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Canada

PACIFIC REGION

INTEGRATED FISHERIES MANAGEMENT PLAN

INTERTIDAL CLAMS

JANUARY 1, 2022 TO FEBRUARY 28, 2023

Manila Clam
(*Venerupis philippinarum*)

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

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FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Intertidal Clam 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 Department of Fisheries and Oceans (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.

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

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1 OVERVIEW

1.1 Introduction

The Intertidal Clam Integrated Fisheries Management Plan (IFMP) is generally a three year plan; however, due to the number of changes and efforts to modernize the clam fishery, this IFMP covers the period January 1, 2022 to February 28, 2023. In subsequent years, the IFMP start date will be March 1 to give harvesters more time to get their licences prior to the start of the fishery.

This plan pertains to four species of intertidal clam: Manila clam (*Venerupis philippinarum*), native littleneck clam (*Protothaca staminea*), butter clam (*Saxidomus gigantea*), and varnish (savoury) clam (*Nuttallia obscurata*), with the Manila clam as the current most important target species. This IFMP does not include the Joint Management Plans with the Council of the Haida Nation for the commercial harvest of razor clams (*Siliqua patula*) or the Heiltsuk Tribal Council for the commercial harvest of Manila, littleneck, and butter clam fisheries in specific areas of the North and Central Coasts. The management of geoduck (*Panopea generosa*), horse clams (*Tresus spp*.), and wild Pacific oysters (*Crassostrea gigas*) are covered in separate plans.

For shellfish aquaculture activities within the Pacific Region, please refer to the Integrated Management of Aquaculture Plans (IMAP) available from contacts listed in Section 16, or on the Fisheries & Oceans Canada (DFO) Internet site at:

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

The Commercial Harvest Plan (Appendix 1), the First Nations' Harvest Plan (Appendix 2), the Recreational Harvest Plan (Appendix 3), and the Decontamination Harvest Plan are (Appendix 4) are components of this IFMP .

These appendices may be updated, as necessary, during the period of this IFMP.

1.2 History

Three main species of intertidal clams (Manila, littleneck, butter,) comprise the major portion of landings in commercial, recreational and First Nations' food, social, and ceremonial (FSC) fisheries. Intertidal clams are harvested by hand digging only during low tide cycles.

Although the commercial clam fishery began before the turn of the century, landings were not reliably recorded until 1951. Manila clams were introduced inadvertently in the 1930s with the introduction of Japanese Pacific oyster seed (*Crassostrea gigas*). They quickly spread throughout the Strait of Georgia from Ladysmith Harbour, and north from Barley Sounds on the west coast of Vancouver Island. The target species in the commercial fishery was historically butter clams; however, since 1971, strong markets and initially higher prices for littleneck and Manila clams have focused the intertidal fishery on these two species, and more recently, almost exclusively on Manila clams. Landings of butter clams continues to be low because of the high cost of processing and a shift in demand toward fresh steamer clams (Figure 1).

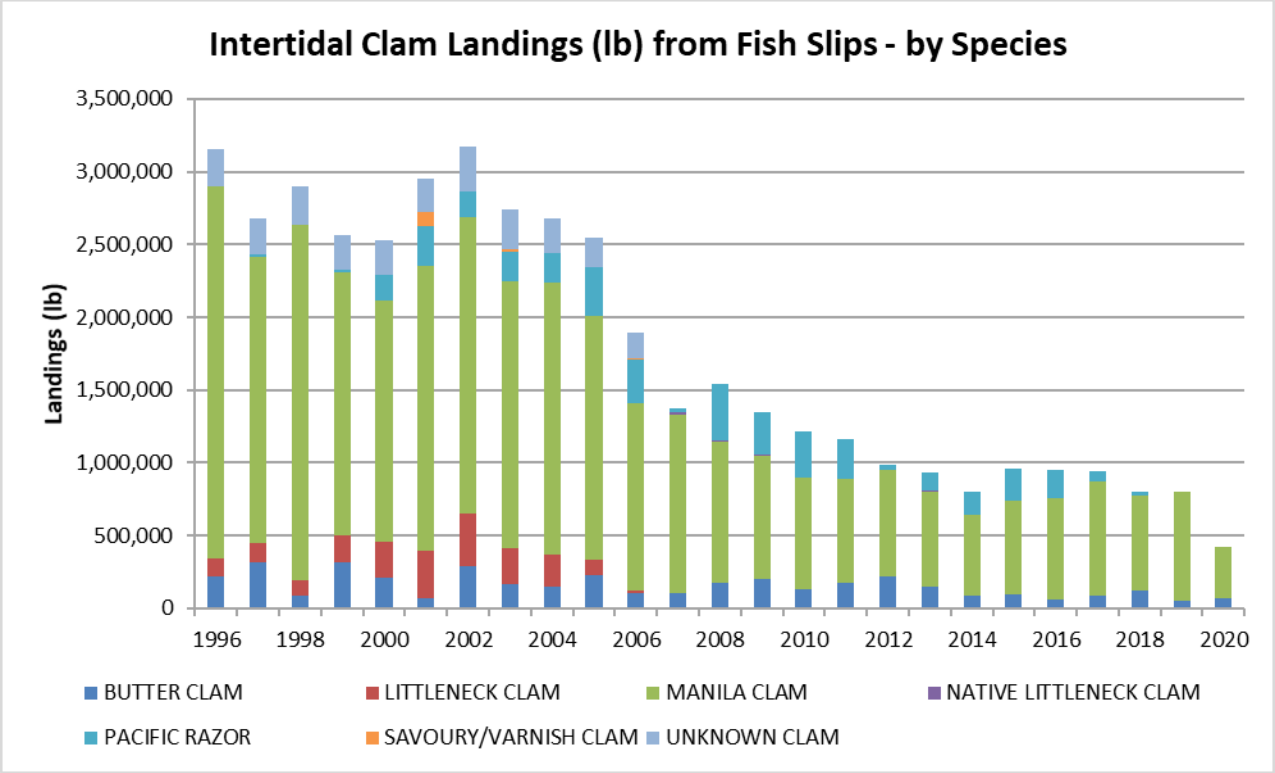

Figure 1. Annual British Columbia commercial clam fishery landings 1996 to current (source: Sales Slips; value information is provided in more detail in Section 5).

While Manila and littleneck clams have been reported in commercial landings since records were kept in 1951, the directed fishery for Manila clams did not develop until the late 1970s (Gillespie and Bond 1997) (Figure 2). Landings increased steadily until 1988, when they peaked at 3,909 tonnes (t) (8.6 million pounds). Prior to 1978, Manila clams accounted for between <1% and 28%, and littlenecks for between 1% and 40%, of total BC landings of intertidal clam species. In the same period, total landings of steamer clams (Manila, littleneck, and mixed landings combined) never accounted for greater than 58% of total clam landings. For the period 1987-1990 inclusive, steamer clam landings represented greater than 90% of the total clam landings for British Columbia.

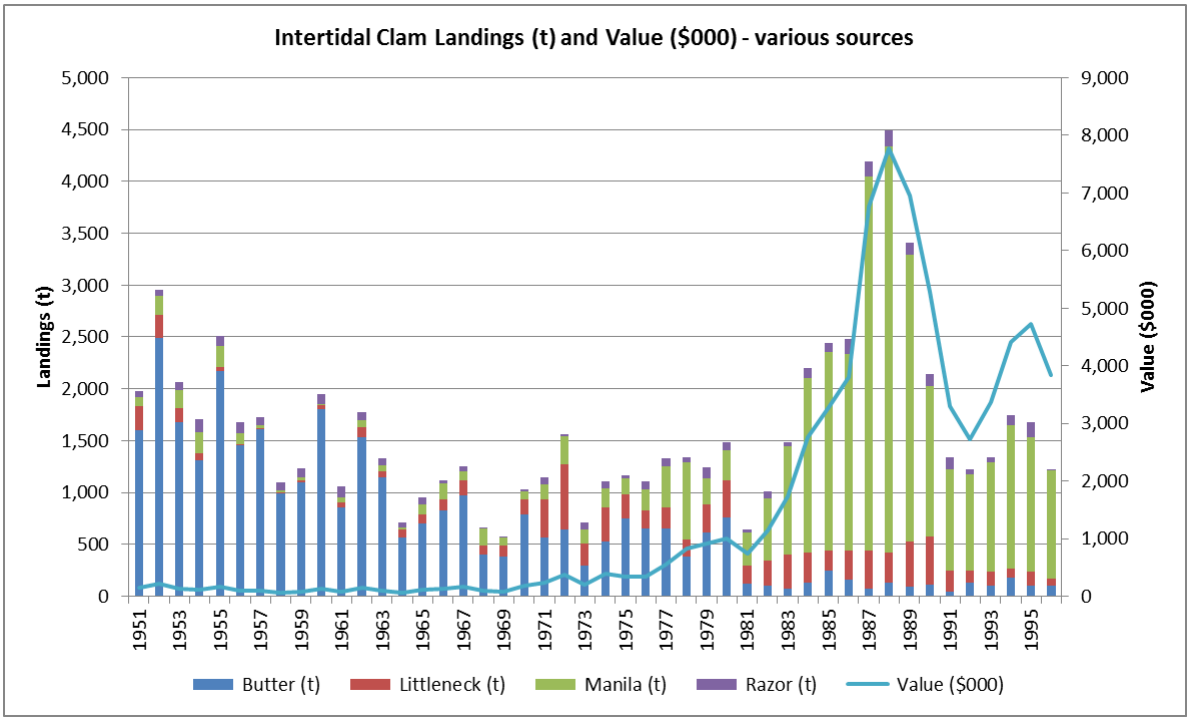

Figure 2. Annual British Columbia commercial clam fishery landings 1951-1996 (adapted from data in Gillespie and Bond 1997).

Clam licences (category Z2) and area management were introduced in 1989, which divided the coast into seven areas. Specific clam licence are now required, as well as a personal commercial fishing licence (now called a Fisher's Registration Card). Subsequently, the intertidal clam fishery underwent a consultative and rationalisation process called "Clam Reform". This resulted in management changes in 1998 including licence limitation, improved First Nations access, improved consultation through area management boards, and improved enforcement.

As part of the licence limitation program, a number of licences were negotiated with various First Nations. These licences are called Aboriginal Commercial Licences (category Z2ACL) and were developed to recognize historical First Nation representation in the fishery. The Z2ACLs are identical to the Z2 commercial clam licences, except that they are held by the First Nation, who can designate the licence holders annually. In addition, First Nations' opportunities to commercially harvest and co-manage beaches fronting First Nation Reserves were also developed as part of Clam Reform. To improve consultation, "community management boards" were formed in some of the licence areas. While these initiatives have made the fishery more manageable, the community management board concept has had mixed success for a variety of reasons (see Section 1.8).

1.3 Human Health Safety

There are significant public health and safety concerns in the clam fishery due to the potential for naturally occurring marine biotoxins and contamination by viruses and fecal coliform bacteria. Controls established by the Canadian Shellfish Sanitation Program (CSSP) are in place and implemented jointly by DFO, the Canadian Food Inspection Agency (CFIA), and Environment and Climate Change Canada (ECCC) to address the risks.

All clam harvesters are advised to "Check before you harvest" (www.dfo-mpo.gc.ca/CheckBeforeYouHarvest). This means checking that the area is not closed due to marine biotoxin (e.g., PSP/red tide, ASP, DSP) or sanitary contamination before you harvest any bivalve shellfish such as clams. Increased monitoring over time has resulted in contaminated area closures reducing the beach areas available for harvesters.

In order to provide access to closed beaches fronting First Nations reserves, a depuration fishery opportunity was offered through the Clam Reform process. The depuration (now decontamination) fishery accesses product from marginally contaminated areas and is sanctioned under the CSSP. This fishery is managed separately from the conventional fishery and incorporates significant stock assessment initiatives including biomass surveys and individual beach quotas. All clams harvested under the decontamination fishery must be processed at a federally registered depuration facility or relayed for a minimum of 2 weeks following the Decontamination Plan. Processing plants must be approved by CFIA for depuration. Information for the decontamination fishery can be found in Appendix 4.

A lack of acceptable biotoxin monitoring programs as well as resource management issues have precluded expansion of most intertidal clam fisheries in the Central and North Coast areas. The Heiltsuk Tribal Council in the Central Coast and the Council of the Haida Nation near Massett have implemented programs to address water quality, biotoxin, and management issues, and have therefore created access to commercial communal clam fisheries.

You can find information on closures by checking the DFO Internet site at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/index-eng.htm

1.4 Type of Fishery and Participants

Although the intertidal clam fishery is small in relation to many other British Columbia fisheries, it is important to coastal communities and provides needed employment to many people, as well as an important traditional food source for First Nations and recreational access.

1.4.1 Commercial

The commercial clam fishery is composed of 160 Z2 and 579 Z2ACL (Aboriginal Commercial Licence) licence holders. Z2ACL licences are held by First Nations who subsequently distribute them to individual members. Z2 and Z2ACL licence holders are required to renew commercial clam licences annually. The holder of a Z2 licence is required to be registered as a commercial fish harvester and have a Fisher's Registration Card (FRC) to both harvest and maintain that licence for the following year.

As of January 1, 2022, the authority for the category Z2ACL will be transferred from the *Pacific Fishery Regulations* to the *Aboriginal Communal Fishery Regulations*. This change removes the requirement for Z2ACL licence eligibility holders to pay the licence renewal fee and carry a Fisher's Registration Card. A First Nation is required to designate a Z2ACL to an individual member and that member must carry identification when fishing that licence. See Commercial Harvest Plan (Appendix 1) for further detail.

1.4.2 Recreational

A recreational fishery occurs coast-wide where areas are open for harvest. A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish including shellfish. Tidal Waters Fishing Licences can be purchased at many tackle stores or online by using the Fisheries & Oceans Canada website at:

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

The number of recreational clam harvesters is unknown. See Appendix 3 Recreational Harvest Plan for further detail.

1.4.3 First Nations

Indigenous harvest for food, social, and ceremonial (FSC) purposes may occur year round in the waters of British Columbia that are open for fishing under the Canadian Shellfish Sanitation Program (CSSP). This harvest must be authorized by a communal licence. See Appendix 2 First Nations Harvest Plan for further detail.

Nisga'a Domestic Fishing

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

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

Tsawwassen Domestic Fishing

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

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

Maa-nulth Domestic Fishing

The Maa-nulth First Nations fishery for domestic (FSC) purposes under the Maa-nulth First Nations Final Agreement (Treaty) came into effect on April 1, 2011. The Maa-nulth First Nations comprise five individual First Nations; Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations, Toquaht Nation, Uchucklesaht Tribe and the Yuułuʔiłʔatḥ 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#Ts

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. More information on the Treaty can be found at:

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

Five Nations' Right-based Sale Fishery

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First 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. The Department has developed a 2021/22 Five Nations Multi-species Fishery Management Plan (FMP). Feedback provided by the Five Nations during consultations was considered by DFO in the development of the 2021/22 FMP. The FMP includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting. For further information see the FMP at: https://waves-vagues.dfo-mpo.gc.ca/Library/40953798.pdf

The implementation of the Five Nations' right-based sale fishery is an ongoing process. The 2021/22 FMP was developed to implement the right-based multi-species fishery to accommodate the Five Nations' Aboriginal rights consistent with the British Columbia Supreme Court's 2018 decision. On April 19, 2021, the British Columbia Court of Appeal released its decision in relation to the appeal brought forward by the Five Nations. As a result, the department is reviewing the 2021/22 FMP. Following this review, the 2021/22 FMP may be amended and in-season management changes to this IFMP may occur. Changes to the FMP will be announced by fishery notice.

1.4.4 Decontamination

The decontamination (formerly depuration) fishery is part of the commercial intertidal clam fishery, conducted under specific licences at registered depuration plants or persons who have a lease or tenure and qualify for relay of the clams. Harvests on marginally contaminated beaches requires stock assessment, notification and reporting requirements that are different than the commercial competitive fishery and often occur during times when there are no clam harvest openings. See Appendix 4 for further detail.

1.4.5 Aquaculture

Intertidal clams are also accessed commercially through aquaculture operations. These are managed independent of the wild commercial fishery. See Section 6.3.4.

1.5 Location of Fishery

The commercial fishery is primarily conducted in the South Coast regions of BC. Manila clams, the primary target species, are predominately found on the South Coast of British Columbia although there are isolated stocks in Central Coast areas. There are few Manila populations in the North Coast and water quality monitoring programs were discontinued in most northern areas (except at specific tenures or identified community harvest sites) in the 1960s.

The Commercial Clam Fishery is divided into clam management areas (CMA) A through G (Appendix 5). Area A is a razor clam fishery in Haida Gwaii, a portion of Pacific Fishery Management Area (PFMA) 1. Area B includes PFMA 13 and a portion of PFMA 15. Area C includes portions of PFMAs 15 and 16. Area D includes PFMA 14 and a portion of PFMA 16. Area E includes portions of PFMAs 17, 18 and 29. Area F encompasses the West Coast of Vancouver Island: PFMAs 23, 24, 25, 26 and 27. Area G includes PFMAs 11 and 12. See Appendix 5 for maps.

The Heiltsuk First Nation has a communal commercial fishery on the Central Coast of British Columbia in a portion of PFMA 7.

1.6 Fishery Characteristics

Clam harvesters fish during low tides, using rakes or scrapers to turn Manila clams out of the substrate and collect them by hand.

1.6.1 Commercial

The commercial fishery is a limited entry, competitive fishery. Individual licence holders apply for their Z2 and Z2ACL commercial clam licences at the beginning of each new IFMP calendar year. After this 14-month IFMP, licence holders will apply for their licences for March 1 of each year. Openings occur throughout the year and may be 1 to 4 days in duration. Openings are reliant on market conditions, water quality, and weather. Fishery Notices are posted on the DFO internet site from one to seven days prior to the commercial opening. Harvesters are requested to ensure they have a buyer for the clams prior to starting fishing. Only provincially and federally approved buyers can buy clams. All clams harvested for the purpose of sale must be processed through a federally registered plant. Commercial harvesters may only use hand tools and must wear a high visibility vest with their clam licence number on the vest. All clam bags must have a tag in or attached to the bag with the harvest date, harvester name and licence number, species, beach, subarea and clam management area fished written on the tag. Each clam species has a minimum size limit. Commercial harvesters are advised that the conditions of licence have been reviewed to clarify management controls on product traceability and there are updated requirements in the new issuance of the conditions of licence. See Appendix 1 for further detail.

1.6.2 Recreational

The recreational fishery is an open entry fishery with a daily bag limit and a possession limit equal to twice the daily limit. All recreational harvesters must have a Recreational Tidal Waters Fishing Licence. The target species are variable by area. There is a required minimum size limit of 35mm for Littleneck and Manila clams and 55mm for Butter clams. When open, and with the exception of Pacific Rim National Park, the recreational daily limit for all clam species combined is 60 per day in PFMAs 1 to 27. Species-specific daily limits are included within the 60 clam aggregate limit; daily limits by species are: 20 butter clams, 60 Manila clams, and/or 60 littleneck clams (see Appendix 3 for more information).

The recreational fishery is open for most of the coast throughout the year in areas where the waters are not closed due to biotoxin or fecal coliform contamination. Harvest should occur in waters that are classified as Approved by the Canadian Shellfish Sanitation Program, as per the *Safe Food for Canadians Regulations*. Approved areas are indicated in green on the maps found at www.dfo-mpo.gc.ca/CheckBeforeYouHarvest.

1.6.3 First Nations

First Nations' access for food, social and ceremonial (FSC) purposes is the first priority - after conservation – over other users of the resource, and opportunities are open coast-wide throughout the year in areas that are not closed to contamination. Harvest should occur in waters that are classified as Approved by the Canadian Shellfish Sanitation Program, as per the *Safe Food for*

Canadians Regulations. Approved areas are indicated in green on the maps found at www.dfo-mpo.gc.ca/CheckBeforeYouHarvest.

Treaty exclusive areas are also in place for some beaches as part of Treaty final agreements. A number of traditional harvest areas have been excluded from the commercial fishery and set aside for FSC and recreational opportunities. See Appendix 5 for maps of these areas.

Currently, there is no recommended minimum size limit for clams harvested by First Nations. Although there is no coordinated approach to minimum size limits, it has been shared with DFO, in bilateral discussions, that traditionally some First Nations harvesters will avoid taking smaller clams to ensure local conservation and sustainability. This stewardship practice would be passed down through generations and is still utilized by many First Nations harvesters today.

Some communal licences are issued which provide for a maximum daily quota of 50-100 lb. per day per person. The Chief and Council may authorize additional catch where required.

1.6.4 Decontamination

Manila and littleneck clam harvests from sanitary closure areas may occur under specific conditions and licences issued under the *Management of Contaminated Fisheries Regulations*. These clams are allowed to purge their stomach contents, or depurate, by relaying the clams to clean sites or controlled facilities and under specific sampling regimes to ensure bacteria have been removed and they are healthy before entering the food chain for human consumption. Access to closed beaches as part of the commercial fishery is permitted with requirements to conduct a biomass estimate, hail to fish, and report landings.

As of 2019, clams may be naturally relayed, which is a process that allows marginally contaminated clams to be purged over a minimum of two weeks. The relay of clams had been implemented in the aquaculture fishery and had been requested by the wild industry as an alternative to depuration due to the costs of setting up a depuration plant. There are strict requirements for relay and all relay plans must be approved by the Department.

For more information on depuration and relay of clams see Appendix 4 Decontamination Harvest Plan.

1.6.5 Aquaculture

Recognizing both the potential for aquaculture to benefit Canadians and the need to ensure the sustainable use of aquatic resources, the federal government endorsed the Federal Aquaculture Development Strategy (FADS) in 1995. Building on FADS the Department released the 2002 Aquaculture Policy Framework. The policy framework recognizes aquaculture as a legitimate use of land, water, and aquatic resources. In December 2010, DFO assumed the responsibility of licensing aquaculture operations from the Province of BC. Additional information is provided in Section 6.3.4.

1.7 Governance

The intertidal clam fishery is governed by the *Fisheries Act* (R.S., 1985, c. F-14) and regulations made thereunder, including the *Fishery (General) Regulations* (e.g., conditions of licence), the *Pacific Fishery Regulations* (e.g., open times), the *British Columbia Sport Fishing Regulations*, the *Aboriginal Communal Fishing Licences Regulations*, the *Management of Contaminated*

Fishery Regulations and the *Pacific Aquaculture Regulations*. Areas and Subareas are described in the *Pacific Fishery Management Area Regulations*.

Marine Protected Areas may be established under the *Oceans Act* (1996, c. 31). National Marine and Wildlife Conservation Areas may be established under the *Canada National Marine Conservations 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 came into force in 2003. The purposes of the Act are "to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of a wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened."

These documents are available at: https://www.dfo-mpo.gc.ca/acts-lois/index-eng.htm

In addition to the existing prohibitions under the *Fisheries Act*, it is illegal under Sections 32 and 33 of SARA to: 1) kill, harm, harass, capture or take an individual of a wildlife species listed as extirpated, endangered or threatened under SARA; 2) possess, collect, buy, sell or trade an individual (or any part or derivative of such an individual) of a wildlife species listed as extirpated, endangered or threatened under SARA; and 3) damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with SARA, to engage in an activity affecting the listed species or the residences of its individuals. Species listed as special concern are not included in these prohibitions.

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

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

The Sustainable Fisheries Framework

The Sustainable Fisheries Framework (SFF) is a toolbox of existing and new policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. The Sustainable Fisheries Framework provides planning and

operational tools that allow these goals to be achieved in a clear, predictable, transparent, and inclusive manner, and provides the foundation for new conservation policies to implement the ecosystem and precautionary approaches to fisheries management. These policies include:

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

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

As required under the SFF, DFO annually tracks the performance of major fish stocks that it manages through the Sustainability Survey for Fisheries. The fish stocks are selected for their economic, environmental and/or cultural importance. The vast majority of the landings from fisheries managed by DFO come from these fish stocks. The survey reports on DFO's progress to implement its SFF policies, which guide the management of Canada's fisheries, and on other information about these fish stocks. The results of previous Sustainability Surveys are available online: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html

Precautionary Approach Policy

The SFF includes a decision-making framework incorporating a precautionary approach to commercial, recreational, and food, social, and ceremonial fishing: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm

In general, the precautionary approach in fisheries management requires caution when scientific knowledge is uncertain. The absence of adequate scientific information should not result in postponed action or failure to take action to avoid the risk of serious harm to fish stocks or their ecosystem. This approach is widely accepted internationally as an essential part of sustainable fisheries management.

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

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

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is in the Healthy Zone,

to promote rebuilding when stock status is low, and to ensure a low risk of serious or irreversible harm to the stock. A key component of the Precautionary Approach Framework requires that when a stock has declined to the Critical Zone, a rebuilding plan must be in place with the aim of having a high probability of the stock growing out of the Critical Zone within a reasonable timeframe: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm

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

Information on the regulatory proposal regarding fish stocks and rebuilding plans is available at: http://www.dfo-mpo.gc.ca/fisheries-peches/consultation/consult-maj-pri-eng.html

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

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

Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas

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

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

1.8 Consultation

A consultative process exists for the intertidal clam fishery and is a significant part of the planning for the fishery. The primary consultative body for intertidal clams is the Intertidal Clam Sectoral Committee which meets once per year in the fall for a post-season review (September - October). Any issues regarding the management of the fishery are discussed and the following year's fishing plan defined. This group is comprised of First Nations representatives, interested licence eligibility holders, clam management boards or advisory committees, processors/ buyers, and recreational harvesters as well as Federal and Provincial agency representatives. Participation is voluntary and open to additional parties.

The Sectoral Committee meeting calendar is available from the Resource Managers listed in Contacts and more information is available from the Department's consultation website at: https://www.pac.dfo-mpo.gc.ca/consultation/index-eng.html

The Department has attempted to develop community management boards in some of the clam management areas. The boards were to be structured with broad harvester representation to allow for greater involvement of local communities in the management of the clam fishery. There is one community management board in the process of being established in Area F (West Coast of Vancouver Island). An informal advisory committee has been established in Area C Sunshine Coast, Area E Lower Strait of Georgia and Area G Queen Charlotte Sound. Harvesters licensed for these areas are encouraged to contact these groups regarding issues, comments or suggestions for the fishery. The boards usually meet with the Department once or twice annually.

1.9 Approval Process

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

2 STOCK ASSESSMENT AND SCIENCE

2.1 Stock Assessment

Harvestable wild clam stocks are dependent on recruitment that can vary widely from year to year. There is currently no assessment program that measures stock strength on all the beaches that are harvested in the fishery. The stock assessment program identifies biomass on specific beaches in the decontamination fishery and the First Nations Communal Commercial fisheries with a goal of determining maximum sustainable harvest rates. An intertidal clam monitoring program (ICMP) for the south coast of British Columbia is being developed. Currently, the main conservation tool in this fishery is the minimum size limit. In addition, for commercial fisheries, catch per unit effort compared to the annual catches can serve as a proxy for abundance.

Stock assessment activities relating to the commercial fishery for intertidal clams include:

a.) stock surveys of Seal Island for butter clams (triennially since 1942);

b.) joint intertidal clam surveys (between Tla'amin Nation and DFO Fisheries Management) conducted at Myrtle Rocks and Okeover Arm in 2017, 2019, and 2021; and

c.) collaborative survey design, sample processing and analyses for the depuration fishery (Gillespie and Kronlund 1999, Gillespie 2000).

2.2 Stock Scenarios

Currently the only proxy for abundance is based on harvest levels. To date, commercial fishery-dependent and annual commercial fishery landings have been considered a reasonable proxy of overall stock abundance. However, Catch Per Unit Effort (CPUE) can be skewed based on various factors such as actual effort, weather, and the ability of harvesters to get to remote areas. Annual landings have shown a declining trend over the last decade.

2.3 Intertidal Clam Monitoring Program (ICMP)

Amendments to the federal *Fisheries Act*, through Bill C-68 (June 2019), legislated new requirements for major fish stocks, part of which includes determining reference points to maintain major stocks at sustainable levels. In the south coast of BC, intertidal clams (specifically Manila clams) will likely be one of the major stocks requiring reference points. As such, DFO began developing a new monitoring program to collect data that would allow the building of datasets for intertidal clams, determining reference points, and monitoring the health of clam stocks. Following the engagement process with First Nations, industry and stakeholders from Oct. 21st to Nov. 29th, 2019, and considering the valuable feedback received, DFO Science established a list of indicator beaches. Indicator beaches were evaluated based on the following criteria: the level of commercial fishing effort; accessibility to all harvesters (i.e. First Nations, commercial and recreational); absence of shellfish tenures; absence of permanent contamination closures; rationales provided to DFO during the engagement period, and feedback from the Department's Resource Management, Canadian Shellfish Sanitation Program (CSSP) and Science sectors.

DFO Science organized in-person meetings for each of the South Coast Clam Management Areas to discuss survey planning and logistics on each of the indicator beaches in February and March 2020. Unfortunately, the in-person meeting for CMA E scheduled to occur on March 16, 2020, had to be postponed due to the COVID-19 pandemic and will be rescheduled. DFO, in collaboration with various First Nations or organizations, began undertaking reconnaissance surveys in CMA F (1. Equis Beach with the Tseshaht First Nation and the Nuu-chah-nulth Tribal Council; 2. Atleo River Beach with the Ahousaht First Nation and the Nuu-chah-nulth Tribal Council; and 3. Little Espinosa) and full surveys in CMA B (1. Hyacinthe Bay with the A-Tlegay Fisheries Society) and CMA C (1. Myrtle Rocks with the Tla'amin Nation) in 2021. The goal will be to survey every indicator beach every two to three years.

2.4 Precautionary Approach

Harvest control rules compliant with DFO's Precautionary Approach policy are not utilized in this fishery. There are no reference points developed for intertidal clams for delineating Healthy, Cautious, and Critical stock zones. The commercial clam fishery meets conservation objectives though the legislated size limits. The size limit is set at a level to allow clams to mature and spawn at least once before reaching the legal size limit (Bourne, 1987). Minimum legal size is based on biological data for size at maturity and growth rate; plus the ability of diggers to distinguish between species (Manila and Littleneck clams). Management by size limits is the most practical as it can be enforced at several different locations: on the beach, or in the possession of buyers or processors. Total commercial harvest is monitored during the year. When the abundance of legal sized clams harvested show a downward trend the fishery will then close for the remainder of the season.

To aid discussion of future management options and better understanding of the status of intertidal clams, DFO Resource Management has requested new advice from DFO Science. Further work to align intertidal clam assessment and management frameworks with the Precautionary Approach framework is underway (i.e., the establishment of limit reference points, upper stock references, removal rates and a harvest control rule).

2.5 Research

The European green crab (*Carcinus maenas*) is a global invasive species that has demonstrated negative impacts on intertidal ecosystems as competitors and predators. They are known to consume bivalve mollusc species including Manila clam (Curtis et al. 2012). European green crabs were first detected on the West Coast of Vancouver Island in 1999 and have subsequently spread to beaches throughout the West Coast of Vancouver Island (Gillespie et al. 2007). European green crab have been detected in several areas around the Strait of Georgia including the Sunshine Coast and Ladysmith Harbour. Processing plants are currently not allowed to wet store intertidal bivalves that have been collected on the West Coast of Vancouver Island or on beaches in the Strait of Georgia. A research project by Curtis et al. (2015; https://waves-vagues.dfo-mpo.gc.ca/Library/359729.pdf) to assess the potential for inadvertent transfer of European green crab in the bivalve fishery and aquaculture products confirmed the entrainment potential for the European green crab at two different life stages and four other Non-Indigenous Species (NIS). After an extensive review of the literature, the study confirmed that none of the existing or experimentally tested mitigation methods to remove NIS from products was 100% effective at removing NIS prior to product transport. The study identified several areas of potential improvement of the current shellfish aquaculture licence conditions which culminated in the development of a conceptual framework model to reduce the risk of spreading NIS at each stage of the shellfish transfer process.

2.6 Biological Synopsis

Clams have separate sexes and are broadcast spawners, synchronously releasing gametes into the water column, where fertilization occurs. Larvae are planktonic for 3 or 4 weeks, depending on species, temperature and available food, before settling in suitable habitat. Adult populations are sedentary: once settled on one beach, these clams cannot move to another location.

For Manila clams, maturation occurs between 20-25 mm in length, or approximately 1-3 years of age, and spawning occurs from June to September in the Strait of Georgia (Gillespie et al. 2012). Temperatures of 12-13°C are required for gonadal development, and temperatures of 15°C are required for spawning. Fecundity increases exponentially with length, with estimates ranging from 188,000 eggs/female at first maturity to 2,350,000 eggs/female at 40 mm TL (Total Length; DFO 2001). Manila clams are found in the upper half of the intertidal zone in British Columbia (Quayle 1960) in mixed substrates of mud, sand and gravel. They live in shallow, transitory burrows in the substrate, and are susceptible to catastrophic “winter” kills when night-time low tides coincide with low air temperature and prevailing winds.

Littleneck clams spawn from April to October in British Columbia. Size at maturity is 22-35 mm (Quayle 1943), and maximum size (approximately 75mm) is attained after approximately 10 years (Quayle and Bourne 1972). Maximum age of littleneck clams in British Columbia is 14 years (Bourne 1987). Like Manila clams, the growth rate for littleneck clams varies among beaches, and, among different areas on the same beach. Under optimal conditions, littleneck clams can reach

legal size (38mm) in 3-4 years in the Strait of Georgia (Quayle and Bourne 1972). Littleneck clams are often found in mixed gravel, sand and mud substrates, generally in the lower intertidal zone (Quayle and Bourne 1972).

For Butter clams, maturation occurs between 33-43 mm in length, or approximately 3 years of age and spawning occurs from April to October in British Columbia (Gillespie and Kronlund 1999). Butter clams generally inhabit the lower intertidal zone and live in more stable substrates than Manila and Littleneck clams -- usually sand, broken shell and small gravel. As adults, Butter clams inhabit more or less permanent burrows up to 30 cm in depth. The age when legal size is reached varies with location and ranges from 4.5 years to 9 years.

3 INDIGENOUS KNOWLEDGE

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

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

Indigenous knowledge can inform and fill knowledge gaps related to the health of fish stocks, and aid decision making related to fisheries management. The Government of Canada and the scientific community acknowledge the need to access and incorporate IK in meaningful and respectful ways. Work is underway at a National level to develop processes for how DFO receives Indigenous knowledge and applies it to inform decision making. This will include consideration of how to engage knowledge holders, and how to ensure that the knowledge can be shared and considered in a mutually acceptable manner by both knowledge holders and the broader community of First Nations, stakeholders, managers, and policy makers involved in the fisheries. This work will be an iterative process done in collaboration with First Nations, Indigenous groups and knowledge holders, to ensure protection of the knowledge provided.

4 ECOSYSTEM INTERACTIONS

Clams, 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. Early stages (eggs and larvae) are susceptible to predators and through incidental consumption in non-selective filter feeding. Once clams have settled to the bottom and have found suitable protective habitat, mortality is likely reduced. At this stage they are preyed upon predominately by crabs and sea stars. Minor predators include predatory molluscs (whelks and moon snails) and many birds and animals (crows, gulls, diving ducks, otters, mink, raccoons, and bears).

Abiotic factors are also an important ecosystem factor which can affect the survival of marine benthic organisms. The Intergovernmental Panel on Climate Change report (Hoegh-Guldberg et al. 20182019) noted that anthropogenic greenhouse gas emissions have contributed to climate-related changes, such as global warming and extreme weather events. The effects of which could be (among other things): changes in local circulation patterns, increasing temperatures and

decreasing salinity. With the impact to marine organisms including things such as: faster maturation, earlier settlement, changes in settlement location, behaviour changes, decreased condition index, and temperature induced mortality. The effects of multiple stressors may be additive, synergistic or antagonistic therefore the effects of both single and combined stressors must be understood to comprehensively evaluate the ecological impacts (Ghezzo et al. 2018; Bae et al. 2021).

4.1 Contamination and Marine Biotoxins

Intertidal clams are filter feeders and can accumulate naturally occurring plankton that contains biotoxins and fecal coliform bacteria from human and other mammalian sources. The toxins do not harm the shellfish but are harmful to humans. Paralytic Shellfish Poisoning (PSP) may result from consuming shellfish that have been filtering certain plankton from the water. To protect public health and safety from the consumption of contaminated shellfish, periodic sampling is performed by the Canadian Food Inspection Agency (CFIA) for a number of marine biotoxins and by Environment and Climate Change Canada (ECCC) for water quality. Areas which meet the water quality and biotoxin standards may be open to harvesting of specific clam species. Because some species take longer to clear biotoxins, areas may be closed to specific species. DFO's Biotoxin (Paralytic Shellfish Poisoning/PSP, Domoic Acid Poisoning and Diarrhetic Shellfish Poisoning) & Sanitary Contamination Closures (available on the Pacific Region website and fishery notices) should be consulted before harvesting any shellfish.

Clams harvested for commercial purposes must come from areas approved by Environment and Climate Change Canada. Approved areas are indicated in green on the maps accessed through the following website address: http://www.dfo-mpo.gc.ca/CheckBeforeYouHarvest. The website app is called SHELLI Or Shellfish Harvesting Map. Before you head out to harvest, have a look at the map and ensure you are harvesting in the green areas and that there are no marine biotoxin (PSP/red tide, ASP, DSP) closures in place. These approved areas are the only areas which are approved for the commercial harvest of clams as per the *Safe Food for Canadians Regulations*. The maps will work on a computer or your smart phone.

See the Internet for more information:

http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/index-eng.htm

5 ECONOMICS OF THE FISHERY

5.1 Commercial

British Columbia's wild clam fishery makes up about 3% of all wild shellfish harvest in the Pacific Region with an average annual landed value (2020$) of $1.4M between 2016 and 2020. Manila clams have averaged about 83% of wild clam landings by weight and 91% by landed value (2016-2020). Manila clam harvesting continued to outpace other wild clams; in 2019, they accounted for 94% of harvest by weight and 97% of landed value. However, in 2020, Manila clam percentage make-up of all wild clam fell back to the 2016-2020 average, accounting for 84% of harvest by weight and 93% of landed value.

Wild clam harvest and value have been on a fairly steady decline since 2002[1]. The increasing age of commercial clam harvesters, in a physically demanding fishery, may be a contributing factor to this decline. The total landings of Manila, littleneck, razor and butter clams combined have declined from 1,309 tonnes to 204 tonnes from 2002 to 2020. Landed value has followed a similar pattern to landed weight overall, increasing in years only when the wild clam fishery had an uptake in harvest. From 2014-2017, landings increased by 17% and landed value increased by 52% due to a 23% increase in Manila clam prices during the same time period. Manila clams, which make up the vast majority of landings, have seen a drastic price increase over the last decade, increasing by 36% from 2010-2020. The trending decline in harvest was accelerated in 2020 due to COVID-19 restrictions which decreased demand for shellfish product and lowered participation in the fishery. Harvest and value both decreased by 46% from 2019 to 2020, the largest decline the wild clam fishery has experienced in the last 10 years.

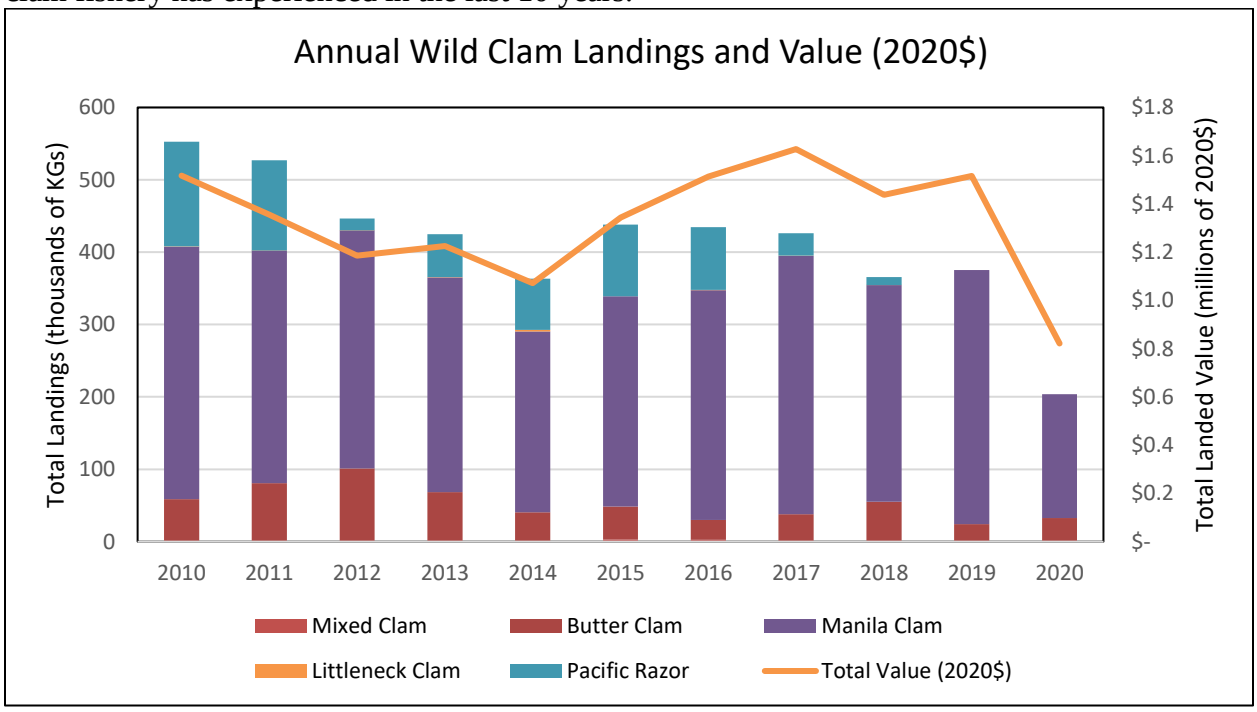

Figure 3. Annual British Columbia commercial clam landings (in thousands of kg) and total landed value (millions of 2020 dollars) 2010 to current. Source: Sales slip data, multiple years.

The trend of lower landings through the years can be explained by product competition from clam aquaculture, the decontamination fishery, and production from Washington State beaches and other countries such as Chile and Mexico, in addition to the increasing age of harvesters. Furthermore, BC's wild clam fishery has been impacted in recent years by the high Canadian dollar, affecting sales to US markets which are the most significant purchasers of Canadian product. The typical buyer of clams tends to prefer the clams grown in the aquaculture industry which can accommodate the buyer by supplying on demand. This is evident from the chart below which compares prices for wild versus aquaculture Manila clams. Over the past 5 years, there has been an average price premium for aquaculture Manila clams of $1.50/kg. Retailers, such as

[1]See Integrated Fisheries Management Plan Intertidal Clams 2013-2015 for further historical information at http://www.pac.dfo-mpo.gc.ca/fm-gp/ifmp-eng.html

restaurants, prefer a consistent size and colour of clams for plate presentation. The size and time of wild clam harvest can fluctuate, therefore favoring the aquaculture's consistent product. Often, after a wild clam opening, the buyer of the clams may end up with more clams than they can sell at that particular time. The consequence of this is there can, at times, be more supply than there is demand.

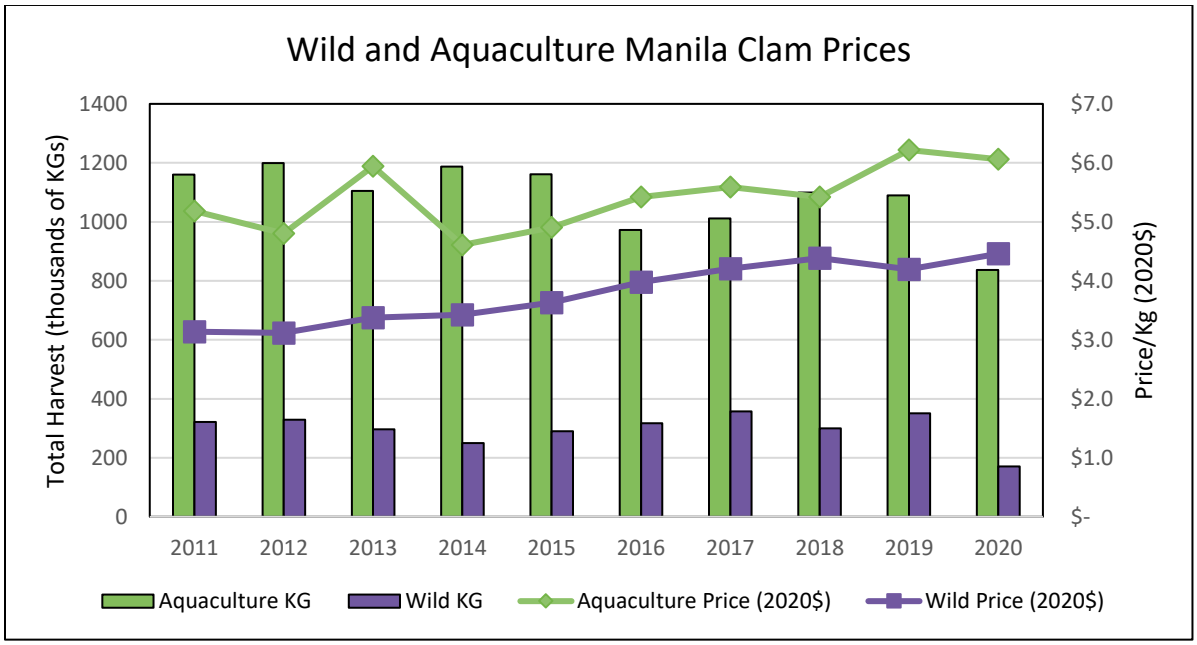

Figure 4. Annual clam (wild and aquaculture) harvests (thousand of kilograms) and price per kilogram (in 2020 dollars). Source: Annual Aquaculture Statistical Reports, communication with Resource Management, and Sales Slip data, multiple years.

Despite these challenges, the price of Manila clams has been steadily increasing for the past 10 years, bringing them back up to historic prices, and butter clams have also increased in price by 56%. The price of razor clams has remained relatively constant over the past 8 years. Whenever possible, clam openings each year are modified to fit the market demand and avoid competition issues with only one opening per week in one of the Clam Management Areas.

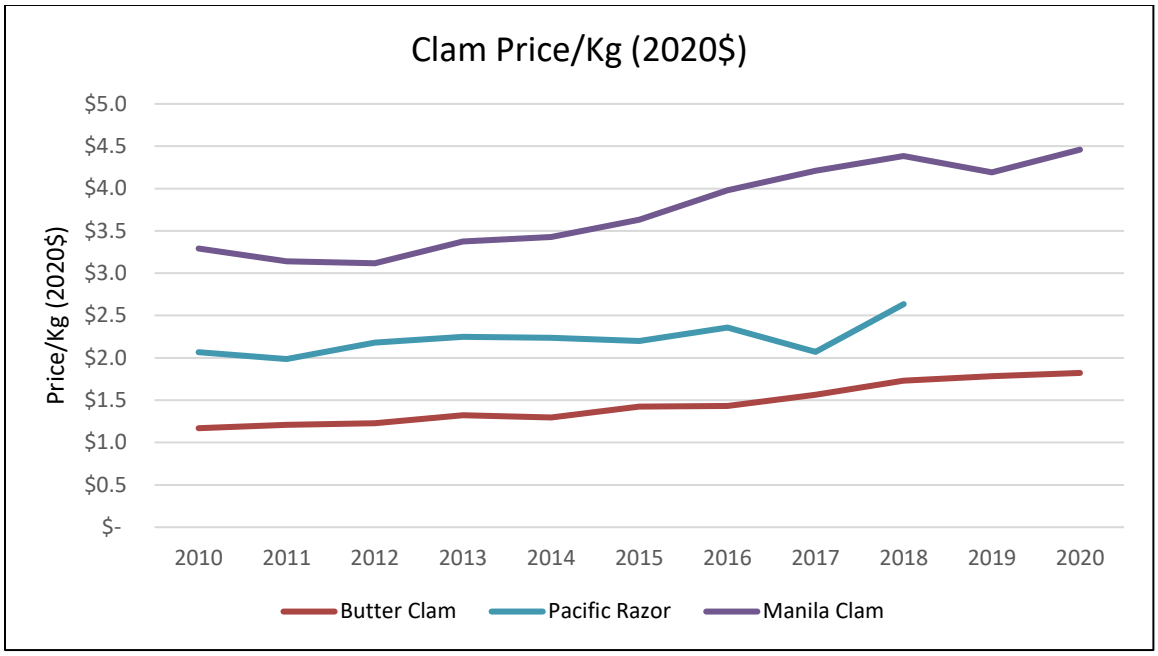

Figure 5. Annual price per kilogram in 2020 dollars for Butter, Pacific Razor and Manila clams. Source: Sales slip data, multiple years.

5.2 Viability and Market Trends

BC exports most of the seafood it produces. As presented earlier, the value of the intertidal clam fishery is vulnerable to foreign price fluctuations, currency exchange rates, and market competition. The USA is the key export market for BC clams, and has on average imported 90% of BC clams (wild and aquaculture, by weight)[2] from 2010-2020. Other international markets include China, Hong Kong, Spain, and Vietnam which together imported the remaining 10%.

[2] It was not possible to separate wild from aquaculture clam products in the Statistics Canada export data to provide estimates of only wild clam exports.

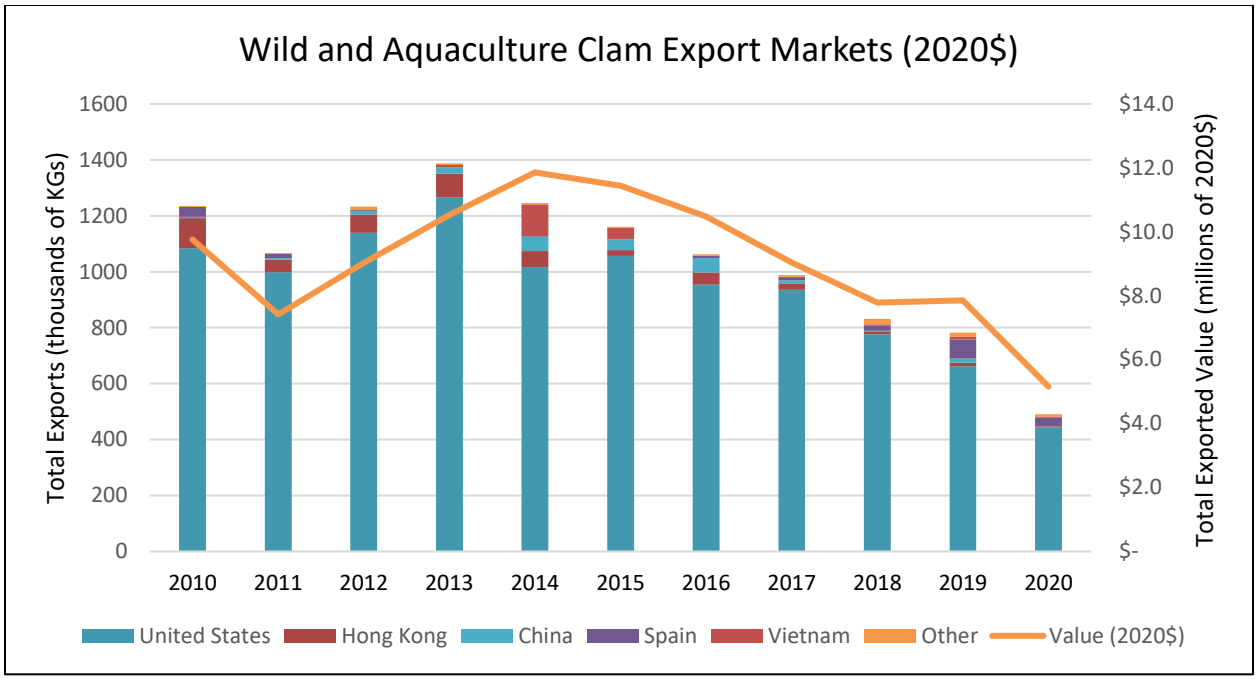

Figure 6. Annual exports (thousands of kilograms) and total exported value (millions of 2020 dollars) by export country for wild and aquaculture markets. Source: Statistics Canada EXIM.

5.3 Recreational

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

The National Survey of Recreational Fishing in Canada[3], last conducted in 2015, provides an estimate of individual expenditures and major purchases for recreational fishing. Typically, BC's tidal water recreational fishery has been the third largest recreational fishery in Canada in terms of direct expenditures and major purchases[4]. Resident anglers, who make up the majority of anglers in BC's tidal waters, had the largest expenditures at $443 million (2020$) in 2015 with non-resident direct expenditures (including fishing packages) and major purchases totalling $159 million (2020$). Expenditures by non-residents add money to the provincial economy, beyond the $159 million directly attributable to their fishing experience[5].

[3] Fisheries & Oceans Canada 2015.
[4] Based on the Survey of Recreational Fishing in Canada, multiple years.
[5] British Columbia's Fisheries and Aquaculture Sector (2007) reports that non-resident participants in recreational tidal water fishing also spend money on, for example, shopping, cultural events and attractions (such as museums and the theatre), and sightseeing at locations other than where they go fishing.

While opportunities for recreational fishing in BC's tidal waters attract international anglers[6], they are coming in smaller numbers (see graph below), even as the number of resident anglers remained relatively stable until recent years[7]. The 2019/20 recreational fishing season saw a 30% decline in licences sold to resident anglers, but a 55% increase in licences sold to non-resident anglers. In 2020/21, with COVID-19 restrictions, the number of licences sold to non-resident anglers decreased by 71% as no licences were sold to visitors outside of Canada. This resulted in a small uptake (7%) of licences sold to resident anglers. Recreational fishing continues to be important to the BC economy, but the rate of growth is slowing. In real terms, total direct expenditures and major purchases grew by nearly 15% from 2000 to 2005, increased by only 1% from 2005 to 2010, and decreased by 26% from 2010 to 2015[8]. This slowdown is due mainly to a drop in expenditures by international anglers, which fell by 48% between 2005 and 2010, and an additional 12% decrease from 2010 to 2015. Expenditures by resident anglers, on the other hand, increased by 17% between 2005 and 2010, but decreased by 32% from 2010 to 2015.

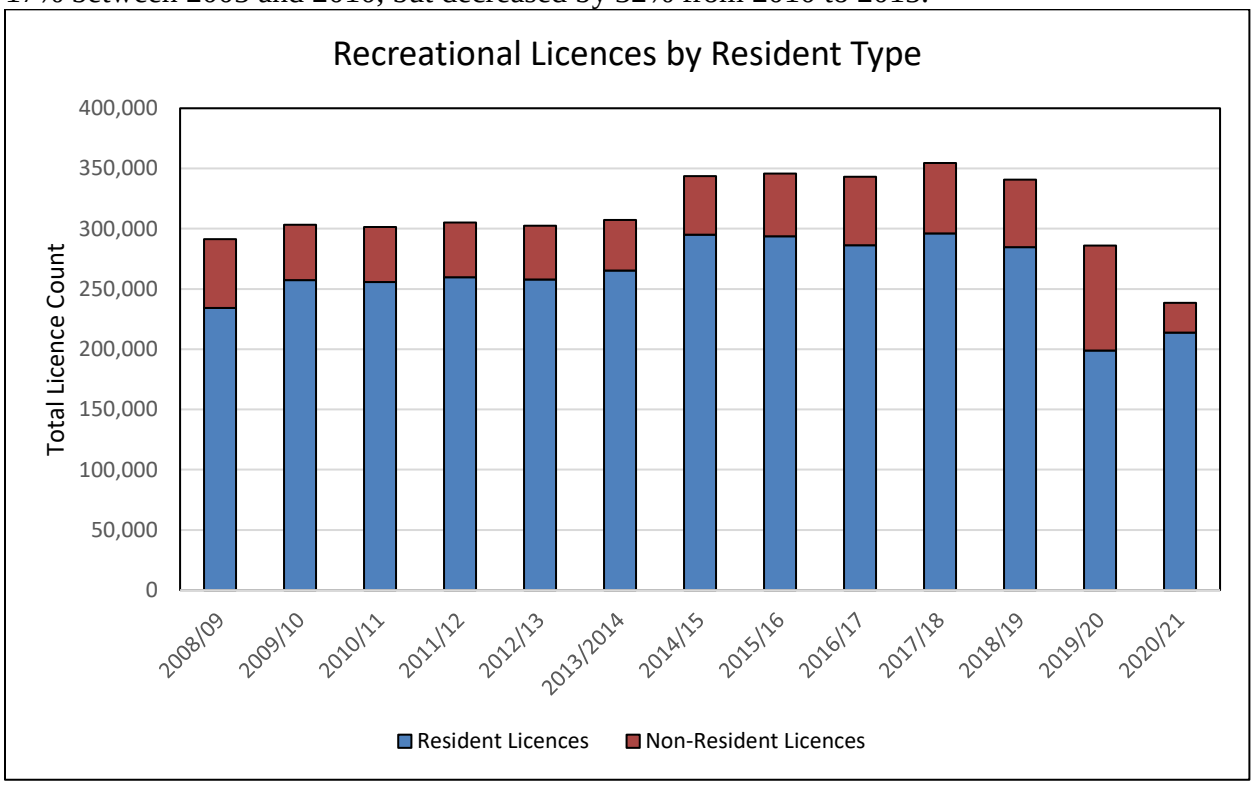

Figure 7. British Columbia Tidal Water Recreational Fishing Licences Sold, 2008 to 2021. Source: DFO Fisheries Management Data Unit.

Most of the direct expenditures, major purchases, and package expenditures were attributable to salmon fishing[9] but interest in shellfish has increased (DFO 2015). Although clam harvesting may

[6] For example, 47% of international anglers reported that had there not been tidal water fishing opportunities they would not have chosen British Columbia as their travel destination (Survey of Recreational Fishing in Canada, 2010).
[7] Note that while the graph shows that nearly 300,000 licences were sold in 2011/12, not all of these were annual licences. Many were licences for 1-5 days.
[8] Growth rates reported in this section are real growth rates based on expenditures adjusted to account for inflation, measured in 2020 constant dollars.
[9] Based on analysis of the 2015 data.

not be the key shellfish species of interest to the recreational community (accounting for only 8% of shellfish harvested in 2010), recreational harvest from the local communities is very common throughout the year. Unlike angling, which can be expensive, it only takes a shovel and a tidal water fishing licence to harvest clams. The Survey of Recreational Fishing in Canada shows that fishing days spent on recreational shellfish harvesting increased by 13% from 2005 to 2010.

5.4 First Nations

Clams are a traditional food staple for coastal First Nations, served at ceremonies and traditional feasts as well as gathered for personal sustenance. They have been prepared many ways including steamed, fried and smoked. Clams preserve well and were often dried. First Nations are interested in fisheries-related economic opportunities. There are 579 communal commercial clam licence eligibilities (Z2ACL) available each year to provide economic opportunity to First Nations through participation in the commercial fishery in British Columbia. First Nation opportunities are negotiated through the Aboriginal Fisheries Strategy (AFS). The Allocation Transfer Program (ATP) under the Aboriginal Fisheries Strategy retires existing commercial licence eligibilities from fish harvesters on a voluntary basis and re-issues these to eligible First Nations organizations as communal commercial licences. For more information on the Aboriginal Fisheries Strategy, contact a resource manager listed in Section 16.

First Nations who have beaches adjacent to reserves with clam resources, and are interested in commercial opportunities, may apply to enter into an agreement with DFO for the purpose of a Communal Commercial Harvest Strategy. These communal commercial harvests may occur where there is a viable clam beach adjacent to the reserve that meets requirements for safe harvest under the Canadian Shellfish Sanitation Program. Stock assessment must be carried out prior to a commercial harvest. The guidelines for stock assessment are the same as those established for the decontamination fishery without the need for a decontamination plan. If the beach is contaminated, the plan must follow the decontamination guidelines (Appendix 4).

6 MANAGEMENT ISSUES

The following emerging issues may impact the management measures in place for the Intertidal Clam Fisheries.

6.1 Conservation and Sustainability

Stock Status: Abundance estimates are not available for individual beaches or clam management areas. Lack of stock assessment information is an ongoing issue and hampers the Department's ability to monitor the status of coastal beaches. There is some concern that intensive harvesting, repeated digging, as well as natural events such as winter kills due to freezing, may be impacting some beaches. It is not currently practical to assess every beach in British Columbia and managers rely on in season catch per unit effort from commercial fisheries to compare relative stock strengths from prior fisheries and prior years. Future efforts may be required to explore options for improved assessment frameworks for the fishery.

On the West Coast of Vancouver Island, First Nations and commercial harvesters have notified the Department of impacts on clam populations from sea otters.

6.2 National Fishery Monitoring and Catch Reporting

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

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

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

The Fishery Monitoring Policy is part of DFO's Sustainable Fisheries Framework and is available at:
https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-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

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.

In 2018, the Department drafted initial risk assessments for the recreational and FSC/Domestic clam fisheries. The results of these draft risk assessments were published for review, comment and revision in the 2018/2019 Intertidal Clam IFMP. These draft results have not yet been finalized, please refer to Appendix 7 for a detailed summary of the these draft risk assessments.

6.3 Social, Cultural and Economic

6.3.1 Commercial

Harvest Opportunities: There are a number of issues impacting the economic viability of the commercial clam fishery. These issues include the loss of beach access as a result of the expansion of intertidal aquaculture tenures, treaty settlements, and water quality concerns. As a result of these pressures, commercial intertidal clam fishery opportunities will likely be reduced as time progresses. Nevertheless, the Department will continue to open commercial fisheries in each clam management area as long as the relative stock strength warrants continued harvests and the fishery is manageable. The Department will work with licence eligibility holders to develop solutions to these issues and adapt the fishery accordingly. Advice from harvesters and other interested parties will continue to be considered.

Clam Licence Modernization: The Department has been consulting with industry and First Nations on licence nomination for Z2 licences since 2000. Clam Licence Modernization was discussed at clam sectoral in 2019 and 2020 and with some First Nations organizations. Letters were mailed to all licence holders and First Nations in May 2021, advising of them of upcoming changes and seeking feedback. Further discussion was held at clam sectoral in September 2021. Meetings were held with interested parties, and presentations on Clam Licence Modernization were provided to stakeholders and First Nations, upon request, between May and October 2021. The two initiatives for consideration were i) the changing of the Z2ACL authority from the *Pacific Fishery Regulations (PFR)* to the *Aboriginal Communal Fishing Licences Regulations (ACFLR)* and ii) allowing clam licence nomination of the remaining eligible commercial clam licences. Licence holders expressed support for licence nomination, and First Nations were supportive of changing the licensing authority of the Z2ACL. The department is moving forward with Clam Licence Modernization and will be implementing both aspects commencing January 1, 2022. In addition, as part of the consultation, a request was made by First Nations to allow the Z2 licences to be nominated to a Nation as a Z2ACL. To adequately address this interest, a licensing review and any subsequent changes will be undertaken by the department throughout 2022 for implementation in 2023.

Number of Licences: There are 739 Z2 and Z2ACL commercial clam licences for this fishery. Time and area closures and area licensing limit opportunities for harvesters, and the fishery may not meet the economic needs of individual harvesters.

Catch Reporting: Currently, fish slips are used as an indication of effort over all the commercial landings. In addition, landings are recorded by the fishery manager after each fishery and are now collated through in-season and end-season reports from buyers and processors. The department will be consulting with industry and First Nations over the 2022-23 year for the purpose of implementing harvester reported logbooks in addition to fish slips. These could be submitted in

the form of paper logbooks, electronically using an app on a smartphone or tablet, or through a service provider. The department will consult on the options to come up with a viable solution. Implementation is expected after 2023.

6.3.2 Recreational

Although there is limited information on recreational shellfish harvest, including clams, harvest information is gathered annually in dockside creel surveys. These surveys were designed primarily to gather salmon and finfish catch information. An on-line recreational survey began in 2012 to provide monthly estimates of all sport caught species, including clams. The survey methodology was scientifically peer-reviewed by the CSAS Centre for Scientific Advice, Pacific in Spring 2015. However, recommendations for further analysis and modifications to improve the survey design and to better estimate uncertainty are provided. For more information:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2015/2015_059-eng.html

Clam harvesting can only take place in areas where the shellfish have been tested for biotoxins and are defined as open for harvesting. The recreational fishery is dependent on the commercial and First Nations fisheries in order to have areas tested for biotoxins. Wild commercial, aquaculture and First Nations organizations work with CFIA for collection of samples of specific species.

There is concentration of recreational harvesting effort on specific beaches in some of the more populated areas of the coast. For the purpose of clam harvest sustainability, a 35mm minimum size limit for Littleneck and Manila clams and a 55mm minimum size limit for Butter clams are now required. Daily limits of 60 clams collectively for Littleneck and Manila clams and 20 for Butter clams are now implemented.

6.3.3 First Nations

The Department is aware of some First Nations' concerns over the impact of commercial and recreational harvest on their ability to harvest for food, social, and ceremonial (FSC) purposes. In some areas of the South Coast, commercial closures have been implemented to provide reasonable opportunity for First Nation harvest for FSC purposes.

In the North Coast, the CSSP is not implemented in all areas. The Department is working with some First Nation groups to develop community harvest plans subject to water quality and biotoxin monitoring programs.

The Department is consulting with First Nations throughout coastal BC on a more comprehensive approach to gathering catch data by negotiating agreed-upon protocols outlined in Fisheries Agreements and/or communal licences or, under treaty, a harvest document.

Currently, there is no recommended minimum size limit for clams harvested by First Nations. Although there is no coordinated approach to minimum size limits, it has been shared with DFO, in bilateral discussions, that traditionally some First Nations harvesters will avoid taking smaller clams to ensure local conservation and sustainability. This stewardship practice would be passed down through generations and is still utilized by many First Nations harvesters today. There has been increased interest with some of the First Nations in regards to historical First Nation clam beds. Many of these clams beds date back hundreds of years and were an important part of the

food resource for First Nations. DFO will work with First Nations on management measures for these beds.

6.3.4 Aquaculture

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

DFO requires comprehensive environmental monitoring to be undertaken by industry, and the department also conducts additional monitoring, audits, and investigations (where warranted). Public reporting is undertaken to ensure the transparency and accountability of the management of aquaculture in BC. Associated reporting can be found on the DFO web pages: http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/index-eng.html.

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

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

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

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

6.4 Compliance

6.4.1 Fishery Monitoring

Monitoring the fishery is difficult due to the vast number of beaches and remote areas that are involved. The CSSP program requires the Department to monitor and patrol; however resources are limited. Processing plants must be able to ensure that the product they receive has been harvested legally in approved waters.

6.4.2 Traceability

Through conditions of licence, DFO ensures traceability of bivalve product from harvest to the point of landing at federally registered plants. In an effort to improve product traceability, DFO is working on stricter controls on reporting and handling of wild bivalves from harvest to landings. Ensuring the safety of consumers is a top priority and by enhancing traceability, DFO remains committed to protecting public health, meeting conservation objectives for bivalves, and maintaining international markets.

6.5 Ecosystem

6.5.1 Depleted Species and Non-Target Species Concerns

By-catch of non-target species is not a concern in the intertidal clam fisheries due to the nature of harvest. Clams are harvested by hand and rake digging which allows non-target species to be easily sorted and quickly returned to the beach with presumed low mortality. The minimum size limit also limits the type of harvest activity to rakes and hand picking.

6.5.2 New Species

The varnish clam (*Nuttallia obscurata*) was first reported from British Columbia in the late 1980s, and has expanded its distribution and increased in abundance (Gillespie et al. 1999, 2001). Studies to date have not demonstrated competition between varnish clams and other intertidal bivalves. Opportunities to harvest this species are currently not provided in the wild commercial fishery. Varnish clams, also marketed as Savoury clams had been harvested as part of the commercial clam fishery in the 2000s. There has been some demand for re-instating the harvests in the future. Any continued commercial harvesting of varnish clams will need to be a continuation of the New and Emerging Fishery Policy. There is a small market for varnish clams harvested from aquaculture tenures.

6.5.3 Invasive Species

The European green crab (*Carcinus maenas*) is an introduced species that has been found throughout the West Coast of Vancouver Island and at some locations in the Strait of Georgia. There are concerns for potential impact on clam resources. Management measures have been placed on the intertidal clam fishery to mitigate the spread of green crab and research is ongoing to assess this potential pathway for green crab to enter the Strait of Georgia. To report European green crab sightings or to learn more about training and resources available for monitoring programs, please contact the Aquatic Invasive Species (AIS) coordinator in the Contacts section.

6.5.4 Marine Protected Areas

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

The *Oceans Act*, the *Canada Wildlife Act*, and the *National Marine Conservation Areas Act* have given rise to several initiatives on the BC coast, which are listed below. As goals, objectives, and management plans are finalized for these initiatives, the Department's management of fisheries will be adapted as appropriate, in consultation with interested parties through Integrated Fisheries Management processes. Other important mandate commitments that inform the implementation of spatial marine conservation efforts include the considerations under the Fisheries Act, Sustainable Fisheries Policy suite, marine conservation targets (Aichi Target 11), and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

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

Canada's Marine and Coastal Areas Conservation Mandate

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

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

To meet its marine conservation target, Canada is establishing Marine Protected Areas (MPAs) and "other effective area-based conservation measures" ("Other Measures"), in consultation with industry, non-governmental organizations, and other interested parties.

An overview of these tools, including a description of the role of fisheries management measures that qualify as Other Measures is available at the following link:

http://www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-si-eng.html.

Pacific North Coast Integrated Management Area (PNCIMA):

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

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

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

Northern Shelf Bioregion Marine Protected Area Network

The Government of Canada, the Province of BC and many First Nations are working together to develop a Network of marine protected areas for the Northern Shelf Bioregion which extends from the top of Vancouver Island (Quadra Island/Bute Inlet) and reaches north to the Canada - Alaska border. This bioregion has the same footprint as the Pacific North Coast Integrated Management Area. The planning process is being developed under the policy direction outlined in the National Framework for Canada's Network of MPAs, the Canada-British Columbia MPA Network Strategy, and is informed by previously developed First Nation marine plans.

Draft MPA network design scenario 1, which consists of areas proposed for conservation as well as their proposed management measures was shared with non-partnering First Nations, who are not part of the collaborative governance arrangement, and with members of the Network Integrated and Ocean Advisory Committees in February 2019. Nations and stakeholders engaged in the 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 technical review of design scenario 1 and presented the report to the MPA Technical Team in March 2020. Governance partners considered all the input received about the first network scenario and developed scenario 2, which was discussed and further revised by partners and stakeholders during workshops held during the winter and spring of 2021. The Network planning process currently is finalizing draft scenario 2 along with the socio-economic analysis, conservation gap analysis, and Network Action Plan. All three products, inclusive of the draft scenario 2, are anticipated to be brought to the public and First Nations for consultation during winter/spring 2022. The final Network Action Plan is anticipated for release in late 2022.

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

Southern BC Marine Spatial Planning South

As part of a national marine spatial planning initiative, DFO is in pre-planning phase, collaborating with Indigenous groups and organizations, the Province of BC, and other federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks

Canada and others), to gather information and data relevant to a marine spatial planning process in southern BC, which includes the Strait of Georgia and Southern Shelf bioregions. The concept of marine spatial planning is to improve coordination across jurisdictions and activities in the marine space. Deliverables by 2023 include: recommendations for a trilateral governance model/approach, a Marine Atlas (working draft), and a Framework to inform future planning phases, including the development of a marine spatial plan.

Harvesters can expect updates on this process in the future.

Marine Protected Areas (MPAs)

DFO is responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated three MPAs in the Pacific Region: the SGaan Kinghlas-Bowie Seamount MPA, Endeavour Hydrothermal Vents MPA and the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs MPA.

All three areas are offshore and do not include Intertidal clams fishing areas.

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

National Marine Conservation Area Reserves (NMCARs)

Gwaii Haanas

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5000 km^2 land-and-sea protected area in the southern part of Haida Gwaii (formerly the Queen Charlotte Islands), approximately 100 kilometres off the north coast of British Columbia. The Haida Nation designated the area a Haida Heritage Site in 1985. The terrestrial part of Gwaii Haanas was designated a National Park Reserve by the Government of Canada soon after, and Canada and the Haida Nation have been managing the area cooperatively since 1993. In 2010, the Gwaii Haanas marine area was designated a National Marine Conservation Area Reserve.

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

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

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

The final zoning plan includes several areas of strict protection, where commercial and recreational fishing are prohibited. The zoning plan can be found at: https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/%20info/%20consultations/gestion-management-2018.

Refer to Fishery Notice 0536, released June 13, 2019 for a detailed description of the Strict Protection Zones and can be found at: https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=222098&ID=all

Council of the Haida Nation Fisheries Management Directions for the Gwaii Haanas Haida Heritage Site can be found at: http://www.haidanation.ca/wp-content/uploads/2019/04/CHN-Fisheries-Management-Directions-FINAL.pdf#:~:text=COUNCIL%20OF%20THE%20HAIDA%20NATION%20FISHERIES%20MANAGEMENT%20DIRECTIONS,jurisdiction%20of%20the%20Council%20of%20the%20Haida%20Nation.

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

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

Users of the Gwaii Haanas marine area should be aware that, as specified in the *Gwaii Haanas Agreement*, there is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). There are specific requirements for visiting the Gwaii Haanas terrestrial area and advanced planning is necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information.

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

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

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

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

7 OBJECTIVES

Sections 7.1 and 7.2 outline the "longer term" objectives for this and other invertebrate fisheries in the Pacific Region. Section 7.3 describes the species-specific "shorter-term" objectives for intertidal clam fisheries.

7.1 National

Fisheries and Oceans Canada aims to:

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

7.2 Pacific Region

In 1994, the Biological Objective Working Group of the Pacific Scientific Advice Review Committee (PSARC, now CSAP) identified three biological objectives for management of Pacific Region fish and invertebrate stocks (Rice et al, 1995). The objectives remain relevant today, particularly in light of development of the national objectives around sustainable fisheries:

- 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 objective above 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.

7.3 Intertidal Clams

7.3.1 Conservation and Sustainability

DFO's species-specific objectives for the conservation and sustainability for intertidal clams are:

- To meet minimum size limits (38 mm for Manila and littleneck clams, 63 mm for butter clams and 90 mm for razor clams) in the commercial fishery. The minimum size limit will allow the clams to spawn at least once before they are susceptible to the commercial fishery.
- To meet the required recreational minimum size limit of 35mm for Manila and littleneck clams and 55mm for butter clams. The minimum size limit will allow the clams to spawn at least once before they are susceptible to the recreational fishery. Additionally, when open, and with the exception of Pacific Rim National Park, the recreational daily limit for all clam species combined has been reduced to 60 per day in PFMAs 1 to 27. Species-specific daily limits are included within the 60 clam aggregate limit; daily limits by species are: 20 butter clams, 60 Manila clams, and/or 60 littleneck clams (see Appendix 3 for more information). Possession limits are two-times the daily limit.
- To review catch and effort data after each commercial fishery. Should commercial landings and/or commercial fishing effort show indications that available legal size harvestable clams are becoming depleted, commercial fishery plans will be reviewed by the fishery manager and future commercial openings may be reduced or stopped for the remainder of the year.
- To develop standards for fishery monitoring and catch reporting for all sectors.

7.3.2 Social, Cultural and Economic

DFO's objective is to continue to work collaboratively with the Clam Sectoral Committee to maintain sustainable fisheries and to collect input from all fishing sectors in the development of the IFMP. The Department will work to establish effective consultation regimes in each area and refine the Clam Sectoral Committee to foster the sharing of decision-making, responsibilities, costs and benefits.

7.3.3 Commercial Fishery

DFO's objective is to continue to work collaboratively with the commercial industry on sustainable resource use and long-term economic viability of the wild clam 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.

- The Department will consult with commercial harvesters and industry with the intention of maintaining a supply of product to the market year round.
- DFO will aim to provide the commercial clam fishery between 8 and 20 commercial harvest opportunities per area per year. Where possible, openings will be scheduled once a week to ensure a steady, fresh supply of clams to the marketplace that optimizes value.

7.3.4 Recreational Fishery

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

The document "Recreational Fisheries in Canada, An Operational Policy Framework" may be requested from any fishery manager listed in this plan or is available on the internet at:

https://www.dfo-mpo.gc.ca/reports-rapports/regs/policies-politiques-eng.htm

7.3.5 First Nations Fishery

DFO's objective is to continue to provide opportunities for First Nations to harvest fish for food, social and ceremonial purposes, in a manner consistent with the decision of the Supreme Court of Canada in the *Sparrow Decision*, and other court decisions. For more information, see the Internet at: https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/fsc-asr-eng.html

7.3.6 Compliance and Food Safety

As partners for delivery of the Canadian Shellfish Sanitation Program (CSSP), Fisheries and Oceans Canada (DFO) and the Canadian Food Inspection Agency (CFIA) collaborate to prevent illegal harvesting and selling of bivalve shellfish, including suspected laundering of illegal products through legitimate aquaculture businesses. DFO also remains committed to meeting conservation objectives for bivalves as well as supporting priority for Food, Social and Ceremonial fisheries. Any harvest occurring in conflict with established management measures and controls has the potential of negatively impacting the conservation of bivalve populations. DFO will investigate reports of illegal harvesting violations and will take appropriate enforcement actions, including prosecution. Furthermore, DFO may consider more restrictive management approaches if needed to protect public health. Commercial growers and harvesters are reminded that they are required, by law, to follow specific record-keeping and tagging requirements. Records of shellfish movement through the growing cycle and to the point of distribution provide evidence to support public health, regulatory decisions and closure recommendations.

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. Dedicated patrols by fishery officers are the main enforcement tool for this fishery. In addition, fishery officers respond to complaints from the general public. The general public are encouraged to call the DFO reporting line at 1-800-465-4336.

The Canadian Shellfish Sanitation Program (CSSP) was established to co-ordinate the efforts of federal government agencies concerning the standards for sanitary shellfish practices. The purpose of the CSSP is to ensure that bivalve molluscs are safe for human consumption. To achieve this, the CSSP:

- sets standards for the harvest and handling of all bivalves within Canadian tidal waters;
- commits, by way of the Agreement, to improve sanitary practices within the shellfish industry;

- designates the responsibilities of DFO, ECCC and CFIA to properly facilitate the mandate of the CSSP to Canadians and foreign governments; and
- strives to increase the efficiency and effectiveness of the CSSP by co-operation, communication, and participation.

The Pacific Region Interdepartmental Shellfish Committee (PRISC) meets biannually to discuss the recommendations that have arisen from water quality survey work conducted by Environment and Climate Change Canada.

More information is available at: https://www.inspection.gc.ca/preventive-controls/fish/cssp/eng/1563470078092/1563470123546

7.3.7 Ecosystem

DFO's objective is to use the Ecological Risk Assessment Framework drafted under the national Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas (Section 1.7) to determine the level of risk in these fisheries and whether mitigation measures are required in any areas. Ecosystem objectives may also arise with initiatives under the *Oceans Act*.

8 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*.

8.1 Commercial

The commercial fishery is limited entry, with seasonal and area closures and minimum size limits. In addition, a survey-based total allowable catch for butter clams has been instituted on Seal Island in Area 14. See Appendix 1.

8.2 Recreational

When open, and with the exception of Pacific Rim National Park, the recreational daily limit for all clam species combined has been reduced to 60 per day in PFMAs 1 to 27. Species-specific daily limits are included within the 60 clam aggregate limit; daily limits by species are: 3 geoducks, 6 horse clams, 12 razor clams (except in PFMA 1-5 where the daily limit is 50 razor clams), 20 butter clams, 25 softshell clams, 25 cockles, 60 varnish clams, 60 Manila clams, and/or 60 littleneck clams (see Appendix 3 for more information). Possession limits are two-times the daily limit. There is a required minimum size limit of 35mm for Littleneck and Manila clams and 55mm for Butter clams.

There are several non-commercial harvest areas throughout the coast. These areas are open for First Nations food, social and ceremonial purposes, and recreational harvesting only. Descriptions of these areas are provided in the Commercial Harvest Plan, Appendix 1.

In addition to current North Coast opportunities, DFO, the SFAB, and First Nations are discussing options for an expanded North Coast shellfish sanitation sampling program that will facilitate, where practical, additional harvest opportunities.

8.3 First Nations

To date, subject to biotoxin or sanitary closures, few limits have been placed on First Nations' harvest of any intertidal bivalve species for food, social and ceremonial purposes. Some communal licences are issued which provide for a maximum daily quota of 50-100 lb. per day per person. The Chief and Council may authorize additional catch where required. There are several non-commercial harvest areas throughout the coast. These areas are open for First Nations and recreational harvesting only. These areas can be found in the CHP, Appendix 1.

First Nations who have beaches adjacent to reserves with clam resources can enter into an agreement with DFO for the purpose of a Communal Commercial Harvest Strategy. These communal commercial harvests may occur where there is a viable clam beach adjacent to the reserve that meets requirements for safe harvest under the Canadian Shellfish Sanitation Program. Stock assessment must be carried out prior to a commercial harvest. The guidelines for stock assessment are the same as for the decontamination fishery without the need for a decontamination plan. See Appendix 4.

8.4 Decontamination Fishery

Access to bivalve shellfish in sanitary contamination closures is managed under the *Management of Contaminated Fisheries Regulations* and according to the Decontamination Harvest Plan (Appendix 4).

8.5 Aquaculture

Aquaculture tenure holders may access wild stocks for broodstock purposes through protocols defined in the DFO policy, *Access To Wild Aquatic Resources As It Applies To Aquaculture, May 2004*.

The collection of broodstock for aquaculture purposes is facilitated through a collection licence from DFO Fisheries Management and a licence from the Introductions and Transfers Committee.

Applications for an Introductions and Transfers Licence must be made to the Introductions and Transfers Committee at itc@dfo-mpo.gc.ca. Further information and application forms can be found at the website: http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html.

Licensed aquaculture facilities are considered private property. Under the *Fisheries Act*, harvesting within an aquaculture facility already under a federal licence (PAR aquaculture licence) is prohibited. The Department recommends that commercial harvesters familiarize themselves with the location of aquaculture tenures in fishing areas. As per the conditions of licence, all subtidal and intertidal aquaculture boundaries shall be marked clearly.

8.6 Experimental, Scientific, Educational or Public Display

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

8.7 Requests for Access

Occasionally, DFO receives requests from First Nations to improve access to shellfish for FSC purposes. First Nations interested in bilateral discussion with DFO regarding FSC access issues should contact the resource manager for their area.

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

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

9 MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

See the Commercial, Recreational, First Nations and Decontamination Harvest Plans, Appendices 1 to 4, for detail on the following:

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

10 SHARED STEWARDSHIP ARRANGEMENTS

10.1 Commercial Fishery - Community Management Boards

The Department continues to support the development of licence area committees and provide opportunity for increased shared decision-making.

In the past, the department has worked with committee and board members from Clam Management Areas C, E, F, and G. Currently, First Nations in Area F are working towards implementing a WCVI community management committee and the department will continue to work with Clam Management Areas C, E, and G on a clam committee basis.

10.2 Treaty Fisheries

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

More information on the Treaties can be found at: https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html

10.3 Decontamination Fishery

Access to vacant, marginally contaminated, crown foreshore requires survey of the biomass of clams. The company who has been awarded the opportunity to harvest clams from the marginally contaminated site conducts the survey at their expense and DFO reviews the results. DFO applies a sustainable harvest rate, and sets an annual quota. The contaminated clams may be depurated or relayed. See Appendix 4 for details.

11 COMPLIANCE PLAN

11.1 Overview

The Conservation and Protection Directorate (C&P) is responsible for delivering the Department's enforcement and compliance program https://www.dfo-mpo.gc.ca/fisheries-peches/enf-loi/index-eng.html. There are approximately 161 Fishery Officers stationed in the Pacific Region which encompasses British Columbia and Yukon. They are designated as "fishery officers" under Section 5 of the *Fisheries Act* and have full enforcement powers and responsibilities outlined in the *Fisheries Act*, *Coastal Fisheries Protection Act*, *Oceans Act*, and *Species at Risk* Act. Fishery Officers are also designated as peace officers under Section 2 of the *Criminal Code of Canada*.

Some First Nations employ First Nations Guardians or Watchmen to monitor First Nations food, social and ceremonial fisheries. Some of the Guardians or Watchmen may be designated as Fishery Guardians pursuant to the *Fisheries Act*. They might also carry out activities including stock assessment, catch monitoring, and reporting activities harmful to fish or fish habitat. Enforcement Protocols between C&P and First Nations may be negotiated individually with each First Nation.

Many of the most productive clam beaches are in contaminated areas. The clam fishery is considered a high priority for C&P to ensure public health and safety by preventing domestic and international consumption. Harvesting of contaminated clams is only permitted under very strict harvest plans as set out under the authority of the *Management of Contaminated Fisheries Regulations* and the *Food Inspection Act*.

11.2 Main Program Activities

11.2.1 Consultation

Liaison between C&P and Resource Management is on-going throughout the season. Conservation and Protection will review conditions of licence and propose changes as needed to the Fishery Manager.

11.2.2 Posting and Patrol of Contaminated Beaches

The posting and patrol of contaminated beaches is a requirement under the Canadian Shellfish Sanitation Program (CSSP) http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/index-eng.html. Permanently installed metal signs are used to mark contaminated beaches and to notify the public

of fishery closures. Due to large size of some closures it is difficult to mark all access points. Signs are also subject to vandalism and theft. It is important that fishers realize they cannot rely on seeing a sign to determine if the area is closed. Descriptions of all contaminated areas and closures can be located on our website at http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/sani/index-eng.html.

11.2.3 Posting, Notification and Patrol of Paralytic Shellfish Closures

Closures due to Paralytic Shellfish Poisoning (PSP) are frequent and often encompass large areas. These closures can occur on very short notice. In many cases, closure signs cannot be posted in all areas quickly or are vandalized. Fishers need to check our website for the latest closure information http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/psp-eng.html.

Officers remind the public that they must "Check before you harvest". Phone numbers and website address are provided on the notices for current information. In addition, in the event of any PSP closure, DFO staff will continue to provide public notices to local media, post signs and notify stakeholders.

11.2.4 Patrol of First Nations Food, Social and Ceremonial Fisheries

First Nations harvest clams under the authority of a communal licence issued under the *Aboriginal Communal Fishing Licences Regulations* or, under treaty, a harvest document. Harvest restrictions vary between groups requiring Fishery Officers to be aware of local area variations. Clams harvested under a communal licence or harvest document cannot be sold.

11.2.5 Patrol of Recreational Fisheries

Sport fishers are required to have a licence and comply with all provisions of that licence. Recreational effort on beaches in the south coast is high, particularly during the tourist season. Fishery Officers conduct patrols of the recreational fisheries as often as possible. Sport fishing information can be found on our website https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html.

Clams harvested under the authority of a recreational licence cannot be sold. It is common to find recreational harvesters digging alongside of commercial diggers. This can present a challenge to Fishery Officers in ensuring compliance with sport fish licence provisions. The introduction of the high visibility vest as a condition of licence in the commercial fishery has reduced this problem considerably.

11.2.6 Patrol of Commercial Fisheries

Patrols of contaminated beaches prior to and during the open commercial fishery are done to prevent contaminated product from entering the market. Fishery Officers are very concerned with clams entering the commercial fishery and aquaculture leases that are not legally harvested. We request the public's help to report any violations to our toll free reporting line at 1 800 465-4336. When reporting violations, the public should pay particular attention to the date, time, location, number of people and any identifying markings such as vehicle and vessel numbers so Fishery Officers can investigate and stop illegal harvesting.

Patrol of open areas during commercial fishing times ensure that:

a) Harvesters are licensed for that area.
b) Harvesters are wearing hi-visibility vest with licence number.
c) Clams are of legal size.

11.2.7 Investigation of Illegal Sales

The sale of illegally harvested clams such as those harvested outside of commercial fishing times or from contaminated areas, continues to be a problem. Direct sales of illegally harvested product to the public poses a risk to public health and safety and jeopardizes market access. C&P often relies on the public to report violations to augment their patrols and investigations. Fishery Officers may conduct plain clothes patrols to investigate illegal harvest and sales.

11.2.8 Patrol of Licensed Decontamination Fisheries

Patrols of contaminated beaches where decontamination harvests take place are conducted to ensure that conditions of licence and monitoring controls are complied with.

11.2.9 Patrol of Aquaculture Lease Boundaries

Identification of lease boundaries and where authorized aquaculture activities can take place is complicated but Fishery Officers patrol leases and clam fisheries as priorities allow. Aquaculture activities are licensed under the *Pacific Aquaculture Regulations* which differ from commercial, aboriginal and recreation licence conditions.

11.3 Enforcement Issues and Strategies

Issue	**Enforcement task**	**Method**
Prevent harvest of clams from contaminated beaches	Advertise closed areas and increase public awareness	• Posting signs and notices. • Distribution of sport guides which describe closures, regulations and dangers of eating contaminated clams. • Issue media releases of new closures, dangers and enforcement actions. • Encourage ORR calls through personal contact and media releases.
	Enforce closed areas	• Patrol by foot, tracking dog, vehicle, boat and aircraft. • Issue media releases of apprehensions. • Covert surveillance of beaches.
Prevent unauthorized sale of clams from contaminated areas.	Awareness	• Inspections of plants, retail stores and restaurants and educate staff. • Media releases of successful prosecutions. • Encourage ORR calls through personal contact and media releases.

Issue	Enforcement task	Method
	Investigations of suspected violators	• Surveillance, apprehensions, seizures, warrants. • Undercover operations.
	Patrol licensed decontamination digs	• Check compliance with all conditions of licence. • Investigation and surveillance of sale from decontamination digs to ensure all product from designated site.

Prevent sale of clams not lawfully caught under a commercial licence	Patrol closed time	• Patrol prior to commercial fishery opening.
		• Check fishers during open commercial fishery to check:
		  • area licence and valid Fishers Registration Card;
		  • wearing high visibility vest with licence number;
		  • all sacks marked with licence number before leaving the beach; and
		  • tags attached as per conditions of licence.

Ensure conservation by preventing undersize from being sold	Check commercial product for sizes	• Check fishermen on the beach during harvest times. • Check size of clams at the buy site/plant. • Inspection of vessels and vehicles believed to be carrying clams from commercial sale.

12 2022-23 PERFORMANCE REVIEW

12.1 Conservation and Sustainability

An evaluation of improvements to the fishery monitoring and catch reporting mechanisms for all sectors will be conducted.

Catch and effort data from the fishery will be consolidated and reviewed within the context of examining potential effects on stock structure and status.

12.2 Commercial Fishery

The delivery of the commercial fishery will be assessed by performance measures including the number of days fished, landed value compared to previous years, input from representatives at Clam Sectoral Committee meetings and other DFO program measures and assessments.

First Nations presently holding communal commercial licence eligibilities will be invited to comment on their experience and satisfaction within the commercial clam fishery.

12.3 Recreational Fishery

Interactions with the recreational fishing representatives of the SFAB, their recommendations and action taken in response by DFO will be described.

12.4 First Nations Fishery

The evaluation will include the number of meetings with First Nations and results or actions resulting from the meetings.

13 POST-SEASON REVIEW

13.1 Commercial Fishery by Clam Management Area

The South Coast commercial clam fishery occurred in Clam Management Areas B through G. The majority of the effort was for Manila clams with the exception of Area G where the effort was for butter clams.

In 2020, the fisheries in all Clam Management Areas were impacted by the Covid-19 pandemic. The global public health crisis and resulting lockdowns caused community closures across the coast and lead to reduced markets for clams. There were fewer openings and as a consequence, all areas saw reduced landings.

13.1.1 Area B Johnstone Strait (Pacific Fishery Management Area (PFMA) 13 and portions of PFMA 15)

This area averages 17 tides per year with a harvest that falls between 110,000 pounds and 150,000 pounds. Preferred harvest seems to be where the seasonal closures are. Crews move to places such as Hyacinth Bay around the bottom of Cortez near Mary Point and other pocket beaches. They move back to Van Donup Bay and Drew harbour when the areas re-open in the fall or prior to closing in the spring.

13.1.2 Area C (Portions of PFMA 15 and 16 and Savary Island)

Area C averages 17 tides harvested annually and the Savary Island portion of Area C averages 6 tides per year. Savary is averaging around 60,000 pound per year whereas Area C has averaged around 150,000 pounds per year. Anecdotal information suggests that some of the previously hardened beaches on Savary Island have rebounded. Also, some of the historically popular beaches in Area 15 continue to see less activity. On the other hand, high-use beaches visited by tourists and recreational harvesters are an ongoing concern for local First Nations. DFO continues to work with local First Nations and conducts clam surveys to monitor high-use areas. Educational pamphlets have been circulated and signs regarding management restrictions are posted in an effort to inform the public.

DFO intends to continue meeting with the Area C clam committee each year for the purpose of fishery planning.

13.1.3 Area D Upper Strait of Georgia (Portions of PFMA 14 and 16)

An average of 10 tides annually has been harvested in this area over the last few years. The average catch for this area is around 130,000 pounds. This is a summer fishery only and it works well due to the proximity of the buyer to the beaches harvested. During the warmer days the clams are quickly bought and returned to the water for wet storage or sold immediately. Area D works around smaller beaches in Area 14 and limited days on Lasqueti Island. Recent information suggests there has been a surge in clam populations in this area.

Area D also harvests butter clams from Seal Island. A total allowable catch of no more than 30,000 lbs was allocated for commercial harvest after the 2019 survey. The next survey is planned for 2022 and a new quota will be set.

13.1.4 Area E Lower Strait of Georgia (Portions of PFMA 17, 18, 29-4 & 29-5)

This area has been averaging about 12 tides per year in the last couple of years. Area E has averaged 100,000 pounds per year in the last few years. Area E used to produce more clams in one night than any other area. One tide at a time in this area was typically what the market could handle. The number of tides harvested in the last three years have increased. DFO has extended the season for Area E into the spring to enable daylight fishery openings. The year-round unauthorized commercial fishery continues to have an impact on productivity, directly affecting the licensed harvesters.

There was an Area E advisory committee established in the spring of 2015. DFO and the committee will continue to work together on the planning and issues in this fishery.

13.1.5 Area F West Coast Vancouver Island (PFMA 23 to 27)

This area, which has been the largest producer of clams in the last decade, has seen a huge decline in clam production. Area 24 is the one area on the WCVI which has been consistently harvested. The average harvest for this area is around 60,000 pounds per year with an average of 15 tides harvested per year. Areas 25, 26 and 27 have seen an influx of sea otters in recent years. The impact of sea otter predation appears to have a cyclical effect on clam stocks in these areas. Sea otters will target an area for a year or two, then move on when the stocks decline, allowing clams to rebound until otters return to the area. Area 26 has had reports of large numbers of surf scoters on the beaches. Inconsistent biotoxin sampling in various subareas of Area F has created some challenges in maintaining consistent opening schedules. There have been requests to sample more areas so effort can be spread out.

There was a Community Management Board for the WCVI; however, the Board has not met in the last few of years due to waning interest in the fishery. DFO intends to work with West Coast First Nations to re-establish an Area F clam management team who will work towards developing a WCVI clam management plan that reflects the values and fishery style of the First Nations.

13.1.6 Area G Queen Charlotte Sound (Portions of PMFA 12)

This fishery targets butter clams only at this time. Most of the commercial effort had been from the First Nations in the area. A small amount of commercial clam licences are utilized in this

fishery. The fishery is opened up on longer tide cycles from 6 to 8 days with an average of 55 to 65 total tides harvested per year. The Area G clam committee was established in 2012 and met each year until 2018; however, it hasn't met in the last few years.

The majority of the effort takes place around Gilford, Burdwood, and Turnour Islands (Subareas 12-22, 12-23, 12-26 and 12-39). Subarea 12-39, the largest area, has had high PSP levels over the last few years in one pocket area and, due to this, the area was not able to be opened up for any type of harvest. In 2015, Subarea 12-39 was split for the purpose of biotoxin sampling and that portion which has met the biotoxin sampling requirements will be available for some harvesting. Inability to get samples around Drury Inlet has meant that the area has not been harvested for many years. The geographical size of the area should be able to accommodate more harvest of butter clams, but the difficulty in find a vessel to transport crews to fishery locations has meant reduced effort in this fishery.

13.2 First Nations Fishery

Catch information is collected by some First Nations, by fisheries program personnel or by Band administration offices. The information shares the number of pounds of shellfish harvested by species to DFO every three months. DFO is working on initiatives to receive, store and manage shellfish FSC harvest information. Some catch data have been collected under Aboriginal Fisheries Strategy (AFS) agreements.

13.3 Recreational Fishery

The recreational fishery continues to be managed by daily catch and size limit. The overall effort is believed to be low for clams in this fishery except in some higher population areas where access is easy, which has recently been referred to as 'high-use beaches'. DFO has implemented a minimum size limit for Manila and littleneck clams of 35mm and 55mm minimum size limit for butter clams. When open, and with the exception of Pacific Rim National Park, the recreational daily limit for all clam species combined has been reduced to 60 per day in PFMAs 1 to 27. Species-specific daily limits are included within the 60 clam aggregate limit; daily limits by species are: 20 butter clams, 60 Manila clams, and/or 60 littleneck clams (see Appendix 3 for more information). Possession limits are two-times the daily limit.

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15 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.
abundance	Number of individuals in a stock or a population.
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.
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 *Pacific Fishery Management Area Regulations*. A map of Pacific Fishery Management Areas is available on the DFO Internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
ATP	Allocation Transfer Program - 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.
BTI	Bivalve Traceability Initiative – Initiative undertaken by DFO Aquaculture, Conservation and Protection and Fisheries Management to improve the traceability of Pacific shellfish.
C&P	Fisheries & Oceans Canada, Conservation and Protection.
CSAP	Centre for Science Advice - Pacific (formerly, Pacific Scientific Advice Review Committee), chaired by DFO and including other federal and provincial government agency representatives and external participants (formerly PSARC Pacific Scientific Advice Review Committee).
Clam Licence Modernization	2021 Department initiative to improve access to the commercial clam fishery which includes the introduction of licence nomination for Z2 licences and the change of authority of the Z2 Aboriginal Commercial Licences from the *Pacific Fishery Regulations* to the *Aboriginal Communal Fishing Licences Regulations.*
Clam Reform	1998 Department policy to rationalize the clam fishery including licence limitation, local area management initiatives, and First Nation opportunities.
communal commercial licence	Issued to First Nation organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the commercial fishery.
communal licence	Issued to First Nation's organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* 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.
Depuration	A process of using a controlled aquatic environment to reduce the level of bacteria in live shellfish by allowing the shellfish to metabolize and excrete contamination (depurate).
DFO	Fisheries & Oceans Canada.

Domoic Acid Poisoning	A marine biotoxin sometimes found in bivalves. Also referred to as ASP or Amnesic Shellfish Poisoning.
DSP	Diarrhetic Shellfish Poisoning. A marine biotoxin sometimes found in bivalves.
ECCC	Environment and Climate Change Canada
Food, Social and Ceremonial (FSC)	A fishery conducted by First Nations for food, social and ceremonial purposes.
Harvest document	Issued to a First Nation pursuant to the *Aboriginal Communal Fishing Licences Regulations* in respect of a First Nation's fishing right defined under treaty to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
IFMP	Integrated Fishery Management Plan
Indigenous Knowledge	There is no universal definition of Indigenous knowledge, and the composition of Indigenous knowledge is for Indigenous peoples to determine. Indigenous knowledge is intricately tied to Indigenous worldviews and ways of life, rather than knowledge in a western sense. 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 *Fisheries Act*.
Invertebrate	An animal without a backbone.
landed value	Value of the product when landed by a licensed harvester.
landings	Quantity of a species caught and landed.
larvae	The stage of development between egg and juvenile.
Licence nomination	Requires the licence eligibility holder to submit a notarized nomination form that indicates they have no further intention to apply for the eligibility of the licence and request to establish eligibility of a newly nominated individual.
Marine Biotoxins	Poisonous compounds accumulated by shellfish feeding upon toxin containing dinoflagellates and marine diatoms.
mortality	Relating to cause of dying; death.

PSP	Paralytic Shellfish Poisoning. A toxic plankton that is ingested and concentrated by bivalave mollascs, commonly known as "red tide".
Quota	Total Allowable Catch. For certain aspects of the clam fishery, an annual quota refers to the total allowable catch determined from a biomass survey or other stock assessment information.
Relay	The transfer of shellfish from marginally contaminated areas to approved areas for natural biological cleansing using the ambient environment.
Stock Assessment	Analyses of fisheries and research data used to estimate stock abundance and health, or evaluate the effects of fishing on a stock or population and 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.
TAC	Total allowable catch. The amount of catch which may be taken from a stock, determined by analytical procedures, to achieve management objectives.
Stakeholder	All people with an interest in the clam resource, such as recreational and commercial harvesters, processors, non-consumptive users.
tonne (t)	Metric tonne, which is 1000 kg or 2204.6 lbs.

Internet Sites

Pacific Region Area and Subarea maps:

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

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

https://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=fishery_search&ID=commercial

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

https://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=fishery_search&ID=recreational

Pacific Region, Recreational Fisheries information web site:

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

Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice and Review Committee (PSARC)) research documents, proceedings and Invertebrate stock status reports, including clams and depuration fisheries.

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

16 CONTACTS

Observe, Record and Report (Enforcement Line)		(800) 465-4336
Fisheries Information and Shellfish Contamination Closure Update (24 Hours)		(866) 431-3474
	or (for Greater Vancouver)	(604) 666-2828
Fisheries Management		
Regional Resource Manager - Invertebrates	Lisa Mijacika	(604) 666-3869
Regional Recreational Fisheries Co-ordinator	Greg Hornby	(604) 666-3271
Lead Fishery Manager, Intertidal Clams	Brittany Myhal	(250) 739-9217
Acting Fishery Manager, Intertidal Clams	Jenny Smith	(236) 330-2963
North Coast Area, Areas 1 through 10	General Inquiries	(250) 627-3499
417 2nd Avenue West, Prince Rupert, B.C. V8J 1G8	Fax	(250) 627-3427
Resource Management Biologist - Shellfish	Coral Cargill	(250) 627-3021
Resource Manager - First Nations Fisheries	Coral Cargill	(250) 627-3021
Resource Manager - Recreational Fisheries	Darren Chow	(250) 627-3441
South Coast Area, Areas 11 to 27	General Inquiries	(250) 756-7270
3225 Stephenson Point Road, Nanaimo, B.C. V9T 1K3	Fax	(250) 756-7162
Resource Manager – Canadian Shellfish Sanitation Program Coordinator	Elysha Gordon	(250) 756-7192
Resource Manager - First Nations Fisheries (North East VI)	Kent Spencer	(250) 268-5885
Resource Manager - First Nations Fisheries (South East VI)	Gerry Kelly	(250) 756-7122
Resource Manager - First Nations Fisheries (West Coast VI)	Kevin Conley	(250) 756-7196
Resource Manager – Decontamination Fisheries	Dan Clark	(250) 756-7327
Lower Fraser Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway, Delta, B.C. V3M 6A2	Fax	(604) 666-7112
Resource Management Biologist - Shellfish	Hong Tjhie	(236) 330-3240
Resource Manager - First Nations Fisheries	Brian Matts	(604) 916-4867
Science		
Pacific Biological Station		
Hammond Bay Road, Nanaimo, B.C. V9T 6N7		
Species Program Head	Dominique Bureau	(250) 756-7114
Species Biologist	Alex Dalton	

Program Head, Shellfish Data Unit	Rob Flemming	PACSDU@dfo-mpo.gc.ca
Aquatic Invasive Species Coordinator	Renny Talbot	(250) 756-7180

Conservation and Protection

Suite 304 - 60 Front Street, Nanaimo BC V9R 5H7	Monte Bromley	(250) 674-1241

Commercial Licensing

Pacific Fishery Licence Unit (By appointment only)		Email: fishing-peche@dfo-mpo.gc.ca
200-401 Burrard Street Vancouver, B.C. V6C 3S4		Toll-Free: 1-877-535-7307
Pacific Fishery Licence Unit		(250) 627-3413
417 2nd Avenue West Prince Rupert, B.C. V8J 1G8		
Pacific Fishery Licence Unit		(250) 754-0400
60 Front Street, Nanaimo, B.C. V9R 5H7		

Aquaculture Resource Management

General Inquiries Shellfish Aquaculture
Email: Shellfish.Aquaculture@dfo-mpo.gc.ca

Regional Manager	Reagan Newcomb	(778) 268-2854
Senior Shellfish Coordinator	Gabrielle Kosmider	(250) 754-0404
Senior Compliance Program Officer, C&P	Greg Plummer	(250) 286-5815

Environment and Climate Change Canada

Growing Water Quality Classification and Surveys		(604) 903-4475

Canadian Food Inspection Agency

Pacific Shellfish Operations		(604) 666-3737

Province of British Columbia Ministry of Environment and Climate Change Strategy

Oceans and Marine Fisheries Branch, Director	Bob Williams	(250) 953-3422
Marine Fisheries Management Division	Darah Gibson	(604) 893-0260

WorkSafe BC

Occupational Safety Officer, Courtenay	Cody King	(250) 334-8733
Occupational Safety Officer, Victoria	Jessie Kunce	(250) 881-3461
Occupational Safety Officer, Richmond	Bruce Logan	(604) 244-6477
Focus Sector Manager for Marine, Courtenay	Pat Olsen	(250) 334-8777
	toll free 1 888 621-7233	(ext. 8777)
Projects related to commercial fishing contact:	Lisa Houle	(604) 214-6922
	toll free 1 888 621-7233	(ext. 6922)

17 CONSULTATION

A consultative process exists for the Intertidal clam fishery and is a major part of the planning for the fishery. The primary consultative body for intertidal clams is the Clam Sectoral Committee.

This committee includes representatives from Fisheries and Oceans Canada, commercial licence holders, processors, First Nations, BC Ministry of Agriculture and Lands, and recreational harvesters.

The Sectoral Committee meets annually in the fall to review and provide advice to the Department regarding management issues pertaining to the fishery and on the proposed IFMP. The Sectoral Committee and Research Subcommittee terms of reference and meeting calendar are available from the Resource Managers listed in Contacts.

Area Committees for each commercial licence area discuss the observations, opinions and desires of the area.

The IFMP incorporates new science advice and all practical advice and is made available to all interested parties:, First Nations, recreational organizations, DFO (Science Branch, Conservation and Protection, Commercial Licensing, the Oceans Directorate, the Aquaculture Division, Treaty and Aboriginal Policy Directorate, Policy Branch), other Federal agencies such as CFIA, ECCC and the Province (Ministry of Agriculture, Food and Fisheries or MAFF) for review and comment.

Community Management Board and Area Contacts

Ahousaht Fisheries Corporation	Marion Campbell	(250) 670 2338
A-Tlegay Fisheries Society	Kim Duncan	(250) 287 8868
Huu-ay-aht First Nation	Larry Johnson	(250) 728 3414
Lyackson First Nation / Qum'ul	Warren Johnny	(250) 210 1738
Namgis First Nation	Darwin Weber	(250) 974 5556
	Brian Wadhams	
Nuu-chah-nulth Tribal Council	Jim Lane	(250) 724 5757
Seaplus Marketing	Ian Leitch	(604) 273 6686
Sport Fishing Advisory Board	Pat Ahern	patahern@shaw.ca
Tsartlip Nation	Chief Don Tom	(250) 652 3988
	Simon Smith Jr.	
	Karen Harry	
Tsawout Nation and Senćoṯen Alliance	Richard Underwood	(250) 652 9101
	Chrissy Chen	
Tsawataineuk First Nation (Kingcome Inlet)	Mellissa Willie	(250)-974-2913
Industry Representative	Gordy McLellan	(250) 335 2233
Industry Representative	David Nikleva	(250) 935 6607

APPENDIX 1: 2022-23 INTERTIDAL CLAM COMMERCIAL HARVEST PLAN

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1. COMMERCIAL HARVEST PLAN HIGHLIGHTS FOR 2022-2023

1.1. Timing of the Integrated Fisheries Management Plan

The length of the IFMP has temporarily changed from a three-year IFMP to a 14-month IFMP, expiring February 28, 2023. The next IFMP will return to a three-year renewal period, starting on March 1, 2023. This will allow for a change to the timeline of licence issuance. New licences issued after the 2022-23 season will be issued for one year, for a new renewal period starting March 1, 2023. This will alleviate the licensing issues seen in the past with renewal occurring over the winter holidays and being due January 1.

1.2. Clam Licence Modernization

DFO has consulted with First Nations and commercial clam licence holders regarding Clam Licence Modernization, and particular, changing the authority of the Z2ACL and considering the nomination of the Z2 commercial clam licences. The Department is moving forward with Clam Licence Modernization and will be implementing both aspects commencing January 1, 2022. In addition, as part of the consultation, a request was made by First Nations to allow the Z2 licences to be nominated to a Nation as a Z2ACL. To adequately address this interest, DFO will undertake a licensing review throughout 2022 and any changes will be considered for implementation in 2023. See Section 5.6.

1.3. Requirements for Legal Sourcing and Harvest of Bivalve Shellfish

DFO is reviewing all commercial management measures and controls related to conservation, the effective delivery of the Canadian Shellfish Sanitation Program (CSSP) and the protection of public health, and priority for Food, Social and Ceremonial fisheries. Harvesters are reminded that when harvesting clams for commercial purposes, they are doing so in areas that are classified as Approved by the CSSP, as per the *Safe Food for Canadians Regulations*, and are in those areas which are open for commercial harvest. See Section 4.4.

1.4. Amendments to Tagging of Product Requirements

Waterproof tags are required for all containers of clams harvested in the fishery. An example tag is provided at the end of this document. Additional information requirements will be included in the 2022-23 conditions of licence. See Section 7.4.

1.5. Logbooks

DFO will be consulting with industry and First Nations over the 2022-23 year for the purpose of implementing harvester reported logbooks in addition to fish slips. These could be submitted in the form of paper logbooks, electronically using an app on a smartphone or tablet, or through a service provider. The Department will consult with harvesters on the options to come up with a viable solution. Implementation is expected after 2023.

1.6. Non-Commercial Access Areas

DFO is working with IMAWG to update the descriptions and create maps for the non-commercial access areas. Upon completion, DFO will include these maps in Appendix 5 of the IFMP. See Section 4 for current descriptions of closures.

1.7. High-Use Beaches

Due to easy road access and/or proximity to local communities, several beaches around the South Coast receive higher than average numbers of First Nations, commercial, and recreational harvesters. These high-use harvest sites may be reviewed in-season and, in some cases, may not be included in all commercial harvest openings. This will continue in the 2022-23 year. See Section 3.2.

1.8. Closed Area or Closed Times

Harvesters must ensure that an area is open prior to fishing. Changes to opening status may also happen on short notice. Check before you dig. For information on the location of sanitary shellfish closures please check with the nearest Fisheries and Oceans Canada (DFO) office or refer to the Shellfish Contamination page on the Department Internet site at: http://www.pac.dfo-mpo.gc.ca/fm-gp/contamination/index-eng.html

Harvesters are advised to observe the boundaries of any intertidal tenures. Harvesting on any tenures is prohibited.

Several First Nation, Treaty and Recreational closures are identified in this Commercial Harvest Plan (CHP). These beaches are not available for commercial harvest See Section 4.

1.9. Wet Storage of Commercially Harvested Clams

As of January 2019, DFO Aquaculture Management is the lead authorizing agent for wet storage activities. Conditions of licence have been amended to reflect new approval requirements for wet storage of product. Harvesters are reminded that commercially harvested shellfish cannot be left on wild beaches unattended without wet storage permits. See Section 7.3.

Clams harvested during a commercial fishery on the East Coast Vancouver Island (ECVI) may be wet stored at approved sites on the ECVI. Clams harvested on the West Coast Vancouver Island (WCVI) may not be wet stored on the ECVI. See Section 2.7.

2. MANAGEMENT MEASURES

2.1. Species

Razor clams (*Siliqua patula*)
Butter clams (*Saxidomus gigantea*)
Littleneck clams (*Protothaca staminea*)
Manila clams (*Venerupis philippinarum*)
Varnish clams (*Nuttallia obscurata*) (see Section 3.4)

2.2. Size Limits

No person shall take clams that measure less than the following, as measured in a straight line through the greatest breadth of the shell (see Figure 7 of Appendix 5):

a) Littlenecks: 38 mm.
b) Butter: 63 mm.
c) Manila: 38 mm.
d) Razor: 90 mm.

2.3. Area Licensing

Clam licensing and seven Clam Management Areas (CMA) were introduced in 1989. Harvesters may be licensed for one area in a year.

CMA	Description[1]	Details
A	Queen Charlotte Islands (Haida Gwaii)	Subarea 1-5 razor clams only (North Coast).
B	Johnstone Strait	Area 13 and all intertidal zones surrounding Cortes Island and Twin Islands in Subareas 15-3 and 15-5.
C	Sunshine Coast	Area 15, except intertidal zones surrounding Cortes Island and Twin Islands, Area 16, except Subareas 16-19 and 16-20, Area 28 and Subarea 29-1(Sunshine Coast).
D	Upper Strait of Georgia	Area 14 and Subareas 16-19 and 16-20.
E	Lower Strait of Georgia	Areas 17, 18, 19, 20 and Subareas 29-4 and 29-5.
F	West Coast of Vancouver Island	Areas 23 to 27.
G	Queen Charlotte Sound	Area 11 and 12.

[1]For maps of the areas, see Figures 1 to 6 in Appendix 5 of the IFMP.

2.4. Gear

Hand picking or hand digging.

2.5. Identification of Harvesters

As a Condition of Licence, all licence eligibility holders are required to wear a "high visibility vest" (similar to the safety vests worn by highways workers) while engaged in clam harvesting. These vests are available at safety supply outlets in various locations. The licence number assigned to the harvester must be legibly printed on the front and back of the vest in letters at least 5 cm in height. This vest must be worn while participating in the commercial clam fishery, so that the licence number is visible from the front and back at all times. Only one licence number can appear on a vest.

2.6. Tagging of Product and Product Containers

All sacks or containers of clams must have a waterproof tag that identifies the following clearly written in water resistant ink:

a) Clam harvester's licence number;
b) Harvest date;
c) Licence holder's full name as it appears on the licence;
d) Beach or location where harvesting occurred (i.e. Sutil Point, Cortes Island);
e) Pacific Fisheries Management Area and Subarea (i.e. 15-3);
f) Clam Management Area (e.g. Area B); and
g) Species or common name of the product i.e. "Manila clam", "Littleneck clam", "Butter clam".

At the point of sale, the following information may be marked on the tag:
a) Buyer/Receiver Name

This tag must be attached to the sack or container before the sack or container is taken from the harvest site. Flagging tape is not considered an appropriate tag.

It is unacceptable to report a generalized location of harvest on tags (i.e. Sunshine Coast; or Cortes Island; or Barkley Sound). The specific location of harvest must be identified on each tag (i.e. Sutil Point, Cortes Island).

See Section 7.4 for an example tag.

2.7. Wet Storage

Clams harvested during a commercial fishery on the East Coast Vancouver Island (ECVI) may be wet stored at approved sites on the ECVI. Clams harvested on the West Coast Vancouver Island (WCVI) may not be wet stored on the ECVI. The Conditions of Licence under the *Pacific Aquaculture Regulations* (2010, section 11.23 (c)) restrict the wet storage of any bivalve, in an attempt to mitigate the transfer of invasive green crabs from the WCVI to the ECVI. Buyers who typically purchase clams from a wild fishery are having difficulty handling the amount of clams harvested from a given fishery opening. If the buyer receives more clams than he/she can sell immediately, the buyer has no way of keeping the clams fresh for a later sale. As a result, the buyers have become reluctant to buy clams from the WCVI.

DFO and the Area F Community Management Board (CMB) are recommending that harvesters work with the clam buyers for the purpose of planning market needs for any particular fishery opening. DFO and the CMB will continue consultations with the Area F stakeholders.

3. OPENINGS

3.1. Factors Regarding Openings

Prior to the fishing season, DFO works with the buyers, processors, community management boards, and local committees to set out a schedule for harvest dates. These dates are used as a guideline to the fishing season. There are a multitude of factors which may cause these dates to change with short notice. As a result, the dates are not posted as part of the Commercial Harvest Plan (CHP). Some of the considerations when determining a schedule include:

- tides,
- markets,
- expected management area harvester participation,
- timing of the harvest dates (it is preferred to harvest a the front end of a tide cycle rather than at the tail end of a tide cycle),
- time in-between harvest dates (in order to keep a fresh steady supply of clams into the markets there is an attempt to spread this fisheries out once per week).

Some of the issues which may result in a changed or cancelled harvest dates are:

- water quality such as PSP in a portion of an area,
- weather (freezing temperatures may cause mortalities on exposed clams),
- forecasted storms (although harvesters are expected to use common sense when making a decision to go on the water, DFO will attempt to not open fisheries when a storm is forecasted), and
- markets (if there are no buyers for the fishery DFO will not open the area for commercial harvest).

3.2. High-Use Beaches

Due to easy road access and/or proximity to local communities, several beaches around the South Coast receive higher than average numbers of First Nations, commercial, and recreational harvesters. These high-use harvest sites may be reviewed in-season, and in some cases may not be included in all commercial harvest openings. The Department wishes to ensure sustained harvested at these locations can continue into the future.

One of the locations being considered for possible commercial limitations is Myrtle Rocks in Clam Management Area C. This beach will be managed in-season and may be excluded from commercial clam opportunities.

Further changes to open times and harvest schedules may be determined in-season in consultation with area stakeholders.

DFO will work with IMAWG to develop criteria on what classifies a ‘high-use’ beach and determine an appropriate management approach.

3.3. Manila, Littleneck and Butter Clams

Specific fisheries in each area may be tailored to meet market demands or constraints. The fishing plans for each area will attempt follow the time frame identified below; however,

in-season adjustments may be necessary and fisheries may occur outside of that period. Proposed openings may vary subject to contamination, conservation, or other reasons in accordance with applicable fisheries regulations. Harvesters are reminded to check with local DFO offices to confirm opening times. Specific openings will be developed in consultation with licence holders and industry in each area.

Typically, entire Subareas open when biotoxin results are acceptable. However, in some areas of the South Coast where there is varying topography in one single Subarea, arrangements have been made with CFIA to open portions of a Subarea based on sampling station location and biotoxin results. Harvesters are reminded that when harvesting clams for commercial purposes, they are doing so in areas that are classified as Approved by the CSSP, as per the *Safe Food for Canadians Regulations,* and are in those areas which are open for commercial harvest.

Openings for butter clams are possible in areas where commercial harvests have occurred and historic catch information exists. This information will be in the historical fish slip data. You will need to contact the fishery manager for this information. As butter clams chronically retain high levels of PSP, openings in any area will be based on the results of PSP monitoring and will be announced in season after consultation with industry and First Nations and development of a harvest plan. All licensing restrictions and contaminated closures apply to this fishery.

3.3.1. Area D Seal Island Butter Clams

A quota is set out for the harvest of butter clams on Seal Island. The quota is a maximum of 40,000 pounds. 10,000 pounds is set aside for First Nations FSC use and the remaining quota will be available for commercial harvest. The quota will be a precautionary quota based on the survey which occurs on Seal Island every three years. In order to monitor landings in this fishery, processors who obtain butter clams from Seal Island are required to report landings immediately following a harvest to local Intertidal Clam Fishery Manager. Additional harvest opportunities may be considered subject to consultation and assessment. An Area D clam licence is required to harvest butter clams in this area.

The descriptions of the Licence Areas and openings below are a generalization. The specific openings within each Licence Area will be identified on a Fishery Notice prior to each opening.

Table 1: Overview of All Licence Area Openings

Area	Description	Summary of Openings
B	Johnstone Strait	Fishery to be split into spring and fall openings. Specific openings subject to consultation and fishing effort and may change accordingly. The northern portion of Area B is under a year-round biotoxin closure due to lack of a sampling program.

Area	Description	Summary of Openings
		Openings in the southern portion to take place April to July and August to December subject to biotoxin closures.
C	Sunshine Coast	Openings to be developed with local advisory group. Opening dates may occur during spring and fall. Savary Island is managed separately from the remainder of the area. There will be no commercial fishery on Savary Island in the months of July and August.
D	Upper Strait of Georgia	Fishery possible from May through August. Specific openings subject to consultation and fishing effort.
E	Lower Strait of Georgia	The bulk of the Area E fishery will occur early spring, late fall and winter. Specific openings subject to consultation and fishing effort.
F	West Coast of Vancouver Island	Two to four consecutive day openings will occur early spring, late fall and winter. Specific openings subject to consultation and fishing effort.
G	Queen Charlotte Sound	Fishery opens on tide cycles in January to May and October to December. Subject to consultation and fishing effort.

Tables 2 through 7 detail the openings planned with commercial harvesters by Licence Area and location for 2022-23. Openings may be adjusted in-season to meet environmental conditions or market demands. See Fishery Notices for more information.

Table 2: Area B Planned Openings

Location of Fishery	Opening Date
Northern portion: Subareas 13-18 and 13-20	Closed due to a lack of biotoxin monitoring.
Remainder of Area 13 and portions of Subareas 15-3 and 15-5 (Cortes and Twin Islands)	Openings are generally from April through July and August through to December. Specific openings subject to consultation and fishing effort.

Table 3: Area C Planned Openings

Location of Fishery	Opening Date
Areas 15 and 16 excluding Cortes Island, Twin Islands and Lasqueti Island Subareas 16-19 and 16-20 and Subarea 29-1	Generally spring and/or fall openings, but subject to consultations and market demands.
Subarea 15-2: Savary Island.	Proposed spring and/or fall openings, but subject to consultations an market demands. Savary is not fished in the months of July and August.
Area 28.	Closed for conservation and contamination.

Table 4: Area D Planned Openings

Location of Fishery	Opening Date
Upper Strait of Georgia: Subareas 14-3, 14-5, 14-7 to 14-13, 14-15 16-19 and 16-20 (Baynes Sound, Denman, Hornby, and Lasqueti Islands).	Proposed openings May through August. Specific openings subject to consultation with industry. The number of openings in Area D may be decreased as a result of additional clam ground under tenure in Baynes Sound and Lasqueti Island

Table 5: Area E Planned Openings

Location of Fishery	Opening Date
Lower Strait of Georgia: Subareas 17-1 to 17-6, 17-8 to 17-10, 17-12, 17-13, 17-15 to 17-20, 18-1 to 18-7, 18-9 to 18-11, 29-4, and 29-5.	Openings are possible throughout the year but will try to focus on daylight tides. Generally commence in January or February and again in November and/or December. Openings will be opportunistic and highly dependent on annual recruitment.
Areas 19 and 20.	Closed due to conservation and contamination.

Table 6: Area F Planned Openings

Location of Fishery	Opening Date
Areas 23, 24, 25, 26	Openings of two to four days duration in January through April and in December on tide cycles[1], subject to paralytic shellfish poisoning (PSP). All openings subject to prior consultation with the Area F Clam Management Board.

Location of Fishery	Opening Date
Area 27	Openings in all or part of Area 27 may be conducted in conjunction with the remainder of the Area F fishery. There are issues with Olympia oyster beds in Area 27[2]. Consultation with local First Nations, licence holders and industry will continue in season.

Notes:
[1] Fisheries will be scheduled in January-March and in November-December subject to weather conditions. DFO and the Area F Community Management Board encourages diggers to use common sense during any opening. Digging clams during freezing weather may cause conservation concerns for juvenile clams left exposed on the beach and can negatively impact the quality of harvested product during transport.
[2] Area 27 issues and concerns: As a result of consultation with harvesters and local First Nations, there is an opportunity to continue limited harvesting in portions of Area 27 as part of the Area F fishery. Announcements of open areas will be included on each Fishery Notice to advise the industry. Olympia oysters are present in areas like Klashkish and Klaskino Inlets. Harvesters are requested to avoid impacting on these oyster beds due to their status as a species of special concern under the *Species at Risk Act* (SARA). Harvesting opportunities in Area 27 will be curtailed if impact on Olympia oyster beds is observed or management issues arise.

Table 7: Area G Planned Openings

Location of Fishery	Opening Date
Area 11	Closed all year to paralytic shellfish poisoning.
Area 12	January to May and October to December on tide cycles[1]. Specific fishing periods are subject to PSP closures and local consultation.

Notes:
[1] This fishery targets native littleneck clams and butter clams. Currently there is concern for the status of littleneck stocks in the general area. Furthermore, the market for butter clams is questionable. Harvesters licensed for this area must ensure they have a legitimate buyer for their product. For information on specific opening dates and times, harvesters are advised to contact a fishery manager listed in the Contacts section of the IFMP.

3.4. Varnish Clams

Varnish clams (market name “savoury clam”) are currently closed to the wild commercial harvesting year round. The continued development of a fishery for this species will follow a phased approach described in the DFO New Emerging Fisheries Policy (NEFP). This approach is intended to lead to an improved understanding of this species and its interaction with other intertidal clams through application of a precautionary harvest and the collaboration of commercial licence holders, First Nations, and other stakeholders. Some

information regarding Varnish clam distribution and interaction with other species has been collected and the Department will work towards developing a biologically sound management plan for this species in the future.

The Department and Provincial ministries agreed to permit access to varnish clams on tenures in 2001. Currently, there is only a very small market for this species. Varnish clams are permitted to be farmed or harvested by the tenure owners or operators.

3.5. Heiltsuk Intertidal Clam Joint Management Plan

An intertidal clam fishery is currently in place in portions of the Central Coast area near Bella Bella, and is carried out under a Joint Management Plan with the Heiltsuk Tribal Council. The fishery is co-managed through catch ceilings for Manila clams, Butter clams and Littleneck clams determined by stock biomass surveys carried out by staff of the Heiltsuk Tribal Council. Harvest area thresholds have been established in several subareas to minimize the risk of local stock depletions.

The fishery is generally open from November to April, subject to PSP sampling, and may include a decontamination fishery. A separate management plan is developed for the fishery. Contact the Resource Manager for the North Coast Area for details (see Contacts section) or see:

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

3.6. Haida Razor Clam Joint Management Plan

The Haida Gwaii razor clam fishery in Subarea 1-5 (Clam Management Area A) is co-managed by DFO and the Council of Haida Nation through a Joint Management Plan. The Council of Haida Nations' involvement in this fishery includes monitoring of the fishery and co-development and implementation of the joint razor clam management plan. The Council of the Haida Nation also carry out extensive annual beach surveys of the harvest areas. Limited entry is in effect for this fishery.

The Joint Management Plan has been developed specifically for this fishery and can be obtained by contacting the North Coast Resource Manager (see the Contacts section) or from the Council of the Haida Nation by calling (250) 626-3302. Also refer to the DFO Internet site at:

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

4. CLOSURES

Closures to the commercial fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, research, navigation, or sanitary and marine biotoxin contamination.

4.1. General Information on Closures under the Canadian Shellfish Sanitation Program

Closures may be implemented on short notice in the event of changes to contamination status, including sanitary and biotoxin events. Licence holders, vessel masters, and harvester are reminded that:

- It remains the responsibility of the licence holders and harvesters to ensure that an area is not closed for harvest due to sanitary or biotoxin contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of each day's fishing, the licence holder must take care to confirm that an area is open for harvesting either through the DFO website at:

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

  or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Section 16 of the main IFMP document.
- Additional sanitary and biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).
- Information may also be available through weekly broadcasts over a commercial or marine radio station ("the weather channel"). In the North Coast, this method is only updated weekly on Tuesdays and it is recommended that the sources listed above be the primary avenue for information.

4.2. Sanitary Contamination Closures

Shellfish may not be harvested from closed contaminated areas except by special permit licence under the *Management of Contaminated Fisheries Regulations (MCFR)*. Currently there is not an approved depuration process for oysters. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following DFO website:

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

- Additional sanitary closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

A copy of this list may also be obtained from the resource managers (see Contacts, Section 16 of main IFMP). Sanitary closures are amended annually in May and November, and may also be amended in-season. Consequently, harvesters are advised to check the internet, prior to harvesting in an area, to ensure that they have the most recent contamination closure information.

Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

1. 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
2. 125 m radius of any:
   (i) marina
   (ii) ferry wharf
   (iii) any floating living accommodation facility, other than a floating living accommodation described in subsection (3)
   (iv) any finfish net pen, other than a finfish net pen described in subsection (4);
3. 25 m radius of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Aquaculture Licence and is approved by the Regional Interdepartmental Committee; and
4. Zero (0) metres of any finfish net pen within an aquaculture tenure where an Integrated Multi-Trophic Aquaculture Management Plan approved by the Regional Interdepartmental Committee is in operation.

4.3. Biotoxin Contamination Closures

Shellfish may not be harvested from closed areas except by special permit licence issued under the *Management of Contaminated Fisheries Regulations*. Shellfish may not be harvested for consumption from any area closed due to biotoxin contamination. Descriptions of biotoxin closures may be found at the following DFO internet site:

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

- Additional biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

Areas will be opened and fished according to protocols required by the Biotoxin Monitoring Program, approved by the Canadian Food Inspection Agency (CFIA).

Three consecutive weekly samples containing acceptable levels of biotoxin must be received in order to lift a harvest restriction in an area. CFIA will make recommendation to lift the biotoxin (Paralytic Shellfish Poison (PSP)/red tide, Domoic Acid Poisoning) (ASP) or Diarrhetic Shellfish Poisoning (DSP) prohibition and a harvest site can then be considered by DFO for Aboriginal, commercial or recreational harvesting. The resource manager will prepare the documentation necessary for an area opening for approval by the Regional Director General. For further details on the CSSP, see the internet at:

https://www.inspection.gc.ca/food/food-specific-requirements-and-guidance/fish/canadian-shellfish-sanitation-program/eng/1527251566006/1527251566942?chap=0

Closures due to biotoxin closure (Paralytic Shellfish Poisoning (PSP/Red Tide), Domoic Acid Poisoning and Diarrhetic Shellfish Poisoning (DSP)) are frequent and often encompass large areas. These closures can occur on very short notice with the closure taking effect immediately. Consumption of shellfish that contain the toxins causing PSP and Domoic Acid Poisoning can cause paralysis, memory loss or death.

Check to ensure that the area where you intend to harvest is open prior to harvesting using the following site: www.dfo-mpo.gc.ca/CheckBeforeYouHarvest.

4.4. Requirements for Legal Sourcing and Harvest of Bivalve Shellfish

DFO is reviewing all wild bivalve conditions of licence, and will increase/clarify management controls around product movement, i.e. selling of products to buyers/receivers, and implement changes to notification, tagging and reporting requirements. Consultation and engagement will be focused on increasing awareness of traceability requirements, followed by changes to conditions of licence.

In addition, DFO will commence intensive enforcement operations on bivalve fisheries, targeting tagging, landing and reporting, and complete major C&P investigations regarding extensive bivalve laundering.

Over the longer term, DFO will continue to work with industry and BC to: improve industry traceability management, processes and technology, including access to funding; build and improve relationships with our Indigenous partners aimed at ensuring access, opportunity and monitoring of FSC fisheries meets all needs; reassess the impacts of focused and concerted enforcement on the bivalve fisheries aimed at assessing effectiveness of management control measures and informing future management control measures.

The safety of consumers is a top priority for the Government of Canada. The reputation of Canada's food supply is a responsibility shared by all parties, including industry and federal and provincial governments.

As partners for delivery of the Canadian Shellfish Sanitation Program (CSSP), Fisheries and Oceans Canada (DFO) and the Canadian Food Inspection Agency (CFIA) collaborate to prevent illegal harvesting and selling of bivalve shellfish, including suspected laundering of illegal products through legitimate aquaculture businesses. DFO also remains committed to meeting conservation objectives for bivalves as well as supporting priority for Food, Social and Ceremonial fisheries. Any harvest occurring in conflict with established management measures and controls has the potential of negatively impacting the conservation of bivalve populations.

DFO will investigate reports of illegal harvesting violations and will take appropriate enforcement actions, including prosecution. Furthermore, DFO may consider more restrictive management approaches if needed to protect public health. Commercial growers and harvesters are reminded that they are required, by law, to follow specific record-keeping and tagging requirements. Records of shellfish movement through the growing

cycle and to the point of distribution provide evidence to support public health, regulatory decisions and closure recommendations.

Commercial harvesters and aquaculture operators are required to:

- Understand and abide by the conditions of licence;
- Keep complete, clear and legible records and be able to produce them to a DFO fishery officer when requested;
- Ensure bivalve product destined for market sale is appropriately tagged with complete and accurate harvest information and is processed by an operator licensed by the Canadian Food Inspection Agency to process shellfish;
- Harvest only from open and approved areas and check our website before heading out for the latest information (www.dfo-mpo.gc.ca/CheckBeforeYouHarvest).

If you are aware of illegal bivalve harvest activities and/or are aware of violations, please call the DFO Observe, Record and Report (ORR) phone line at 1-800-465-4336.

More information on the policies and criteria for harvesting shellfish can be found in the CSSP manual. See also Fishery Notice FN1142 (2019): https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=227228&ID=all

4.5. Human Waste Containment Regulations

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

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site:

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

4.6. Harvesting Bivalves in the Vicinity of Wastewater Treatment Plants

Concerns have been raised regarding bivalve shellfish harvested in the vicinity of wastewater treatment plants. Increased controls were implemented in 2009 to prevent shellfish harvest in areas where a trigger event at a wastewater treatment plant may potentially cause contamination.

Conditional Management Plans have been developed at some of the priority wastewater treatment plants to manage harvest activities in the vicinity of the wastewater treatment plants.

DFO will consult with shellfish harvesters in areas where Conditional Management Plans must be developed.

For further information, contact Elysha Gordon at (250) 756-7192.

4.7. Harvesting Opportunities in Sewage Contaminated Closures

Clam harvesting is prohibited in contaminated areas except by licence issued to depuration plants or relay under the *Management of Contaminated Fisheries Regulations* (see Appendix 4).

4.8. Oyster and Clam Tenures

Harvesters are advised to observe the boundaries of any intertidal tenures. Harvesting on any tenures is prohibited under this fishery. All clam and oyster tenures must be clearly marked (see Appendix 5, Figure 11).

4.9. Area B Johnstone Strait Closures

Area 13

4.9.1. Mitlenatch Island Nature Park: That portion of Subarea 13-1 and 13-3 described as all the area of foreshore and land covered by water between the high water mark of Mitlenatch Island, Lot 403 Sayward Land District, and a line drawn parallel to a perpendicularly distant 305 m from the said high water mark. (Provincial Park)

4.9.2. Manson's Landing Marine Park: That portion of Subarea 13-15 described as the intertidal foreshore of Manson’s Landing Recreation Area lying inside or shoreward of a line commencing at the southwesterly corner of Lot 64, Sayward Land District, thence due west 241 m; thence north 30^{o} east for 1629 m to a point on Cortes Island and including all of Manson's Lagoon. (Provincial Park)

(General Description: Intertidal Foreshore of Manson’s Landing Marine Park on Cortes Island.)

4.9.3. Rebecca Spit Provincial Park: That portion of Subarea 13-13 described as all the Crown foreshore and Crown Land covered by tidal waters inside of a line commencing at the southeast corner of Lot 33, Sayward Land District; thence north 65^{o} east for 402 m, thence north 35o W for 2213 m; thence west 604 m; thence south 422 m; thence S 35^{o} east

for 1891 m to the most southwest corner of Lot 1490; thence easterly along the southern boundary of Lot 1490 to the southwest corner of Lot 33; thence easterly along the south boundary of Lot 33 to the point of commencement. (Provincial Park)

(General Description: Intertidal Foreshore of Rebecca Spit Provincial Park on Quadra Island.)

4.9.4. Octopus Islands Marine Park: That portion of Subarea 13-12 described as all the unencumbered Crown foreshore and Crown land covered by tidal waters situated in the Sayward Land District inside a line commencing at the northeasterly corner of Sublot 1 of Lot 114, thence due east 201 m, thence due south to a point on the natural boundary of Lot 1072 on the most northerly of the Octopus Islands, thence south along the west shore of the island to the most westerly point, thence due south 20 m to a point on the natural boundary of Lot 1076, thence southwesterly along the boundary to the most westerly point of said Lot 1076, thence due west to a point on Quadra Island. (Recreational, provincial park, and First Nations for food, social and ceremonial purposes)

Area 15

4.9.5. Inner Squirrel Cove: That portion of Subarea 15-5 described as the portion of Squirrel Cove inside a line drawn along the shortest distance from the western shore of Protection Island to Cortes Island and inside a line drawn along the shortest distance from the eastern shore of Protection Island to Cortes Island. (First Nations for food, social and ceremonial purposes and pilot communal opportunities)

4.10. Area C Sunshine Coast Closures

Area 15

4.10.1. Okeover Park, Okeover Inlet: (Legal Description) That portion of Subarea 15-4 bounded by a line commencing at the northerly tip of the Okeover, Government Dock, running northwesterly 321 degrees true until it meets the shoreline, then in a southeasterly direction back along the shore to the Okeover Government Dock. (Recreational, provincial parks, and First Nations for food, social and ceremonial purposes)

(General Description: Commencing at the Okeover Government Dock in a northwesterly direction for 1.4 km to the northeast corner of Lot 15, District Lot 6324, thence in a southeasterly direction back along the shoreline to the Okeover Government Dock.)

4.10.2. Mitlenatch Island Nature Park: That portion of Subarea 15-2 described as all the area of foreshore and land covered by water between the high water mark of Mitlenatch Island, Lot 403 Sayward Land District, and a line drawn parallel to a perpendicularly distant 305 m from the said high water mark. (Provincial Park)

Area 16

4.10.3. Harwood Point Park, Texada Island: The intertidal foreshore of Texada Island, south of a line between Harwood Point and the northernmost point of Dick Island, bounded to the south by a line running due east from the easternmost point of Dick Island to Texada Island. (Recreational, provincial parks and First Nations for food, social and ceremonial purposes)

4.10.4. Portion of Sechelt Inlet: Subareas 16-5, portion of 16-6 southerly of Cawley Pt and 16-7. (First Nations for food, social and ceremonial purposes, recreational)

Area 28

4.10.5. Area 28: Closed. (Conservation and Contamination Closures)

4.11. Area D Upper Strait of Georgia Closures

Area 14

4.11.1. Fillongley Park, Denman Island: (Legal Description) That portion of Subarea 14-10 described as those waters bounded by a line from southeast corner of Fillongley Park (Fronting SE 1/4 of Sec 23 Denman Island, Nanaimo Land District, except the part thereof included within the boundaries of Plan 8118) thence in a northerly direction along the shore to the northeast corner of Fillongley Park, thence easterly 90 degrees to a point one-half nautical mile thence to a point one-half nautical mile 90 degrees E of the southeast corner of Fillongley Park, thence to the point of commencement. (Recreational and First Nations for food, social and ceremonial purposes)

(General Description: Fillongley Park Recreation Shellfish Reserve. The waters and foreshore of the park seaward a distance of 0.5 nautical miles.)

4.11.2. Mud Bay, Lasqueti Is.: That portion of Subarea 14-3 described as the unsurveyed foreshore of Mud Bay, Lasqueti Island, Nanaimo Land district, commencing at the most westerly point of Lot 1, Plan 8885, following the shoreline of Mud Bay in a counter-clockwise direction to a point on the shore, true North of the point of commencement (Recreational and First Nations for food, social and ceremonial purposes).

(General Description: The intertidal foreshore of the portion of False Bay known as Mud Bay, on Lasqueti Island)

4.11.3. Qualicum River I.R.: That portion of Subarea 14-5 described as the intertidal foreshore of Vancouver Island near the mouth of the Qualicum River that begins at 49°24.2' north latitude and 124°37.2' west longitude, then follows the shoreline southerly to 49°23.6' north latitude and 124°36.2' west longitude and lies within the boundaries of the Indian Reserve as shown on Chart No. 3527, published by the Canadian Hydrographic Service (First Nations for food, social and ceremonial purposes)

4.11.4. Qualicum Beach Recreational Reserve: Portion of Subarea 14-4 described as (Legal Description) The tidal foreshore of District Lot 10, Newcastle District and a portion of the tidal foreshore of District Lot 9, Newcastle District commencing at the northeasterly corner of Lot 21, District Lot 9, projected true north to the low water mark on datum of sounding, thence following the low water mark to the low water mark at the northwesterly corner of the town of Qualicum Beach, thence following the high mark along the foreshore of District Lot 10 and District Lot 9 to the point of origin. (Recreational and First Nations for food, social and ceremonial purposes)

(General Description: That portion of the tidal foreshore between the high water mark and the low water mark immediately north of the Town of Qualicum Beach from the foot of Seacroft Road to the easterly foot of Surfside Drive.)

4.11.5. Rathtrevor Provincial Park: That portion of Subarea 14-1 described as all Crown land covered by water in Nanoose Land District commencing at the northwest corner of Lot 41, being a point on the natural boundary of the Strait of Georgia; thence north 20º E for 281.7 m, thence due east 1.79 km, thence south 12o E for 1.49 km, thence southwesterly in a straight line 1.41 km to the northeast corner of Lot 1 of Lot 59, Plan 18359, being a point on the natural boundary of Strait of Georgia; thence in a general northerly direction along the high tide line to the point of commencement. (Provincial Park)

(General Description: Intertidal foreshore of Rathrevor Provincial Park)

4.11.6. Kye Bay: (Legal Description) That portion of Subarea 14-13 described as those waters bounded by a line from the light on Cape Lazo, thence northeasterly 45º true for a distance of 0.5 nautical miles, thence northwesterly 293º to a point of land at the most northeast tip of the boat ramp at Air Force Beach, thence southerly along the shore to the point of commencement. (Recreational and First Nations for food, social and ceremonial purposes)

(General Description: The waters of Kye Bay from Cape Lazo light to the boat ramp at Air Force Beach.)

4.11.7. Baynes Sound Recreational Reserve: (Legal Description) That portion of Subarea 15-5 described as those waters bounded by a line commencing from a point at the northeast corner of Block 149 Lot 48, thence along the northern boundary of Block 149 Lot 48 to the northwest corner, thence along the shore in a northerly direction to the southwest corner of Block 149 Lot 49 thence along the southern border of the Block 149 Lot 49 to the southeast corner, thence in an easterly direction 90 degrees to a point 0.5 nautical miles, thence to a point 0.5 nautical miles 90o E of the northeast corner of Block 149 Lot 48, thence to the point of commencement. (Recreational and First Nations for food, social and ceremonial purposes)

(General Description: The waters and foreshore of the area from a point 0.5 miles north of Garvin Road to a point 0.5 miles south of Garvin Road.)

4.11.8. French Creek Recreational Reserve: That portion of Subarea 14-4 described as the intertidal foreshore from French Creek at 49º 21.16'N - 124º 21.71'W to the foot of Yambury Road, Parksville at 49º 21.32'N - 124º 23.34'W (recreational, First Nations Food, social and ceremonial)

4.11.9. Deep Bay Spit Recreational Reserve: That portion of Subarea 14-8 described as the intertidal foreshore of Deep Bay spit from Mapleguard Point at 49° 27.980' N – 124° 44.116' W {alongside Fl. R Navigation Light} thence east and south to a point on land at49° 27.64' N -124° 43.27' W. (This is to include the eastern (outside) intertidal foreshore from the end of the spit (Mapleguard Pt southeast along the outside of the spit for approximately 1 kilometre). (recreational, First Nations Food, social and ceremonial)

4.11.10. Little River to Oyster River Recreational Reserve: That portion of Subarea 14-13 described as the intertidal foreshore from Little River Ferry at 49º 44.55'N - 124º 55.35'W to a point on land near the Navigation light {l(2)6s18m11M}south of Salmon Point lodge near Kuhushan Point at 49° 53.306' N - 125º 07.416' W (recreational, First Nations Food, social and ceremonial)

4.11.11. Mitlenatch Island Nature Park: That portion of Subarea 14-13 described as all the area of foreshore and land covered by water between the high water mark of Mitlenatch Island, Lot 403 Sayward Land District, and a line drawn parallel to a perpendicularly distant 305 m from the said high water mark. (Provincial Park)

4.12. Area E Lower Strait of Georgia Closures

Area 17

4.12.1. Yellow Point (including Blue Heron and Roberts Memorial Park): That portion of Subarea 17-4 described as the intertidal foreshore from Flewett Point on Vancouver Island southeasterly to Yellow Point. (Recreational reserve and First Nations for food, social and ceremonial purposes)

4.12.2. Sandwell Provincial Park: That portion of Subarea 17-10 described as the waters and intertidal foreshore of Sandwell Provincial Park. (Recreational, Provincial Parks and First Nations for food, social and ceremonial purposes)

4.12.3. Drumbeg Provincial Park: That portion of Subarea 17-10 described as the waters and intertidal foreshore of Drumbeg Provincial Park on Gabriola Island. (Recreational, provincial parks and First Nations for food, social and ceremonial purposes)

4.12.4. Pilot Bay: That portion of Subarea 17-12 described as the waters and tidal foreshore of Pilot Bay on Gabriola Island. (Provincial Park and recreational reserve)

4.12.5. Gabriola Bar: That portion of Subarea 17-16 described as the waters and intertidal foreshore of Gabriola Island bounded on the east by the Subarea 17-16 boundary thence in a westerly direction along the shore of Gabriola Island to the boat ramp approximately half way through False Narrows. (Recreational and First Nations for food, social and ceremonial purposes)

4.12.6. Nanoose Bay: That portion of Subarea 17-19 described as the intertidal foreshore of Nanoose Bay fronting the entire Nanoose I.R. commencing approximately 200 meters westerly of Fleet Pt at 49◦15.15N and 124◦07.91W thence south easterly to the contaminated boundary sign west of Knarston Creek at 49◦15.27'N and 124◦07.12'W. This includes all of the intertidal area of both sides of the marina breakwater. (First Nations for food, social and ceremonial purposes and recreational)

4.12.7. Nanoose Bay: That portion of Subarea 17 described as a 600 meter portion of intertidal foreshore of Nanoose Bay directly across from the Department of Highways Rest Stop bounded on either side by Recreational Reserve signs. (First Nations food, social and ceremonial purposes and recreational)

Area 18

4.12.8. Sansum Narrows: The portion of the intertidal foreshore of Vancouver Island from Octopus Point southerly to Separation Point. (First Nations for food, social and ceremonial purposes and recreational)

4.12.9. Fulford Harbour: That portion of Subarea 18-10 described as the intertidal foreshore of Saltspring Island in Fulford Harbour that begins at a point of land 48° 44' 56.04" north latitude and 123° 26' 9.6" west longitude, then follows the shoreline south-easterly 170 metres to 48° 44' 56.04" north latitude and 123° 26' 6" west longitude

published by the Canadian Hydrographic Service. (Parks Canada and First Nations Clam Garden Study Area)

4.12.10. Russell Islands: That portion of Subarea 18-10 described as the intertidal foreshore of Russell Island that begins at a point of land 48° 45' 0.72" north latitude and 123° 24' 25.2" west longitude, then follows the shoreline easterly 120 metres to 48° 44' 56.04" north latitude and 123° 24' 18" west longitude on published by the Canadian Hydrographic Service.(Parks Canada and First Nations Clam Garden Study Area).

4.13. Area F West Coast of Vancouver Island Closures

Effective April 1, 2011 and in accordance with the Maa-nulth First Nations Final Agreement (Treaty), several beaches in Area 23 and 26 were closed to the harvest of intertidal bivalves between the high water mark and the low water mark. These "Inter-tidal Bivalve Harvest Areas" are set aside for the use of Maa-nulth First Nations members only.

Area 23:

4.13.1. Toquart River Flats: That portion of Toquart Bay in Subarea 23-10 bounded on the east by a straight line that starts at 49°02.363' N, 125°20.836' W, then straight to 49°02.321' N, 125°20.767' W, then straight to 49°02.250' N 125°20.788' W, then 200° True to the low water mark, then following the low water mark to the southern boundary bounded on the south by a straight line running due east from 49°01.513' N, 125°21.811' W to the low water mark and bounded on the northwest by a line that starts at 49°02.318' N 125°21.438' W, then straight to 49°02.305' N, 125°21.468' W, then straight to 49°02.235' N, 125°21.468' W, then straight to 49°02.199' N, 125°21.553' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.2. Maggie River: That portion of Subarea 23-10 near the mouth of the Maggie River bounded on the east by a line running due south from 49°00.301' N, 125°21.956' W to the low water mark, then following the low water mark to the southern boundary, and bounded on the south by a line running due east from 48°59.305' N, 125°23.155' W to the low water mark (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.3. Effingham Inlet West: That portion of Effingham Inlet in Subarea 23-6 west of a line that starts at 49°03.043' N, 125°09.768' W, then following the low water mark to 49°02.895' N, 125°09.944' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.4. Coeur d'Alene Creek: That portion of Effingham Inlet in Subarea 23-6 at the mouth of Coeur d'Alene Creek east of a line that starts at 49°02.930' N, 125°08.302' W, then following the low water mark to 49°02.659' N, 125°08.618' W, and west of a straight line from 49°02.758' N, 125°08.272' W , due south to the opposite shoreline (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.5. Geer Islets: That portion of Subarea 23-5 surrounding the Geer Islets inside a line that starts at 48°55.828' N, 125°06.707' W, then south following the low water mark to 48°55.673' N, 125°06.672' W, then north following the low water mark to the point of commencement, including the intertidal zone between the north and south islets (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.6. Meade Islets: That portion of Subarea 23-5 surrounding the Meade Islets inside a line that starts at 48°55.650'N, 125°07.290' W, then south following the low water mark to 48°55.423' N, 125°07.507' W, then north following the low water mark to the point of commencement, including the intertidal zone between the east and west islets (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.7. Northeast Numukamis Bay: That portion of northeast Numukamis Bay in Subarea 23-4 at the mouth of Carnation Creek east of a line that starts at 48°54.920' N, 125°00.423' W, then following the low water mark to 48°54.722' N, 125°00.468' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.8. Kookswiis (Sarita River): That portion of Numukamis Bay in Subarea 23-4 at the mouth of the Sarita River (Kookswiis) inside a line that starts at 48°54.434' N, 125°'00.652' W, then following the low water mark to 48°53.731' N, 125°01.278' W, then following the eastern shoreline of Santa Maria Island to 48°53.529' N, 125°01.565' W, then straight across the channel to 48°53.486' N, 125°01.486' W, and bounded on the east by a line that starts at 48°54.187' N, 125°00.540' W, then straight to 48°54.148' N, 125°00.612' W, then straight to 48°54.086' N, 125°00.632' W, then straight to 48°54.064' N, 125°00.592' W, then straight to 48°54.030' N, 125°00.599' W, then straight to 48°53.786' N, 125°01.034' W (Maa-nulth First Nation for food, social and ceremonial purposes).

("Santa Maria Island, Numakumis Bay Beaches" closure replaced by "Kookswiis (Sarita River)" in 2013).

4.13.9. Pacific Rim National Park - Broken Island Group: That portion of Subarea 23-8, described as all waters and intertidal foreshore of Pacific Rim National Park - Broken Island Group. (National Park)

Area 24

4.13.10. Whiskey Jenny Beach (Shelter Inlet): That portion of Subarea 24-3 described as those waters and intertidal foreshore lying inside a line bounded on the east by a point of land located eight cables west of Dixon Point in Shelter Inlet and bounded on the west to a point of land located 1.6 nautical miles from Dixon Point. This beach is locally known as Whiskey Jenny Beach. (First Nations for food, social and ceremonial purposes, recreational)

4.13.11. Bawden Bay: That portion of Subarea 24-4, described as those waters and intertidal foreshore lying inside a line from Bawden Point to Clifford Point. (First Nations for food, social and ceremonial purposes, recreational)

4.13.12. Whitepine Cove: That portion of Subarea 24-5, described as those waters and intertidal foreshores lying inside of a line drawn from Bawden Point to the most southern tip of Binns Island, thence due east to Vancouver Island. (First Nations for food, social and ceremonial purposes). Subject to Ahousaht review.

4.13.13. Stockham Island: That portion of Subarea 24-9, described as the intertidal foreshore of the northwest side of Stockham Island. (First Nations for food, social and ceremonial purposes, recreational)

4.13.14. Hesquiat Harbour: All waters of Subarea 24-1. (First Nations for food, social and ceremonial purposes, recreational)

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

Area 25

4.13.16. Queen Cove: That portion of Subarea 25-12 described as all the waters and intertidal foreshore lying inside a line drawn from a point of land located four cables southerly of Saddle Point at the northwest corner to the entrance of Queens Cove, to a point of land bearing 136o true on the opposite shore. This area would encompass Queen Cove entirely. (First Nations for food, social and ceremonial purposes). Currently under contamination closure.

Area 26

4.13.17. Aktis Island: That portion of Subarea 26-1 described as the entire intertidal foreshore surrounding Aktis Island. (First Nations for food, social and ceremonial purposes, recreational)

4.13.18. Amai Inlet: That portion of Amai Inlet in Subarea 26-3 southeast of a straight line from 50°01.469' N, 127°05.021' W to 50°01.524' N, 127°04.899' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.19. Artlish River: That portion of Tahsish Inlet in Subarea 26-4 at the mouth of the Artlish River bounded on the west by a line that starts at 50°07.191' N, 127°05.561'W, then following the low water mark to 50°06.166' N, 127°05.568' W, and bounded on the east by a straight line from 50°06.956' N, 127°05.275' W to 50°06.815' N, 127°05.109' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.20. Tahsish River Provincial Park: That portion of Subarea 26-4 described as all the intertidal foreshore lying inside or westerly of a line commencing at the most southern point of I.R. 11 thence true south to the Vancouver Island shore. (First Nations for food, social and ceremonial purposes, recreational, Provincial Park) .

4.13.21. Kauwinch River: That portion of Kashutl Inlet at the mouth of the Kauwinch River in Subarea 26-5 bounded on the west by a line that starts at 50°08.749' N, 127°16.844' W, then following the low water mark to 50°08.401' N, 127°16.360' W, then straight to 50°08.281' N, 127°16.017' W, then following the low water mark to 50°08.249' N, 127°15.876' W, and bounded on the northeast by a straight line from 50°08.728' N,127°16.226' W to 50°08.710' N, 127°16.164' W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.22. Clanninick Cove: That portion of Subarea 26-6 described as those waters lying inside a line drawn between the two headlands located on either shore at the entrance to Clanninick Cove. (First Nations for food, social and ceremonial purposes, recreational). Currently under contamination closure.

4.13.23. Malksope-Bunsby Islands: That portion of Malksope Inlet–Bunsby Islands in Subarea 26-7 inside a line that starts at 50°06.180' N, 127°30.845' W, then straight to

50°06.252’ N, 127°30.837’ W, then straight to 50°06.246’ N, 127°30.810’ W, then straight to 50°06.215’ N, 127°30.650’ W, then straight to 50°06.184’ N, 127°30.602’ W, then straight to 50°06.187’ N, 127°30.555’ W, then straight to 50°06.212’ N, 127°30.542’ W, then following the shoreline southward then northward to the point of commencement, and that portion of Malksope Inlet–Bunsby Islands in Subarea 26-7 east of a straight line from 50°06.322’ N, 127°30.692’ W to 50°06.284’ N, 127°30.573’ W (Maa-nulth First Nation for food, social and ceremonial purposes).

4.13.24. Malksope-Upsowis: That portion of Malksope Inlet-Bunsby Islands in Subarea 26-8 inside a line that starts at 50°06.836’ N, 127°30.502’ W, then straight to 50°06.865’N, 127°30.505’ W, then straight to 50°06.878’N, 127°30.485’ W, then straight to 50°06.873’ N, 127°30.427’ W, then straight to 50°06.877’ N, 127°30.381’ W, then straight to 50°06.878’ N, 127°30.361’ W, then following the shoreline southeasterly to 50°06.805’ N, 127°30.224’ W, then straight to 50°06.783’ N, 127°30.137’ W, then straight to 50°06.757’, N 127°30.104’ W, then straight to 50°06.714’ N, 127°30.064’ W, then straight to 50°06.675’ N, 127°30.058’ W, then straight to 50°06.567’ N, 127°30.057’ W, then straight to 50°06.591’ N, 127°30.195’ W, then following the shoreline northward to the point of commencement (Maa-nulth First Nation for food, social and ceremonial purposes).

Area 27

4.13.25. Area 27 – Koprino Harbour: That portion of Subarea 27-7 described as all the area of intertidal beach east of the Koprino River including the intertidal beach in the two unnamed lagoons in East Koprino Harbour. (Communal pilot and First Nations for food, social and ceremonial purposes, recreational)

4.13.26. Area 27 – Portion of Klaskino Inlet: That portion of Subarea 27-5 described as all the area of intertidal beach located (fronting and immediately adjacent the I.R.) within a circle of radius 500 m with the centre point being the mouth of Jim’s Creek. (Communal pilot and First Nations for food, social and ceremonial purposes, recreational)

4.14. Area G Queen Charlotte Sound Closures

Area 12

4.14.1. Health Bay, Gilford Island: Portion of Subarea 12-39 described as all the intertidal foreshore of Health Bay and Health Bay Lagoon lying inside or easterly of a straight line from the most south-easterly corner of the First Nation’s reserve near Health Bay, true south to the shore opposite. (First Nations for food, social and ceremonial purposes, recreational)

4.14.2. Fly and Insect Islands: That Portion of Subarea 12-39 described as all the intertidal foreshore of Fly Island and Insect Island. (First Nations for food, social and ceremonial purposes, recreational)

4.14.3. Monday Anchorage: That Portion of Subarea 12-39 described as all the intertidal foreshore of Monday Anchorage lying between Mars Island and Tracey Island. (First Nations for food, social and ceremonial purposes, recreational)

4.14.4. Blunden Passage: That Portion of Subarea 12-39 described as all the intertidal foreshore of Blunden Passage located between Tracey Island and Baker Island. (First Nations for food, social and ceremonial purposes, recreational)

4.14.5. Betty Cove: That Portion of Subarea 12-39 described as all the intertidal foreshore of Betty Cove on Bonwick Island. (First Nations for food, social and ceremonial purposes, recreational)

4.14.6. Subareas 12-6 and 12-26: All the intertidal foreshore of the southwest portion of Village Island located between Warr Bluff and the western entrance to Canoe Passage. (First Nations for food, social and ceremonial purposes, recreational)

5. LICENSING REQUIREMENTS FOR THE COMMERCIAL FISHERY

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

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

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

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

Licence Renewal:

In order to retain the privilege to be issued a Z2 commercial licence in the future, it is critical that you renew your licence and pay the applicable licence renewal fees through the online system on an annual basis, whether fishing takes place or not. Should the licence not be renewed, the licence eligibility will cease to exist and DFO will be unable to consider any licence issuance requests in the future.

5.2. Licence Category and Renewal Fees

A category Z2 commercial clam or category Z2ACL communal commercial clam licence is required to commercially harvest clams by hand digging.

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 annual licence renewal fee for a commercial, category Z2 clam

licence can be found on the following link: https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.html
As of January 1, 2022, there is no licence renewal fee for category Z2ACL communal commercial clam licences.

5.3. Licence Application and Issuance

Renewal of a commercial Clam licence (Z2) 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 commercial clam licences not renewed will cease and licence issuance requests will be unable to be considered in future.

Upon the Department receiving the required payment the licence will be issued and notification will be sent via email to advise licence holders that a change has been made to their online account. The licence documents, licence conditions and receipts will be available to be printed at that time.

For a Z2 ACL prior to licence issuance, the designated party details must be submitted via the 'Submit a Request' menu selection within the NOLS.

5.4. Fisher Identification Number (FIN)

DFO Pacific has been exploring opportunities to accurately identify harvesters in the field while minimizing requirements to make repeated collections of sensitive personal harvester information, such as date of birth (DOB), gender, etc. The assignment of a unique Fisher Identification Number (FIN) to each vessel owner, holder of a commercial licence eligibility and Fish Harvester Registration Card (FRC) in the Pacific Region allows for quick and accurate identification with no further collection of supporting personal information being required.

When you were issued your first licence by DFO, a record was created in the licensing system to store information that uniquely identifies you for licensing purposes. This record includes your name, date of birth and address, as well as a unique ID number. You may have noticed a Party ID or PID number printed on your Fisher Registration Card (FRC) and both party and vessel-based licences. This number will be called a Fisher Identification Number or FIN, and may be used for other Fish Management purposes. Licence holders may be asked to provide their FIN when applying for a licence, or for dockside monitoring, or for enforcement purposes as indicated in the 2022-23 Integrated Fisheries Management Plan (IFMP) for your fishery or in the licence conditions attached to your licence.

5.5. Licence Documents

Clam Licence documents are valid from the date of issue to the end of February of the following year.

The Z2 and Z2 ACL clam licence must be carried at all times by the licence eligibility holder when harvesting clams and must be produced upon the demand of a fishery officer or guardian. In addition to the clam licence, licence holders shall ensure that government issued photo identification is in their possession at all times during harvesting and is

available for inspection upon request of a fishery officer or fishery guardian. In addition, Z2 licence holders must carry an FRC.

Replacements for lost or destroyed licence documents may be obtained by reprinting the licence document through the National Online Licensing System.

5.6. Clam Licence Modernization

Licence limitation was introduced in 1998. As part of the licence limitation program, a number of Aboriginal Commercial Licences (ACL) were negotiated with various First Nations to recognize historical First Nation representation in the fishery. These Z2ACL licences were identical to the Z2 commercial clam licences except that they are held by the First Nation, who can designate the licence holders annually. The Department has been consulting with harvesters and First Nations on two initiatives as part of Clam Licence Modernization.

5.6.1. Changing of the Z2ACL authority from the *Pacific Fishery Regulations* (PFR) to the *Aboriginal Communal Fishing Licences Regulations* (ACFLR); and

5.6.2. Allowing clam licence nomination of the remaining eligible commercial clam licences.

Letters were mailed to all licence holders and First Nations in May 2021, advising of them of the changes and seeking feedback. Further discussion was held at clam sectoral in September 2021. Meetings were held with interested parties, and presentations on Clam Licence Modernization were provided to stakeholders and First Nations, upon request, between May and October 2021.

Licence holders expressed support for licence nomination, and First Nations were supportive of changing the licensing authority of Z2ACLs. The Department is moving forward with Clam Licence Modernization and will be implementing both aspects commencing January 1, 2022. In addition, as part of the consultation, a request was made by First Nations to allow the Z2 licences to be nominated to a Nation as a Z2ACL. To adequately address this interest, a licensing review and any subsequent changes will be undertaken by the department throughout 2022 for implementation in 2023.

5.7. Licence Nomination

Nomination forms are available from the Pacific Fishery Licence Unit (PFLU) on the internet at: www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.htm

The following requirements must be met:
a) Any Condition of Licence for Z2 commercial licences must be met.
b) The nomination form must be signed by the Z2 licence eligibility holder on record.
c) Only one nominee (i.e. an individual) may be nominated. Multiple nominees or companies will not be accepted.

Nomination forms can be submitted to the PFLU via:
Fax: 604-666-5855
E-mail: fishing-peche@dfo-mpo.gc.ca

NOLS

Z2ACL eligibilities may not be nominated as these are allocated annually to First Nations members.

5.8. Contaminated Shellfish Harvest Licence (Decontamination Program)

A special licence issued under the *Management of Contaminated Fisheries Regulations* is required in order to harvest clams in marginally contaminated areas. These licences are issued only to registered depuration processing facilities or tenure holders who meet the relay decontamination plan. In some cases where a First Nation is exercising a joint venture opportunity, both the First Nations and the depuration company will be jointly named in the licence. An individual harvester cannot obtain this licence. For additional information see Appendix 4.

5.9. Receiver's Licence

A Fish Receiver's licence issued by the Province of BC is required to purchase clams harvested under the authority of a commercial clam licence. All clams sold must be processed through a federally-registered plant. See the internet for more information:

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

6. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

6.1. Fish Slip Requirements

An accurate written report shall be furnished in writing on a clam fish slip or clam slip First Nations (in the case of First Nations harvested clams), of all clams harvested under the authority of the clam licence. The clam licence number and name of the licensed clam harvester must be recorded on all fish slips.

A report shall be made even if the fish or shellfish are used for bait, personal consumption or disposed of otherwise.

The report shall be mailed not later than seven days after the offloading and sent to:

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

Fish slip books may be downloaded and printed at user cost at http://www.pac.dfo-mpo.gc.ca/stats/fishslips-carnets/index-eng.html. Phone (604) 666-2716 for more information.

6.2. In-Season Reports

Buyer and processor reports are communicated to the fishery manager after each commercial clam fishery opening. The harvest data is recorded and tracked for in-season management purposes. The data is currently provided in an inconsistent manner and a more standardized approach is needed to ensure long-term sustainability of the fishery.

7. GENERAL INFORMATION

7.1. Harvester Responsibility

Harvesters are advised to make arrangements with their prospective receiver/processor, prior to harvesting clams, to ensure that their product and harvest operation is adequately verified. Processing plants must ensure product verification in order to meet the CFIA requirements. For further information contact your processor or CFIA (see the Contacts section).

Most harvesters keep beaches clean and free from garbage and other pollution, however, an increasing number of complaints have been received from the public regarding garbage dropped on beaches by harvesters. DFO asks harvesters to remove all garbage from harvest sites. Violators are subject to prosecution. Harvesters are encouraged to maintain garbage cans on vessels and, to prevent sewage contamination of shellfish on these beaches, to refrain from anchoring vessels for lengthy periods within 125 meters from any clam or oyster beds. Clam harvesters shall never defecate on or near beaches due to the high risk to human health of contaminating shellfish.

Harvesters should refrain from harvesting clams on beaches where high numbers of under-sized clams are found. The minimum size limit has been set so that clams will spawn once or twice before reaching legal size (see Figure 8 and 9 of Appendix 5). Harvesters are requested to rebury all undersized clams. Harvesters are also requested to avoid leaving holes in the beach from digging activities.

Harvesters should exercise judgement and avoid harvesting during freezing weather. Openings are not announced if freezing conditions are present, but weather cannot be accurately predicted. Freezing conditions may adversely impact young clams left on the surface during cold weather and harvested product may freeze during transport to buyers. Harvest only in open areas that are classified as Approved under the Canadian Shellfish Sanitation Program. It is illegal to harvest clams in areas that are closed for reasons of sanitary or biotoxin contamination, or conservation. Check with fishery managers or local DFO offices to confirm area openings.

www.dfo-mpo.gc.ca/CheckBeforeYouHarvest

Harvesters must ensure their product is verified in order to meet food inspection requirements. Processors can advise on specific verification procedures. Processors are required to have a verification program in place in order to comply with Canadian Food Inspection Agency regulations. A federally registered processing plant must process all harvested clams.

7.2. Product Handling and Transportation

To ensure product quality, care must be exercised to protect the harvested clams from contamination and exposure to the sun, weather, temperature, etc. Clam harvesters are advised of the following:

a) Do not litter at or near the harvest site.
b) Do not bring pets to the harvest site. Defecation at a harvest site will render the beach contaminated.
c) During summer months, harvested product must be kept cool in order to avoid or reduce contamination by the *Vibrio parahaemolyticus* bacteria.
d) During transportation, store clams in a sanitary isolated area with drainage that is away from fuel and oil containers and bilge water.
e) Do not rinse the shellstock at a dockside or any area other than at the harvest site.
f) Do not sort the harvested product (i.e. separate clams by species) at any location other than the harvest site or a federally registered shellfish processing plant.
g) It is permissible to rinse the shellstock at the harvest site only at the time of harvest. This is a recognized part of the harvesting practice to remove excess mud, sand etc.
h) All processing must be carried out at a federally registered shellfish processing plant.

7.3. Wet Storage

As of January 2019, DFO Aquaculture Management is the lead authorizing agent for wet storage activities. Conditions of licence have been amended to reflect new approval requirements for wet storage of product. Harvesters are reminded that commercially harvested shellfish cannot be left on wild beaches unattended without wet storage permits. Improper storage of shellfish after harvest can expose shellfish to contamination. At present, wet storage of shellfish can only occur on tenures approved for this purpose by the Canadian Food Inspection Agency.

7.4. Example of Clam Tag

To increase traceability of product, harvesters must attach waterproof tags to their bags or containers of clams. Flagging tape is not an approved tag. All information as outlined in the requirements under the conditions of licence (COL) should be included on the tags.

Harvesters are responsible for producing their own tags for the fishery. Harvesters may wish to have their tags printed by the BC Shellfish Growers Association (BCSGA) and if so, are advised to contact the BCSGA to arrange tag printing.

Example Tag:

LICENCE #_____ HARVEST DATE: _____
(YYYY-MM-DD)

LICENCE HOLDER'S FULL NAME: _____

BEACH: _____ PFMA SUBAREA:_____

CLAM MANAGEMENT AREA: B___ C___ D___ E___ F___ G___

MANILA CLAMS___ BUTTER CLAMS ___ LITTLENECK CLAMS ___

BUYER/RECEIVER NAME: _____

Complete <u>ALL</u> fields and affix this tag to the container/bag of clams.

The tags must be waterproof and provide the following information written in water resistant ink:

- Clam harvester's licence number;
- Harvest date;
- Licence holder's full name as it appears on the licence;
- Beach or location where harvesting occurred;
- Pacific Fisheries Management Area and Subarea (example: Subarea 24-4);
- Clam Management Area (e.g. Area B); and
- Species or common name of the product i.e. "Manila clam", "Littleneck clam", "Butter clam"

At the point of sale, the following information may be marked on the tag:
(a) Buyer/Receiver Name

APPENDIX 2: 2022-23 INTERTIDAL CLAM FIRST NATIONS HARVEST PLAN

1. OVERVIEW OF THE FISHERY

Fisheries & Oceans Canada's policy on the management of First Nations fishing identifies First Nations harvests for food, social and ceremonial (FSC) purposes as the first priority - after conservation – over other users of the resource. Fisheries & Oceans Canada 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 harvest documents (under treaty) 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, Fisheries & Oceans Canada issues communal fishing licences to First Nations organizations.

Intertidal clams are of continuing importance to Aboriginal groups who harvest them for FSC purposes.

For more information on Aboriginal fisheries, contact a resource manager listed in the Contacts section of the IFMP.

2. LOCATION OF THE FISHERY

Aboriginal communal licences specify the locations permitted for use by First Nations for FSC harvests. Harvesting generally takes place within traditional areas for each First Nation except where those beaches are closed due to contamination, lease tenures and treaty areas. It is recommended that harvest occurs in waters that are classified as Approved by the Canadian Shellfish Sanitation Program, as per the *Safe Food for Canadians Regulations*. Approved areas are indicated in green on the maps accessed through the following website address: www.dfo-mpo.gc.ca/CheckBeforeYouHarvest

3. TIME FRAME OF THE FISHERY

First Nations fishing for FSC purposes are open coast-wide throughout the year, from April 1 to March 31, if authorized by a communal licence and the area is not closed for sanitary or biotoxin (e.g., paralytic shellfish poisoning (PSP) or red tide) contamination.

4. CLOSURES

Closures to the First Nations fishery may be in place for a variety of reasons: Parks, Marine Reserves, research, navigation, or sanitary and marine biotoxin contamination.

4.1. General Information on Closures under the Canadian Shellfish Sanitation Program

Closures may be implemented on short notice in the event of changes to contamination status, including sanitary and biotoxin events. Licence holders, vessel masters, and harvesters are reminded that:

- It remains the responsibility of the licence holders and harvesters to ensure that an area is not closed for harvest due to sanitary or biotoxin contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of each day's fishing, the licence holder must take care to confirm that an area is open for harvesting either through the DFO website at:

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

  or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Section 16 of IFMP.
- Additional sanitary and biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).
- Information may also be available through weekly broadcasts over a commercial or marine radio station ("the weather channel"). In the North Coast, this method is only updated weekly on Tuesdays and it is recommended that the sources listed above be the primary avenue for information.

Remember to check for both types of contamination closures that may affect bivalves: sanitary closures and biotoxin closures (PSP/red tide, Domoic Acid Poisoning and Diarrhetic Shellfish Poisoning (DSP)).

4.2. Sanitary Contamination Closures

Shellfish may not be harvested from closed contaminated areas except by special permit licence under the *Management of Contaminated Fisheries Regulations (MCFR)*. Sanitary closures occur in areas that have been tested and found to contain unacceptable levels of contaminants. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following DFO website:

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

- Additional sanitary closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

A copy of this list may also be obtained from the resource managers (see Contacts, Section 16 of IFMP). Sanitary closures are amended annually in May and November, and may also be amended in-season. Consequently, harvesters are advised to check the internet, prior to harvesting in an area, to ensure that they have the most recent contamination closure information.

Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

1. 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
2. 125 m radius of any:
   (i) marina
   (ii) ferry wharf
   (iii) any floating living accommodation facility, other than a floating living accommodation described in subsection (3)
   (iv) any finfish net pen, other than a finfish net pen described in subsection (4);
3. 25 m radius of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Aquaculture Licence and is approved by the Regional Interdepartmental Committee: and
4. Zero (0) metres of any finfish net pen within an aquaculture tenure where an Integrated Multi-Trophic Aquaculture Management Plan approved by the Regional Interdepartmental Committee is in operation.

4.3. Biotoxin Contamination Closures

Shellfish may not be harvested from closed areas except by special permit licence issued under the *Management of Contaminated Fisheries Regulations*. Shellfish may not be harvested for consumption from any area closed due to biotoxin contamination. Descriptions of biotoxin closures may be found at the following DFO internet site:

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

- Additional biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

Areas will be opened and fished according to protocols required by the Biotoxin Monitoring Program, approved by the Canadian Food Inspection Agency (CFIA).
Three consecutive weekly samples containing acceptable levels of biotoxin must be received in order to lift a harvest restriction in an area. CFIA will make recommendation to lift the biotoxin (Paralytic Shellfish Poison (PSP)/red tide, Domoic Acid Poisoning) (ASP) or Diarrhetic Shellfish Poisoning (DSP) prohibition and a harvest site can then be considered by DFO for Aboriginal, commercial or recreational harvesting. The resource manager will prepare the documentation necessary for an area opening for approval by the Regional Director General. For further details on the CSSP, see the internet at:

https://www.inspection.gc.ca/food/food-specific-requirements-and-guidance/fish/canadian-shellfish-sanitation-program/eng/1527251566006/1527251566942?chap=0

Closures due to biotoxin closure (Paralytic Shellfish Poisoning (PSP/Red Tide), Domoic Acid Poisoning and Diarrhetic Shellfish Poisoning (DSP)) are frequent and often encompass large areas. These closures can occur on very short notice with the closure taking effect immediately. Consumption of shellfish that contain the toxins causing PSP and Domoic Acid Poisoning can cause paralysis, memory loss or death.

Check to ensure that the area where you intend to harvest is open prior to harvesting using the following site: www.dfo-mpo.gc.ca/CheckBeforeYouHarvest.

4.4. Requirements for Legal Sourcing and Harvest of Bivalve Shellfish

The safety of consumers is a top priority for the Government of Canada. The reputation of Canada's food supply is a responsibility shared by all parties, including industry and federal and provincial governments.

As partners for delivery of the Canadian Shellfish Sanitation Program (CSSP), Fisheries and Oceans Canada (DFO) and the Canadian Food Inspection Agency (CFIA) collaborate to prevent illegal harvesting and selling of bivalve shellfish, including suspected laundering of illegal products through legitimate aquaculture businesses. DFO also remains committed to meeting conservation objectives for bivalves as well as supporting priority for FSC fisheries. Any harvest occurring in conflict with established management measures and controls has the potential of negatively impacting the conservation of bivalve populations.

DFO will investigate reports of illegal harvesting violations and will take appropriate enforcement actions, including prosecution. Furthermore, DFO may consider more restrictive management approaches if needed to protect public health. Commercial growers and harvesters are reminded that they are required, by law, to follow specific record-keeping and tagging requirements. Records of shellfish movement through the growing cycle and to the point of distribution provide evidence to support public health, regulatory decisions and closure recommendations.

Commercial harvesters and aquaculture operators are required to:

- Understand and abide by the conditions of licence;
- Keep complete, clear and legible records and be able to produce them to a DFO fishery officer when requested;
- Ensure bivalve product destined for market sale is appropriately tagged with complete and accurate harvest information and is processed by an operator licensed by the Canadian Food Inspection Agency to process shellfish;
- Harvest only from open and approved areas and check our website before heading out for the latest information (www.dfo-mpo.gc.ca/CheckBeforeYouHarvest).

If you are aware of illegal bivalve harvest activities and/or are aware of violations, please call the DFO Observe, Record and Report (ORR) phone line at 1-800-465-4336.

More information on the policies and criteria for harvesting shellfish can be found in the CSSP manual. See also Fishery Notice FN1142 (2019): https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=227228&ID=all

4.5. Human Waste Containment Regulations

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

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site:

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

4.6. Harvesting Bivalves in the Vicinity of Wastewater Treatment Plants

Concerns have been raised regarding bivalve shellfish harvested in the vicinity of wastewater treatment plants. Increased controls were implemented in 2009 to prevent shellfish harvest in areas where a trigger event at a wastewater treatment plant may potentially cause contamination.

Conditional Management Plans have been developed at some of the priority based wastewater treatment plants to manage harvest activities in the vicinity of the wastewater treatment plants.

DFO will consult with shellfish harvesters in areas where Conditional Management Plans must be developed.

For further information, contact Elysha Gordon at (250) 756-7192.

5. MANAGEMENT MEASURES FOR THE FIRST NATIONS' FISHERY

First Nations are provided the opportunity to fish for intertidal clams year-round subject to biotoxin or sanitary closures in their harvest areas. Communal licences are issued which provide for a maximum daily quota of 50-100 lbs. per day per person. The Chief and council may authorize additional catch where required.

Currently, there is no recommended minimum size limit for clams harvested by First Nations. Although there is no coordinated approach to minimum size limits, it has been shared with DFO, in bilateral discussions, that traditionally some First Nations harvesters will avoid taking smaller clams to ensure local conservation and sustainability. This stewardship practice would be passed down through generations and is still utilized by many First Nations harvesters today.

First Nations can harvest shellfish in all CSSP approved areas where areas are open. The exception to this would be lease tenures and treaty areas where only treaty members have exclusive rights for harvest on certain beaches. See Section 4 of Appendix 1: Commercial Harvest Plan or Appendix 5 for maps of the treaty areas.

To improve First Nations FSC fishing success, closures to commercial fishing have been implemented in a number of locations where First Nations have demonstrated their food needs are not being met. These closures can be found in Section 4 of the Commercial Harvest Plan (CHP). First Nations interested in bilateral discussion with DFO regarding FSC access issues should contact the resource manager for their area.

6. LICENSING

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

7. 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. Provisions may also be provided for monitoring and reporting of the First Nations fishery in co-operation with DFO.

First Nations communal licences specify the locations permitted for use by First Nations for FSC harvests.

The First Nations will provide the number of pounds of shellfish harvested by species to the Fisheries & Oceans Canada Resource Manager on a quarterly basis (every 3 months).

Aboriginal harvest FSC purposes may occur year round in the waters of British Columbia that are open for fishing under the Canadian Shellfish Sanitation Program (CSSP). This harvest must be authorized by a communal licence.

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

More information on the Treaties can be found at: https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html

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 T'aaq-wiihak First 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. The Department has developed a 2021/22 Five Nations Multi-species Fishery Management Plan (FMP). Feedback provided by the Five Nations during consultations was considered by DFO in the development of the 2021/22 FMP. The FMP includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting. For further information see the FMP at: https://waves-vagues.dfo-mpo.gc.ca/Library/40953798.pdf

The implementation of the Five Nations' right-based sale fishery is an ongoing process. The 2021/22 FMP was developed to implement the right-based multi-species fishery to accommodate the Five Nations' Aboriginal rights consistent with the British Columbia Supreme Court's 2018 decision. On April 19, 2021, the British Columbia Court of Appeal released its decision in relation to the appeal brought forward by the Five Nations. As a result, the department is reviewing the 2021/22 FMP. Following this review, the 2021/22 FMP may be amended and in-season management changes to this IFMP may occur. Changes to the FMP will be announced by fishery notice.

APPENDIX 3: 2022-23 INTERTIDAL CLAM RECREATIONAL HARVEST PLAN

1. LOCATION OF THE FISHERY

Recreational harvest of intertidal clams can occur in all areas where there are no biotoxin or sanitary closed areas subject to the exceptions noted below. It is recommended that harvest occurs in waters that are classified as Approved by the Canadian Shellfish Sanitation Program, as per the *Safe Food for Canadians Regulations*. Approved areas are indicated in green on the maps accessed through the following website address: www.dfo-mpo.gc.ca/CheckBeforeYouHarvest

Closures to commercial fishing to create food, social and ceremonial (FSC) and recreational harvest areas, have been implemented in a number of locations (see Appendix 1, Section 4).

With the exception of management Subareas 1-5 and 7-17, the entire North Coast (Areas 1 to 11 inclusive) is closed for the harvest of intertidal bivalves.

Harvesters are advised to observe the boundaries of any intertidal tenures. Harvesting on any tenures is prohibited under this fishery. All clam and oyster tenures must be clearly marked. (see Appendix 5).

Clam harvesting is prohibited in treaty areas where only treaty members have exclusive rights for harvest on certain beaches (see Appendix 5, Figure 11 to 18).

2. TIME FRAME OF THE FISHERY

With the exception of the North and Central coast, recreational fisheries are open year-round in all areas (subject to contamination closures), or as described in the British Columbia Tidal Waters Sport Fishing Guide for the recreational fishery.

3. CLOSURES

Closures to the recreational fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, research, navigation, or sanitary and marine biotoxin contamination.

3.1. General Information on Closures under the Canadian Shellfish Sanitation Program

Closures may be implemented on short notice in the event of changes to contamination status, including sanitary and biotoxin events. Licence holders, vessel masters, and harvesters are reminded that:

- It remains the responsibility of the licence holders and harvesters to ensure that an area is not closed for harvest due to sanitary or biotoxin contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.

- Prior to commencement of each day's fishing, the licence holder must take care to confirm that an area is open for harvesting either through the DFO website at:

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

  or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Section 16 of the IFMP.

- Additional sanitary and biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

- Information may also be available through weekly broadcasts over a commercial or marine radio station ("the weather channel"). In the North Coast, this method is only updated weekly on Tuesdays and it is recommended that the sources listed above be the primary avenue for information.

Remember to check for both types of contamination closures that may affect bivalves: sanitary closures and biotoxin closures (PSP/red tide, Domoic Acid Poisoning and DSP).

3.2. Sanitary Contamination Closures

Shellfish may not be harvested from closed contaminated areas except by special permit licence under the *Management of Contaminated Fisheries Regulations (MCFR)*. Sanitary closures are in place in areas that have been tested and found to contain unacceptable levels of contaminants. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following DFO website:

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

- Additional sanitary closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

A copy of this list may also be obtained from the resource managers (see Contacts, Section 16 of IFMP). Sanitary closures are amended annually in May and November, and may also be amended in-season. Consequently, harvesters are advised to check the internet, prior to harvesting in an area, to ensure that they have the most recent contamination closure information.

Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

1. 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
2. 125 m radius of any;
   i. marina
   ii. ferry wharf
   iii. any floating living accommodation facility, other than a floating living accommodation described in subsection (3);

iv. any finfish net pen, other than a finfish net pen described in subsection (4);

3. 25 m radius of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Aquaculture Licence and is approved by the Regional Interdepartmental Committee: and
4. Zero (0) metres of any finfish net pen within an aquaculture tenure where an Integrated Multi-Trophic Aquaculture Management Plan approved by the Regional Interdepartmental Committee is in operation.

3.3. Biotoxin Contamination Closures

Shellfish may not be harvested from closed areas except by special permit licence issued under the *Management of Contaminated Fisheries Regulations*. Shellfish may not be harvested for consumption from any area closed due to biotoxin contamination. Descriptions of biotoxin closures may be found at the following DFO internet site:

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

- Additional biotoxin closure information can be found on the national Canadian Shellfish Sanitation Program mapping application, SHELLI (https://dfo-mpo.gc.ca/shellfish-mollusques/cssp-map-eng.htm).

Areas will be opened and fished according to protocols required by the Biotoxin Monitoring Program, approved by the Canadian Food Inspection Agency (CFIA).

Three consecutive weekly samples containing acceptable levels of biotoxin must be received in order to lift a harvest restriction in an area. CFIA will make recommendation to lift the biotoxin (Paralytic Shellfish Poison (PSP)/red tide, Domoic Acid Poisoning) (ASP) or Diarrhetic Shellfish Poisoning (DSP) prohibition and a harvest site can then be considered by DFO for Aboriginal, commercial or recreational harvesting. The resource manager will prepare the documentation necessary for an area opening for approval by the Regional Director General. For further details on the CSSP, see the internet at:

https://www.inspection.gc.ca/food/food-specific-requirements-and-guidance/fish/canadian-shellfish-sanitation-program/eng/1527251566006/1527251566942?chap=0

Closures due to biotoxin closure (Paralytic Shellfish Poisoning (PSP/Red Tide), Domoic Acid Poisoning and Diarrhetic Shellfish Poisoning (DSP)) are frequent and often encompass large areas. These closures can occur on very short notice with the closure taking effect immediately. Consumption of shellfish that contain the toxins causing PSP and Domoic Acid Poisoning can cause paralysis, memory loss or death.

Check to ensure that the area where you intend to harvest is open prior to harvesting using the following site: www.dfo-mpo.gc.ca/CheckBeforeYouHarvest.

3.4. Requirements for Legal Sourcing and Harvest of Bivalve Shellfish

The safety of consumers is a top priority for the Government of Canada. The reputation of Canada's food supply is a responsibility shared by all parties, including industry and federal and provincial governments.

As partners for delivery of the Canadian Shellfish Sanitation Program (CSSP), Fisheries and Oceans Canada (DFO) and the Canadian Food Inspection Agency (CFIA) collaborate to prevent illegal harvesting and selling of bivalve shellfish, including suspected laundering of illegal products through legitimate aquaculture businesses. DFO also remains committed to meeting conservation objectives for bivalves as well as supporting priority for Food, Social and Ceremonial fisheries. Any harvest occurring in conflict with established management measures and controls has the potential of negatively impacting the conservation of bivalve populations.

DFO will investigate reports of illegal harvesting violations and will take appropriate enforcement actions, including prosecution. Furthermore, DFO may consider more restrictive management approaches if needed to protect public health. Commercial growers and harvesters are reminded that they are required, by law, to follow specific record-keeping and tagging requirements. Records of shellfish movement through the growing cycle and to the point of distribution provide evidence to support public health, regulatory decisions and closure recommendations.

Commercial harvesters and aquaculture operators are required to:

- Understand and abide by the conditions of licence;
- Keep complete, clear and legible records and be able to produce them to a DFO fishery officer when requested;
- Ensure bivalve product destined for market sale is appropriately tagged with complete and accurate harvest information and is processed by an operator licensed by the Canadian Food Inspection Agency to process shellfish;
- Harvest only from open and approved areas and check our website before heading out for the latest information (www.dfo-mpo.gc.ca/CheckBeforeYouHarvest).

If you are aware of illegal bivalve harvest activities and/or are aware of violations, please call the DFO Observe, Record and Report (ORR) phone line at 1-800-465-4336.

More information on the policies and criteria for harvesting shellfish can be found in the CSSP manual. See also Fishery Notice FN1142 (2019): https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=227228&ID=all

3.5. Human Waste Containment Regulations

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers. In accordance with the Canadian Shellfish Sanitation Program (CSSP) and Transport Canada Regulations, raw sewage (Human wastes, sewage or refuse) shall not be discharged from vessels while in or adjacent to shellfish areas. Vessels operating at a

distance which does not allow for timely access to on-shore washroom facilities are expected to have a designated human waste receptacle on board. Receptacles could include a portable toilet, a fixed toilet, or other containment device as appropriate. Such devices must be made of impervious, cleanable materials and have a tight-fitting lid. (Refer to Division 4 of the 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 on board a shellfish harvest vessel must wash and sanitize their hands after using or cleaning a waste receptacle, or after using an onshore washroom facility.

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site:

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

3.6. Harvesting Bivalves in the Vicinity of Wastewater Treatment Plants

Concerns have been raised regarding bivalve shellfish harvested in the vicinity of wastewater treatment plants. Increased controls were implemented in 2009 to prevent shellfish harvest in areas where a trigger event at a wastewater treatment plant may potentially cause contamination.

Conditional Management Plans have been developed at some of the priority based wastewater treatment plants to manage harvest activities in the vicinity of the wastewater treatment plants.

DFO will consult with shellfish harvesters in areas where Conditional Management Plans must be developed.

For further information, contact Elysha Gordon at (250) 756-7192.

4. MANAGEMENT MEASURES FOR THE RECREATIONAL FISHERY

Intertidal clams can be harvested by handpicking. When open, and with the exception of Pacific Rim National Park, the recreational daily limit for all clam species combined is 60 per day in Areas 1 to 27. Species-specific daily limits are included within the 60 clam aggregate limit; daily limits by species are: 3 geoducks, 6 horse clams, 12 razor clams (except in PFMA 1-5 where the daily limit is 50 razor clams), 20 butter clams, 25 softshell clams, 25 cockles, 60 varnish clams, 60 Manila clams, and/or 60 littleneck clams. Possession limits are two-times the daily limit. In addition to daily limits, there are required minimum size limits by clam species. There is a

minimum size limit of 35mm for Littleneck and Manila clams and a minimum size limit of 55mm for Butter clams.

Recreational harvesters can harvest shellfish in all areas where areas are open. The exception to this would be lease tenures and treaty areas where only treaty members have exclusive rights for harvest on certain beaches. See Section 4 of Appendix 1: Commercial Harvest Plan or Appendix 5 for maps of the treaty areas.

In several areas, beaches have been set aside as non-commercial harvest areas to provide reasonable harvesting opportunity. Commercial fishing is prohibited in these areas. See Appendix 1: Commercial Harvest Plan for descriptions of these areas.

Harvest guidelines are provided in the British Columbia Tidal Waters Sport Fishing Guide. See the guide on the Internet at:

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

In general, the Sport Fishing Advisory Board suggests that clam harvesters use the following best management practices:

- Keep beaches clean and free from garbage and other pollution;
- Remove all garbage from harvest sites;
- Refrain from harvesting clams on beaches where high number of small clams are found;
- Avoid leaving holes in the beach from digging activities;
- Do not bring pets to the harvest site; defecation at a harvest site could render the beach contaminated.

5. LICENSING

A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish in tidal waters, including shellfish. Tidal Waters Sport Fishing licences may be purchased for a 1, 3, 5 day, or annual period. Licences for juveniles (ages 15 and under) are free. Fees for adults depend on licence duration, age (adult or senior) and residency status. Check for applicable fees, Independent Access Providers (tackle stores and marinas) or for your convenience purchase your licence online via the National Recreational Licensing System (NRLS) at the following link: https://recfish-pechesportive.dfo-mpo.gc.ca/nrls-sndpp/index-eng.cfm.

For recreational licensing information, frequently asked questions, and a list of Independent Access Providers, please visit: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/index-eng.html.

Please plan ahead and get your licence online in advance. To avoid delays, the best time to access NRLS is outside of peak periods. Peak periods are every day from 12-3pm; every Friday, Saturday, and Sunday; and anytime there is a major fishery opening, such as the Fraser River Sockeye opening. Please also refer to the site for any posted information on scheduled maintenance which could result in system interruptions.

6. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES

The recreational harvest of shellfish is regulated via the *British Columbia Sport Fishing Regulations, 1996* made under the *Fisheries Act*. The regulations are summarized in the British Columbia Tidal Waters Sport Fishing Guide which lists closed times, bag limits, size limits (where applicable) and some closed areas. If necessary, public notices are posted to document closures or changes from the Guide. Closures may be implemented in order to conserve vulnerable stocks, or to protect the public from consumption of contaminated shellfish or to meet First Nations food, social and ceremonial needs.

6.1. Catch Reporting

The Sport Fishing Advisory Board and the recreational fishing sector strongly support effective fishery monitoring and catch reporting programs in recreational fisheries. The Sport Fishing Advisory Board has been working with DFO on initiatives to strengthen fishing monitoring and catch reporting in the recreational fishery for a number of years.

As of 2013, recreational harvesters are legally required as a condition of the Tidal Waters Sport Fishing Licence to report information on their recreational fishing activity and catch to DFO representatives when requested. Commonly, recreational harvesters may be requested by a Fishery Officer or designated DFO representative at the dock or through a creel survey to provide important catch and effort information. A recreational phone survey is also conducted nationally by DFO every 5 years. In 2012, a new internet survey was initiated to provide monthly estimates of effort for all methods of recreational fishing, including angling, trapping, beach collecting, and diving and to provide monthly estimates of catch for all sport caught species.

The internet 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 who do not fish during the month are also surveyed as well, as an important component of the catch and effort estimation. Since participants in the survey are selected randomly, some licence holders will be selected to participate for more than one month during a licensing year (April to March). It is a condition of the recreational fishing licence to participate in the survey when the participant is contacted.

More information on the internet recreational survey is available at:

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

APPENDIX 4: INTERTIDAL CLAM DECONTAMINATION HARVEST PLAN

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1. OVERVIEW OF THE FISHERY

Areas of the coast where the water or shellfish have been identified as contaminated by faecal bacteria, biotoxins, heavy metals, or may be at risk of being contaminated (such as areas around marinas, sewage outfalls or other sources of raw sewage) are closed for harvest by the Department under a Prohibition Order under Section 3(1) of the *Management of Contaminated Fisheries Regulations* to protect human health. Manila clams (*Venerupis philippinarum*) and littleneck clams (*Protothaca staminea*) from moderately contaminated areas identified by Environment and Climate Change Canada (ECCC) as Restricted can be decontaminated and utilized for human consumption. Protocols were defined though laboratory testing in the 1970s (Devlin 1973, Neufeld et al. 1975). The process to allow shellfish to empty their stomachs and metabolize bacteria they have filtered from the water in order to be made safe for consumption is known as depuration. Facilities designed to depurate shellfish are required to test each lot at zero hour, mid-cycle and end of cycle (24 hours) to ensure the shellfish have decontaminated.

Due to the extra costs required for depuration, this process did not become viable for the fishery until the 1990s when the supply of clams from the wild fishery became less reliable. The first facility started depurating clams in 1990 and by 1996 there were five registered depuration facilities. Many of the beaches fronting or adjacent to Indian Reserves were closed to direct harvest and utilizing these beaches as depuration harvests was included as a way of contributing to First Nation involvement in the intertidal clam fishery. An operational framework for access to contaminated shellfish was defined in 1996 (unpublished document - DFO 1996). This framework applied to harvest from vacant crown foreshore areas or public beaches. Due to the need to maintain control of the contaminated product from harvest through depuration and to the market, the licensing and access policy for the contaminated shellfish fishery were distinct from the commercial intertidal clam fishery, therefore harvesters are not required to have commercial Intertidal clam licences (Z2 or Z2ACL) but must be trained, supervised and named on a licence issued under the *Management of Contaminated Fisheries Regulations*.

The landings from contaminated shellfish fisheries from vacant crown foreshore reached a maximum of 407 tonnes from 50 locations in 1998. Many of the larger beaches fronting reserves (29 locations) were converted to aquaculture tenures in 2003, owned by First Nation organizations and at some beaches (11) the water quality improved so that the beaches are no longer closed to direct harvest. The increased value of the Canadian dollar ($0.63 US in 1998; $1.10 US in 2007) may have contributed to less interest in contaminated beaches due to the costs of depuration in the early 2000s. The cost of surveying smaller beaches makes it impractical for utilizing them for decontamination. By 2011/12 only 10 vacant crown foreshore beaches were harvested and landings were 86 tonnes, although many of the tenured beaches (22 locations) are still being harvested and landings are reported as part of aquaculture production. For 2016 and 2017, there were three wild beaches harvested with approximately 33 tonnes of Manila clams landed each year and landings and number of beaches has declined to only three wild beaches by 2021.

A protocol for decontamination of shellfish from aquaculture tenures in sanitary closures by relay to aquaculture tenures in open areas for an extended period (minimum 14 days) was developed in 2015 to 2018. For vacant crown foreshore areas where access has been defined, relay to aquaculture tenures in open areas for decontamination is an option that can be defined in the Decontamination Plan as of 2019. Only aquaculture tenures in Approved areas may be used in order to maintain security of the contaminated clams for the decontamination period.

2. MANAGEMENT MEASURES

2.1. Qualified Areas

Clams in sanitary closures may be accessed under Section 4(1) of the *Management of Contaminated Fisheries Regulations* (MCFR), made pursuant to the *Fisheries Act*. The contaminated shellfish fishery provides access to Manila and littleneck clams in accordance with the requirements of the Canadian Shellfish Sanitation Program (CSSP). Only areas with marginal faecal coliform bacterial contamination approved by ECCC qualify as potential harvest areas. CSSP classification definitions and conditions under which areas may qualify may be found in the CSSP manual of operations. The latest version of the manual may be found on the Internet at:

https://inspection.canada.ca/food-safety-for-industry/food-specific-requirements-and-guidance/fish/canadian-shellfish-sanitation-program/eng/1527251566006/1527251566942?chap=0

The contaminated shellfish fishery is licensed on a site by site basis and specific conditions may apply that alter the opportunity to harvest under specific requirements. Harvests for decontamination are not allowed from areas closed due to biotoxin closures or areas classified as prohibited due to high levels of bacterial contamination, heavy metals, or other risks to human health.

Additional information on requirements for water quality sampling history may be obtained from the CSSP manual of operations at the website provided above.

2.2. Size Limits

Clams harvested for decontamination from public beaches must meet the commercial legal size limit of 38 mm across the breadth of the shell.

2.3. Biomass Surveys And Harvest Rates

In order to harvest contaminated bivalves from beaches within sanitary closures, the licence holder must undertake a clam biomass survey in order to establish a biologically-based total allowable catch (TAC) defined by species, following the size limit of 38 mm for legal size. A stock assessment plan must be developed with the proponent and the Marine Invertebrate Section (MIS) of Stock Assessment & Research Division, Science Branch of DFO. The proponent is responsible for funding and conducting the biomass survey. On the basis of this survey, the Department will establish a TAC of legal-sized Manila and littleneck clams for the area surveyed. The survey must be completed prior to harvest and be conducted during daylight low tides no greater than 1 m above chart datum (this limits surveys to the period of late April to early September).

A Scientific Licence to Fish for Contaminated Shellfish (XMCFR) survey licence is required to conduct the stock assessment. Referrals to other agencies is not required during the survey stage. There is a licence fee of $102.20 (subject to change). Harvesters must be named on the licence but there is no fee for harvesters.

Specific survey design and data collection is required to be consistent with Gillespie and Kronlund (1999), and should be discussed with and reviewed by MIS. A Clam Biomass Survey Report is required. Contact the MIS Shellfish Biologist for report requirements.

Harvest rates are established by DFO for each harvest location, based on the survey biomass and density estimates. The harvest rate may range from zero to 40% of the estimated legal biomass. The harvest rate applied in this fishery has been established by applying the "Limit and Threshold Reference Points" proposed by Gillespie in *Preliminary Review of Experimental Harvest Rates in The Depuration Fishery For Intertidal Clams*, CSAS 2000/122, page 40, as follows:

Reference Point	Harvest Rate of Legal Sized Clam Biomass
< 30 legals/m²	no harvest, closed for recovery
< 70 legals/m²	0.10
< 130 legals/m²	0.20
≥ 130 legals/m²	0.40

The harvest rates listed above are used as guidelines. The Department will define the harvest rate based on the factors for each specific harvest site, and will take other considerations into account. Other factors may include tenure applications at the site, harvest history, landing record reporting history, and other management objectives such as decreasing clam population levels at locations with potential risk of illegal harvesting. The Department may increase harvest rates to decrease the risk of contaminated product potentially entering the human food supply outside of approved decontamination protocols.

Harvest quotas or TAC resulting from biomass surveys may be partially available for harvest during the licence year in which the survey was completed or in full for the following year's licence.

2.4. Total Allowable Catch Carry-over

Except in very unusual circumstances, the biomass defined from a survey and the total allowable catch will not be carried over beyond a maximum of 18 months following a survey. The chance of winter kill means that a biomass is not valid after two winters and a new survey is required. At this time forecasting of quota options on a multi-year basis is not available, and new surveys will be required each year if applicants wish to seek continued harvest opportunity on the beach.

3. ACCESS TO BEACHES

Access to beaches fronting or adjacent to existing Indian Reserves will be provided to local First Nation organizations as a priority. DFO will conduct a consultation process with First Nation organizations whose traditional territory may have included the beach in question. Other public beaches closed to direct harvest may be accessed for commercial harvest opportunities subject to the requirements of the CSSP, management considerations and following a process of consultation by the Department.

3.1. Considerations For Providing Access

To obtain a contaminated shellfish harvest licence, clam licence holders or First Nation organization must identify the beaches they wish to harvest. Proposals for beaches will be accepted by DFO for review by CFIA, ECCC, Province of BC Ministry of Natural Resource Operations, DFO Aquaculture Management Division, DFO Resource Management, and other departments as may be deemed necessary. ECCC must approve the area as meeting the guidelines for decontamination and there must be recent water quality information available. Decisions around

new beaches will be determined during the meeting of the Pacific Region Interdepartmental Shellfish Committee (PRISC), usually in April or October. DFO will review beaches for conflicts with historical use as harvest areas in the commercial intertidal clam fishery, tenure owners or other stakeholders.

Applications for access to beaches will be considered in the following manner:

1. Priority will be given to First Nation organizations for proposals for clam harvest opportunities on contaminated beaches fronting or immediately adjacent to Indian Reserves or vacant crown beaches in traditional territories.
2. Consideration will be given to proposals from clam management boards or advisory groups of area clam licence holders requesting harvest opportunities on contaminated beaches in their respective areas (Z2 and Z2ACL licensed commercial clam licence holders).
3. Consideration will be given to proposals from registered depuration facilities or tenure holders who have the ability to relay.

3.2. Clam Harvest From Vacant Crown Foreshore Fronting Reserve Lands

When a Manila or littleneck clam resource is in a marginally contaminated area fronting or adjacent to an Indigenous community (Indian Reserve), priority will be given to participation of members of the First Nation organization. The harvest is limited to the TAC defined from the survey. Harvesters are designated by the First Nation organization and are listed on the licence. All persons involved in joint venture harvests must be named on the licence ($20.44 fee) but First Nations harvesters do not require a Fisher's Registration Card (FRC).

3.3. Clam Harvest From Vacant Crown Foreshore

A contaminated shellfish licence is issued to allow harvest of Manila or littleneck clams from vacant crown foreshore for depuration or relay for a one year period. When a beach is allocated to an First Nation organization, an economic opportunity licence (XEO depuration or XAQ relay) is issued with sale of shellfish permitted as per the *Aboriginal Communal Fisheries Licence Regulations*. The TAC is defined from the survey conducted during daylight tides. When decontamination involves a depuration facility, a licence is issued to the company signing authority in conjunction with the First Nation organization. All harvesters who participate in the harvest, including the harvest supervisor, must be named on the licence ($20.44 fee). Non- First Nation harvesters must obtain a commercial Fisher's Registration Card (FRC) for the current year. A Z2 commercial clam licence is currently not required in consideration of the additional requirements for control of harvest and reporting of catch that are included as conditions of licence and the detail required in the Decontamination Plan. When an aquaculture tenure is used as a decontamination site, a licence is issued to the tenure signing authority, in conjunction with the First Nation organization.

4. LICENSING

4.1. Harvest Licences for Depuration or Relay

Harvest licences for vacant crown foreshore are issued by DFO under the authority of Section 4.(1) of the *Management of Contaminated Fisheries Regulations* (1990) (*MCFR*) and Section 4 of the

Aboriginal Communal Fisheries Licence Regulations (*ACFLR*). Licences may be issued under MCFR for scientific, public display, or for food. The licence must be carried when harvesting and transporting contaminated shellfish. All harvesters active in the closed area must be named on the licence. To harvest bivalves from contaminated areas for food, a Decontamination Plan that details the harvest, transport and decontamination of shellfish in accordance with CSSP requirements acceptable to the Minister is required. Decontamination Plans are approved by the Pacific Region Interdepartmental Shellfish Committee partners (DFO, ECCC and CFIA). Decontamination may be conducted at a depuration facility or by extended relay (minimum of 14 days) to an aquaculture tenure in an open area. According to Chapter 10 of the CSSP Manual, harvest for natural or extended container relay may occur in any area that is not classified as prohibited, provided that the harvest is licensed by DFO.

4.2. Licence Year

The licence period is twelve months from November 1 to October 31 for non-First Nations depuration facilities or tenure holders for relay (CS licences) and January 1 to December 31 for First Nation organizations (XEO licences).

4.3. Licence Fees

There is a licence fee of $102.20 for the survey licence to determine biomass and $102.20 for the harvest licence plus $20.44 per harvester (subject to change).

4.4. Application Process

Information will be provided annually to potentially interested First Nation organizations, clam harvesters and depuration facilities detailing new harvest areas. New opportunities will be communicated prior to March 31 annually. Parties interested in applying for access to one or more beaches may submit a request by the April 30 deadline. If more than one request is received for a single beach, applicants may be ranked based on the criteria above, or selected by a lottery.

The Department will conduct a consultation process and make a decision on beach access allocations prior to May 15 with applicants notified whether their request has been approved. This provides the time to conduct a survey in daylight tides in the following three months.

Beach access allocations will normally be in place for a five (5) year period.

Applicants will be required to submit a new request for access to the beach at the end of their five (5) year period if they wish to renew. Renewal applications following the five year period will not receive priority consideration, and will be reviewed and processed in the same manner as a new application.

4.4.1. Application Forms

Application forms for scientific and harvest licences for clams from contaminated areas are available on the Internet:

http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.htm
http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/forms/2013/shell-mollcrust-contamination-eng.html

4.4.2. Documentation to Accompany Applications:

The applicant will be required to provide the following information:

a. The development of a stock assessment and fishing plan for the proposed new location. The stock assessment schedule must consider daylight low tides and the fishing plan should include detailed site location information, proposed harvest schedules and the number of harvesters expected to be listed on the licence
b. Description of consultation undertaken or planned with local First Nation organizations and other potentially interested parties (e.g. harvesters, clam management boards, and advisory groups; local government authorities or upland property owners).
c. Any logistical issues associated with the proposed harvest such as access to remote locations, wet storage of product, and transport of harvested shellfish.
d. The successful applicant and non-successful applicants will be notified in writing of the outcome of the beach access assessment process.

4.4.3. Application and Review of Clam Relay by BC Introductions and Transfer Committee

A proposal to decontaminate clams by relay to an aquaculture tenure and placing them in the natural environment must be reviewed by the BC Introductions and Transfer Committee.

Email: FAMITC@dfo-mpo.gc.ca

Telephone: 604-666-5519

A BC ITC licence may be required, depending on the harvest location and the aquaculture tenure location and some transfers are between Shellfish Zones are not permitted.

4.5. Review Process for Previous Beach Allocations

The opportunity to harvest from a vacant crown foreshore contaminated area is provided for a five (5) year period. Following the five year access period, DFO will review the suitability of the beach as a contaminated shellfish opportunity and advertise the opportunity along with consultation with all stakeholders. Licence holders may apply for continued access to the beach.

4.5.1. Performance Considerations

Along with the normal application process considerations, the renewal of the harvest opportunity is subject to an assessment of the following performance conditions and stewardship activities conducted by the licence holder over the five years of initial access:

a. Submission of survey and biological samples during the stock assessment.
b. Provision of biological samples and data from harvests to DFO as required.
c. The notification requirements as defined in licence conditions such as submitting harvest notification forms, and posting signs when harvesting.
d. Monitoring and control of the harvest through a Harvest Supervisor at the harvest site.
e. Provision of an accurate and timely record of the landed weight of the product from each harvest site in the format and time frame stipulated in the licence.
f. The provision of accurate catch records (Fish Slips) to the DFO Regional Data Unit.

5. CONTROL AND MONITORING

In order to work in areas closed to direct harvest, licences are required to conduct the biomass assessment and harvest and all site-specific conditions of these licences must be followed. The conditions are defined for the proper management and control of activities and to ensure that contaminated clams are handled according to CSSP requirements.

5.1. Contaminated Shellfish Harvest Licence Conditions

The licences and conditions include but may not be limited to:

- Scientific Licence (including names of all harvesters) to be carried when on the beach
- Sign at the beach indicating activity is being conducted under a licence
- Notification to DFO prior to work in the restricted area indicating when the activity will be conducted
- Clam Biomass Survey Report including biological samples
- Contaminated shellfish harvest licence (including names of all harvesters) to be carried on the beach by a Harvest Supervisor and with the product until it reaches the depuration facility or aquaculture tenure being used for decontamination
- Harvesters must carry government-issued photo identification
- A Decontamination Plan must be approved (any storage or handling procedures before reaching the depuration facility and reference to the registered depuration facility operating procedures document; details of the aquaculture tenure proposed for the extended relay and plans for keeping contaminated harvests separate from other cultured shellfish; details of sampling prior to marketing and reporting in accordance with CSSP requirements for extended relay)
- Notification to DFO 24 hours prior to harvest indicating when the harvest will be conducted and when the product will arrive at the decontamination location
- Labelling on sacks of harvested clams indicating they are “From a Restricted area for decontamination only”
- Harvest Report in logbook format for harvests from vacant crown foreshore
- Fish slip reports for harvests from vacant crown foreshore

Additional site-specific conditions may be included as conditions of licence or licence amendment, including areas prohibited to the harvest of shellfish around permanent marinas, docks, float homes or sewage outfalls.

For more information on obtaining licences for access to contaminated Manila and littleneck clams see Section 16 Contacts in the IFMP.

5.2. Onboard Waste Containment For Vessels Used In Harvest

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

tight-fitting lid. (Refer to Division 4 of the 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 on board a shellfish harvest vessel must wash and sanitize their hands after using or cleaning a waste receptacle, or after using an onshore washroom facility.

Information on Human Waste Containment Receptacle Requirements under the CSSP can be found at the following Canadian Food Inspection Agency internet site:

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

Under the Contaminated Shellfish (CS, or XEO) licence, any vessel within an area licensed for harvesting contaminated shellfish must have on board appropriate waste containment, as outlined in the conditions of licence.

6. REPORTS CITED

Devlin, I. H., 1973. Operational report: oyster depuration plant-Ladysmith, B.C. Technical report (Canada. Fisheries and Marine Service. Industrial Development Branch), 1973. http://waves-vagues.dfo-mpo.gc.ca/Library/10300.pdf

Gillespie, G.E. 2000. Preliminary Review of Experimental Harvest Rates in The Depuration Fishery For Intertidal Clams. CSAS Research Document 2000/122.

Gillespie, G.E and A.R. Kronlund. 1999. A Manual for Intertidal Clam Surveys. Can. Tech. Rep. Fish. Aquat. Sci. 2270.

Neufeld, N, Tremblett, A, and Jackson, K. 1974. Clam depuration project, Ladysmith, B.C. Technical report (Canada. Fisheries and Marine Service. Industrial Development Branch), 1975. http://waves-vagues.dfo-mpo.gc.ca/Library/10091.pdf

APPENDIX 5: CLAM AREA MAPS AND FIGURES

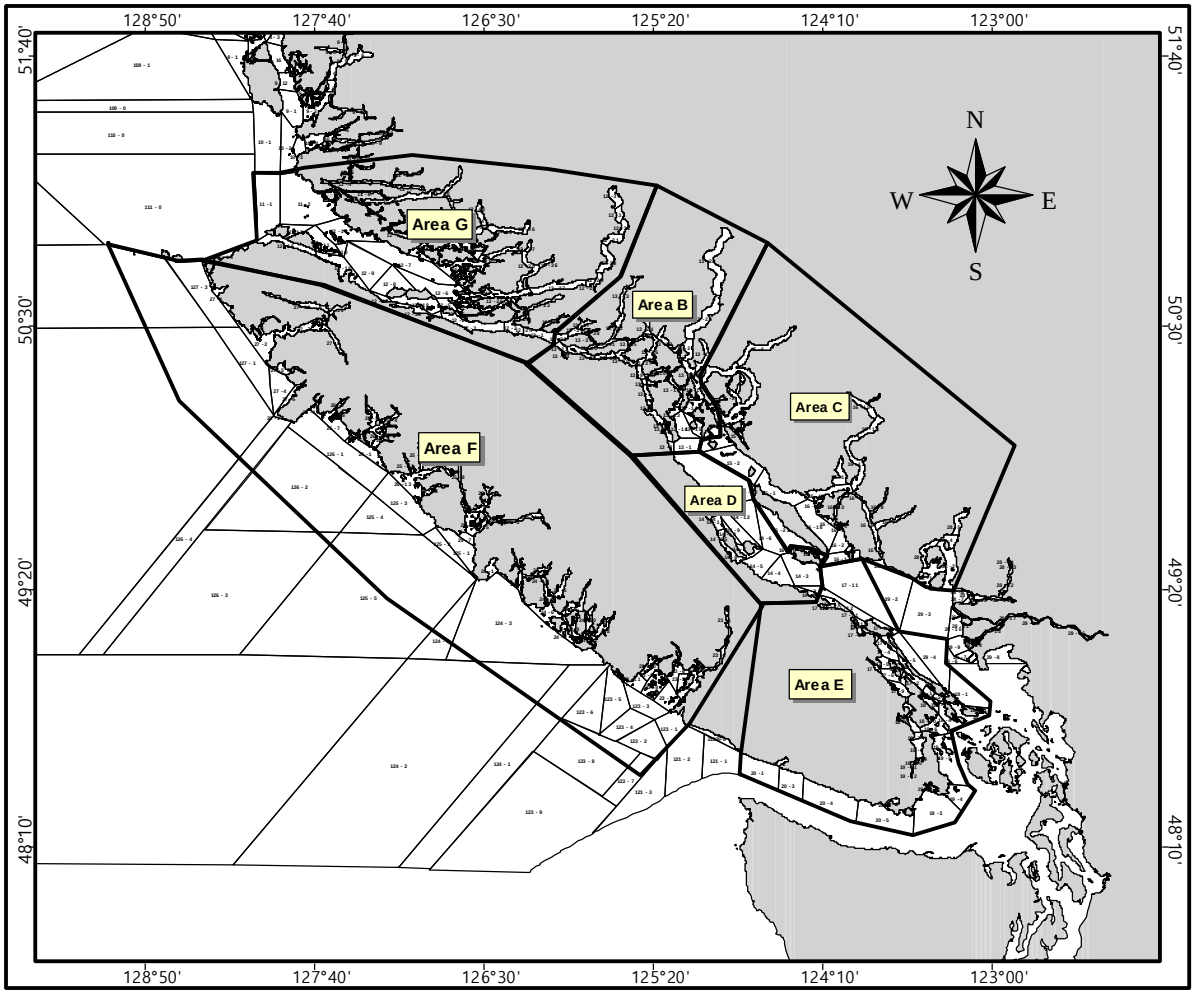

Figure 1: Commercial Clam Harvest Licence Areas

A: North Coast
B: Johnstone Strait
C: Sunshine Coast
D: Upper Strait of Georgia
E: Lower Strait of Georgia
F: West Coast of Vancouver Island
G: Queen Charlotte Sound

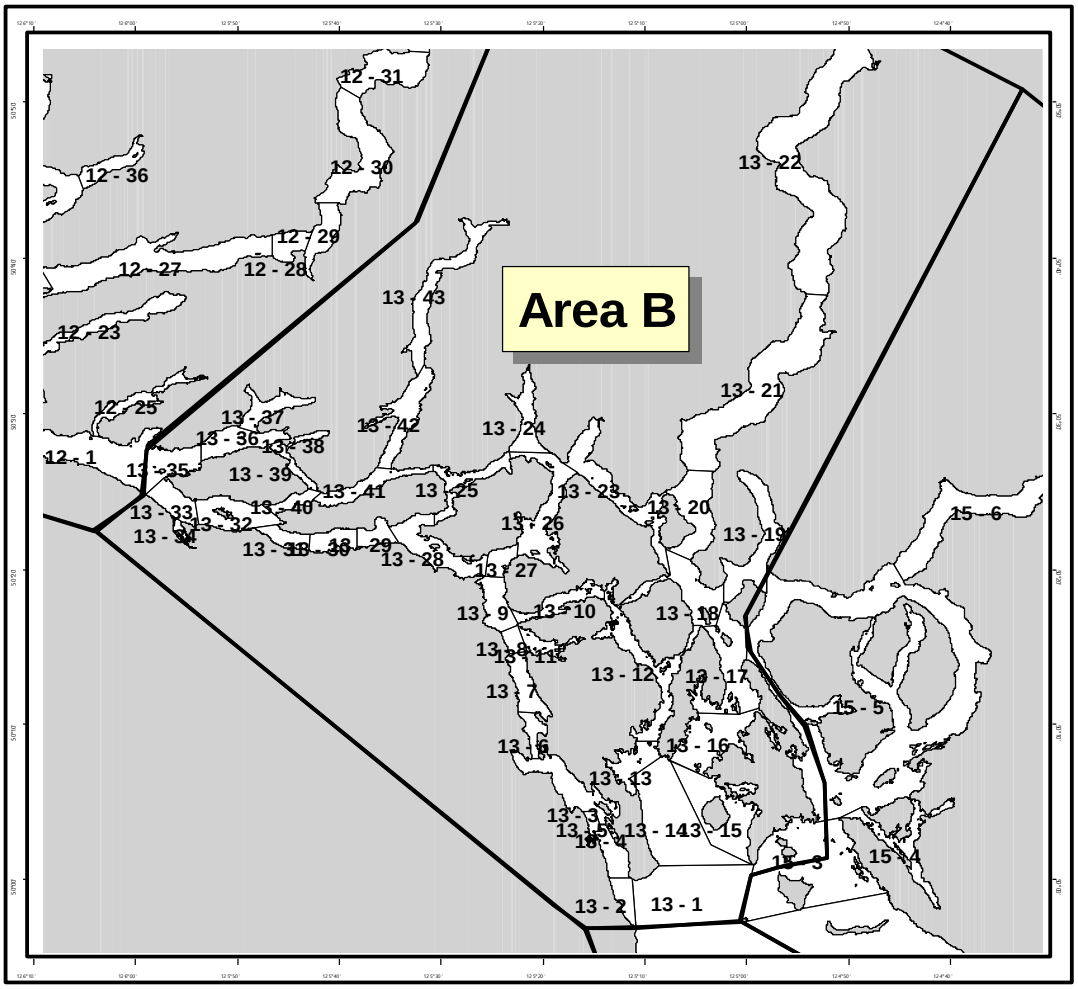

Figure 2: Clam Area, B Johnstone Strait

Area 13 and all intertidal zones surrounding Cortes Island and Twin Islands in Subareas 15-3 and 15-5.

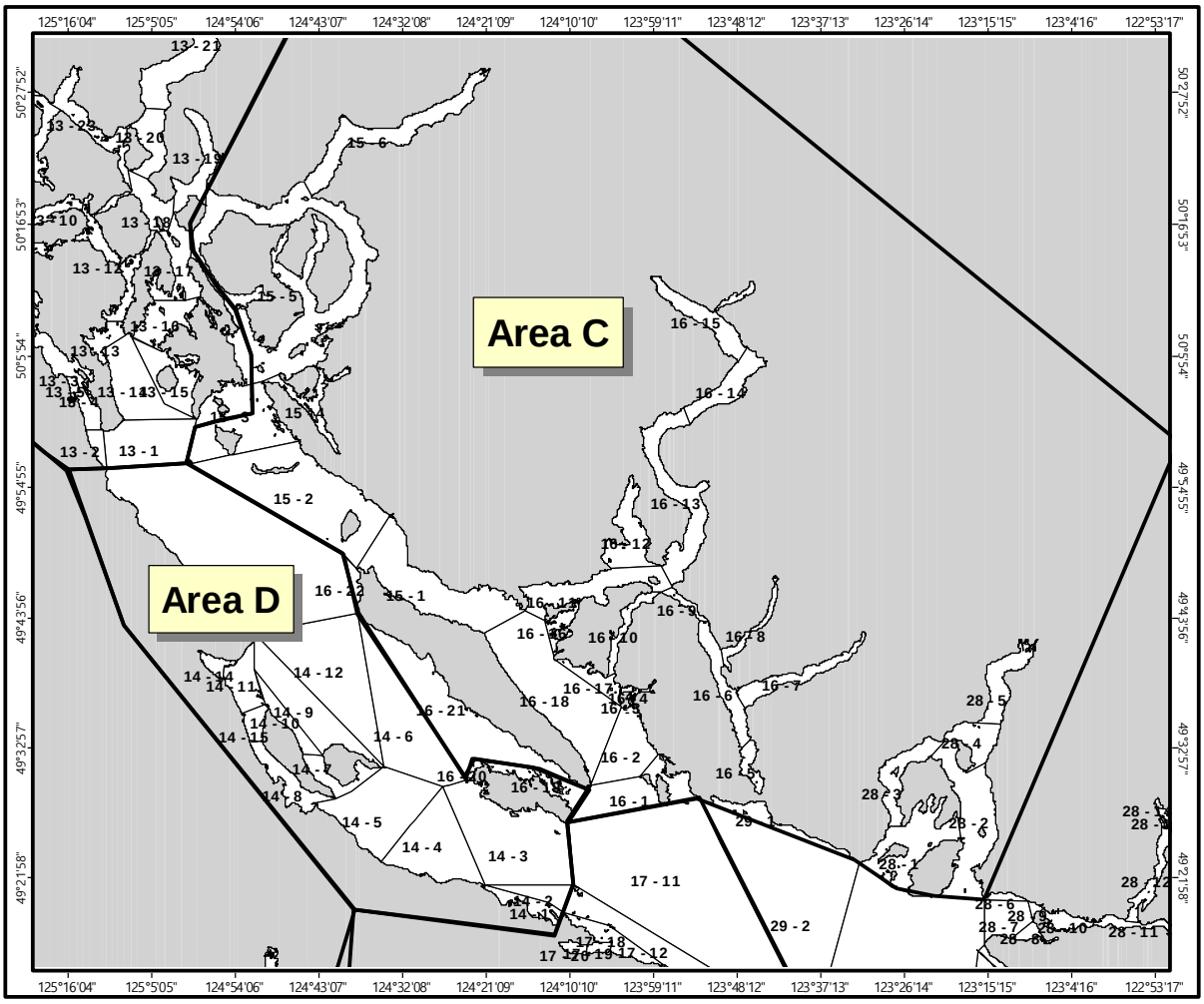

Figure 3: Clam Area C, Sunshine Coast and Clam Area D, Upper Strait of Georgia

Area C: Area 15, except intertidal zones surrounding Cortes Island and Twin Islands, Area 16, except Subareas 16-19 and 16-20, Area 28 and Subarea 29-1(Sunshine Coast)

Area D: Area 14 and Subareas 16-19 and 16-20

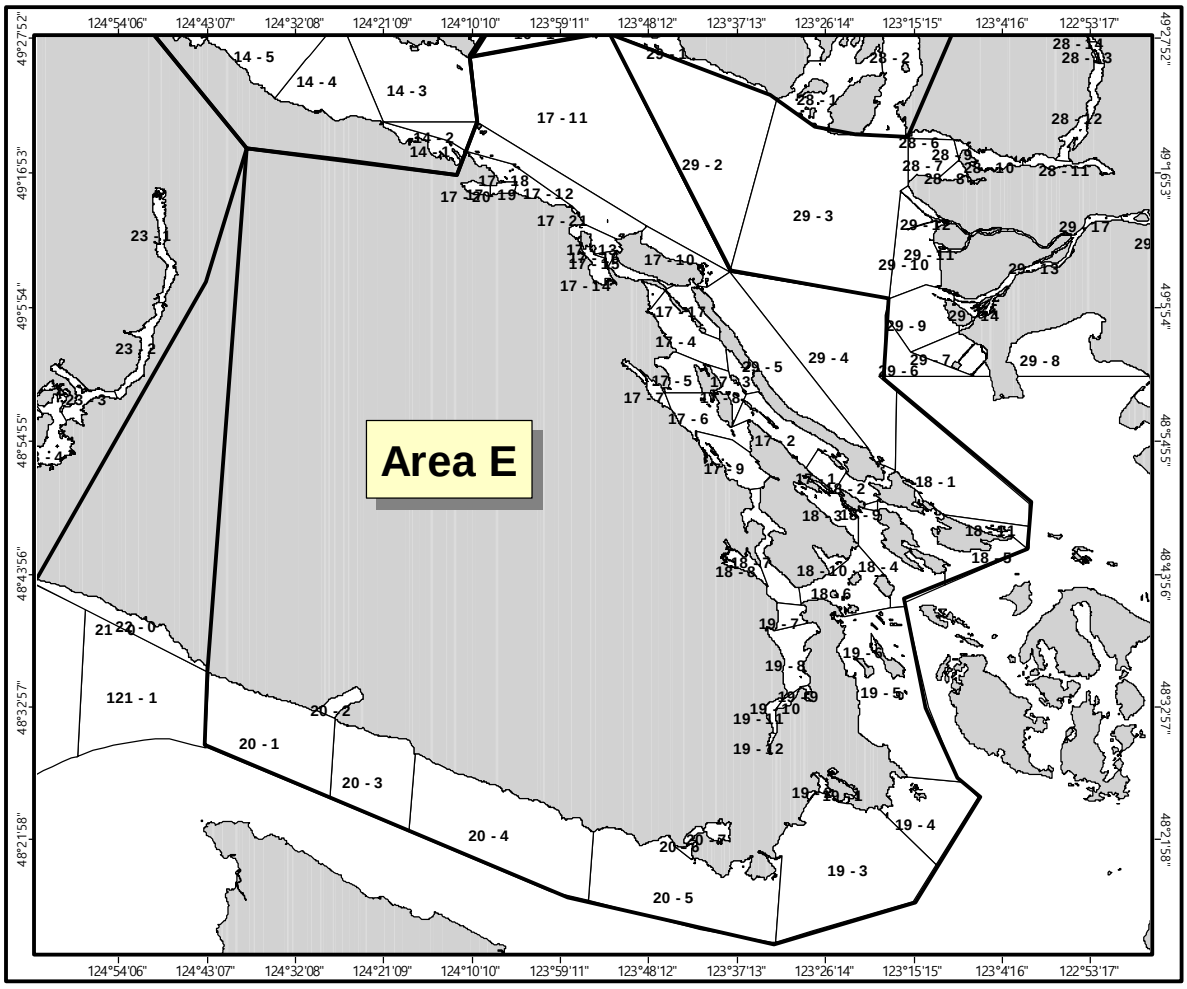

Figure 4: Clam Area E, Lower Strait of Georgia

Areas 17, 18, 19, 20 and Subareas 29-4 and 29-5.

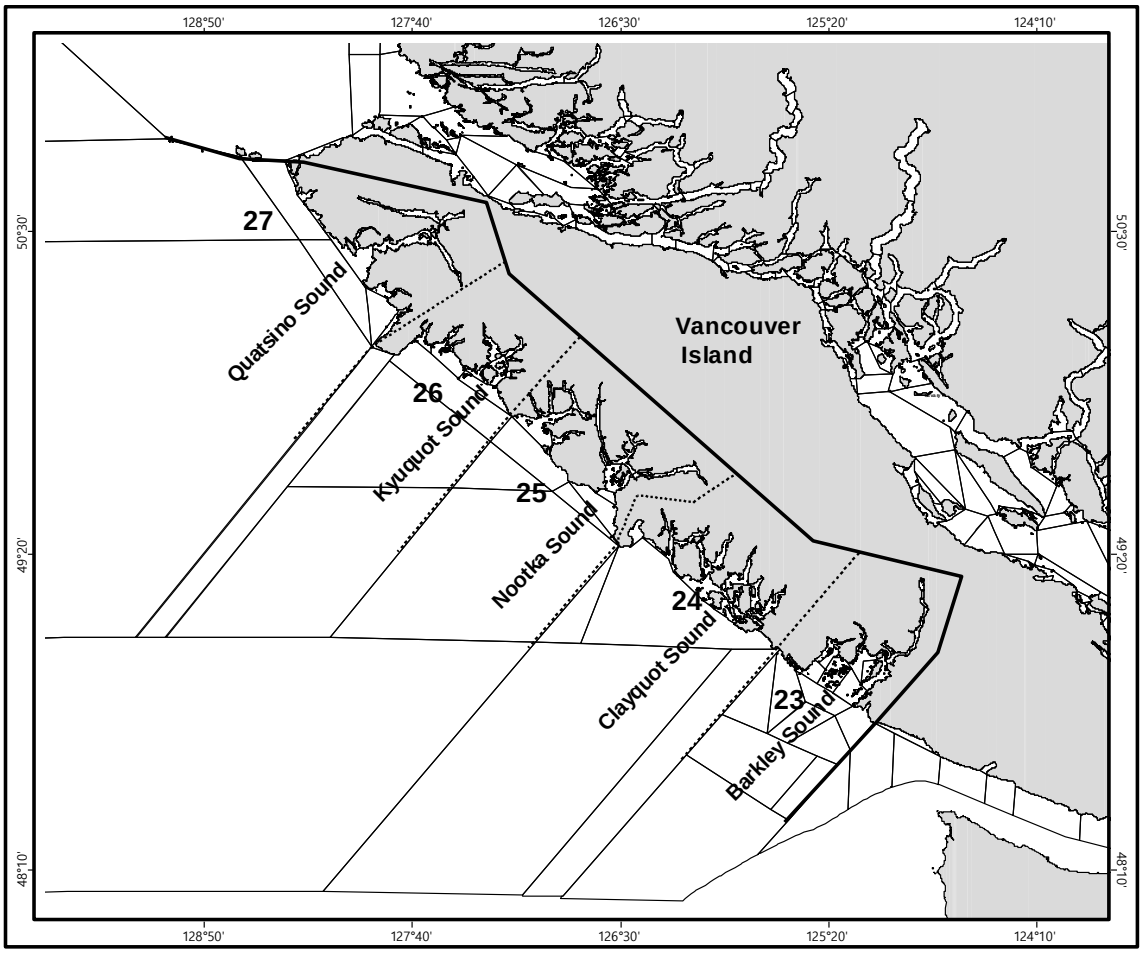

Figure 5: Clam Area F, West Coast of Vancouver Island

Areas 23 to 27.

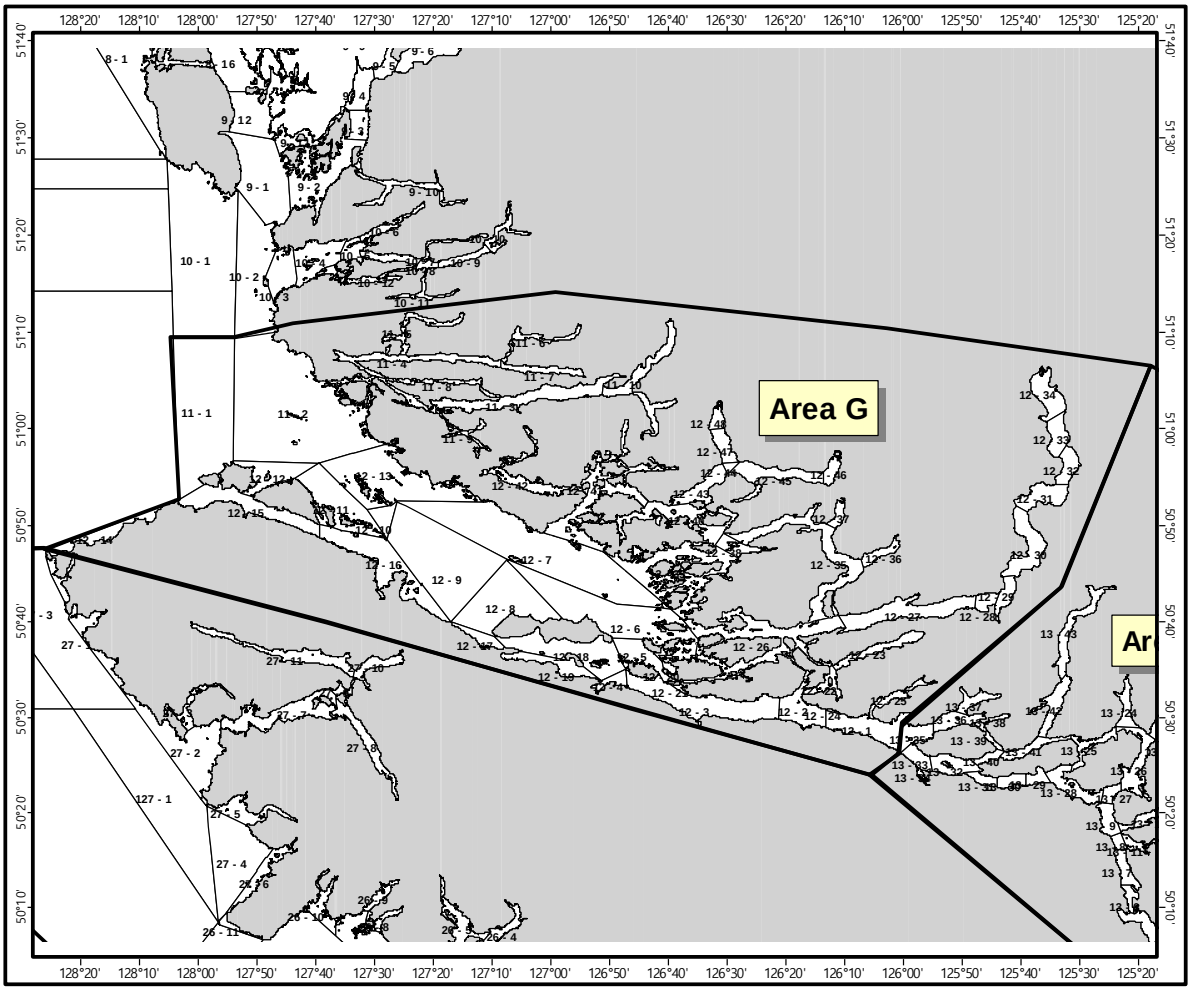

Figure 6: Clam Area G, Queen Charlotte Sound

Areas 11 and 12.

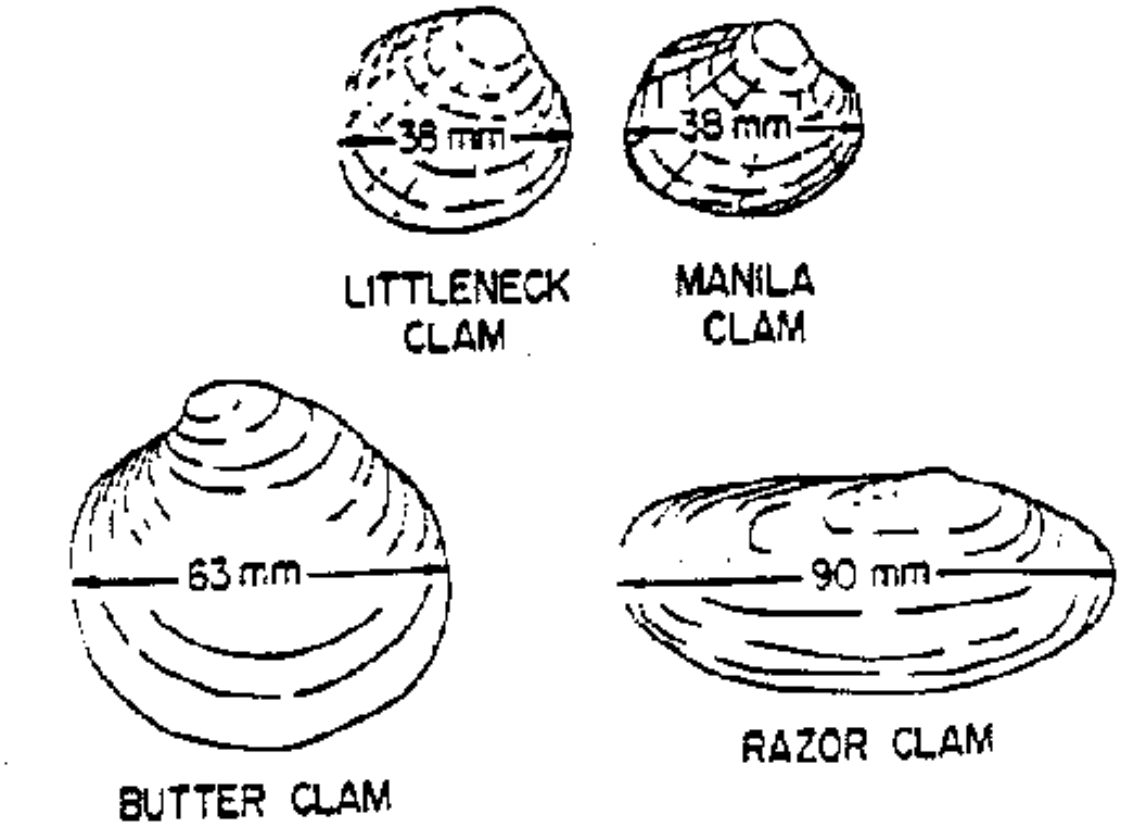

Figure 7: Minimum Size Limits for Intertidal Clams

MANILA CLAM

Manila clams, *Tapes philipinarum* (Adams and Reeve 1850), were accidentally introduced to B.C. with Pacific Oyster seed from Japan in the 1930's. This clam spread quickly in the Strait of Georgia and in the 1950's, along the west coast of Vancouver Island. In the 1960's manila clams spread to the Queen Charlotte Strait area and, in the 1970's, to the central coast area as far north as Bella Bella.

Manila clam shells are longer than they are high and the clam has a distinct oblong shape. The shells are heavy with radiating ridges crossing the concentric growth rings. The external colour varies from a greyish-white, through yellowish-buff to brown, often with geometric patterns of black and white in the young. The internal surface is smooth and yellowish-white with deep purple at the siphon (posterior) end. The inside edge of the shell is smooth and distinct from that of the native littleneck, which has regular shallow notches along the edges of the shell. The tip of the siphon is split, unlike the native littleneck. Manila clams measure up to 7.5 cm in length at 14 years.

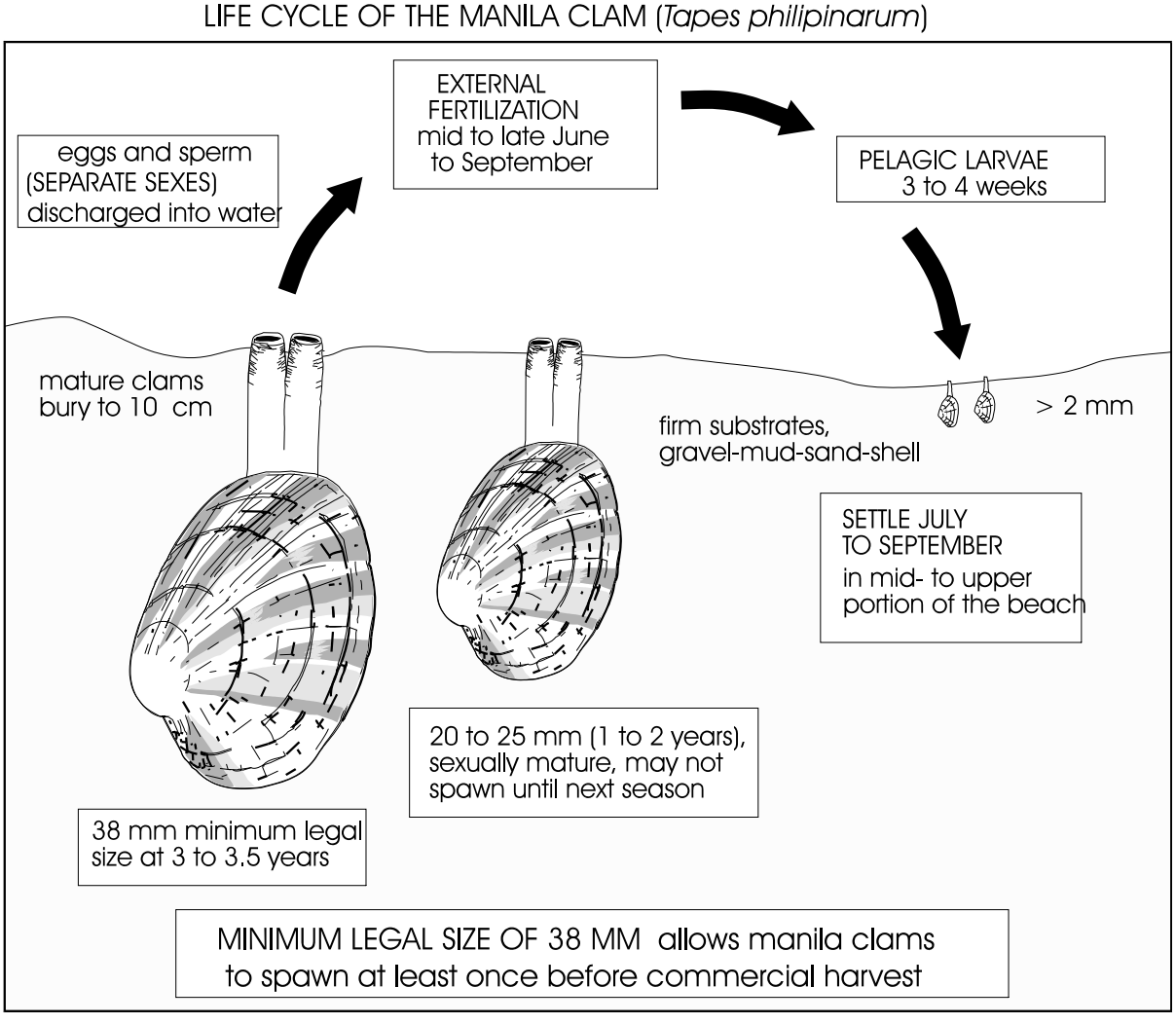

Figure 8: Life Cycle of the Manila Clam (*Venerupis philipinarum*)

LITTLENECK CLAM

Littleneck clams, *Protothaca staminea* (Conrad 1837), are medium size intertidal clams that may attain a shell length of 75 mm and ages to 5 years.

Littleneck shells are thick, oval to round with strong radiating ribs and less prominent concentric ridges. The external colour may vary from white to chocolate brown, often with angular patterns. The internal surface is smooth and white with fine notches on the margin. The siphon tips are fused, unlike the manila clam.

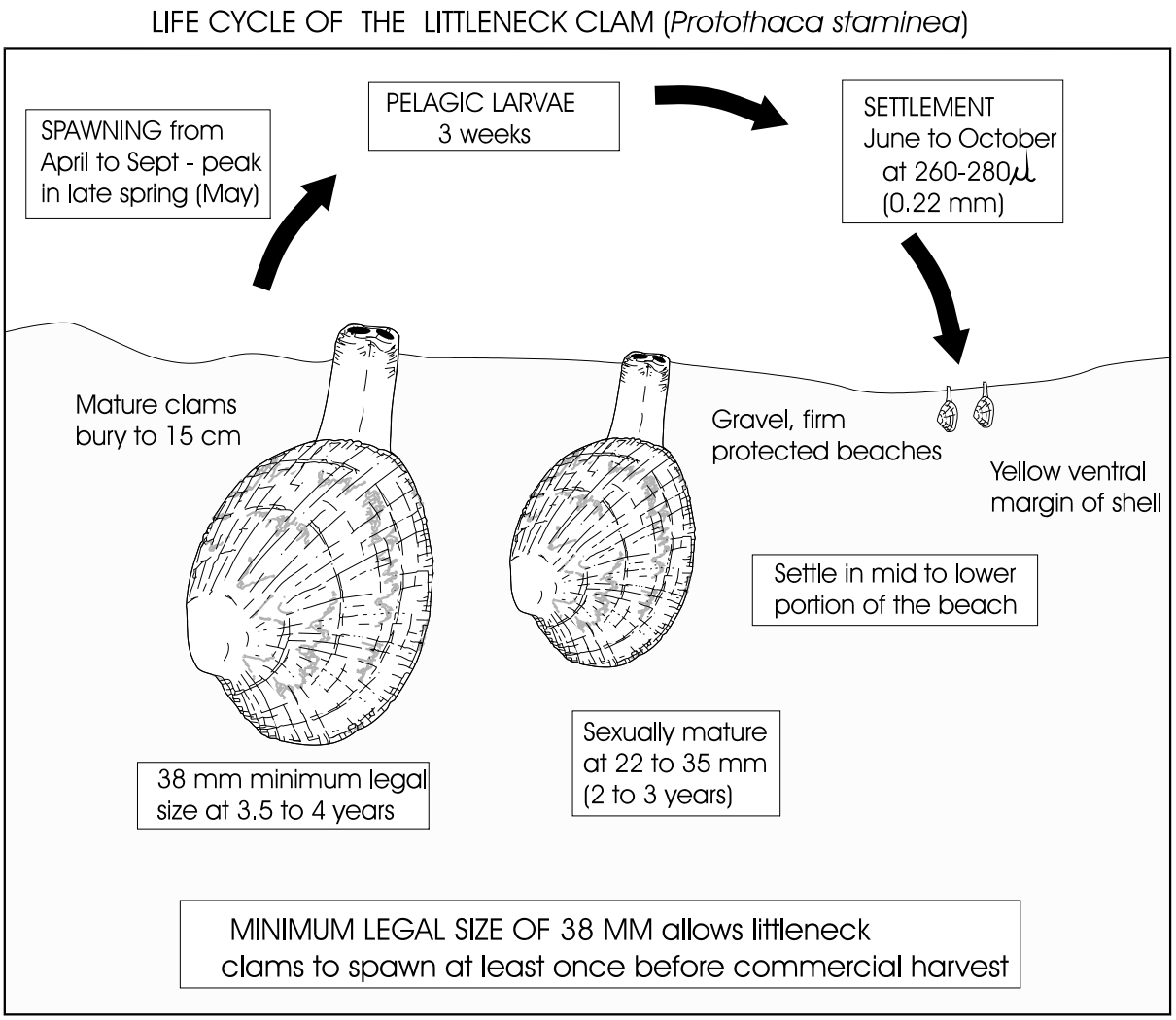

Figure 9: Life Cycle of the Littleneck Clam (*Protothaca staminea*)

NOTICE TO COMMERCIAL CLAM HARVESTERS

Harvesters are advised to observe the boundaries of any intertidal tenures. Harvesting on any tenures is prohibited.

Tenures must be clearly marked on beaches.

Clam beds are subject to closures on short notice because of paralytic shellfish poisoning (PSP) or sewage contamination and harvesters are advised to check conditions at the nearest Fisheries and Oceans Canada office.

Standard Tenure Markers

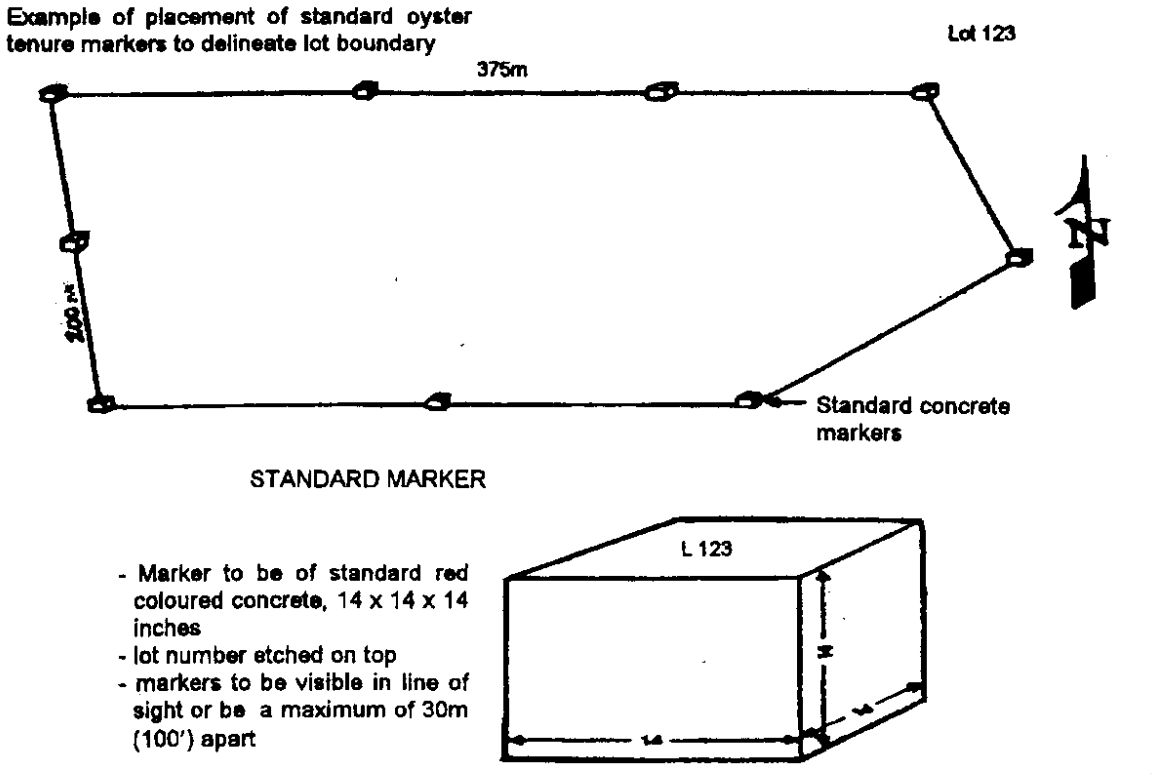

Figure 10: Example of Placement of Standard Markers to Delineate Tenure Boundary

Effective April 1, 2011 and in accordance with the Maa-nulth First Nations Final Agreement (Treaty), several beaches in Area 23 and 26 were closed to the harvest of intertidal bivalves between the high water mark and the low water mark. These "Intertidal Bivalve Harvest Areas" are set aside for the use of Maa-nulth First Nations members only.

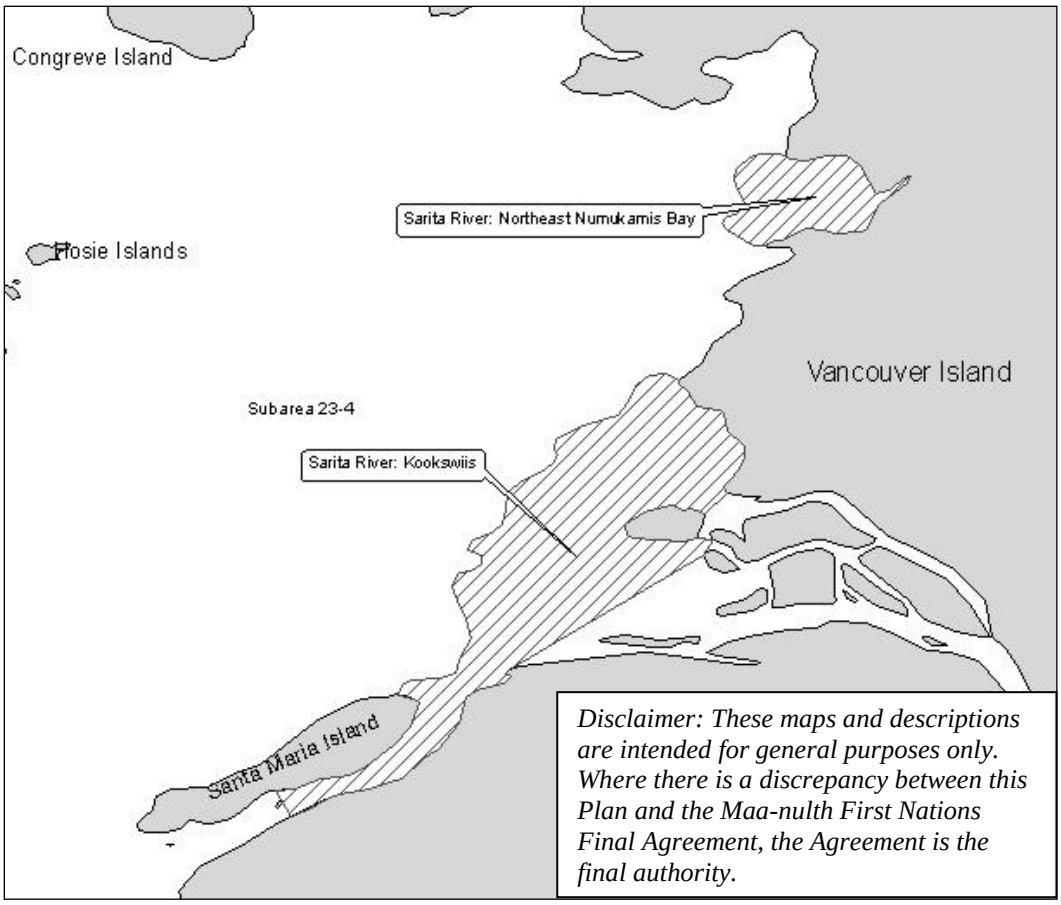

Figure 11: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 23 near Sarita River.

Northeast Numukamis Bay: That portion of northeast Numukamis Bay in Subarea 23-4 at the mouth of Carnation Creek east of a line that starts at 48°54.920' N, 125°00.423' W, then following the low water mark to 48°54.722' N, 125°00.468' W (Maa-nulth First Nation for food, social and ceremonial purposes).

Kookswiis (Sarita River): That portion of Numukamis Bay in Subarea 23-4 at the mouth of the Sarita River (Kookswiis) inside a line that starts at 48°54.434' N, 125°'00.652' W, then following the low water mark to 48°53.731' N, 125°01.278' W, then following the eastern shoreline of Santa Maria Island to 48°53.529' N, 125°01.565' W, then straight across the channel to 48°53.486' N, 125°01.486' W, and bounded on the east by a line that starts at 48°54.187' N, 125°00.540' W, then straight to 48°54.148' N, 125°00.612' W, then straight to 48°54.086' N, 125°00.632' W, then straight to 48°54.064' N, 125°00.592' W, then straight to 48°54.030' N, 125°00.599' W, then straight to 48°53.786' N, 125°01.034' W (Maa-nulth First Nation for food, social and ceremonial purposes).

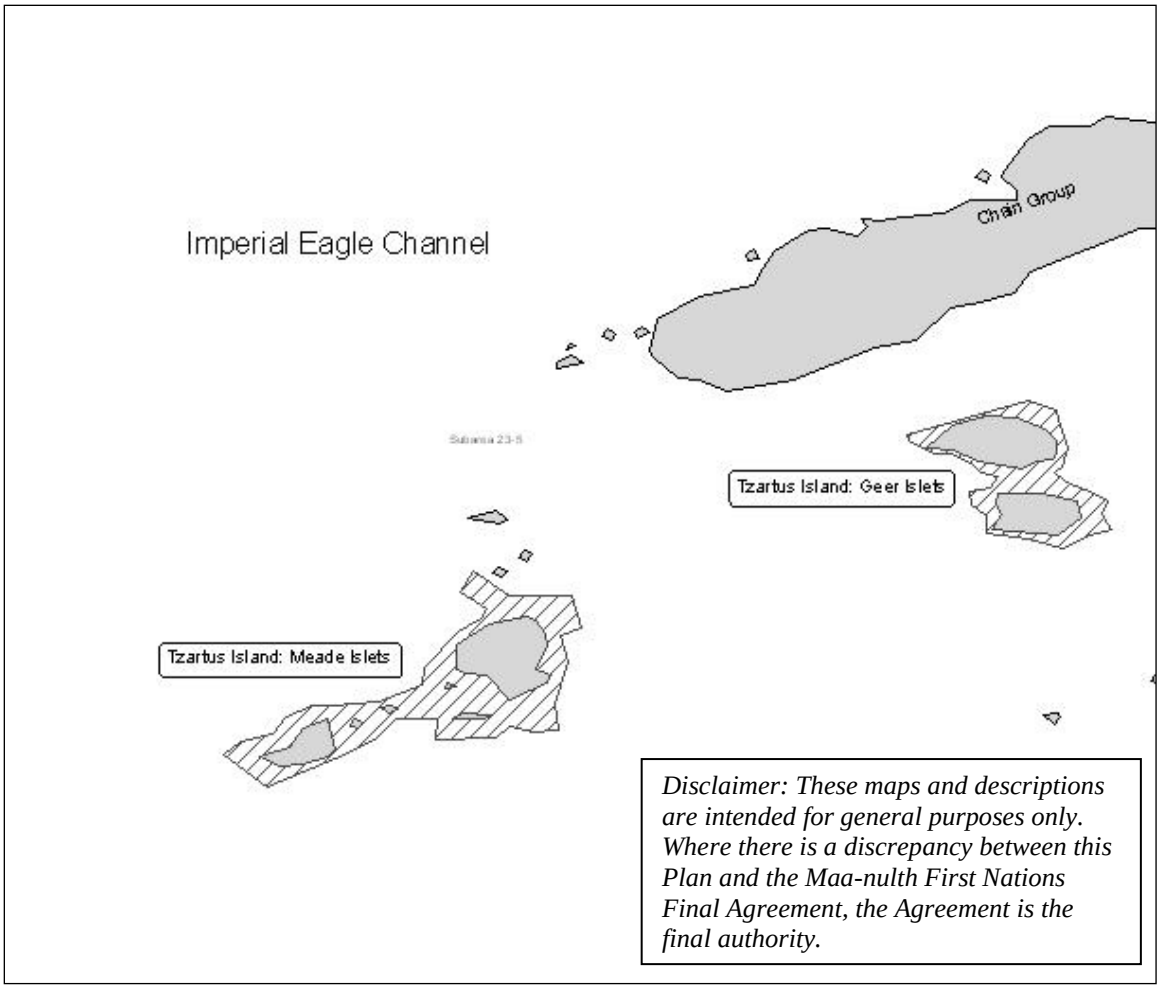

Figure 12: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 23 near Tzartus Island.

Geer Islets: That portion of Subarea 23-5 surrounding the Geer Islets inside a line that starts at 48°55.828’ N, 125°06.707’ W, then south following the low water mark to 48°55.673’ N, 125°06.672’ W, then north following the low water mark to the point of commencement, including the intertidal zone between the north and south islets (Maa-nulth First Nation for food, social and ceremonial purposes).

Meade Islets: That portion of Subarea 23-5 surrounding the Meade Islets inside a line that starts at 48°55.650’N, 125°07.290’ W, then south following the low water mark to 48°55.423’ N, 125°07.507’ W, then north following the low water mark to the point of commencement, including the intertidal zone between the east and west islets (Maa-nulth First Nation for food, social and ceremonial purposes).

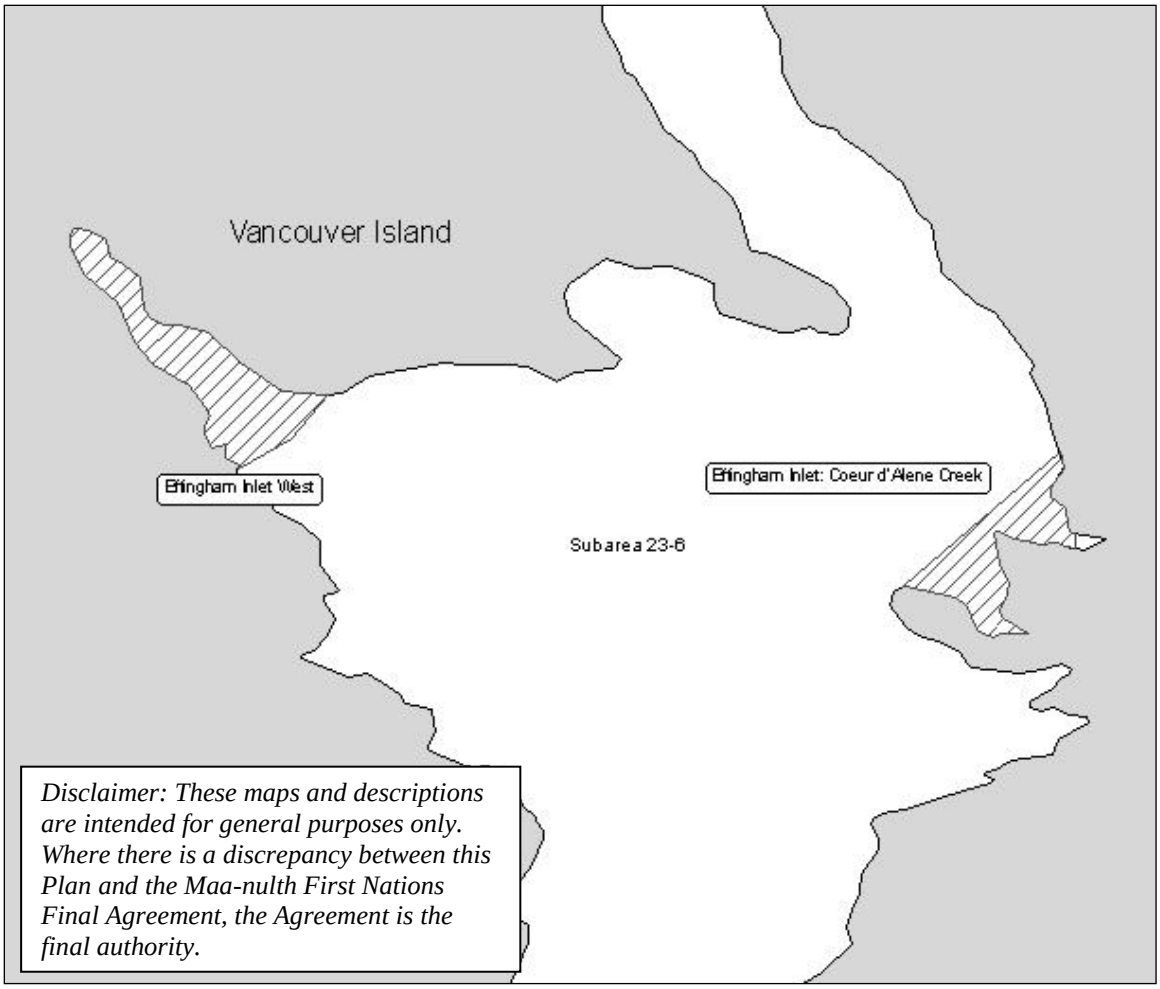

Figure 13: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 23 in Effingham Inlet.

Effingham Inlet West: That portion of Effingham Inlet in Subarea 23-6 west of a line that starts at 49°03.043' N, 125°09.768' W, then following the low water mark to 49°02.895' N, 125°09.944' W (Maa-nulth First Nation for food, social and ceremonial purposes).

Coeur d'Alene Creek: That portion of Effingham Inlet in Subarea 23-6 at the mouth of Coeur d'Alene Creek east of a line that starts at 49°02.930' N, 125°08.302' W, then following the low water mark to 49°02.659' N, 125°08.618' W, and west of a straight line from 49°02.758' N, 125°08.272' W ,due south to the opposite shoreline (Maa-nulth First Nation for food, social and ceremonial purposes).

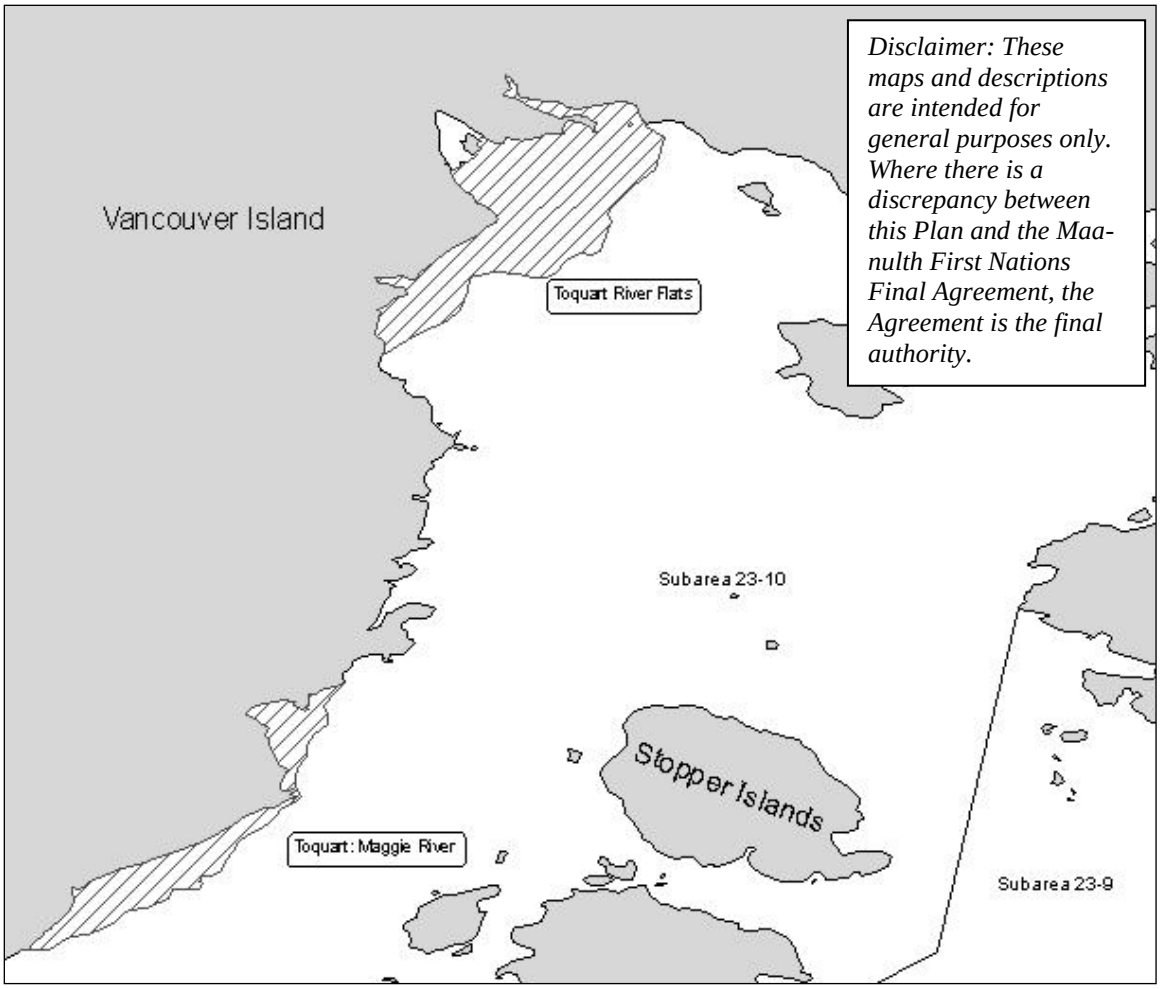

Figure 14: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 23 in Toquart Bay.

Toquart River Flats: That portion of Toquart Bay in Subarea 23-10 bounded on the east by a straight line that starts at 49°02.363' N, 125°20.836' W, then straight to 49°02.321' N, 125°20.767' W, then straight to 49°02.250' N 125°20.788' W, then 200° True to the low water mark, then following the low water mark to the southern boundary bounded on the south by a straight line running due east from 49°01.513' N, 125°21.811' W to the low water mark and bounded on the northwest by a line that starts at 49°02.318' N 125°21.438' W, then straight to 49°02.305' N, 125°21.468' W, then straight to 49°02.235' N, 125°21.468' W, then straight to 49°02.199' N, 125°21.553' W (Maa-nulth First Nation for food, social and ceremonial purposes).

Maggie River: That portion of Subarea 23-10 near the mouth of the Maggie River bounded on the east by a line running due south from 49°00.301' N, 125°21.956' W to the low water mark, then following the low water mark to the southern boundary, and bounded on the south by a line running due east from 48°59.305' N, 125°23.155' W to the low water mark (Maa-nulth First Nation for food, social and ceremonial purposes).

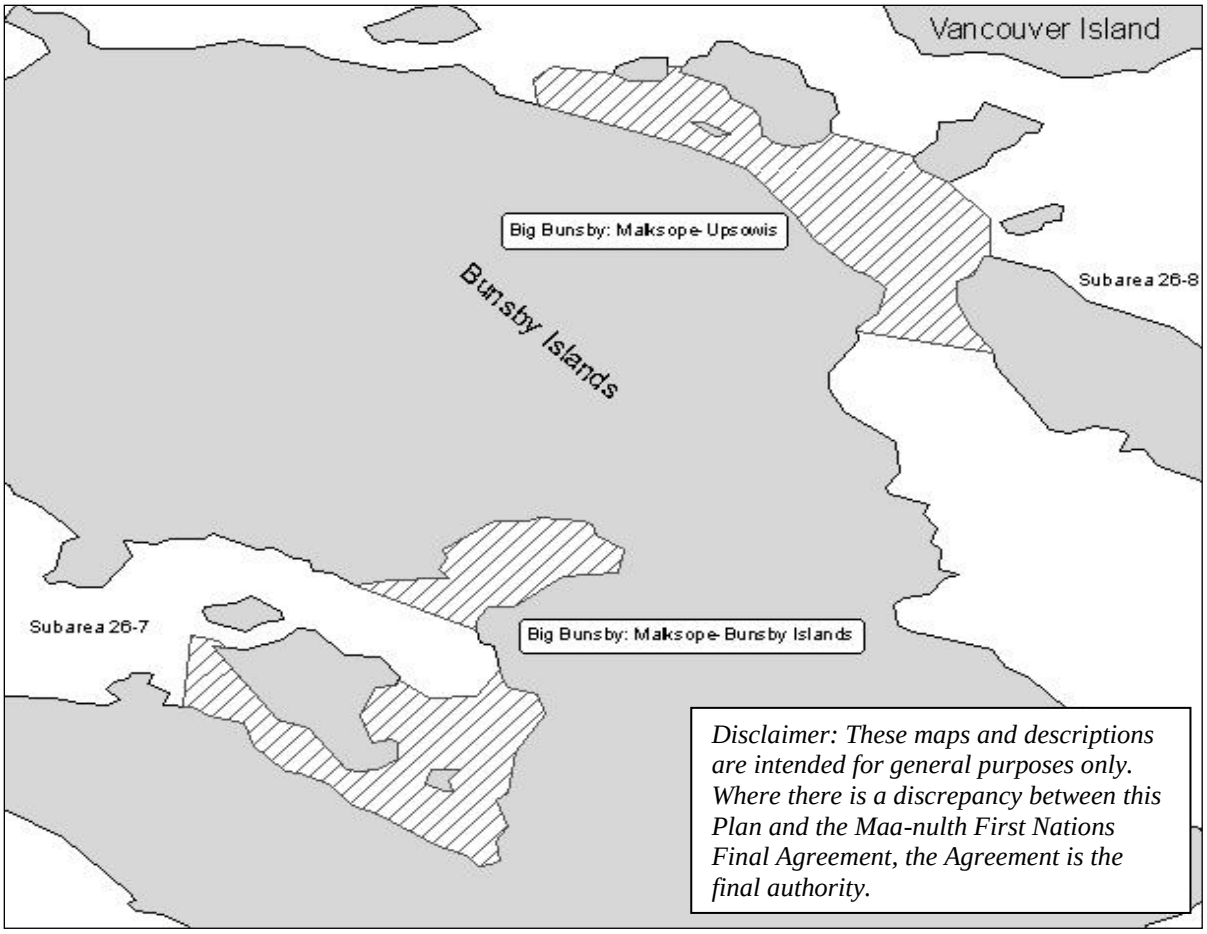

Figure 15: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 26 at the Bunsby Islands.

Malksope-Bunsby Islands: That portion of Malksope Inlet–Bunsby Islands in Subarea 26-7 inside a line that starts at 50°06.180' N, 127°30.845' W, then straight to 50°06.252' N, 127°30.837' W, then straight to 50°06.246' N, 127°30.810' W, then straight to 50°06.215' N, 127°30.650' W, then straight to 50°06.184' N, 127°30.602' W, then straight to 50°06.187' N, 127°30.555' W, then straight to 50°06.212' N, 127°30.542' W, then following the shoreline southward then northward to the point of commencement, and that portion of Malksope Inlet–Bunsby Islands in Subarea 26-7 east of a straight line from 50°06.322' N, 127°30.692' W to 50°06.284' N, 127°30.573' W (Maa-nulth First Nation for food, social and ceremonial purposes).

Malksope-Upsowis: That portion of Malksope Inlet-Bunsby Islands in Subarea 26-8 inside a line that starts at 50°06.836' N, 127°30.502' W, then straight to 50°06.865'N, 127°30.505' W, then straight to 50°06.878'N, 127°30.485' W, then straight to 50°06.873' N, 127°30.427' W, then straight to 50°06.877' N, 127°30.381' W, then straight to 50°06.878' N, 127°30.361' W, then following the shoreline southeasterly to 50°06.805' N, 127°30.224' W, then straight to 50°06.783' N, 127°30.137' W, then straight to 50°06.757', N 127°30.104' W, then straight to 50°06.714' N, 127°30.064' W, then straight to 50°06.675' N, 127°30.058' W, then straight to 50°06.567' N, 127°30.057' W, then straight to 50°06.591' N, 127°30.195' W, then following the shoreline northward to the point of commencement (Maa-nulth First Nation for food, social and ceremonial purposes).

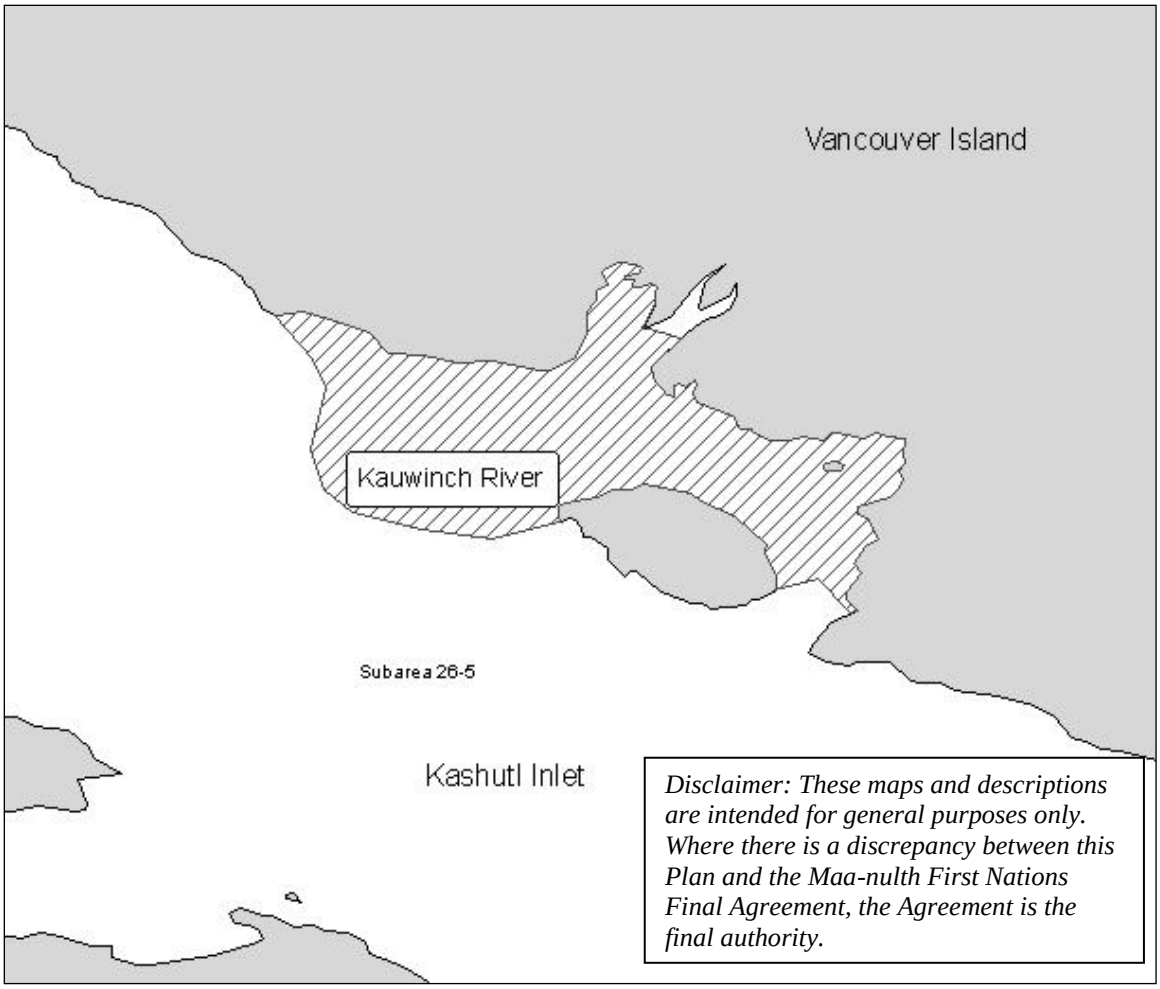

Figure 16: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 26 in Kashutl Inlet.

Kauwinch River: That portion of Kashutl Inlet at the mouth of the Kauwinch River in Subarea 26-5 bounded on the west by a line that starts at 50°08.749' N, 127°16.844' W, then following the low water mark to 50°08.401' N, 127°16.360' W, then straight to 50°08.281' N, 127°16.017' W, then following the low water mark to 50°08.249' N, 127°15.876' W, and bounded on the northeast by a straight line from 50°08.728' N,127°16.226' W to 50°08.710' N, 127°16.164' W (Maa-nulth First Nation for food, social and ceremonial purposes).

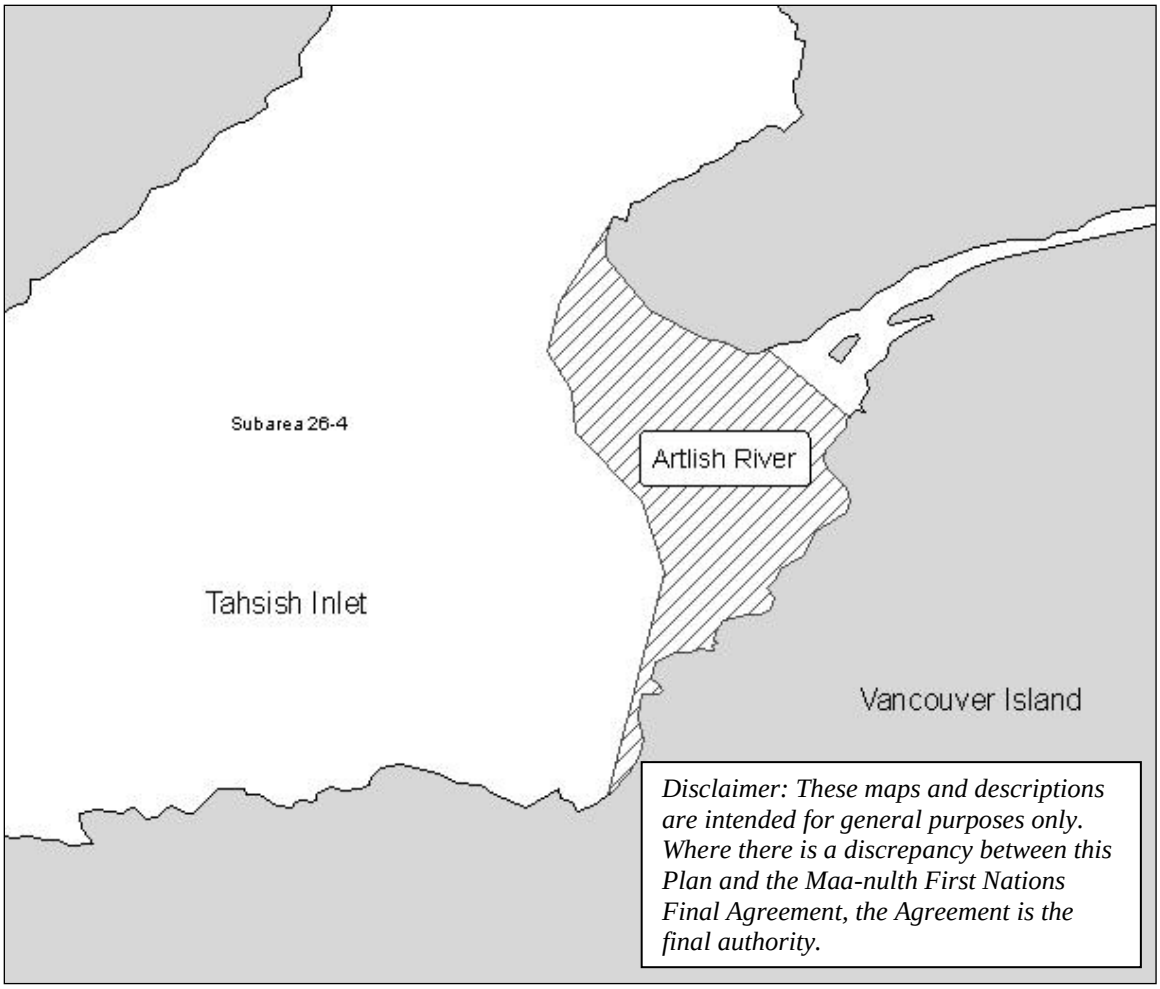

Figure 17: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 26 in Tahsish Inlet.

Artlish River: That portion of Tahsish Inlet in Subarea 26-4 at the mouth of the Artlish River bounded on the west by a line that starts at 50°07.191' N, 127°05.561'W, then following the low water mark to 50°06.166' N, 127°05.568' W, and bounded on the east by a straight line from 50°06.956' N, 127°05.275' W to 50°06.815' N, 127°05.109' W (Maa-nulth First Nation for food, social and ceremonial purposes).

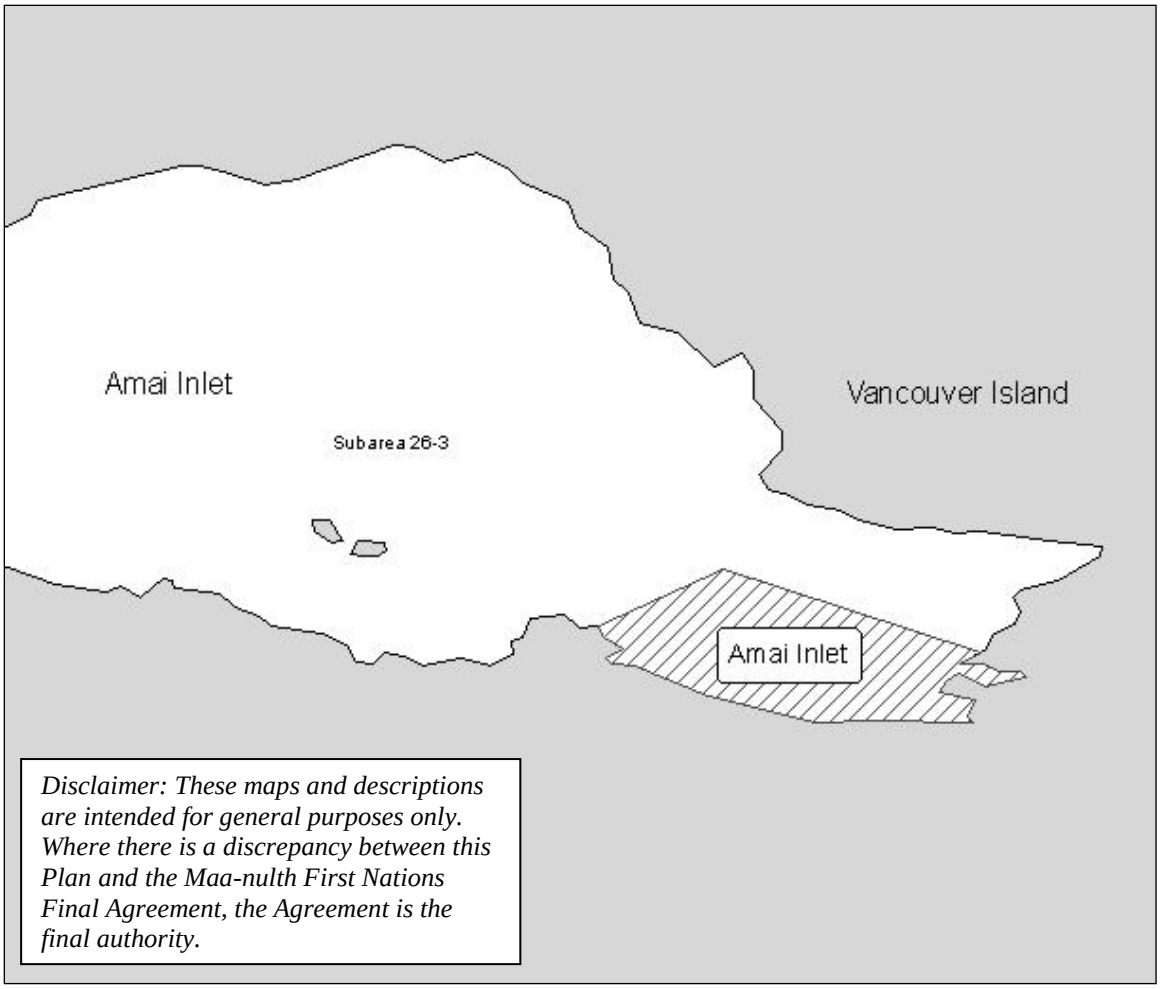

Figure 18: Maa-nulth First Nations Intertidal Bivalve Harvest Areas: Area 26 at the head of Amai Inlet.

Amai Inlet: That portion of Amai Inlet in Subarea 26-3 southeast of a straight line from 50°01.469' N, 127°05.021' W to 50°01.524' N, 127°04.899' W (Maa-nulth First Nation for food, social and ceremonial purposes).

Depuration Clam Fishery - Harvest Log {One harvest location per page}

Company:
Area Sub Area
Beach Location

Total Allowable Catch:	{Manilas:}		lbs	{Littleneck}	lbs.
Landings to Date:			lbs		lbs.
Remaining:		0	lbs		lbs.

		No	Please indicate if wet stored
	Yes	No	prior to processing

Species:
% Manila (82B) 100
% of L.necks (81H)

Reported Wt Code each landing record
1= Beach Wts.
2 = Pre Processed Wts.

Harvest Dates	Start Time	# of Diggers	Digging Time {Hrs}	Species Code	Landings Harvest Wt	Wt. Code

Return this sheet to DFO, 3325 Stephenson Pt Rd. Nanaimo, BC V9T 1K3
Attn: Shellfish Data Manager (Depuration) or fax 250-756-7162

Figure 19: Example Harvest Log for Depuration Fishery

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
- TP 15393E - Adequate stability and safety guidelines for fishing vessels https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15393e-adequate-stability-safety-guidelines-fishing-vessels
- TP 15392E - Guidelines for fishing vessel major modification or a change in activity. https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15392e-guidelines-fishing-vessel-major-modification-change-activity
- Transport Canada Publication TP 10038 Small Fishing Vessel Safety Manual (can be obtained at Transport Canada Offices from their website at: http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm
- Amendments to the Small Fishing Vessel Inspection Regulations (can be obtained from: http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php)
- Safety Issues Investigation into Fishing Safety in Canada report can be accessed: https://www.tsb.gc.ca/eng/rapports-reports/marine/etudes-studies/M09Z0001/M09Z0001.html

For further information see: https://tc.canada.ca/en/marine-transportation
www.fishsafebc.com
www.worksafebc.com
www.tsb.gc.ca/eng/rapports-reports/marine/index.html

2. IMPORTANT PRIORITIES FOR VESSEL SAFETY

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

2.1. Fishing Vessel Stability

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

Fishing vessel owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. These instructions must include detailed safe operation documentation kept on board the vessel.

In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) No. 03/2017 announcing the coming into force of the New Fishing Vessel Safety Regulations. The initial regulations were published in the Canada Gazette Part II on July 13, 2016 and

came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

As of July 13, 2017, new regulations pertaining to stability assessments to be performed by a competent person came into effect, as follows:

- A new fishing vessel that has a hull length of more than 9 m where the vessel construction was started or that a contract was signed for the construction after July 13, 2018;
- A fishing vessel more than 9 m and that has undergone a major modification or a change in activity that is likely to adversely affect its stability;
- A fishing vessel that is fitted with an anti-roll tank at any time;
- A fishing vessel more than 15 gross tonnage and used for catching herring or capelin during the period beginning on July 6, 1977 and ending on July 13, 2017
- For an existing fishing vessel that is not required to undergo a stability assessment, the owner shall be capable of demonstrating that their vessel has adequate stability to safely carry out the vessel's intended operations. Guidelines have been developed and are available online to help small fishing vessel owners and operators meet their regulatory requirements
- Two good resources can be found here: TP 15393 - Adequate stability and safety guidelines for fishing vessels (2018) and TP 15392 – Guidelines for fishing vessel major modification or a change in activity (2018)

Further, the new Regulation requires a "Stability Notice" to be developed after a stability assessment. This notice includes a simple diagrammatic of the vessel, its tanks and fish holds, or deck storage as the case may be. It is intended to assist fishing vessel crews in quickly determining the safe carriage limits of the vessel without having to reference a complicated Trim and Stability Book.

Additionally, Transport Canada published a Stability Questionnaire (SSB No. 04/2006) and Fishing Vessel Modifications Form (SSB No. 01/2008) which enable operators to identify the criteria which will trigger a stability assessment. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires a stability assessment, or to receive guidance on obtaining competent assessor.

In 2019, TC provided an updated SSB 03/2019, which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular inspections and entered on the vessel's inspection record. However, information gathered during the Transportation Safety Board's (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2005 and found a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: M05W0110 - *Morning Sunrise*, M07M0088 - *Big Sisters*, M08W0189 - *Love and Anarchy*, M09L0074 – *Le Marsouin I*, M10M0014 -

Craig and Justin, M12W0054 – *Jessie G*, M12W0062 - *Pacific Siren*, M14P0121 – *Five Star*, M15P0286 – *Caledonian*, M16A0140 – *C19496NB*, M17C0061 – *Emma Joan*, M17P0052 – *Miss Cory*, M18P0073 – *Western Commander*,M18A0425 – *Charlene A* and M18A0454 – *Atlantic Sapphire.*

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

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

Fish Safe has developed a code of best practices for the food and bait/roe herring fisheries and the prawn fishery: These Best Practices are available on Fish Safe's website for convenient download here: https://www.fishsafebc.com/best-practices Please contact Ryan Ford at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Ryan Ford – office: (604) 261261-9700 - Email: ryan@fishsafebc.com.

2.2. Emergency Drill Requirements

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

To assist fishers in meeting their crew training requirements, Fish Safe has created a downloadable '*New Crew Orientation Form and How To Guide'* available on Fish Safe's website here: https://www.fishsafebc.com/downloadable-tools

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

WorkSafeBC's Occupational Health and Safety Regulation (OHSR) requires written rescue and evacuation procedures for work on or over water. Additionally, fishing vessel masters must establish procedures and assign responsibilities to each crew member to cover all emergencies, including the following: crew member overboard, fire on board, flooding of the vessel, abandoning ship, and calling for help. Fishing vessel masters are

also required to conduct emergency drills at the start of each fishing season, when there is a change of crew, and at periodic intervals to ensure that crewmembers are familiar with emergency procedures.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The report's findings highlighted the lack of safety drills and safety procedures and practices. The *Safest Catch* program, delivered by Fish Safe and free to BC commercial fishers, includes comprehensive practice of drills such as abandon ship, man overboard and firefighting drills.

2.3. Cold Water Immersion

Drowning is the number one cause of death in BC's fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees C. BC waters are usually below 15 degrees C. Normal body temperature is around 37 degrees Celsius; cold water rapidly draws heat away from the body. The effects of cold water on the body occur in four stages: cold shock, swimming failure, hypothermia and post-rescue collapse. Know what to do to prevent you or your crew from falling into the water and what to do if that occurs. More information is available in the WorkSafeBC Bulletin Cold Water Immersion (available from the WorkSafeBC website at www.worksafebc.com).

Under the recently amended (June 2019) OHS Regulation, section 24.96.1, a crew member must wear a PFD or life jacket when on board a fishing vessel that has no deck or deck structure or when on the deck of a fishing vessel that has a deck or deck structure. The use of a PFD will prepare a crewmember to remain afloat, to survive the effects of cold shock, reduce the need to swim and give rescuers time to respond.

Section 8.26, which requires workers to wear a PFD or lifejacket when working "under conditions which involve a risk of drowning", would continue to apply to fishing crewmembers and other workers (e.g. when they are working on shore, docks and other vessels). The specific requirements can be found on WorkSafeBC's PFD Primer provided on Fish Safe's website here: https://www.fishsafebc.com/cold-water-survival.

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

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

2.4. Other Issues

2.4.1. Weather

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

2.4.2. Emergency Radio Procedures, EPIRB's and AIS

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). All fishing vessels greater than 20m in length must carry a Class A AIS, as well as a float free 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons must be registered with the Canadian Beacon Registry. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and 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, M15A0189, M16A0327, M18A0076, M18A0303, M18A0078, M18P0184, M19A0082, M19P0242, M20A0258, M20A0160, M21A0315) which resulted in 26 fatalities. The carriage of both AIS and EPIRB is strongly encouraged for all fishing vessels who do not fall under the mandatory threshold.

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

Since August 1, 2003 all commercial vessels greater than 8 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Coast Guard website at: http://www.ccg-gcc.gc.ca/eng/CCG/Home or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on DSC can be found

here: TC DSC Safety Bulletin. Questions regarding Coast Guard DSC capabilities can be obtained by contacting your local MCTS centre (Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333).

2.4.3. Collision Regulations

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

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

Exceptions include:

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

More detailed information on VTS can be obtained by calling either Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333 or from the Coast Guard website: https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-arnm/part3-eng.html

2.4.4. Buddy System

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

3. WORKSAFEBC

WorkSafeBC exercises jurisdiction over workplace health and safety, including the activities of crews of fishing vessels. Commercial fishing, diving and other marine operations are subject to the provisions of the *Workers Compensation Act (WCA)* and requirements in Part 24 of the Occupational Health and Safety Regulation (OHSR). Examples of Part 24 regulatory requirements related to fishing include, but are not limited to, the requirement to establish emergency procedures, to conduct emergency drills, to provide immersion suits for the crew, to provide stability documentation for the vessel, safe work procedures, injury reporting, correction of unsafe working conditions, the requirement to wear personal floatation devices (PFDs), etc.

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

Both owners and masters of fishing vessels are considered to be employers. Under the *Workers Compensation Act* and the OHS Regulation (OHSR) they have varying and overlapping duties and responsibilities. Masters, because they have the most control during fishing and related activities, are considered to be the employer with primary responsibility for the health and safety of the crew.

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

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

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

For further information, contact an Occupational Safety Officer:

Bruce Logan	Vancouver/ Richmond/Delta	(604) 244-6477
Mark Lunny	Courtenay	(250) 334-8732
Cody King	Courtenay	(250) 334-8733

Gregory Matthews	Courtenay	(250) 334-8734
Paul Matthews	Courtenay	(250) 334-8741
Jessie Kunce	Victoria	(250) 881-3461

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

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, OHS Consultation and Education Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com or Tim Pryde, OHS Consultant at (604) 802-2954 or by email: tim.pryde@worksafebc.com.

4. FISH SAFE BC

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

As referenced throughout the above documentation, Fish Safe provides a broad range of courses, programs and services that are either free for BC commercial fishers or highly subsidized.

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

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

Ryan Ford
Program Manager
Fish Safe
#100, 12051 Horseshoe Way
Richmond, BC V7A 4V4

Cell: (604) 739-0540
Office: (604) 261-9700
Email: ryan@fishsafebc.com
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, and
- the capsizing of the crab fishing vessel *Five Star* and subsequent fatality.

In 2016 the TSB pacific region released one investigation report:

- the capsizing of the trawl *Caledonian* and subsequent fatalities.

In 2018 the TSB pacific region released two investigation reports:

- the capsizing and sinking of the *Miss Cory* and subsequent fatality
- the sinking of the *Western Commander* and loss of life

In 2020 the TSB pacific region is currently investigating the fatal accident involving the *Arctic Fox II* on August 11.

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

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

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline, or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps. Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that harvesters can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many harvesters still do not wear them. TC regulations currently require that PFDs be worn

only if harvesters identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance. In June 2019, WorksafeBC amended its fishing regulation related to the use of PFDs. Under the amendments, crewmembers must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure, or when on the deck of a fishing vessel that has a deck or deck structure. Crewmembers are not required to wear lifejackets or PFDs below deck or when inside a deck structure where there is risk of entrapment. This amendment removes the need for a risk of drowning to be present before a PFD must be worn.

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

To view information on the TSB's recent safety Watchlist, visit:
http://www.tsb.gc.ca/eng/surveillance-watchlist/marine/2020/marine-01.html

Reporting an Occurrence: www.tsb.gc.ca/eng/incidents-occurrence/marine/
After a reportable occurrence happens; you can fill out the TSB 1808 form or call the TSB at the contact information below.

Recently the TSB produced a Safe at Sea: Activity book on fishing safety intended for the next generation of fish harvesters (ages 4-7). Download a copy.
www.tsb.gc.ca › eng › medias-media › prudence-safe › safe-at-sea

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

APPENDIX 7: FISHERY MONITORING & CATCH REPORTING RISK ASSESSMENT TOOL

Fishery Monitoring & Catch Reporting Risk Assessment Tool

Column Comments

1 PART A: FISHERY DESCRIPTION & LICENCING INFORMATION

1.1 Licencing

Column	Comments
DFO Mgmt Area	DFO management areas, Pacific Fishery Management Area. e.g., SC (South Coast); NC (North Coast); LFA (Lower Fraser Area); BCI (BC Interior); UFR (Upper Fraser River); YKTB (Yukon-Transboundary)
Name of Fishing Group	A name to describe the fishing group. e.g., First Nation name or aggregate (band, tribal council, permitting authority, etc), San Juan, Recreational, Area E commercial, etc
Licence Type	Licence type e.g., Food, social, ceremonial (FSC), commercial, Economic Opportunity, Recreational, etc

1.2 Description

Column	Comments
Gear Type	e.g., boat based angling, seine, trawl, etc.
Fish Species for Analysis	The fish species that is being analysed by this row. For example, in a directed or multi-species fishery, it would refer to the target species that is retained. In an opportunistic fishery, such as some recreational and FSC fisheries, multiple rows will analyse the impacts of the fishery. In a multi-stock fishery, please note the stock that is driving the fishery in brackets. e.g., Chinook (Spring 4-2), Sockeye (Fraser), chum salmon, geoduck, etc
Timing of Analysis	If the analysis is seasonally dependent, then note the timeframe. e.g., Recreational fisheries may have a larger impact from May-August and so separate rows should specify the timing of analysis. If the fishery is year round: "June-May" or "year round"

1.3 Size of Fishery

Column	Comments
Mean Catch (pcs/lbs)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average catch in appropriate units, over a representative time span for the fishery (the time period may differ between species). e.g., 40,000 lbs/yr, 2010-2014
Mean Effort (boat-days, fishers, etc)	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. - Record the average effort (number of boats, number of fishers, etc.) over a representative time span for the fishery.

	e.g., 2000 boat-days per year, 2012-2014
% TAC	Describe the size of the fishery in a method that provides context for the size of the fishery in relation to other users. -Record the range of percentages that the fishery takes of the total exploitation rate (e.g., 50-75%), or provide the mean total exploitation rate over a specified time period (e.g., 25%, 2005-2010)

2 PART B: ECOSYSTEM RISKS

2.1 Main Species

Could the mortality caused by fishery threaten the main fish species or stock that is being assessed? "Main" can also be referred to as "target".

Column	Comments
Main Species or Stock Status	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 *Species at Risk Act* (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? 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"). 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. NOTE: If unknown, the consequence value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.
Vulnerability of Main Species or Stock	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. Consequence: E.g. 0= This question isn't applicable. 1= The fishery may have small impacts on the life-history of the species. 2= The fishery may have medium impacts on the life-history of the species. 3= The fishery may have high impacts on the life-history of the species. NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. 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.
Species or Stock Behavioral Changes	Are there disruptions to the behaviour of the main species/stock resulting from fishing activities (e.g., noise, displacement and/or interruption to breeding, migration changes due to gillnets, etc.)?

	Consequence: E.g. 0= no disruptions (e.g. marine land-based angling, for instance from a rock where one line won't impact behaviour of a school of fish) 1= yes but minor (e.g. boat based angling causes noise that may cause fish to dive deeper, etc.) 2= yes, medium impact (e.g. gillnets in Fraser temporarily impact migration patterns) 3= yes, major impact. NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. Likelihood: E.g., 0= This question is not applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.

2.2 By-Catch

Could the mortality caused by fishery threaten a non-target fish species / stock?

Column	Comments
Retained By-Catch Status	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? This question refers to the by-caught species, not the individual. Identify in cell comment all retained by-caught species, starting with the species of most concern. Consequence: E.g. 0=not applicable. 1= yes, minor concerns with health of by-caught species. 2=yes, presumed to have concerns of medium consequence but not assessed/listed, or listed as "of special concern" or "amber status" and/or identified as a species/stock of concern via the Canadian Science Advisory Secretariat (CSAS). 3= yes, presumed to have concerns of high consequence but not listed/assessed, or is listed as "threatened" or "endangered" or "red status" and/or identified as a species/stock of high concern via CSAS. NOTE: If Unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. Likelihood: E.g., 0= Not applicable. 1= The fishery has a low likelihood of causing the consequence listed above. 2= The fishery has a medium likelihood of causing the consequence listed above. 3= The fishery has a high likelihood of causing the consequence above.
Vulnerability of Retained By-Catch	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. 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. 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 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.
Released By-Catch Status	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? This question refers to the released by-caught species, not the individual. Identify in cell comment all released by-caught species, starting with the species of most concern. 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. 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 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.
Vulnerability of Released By-Catch	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. 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. 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 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.

2.3 Community & Habitat

Could the mortality caused by fishery threaten other components of the eco-system, such as predators or prey or habitat?

Column	Comments
Key Predator or Prey	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? Consequence: e.g., 0= No (e.g. sea cucumber)

	1= Minor impact. For instance, a fishery might discard a small amount of a plentiful forage fish (e.g. hake fishery impact on herring). Or discarded species has minor ecosystem role (e.g. sea urchins are food source for sea otters, but many alternatives) 2= Medium impact. For instance, fishery targets forage fish at low level, or discarded forage fish is large but not putting population at risk. Or entanglement of marine mammals in fishing gear can occur. 3= High/worrisome impact. For instance, the fishery has an impact on forage fish of low abundance (e.g. shrimp trawl impact on eulachon). Or the impact is on SARA listed species (e.g. chinook fishery limits resident killer whale diet). NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. 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. NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact.
Direct Habitat Impacts	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.) 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) NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. 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.
Indirect Habitat Impacts	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.) 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.) NOTE: If unknown, value cannot be zero but can be 1, 2, or 3 depending on presumed consequence of impact. 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.

3 PART C: RESOURCE MANAGEMENT ISSUES

Column	Comments
Fishery Type	Is the fishery SHARE-BASED, DERBY, or OTHER? 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)
Potential to Over-Harvest	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? NOTE: We are not considering cumulative impacts of multiple fisheries at this time.
Compliance & Enforcement	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? (Y/N) This variable is not scored so please explain concerns in the comment box if they exist.
International or Treaty Requirements	Are there any international/treaty information requirements, such as Pacific Salmon Treaty (PST), Marine Stewardship Certification (MSC), traceability, First Nations Treaties, etc. that would require a higher level of monitoring? (Y/N) This variable is not scored but please explain relevant treaties and associated requirements for monitoring in the comment box.
Info to Manage Other Sectors or Fisheries	Is information required in-season to plan for other fisheries, such as FSC, recreational, commercial? (Y/N) This variable is not scored but please explain in-season reporting requirements in the comment box.
Public Relations	Is there a need for higher monitoring due to public requirements for more detailed explanation about the impacts of the fishery? (Y/N) For instance, there are examples of fisheries where a low level of monitoring is probably appropriate due to ecosystem risk, but DFO implements higher levels of monitoring because the public needs it (example is Area 6 seine). This variable is not scored but please provide information about public's concern for monitoring in the Comment field.

4 PART D: PRELIMINARY RISK SCORING (CALCULATED)

Column	Comments
Risk to Main Species	Auto-calculated from MAIN SPECIES CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Risk to By-Catch	Auto-calculated from BY-CATCH CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.

Risk to Community and Habitat	Auto-calculated from COMMUNITY & HABITAT CATEGORY RISK SCORES PROTECTED: user may NOT over-ride.
Overall Fishery Risk	Auto-calculated from maximum value of CALCULATED RISK SCORES PROTECTED: user may NOT over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECED: user man not over-ride

5 PART E: FINAL RISK SCORING (ASSIGNED)

Column	Comments
Risk to Main Species	DEFAULTS to preliminary MAIN SPECIES RISK SCORE; user may over-ride.
Risk to By-Catch	DEFAULTS to preliminary BY-CATCH SPECIES RISK SCORE; user may over-ride.
Risk to Community and Habitat	DEFAULTS to preliminary COMMUNITY & HABITAT RISK SCORE; user may over-ride.
Overall Fishery Risk	DEFAULTS to maximum value of FINAL RISK SCORES; user may over-ride.
Target Monitoring Level	Assigned from FINAL RISK OF FISHERY score Low: 1-2 General: 3-5 Enhanced: 6-9 PROTECTED: User many NOT override

6 PART F: RISK ASSESSMENT NOTES

Column	Comments
Current Monitoring Level	What is the current monitoring level?
Information Gaps	Are there any specific information gaps in the monitoring program? E.g. Need to record by-catch. Should sample 10% of scales
Comments	Further comments and suggestions pertaining to current monitoring level, apparent quality and comprehensiveness of Catch Monitoring & Reporting effort, data gaps, issues of current and future risk, etc
Contact Info – Name & Date	Who supplied this information and when.

Risk Assessment Tool - Working Draft

Clam for Recreational by Handpick, digging, raking

Part A: Fishery Description & Licensing Information

Licensing

DFO MGMT AREA	Coastwide
NAME of FISHING GROUP	All Recreational Harvesters
LICENCE TYPE	Recreational

Description

GEAR TYPE	Handpick, digging, raking
FISH SPECIES for ANALYSIS	Clam
TIMING of ANALYSIS	Year- Round

Size of Fishery

MEAN CATCH (pcs/lbs)	Unknown
MEAN EFFORT (boat-days, fishers, etc)	Unknown
% TAC	N/A

Part B: Ecosystem Risks

Main Species

MAIN SPECIES or STOCK STATUS	0
VULNERABILITY OF MAIN SPECIES or STOCK	2
SPECIES or STOCK BEHAVIOURAL CHANGES	0

By-Catch

RETAINED BY-CATCH STATUS	0
VULNERABILITY OF RETAINED BY-CATCH	0
RELEASED BY-CATCH STATUS	0
VULNERABILITY OF RELEASED BY-CATCH	0

Community & Habitat

KEY PREDATOR or PREY	1
DIRECT HABITAT IMPACTS	1
INDIRECT HABITAT IMPACTS	1

Part C: Resource Management Issues

FISHERY TYPE	N/A
POTENTIAL to OVER-HARVEST	Yes
COMPLIANCE and ENFORCEMENT	Yes
INTERNATIONAL or TREATY REQUIREMENTS	No
INFO to MANAGE OTHER SECTORS or FISHERIES	Yes
PUBLIC RELATIONS	Yes

Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	2
RISK to BY-CATCH (D)	
RISK to COMMUNITY and HABITAT (D)	1
OVERALL FISHERY RISK (D)	2
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Low

Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E)	2
RISK to BY-CATCH (E)	
RISK to COMMUNITY and HABITAT (E)	1
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 - low catch and effort info, little true info re: who is participating, number of participants, and actual harvest
COMMENTS - rec and FSC harvest rates are considered to be low relative to the commercial

Risk Assessment Tool - Working Draft

Clam for FSC by Handpick, digging, raking

Part A: Fishery Description & Licensing Information

Licensing

DFO MGMT AREA	Coastwide
NAME of FISHING GROUP	All FSC Harvesters
LICENCE TYPE	FSC

Description

GEAR TYPE	Handpick, digging, raking
FISH SPECIES for ANALYSIS	Clam
TIMING of ANALYSIS	Year- Round

Size of Fishery

MEAN CATCH (pcs/lbs)	Unknown
MEAN EFFORT (boat-days, fishers, etc)	Unknown
% TAC	N/A

Part B: Ecosystem Risks

Main Species

MAIN SPECIES or STOCK STATUS	0
VULNERABILITY OF MAIN SPECIES or STOCK	2
SPECIES or STOCK BEHAVIOURAL CHANGES	0

By-Catch

RETAINED BY-CATCH STATUS	0
VULNERABILITY OF RETAINED BY-CATCH	0
RELEASED BY-CATCH STATUS	0
VULNERABILITY OF RELEASED BY-CATCH	0

Community & Habitat

KEY PREDATOR or PREY	1
DIRECT HABITAT IMPACTS	1
INDIRECT HABITAT IMPACTS	1

Part C: Resource Management Issues

FISHERY TYPE	N/A
POTENTIAL to OVER-HARVEST	Yes
COMPLIANCE and ENFORCEMENT	Yes
INTERNATIONAL or TREATY REQUIREMENTS	No
INFO to MANAGE OTHER SECTORS or FISHERIES	Yes
PUBLIC RELATIONS	Yes

Part D: Preliminary Risk Scoring (calculated)

RISK to MAIN SPECIES (D)	2
RISK to BY-CATCH (D)	
RISK to COMMUNITY and HABITAT (D)	1
OVERALL FISHERY RISK (D)	2
TARGET MONITORING LEVEL (Low, Generic, Enhanced) (D)	Low

Part E: Final Risk Scoring (assigned)

RISK to MAIN SPECIES (E)	2
RISK to BY-CATCH (E)	
RISK to COMMUNITY and HABITAT (E)	1
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 - low catch and effort info, little true info re: who is participating, number of participants, and actual harvest
COMMENTS - - rec and FSC harvest rates are considered to be low relative to the commercial