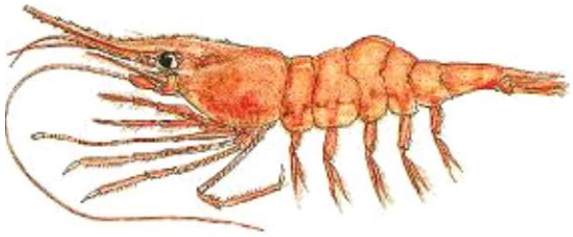
PACIFIC REGION

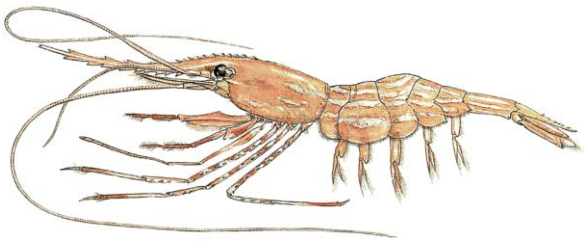
INTEGRATED FISHERIES MANAGEMENT PLAN

SHRIMP TRAWL

APRIL 1, 2016 TO MARCH 31, 2017



Smooth Pink Shrimp: ***Pandalus jordani***



Sidestripe Shrimp: ***Pandalopsis dispar***

Fisheries and Oceans Canada | Pêches et Océans Canada

Canada

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

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the shrimp trawl 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 and other stakeholders. This IFMP provides a common understanding of the basic “rules” for the sustainable management of the fisheries resource.

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

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

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1. OVERVIEW

1.1. Introduction

The 2016/17 Pacific Region Shrimp Trawl Integrated Fisheries Management Plan (IFMP) encompasses the period of April 1, 2016 to March 31, 2017.

Shrimp are harvested by two different methods in the Pacific Region, trawl nets and traps. This IFMP covers the harvest of Pacific shrimp species by trawl gear only. For more information on the trap fishery, including commercial, recreational and First Nations fisheries for prawns and shrimp, please refer to the Pacific Region Prawn and Shrimp by Trap IFMP.

The 2016/17 Shrimp Trawl Commercial Harvest Plan is attached as Appendix 1 to this IFMP. Several other appendices provide important information and commercial fish harvesters are advised to review them all.

The species of shrimp targeted by trawl gear are from the family Pandalidae. The most frequent targets are smaller shrimp species such as the northern or spiny pink shrimp (*Pandalus borealis*) and the smooth pink shrimp (*Pandalus jordani*), collectively called pink shrimp. The next most common species is the sidestripe shrimp (*Pandalopsis dispar*). This species grows to a larger size and has a higher market value than pink shrimp. Two other species of Pandalid shrimp, the coonstripe shrimp (*Pandalus danae*) and the humpback shrimp (*Pandalus hypsinotus*) are also caught in localized areas. These two species may be incidentally retained by shrimp trawl harvesters but seldom make up the majority of their catch. Minor incidental bycatch retention of the spot prawn (*Pandalus platyceros*) is permitted.

1.2. History

The first records of trawl gear being used for commercial shrimp fishing date back to 1895. The shrimp trawl fishery did not develop in earnest until the 1960's when a downturn in the salmon and halibut fisheries occurred. At this time, the B.C. coast was explored for shrimp grounds and efficient trawl gear was developed. Licences were available for any commercial fishing vessel and most areas were open seasonally with no catch ceilings until stock assessments began in 1973. Shrimp trawl vessels fished the offshore shrimp grounds and landed the majority of the catch in US ports. Expansion of fishing and processing capacity directed at offshore shrimp stocks, and Canada's declaration of a 200-nautical mile fisheries jurisdiction in 1977, led to licence limitation. Licence eligibility was restricted to vessels that had landed shrimp in 1975 and 1976. The result was that 237 vessels qualified for 'S' licence eligibilities and 71 qualified for Northern area permits. Once licence eligibility was finalized in 1978, a total of 249 'S' licence eligibilities were issued.

In 1995 and 1996, there was a dramatic increase in shrimp effort on the West Coast of Vancouver Island and all shrimp areas of the coast were fished. This increase was caused in part by the changes in groundfish and salmon management strategies, most notably a salmon licence buy-back that resulted in 100 vessels having only an S licence. In addition, shrimp abundance levels were also high in 1995 and 1996, along with a high price being offered for shrimp for those two years. There were catch ceilings in place for the West Coast of Vancouver Island but the rest of the B.C. coast was open on a seasonal basis with no catch limits. In response to the increase in effort and landings, significant changes in the management of the shrimp trawl

fishery were implemented in 1997 as Fisheries and Oceans Canada moved to more precautionary management, risk adverse principles, and promoted selective fishing practices. Shrimp Management Areas (SMA) were defined, total allowable catches (TAC) were set to limit exploitation, a seasonal opening for the offshore pink shrimp fishery was implemented, and the development of industry-funded programs to monitor catches and contribute to stock assessment were initiated. The 'shrimp year' was defined for opening/accounting for catch ceilings. In 2003 the official licence year was changed to run from April 1 to March 31 the following year.

1.3. Type of Fishery and Participants

1.3.1. First Nations

First Nations harvest for food, social and ceremonial (FSC) purposes is the first priority after conservation and may occur coast-wide where authorized by a communal licence. First Nations fishing effort for shrimp for FSC purposes is currently not limited by catch quantity. However, few First Nations have access to the commercial trawl gear necessary to target pink and sidestripe shrimp. The amount of pink and sidestripe shrimp caught by First Nations is not accounted for in the setting of annual catch ceilings.

1.3.2. Recreational

A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish including shellfish. Tidal Waters Sport Fishing Licences can be purchased at many tackle stores and marinas or online by using the Fisheries and Oceans Canada website:

www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/index-eng.htm

Trawl nets are not permitted as a gear type for recreational shrimp harvest and baited traps rarely retain pink and sidestripe shrimp. Therefore these species are generally not harvested recreationally. Since the incidental harvest of pink and sidestripe shrimp is considered to be minimal in the recreational fishery, it is not considered in the setting of annual catch ceilings.

For information on the Prawn and Shrimp by Trap fishery, including the recreational fishery, please contact the lead fishery manager (see Appendix 3).

1.3.3. Commercial

Pink and sidestripe shrimp are harvested commercially by trawl gear. There are currently 237 licences; 214 'S' licence eligibilities and 23 'FS' licence eligibilities which are allocated to First Nations' organizations. Shrimp trawl vessels range in length from 7 to 35 meters (m). Vessel owners who do not intend to fish shrimp by trawl are still required to renew their S licence (fee $100). They are permitted to exercise their Schedule II privileges on their licence once they have satisfied any further conditions specific to each species.

1.4. Location of Fishery

Pink and sidestripe shrimp are mostly associated with sand and mud substrates. They move up into the water column during the night to feed on zooplankton and stay close to the bottom during the day. The fishery is conducted in protected inshore waters in the Strait of Georgia,

inlets and fjords, offshore regions of the West Coast of Vancouver Island, and Prince Rupert District (Figure 1).

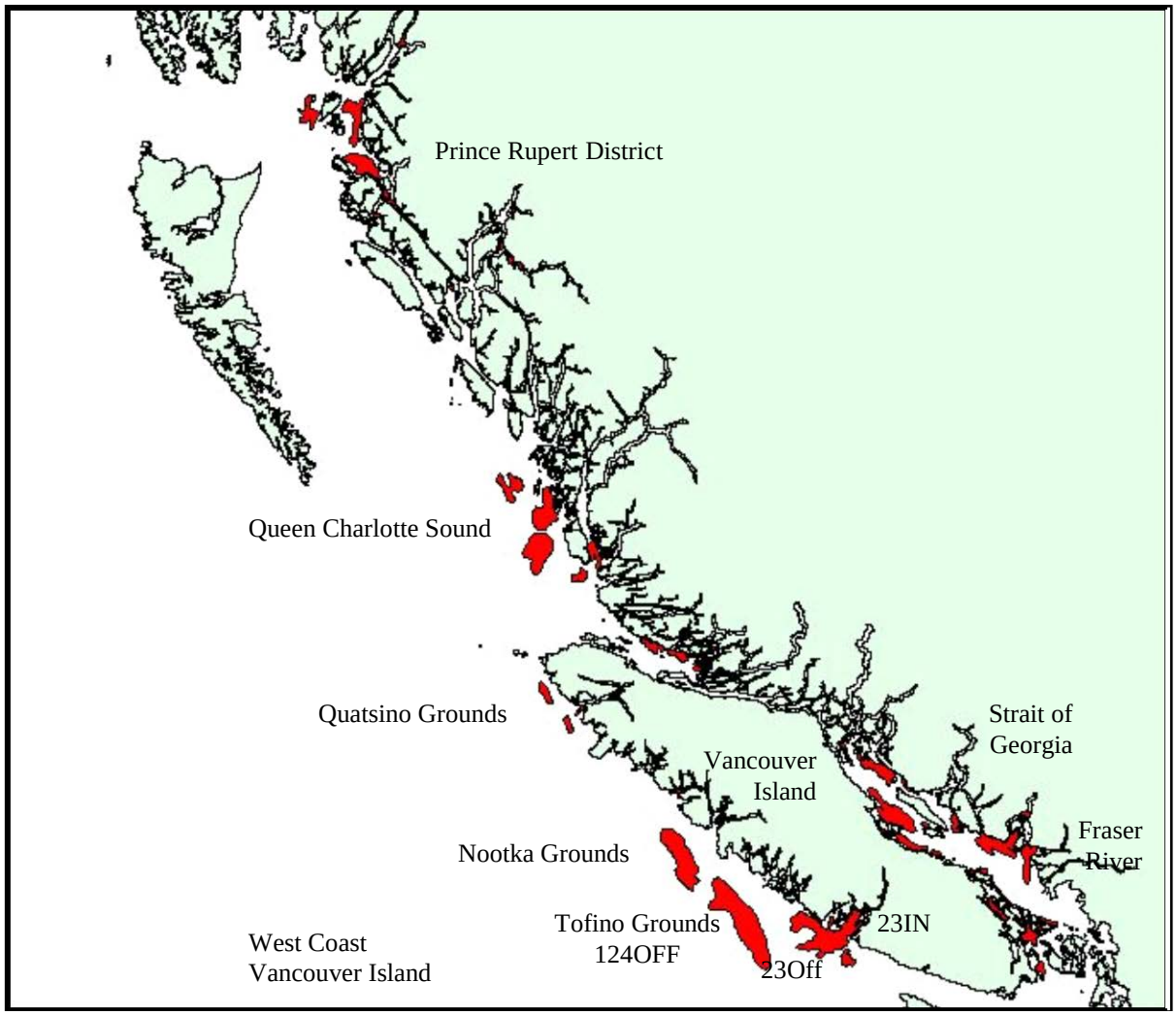

Figure 1. Major shrimp production areas in British Columbia, Pacific Coast (highlighted areas).

Shrimp Management Areas (SMA) were developed for the entire B.C. coast in 1997 for the shrimp trawl commercial fishery so that specific catch ceilings could be defined to limit exploitation on discrete stocks of a number of different species. Fishery independent swept-area trawl surveys have been implemented in selected SMAs in order to index shrimp abundance. Descriptions of Shrimp Management Areas and maps can be found in Appendix 9.

1.5. Fishery Characteristics

The commercial shrimp trawl fishery primarily targets pink and sidestripe shrimp. Smaller beam trawl vessels (less than 15 m overall length) tend to fish in more sheltered areas and larger otter trawl vessels (15 to 35 m) use larger nets towed at higher speeds and sometimes fish in offshore areas. Of the 237 licences, participation declined to 36 beam trawl and 8 otter trawl vessels active in 2014. In 2015, 38 beam trawl and 19 otter trawl vessels were active as of December 31. Approximately 14 otter trawl vessels that had not been active for 15 years re-entered the fishery

on the West Coast of Vancouver Island (WCVI), significantly increasing landings of pink shrimp. Coastwide landings had been around 1 million lb. annually up until 2014, but increased effort was observed in 2015. In the first 9 months of the 2015/16 season approximately 9.4 million lb. of product was landed, most of the increase coming from WCVI SMAs.

1.6. Governance

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

The shrimp by trawl fisheries are governed by the *Fisheries Act* (R.S., 1985, c. F-14) and regulations made thereunder, including the *Fishery (General) Regulations* (e.g., conditions of licence), the *Pacific Fishery Regulations* (e.g., open times), the *British Columbia Sport Fishing Regulations (1996)*, the *Aboriginal Communal Fishing Licences Regulations* and the *Pacific Aquaculture Regulations*. Areas and Subareas are described in the *Pacific Fishery Management Area Regulations*.

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

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

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

In addition, the national Sustainable Fisheries Framework contains policies for adopting an ecosystem based approach to fisheries management, including: A Fishery Decision-Making Framework Incorporating the Precautionary Approach, Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas, Policy on New Fisheries for Forage Species and Policy on Managing Bycatch. Along with existing economic and shared stewardship policies, these will help Fisheries & Oceans Canada (DFO) meet objectives for long-term sustainability, economic prosperity, and improved governance. See the Internet at:

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/overview-cadre-eng.htm

More recent information on Canada's Approach to Fisheries Modernization includes: Precautionary Approach Framework Rebuilding Plan Guidelines and the Benthic Ecological Risk Assessment Framework.

Scientific advice for this fishery is peer-reviewed primarily through a regional committee by the Centre for Science Advice Pacific (CSAP), formerly the Pacific Scientific Advice Review

Committee (PSARC), conducted in conjunction with the Canadian Science Advisory Secretariat (CSAS).

1.7. Consultation

The Shrimp Trawl Sectoral Committee (STSC) is the primary management advisory process for this fishery. For a full description of the STSC see Appendix 12: Terms of Reference of the Shrimp Trawl Sectoral Committee.

A multi-sector meeting is held at least once each year. This sectoral meeting provides a forum for the exchange of information and views between the people with interests in the fishery and the Department on issues of importance. It is open to the public and anyone interested in providing advice on the management of the shrimp trawl fishery.

Additional information on the STSC is available from the Internet at:

http://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/index-eng.html

1.8. Approval Process

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

2. STOCK ASSESSMENT, SCIENCE AND TRADITIONAL KNOWLEDGE

2.1. Biological Synopsis

There are over 90 species of shrimp found in waters of British Columbia. Seven of these species of shrimp, belonging to the Family Pandalidae, are harvested by the shrimp trawl fishery off the Pacific Coast of Canada. The species are the northern pink, (*Pandalus borealis eous*), smooth pink shrimp (*P. jordani*), flexed pink shrimp (*P. goniurus*), coonstripe shrimp (*P. danae*), humpback shrimp (*P. hypsinotus*), prawn or spot shrimp (P. platyceros), and sidestripe shrimp (*Pandalopsis dispar*). The fishery varies in complexity from single species harvest to multi-species harvest, although pink and sidestripe shrimp are the main species targeted by the commercial trawl fleet.

Pandalid shrimp have a wide distribution in the northeast Pacific and are found from California to the Bering Sea and occupy a variety of habitats from rocky to mud bottoms. They are found in depths from intertidal to greater than 1300 meters and inhabit both inshore and offshore areas.

Many members of the Pandalidae family, including the species listed above, have a unique life history where each individual begins life as a male and then changes sex into a female. The biological term for this unique sex change is called protandrous hermaphrodism.

Pandalid shrimps start their post-larval life as a male and reach maturity in approximately 18-24 months. They then undergo a transformation phase of approximately 3-5 months where they change sex from male to female. By the third year, most shrimp have completed the sex change and are mature females. Breeding takes place in the fall with females carrying eggs on their abdomens for approximately 4-5 months until they hatch in the late winter. This is followed by a

3 - 4 month pelagic larval stage from March to summer. Larval settlement occurs in the summer (Butler 1980). Shrimp generally have a 4 year life cycle.

2.2. Ecosystem Interactions

Ecosystem interactions for Pandalid shrimp are complex due to the wide range of habitats and niches they occupy. However, Pandalid shrimp likely play an important role as forage fish species because as larvae they are a source of food for a number of marine organisms. As adults, shrimp are a food source for a number of pelagic fish species such as hake, turbot, spiny dogfish, cod, rockfish, and skates (Butler 1980, and Hannah 1995).

Pandalid shrimp are opportunistic detritus feeders and are known to be predators of polychaete worms, sponges, diatoms, euphausiids, and other crustaceans (Butler 1980).

2.3. Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

Aboriginal Traditional Knowledge of pink and sidestripe shrimp is not generally available.

Traditional Ecological Knowledge in the form of observations and comments collected from commercial fish harvesters over many years contributes to decisions on scientific survey locations and is considered in management decisions. Many of the active fish harvesters have been participants in the fishery for 10 to 40 years.

2.4. Stock Assessment

The shrimp trawl fishery takes place within 34 of the 36 shrimp management areas (SMA) from large offshore areas to smaller inshore waters. Estimates of biomass are based on fishery independent surveys for pink shrimp, sidestripe shrimp and sometimes for coonstripe and humpback shrimp for a select number of SMAs. Area-swept trawl surveys are conducted on a fixed schedule basis to index shrimp biomass and to monitor trends in abundance over time. Survey results and abundance trends are reported in Shrimp Trawl Survey Bulletins in-season and are available upon request (see Appendix 3 for contacts).

The most recent science advisory report on stock trends and stock status advice for inshore shrimp stocks (DFO 2012) can be found at Fisheries and Oceans Canada, Canadian Science Advisory Secretariat website:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2011/2011_085-eng.html

2.5. Precautionary Approach

Provisional Harvest Control Rules (HCR) compliant with the Precautionary Approach (PA) have been developed for the commercial shrimp trawl fishery using reference points with respect to the biomass of maximum sustainable yield (B_{msy}). For west coast shrimp stocks, a proxy for B_{msy} is used; the natural logarithm of the average biomass as the best approximation (B_{msy} = ln (avg) biomass). Provisional reference points have been established with the limit reference point (LRP) = 40% B_{msy} and upper stock reference (USR) = 80% B_{msy}. A detailed description of the PA for

shrimp is available in proceedings of the PA workshop on Canadian shrimp and prawn stocks and fisheries (DFO 2009). The document is available on the Internet at:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2008/2008_031-eng.htm

2.6. Stock Scenarios

Estimated pink shrimp stocks in 2015 for the southern surveyed areas were above the USR and in the Healthy zone, including record high pink shrimp biomass off West Coast Vancouver Island. The exceptions were SMAs 18 and 19 which increased from 2014, but were still below the LRP and in the Critical zone. For the northern survey area, SMA PRD, the estimated combined pink shrimp biomass was between the LRP and USR in the Cautious zone.

Estimated sidestripe shrimp stocks in 2015, for all surveyed areas, were above the USR and in the Healthy zone with the exception of SMAs 18 and 19 which were below the LRP and in the Critical zone – although there were increases from 2014. Trends in pink and sidestripe shrimp abundance for surveyed areas are documented in the Shrimp Survey Bulletins and available upon request (see Appendix 3 for contacts).

Shrimp stock sizes in general tend to show high annual variation. Highly variable stock sizes over the long term should be expected and considered the norm for shrimp populations. This will result in high annual variability in area catch ceilings under the current fixed harvest rate management strategy.

2.7. Research

Fishery independent surveys are the primary source of stock abundance and research data. From 1996-2011 a number of index sites were surveyed either annually or every second year according to a fixed survey schedule; these were: SMAs 23OFF+21OFF, 124OFF, 125OFF, 23IN, QCSND, 9IN, PRD, 14, and FR. In addition SMA's GSTE, 16, 18, 19, and a portion of 12IN were included when survey time permitted. In 2012 the Department began a two year rotational survey schedule for some of the inshore index survey sites.

Additional scientific information on shrimp stocks and the fishery is available at Fisheries and Oceans Canada, Canadian Science Advisory Secretariat website:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2011/2011_085-eng.html

3. SOCIAL CULTURAL AND ECONOMIC IMPORTANCE

3.1. Socio-Economic Profile

The intent of this section is illustrative, and it provides a socio-economic context for the shrimp trawl fisheries in B.C. Overviews of Commercial and Aboriginal sectors of the fishery are included. Recreational fishing for shrimp species is not discussed here because use of the trawl gear is prohibited in that fishery. For information on recreational fishing that may pertain to shrimp species, please refer to the Prawn and Shrimp by Trap IFMP.

The majority of the British Columbia shrimp trawl fleet consists of small vessels that harvest modest volumes of shrimp during day trips. Large trawl vessels have generally not been active in the B.C. shrimp fishery until March of 2015. This fleet structure contrasts to global competition, particularly from the east coast of Canada, and more recently Washington and Oregon, where large trawlers engage in an industrial scale fishery. The B.C. industry, with low volumes and high production costs, is less competitive than large-scale shrimp fisheries. In 2015, a large pink shrimp catch ceiling on the West Coast of Vancouver Island and the availability of freezing capacity, allowed the industry to harvest large volumes of pink shrimp and freeze them for processing elsewhere. With shrimp landings in 2015 exceptionally higher than the previous ten years, once the final values have been reported, the picture for the fishery may change.

Shrimp trawling in British Columbia began as early as the 1930s, but developed more quickly since the 1960s. From the 80s to 90s there was a period of increasing participation, until landings peaked in 1996. At that time most of the major shrimp grounds were fished. From 1997 onwards landings have declined due to precautionary management changes, including selective fishing strategies, and Total Allowable Catch (TAC) set to limit exploitation. Additionally, rising fuel prices have limited the economic viability of travelling to fish in areas that are far from home port. Shrimp Management Areas near population centres have typically had higher effort so annual catch ceilings were often reached before the end of the fishing year.

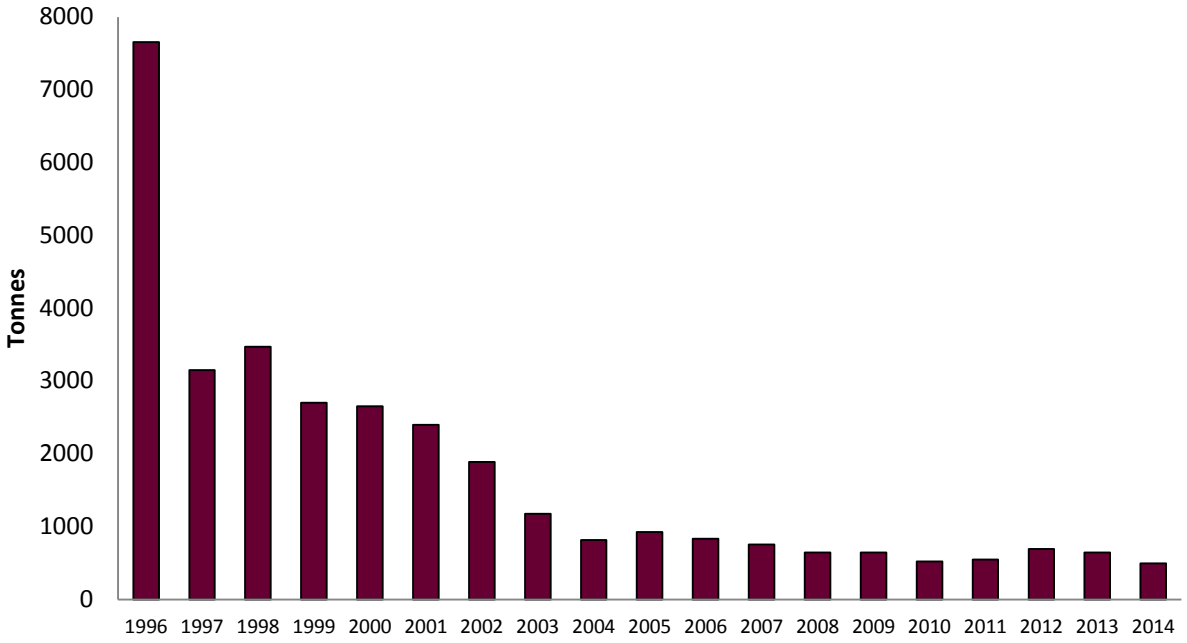

Figure 2: Landings (tonnes) of B.C. Shrimp Trawl Fishery, 1981-2013 (calendar years).

Average landings per vessel in 2014 were 23,260 lbs (10,540 kg) and average gross revenues were $38,710 (with 47 active vessels). The financial model (Nelson, 2011) used by DFO for this fleet is based on 2009 data and highlights that many in the fleet operate with a very low to negative net earnings before interest, taxes, depreciation and amortization (EBITDA). Given that total landed revenues and participation was proportionally similar in 2014 compared to 2009, the situation can be expected to be the same in 2014. Only the most active vessels have a positive or significant return. In 2014, the top third of the active shrimp fleet reported gross revenues of $68,500, which based on the model would mean a net earnings before interest, taxes,

depreciation, and amortization of $21,000 per vessel. The shrimp fleet is however, quite diversified and also participates in other fisheries, including prawn, salmon gillnet, and salmon troll (Ibid).

In 2015 survey results show a second year of high pink shrimp biomass in West Coast Vancouver Island areas and with high catch ceilings (34 million lbs.) the fishery will likely open early in 2016. This high biomass cycle coincides with a good market and high values for pink shrimp, which implies a high landed value for the fishing year.

Figure 3 shows the return to historic landings since 1996 and an overall increase in real price over time, which has helped mitigate revenue losses due to reduced harvest. This increase in real price over time supports the market trends described in the section below. Despite this price increase, licence values for the commercial shrimp trawl fishery are currently extremely low, with the value showing an overall decline since 1997, with a slight rebound from 2011-2014 (latest available year). As of 2014, the shrimp industry has explored means of reforming the fishery to improve viability, and was unable to reach an agreeable alternative approach to restructure/reform itself to meet the current economic situation. There may be a significant change in response to high shrimp biomass in 2014 and 2015 with high landings volumes and high shrimp values starting in 2015.

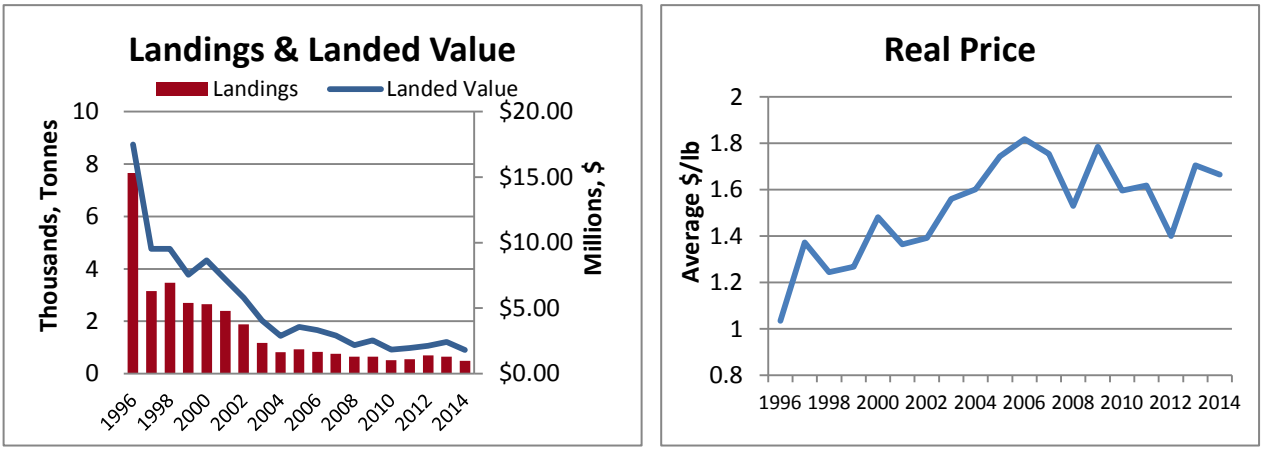

Figure 3: Landings, Landed Value, and Price since 1996. (Sources: Logbooks and Sales Slips, Pacific Region Data Unit. Landed value is expressed in constant 2014 dollars, calendar years.).

3.2. Viability and Market Trends

There are seven Pandalid shrimp species harvested by trawl in B.C. and fisheries vary from single to multi-species fisheries for a variety of markets including hand-peeled, frozen-at-sea, fresh and live shrimp. The majority of landings are a mix of pink shrimp and sidestripe shrimp.

The market for pink shrimp is limited by the pink shrimp's small size compared to other shrimp species. B.C. pink shrimp are marketed mainly as a frozen, peeled cocktail shrimp product and therefore compete directly with a number of other shrimp fisheries worldwide.

There are two main methods of preparing cocktail shrimp: hand-peeling and machine-peeling. The hand-peeled market requires the largest shrimp and results in a higher quality (less broken

shrimp) product. B.C. processors have maintained some attachment to the hand-peeled market segment by promoting B.C. shrimp and supplying this market year-round. The prevalence and low price of machine-peeled shrimp produced in Eastern Canada, and more recently Washington and Oregon fisheries (all Marine Stewardship Council certified), supplies the demand for cheaper quick frozen processed cocktail shrimp. With these larger fisheries and stocks remaining healthy and supplying this product, the B.C. shrimp fishery has struggled to try to compete in the machine-peeled market. The increase in high volume fishing, and freezing pink shrimp for processing elsewhere that started in 2015, may change this situation for the coming season.

The move towards eco-labelling has prompted the East Coast Canadian and Oregon shrimp by trawl fisheries to obtain certification by the Marine Stewardship Council (MSC). This process involves an expensive third party review and requires on-going audits and assessment that is currently beyond the capacity of the B.C. shrimp trawl fleet. The trend towards consumer pressure for eco-certification is one more issue that B.C. product will need to address in order to compete with cocktail shrimp from other jurisdictions.

Sidestripe shrimp are a higher value shrimp than pink shrimp due to their larger size. The largest sidestripe shrimp are finger-packed (heads on) and frozen at sea for the Japanese market or sold fresh directly to the public at local dock sales and farmer's markets. They may also be marketed as a frozen product with the heads removed and the tails packaged and frozen at sea. This produces a higher value product for restaurant and domestic markets, but the market is limited. Due to the limited market, the capital investment in on-board freezing capacity does not warrant updating a shrimp vessel unless the freezer is used for other fisheries such as tuna, salmon by troll or prawn by trap.

The fishery opens coast-wide June 1, but may open earlier in selected areas starting April 1. Timing of landings is mostly controlled by market demand (maintaining a supply of shrimp for the hand-peeled market and fresh sales from dockside markets). Monthly landings during the last few years have typically been between 30 tonnes (66,000 lb) and 45 tonnes (100,000 lbs.) in order to meet market demands. This trend continued until 2014, with an average monthly landing of 38 tonnes (84,400 lbs.). The landings for 2015 are significantly higher with average monthly landings of 380 t as of January 20, 2016 (Jul, Aug, Sept, and Nov had landings over 600 t).

3.3. First Nations

There are currently 23 communal commercial shrimp by trawl licence eligibilities to provide economic opportunity to First Nations through participation in the commercial fishery made available through Allocation Transfer Program (ATP) and the Pacific Integrated Commercial Fisheries Initiative (PICFI).

The ATP and PICFI have commercial licence eligibilities that have been relinquished from existing fish harvesters on a voluntary basis and make them available to eligible First Nation organizations as communal commercial licences. The PICFI, announced in 2007, is aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported. The Government of Canada committed $175 million over the first five years (2007-2012) to implement the initiative. The PICFI program has been extended until March 31, 2016.

For more information on the Aboriginal Fisheries Strategy, (AFS) ATP and PICFI, contact a resource manager listed in Appendix 3 (Contacts) or see the internet at:

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

4. MANAGEMENT ISSUES

The following emerging issues may impact the management measures in place for the shrimp trawl fishery.

4.1. Conservation and Sustainability

4.1.1. Multi-species/Multi-stock Management

The number of shrimp species and stocks involved in the shrimp trawl fishery has resulted in complex management and assessment programs. Surveys of the major shrimp grounds are conducted by the Department's Science branch and the resulting shrimp biomass estimates are used to define catch ceilings.

4.2. Social, Cultural and Economic

4.2.1. First Nations

The incidental bycatch of an anadromous smelt, eulachon (*Thaleichthys pacificus),* is of concern to First Nations since the returns of eulachon to many of the Central Coast rivers and the Fraser River have declined. First Nations organizations in the North Coast and Central Coast have requested that the shrimp trawl fishery be closed to avoid eulachon bycatch. The Department is working with the shrimp trawl industry to minimize eulachon bycatch. Area closures, seasonal closures, and the eulachon action level (see Appendix 1, Section 3.1) with an at-sea observer program were implemented to monitor eulachon bycatch in West Coast Vancouver Island areas. Bycatch reduction devices (including rigid grates) are mandatory coastwide. The Department is in the process of consultation around the potential listing of eulachon under the *Species at Risk Act*.

4.2.2. Recreational

Recreational fish harvesters have brought forward concerns about the bycatch of prawns in the commercial shrimp trawl fishery. When prawn spawner abundance is below the "spawner index" (minimum number of female spawners), areas will close for recreational prawn fishing in winter (see the IFMP for Prawn and Shrimp by Trap for more details). Recreational harvesters have expressed concern that winter shrimp trawling may continue in these areas that have closed to recreational prawn harvesting. Retention of prawns is not permitted in the shrimp trawl fishery except where a small incidental bycatch of prawns is allowed during the commercial prawn by trap fishing season (May-June). When prawn bycatch is suspected to be high in specific areas, at-sea observers may be deployed on commercial fishing trips and a resource manager will make changes to the fishery if necessary.

4.2.3. Commercial

Licence eligibility holders who choose not to fish their shrimp trawl licences during the season are not required to contribute to the in-season program costs for the fishery. As participation in

the fishery declines (44 out of 238 licensed vessels were active in 2014), active shrimp harvesters are required to pay more to cover the total cost of the coastwide fishery monitoring program that is a Condition of Licence for active fishers. The commercial licence holders who are active in the fishery are required to fund the management programs (hails, catch ceiling monitoring, observer coverage, logbook data entry and data reporting) and with declining participation the active licence holders left participating in the fishery have expressed concern over the increasing individual costs. The management program costs about 9.3% of the (2012) landed value of the fishery.

4.3. Compliance

There are no emerging issues for enforcement other than those already highlighted in the Compliance Plan (Section 9). Each licence holder should download and print a copy of this Integrated Fisheries Management Plan. Additional attention to Rockfish Conservation Areas (RCAs) and the Strait of Georgia Sponge Reefs is also required as these areas are closed to fishing by trawl nets. For further information on the RCAs and the sponge reefs see the following web sites:

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

http://www.pac.dfo-mpo.gc.ca/oceans/protection/sponge_reef-recif_eponge-eng.html

4.4. Ecosystem

The most pressing ecosystem issues concerning the harvest of shrimp and the shrimp trawl fishery are bycatch, benthic impacts, exploitation as a forage fish species, depleted species concerns, and oceans and habitat considerations.

4.4.1. Bycatch

Bycatch has become one of the most significant issues affecting fisheries management both nationally and globally. The bycatch of non-target fish in the shrimp trawl fishery was defined by at-sea observations starting in 1997 and a bycatch monitoring program has been supported by industry contributions since 1999. The Department collects estimates of bycatch, by tow, for trips that are observed. However, observer coverage has been limited in the past (50 days per year) which precludes the ability to estimate total annual bycatch by the fishery. The observer program is focused on eulachon bycatch in West Coast Vancouver Island areas to monitor the eulachon action level and to document the use of bycatch reduction gear. The use of bycatch reduction devices (bycatch grates, large mesh panels, etc.) significantly reduces the bycatch of non-target fish (Olsen et al, 1999). Bycatch reduction gear has been mandatory since 2000 (see Appendix 1, Section 2.2 and 7.1 for more detail). Catch composition results of the at-sea observer program for 2002 to 2011 are available in a Data Report (Rutherford et al 2013).

At-sea observations, concentrated on WCVI to monitor eulachon bycatch, have shown that otter trawl catch per unit effort of eulachon is significantly higher than beam trawl (Olsen et al, 1999). When it was identified that eulachon were a significant bycatch in the shrimp trawl fishery in 1997, the eulachon bycatch action level was defined to encourage gear modifications and to make management changes should eulachon bycatch reach the action levels. The eulachon action level (EAL) for 2000 was reached and the fishery was closed to otter trawl vessels for the

remainder of the season. Since 2000, the EALs have not been reached. The effort by otter trawl vessels and overall effort in offshore areas has declined.

Shrimp trawl gear with bycatch reduction devices avoids larger fish but is not selective for smaller organisms, therefore bycatch of non-target species, particularly eulachon, is a concern. Eulachon returns to the Fraser River and Central Coast rivers declined in the mid 1990's at the same time that effort and landings increased in the shrimp trawl and groundfish trawl fisheries. It was identified that eulachon were a significant bycatch in the shrimp trawl fishery in 1997, leading to concern over the potential impact of trawling on eulachons. When otter trawl effort shifted to Queen Charlotte Sound (SMA QCSND) in 1996, and observations in 1997 and 1998 showed significant eulachon bycatch, QCSND was closed in 1999 and has remained closed to shrimp trawl.

Managing bycatch and discards has long been part of Canadian fisheries management, as realistically, it is not always possible to fish for one species without incidentally capturing another species or undesired individuals of the target species. To ensure long-term productivity, biodiversity and sustainability, Fisheries and Oceans Canada has developed a new policy for managing bycatch and discards that builds on the success of existing measures. This new policy is a key component of a strengthened Sustainable Fisheries Framework and is consistent with the ecosystem approach to fisheries management. This new policy can be found at:

http://www.dfo-mpo.gc.ca/fm-gp/policies-politiques/index-eng.htm

With the increased fishing effort during the 2015/16 season, the Department and licence holders have developed a strategy to collect additional at-sea observer data during years of increased effort. Beginning in 2016, additional observer days will be required as fishing effort increases during the year.

In recent years commercial shrimp trawl licence holders have approached DFO requesting to be able to use LED lights on their trawl gear. This request is based on studies conducted in the Oregon shrimp trawl fishery which demonstrated significant reduction in bycatch amounts when using these LED lights. Reductions of eulachon were specifically notable in the study. The use of LED lights in the BC shrimp trawl fishery is only allowed on 'FS' communal commercial shrimp trawl vessels. The use of LED lights is not currently allowed under the Pacific Fisheries Regulations for regular 'S' commercial licenced vessels. The Department and commercial licence holders continue to discuss the interest in allowing these lights for all vessels.

4.4.2. Gear Impact

Shrimp trawl gear contacts the bottom. The potential impacts of mobile bottom trawl gear on benthic habitat, populations and communities have been well documented (DFO 2006). The shrimp trawl fishery off the coast of British Columbia tends to fish in high energy, soft bottom environments which are more robust to benthic alteration by trawl gear than complex, high structure substrate (Ibid.). A Departmental policy for Managing the Impact of fishing on Sensitive Benthic Areas has been finalized. For more information see the following website:

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/benthi-eng.htm

Four sponge reef areas off the coast of British Columbia in the eastern Queen Charlotte Sound and Hecate Strait have been identified as Sensitive Benthic Areas. These reefs were closed to

groundfish and shrimp trawling starting in 2002, and fishers had voluntarily stopped entering these areas two years prior to the closures. For the locations of the four sponge reef closures, see Appendix 8.

The Ecological Risk Assessment Framework drafted under the national Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas will be used to determine the level of risk in these fisheries and whether mitigation measures are required. See the Internet at:

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/risk-ecolo-risque-eng.htm

4.4.3. Strait of Georgia Sponge Reef Closures

In accordance with the Sensitive Benthic Areas Policy and its Ecological Risk Assessment Framework (ERAF) for Cold-water Corals and Sponge Dominated Communities, DFO has conducted a risk assessment regarding the potential impacts of bottom-contact fisheries on nine glass sponge reef areas in the Strait of Georgia. The Department consulted with First Nations, commercial and recreational fishers, and other interested groups on proposed protection measures for the reefs. Restrictions on bottom contact fishing activities in these areas were implemented in 2015 and these areas are now closed to fishing by shrimp trawl.

A figure describing the nine glass sponge reef areas and coordinates can be found on the following web site:

http://www.pac.dfo-mpo.gc.ca/oceans/protection/sponge_reef-recif_eponge-eng.html

4.4.4. Forage Species

Shrimp are identified as a forage species. Forage species play a special role in aquatic ecosystems by providing a substantial portion of the annual food requirements of many fish, mammals and birds. The ecological relationships between predators and forage species are complex and the actual role of shrimp as forage fish in the ecosystem is not quantified. The Departmental Policy on New Fisheries for Forage Species applies to new fisheries in new areas and has not resulted in any specific changes to the shrimp trawl fishery. The Forage Species policy is available from the Internet at:

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/forage-back-fiche-eng.htm

4.4.5. Depleted Species Concerns

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was formed in 1977 to provide Canadians with a single, scientifically sound classification of wildlife species at risk of extinction. COSEWIC began its assessments in 1978 and has met each year since then to assess wildlife species.

With the implementation of SARA, COSEWIC serves as an independent body of experts responsible for identifying and assessing wildlife species considered as being at risk. This is the first step towards protecting wildlife species at risk. Subsequent steps include COSEWIC reporting its results to the Canadian government and the public, and the Minister of the Environment's official response to the assessment results. Wildlife species that have been designated by COSEWIC may then qualify for legal protection and recovery under SARA.

The *Species at Risk Act* (SARA) came into force in 2003. The purposes of the Act are "to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of a wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened." More information on SARA can be found at:

http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1

In addition to the existing prohibitions under the *Fisheries Act*, if a species is listed under SARA it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual. 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. These prohibitions do not apply to species listed as special concern.

Endangered, threatened, and special concern species in Pacific region currently listed under SARA can be found at: http://www.dfo-mpo.gc.ca/species-especes/listing-eng.htm

In the Pacific Region, the following SARA-listed fish species may be encountered by shrimp trawl nets:

Basking Shark - Endangered
Bluntnose Sixgill Shark - Special Concern
Leatherback Turtle - Endangered
Longspine Thornyhead - Special Concern
Rougheye Rockfishes Types I & II - Special Concern
Tope (Soupfin) Shark - Special Concern
Yelloweye Rockfish - Special Concern

The following COSEWIC assessed species may be encountered by shrimp trawl nets:

Bocaccio Rockfish - Threatened
Canary Rockfish - Threatened
Darkblotched Rockfish - Special Concern
Quillback Rockfish - Threatened
Yellowmouth Rockfish - Threatened
Eulachon - Central Pacific Coast population - Endangered
Eulachon - Fraser River populations - Endangered
Eulachon - Nass/Skeena Rivers population - Special Concern
North Pacific Spiny Dogfish - Special Concern

Potential listing of Eulachon under the Species at Risk Act:

In May 2011, COSEWIC assessed Eulachon within Canada as three designated units (DUs), as follows: the Fraser River DU assessed as Endangered, the Central Pacific Coast DU as Endangered, and the Nass/Skeena Rivers DU assessed as Special Concern. The Fraser River DU Eulachon are known to occur in WCVI, QCSND and PRD SMAs. The Central Pacific Coast DU Eulachon are known to occur primarily in QCSND, PRD and to a lesser degree in WCVI (Beacham et al 2005). The Nass/Skeena Rivers DU occur primarily in PRD.

A Recovery Potential Assessment for the Fraser River and Central Pacific Coast DUs of Eulachon has been prepared (Schweigert et al 2012), and is available from the internet at:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2012/2012_098-eng.html

Potential mitigation measures, prohibitions or changes to the shrimp trawl fishery will be considered in the SARA listing process. The development of the SARA listing recommendations for these populations will include consultation with stakeholders. Following consultations, and after the SARA process is complete, the recommendations will be provided to the Governor in Council for a decision on whether to list eulachon under SARA.

4.4.6. Oceans and Habitat Considerations

Oceans Act: In 1997, the Government of Canada enacted the *Oceans Act*. This legislation provides a foundation for an integrated and balanced national oceans policy framework supported by regional management and implementation strategies. In 2002, Canada's Oceans Strategy was released to provide the policy framework and strategic approach for modern oceans management in estuarine, coastal, and marine ecosystems. As set out in the *Oceans Act*, the strategy is based on the three principles of sustainable development, integrated management, and the precautionary approach.

The *Oceans Act, the Canada Wildlife Act*, and the *National Marine Conservation Areas Act* have given rise to several initiatives on the B.C. 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.

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

Pacific North Coast Integrated Management Area: An integrated management plan for the Pacific North Coast Integrated Management Area (PNCIMA) has been 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 PNCIMA is bounded by the B.C.-Alaska border, the base of the shelf slope and the mainland, stretching south as far as Campbell River and the Brooks Peninsula. As such, it encompasses close to 40% (by commercial landings) of the B.C. prawn fishing area.

An electronic copy of the draft plan will be available online at www.pncima.org

Marine Protected Area Networks: The *Oceans Act* mandates the Minister of Fisheries and Oceans with leading and coordinating the development and implementation of a national system (or network) of marine protected areas. The National Framework for Canada's Network of Marine Protected Areas (National Framework) provides strategic direction for the design of a national network of marine protected areas (MPAs) that will be composed of a number of bioregional networks. This is an important step towards meeting Canada's domestic and international commitments to establish a national network of marine protected areas. Regionally,

the Canada-British Columbia Marine Protected Area Network Strategy has been developed jointly by federal and provincial agencies and reflects the need for governments to work together to achieve common marine protection and conservation goals. Bioregional marine protected area network planning will identify new areas of interest for protection by DFO, Parks Canada, Environment Canada, the Province of B.C., and any other agencies with a mandate for protecting marine spaces. Future networks of MPAs may overlap and/or include shrimp trawl fishing areas, depending on the type and nature of the MPA.

More information on MPA Network Planning can be found at:

http://www.dfo-mpo.gc.ca/oceans/planning/marineprotection-protectionmarine/bc-mpa/index-eng.html

Marine Protected Areas: DFO is responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated two MPAs in the Pacific Region. The Endeavour Hydrothermal Vents, designated in 2003, lie in waters 2,250 m deep 250 km southeast of Vancouver Island. The SGaan Kinghlas-Bowie Seamount Marine Protected Area (SK-B MPA), designated in 2008, is 180 km west of Haida Gwaii (formerly known as the Queen Charlotte Islands) rising from a depth of over 3,000 m to within 25 m of the sea surface. MPA regulations and management plans articulate any restrictions on activities taking place within the MPA, where applicable.

The SK-B MPA has been established to conserve and protect the unique biodiversity and biological productivity of the area's marine ecosystem. The Government of Canada and the Council of the Haida Nation signed a MOU in April 2007 which established the SK-B Management Board to facilitate the cooperative management and planning of the proposed MPA. As a result, DFO and the Council of the Haida Nation are collaboratively developing a management plan for the SK-B MPA which will consider advice from an advisory committee, stakeholders through existing processes, and the public. This management plan will elaborate on the regulations to implement the conservation and management objectives for the MPA and will address matters such as monitoring, enforcement and compliance.

At this time, all fisheries are restricted within the Endeavour and SK-B MPAs, except for a sablefish trap fishery permitted on SK-B. Commercial fishing activities within the SK-B MPA are managed through the Integrated Fisheries Management process. Three zones are identified, some of which are fisheries closures which are used to manage the sablefish fishery which is only permitted in zone 2 on the MPA (see Groundfish IFMP for details). All other commercial fisheries are not permitted to occur in any zones of the MPA so this area is closed to shrimp trawl (see Appendix 1, section 4.3.2.1.).

Work is on-going to consider MPA designation for the Race Rocks area off Rocky Point south of Victoria (currently designated as a Provincial Ecological Reserve). Work also continues towards designating the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Area of Interest as a Marine Protected Area under the *Oceans Act*. The glass sponge reefs are located at depths of 140m to 240m in Hecate Strait and Queen Charlotte Sound. The proposed marine protected area regulations for this area were pre-published in 2015 for a 30 day public comment period. The comments received are currently being considered and a final regulatory package is being prepared for Governor-in Council consideration. Changes to existing IFMPs with respect to

fishing activities may be required upon MPA designation. In addition, DFO will produce a management plan for any newly designated MPA, and will seek to align the plan with relevant IFMPs.

National Marine Conservation Areas (NMCAs): The Canada *National Marine Conservation Areas Act* provides for the establishment of National Marine Conservation Areas (NMCAs).

Gwaii Haanas:

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

Gwaii Haanas is managed by the Archipelago Management Board (AMB), a cooperative body made up of equal representation from the Government of Canada (represented by Fisheries and Oceans Canada and Parks Canada) and the Council of the Haida Nation. The Gwaii Haanas marine area is currently managed under the Interim Management Plan and Zoning Plan, which includes “balancing protection and ecologically sustainable use” in its guiding principles. The Zoning Plan identifies six areas, described below, that are closed to commercial and recreational fishing.

Development of a long-term management plan for the Gwaii Haanas marine area is underway. This process will take place in consultation with the commercial and recreational fishing sectors through Fisheries and Ocean’s established integrated fisheries planning and advisory processes. Annual fishing plans will be developed in consultation with stakeholders.

Users of the Gwaii Haanas marine area should be aware that adjacent land is managed under the authority of the *Canada National Parks Act* and its regulations and, as specified in the *Gwaii Haanas Agreement* (1993), there is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). There are specific requirements for visiting the terrestrial portion of Gwaii Haanas, and advanced planning is necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information.

Commercial and recreational fishers and harvesters are reminded that extraction of any kind (e.g., fishing, kelp harvest) is not permitted in the areas described below:

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

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

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

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

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

(6) SGang Gwaay: Those waters of Subareas 2-31 and 142-1 inside a 3km radius from the centre point on Anthony Island located at 52°05.655 minutes N and 131°13.178 minutes W.

Southern Strait of Georgia

Parks Canada, in partnership with the Government of British Columbia, launched a feasibility assessment for an NMCA reserve in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011. Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the feasibility assessment. If the results of the feasibility assessment indicate that establishment of an 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 Aboriginal 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. More information on the proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia is available on the internet at: www.pc.gc.ca/eng/progs/amnc-nmca/dgs-ssg/index.aspx

Cold-Water Coral and Sponge Conservation Strategy: DFO's Pacific Region Cold-Water Coral and Sponge Conservation Strategy encompasses short and long-term goals and aims to promote the conservation, health and integrity of Canada's Pacific Ocean cold-water coral and sponge species. The Strategy also takes into consideration the need to balance the protection of marine ecosystems with the maintenance of a prosperous economy. It was created with input

from stakeholders throughout the Pacific Region and will help regional partners and stakeholders to understand how DFO's existing programs and activities tie into cold-water coral and sponge conservation.

Shrimp trawl fishing activities will be evaluated against DFO's national Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas (Section 4.4.2).

The Cold-Water Coral and Sponge Conservation Strategy is available on the Internet at:

http://www.pac.dfo-mpo.gc.ca/oceans/protection/oth-aut-eng.html

More information on the occurrence, ecological function, and sensitivity to fishing of coldwater corals and sponges (DFO CSAS Sci. Adv. Rep. 2010/041; DFO CSAS Res. Doc. 2010/067) is available on the Internet at:

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

Marine National Wildlife Areas: Under the *Canada Wildlife Act*, Environment Canada may establish marine National Wildlife Areas (NWAs). The Scott Islands marine National Wildlife Area, located on off the northern tip of Vancouver Island, has been proposed for designation through amendment to the Wildlife Area Regulations. Fisheries and Oceans Canada would continue to regulate and administer fisheries within the proposed area. Environment Canada and Fisheries and Oceans Canada will develop a collaborative approach and agreement regarding management of fisheries in the area. More information on NWAs can be found at: http://www.ec.gc.ca/ap-pa/default.asp?lang=En&n=2BD71B33-1

5. OBJECTIVES

5.1. National

Fisheries and Oceans Canada aims to:

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

5.2. Pacific Region

In 1994, the Biological Objective Working Group of the Pacific Scientific Advice Review Committee (PSARC) identified three biological objectives for management of Pacific Region fish and invertebrate stocks (Rice et al, 1995). 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 (COSEWIC sense of "threatened");
- Operationally, Objective 1 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.

5.3. Invertebrate Resource Management

Management goals and objectives have been defined for invertebrate fisheries in an annual management plan produced by the Department since 1990. Management plans are provided to commercial fish harvesters as part of an information package when they acquire their annual licence. The management goals and objectives, as written by Fisheries Management and revised in 1997, are:

- To ensure conservation and protection of invertebrate stocks and their habitat through the application of scientific management principles applied in a risk averse and precautionary manner based on the best scientific advice available;
- To meet the federal Crown's obligations regarding aboriginal fisheries for food, social and ceremonial purposes;
- To develop sustainable fisheries through partnership and co-management arrangements with client groups and stakeholders to share in decision making, responsibilities, costs and benefits;
- To develop fishing plans and co-operative research programs which will contribute to improving the knowledge base and understanding of the resource;
- To consider the goals of stakeholders with respect to social, cultural and economic value of the fishery;
- To consider health and safety in the development and implementation of management plans, fishery openings and closures;
- To consider opportunity for the development of the aquaculture industry;
- To provide opportunities for a recreational fishery.

5.4. Objectives for Pink and Sidestripe Shrimp Trawl

5.4.1. Conservation and Sustainability

DFO's species specific objectives for the conservation and sustainability of pink and sidestripe shrimp stocks fished by trawl are:

- To maintain shrimp biomass in the Healthy and Cautious zones;
- To set catch ceilings by each SMA based on the best stock assessment information available. Catch ceilings will be defined following the Precautionary Approach. Fishery independent biomass surveys will be conducted in-season and harvest rates set based on stock biomass;
- To monitor the ratio of eulachon to shrimp in WCVI SMAs and to adjust fishing practices when estimated eulachon bycatch reaches action levels.

5.4.2. Social, Cultural and Economic

DFO's objective is to work collaboratively with the Shrimp Trawl Sectoral Committee (STSC) to ensure sustainable fisheries and to collect input from all fishing sectors in the annual

development of the IFMP. Specific objectives for the pink and sidestripe shrimp by trawl fishery are:

- To promote a best practices approach that meets the Department's objectives for sustainable, selective and risk averse harvest strategies by encouraging participation by commercial licence holders and processors in IFMP development and by having licence holder and processor representation on the STSC;
- To promote an understanding of the shrimp trawl management strategies by encouraging participation by First Nations in the STSC;
- To consider experimental fishing proposals and the development of selective fishing techniques and standards in consultation with the STSC;
- To provide opportunities for shrimp harvests that maximize the potential economic return to shrimp trawl fish harvesters, while meeting the Departments goals for a precautionary approach to shrimp harvesting, and ecosystem, bycatch, species at risk, sensitive benthic areas and forage species policies.

5.4.3. Compliance

DFO's objective is to pursue opportunities to monitor and enforce the shrimp trawl fishery in conjunction with the monitoring and enforcement priorities in the Pacific Region.

5.4.4. 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 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*. In the interim, it is a shared objective with the commercial fishery to avoid sponge reefs and cloud sponges in areas identified in the Commercial Harvest Plan (Appendix 1), including the Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs.

Specific ecosystem objectives for the pink and sidestripe shrimp by trawl fishery are:

- To define selective and responsible fishing practices for the shrimp trawl fishery;
- To manage eulachon bycatch to eulachon action levels;
- To avoid bycatch and close areas when deemed necessary.

6. ACCESS AND ALLOCATION

The exploitation of pink and sidestripe shrimp is primarily conducted under commercial licence and as such there are no sharing or allocation arrangements in place for the fishery. Harvest opportunity is determined under the stock assessment and management framework as defined under the Commercial Harvest Plan (Appendix 1). Harvest of pink and sidestripe shrimp by First Nations for food, social and ceremonial harvest; recreational harvest; and by other gear types in the commercial fishery is considered small and is not taken into consideration in setting annual catch ceilings.

<u>Maa-nulth domestic fisheries</u>

The Maa-nulth First Nations comprise five individual First Nations; Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations, Toquaht Nation, Uchucklesaht Tribe and the Yuułu?iłʔatḥ First Nation on the west coast of Vancouver Island. The domestic (food, social, and ceremonial) allocations for shrimp under the Maa-nulth First Nations Final Agreement are currently unallocated. For more information on access please refer to the Pacific Region Prawn and Shrimp by Trap IFMP.

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

7. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

See Appendix 1 for detail on the following management measures:

- Fishing seasons and areas;
- Total allowable catch ceilings and decision rules by species and Shrimp Management Area;
- Licensing requirements;
- Licenced species;
- Mandatory bycatch reduction devices;
- At-sea observer coverage requirements;
- Eulachon Actions levels (bycatch action levels);
- Closures for Rockfish Conservation Areas, specific sponge reefs, conservation areas, seasonal areas, navigational areas and ecological reserves;
- Notification and reporting measures (hails when fishing, hails of catch, logbooks, electronic data reporting).

Specific changes to the Commercial Harvest Plan such as fishing gear, bycatch limits, and closures based on conservation as a result of new initiatives, that may require on-grounds audits or enforcement, will be communicated to licence holders during the Sectoral meeting, at time of licence issuance, or by Fishery Notice if required to be implemented in-season.

8. SHARED STEWARDSHIP ARRANGEMENTS

8.1. Commercial

The Pacific Coast Shrimpers Cooperative Association (PCSCA) and Fisheries & Oceans Canada have defined the annual co-management programs in support of the commercial fishery.

Shrimp trawl harvesters are required by Conditions of Licence to make arrangements with a service provider for the delivery of in-season vessel fishing location and landing hail reports. A catch monitoring program, including at-sea bycatch and dockside sampling of shrimp, are also all requirements under the current fishery. Funding of these services to vessel owners is covered by the PCSCA through negotiation with a service provider on behalf of shrimp trawl vessel

owners. The industry service provider is Archipelago Marine Research Ltd. The costs of the program are covered by individual fees paid to the PCSCA.

8.2. Fisheries and Oceans Canada

Fisheries and Oceans Canada provides fishery management, enforcement, licensing and administration, and partial stock assessment for the shrimp trawl fishery. Personnel are generally multi-tasked and, as a consequence, costs incurred by the Department to manage this fishery are difficult to assess. Contributions to the IFMP are provided by the Fisheries Management Directorate, the Science Branch, the Shellfish Data Unit, the Conservation and Protection Directorate, the Pacific Fisheries Licence Unit, the Treaty and Aboriginal Policy Directorate, the Recreational Fisheries Division, the Oceans Directorate and numerous administrative personnel.

9. COMPLIANCE PLAN

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

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

At-sea observers will continue to provide an “observe, record and report” capability.

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

9.1. Priorities for 2016/17

C&P staff will pursue opportunities to monitor the issues and problems associated with this fishery, patrol of closed areas/times and enforce retention rules and gear configurations in conjunction with other regional priorities. Inspections will focus on fishing vessels at-sea and at landing ports to inspect catch on board, bycatch gear in nets, hails, landing records and harvest logs. Closed time and area patrols may be conducted by Canadian Coast Guard (CCG) patrol vessels, program vessels, or by air, in conjunction with other patrols.

9.2. Enforcement Issues and Strategies

Issue	Section	Strategy
Licensing Verification Vessel licensed. No Fisher's Registration Card (FRC). Fail to produce FRC.	Pacific Fisheries Regulations (PFR) Section (S) 22 PFR S 25 Fisheries General Regulations F(G)R S 11	At-sea and dockside inspections will occur during regular patrols. These inspections may include checks of all licensing documents on board the vessel to ensure compliance with regulations.
Fishing during closed time/area.	PFR S 63	Patrols utilizing patrol vessels will be pursued. Possibilities exist to use the regional air surveillance plane in co-ordination with patrols scheduled for priority fisheries.
Fail to provide proper landing and hail information, lack of notification for change of area, cancellation of trip, or incorrect reporting of area fished.	F(G)R S 22(7)	At-sea and dockside inspections will occur during regular patrols. Investigations will occur on an opportunistic basis, after C&P has been notified by Fisheries Management that a violation has occurred.
Fail to maintain Harvest Log Book.	F(G)R S 22(7)	At-sea and dockside inspections will occur during regular patrols. Investigations may also occur on an opportunistic basis, after C&P has been notified by Fisheries Management that a violation has occurred.
Bycatch monitoring. Retain prawns during closed time for prawn. Exceed prawn bycatch limit (100). Retain prawns < 33 mm. Fail to keep prawns separate from shrimp catch. Fish without a selectivity device in place. Use of mechanical device for the purposes of automatically separating bycatch from shrimp. More squid than 2% of total shrimp onboard. Retention of non-retention species.	F(G)R S 22(7)	At-sea and dockside monitoring may include inspections for bycatch limits as noted to ensure compliance with the regulatory requirement. Inspections may occur in conjunction with enforcement activities in other fisheries, particularly where non-compliance in this fishery may impact conservation or control in other fisheries.

Issue	Section	Strategy
Failure to record retained squid or octopus on Shrimp Harvest Log.		
Fail to off-load "shrimp by trap" prior to fishing shrimp by trawl net.	F(G)R S 22(7)	At-sea and dockside inspections will occur during regular patrols.
Fish with gear other than trawl net.	F(G)R S 22(7)	At-sea and dockside inspections will occur during regular patrols.
Fish with gear that does not contain an escape hole, or maximum spacing on rigid grate is larger than 44.5 mm.	F(G)R S 22(7)	At-sea and dockside inspections will occur during regular patrols.
Dockside sales without Fish Vending Licence.	B.C. Fish Act S 13(4)	Dockside inspections and monitoring will be pursued during regular patrols.

10. 2016/17 PERFORMANCE REVIEW

10.1. Conservation and Sustainability

- The landings and effort will be limited to the catch ceilings for each SMA. Opportunities for managing and accounting for multiple shrimp species in the catch will be reported.
- Fishery landings will be monitored through the catch monitoring program and harvest logs. Misreporting or under-reporting of catch will be documented. Problems with the catch monitoring program will be documented as identified by industry members, the Department, and/or the Service Provider.
- In-season stock assessment information will be incorporated into the in-season management of the fishery.
- Results of the catch sampling program will be compiled and areas for improvement to selective fishing practices will be identified.

10.2. Social, Cultural and Economic

- The management approach will be maintained for the 2016/17 fishery and any results of co-management programs will be documented.
- Any progress with regard to the improved economics of the fishery, enhancing fishery values, or alternative management strategies will be documented.
- Issues brought forward by First Nations will be identified and addressed.
- Issues of safety in the operation and management of the fishery will be identified and addressed.

10.3. Compliance Plan Evaluation Criteria

- Hours spent on enforcement of this fishery will be tracked, along with the number of charges, warnings, seizures, and suspected violations or convictions will be defined. Changes from previous years will be identified.
- The number of occurrence reports identified by the Service Provider and the nature of these occurrences and possible alternative management actions identified.
- Other in-season enforcement issues will be identified and any unresolved issues brought forward.

10.4. Ecosystem

- The estimated eulachon bycatch for WCVI SMAs will be monitored through observer coverage and fishing effort and will be assessed against eulachon action levels.
- The development of selective gear to reduce bycatch will be encouraged by the issuance of experimental licences and the results collected and documented.

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12. GLOSSARY

Acronyms	BRD Bycatch Reduction Device CSAP Centre for Scientific Advice – Pacific (formerly PSARC) CSCA Pacific Coast Shrimper's Cooperative Association DFO Department of Fisheries and Oceans EAL Eulachon Action Level EEZ Exclusive Economic Zone FSC Food, Social and Ceremonial IFMP Integrated Fishery Management Plan JPA Joint Project Agreement LRP Limit Reference Point (40% of ln(avg)biomass) MSC Marine Stewardship Council PICFI Pacific Integrated Commercial Fisheries Initiative PSARC Pacific Scientific Advise Review Committee SMA Shrimp Management Area STSC Shrimp Trawl Sectoral Committee TAC Total Allowable Catch USR Upper Stock Reference (80% of ln(avg)biomass) WCVI West Coast Vancouver Island
Aquaculture	The process of spawning animals and rearing the progeny to marketable size, usually involving some level of intervention (e.g. feeding, predator protection) by the aquaculturist.
Area	A division of Canadian fisheries waters as described in Schedule II of the *Pacific Management Area Regulations*, maps are available on the Pacific Region internet at: http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/areas-secteurs/index-eng.htm
beam trawl	A type of trawl net in which the mouth of the net is held open by a "beam" or "pole." The beam is held horizontal across the mouth of the net while under tow.
BRD	Bycatch reduction device (rigid grate, fish eye, fish excluder, escape holes, or other device in a trawl net to permit non-target, incidental or unintentional catch to escape the net and not be brought on board the vessel.
bycatch	Incidental or unintentional catch of non-target stocks or species.

catch ceiling	A total allowable catch defined from a pre-season biomass forecast, or survey biomass index and harvest rate of 0 percent to 35 percent, or defined by an arbitrary precautionary quota set as a 10^{th} or 25^{th} percentile of landings history (up to 1997).
communal licence	Issued to First Nations organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* to carry on fishing and related activities.
Communal Commercial Licence	Issued to First Nations organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the general commercial fishery. Licences issued are equivalent to the capacity of licences that have been retired under the Aboriginal Fisheries Strategy (AFS) Allocation Transfer Program.
CSAS - CSAP	Canadian Science Advisory Secretariat (formerly called the Pacific Scientific Advice Review Committee (PSARC); the authority for the regional Centre for Science Advice Pacific (CSAP).
exclusion grate or excluder	A grate that when inserted properly into a trawl net reduces the amount of non-target species in the catch (one form of BRD).
excluder net	A second trawl net that when attached properly inside a trawl net reduces the amount of non-target species in the catch. No longer allowed as the only bycatch reduction device.
fishing hail	Notification prior to commencement of fishing.
fishing trip	That period when the vessel departs from a dock to engage in fishing until fishing ceases and shrimp are offloaded.
fixed exploitation rate	The exploitation rate is the proportion of the fishable population that is taken as catch. With a fixed rate, the harvestable quota varies with the population size.
harvested	Referring to fish, including shrimp, caught by any means.
invertebrate	An animal without a backbone.
landed or landing	The transfer of catch from a licensed vessel to land (including docks and wharves).
landing hail	Notification prior to landing or offloading catch at the end of a fishing trip.

offloaded	The landing or removal of catch from the licensed vessel.
observer	An individual who has been designated as an observer by the Regional Director General for Pacific Region pursuant to Section 39 of the *Fishery (General) Regulations*.
otter trawl	A type of trawl net in which the mouth of the net is held open and towed by means of boards of wood and/or metal ("otter" boards or "doors").
PICFI	Pacific Integrated Commercial Fisheries Initiative - DFO's PICFI is an initiative aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported.
PCSCA	Pacific Coast Shrimpers' Cooperative Association: the incorporated society that negotiates on behalf of Shrimp Trawl (S licence) licensed vessel owners and undertakes to provide the fishery monitoring, hail system, observer coverage and dockside observations required to monitor the fishery.
PSARC	Pacific Scientific Advice Review Committee (now CSAP)
quota	For the purposes of the Shrimp Trawl fishery, an annual quota refers to the total allowable catch determined from a biomass survey or other stock assessment information, and harvest rates of zero percent to 35 percent of the survey biomass.
selective fishing	The ability to avoid known, non-target species and stocks or, if encountered, to release them alive and unharmed.
selectivity device	A general term that refers to a device that when added to a trawl net will reduce the amount of non-target species in the catch. Also called BRD.
Shrimp Management Area (SMA)	The area of a management unit in the Shrimp Trawl fishery, based on location of fishing grounds and shrimp stocks. Maps of SMAs are in Appendix 9.
Shrimp Trawl Fishing Log (logbook)	A record of fishing activity, catch, effort, and gear.
Southern Inside Waters	Shrimp Management Areas 12IN, 14, 16, 17, 18, 19, GSTE, FR, and 23IN, differentiated from other areas to allow a split in the quota for two openings, ensuring some fishing opportunity in November.

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.
stock	A biologically discrete population.
Subarea	A division of Canadian fisheries waters as described in Schedule II of the *Pacific Management Area Regulations*, maps are available on the Pacific Region internet at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
tonne (t)	Metric tonne, which is 1000 kg or 2204.6 lbs.
trawl net	Any bag-type net that is dragged in the water by a vessel for the purpose of catching fish, (under the *Fisheries Act* and *Regulations*, "fish" includes shellfish).
verification	Verification of any or all of the following activities: estimating, weighing, sampling all species, inspection of fishing records, and/or interviewing the vessel master.
WCVI	West Coast of Vancouver Island (generally includes Areas 21, 121, 123 to 127 and Subareas 23-7 to 23-11, but may be less depending on the area surveyed and used to estimate biomass).

13. INTERNET SITES

Pacific Region Shrimp web page (and links to Shrimp Trawl fishing information):

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

Acts, Regulations, and Pacific Fishery Management Area Definitions:

http://www.dfo-mpo.gc.ca/acts-loi-eng.htm

Infectious Diseases of Shrimp:

http://www.pac.dfo-mpo.gc.ca/science/species-especes/shellfish-coquillages/diseases-maladies/index-eng.htm

CSAP (e.g., shrimp stock status reports):

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

Openings and Closures (from Commercial Fisheries Notices):

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

APPENDIX 1: 2016/2017 SHRIMP TRAWL COMMERCIAL HARVEST PLAN

1. MANAGEMENT CHANGES AND HIGHLIGHTS FOR 2016-2017

1.1. Adjustment to Maximum Spacing for Bycatch Reduction Grates

The maximum grate spacing for the 2016/17 season is set at 31.75 mm (1.25 inches) down from 44.5 mm (1.75 inches) in 2015. See Section 2.2.

1.2. Eulachon Action Level Adjusted for WCVI

The eulachon action level (EAL) for the WCVI has been adjusted to 4 tonnes (see Section 3.1.).

1.3. Strait of Georgia Sponge Reefs

In 2015 DFO implemented new year-round commercial harvest closures around a selection of glass sponge reefs in the Strait of Georgia (see Section 4.3 and Appendix 16). These were previously voluntary closures.

1.4. Increased At-Sea Observer Coverage

At-sea observer coverage for the fishery will be adjusted for the 2016/17 season to implement incremental levels of coverage based on in-season fishing effort. The starting level of 50 days of observer coverage funded by licence holders at the start of the season will be added to, in-season, based on the level of fishing effort during the course of the year. Should fishing effort continue past 3 million pounds, additional at-sea observer days will be funded through contributions to Pacific Coast Shrimpers Cooperative Association (PCSCA) to meet the needs for approximately 10% of fishing effort, or approximately 1 out of every 10 fishing trips observed at-sea (see Section 6.3.).

1.5. Customs Requirements

Shrimp trawl vessels fishing more than 12 nm offshore should ensure they adhere to the requirements for customs clearances as of August 4, 2015 (see Section 6.6).

2. MANAGEMENT MEASURES

2.1. Species

The following shrimp species may be retained:

a.) Northern (spiny) pink shrimp (*Pandalus borealis*).
b.) Pink (smooth or ocean) shrimp (*Pandalus jordani*).
c.) Flexed shrimp (*Pandalus goniurus*).
d.) Sidestripe shrimp (*Pandalopsis dispar*).
e.) Coonstripe (dock) shrimp (*Pandalus danae*).
f.) Humpback shrimp (*Pandalus hypsinotus*).

Prawn (Pandalus platyceros), squid, and octopus caught incidentally while fishing for the above species may be retained subject to the quantity and other restrictions as defined in conditions of licence.

For proper identification and reporting of catch by species, illustrations of the common commercial shrimp species are attached to this plan (see Appendix 5: Identification of Commercial Shrimp Species) and included as a colour plate in the Shrimp Trawl Harvest Logbook.

Unless the retention of an incidental catch is expressly authorized by the licence, under Section 33 of the Fishery (General) Regulations, every person who catches a fish incidentally (including shellfish) shall forthwith return it to the place from which it was taken; and in a manner that causes it the least harm.

The non-retention of any incidentally caught finfish when shrimp trawling includes Schedule II species (those species listed in Part 2 of the shrimp trawl licence and in Schedule II - Part II of the Pacific Fishery Regulations) as trawl gear is not permissible for the harvest of these species.

Fish harvesters are reminded that where a vessel holds a shrimp trawl licence eligibility and a shrimp and prawn by trap licence eligibility, all shrimp including prawns caught under the authority of the shrimp and prawn by trap licence must be offloaded prior to the vessel fishing under the authority of the shrimp trawl licence.

2.2. Gear

Trawl nets for fishing shrimp are either beam trawls (net held open by a neutrally buoyant beam) or otter trawl (net held open with doors). The trawl net must be modified to reduce bycatch of species other than shrimp with the insertion of a rigid grid or grate along with an escape hole. The bycatch reduction grid (e.g. aluminium, PVC) must be inserted into the forward end of the cod end of the trawl net at an angle so that it entirely blocks access to the cod end, except for the spaces between the bars. For 2016/17, on recommendation from Industry, the spacing between the bars of the grate must be no greater than 1.25 inches (31.75 mm) apart. The Shrimp Trawl Sectoral Committee (STSC) suggests as a best practice that otter trawl vessels operating off the WCVI have a grid with spacing no greater than 1.00 inches (25 mm) apart in consideration of reducing bycatch of non-target species. The netting directly above the grid must have an opening (escape hole) and the sides of the opening must be reinforced so that the opening remains unobstructed and maintains its shape while the net is being towed through the water.

In addition to the gear modification described above, the top (hood or upper belly) of an otter trawl net shall be comprised of a minimum 4.4 square metre (48 square foot) panel of plastic lattice with minimum 4 cm square openings, such as is found in snow-fencing (note that the STSC recommends that more than 48 square feet be installed).

Amended Conditions of Licence to the shrimp trawl licence may be issued upon application to permit the use of an experimental selectivity device that does not fit the description above.

2.3. Fishing Season

2.3.1. Regular Fishing Season Coast-wide

The harvest of shrimp by trawl opens coast-wide in all SMAs at 00:01 hours, June 1, 2016, with the exceptions noted in Section 2.3.2. Seasonal and permanent closures are in effect; see Section 4.3. SMAs will generally remain open until March 31, 2017, but may close earlier if the catch ceiling for a given species in an SMA is reached. All openings referred to in this plan are tentative until confirmed by issuance of a variation order accompanied by a Fishery Notice.

When an area is open, any vessel with a valid S or FS licence and conditions to fish shrimp is allowed to fish the area provided they are adhering to all licence conditions and reporting requirements.

2.3.2. Early Openings

Early openings in select areas have been permitted when shrimp biomass in the previous year was large, when 30 percent of the catch ceiling remained on March 15, and when there was a minimum of 3,000 pounds of quota. Fish harvesters are requested to submit logbook information earlier than is outlined in the conditions of the shrimp trawl licence to assist in the evaluation of fishing opportunities.

2.3.2.1. West Coast of Vancouver Island – offshore areas

SMAs 21OFF and 23OFF, 124OFF or 125OFF: if more than 30 percent of the quota from the 2015/16 season remains (for any species) on March 15, 2016, these areas may be considered for an early opening on April 1, 2016. If the catch ceiling was reached in 2015/16, the area will not open until May 15, 2016.

2.3.2.2. Prince Rupert District (PRD)

If more than 30 percent of the quota from the 2015/16 season remains (for any species) on March 15, 2016, PRD may be considered for an early opening on April 1, 2016. If the 2015/16 catch ceiling was reached, PRD will not open until June 1, 2016.

2.3.3. Southern Inside Waters - Two Openings

The most frequently fished areas in the south coast often have sufficient effort to reach the annual catch ceilings. Shrimp harvesters have asked for two openings so that some of the annual catch ceiling is reserved for the period starting November 15th when market demand is peaking and the highest value is obtained at dockside sales. Based on the recommendation from the Shrimp Trawl Sectoral Committee, the Southern Inside Waters (12IN, GSTE, 14, 16, 17, 18, 19, FR, and 23IN) will have two openings:

1. June 1, 2016 for 75 percent of the initial catch ceiling.
2. November 15, 2016 for the remainder of the annual quota.

The initial annual catch ceilings for these areas are provided in Table 2 (section 2.4.3). An SMA will close upon attaining 75% of the annual catch ceiling for any one species. Landings from the first opening that exceed, or are short of, the early catch ceiling will be applied to the final opening.

In-season adjustments to catch ceilings may result from in-season biomass estimates and will be applied at the time the biomass estimates become available.

2.3.4. Special Management Areas

There are areas that are not regularly open to fishing shrimp by trawl as a result of management considerations (bycatch levels have been high in the past or observer coverage is required). These areas may be open to specific vessels by variation order or amended conditions of licence once all aspects of fishing activity and required management measures are satisfied.

2.3.4.1. Shrimp Management Area QCSND (Queen Charlotte Sound)

Pacific Fisheries Management Areas 107, 108, 109, 110, 111, 130, and Subareas 7-1, 7-25, 7-26, 7-31, 8-1, 10-1, 10-2, 11-1 and 11-2 are currently closed. SMA QCSND was closed in 2000 because of concerns for eulachon stocks in central coast rivers. The Department is currently reviewing eulachon for consideration of listing under the *Species at Risk Act*. Given the current SARA process and consultations the Department will not be considering any commercial harvest opportunities in QCSND during the 2016/17 season. For further information, contact the North Coast Fisheries Manager (see Appendix 3: Departmental and Industry Contacts).

2.3.4.2. Shrimp Management Area 2IN

For SMA 2IN, vessel operators wishing to fish in this area are required to obtain amended Conditions of Licence prior to commencement of fishing. Sampling coverage in this remote area has been proven to be cost prohibitive to the catch sampling program. Commencing in 2001, and continuing for the current season, costs for observer coverage in this area will be the responsibility of the individual vessel master. Amended Conditions of Licence are issued subject to fulfilling application requirements, including the vessel master securing arrangements for certified shrimp fishery observer coverage and having up-to-date and complete Shrimp Trawl Harvest Logbooks. Proposals will be considered from groups of fish harvesters that arrange collectively for adequate observer coverage. Arrangements for amended Conditions of Licence can be made with the North Coast Fisheries Manager.

2.3.4.3. Shrimp Management Areas 27IN and 27OFF

Shrimp Management Areas 27IN and 27OFF (Pacific Fishery Management Areas 27 and 127) open upon request from a vessel master subject to the vessel master securing arrangements for a certified shrimp fishery observer for the first fishing trip to these areas. Contact the South Coast Fisheries Manager to request an opening.

2.3.4.4. Shrimp Management Area 9IN

Shrimp Management Area 9IN (Pacific Fishery Management Areas 9-1 to 9-12), will open with the coast-wide opening for shrimp trawl, and will remain open until December 31, 2016 or until the annual catch ceiling is attained. If annual catch ceiling remains, after January 1, 2017, SMA 9IN may open upon request from a vessel master subject to the vessel master securing arrangements for a certified shrimp fishery observer for the first fishing trip to this area. A limited number of observer days will be available from the industry-funded catch monitoring program. It will be the responsibility of the vessel master to secure arrangements for observer coverage before the area is opened. Contact the North Coast Fisheries Manager to request an opening.

2.4. Setting Catch Ceilings

In keeping with Fisheries and Oceans Canada mandate on conservation and risk-averse management, catch ceilings have been implemented for shrimp management areas (see Appendix 9: Maps of Shrimp Management Areas). Catch ceilings are in effect for the period April 1, 2016 to March 31, 2017, with areas closing on achieving the catch ceiling for any species.

Catch ceilings are defined for most of BC's offshore shrimp stocks using provisional reference points linked to indexes of stock biomass defined from fishery independent trawl surveys. Catch ceilings are defined using harvest rates following the Provisional Harvest Control Rules (HCR) compliant with the Precautionary Approach. The HCR adjust the harvest rate to a proportion of the biomass depending on the stock status (Healthy, Cautious or Critical zone) for each major target species.

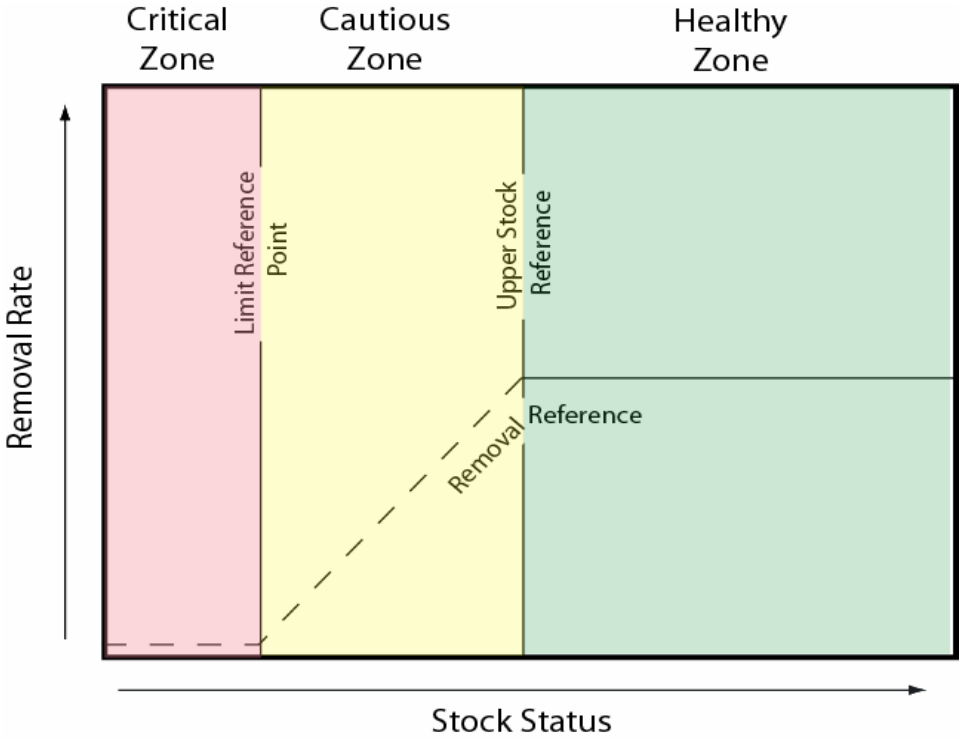

Fig. 1. Adjustments to Removal Rate (harvest rate) when Stock Status is in Critical Zone (zero), Cautious Zone (0 to 35%) or Healthy Zone (35%). Healthy and Cautious zone is delineated by Upper stock reference point. Cautious and Critical zone delineated by Limit Reference Point.

2.4.1. Provisional Reference Points

Provisional Precautionary Approach (PA) reference points have been established for many west coast shrimp stocks (Table 1, DFO 2009) in relation to the biomass of maximum sustainable yield (Bmsy). For west coast shrimp stocks strong stock recruit relationships are not evident; therefore, a proxy for Bmsy , the natural log of the average biomass is used (Bprox).

The default formulas used for the limit reference point (LRP) and upper stock reference (USR) are:

Proxy for the Biomass of maximum sustainable yield (B_{prox}) = ln (average Biomass)
LRP = 40% B_{prox}
USR = 80% B_{prox}

Table 1. Summary of B_{prox} (tonnes), limit reference point (LRP) and upper stock reference (USR) points for sidestripe shrimp (*Pandalopsis dispar*), spiny pink shrimp (*Pandalus borealis*) and smooth pink shrimp (*P. jordani*) by shrimp management area (SMA).

SMA	Species	B_{prox} (tonnes)	LRP (40%)	USR (80%)
PRD	Sidestripe	587.4	235.0	469.9
	Pinks[1]	977.6	391.0	782.1
9IN	Sidestripe	66.5	26.6	53.2
	Smooth pink	115.0	46.0	92.0
QCSND	Sidestripe	191.5	76.6	153.2
	Smooth pink	3006.7	1202.7	2405.4
12IN	Sidestripe	68.9	27.6	55.1
	Spiny pink	191.4	76.6	153.1
14	Sidestripe	69.8	27.9	55.9
	Smooth pink	313.3	125.3	250.6
GSTE	Sidestripe	78.6	31.4	62.9
	Smooth pink	367.9	147.2	294.3
16	Sidestripe	27.3	10.9	21.8
	Pinks[1]	114.8	45.9	91.9
FR	Sidestripe	171.0	68.4	136.8
	Pinks[1]	222.6	89.0	178.1
18	Sidestripe	23.7	9.5	19.0
	Spiny pink	94.7	37.9	75.7
19	Sidestripe	10.5	4.2	8.4
	Spiny pink	75.6	30.2	60.5
23IN	Sidestripe	35.1	14.0	28.1
	Smooth pink	330.2	132.1	264.1
121OFF+123OFF	Smooth pink	1796.8	718.7	1437.4
124OFF+125OFF	Smooth pink	2928.7	1171.5	2342.9

[1] Mixed pink shrimp species (*P. borealis* + *P. jordani*)

SMAs 23IN and 121OFF+123OFF are no longer surveyed separately and a combined biomass is defined following survey. Reference points have not been defined for the combined area. The combined biomass is divided in proportion of the previously defined Bprox to define the biomass for setting catch ceilings for 23IN and 23OFF+21OFF.

2.4.2. Harvest Control Rules

For shrimp management area with annual surveys the harvest rates are determined from survey biomass estimates using the following decision rules, compliant with the Precautionary Approach:

- If estimated shrimp biomass (either forecasts or derived from survey information) are in the Critical zone (i.e., below the LRP), the harvest rate is zero (i.e., the SMA will not open for fishing, or it will close for the remainder of the season). The area will not re-open until the stock is assessed.

- If estimated shrimp biomass is in the Cautious zone (i.e., above the LRP but below the USR), harvest rate (HR) will vary between 0% and 35% based on the formula:

$$HR=35\%*((Biomass-40\%B_{msy})/(80\%B_{msy}-40\%B_{msy}))$$

- If estimated shrimp biomass is in the Healthy zone (i.e., above the USR), the harvest rate is 35%.

- When an area is surveyed and sufficient information is obtained to estimate a biomass for a species, but there is not sufficient history to define LRP or USR, a catch ceiling is defined from the survey biomass and a harvest rate of 33%. This harvest rate is derived from a Gulland model at a level of .3M.

2.4.3. Initial Catch Ceilings

At the beginning of the season a catch ceiling is allocated for the shrimp management areas on the coast. For the management areas with continued surveys a five (5) year running average (5YRA) model is used to forecast biomass by species and SMA. Harvest rates are set according to the PA and an initial catch ceiling is defined. This initial catch ceiling is adjusted when shrimp biomass estimates are available following the shrimp surveys in-season. SMAs with no survey history have arbitrary catch ceilings defined from 10th or 25th percentile of the pre-1997 catch history – generally 10 tonnes (22,050 lb) and offshore areas 25 tonnes (55,120 lb). These areas account for approximately 2% of the 2015 coast-wide TAC. Forecast biomass estimates cannot be calculated using the five (5) year running model for SMAs with some survey history but were not surveyed in the previous year. These SMAs will have initial quotas set using the lowest biomass estimated as a result of surveys in the last five years, but will be recalculated in-season if a new biomass survey is conducted during the year.

Initial catch ceilings in 2016/17 may be adjusted in-season based on any new survey data and stock assessment information collected during the season.

In addition to fishing opportunities for FSC purposes (or domestic purposes for treaty First Nations), DFO acknowledges that in Ahousaht et al. v. Canada and British Columbia, the courts have found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht - (the T'aaq-wiihak Nations), have "aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck". The Department is working with the T'aaq-wiihak Nations pursuant to the direction from the courts, to find "the manner in which the plaintiffs' rights can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery."

Table 2: Initial Catch Ceilings for 2016/2017. All species combined unless noted.

SMA	Areas and Subareas	Initial Catch Ceiling		Notes
		(lb)	(t)	
Potential Early Opening (April 1): see Section 2.3.2				
23OFF and 21OFF	21, 121, 123, 23-7 to 23-11	538,804 pink 33,730 sidestripe	244.4 pink 15.3 sidestripe	Opens May 15 In-season survey may adjust catch ceiling
124OFF	124	3,217,834	1,459.6	Opens May 15 In-season survey may adjust catch ceiling
125OFF	125	3,722,688	1,688.6	Opens May 15 In-season survey may adjust catch ceiling
PRD	3-1 to 3-4, 103, 4-1 to 4-15, 104, 5-1, 5-2 and 5-23	720,684 pink 483,248 sidestripe	326.9 pink 219.2 sidestripe	Opens June 1 In-season survey may adjust catch ceiling
Coastwide Opening June 1				
DXE	1 and 101	22,050	10	
QCI	102 and 142	55,120	25	
2IN	2	22,050	10	Amended Conditions of Licence and observer required.
3IN	3-5 to 3-18	28,660 pink 31,526 sidestripe	13 pink 14 sidestripe	
5IN	5-3 to 5-10, 5-12 to 5-19, 5-21 and 5-24	22,050	10	
5OFF	5-11, 5-20, 5-22, 105	22,050	10	
6IN	6-1 to 6-8, 6-10 to 6-12, 6-14 to 6-16, 6-18 to 6-28	22,050	10	
6OFF	6-9, 6-13, 6-17 and 106	55,120	25	
7IN	7-2 to 7-24, 7-27 to 7-30 and 7-32	22,050	10	
8IN	8-2 to 8-16	22,050	10	
9IN	9-1 to 9-12	95,680 pink 36,376 sidestripe	43.4 pink 16.5 sidestripe	In-season survey may adjust catch ceiling, observer required after December 31
10IN	10-3 to 10-12	22,050	10	
11IN	11-3 to 11-10	22,050	10	
12OUT	12-1 to 12-21, 12-24, and 12-25	8,818 pink 17,637 sidestripe	4 pink 8 sidestripe	
12IN	12-22, 12-23, 12-26 to 12-48	27,558 humpback 311,510 pink 71,429 sidestripe	12.5 humpback 141.3 pink 32.4 sidestripe	In-season survey may adjust catch ceiling
GSTE	13 and 15	123,017 pink 27,337 sidestripe	55.8 pink 12.4 sidestripe	In-season survey may adjust catch ceiling
14	14	3,527 pink 60,406 sidestripe	1.6 pink 27.4 sidestripe	In-season survey may adjust catch ceiling
16	16	72,531 pink 16,755 sidestripe	32.9 pink 7.6 sidestripe	In-season survey may adjust catch ceiling

SMA	Areas and Subareas	Initial Catch Ceiling		Notes
		(lb)	(t)	
17	17	17,637	8	
18+19	18 and 19	Closed	Closed	In-season survey may adjust catch ceiling
20	20	22,050	10	
23IN	23-1 to 23-6	98,987 pink 16,535 sidestripe	44.9 pink 7.5 sidestripe	In-season survey may adjust catch ceiling
24IN	24	22,050	10	
25IN	25	22,050	10	
26IN	26	22,050	10	
27IN	27-3, 27-7 to 27-11	22,050	10	Observer Requirements
27OFF	127, 27-1, 27-2, 27-4 to 27-6	55,115	25	Observer Requirements
FR	28 and 29	185,407 pink 67,461 sidestripe	84.1 pink 30.6 sidestripe	In-season survey may adjust catch ceiling

2.4.4. Adjustment of Catch Ceilings after Survey

The catch ceilings for the shrimp management areas with continued surveys are based on estimates of shrimp biomass resulting from fishery independent trawl surveys conducted in May through July, and are defined following the Provisional Harvest Control Rules, depending on the state of the stock (Healthy, Cautious or Critical Zone). After the survey, a bulletin is produced and the results of the survey will be announced by Fishery Notice.

2.4.4.1. In-Season Changes to Catch Ceilings for Southern Inside Waters

The catch ceilings for some inside waters have been allocated based on forecast biomass estimates from the previous year's surveys. For index areas with no survey in the previous year an initial quota is authorized to allow harvesting prior to the biomass survey being completed later in the year. In-season changes to catch ceilings for Southern Inside waters will be determined if new survey results become available, and will be re-proportioned to the two harvest periods at that time. If survey results indicate additional quota and become available while an area is open and actively being fished, the quota will be re-proportioned at that time and the fishery will continue. If survey results indicate sufficient additional quota to manage a re-opening and become available while the area is closed, effort will be made to provide 48 hours advance notice prior to re-opening.

2.4.5. Catch Ceiling Reached

Catch estimates by each fish harvester are obtained at the end of each trip, prior to landing and selling the catch. A landing hail number is required and is entered in fishing logbooks and must be recorded prior to landing and selling the catch. The service provider maintains a cumulative catch from all fish harvesters and provides a Landing Quota Status (LQS) report to the industry and the Department once a week. The LQS report includes the catch ceiling, total landed, pounds remaining, percent remaining, area status and number of active vessels hailed to fish in each SMA for each species catch ceiling. Weekly Shrimp Trawl Landings Quota Status Reports can be obtained by email or by fax from the service provider, Archipelago Marine Research Ltd, (250) 383-4535.

When the weekly LQS report shows that a catch ceiling for one species is close to being reached the area will be closed, using the following criteria, with the objective of not exceeding the catch ceiling.

Closure decisions will be based on:

- Quota remaining in the area,
- The number and gear type of boats fishing in the area
- Outstanding catch reporting
- Landings in previous weeks

This may result in some amount of quota remaining in the area when it is closed.

3. BYCATCH AND DISCARDS

Shrimp and incidental prawns, squid, and octopus are permitted to be caught and retained (with seasons, catch limits, and area closures). All other bycatch must be discarded. Specific management measures have been defined for some species. Management measures to minimize capture of fish that will not be used, reduce mortality of discards, improve reporting and accounting of the entire catch, including bycatch and discards will be developed following implementation of the Policy Framework on Managing Bycatch and Discards. Specific management measures for eulachon bycatch have been developed for West Coast Vancouver Island (WCVI) SMAs. An at-sea observer program is funded by active industry vessel owners. The primary goal of the observer program is to monitor eulachon bycatch in WCVI SMAs. Observers are deployed by the Service Provider when the vessel master obtains a hail number to go fishing. The observer travels with the vessel when fishing and records information on all species in the catch, the configuration of the gear and specific tow location and duration. This information is used to monitor the eulachon-to-shrimp ratio and the eulachon catch rates. Current bycatch and discard measures are defined in the following sections.

Licence holders in 2016/17 will fund a starting (base) level of 50 days of at-sea observer coverage for the fishery at the start of the season. If the total coast-wide harvest exceeds 3 million pounds during the course of the season, then additional observer coverage will be required for the vessels operating in the offshore WCVI SMAs. Vessel masters will be required to arrange for at-sea observer coverage on 1 out of every 10 fishing trips, or approximately 10% coverage of their fishing effort.

3.1. Eulachon Bycatch Action Levels

The Department is working with the shrimp trawl industry to minimize eulachon bycatch. An eulachon bycatch action level is set annually for WCVI (Table 3) to encourage active shrimp trawl fish harvesters to adjust their gear to minimize eulachon bycatch. The 2016/17 eulachon action level (EAL) for the WCVI will be 4 tonnes. There will be no in-season adjustment to the EAL as in previous years.

Table 3: Eulachon Action Levels for West Coast Vancouver Island

SMA Group	2016/17 Eulachon Action Level (t)

124OFF, 125OFF and 126OFF	2.0
23OFF+21OFF and 23IN	2.0

In season eulachon bycatch estimates for WCVI SMA area groups are based on data collected by at-sea observers following the Pooled In-season (PI) method defined by Hay (1999). No confidence intervals are calculated. The eulachon to shrimp ratio from at-sea observations is applied to total estimated shrimp catch (hails) to generate an estimate of in-season eulachon bycatch when the catch is summarized each week.

Eulachon catch is estimated using $Ec = (\sum Eo)/(\sum So) * (Sc)$

Where
- Ec = eulachon catch estimate
- Eo = Eulachon observed
- So = Shrimp observed
- Sc = Shrimp catch estimate from fish harvester hails (weekly Landings Quota Status Report)

If at-sea observations are not available, previously observed eulachon to shrimp ratios (by beam or otter trawl) are used to impute eulachon bycatch.

3.1.1. Eulachon Action Levels Reached

In the event the estimate of eulachon bycatch in a given WCVI area reaches the Eulachon Action Level the commercial fishery will likely close. The Department may consider allowing the fishery to continue if other options can be identified that will ensure minimal or no further eulachon bycatch.

3.2. Prawn

Vessels operating under the authority of a shrimp trawl licence are restricted to an incidental, legal size, possession limit of 100 individual prawn (*Pandalus platyceros*) whole, in the shell provided that the area is open for fishing for prawn by means of trawl gear. This generally occurs in areas and at times when the shrimp and prawn by trap fishery is open. It is the vessel master's responsibility to ensure an area is open to prawn retention by shrimp trawl gear. Vessel masters are advised to regularly contact a local Fisheries and Oceans Canada office for advice on prawn closures in their area. The quantity of catch is recorded and reported as weight in pounds in the logbook.

The minimum legal size limit for prawns is 33 mm carapace length (measured from the posterior most part of the eye orbit to the posterior mid-dorsal margin of the carapace). See Appendix 7 Prawn Minimum Size for instructions on measurement.

Concern has been expressed regarding the incidental catch of undersize prawns. Fish harvesters are asked to avoid areas where there is a high incidence of undersize prawn. If this is a persistent problem, shrimp trawl closures may be implemented.

South Coast Area 17 and Subarea 29-5 and North Coast Subareas 4-10 and 4-11 in PRD are closed year round to the retention of prawn by shrimp trawl gear.

All prawns must be sorted out of the catch immediately upon being brought on deck. Undersize prawns, berried prawns and prawns in excess of the incidental catch allowance must be returned immediately to the water in a manner that best affords their survival. Predation of released

prawns by sea birds has been identified as a concern. Fish harvesters should consider methods that get the prawns below the surface as quickly as possible. Concerns have been raised regarding the incidental catch mortality of trawl-caught prawn during conservation closures for prawn. If this is a persistent problem, shrimp trawl closures may be implemented.

All retained prawns must be kept segregated from all other catch.

Any prawns with an egg mass (berried females) shall be released immediately and unharmed to the waters from which they are caught.

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

3.3. Squid

Vessels operating under the authority of an 'S' or 'FS' licence are restricted in the retention of incidentally caught opal squid (Loligo opalescens) to an amount that does not exceed two percent of the total weight of shrimp on board. This catch weight (in lb or kg) must be recorded on the Shrimp Trawl Harvest Logbook in the Remarks section.

3.4. Octopus

Vessels operating under the authority of an S licence are allowed to retain all incidentally caught octopus (Enteroctopus dofleini). This catch weight (in lb or kg) must be recorded on the Shrimp Trawl Harvest Logbook in the Remarks section.

3.5. Humpback and Coonstripe Shrimp

As set forth by the Minister of Fisheries and Oceans Canada in a letter to the Shrimp Trawl Sectoral Committee (January 31, 1997), "any directed fishery for humpback shrimp in non-traditional areas or with new or modified trawl or trap gear, will be subject to the Pacific Region Guidelines on New and Developing Invertebrate Fisheries" (New Emerging Fisheries Policy).

In general, the harvest of humpback and coonstripe shrimp is restricted to an incidental harvest. Closures to all shrimp fishing may be implemented in non-traditional Areas or Subareas where directed fishing for humpback or coonstripe shrimp occurs. Under the New Emerging Fisheries Policy it has been recommended that directed coonstripe fisheries should be based on species-specific catch ceilings developed through fishery independent surveys (Dunham and Boutillier, 2001). A bycatch monitoring program and catch validation/monitoring for both the trap and trawl fisheries would be used to quantify the discard mortality of small sorted shrimp and define the most selective fishing method or gear to be used.

4. CLOSURES

4.1. Shrimp Management Area Closure Status

It is the fish harvester's responsibility to ensure that an area is open prior to setting gear. SMAs will close in-season as required on the basis of any one or more of the following:

- Catch ceilings or annual quotas for any species of shrimp have been reached. (See section 2.4.5.)

- For the areas included as Southern Inside Waters, the proportion of the catch ceiling allocated to that time period has been reached.
- If the Department is of the opinion that the fishery may be characterized as unmanageable; indications of misreporting of harvest on hails or harvest logs; at-sea observer coverage goals are not being met; eulachon or other bycatch levels, including that of prawns, are deemed by the Department as too high (if shrimp trawl fishing occurs in areas identified as having low prawn spawner index and are closed to recreational prawn by trap fishing, the Department may close areas to trawl fishing to avoid handling mortality of egg bearing females and the overall prawn population).
- Access to shrimp by First Nations for food, social and ceremonial (FSC) purposes is jeopardized.
- For other reasons of conservation or for any other valid legislative reason.

4.1.1. Shrimp Information Line

Vessel masters are advised to call the Shrimp Information Line 1-888-978-7888 for information on area closures, the results of surveys, adjustments to catch ceilings and other in-season fishery information. Information will be available 24 hours a day by recording at this toll free number.

Fish harvesters are advised that the service provider is not responsible for notifying fish harvesters of existing or pending closures.

4.1.2. Fishery Notices

Information on area openings, through Fishery Notices for shrimp trawl, can be obtained by contacting local Fisheries Offices, the Fishery Managers listed in Appendix 3, or click on the Commercial Fishery Notices link from the Pacific Region Internet site at:

http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?CFID=5970768&CFTOKEN=60169251

4.1.3. Canadian Coast Guard Announcements

Once a week the Canadian Coast Guard (CCG) may announce shellfish openings and closures, these announcements will be made, time permitting, following regular scheduled WX broadcasts and may be interrupted or delayed for Search and Rescue (SAR) priorities. Broadcast times are as follows:

Tofino MCTS	Mondays	14:15 hours	2115 UTC
Vancouver MCTS	Tuesdays	08:10 hours	1510 UTC
Comox MCTS	Tuesdays	08:20 hours	1520 UTC
Prince Rupert MCTS	Tuesdays	12:05 hours	1915 UTC

4.2. Rockfish Conservation Areas and Strait of Georgia Glass Sponge Reefs

Fishing shrimp by trawl is not permitted in Rockfish Conservation Areas (RCAs). These areas are closed April 1, 2016 to March 31, 2017. Currently, 164 RCAs exist and consultations are ongoing for additional rockfish conservation measures, including changes to existing RCAs and the addition of new ones. New RCAs came into effect February 1, 2007 and changes to existing RCAs were announced in season. For further information on the RCAs, the permitted fishing activities within the areas, and possible further consultations, refer to the internet web page: http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acs/index-eng.html

Fishing shrimp by trawl is not permitted in nine glass sponge reef areas in the Strait of Georgia. Formal closures of bottom contact fishing activities in these areas were put in place in-season in 2015. In accordance with the Sensitive Benthic Areas Policy and its Ecological Risk Assessment Framework (ERAF) for Cold-water Corals and Sponge Dominated Communities, DFO has conducted a risk assessment regarding the potential impacts of bottom-contact fisheries on these glass sponge reef areas. The Department consulted with First Nations, commercial and recreational fishers and other interested groups on proposed protection measures for the reefs. Coordinates and a figure describing the nine glass sponge reef closure areas can be found below and in Appendix 16 and on the following web site:

http://www.pac.dfo-mpo.gc.ca/oceans/protection/sponge_reef-recif_eponge-eng.html

4.3. Closures by Pacific Fisheries Management Area/Subarea –

4.3.1. Area 1

4.3.1.1. Dixon Entrance/Hecate Strait Closure - Areas 1, 2, 101, 102, 104, 105, 106, 130 and 142.
Those waters of Areas 1, 2, 101 TO 106, 130 and 142 will be closed 00:01 hours March 1, 2016 to 08:00 hours August 1, 2016. (Crab Softshell Closure, Seasonal closure). If a soft-shell monitoring program is in place, the area, or portions of the area, could close earlier or later than March 1 and open earlier or later than August 1 if sampling indicates a change to the opening date is appropriate. Contact the North Coast Fisheries Manager.

4.3.1.2. McIntyre Bay: Subarea 1-5 closed April 1, 2016 to March 31, 2017. (Conservation Closure - Halibut)

4.3.2. Areas 101 and 142

Bowie Seamount Marine Protected Area: 180 km west of the Queen Charlotte Islands Areas. For a schedule of boundaries and a map see the internet website at: http://gazette.gc.ca/rp-pr/p2/2008/2008-04-30/html/sor-dors124-eng.html (Conservation Closure).

4.3.3. Areas 105 to 107, 110

4.3.3.1. Glass Sponge Reef Closures: Areas 105, 106, 107, and 110: Three closures have been established surrounding glass sponge reefs in the North and Central Coast areas. Area closure boundaries for each reef are shown in Appendix 8 Locations of Glass Sponge Reefs in Hecate Strait and Queen Charlotte Sound.

4.3.4. Area 2

See 4.3.1.1 Dixon Entrance/Hecate Strait Closure.

4.3.4.1. SMA 2IN: Opens under request with confirmation of observer coverage at fish harvester's expense. Amended conditions of licence required. (See Section 2.3.4.2.)

4.3.4.2. Cumshewa Inlet: Subareas 2-3 and 2-4. (Conservation Closure subject to New Emerging Fisheries Policy)

4.3.4.3. Burnaby Narrows: Those waters of Subareas 2-13 and 2-16 inside a line commencing at 52º23.071’ N and 131º20.427’ W, east to a point at 52º23.079’ N and 131º22.790’ W, then following the southern shoreline of Kat Island east to a point at 52º23.104’ N and 131º22.193’ W, then east to a point at 52º23.303’ N and 131º22.277’ W, then following the western shoreline of Burnaby Island south to a point at 52º20.982’ N and 131º20.427’ W, then west to a point at 52º20.733’ N and 131º21.063’ W, then north following the eastern shoreline of Moresby Island back to the point of commencement. (National Marine Conservation Area)

4.3.4.4. Louscoone Estuary: Those waters of Subareas 2-33 and 2-34 north of a line drawn from 52º11.828’ N and 131º15.662’ W east to 52º12.269’ N and 131º14.579’ W. (National Marine Conservation Area)

4.3.4.5. Flamingo Estuary: Those waters of Subarea 2-37 north of a line drawn from 52º14.523’ N and 131º22.24’ W southeast to 52º14.245’ N and 131º21.481’ W. (National Marine Conservation Area)

4.3.4.6. Gowgaia Estuary: Those waters of Subarea 2-41 east of a line drawn from 52º24.947’ N and 131º32.13’ W southeast to 52º24.233’ N and 131º32.021’ W. (National Marine Conservation Area)

4.3.4.7. Cape Saint James: Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at 51º56.509 minutes N and 131º01.547 minutes W, southwest to 51º55.499 minutes N and 131º02.468 minutes W, then southeast to 51º52.493 minutes N and 130º57.907 minutes W, then south to 51º51.655 minutes N and 130º57.780 minutes W, the southeast to 51º50.395 minutes N and 130º56.561 minutes W, then northeast to 51º51.054 minutes N and 130º54.702 minutes W, then north to 51º53.826 minutes N and 130º55.640 minutes W, then northwest to 51º58.517 minutes N and 130º59.468 minutes W, and then west to 51º58.727 minutes N and 131º00.620 minutes W, and then following the southern shore of Kungit Island to the point of commencement. (National Marine Conservation Area)

4.3.4.8. SGang Gwaay: Those waters of Subareas 2-31 and 142-1 inside a 3 km radius from the centre point on Anthony Island located at 52º05.655’ N and 131º13.178’ W. (National Marine Conservation Area)

4.3.4.9. SGaan Kinglas: Bowie Seamount Protected Area – those waters of Areas 101 and 142 - has been established to conserve and protect the unique biodiversity and biological productivity of the area’s marine ecosystem. The MPA Regulations establish the outer boundary of the MPA as the area of the Pacific Ocean , which includes the Bowie, Hodgkins and Davidson Seamounts — consisting of the seabed, the subsoil and the water column above the seabed — that is bounded by a series of rhumb lines drawn from a point 53°03′07.6″ N, 135°50′25.9″ W, to a point 53°16′20.9″ N, 134°59′55.4″ W, then to a point 53°39′49.2″ N, 135°17′04.9″ W, then to a point 53°39′18.0″ N, 135°53′46.5″ W, then to a point 53°52′16.7″ N, 136°30′23.1″ W, then to a point 53°49′19.6″ N, 136°47′33.1″ W, then to a point 53°40′02.5″ N, 136°57′03.5″ W, then to a point 53°13′59.2″ N, 136°10′00.0″ W, then back to the point of commencement (National Marine Conservation Area).

4.3.5. Area 3

4.3.5.1. Nass River: Those waters of Subareas 3-12 and 3-18 will be closed February 1, 2015 to March 31, 2015 to avoid interaction with schooling adult eulachon returning to spawn. This closure will be reviewed annually with industry and First Nations, considering expected eulachon returns. (Seasonal Closure)

4.3.6. Area 4

4.3.6.1. Prince Rupert Harbour: Subareas 4-10 and 4-11. Closed to the retention of prawns at all times. (Conservation Closure)

4.3.7. Area 9

4.3.7.1. SMA 9IN: Opens June 1 and remains open until December 31, or until the annual catch ceiling is attained. After January 1, if sufficient catch ceiling remains, SMA 9IN will open under request with confirmation of observer coverage. (Seasonal Closure, See Section 2.3.4.4.)

4.3.8. Area 13

4.3.8.1. Discovery Passage: Subareas 13-3, 13-4, 13-5 and a portion of 13-6. Those waters of Discovery Passage bounded on the north by a straight line drawn true west from North Bluff on Quadra Island, across Seymour Narrows to a fishing boundary sign on Vancouver Island, and on the south by a line from the Cape Mudge light true west to Vancouver Island. (Marine Reserve and Research Closure)

4.3.8.2. Deepwater Bay: A portion of Subarea 13-7 inside a line from a fishing boundary sign at Separation Head to a fishing boundary sign at the north-westerly entrance to Deepwater Bay. (Salmon Holding Area)

4.3.8.3. Kelsey Bay: Subarea 13-34. (Navigational Closure)

4.3.9. Area 14 -

4.3.9.1. East of Hornby Islands: That portion of Subarea 14-6 that lies inside a boundary beginning at 49^{o} 33.490’ N and 124^{o} 29.230’ W, then southerly to 49^{o} 32.701’ N and 124^{o} 28.760’ W, then to 49^{o} 31.657’ N and 124^{o} 29.434’ W, then to 49^{o} 31.663’ N and 124^{o} 29.896’ W, then to 49^{o} 32.651’ N and 124^{o} 29.752’ W, then to 49^{o} 33.340’ N and 124^{o} 29.935’ W, then to 49^{o} 33.498’ N and 124^{o} 29.773’ W, then to the beginning point. [East of Hornby Islands] (Strait of Georgia Glass Sponge Reef Closure)

4.3.9.1. Parksville: Those portions of Subareas 14-2 and 14-3 that lie inside a boundary beginning at 49^{o} 21.680’ N and 124^{o} 19.762W, then southeasterly to 49^{o} 21.514’ N and 124^{o} 18.893’ W, then to 49^{o} 21.191’ N and 124^{o} 17.723’ W, then to 49^{o} 21.064’ N and 124^{o} 17.724’ W, then to 49^{o} 20.725’ N and 124^{o} 18.380’ W, then to 49^{o} 21.432’ N and 124^{o} 19.811’ W, then to the beginning point. [Parksville] (Strait of Georgia Glass Sponge Reef Closure)

4.3.9.2. Baynes Sound Closure: Those waters of Subareas 14-8 and 14-15 will be closed April 1, 2014 to March 31, 2015 pending proposal from fish harvesters to address bycatch issues in this area. (Seasonal Closure, Conservation closure, bycatch concern)

4.3.9.3. Upper Baynes Sound (Subarea 14-11) and Comox Harbour (Subarea 14-14). (Navigational Closure)

4.3.10. Area 16

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

4.3.10.2. Skookumchuck Narrows Provincial Park: Subarea 16-9. Those waters of Skookumchuck Narrows and Sechelt Rapids bounded on the West by a line from a point on the foreshore at the westerly limit of Secret Bay on Sechelt Peninsula thence 500 true to a point on the foreshore on the mainland; and the east by a line from Raland Point on Sechelt Peninsula, thence 500 true to a point on the foreshore on the mainland. (Park)

4.3.11. Area 17

4.3.11.1. Area 17 is closed year round to the retention of prawn by shrimp trawl gear. (Conservation Closure)

4.3.11.2. Ladysmith Harbour (Subarea 17-7) and Nanaimo Harbour (Subarea 17-14). (Navigational Closure)

4.3.11.1. Gabriola Island: That portion of Subarea 17-11 that lies inside a boundary beginning at 49^{o} 13.672' N and 123^{o} 47.577' W, then southerly to 49^{o} 13.235' N and 123^{o} 47.429' W, then to 49^{o} 13.185' N and 123^{o} 47.882' W, then to 49^{o} 13.391' N and 123^{o} 48.119' W, then to 49^{o} 13.623' N and 123^{o} 48.166' W, then to the beginning point. [Gabriola Island] (Strait of Georgia Glass Sponge Reef Closure)

4.3.11.2. Subarea 17-17 Pylades Channel. This Subarea is mainly a humpback shrimp area with very few pink shrimp or sidestripe shrimp and the populations have not been assessed. (Conservation Closure subject to New Emerging Fisheries Policy)

4.3.12. Area 18

4.3.12.1. Outer Gulf Islands 1: Those portions of Subareas 18-1 and 29-4 that lie inside a boundary beginning at the point begins at 48^{o} 54.936' N and 123^{o} 19.589' W, then southerly to 48^{o} 54.283' N and 123^{o} 18.529' W, then to 48^{o} 54.114' N and 123^{o} 18.619' W, then to 48^{o} 54.065' N and 123^{o} 18.771' W, then to 48^{o} 54.787' N and 123^{o} 19.929' W, then to 48^{o} 54.902' N and 123^{o} 19.793' W, then to the beginning point. [Outer Gulf Islands 1] (Strait of Georgia Glass Sponge Reef Closure)

4.3.12.2. Outer Gulf Islands 2: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 52.588'N and 123° 15.261' W, then easterly to 48° 52.520' N and 123° 14.537' W, then to 48° 51.971' N and 123° 13.768' W, then to 48° 51.795' N and 123° 13.947' W, then to 48° 52.150' N and 123° 14.444' W, then to 48° 52.038' N and 123° 14.678' W, then to 48° 52.479' N and 123° 15.521' W, then to the beginning point. [Outer Gulf Islands 2] (Strait of Georgia Glass Sponge Reef Closure)

4.3.12.3. Outer Gulf Islands 3: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 51.602' N and 123° 13.233' W, then southerly to 48° 51.309' N and 123° 12.751' W, then to 48° 50.913' N and 123° 12.938' W, then to 48° 50.844' N and 123° 13.059' W, then to 48° 51.163' N and 123° 13.662'

W, then to 48° 51.579’ N and 123° 13.378’ W, then to the beginning point. [Outer Gulf Islands 3] (Strait of Georgia Glass Sponge Reef Closure)

4.3.12.4. Outer Gulf Islands 4: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 50.999’ N and 123° 12.391’ W, then southerly to 48° 50.608’ N and 123° 11.603’ W, then to 48° 50.097’ N and 123° 10.956’ W, then to 48° 49.959’ N and 123° 11.182’ W, then to 48° 50.857’ N and 123° 12.654’ W, then to 48° 50.959’ N and 123° 12.566’ W, then to the beginning point. [Outer Gulf Islands 4] (Strait of Georgia Glass Sponge Reef Closure)

4.3.12.5. Sansum Narrows, Burgoyne Bay and Maple Bay (Subarea 18-7), Cowichan Bay (Subarea 18-8) and Fulford Harbour (Subarea 18-10). (Navigational Closure)

4.3.12.6. Satellite Channel: that portion of Subarea 18-6 found inside a line starting at 48°41.46'N latitude 123°29.48'W longitude, thence one nautical mile 60° true to 48°41.96'N latitude 123°28.178'W longitude, thence one nautical mile 330° true to 48°42.82'N latitude 123°28.92'W longitude, thence one nautical mile 240° true to 48°42.32'N latitude 123°30.23'W longitude, thence one nautical mile 150° true to the point of origin. (B.C. Provincial Ecological Reserve #67)

4.3.13. Area 19

4.3.13.1. Victoria Harbour (Subarea 19-1) and Esquimalt Harbour (Subarea 19-2). (Navigational Closure),

4.3.13.2. Sidney Spit Marine Park: Subarea 19-6. (Park Reserve)

4.3.13.3. Saanich Inlet: Subareas 19-7 to 19-12. (Conservation Closure)

4.3.13.4. Ogden Point: Subarea 19-3. Those waters of inside a line from the navigation light at the western end of the Ogden Point Causeway thence to Brotchie Ledge Light, thence to Holland Point on Vancouver Island. (Marine Reserve)

4.3.13.5. 10 Mile Point: Subareas 19-4 and 19-5. Those waters of within 0.4 nautical miles of Cadboro Pt. navigation light. (Marine Reserve)

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

4.3.14. Area 20

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

4.3.14.2. Port San Juan: Subareas 20-2) and Sooke Harbour and Basin (Subareas 20-6 and 20-7). (Navigational Closure)

4.3.15. Area 23

4.3.15.1. Pacific Rim National Park, Broken Group Islands: Those waters of the Broken Group Islands in Barkley Sound within park boundaries as shown, since 1989, on Canadian Hydrographic Service Chart 3671. (Park)

4.3.15.2. Fishing Hazard Advisory – Areas 23 and 123. The NEPTUNE Canada Ocean Observatory is a scientific cabled ocean observatory that will be installed on the seafloor off the West Coast of Vancouver Island. The main network cable installation began in the summer of 2007 and the remaining infrastructure will continue. The Observatory will consist of a ring of powered telecommunications cable laid on the seafloor down the centre of Alberni Inlet and Trevor Channel across the continental shelf and out to approximately 160 nautical miles offshore (2500 meters water depth). For further information, see Appendix 11 Fishing Hazard Advisory – NEPTUNE Node, West Coast Vancouver Island or check the Neptune Internet site: www.neptunecanada.ca.

4.3.16. Area 24

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

4.3.17. Areas 27 and 127

4.3.17.1. SMA 27IN and 27OFF: Open under request with confirmation of observer coverage. The intent is to document species composition of bycatch.

4.3.18. Area 28

4.3.18.1. Howe Sound - Defence Island Closure: That portion of Subarea 28-4 that lies inside a line beginning at 49° 34.102’ N and 123° 17.070’ W, then southerly to 49° 33.730N and 123° 16.562’ W, then to 49° 33.553’ N and 123° 16.462’ W, then to 49° 33.438’ N and 123° 16.750’ W, then to 49° 33.707’ N and 123° 17.201’ W, then to 49° 33.993’ N and 123° 17.391’ W, then to the beginning point. [Howe Sound - Defence Islands] (Strait of Georgia Glass Sponge Reef Closure)

4.3.18.2. Howe Sound – Queen Charlotte Channel: Those portions of Subareas 28-2 and 28-3 that lie inside the boundaries of a point starting at 49° 21.486’ N and 123° 17.254’ W, then southerly to 49° 20.528’ N and 123° 17.690’ W, then to 49° 20.401’ N and 123° 17.956’ W, then to 49° 20.765’ N and 123° 18.794’ W, then to 49° 20.982’ N 123° 18.584’ W, then to 49° 21.098’ N and 123° 18.037’ W, then to 49° 21.501’ N and 123° 17.737’ W, then to the beginning point. [Howe Sound - Queen Charlotte Channel 1] (Strait of Georgia Glass Sponge Reef Closure)

4.3.18.3. Howe Sound - Queen Charlotte Channel 2: Those portions of Subareas 28-2 and 28-3 that lie inside the boundaries from a point beginning at 49° 20.288’ N and 123° 17.693’ W, then southeasterly to 49° 20.225’ N and 123° 17.501’ W, then to 49° 19.993’ N and 123° 17.377’ W, then to 49° 19.802’ N and 123° 17.444’ W, then to 49° 19.720’ N and 123° 17.840’ W, then to 49° 19.937’ N and 123° 18.107’ W, then to the beginning point. [Howe Sound - Queen Charlotte Channel 2] (Strait of Georgia Glass Sponge Reef Closure)

4.3.18.4. Howe Sound - Queen Charlotte Channel 3: Those portions of Subareas 28-2 and 28-3 that lie inside the boundary of a point beginning at 49° 19.296’ N and 123° 19.905’ W, then southerly to 49° 19.918’ N and 123° 19.847’ W, then to 49° 19.307’ N and 123° 20.344’ W, then to 49° 19.643’ N and 123° 20.421’ W, then to 49° 19.819’ N and 123° 20.361’ W, then to 49° 19.947’ N and 123° 20.097’ W, then to the beginning point. [Howe Sound - Queen Charlotte Channel 3] (Strait of Georgia Glass Sponge Reef Closure)

4.3.18.5. Howe Sound - Queen Charlotte Channel 4: Those portions of Subarea 28-2 and 28-3 that lie within the boundary beginning at the point 49° 20.637’ N and 123° 19.162’ W, then easterly to 49° 20.577’ N and 123° 18.720’ W, then to 49° 20.441’N and 123° 18.637’ W, when to 49° 20.068’ N and 123° 18.818’ W, then to 49° 20.076’ N and 123° 19.135’ W, then to 49° 19.718’ N and 123° 19.188’ W, then to 49° 19.726’ N and 123° 19.514’ W, then to 49° 20.259’ N and 123° 19.828’ W, then to the beginning point. [Howe Sound - Queen Charlotte Channel 4] (Strait of Georgia Glass Sponge Reef Closure)

4.3.18.6. Horseshoe Bay: Subarea 28-2. Those waters bounded by a line commencing from Whytecliff Point, thence in a straight line to the most southerly point of Bowyer Island, thence in a straight line 120 true to the mainland. (Navigational Closure)

4.3.18.7. Porteau Cove: Subarea 28-4. Those waters east of a line drawn from a white fishing boundary sign located on the south shore of Porteau Cove to a white fishing boundary sign located on the north shore of Porteau Cove. (Marine Reserve)

4.3.18.8. Whytecliff Park: Subarea 28-2. Those waters bounded by a line commencing from the most southerly point of Whytecliff Park; thence in a straight line to a point located 100 m East of the most southeasterly point of Whyte It.; thence following the southern shoreline of Whyte It. at a distance of 100 m to a point lying 100 m from the most southwesterly point of Whyte It.; thence in a straight line to a point lying 100 m west of White Cliff Point; thence following the shoreline at a distance of 100 m in a northerly direction to a point 100 m North of Lookout Point; thence following the shoreline at a distance of 100 m in an easterly direction to a point 100 m perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

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

4.3.18.10. Subareas 28-8 and 28-10. (Navigational Closure)

4.3.18.11. Subareas 28-11 to 28-14. (Conservation Closure)

4.3.19. Area 29

4.3.19.1. Halibut Bank: That portion of Subarea 29-2 that lies inside a boundary beginning at 49^{o} 21.768’ N and 123^{o} 41.501’ W, then southerly to 49^{o} 21.174’ N and 123^{o} 40.045’ W, then to 49^{o} 20.961’ N and 123^{o} 40.139’ W, then to 49^{o} 20.803’ N and 123^{o} 39.860’ W, then to 49^{o} 20.565’ N and 123^{o} 40.182’ W, then to 49^{o} 21.610’ N and 123^{o} 41.843’ W, then to 49^{o} 21.673’ N and 123^{o} 42.643’ W, then to 49^{o} 21.895’ N and

123° 43.908’ W, then to 49° 22.174’ N and 123° 44.748’ W, then to 49° 22.555’ N and 123° 44.456’ W, then to 49° 22.188’ N and 123° 42.167’ W, then to the beginning point. [Halibut Bank] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.2. Sechelt: That portion of Subarea 29-2 that lies inside a boundary beginning at 49° 25.948’ N and 123° 48.889’ W, then easterly to 49° 25.899’ N and 123° 47.266’ W, then to 49° 25.373’ N and 123° 46.494’ W, then to 49° 24.734’ N and 123° 47.083’ W, then to 49° 24.910’ N and 123° 47.951’ W, then to 49° 24.253’ N and 123° 48.283’ W, then to 49° 24.845’ N and 123° 49.914’ W, then to the beginning point. [Sechelt] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.3. Foreslope Hills Closure: That portion of Subarea 29-3 that lies inside a boundary beginning at a point at 49° 09.634’ N and 123° 23.048’W, then southeasterly to 49° 09.389’ N and 123° 22.622’ W, then to 49° 09.187’ N and 123° 22.587’ W, then to 49° 09.211’ N and 123° 23.567’ W, then to 49° 09.646’ N and 123° 23.543’ W, then to the beginning point. [Foreslope Hills] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.4. Outer Gulf Islands 1: Those portions of Subareas 18-1 and 29-4 that lie inside a boundary beginning at the point begins at 48° 54.936’ N and 123° 19.589’ W, then southerly to 48° 54.283’ N and 123° 18.529’ W, then to 48° 54.114’ N and 123° 18.619’ W, then to 48° 54.065’ N and 123° 18.771’ W, then to 48° 54.787’ N and 123° 19.929’ W, then to 48° 54.902’ N and 123° 19.793’ W, then to the beginning point. [Outer Gulf Islands 1] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.5. Outer Gulf Islands 2: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 52.588’N and 123° 15.261’ W, then easterly to 48° 52.520’ N and 123° 14.537’ W, then to 48° 51.971’ N and 123° 13.768’ W, then to 48° 51.795’ N and 123° 13.947’ W, then to 48° 52.150’ N and 123° 14.444’ W, then to 48° 52.038’ N and 123° 14.678’ W, then to 48° 52.479’ N and 123° 15.521’ W, then to the beginning point. [Outer Gulf Islands 2] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.6. Outer Gulf Islands 3: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 51.602’ N and 123° 13.233’ W, then southerly to 48° 51.309’ N and 123° 12.751’ W, then to 48° 50.913’ N and 123° 12.938’ W, then to 48° 50.844’ N and 123° 13.059’ W, then to 48° 51.163’ N and 123° 13.662’ W, then to 48° 51.579’ N and 123° 13.378’ W, then to the beginning point. [Outer Gulf Islands 3] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.7. Outer Gulf Islands 4: Those portions of Subareas 18-1 and 29-4 that lies inside a boundary beginning at the point 48° 50.999’ N and 123° 12.391’ W, then southerly to 48° 50.608’ N and 123° 11.603’ W, then to 48° 50.097’ N and 123° 10.956’ W, then to 48° 49.959’ N and 123° 11.182’ W, then to 48° 50.857’ N and 123° 12.654’ W, then to 48° 50.959’ N and 123° 12.566’ W, then to the beginning point. [Outer Gulf Islands 4] (Strait of Georgia Glass Sponge Reef Closure)

4.3.19.8. Subarea 29-5 is closed year round to the retention of prawn by shrimp trawl gear. (Conservation Closure)

4.3.19.9. Subareas 29-7 to 29-10 and those portions of Subareas 29-3, 29-4, and 29-6, shoreward of the 100 metre contour line as shown on charts 3463 and 3512, as published by the Canadian Hydrographic Service of Fisheries and Oceans Canada. (Crab Conservation Closure)

4.3.19.10. Fishing Hazard Advisory - Subareas 29-6, 29-7. The Victoria Experimental Network under the Sea (VENUS) project includes a shallow water installation that may pose a hazard to trawl fishing (see Appendix 10 Fishing Hazard Advisory – VENUS Georgia Strait Node, Area 29). For further information, check the VENUS Internet site: www.venus.uvic.ca

5. LICENSING

5.1. Licence Category

A shrimp trawl category S or communal commercial category FS licence is required to commercially harvest shrimp with trawl gear. There are a total of 215 S licence eligibilities designated to vessels and 23 category FS commercial licence eligibilities that are allocated to First Nations as communal commercial licences that can be designated to a vessel of specific length.

5.2. Application Fees

Currently the annual licence application fee for category S licence eligibility is $100.00. There is no fee for a communal commercial, category FS licence.

5.3. Licence Application and Issuance

The 2016/2017 shrimp trawl licence year is April 1, 2016 to March 31, 2017.

Category FS (communal commercial) licence eligibilities are party-based. First Nations' organization holds the licence eligibility, which is designated annually to a vessel that meets the licensing requirements, including length restrictions.

Prior to annual application for either category S licence, please ensure:

a.) Any Ministerial conditions placed on the licence eligibility are met.
b.) Any conditions of the previous year's licence such as submission and approval of Shrimp Trawl Harvest Logbooks and Hail Reports have been met.

5.4. Fishery Monitoring Services to Fish Shrimp

Prior to fishing for shrimp by trawl, contact the PCSCA at 250-658-0179 to arrange for hail services and at-sea observer coverage to meet the notifications, catch verification, and catch sampling requirements outlined in the licence conditions for this fishery. The Service Company selected by the industry (through the PCSCA) and approved by the Department for the 2016/17 fishing season is Archipelago Marine Research Ltd.

5.5. Changes to Licensing Services

Fisheries and Oceans Canada's licensing services are now provided through the National Online Licensing System located at https://fishing-peche.dfo-mpo.gc.ca. The National Online Licensing System enables secure and reliable online service delivery to both commercial and communal commercial users.

Fish harvesters are now able to perform all standard licensing transactions using the system. These transactions include:

- renewing licence eligibilities and paying licence fees, as well as renewing vessel registrations
- submitting licensing requests (such as vessel replacement) and checking the status of requests
- submitting electronic documents in support of licensing requests
- printing licences, licence conditions, receipts, and other licensing documents
- appointing representatives to perform licensing transactions on a user's behalf.

The system provides fish harvesters with the ability to view their account information and manage their licensing requirements online, replacing traditional services previously offered over-the-counter or by regular mail. For instance, licence renewal notices are no longer sent by mail; rather, clients are now notified through the online system when licences are ready for renewal.

Licence renewal and payment of fees are mandatory on an annual basis prior to the expiry date of each fishery in order to maintain licence eligibility in the future. Licence eligibility will cease if not renewed annually.

Upon the Department receiving the required payment, and the appropriate information (e.g. designated vessel or party information, where applicable) and any required documentation, the licence will be issued and notification will be sent via email to advise licence eligibility holder/vessel owner 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.

To ensure that you receive email notifications, be sure to include the contact email address for all of the 'organization' profiles (including 'vessel and company organizations') where you are a Contact party. Instructions on updating organization email addresses may be found at: http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/products-produits/management-org-gestion-eng.htm

please refer to section B: Modifying an Organization.

CLIENT SUPPORT:

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 e-mail at fishing-peche@dfo-mpo.gc.ca or by calling toll-free at 1-877-535-7307 (7:00 AM to 8:00 PM Eastern, Monday to Friday).

For more information on how to register and use the system, visit the Department's website at www.dfo-mpo.gc.ca, or contact our client support.

5.6. Vessel Replacement

Commercial S licences are vessel-based and are 'married' to any other commercial licence eligibilities held on the vessel (will move with all other married licence eligibilities if transferred to another vessel). Licence eligibility vessel replacements are restricted to vessels of the equivalent overall vessel length. Only one category S or FS licence eligibility is allowed on a vessel at a time. Replacing vessels may not exceed the overall length of the existing vessel.

5.7. Schedule II Species

The commercial S licence includes harvest opportunities under specific gear requirements for the species listed in Schedule II - Part II of the *Pacific Fishery Regulations*. Refer to Part 2 of the conditions of shrimp trawl licence and the Pacific Region Integrated Fisheries Management Plans for Lingcod, Dogfish, Tuna, Skate, Sole, Flounder and Pacific Cod by Hook and Line (available from Pacific Fishery Licensing Units), for the conditions and guidelines for harvest of these species.

5.8. Conditions of Licence to Transport Fish

If catch is transferred from a licensed vessel to another vessel, the receiving vessel must have a commercial fishing licence or a transporting, category "D", licence according to *Pacific Fishery Regulations*, Part II, Section 24. Part 3 of the Shrimp Trawl licence authorizes the vessel to transport fish other than fish caught by the licensed vessel. When product is transferred from one vessel to another vessel or a vehicle, that vessel or vehicle requires a provincial Fish Buying Station licence. This licence is required for all types of vessels and vehicles, including aircraft. The licence may also be required for personal vehicles in some instances, when a vehicle is carrying the catch from more than one vessel, even if the licence holder owns both vessels. Fish harvesters should contact the Ministry of Agriculture and Lands, Courtenay Access Centre (250) 897-7540. For more information see the Internet website:

http://www.agf.gov.bc.ca/fisheries/licences/main.htm

5.9. Fisher Identification Number (FIN)

Under the *Pacific Fishery Regulations*, any person over the age of sixteen engaged in commercial fishing, or on board a vessel being used in commercial fishing, must possess a Fisher's Registration Card (available from Pacific Fishery Licensing Units). DFO has introduced unique Fisher Identification Numbers (FIN) that will be assigned to all Pacific commercial fish harvesters. A FIN will be automatically generated for fisher harvesters when their new year's FRC licence is issued. Once a FIN has been assigned to a fisher, that individual will reference the FIN when identifying him or herself in subsequent business dealings with both the department and service contractors, completing the FIN field on logbooks, noting the FIN when hailing and landing catch, etc.

Licence holders may be asked to provide their FIN when applying for a licence, or for dockside monitoring, or for enforcement purposes.

For further information, please contact a PFLU or a resource manager (see Appendix 3)

6. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

To meet the conservation and sustainable fishing objectives in this fishery, a Shrimp Trawl Catch Monitoring Program has been developed to track commercial fishery landings and to monitor the status of SMA catch ceilings. The program has two main components: a "hailing" requirement including notification prior to fishing and prior to offloading, and a catch reporting requirement through harvest logbooks and fish slips with verification in the form of random dockside validation by a Department certified observer.

The service provider selected by the industry (through the PCSCA) and approved by the Department for the 2016/17 fishing season is Archipelago Marine Research Ltd.

6.1. Notification Procedures

6.1.1. Notification Prior to Commencement of a Fishing Trip

The vessel master shall obtain a Fishing Hail Number 24 hours prior to leaving port and prior to commencing fishing by contacting 1-866-377-1400 between the hours of 08:00 to 17:00 h Monday to Friday only, and provide the following information (hereinafter referred to as a "Fishing Hail"):

a.) Vessel name and Vessel Registration Number (VRN #).
b.) Vessel master's name (first and last) and contact phone number.
c.) Vessel's cellular or satellite phone number.
d.) Gear type (beam or otter trawl).
e.) SMA or Subarea to be fished (note - one area only).
f.) Anticipated date and time that fishing will begin.
g.) Anticipated number of fishing days for the trip.
h.) Target shrimp species.
i.) Product type (fresh, live, frozen at sea, etc.).
j.) Anticipated offload location and date.

Alternatively, a Shrimp Fisher ID number may be issued in-season by the service provider to replace items (a) through (d) providing there is no change to the contact information provided at the start of the season. If there is a change in vessel masters, this information must be updated.

Upon completion of the notification, the vessel master (skipper) will receive a unique Fishing Hail Number.

Vessel masters must have available for inspection by Fisheries and Oceans Canada officers or fishery guardians their current Fishing Hail Number at all times during fishing or while shrimp are on board their vessel.

In all instances, it is the vessel master's responsibility to obtain a Fishing Hail Number prior to leaving the dock to go fishing. A Fishing Hail Number may be refused if the hail location is vague or misleading.

It is a Condition of Licence that vessels arrange for 100 percent at-sea observer coverage. This requirement may be waived at the time of Fishing Hail if the Department does not require an observer on board the vessel for that particular fishing trip.

The service provider is not responsible for notifying fish harvesters of existing or impending closures (See Section 4.1).

Vessel masters who are having difficulty dialling the toll free number using marine radio telephones in remote locations are advised to dial the operator and ask for assistance.

6.1.2. Notification of a Change in Fishing Area

If the SMA or target species to be fished is different from the original Fishing Hail, the vessel master shall contact (866) 377-1400 (08:00 to 17:00 hours, Monday to Friday only) to update the fishing hail record prior to fishing in the new SMA. This shall be done by quoting the original Fishing Hail Number for that trip and advising of the new SMA to be fished and the weight of each species of shrimp on board from each SMA fished prior to changing locations.

Changes to the anticipated number of fishing days (trip length), product type (fresh, live, frozen at sea, etc.) and/or landing port do not need to be re-hailed unless the SMA to be fished changes.

6.1.3. For Fishing Trips Longer Than Seven Days

If the fishing trip is longer than seven days (i.e. the landing date is more than seven days after the Fishing Hail), the vessel master shall contact (866) 377-1400 (08:00 to 17:00 hours, Monday to Friday only) and provide the following information every seven days:

a.) Fishing hail number which applies to the current fishing trip.
b.) SMA or Subarea in which fishing occurred.
c.) Total weight of each species of shrimp, on board the vessel from each SMA fished.

For example, if the fishing hail report is made on Monday, then an update of catch information is required every Monday for the duration of the fishing trip.

6.1.4. Notification Prior to Landing Catch

Prior to landing any catch at the end of a fishing trip, the vessel master shall obtain a Landing Hail Number by calling (866) 377-1200 (24 hours per day, seven days a week) or (866) 377-1400 (08:00 to 17:00 h, Monday to Friday only) and provide the following information (hereinafter referred to as a "Landing Hail"):

a.) Fishing hail number which applies to the current fishing trip.
b.) Vessel name and VRN #.
c.) Vessel master's name.
d.) Date fishing began.
e.) Date and time of offloading.
f.) Port and location of offloading.
g.) Buyer.
h.) SMA(s) or Subarea(s) in which fishing occurred.
i.) Weight of each species* of shrimp on board from each SMA fished.
j.) Total hours towed for each SMA fished.

*Northern pink shrimp (*Pandalus borealis*) and pink shrimp (*Pandalus jordani*) may be reported as "pink shrimp."

Upon completion of the Landing Hail, the vessel master (skipper) will receive a unique Landing Hail Number.

The Landing Hail and Shrimp Trawl Harvest Logbook must be completed and account for all shrimp and incidental catch retained prior to any shrimp or incidental catch being offloaded from the vessel.

6.1.5. Cancellation of a Fishing Hail Number

Where a fishing hail number has been issued and no fishing occurs, the vessel master shall notify (866) 377-1200 (24 hours per day, seven days a week) or (866) 377-1400 (08:00 to 17:00 h, Monday to Friday only) to cancel the hail, i.e. specify that no fishing took place. No follow-up paperwork will be required by the vessel master.

Active hails that have not been cancelled are deemed to be late, and thereby not in compliance of the Conditions of Licence.

6.2. Dockside Observations for Catch Verification

The service provider will conduct dockside observations for catch validation during 2016/2017 to verify shrimp landing weights, species composition, and quality against hailed or otherwise reported figures. Biological samples may also be requested for use in the stock assessment program. The program includes 20 random days defined as opportunities present themselves.

Under Section 47 of the *Fishery General Regulations*, the vessel master of the licensed vessel shall:

a.) Permit the observer to go on-board the vessel to perform the designated duties. This would include providing access to the vessel's fish holds, freezers, and other fish storage areas at any time during the landing.
b.) Allow the observer to inspect a hard copy of the Shrimp Trawl Harvest Logbook upon completion of each verification.
c.) Provide the observer with such assistance as is reasonably necessary to enable the observer to perform those duties.

6.2.1. Assistance to Observers

Under Section 46 of the *Fishery (General) Regulations*, the vessel owner or master of a fishing vessel shall, at the request of the Regional Director General, permit an observer to go on-board that vessel to perform the designated duties for the period of time specified and arrange for the embarkation or disembarkation of the observer, at such time and place as is specified. The vessel master shall provide all reasonable assistance to the observer, including:

a.) Providing a suitable work area, including a table and adequate lighting;
b.) Providing, at the request of the observer, information relating to any matter mentioned in subsection 61(2) of the *Fisheries Act*;
c.) Providing, at the request of the observer, the position of the vessel in latitude and longitude;
d.) Facilitating the sending and receiving of messages by means of the communications equipment on board the vessel;
e.) Giving access to all areas of the vessel involved in fishing, processing and storage operations;
f.) Permitting the taking of samples free of charge;
g.) Providing suitable storage facilities for samples;
h.) Assisting, at the request of the observer, in the examination and measurement of fishing gear on board the vessel;
i.) Permitting the taking of photographs of the fisheries operations, including fishing gear and equipment;

j.) Permitting the removal from the vessel of samples, records, photographs or film taken or made on board the vessel; and
k.) Where the observer is on board for more than four consecutive hours, providing food and accommodation equivalent to that provided to officers of the vessel.

Fishery closures will be implemented if the level of sampling and observer coverage required for the proper management and control of the fishery has not been achieved. Vessel owners or vessel masters that fail to comply with the request to take on board an observer are subject to prosecution under the *Fisheries Act*.

6.3. Catch Sampling Program

A Catch Sampling Program will be undertaken by dockside and at-sea observers or catch monitors to collect biological samples of shrimp for size and age analysis, and to assess the composition of the catch for both shrimp and non-target species. This information is necessary for the proper management of the fishery, and for the stock assessment program. Fishing closures will be implemented if the level of catch sampling coverage required by the Department has not been achieved.

For the 2016/17 season a base level of 50 days of observer coverage will be required for the fishery. These days will be funded by licence holders through the Pacific Coast Shrimpers Cooperative Association (PCSCA). If the coast-wide harvest of shrimp exceeds 3 million pounds in-season, then additional at-sea observer coverage will be required for the fishery. Vessels operating in the WCVI SMAs will be required to arrange for observer coverage of 10% of fishing effort, or approximately 1 out of every 10 fishing trips.

During the fishing season, vessel owners will be responsible for arranging at-sea observer coverage with a Fisheries and Oceans Canada certified observer. Observers will be distributed coast-wide to monitor catch onboard vessels and in some instances to collect biological information or samples.

6.3.1. Selection of Vessels for Catch Sampling Program

During the course of the season, certified shrimp fishery observer coverage is required as part of the catch sampling program. Vessels will be selected randomly for catch sampling depending on sampling requirements by area and time period. The actual days of coverage will be determined in-season according to area fished, gear, fishing effort, month, and the need for biological samples.

It is a Condition of Licence that vessel masters arrange for observer coverage prior to leaving the dock to start fishing activities for every day of fishing activity. For vessels that are not deemed to require an observer on that particular trip, the service provider will issue an exemption at the time of hail-in. The shrimp information line will provide updates on the outstanding requirements for observer coverage in priority areas. Fishery closures will be implemented if the level of observer coverage required for the proper management of the fishery has not been achieved.

6.3.2. Shrimp Samples for Biological Sampling

Observers, catch monitors, or patrol vessels from Fisheries and Oceans Canada may also approach vessels, while at a dock or at-sea while fishing, to request samples of shrimp or to collect other catch information. Detailed information may be requested concerning the location,

depth and area of catch, gear type, bycatch reduction devices, preferred cod end mesh size, bycatch species and marketing of the shrimp sampled. Fisheries and Oceans Canada, the Pacific Coast Shrimpers' Cooperative Association, and the Shrimp Trawl Sectoral Committee ask for the co-operation of fish harvesters and processors in providing biological samples and other catch information. These samples will provide the information such as shrimp species in the catch, strength of age classes, location of shrimp stocks, number of egg-bearing female shrimp, and preferred mesh size or gear.

6.4. Shrimp Trawl Harvest Logbook Data

An important component of the stock assessment program is the information collected from the vessel master in the form of a Shrimp Trawl Harvest Logbook. In-season adjustments to catch ceilings rely on information collected from these logbooks. Vessel masters and processors are encouraged to submit logbook information early (e.g. following each trip), to ensure more timely analyses and assessments that may result in further fishing opportunities. Timely submission of logbooks is particularly important for assessing WCVI fishing opportunities.

The vessel master/licence holder is responsible for the provision and maintenance of an accurate record, a "log," of daily harvest operations. This Shrimp Trawl Harvest Logbook must be completed and a copy submitted in both hard copy (paper) and electronic form in an approved format as defined by Fisheries and Oceans Canada Marine Ecosystems and Aquaculture Division's Shellfish Data Unit.

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

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

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

Fisheries and Oceans Canada
Shellfish Data Unit
Pacific Biological Station
3190 Hammond Bay Road
Nanaimo, BC V9T 6N7

Tel: (250) 756-7022 or (250) 756-7306

As an alternative to logbook provision through a service provider, the vessel master/licence holder may provide a hard copy logbook in the same form and providing the same particulars as shown in the logbook sample attached as Appendix 6 Example of Shrimp Trawl Log (Harvest Logbook) Record. The vessel master/licence holder must also provide an electronic copy of the harvest data, which is required to be a true and accurate transcription of the hard copy data, delivered on a Windows compatible mini CD, or other Shellfish Data Unit approved media. Mini CD's will remain the property of Fisheries and Oceans Canada. The electronic copy must be a database table of specific design created by Microsoft Access XP (or earlier version).

Contact the Shellfish Data Unit at the above address to obtain the requirements and acceptable data formats for supplying logbook and electronic data in a format that meets the Conditions of Licence. The paper copy of the logbook and the electronic data must be forwarded within 28 days following the end of each month in which fishing occurred. This information must be sent to the above address.

Catch information must be recorded in the Shrimp Trawl Harvest Logbook by midnight of the day of fishing. The logbook must be kept aboard the licensed vessel. Logbooks must be produced for examination on demand of a fishery officer, guardian, or a fishery observer designated under the *Fisheries Act*.

Fisheries and Oceans Canada reminds harvesters that logbooks must be completed accurately during fishing operations and submitted to the Department in accordance with the timing set out in the Conditions of Licence. Delay of completion or submission of logs is a violation of a Condition of Licence.

6.4.1. Gear Questionnaire

Gear information is collected on the harvest logbook sheets. A gear questionnaire may be filled out by an observer during catch verification or sampling. A gear questionnaire should be filled out and submitted for any significant change to the gear being used. A gear questionnaire may be included in the Shrimp Trawl Harvest Logbook or can be obtained from the Shellfish Data Unit by calling (250) 756-7306 or (250) 756-7022.

6.4.2. Submission and Release of Logbook Data

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

6.4.3. Nil Report for Logbook - Licence Issued but not Fished

In the event that a licence is issued but not fished, the vessel owner/licence holder is responsible for submitting a Nil Report for the season. The Nil Report must be submitted prior to the issue of approval for licence renewal. One page from the logbook identifying the vessel, licence tab number, and the year with “Nil” entered in the body of the logbook and signed by the vessel owner/licence holder constitutes a Nil Report. The exception to the Nil Report requirement is when the licence issued is ‘Option N – Schedule II fishing only’. A Nil Report for the ‘Option N’ licence is not required.

6.4.4. Confidentiality of Data

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

6.5. Fish Slips

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

Fisheries and Oceans Canada
Regional Data Unit
200 - 401 Burrard St.
Vancouver, BC V6C 3S4

Fish slip books may be purchased at the above address, or at most Fisheries and Oceans Canada offices. Phone (604) 666-2716.

6.6. Customs Requirements When Fishing Offshore

Fisheries and Oceans Canada cooperates with the Canadian Border Services Agency (CBSA) in the administration of programs under the *Coastal Fisheries Protection Act.* The Regulations covering the authority are under the *Oceans Act* and a result of Canada's being signatory to the 1982 UN Convention on the Law of the Sea.

Shrimp trawl vessels fishing more than 12 nm offshore should refer the specific memorandum outlining the requirements under D3-5-1 ISSN 2369-2391 August 4, 2015. Details and contact information for CBSA can be found at the website:

http://www.cbsa-asfc.gc.ca/publications/dm-md/d3/d3-5-1-eng.pdf

7. SELECTIVE FISHING PRACTICES

7.1. Selectivity Devices

The shrimp trawl industry through the Shrimp Trawl Sectoral Committee with the support of the Pacific Coast Shrimpers' Cooperative Association and the Department, recommended that selectivity devices (also known as exclusion grates, excluders, soft mesh excluders or BRD) be mandatory as a Condition of Licence. Fisheries and Oceans Canada commends the shrimp trawl industry's initiative in fishing selectively and taking active measures to reduce bycatch. Each trawl net used shall have an exclusion grate (or Nordmore grate) inserted into the forward end of the cod end of the trawl net at an angle so that it entirely blocks access to the cod end, except for the spaces between the bars. A maximum spacing of 31.75 mm (1.25 inches) on the rigid grate has been implemented as a Condition of Licence. The shrimp trawl caucus suggests that as a best practice for otter trawl vessels on the WCVI that spacing for grates be a maximum of 25 mm to more effectively reduce bycatch. The netting directly above the grate shall have a triangular opening (escape hole) the full width of the grate.

The shrimp trawl industry has undertaken directed studies and efforts to minimize eulachon bycatch. Preliminary results from a twin trawl comparison study are encouraging and have led to an industry recommendation that a panel of plastic lattice be installed in all otter trawl nets beginning in 2001 to reduce the incidence of eulachon and other bycatch. It is anticipated that bycatch of eulachon will be reduced significantly and that fishing opportunities should be extended with the use of this material. The plastic lattice is similar to the material used in snow

fencing. The plastic is rigid enough to maintain a minimum 4 cm square opening while being towed to allow small fish to escape. The lattice is available in four foot wide rolls and is inexpensive. A four foot by 12 foot (48 square feet) panel was tested during the twin trawl studies. Vessel masters already using this material are convinced of its capabilities in reducing bycatch of many species and have installed more than 4.4 square metres in their nets. The Shrimp Trawl Sectoral Committee has recommended that more than 4.4 square metres (48 square feet) be installed. Please contact the industry representatives to the Shrimp Trawl Sectoral Committee (see Appendix 3) for further information on installation and sources for this material.

7.2. Experimenting with Selectivity Devices

Beam trawl catch rates for eulachon are lower than otter trawl eulachon catch rates and various bycatch reduction devices and other modifications to gear may help avoid bycatch of species other than shrimp (Olsen et al 1999). Fish harvesters are encouraged to experiment with various gear configurations and amended Conditions of Licence are defined to permit testing of different gear combinations. Experimentation with selectivity devices that differ from those described in the conditions of the shrimp trawl licence will be made possible through an application for amended Conditions of Licence of Shrimp Trawl licence or through a scientific licence.

Those fish harvesters wishing to experiment during open times may apply for amended Conditions of Licence to the shrimp trawl licence by submitting a proposal to Shrimp Trawl Manager or Science Branch Advisor (see Appendix 3). The proposal shall include a description of the proposed experimental gear and will require that the vessel master agree to take an observer or catch monitor on board upon request from the Department while fishing under authority of the amended Conditions of Licence. Amended Conditions of Licence will be valid for a period of five months from the date of issue.

Requests for renewals of amended Conditions of Licence beyond five months will require that the vessel take on board a certified shrimp observer in order to collect catch composition information. Prior to issuance, the vessel master must provide a letter from a catch monitoring service bureau to Fisheries Management personnel stating that arrangements for one day of certified shrimp observer coverage have been made. This letter shall accompany the application for a renewal. Cost of observer coverage is the responsibility of the vessel owner.

Those fish harvesters wishing to experiment with selective fishing devices during closed times or interested in pursuing a special project or initiative concerning selective fishing, developing increased value to the fleet, new management approaches, fishing in unconventional time, area, etc., will be required to apply for a scientific licence. There is special consideration given to experimentation during close times as areas are allocated total allowable catches. Prior to the Department issuing a scientific licence, the Selective Fishing subcommittee of the Shrimp Trawl Sectoral Committee will review the proposal and make a recommendation to the Department for the study to be undertaken under scientific licence. Exploratory or experimental projects or initiatives should be planned well in advance of proposed implementation so that effective planning and approval can take place. Full time observer or catch monitoring coverage will be required. The Department will approve the observer or catch monitor prior to issuance of a scientific licence. Costs of the observer coverage are the responsibility of the project proponents. It should be noted that all special projects will have to be evaluated for conflicts with recent court cases regarding the Minister's authority regarding use of fish. Catch that is a target species with catch ceilings defined will be accumulated against the current catch ceiling. Where no catch

ceiling has been defined, the project will be assessed against the New Emerging Fisheries Policy, before approval of fishing activity.

7.3. Future Standards for Selectivity Devices

Future standards for selectivity devices will be determined in consultation with the Department and the Industry Caucus of the Shrimp Trawl Sectoral Committee. Those selectivity devices that are deemed acceptable and desirable will be defined as a Condition of Licence for fishing shrimp with trawl gear. Fish harvesters that have found experimental selectivity devices to be effective are advised to submit a report to the Industry Caucus (contact Pacific Coast Shrimpers' Cooperative Association – see Appendix 3) for consideration in developing standards. The report should provide details on testing of the device and demonstrate the value of the device as legitimate selectivity gear.

7.4. Selective Fishing Practices

Fish harvesters are asked to avoid areas where there is bycatch of those species not permitted to be retained by the conditions of the shrimp trawl licence.

The ongoing Catch Sampling Program will collect information for the evaluation of selective fishing practices. Anyone who would like to provide information or feedback on bycatch and selectivity devices should contact the Selective Fishing Subcommittee. Bycatch information collected through the Catch Sampling Program, and other directed studies, will be consolidated for review by the Selective Fishing Subcommittee and the Shrimp Trawl Sectoral Committee. The gear questionnaire included in the Shrimp Trawl Harvest Logbook is an important component of this study and fish harvesters are reminded to submit a completed questionnaire as part of the logbook Conditions of Licence. Results of the catch sampling program are available in the document: Estimated bycatch in the British Columbia shrimp trawl fishery (Olsen *et al.* 2000), for 1997, 1998 and 1999 is available from the Canadian Scientific Advice Secretariat at:

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

Based on a recommendation from the Shrimp Trawl Sectoral Committee, the use of mechanised devices (e.g. "smelt belts") for the purposes of automatically separating bycatch from shrimp has been prohibited. Smelt belts can be described as on board bycatch-discarding machines that use a series of sandpaper belts to separate small fishes, such as smelts, from shrimp. The texture and slope angle of the belt allows the fish to travel up the belt and be discarded overboard while shrimp, having a hard exoskeleton, do not adhere to the belt and roll to the bottom of the machine. Smelt belts come in different sizes and configurations, generally made of aluminium and powered by several small hydraulic motors, which turn the belts. Smelt belts are not to be confused with conveyor belts that are used simply to move shrimp on deck, or grading machines (series of slotted trays) used to grade shrimp into different sizes to maximize value, although they may be used in conjunction with grading machines. Smelt belts are not as commonly used in British Columbia, as they may be in other jurisdictions. In particular, the British Columbia shrimp trawl industry does not support high bycatch of eulachon and believes that allowing the use of these devices may overcome the usual incentives to avoid fishing in areas with high eulachon bycatch.

The shrimp trawl industry caucus recommends that on-board shrimp sizing graders be allowed only with certain restrictions on mesh size and use of selectivity devices for shrimp size in the

trawl. The shrimp industry supports and recommends that in-water shrimp sizing grates be installed in all nets to reduce the incidence of juveniles in the catch and improve market quality and value.

The shrimp industry supports responsible fishing practices, including the recommendation that larger, better quality and better-valued shrimp be targeted, and that juvenile shrimp be avoided. To reduce the incidence of fishing on undersize and unmarketable shrimp, minimum shrimp counts (i.e. a shrimp count per pound or per litre) are under consideration. The shrimp trawl industry representatives recommend the use of in-water shrimp sizing devices to reduce the incidence of small unmarketable shrimp and improve the value of the catch.

The use and effectiveness of on-board graders and "pickers" will be evaluated and additional restrictions may be implemented in the future.

8. GENERAL INFORMATION

Commercial Vessels Engaged in First Nation's Food Fisheries

Commercial vessels participating in First Nations' food fisheries authorized under an aboriginal communal licence are required to carry a letter of designation from the appropriate First Nation's Organization office and to follow the conditions of the communal licence. Fisheries and Oceans Canada must be notified 24 hours prior to fishing when commercial vessels are harvesting under authority of a communal licence. Notification to the Conservation & Protection field supervisor is a requirement of the individual communal licence.

APPENDIX 2: POST SEASON REVIEW (2014/15 SEASON)

1. CONSERVATION AND SUSTAINABILITY

The shrimp catch for the 2014/15 fishing season was 494.0 tonnes (1.1 million lb.) Table 1.

Table 1. 2014/15 Shrimp Trawl landings in pounds by Shrimp Management Area (SMA) as reported on logbooks. (* indicates less than 3 vessels reporting).

SMA	Pink Shrimp	Sidestripe	Spot Prawn	Humpback	Coonstripe	All Shrimp
10IN	*	*		*		*
124OFF	166,100					166,100
12IN	124,382	11,004	*	1,618		137,102
12OUT	*	*				*
14	91,381	20,027	63	*		111,482
16	27,869	5,252		*		33,122
17	2,097	7,106	*	*	*	9,283
23IN	*	*				*
23OFF+21OFF	*	*				*
27IN	*	*				*
3IN	*	*		*		*
5IN	825	1,735		*		2,590
6IN	5,124	9,544	*	*		17,157
7IN	*	413		*		1,479
9IN	7,136	12,431	*			19,571
FR	209,012	98,866	*	*	*	308,057
GSTE	59,105	25,597	*	*		84,725
PRD	89,430	75,024	*	908		165,391
	803,599	279,317	208	5,833	*	1,089,067

There may be some logbooks that have not been received and the landings not recorded as of December 1, 2015.

Catch ceilings were defined for all Shrimp Management Areas where fishing opportunity was allowed (Table 2), and specific species catch ceilings were defined when a species specific biomass could be defined from surveys.

Table 2. Shrimp trawl catch ceilings and landings for 2014/15 by Shrimp Management Area and species catch ceiling as reported in logbooks. (* Indicates less than 3 vessels reporting).

Shrimp Management Area 2014/15	Species	Initial Catch Ceiling	Catch Ceililng Nov 15 or After Survey	Catch Ceiling After Survey	Landings
North Coast		t	t	lb	lb
10IN	All Species Combined	10	10	22,050	*
2IN	All Species Combined	10 t - no request, did not open			
3IN	All Except Sidestripes	13	13	28,660	*
3IN	Sidestripes	14	14	31,526	*
5IN	All Species Combined	10	10	22,050	2,590
5OFF	All Species Combined	10	10	22,050	
6IN	All Species Combined	10	10	22,050	17,157
6OFF	All Species Combined	25	25	55,120	
7IN	All Species Combined	10	10	22,050	1,479
8IN	All Species Combined	10	10	22,050	
9IN	Sidestripes	44.1	44.1	97,223	12,431
9IN	All Except Sidestripes	44.5	44.5	98,105	7,140
DXE	All Species Combined	10	10	22,050	
PRD	Sidestripes	305.7	305.7	673,946	75,024
PRD	All Except Sidestripes	414.0	414.0	912,704	90,367
QCI	All Species Combined	25	25	55,155	
Total North Coast	All Species Combined	965.5	955.5	2,106,789	233,023
South Coast					
11IN	All Species Combined	10	10	22,050	
124OFF	All Species Combined	1,554.5	12,622.8	27,828,225	166,100
125OFF	All Species Combined	613.4	6,470.3	14,264,423	
12OUT	All Other Species	4	4	8,818	*
12OUT	Sidestripes	8	8	17,637	*
20	All Species Combined	10	10	22,050	
23OFF	&21OFF Sidestripes	39.1	19.2	42,328	*
23OFF	&21OFF All Execpt SS	439.0	753.8	1,661,827	*
24IN	All Species Combined	10	10	22,050	
25IN	All Species Combined	10	10	22,050	
26IN	All Species Combined	10	10	22,050	
27IN	All Species Combined	10	10	22,050	*
27OFF	All Species Combined	25	25	55,120	
Total South Coast	All Species Combined	2,743.0	19,963.2	44,010,679	169,303
SOUTHERN INSIDE WATERS					
12IN	All Except HB & SS	120	120	264,552	124,480
12IN	Humpbacks	9	9	19,841	1,618
12IN	Sidestripes	20	20	44,092	11,004
14	Sidestripes	14.7	172.4	380,073	20,027
14	All Except Sidestripes	1.6	27.4	60,406	91,455
16	All Except Sidestripes	32.9	32.9	72,531	5,252
16	Sidestripes	7.6	7.6	16,755	27,870
17	All Species Combined	8	8	17,637	9,283
18&19	All Species Combined			Closed	
23IN	All Except Sidestripes	80.7	138.5	305,337	*
23IN	Sidestripes	16.7	9.5	20,944	*
FR	All Except Sidestripes	91.1	139.3	307,101	209,191
FR	Sidestripes	144.9	43.2	95,239	98,866
GSTE	Sidestripes	12.4	12.4	27,337	25,597
GSTE	All Except Sidestripes	55.8	55.8	123,017	59,128
Total S. Inside	All Species Combined	615.4	796.0	1,754,861	686,741
	Total Coastwide	4,323.9	21,714.7	47,872,330	1,089,067

The B.C. Coast has been divided into 36 Shrimp Management Areas (SMA). In 2014, 2 SMAs were closed with no fishing opportunity, and 2 additional SMAs were closed with shrimp biomass in the Critical Zone.

Catch Ceilings Set From In-Season Biomass Surveys

Eight SMAs were opened on an initial catch ceiling determined following the PA approach and using a forecast biomass from last year's survey to determine harvest rates (SMAs 9IN, PRD, 124OFF, 125OFF, 23IN, 23OFF+21OFF, and FR). The initial catch ceilings for 6 of these SMAs were later adjusted following surveys. SMA 14 had an initial catch ceiling that was set using the lowest estimates from the previous five surveys, then it was adjusted following a survey in 2014. Overall, 94% of the fishing opportunity in 2014 was defined from biomass estimates from in-season surveys and catch ceilings set following the PA approach. The 2014 survey results for the seven SMAs are summarized in the shrimp bulletins. The bulletins can be requested from Resource Managers.

Catch Ceilings With No In-season Survey

The catch ceilings in SMA PRD and 9IN did not get adjusted in 2014, since no stock assessment survey was conducted (together these represent 1% of fishing opportunity in 2014).

Catch ceilings for 3 SMAs (12IN, 16, GSTE) that did not have a survey for two years and did not have a biomass forecast for 2014. They were opened with fishing opportunity based on the lowest catch ceiling defined from biomass estimates in the previous five surveys (this represented 4% of fishing opportunity in 2014).

Catch ceilings for 20 SMAs were set based on a fixed 10 tonne, 25 tonne or long term average catch ceiling (these represented only 1% of fishing opportunity in 2014).

Fishing Effort in 2014/15

Catch estimates hailed by skippers were below catch ceilings or total allowable catch (TAC) (TAC 21,714 tonnes – hailed catch 494.0 t/1,104,107 lb.) for all Shrimp Management Areas (SMAs) in 2014, except for SMA GSTE. This area was closed before the total hailed catch reached the TAC, however, there were a number of vessels fishing who were freezing their catch and did not hail each day, so some of them had up to seven days catch on board. The final hailed catch of sidestripes was 30,291 lb, 2,954 lb (10%) over the annual catch ceiling of 27,337 lb. The total sidestripe shrimp landings following logbook data processing is 25,597 lb, less than the annual TAC. This discrepancy is likely due to recording errors for hailed catch on long trips; sometimes landings are doubled rather than accumulated when reported for more than one week.

Landings and Markets

For the last five years at least, there has been a low demand for pink shrimp with no machine-peelers operating in B.C. due to processors and retail outlets using East Coast Canadian and West Coast US processed shrimp to meet the cocktail shrimp demand. Limited market demand and high expenses for fish harvesters continued the low participation rate in 2014 with only 44 of the 238 vessel-based licences participating (similar to 53 in 2013/14, 55 in 2012/13, 46 in 2011/12, 51 in 2010/11, 58 in 2009/10). Although there is significant shrimp abundance in

offshore areas (2014 catch ceiling was 6.5 times the 10 year average prior to 2014), larger otter trawl vessels have not been active and most of the vessels are smaller beam trawl vessels who fish close to home and sell their catch fresh at the dock and to a few processors who hand-peel shrimp during peak demand seasons or when no other seafood is available for processing. Some shrimp harvesters froze the pink shrimp in 20 kg (50 lb) blocks and sidestripes in 0.5 kg (1 lb) bags as tailed product for higher value per weight. Only one processor regularly hand-peeled pink shrimp in 2014. Effort was concentrated near more populated centres in the Strait of Georgia resulting in SMA FR closing at the beginning of February, then GSTE closed Feb 27. The catch ceilings for sidestripe were reached and these areas closed.

With the high shrimp biomass and high catch ceiling in offshore areas, markets for pink shrimp improving as Eastern Canadian shrimp stocks declined and Icelandic shrimp landings declined, interest in B.C. pink shrimp increased near the end of the season. At the end of the 2014 season, one larger otter trawl vessel equipped with a new net and hopper fished a few days a week in February and March with great success. The good quality shrimp (as low as 80 to the pound) and high demand for cooking and peeling in US processing plants proved a good strategy. The ability to freeze the shrimp was also available in the town of Ucluelet on the West Coast of Vancouver Island as a result of freezing capacity built up to deal with a fishery for Hake (that did not materialize). A new market strategy shift to individual quick frozen shrimp or frozen in 50 lb blocks as well as large volumes of fresh shrimp delivered to other processing facilities for cooking and peeling appears to be promising, with prices being paid remaining high (around $1 per pound).

Biomass Trends 2014 WCVI

The combined smooth pink shrimp biomass estimate for SMA 124OFF and 125OFF of 54,551.8 tonnes was the highest on record. This resulted in a combined catch ceiling of over 42 million pounds. The survey bulletin was published in November 2014 so this information was not distributed to the shrimp trawl fleet until 8 months into the season. By the end of the season landings were 166,000 lb. With significant remaining catch ceiling, the areas re-opened April 1, 2015 and the opportunity continued.

Sidestripe shrimp stocks in SMA 23OFF were down from 2013. Sidestripe are not a significant target for this area.

Biomass Trends in Other SMAs

SMA 18 and SMA 19 were surveyed in 2014 since previous surveys showed the shrimp biomasses were in the Critical Zone. The pink and sidestripe biomasses again fell into the Critical Zone, and did not open.

The survey in SMA FR conducted in June 2014 estimated pink and sidestripe biomasses lower than in 2013, but still in the Healthy Zone. The survey in SMA 14 conducted in July 2014 estimated pink and sidestripe biomasses in the Healthy Zone.

At-sea Observer Sampling

The at-sea catch sampling program was directed to WCVI SMAs. Effort was infrequent with individual vessels fishing for a few days at a time so no observations in WCVI were obtained until March 2015. The 23 sets observed in WCVI shrimp management areas over 4 days in March on two vessels were 16% of the effort in those areas. The 2014 imputed eulachon bycatch of 0.02 tonnes did not reach the 2014 eulachon action levels (6 tonnes). At-sea observers were

also deployed to SMA 7IN, 9IN, 12IN, 12OUT, 14, FR and PRD. The total observer coverage (118 sets, 230.4 hours) was 4.0% of the total coastwide tow time as reported in logbooks.

No exploratory fishing (scientific licences) was conducted.

2. SOCIAL, CULTURAL AND ECONOMIC

The management of hails, landings, observer deployment, dockside observations, and logbook data entry was conducted by a service provider, Archipelago Marine Research Ltd under contract to the Pacific Coast Shrimpers Cooperative Association (PCSCA). The PCSCA collected a management fee from active shrimp harvesters prior to them obtaining an S licence from DFO. DFO maintained responsibility for stock assessment, catch monitoring and area management (opening and closing fishing areas by gear type) and enforced the conditions of licence.

High fuel prices, low landed value and continuing decreasing participation contributed to continued poor economic performance for the shrimp trawl fishery in 2014/15. Although two vessels at the end of the season had such good success that it appears a new market strategy may provide opportunity for large otter trawl vessels to land larger quantities of pink shrimp for freezing. The pink shrimp will then be marketed for cooking and peeling elsewhere.

Overall with fewer harvesters active and landings down 26% from 2013, the 2014 season was not encouraging until the very end of the year.

High management fees ($2,800 each vessel) resulted from low numbers of fish harvesters participating in the fishery. The cost for participation in the fishery continues to be an issue. No alternatives to the current management arrangement were discussed.

Of the 238 licensed vessel eligibilities in 2014/15, 48 vessel owners paid management fees and 42 reported landings in logbooks. No communal commercial licences were issued to First Nations organizations.

No safety concerns were brought forward, and no scientific licences were issued to test new shrimp fishing gear. Gear innovation in the Oregon shrimp trawl fishery indicated that overall bycatch can be reduced and specifically eulachon bycatch can be reduced with the use of LED lights.

3. COMPLIANCE

Shrimp trawl vessels encountered during regular patrols were monitored for compliance with conditions of licence as time and opportunities presented.

4. ECOSYSTEM

Low eulachon returns to many of the rivers within British Columbia continues to be a concern. Eulachon bycatch and total bycatch were monitored using at-sea observer coverage in-season by at-sea observers who observed 118 sets (230.4 tow hours) was 4.0% of coast-wide effort. Priorities for the at-sea observer program for 2014 were defined for otter trawl vessels active in WCVI. The Eulachon Action Level (EAL) for West Coast Vancouver Island was 6 tonnes (a

reduction from the 2013 action level of 8 t). Eulachon bycatch in WCVI shrimp management areas was monitored in 2014 by observing a total of 23 sets over 4 days in March 2015 (12.3% of tow time effort – 16% of total WCVI shrimp catch). The WCVI eulachon bycatch estimate for 2014/15 was 0.02 t using eulachon to shrimp ratio in-season (Pooled In-season method defined by Hay 1999). Low effort overall and low otter trawl effort in offshore areas contributed to the low eulachon bycatch.

Survey Bulletins defined changes to catch ceilings from pre-season forecast biomass, initial catch ceilings and catch ceilings after surveys for SMAs 23OFF+21OFF, 23IN, 124OFF, 125OFF, FR, 14 and 18 &19 (available from Resource Managers). An annual Fishery Review is prepared for the Pacific Coast Shrimper's Co-operative Association. Requests for the Fishery Review can be directed to Archipelago Marine Research Ltd., 525 Head Street, Victoria, BC V9A 5S1 (250-383-4535, Jenn Toole).

No specific gear studies were conducted by Fisheries and Oceans Canada. Individual fish harvesters have identified some gear changes that work for their vessel and gear configurations to reduce bycatch. Individual fish harvesters have made suggestions for gear improvements but there were no specific recommendations from industry in 2014.

APPENDIX 3: CONTACTS

Observe, Record, and Report (Enforcement Line)	(800) 465-4336
Fishery Notice Voice-information system	(604) 666-2828 or (866) 431-3474
Shrimp Information Line	(888) 978-7888

Fishery Notices online: http://ops.info.pac.dfo.ca/fishman/fnotice/fnotice.htm

Resource Management

Regional Resource Manager - Invertebrates	Jeff Johansen	(604) 666-0395
Lead Shrimp Trawl Resource Manager	Guy Parker	(250) 756-7163
Regional Recreational Fisheries Coordinator	Devona Adams	(604) 666-3271
North Coast Area (Areas 1 through 10)	General Inquiries	(250) 627-3499
417 2nd Avenue West	Fax	(250) 627-3427
Prince Rupert, B.C. V8J 1G8		
Resource Management Biologist, North/Central Coast	Steven Groves	(250) 627-3455
Resource Manager - First Nations Fisheries	Amy Wakelin	(250) 627 3492
Resource Manager - Recreational Fisheries	John Webb	(250) 627 3409
South Coast Area (Areas 11 through 27)	General Inquiries	(250) 756-7270
3225 Stephenson Point Road	Fax	(250) 756-7162
Nanaimo, B.C. V9T 1K3		
Program Coordinator	Juanita Rogers	(250) 756-7268
Resource Management Biologist	Dan Clark	(250) 756-7327
Resource Manager - First Nations Fisheries	Jonathan Joe	(250) 756-7243
Resource Management Biologist – Prawn/Shrimp Trap	Laurie Convey	(250) 756-7233
Resource Manager - Recreational Fisheries	Brad Beaith	(250) 756-7190
Lower Fraser Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway	Fax	(604) 666-7112
Delta, B.C. V3M 6A2		
Resource Manager – Non-salmon	Anna Magera	(604) 916-6743
Resource Manager - First Nations Fisheries	Brian Matts	(604) 666-2096
Resource Manager - Recreational Fisheries	Barbara Mueller	(604) 666-2370

Science Branch

Pacific Biological Station	Ken Fong	(250) 756-7368
3190 Hammond Bay Road	Fax	(250) 756-7138
Nanaimo, BC V9T 6N7		
Shellfish Data Unit	Leslie Barton	(250) 756-7306

Conservation and Protection

Compliance Plan	Dale Hunt	(250) 204-0851

Commercial Fishing Licence Information

National On-line Licencing System (NOLS)	
Email	fishing-peche@dfo-mpo.gc.ca
Telephone	(877) 535-7307

Fisheries Protection Program **866-845-6776**

Treaty and Aboriginal Policy Directorate

Director	Sarah Murdoch	(604) 666-7478

Aquaculture Management Division

Director	Diana Trager	(604) 666-7009

British Columbia Ministry of Agriculture

Industry Development Division	Dennis Chalmers	(250) 387-0389

Canadian Food Inspection Agency

Vancouver		(604) 666-6513
400 - 4321 Still Creek Drive Burnaby, BC V5C 6S7	Fax	(604) 666-4440
Victoria 4475 Viewmont Ave. Victoria, BC V8Z 6L8		(250) 363-3455
Parksville 457 E. Stanford Ave. Parksville, BC V6P 1V7		(250) 248-4772

Pacific Coast Shrimpers' Co-operative Association

Executive Director clayton@ieccorporate.com	Lorne Clayton	(250) 658-0179

Shrimp Trawl Service Provider

Archipelago Marine Research Ltd.	www.archipelago.ca	(250) 383-4535
Catch Monitoring	Jennifer Toole	
At-sea observer Coordinator	Scott Buchanan	
Catch Monitoring Hails	Matt Jessop	

SHRIMP TRAWL SECTORAL COMMITTEE

A consultative process exists for the shrimp by trawl fishery and is a major part of the planning for the fishery. The primary consultative body for shrimp by trawl is the Shrimp Trawl Sectoral Committee (STSC). This committee includes representatives from Fisheries and Oceans Canada, commercial licence holders, processors, First Nations, the Province of BC, and others with an interest in the resource. The STSC meets annually to review and provide advice to the Department regarding management issues pertaining to the fishery and on the proposed management plan.

The STSC terms of reference and meeting calendar are available from the Resource Managers (see Contacts) or from the Department's consultation internet site at:
http://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/stsc-cspcc/index-eng.html

The Shrimp Trawl Sectoral Committee (STSC) was elected in the fall of 2015 for a three-year term (fall 2015 – fall 2018).

Elected S Licensed Vessel Owner Representatives

Phil Burgess
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Parksville, BC V9P 2H1
Tel: (250) 248-9401 Fax: (250) 248-9415
philburgess@telus.net

(Alternate)
To Be Determined

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mike@aqualinesfds.com

(Alternate) **Sarah Buston**
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Delta, BC V4G 1H1
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sarahbuston@gmail.com

Daryl Egan
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Mill Bay, BC V0R 2P4
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To Be Determined

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Port Alberni, BC V9Y 9A6
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mvnotorious@gmail.com

Don Thompson
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Parksville, BC V9P 1E1
Tel: (250) 248-9985
oceanisle@shaw.ca

(Alternate)
To Be Determined

Appointed Industry Representatives

Bill Gilker (North Coast)
1301 Immanuel Street
Prince Rupert, BC V8J 3A4
Tel: 250-624-6270
bdgilker@citytel.net

Processor Representatives - Shrimp Trawl Sectoral

Bornstein Seafoods of Canada Ltd.
Harry Mose
6 – 1025 Lee Rd.,
Parksville, BC V9P 2E1
Tel: (250) 248-0010 – 1 - 3
Cell: (250) 949-1545
Fax: (250) 951-9938
harry@pacificboatbrokers.com

Pacific Seafood
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Appendix 4: Safety at Sea – 2016

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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 Transport Canada (TC); emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In B.C., WorkSafeBC also regulates health and safety issues in commercial fishing. This includes requirements to ensure the health and safety of the crew and safe operation of the vessel. DFO (Fisheries and Aquaculture Management (FAM) and CCG) and TC through an MOU have formalized cooperation to establish, maintain and promote a safety culture within the fishing industry.

Before departing on a voyage the owner, master or operator must ensure that the fishing vessel is capable of and safe for the intended voyage and fishing operations. Critical factors for a safe voyage include the seaworthiness of the vessel, vessel stability, having the required personal protective and life-saving equipment in good working order, crew training, and knowledge of current and forecasted weather conditions. As safety requirements and guidelines may change, the vessel owner, crew, and other workers must be aware of the latest legislation, policies and guidelines prior to each trip.

There are many useful tools available for ensuring a safe voyage. These include:

Education and Training Programs
Marine Emergency Duties
Fish Safe – Stability Education Course
Fish Safe – Safe on the Wheel Course
Fish Safe – Safest Catch Program
First Aid
Radio Operators Course
Fishing Masters Certificates
Small Vessel Operators Certificate
Publications:

- Transport Canada Publication TP 10038 *Small Fishing Vessel Safety Manual* (can be obtained at Transport Canada Offices from their website at: http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm
- Gearing Up for Safety – WorkSafeBC
- Safe At Sea DVD Series – Fish Safe
- Stability Handbook – Safe at Sea and Safest Catch – DVD Series
- Safest Catch Log Book
- Safety Quik

For further information see: www.tc.gc.ca/eng/marinesafety/menu.htm
www.fishsafebc.com
www.worksafebc.com

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 drills, 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 also to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability, loose water or fish on deck, loading and unloading operations and the vessel's freeboard. Know the limitations of your vessel; if you are unsure contact a reputable naval architect, marine surveyor or the local Transport Canada Marine Safety Office.

Fishing vessel owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. The instructions need to be based on a formal assessment of the vessel by a qualified naval architect and include detailed safe operation documentation kept on board the vessel. Examples of detailed documentation include engine room procedures, maintenance schedules to ensure watertight integrity, and instructions for regular practice of emergency drills.

The *Small Fishing Vessel Inspection Regulations* currently require, with certain exceptions, a full stability assessment for vessels between 15 and 150 gross tons that do not exceed 24.4 metres in length and are used in the herring or capelin fisheries. Once the proposed new *Fishing Vessel Safety Regulations* take effect, more vessels will be required to have a stability booklet.

In 2006, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) 04/2006 ("Safety of Small Fishing Vessels: Information to Owners/Masters About Stability Booklets"), which provides a standard interpretation of the discretionary power available under Section 48 and the interim requirements prior to the implementation of the proposed *Fishing Vessel Safety Regulations*. The bulletin calls for vessels more than 15 gross tons to have a stability booklet where risk factors that negatively affect stability are present. The bulletin also suggests vessels less than 15 gross tons assess their risk factors. Every fishing vessel above 15 GRT built or converted to herring or capelin after 06 July 1977 and engaged in fishing herring or capelin must have an approved stability book. Additionally Transport Canada has published a Stability Questionnaire (SSB 04/2006), and Fishing Vessel Modifications Form which enable operators to identify the criteria which will trigger a stability assessment. A stability assessment is achieved by means of an inclining experiment, which has to be conducted by a naval architect. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires one.

In 2008, TC issued SSB 01/2008, which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular inspections and entered on the vessel's inspection record. However, information gathered during the Transportation Safety Board's (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2002 and found that vessel modifications and loading of traps have been identified as contributing factors in vessel capsizings, such as: M02W0102 - *Fritzi-Ann*, M05W0110 - *Morning Sunrise*, M07M0088 - *Big Sisters*, M08W0189 - *Love and Anarchy*, M09L0074 – *Le Marsouin I*, M10M0014 - *Craig and Justin*, M12W0054 – *Jessie G and* M12W0062 - *Pacific Siren.*

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.

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.

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.

2.3 Cold Water Immersion

Drowning is the number one cause of death in B.C.'s fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees. BC waters are usually below 15 degrees. 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 WorkSafe Bulletin *Cold Water Immersion* (available from the WorkSafeBC website at www.worksafebc.com), where the need to don PFD's while working in or near the water during fishing operations is clearly emphasized.

2.4 Other Issues

2.4.1 Weather

Vessel owners and masters are reminded of the importance of paying close attention to current weather treads 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

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). It is strongly recommended that all fish harvesters carry a registered 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons should be registered with the National Search and Rescue secretariat. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources.

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

Since August 1, 2003 all commercial vessels greater than 20 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: www.ccg-gcc.gc.ca/e0003901 or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html.

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on MCTS and DSC can be obtained by contacting a local Coast Guard MCTS centre (located in Vancouver**,** Victoria**,** Prince Rupert**,** Comox and Tofino**)** or from the Coast Guard website: www.ccg-gcc.gc.ca/Pacific.

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 (250) 363 8904 or from the Coast Guard website: http://www.ccg-gcc.gc.ca/e0003901.

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 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. WORKSAFE BC

Commercial fishing is legislated by the requirements of the Workers Compensation Act (WCA) and for diving, fishing and other marine operations Part 24 of the Occupational Health and Safety Regulation (OHSR) applies. Many general hazard sections of the OHSR also apply to commercial fishing and other marine operations. For example, Part 8: Personal Protective Clothing and Equipment addresses issues related to safety headgear, safety foot wear and personal floatation devices. Part 15 addresses issues on rigging, Part 5 addresses issues of exposure to chemical and biological substances, and Part 3 addresses training of young and new workers, first aid, and accident investigations.

Part 3 of the WCA also defines the roles and responsibilities of owners, employers, supervisors and workers. The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: www.worksafebc.com

For further information, contact an Occupational Safety Officer:

Bruce Logan	Lower Mainland	(604) 244-6477
Wayne Tracey	Lower Mainland	(604) 232-1960
Pat Olsen	Courtenay	(250) 334-8777
Mark Lunny	Courtenay	(250) 334-8732
Jessie Kunce	Victoria	(250) 881-3461

or the Manager of Interest for Marine and Fishing, Mike Ross (250) 881-3419.

For information on projects related to commercial fishing contact Ellen Hanson (604) 233-4008 or Toll Free 1-888-621-7233 ext. 4008 or by email: Ellen.Hanson@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 fishermen in this goal. The Fish Safe Stability Education Course, is available to all fishermen who want to improve their understanding of stability and find practical application to their vessel's operation. The Safe on the Wheel Course is designed to equip crewmen with the skills they need to safely navigate during their wheel watch. The Safest Catch Program along with fishermen trained Safety Advisors is designed to give fishermen the tools they need to create a vessel specific safety management system.

Fish Safe is managed by Ryan Ford, Project Coordinator John Krgovich, Program Assistant, Connor Radil, and fishermen 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). The advisory committee meets quarterly 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	Phone: 604-261-9700
Program Manager	Cell: 604-739-0540
Fish Safe	Fax: 604-275-7140
#100, 12051 Horseshoe Way	Email: ryan@fishsafebc.com
Richmond, BC V7A 4V4	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 2012, the TSB released the results of a three-year investigation into fishing safety in Canada. This report identifies 10 key factors and makes several suggestions to address the problems that persist throughout the industry. In 2013 the TSB released investigation reports on two prawn fishing vessels the Jessie G and the Pacific Siren. In 2014 the TSB released the investigation report on the collision between fishing vessel Viking Storm and US fishing vessel Maverick.

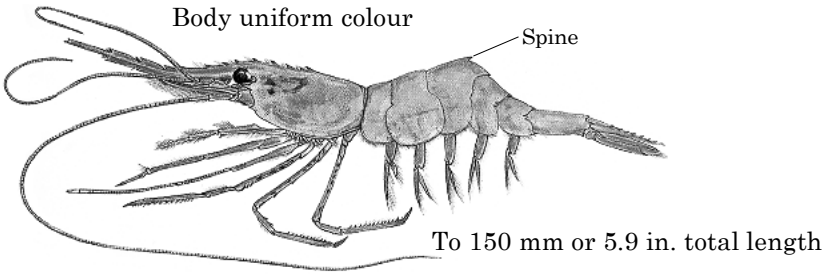
For more information about the TSB, visit it's website at www.tsb.gc.ca. For information about the TSB's investigation into fishing safety, or to view a brief video, visit http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp.

To view a brief video about some of the issues on the TSB's recent safety Watchlist, visit: http://www.tsb.gc.ca/eng/medias-media/photos/index.asp.

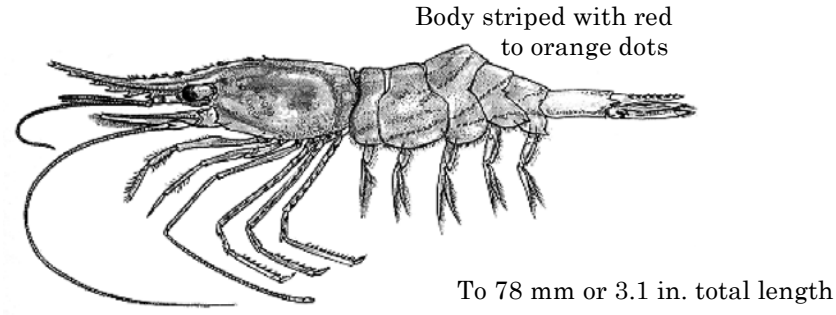
Reporting an Occurrence - www.tsb.gc.ca/eng/incidents-occurrence/marine/
After a reportable occurrence happens you can fill out the TSB 1808 Form or call the TSB at the contact information below.

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

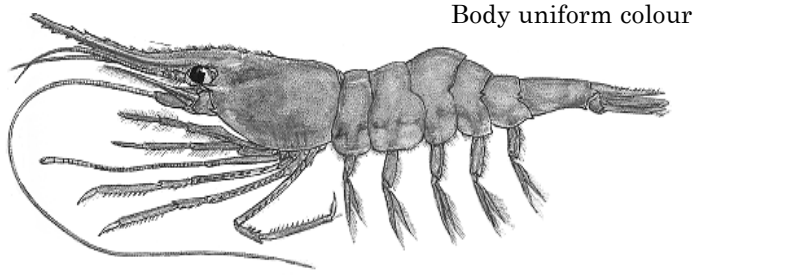
APPENDIX 5: IDENTIFICATION OF COMMERCIAL SHRIMP SPECIES



Pandalus eous (P. borealis)

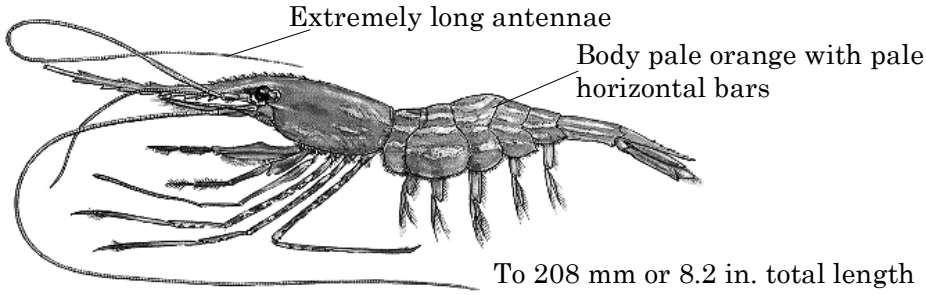


Pandalus goniurus



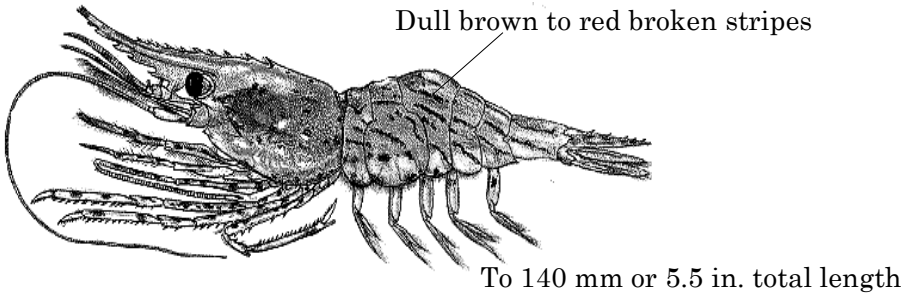
Pandalus jordani

Pink Shrimp - Spiny, Flexed and Smooth



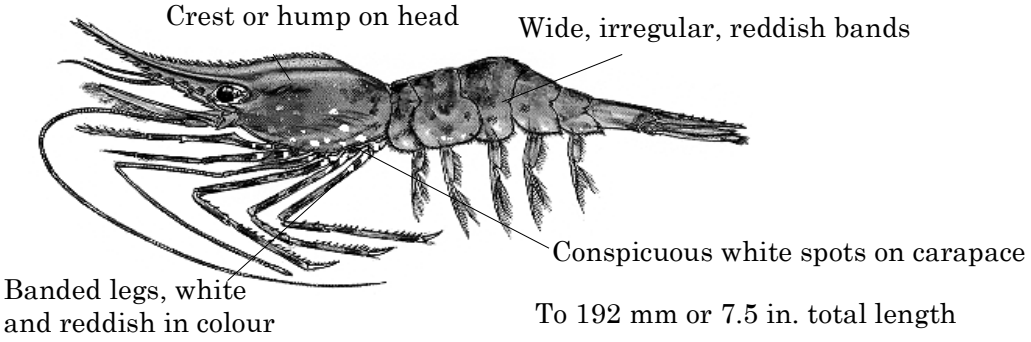
Pandalopsis dispar

Sidestripe Shrimp



Pandalus danae

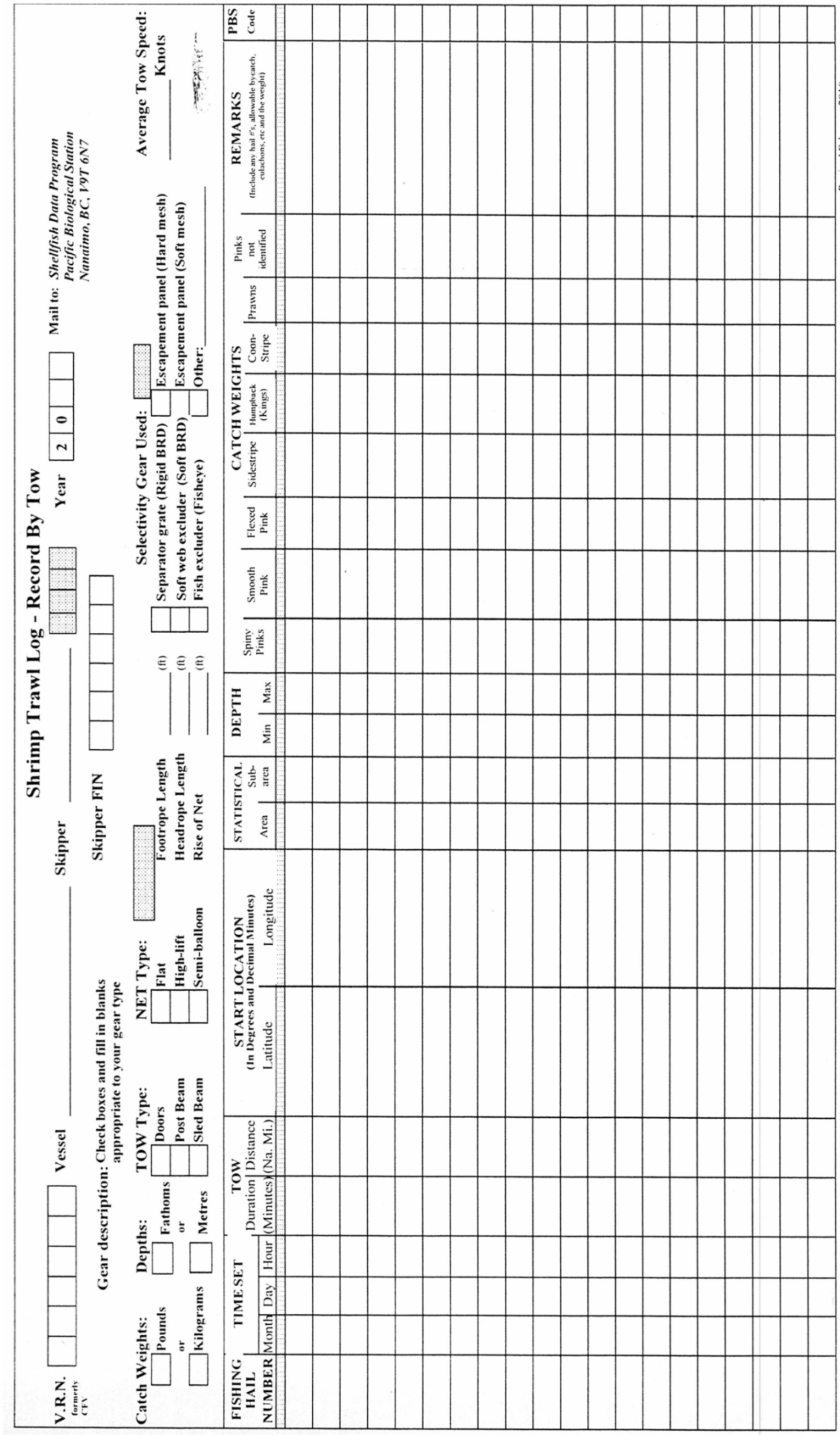
Coonstripe Shrimp (Dock)



Pandalus hypsinotus

Humpback Shrimp (King)

APPENDIX 6: EXAMPLE OF SHRIMP TRAWL LOG (HARVEST LOGBOOK) RECORD



Shrimp Trawl Log - Record By Tow

V.R.N. formerly CFV **Vessel** ________ **Skipper** ________ **Year** 2 0

Mail to: *Shellfish Data Program*
Pacific Biological Station
Nanaimo, BC, V9T 6N7

Gear description: Check boxes and fill in blanks appropriate to your gear type

Skipper FIN

Catch Weights: Pounds or Kilograms

Depths: Fathoms or Metres

TOW Type: Doors / Post Beam / Sled Beam

NET Type: Flat / High-lift / Semi-balloon

Footrope Length ______ (ft)
Headrope Length ______ (ft)
Rise of Net ______ (ft)

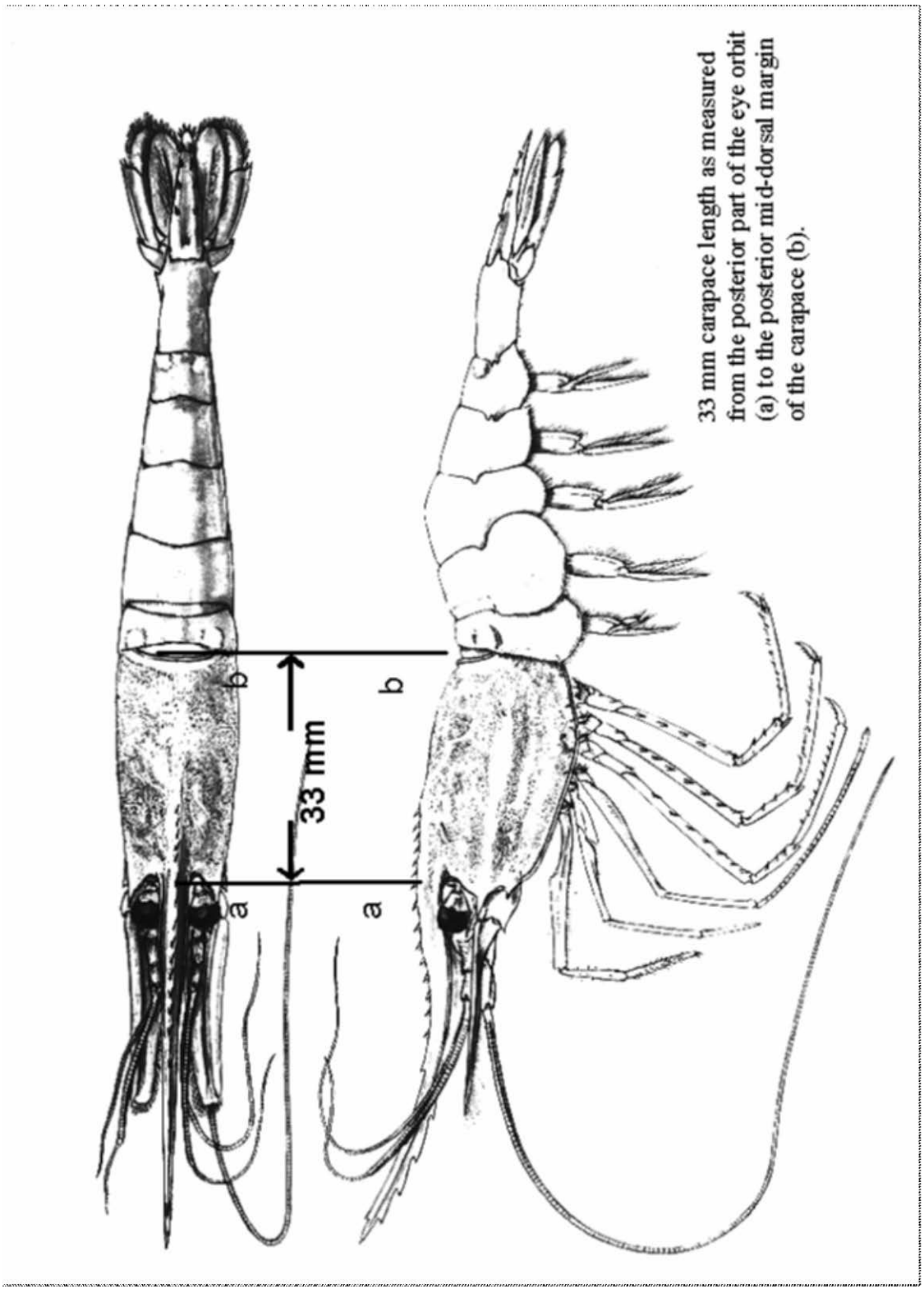
Selectivity Gear Used:
Separator grate (Rigid BRD) / Escapement panel (Hard mesh)
Soft web excluder (Soft BRD) / Escapement panel (Soft mesh)
Fish excluder (Fisheye) / Other: ________

Average Tow Speed: ______ Knots

FISHING HAIL NUMBER	TIME SET Month	Day	Hour	TOW Duration (Minutes)	Distance (Na. Mi.)	START LOCATION (In Degrees and Decimal Minutes) Latitude	Longitude	STATISTICAL Area	Sub-area	DEPTH Min	Max	CATCH WEIGHTS Spiny Pinks	Smooth Pink	Flexed Pink	Sidestripe	Humpback (Kings)	Coon-Stripe	Prawns	Pinks not identified	REMARKS (Include any hail #'s, allowable bycatch, eulachons, etc and the weight)	PBS Code

Revised February 2010

APPENDIX 7: PRAWN MINIMUM SIZE LIMIT



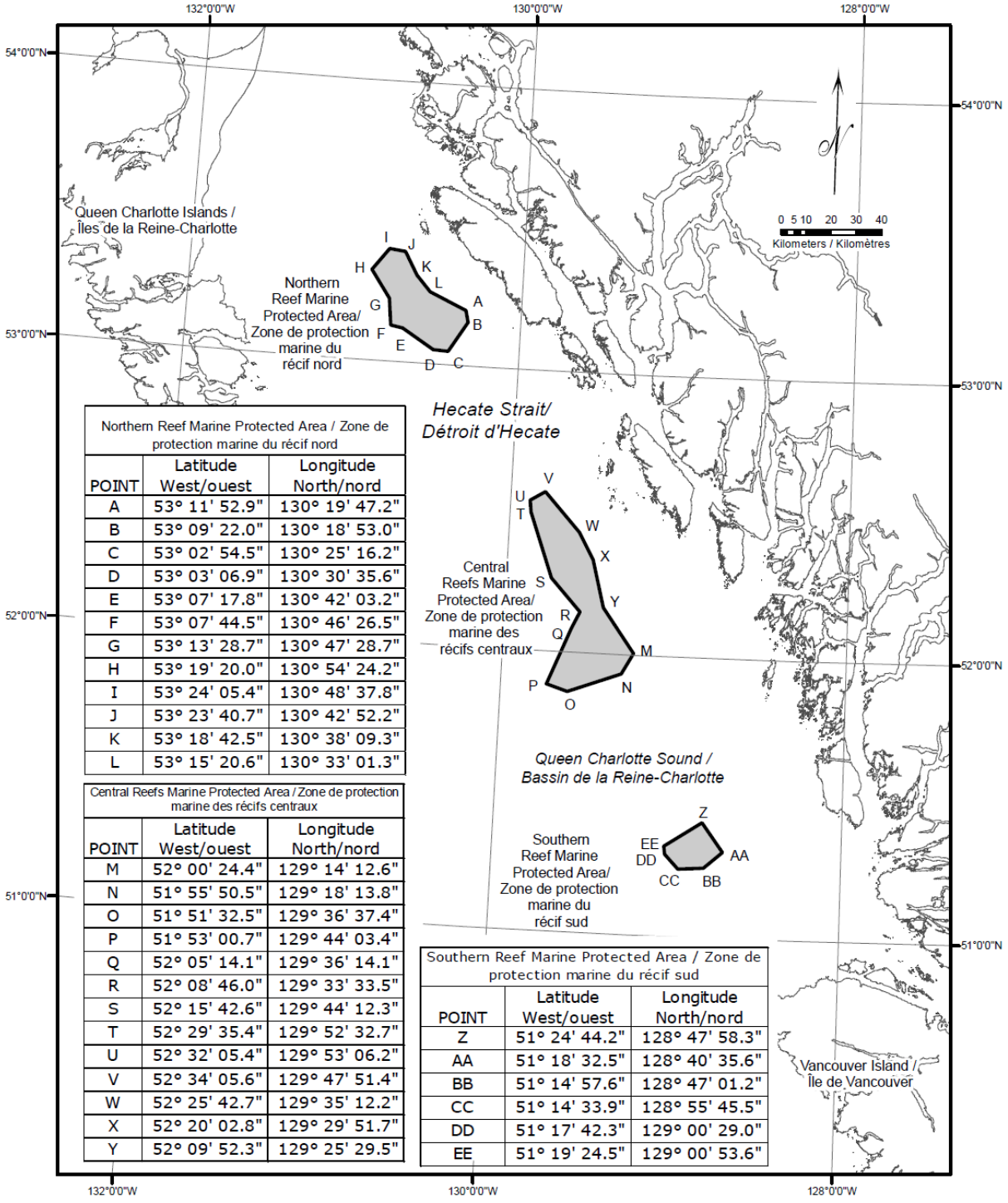
APPENDIX 8: LOCATION OF GLASS SPONGE REEFS IN HECATE STRAIT AND QUEEN CHARLOTTE SOUND

Four reef areas located in waters of the Eastern Queen Charlotte Sound and Hecate Strait have been identified as Areas of Interest for possible establishment of an *Oceans Act* Marine Protected Area (MPA) in 2016. The MPA would comprise of three distinct areas that encompass the northern reef, the two central reefs, and the southern reef. Each component would have three management zones: a core protection zone (CPZ), an adaptive management zone (AMZ) and a vertical adaptive management zone (VAMZ). The CPZ would consist of the seabed and subsoil to a depth of 20 m and the water column from the seabed to a minimum of 40 m from the highest point of each reef (varies between reef areas), provides the highest degree of protection within the MPA, and would be closed year round to all bottom trawling. The following graphic illustrations of each closed area are for information purposes only.

The intent of these closures is to provide protection for the four unique sponge reef ecosystems. Fisheries and Oceans Canada will continue to monitor fishing activity in adjacent areas and should current measures not be providing needed protection, further modifications to the closed areas or additional management measures may be considered**.**

SCHEDULE 1 / ANNEXE 1

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE
ET DU BASSIN DE LA REINE-CHARLOTTE



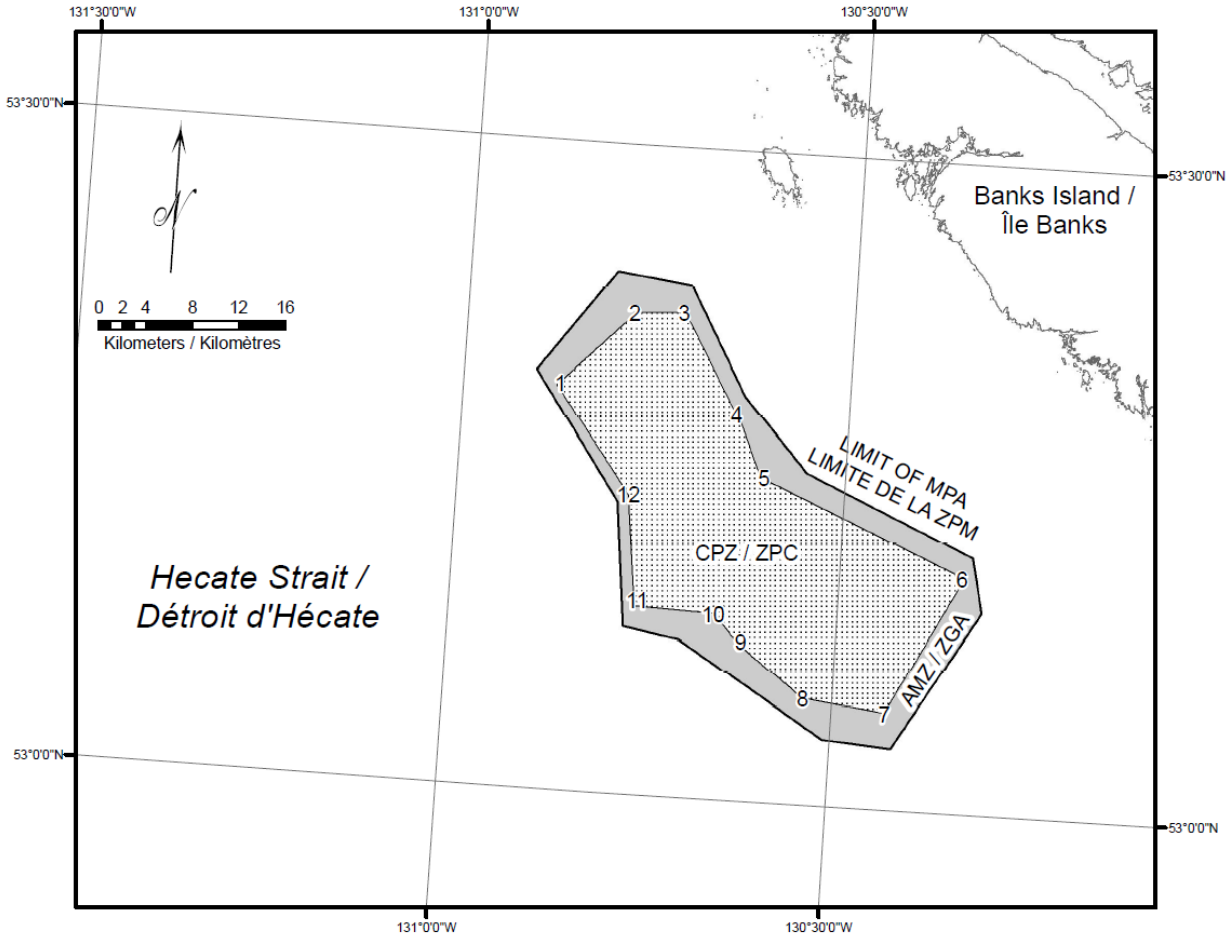
Northern Reef Marine Protected Area / Zone de protection marine du récif nord		
POINT	Latitude West/ouest	Longitude North/nord
A	53° 11' 52.9"	130° 19' 47.2"
B	53° 09' 22.0"	130° 18' 53.0"
C	53° 02' 54.5"	130° 25' 16.2"
D	53° 03' 06.9"	130° 30' 35.6"
E	53° 07' 17.8"	130° 42' 03.2"
F	53° 07' 44.5"	130° 46' 26.5"
G	53° 13' 28.7"	130° 47' 28.7"
H	53° 19' 20.0"	130° 54' 24.2"
I	53° 24' 05.4"	130° 48' 37.8"
J	53° 23' 40.7"	130° 42' 52.2"
K	53° 18' 42.5"	130° 38' 09.3"
L	53° 15' 20.6"	130° 33' 01.3"

Central Reefs Marine Protected Area / Zone de protection marine des récifs centraux		
POINT	Latitude West/ouest	Longitude North/nord
M	52° 00' 24.4"	129° 14' 12.6"
N	51° 55' 50.5"	129° 18' 13.8"
O	51° 51' 32.5"	129° 36' 37.4"
P	51° 53' 00.7"	129° 44' 03.4"
Q	52° 05' 14.1"	129° 36' 14.1"
R	52° 08' 46.0"	129° 33' 33.5"
S	52° 15' 42.6"	129° 44' 12.3"
T	52° 29' 35.4"	129° 52' 32.7"
U	52° 32' 05.4"	129° 53' 06.2"
V	52° 34' 05.6"	129° 47' 51.4"
W	52° 25' 42.7"	129° 35' 12.2"
X	52° 20' 02.8"	129° 29' 51.7"
Y	52° 09' 52.3"	129° 25' 29.5"

Southern Reef Marine Protected Area / Zone de protection marine du récif sud		
POINT	Latitude West/ouest	Longitude North/nord
Z	51° 24' 44.2"	128° 47' 58.3"
AA	51° 18' 32.5"	128° 40' 35.6"
BB	51° 14' 57.6"	128° 47' 01.2"
CC	51° 14' 33.9"	128° 55' 45.5"
DD	51° 17' 42.3"	129° 00' 29.0"
EE	51° 19' 24.5"	129° 00' 53.6"

SCHEDULE 2 / ANNEXE 2

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE ET DU BASSIN DE LA REINE-CHARLOTTE
NORTHERN REEF MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DU RÉCIF NORD



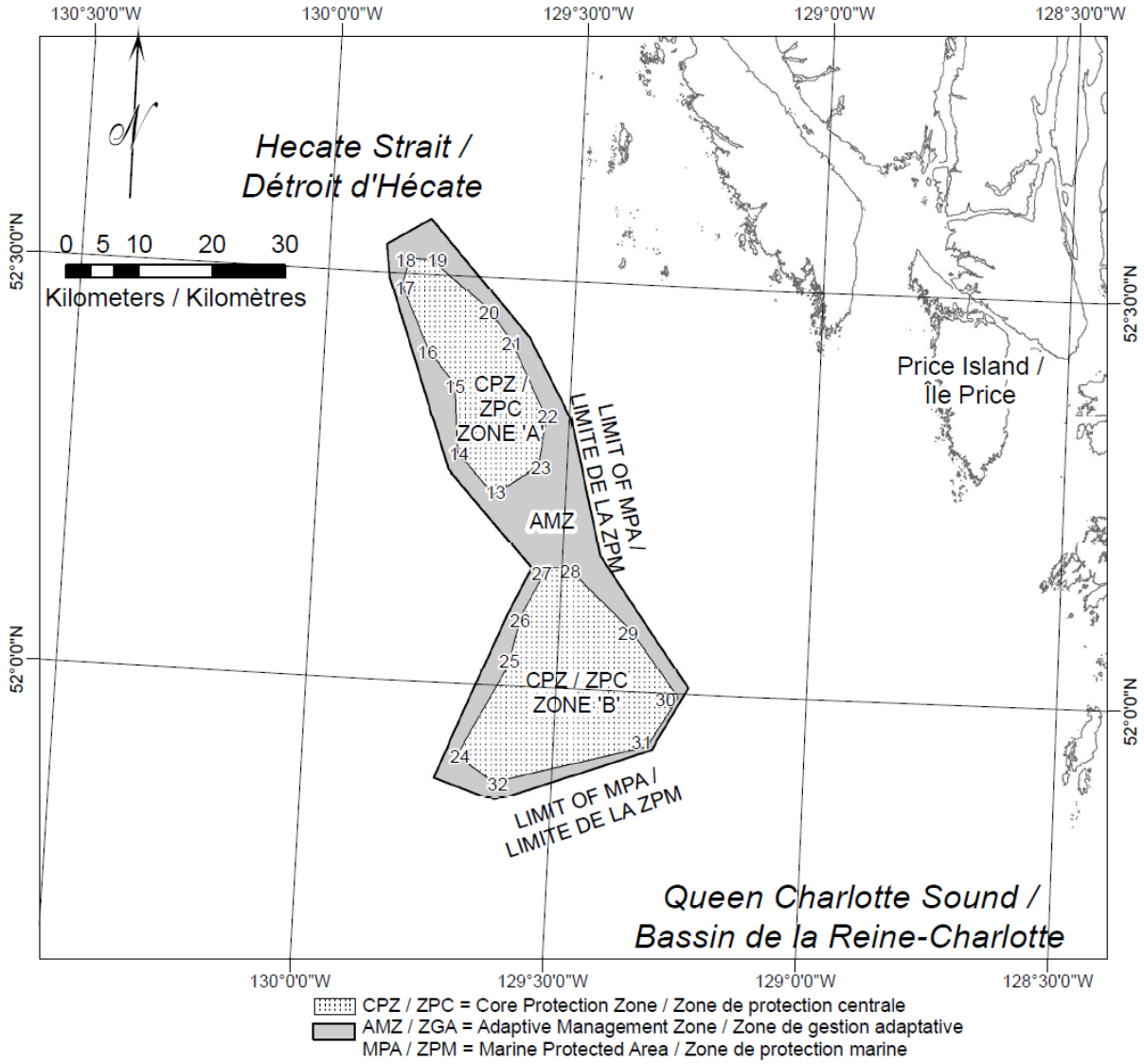
CPZ / ZPC = Core Protection Zone / Zone de protection centrale
AMZ / ZGA = Adaptive Management Zone / Zone de gestion adaptative
MPA / ZPM = Marine Protected Area / Zone de protection marine

Northern CPZ / ZPC nord		
POINT	Latitude North/nord	Longitude West/ouest
1	53° 18' 40.4"	130° 52' 46.5"
2	53° 22' 12.1"	130° 47' 01.7"
3	53° 22' 20.2"	130° 43' 12.5"
4	53° 17' 22.8"	130° 38' 18.2"
5	53° 15' 01.7"	130° 36' 35.5"
6	53° 10' 55.2"	130° 20' 19.3"
7	53° 04' 30.2"	130° 25' 53.6"
8	53° 04' 58.0"	130° 32' 16.9"
9	53° 07' 22.2"	130° 37' 37.6"
10	53° 08' 36.6"	130° 39' 29.5"
11	53° 08' 41.8"	130° 45' 40.0"
12	53° 13' 51.2"	130° 46' 41.2"

SCHEDULE 3 / ANNEXE 3

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE ET DU BASSIN DE LA REINE-CHARLOTTE

CENTRAL REEFS MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DES RÉCIFS CENTRAUX

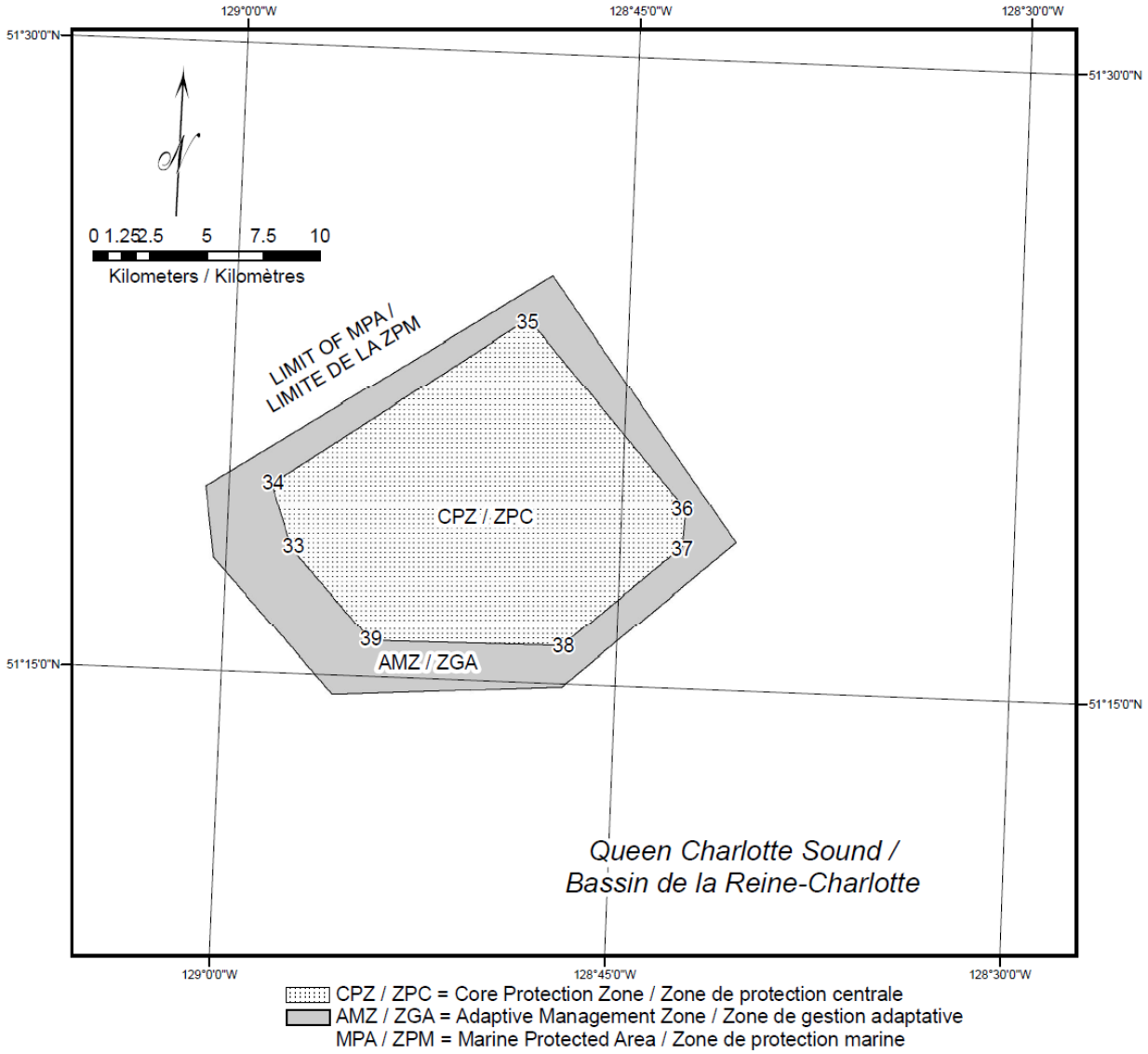


Central CPZ / ZPC centrale - Zone 'A'		
POINT	Latitude North/nord	Longitude West/ouest
13	52° 14' 03.4"	129° 38' 33.2"
14	52° 16' 54.8"	129° 43' 13.4"
15	52° 21' 57.1"	129° 43' 56.5"
16	52° 24' 24.5"	129° 47' 22.8"
17	52° 29' 05.9"	129° 50' 59.4"
18	52° 31' 05.2"	129° 50' 13.9"
19	52° 31' 06.7"	129° 47' 40.9"
20	52° 27' 42.0"	129° 40' 25.1"
21	52° 25' 22.9"	129° 37' 24.0"
22	52° 19' 47.0"	129° 32' 43.2"
23	52° 16' 18.2"	129° 33' 22.8"

Central CPZ / ZPC centrale - Zone 'B'		
POINT	Latitude North/nord	Longitude West/ouest
24	51° 54' 43.1"	129° 41' 22.2"
25	52° 01' 22.5"	129° 35' 48.4"
26	52° 05' 13.5"	129° 34' 32.5"
27	52° 08' 48.5"	129° 31' 44.1"
28	52° 08' 51.3"	129° 29' 18.0"
29	52° 04' 27.1"	129° 21' 17.3"
30	51° 59' 40.8"	129° 15' 23.9"
31	51° 56' 04.5"	129° 18' 46.2"
32	51° 52' 55.7"	129° 36' 49.8"

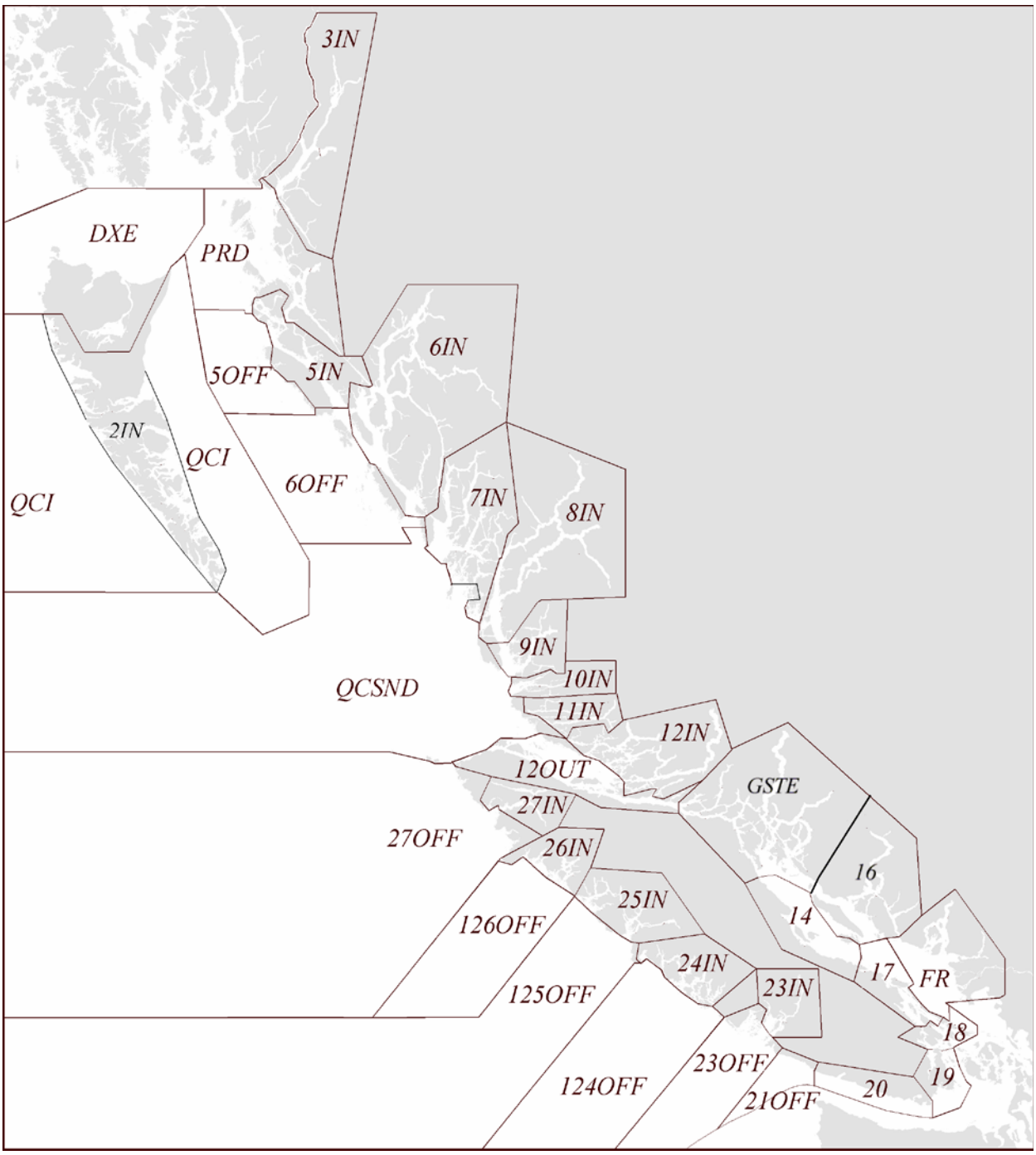
SCHEDULE 4 / ANNEXE 4

HECATE STRAIT / QUEEN CHARLOTTE SOUND GLASS SPONGE REEFS MARINE PROTECTED AREAS
ZONES DE PROTECTION MARINES DES RÉCIFS D'ÉPONGES SILICEUSES DU DÉTROIT D'HÉCATE
ET DU BASSIN DE LA REINE-CHARLOTTE
SOUTHERN REEF MARINE PROTECTED AREA / ZONE DE PROTECTION MARINE DU RÉCIF SUD



Southern CPZ / ZPC sud		
POINT	Latitude North/nord	Longitude West/ouest
33	51° 17' 59.2"	128° 57' 31.9"
34	51° 19' 30.8"	128° 58' 22.7"
35	51° 23' 41.9"	128° 48' 50.9"
36	51° 19' 17.5"	128° 42' 33.6"
37	51° 18' 24.5"	128° 42' 37.7"
38	51° 15' 56.0"	128° 47' 04.2"
39	51° 15' 52.2"	128° 54' 20.4"

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS



Shrimp Management Areas of the British Columbia Coast

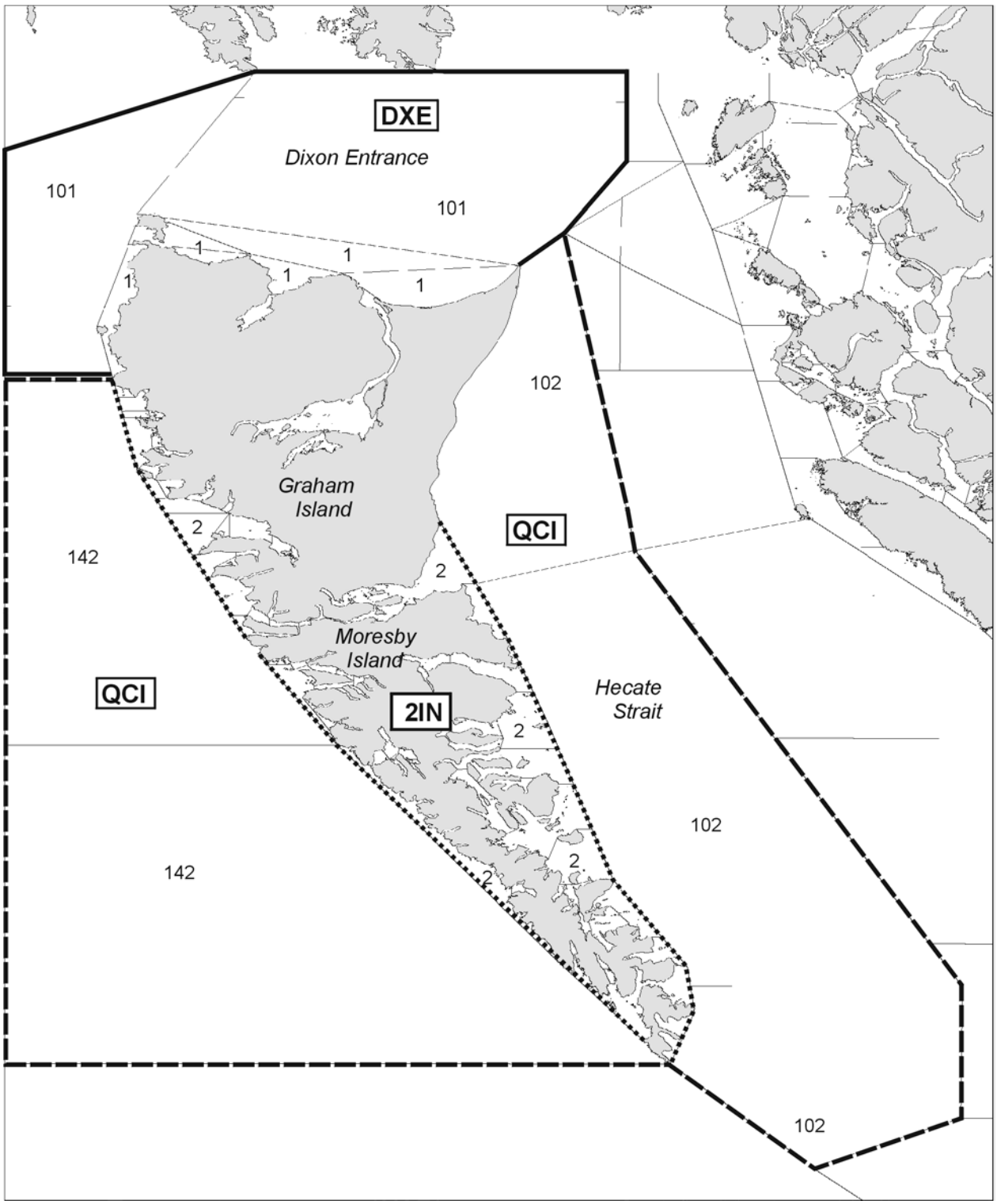


Figure 1. Shrimp Management Areas: DXE (Areas 1, 101), QCI (Areas 102, 142) and 2IN (Area 2 except Subareas 2-3 and 2-4).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

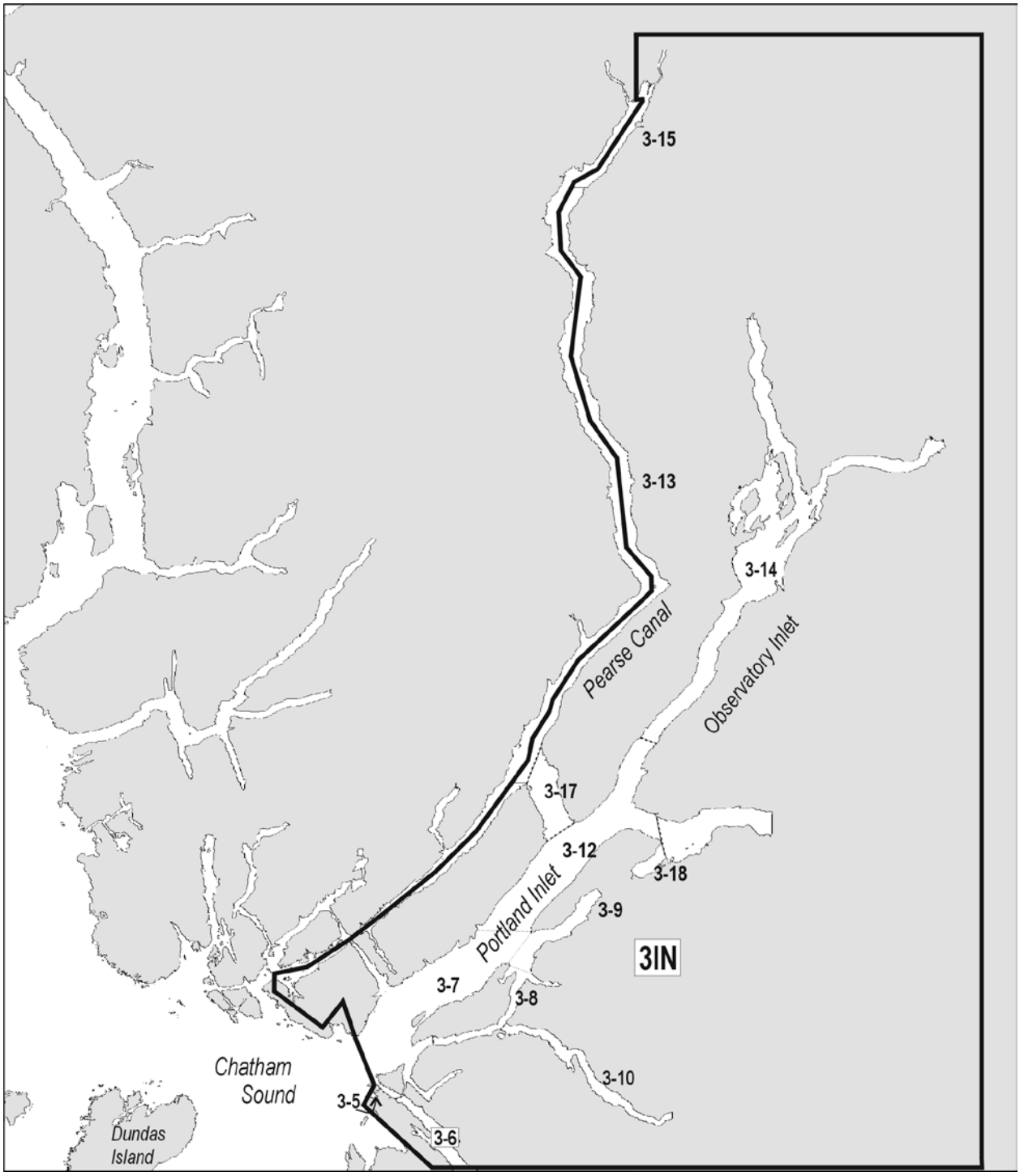


Figure 2. Shrimp Management Area: 3IN (Areas 3-5 to 3-18).

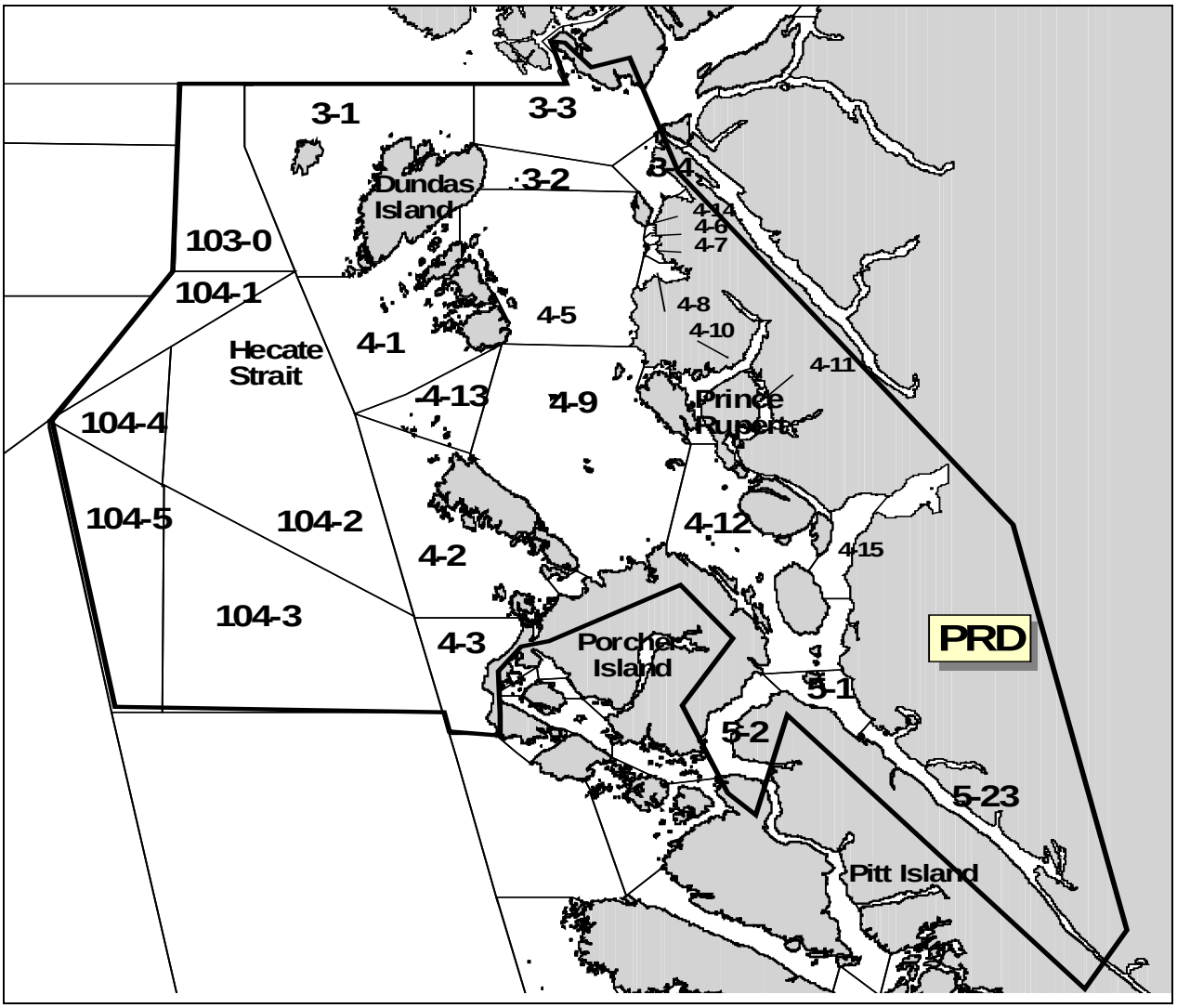


Figure 3. Shrimp Management Area: PRD (3-1 to 3-4, 103, 4-1 to 4-15, 104, 5-1, 5-2 and 5-23).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

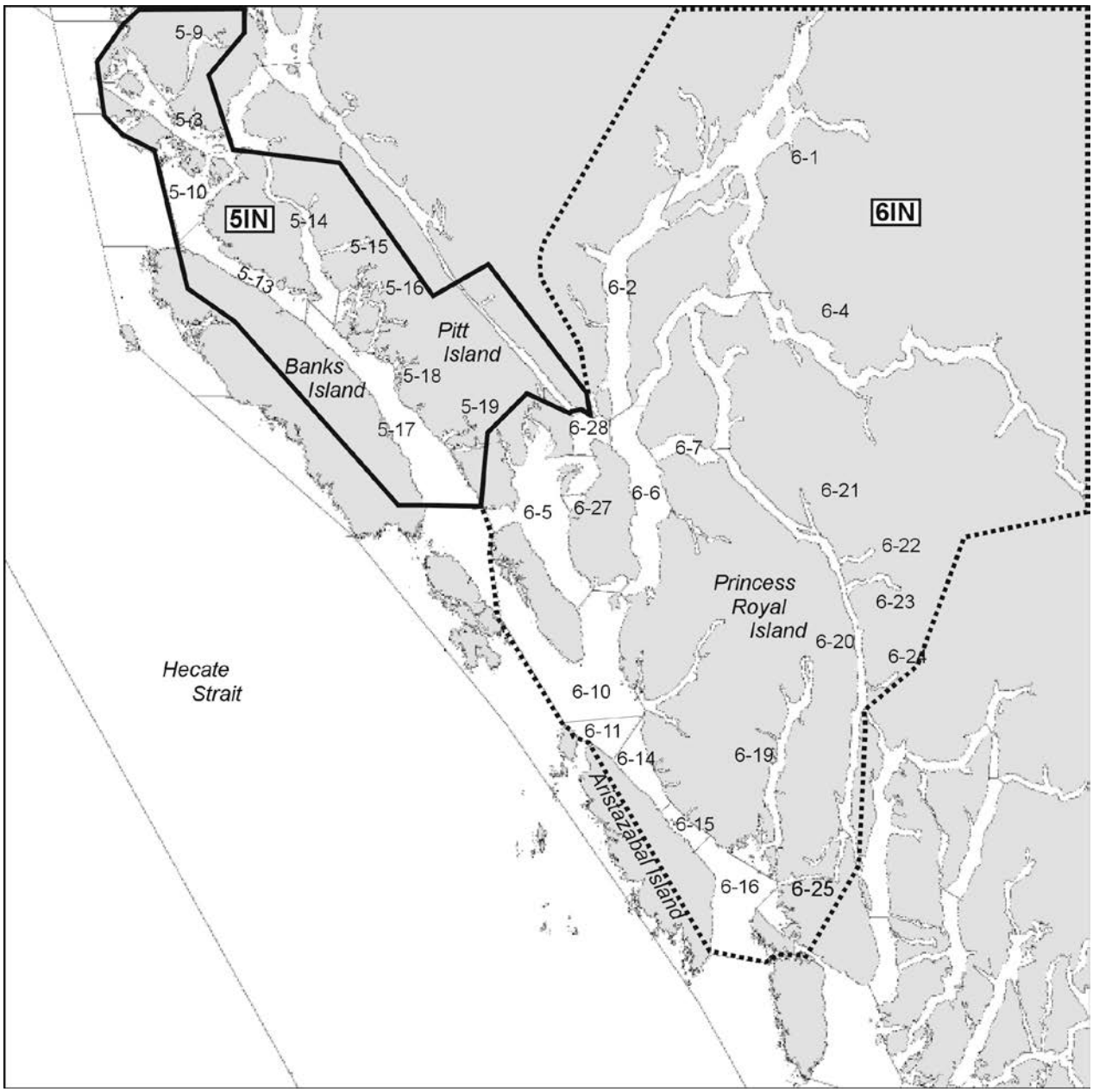


Figure 4. Shrimp Management Areas: 5IN (Areas 5-3 to 5-10, 5-12 to 5-19, 5-21, 5-24) and 6IN (Areas 6-1 to 6-8, 6-10 to 6-12, 6-14 to 6-16, 6-18 to 6-28).

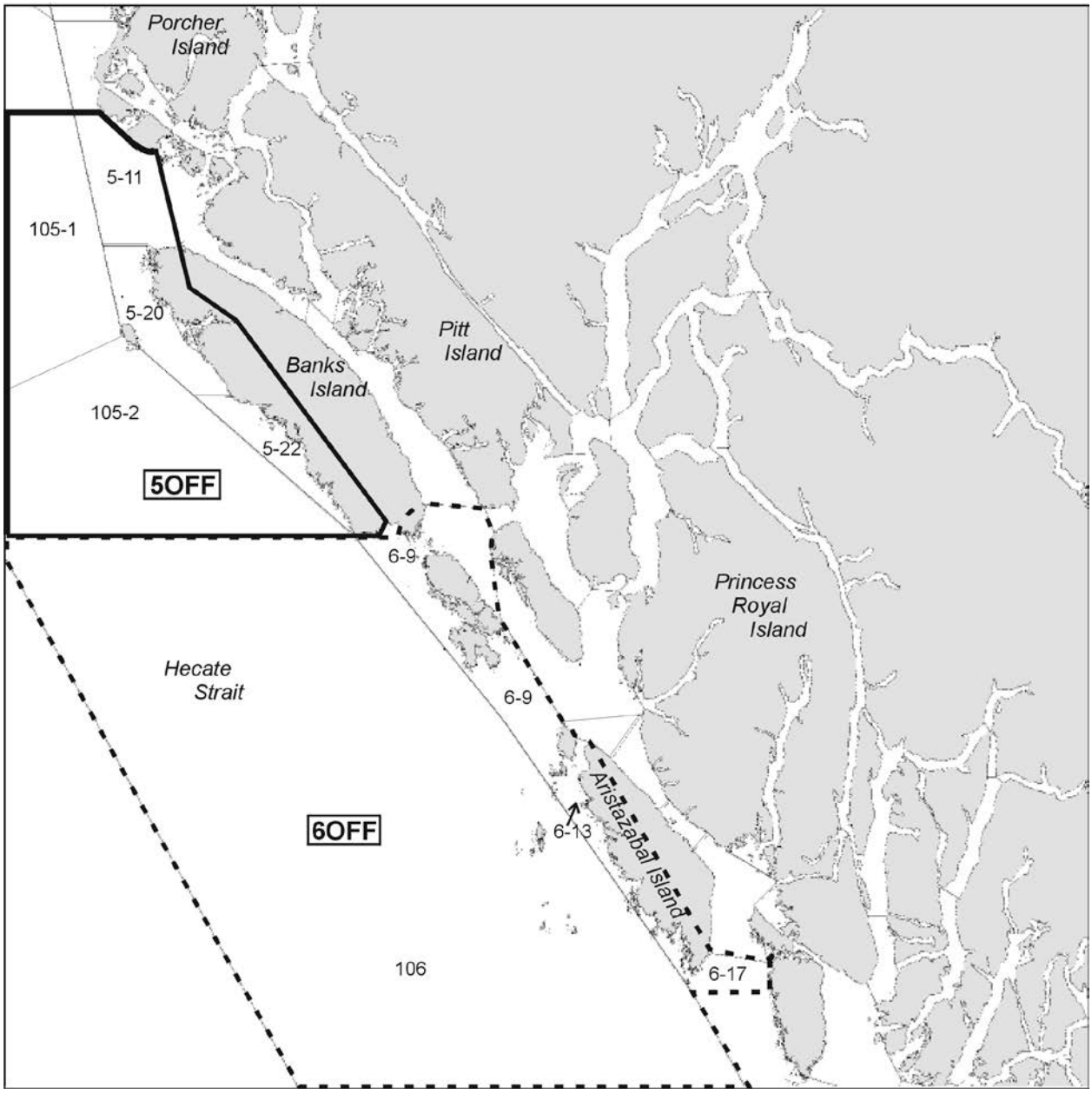


Figure 5. Shrimp management Areas: 5OFF (Areas 5-11, 5-20, 5-22, 105) and 6OFF (Areas 6-9, 6-13, 6-17, 106).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

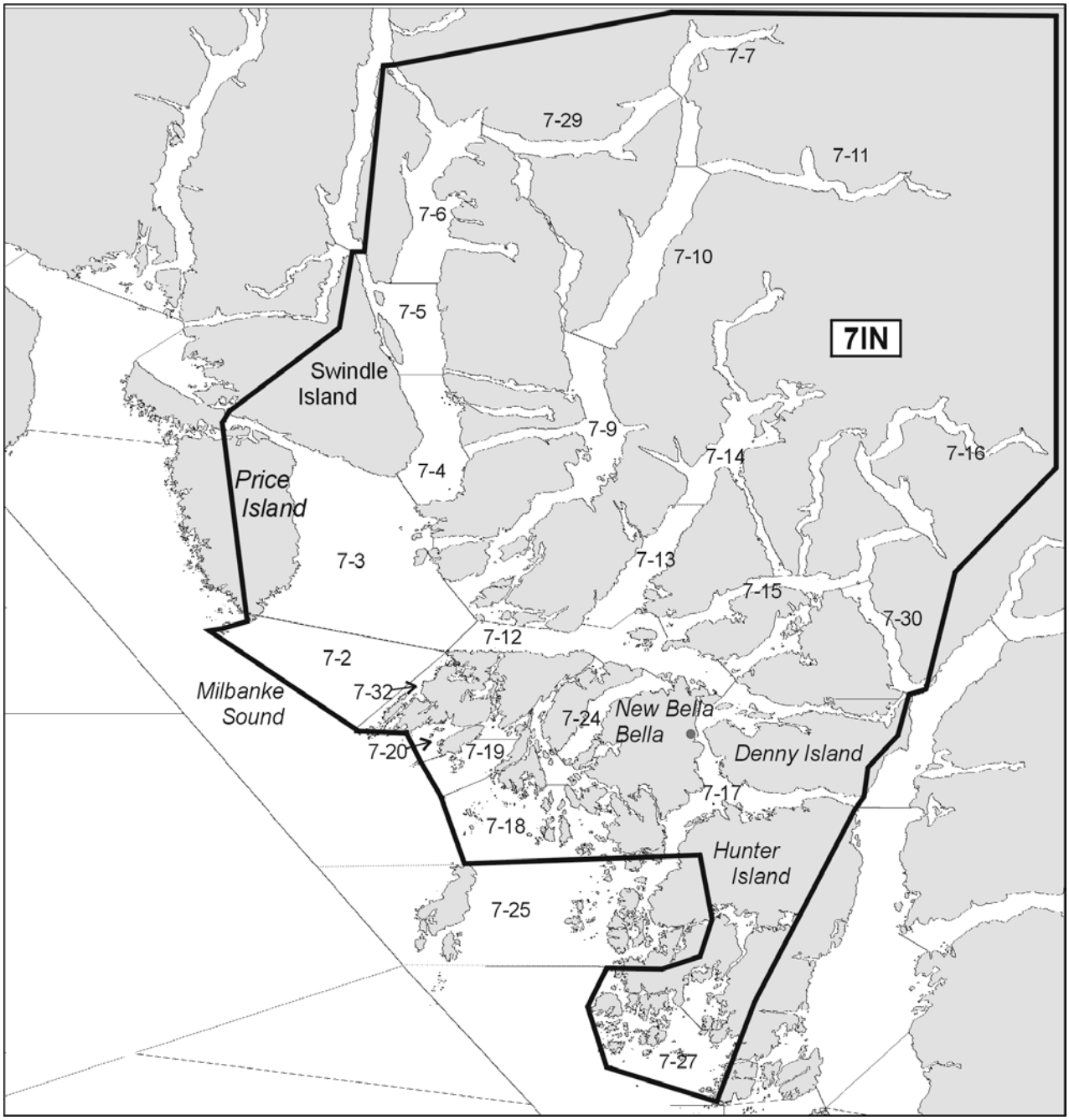


Figure 6. Shrimp Management Area: 7IN (Areas 7-2 to 7-24, 7-27 to 7-30 and 7-32).

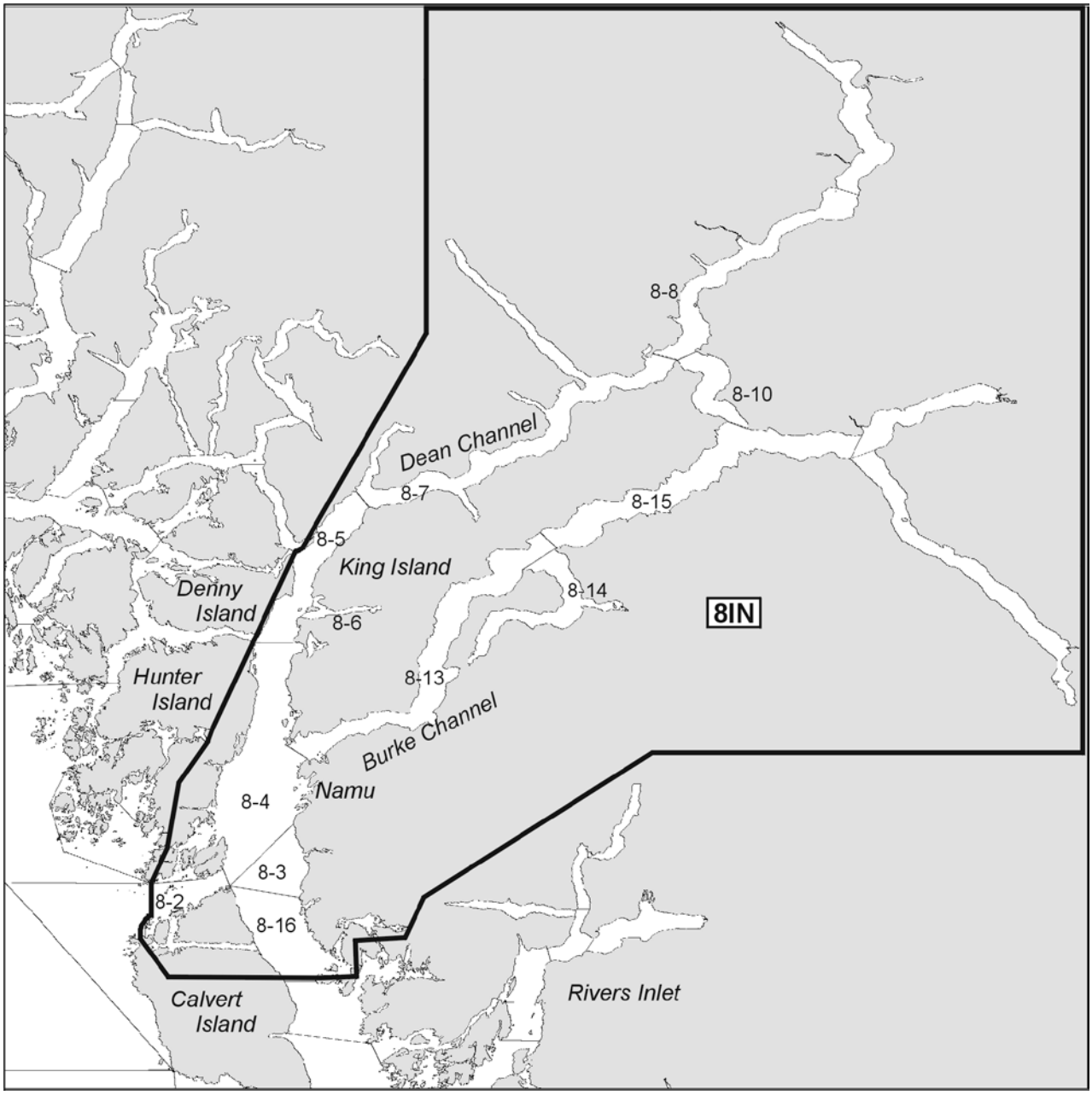


Figure 7. Shrimp Management Areas: 8IN (Areas 8-2 to 8-16).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

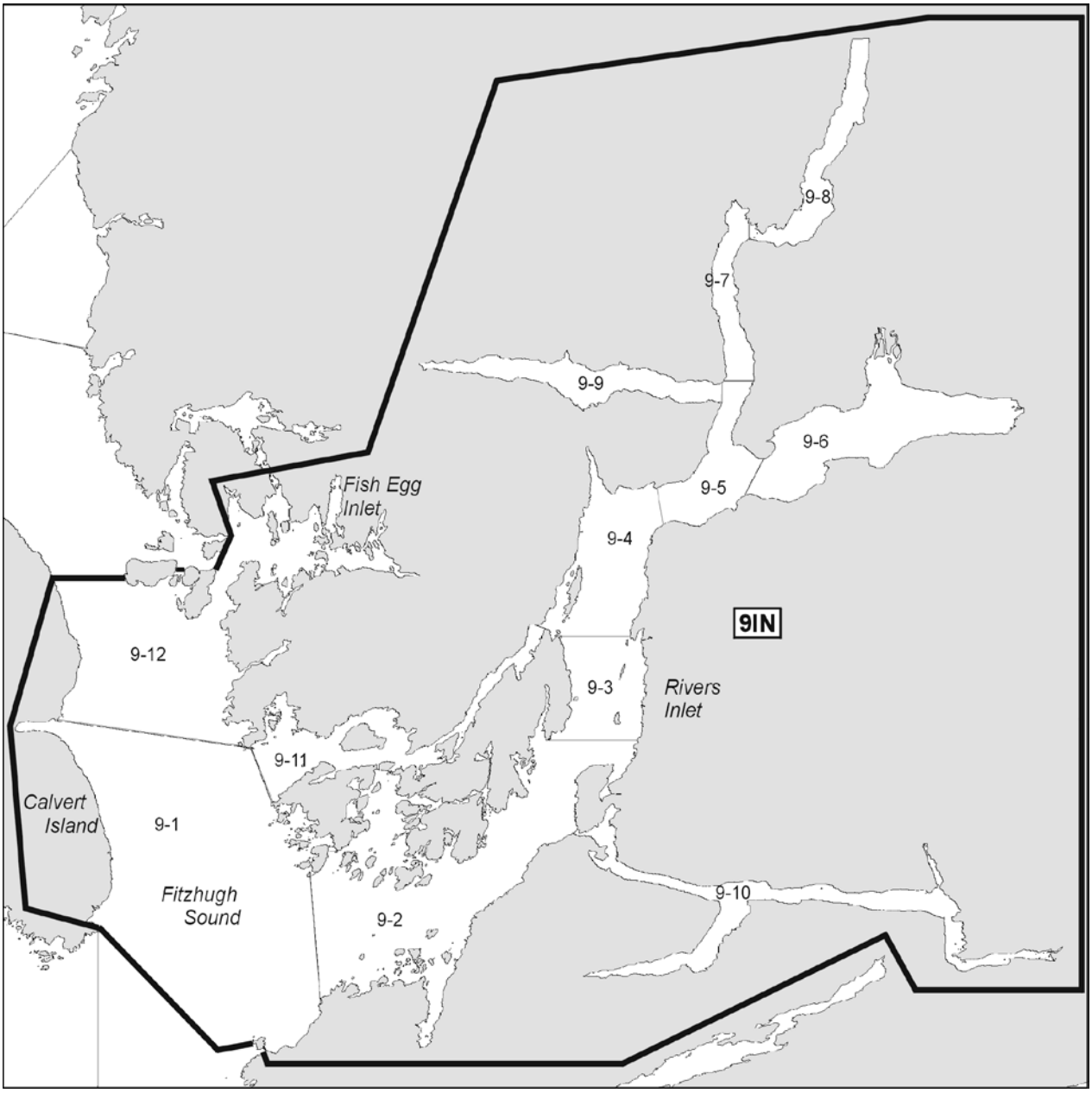


Figure 8. Shrimp Management Area: 9IN (Areas 9-1 to 9-12).

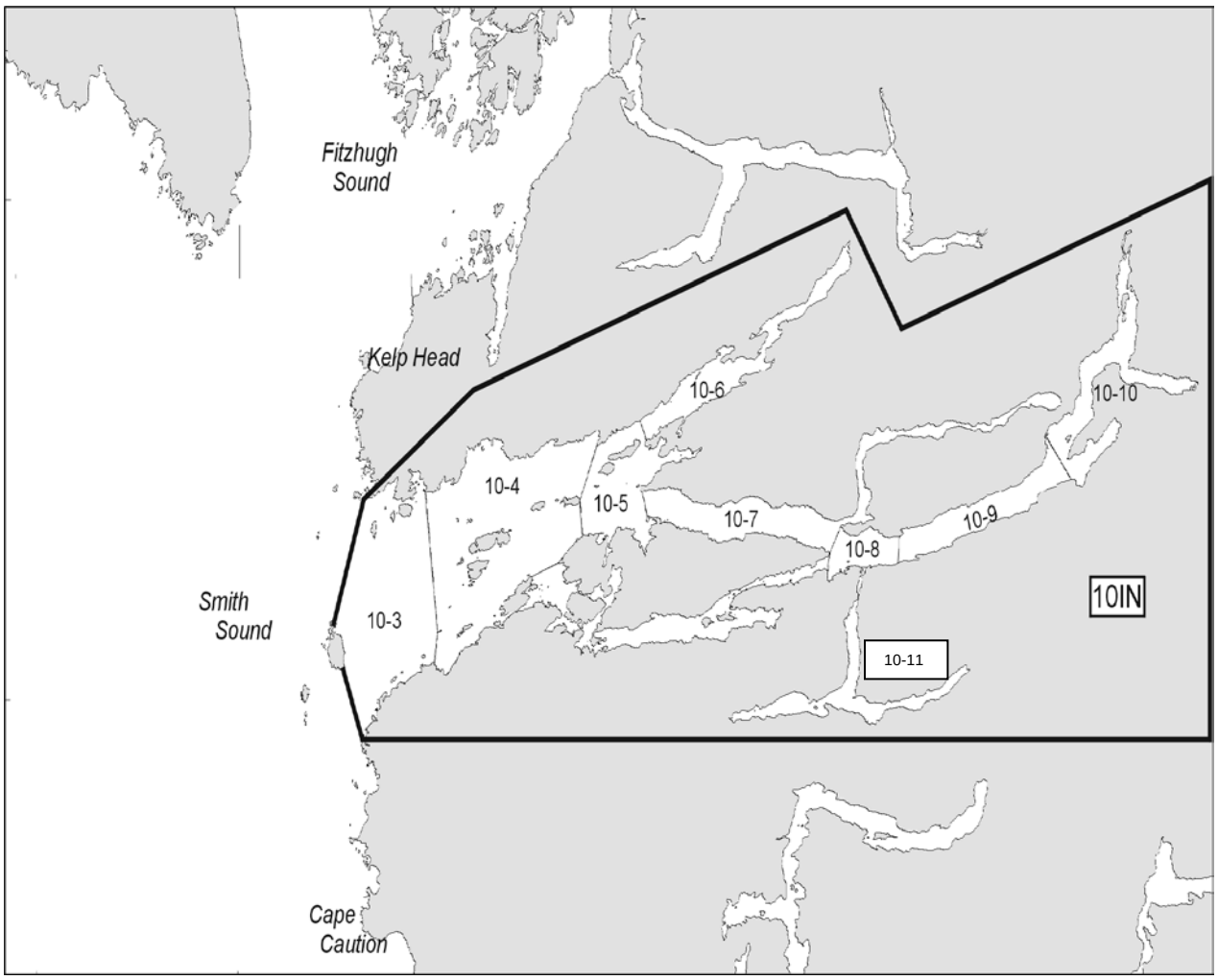


Figure 9. Shrimp Fishery Management Area: 10IN (Areas 10-3 to 10-12).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

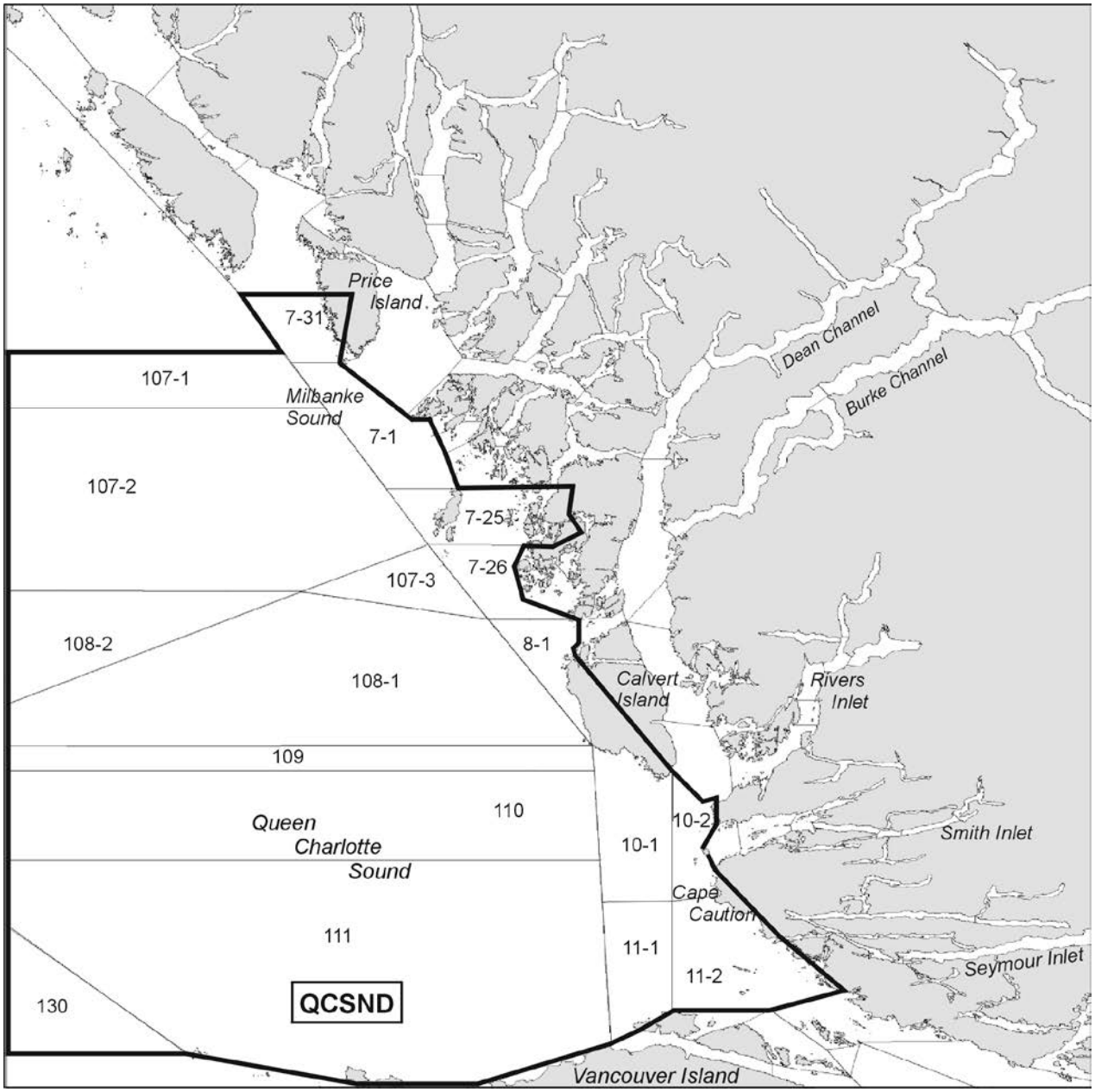


Figure 10. Shrimp Management Area: QCSND (Areas 107, 7-1, 7-25, 7-26, 7-31, 108, 8-1, 109, 110, 10-1, 10-2, 111, 11-1, 11-2, 130).

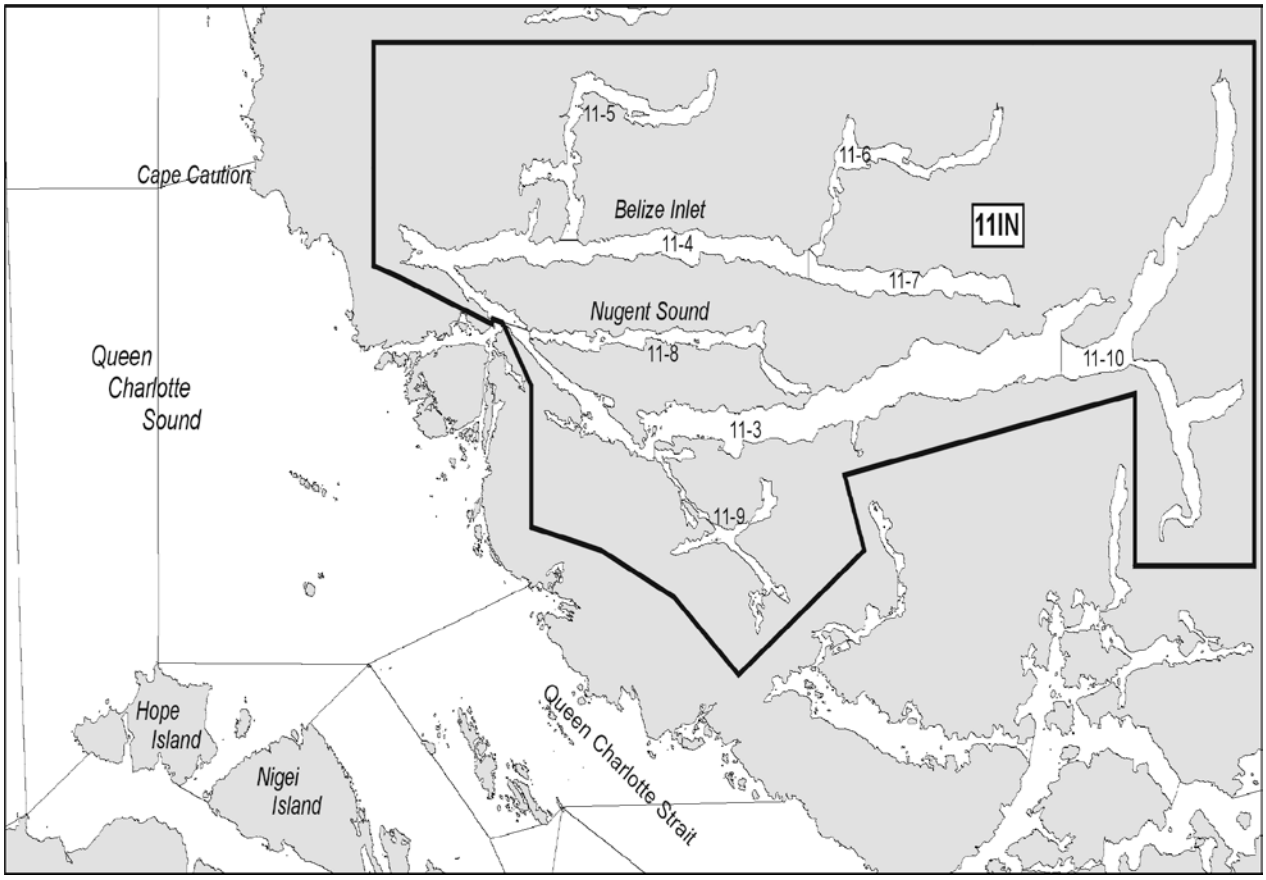


Figure 11. Shrimp Management Area: 11IN (Areas 11-3 to 11-10).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

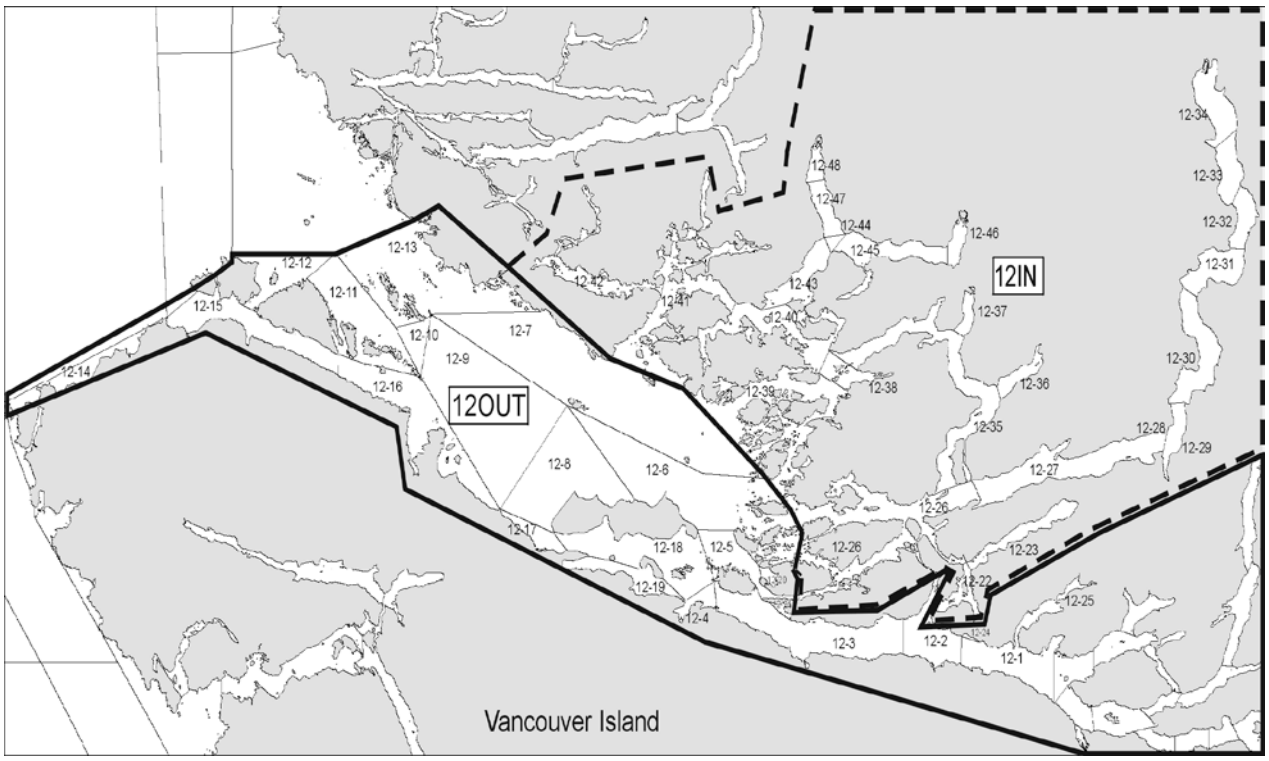


Figure 12. Shrimp Management Areas: 12IN (Areas 12-22, 12-23, 12-26 to 12-35, 12-37 to 12-48) and 12OUT (Areas 12-1 to 12-21, 12-24, 12-25). Closed in 12-22, 12-36 and 12-48.

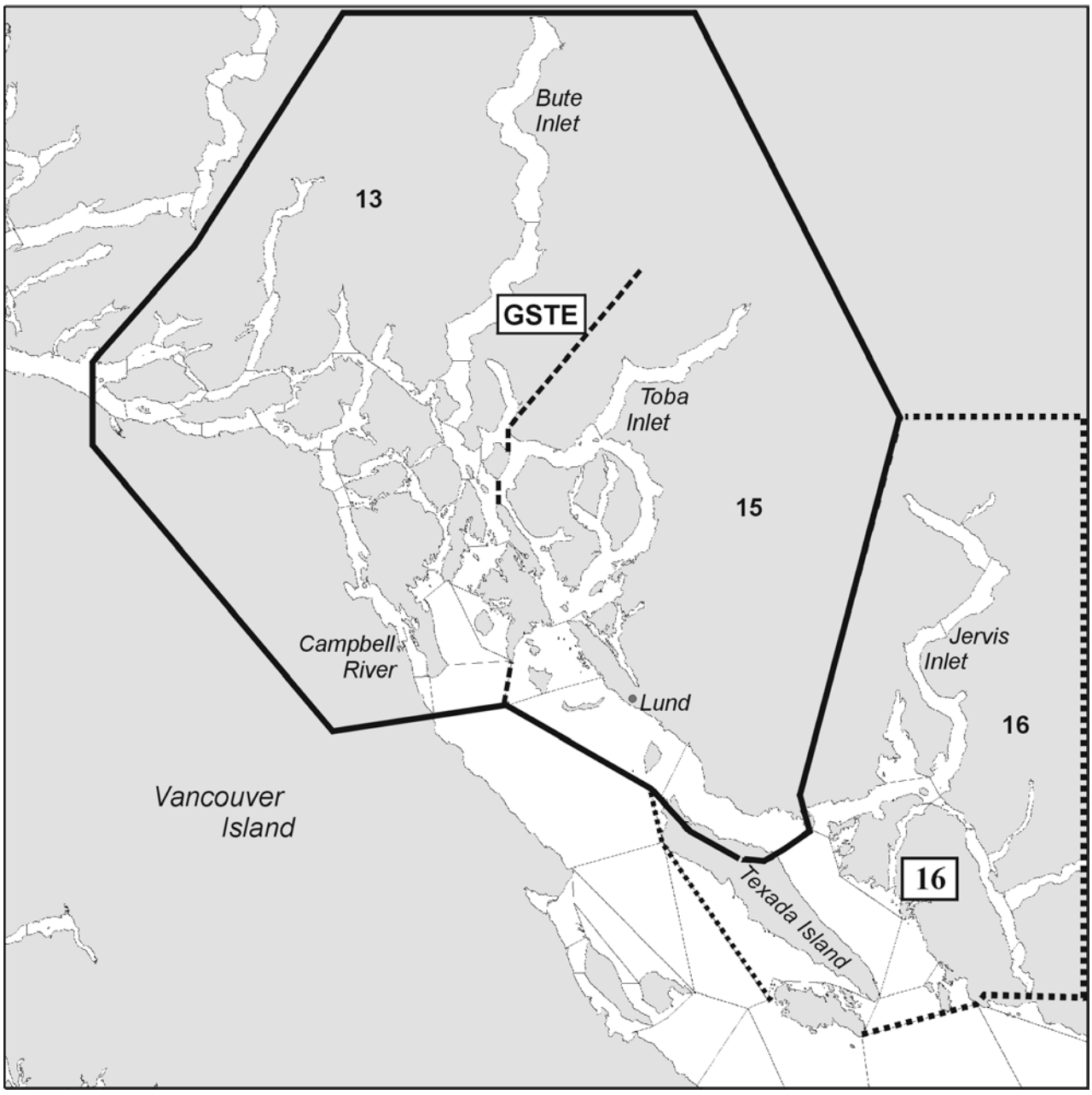


Figure 13. Shrimp Management Areas:
SMA GSTE (Area 13, except for 13-3, 13-4, 13-5, portions of 13-6 and portions of 13-7, 13-11, 13-16, 13-41 and except 13-34, 13-36, 13-38 and 13-43; Area 15)

and SMA 16 (Subareas 16-1, 16-2 and 16-6 to 16-22). Closed in 16-3 to 16-5 and 16-9.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

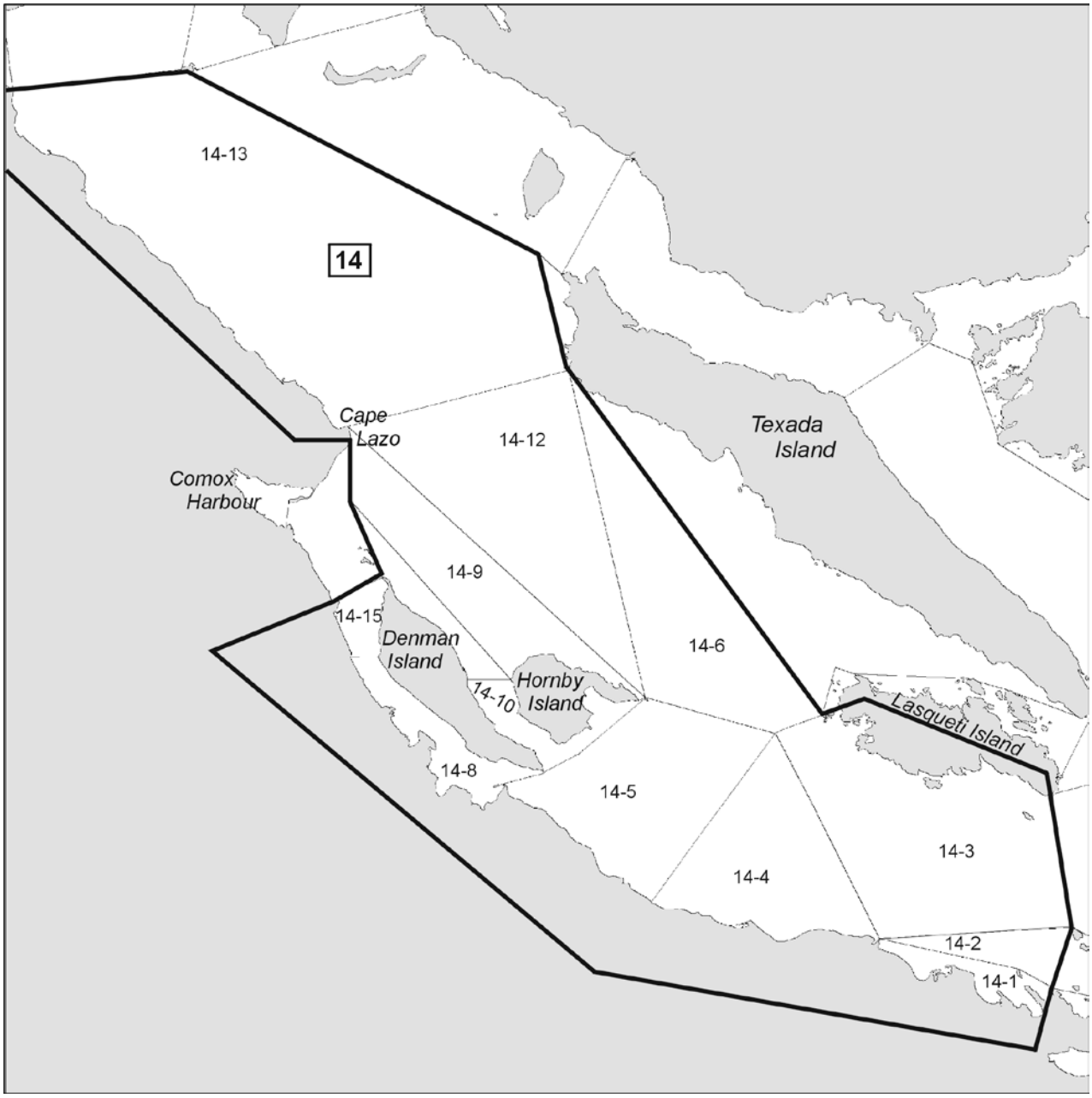


Figure 14. Shrimp Management Area: 14 (Subareas 14-1 to 14-7, 14-9, 14-10, 14-12 and 14-13). Conservation closures in 14-15 and 14-8. Closed in 14-11 and 14-14.

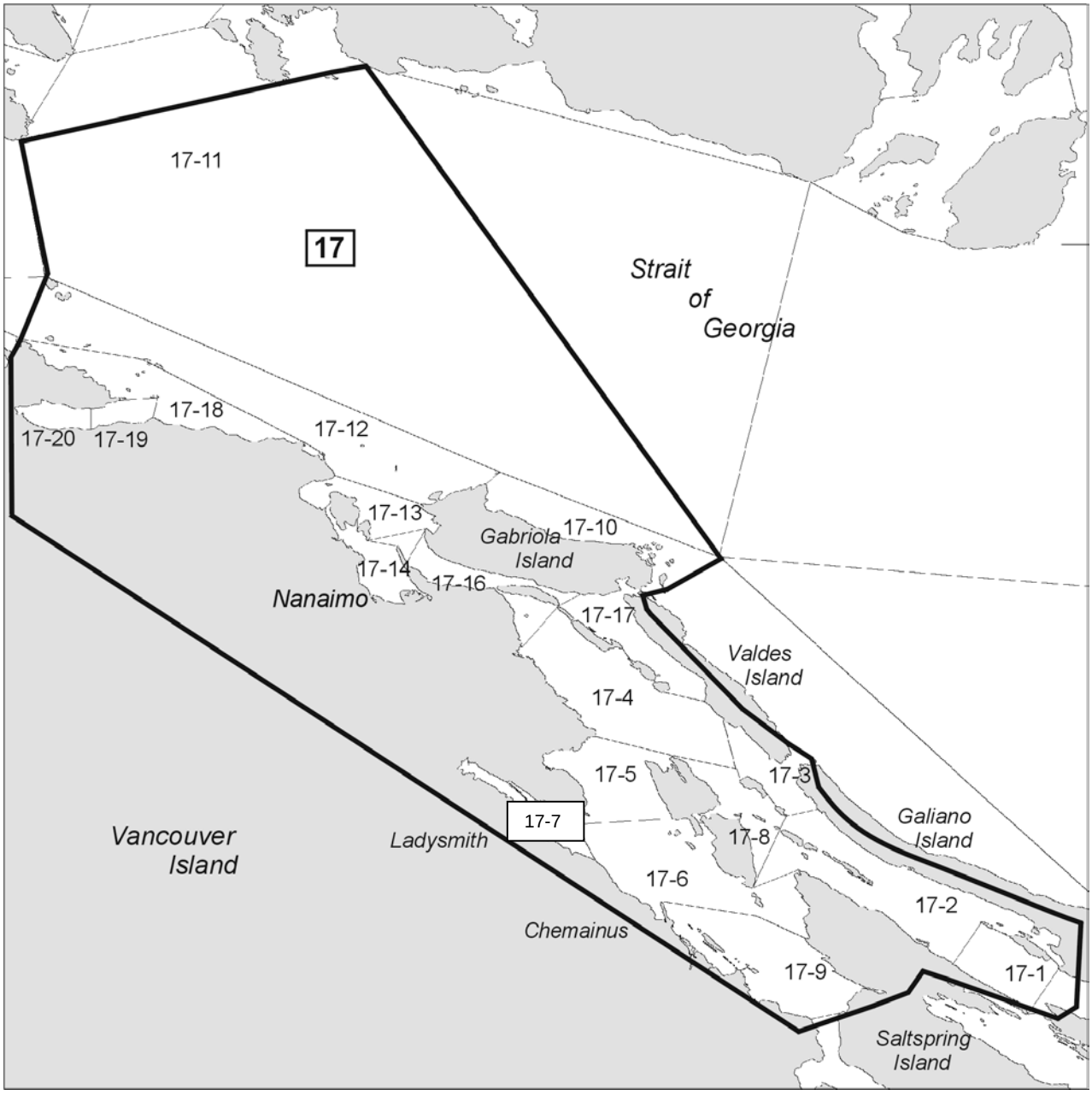


Figure 15. Shrimp Management Area: 17 (Subareas 17-1 to 17-6, 17-8 to 17-13 and 17-15, 17-16, 17-18 to 17-21). Closed in 17-7, 17-14 and 17-17. Closed to prawns year round.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

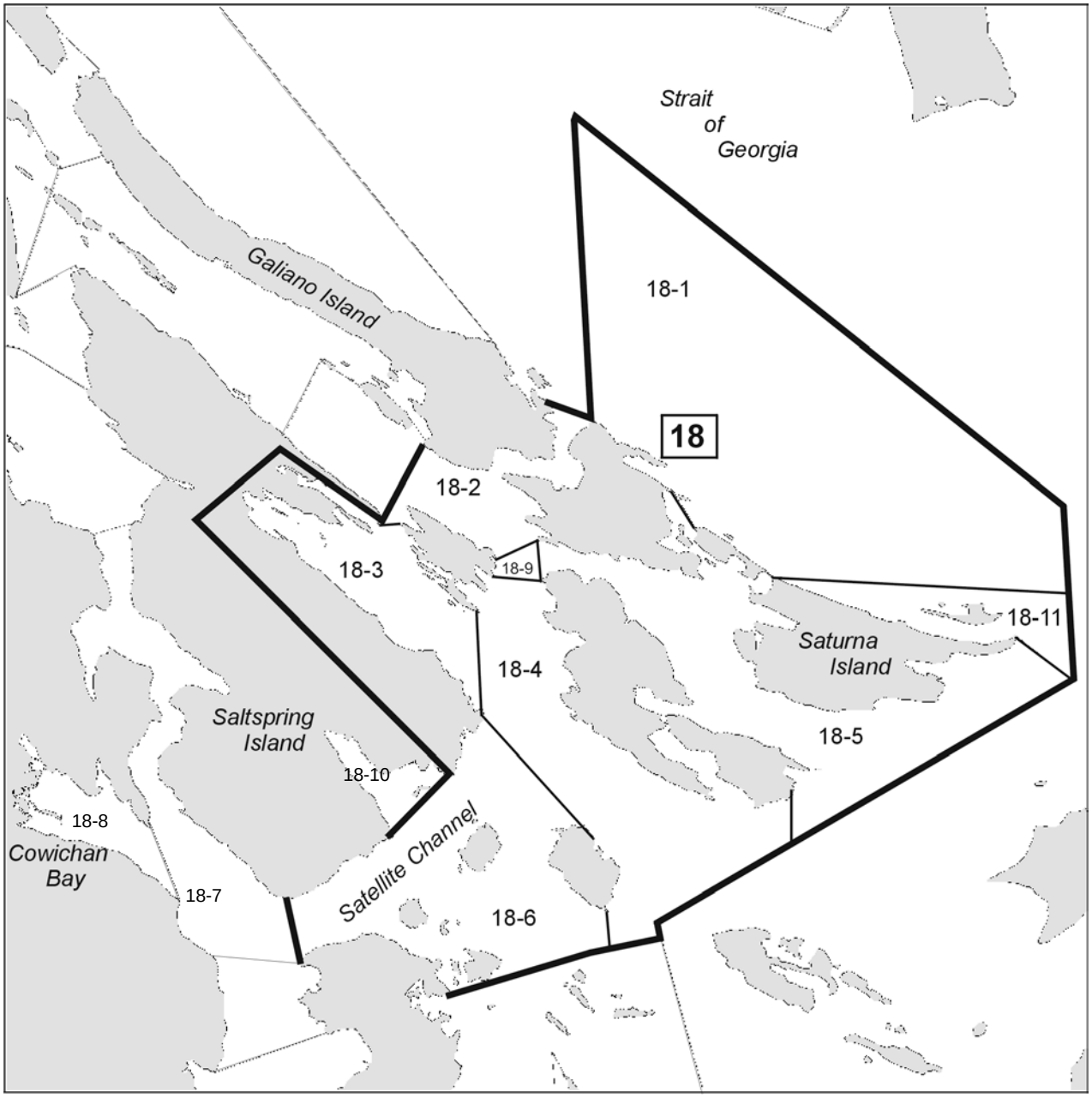


Figure 16. Shrimp Management Area: 18 (Subareas 18-1 to 18-6, 18-9 and 18-11). Closed in 18-7, 18-8 and 18-10.

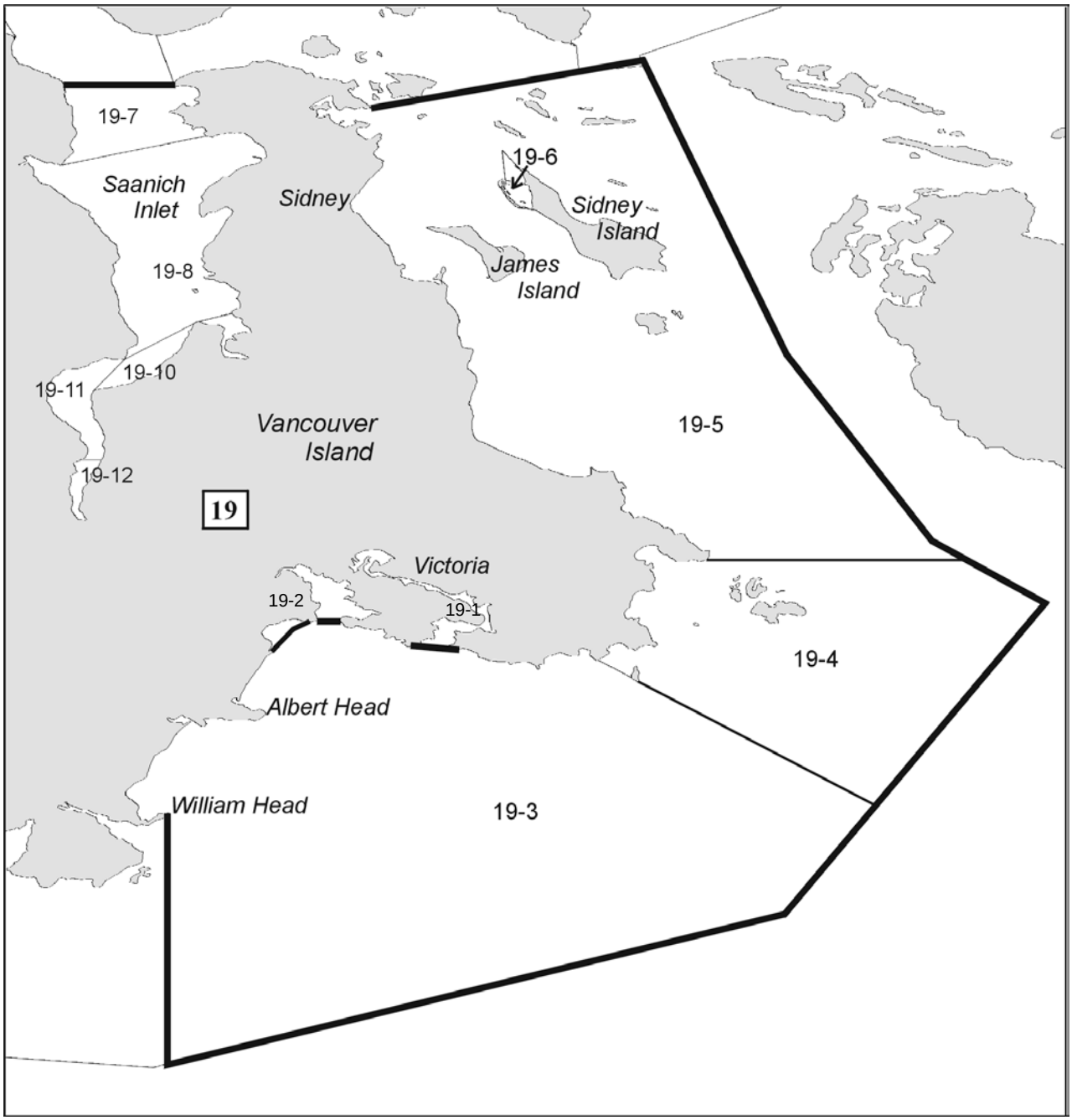


Figure 17. Shrimp Management Area: 19 (Subareas 19-3 to 19-5). Closed in 19-1, 19-2, 19-6, 19-7 to 19-12.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

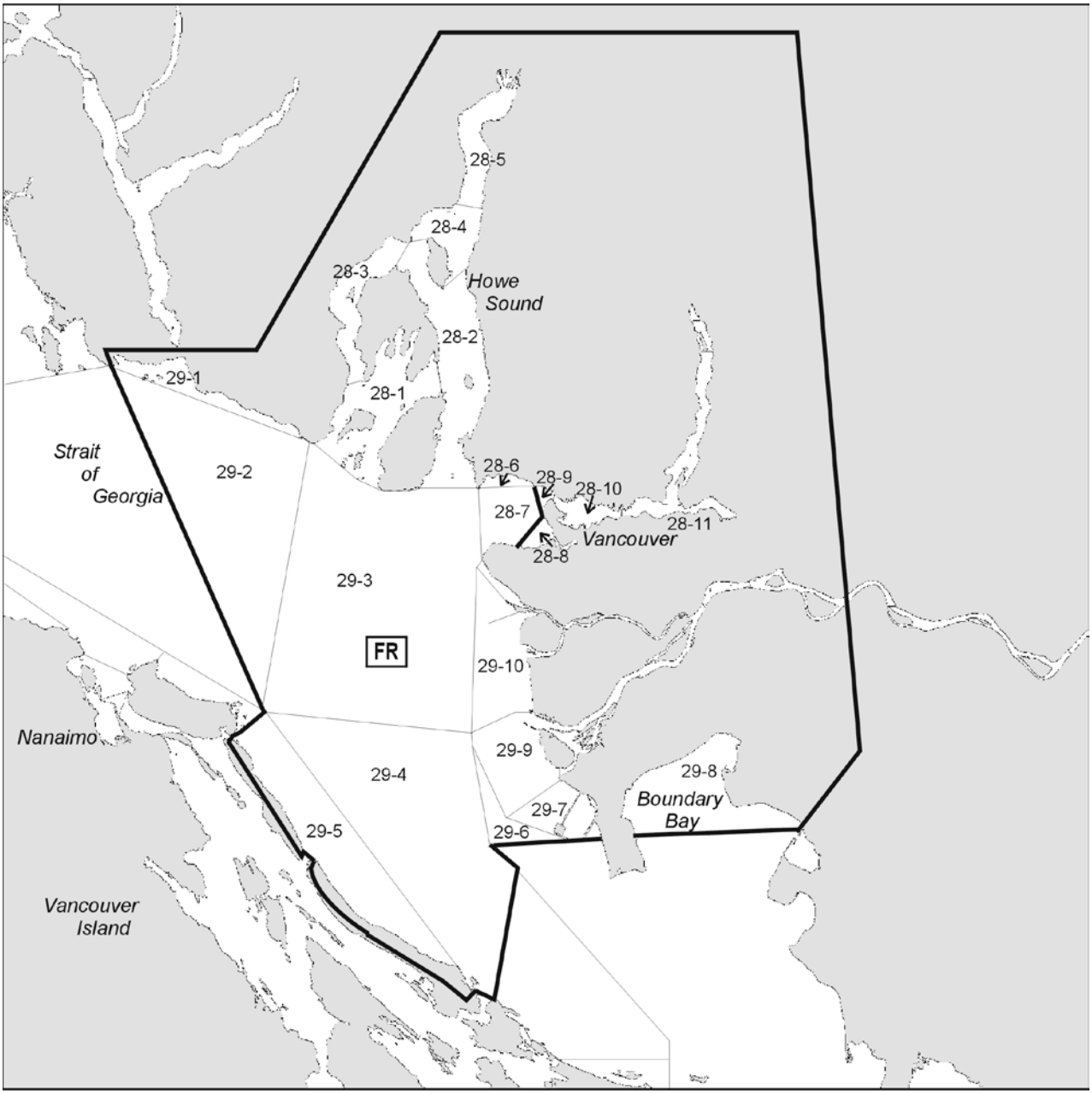


Figure 18. Shrimp Management Area: FR (Subareas 28-1 to 28-7, 28-9 and Subareas 29-1 to 29-6). Closed in 28-8, 28-10 and 28-11, 29-8 portions of : 29-7, 29-9 and 29-10.

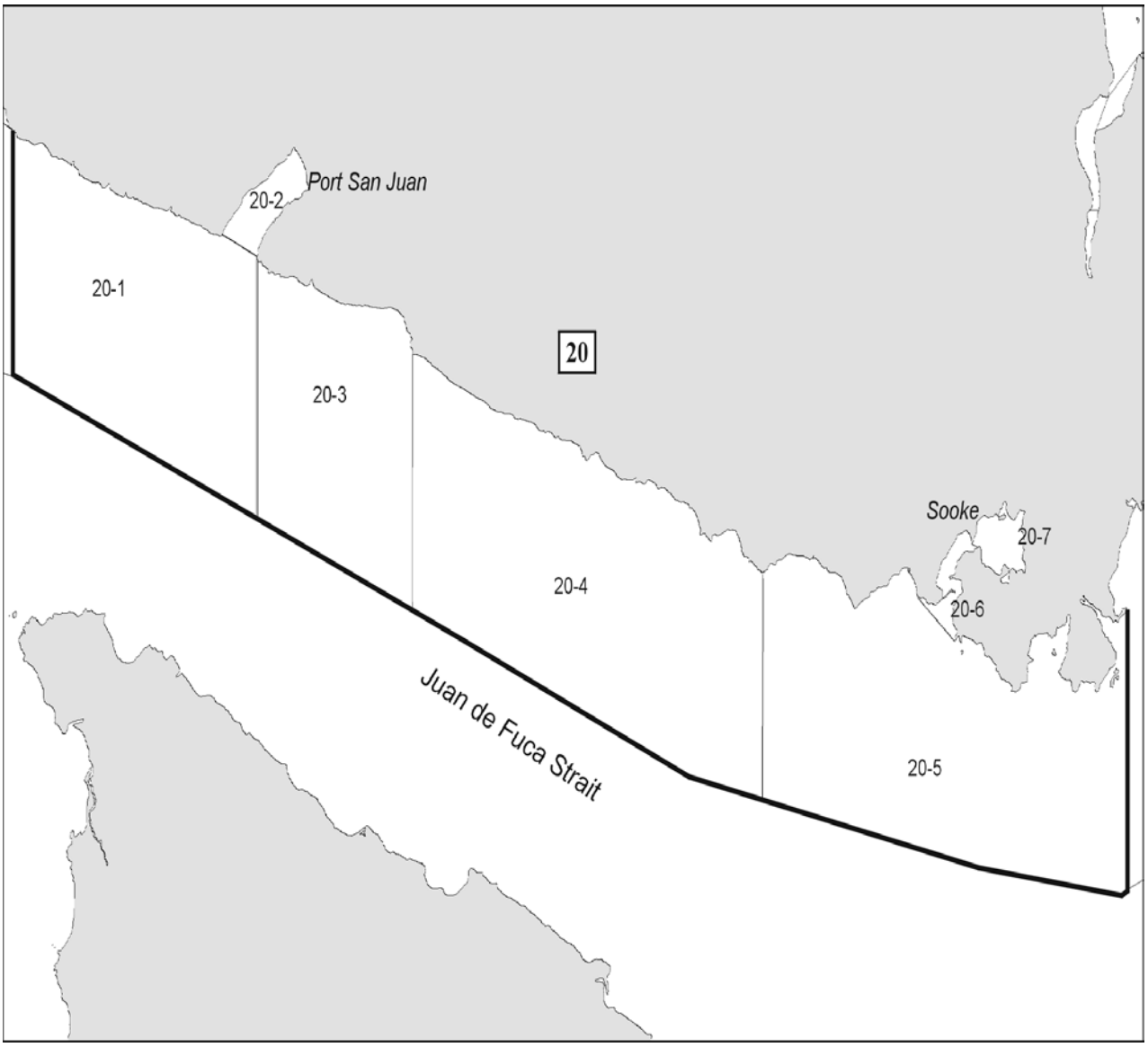


Figure 19. Shrimp Management Area: 20 (Subareas 1, 3, 4 and 5). Closed in 20-2.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

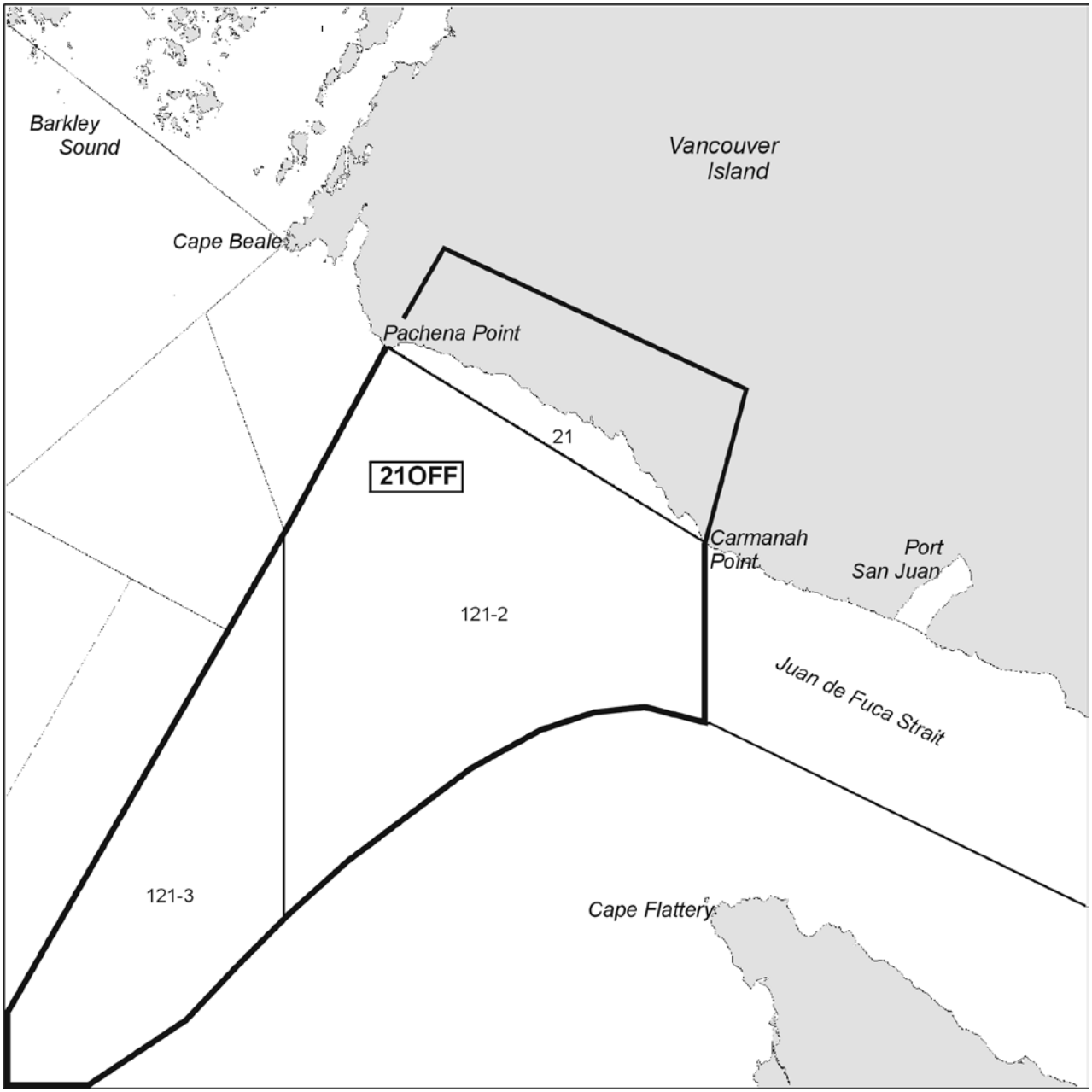


Figure 20. Shrimp Management Area: 21OFF (Areas 21, 121).

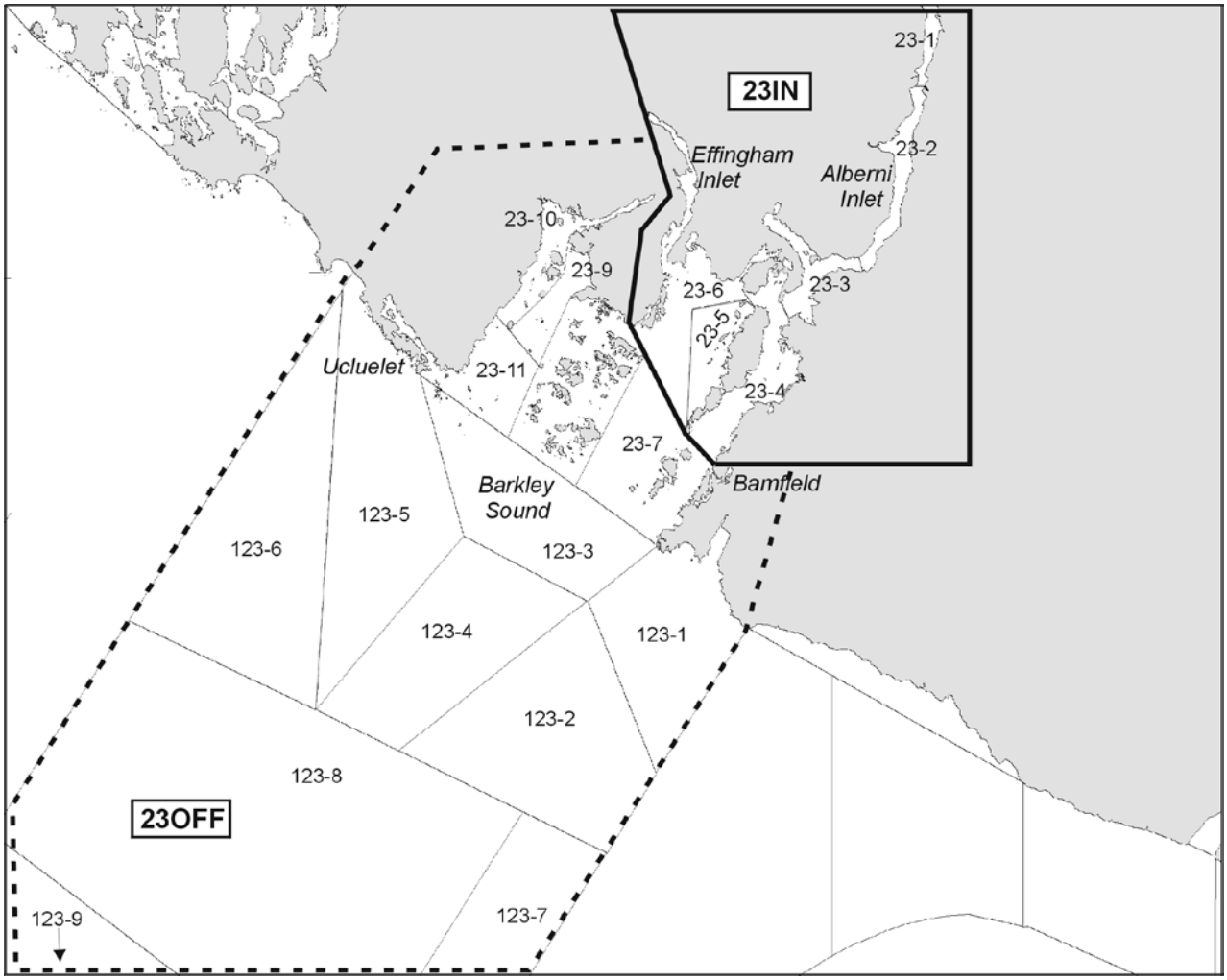


Figure 21. Shrimp Management Areas: 23IN (Areas 23-1 to 23-6 and 23OFF (Areas 23-7 to 23-11 and Area 123).

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

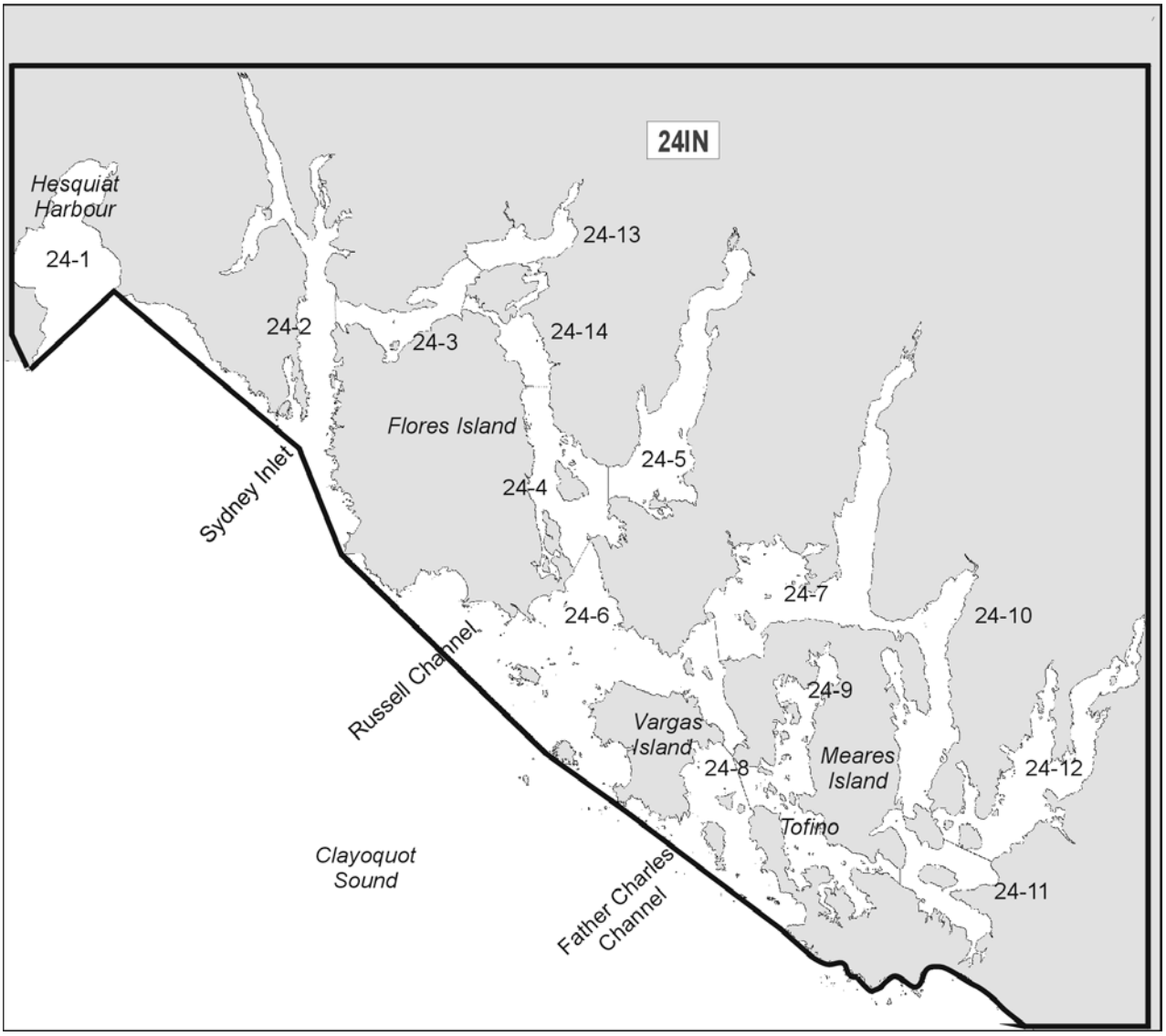


Figure 22. Shrimp Management Area: 24IN (Area 24).

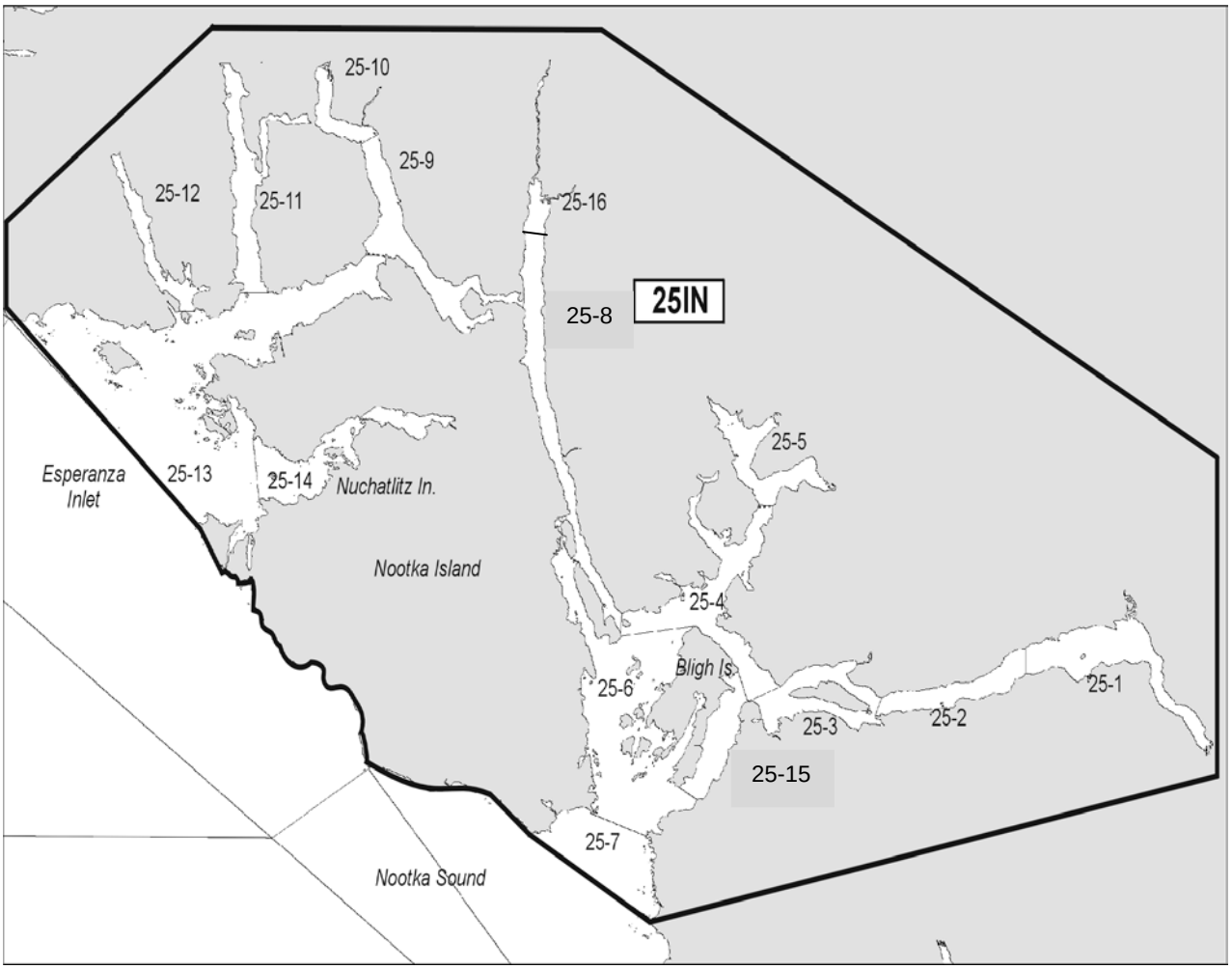


Figure 23. Shrimp Management Area: 25IN (Subareas 25-1 to 25-15). Closed in 25-16.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

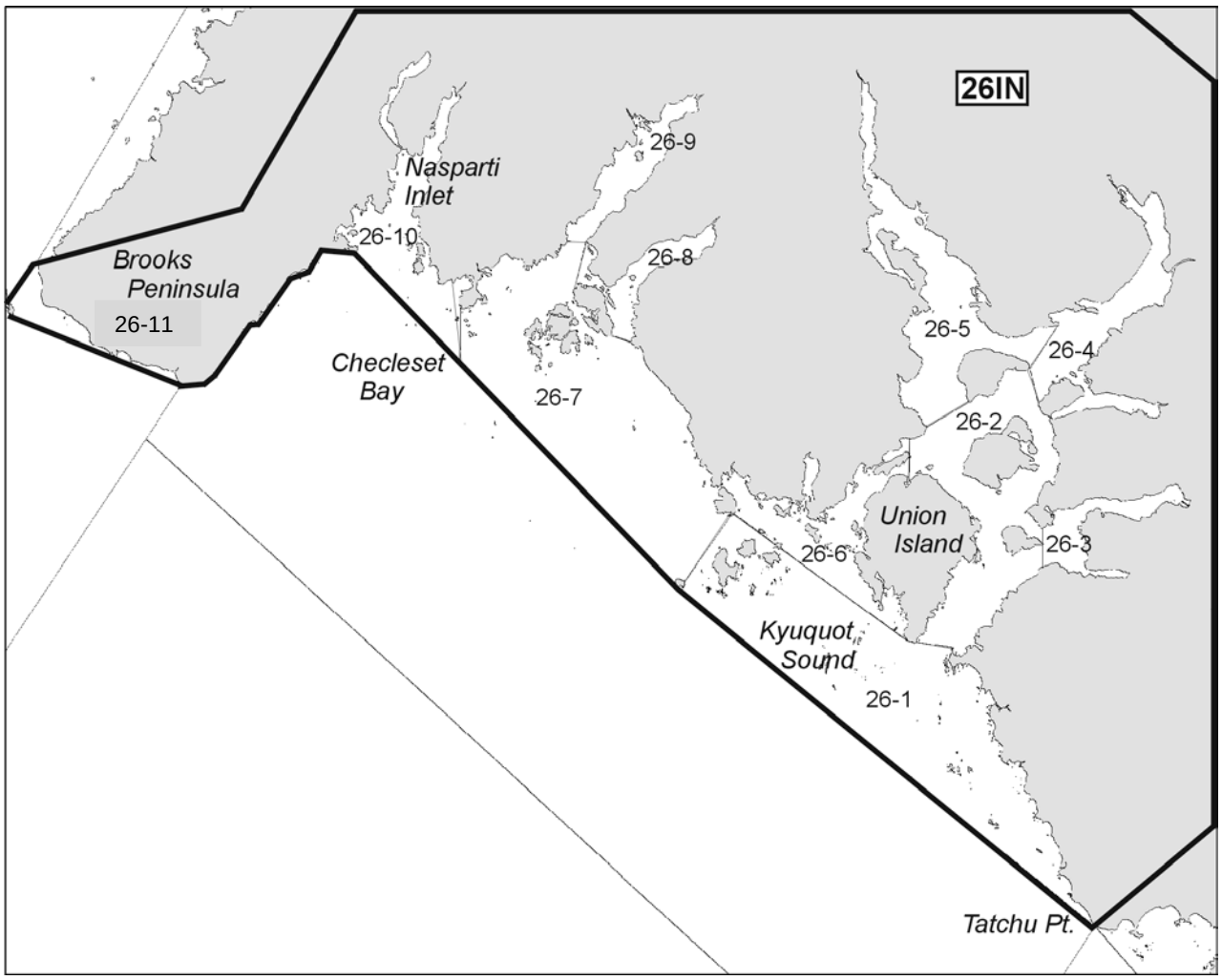


Figure 24. Shrimp Management Area: 26IN (Area 26).

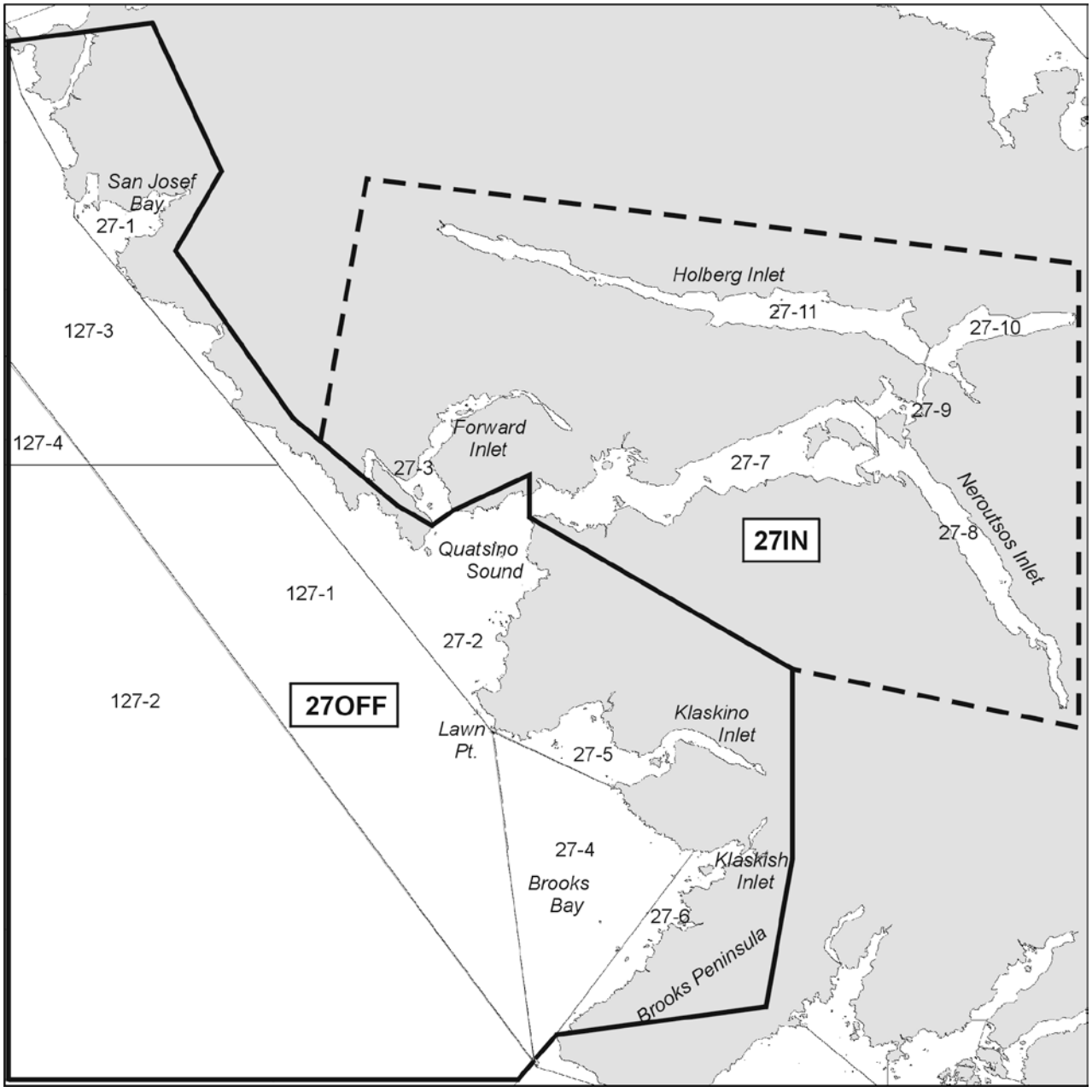


Figure 25. Shrimp Management Areas: 27IN (Areas 27-3, 27-7 to 27-11) and 27OFF (Areas 27-1, 27-2, 27-4 to 27-6, 127). Closed in 27-5 and 27-6.

APPENDIX 9: MAPS OF SHRIMP MANAGEMENT AREAS

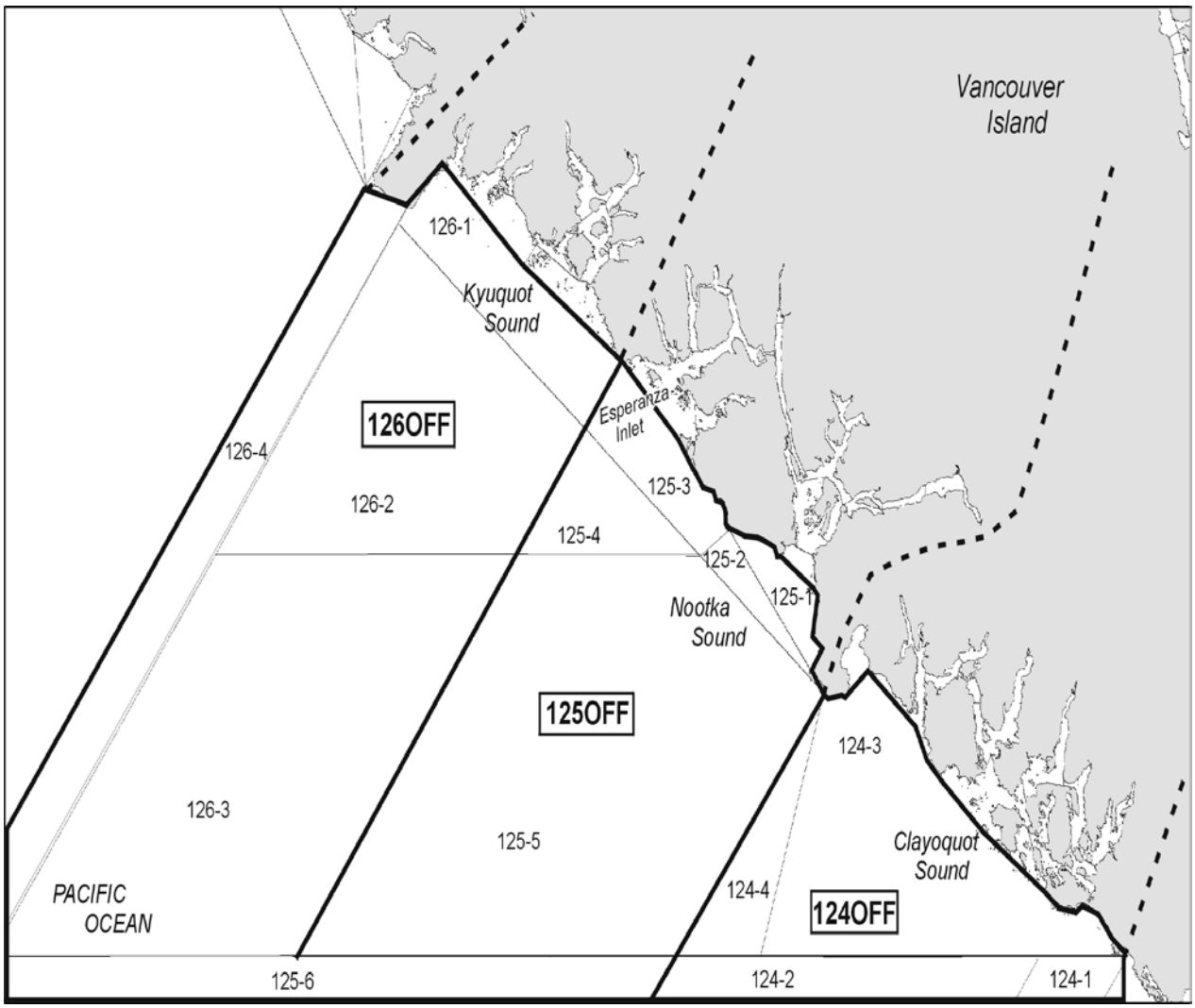


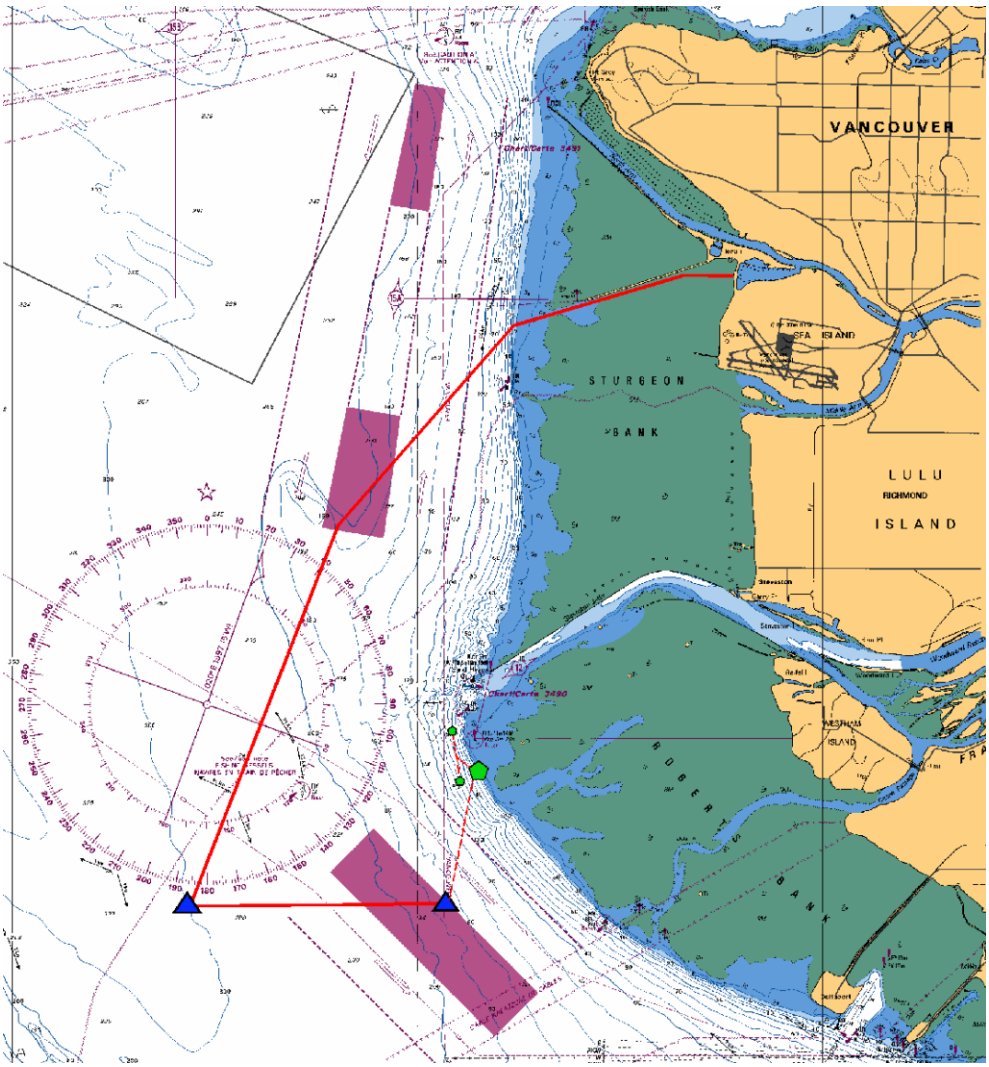
Figure 26. Shrimp Management Areas: 124OFF (Area 124), 125OFF (Area 125) and 126OFF (Area 126).

APPENDIX 10: FISHING HAZARD ADVISORY - VENUS GEORGIA STRAIT NODE, AREA 29

The Victoria Experimental Network Under the Sea (VENUS) project includes a shallow water installation that may pose a hazard to trawl fishing. Installation location for major platforms are:

ID	Latitude	Longitude	Depth	Name
VSG01	49° 02.12' N	123° 25.55' W	308m	Node Deep
VSG02	49° 02.50' N	123° 19.20' W	170m	Node Shallow
VSG03	49° 5.01' N	123° 18.93' W	35m	SED Lab

For more details see the internet website at www.venus.uvic.ca.



APPENDIX 11: FISHING HAZARD ADVISORY - NEPTUNE NODE, WEST COAST VANCOUVER ISLAND

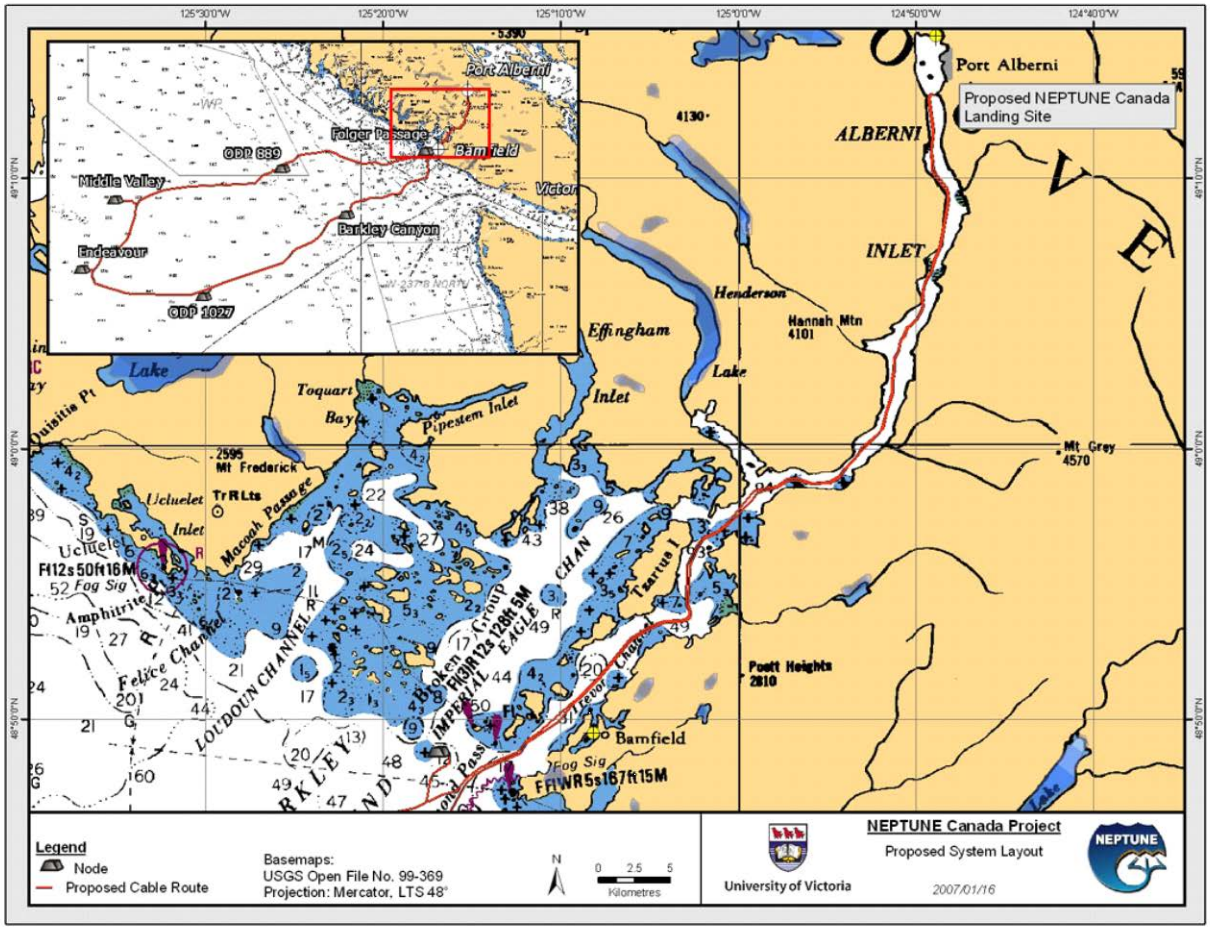
The NEPTUNE Canada Ocean Observatory is a scientific cabled ocean observatory that was installed on the seafloor in the waters off the West Coast of Vancouver Island. The remaining infrastructure was installed in 2008. The Observatory consists of a ring of powered telecommunications cable laid on the seafloor down the centre of Alberni Inlet and Trevor Channel across the continental shelf and out to approximately 160 nautical miles offshore (2500 meters water depth). The instruments on the observatory will provide scientists with an unprecedented year-round view of ocean processes.

The system layout is detailed in the included figure. The cables installed in Alberni Inlet and Trevor Channel are 28 mm in diameter and are surface laid. Burial of the cables starts as they exit Trevor Channel.

A science instrument site is installed within the Folger Passage Rockfish Conservation area. This site includes a connection point for a series of instruments be positioned on the seafloor within 200 meters of the connection point.

To download the cable route details and further information please go to http://www.oceannetworks.ca/installations/notice-mariners

LOCATION OF THE NEPTUNE NODE – WEST COAST VANCOUVER ISLAND



APPENDIX 12: TERMS OF REFERENCE OF THE SHRIMP TRAWL SECTORAL COMMITTEE

1. MANDATE

The Shrimp Trawl Sectoral Committee provides a forum for the exchange of information and views between the people involved with the industry and the Department of Fisheries and Oceans (DFO) on issues important to the management of the fishery. It should be noted that DFO's primary mandate remains the conservation and protection of stocks to ensure long-term, sustainable harvest. The Sectoral Committee is not a voting body; the intent is for DFO to receive a broad range of advice from stakeholders and other concerned parties. DFO, however, remains the decision making authority. The purpose of the sectoral committee is to act as a vehicle for positive change. It is essential that members assume the responsibility of keeping themselves informed to achieve effective and productive meetings.

1.1. The Sectoral Committee has the following goals.

1.1.1. Allow the exchange of information between the stakeholders (native, commercial, and recreational) and DFO.

1.1.2. Advise on the development of annual Management Plans for the fishery.

1.1.3. Develop cooperative programs, joint projects, and partnerships to develop long-term management strategies for the fishery, including:

1.1.4. Provide information and advice regarding stock assessment and biological research for the fishery.

1.1.5. Develop means to reduce bycatch in the shrimp trawl industry

1.1.6. Advise the Minister of Fisheries and Oceans on the use of discretionary penalties against harvesters caught violating the rules and regulations of the fishery.

1.1.7. Recommend representatives to other advisory bodies, as required.

2. ORGANIZATION

Advisors will be selected to represent the following stakeholders and will be responsible for keeping their constituents informed:

Licence holders	Up to 6 advisors, selected by S licenced vessel owners to represent current licence holders
Processors	Up to 4 advisors, selected to represent active buyers and processors
First Nations	1+ advisors, selected to represent First Nations interests
Other representatives	1+ advisors, if necessary, selected to represent other significant interests in the fishery (e.g., recreational harvesters, aquaculture, crew)

Licence holder representatives will be selected either by a vote conducted by DFO of the licence holders of record or by organisations representing the licence holders. DFO may appoint additional advisors to ensure representation from all geographic areas and gear groups.

Processors will be selected by DFO to represent all active buyers and processors in the fishery.

First Nations representatives will be identified following consultation with Aboriginal groups.

Advisors will be elected or appointed for a three year term. Licence holders may select another current advisor to represent them during the three years. Advisors will not be added unless the Committee provides unanimous consent.

Each advisor will identify an alternate, who may attend all meetings but only participate if the advisor is absent.

The Ministry of Agriculture, Fisheries, and Food, and, if necessary, other Ministries, will represent the Province of B.C. on the Committee.

DFO will chair the Committee meetings. Other DFO staff will attend as appropriate.

The Committee can invite other people to participate when appropriate.

3. PROCEDURES

Minutes of all meetings will be taken. They will be distributed to all advisors for approval, then made available to the public. The information will be available on the internet following links from the Shellfish Consultations webpage at:

http://www.pac.dfo-mpo.gc.ca/consultation/shell-crust/index-eng.html

Committee recommendations will only be made with the agreement of all advisors. When complete agreement cannot be reached, all consenting and dissenting opinions will be recorded in the minutes.

- All Sectoral Committee meetings can be attended by observers, subject to prior approval by the chairperson. These observers cannot participate in the meeting unless approved by the chairperson.
- The chairperson can appoint subcommittees to report on specific tasks. The subcommittee will require clear objectives, members identified (including the chairperson), and set deadlines.
- There must be at least one meeting a year to consider the annual management plan. The chairperson can call other meetings as required. The chairperson will prepare an agenda and circulate it to all advisors before the meeting.
- The Sectoral Committee will consider developing a code of conduct that, if violated, provides the basis for dismissal from the Committee. Repeated absence from meetings and blatant violations against the *Fisheries Act* or Regulations would be considered adequate grounds for dismissal.

APPENDIX 13: EXAMPLE 2016/2017 SHRIMP TRAWL CONDITIONS OF LICENCE

This document is provided as example only. Conditions of licence are attached to the licence upon purchase and are the official conditions of licence harvesters must follow. Conditions may be modified annually from that provided here.

Authority

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

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

Also, it is the responsibility of individual fish harvesters to be informed of, and comply with, the *Fisheries Act* and the regulations made thereunder, in addition to these conditions.

For information on management of the shrimp-by-trawl fishery obtain a copy of the current Integrated Fisheries Management Plan for Shrimp by Trawl. The Management Plan is intended for general information purposes only. Where there is a discrepancy between the Plan and the *Fisheries Act* and regulations or these conditions, the *Fisheries Act* and regulations and these conditions prevail.

PART 1

Application

This Part applies to fishing for shrimp, by means of trawl gear.

Definitions

“Area” and “Subarea” have the same meanings as in section 2 of the *Pacific Fishery Management Area Regulations, 2007*.

“beam trawl” means a bag shaped net that is dragged through the water by a vessel for the purpose of catching shrimp, in which the mouth of the net is held open by a single rigid beam of wood or metal.

“Department” means the Department of Fisheries and Oceans.

“fishing trip” means a voyage that commences at the time a fishing vessel leaves a port, dock or other permanent anchorage to engage in fishing and terminates at the time any fish caught during that period are offloaded.

“landed” or “landing” means the transfer of any quantity of shrimp from a vessel to land including docks and wharves at the end of a fishing trip.

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

“offloading” means the landing or removal of catch from the vessel.

“otter trawl” means a bag shaped net dragged through the water by a vessel for the purpose of catching shrimp, in which the mouth of the net is held open by “otter” boards (or commonly known as “doors”) of wood and/or metal.

“Shrimp Management Areas” are described in the current “Integrated Fisheries Management Plan for Shrimp by Trawl”.

“vessel master” means the person present on the vessel who has overall and ongoing responsibility for the operation of the vessel and fishing activities.

“vessel registration number (VRN)” means the number assigned to a vessel by the Department at the time the vessel is registered as a fishing vessel.

1. Species, quantity, and size of fish permitted to be taken:

(1) The following shrimp species may be caught and retained:
(a) Northern Pink Shrimp (*Pandalus borealis*);
(b) Pink Shrimp (*Pandalus jordani*);
(c) Sidestripe Shrimp (*Pandalopsis dispar*);
(d) Flexed Shrimp (*Pandalus goniurus*);
(e) Coonstripe Shrimp (*Pandalus danae*); and
(f) Humpback Shrimp (*Pandalus hypsinotus*).

(2) Prawn Shrimp (*Pandalus platyceros*) caught incidentally while fishing for those species of shrimp set out in subsection 1(1) may be retained in a quantity that does not exceed 100 individual whole, in the shell, Prawn Shrimp, provided that the area is open for fishing for Prawn Shrimp by means of trawl gear.

(3) The minimum size limit for prawns is 33 mm carapace length, measured from the posterior-most part of the eye orbit to the posterior mid-dorsal margin of the carapace.

(4) Opal Squid (*Doryteuthis opalescens*) caught incidentally while fishing for those species of shrimp set out in subsection 1(1) may be retained in a quantity that does not exceed 2% of the total weight of shrimp on board the vessel.

(5) Octopus (*Enteroctopus dofleini*) caught incidentally while fishing for those species of shrimp set out in subsection 1(1) may be retained.

2. Waters where fishing is permitted:

Subject to variation of the close times set out in the *Pacific Fishery Regulations, 1993*, fishing under the authority of this licence is permitted within all Areas and Subareas, except Areas 2, 107 to 111 and 130 and Subareas 7-1, 7-25, 7-26, 7-31, 8-1, 10-1, 10-2, 11-1 and 11-2.

3. Fishing gear permitted to be used:

(1) An otter trawl net or beam trawl net modified to reduce by-catch of species other than shrimp in the manner described in subsections 3(2) and

3(3). Refer to the current Integrated Fisheries Management Plan for Shrimp by Trawl for further information.

(2)(a) Each trawl net used under this licence shall have a rigid grid (e.g. aluminum, PVC), sometimes called a Nordmore grate, inserted into the forward end of the cod end of the trawl net at an angle so that it entirely blocks access to the cod end, except for the spaces between the bars.
(b) The bars of the grid shall be not more than 31.75 mm (1.25 inches) apart.
(c) The netting directly above the grid shall have a triangular opening ("escape hole") the full width of the grate. The sides of the opening shall be reinforced so that the opening remains unobstructed and maintains its shape while the net is being towed through the water.

(3) In addition, the top (hood or upper belly) of each otter trawl net used under this licence shall contain a minimum 4.4 m^2 panel of large mesh with minimum 4 cm square openings, such as found in plastic lattice snow-fencing or large mesh netting hung on the square.

(4) Mechanized devices that automatically separate by-catch from shrimp (e.g. "smelt belts") shall not be used.

(5) On-board shrimp sorting devices to separate shrimp by size are allowed., but

4. The segregation of species on board the vessel:

(1) All prawn shall be segregated on board the vessel from all other species of shrimp.

(2) Subject to subsections (3) and (4), discarding of shrimp is not allowed. All shrimp (other than prawns and other species when areas are closed) that are caught shall be retained and reported in logbooks and hailed as landed catch.

(3) Undersize prawn, shrimp that the vessel is not permitted to retain and other by-catch for which the vessel does not have a licence shall be returned to the water immediately and in the manner that causes the least harm.

(4) Any prawns with an egg mass (berried females) shall be returned to the water immediately and in the manner that causes the least harm. Eggs shall not be removed from prawns carrying eggs.

5. If vessel is licensed for fishing for shrimp by means of trap gear:

Where this licensed vessel holds a shrimp-by-trap commercial fishing licence, any shrimp caught under authority of that licence shall be offloaded prior to the vessel fishing under authority of this licence.

6. Catch prohibited on board the licensed vessel while fishing:

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

7. Fishing Activity Reports:

(1) Prior to commencing fishing:
(a) Prior to commencing fishing and at least 24 hours prior to leaving port, the vessel master shall:
(i) obtain a Fishing Hail Number; and
(ii) record the Fishing Hail Number in the Shrimp Trawl Fishing Log.

(b) To obtain a Fishing Hail Number, the service provider shall be contacted at 1-866-377-1400 (08:00 h to 17:00 h, Monday to Friday only) and the following information shall be provided:
(i) vessel name, vessel registration number, vessel master's name and contact telephone number, autotel or cellular phone number of vessel, and gear type (beam or otter trawl); or a shrimp fish harvester identification number assigned by the service provider;
(ii) Subarea or Shrimp Management Area to be fished;
(iii) anticipated date and time fishing will begin;
(iv) anticipated number of fishing days for the fishing trip;
(v) target shrimp species, i.e. which species the vessel master will direct the fishing effort towards;
(vi) type of product to be produced, (i.e. fresh, live, frozen at sea);
(vii) anticipated date and time of offloading at the end of the fishing trip; and
(viii) anticipated port and location of offloading at the end of the fishing trip.

(2) Prior to changing area:
(a) In the event of a change in the Subarea or Shrimp Management Area to be fished as reported under subsection 6(1), the vessel master shall notify the service provider at 1-866-377-1400 (08:00 h to 17:00 h, Monday to Friday only) and shall provide the following information:
(i) Fishing Hail Number which applies to the current fishing trip;
(ii) new Subarea or Shrimp Management Area to be fished;
(iii) the total weight of each species of shrimp as set out in subsection 1(1), on board the vessel from each Shrimp Management Area fished;
(iv) anticipated number of fishing days in the new Subarea or Shrimp Management Area;
(v) target shrimp species, i.e. which species the vessel master will direct the fishing effort towards;
(vi) type of product to be produced, i.e. fresh, live, frozen at sea etc.; and
(vii) anticipated port of landing at the end of the fishing trip.

(3) Fishing trips longer than seven days:
(a) Every seven days, the vessel master shall contact the service provider at 1-866-377-1400 (08:00 h to 17:00 h, Monday to Friday only) and provide the following information:
(i) Fishing Hail Number which applies to the current fishing trip;
(ii) the Shrimp Management Area or Subarea in which fishing occurred; and
(iii) the total weight of each species of shrimp as set out in subsection 1(1), on board the vessel from each Shrimp Management Area fished.

(For example, if the Fishing Hail Report is made on Monday, then an update of catch information is required every Monday for the duration of the fishing trip.)

(4) Prior to landing catch:

(a) Prior to landing catch at the end of a fishing trip, the vessel master shall:
(i) obtain a Landing Hail Number; and
(ii) record the Landing Hail Number in the Shrimp Trawl Fishing Log.

(b) To obtain a Landing Hail Number, the vessel master shall contact the service provider at 1-866-377-1200 (24 hours per day) or at 1-866-377-1400 (08:00 h to 17:00 h, Monday to Friday only) and the following information shall be provided:
(i)Fishing Hail Number which applies to the current fishing trip;
(ii) vessel name, vessel registration number, vessel master's name, or shrimp fish harvester identification number;
(iii) date fishing began;
(iv) date of offloading;
(v) time of offloading;
(vi) port and location of offloading;
(vii) buyer;
(viii) the Shrimp Management Area(s) or Subarea(s) in which fishing occurred;
(ix) the total hours towed for each Shrimp Management Area fished; and
(x) the total weight of each species of shrimp*, as set out in subsection 1(1), on board the vessel from each Shrimp Management Area fished.

*Northern Pink Shrimp (*Pandalus borealis*) and Pink Shrimp (*Pandalus jordani*), may be reported as "Pink Shrimp".

(5) Should the vessel master decide not to fish after obtaining a Fishing Hail Number, the vessel master shall obtain a Landing Hail Number by contacting the service provider at 1-866-377-1200 (24 hours per day) or at 1-866-377-1400 (08:00 h to 17:00 h Monday to Friday only) and indicating that no fishing occurred.

8. Transporting shrimp:

(1) A copy of the fish slip (see section 12) shall be given to any person transporting shrimp or incidental catch caught under the authority of this licence and shall accompany the shrimp or incidental catch in transit, including shrimp or incidental catch for personal use. This provision allows persons to transport shrimp caught under the authority of their own licence and provides a record of licensed catch.

9. Records – Harvest Logs and fishing location information:
(see explanatory note after section 13)

(1) The vessel master shall maintain a log of all harvest operations and provide this information in both hard (paper) copy and electronic copy to the Department. The content and format of this log (paper and electronic) shall meet the requirements as defined by the Fisheries and Oceans Canada Shellfish Data Unit, Marine Ecosystem and Aquaculture Division for this licence period.

(2) The harvest and fishing information recorded in the log shall be complete and accurate.

(3) The information for each day's harvest operations shall be recorded in the log no later than midnight of that day.

(4) The log shall be kept on board the licensed vessel.

(5) The log shall be produced for examination on demand of a fishery officer.

(6) The vessel master shall enter latitude and longitude co-ordinates in the appropriate location in the log for each catch location.

(7) The completed log pages (original copy) and an electronic copy of the log including latitude and longitude co-ordinates shall be forwarded no later than 28 days, and sooner if possible, following the end of each month in which fishing occurred to:

Fisheries and Oceans Canada
Shellfish Data Unit
Marine Ecosystem and Aquaculture Division
Pacific Biological Station
3190 Hammond Bay Road
Nanaimo, BC, V9T 6N7
Tel: (250) 756-7022 or (250) 756-7306

10. Requirement to take an Observer:

All vessels are required to take on board an observer when requested to do so by the Regional Director-General for the Pacific Region.

11. Requirement for Dockside Observers:

(1) The vessel master shall arrange for a minimum of 2 days of observer coverage from April 1, 2016 to March 31, 2017 at the time of offloading.

(2) When the observer is present at the offload:
(a) The weight of all fish shall be verified by the observer.
(b) When any fish taken under the authority of this licence are landed, all fish on board the vessel shall be landed at the same time.
(c) The vessel master shall provide to the observer, or fishery officer attending the landing, access to the vessel’s fish holds, freezers and other fish storage locations at any time during the landing or at the conclusion of the landing.

12. Reporting catch on fish slips:

(1) An accurate written report shall be provided on a fish slip of all fish and shellfish caught under the authority of this licence.

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

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

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

V6C 3S4

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

13. Species at Risk:

(1) Pursuant to subsection 73(2)(c) and section 74 of the *Species at Risk Act (SARA)*, this licence authorizes the vessel master, subject to the following conditions, to engage in fishing activities that:

(a) are conducted under licences issued under the *Fisheries Act*, and
(b) incidentally kill, harm, harass, capture or take Basking Shark (*Cetorhinus maximus*).

(2) Pursuant to subsections 73(2)(c) through 73(6) of *SARA*, the vessel master shall ensure:

(a) that while the fishing activities are conducted, every measure will be taken to avoid the incidental capture of Basking Shark.
(b) that while the fishing activities are conducted, fishing gear is not set or hauled when Basking Sharks are within 10 m of the fishing vessel, and/or are visible at the water's surface.
(c) that while the fishing activities are conducted, any Basking Shark incidentally caught and live, is released in a manner that causes them the least harm.

Explanatory Note – Fishing Activity Reports, Harvest Log Data, and Dockside Observations: The Pacific Coast Shrimpers' Cooperative Association has contracted a service provider to provide, for a fee, the activity reports, harvest log coding and keypunching and validation services meeting the requirements of Fisheries and Oceans Canada.

Fish harvesters who do not use the Harvest Log, coding and keypunch services provided by a service company shall contact the Shellfish Data Unit at (250) 756-7306 or (250) 756-7022 in order to obtain the information necessary to fulfill these requirements.

APPENDIX 14: MAPS OF ROCKFISH CONSERVATION AREAS

Fishing shrimp by trawl is not permitted in Rockfish Conservation Areas (RCAs). These areas are closed to fishing by shrimp trawl April 1, 2016 to March 31, 2017. Currently, 164 RCAs exist. For further information on the RCAs including legal descriptions, the permitted fishing activities within the areas, and possible further consultations, refer to the internet web page:

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

The fishery notices make reference to these areas as “Permanent Closures” without giving the legal description. It is the responsibility of each shrimp harvester to identify where these areas are and to avoid fishing in them.

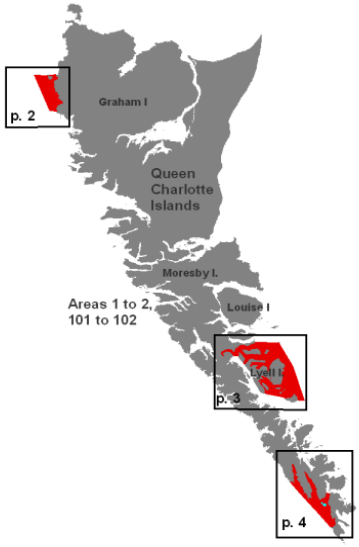
Overall Maps of RCAs

Areas 1 to 2, 101 to 102

Areas 1 to 2, 101 to 102 RCAs:

- p.2: Frederick Island
- p.3: Lyell Island
- p.4: South Moresby Island

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



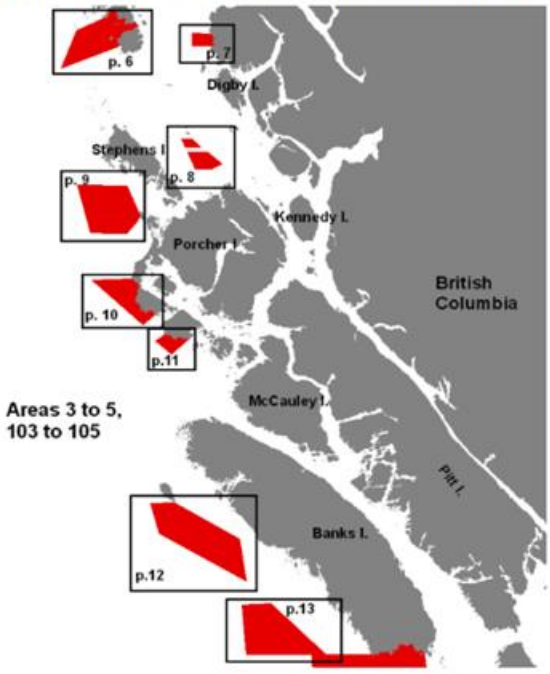
Date modified: 2014-06-03

Areas 3 to 5, 103 to 105

Areas 3 to 5, 103 to 105 RCAs:

- p.6: Dunira
- p.7: Hodgson Reefs
- p.8: Gull Rocks North
- p.8: Gull Rocks South
- p.9: Stephens Island
- p.10: Porcher Peninsula
- p.11: Goschen
- p.12: West Banks Island
- p.13: North Danger Rocks

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



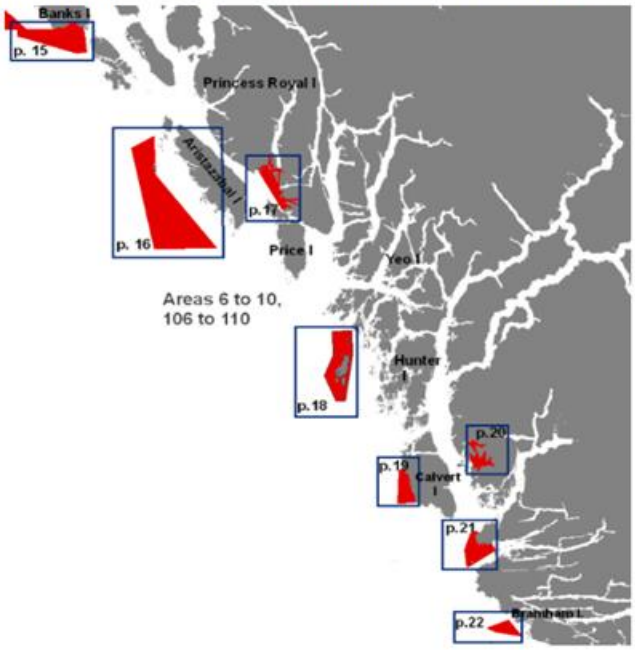
Date modified: 2008-09-24

Areas 6 to 10, 106 to 110

Areas 6 to 10, 106 to 110 RCAs:

- p.15: Otter Passage
- p.16: West Aristazabal Island
- p.17: Kitasu Bay
- p.18: McMullin Group
- p.18: Goose Island
- p.19: West Calvert
- p.20: Fish Egg Inlet
- p.21: Smith Sound
- p.22: Storm Islands

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



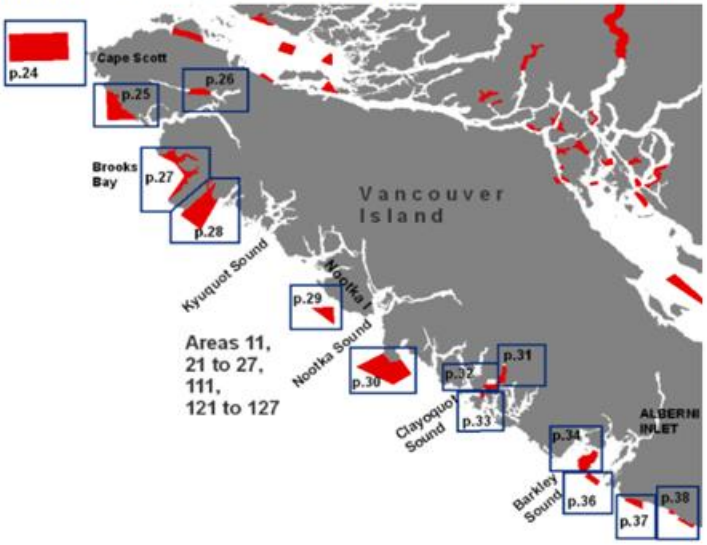
Date modified: 2008-09-24

Areas 11, 21 to 27, 111, 121 to 127

Areas 11, 21 to 27, 111, 121 to 127 RCAs:

- p.24: Scott Islands
- p.25: Topknot
- p.26: Holberg Inlet
- p.27: Brooks Bay
- p.28: Checleset Bay
- p.29: West of Bajo Reef
- p.30: Estevan Point
- p.31: Bedwell Sound
- p.32: Saranac Island
- p.33: Vargas Island to Dunlap Island
- p.34: Broken Islands Group
- p.36: Folger Passage
- p.37: Pachena Point
- p.38: Dare Point
- p.38: Carmanah

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



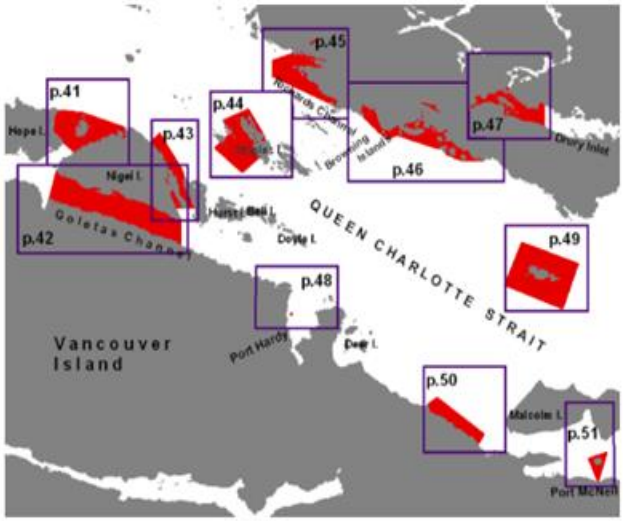
Date modified: 2008-09-24

Area 12 Northern Portion

Area 12 Northern Portion RCAs:

- p.41: Bate - Shadwell Passage
- p.42: Goletas Channel
- p.43: Browning Passage - Hunt Rock
- p.44: Bolivar Passage
- p.45: Shelter Bay
- p.46: Browning Islands to Raynor Group
- p.47: Drury Inlet - Muirhead Islands
- p.48: Hardy Bay - Five Fathom Rock
- p.49: Numas Islands
- p.50: Susquash
- p.51: Haddington Passage

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



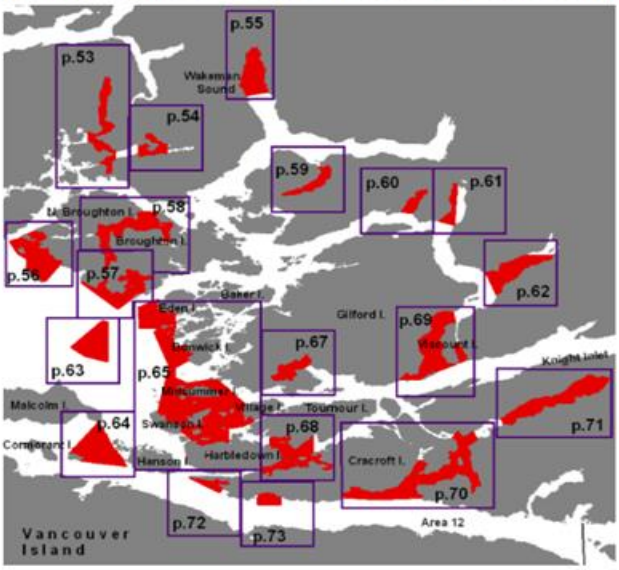
Date modified: 2008-09-24

Area 12 Southern Portion

Area 12 Southern Portion RCAs:

- p.53: Burley Bay - Nepah Lagoon
- p.54: Mackenzie - Nimmo
- p.55: Wakeman Sound
- p.56: Dickson Polkinghorne Islands
- p.57: Nowell Channel
  p.58: Greenway Sound
- p.59: Belleisle Sound
- p.60: Kwatsi Bay
- p.61: Bond Sound
- p.62: Thompson Sound
- p.63: Salmon Channel
- p.64: Weynton Passage
- p.65: Eden -Bonwick - Midsummer -Swanson Islands
- p.67: Port Elizabeth
- p.68: Lower Clio Channel
- p.69: Viscount Island
- p.70: Havannah Channel
- p.71: Upper Call Inlet
- p.72: Cracroft Point South - Sophia Islands
- p.73: West Cracroft - Boat Bay

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



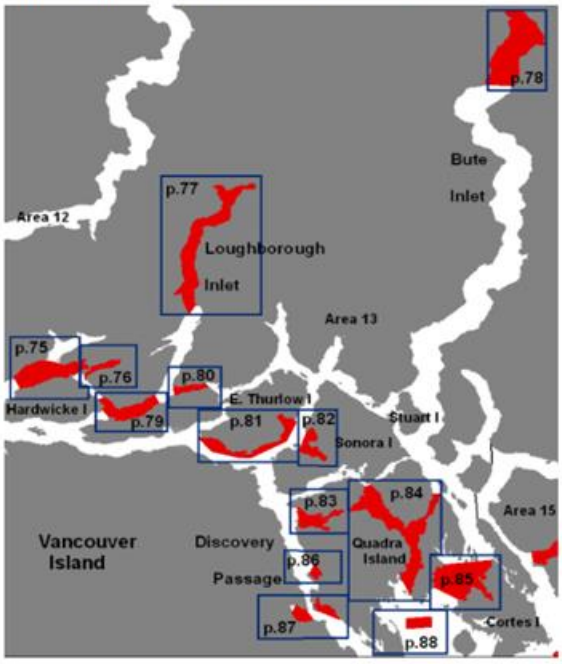
Date modified: 2008-09-24

Area 13

Area 13 RCAs:

- p.75: Wellborne
- p.76: Forward Harbour
- p.77: Loughborough Inlet
- p.78: Bute Inlet North
- p.79: Chancellor Channel West
- p.80: Chancellor Channel East
- p.81: Walkem Islands to Hemming Bay
- p.82: Thurston Bay
- p.83: Kanish Bay
- p.84: Octopus Islands to Hoskyn Channel
- p.85: Read – Cortes Islands
- p.86: Deepwater Bay
- p.87: Menzies Bay
- p.87: Maud Island
- p.88: Heriot Bay

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



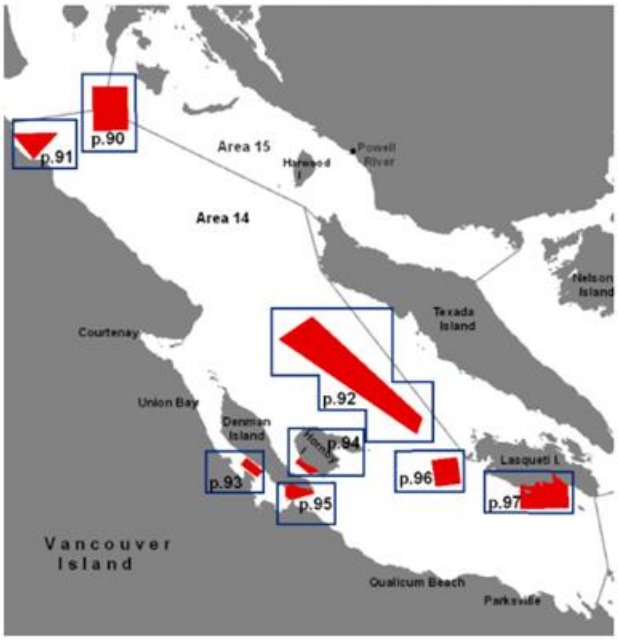
Date modified: 2008-09-24

Area 14

Area 14 RCAs:

- p.90: Mittlenatch Island
- p.91: Oyster Bay
- p.92: Ajax - Achilles Bank
- p.93: Baynes Sound
- p.94: Savoie Rocks - Maude Reef
- p.95: Chrome Island
- p.96: Sisters Islets
- p.97: Lasqueti Island South

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



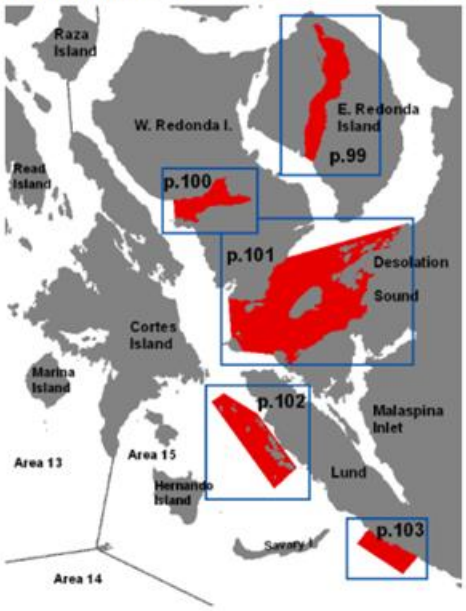
Date modified: 2008-09-24

Area 15

Area 15 RCAs:

- p.99: Pendrell Sound
- p.100: Teakerne Arm
- p.101: Desolation Sound
- p.102: Copeland Islands
- p.103: Dinner Rock

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



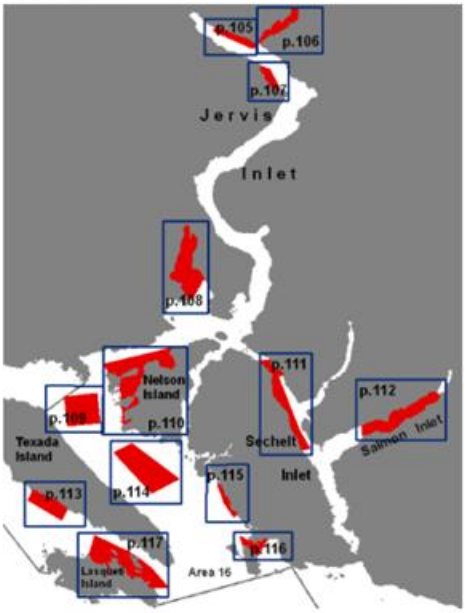
Date modified: 2008-09-24

Area 16

Area 16 RCAs:

- p.105: Queens Reach East
- p.106: Princess Louisa Inlet
- p.107: Queens Reach West
- p.108: Hotham Sound
- p.109: Sinclair Bank
- p.110: Hardy Island
- p.110: Nelson Island
- p.111: Skookumchuck Narrows
- p.112: Salmon Inlet
- p.113: Davie Bay
- p.114: Malaspina Strait
- p.115: McNaughton Point
- p.116: Thormanby Island
- p.117: Sabine Channel - Jervis - Jedediah Islands

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



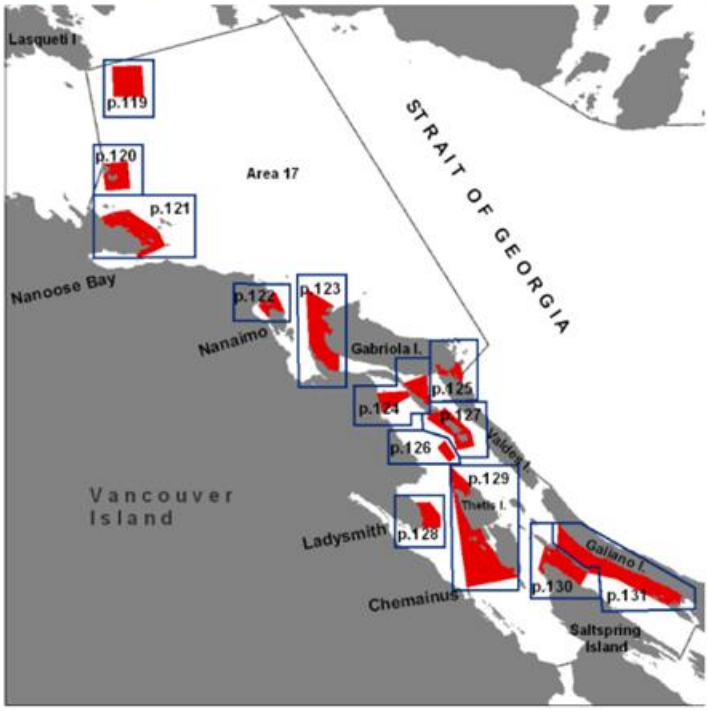
Date modified: 2008-09-24

Area 17

Area 17 RCAs:

- p.119: Lasqueti South - Young Point
- p.120: Ballenas Island
- p.121: Nanoose - Schooner Cove
- p.122: Departure Bay
- p.123:Northumberland Channel
- p.124: De Courcy Island North
- p.124: Reynolds Point - Link Island
- p.125: Gabriola Passage
- p.126: Danger Reefs
- p.127: Ruxton - Pylades Islands
- p.128: Coffin Point
- p.129: Thetis - Kuper Islands
- p.130: Saltspring Island North
- p.131: Trincomali Channel

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



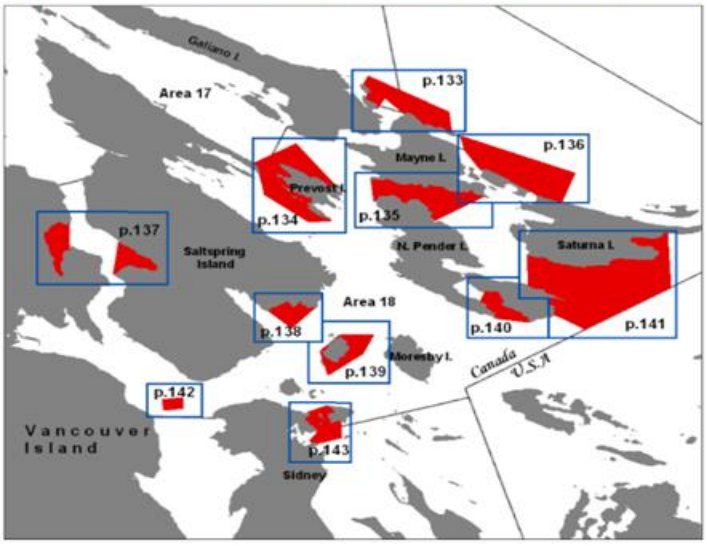
Date modified: 2008-09-24

Area 18

Area 18 RCAs:

- p.133: Mayne Island North
- p.134: Prevost Island North
- p.135: Navy Channel
- p.136: Bell Chain Islets
- p.137: Maple Bay
- p.137: Burgoyne Bay
- p.138: Russell Island
- p.139: Portland Island
- p.140: Bedwell Harbour
- p.141: South Saturna
- p.142: Patey Rock
- p.143: Coal Island

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



Date modified: 2008-09-24

Areas 19 and 20

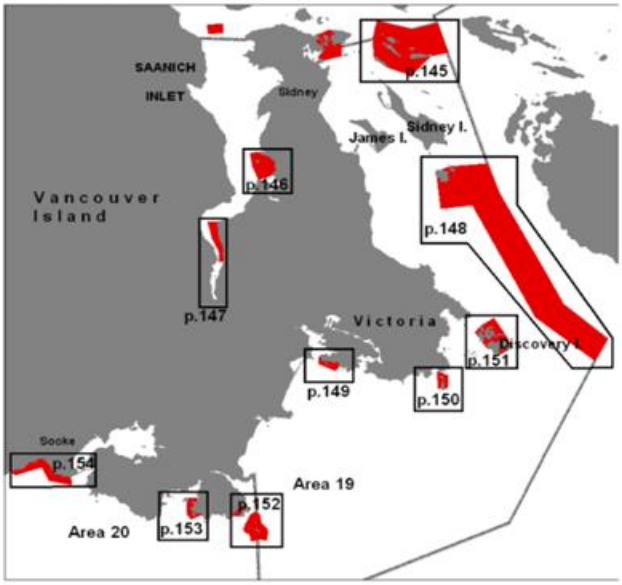
Area 19 RCAs:

- p.145: Brethour, Domville, Forrest, Gooch Islands
- p.146: Brentwood Bay
- p.147: Mid Finlayson Arm
- p.148: D'Arcy Island to Beaumont Shoal
- p.149: Duntze Head (Royal Roads)
- p.150: Trial Island
- p.151: Discovery - Chatham Islands
- p.152: Race Rocks

Area 20 RCAs:

- p.152: Bentinck Island
- p.153: Becher Bay East
- p.154: Sooke Bay

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



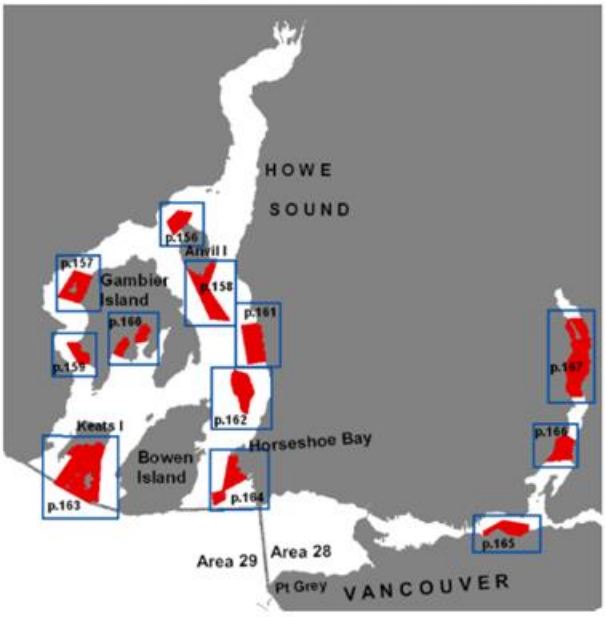
Date modified: 2012-11-12

Area 28

Area 28 RCAs:

- p.156: Domett Point
- p.157: Woolridge Island
- p.158: Pam Rock
- p.159: Mariners Rest
- p.160: West Bay
- p.160: Upper Centre Bay
- p.161: Lions Bay
- p.162: Bowyer Island
- p.163: Pasley Island
- p.164: Passage Island
- p.164: West Vancouver
- p.165: Eastern Burrard Inlet
- p.166: Indian Arm - Twin Islands
- p.167: Indian Arm - Croker Island

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



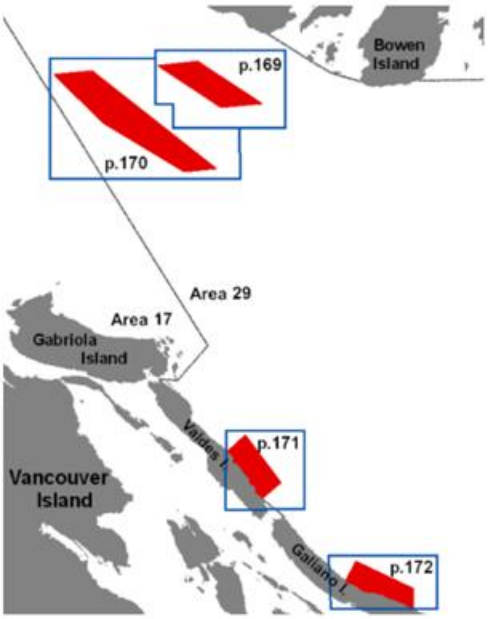
Date modified: 2008-09-24

Area 29

Area 29 RCAs:

- p.133: Mayne Island North
- p.169: McCall Bank
- p.170: Halibut Bank
- p.171: Valdes Island East
- p.172: Galiano Island North

Instructions: Click on RCA box or link for closer views and coordinates of the RCAs.



Date modified: 2008-09-24

APPENDIX 15: 2016/17 SHRIMP TRAWL DATA AND REPORTING STANDARDS

This document describes the official Fisheries and Oceans Canada standards for fishery monitoring and catch reporting in the commercial Pacific Shrimp by Trawl fishery, including data collection and delivery requirements. The requirements have been defined for the proper management and control of the fishery.

This document is intended to provide information to the industry association and licence holders regarding their obligations for reporting during the 2016/17 season, and may be used by commercial licence holders in discussions with third-party Service Providers who may be interested in bidding on the opportunity to provide these programs and requirements on behalf of licence holders. Licence holders are ultimately responsible for ensuring that all data is delivered to DFO within the set deadlines, and following the proper format and delivery method.

Licence holders shall arrange for a service provider to coordinate the provision of the fishery monitoring and catch reporting programs, and interact with licenced vessel owners in consideration of arrangements for the hail service, observer coverage and dockside monitoring prior to licence issuance.

Licence holders applying for a vessel-based shrimp trawl S licence or commercial communal FS licence will be required to ensure that they have made arrangements, either individually or through an area association, for each element of these programs to be completed on their behalf.

Prior to the Department opening the fishery for the season all commercial licence holders, or associations acting on their behalf, are required to demonstrate to the Department how each of the fishery monitoring and catch reporting program requirements will be met. It is essential that programs will function to meet at least the minimum program standards of the Department described in this document. Confirmation that arrangements are in place must be presented to the Department a minimum of 7 weeks prior to the Department opening the fishery. The Department will review proposals to ensure they meet all program standards, and may request discussion with proponents for clarification. Departmental approval of programs will be provided in writing. The Department recommends that licence holders refrain from committing to any contract arrangements with Service Providers prior to the Department confirming in writing approval for the proposal(s) submitted on their behalf.

All program components, as outlined in the proposal and approved by the Department, must be in place for the start of the fishery.

The Department requires that all licence holders choose a single Service Provider for the fishing activity hail program and for the quota tracking report hail program. Individual licence holders may choose to select a different or multiple Service Providers to provide logbook services, or arranging at-sea observer coverage for their vessels provided that submission of data and reports meet DFO format standards and delivery timelines.

1 MONITORING OBJECTIVES

Objectives for the fishery monitoring and catch reporting program for the shrimp trawl fishery include:

- Provide a key compliance control function by issuing fishing hails and landing hails for fishing activity;
- Collect reported effort data and information on active vessels;
- Collect skippers' catch estimates by species and shrimp management area;
- Document fishing effort and catch in logbook format electronically;
- Monitor catch of non-target species in specific areas;
- Provide a sample of fishery independent landings estimates by species to monitor skippers catch estimate variability and species reporting.

2 PROGRAM OVERVIEWS

The fishery monitoring and catch reporting for the shrimp trawl fishery includes:

- Fishing hails;
- Harvest logbook reporting;
- Weekly and annual summaries of fishing and landing information;
- At-Sea Observer coverage;
- Random dockside observations;
- Fish slip reporting (provided to DFO directly – data and reporting standards not included in this summary).

2.1 Fishing Hails

Monitoring of fishing activity in the shrimp trawl fishery is by means of a fishing hail number to fish in an open area and a landing hail number prior to landing and selling the catch so that skippers' estimates of total catch by species for each shrimp management area can be monitored. Licence holders shall arrange for a Service Provider to operate a phone-in toll free number to provide a fishing hail number that is available Monday to Friday, 08:00 to 17:00 hours. Only vessel owners with a valid S or FS licence who have arranged for the fishery monitoring, catch reporting, and observer program are eligible to obtain a fishing hail number. Vessel masters must obtain a hail number prior to beginning harvesting.

The Service Provider shall define a fishing hail number for a vessel with a valid S or FS licence to permit the vessel to fish in a shrimp management area with remaining catch ceiling that is open to the commercial fishery.

Fishing hail number will not be provided if the area is closed, if a vessel has not met required conditions of licence such as agreement to carry an observer, or some other requirement defined by Resource Managers for the proper control and monitoring of the fishery.

See Section 3.1. for more information on details data delivery requirements.

2.2 Landing Hails

Licence holders must arrange for a Service Provider to provide vessels with a landing hail after each completed fishing trip, or every seven days for longer trips. The Service Provider shall receive the harvester's catch to date and provide a landing hail number or an updated fishing hail number in order to complete the fishing trip, or to continue fishing. Licence holders shall arrange for the Service Provider to provide a phone-in toll free number to receive landings, and this phone-in number shall be available 24 hours a day, 7 days a week. The Service Provider shall maintain a database of fishing and landing hails and deliver the data electronically to DFO on a regular basis through the DFO Fisheries File Transfer Protocol System. Individual vessel landings estimates are confidential and shall not be released without written permission of the vessel owner. Summaries of landings by species and Shrimp Management Area (SMA) will be made available to the Department and interested parties through a weekly landing hail report.

See Section 3.1. for more information on details for data delivery requirements.

2.2.1 Weekly Landing Hail Reporting

Each week licence holders shall arrange for the Service Provider to prepare a summary of the cumulative hailed landings by SMA and species total allowable catch (TAC) or quota categories and make the landings summary available to DFO Managers, fishery participants and interested parties in a public Landings Quota Status (LQS) report. The landings report should be a regular distribution made each Wednesday. The report shall include all fishing activity by all licenced vessels.

The summary will include landings by Shrimp Management Area and Species, showing for each SMA: cumulative landings, remaining catch ceiling and number of vessels still fishing. The report shall include the following headings:

SMA -- Shrimp Management Area

Species -- the specific species defined in the IFMP

Catch Ceiling -- Total Allowable Catch as defined in the IFMP and updated during the season

Total Landed -- Cumulative total landed in pounds

Lbs Remaining -- Remaining TAC

% Remaining -- Percent of TAC remaining

AreaStatus -- Open or Closed

Active Vessels -- Number of active vessels (if less than 3 it will be shown as an *)

2.3 Logbook Data Reporting

The Licence holders are responsible for ensuring that accurate Shellfish Harvest Logs for the shrimp trawl fishery are maintained.

As a condition of licence, both a hardcopy (paper) and an electronic version of harvest log records must be submitted to the Shellfish Data Unit at the Pacific Biological Station in Nanaimo. The electronic version of the data may be submitted as a database table of specific

design (described in Section 3.2) created by one of the following database management tools: ACCESS 2010 (or earlier Access version).

The electronic version must be a true and accurate transcription of the hardcopy data. Each record will represent one tow. Incomplete, inaccurate or incorrect data will not be accepted, and it will be the responsibility of the Service Provider to obtain the required information from the individual fish harvester.

In order to fulfil stock assessment objectives, fish harvesters are required to supply on their logs a Lat/Long position.

Harvest data is to be submitted monthly to the Shellfish Data Unit FTP site with the filename following the convention of YY-MM-S, where YY is the Year, MM is the Month, and 'S' is the licence Tab Type for shrimp. The file type extension may be whatever is appropriate for the database tool used (e.g. .MDB for ACCESS 2010). Data submitted will remain the property of Fisheries and Oceans Canada.

2.4 At-sea Observations

Licence holders are responsible for ensuring that At-Sea Observer coverage is obtained for the fishery. Licence holders shall arrange for observers through the approved Service Provider who will deploy observers who will collect the information outlined in Section 3.3. In-season data summaries will be provided in a timely manner following each observed trip. Observer data will also be supplied to the Department in both hardcopy and electronic format, on a quarterly basis. "Observer" means an individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries and Oceans Canada pursuant to section 39 of the Fishery (General) Regulations.

Observers shall collect the following information for each vessel checked: vessel name, VRN, gear type, fishing hail number, observer, weather and set data, number of extruders (Nordmore grates), Area, Subarea, Shrimp Management Area, start and finish time of set, duration of tow, maximum and minimum depth, tow speed, total catch weight, shrimp weight and eulachon weight and other species weight observed for each set. Summaries of total catch weight, total shrimp weight and total eulachon weight for the trip will be summarized in a bycatch summary. Additional information on each species caught shall be collected and coded such as number per pound, condition and utilization.

In addition to collection of harvest data, observers shall collect biological samples (100 shrimp per tow, and a sample of any eulachon in the set) as directed by the Department and forward the samples to the Pacific Biological station following a protocol provided by the Department.

2.4.1 Sampling Effort for At-Sea Observations

The required number of At-sea Observer days, shrimp management areas, seasonality, and gear type priority is defined in the IFMP and may be adjusted each season, depending on target observer coverage. Total fishing effort will be monitored in-season using the skipper's hails of shrimp landed.

2.4.2 Trip Report Information

The trip report for each trip observed provides background on the vessel, the fishing trip and the catch during the observed trip. Comments in the trip report shall include any issues that may contribute to an understanding of the operation of the vessel and to how the landings reported on logbooks might be interpreted. Specific issues such as dumping of shrimp or prawn bycatch may be defined as specific tasks for the at-sea observations, depending on issues identified by Fishery Managers, Conservation and Protection Officers to address specific information needs on a species or area basis.

The Trip Report should include information on:

- Vessel and trip summary (departure times, hail numbers, etc)
- Catch Estimation Procedures (how total catch was determined, species compositions, tow duration, missed tows);
- Biological Sampling Procedures (how a species catch/composition was obtained, what measurement equipment was used, if weights were determined using a scale, how randomness of a sample was defined, unusual biological samples, etc);
- Observer Working Conditions (conditions which might influence catch or bycatch estimation calculations);
- Vessel Safety Information;
- Fishing Summary (objectives, trawl type and modifications, deck working area; net characteristics and specific gear modifications);
- Vessel Personnel Comments.

2.5 Random Dockside Observations

The objectives of the dockside observation program are to:

- Obtain accurate estimates of total catch and species composition of all product on board using sampling estimation methods.
- Collect biological samples of shrimp from the catch for analysis by DFO upon request.

The goal of the dockside observation program is to obtain an estimate of shrimp catch by species that is independent from the hailed estimate done by the fish harvester. Licence holders shall arrange for 20 days of random dockside observations by a third party Service Provider. These days shall be implemented throughout the year and throughout the coast, on the direction of the Department. Hardcopy and electronic data resulting from the dockside observation program shall be supplied to Resource Management on a quarterly basis or immediately following dockside observations in special circumstances if in-season management decisions require feedback from dockside information.

2.6 Annual Landings Reporting

Licence holders shall arrange for the Service Provider to write an annual report for the fishing season (April 1 to March 31). The report shall be submitted within seven (7) months after the end of the fishing season. Landing information may be requested more often than specified, as required by Fisheries and Oceans Canada Shellfish Managers, particularly as areas approach the catch ceiling. The designated Shellfish Managers shall be notified immediately if it is anticipated

that catch ceilings are nearing completion in any Shrimp Management Area. The format of the reports shall be specified and approved by Fisheries and Oceans Canada.

The final annual report shall include:

- Review of the season's Shrimp Trawl Fishery;
- Summary of fishery landings and fishing activity;
- Summary of catch monitoring program (at-sea and dockside observers);
- Compliance with the fishery management system;
- Current issues;
- Fish harvesters', processors' and Fisheries and Oceans Canada's Comments;
- Recommendations.

Specific reports may be defined as required, such as an incident report detailing illegal landing activity submitted to the designated Shellfish Manager within one business day of any suspected catch reporting violation. Any callers reporting any in-progress violations shall be directed to the ORR line (1-800-465-4336).

The Service Provider may be required to communicate between industry and Fisheries and Oceans Canada when necessary and attend meetings as required to discuss items or issues that impact the collection of information or performance of the requirements of the fishery monitoring and catch reporting program.

3 DATA STANDARDS AND REQUIREMENTS

The data collection standards and data requirements for each component of the shrimp trawl fishery monitoring and catch reporting program are detailed in the following sections. Some requirements are specific to interface with Departmental data management programs.

The following sections provide data standards and requirements

3.1 Fishing Hail and Landing Hail
3.2 Fishing Activity (Harvest) Logbook
3.3 At-Sea Observations
3.4 Bycatch Summary
3.5 Random Dockside Observations.

3.1 Fishing Hail and Landing Hail

Project Name:	**PacFish Information Management Framework**
Document Title:	**Shrimp Trawl Fishery Activity Hail Programs (Paper) Data Specifications**
File Number:	
Author:	DFO
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	November 27, 2015

This section provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data. All data submitted becomes the exclusive property of Fisheries and Oceans Canada

3.1.1 Tombstone

- **Fishery(s):** Shrimp Trawl Fishery
- **Fishery Season:** 2016-17
- **Data Collection Program Name:** Fishery Activity Hail (paper-based)
- **Associated Fishery Data Service:** Resource Management – Invertebrates, Pacific Region

3.1.2 Document Change History

Author	*Date*	*Description of Change*
Dan Clark	Nov 27, 2015	Specifics for hail program

Rationale

This hail program is integral to the following activities:

- Monitoring and tracking fishing activity
- Tracking and monitoring harvest against species and area catch ceilings

Data Transfer Requirements

Format: Microsoft Excel (2010 or earlier versions)

Medium: DFO ftp site or Email to Local Area Shrimp Manager

Timeliness: The vessel master shall arrange to obtain a fishing hail number a minimum of 24 hours prior to fishing

All data shall be made available to DFO no more than 7 days after the data has been received by the service provider.

The file must be a running update of all data for the season (i.e. the file must include all previous records as well as the new information being provided to DFO).

File Naming Conventions: TempExpFileYYYYMMDD.mdb (latest date YYYYMMDD)

The following information shall be recorded for each fishing activity report:

3.1.3 Electronic Data Format For Fishing and Landing Hails

3.1.3.1 Fishing Hail

Database Field Name	Field Type	Size
HailID	Number (Long)	4
ShrVesselNo	Number (Integer)	2
CFV	Text	6
VesselName	Text	32
SkipCode	Text	7
FIN	Text	7
Anecdotal	Yes/No	1
Active	Yes/No	1
FakeHailOut	Yes/No	1
HailOutNbr	Text	8
HailOutCallDate	Date/Time	8
HailOutCallTime	Date/Time	8
DepartDate	Date/Time	8
PlanLandDate	Date/Time	8
PlanOffldPort	Text	3
PlanOffldLoc	Text	15
FakeHailIn	Yes/No	1

HailInNbr	Text	8
HailInCallDate	Date/Time	8
HailInCallTime	Date/Time	8
ActualLandDate	Date/Time	8
ActualOffldTime	Date/Time	8
ActualOffldPort	Text	3
ActualOffldLoc	Text	15
TotalHrsTowed	Number (Byte)	1
NbrOfDaysFished	Number (Byte)	1
Landed	Text	1
Species1	Text	2
ProductType1	Text	2
Species2	Text	2
ProductType2	Text	2
Species3	Text	2
ProductType3	Text	2
TotalWtOnBoard	Number (Long)	4
Comments	Text	255
ContactPhone	Text	20
AutoTel	Text	20
GearType	Text	1
Notes	Text	255
ObsRequired	Text	1
CreateDt	Date/Time	8
DtTime	Date/Time	8
User	Text	3

3.1.4 Landing Hail

Database Field Name	Field Type	Size
HailID	Number (Long)	4
HailOutNbr	Text	8
HailUpdType	Text	20
HailUpdNbr	Text	8
EffDate	Date/Time	8
CallDate	Date/Time	8
LoggedBy	Text	10

spec_AMR	Text	2
ActualFisheryArea	Text	6
ActualArea	Number (Integer)	2
ActualSubArea	Number (Integer)	2
EstimateWt	Number (Long)	4

3.2 Fishing Activity (Harvest) Logbook

Project Name:	**PacFish Information Management Framework**
Document Title:	**Shrimp Trawl Harvest Log Program (Paper) Data Specifications**
File Number:	
Author:	Leslie Barton
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	November 16, 2015

This document provides information on the data requirements and specifications for programs collecting data for transfer to Fisheries and Oceans Canada, Pacific Region. The intended audience is both DFO staff and external groups involved in collecting, transferring or managing fisheries data, including Service Providers hired by harvesters or harvester associations to support compliance with Conditions of Licence.

3.2.1 Tombstone

- **Fishery(s):** Commercial Shrimp Trawl
- **Fishery Season:** 2016-17
- **Data Collection Program Name:** Shellfish Shrimp Trawl Harvest Log Program (paper-based)
- **Associated Fishery Data Service:** Shellfish Data Unit

3.2.2 Document Change History

Author	*Date*	*Description of Change*
Lorne Collicutt	Sept 7, 2011	First draft of template
Leslie Barton	Nov 16, 2015	Addition of specifics for shrimp trawl harvest log program

3.2.3 Data Transfer Requirements

- **Format:** MS Access 2010 (or earlier version) database file following the prescribed data transfer format (below) + hardcopy (paper) from which electronic data were transcribed.
  - A separate file must be created for each calendar year.
  - Hardcopy (paper) must be sorted by Vessel Registration Number (VRN) (ascending), with multiple pages for a single vessel paper clipped together. For any given vessel with multiple pages for the batch, the pages should be sorted in chronological order.
  - Hardcopy (paper) must be separated by calendar year.
  - Hardcopy (paper) must be accompanied by a batch summary report, consisting of the batch number/id, a listing of the VRN's contained in the batch, sorted in

ascending order, with a count of records associated with each VRN. The total number of records associated with the batch must also be provided.

- **Conduit:** Data transfer to DFO to be effected via the DFO Contractor Data Exchange FTP site or other FTP service approved by the Shellfish Data Unit. Service Provider is to notify Shellfish Data Unit via email each time a file is posted to an FTP site.
- **Medium:** In the absence of data transfer via FTP, an acceptable physical medium is a Windows compatible mini CD. The CD must be accompanied by a batch summary report (described above).
- **Hardcopy delivery**: All deliveries of hardcopy and physical media must be via courier service, in-person or by a Shellfish Data Unit approved alternative. The mailing address is:

  Fisheries and Oceans Canada
  Shellfish Data Unit
  Pacific Biological Station
  3190 Hammond Bay Road,
  Nanaimo, BC, V9T 6N7

- **Timeliness:** Within three weeks of the date of receipt of hardcopy by the Service Provider.
- **Data Ownership:** All data submitted becomes the exclusive property of Fisheries and Oceans Canada.
- **File Naming Conventions:** Files should be named such that the Service Provider, Fishery, Origin (paper-based [P]) Unique Batch number and year (YYYY) are all present in the file name (e.g. ABCCo_ShrimpTrawl_P_B389_2016). Table name shall be "new_logs".
- **Special Requirements:**
  - The electronic version must be a true and accurate transcription of the hardcopy data. Each record will represent one tow.
  - The database file submitted must consist of only one table named **'new_logs'**, with the fields and field characteristics as shown in the 'DATA TRANSFER FORMAT' section in this document. Regardless of the table design and relationships defined by the external group or Service Provider system for proprietary purposes, data transferred to DFO must be extracted in a manner which conforms to the design described in the 'DATA TRANSFER FORMAT' section.
  - To support consistency in interpretation of harvest log content, Shellfish Data Unit will review harvest logs received from harvesters in advance of the harvest logs being sent to the Service Provider for electronic data capture. Any modifications to the content of harvest log undertaken by the Shellfish Data Unit will be indicated using red pen.

3.2.4 Data Transfer Format Requirements

Note: Use Upper Case characters only for Text field data. A more extensive description of the Data Items marked with an asterisk follows on the next page.

Data Items from Logbook	Database Field Name	Database Field Type	Value if N/A or Unknown
VRN of vessel	CFV	Long Integer	
*Skipper Code	SKIPPER_CODE	Integer	0
Skipper FIN	FIN	Long Integer	
Year of fishing event	YEAR	Integer of Byte	
*Page Number	PAGE_NUM	Long Integer	0
*Depth Unit	DEPTH_UNIT	Text – 1 character	U
*Weight Unit	WEIGHT_UNIT	Text – 2 characters	UN
*Trawl Type	TRAWL_CODE	Text – 2 characters	UN
Footrope Length	LEN_FTROPE	Integer of Byte	0
Headrope Length	LEN_HDROPE	Integer of Byte	0
Net Rise	NET_RISE	Integer of Byte	0
*Selectivity Gear Used	SELECTGEAR	Text	U
*Average Tow Speed	TOW_SPEED	Single (floating point)	0
Line number	LINE_NUM	Integer or Byte	
Hail Number	HAIL_NUM	Long Integer	0
Month of fishing event	MONTH	Integer or Byte	0
Day of fishing event	DAY	Integer or Byte	0
Hour of fishing event	HOUR	Integer or Byte	0
Tow Duration (minutes)	TOW_TIME	Integer or Byte	0
*Tow Distance	TOW_DIST	Single	0
*Degrees of Latitude	LAT_DEG	Integer or Byte	0
*Minutes of Latitude	LAT_MIN	Single (floating point)	0
*Degrees of Longitude	LONG_DEG	Integer or Byte	0
*Minutes of Longitude	LONG_MIN	Single (floating point)	0
*Statistical Area	STAT_AREA	Integer or Byte	0
*Statistical Sub-Area	SUB_AREA	Integer or Byte	0
Minimum Depth	MIN_DEPTH	Integer	0
Maximum Depth	MAX_DEPTH	Integer	0
*Weight of Pinks	PINKS	Integer	0
*Weight of Sidestripes	SIDESTRIPES	Integer	0
*Weight of Prawns	PRAWNS	Integer	0
*Weight of Humpbacks	HUMPBACKS	Integer	0
*Weight of Dock Shrimp	DOCKS	Integer	0
*Remarks Code ??	REMARKS_CODE	Integer of Byte	0
Other Species (Hart Code)	OTHER_SPECIES	Text – 3 characters	Null
Other Weight	OTHER WEIGHT	Integer	0
*Weight of Spiny Pinks	SPINY_PINKS	Integer	0
*Weight of Smooth Pinks	SMOOTH_PINKS	Integer	0
*Weight of Flexed Pinks	FLEXED_PINKS	Integer	0
*Status of Record	REC_STATUS	Integer or Byte	0

3.3 At-Sea Observations

Project Name:	**PacFish Information Management Framework**
Document Title:	**Shrimp Trawl Fishery At-sea Observations (Paper) Data Specifications**
File Number:	
Author:	DFO
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	November 27, 2015

3.3.1 Tombstone

- **Fishery(s):** Shrimp Trawl Fishery
- **Fishery Season:** 2016-17
- **Data Collection Program Name:** At-sea Observations (paper-based)
- **Associated Fishery Data Service:** Resource Management – Invertebrates, Pacific Region

3.3.2 Document Change History

Author	*Date*	*Description of Change*
Dan Clark	Nov 27, 2015	Specifics for At-sea Observations program

Data Format Note: Use Upper Case characters only for Text field data.

A more extensive description of the Data Items marked with an asterisk follows on the next page.

Data Items from Observer Database - Shrimp Header	Database Field Name	Field Type	Size	Value if N/A or Unknown
Vessel	CFV	Text	6	
Sampler	sam_code	Text	3	
Set number	set_num	Number (Integer)	2	
Gear	gear_code	Text	2	
Selectivity Gear Used	SELECTGEAR	Integer or Byte		0
Net Opening	EffectivOpening	Number (Double)		0
Gear Efficiency	GearEfficiency	Number (Integer)	2	
DFO Region (1 North, 4 Fraser)	region	Text	1	
Statistical Area	stat_area	Integer or Byte		0

Statistical Sub-Area	sub_area	Integer or Byte		0
Project area number	locality	Integer or Byte		0
Year of fishing event	year	Number (Integer)		0
Month of start of fishing event	month	Number (Integer)		0
Day of start of fishing event	day	Number (Integer)		0
Hour of fishing event	start_hour	Number (Integer)		0
Minute of Start of fishing event	start_min	Number (Integer)		0
Month fishing event ends	finish_mon	Number (Integer)		0
Day fishing event ends	finish_day	Number (Integer)		0
Hour fishing event ends	finish_hour	Number (Integer)		0
Minute fishing event ends	finish_min	Number (Integer)		0
Standard or Daylight time	time_type	Text	1	
Duration of set in hours	duration_hrs	Number (Integer)		0
Additional minutes of set	duration_min	Number (Integer)		0
Depth at start	start_depth	Text		
Depth at finish	finish_depth	Text		
Depth Unit	DEPTH_UNIT	Text	1	U
Start Degrees of Latitude	st_lat_deg	Integer or Byte		0
Start Minutes of Latitude	st_lat_min	Single (floating point)		0
Start Degrees of Longitude	st_long_deg	Integer or Byte		0
Start Minutes of Longitude	st_long_min	Single (floating point)		0
Finish Degrees of Latitude	fin_lat_deg			0
Finish Minutes of Latitude	fin_lat_min			0
Finish Degrees of Longitude	fin_long_deg			0
Finish Minutes of Longitude	fin_long_min			0
Start Degrees of Latitude	startLAT			0
Start Minutes of Longitude	startLONG			0
Finish Degrees of Longitude	finishLAT			0
Finish Minutes of Longitude	finishLONG			0
Compass direction of tow	direction			
Distance travelled	distance			
Calculated distance travelled	DistCalc			
Tow Speed (kts)	TowSpeed			
Water surface temp	surface_temp			
Water bottom temp	bottom_temp			
Total Catch	total_catch			
*Beaufort	Beaufort			
*Light conditions	Lightness			

Barometric Pressure (mB)	Pressure			
Skipper Code	SKIPPER_CODE	Integer	7	0
Hail Number	HAIL_NUM	Number (Long)	8	
Remarks	REMARKS_CODE			

Data Items from Observer Database - Shrimp Catch	Database Field Name	Field Type	Size	Value if N/A or Unknown
Species	species	Text	3	
Line number	line#	Single		
Weight in tow	species_wt	floating point		0
Weight Unit	WEIGHT_UNIT	Text	2	UN
Estimated (y) or weighed (n)	estimated	Y/N		N
Number in this set	num_caught	Integer		0
	num_per_kg	Integer		0
Utilization Code	Utilization	Integer		0
Species Composition Method	SCM	Integer		0
Bycatch Condition Code	ByCat_Cond	Integer	2	0

Beaufort Code (Bcode)

BCode	Description	Knots	MpS
0	Calm	0 - 1	0 - 0.5
1	Light Air	1 - 3	0.5 - 1.5
2	Light Breeze	4 - 6	2.1 - 3.1
3	Gentle Breeze	7 - 10	3.5 - 5.2
4	Moderate Breeze	11 - 16	5.7 - 8.2
5	Fresh Breeze	17 - 21	8.7 - 10.8
6	Strong Breeze	22 - 27	11.3 - 13.9
7	Moderate Gale	28 - 33	14.4 - 17.0
8	Fresh Gale	34 - 40	17.5 - 20.6
9	Strong Gale	41 - 47	21.1 - 24.2
10	White Gale	48 - 55	24.7 - 28.3
11	Storm	56 - 66	28.8 - 34.0
12	Hurricane	above 66	above 34

Light Codes

LCode	Meaning
0	UNKNOWN
1	Sunny
2	Fog/Overcast
3	Rain
4	Dark

Utilization Codes

Code	Description
1	Retained
2	Discarded, marketable - DEAD
3	Discarded, Marketable - ALIVE
4	Discarded, unmarketable
5	Consumed on board, (eaten by crew)
14	Rolled Up 2 records, retained & discarded.

Species composition method (SCM) Codes

SCM Code	Description
1	Whole Haul, weights are Weighed
2	Partial Haul, weights are estimated
3	Basket Sample, weights are estimated
4	Piece Count * (Average Weight / Piece), weights are estimated
5	Oberver Visual Estimate, weights are estimated
6	Logbook (or Skipper or Crew), weights are estimated
7	Other, weights are estimated
8	Trace Amount (less than 0.5 lb) Observer visual estimate. (Wgts converted to 0.1 in our database)
9	Volume Measurement was taken, See "At Sea Observer Program Ops Manual", section "Catch & Effort"

3.4 Bycatch Summary

Following each observed trip, a trip report shall be forwarded to the Shrimp Trawl Manager. The trip report will include a summary of the catch observed during the trip.

The Bycatch summary shall include the following information:

Set number	
Date (YMD)	
Area, Subarea	
Shrimp Management Area	
Start Time	Normally recorded when the gear hits the bottom and is 'locked up'
Duration (min)	From 'lock-up' to beginning of haul back (if different from skipper's tow time, methods are noted)
Tow speed (kt)	
Total Catch (lb)	Including all bycatch discarded and shrimp retained.
Shrimp Weight (lb)	Total weight of retained shrimp as reported in fisherman's log and hailed as shrimp catch
Eulachon Weight (lb)	Total Weight of eulachon per set (actual weight if below 1 lb, to the nearest 1 lb if over 1 lb)
No of Halibut	

Totals of Total Catch, shrimp and eulachon for the trip.

3.5 Random Dockside Observations

Project Name:	**PacFish Information Management Framework**
Document Title:	**Shrimp Trawl Fishery Random Dockside Observations (Paper) Data Specifications**
File Number:	
Author:	DFO
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	November 27, 2015

3.5.1 Tombstone

- **Fishery(s):** Shrimp Trawl Fishery
- **Fishery Season:** 2016-17
- **Data Collection Program Name:** Random Dockside Observatons (paper-based)
- **Associated Fishery Data Service:** Resource Management – Invertebrates, Pacific Region

3.5.2 Document Change History

Author	*Date*	*Description of Change*
Dan Clark	Nov 27, 2015	Specifics for Random Dockside Observations program

The dockside observations are a random opportunity to meet the vessel at the dock and compare the skipper's estimate of landings by species with actual retained weight by species. The hailed catch as recorded in logbooks is compared to the offload weight and a sample is obtained for species distribution.

For short duration trips of one or two days, the shrimp catch has been sorted and will be sold at the dock or offloaded for processing at a processing plant. There may be ice included in totes that requires back calculating from offload weight at the processing facility scales.

For long trips where the catch is frozen in 50 lb blocks and not offloaded at the end of each trip, there is a logistical problem to determine species composition and total weight to compare to logbooks.

This is also an opportunity for discovery of species that are not allowed to be retained. The observer has the opportunity for Observe, Record, Report witnessing of non-permitted species.

Random dockside observations shall include the following:

Data Items	Database Field Name	Field Type	Size
CFV Number of Vessel	CFV	Long Integer	
Skipper Code	SKIPPER_CODE	Integer	0
Vessel Master FIN	FIN	Long Integer	
Year of fishing event	YEAR	Integer or Byte	
Weight Unit	WEIGHT_UNIT	Text - 2 characters	UN
Line Number	LINE_NUM	Integer or Byte	0
Hail Number	HAIL_NUM	Long Integer	0
Statistical Area	stat_area	Integer or Byte	0
Statistical Sub-Area	sub_area	Integer or Byte	0
Days Fished:			
Weight of Pinks	PINKS	Integer	0
Weight of Sidestripes	SIDESTRIPES	Integer	0
Weight of Prawns	PRAWNS	Integer	0
Weight of Humpbacks	HUMPBACKS	Integer	0
Weight of coonstripes	DOCKS	Integer	0
Remarks Code	REMARKS_CODE	Integer or Byte	0
Other Species (Hart Code)	OTHER_SPECIES	Text – 3 characters	Null
Other Weight	OTHER_WEIGHT	Integer	0
Species Composition Method	SCM	Integer	0
Product Type Code	PT_PRODUCT_TYPE_CDE	Integer	0
Product Type Name	PRODUCT_TYPE_NME	Integer	0

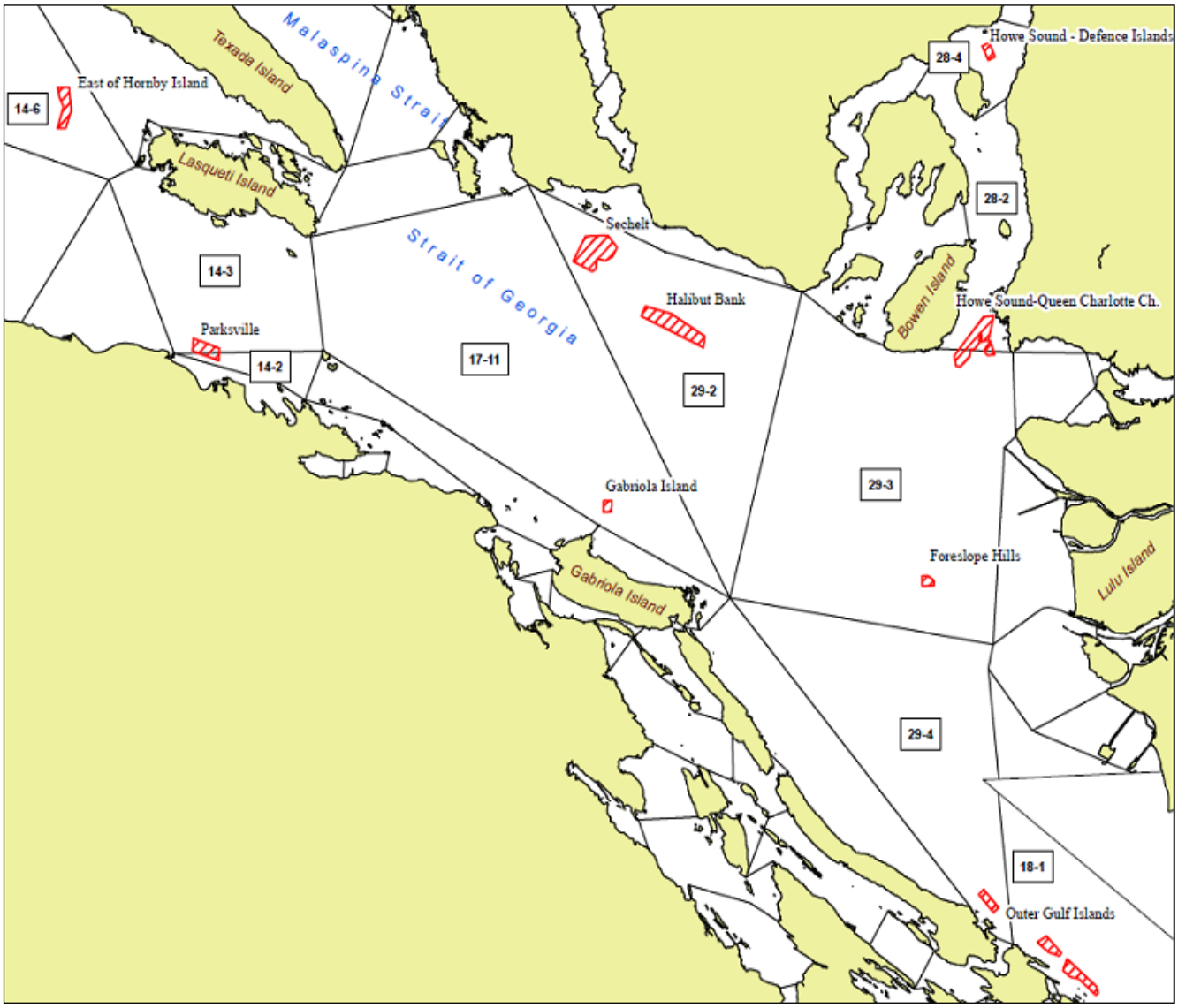
Codes for Product Type

PT_PRODUCT_TYPE_CDE	PRODUCT_TYPE_NME
1	Round, Fresh
21	Round, Frozen
4	Tail, Fresh
31	Tail, Frozen

4 CONTACT INFORMATION FOR MORE INFORMATION

Resource Management	Guy Parker	(250) 756-7163
Stock Assessment	Ken Fong	(250) 756-7386
Shellfish Data Unit	Leslie Barton	(250) 756-7306

APPENDIX 16: STRAIT OF GEORGIA GLASS SPONGE REEF CLOSURES



For specific coordinates for these closures see Section 4 of Appendix 1.

FOR MORE INFORMATION PLEASE VISIT:
http://www.pac.dfo-mpo.gc.ca/oceans/protection/sponge_reef-recif_eponge-eng.html

OR CALL Aleria Ladwig (604) 363-1325