Canal and Barkley Sound fish harvesters are recommended to get additional up to date information and maps from the Neptune web site:

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

### **3.3.25. Area 25 Sponge Reef Advisory**

3.3.25.1. Tahsis Narrows: It is recommended that gear should avoid cloud sponges and corals in Tahsis Narrows around Mozino Point in waters less than 80 metres depth.

### **3.3.26. Area 26 Octopus Closures**

3.3.26.1. Checleset Bay Fishery Closure Area: Those waters of Checleset Bay within Subareas 26-7, 26-8 and 26-10 and 126-1 on the northwest coast of Vancouver Island enclosed by a line drawn from a point on the Brooks Peninsula at 50°05.18' N and 127°49.58' W, then true south to the intersection with the parallel passing through 50°00.0' N, then easterly to Alert Point on Lookout Island, then northeasterly to 50°02.1' N and 127°25.03' W on Vancouver Island, then northwesterly following the shore of Vancouver

Island to 50°05.53' N and 127°28.95' W at Malksope Point, then true west to a point midchannel on the southeast end of Gay Passage at 50°05.53' N and 127°30.1' W, then to 50°06.7' N and 127°31.8' W, then to 50°07.7' N and 127°32.8' W, near Theodore Point, then westerly following the Vancouver Island shore to 50°08.75' N and 127°38.6' W on the east side of Nasparti Inlet, then westerly across Nasparti Inlet to 50°08.7' N and 127°37.8' W on Vancouver Island, then following the shoreline of Vancouver Island to the beginning point. (Ecological Reserve)

3.3.26.2. Kyuquot Sound Marine Communities Study Area: Those waters consisting of: Kyuquot Bay: A portion of Subarea 26-6 inside or northerly of a line from White Cliff Head to Racoon Point; and

Entrance to Crowther Channel: From the western point of Union Island at 50°0.35' N and 127°19.29' W, northerly along the shoreline to 50°0.50' N and 127°19.25' W, then westerly to a point on an island at 50°0.52' N and 127°19.29' W, then along the western shoreline to 50°0.58' N and 127°19.35' W, then westerly to a point on an island at 50°0.58' N and 127°19.40' W, then along the western shoreline to 50°0.71' N and 127°19.60' W, then south-westerly to a drying rock at 50°0.45' N and 127°20.18' W, then south-easterly to the point of commencement. (Research Area)

### **3.3.27. Area 28 Closures**

3.3.27.1. 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 south-easterly 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 south-westerly point of Whyte It.; thence in a straight line to a point lying 100 metres west of Whytecliff 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)

3.3.27.2. 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)

3.3.27.3. Point Atkinson Reef: That portion of Subarea 28-6 bounded by a line commencing at the southwest entrance to Starboat Cove thence seaward in a southwest direction for 85 metres, thence westerly following the shoreline for 100 metres, thence in a northeast direction to a point on land. (Conservation Closure)

3.3.27.4. False Creek (Subarea 28-8). (Navigation)

3.3.27.5. Burrard Inlet (Subarea 28-10). (Navigation)

### **3.3.28. Area 28 Glass Sponge Reef Closures**

Phase III Glass Sponge Reefs Marine Refuges are proposed for closure in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island for

2021. Refer to Appendix 9 Strait of Georgia and Howe Sound Glass Sponge Reef Closures for a map of the proposed closure areas. Closures will be announced by fishery notice.

3.3.28.1. Lost Reef: That portion of Subarea 28-2 that lies inside a line that begins at 49° 29.799' N, 123° 18.203' W then northeast to 49° 29.935' N, 123° 18.007' W then southeast to 49° 29.882' N, 123° 17.832' W then southeast to 49° 29.591' N, 123° 17.519' W then southwest to 49° 29.547' N, 123° 17.941' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.2. Brunswick Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 28.577' N, 123° 14.965' W then southeast to 49° 28.434' N, 123° 14.732' W then southwest to 49° 28.177' N, 123° 15.031' W then northwest to 49° 28.397' N, 123° 15.377' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.3. Lions Bay and Kelvin Grove: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.629' N, 123° 15.761' W then southeast to 49° 27.315' N, 123° 14.516' W then southwest to 49° 26.950' N, 123° 14.595' W then northwest to 49° 26.952' N, 123° 15.046' W then northwest to 49° 27.195' N, 123° 15.655' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.4. Halkett Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.036' N, 123° 18.686' W then southeast to 49° 26.897' N, 123° 18.444' W then southwest to 49° 26.696' N, 123° 18.578' W then southwest to 49° 26.657' N, 123° 18.776' W then northwest to 49° 26.742' N, 123° 18.984' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.5. Bowyer Island: That portion of Subarea 28-2 that lies inside a line that begins at 49° 24.774' N, 123° 16.219' W then northeast to 49° 24.820' N, 123° 15.763' W then southwest to 49° 24.096' N, 123° 16.043' W then northwest to 49° 24.389' N, 123° 16.408' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.6. Dorman Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 22.577' N, 123° 19.379' W then southeast to 49° 22.543' N, 123° 19.051' W then southwest to 49° 22.287' N, 123° 19.152' W then northwest to 49° 22.351' N, 123° 19.454' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.7. Queen Charlotte Channel #1: That portion of Subarea 28-2 that lies inside the following lines: begins at 49°21.486'N and 123°17.254'W, then southerly to 49°20.528'N and 123°17.690'W, then to 49°20.401'N and 123°17.956'W, then to 49°20.765'N and 123°18.794'W, then to 49°20.982'N and 123°18.584'W, then to 49°21.098'N and 123°18.037'W, then to 49°21.501'N and 123°17.737'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.8. Queen Charlotte Channel #2: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°20.288'N and 123°17.693'W, then southeasterly to 49°20.2249'N and 123°17.501'W, then to 49°19.993'N and 123°17.377'W, then to 49°19.802'N and 123°17.444'W, then to 49°19.720'N and 123°17.840'W, then to 49°19.937'N and 123°18.107'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.9. Queen Charlotte Channel #4: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°20.637'N and 123°19.162'W, then easterly to

49°20.577'N and 123°18.720'W, then to 49°20.441'N and 123°18.637'W, then to 49°20.068'N and 123°18.818'W, then to 49°20.076'N and 123°19.135'W, then to 49°19.718'N and 123°19.187'W, then to 49°19.726'N and 123°19.514'W, then to 49°20.259'N and 123°19.828'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.10. Defence Islands: That portion of Subarea 28-4 that lies inside the following lines: begins at 49°34.102'N and 123°17.070'W, then southerly to 49°33.730'N and 123°16.562'W, then to 49°33.553'N and 123°16.462'W, then to 49°33.438'N and 123°16.750'W, then to 49°33.707'N and 123°17.201'W, then to 49°33.993'N and 123°17.391'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.11. East Defence Islands: That portion of Subarea 28-4 that lies inside a line that begins at 49° 34.731' N, 123° 16.555' W then northeast to 49° 34.848' N, 123° 16.357' W then northeast to 49° 34.854' N, 123° 16.120' W then southeast to 49° 34.580' N, 123° 16.084' W then southwest to 49° 34.535' N, 123° 16.539' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.28.12. Anvil Island: That portion of Subarea 28-4 that lies inside a line that begins at 49° 32.874' N, 123° 17.425'W then southeast to 49° 32.865' N, 123° 16.815' W then southwest to 49° 32.533' N, 123° 16.869' W then southwest to 49° 32.482', 123° 17.118' W then northwest to 49° 32.574' N, 123° 17.483' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

### **3.3.29. Area 29 Closures**

3.3.29.1. Sechelt: That portion of Subarea 29-2 that lies inside a line that begins at 49°25.948'N 123°48.889'W, then easterly to 49°25.899'N 123°47.266'W, then to 49°25.373'N 123°46.494'W, then to 49°24.734'N 123°47.083'W, then to 49°24.910'N 123°47.951'W, then to 49°24.253'N 123°48.283'W, then to 49°24.845'N 123°49.914'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.2. Halibut Bank: That portion of Subarea 29-2 that lie inside a line that begins at 49°21.768'N and 123°41.501'W, then southerly to 49°21.174'N and 123°40.045'W, then to 49°20.961'N and 123°40.139'W, then to 49°20.803'N and 123°39.860'W, then to 49°20.565'N and 123°40.182'W, then to 49°21.610'N and 123°41.843'W, then to 49°21.673'N and 123°42.643'W, then to 49°21.895'N and 123°43.908'W, then to 49°22.174'N and 123°44.748'W, then to 49°22.555'N and 123°44.456'W, then to 49°22.188'N and 123°42.167'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.3. Queen Charlotte Channel #2: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°20.288'N and 123°17.693'W, then southeasterly to 49°20.2249'N and 123°17.501'W, then to 49°19.993'N and 123°17.377'W, then to 49°19.802'N and 123°17.444'W, then to 49°19.720'N and 123°17.840'W, then to 49°19.937'N and 123°18.107'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.4. Queen Charlotte Channel #3: That portion of Subarea 29-3 that lies inside the following lines: begins at 49°19.918'N and 123°19.847'W, then southerly to 49°19.296'N and 123°19.905'W, then to 49°19.307'N and 123°20.344'W, then to 49°19.643'N and

123°20.421'W, then to 49°19.819'N and 123°20.361'W, then to 49°19.947'N and 123°20.097'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.5. Queen Charlotte Channel #4: Those portions of Subareas 28-2 and 29-3 that lies inside the following lines: begins at 49°20.637'N and 123°19.162'W, then easterly to 49°20.577'N and 123°18.720'W, then to 49°20.441'N and 123°18.637'W, then to 49°20.068'N and 123°18.818'W, then to 49°20.076'N and 123°19.135'W, then to 49°19.718'N and 123°19.187'W, then to 49°19.726'N and 123°19.514'W, then to 49°20.259'N and 123°19.828'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.6. Foreslope Hills: That portion of Subarea 29-3 that lies inside a line that begins at 49°09.634'N and 123°23.048'W, then southeasterly to 49°09.389'N and 123°22.622'W, then to 49°09.187'N and 123°22.587'W, then to 49°09.211'N and 123°23.567'W, then to 49°09.646'N and 123°23.543'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

3.3.29.7. Outer Gulf Islands #1: That portion of Subarea 29-4 that lies inside the following lines: begins at 48°54.936'N and 123°19.589'W, then southerly to 48°54.283'N and 123°18.529'W, then to 48°54.114'N and 123°18.619'W, then to 48°54.065'N and 123°18.771'W, then to 48°54.787'N and 123°19.929'W, then to 48°54.902'N and 123°19.793'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

### **3.3.30. Areas 105, 106, 107, 110 Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Areas**

3.3.30.1. Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Areas – Northern Reef: Those waters of Subareas 105-2 and 106-1 bounded by a series of rhumb lines drawn from a point 53°11'52.9" North latitude and 130°19'47.2" West longitude, to a point having coordinate values of 53°09'22.0" North latitude and 130°18'53.0" West longitude, then to a point having coordinate values of 53°02'54.5" North latitude and 130°25'16.2" West longitude, then to a point having coordinate values of 53°03'06.9" North latitude and 130°30'35.6" West longitude, then to a point having coordinate values of 53°07'17.8" North latitude and 130°42'03.2" West longitude, then to a point having coordinate values of 53°07'44.5" North latitude and 130°46'26.5" West longitude, then to a point having coordinate values of 53°13'28.7" North latitude and 130°47'28.7" West longitude, then to a point having coordinate values of 53°19'20.0" North latitude and 130°54'24.2" West longitude, then to a point having coordinate values of 53°24'05.4" North latitude and 130°48'37.8" West longitude then to a point having coordinate values of 53°23'40.7" North latitude and 130°42'52.2" West longitude then to a point having coordinate values of 53°18'42.5" North latitude and 130°38'09.3" West longitude, then to a point having coordinate values of 53°15'20.6" North latitude and 130°33'01.3" West longitude, then back to the point of commencement. (Marine Protected Area)

3.3.30.2. Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Areas – Central Reefs: Those waters of Subareas 106-2, 107-1, and 107-2 bounded by a series of rhumb lines drawn from a point 52°00'24.4" North latitude and 129°14'12.6" West longitude, to a point having coordinate values of 51°55'50.5" North latitude and 129°18'13.8" West longitude, then to a point having coordinate values of 51°51'32.5" North



latitude and 129°36'37.4" West longitude, then to a point having coordinate values of 51°53'00.7" North latitude and 129°44'03.4" West longitude, then to a point having coordinate values of 52°05'14.1" North latitude and 129°36'14.1" West longitude, then to a point having coordinate values of 52°08'46.0" North latitude and 129°33'33.5" West longitude, then to a point having coordinate values of 52°15'42.6" North latitude and 129°44'12.3" West longitude, then to a point having coordinate values of 52°29'35.4" North latitude and 129°52'32.7" West longitude, then to a point having coordinate values of 52°32'05.4" North latitude and 129°53'06.2" West longitude, then to a point having coordinate values of 52°34'05.6" North latitude and 129°47'51.4" West longitude, then to a point having coordinate values of 52°25'42.7" North latitude and 129°35'12.2" West longitude, then to a point having coordinate values of 52°20'02.8" North latitude and 129°29'51.7" West longitude, then to a point having coordinate values of 52°09'52.3" North latitude and 129°25'29.5" West longitude, then back to the point of commencement. (Marine Protected Area)

3.3.30.3. Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area – Southern Reef: Those waters of Area 110 bounded by a series of rhumb lines drawn from a point 51°24'44.2" North latitude and 128°47'58.3" West longitude, to a point having coordinate values of 51°18'32.5" North latitude and 128°40'35.6" West longitude, then to a point having coordinate values of 51°14'57.6" North latitude and 128°47'01.2" West longitude, then to a point having coordinate values of 51°14'33.9" North latitude and 128°55'45.5" West longitude, then to a point having coordinate values of 51°17'42.3" North latitude and 129°00'29.0" West longitude, then to a point having coordinate values of 51°19'24.5" North latitude and 129°00'53.6" West longitude, then back to the point of commencement. (Marine Protected Area)

### **3.3.31. Areas 101 and 142 Closure**

3.3.31.1. Bowie Seamount Marine Protected Area: Those waters of Subareas 101-1 and 142-2 inside a line commencing at 53°03'07.6" N and 135°50'25.9" W, to a point 53°16'20.9" N and 134°59'55.4" W, then to a point 53°39'49.2" N and 135°17'04.9" W, then to a point 53°39'18.0" N and 135°53'46.5" W, then to a point 53°52'16.7" N and 136°30'23.1" W on the EEZ Boundary, then following the EEZ Boundary to 53°49'19.6" N and 136°47'33.1" W on the EEZ Boundary, then to a point 53°40'02.5" N and 136°57'03.5" W, then to a point 53°13'59.2" N and 136°10'00.0" W, then back to the point of commencement. (Marine Protected Area)

### **3.3.32. Areas 123 to 127 and 130 Closure**

3.3.32.1. Offshore Pacific Seamounts and Vents Fishery Closure: Those waters within Subareas 123-9, 124-1, 124-2, 125-6, 126-3, 126-4, 127-2, 127-4, and 130-1 described in Fishery Notice 1241 - Offshore Pacific Seamounts and Vents: Commercial and Recreational Bottom Contact Fisheries Closure - Portions of Areas 123 to 127, and 130. (Area of Interest)

## **3.4. Rockfish Conservation Areas**

Rockfish Conservation Areas (RCAs) are in effect in inside waters as of February 2007. Hook and line fishing for Schedule II species is prohibited in RCAs. Maps and information

on RCAs is available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acrs/index-eng.html>

In 2018, DFO launched phase I of the review of RCAs by focusing on the 69 RCAs in the Northern Shelf Bioregion to improve spatial design to better capture rockfish habitat features based on new peer-reviewed science advice. In 2021, phase II will focus on 22 RCAs in the South Coast Inlets, from Jervis Inlet to Indian Arm. For RCAs to meet new national criteria and standards for Marine Refuges to better conserve sensitive areas and contribute towards Canada's Marine Conservation Targets, the risks to rockfish, their habitat, and benthic communities will need to be avoided or mitigated. This includes risks from all prawn and crab trap fishing, groundfish mid-water trawl, and First Nations fishing for food, social and ceremonial purposes (particularly using hook and line gear).

### **3.5. Closure Notifications and Announcements**

It is the fish harvesters' responsibility to ensure that an area is open before setting gear and to ensure that the area has not closed while their gear remains in the water.

#### **3.5.1. Routine Notification Procedures**

Fishery notices of variation orders that open and close fisheries are available at:

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

Information about closures is also available from a fishery manager (see Contacts Section 14 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap), or from a local DFO office. DFO enforcement vessels and industry service provider vessels may also have information about impending closures.

#### **3.5.2. Recorded Announcements**

Telephone answering machine recordings are available after office hours and on weekends for North and Central Coast waters at (250) 627-3021 and for South Coast waters and Fraser River / Howe Sound at (250) 756-7233.

#### **3.5.3. Canadian Coast Guard Announcements**

Once a week, Canadian Coast Guard will announce current prawn fishery openings and closures. This announcement will only be made if time permits, following regular WX scheduled broadcasts. The announcement may be interrupted or delayed for Search and Rescue (SAR) priorities. Broadcast times are as follows:

Prince Rupert MCTS (south coast – west coast Vancouver Island)	Tuesdays	1915 UTC	1215 DST
Victoria MCTS (south coast – Nanaimo to Juan de Fuca)	Tuesdays	1510 UTC	0710 DST
Victoria MCTS (south coast – north of Nanaimo)	Tuesdays	1520 UTC	0720 DST
Prince Rupert MCTS (north coast)	Tuesdays	1915 UTC	1215 DST

## 4. MANAGEMENT MEASURES – PRAWN FISHERY

### 4.1. Species

Prawns and other shrimp species (*Pandalus* species and *Pandalopsis dispar* Sidestripe Shrimp). In this commercial harvest plan, the term prawn refers solely to the Spot Prawn *Pandalus platyceros*, while the term shrimp refers to the other species of shrimp other than prawns.

Fish harvesters are authorized to incidentally catch and retain Octopus *Enteroctopus dofleini* while prawn and shrimp trap fishing except in octopus closure areas (Section 3.3). Conditions of Licence require all fish harvesters to accurately complete octopus catch and retention information in the prawn and shrimp trap logbook.

Prawn and shrimp by trap licence eligibility holders are also permitted to fish for species described in Schedule II Part 2 of the *Pacific Fishery Regulations*. Conditions of Licence for these species are included with all W and FW prawn and shrimp by trap licences. Schedule II Conditions of Licence apply even if the catch is only intended for bait. For information regarding the harvest of Schedule II, Other Species please refer to the groundfish IFMP for Lingcod, Dogfish, Sole and Flounder, Skate and Pacific Cod. For information regarding transporting please refer to Part III of the Conditions of Licence.

### 4.2. Size Limit

The minimum legal size limit for prawns is 33 millimetres carapace length measured from the most posterior part of the eye orbit to the posterior mid-dorsal margin of the carapace (see Appendix 4 for a diagram). Catch shall be sorted and undersized prawns released immediately.

The minimum legal size limit for headed prawns is 22 millimetres telson length, measured along the mid-dorsal line of the telson from the anterior margin to the posterior margin. The telson is the central piece of the tail “fan.” This size limit applies **only** to product that has had the head and thorax removed including the carapace. The telson should be measured before “tailing” to ensure that the product will meet the size limit.

**Do not assume that a prawn that met the carapace length requirement will also meet the telson length requirement once it is headed. Due to natural variability, some will not. If you will be tailing, measure the telson on the prawn tails before removing the head. Release prawns with undersize telsons, unharmed, immediately.**

There is no minimum size for species of shrimp other than the prawn, *Pandalus platyceros*.

Undersized prawns shall be returned to the water immediately. Traps shall be pulled, emptied and undersized prawns sorted out for release, **on a trap by trap basis. Waiting until the entire string is pulled before sorting begins is illegal. Prawns may not be kept in a tank or bucket for later sorting and release.** All undersized prawns must be released in the area of capture and shall not be removed from the general location of capture, prior to release, for any reason. In no instance are prawns to be chemically treated or “dipped” prior to sorting and release of the undersized prawns.

Industry representatives have discussed various means of releasing undersized and berried prawns to increase their survival. In particular, those locations with fresh water runoff on

the surface and increased water temperatures may increase mortality. Prawn vessels should have sorting tables to improve the speed with which undersized and berried prawns may be released. Survival may be increased if prawns are released into a bucket or tube on the side of the boat, which extends below the surface through the fresh water layer.

#### **4.2.1. Warning, Undersize Prawns and Wastage of Medium Prawns**

DFO is concerned about those fish harvesters who are not using accurate measuring devices or not measuring their prawns at all. Fish harvesters should measure small prawns with a set of inexpensive vernier callipers to ensure that no undersize are retained. DFO recommends that buyers also check product size upon delivery, that undersize prawns are sorted out and not boxed. Investigations by DFO to correct problems will prove disruptive to fish harvesters and buyers.

If reports of dumping small legal sized prawns following landing are received, it will be investigated.

#### **4.3. Berried Females**

All prawns carrying eggs externally on the underside of the tail shall be returned to the water immediately and in the manner that causes the least harm. Prawns carrying eggs may not be kept and eggs may not be removed from the underside of prawns carrying eggs. Catch must be sorted as it comes on board and the prawns carrying eggs released **on a trap by trap basis** and in the manner that causes the least harm. **Waiting until the entire string is pulled before sorting is illegal.** It is recommended that fish harvesters relocate to other grounds if they find that they are catching large numbers of berried females. High proportions of berried females may result in closure.

#### **4.4. Catch Prohibited On Board While Fishing**

No prawns or shrimp that are not permitted to be retained under the authority of the commercial licence shall be on board the licensed vessel.

#### **4.5. Gear**

##### **4.5.1. Trap Limits and Groundlines**

All traps must be tagged with numbered tags authorized by DFO. Tag numbers must correspond to numbers registered with DFO for that vessel. Registration is accomplished by entry of the information into a DFO database, by means of an internet page provided for this purpose. Vessel owners may make arrangements with the DFO approved service provider for tags and registration of trap tag numbers. The trap tag number shall be registered with DFO within 24 hours of issuance of a trap tag set by the industry service provider.

A single licence may fish a maximum of 300 traps on six groundlines. There is an allowance for an annual transfer of traps from one W / FW licence to another regardless of vessel length or licence configuration for the purpose of transferring trap allocations (Section 6.6). Where a trap allocation has been transferred, 100 traps are relinquished, and the receiving vessel is permitted to fish a maximum of 500 traps on 10 groundlines. The transferring W / FW licence is issued with a trap allocation of zero for the licence year.

The Transportation Safety Board has investigated several fishing vessel accidents and found that loading of traps has been a contributing factor in the capsizing of prawn vessels. Vessel masters are advised to carefully consider stability when transporting gear (Appendix 6 Fishing Vessel Safety). Vessel masters are reminded that a second vessel or skiff may be used to transport gear, provided that all gear setting and hauling is done from the licensed vessel. A code of best practices for the prawn fishery was developed in 2013 and is intended to address unsafe work practices that continue to put fishermen, their crew, and vessels at risk. A copy is available from the Pacific Prawn Fishermen's Association or Fish Safe (see Section 15 Contacts of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap).

#### **4.5.2. Trap and Groundline Limits in Special Management Areas**

Trap limits are reduced in the following Special Management Areas (SMAs): Howe Sound and Indian Arm (Subareas 28-1 to 28-5 and Subareas 28-11 to 28-14), Salmon and Sechelt Inlets (Subareas 16-5 to 16-8), Alberni Inlet (Subareas 23-1 to 23-3), and Saanich Inlet (Subareas 19-7 to 19-12). Individual W and FW licences are permitted to fish 150 traps on three groundlines. Where a trap allocation has been transferred, the receiving vessel is permitted to fish 250 traps on five groundlines in these areas.

A vessel fishing in both an SMA and in an adjacent non-SMA area at the same time, shall not fish more than a combined total of 300 traps on six groundlines for a single licensed vessel or 500 traps on 10 groundlines for a vessel having received a trap allocation transfer.

#### **4.5.3. Trap and Groundline Limits in Sooke Harbour**

A vessel fishing in the Sooke Harbour and Basin coonstripe fishery in the fall may use a maximum of 50 traps. These may be set on groundlines buoyed at each end, or may be single buoyed traps.

#### **4.5.4. Maximum Groundline Length**

The maximum allowable length of groundline between each buoy line is two skates (1,100 metres or 3,600 feet).

#### **4.5.5. Gear Hauling Limits**

Trap gear may be hauled only once per day. This applies to all parts of the gear.

Holding cages may be hung on the same buoy and line as trap gear. However, the stipulation that the fishing gear may only be handled once daily also applies to the holding cages if they are on the same buoys and lines as trap gear.

#### **4.5.6. Marking of Gear**

Following the opening of the season, all prawn and shrimp traps on board the fishing vessel, with the exception of replacement gear described in the subsequent paragraph, must be tagged with prawn trap tags. Tag numbers must correspond to numbers registered with DFO for use by that vessel, by means of the DFO internet page and database established for that purpose. Tags must be securely fastened and attached to the frame or webbing of the trap such that it is visible from the outside, without opening the trap. New tags issued by the service provider will be required each year.

Trap tags are only available from the industry service provider. DFO does not issue tags and does not issue replacement tags in-season.

All previous trap tags shall be removed from the traps when new trap tags are attached. Once tag replacement begins, no trap may be returned to the water until the tag has been replaced and all previous tags removed. Once tag replacement begins, all tags are required to be replaced within 96 hours.

#### **4.5.7. Replacement Traps on Board**

Replacement traps may be carried provided that they are in a non-fishable condition as follows: no tags are to be attached and there must be no snaps on the bridles or any other means of immediately attaching the replacement trap to the groundline, until such time as it is needed for replacement purposes.

#### **4.5.8. Buoys**

Prawn and shrimp trap gear must be marked at both ends of the groundlines by 127 centimetre (50 inch) circumference or larger, red, or orange buoys or by 10 centimetre diameter x 122 centimetre (4 inch x 48 inch) white PVC pipe weighted at one end and painted orange at the other. The latter has been recommended by industry representatives for use in areas of frequent boat traffic.

The commercial fishing vessel registration number (VRN) and the letters PRN or PRNS, must be painted or otherwise affixed to each buoy or PVC pipe such that it is visible at all times without raising the gear from the water. PRN is required to identify gear being fished from a vessel holding a W or FW licence with an allotment of 300 traps. PRNS is required to identify gear for those vessels fishing a W or FW licence with an allotment of 500 traps. The VRN shall be in solid black Arabic numerals, without ornamentation. Numbers and characters shall not be less than 75 millimetres in height. Improperly marked gear may be removed from the water.

In addition, a single identifying number shall be added to the pair of buoys or PVC pipe at each end of a groundline so that other vessels can tell where the groundline is located, and help to reduce oversetting. Marking shall not obscure the VRN.

The vessel name may also be displayed. The DOT licence number shall not be displayed on buoys or PVC pipes, in order to avoid confusion with the VRN.

Buoys or PVC pipe labelled, as described above, with PRN or PRNS and the VRN shall only be attached to groundlines that have prawn and shrimp traps attached. At the request of the prawn industry and to reduce conflicts between harvesters, setting additional buoys to stake ground is not permitted.

Holding cages hung on separate buoys must be marked with vessel name, VRN, and the word "CAGE". The VRN shall be in solid black Arabic numerals, without ornamentation. Numbers and characters shall not be less than 75 millimetres in height.

#### **4.5.9. Buoys – Sooke Coonstripe Fishery**

Individual traps in the Sooke Coonstripe Shrimp trap fishery may be marked with individual bullet floats. The minimum bullet float size is 10L. The VRN and the letter W must be painted or otherwise affixed to each buoy such that it is visible at all times without

raising the gear from the water. The VRN and the letter W shall be in solid black Arabic numerals, without ornamentation. Numbers and characters shall not be less than 75 millimetres in height. Improperly marked gear may be removed from the water.

#### **4.5.10. Trap Mesh Size and Biodegradable Escape Mechanism**

Traps shall include the following trap escapement modifications except in Subareas 20-6 and 20-7.

Other than the frame, trap mesh must be unobstructed. Trap mesh size requirements apply to the prawn trap fishery and to the Humpback Shrimp trap fishery. Minimum mesh sizes do not apply to the Coonstripe Shrimp trap fishery in Sooke Harbour and Basin, Subareas 20-6 and 20-7.

The trap escapement modifications described below will significantly reduce the capture of undersize prawns but will not totally eliminate them from the catch, particularly in areas when there are high concentrations of small prawns. Fish harvesters are required to sort their catch as each trap comes on board and to release undersized prawns immediately, before the next trap is recovered. Sorting must occur prior to any transfer of catch to live tanks, buckets or other holding devices.

##### **4.5.10.1. Web or Soft Mesh Traps**

Web or soft mesh traps shall be covered with a single layer of mesh. The mesh shall measure a minimum of 38.1 millimetres (1 1/2 inch). Mesh size is measured as described in the definition section of the *Pacific Fishery Regulations* as follows: “means the total length of twine measured along two contiguous sides of a single mesh, including the distance across the knot joining those sides but not including any other knots.” All mesh used in the trap including the tunnels must conform to this minimum size. Other than the trap frame, trap mesh must be unobstructed.

Industry representatives have recommended tools for fish harvesters to make a quick assessment of soft web mesh size. This is a “flat slat” made out of high-density nylon or other equivalent material 38 millimetres wide (1.5 inch), 3 millimetres thick (1/8 inch), and as long as may be convenient (6 inch), tapered at one end. If the flat slat cannot be pushed through the mesh, or if it is difficult to do so, then the mesh is likely too small. This is not a legal measuring device; however, fish harvesters can use the flat slat as a quick check. A ruler may also be used. Vernier callipers are the legal measuring tool for determination of legal mesh size. Fish harvesters are encouraged to check their gear in advance of the fishing season and to check the web when receiving new traps or re-webbed traps from suppliers. If the trap mesh appears to be undersize when checked by DFO personnel during the fishing season, traps may be collected for further testing and for legal procedures, or the fish harvester may be requested to remove all gear from the water for inspection.

DFO is concerned about fish harvesters using stretched and distorted web to reduce the sorting efficiency of web traps.

The sort area on these traps is considered to be the lower 15 centimetres of the side wall above the bottom ring. It is recommended that mesh on the trap be constructed, so that upon insertion, a high density round plastic peg that is 19 millimetres (3/4 inch) in diameter and 20.3 centimetres (8 inch) long, weighing no less than 50 grams and no more than 60 grams, will drop completely through the web by its own weight. The bottom of the trap

may also be important for sorting. DFO will continue to assess this and additional measures will be introduced if sorting appears to be compromised by mesh stretching or bunching.

#### 4.5.10.2. Wire Mesh Traps

These traps must have either/or:

**Four opposing tunnels** constructed of an unobstructed rigid square mesh material having a minimum dimension (after dip coating) that will allow the passage of a 22.2 millimetre (7/8 inch) square peg through the mesh without altering the shape of the mesh opening. The lower side of each tunnel must extend to the bottom edge of the trap and must be at least one-half the length of the trap side.

**The bottom and two opposing sides** must be constructed of an unobstructed square mesh material that will allow the passage of a 19 millimetre (3/4 inch) square peg through the mesh without altering the shape of the mesh opening.

**The bottom and all sides** must be constructed of an unobstructed square mesh material that will allow the passage of a 22.2 millimetre (7/8 inch) square peg through the mesh without altering the shape of the mesh opening.

#### 4.5.11. Biodegradable (“Rot”) Cord

All prawn traps shall contain a biodegradable escape mechanism to allow bycatch to escape in the event traps are lost.

Web and soft mesh traps shall contain an opening equal to or exceeding 30 cm in length. The opening shall be within 15 cm of the bottom of the trap and parallel with the bottom frame. The opening shall be laced, sewn, or otherwise secured by a single strand of no greater than #30 untreated cotton twine. The cotton twine shall be knotted at each end only. The twine shall not be tied or looped around the frame of the trap.

Wire or hard mesh traps shall have a biodegradable (“rot”) panel. The rot panel shall consist of a section in a trap side wall that has been laced, sewn, or otherwise secured by a single strand of no greater than #30 untreated cotton twine, such that the entire panel remains under tension when the panel is intact but on deterioration or parting produces an unrestricted opening. The opening shall exceed a square 11cm by 11cm.

#### 4.5.12. Maximum Allowable Trap Size

No web or soft mesh trap with a volume greater than 170 litres is permitted. No wire or hard mesh trap with a volume greater than 100 litres is permitted except those traps constructed with the bottom and all sides with a mesh that will pass a 22.2 millimetre square peg, which may have a volume no greater than 170 litres. All measures are determined from the outside dimensions of the trap. These measures include tunnel volumes.

Maximum volumes by trap type have been adopted to prevent the practice of “trap doubling,” which is the practice of tying two traps together to be fished as a single unit. This practice was deemed to circumvent the intent of the trap limitation management provisions in this fishery.

The Transportation Safety Board has expressed concern for large diameter heavier traps. The future use of traps with a wet weight greater than 7 kg (rigged, no bait) may be



prohibited. Fish harvesters should make sure they have registered their number of “heavy traps” with the DFO Lead Fishery Manager (L. Convey at 250-756-7233).

#### **4.5.13. Maximum Allowable Trap Size, Sooke Coonstripe Fishery**

Cedar lathe traps may be used in the Sooke Coonstripe Shrimp trap fishery, with a maximum volume of 230L. Trap volumes are based on the overall outside dimension of the trap, inclusive of the frame and the tunnels.

#### **4.5.14. Recovery of Lost Trap Gear**

In-season, a W or FW licensed vessel may not carry, set or recover tagged traps for another W or FW licensed vessel. If a fish harvester locates and recovers their own lost gear, all catch must be released. Recovered traps must be emptied and rendered non-fishable immediately as they come on board. The recovery of lost traps must be reported (Section 7.5).

Alternatively, the fish harvester may attach a marker and line to the gear and advise a DFO manager or fishery officer of the location of the gear.

Lost gear may not be recovered after the area has closed. Contact the local DFO fishery office.

#### **4.5.15. Fishing Gear Conflicts**

Commercial harvesters are required to exercise care when setting gear near recreational and First Nations’ FSC fishing gear. Fouled gear should be untangled without cutting and returned to the water intact. If a line must be cut, it should be the commercial harvester’s line.

Continued gear conflict with recreational and First Nations harvesters will lead to closure requests from that sector or First Nations. DFO’s preference is to provide a mutually satisfactory harvest experience for all user groups through respect of the other person’s gear and fishing practices, rather than invoking closures to separate fishing effort.

#### **4.5.16. Extra and Replacement Sets of Trap Tags**

##### **4.5.16.1. Additional Tags**

The licence holder or vessel master may receive additional tags with the main tag set. These additional tags are only to be used as required to replace tags on traps lost on the grounds. A fishery officer or guardian may request to see the unused tags. Vessels are permitted to fish only the maximum number of traps specified on the licence, and may not use the additional tags to increase gear in the water greater than the licence limits.

##### **4.5.16.2. Full Replacement Sets**

In-season full replacement tag sets are available from the industry service provider. They are not available from DFO. Once installation of the new tags has commenced, all tags must be replaced and no traps can be returned to the water with old tags attached to them. All previously issued tags must be removed from the gear.

Note: Replacement tags will only be issued if lost, stolen or damaged. No replacement tags will be issued where the tags or the fishing gear to which they are attached have been seized by a Fishery Officer or enforcement personnel.

#### **4.6. Whale Encounter Protocols and Reporting Marine Mammal Interactions**

If a marine mammal becomes entangled in fishing gear, immediately log your coordinates and contact the Marine Mammal Incident Hotline 1-800-465-4336 providing as much information as possible regarding species and gear type and a DFO representative will contact you. If a whale is entangled in fishing gear you may be asked to track the animal to aid in relocating the animal as an attempt may be made to rescue both the animal and fishing gear.

Reporting all interactions with marine mammals to the Marine Mammal Incident Hotline 1-800-465-4336 is mandatory during all commercial fishing trips. Interactions refer to cases of incidental mortality and serious injury to marine mammals. This includes accidental drowning, bycatch, entanglements, collisions and fatalities. The Marine Mammal Incident Hotline must be contacted immediately at 1-800-465-4336 to report cases of mortality and serious harm.

A marine mammal interaction reporting form must also be submitted and is available at:

<http://www.dfo-mpo.gc.ca/species-especes/mammals-mammiferes/report-rapport/page01-eng.html>

#### **4.7. Basking Shark Entanglement Protocols**

Incidental entanglement of ‘endangered’ Pacific Basking Sharks (*Cetorhinus maximus*) in trap lines is rare but may occur. Pursuant to subsection 73(2) (c) through 73(6) of the *Species at Risk Act (SARA)*, the vessel master must ensure that every measure is taken to avoid the incidental entanglement of basking sharks while conducting prawn and shrimp fishing activities, that fishing gear is not set or hauled when a Basking Shark is within 10 m of the fishing vessel and/or visible at the water’s surface, and that any live Basking Shark entangled in fishing gear is released in a manner that causes the least harm to the shark.

Should a shark entangle in trap lines, assess whether the shark is alive or dead and in good (e.g. active swimming, minimal wounds) or poor (e.g. sluggish, visibly wounded) condition. Proceed accordingly, and with extreme caution. Always avoid the strong caudal (tail) fin, which can cause injury by thrashing.

If the shark is alive, attempt to disentangle the shark as quickly as possible, and in a manner that causes the least amount of harm to the animal.

- a.) Maneuver your boat as close to the shark as possible without causing further injury or entanglement. Turn off your engine, if possible, or switch it into neutral.
- b.) Grapple the line, and bring the shark as close to the side of the boat as possible.
- c.) Pull the line to restrict the shark’s movement. Hold the shark firmly against the side of the boat, preventing it from thrashing further. Avoid the use of restraining devices such as straps, tail ropes, gaffs, etc. Do not hold the shark by its gills. This may cause serious injury. Do not attempt to bring the shark onboard the vessel.
- d.) Try to unwind the line without cutting it. If you cannot untangle the line from the shark without cutting it, use a gaff to pull the line away from the shark before cutting the line free.

Document all entanglement encounters in the harvest logbook and notify DFO of the encounter through the Basking Shark Sightings Network (1-877-507-4275). Dead basking sharks cannot be retained and must be disentangled from the fishing gear and discarded at-sea.

#### **4.8. Landing of Catch**

All prawns and shrimp caught under the authority of the licence must be transported by the licensed vessel directly to land.

#### **4.9. Multi-licensed Vessels**

Where a Prawn and Shrimp by Trap (category W or FW) licensed vessel also holds a Shrimp Trawl (Category S or FS) licence eligibility, all shrimp including prawns caught under the authority of the S or FS licence must be offloaded prior to that vessel fishing under the authority of the W or FW licence. Likewise, all prawns caught under the authority of the W or FW licence must be offloaded before fishing commences under the authority of the S or FS licence.

### **5. MANAGEMENT MEASURES - HUMPBACK AND COONSTRIPE FISHERIES**

#### **5.1. Prince Rupert Harbour and Masset Inlet Humpback Shrimp Fisheries**

A directed fishery for Humpback Shrimp (*Pandalus hypsinotus*) occurs in Subareas 4-10 and 4-11 (Prince Rupert Harbour) and may occur in Subarea 1-6 (Masset Inlet) by request. Prawns may not be retained or possessed in these fisheries. Vessels must offload all prawns prior to fishing Humpback Shrimp in these areas. Trap limits, tag requirements, groundline limits, buoys, minimum mesh size, haul and set/haul location, and vessel location requirements are in effect; catch must be transported by the licensed vessel directly to land and no prawns or shrimp that are not permitted to be retained under the authority of the licence shall be on board the vessel (Section 4).

The Prince Rupert Harbour Commission and the Prince Rupert Harbour Humpback Shrimp harvesters requested a later opening date of September 1 for this fishery commencing in 2003. This was reviewed and unanimously agreed to by elected industry representatives. DFO supported this change as it allows for increased growth of the shrimp prior to harvest (reduces growth over fishing), improving catch weight and value.

The Minister wrote in 1997: “Any directed fishery for Humpback Shrimp in non-traditional areas, or with new or modified trawl or trap gear, will be subject to the Pacific Region Guidelines on New and Developing Invertebrate Fisheries.” It also includes: “industry is responsible for providing biological, management, and assessment information that will lead to the proper understanding of this fishery and of these stocks.” Accordingly, additional fishing effort on Humpback Shrimp will only be considered where there is a scientific plan established to collect stock assessment information, supported by funding from industry.

Humpback Shrimp samples are required from Prince Rupert Harbour, as discussed with local harvesters and industry representatives in 2003. Results from the pilot study in 2003 indicated that index sampling may be an effective management tool, however, base index

levels need to be determined. Beginning in 2004, fish harvesters participating in the Prince Rupert Harbour Humpback Shrimp trap fishery have been required to make arrangements for the collection of samples by observers. Each participating fish harvester is required to arrange for one day of observer sampling. The W or FW licence issued in April does not include fishing access to Prince Rupert Harbour. Prior to the September opening, fish harvesters must make arrangements for extra observer sampling, vessel monitoring system (VMS) coverage and request amended Conditions of Licence through NOLS to allow for fishing Humpback Shrimp by trap in Prince Rupert Harbour.

The use of small mesh in humpback shrimp trap fisheries was discontinued in 1999. Prior to this, catch per unit effort (CPUE) had plummeted. With the adoption of larger mesh, CPUE has improved. Total annual catches have stabilized at approximately 22,680 kg (50,000 lbs), comparable to or greater than historic landings. DFO received a request for a return to small mesh in this fishery for 2006. This request was refused on the basis of risk to sustainability of the fishery. Humpback Shrimp data was reviewed in a research paper by DFO Science in 2006.

## **5.2. Sooke Harbour and Basin Coonstripe Shrimp Fishery**

A directed fishery for Coonstripe (or Dock) Shrimp (*Pandalus danae*) occurs in Subareas 20-6 and 20-7. The fishery has occurred from November 1 to December 31. Prawns may not be retained or possessed in this fishery. A maximum of 50 traps per vessel may be fished. There is no minimum mesh size requirement for traps used in this fishery. Traps may be set on groundlines or individually buoyed. Tag requirements, buoy marking, hail and set/haul location, and vessel location requirements are in effect; catch must be transported by the licensed vessel directly to land and no prawns or shrimp that are not permitted to be retained under the authority of the licence shall be on board the vessel (Section 4).

Industry representatives have expressed interest in the past in varying fishing times in this fishery. The commencement date may be varied but there is insufficient biological information to extend the length of the fishing period beyond 2 months. Fish harvesters who want to contribute through the collection of on-board samples with DFO or observers are invited to contact DFO prior to the fishery opening.

## **6. LICENSING**

### **6.1. National Online Licensing System (NOLS) Client Support - Licensing Services**

All fish harvesters/licence holders/vessel owners are now required to use the National Online Licensing System (NOLS) to view, pay for and print their commercial fishing licences, licence conditions and/or receipts.

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. DFO also provides client support and assistance on how to use the system via e-mail at [fishing-peche@dfo-mpo.gc.ca](mailto:fishing-peche@dfo-mpo.gc.ca) or by calling toll-free at 1-877-535-7307 (7:00 AM to 8:00 PM Eastern, Monday to Friday).

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

## **6.2. Licence Category**

A commercial Prawn and Shrimp by trap (category W) or communal commercial (category FW) licence eligibility is required to commercially harvest prawn and shrimp by trap gear.

Category W licence eligibilities are limited entry and vessel-based. Category FW licence eligibilities are limited entry and party-based; a First Nations group is the licence eligibility holder and the eligibility must be designated to a commercially registered fishing vessel that meets established length restrictions.

## **6.3. 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 Prawn and Shrimp by Trap (Category W) licence renewal fee may be found on the following link:

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

There is no annual licence renewal fee for communal commercial (Category FW) licences.

## **6.4. Licence Issuance**

Renewal of a category W licence and payment of the fees must be done on an annual basis to retain the privilege to be issued the licence in the future, regardless of whether or not fishing is carried out. Those category W licences not renewed by December 31, 2021 will cease and licence issuance requests will be unable to be considered in future.

Prior to annual licence issuance of a communal commercial (FW) licence, licence eligibility holders are required to annually designate the fishing vessel to hold the licence. This must be done by navigating to the 'Submit a Request' menu selection within the National Online Licensing System (NOLS). Full instructions are available at:

<http://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/products-produits/request-demande-eng.html>

Prior to annual licence issuance, vessel owners/licence eligibility holders are required to:

- a) Meet any Ministerial conditions placed on the licence eligibility;
- b) Ensure any conditions of the previous year's licence, such as submission and approval of logbooks have been met;
- c) The designated vessel's overall length does not exceed the maximum vessel length of the category FW licence eligibility; and
- d) Any application for transfer of trap allocation has been submitted by **April 21, 2021**.

To avoid delays when renewing a communal commercial licence, 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.

## **6.5. Licence Documents**

Prawn and Shrimp by Trap licence documents are valid from the date of issue to December 31, 2022. Replacements for lost or destroyed licence documents may be obtained by reprinting the licence documents through the NOLS.

## **6.6. Trap Re-allocation**

Temporary transfer or trap re-allocation is permitted on an annual basis. Where a trap allocation is transferred to another vessel, 100 traps are relinquished and the receiving vessel may fish a maximum of 500 traps. The transferring W / FW licence is issued with a trap allocation of zero for the licence year. Application for transfer of a trap allocation will only be accepted prior to payment for licence renewal. This applies to both vessels.

For 2021, application for transfer of a trap allocation must be submitted using NOLS by **April 21, 2021**, without exception. Applications submitted after April 21, 2021 will not be accepted.

## **6.7. Designation of Harvesters to Fish a Communal Commercial Licence**

Under the *Aboriginal Communal Fishing Licence Regulations*, every person working on a vessel that is fishing under authority of a communal commercial licence must be designated by the First Nation that holds the licence. The designation must be made in writing and include the person's name and reference the communal commercial licence. The designation must be carried on-board and be produced on request of any Fishery Officer.

First Nations licence holders interested in obtaining an example template to use to designate their fish harvesters may contact a DFO Resource Manager (see Contacts in Section 15 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap).

## **6.8. Vessel Replacement**

The owner(s) of a category W-licensed Prawn and Shrimp by trap vessel may make an application to replace the commercial fishing vessel. Both the replacement vessel and the vessel being replaced must have a survey on file with the Pacific Fishery Licence Unit (PFLU) or submitted with the vessel replacement application. The vessel must be surveyed according to the DFO guidelines.

Only one Prawn and Shrimp by trap licence is allowed on a vessel at a time.

The replacement vessel may not exceed the overall length of the vessel being replaced.

Prawn and Shrimp by trap licence eligibilities become married to other vessel-based licence eligibilities when combined on a vessel.

Communal commercial licences are not eligible for vessel replacement as the licence eligibility is party-based.

Temporary vessel replacement is allowed if the vessel has been declared a loss or the vessel is out of service due to an accident or unforeseen damage. Vessels that are in disrepair at the time of purchase, have engine problems, or have encountered delays in annual maintenance or rebuilding do not qualify for a temporary replacement. Written

confirmation from an insurance company, shipyard, or marine engineer explaining why the vessel is inoperative must be submitted to a Pacific Fishery Licence Unit when declaring the vessel a total loss. The temporary replacement vessel may not exceed the overall vessel length plus 10 per cent of the Prawn and Shrimp by trap vessel.

Should the Prawn and Shrimp by trap licence eligibility be temporarily split from other licence eligibilities, the remaining eligibilities may not be placed on a third vessel.

For further information on vessel replacement policies, please contact DFO by telephone at 1-877-535-7307 or email at [fishing-peche@dfo-mpo.gc.ca](mailto:fishing-peche@dfo-mpo.gc.ca).

## **6.9. Safe Food for Canadians Act Licence Requirements**

Fish harvesters are reminded of licensing requirements under the *Safe Food for Canadians Act* and *Safe Food for Canadians Regulations*. See Section 8.2.

# **7. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES**

## **7.1. Requirement to hail out**

Vessel masters must arrange for fishing commencement information, or hail out, to be provided by the industry service provider, Monday to Friday 8:00 a.m. to 4:00 p.m. to DFO by means of an internet reporting system established for this purpose.

The vessel master shall have the industry service provider notify DFO prior to commencement of fishing of the following:

- a) Vessel name, vessel master's name, and VRN;
- b) The time and date the report was made;
- c) The name of the person supplying the information from the vessel;
- d) The name of the person who entered the information into DFO's Internet Access database on the vessel master's behalf;
- e) The date for which the report is effective;
- f) Management Subareas (as defined in the *Pacific Fishery Management Area Regulations, 2007*) to be fished;
- g) Time and date that fishing will commence;
- h) Set and haul validation number; and
- i) The hail verification number issued by the industry service provider to the vessel master.

Fishing may not commence until a hail has been made and a hail verification number received.

Vessel masters must provide set and haul information for in-season assessment of effort and for the deployment of industry service provider observers (Section 7.2). Prior to fishing, vessel masters must acquire a set and haul validation number from the industry service provider.

Vessel masters using a DFO-approved VMS which integrates the set and haul programming will obtain a set and haul validation number from the industry service provider.

Vessel masters using a DFO-approved VMS which does not integrate the set and haul programming, must contact their industry service provider to obtain a set and haul validation number by phoning 1-866-930-4000 and arrange for set and haul information to be transmitted to the industry service provider within five minutes of each set and haul throughout the fishing season.

## **7.2. Vessel Monitoring System**

All vessels are required to have a fully operational DFO-approved VMS and to report the geographic position (latitude and longitude) of the vessel, date and time corresponding to this position, and Communication Service Provider identifier for the VMS unit. This information shall be reported automatically to the DFO Vessel Monitoring Operations Centre (Newfoundland) every 15 minutes throughout the season, from the time the vessel leaves port for the first fishing trip until it returns to port and all catch on board the vessel is offloaded after its last fishing trip. The system shall not be turned off or powered off at night time and shall remain on until the season end.

A list of DFO-approved VMS units can be found at:

<http://www.nfl.dfo-mpo.gc.ca/e0011108> or by contacting DFO by telephone at 1 (709) 772-5789 (8am to 4pm NST).

A completed DFO National VMS Form shall be sent to the following email address: DFO.VMSRegistration-EnregistrementSSN.MPO@dfo-mpo.gc.ca **not less than two business days** before commencing fishing for each VMS unit installation, replacement, transfer, or change to the licence holder.

The DFO National VMS Form is available at:

<http://dfo-mpo.gc.ca/fisheries-peches/sdc-cps/vessel-monitoring-surveillance-navire/index-eng.html>

In event the VMS unit or equipment becomes inoperative, is turned off, or malfunctions, the industry service provider must be notified immediately by telephone at 1-866-930-4000 Monday to Friday 8:00 a.m. to 4:00 p.m. and provide the following information:

- a) Vessel name, vessel master's name, and VRN;
- b) The date and time of sailing;
- c) The port of landing; and
- d) The telephone number where the vessel master can be reached.

A back-up VMS unit must be activated within 72 hours of the malfunction. A back-up VMS unit may be obtained by phoning 1-866-930-4000 and provide the following information:

- a) Vessel name, vessel master's name, and VRN;
- b) The telephone number where the vessel master can be reached.

Once 72 hours from the malfunction has elapsed, fishing may only resume once the VMS unit is turned on and fully operational or when the vessel master has received approval from DFO.



In the event of a VMS unit failure where a vessel carries two or more approved VMS units on board, it is the responsibility of the vessel master to immediately notify DFO that a secondary unit is being activated and subsequently ensure it is fully operational, turned on and in use before resuming fishing activity.

### **7.3. Information Reports from Sea (Spawner Index Sampling)**

Vessel masters shall arrange to have information about fishing operations and spawner index information reported to DFO or the industry service provider as required.

During the course of the season, each vessel must provide a Fishing Operations At-sea Report and data from spawner index samples collected by the industry service provider observers during fishing operations. Each spawner index sample consists of a sample of one complete string of gear which has been set for a minimum of 12 hours, with a minimum of every fourth trap contributing to the sample. A minimum of 12 traps is sampled from each string of gear. Species, number and weight of all rockfish bycatch caught in the string that is sampled for spawner index data and the species and number of any marine mammal bycatch must also be provided. A minimum of 45 traps shall be hauled from the water and examined for the purposes of completing the Fishing Operations At-sea Report.

Set and haul data must be provided to the industry service provider during fishing operations. The set and haul data must include:

- a) Vessel name;
- b) VRN;
- c) Activity: set or haul
- d) GPS source: GPS device or manual entry;
- e) Vessel GPS location (latitude and longitude);
- f) String GPS location (latitude and longitude);
- g) Subarea of string location;
- h) Communication Service Provider Number;
- i) UTC date and time (yyyy-mm-dd, HH:MM:SS);
- j) Speed (knots);
- k) Heading; and
- l) International Mobile Station Equipment Identifier (IMEI).

Set and haul data must be transmitted to the industry service provider not later than five minutes following the setting or retrieval of each string of gear.

A DFO-approved VMS unit (Section 7.2) which integrates the set and haul programming shall automatically provide vessel location data every 15 minutes to the industry service provider, and the vessel master shall enter the set and haul data of a given set or haul activity using the facilities of the VMS unit.

The vessel master using a DFO-approved VMS unit which does not integrate the set and haul programming, shall provide the set and haul data by sending the information by electronic mail to [prawnsethaul@jothomas.com](mailto:prawnsethaul@jothomas.com), or by phoning 1-866-930-4000 and providing the information verbally. The Communication Service Provider Number and IMEI are not required for verbal reports. Contact the industry service provider to make arrangements to provide vessel location.

Providing this information will reduce search time, improve opportunities for sampling, and avoid unnecessary closures by DFO due to lack of information. Fish harvesters are encouraged also to maintain communications with their industry service provider's local observer vessels when they are fishing. **DFO will close fishing areas if there is insufficient sampling because observers cannot locate vessels and gear.**

## **7.4. Catch Reporting**

### **7.4.1. Harvest Log Data**

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

To fulfil stock assessment objectives it is imperative that a fine resolution of fishing location be reported in this fishery. The vessel master is responsible for reporting latitude/longitude position on harvest logs in the "location" field for each string of traps fished.

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

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

Fisheries & Oceans Canada  
Shellfish Data Unit  
Pacific Biological Station  
3190 Hammond Bay Road  
Nanaimo, B.C., V9T 6N7  
Email : [PACSDU@dfo-mpo.gc.ca](mailto:PACSDU@dfo-mpo.gc.ca)  
Phone: (250) 756-7022 or (250) 756-7014

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

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

For enforcement purposes, information regarding the latitude and longitude of each string of fishing gear, and the haul time of that gear shall be entered in the logbook within ½ hour

(30 minutes) of the string being hauled and prior to any additional hauling of gear. The latitude and longitude shall be entered in the “location” field of the harvest log. The time of haul shall be entered in the “time of haul” field. This information shall be entered on a string by string basis.

The remaining logbook harvest information must be recorded in the harvest log by 23:59 hours of the day of fishing. The logbook must be kept aboard the licensed vessel. Logbooks must be produced for examination on demand of a fishery officer, guardian, or a fishery observer designated under the *Fisheries Act*.

#### 7.4.1.1. Submission and Release of Harvest Log Data

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

#### 7.4.1.2. Nil Report for Harvest Log - License Issued but not Fished

In the event that a licence is issued but not fished, the licence eligibility holder is responsible for submitting a Nil Report for the season. The Nil Report must be submitted prior to the issue of approval for licence renewal. One page from the harvest logbook identifying the vessel, licence tab number, and the year with “Nil” entered in the body of the log and signed by the vessel owner constitutes a Nil Report.

**DFO reminds harvesters that harvest logs must be completed accurately during fishing operations and submitted to DFO in accordance with the timing set out in Conditions of License. Delay of completion or submission of logs is a violation of the Conditions of License.**

#### 7.4.1.3. Confidentiality of Harvest Data

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

#### 7.4.2. Fish Slip Requirements

An accurate written report shall be submitted by the vessel master on a fish slip of all fish and shellfish caught. A written report must be submitted even if the fish and shellfish landed are used for bait, personal consumption, or otherwise disposed. The written report shall be posted not later than seven days after the offloading and sent to:

Fisheries and Oceans Canada  
Fisheries Management Branch, Regional Data Unit  
200 - 401 Burrard St.  
Vancouver, B.C. V6C 3S4

Fish slips may be downloaded and printed or may also be ordered from the printer at user cost at:

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

Phone (604) 666-2716 for more information.

## **7.5. Reporting Lost Gear and Retrieval of Lost Gear**

The vessel master shall report any lost fishing gear by completing and submitting a 'Lost Fishing Gear' form within 24 hours of landing in port after determining the gear was lost.

The vessel master shall also report the retrieval of any of their own previously reported lost gear by completing and submitting a 'Retrieval of Previously Reported Fishing Gear' form within 24 hours of landing in port after retrieving gear previously reported as lost.

The 'Lost Fishing Gear' form is available online at:

<http://www.dfo-mpo.gc.ca/fisheries-peches/reports-rapports/fixe-pac-fixe/index-eng.html>

The 'Retrieval of Previously Reported Fishing Gear' form is available online at:

<http://www.dfo-mpo.gc.ca/fisheries-peches/reports-rapports/retrieval-pac-recuperation/index-eng.html>

Retrieval can only occur under a valid fishing licence and only in relation to the specific type of gear authorized to be used by the fishing licence (Section 4.5.14).

## **8. GENERAL INFORMATION**

### **8.1. Prawn and Shrimp Sanitary Guidelines**

Potential contamination of fish products may occur if adequate controls over sanitation and hygiene are not followed during the fishing and handling, both on board the vessel, and during holding and transporting to the processing plant. In the past, prawn/shrimp have been found to be contaminated with *E. coli*, and more recently, there have been reports of suspected norovirus contamination.

For information on the sanitary requirements and preventive controls that apply to fishers, please see the Canadian Food Inspection Agency website at:

<https://inspection.gc.ca/food/requirements-and-guidance/preventive-controls/fish/information-on-the-requirements-that-apply-to-fish/eng/1564699982413/1564699982647>

and

<https://inspection.gc.ca/food/requirements-and-guidance/preventive-controls/fish/maintenance-and-operation-of-a-vessel/eng/1564717053871/1564717054137>

## **8.2. On-board Freezing and Glazed Prawn Requirements**

Fish harvesters are reminded of licensing requirements under the *Safe Food for Canadians Act* and *Safe Food for Canadians Regulations*. As explained in section 5.11 of “Food business activities that require a licence under the *Safe Food for Canadians Regulations*” (<https://inspection.gc.ca/food/requirements-and-guidance/food-licences/food-business-activities/eng/1524074697160/1524074697425#a511>) a license is required by fishers (fish harvesters) to:

- manufacture, process, treat, preserve or grade fish, and/or if you;
- package and label fish (unless it is not consumer prepackaged, and will be subsequently manufactured, processed, treated, preserved, graded, packaged or labelled by a licence holder in another province)

Please note that treating shrimp/prawns, such as applying a preservative, is considered a licensable activity, and you will need to obtain a license unless the shrimp/prawns are not consumer prepackaged and are subsequently manufactured, processed, treated, preserved, graded, packaged or labelled by a licence holder in another province.

A license is not required to conduct activities that are necessary to protect the fish you catch or harvest from contamination, damage and spoilage. These are handling practices associated with catching, harvesting, unloading, holding and moving fish. With respect to shrimp and prawns, this includes:

- freezing whole shrimp/prawns on a vessel
- holding fish in containers
- icing whole shrimp/prawns
- refrigerating
- rinsing whole shrimp/prawns

Where additives have been used, the additive must be declared in the label’s list of ingredients. In the case of sulphites, the name of the actual sulphite used must be declared on the label or box.

Information on labelling requirements is available at:

<http://inspection.gc.ca/food/general-food-requirements-and-guidance/labelling/eng/1299879892810/1299879939872>

For further information, contact the local Canadian Food Inspection Agency fish inspection office:

Burnaby: (604) 666-9904  
Victoria: 250-363-3618  
Parksville: (250) 248-4772

Provincial regulations apply to non-federally registered facilities processing prawns and shrimp for sale within BC. Contact the Ministry of Agriculture, Courtenay Access Centre at (250) 897-7540.

Commercial fish harvesters are reminded that a Fisher Vendor Licence is required to sell prawns or shrimp directly from their harvest vessel to the public for that person's personal use. Fish harvesters should contact the Ministry of Agriculture, Courtenay Access Centre at (250) 897-7540 for additional information. Sales at farmer's markets and roadside require approval from the Regional Health Authority.

Receiving fish directly from a commercial fisher requires a Fish Receiver Licence.

Information about provincial licensing requirements for the seafood industry is available at:

<https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/fisheries-and-aquaculture/seafood-industry-licensing>

### 8.3. Sylon Parasites and Live Transport of Prawns

Live transport of prawns from northern and central coast areas could result in the unintentional introduction of a parasitic barnacle, *Sylon sp.* (see pictures below), to southern waters where it is currently not known to occur on prawns. Introduction of this parasite could occur through the release of viable larvae in water discharged from live holding tanks. Precautions can be taken by disinfecting all seawater in which prawns are transported, prior to discharging holding tanks.

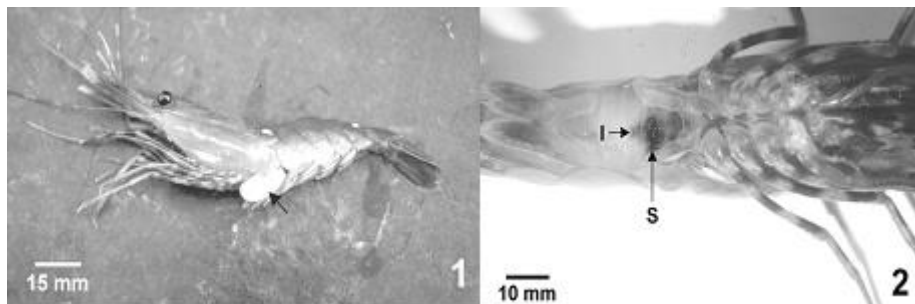
Contact the following for more information:

Gary Meyer  
Pacific Biological Station  
Nanaimo, B.C. V9T 6N7  
Phone: (250) 756-7000

More information is available at:

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

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



Examples of sylon parasites on prawns.

#### **8.4. Rockfish and Assistance to At-Sea Observers**

Observers are required to identify and record all of the rockfish caught in strings of gear that are sampled for spawner index data. This applies coast-wide. To accomplish this, while an observer is on board, the vessel master or crew is requested to put all rockfish from the sample string into a holding bucket for later identification and counts by the observer. Vessel masters or crew who are experienced in rockfish identification are requested to assist the observer. Additional strings may not be hauled until the rockfish data recording is complete, unless other arrangements have been made with the observer. It is understood that this may cause some delays on board.

In addition, vessel masters and crew are invited to identify to the Pacific Prawn Fishermen's Association those types of traps and bait combinations which appear to capture, or reduce, the greatest numbers of rockfish.

#### **8.5. Octopus Retention**

All fish harvesters are required to accurately report information about the octopus catch. This information is required to develop further understanding of the distribution and strength of octopus species caught by commercial trap harvesters. Failure to provide this information will result in termination of this fishing privilege. The industry representatives encourage all commercial fish harvesters to accurately report octopus catches so that this fishing privilege may continue.

#### **8.6. Commercial Vessels Participation in First Nation's FSC Fisheries**

There are restrictions on commercial vessel participation in First Nations FSC fisheries authorized under an Aboriginal communal licence. Conditions of the Aboriginal communal licence must be followed, including designation and reporting. A commercial fishing vessel may not be used to fish for prawns for FSC purposes seven or fewer days prior to that vessel being used to fish for prawns under the authority of a commercial licence and while that vessel is being used to fish for prawns under the authority of a commercial licence. Commercial vessels are restricted to commercial catch during the commercial fishery.

#### **8.7. Groundfish Bait**

Fish harvesters are reminded that any groundfish used for bait must be caught in accordance with the appropriate groundfish licence and its attached conditions of licence (Section 4.1). Dockside monitoring is an essential element of groundfish stock monitoring and quota management. Therefore, it is required that fish harvesters using any groundfish for bait (e.g. dogfish) land and validate that groundfish catch prior to using it for bait, in accordance with the Schedule II Conditions of Licence under which authority that groundfish species is taken. Hook and line gear is prohibited in RCAs.

#### **8.8. Human Waste Containment Regulations**

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers. In accordance with the Canadian Shellfish Sanitation Program (CSSP) and Regulations administered by Transport Canada, raw sewage (Human wastes, sewage or

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

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

Information on Human Waste Containment Receptacle Requirements under the CSSP is available from the Canadian Food Inspection Agency at:

<https://www.inspection.gc.ca/preventive-controls/fish/cssp/questions-and-answers/eng/1563470479199/1563470589053>



## Appendix 2: 2021/22 Prawn and Shrimp by Trap Recreational Harvest Plan

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## 1. RECREATIONAL HARVEST PLAN HIGHLIGHTS AND CHANGES 2021/22

Recreational prawn fishery regulations are described in the British Columbia (BC) Sport Fishing Guide:

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

- 1.1 DFO implemented a number of measures in 2018 for Southern Resident Killer Whales, including measures aimed at increasing prey availability and accessibility – particularly Chinook salmon – and reducing threats related to physical and acoustic disturbance in key foraging areas. DFO is reviewing previous measures, in consultation First Nations and stakeholders, with a view to determining whether different, adjusted, and/or additional measures may be required in May 2021. These measures may include fishery closures or other area-based measures implemented pre-season or (in some cases) in-season. DFO is currently exploring the use of spatially-based measures to help protect Southern Resident Killer Whales. More information on longer term measures will be posted online as it becomes available (<https://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/srkw-ers/index-eng.html>).
- 1.2 Glass Sponge Reefs Marine Refuges are proposed for closure to all bottom-contact fishing, including prawn and shrimp by trap, in Howe Sound in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island (Section 4.2.2). Closures will be announced in-season by fishery notice <https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm>.
- 1.3 Following cancellation of the fall surveys in 2020 by the Pacific Prawn Fishermen's Association due to the coronavirus COVID-19 global pandemic and associated health and safety risks, the Association has advised DFO of their intent to re-initiate the sampling in the three high use areas, Saanich Inlet, Stuart Channel, Alberni Inlet in 2021 if the data is of value to DFO and subject to the coronavirus COVID-19 global pandemic and associated health and safety risks. DFO conducts the survey in Howe Sound (Section 4.1.3).
- 1.4 DFO is working with the SFAB towards adopting standard buoys in the recreational fishery to differentiate prawn and crab fishing gear and to eliminate the use of household plastic containers or blocks of styrofoam as these can often deteriorate in sunlight or waves and sink, contributing to garbage washing up on the shoreline and loss of trap(s) which continue to “ghost fish” for years to come. Amendment to the *BC Sport Fishing Regulations* is moving forward to require a biodegradable escape mechanism, or ‘rot cord’, in all recreational prawn and crab traps to allow bycatch to escape in event traps are lost; require phone numbers (or Unique Fisher Identification #'s) on buoys; and to eliminate line floating at the surface (Sections 6.5 and 8.3).
- 1.5 Please see Section 5.4.2 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap for additional initiatives under the Government of Canada's commitment to marine conservation targets.

## **2. CONTACTS AND SOURCES OF INFORMATION**

Fisheries and Oceans Canada (DFO) contacts, including the Recreational Fisheries Coordinator, are listed in Section 15 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap (IFMP). Sport Fishing Advisory Board (SFAB) representatives are listed in Section 15.

Information for recreational fisheries is available in the BC Sport Fishing Guide at:

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

## **3. OPEN TIMES**

### **3.1. Coast-wide**

The recreational prawn and shrimp by trap fishing season occurs throughout the year from April 1 to March 31. It remains open except for permanent closures (Section 4.2) and seasonal closures (Section 4.1) where recreational fishing effort occurs. Closures will be established by variation order and announced by public fishery notice (Section 4.3).

## **4. CLOSURES**

### **4.1. Seasonal Closures**

#### **4.1.1. Spawning Closures January 1 to March 31**

Winter is when the highest number of spawning female prawns are present. In coastal areas in selected areas in the south coast of BC where recreational effort is focused, 3-month winter closure from January 1 to March 31 is in effect to protect large, mature, egg-bearing female prawns as their eggs prepare to hatch before the 4-year lifecycle ends. These areas include waters in or around Quadra / Cortes Islands, Powell River, Malaspina Strait / lower Jervis Inlet, Sechelt / Salmon Inlets, Nanaimo, Stuart Channel, Saanich Inlet, Alberni Inlet / Barkley Sound, Tahsis / Muchalat Inlet and Howe Sound.

Spawner index surveys conducted in the fall prior to spawning are an important practice used to determine that there are enough spawning female prawns in the population in any given area, and to determine whether a winter recreational harvest may be permissible in some of the areas.

Closures will be announced in-season by fishery notice.

#### **4.1.2. May (one-week) and “Pulse Fishing” Closures**

Under an adaptive management strategy for prawns developed collaboratively by recreational and commercial fishing representatives and applied in Saanich Inlet and Stuart Channel in early 2006 and later expanded to include Alberni Inlet in 2007, recreational fishing is closed for one week in May to allow the commercial fishery and spawner index sampling to start throughout the area. “Pulse fishing” closures begin in September the first day after Labour Day and continue to the end of December. Pulse fishing entails closures on the 1<sup>st</sup> (or 1<sup>st</sup> day after Labour Day in September) to the 15<sup>th</sup> of each month and openings on the 16<sup>th</sup> to the end of each month. Pulse fishing is extended to the end of March where

winter recreational fishing is permitted based on spawner index surveys that determine there are enough spawning female prawns in the population in any given area.

Closures will be announced in-season by fishery notice.

#### **4.1.3. Procedure for In-season Decision Making**

Fall spawner index surveys generally consist of six strings of 25 traps fished for 24 hours for five haul days in October - November. Participating vessels under scientific licence distribute sampling effort throughout the area, in locations and in a manner comparable to commercial fishing season activity. The vessels have a certified observer on-board for all haul days to collect and record data from each trap. Data sheets are received and reviewed by DFO Science, Stock Assessment and Research Division. Sets made outside commercial prawn locations and that have missed the prawn grounds are excluded from the analysis.

Data is reviewed by DFO fishery managers and Science staff. If the results are at or below the baseline spawner index level for that month, then the area is closed. If samples are consistently above (10% higher than the baseline spawner index level for that month), the area remains open. Areas with index values between these levels are considered for reduced fishing effort, such as partial weekly closures, or are closed. Data is considered first on a Subarea basis, then with respect to patterns in the overall sampling area. Adjacent areas are also closed if they are logical extensions of the area sampled, or are required to simplify enforceability of the closure boundaries.

Under the adaptive management strategy developed collaboratively by recreational and commercial fishing representatives in early 2006 a level that is 35% higher than the baseline spawner index level for that month is applied for Saanich Inlet, Stuart Channel and Alberni Inlet. A one-week closure in May and “pulse fishing” beginning in the fall also apply. The aspiration of the recreational and commercial fishing representatives was to leave more female prawns carrying eggs on the spawning grounds, with an anticipated benefit of more prawns for all harvest sectors beginning two years later and a reduction in the need for winter recreational fishing closures.

An arrangement to finance the surveys is negotiated on an annual basis. In areas where the surveys cannot be established, 3-month winter closure from January 1 to March 31, 2021 is in effect to protect large, mature egg-bearing female prawns as their eggs prepare to hatch before the 4-year lifecycle ends.

Closures take effect January 1 and are in place until the end of the spawning cycle, allowing recreational gear to go back into the water on April 1. Closures during the critical winter spawning period allow berried female prawns to complete egg incubation and release larvae with reduced fishing disturbance and handling mortality, and are a key component of the recreational management strategy. To the extent possible, at least two weekends of advance notice are provided to recreational harvesters of any impending closure to allow time for gear removal.

## **4.2. Permanent Closures & Advisories**

Closure descriptions of protected areas are available in the BC Sport Fishing Guide:

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

#### 4.2.1. Gwaii Haanas National Marine Conservation Area

Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay): Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311'N and 131°35.794'W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340'N and 131°35.859'W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52° 23.489'N and 131°36.092'W, thence southwesterly to a point in water at 52° 18.982'N and 131°43.957'W, thence northwesterly to a point in water at 52° 38.114'N and 132°10.004'W, thence southeasterly to a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177'N and 131°56.374'W, and thence southerly following the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point. (National Marine Conservation Area)

SGang Gwaay (Wailing Island): Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210'N and 131°15.838'W easterly following the shoreline to 52° 07.440'N and 131°14.307'W, thence southeasterly to a point on the northern shoreline of K'il (Flatrock Island) at 52°06.468'N and 131°10.300'W, thence easterly following the shoreline to 52°06.388'N and 131°10.079'W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018'N and 131°09.391'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884'N and 131°09.283'W, thence southeasterly to 52°05.806'N and 131°09.208'W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787'N and 131° 09.097'W, thence northeasterly to the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788'N and 131°08.938'W, thence easterly following the shoreline and thence crossing the channel to 52°05.778'N and 131°08.861'W, thence southeasterly following the shoreline to 52°05.741'N and 131°08.788'W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52° 05.708'N and 131°08.697'W, thence easterly across the channel to 52°05.709'N and 131°08.673'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468'N and 131°08.425'W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414'N and 131°07.720'W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52° 04.366'N and 131° 07.720'W, thence southwesterly to a point in water at 52° 03.175'N and 131°14.399'W, thence northwesterly to a point in water at 52° 05.826'N and 131°17.913'W, and thence northeasterly back to the beginning point. (National Marine Conservation Area)

Gangxid Tllgaay (South Kunghit Island): Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689'N and 131°03.375'W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343'N and 130° 59.788'W, thence southeasterly to a point in water at 51°50.159'N and 130° 53.207'W, thence southwesterly to a point in water at 51°47.954'N and 130° 53.613'W, thence northwesterly to a point in water at 51°54.927'N and 131° 07.801'W, and thence northeasterly to the beginning point. (National Marine Conservation Area)

Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point): Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T'awts'iiGaay (islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.598'N and 130°56.368'W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652'N and 130°56.414'W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734'N and 130° 56.365'W, thence northeasterly to a point in water at 52°10.225'N and 130° 49.512'W, thence southwesterly to a point in water at 52°02.632'N and 130° 50.910'W, thence northwesterly back to the beginning point. (National Marine Conservation Area)

Kayjuu Kun (Benjamin Point): Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262'N and 131°01.993'W northerly following the eastern shoreline to 52°13.232'N and 131°00.777'W, thence northeasterly to a point in water at 52°17.724'N and 130°55.078'W, thence southeasterly to a point in water at 52°12.476'N and 130°49.103'W, and thence southwesterly back to the beginning point. (National Marine Conservation Area)

St'aa K'ii GawGa (Flamingo Inlet) – Head: Those waters of Subarea 2-37 north of a line drawn from a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455'N and 131°22.232'W southeasterly across St'aa K'ii GawGa (Flamingo Inlet) to a point on land on the opposite shore at 52°14.228'N and 131°21.503'W. (National Marine Conservation Area)

GawGajaang (Louscoone Inlet) – Head: Those waters of Subarea 2-34 north of a line drawn from a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.841'N and 131° 15.670'W northeasterly across the inlet to a point on the opposite shoreline of GawGajaang (Louscoone Inlet) at 52°12.245'N and 131°14.568'W. (National Marine Conservation Area)

K'insiGid (Rose Inlet) – Head: Those waters of Subarea 2-18 north of a line drawn from the western shoreline of K'insiGid (Rose Inlet) on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.327'N and 131°08.370'W northeasterly across the inlet to a point on the opposite shore at 52°11.328'N and 131°07.115'W. (National Marine Conservation Area)

GawGan (Huston Inlet) – Head: Those waters of Subarea 2-15 south of a line drawn from a point on the western shoreline of GawGan (Huston Inlet) at 52°15.732'N and 131°15.643'W northeasterly across the inlet to a point on the opposite shore at 52°16.111'N and 131°14.231'W. (National Marine Conservation Area)

Suu Kaahlii sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island): Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521'N and 131°14.153'W southeasterly to a point in water at 52°25.980'N and 131°04.477'W, thence southeasterly to a point in water at 52°22.825'N and 131°00.885'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124'N and 131° 18.347'W, thence northerly following the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to

52°23.055'N and 131°23.441'W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52° 23.082'N and 131°22.916'W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147'N and 131°22.260'W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276'N and 131°21.333'W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949'N and 131° 15.569'W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315'N and 131°14.689'W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377'N and 131°14.683'W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494'N and 131°15.832'W, and thence following the eastern shoreline to the beginning point. (National Marine Conservation Area)

Gid Gwaa GyaaGa GawGa (Poole Inlet): Those waters of Subarea 2-14 south of a line drawn from a point on the shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) in Gid Gwaa GyaaGa GawGa (Poole Inlet) at 52°22.764'N and 131°18.249'W southeasterly across the inlet to a point on the opposite shore at 52°22.505'N and 131°17.665'W. (National Marine Conservation Area)

Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island): Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038'N and 131°28.071'W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone Island) at 52°29.081'N and 131°24.042'W, thence southeasterly to a point on the northern shoreline of 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. (National Marine Conservation Area)

Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island): Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074'N and 131° 26.535'W southeasterly to a point in water at 52°41.073'N and 131°14.523'W, thence southeasterly to a point in water at 52°38.666'N and 131°12.987'W, thence southwesterly to 52°35.106'N and 131°22.254'W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964'N and 131° 22.963'W, thence southwesterly across to 52°34.116'N and 131°25.603'W, thence southwesterly across to 52°33.844'N and 131°26.324'W, thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498'N and 131° 30.354'W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) at 52°32.405'N and 131°32.946'W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) to 52°32.435'N and 131°33.055'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii

XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211'N and 131° 34.475'W, thence easterly following the eastern shoreline to 52°32.956'N and 131°37.729'W, thence northeasterly to a point on the shoreline of Kings'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 (Lyll Island) at 52°35.767'N and 131° 32.891'W, and thence easterly and northerly following the shoreline of Tllga Kun Gwaay.yaay (Lyll Island) to the beginning point. (National Marine Conservation Area)

Didxwahxyangs (Darwin Sound): Those waters of Subarea 2-10 inside a line commencing at a point on land on Shuttle Island at 52°40.053'N and 131°42.328'W northeasterly to a point on the western shoreline of Tllga Kun Gwaay.yaay (Lyll Island) at 52°40.466'N and 131° 41.105'W, thence southerly following the western shoreline of Tllga Kun Gwaay.yaay (Lyll 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. (National Marine Conservation Area)

T'aanuu K'aadxwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands): Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°48.570'N and 131°39.433'W northeasterly to a point in water at 52° 49.383'N and 131°29.039'W, thence southeasterly to a point in water at 52° 48.148'N and 131°28.849'W, thence southwesterly to a point in water at 52° 44.898'N and 131°34.035'W, thence northwesterly to 52°45.113'N and 131° 34.125'W, thence following the northern shoreline of K'ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220'N and 131°35.574'W, thence southwesterly to a point on T'aanuu Gwaay (Tanu Island) at 52°45.002'N and 131°36.770'W, thence northerly following the eastern shoreline of T'aanuu Gwaay (Tanu Island) to 52° 46.725'N and 131°38.878'W, thence northwesterly across to a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837'N and 131°39.371'W, and thence northerly following the eastern shoreline to the beginning point. (National Marine Conservation Area)

#### **4.2.2. Strait of Georgia and Howe Sound Glass Sponge Reef Closures**

Phase III Glass Sponge Reefs Marine Refuges are proposed for closure in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island for 2021. Refer to Appendix 9 Strait of Georgia and Howe Sound Glass Sponge Reef Closures for a map of the proposed closure areas.

Detailed descriptions (coordinates) of individual closure areas and maps are available at:

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

Parksville: Those portions of Subareas 14-2 and 14-3 that lie inside a line that begins at 49°21.680'N and 124°19.762'W, then southeasterly to 49°21.514'N and 124°18.893'W, then to 49°21.191'N and 124°17.723'W, then to 49°21.064'N and 124°17.724'W, then to



49°20.725'N and 124°18.380'W, then to 49°21.432'N and 124°19.811'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

East of Hornby Island: That portion of Subarea 14-6 that lies inside a line that begins at 49°33.490'N and 124°29.230'W, then southerly to 49°32.701'N and 124°28.760'W, then to 49°31.657'N and 124°29.434'W, then to 49°31.663'N and 124°29.896'W, then to 49°32.651'N and 124°29.752'W, then to 49°33.340'N and 124°29.935'W, then to 49°33.498'N and 124°29.773'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Gabriola Island: That portion of Subarea 17-11 that lies inside a line that begins at 49°13.672'N and 123°47.577'W, then southerly to 49°13.235'N and 123°47.429'W, then to 49°13.185'N and 123°47.882'W, then to 49°13.391'N and 123°48.119'W, then to 49°13.623'N and 123°48.166'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Outer Gulf Islands #1: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°52.588'N and 123°15.261'W, then easterly to 48°52.520'N and 123°14.537'W, then to 48°51.971'N and 123°13.768'W, then to 48°51.795'N and 123°13.947'W, then to 48°52.150'N and 123°14.444'W, then to 48°52.038'N and 123°14.678'W, then to 48°52.479'N and 123°15.521'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Outer Gulf Islands #2: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°51.602'N and 123°13.233'W, then southerly to 48°51.309'N and 123°12.751'W, then to 48°50.913'N and 123°12.938'W, then to 48°50.844'N and 123°13.059'W, then to 48°51.163'N and 123°13.662'W, then to 48°51.579'N and 123°13.378'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Outer Gulf Islands #3: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°50.999'N and 123°12.391'W, then southerly to 48°50.608'N and 123°11.603'W, then to 48°50.097'N and 123°10.956'W, then to 48°49.959'N and 123°11.182'W, then to 48°50.857'N and 123°12.654'W, then to 48°50.959'N and 123°12.566'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Outer Gulf Islands #4: That portion of Subarea 29-4 that lies inside the following lines: begins at 48°54.936'N and 123°19.589'W, then southerly to 48°54.283'N and 123°18.529'W, then to 48°54.114'N and 123°18.619'W, then to 48°54.065'N and 123°18.771'W, then to 48°54.787'N and 123°19.929'W, then to 48°54.902'N and 123°19.793'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Howe Sound, Defence Islands: That portion of Subarea 28-4 that lies inside the following lines: begins at 49°34.102'N and 123°17.070'W, then southerly to 49°33.730'N and 123°16.562'W, then to 49°33.553'N and 123°16.462'W, then to 49°33.438'N and 123°16.750'W, then to 49°33.707'N and 123°17.201'W, then to 49°33.993'N and 123°17.391'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Howe Sound, Queen Charlotte Channel #1: That portion of Subarea 28-2 that lies inside the following lines: begins at 49°21.486'N and 123°17.254'W, then southerly to 49°20.528'N and 123°17.690'W, then to 49°20.401'N and 123°17.956'W, then to 49°20.765'N and 123°18.794'W, then to 49°20.982'N and 123°18.584'W, then to 49°21.098'N and

123°18.037'W, then to 49°21.501'N and 123°17.737'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Howe Sound, Queen Charlotte Channel #2: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°20.288'N and 123°17.693'W, then southeasterly to 49°20.2249'N and 123°17.501'W, then to 49°19.993'N and 123°17.377'W, then to 49°19.802'N and 123°17.444'W, then to 49°19.720'N and 123°17.840'W, then to 49°19.937'N and 123°18.107'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Howe Sound, Queen Charlotte Channel #3: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°19.918'N and 123°19.847'W, then southerly to 49°19.296'N and 123°19.905'W, then to 49°19.307'N and 123°20.344'W, then to 49°19.643'N and 123°20.421'W, then to 49°19.819'N and 123°20.361'W, then to 49°19.947'N and 123°20.097'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Howe Sound, Queen Charlotte Channel #4: That portion of Subarea 29-3 that lies inside the following lines: begins at 49°20.637'N and 123°19.162'W, then easterly to 49°20.577'N and 123°18.720'W, then to 49°20.441'N and 123°18.637'W, then to 49°20.068'N and 123°18.818'W, then to 49°20.076'N and 123°19.135'W, then to 49°19.718'N and 123°19.188'W, then to 49°19.726'N and 123°19.514'W, then to 49°20.259'N and 123°19.828'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Sechelt: That portion of Subarea 29-2 that lies inside a line that begins at 49°25.948'N 123°48.889'W, then easterly to 49°25.899'N 123°47.266'W, then to 49°25.373'N 123°46.494'W, then to 49°24.734'N 123°47.083'W, then to 49°24.910'N 123°47.951'W, then to 49°24.253'N 123°48.283'W, then to 49°24.845'N 123°49.914'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Halibut Bank: That portion of Subarea 29-2 that lie inside a line that begins at 49°21.768'N and 123°41.501'W, then southerly to 49°21.174'N and 123°40.045'W, then to 49°20.961'N and 123°40.139'W, then to 49°20.803'N and 123°39.860'W, then to 49°20.565'N and 123°40.182'W, then to 49°21.610'N and 123°41.843'W, then to 49°21.673'N and 123°42.643'W, then to 49°21.895'N and 123°43.908'W, then to 49°22.174'N and 123°44.748'W, then to 49°22.555'N and 123°44.456'W, then to 49°22.188'N and 123°42.167'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

Foreslope Hills: That portion of Subarea 29-3 that lies inside a line that begins at 49°09.634'N and 123°23.048'W, then southeasterly to 49°09.389'N and 123°22.622'W, then to 49°09.187'N and 123°22.587'W, then to 49°09.211'N and 123°23.567'W, then to 49°09.646'N and 123°23.543'W, then to the beginning point. (Glass Sponge Reef Marine Refuge)

East Defence Islands: That portion of Subarea 28-4 that lies inside a line that begins at 49° 34.731' N, 123° 16.555' W then northeast to 49° 34.848' N, 123° 16.357' W then northeast to 49° 34.854' N, 123° 16.120' W then southeast to 49° 34.580' N, 123° 16.084' W then southwest to 49° 34.535' N, 123° 16.539' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Anvil Island: That portion of Subarea 28-4 that lies inside a line that begins at 49° 32.874' N, 123° 17.425' W then southeast to 49° 32.865' N, 123° 16.815' W then southwest to 49° 32.533' N, 123° 16.869' W then southwest to 49° 32.482' N, 123° 17.118' W then northwest to 49° 32.574' N, 123° 17.483' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Lost Reef: That portion of Subarea 28-2 that lies inside a line that begins at 49° 29.799' N, 123° 18.203' W then northeast to 49° 29.935' N, 123° 18.007' W then southeast to 49° 29.882' N, 123° 17.832' W then southeast to 49° 29.591' N, 123° 17.519' W then southwest to 49° 29.547' N, 123° 17.941' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Brunswick Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 28.577' N, 123° 14.965' W then southeast to 49° 28.434' N, 123° 14.732' W then southwest to 49° 28.177' N, 123° 15.031' W then northwest to 49° 28.397' N, 123° 15.377' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Lions Bay and Kelvin Grove: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.629' N, 123° 15.761' W then southeast to 49° 27.315' N, 123° 14.516' W then southwest to 49° 26.950' N, 123° 14.595' W then northwest to 49° 26.952' N, 123° 15.046' W then northwest to 49° 27.195' N, 123° 15.655' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Halkett Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.036' N, 123° 18.686' W then southeast to 49° 26.897' N, 123° 18.444' W then southwest to 49° 26.696' N, 123° 18.578' W then southwest to 49° 26.657' N, 123° 18.776' W then northwest to 49° 26.742' N, 123° 18.984' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Bowyer Island: That portion of Subarea 28-2 that lies inside a line that begins at 49° 24.774' N, 123° 16.219' W then northeast to 49° 24.820' N, 123° 15.763' W then southwest to 49° 24.096' N, 123° 16.043' W then northwest to 49° 24.389' N, 123° 16.408' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

Dorman Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 22.577' N, 123° 19.379' W then southeast to 49° 22.543' N, 123° 19.051' W then southwest to 49° 22.287' N, 123° 19.152' W then northwest to 49° 22.351' N, 123° 19.454' W then to the beginning point. (Glass Sponge Reef Marine Refuge)

#### **4.2.3. Winchelsea Island Department of National Defence Prohibited Area**

Recreational harvesters are advised that due to the large number of submarine cables terminating at Winchelsea Island, the Department of National Defence prohibits all trap and bottom contact fishing and anchoring in a zone bounded by the following coordinates within the Military Sea Area WG: 49°18.456' N and 124°06.156' W, 49°17.128' N and 124°02.081' W, 49°17.274' N and 124°04.346' W, and 49°17.438' N and 124°05.138' W.

Contact the Department of National Defence, Canadian Forces Maritime Experimental and Test Ranges in Nanoose Bay.

#### **4.2.4. Saanich Inlet Sponge Reefs Advisory**

It is recommended that recreational harvesters should avoid setting trap gear in cloud sponge areas in Saanich Inlet in waters less than 40 metres depth at Henderson Point, at the mooring buoy northwest of Senanus Island, Willis Point, Repulse Rock, the point south of Misery Bay, Christmas Point, McCurdy Point and adjacent to the Bamberton cement plant.

#### **4.2.5. Victoria Area Ecological Reserves**

Harvesting of all shellfish is prohibited in waters shallower than 40 m at Race Rocks and in waters within 1/3<sup>rd</sup> nautical mile of Cadboro Point navigation light.

#### **4.2.6. Vancouver Harbour**

Harvesting of crab, shrimp, and prawns is closed between Lions Gate Bridge and Ironworkers Memorial (Second Narrows) Bridge for navigation purposes. Contact the Vancouver Harbour Authority.

#### **4.2.7. Area 28 Whytecliffe Park, Porteau Cove and Point Atkinson**

Harvesting all marine life is prohibited in those waters off Whytecliff Park, Porteau Cove and Point Atkinson.

#### **4.2.8. Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area**

Northern Reef Closure (Core Protection Zone): Those waters of Subareas 105-2 and 106-1 bounded by a series of rhumb lines drawn from a point having coordinate values of 53°18'40.4" North latitude and 130°52'46.5" West longitude, to a point having coordinate values of 53°22'12.1" North latitude and 130°47'01.7" West longitude, then to a point having coordinate values of 53°22'20.2" North latitude and 130°43'12.5" West longitude, then to a point having coordinate values of 53°17'22.8" North latitude and 130°38'18.2" West longitude, then to a point having coordinate values of 53°15'01.7" North latitude and 130°36'35.5" West longitude, then to a point having coordinate values of 53°10'55.2" North latitude and 130°20'19.3" West longitude, then to a point having coordinate values of 53°04'30.2" North latitude and 130°25'53.6" West longitude, then to a point having coordinate values of 53°04'58.0" North latitude and 130°32'16.9" West longitude then to a point having coordinate values of 53°07'22.2" North latitude and 130°37'37.6" West longitude, then to a point having coordinate values of 53°08'36.6" North latitude and 130°39'29.5" West longitude, then to a point having coordinate values of 53°08'41.8" North latitude and 130°45'40.0" West longitude, then to a point having coordinate values of 53°13'51.2" North latitude and 130°46'41.2" West longitude, then back to the point of Commencement. (Marine Protected Area)

Central Reef Zone A Closure (Core Protection Zone): Those waters of Subareas 106-2 and 107-1 bounded by a series of rhumb lines drawn from a point having coordinate values of 52°14'03.4" North latitude and 129°38'33.2" West longitude, to a point having coordinate values of 52°16'54.8" North latitude and 129°43'13.4" West longitude, then to a point having coordinate values of 52°21'57.1" North latitude and 129°43'56.5" West longitude, then to a point having coordinate values of 52°24'24.5" North latitude and 129°47'22.8" West longitude, then to a point having coordinate values of 52°29'05.9" North latitude and

129°50'59.4" West longitude, then to a point having coordinate values of 52°31'05.2" North latitude and 129°50'13.9" West longitude, then to a point having coordinate values of 52°31'06.7" North latitude and 129°47'40.9" West longitude, then to a point having coordinate values of 52°27'42.0" North latitude and 129°40'25.1" West longitude, then to a point having coordinate values of 52°25'22.9" North latitude and 129°37'24.0" West longitude, then to a point having coordinate values of 52°19'47.0" North latitude and 129°32'43.2" West longitude, then to a point having coordinate values of 52°16'18.2" North latitude and 129°33'22.8" West longitude, then back to the point of Commencement. (Marine Protected Area)

Central Reef Zone B (Core Protection Zone): Those waters of Subareas 107-1 and 107-2 bounded by a series of rhumb lines drawn from a point having coordinate values of 51°54'43.1" North latitude and 129°41'22.2" West longitude, to a point having coordinate values of 52°01'22.5" North latitude and 129°35'48.4" West longitude, then to a point having coordinate values of 52°05'13.5" North latitude and 129°34'32.5" West longitude, then to a point having coordinate values of 52°08'48.5" North latitude and 129°31'44.1" West longitude then to a point having coordinate values of 52°08'51.3" North latitude and 129°29'18.0" West longitude, then to a point having coordinate values of 52°04'27.1" North latitude and 129°21'17.3" West longitude, then to a point having coordinate values of 51°59'40.8" North latitude and 129°15'23.9" West longitude, then to a point having coordinate values of 51°56'04.5" North latitude and 129°18'46.2" West longitude, then to a point having coordinate values of 51°52'55.7" North latitude and 129°36'49.8" West longitude, then back to the point of Commencement. (Marine Protected Area)

Southern Reef (Core Protection Zone): Those waters of Area 110 bounded by a series of rhumb lines drawn from a point having coordinate values of 51°17'59.2" North latitude and 128°57'31.9" West longitude, to a point having coordinate values of 51°19'30.8" North latitude and 128°58'22.7" West longitude, then to a point having coordinate values of 51°23'41.9" North latitude and 128°48'50.9" West longitude, then to a point having coordinate values of 51°19'17.5" North latitude and 128°42'33.6" West longitude, then to a point having coordinate values of 51°18'24.5" North latitude and 128°42'37.7" West longitude, then to a point having coordinate values of 51°15'56.0" North latitude and 128°47'04.2" West longitude, then to a point having coordinate values of 51°15'52.2" North latitude and 128°54'20.4" West longitude, then back to the point of Commencement. (Marine Protected Area)

Detailed descriptions (coordinates) of individual closure areas and maps are available at:

<http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html>

#### **4.2.9. Offshore Pacific Seamounts and Vents Fishery Closure**

Those waters within Subareas 123-9, 124-1, 124-2, 125-6, 126-3, 126-4, 127-2, 127-4, and 130-1 described in Fishery Notice 1241 - Offshore Pacific Seamounts and Vents: Commercial and Recreational Bottom Contact Fisheries Closure - Portions of Areas 123 to 127, and 130.

### **4.3. Closure Notifications and Announcements**

Protected areas and permanent closures are published in the BC Sport Fishing Guide. New closure announcements are made by public fishery notice distributed to all local

community DFO offices, e-mailed to all recreational fishing outlets which have made arrangements for this service, and posted to the fishery notice system on the internet.

Recreational fishery notices and in-season changes are available at:

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

## **5. LICENSING**

### **5.1. Licence Category**

A Tidal Waters Sport Fishing Licence is required to fish and retain shellfish, including prawn and shrimp. These may be purchased for a 1, 3, 5 day, or annual period. Fees depend on licence duration, age (senior, adult, juvenile) and residency status. Licences for juveniles (ages 15 and under) are free. Fees are published in the BC Tidal Waters Sport Fishing Guide.

British Columbia Tidal Waters Sport Fishing Licences may be purchased online at:

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

## **6. MANAGEMENT MEASURES**

### **6.1. Species**

There are more than 85 species of shrimp found in the waters of Canada's Pacific coast. Of these, recreational fishing commonly catches three: Prawn, which is the common name for the largest shrimp on this coast; Humpback (King) Shrimp; and Coonstripe (Dock) Shrimp. Diagrams to aid in identification are available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/shrimp-pcrevette/biol-eng.html>

Prawns have a four year life cycle in BC, and so are larger than the other species which have a three year life cycle. Prawns and most shrimp begin life as a male, and then change to females at a later stage in the life cycle. More information is available in Appendix 7 and on the internet at the above noted site.

### **6.2. Size Limit**

There is no minimum size for recreational caught prawn or shrimp species.

### **6.3. Daily and Possession Limit**

The recreational daily limit is 125 prawn and shrimp combined. The possession limit is two-times the daily limit.

Recreational limits are available in the BC Sport Fishing Guide at:

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

#### **6.4. Release of Berried Prawn and Undersize Prawn and Shrimp**

“Berried” refers to prawns and shrimp that are carrying eggs held under their tails. All prawns (Spot Prawn, *Pandalus platyceros*) carrying eggs externally on the underside of the tail shall be returned to the water immediately and in the manner that causes the least harm. Prawns carrying eggs may not be kept and eggs may not be removed from the underside of prawns carrying eggs.

There are various means of releasing berried prawns and undersize prawns and shrimp in order to increase their survival. Release at the fishing location and careful handling without dropping provides a greater chance of the prawn and shrimp returning to their preferred habitat. Release prawns and shrimp as soon as possible before hauling the next trap on-board to reduce the potential damage to their eyes from UV radiation or from air exposure. Release of berried prawns after or during moving to other locations is illegal and will needlessly increase their mortality. DFO has tagged and released prawns in the past and they have re-entered traps to be hauled again. Better than 50% survival is expected, depending on the circumstances.

#### **6.5. Gear**

##### **6.5.1. Trap Limits and Groundlines**

The maximum number of traps or ring nets that may be fished for prawn and shrimp by any individual is four traps or ring nets. There is no mesh size restriction.

All single traps must be marked with a buoy. If two traps are attached to a single bottom line (groundline), the groundline may be marked with only one buoy. If three or four traps are set together on a single bottom line (groundline), then a buoy is required at either end of the groundline. Only one harvester’s traps may be set on a single groundline. Each individual may only fish those traps which he or she has set. You may not fish traps marked with any other person’s name on the buoy but your own.

##### **6.5.2. Buoy Marking**

The name of the harvester of the gear must be clearly marked on the buoy in printed solid black capital letters, not less than 75 mm (3 in.) high. Only one name can appear on a buoy. It is recommended that the harvester include their telephone number so that they may be contacted if the gear floats away.

Buoys must be highly visible and of sufficient size for the tides and currents in the area so as not to submerge.

Amendment to the *BC Sport Fishing Regulations* is moving forward to require a telephone number (or Unique Fisher Identification #'s) on buoys and to eliminate line floating at the surface.

The SFAB is working on standardized buoys for the recreational fishery to differentiate prawn and crab fishing gear and to eliminate the use of household plastic containers or blocks of styrofoam as these can often deteriorate in sunlight or waves and sink. This contributes to garbage washing up on the shoreline and loss of trap(s) which will continue to “ghost fish” for years to come.

### **6.5.3. Biodegradable Escape Mechanism (“rot cord”)**

Amendment to the *BC Sport Fishing Regulations* is moving forward to require a biodegradable escape mechanism, or ‘rot cord’, in all recreational traps to allow bycatch to escape in event traps are lost.

The SFAB supports adoption of rot cords on recreational prawn traps as a mechanism for addressing ghost fishing from lost traps. The SFAB has requested assistance from DFO in developing an implementation strategy, education and awareness program, supporting material, and specific standards for retrofitting the various trap types (5 types) commonly sold to recreational prawn fishers.

### **6.5.4. Lost Trap Gear**

Fishery Officers and Canadian Coast Guard personnel may collect recreational fishing gear from the water if the floats are improperly marked, if the gear poses a navigation hazard, or if the area is closed to fishing. In some cases, buoyed traps set on a low tide will float away on a high tide, or the float may be submerged and crushed by water pressure. The name of the harvester of the gear must be clearly marked on the buoy. It is recommended, and soon to become mandatory, that the harvester include their telephone number so that they may be contacted if someone finds the gear that has floated away (Section 6.5.2).

### **6.5.5. Fishing Gear Conflicts**

Recreational and commercial harvesters are advised to exercise care when setting gear near other gear in similar locations when these fisheries co-occur. Fouled gear should be untangled without cutting and returned to the water intact. If a line must be cut, it should be the own line of the harvester who is hauling the gear.

Recreational harvesters are advised that commercial harvesters do not usually set their gear in a straight line from buoy to buoy, as they may be following a depth contour, or fishing different depths in order to find the prawns. So gear may be set in a zig zag, and occasionally even a circular pattern. Setting gear away from commercial sets or other recreational fishing gear will often improve your catch, as traps start to compete for the prawns if they are closer than about 20 m. Fishing single buoyed traps when the commercial fishery is active in the area will reduce the chance of crossed and tangled lines.

The presence of small and medium prawns only in an area may reflect harvesting effects. However, the absence of any prawns at all, indicates some other factor affecting abundance; behaviour, episodic predation or disease.

### **6.5.6. Gear Theft**

Gear theft and the theft of catch from traps is a concern in some areas. This type of activity should be reported to the police in the area where the theft has occurred.

## **7. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES**

### **7.1. Catch Reporting**

The SFAB and the recreational fishing sector strongly support effective fishery monitoring and catch reporting programs in recreational fisheries. The SFAB has been working with



DFO on initiatives to strengthen fishing monitoring and catch reporting in the recreational fishery for a number of years.

Recreational harvesters are required as a condition of the Tidal Waters Sport Fishing Licence to provide complete and accurate information regarding their catch and fishing activities upon request of a creel surveyor, and/or if selected to the online Internet Recreational Effort and Catch (iREC) or internet Annual Recreational Catch (iARC) reporting programs, and/or other authorities under s.61(5) of the *Fisheries Act*.

The iREC Survey contacts participants by email in advance of the survey period and allows for the selected participants to record their information periodically or to complete the survey on a single visit to the website after the month ends. Participants selected for the iREC survey also have their personal online survey access code printed on their licence. Participants who do not fish during the month are included in the survey as well, as an important component of the catch and effort estimation. The survey period is normally one month but shorter periods may be used.

A recreational mail survey is also conducted nationally by DFO every five years.

More information on the internet recreational survey is available at:

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

## **8. GENERAL INFORMATION**

### **8.1. Bacteria and Viruses**

As with any seafood, catch in some areas may be exposed at various times to bacteria or viruses (e.g. noroviruses). Keep catch clean, cool and covered on-board. Refrigerate if it will not be consumed immediately. Wash during preparation. Proper cooking kills bacteria.

### **8.2. Whale Encounters**

If a marine mammal becomes entangled in fishing gear or collides with a vessel, immediately log your coordinates and contact the Marine Mammal Incident Hotline 1-800-465-4336 providing as much information as possible regarding species and gear type and a DFO representative will contact you. If a whale is entangled in fishing gear you may be asked to track the animal to aid in relocating the animal as an attempt may be made to rescue both the animal and fishing gear.

### **8.3. Fishing Practices**

The following practices help increase prawn survival, prevent loss of gear, and assist in the long-term sustainability of the fishery:

#### **Longer Fishing Times**

- Studies show that shorter fishing times tend to capture small prawns. Fishing traps overnight or if possible throughout the day allows small prawns to exit traps while still on the bottom.

#### **Sorting of Catch**

- Although there is no size restriction for recreationally caught prawns, returning small

- prawns back to the water can contribute to the sustainability of prawn stocks.
- Should you decide to release the small prawns you have caught, this should be done before hauling the next trap on-board your vessel. Incidental bycatch, such as small finfish that may have made their way into the trap, must be released as soon as possible. It is advisable to release any catch that you do not want away from predatory birds which may be nearby.

#### Bait

- Although the use of fish offal, heads and backbones as bait is permitted, catching rockfish, greenling and other species that contribute to the recreational fishery and using them for bait is a violation. Rockfish in particular are very slow growing and require special management measures to prevent over-fishing of these species.

#### Appropriate Gear

- Ensure that traps are well marked with a large float or buoy so that they are plainly visible to the boating public.
- Avoid the use of household plastic containers or blocks of styrofoam as these can often deteriorate in sunlight or waves and sink. This contributes to garbage washing up on the shoreline and loss of trap(s) which will continue to “ghost fish” for years to come.
- Use strong groundline and buoy lines to prevent the loss of traps. To avoid entanglement with your engine propeller or that of a passing boat, or with another harvester’s traps and lines, do not use floating lines such as common yellow polypropylene, or if using a line that floats add weight to it so that it sinks.

## Appendix 3: 2021/22 Prawn and Shrimp by Trap First Nations Harvest Plan

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## **1. FIRST NATIONS HARVEST PLAN HIGHLIGHTS AND CHANGES 2021/22**

- 1.1. Fisheries and Oceans Canada (DFO) has sought First Nations input on management measures for the Food, Social and Ceremonial (FSC) fishery to address the harvesting capacity of commercial vessels and gear since 2012. Starting March 2016, for those First Nations that have an interest in using commercial vessels or gear for harvesting prawns for FSC purposes, DFO requests details about how this will occur. Please refer to Section 3 and contact the local DFO Resource Manager.
- 1.2. DFO implemented a number of measures in 2018 for Southern Resident Killer Whales, including measures aimed at increasing prey availability and accessibility – particularly Chinook salmon – and reducing threats related to physical and acoustic disturbance in key foraging areas. DFO is reviewing previous measures, in consultation First Nations and stakeholders, with a view to determining whether different, adjusted, and/or additional measures may be required. These measures may include fishery closures or other area-based measures implemented pre-season or (in some cases) in-season. DFO is currently exploring the use of spatially-based measures to help protect Southern Resident Killer Whales. More information and longer term measures will be posted online as it becomes available (<https://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/srkw-ers/index-eng.html>).
- 1.3. First Nations who are interested are working towards adopting standard buoys to differentiate prawn and crab fishing gear and to eliminate the use of household plastic containers or blocks of styrofoam as these can often deteriorate in sunlight or waves and sink, contributing to garbage washing up on the shoreline and loss of trap(s) which continue to “ghost fish” for years to come.
- 1.4. Glass Sponge Reefs Marine Refuges are proposed for closure to all bottom-contact fishing, including prawn and shrimp trap, in Howe Sound in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island (Section 5).
- 1.5. Please see Section 5.4.2 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap for additional initiatives under the Government of Canada’s commitment to meeting marine conservation targets.

## **2. 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 in-season for resource conservation purposes. Even where an agreement cannot be concluded, DFO issues communal fishing licences to First Nations organizations.

## **3. MANAGEMENT MEASURES FOR THE FIRST NATIONS FISHERY**

First Nations prawn fishing effort for FSC or domestic purposes is currently not limited by catch quantity or size limits, except in those Nations where the Council or fisheries program has established their own catch limits for band members, or where allocated under Treaty.

First Nations interested in using commercial vessels or gear to harvest prawns for FSC purposes should provide fishing details to their local DFO resource manager (see Section 15 of the Integrated Fishery Management Plan for DFO contacts). The details should include when and where fishing will take place, which and how many boats will be used, the number of traps (and marking), how the fishery will be monitored and catch reported, and the amounts to be harvested. These details are requested so that there can be a common understanding of the size, scope and timing of the fishery. DFO will review the details, discuss it with the First Nation, and work towards agreement. This information will allow DFO to issue a supplemental communal licence that authorizes the use of commercial vessels and gear in a First Nations' communal (FSC) fishery. First Nations not interested in using commercial vessels or gear to harvest prawns for FSC purposes will continue to have FSC prawn harvest opportunities using non-commercial vessels and gear under their regular communal licence. For the purposes of this management initiative, commercial gear is defined as power assisted gear commonly used in the commercial fishery including, but not limited to, hydraulic gurdies and trap haulers, powered drums, blocks or live rollers. Electric (12V) powered recreational trap pullers are not used in the commercial fishery and are not included under the commercial gear definition. DFO and First Nations that have expressed interest in using commercial vessels and gear to harvest prawns for FSC purposes are working together to develop FSC fishery management plans using current stock conservation goals to ensure long term sustainability.

#### **4. OPEN TIMES**

First Nations fishing for FSC or, under Treaty, domestic purposes are open coast-wide throughout the year from April 1 to March 31, annually. In winter prawn closure areas to protect prawns while spawning (i.e. release of eggs as larvae), First Nations are recommended to fish outside of the closures and to release all berried females. Information can be provided on areas of likely prawn abundance outside of the recreational fishery closures, so that effort can be redirected and catch improved (see Section 15 of the Integrated Fishery Management Plan for DFO contacts).

#### **5. PROTECTION OF STRAIT OF GEORGIA AND HOWE SOUND GLASS SPONGE REEFS**

The following areas in the Strait of Georgia and Howe Sound are closed to all commercial, recreational and First Nations FSC and domestic (under Treaty) bottom-contact fishing activities for prawn, shrimp, crab and groundfish (includes halibut) as well as the use of downrigger gear for recreational salmon trolling (restricted via Condition of Licence) to protect glass sponge reefs in accordance with the Sensitive Benthic Areas Policy and its Ecological Risk Assessment Framework for Cold-water Corals and Sponge Dominated Communities.

An overview map of locations of the fishing closures is provided in Appendix 9.

Detailed descriptions (coordinates) of individual closure areas and maps are available at:

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

##### **5.1. Parksville Glass Sponge Reef Closure**

Those portions of Subareas 14-2 and 14-3 that lie inside a line that begins at 49°21.680'N and 124°19.762'W, then southeasterly to 49°21.514'N and 124°18.893'W, then to 49°21.191'N and 124°17.723'W, then to 49°21.064'N and 124°17.724'W, then to 49°20.725'N and 124°18.380'W, then to 49°21.432'N and 124°19.811'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

##### **5.2. East of Hornby Island (Achilles Bank) Glass Sponge Reef Closure**

That portion of Subarea 14-6 that lies inside a line that begins at 49°33.490'N and 124°29.230'W, then southerly to 49°32.701'N and 124°28.760'W, then to 49°31.657'N and 124°29.434'W, then to 49°31.663'N and 124°29.896'W, then to 49°32.651'N and 124°29.752'W, then to 49°33.340'N and 124°29.935'W, then to 49°33.498'N and 124°29.773'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

##### **5.3. Gabriola Island Glass Sponge Reef Closure**

That portion of Subarea 17-11 that lies inside a line that begins at 49°13.672'N and 123°47.577'W, then southerly to 49°13.235'N and 123°47.429'W, then to 49°13.185'N and 123°47.882'W, then to 49°13.391'N and 123°48.119'W, then to 49°13.623'N and 123°48.166'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

#### **5.4. Outer Gulf Islands Glass Sponge Reef Closures**

Outer Gulf Islands #1: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°52.588'N and 123°15.261'W, then easterly to 48°52.520'N and 123°14.537'W, then to 48°51.971'N and 123°13.768'W, then to 48°51.795'N and 123°13.947'W, then to 48°52.150'N and 123°14.444'W, then to 48°52.038'N and 123°14.678'W, then to 48°52.479'N and 123°15.521'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Outer Gulf Islands #2: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°51.602'N and 123°13.233'W, then southerly to 48°51.309'N and 123°12.751'W, then to 48°50.913'N and 123°12.938'W, then to 48°50.844'N and 123°13.059'W, then to 48°51.163'N and 123°13.662'W, then to 48°51.579'N and 123°13.378'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Outer Gulf Islands #3: That portion of Subarea 18-1 that lies inside the following lines: begins at 48°50.999'N and 123°12.391'W, then southerly to 48°50.608'N and 123°11.603'W, then to 48°50.097'N and 123°10.956'W, then to 48°49.959'N and 123°11.182'W, then to 48°50.857'N and 123°12.654'W, then to 48°50.959'N and 123°12.566'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Outer Gulf Islands #4: That portion of Subarea 29-4 that lies inside the following lines: begins at 48°54.936'N and 123°19.589'W, then southerly to 48°54.283'N and 123°18.529'W, then to 48°54.114'N and 123°18.619'W, then to 48°54.065'N and 123°18.771'W, then to 48°54.787'N and 123°19.929'W, then to 48°54.902'N and 123°19.793'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

#### **5.5. Howe Sound Glass Sponge Reef Closures**

Phase III Glass Sponge Reefs Marine Refuges are proposed for closure in Langdale, Carmelo Point, Collingwood Channel, Mariners Rest, Alberta Bay and Passage Island for 2021. Refer to Appendix 9 Strait of Georgia and Howe Sound Glass Sponge Reef Closures for a map of the proposed closure areas.

Defence Islands: That portion of Subarea 28-4 that lies inside the following lines: begins at 49°34.102'N and 123°17.070'W, then southerly to 49°33.730'N and 123°16.562'W, then to 49°33.553'N and 123°16.462'W, then to 49°33.438'N and 123°16.750'W, then to 49°33.707'N and 123°17.201'W, then to 49°33.993'N and 123°17.391'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Queen Charlotte Channel #1: That portion of Subarea 28-2 that lies inside the following lines: begins at 49°21.486'N and 123°17.254'W, then southerly to 49°20.528'N and 123°17.690'W, then to 49°20.401'N and 123°17.956'W, then to 49°20.765'N and 123°18.794'W, then to 49°20.982'N and 123°18.584'W, then to 49°21.098'N and 123°18.037'W, then to 49°21.501'N and 123°17.737'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Queen Charlotte Channel #2: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°20.288'N and 123°17.693'W, then southeasterly to 49°20.2249'N and 123°17.501'W, then to 49°19.993'N and 123°17.377'W, then to 49°19.802'N and

123°17.444'W, then to 49°19.720'N and 123°17.840'W, then to 49°19.937'N and 123°18.107'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Queen Charlotte Channel #3: Those portions of Subareas 28-2 and 29-3 that lie inside the following lines: begins at 49°19.918'N and 123°19.847'W, then southerly to 49°19.296'N and 123°19.905'W, then to 49°19.307'N and 123°20.344'W, then to 49°19.643'N and 123°20.421'W, then to 49°19.819'N and 123°20.361'W, then to 49°19.947'N and 123°20.097'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

Queen Charlotte Channel #4: That portion of Subarea 29-3 that lies inside the following lines: begins at 49°20.637'N and 123°19.162'W, then easterly to 49°20.577'N and 123°18.720'W, then to 49°20.441'N and 123°18.637'W, then to 49°20.068'N and 123°18.818'W, then to 49°20.076'N and 123°19.135'W, then to 49°19.718'N and 123°19.188'W, then to 49°19.726'N and 123°19.514'W, then to 49°20.259'N and 123°19.828'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

East Defence Islands: That portion of Subarea 28-4 that lies inside a line that begins at 49° 34.731' N, 123° 16.555' W then northeast to 49° 34.848' N, 123° 16.357' W then northeast to 49° 34.854' N, 123° 16.120' W then southeast to 49° 34.580' N, 123° 16.084' W then southwest to 49° 34.535' N, 123° 16.539' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Anvil Island: That portion of Subarea 28-4 that lies inside a line that begins at 49° 32.874' N, 123° 17.425' W then southeast to 49° 32.865' N, 123° 16.815' W then southwest to 49° 32.533' N, 123° 16.869' W then southwest to 49° 32.482', 123° 17.118' W then northwest to 49° 32.574' N, 123° 17.483' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Lost Reef: That portion of Subarea 28-2 that lies inside a line that begins at 49° 29.799' N, 123° 18.203' W then northeast to 49° 29.935' N, 123° 18.007' W then southeast to 49° 29.882' N, 123° 17.832' W then southeast to 49° 29.591' N, 123° 17.519' W then southwest to 49° 29.547' N, 123° 17.941' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Brunswick Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 28.577' N, 123° 14.965' W then southeast to 49° 28.434' N, 123° 14.732' W then southwest to 49° 28.177' N, 123° 15.031' W then northwest to 49° 28.397' N, 123° 15.377' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Lions Bay and Kelvin Grove: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.629' N, 123° 15.761' W then southeast to 49° 27.315' N, 123° 14.516' W then southwest to 49° 26.950' N, 123° 14.595' W then northwest to 49° 26.952' N, 123° 15.046' W then northwest to 49° 27.195' N, 123° 15.655' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Halkett Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 27.036' N, 123° 18.686' W then southeast to 49° 26.897' N, 123° 18.444' W then southwest to 49° 26.696' N, 123° 18.578' W then southwest to 49° 26.657' N, 123° 18.776' W then northwest to 49°



26.742' N, 123° 18.984' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Bowyer Island: That portion of Subarea 28-2 that lies inside a line that begins at 49° 24.774' N, 123° 16.219' W then northeast to 49° 24.820' N, 123° 15.763' W then southwest to 49° 24.096' N, 123° 16.043' W then northwest to 49° 24.389' N, 123° 16.408' W then to the beginning point. (Glass Sponge Reef Conservation Area)

Dorman Point: That portion of Subarea 28-2 that lies inside a line that begins at 49° 22.577' N, 123° 19.379' W then southeast to 49° 22.543' N, 123° 19.051' W then southwest to 49° 22.287' N, 123° 19.152' W then northwest to 49° 22.351' N, 123° 19.454' W then to the beginning point. (Glass Sponge Reef Conservation Area)

#### **5.6. Sechelt Glass Sponge Reef Closure**

That portion of Subarea 29-2 that lies inside a line that begins at 49°25.948'N 123°48.889'W, then easterly to 49°25.899'N 123°47.266'W, then to 49°25.373'N 123°46.494'W, then to 49°24.734'N 123°47.083'W, then to 49°24.910'N 123°47.951'W, then to 49°24.253'N 123°48.283'W, then to 49°24.845'N 123°49.914'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

#### **5.7. Halibut Bank Glass Sponge Reef Closure**

That portion of Subarea 29-2 that lie inside a line that begins at 49°21.768'N and 123°41.501'W, then southerly to 49°21.174'N and 123°40.045'W, then to 49°20.961'N and 123°40.139'W, then to 49°20.803'N and 123°39.860'W, then to 49°20.565'N and 123°40.182'W, then to 49°21.610'N and 123°41.843'W, then to 49°21.673'N and 123°42.643'W, then to 49°21.895'N and 123°43.908'W, then to 49°22.174'N and 123°44.748'W, then to 49°22.555'N and 123°44.456'W, then to 49°22.188'N and 123°42.167'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

#### **5.8. Foreslope Hills Glass Sponge Reef Closure**

That portion of Subarea 29-3 that lies inside a line that begins at 49°09.634'N and 123°23.048'W, then southeasterly to 49°09.389'N and 123°22.622'W, then to 49°09.187'N and 123°22.587'W, then to 49°09.211'N and 123°23.567'W, then to 49°09.646'N and 123°23.543'W, then to the beginning point. (Glass Sponge Reef Conservation Area)

### **6. HECATE STRAIT AND QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREA**

The Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area is located between Haida Gwaii and the mainland of BC in Hecate Strait and Queen Charlotte Sound. The reefs are made up of large colonies of glass sponges and are estimated to be 9,000 years old. They are located at depths of 140 m to 240 m below the surface. The Marine Protected Area is comprised of individual areas known as the Northern Reef, the two Central Reefs, and the Southern Reef. Together these areas cover approximately 2,410 km<sup>2</sup>.

The Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area has been established to conserve the biological diversity, structural habitat, and ecosystem function of the glass sponge reefs. The slow growth and fragility of these sponges make the reefs particularly vulnerable to damage and disturbance since recovery may take tens to several hundreds of years. Due to the highly sensitive nature and structure of the reefs, human activities in and around the reefs could pose a risk to the structural habitat, biological diversity and ecosystem function of the reefs.

The Marine Protected Area's regulations establish the outer boundaries of the areas, consisting of the seabed, the subsoil to a depth of 20 meters and the water column above the seabed.

Detailed descriptions (coordinates) of individual closure areas and maps are available on the internet at:

<http://dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html>

#### **6.1. Northern Reef Closure (Core Protection Zone)**

Those waters of Subareas 105-2 and 106-1 bounded by a series of rhumb lines drawn from a point having coordinate values of 53°18'40.4" North latitude and 130°52'46.5" West longitude, to a point having coordinate values of 53°22'12.1" North latitude and 130°47'01.7" West longitude, then to a point having coordinate values of 53°22'20.2" North latitude and 130°43'12.5" West longitude, then to a point having coordinate values of 53°17'22.8" North latitude and 130°38'18.2" West longitude, then to a point having coordinate values of 53°15'01.7" North latitude and 130°36'35.5" West longitude, then to a point having coordinate values of 53°10'55.2" North latitude and 130°20'19.3" West longitude, then to a point having coordinate values of 53°04'30.2" North latitude and 130°25'53.6" West longitude, then to a point having coordinate values of 53°04'58.0" North latitude and 130°32'16.9" West longitude then to a point having coordinate values of 53°07'22.2" North latitude and 130°37'37.6" West longitude, then to a point having coordinate values of 53°08'36.6" North latitude and 130°39'29.5" West longitude, then to a point having coordinate values of 53°08'41.8" North latitude and 130°45'40.0" West longitude, then to a point having coordinate values of 53°13'51.2" North latitude and 130°46'41.2" West longitude, then back to the point of Commencement. (Marine Protected Area)

#### **6.2. Central Reef Zone A Closure (Core Protection Zone)**

Those waters of Subareas 106-2 and 107-1 bounded by a series of rhumb lines drawn from a point having coordinate values of 52°14'03.4" North latitude and 129°38'33.2" West longitude, to a point having coordinate values of 52°16'54.8" North latitude and 129°43'13.4" West longitude, then to a point having coordinate values of 52°21'57.1" North latitude and 129°43'56.5" West longitude, then to a point having coordinate values of 52°24'24.5" North latitude and 129°47'22.8" West longitude, then to a point having coordinate values of 52°29'05.9" North latitude and 129°50'59.4" West longitude, then to a point having coordinate values of 52°31'05.2" North latitude and 129°50'13.9" West longitude, then to a point having coordinate values of 52°31'06.7" North latitude and 129°47'40.9" West longitude, then to a point having coordinate values of 52°27'42.0" North latitude and 129°40'25.1" West longitude, then to a point having coordinate values of 52°25'22.9" North latitude and 129°37'24.0" West longitude, then to a point having coordinate values of 52°19'47.0" North latitude and

129°32'43.2" West longitude, then to a point having coordinate values of 52°16'18.2" North latitude and 129°33'22.8" West longitude, then back to the point of Commencement. (Marine Protected Area)

### **6.3. Central Reef Zone B Closure (Core Protection Zone)**

Those waters of Subareas 107-1 and 107-2 bounded by a series of rhumb lines drawn from a point having coordinate values of 51°54'43.1" North latitude and 129°41'22.2" West longitude, to a point having coordinate values of 52°01'22.5" North latitude and 129°35'48.4" West longitude, then to a point having coordinate values of 52°05'13.5" North latitude and 129°34'32.5" West longitude, then to a point having coordinate values of 52°08'48.5" North latitude and 129°31'44.1" West longitude then to a point having coordinate values of 52°08'51.3" North latitude and 129°29'18.0" West longitude, then to a point having coordinate values of 52°04'27.1" North latitude and 129°21'17.3" West longitude, then to a point having coordinate values of 51°59'40.8" North latitude and 129°15'23.9" West longitude, then to a point having coordinate values of 51°56'04.5" North latitude and 129°18'46.2" West longitude, then to a point having coordinate values of 51°52'55.7" North latitude and 129°36'49.8" West longitude, then back to the point of Commencement. (Marine Protected Area)

### **6.4. Southern Reef Closure (Core Protection Zone)**

Those waters of Area 110 bounded by a series of rhumb lines drawn from a point having coordinate values of 51°17'59.2" North latitude and 128°57'31.9" West longitude, to a point having coordinate values of 51°19'30.8" North latitude and 128°58'22.7" West longitude, then to a point having coordinate values of 51°23'41.9" North latitude and 128°48'50.9" West longitude, then to a point having coordinate values of 51°19'17.5" North latitude and 128°42'33.6" West longitude, then to a point having coordinate values of 51°18'24.5" North latitude and 128°42'37.7" West longitude, then to a point having coordinate values of 51°15'56.0" North latitude and 128°47'04.2" West longitude, then to a point having coordinate values of 51°15'52.2" North latitude and 128°54'20.4" West longitude, then back to the point of Commencement. (Marine Protected Area)

## **7. LICENSING**

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

## **8. CONTROL AND MONITORING OF FIRST NATIONS FISHING ACTIVITIES**

Communal licences and Fisheries Agreements may contain provisions for the designation of individuals by the First Nation, or First Nations organizations, to access the allocation provided under the communal licence / harvest document. Commercial fishing vessels must be designated for participation in FSC or domestic fishing. Provisions may also be included for monitoring and reporting on the First Nations fishery in co-operation with DFO.

First Nations communal licences and, under Treaty, harvest documents specify the locations permitted for use by First Nations for FSC or domestic harvests.

The First Nations will provide the number of pounds of shellfish harvested by species to the DFO Resource Manager on a quarterly basis (every three months). The fishing plan for First Nations interested in using commercial vessels or gear to harvest prawns for FSC purposes should include how the fishery will be monitored and catch reported. DFO is putting an increased emphasis on catch reporting for management of the fishery.

## **8.1. 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 can be found at:

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

### *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/1100100030588/1542730442128>

### *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. The Tla'amin fishery for domestic (FSC)

purposes under the Tla'amin Final Agreement (Treaty) includes a domestic allocation for prawns.

More information on the Treaty can be found at:

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

## **8.2. 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 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 Five Nations Multi-species Fishery Management Plan (FMP) includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting.

For further information see the 2020-21 FMP at:

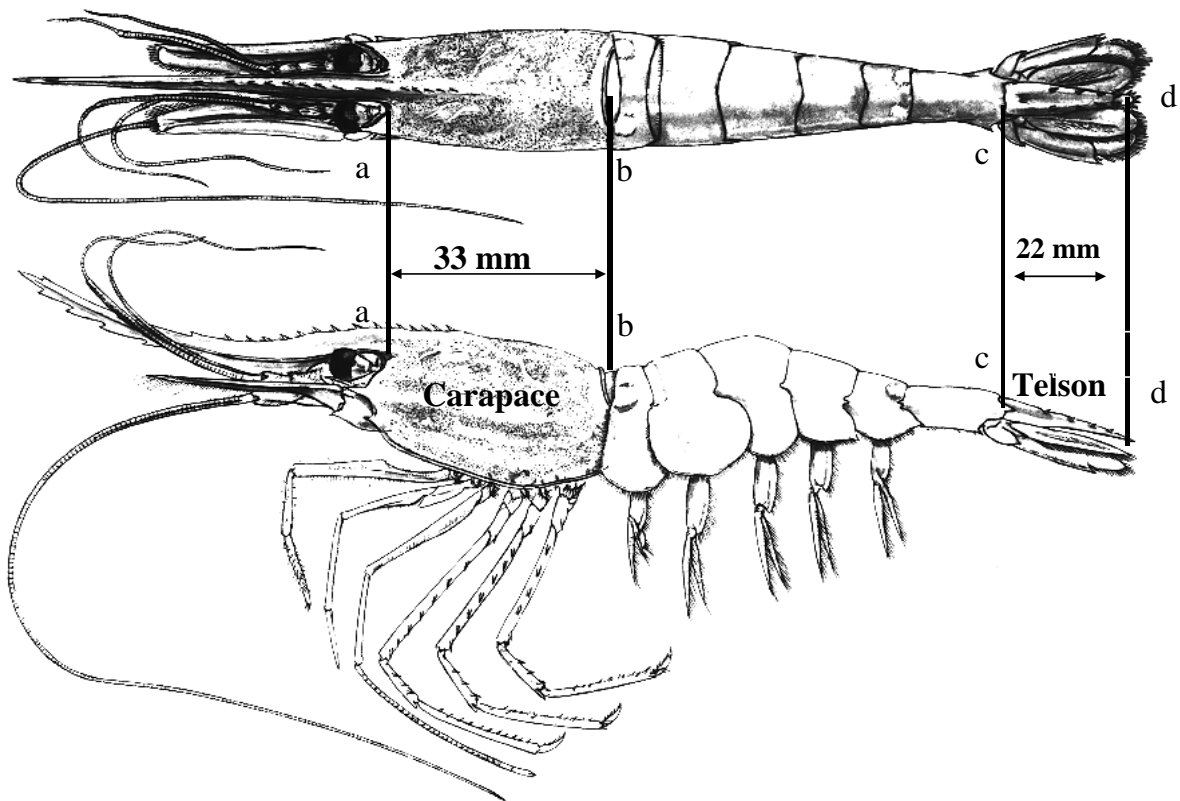
<http://waves-vagues.dfo-mpo.gc.ca/Library/40869374.pdf>

## Appendix 4: Diagrams - Prawn Size Limits and Commercial Trap Requirements

**FIGURE 1: PRAWN SIZE LIMIT**

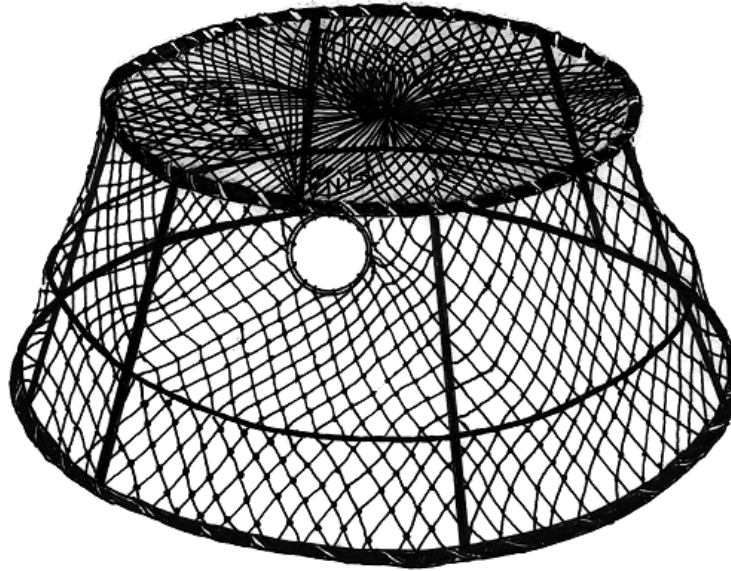
33 mm carapace length as measured from the posterior margin of the eye orbit (a) to the posterior mid-dorsal margin of the carapace (b).

For headed product only, 22 mm telson length (c) to (d).



## FIGURE 2: WEB TRAP MESH REQUIREMENTS

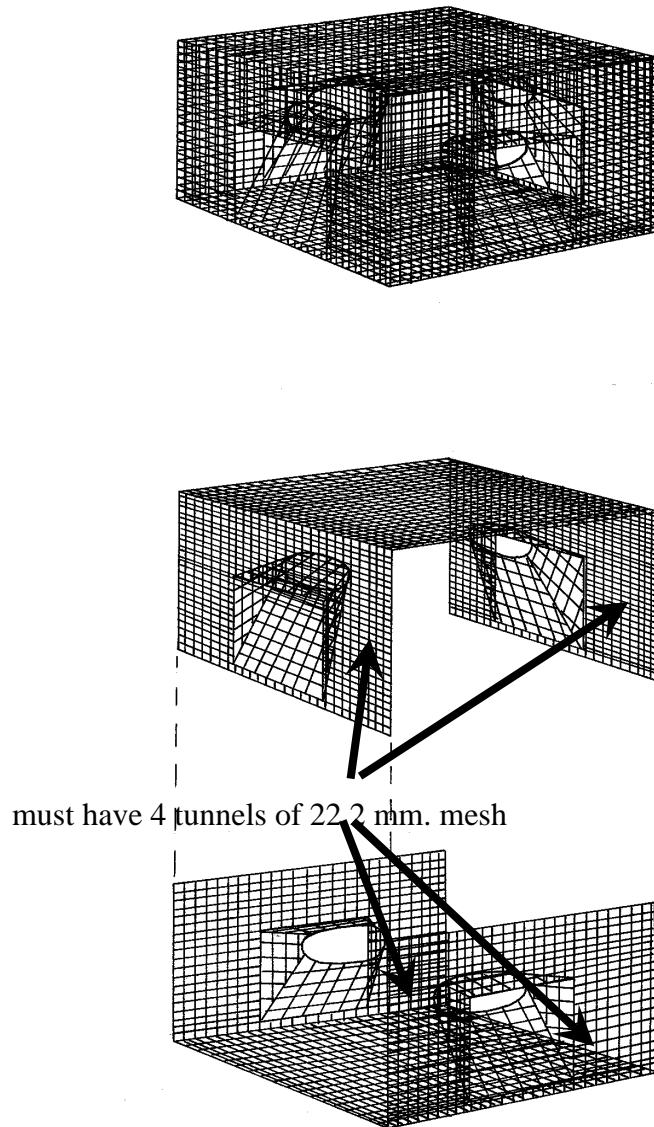
Web or Soft Mesh Traps: Maximum Volume 170 Litres



**Web or Soft Mesh Traps** are to be covered with a single layer of mesh. The mesh must measure a minimum of 38.1mm (1.5 inches). Mesh size is measured as described in the definition section of the *Pacific Fishery Regulations, 1993*. Mesh size means the total length of twine measured along two contiguous sides of a single mesh, including the distance across the knot joining those sides but not including any other knots. All mesh used in the trap including the tunnels must conform to this minimum size.

### FIGURE 3: WIRE MESH TRAPS - OPTION 1 (4 TUNNELS)

Maximum Volume 100 Litres



Minimum 22.2 mm (7/8 Inch) Opening Mesh in at Least 4 Tunnels, 50 per cent of Side

**Wire or Hard Mesh Traps** - These traps must have either:

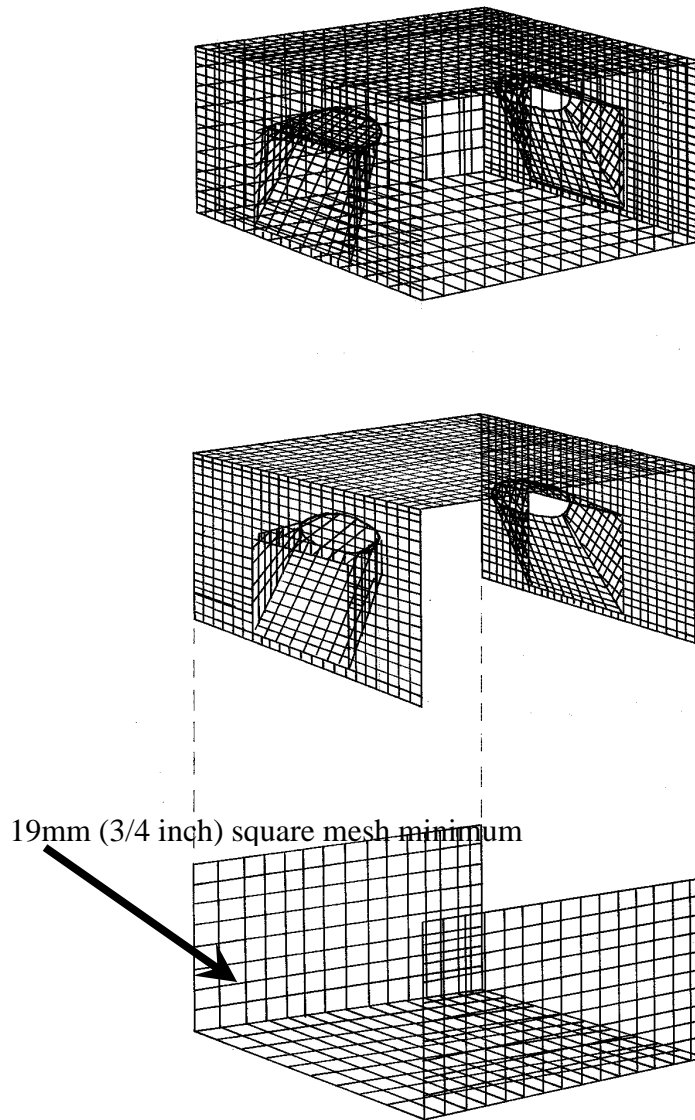
Four opposing tunnels constructed of a rigid square mesh material having a minimum dimension (after dip coating) that will allow the passage of a 22.2mm (7/8 inch) square peg through the mesh without altering the shape of the mesh opening. The lower side of each tunnel must extend to the bottom edge of the trap and must be at least one half the length of the trap side, or:

Refer to Wire Mesh Trap Options 2 and 3 on the following pages.



#### FIGURE 4: WIRE MESH TRAPS - OPTION 2 (SMALL VOLUME)

Minimum 19 mm (3/4 inch) Opening Mesh on 2 Sides and Bottom  
Maximum Volume 100 Litres

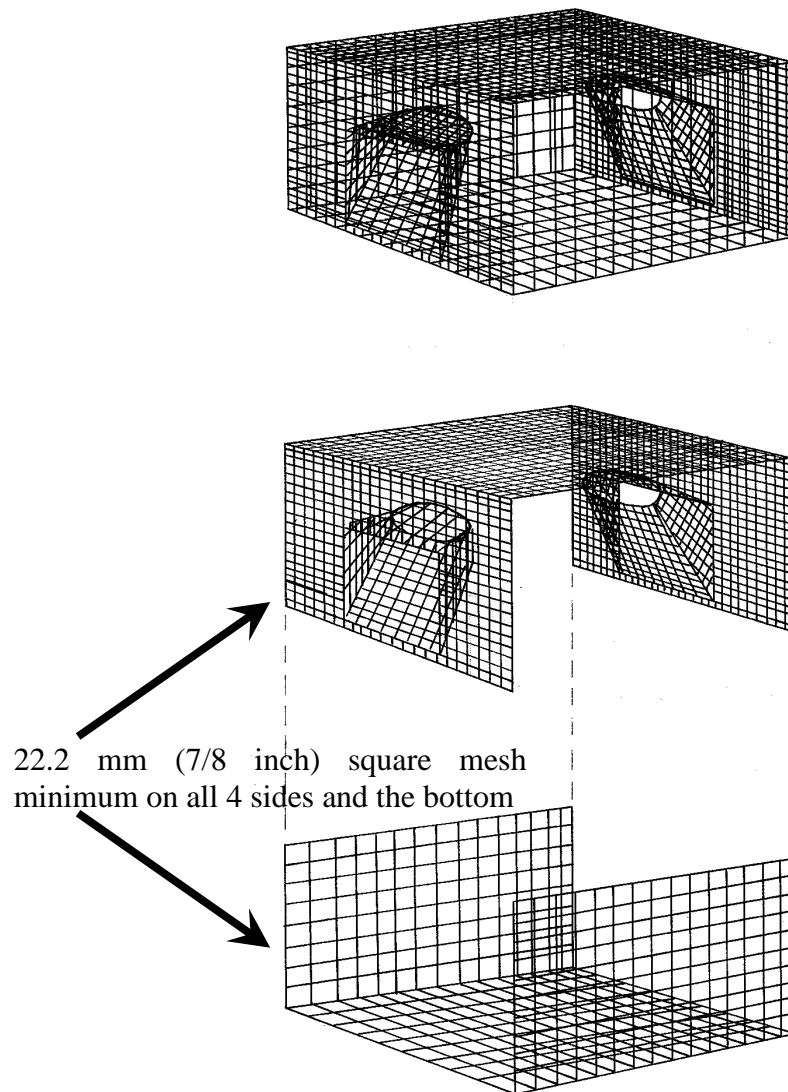


The bottom and two opposing sides must be constructed of a square mesh material that will allow the passage of a 19mm (3/4 inch) square peg through the mesh without altering the shape of the mesh opening, or

Also Refer to Wire Mesh Trap Options 1 and 3 on the adjacent pages.

### FIGURE 5: WIRE MESH TRAPS - OPTION 3 (LARGE VOLUME)

Minimum 22.2 mm. (7/8 inch) Opening Mesh on 4 Sides and Bottom  
Maximum Volume 170 Litres.



The bottom and all 4 sides must be constructed of a square mesh material that will allow the passage of a 22.2 mm (7/8 inch) square peg through the mesh without altering the shape of the mesh opening; or

Refer to Wire Mesh Options 1 and 2 on the preceding pages.

**TABLE 1: STACKING CONE NESTING TRAP, MAXIMUM DIMENSIONS**

		Height in inches:						
		9	10	11	12	13	14	15
Average trap diameter in inches (calculated as the top ring diameter + the bottom ring diameter / 2)	26	78	87	96	104	113	122	131
	27	84	94	103	113	122	131	141
	28	91	101	111	121	131	141	151
	29	97	108	119	130	141	152	162
	30	104	116	127	139	151	162	174
	31	111	124	136	148	161	173	186
	32	119	132	145	158	171	185	198
	33	126	140	154	168	182	196	210
	34	134	149	164	179	193	208	223
	35	142	158	173	189	205	221	237
	36	150	167	184	200	217	234	250
	37	159	176	194	212	229	247	264
	38	167	186	205	223	242	260	279
	39	176	196	215	235	255	274	294
	40	185	206	227	247	268	288	309

Max. legal volume = 170 L.

Shaded areas are volumes in excess of the limit.

## Appendix 5: Prawn and Shrimp Trap Harvest Log Example

SHRIMP TRAP LOG																					
V.R.N. <span style="border: 1px solid black; padding: 2px;">  </span>			Vessel <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span>			Skipper <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span>			Year <span style="border: 1px solid black; padding: 2px;">200</span>			Page No. <span style="border-bottom: 1px solid black; display: inline-block; width: 50px;"></span>									
<b>Catch Weights:</b> (check one) <input type="checkbox"/> <b>Pounds</b> (LB)  <input type="checkbox"/> <b>Kilograms</b> (KG)  <input type="button" value="Record By String"/>			<b>TRAP DESCRIPTIONS</b> <b>A</b> 3-Ring Frame, Cone Nesting <b>B</b> 2-Ring Frame, Cone Nesting <b>C</b> Circular, Non-nesting <b>D</b> Collapsible Oval, Round or Rectangular <b>E</b> Plastic Buckets, Round or Rectangular <b>F</b> Wire Mesh, Square or Rectangular <b>G</b> 4-Ring Frame, Cone Nesting <b>H</b> Other (describe) <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span>			<div style="border: 1px solid black; padding: 5px;"> <b>MUST FILL OUT TRAP INFORMATION ON FIRST PAGE OF EACH MONTHLY SUBMISSION AND EACH TIME TRAP INFORMATION CHANGES</b> </div> Trap information same as previous page? (check for yes) <input type="checkbox"/>															
			<b>TRAP TYPE (s)</b> (select letter) <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>			<b>Bottom</b> Diameter (") <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		<b>Top</b> Diameter (") <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		Height (") <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		Length (") <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		Width (") <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		No. of Tunnels <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		No. of each trap type <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>		Code <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div>	
<div style="display: flex; justify-content: space-between;"> <div> <b>TIME HAULED</b>            Time (24hr)            month day hh:mm            1 2 3 :         </div> <div> <b>SOAK TIME</b>            (Hours)            1 2 3 :         </div> <div> <b>LOCATION</b>            Latitude/Longitude            dd° mm.mmm ddd° mm.mmm            Latitude Longitude         </div> <div> <b>STATISTICAL</b>            sub-area            area         </div> <div> <b>DEPTH</b>            Fathoms            min. max.         </div> <div> <b>NO. OF TRAPS</b>            1 2 3         </div> <div> <b>Whole Prawn Weight</b>            34-42/KG 25-33/KG 19-24/KG 15-18/KG &lt; 15/KG         </div> <div> <b>FREEZER BOATS ONLY - RECORD SIZES BY WEIGHT</b>            Medium Large X-Large Jumbo S-Jumbo         </div> <div> <b>Dock Shrimp</b>            (coonstripe)         </div> <div> <b>Humpback Shrimp</b>            (king)         </div> <div> <b>Octopus</b>            Released Kept            # Wt. # Wt.         </div> <div> <b>Remarks</b> </div> </div>																					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>Header Information</u></p> <p><b>Catch Weights</b> - indicate Pounds or Kilograms</p> <p>Do NOT mix pounds and kilograms on the same page</p> <p><b>Trap Information</b> - Each time harvest logs are submitted, the first page <b>MUST</b> include the detailed trap information, including:</p> <p><b>Trap type</b> - choose appropriate letter</p> <p><b>Trap size</b> - all measurements in inches (")</p> <p><b>No. of tunnels</b></p> <p><b>No. of traps</b></p> <p>For additional pages, use check box if trap information is unchanged</p> <p><b>If trap information changes</b>, fill in new header trap details</p> <p><u>Detailed Fishing Information</u></p> <p><b>Time Hauled</b> - give month, day, hour and minutes (24 hour clock)</p> <p><b>Soak time</b> - record in hours</p> <p><b>Location</b> - record Latitude / Longitude for start location of each string</p> </div> <div style="width: 45%;"> <p><u>Detailed Fishing Information cont'</u></p> <p><b>Statistical</b> - Pacific Fishery Management Area and sub-area must be provided for each string</p> <p><b>Depth</b> - record in fathoms; min. = minimum depth of set max. = maximum depth of the set</p> <p><b>No. of traps</b> - record the number of traps fished for the corresponding catch data</p> <p><b>Whole Prawn Weight</b> - record as whole weights only</p> <p>For tailed prawns, <b>multiply weight by 2</b> and enter under Whole Prawn Weight</p> <p>DO NOT fill in the whole weight if your product has already been recorded in the freezer weight section. Only product in addition to your freezer weight should be recorded here.</p> <p><b>*Record of sizes by weight - For use by Freezer Boats</b></p> <p>USE AS A GUIDELINE THE SPECIFIED COUNTS PER KILOGRAM FOR EACH SIZE CLASS EG 15-18 PIECES PER KG</p> <p><b>Dock Shrimp</b> - record as whole weights (also known as coonstripe shrimp)</p> <p><b>Humpback Shrimp</b> - record as whole weights (also known as king shrimp)</p> <p><b>Octopus</b> - for each string of gear record the <b>total number and total weight</b> of octopus released and kept</p> <p>Indicate Pounds or Kilograms for Octopus weights</p> <p><b>Remarks</b> - make note of any problems, unusual catch, unusual weather, berried females, etc.</p> </div> </div>																					

## **Appendix 6: 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

- Transport Canada Publication TP 10038 Small Fishing Vessel Safety Manual (can be obtained at Transport Canada Offices from their website at: <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm>)
- Amendments to the Small Fishing Vessel Inspection Regulations (can be obtained from: <http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php>)
- Safety Issues Investigation into Fishing Safety in Canada report can be accessed: <https://www.tsb.gc.ca/eng/rapports-reports/marine/etudes-studies/M09Z0001/M09Z0001.html>

For further information see: <https://tc.canada.ca/en/marine-transportation>  
[www.fishsafebc.com](http://www.fishsafebc.com)  
[www.worksafebc.com](http://www.worksafebc.com)  
[www.tsb.gc.ca/eng/rapports-reports/marine/index.html](https://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 at: [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*, - *Pacific Siren*, [M14P0121](#) – *Five Star*, [M15P0286](#) – *Caledonian*, [M16A0140](#) – *C19496NB*, [M17C0061](#) – *Emma Joan*, [M17P0052](#) – *Miss Cory*, [M18P0073](#) – *Western Commander* 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 at:

<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](mailto: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 at:

<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](http://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](http://www.weatheroffice.gc.ca/marine/index_e.html)

#### 2.4.2. Emergency Radio Procedures

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). It is strongly recommended that all fish harvesters carry a registered 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons should be registered with the National Search and Rescue secretariat. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources. 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) which resulted in 24 fatalities.

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

Since August 1, 2003 all commercial vessels greater than 8 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work.

For further information see the Coast Guard website at:  
<http://www.ccg-gcc.gc.ca/eng/CCG/Home> or go directly to the Industry Canada web page:  
[www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html](http://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: MCTS Radio Aids to Marine Navigation Traffic

#### 2.4.4. Buddy System

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

### 3. WORKSAFEBC

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

are not limited to, the requirement to establish emergency procedures, to conduct emergency drills, to provide immersion suits for the crew, to provide stability documentation for the vessel, safe work procedures, injury reporting, correction of unsafe working conditions, the requirement to wear personal floatation devices (PFDs), etc.

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

Both owners and masters of fishing vessels are considered to be employers. Under the *Workers Compensation Act* and the OHS Regulation (OHSR) they have varying and overlapping duties and responsibilities. Masters, because they have the most control during fishing and related activities, are considered to be the employer with primary responsibility for the health and safety of the crew.

The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: [www.worksafebc.com](http://www.worksafebc.com)

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

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

For further information, contact an Occupational Safety Officer:

Bruce Logan	Vancouver/ Richmond/Delta	(604) 244-6477
Mark Lunny	Courtenay	(250) 334-8732
Cody King	Courtenay	(250) 334-8733
Gregory Matthews	Courtenay	(250) 334-8734
Paul Matthews	Courtenay	(250) 334-8741
Jessie Kunce	Victoria	(250) 881-3461

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

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, OHS Consultation and Education Services, at (604) 233-4062 or by email: [tom.pawlowski@worksafebc.com](mailto:tom.pawlowski@worksafebc.com) or Tim Pryde, OHS Consultant at (604) 802-2954 or by email: <mailto:tim.pryde@worksafebc.com>.

#### **4. FISH SAFE BC**

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

As referenced throughout the above documentation, Fish Safe provides a broad range of courses, programs and services that are either free for BC commercial fishers or highly subsidized.

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

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

Ryan Ford  
Program Manager  
Fish Safe  
#100, 12051 Horseshoe Way  
Richmond, BC V7A 4V4

Cell: (604) 739-0540  
Office: (604) 261-9700  
Email: [ryan@fishsafebc.com](mailto:ryan@fishsafebc.com)  
[www.fishsafebc.com](http://www.fishsafebc.com)

#### **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
- 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](http://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.bst-tsb.gc.ca/eng/surveillance-watchlist/marine/2018/marine.html>

Reporting an Occurrence:

[www.tsb.gc.ca/eng/incidents-occurrence/marine/](http://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 at:

[www.tsb.gc.ca > eng > medias-media > prudence-safe > safe-at-sea](http://www.tsb.gc.ca/eng/medias-media/prudence-safe/safe-at-sea)

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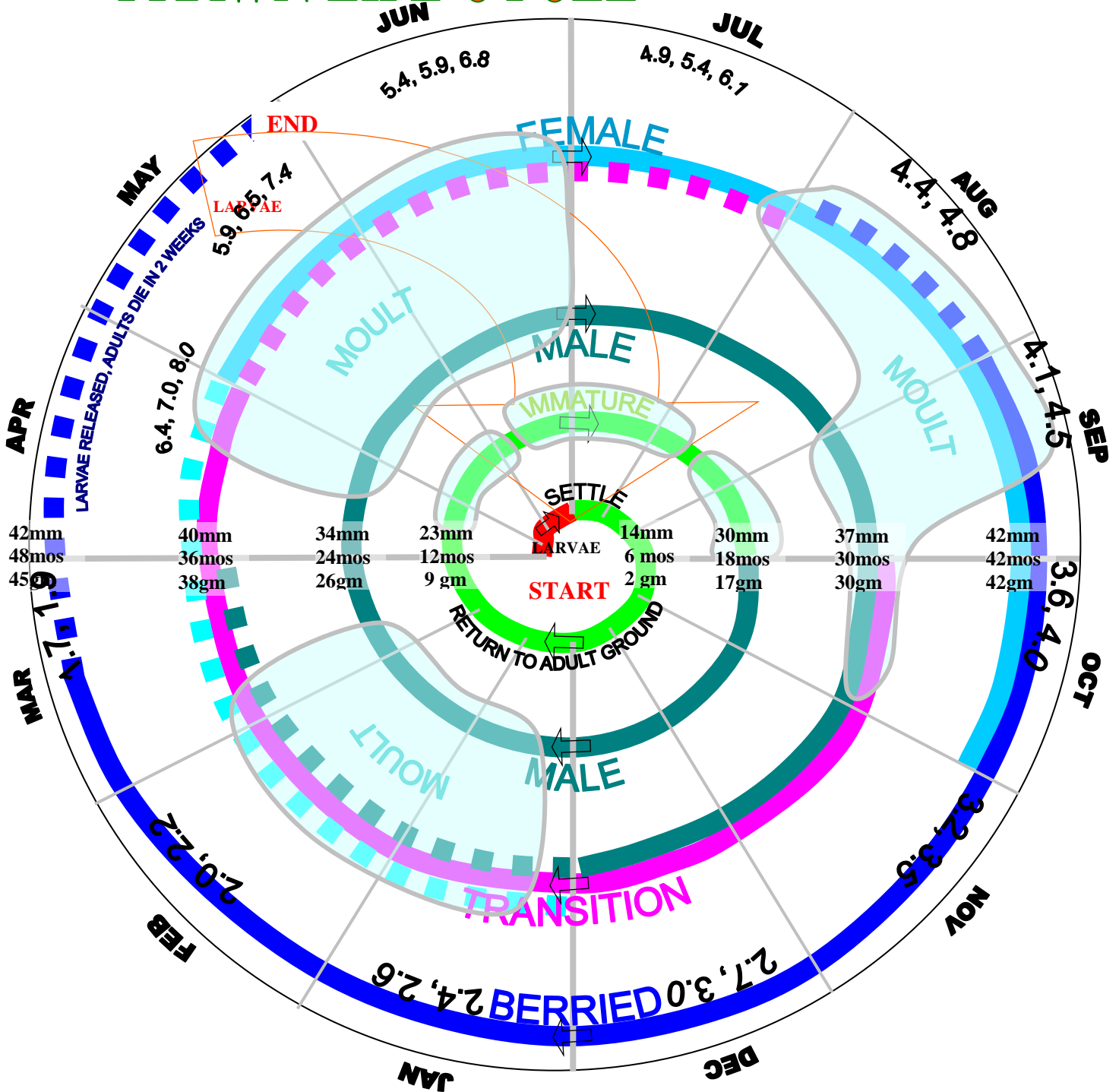
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Email: [glenn.budden@tsb-bst.gc.ca](mailto:glenn.budden@tsb-bst.gc.ca)



## Appendix 7: Prawn Life Cycle

# PRAWN LIFE CYCLE



## 1. LIFE CYCLE NOTES

The diagram is based on the 12 months of the year, and the four year life cycle of the prawns. It provides information about what life stages may be present, their size, and for the last year of the life cycle, the spawner index to which the fisheries are managed.

The diagram was first created in March 2003. It is still under review and correction with respect to size at age, and timing of moult occurrences. In particular, the size increases from 30 months to 42 months appear insufficient, and the shape of the timing of the moult period occurring in the late summer needs some clarification.

Solid spiral lines indicate that most prawns are in that stage at that time and portion of their life cycle. Hatched lines indicate that some prawns may be in the leading or trailing portions of a life cycle stage. All prawns begin life as males, spawn at about 2.5 years of age, then undergo a change at 2.5 to three years of age to become females, spawn again as adult females, extrude and carry eggs at 3.5 to four years, hatch out the larvae and then die. Few if any prawns survive past the fourth year.

The light spiral line near the centre of the diagram indicates immature prawns from larval settlement to 18 months. This continues out to a dark spiral line indicating male prawns from 18 months to 30 to 36 months. The next portion of the spiral line indicates transition prawns which are in the process of changing from male to female life forms, from 30 to 37 months. The last light portion of the spiral line indicates adult female prawns from 37 to 43 months, before they extrude and carry eggs under their tails. The last portion of the line indicates female prawns carrying eggs under their tails, from 41 to 48 months. This is the end of the life line.

The numbers on the horizontal line through the middle of the diagram indicate an average length and weight by months of age. For example, a 30 month prawn is approximately 30 gm. weight and 37 mm. carapace length. Carapace length is the distance measured from the back of the eye socket to the middle of the back of the shell that covers the head and thorax, in front of the tail. Following on this example, a prawn at 30 month age is likely to be either a late stage male or an early stage transition, and at a time of life when they are likely to moult.

The figure also includes a series of numbers which follow the spiral for the last year of the prawn's life cycle. These are spawner index values. The spawner index is the average number of females or transitional prawns which will become females and complete their life cycle in the final year, caught by a standardized trap fished for 24 hours. From April to July there are three index numbers listed. From August to March there are only two. In all cases, the first number of the series is the original "base line" spawner index which was established more than 20 years ago. In all cases, the second number is a value 10 % greater than the original base line number. This is the index number that is presently used to manage prawn fisheries throughout the coast. It is higher than the baseline to provide an additional margin of safety, for example, by providing a buffer for possible delays in invoking closures in fisheries on prawns, whether closures of the commercial fishery in-season or recreational fishery when needed. The third number is an index value 25 % higher than the base line. This index number only appears for the period of the

commercial fishery from April through July. It is the management target for closures in areas where there are a large number of recreational fishers following the commercial fishing season.

## **2. EXAMPLE OF USE OF THE DIAGRAM**

Consider November when there are fall index surveys in important recreational fishing areas. From the outside working in, the diagram indicates you may expect to find berried female prawns of 42 mm average carapace length and 42 gm average weight. There are also small transition prawns which have recently come out of a moult and large male prawns which have not yet moulted into the transitional stage. Both of these are of like size, 37 mm CL and 30 gm. weight. Note that these 2.5+ year old prawns are in excess of the commercial legal size limit. There will also be smaller 1.5+ year old male prawns of average size 30 mm and 17 gm weight. Finally, although not often seen in traps due to their size, there will be 14 mm 2 gm immature 0.5+ year old prawns. As well, these prawns may be in shallower water, still moving down slope to the preferred adult habitat at greater depths.

At this same time, note the spawner index management levels, which are the two numbers on the outer edge of the spiral. Fishery managers prefer to see values in the fall index surveys in excess of an average of 3.5 females per trap. Note that at this time of year, almost all adult female prawns will be carrying eggs, so are easy to identify and count. Also note that although large transition prawns are present, they do not count towards the index as they will not complete their life cycle in this spawning season. These transitional prawns will count in the spawner index measurement, beginning in April as by that time they will complete their life cycle by the following winter. With respect to the index number, if the sampling returns an index between 3.2 and 3.5, managers will be concerned and will consider if closures may be necessary, based on fishing intensity and the indexes seen in adjacent areas in a common geographic water body. If the index number is less than 3.2, managers will take action, usually a closure. In this case, adjacent areas in a common water body may also be closed if it is considered to be potentially beneficial to ensure increased larval production from those areas to offset reduced larval production from the area with the low index.

## **3. INFORMATION SOURCES**

The length and weight numbers in this diagram are from a table presented by C.S. Wright and P. Panek, which is referenced back to Butler, Boutillier and Bond, Mikkelsen, and Ricker. Of these, Butler's publication was visited for additional information. Note that Butler's length/weight descriptions are generally lower than provided in the Wright and Panek table, and lower than represented on the diagram, suggesting that a range of values should be presented on the diagram. The length/weight values need to be checked against recent measurements made in field programs. For example, in southern Gulf of Georgia in March 2003, male lengths were 30 to 32 mm and transitions were 35 to 37 mm.

Further, there will be variations based on geography. For more northern areas, the whole diagram may have to be rotated or lengths of development periods altered to represent growing conditions in those waters. As well, size and weight characteristics may change. One enduring question, is

how those northern prawns can be so much larger than their southern cousins. Genetics, food supply or a five year life cycle?

Finally, the diagram began in response to a question from a prawn fishery observer, asking what could be expected when sampling was undertaken in March, 2003. The diagram used information from that sampling in Georgia Strait, as well as earlier work in February 2003 and December 2002 from Saanich Inlet, to identify a winter moult period and to confirm portions of the size ranges.

Butler, T., 1980.

Maximum male carapace length = 48.1 mm.

Maximum female carapace length = 61.1 mm.

One year after hatching = 12 mos = 21.1 mm, 6.5 gm.

Second autumn = 18 mos = 27.0 mm, 13 gm, prawns mature as males.

Most function as males for another year (=30 mos).

The remainder begin sex change at 24 mos.

30 months; mixed group of males and slightly larger females.

30 months males = 32.9 mm, 23 gm.

36 months; all prawns are female or undergoing sex change, transitions.

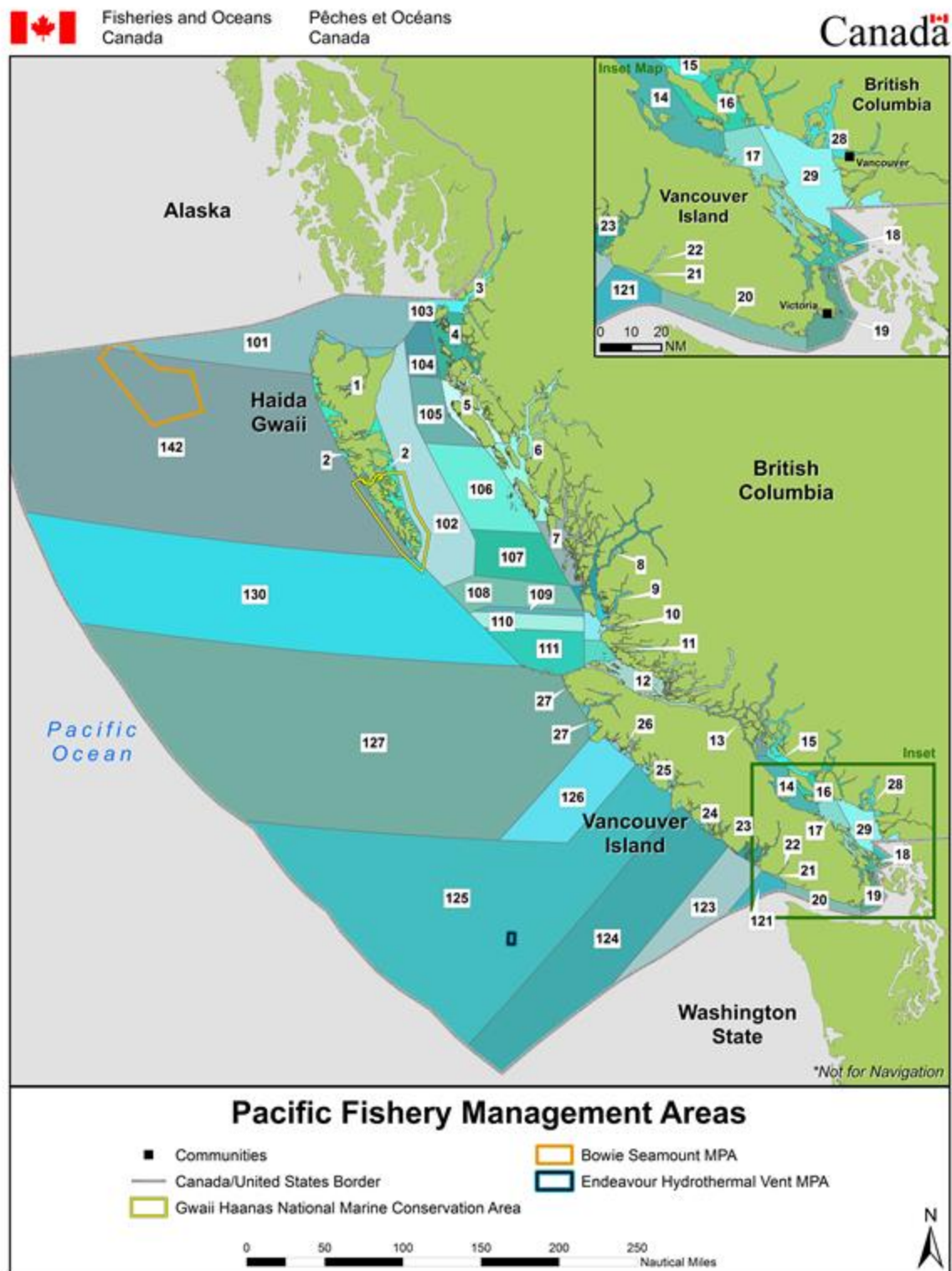
Spawning over at end of October.

Ovigerous period lasts 5 to 5.5 mos.

48 months; 38 mm, >35 gm.

Large females 43 to 50 mm C/L are either fast growing or in fifth year.

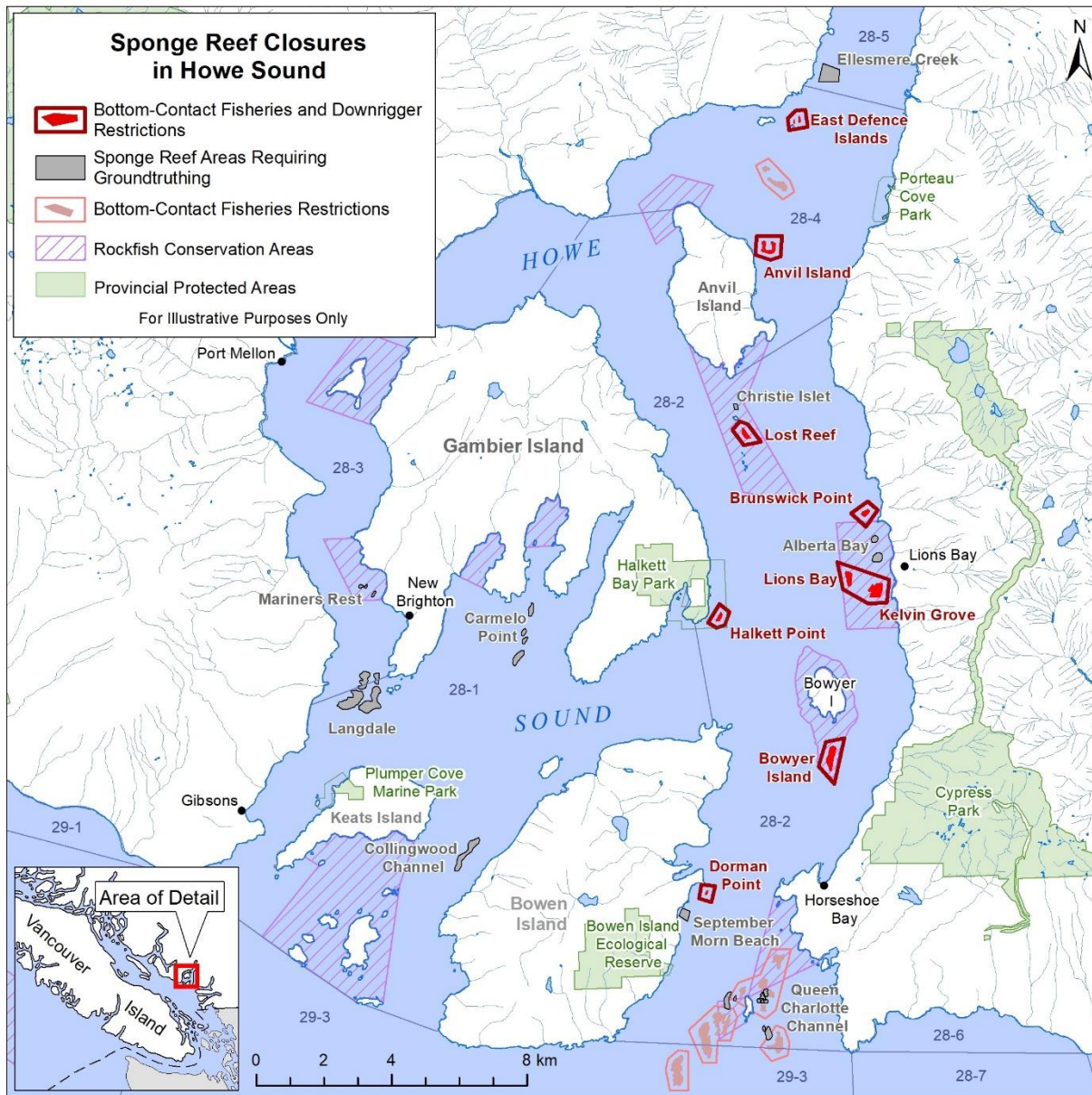
## Appendix 8: Map of Fishing Areas (Pacific Fishery Management Areas)



Inshore fishery areas include Pacific Fishery Management Areas 1 to 29.  
Offshore areas include Pacific Fishery Management Areas 101 to 111, 121 to 127, 130 and 142.



## Appendix 9: Strait of Georgia and Howe Sound Glass Sponge Reef Closures





## Appendix 10: Fishery Monitoring & Catch Reporting Risk Assessment Tool

A risk assessment tool has been used to assess monitoring levels required for the Recreational and FSC Prawn and Shrimp by trap fisheries. The risk assessments were drafted by DFO in 2017. A summary and key findings from the draft risk assessments for this fishery are highlighted here. Comments on the findings are welcome, and may be directed to one of the fishery managers (see Contacts Section 15 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap). Comments on the draft risk assessments will be considered where possible and, following this, the recreational and FSC risk assessments will be finalized by DFO. Refer to Section 5.1.1 of the Integrated Fisheries Management Plan for Prawn and Shrimp by Trap for more information.

### Fishery Monitoring & Catch Reporting Risk Assessment Tool

#### Column Comments

## 1 PART A: FISHERY DESCRIPTION & LICENCING INFORMATION

### 1.1 Licencing

Column	Comments
<b>DFO Mgmt Area</b>	DFO management areas, Pacific Fishery Management Area.  e.g., SC (South Coast); NC (North Coast); LFA (Lower Fraser Area); BCI (BC Interior); UFR (Upper Fraser River); YKTb (Yukon-Transboundary)
<b>Name of Fishing Group</b>	A name to describe the fishing group.  e.g., First Nation name or aggregate (band, tribal council, permitting authority, etc), San Juan, Recreational, Area E commercial, etc
<b>Licence Type</b>	Licence type  e.g., Food, social, ceremonial (FSC), commercial, Economic Opportunity, Recreational, etc

### 1.2 Description

Column	Comments
<b>Gear Type</b>	e.g., boat based angling, seine, trawl, etc.
<b>Fish Species for Analysis</b>	The fish species that is being analysed by this row. For example, in a directed or multi-species fishery, it would refer to the target species that is retained. In an opportunistic fishery, such as some recreational and FSC fisheries, multiple rows will analyse the impacts of the fishery.  In a multi-stock fishery, please note the stock that is driving the fishery in brackets.  e.g., Chinook (Spring 4-2), Sockeye (Fraser), chum salmon, geoduck, etc
<b>Timing of Analysis</b>	If the analysis is seasonally dependent, then note the timeframe.  e.g., Recreational fisheries may have a larger impact from May-August and so separate rows should specify the timing of analysis.  If the fishery is year round: "June-May" or "year round"



### 1.3 Size of Fishery

Column	Comments
<b>Mean Catch (pcs/lbs)</b>	<p>Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users.</p> <p>- Record the average catch in appropriate units, over a representative time span for the fishery (the time period may differ between species).</p> <p>e.g., 40,000 lbs/yr, 2010-2014</p>
<b>Mean Effort (boat-days, fishers, etc)</b>	<p>Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users.</p> <p>- Record the average effort (number of boats, number of fishers, etc.) over a representative time span for the fishery.</p> <p>e.g., 2000 boat-days per year, 2012-2014</p>
<b>% TAC</b>	<p>Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users.</p> <p>-Record the range of percentages that the fishery takes of the total exploitation rate (e.g., 50-75%), or provide the mean total exploitation rate over a specified time period (e.g., 25%, 2005-2010)</p>

## 2 PART B: ECOSYSTEM RISKS

### 2.1 Main Species

Could the mortality caused by fishery threaten the main fish species or stock that is being assessed?

"Main" can also be referred to as "target".

Column	Comments
<b>Main Species or Stock Status</b>	<p>Does the fishery target a species/stock that is thought to be of concern in some way (e.g., Is it healthy and abundant? Is it listed under the <i>Species at Risk Act</i> (SARA)? Has it been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Wild Salmon Policy (WSP)? Has it been identified as a concern according to the Salmon Outlook or its Integrated Fisheries Management Plan status or another assessment grouping? Or is the species or stock status presumed to be low but data deficient? Is there a co-migrating stock amongst the main species that is sensitive in some way?), and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>Consequence:  E.g. 0= This question isn't applicable.  1= There are minor concerns with how the fishery will impact the health of the main fish population being analyzed (but it is not listed or presumed to be weak).  2= The fishery may impact a species/stock that is of medium concern (e.g. listed as "of special concern" or "amber status").  3= The fishery may impact a species/stock of high concern (e.g. listed as, "threatened" or "endangered" or "red status").</p> <p>Likelihood:  E.g. 0 = This question isn't applicable  1= The fishery has a low likelihood of causing the consequence listed above.  2= The fishery has a medium likelihood of causing the consequence listed above.  3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, the consequence value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
<b>Vulnerability of Main Species or Stock</b>	<p>Can the fishery cause long-term harm to the main species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence:  E.g. 0= This question isn't applicable.  1= The fishery may have small impacts on the life-history of the species.  2= The fishery may have medium impacts on the life-history of the species.  3= The fishery may have high impacts on the life-history of the species.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood:  E.g., 0= This question isn't applicable.  1= The fishery has a low likelihood of causing the consequence listed above.  2= The fishery has a medium likelihood of causing the consequence listed above.  3= The fishery has a high likelihood of causing the consequence above.</p>
<b>Species or Stock Behavioral Changes</b>	<p>Are there disruptions to the behaviour of the main species/stock resulting from fishing activities (e.g., noise, displacement and/or interruption to breeding, migration changes due to gillnets, etc.)?</p> <p>Consequence:  E.g. 0= no disruptions (e.g. marine land-based angling, for instance from a rock where one line won't</p>

impact behaviour of a school of fish)

- 1= yes but minor (e.g. boat based angling causes noise that may cause fish to dive deeper, etc.)
- 2= yes, medium impact (e.g. gillnets in Fraser temporarily impact migration patterns)
- 3= yes, major impact.

NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.

Likelihood:

E.g., 0= This question is not applicable.

- 1= The fishery has a low likelihood of causing the consequence listed above.
- 2= The fishery has a medium likelihood of causing the consequence listed above.
- 3= The fishery has a high likelihood of causing the consequence above.

## 2.2 By-Catch

Could the mortality caused by fishery threaten a non-target fish species / stock?

Column	Comments
<b>Retained By-Catch Status</b>	<p>Does the fishery retain a by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the by-caught species, not the individual.</p> <p>Identify in cell comment all retained by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=not applicable.</p> <ul style="list-style-type: none"> <li>1= yes, minor concerns with health of by-caught species.</li> <li>2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via the Canadian Science Advisory Secretariat (CSAS).</li> <li>3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</li> </ul> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= Not applicable.</p> <ul style="list-style-type: none"> <li>1= The fishery has a low likelihood of causing the consequence listed above.</li> <li>2= The fishery has a medium likelihood of causing the consequence listed above.</li> <li>3= The fishery has a high likelihood of causing the consequence above.</li> </ul>
<b>Vulnerability of Retained By-Catch</b>	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable.</p> <ul style="list-style-type: none"> <li>1= The fishery may have small impacts on the productivity of species/stock.</li> <li>2= The fishery may have medium impacts on the productivity of species/stock.</li> <li>3= The fishery may have high impacts on the productivity of species/stock.</li> </ul> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable.</p> <ul style="list-style-type: none"> <li>1= The fishery has a low likelihood of causing the consequence listed above.</li> </ul>

	<p>2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
<b>Released By-Catch Status</b>	<p>Does the fishery impact a released by-catch stock or species that is thought to be of concern in some way (e.g. Is it healthy and abundant? Is it listed under SARA? Has it been assessed by COSEWIC or WSP? Has it been identified as a concern according to the Salmon Outlook or its IFMP status or another assessment grouping? Or is the species status presumed to be low but data deficient?) and if so, what is the consequence of the impact? How likely is it that the fishery will have a negative impact of such consequence?</p> <p>This question refers to the released by-caught species, not the individual.</p> <p>Identify in cell comment all released by-caught species, starting with the species of most concern.</p> <p>Consequence: E.g. 0=no 1= yes, minor concerns with health of released by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via CSAS. 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This questions isn't applicable 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>
<b>Vulnerability of Released By-Catch</b>	<p>Can the fishery cause long-term harm to the retained by-caught species/stock via impacts on life-history? Consider the life history characteristics (i.e., growth rate of animal, rate of reproduction, etc.) of the species/stock.</p> <p>Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the productivity of species/stock. 2= The fishery may have medium impacts on the productivity of species/stock. 3= The fishery may have high impacts on the productivity of species/stock.</p> <p>NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= This question isn't applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

### 2.3 Community & Habitat

Could the mortality caused by fishery threaten other components of the eco-system, such as predators or prey or habitat?

Column	Comments
<b>Key Predator or Prey</b>	<p>Does the fishery impact an important predator (e.g. resident orca) or prey (e.g. forage fish such as herring, sardine, eulachon, etc.)? Will removals in the fishery have a demonstrated impact on the survival of other species in the community?</p> <p>Consequence: e.g., 0= No (e.g. sea cucumber) 1= Minor impact. For instance, a fishery might discard a small amount of a plentiful forage fish (e.g. hake fishery impact on herring). Or discarded species has minor ecosystem role (e.g. sea urchins are food</p>

	<p>source for sea otters, but many alternatives)</p> <p>2= Medium impact. For instance, fishery targets forage fish at low level, or discarded forage fish is large but not putting population at risk. Or entanglement of marine mammals in fishing gear can occur.</p> <p>3= High/worrisome impact. For instance, the fishery has an impact on forage fish of low abundance (e.g. shrimp trawl impact on eulachon). Or the impact is on SARA listed species (e.g. chinook fishery limits resident killer whale diet).</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact an important predator or prey. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p>
<b>Direct Habitat Impacts</b>	<p>Are there direct NEGATIVE changes to structure or composition of the habitat or is there destruction as a result of fishing activity? (e.g. impacts on identified sensitive areas, impacts on spawning habitat due to disturbing redds, ghost gear, overlap with marine protected areas, national marine conservation areas, marine parks, other protected areas, etc.)</p> <p>Consequence: e.g. 0= No impact (e.g. marine land-based angling) 1= Minor impact (e.g. clam digging by small digging crew) 2= Moderate impact (e.g. bottom contact gear such as crab traps) 3= Major impact (e.g. trawl impact on glass sponge coral)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above. It can be 1, 2, or 3 depending on presumed consequence of impact.</p>
<b>Indirect Habitat Impacts</b>	<p>Are there indirect NEGATIVE changes to habitat feature/function due to indirect impacts of fishing activity? (e.g. sedimentation, displacement of marine mammal, pollution, noise from vessel traffic, accumulation of lead from lost fishing gear, etc.)</p> <p>Consequence: E.g. 0= no 1= yes but minor (e.g. marine boat-based angling noise) 2= yes, medium impact (e.g.) 3= yes, major impact (e.g.)</p> <p>NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.</p> <p>Likelihood: E.g., 0= The fishery will not impact habitat. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.</p>

### 3 PART C: RESOURCE MANAGEMENT ISSUES

Column	Comments
<b>Fishery Type</b>	<p>Is the fishery SHARE-BASED, DERBY, or OTHER?</p> <p>DERBY (i.e., Effort-based)  SHARE (e.g., Quota, IVQ, ITQ)  OTHER (e.g., other allocation type)  N/A (Does not always apply to Recreational or FSC fisheries, unless there is a defined share)</p>
<b>Potential to Over-Harvest</b>	<p>Under current management conditions, does the fishery under consideration (not all of the impacting fisheries) have the potential/capacity to overharvest the fish species or stock that is being assessed and put it at risk biologically? For instance, does the fishery have the capacity (e.g., sufficient boats, nets, etc.) to catch more than its Total Allowable Catch (TAC) if quota overruns or unreported fishing occurs? Can the fishery be managed (e.g., through up-to-date catch accounting) to avoid overharvest? Is the expected level of impact that removals will have on species/stock size and productivity expected to be low, medium or high?</p> <p>NOTE: We are not considering cumulative impacts of multiple fisheries at this time.</p>
<b>Compliance &amp; Enforcement</b>	<p>Are there routinely compliance or enforcement concerns (e.g. low reporting, using barbed hooks, using wrong sized mesh, selling recreational or FSC fish, etc.) that may impact the monitoring of the fishery? Are there incentives for non-compliance?</p> <p>(Y/N)</p> <p>This variable is not scored so please explain concerns in the comment box if they exist.</p>
<b>International or Treaty Requirements</b>	<p>Are there any international/treaty information requirements, such as Pacific Salmon Treaty (PST), Marine Stewardship Certification (MSC), traceability, First Nations Treaties, etc. that would require a higher level of monitoring?</p> <p>(Y/N)</p> <p>This variable is not scored but please explain relevant treaties and associated requirements for monitoring in the comment box.</p>
<b>Info to Manage Other Sectors or Fisheries</b>	<p>Is information required in-season to plan for other fisheries, such as FSC, recreational, commercial?</p> <p>(Y/N)</p> <p>This variable is not scored but please explain in-season reporting requirements in the comment box.</p>
<b>Public Relations</b>	<p>Is there a need for higher monitoring due to public requirements for more detailed explanation about the impacts of the fishery?</p> <p>(Y/N)</p> <p>For instance, there are examples of fisheries where a low level of monitoring is probably appropriate due to ecosystem risk, but DFO implements higher levels of monitoring because the public needs it (example is Area 6 seine).</p> <p>This variable is not scored but please provide information about public's concern for monitoring in the Comment field.</p>

### 4 PART D: PRELIMINARY RISK SCORING (CALCULATED)

Column	Comments
<b>Risk to Main Species</b>	<p>Auto-calculated from MAIN SPECIES CATEGORY RISK SCORES</p> <p>PROTECTED: user may NOT over-ride.</p>
<b>Risk to By-Catch</b>	<p>Auto-calculated from BY-CATCH CATEGORY RISK SCORES</p> <p>PROTECTED: user may NOT over-ride.</p>

<b>Risk to Community and Habitat</b>	Auto-calculated from COMMUNITY & HABITAT CATEGORY RISK SCORES  PROTECTED: user may NOT over-ride.
<b>Overall Fishery Risk</b>	Auto-calculated from maximum value of CALCULATED RISK SCORES  PROTECTED: user may NOT over-ride.
<b>Target Monitoring Level</b>	Assigned from FINAL RISK OF FISHERY score  Low: 1-2 General: 3-5 Enhanced: 6-9  PROTECTED: user may not over-ride

## 5 PART E: FINAL RISK SCORING (ASSIGNED)

Column	Comments
<b>Risk to Main Species</b>	DEFAULTS to preliminary MAIN SPECIES RISK SCORE; user may over-ride.
<b>Risk to By-Catch</b>	DEFAULTS to preliminary BY-CATCH SPECIES RISK SCORE; user may over-ride.
<b>Risk to Community and Habitat</b>	DEFAULTS to preliminary COMMUNITY & HABITAT RISK SCORE; user may over-ride.
<b>Overall Fishery Risk</b>	DEFAULTS to maximum value of FINAL RISK SCORES; user may over-ride.
<b>Target Monitoring Level</b>	Assigned from FINAL RISK OF FISHERY score  Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECTED: User may NOT override

## 6 PART F: RISK ASSESSMENT NOTES

Column	Comments
<b>Current Monitoring Level</b>	What is the current monitoring level?
<b>Information Gaps</b>	Are there any specific information gaps in the monitoring program?  E.g. Need to record by-catch. Should sample 10% of scales
<b>Comments</b>	Further comments and suggestions pertaining to current monitoring level, apparent quality and comprehensiveness of Catch Monitoring & Reporting effort, data gaps, issues of current and future risk, etc
<b>Contact Info – Name &amp; Date</b>	Who supplied this information and when.

# Risk Assessment Tool – Working Draft

Prawn and shrimp for Recreational by trap, ringnet

## Part A: Fishery Description & Licensing Information

### Licensing

DFO MGMT AREA

NAME of FISHING GROUP

LICENCE TYPE

Coastwide

All Recreational Harvesters

Recreational

### Description

GEAR TYPE

FISH SPECIES for ANALYSIS

TIMING of ANALYSIS

trap, ringnet

Prawn and shrimp

Year- Round

### Size of Fishery

MEAN CATCH (pcs/lbs)

MEAN EFFORT (boat-days, fishers, etc)

% TAC

326 t (2010)

14.5% of angler days

N/A

## Part B: Ecosystem

### Risks Main Species

MAIN SPECIES or STOCK STATUS

VULNERABILITY OF MAIN SPECIES or STOCK

SPECIES or STOCK BEHAVIOURAL CHANGES

2

2

1

### By-Catch

RETAINED BY-CATCH STATUS

VULNERABILITY OF RETAINED BY-CATCH

RELEASED BY-CATCH STATUS

VULNERABILITY OF RELEASED BY-CATCH

0

1

3

1

### Community & Habitat

KEY PREDATOR or PREY

DIRECT HABITAT IMPACTS

INDIRECT HABITAT IMPACTS

1

4

1

## Part C: Resource Management Issues

FISHERY TYPE

POTENTIAL to OVER-HARVEST

COMPLIANCE and ENFORCEMENT

INTERNATIONAL or TREATY REQUIREMENTS

INFO to MANAGE OTHER SECTORS or FISHERIES

PUBLIC RELATIONS

N/A

Medium

Yes

No

Yes

No



#### Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	2
RISK to BY-CATCH (D)	3
RISK to COMMUNITY and HABITAT (D)	4
OVERALL FISHERY RISK (D)	4
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Generic

#### Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E)	2
RISK to BY-CATCH (E)	2
RISK to COMMUNITY and HABITAT (E)	4
OVERALL FISHERY RISK (E)	4
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E)	Generic

#### Risk Assessment Notes

CURRENT MONITORING LEVEL (Low, Generic, Enhanced)	Low
INFORMATION GAPS	- require spatial information with respect to areas fished - uncertainty with respect to efficacy of iREC
COMMENTS	- local depletion remains a concern
REFERENCE	Prawn and Shrimp by Trap IFMP

# Risk Assessment Tool – Working Draft

Prawn and shrimp for FSC by trap, ringnet (non-commercial gear)

## Part A: Fishery Description & Licensing Information

### Licensing

DFO MGMT AREA

NAME of FISHING GROUP

LICENCE TYPE

Coastwide

All FSC Harvesters

FSC

### Description

GEAR TYPE

FISH SPECIES for ANALYSIS

TIMING of ANALYSIS

trap, ringnet (non-commercial gear)

Prawn and shrimp

Year- Round

### Size of Fishery

MEAN CATCH (pcs/lbs)

MEAN EFFORT (boat-days, fishers, etc)

% TAC

Unknown

at least 14 First Nations

N/A

## Part B: Ecosystem

### Risks Main Species

MAIN SPECIES or STOCK STATUS

VULNERABILITY OF MAIN SPECIES or STOCK

SPECIES or STOCK BEHAVIOURAL CHANGES

2

2

1

### By-Catch

RETAINED BY-CATCH STATUS

VULNERABILITY OF RETAINED BY-CATCH

RELEASED BY-CATCH STATUS

VULNERABILITY OF RELEASED BY-CATCH

0

1

3

1

### Community & Habitat

KEY PREDATOR or PREY

DIRECT HABITAT IMPACTS

INDIRECT HABITAT IMPACTS

1

2

1

## Part C: Resource Management Issues

FISHERY TYPE

POTENTIAL to OVER-HARVEST

COMPLIANCE and ENFORCEMENT

INTERNATIONAL or TREATY REQUIREMENTS

INFO to MANAGE OTHER SECTORS or FISHERIES

N/A

Low

Yes

Yes

Yes

PUBLIC RELATIONS

No

**Part D: Preliminary Risk Scoring (calculated)**

RISK to MAIN SPECIES (D)	2
RISK to BY-CATCH (D)	3
RISK to COMMUNITY and HABITAT (D)	2
OVERALL FISHERY RISK (D)	3
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Generic

**Part E: Final Risk Scoring (assigned)**

RISK to MAIN SPECIES (E)	2
RISK to BY-CATCH (E)	2
RISK to COMMUNITY and HABITAT (E)	2
OVERALL FISHERY RISK (E)	2
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E)	Low

**Risk Assessment Notes**

CURRENT MONITORING LEVEL (Low, Generic, Enhanced)	Low
INFORMATION GAPS	- lack of catch and effort information in general
COMMENTS	- local depletion remains a concern
REFERENCE	-Prawn and Shrimp by Trap IFMP

# Risk Assessment Tool – Working Draft

Prawn and shrimp for FSC by trap, ringnet (commercial vessel or gear use)

## Part A: Fishery Description & Licensing Information

### Licensing

DFO MGMT AREA

NAME of FISHING GROUP

LICENCE TYPE

Coastwide

All FSC Harvesters

FSC

### Description

GEAR TYPE

trap, ringnet (commercial vessel or gear use)

FISH SPECIES for ANALYSIS

Prawn and shrimp

TIMING of ANALYSIS

Year- Round

### Size of Fishery

MEAN CATCH (pcs/lbs)

Unknown

MEAN EFFORT (boat-days, fishers, etc)

at least 26 First Nations

% TAC

N/A

## Part B: Ecosystem

### Risks Main Species

MAIN SPECIES or STOCK STATUS

2

VULNERABILITY OF MAIN SPECIES or STOCK

6

SPECIES or STOCK BEHAVIOURAL CHANGES

1

### By-Catch

RETAINED BY-CATCH STATUS

0

VULNERABILITY OF RETAINED BY-CATCH

1

RELEASED BY-CATCH STATUS

3

VULNERABILITY OF RELEASED BY-CATCH

1

### Community & Habitat

KEY PREDATOR or PREY

1

DIRECT HABITAT IMPACTS

4

INDIRECT HABITAT IMPACTS

1

## Part C: Resource Management Issues

FISHERY TYPE

N/A

POTENTIAL to OVER-HARVEST

High

COMPLIANCE and ENFORCEMENT

Yes

INTERNATIONAL or TREATY REQUIREMENTS

Yes

INFO to MANAGE OTHER SECTORS or FISHERIES  
PUBLIC RELATIONS

Yes  
No

**Part D: Preliminary Risk Scoring (calculated)**

RISK to MAIN SPECIES (D)	6
RISK to BY-CATCH (D)	3
RISK to COMMUNITY and HABITAT (D)	4
OVERALL FISHERY RISK (D)	6
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Enhanced

**Part E: Final Risk Scoring (assigned)**

RISK to MAIN SPECIES (E)	6
RISK to BY-CATCH (E)	2
RISK to COMMUNITY and HABITAT (E)	4
OVERALL FISHERY RISK (E)	6
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (E)	Enhanced

**Risk Assessment Notes**

CURRENT MONITORING LEVEL (Low, Generic, Enhanced)  
INFORMATION GAPS

Low  
- lack of catch information in general  
- questions remain re: marine mammal entanglements

COMMENTS

- local depletion remains a concern  
- enhanced risk score is driven by lack of seasonal closures and uncertainty with respect to effort

REFERENCE

Prawn and Shrimp by Trap IFMP