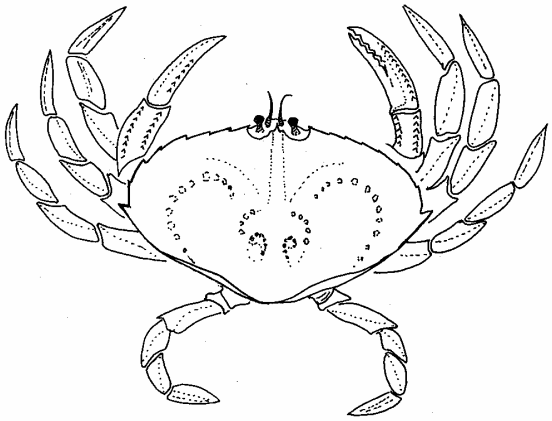
PACIFIC REGION

INTEGRATED FISHERIES MANAGEMENT PLAN

CRAB BY TRAP

JANUARY 1, 2013 TO DECEMBER 31, 2013



Dungeness crab: ***Cancer magister***

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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 Crab 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 DFO staff, legislated co-management boards, and other stakeholders. This IFMP provides a common understanding of the basic "rules" for the sustainable management of the fisheries resource.

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

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

Front cover drawing by Antan Phillips, Retired Biologist, Fisheries and Oceans Canada, Pacific Biological Station.

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1. OVERVIEW

1.1. Introduction

This Integrated Fisheries Management Plan (IFMP) for crab by trap covers the period January 1 to December 31, 2013.

This IFMP provides a broad context to the management and interrelationships of all fishing sectors of the Dungeness crab (*Cancer magister*), Red Rock crab (*Cancer productus*), Red King crab (*Paralithodes camtschatic)*and Golden King crab *(Lithodes aequispinus*) trap fishery in the Pacific Region (British Columbia, Canada). Section 1 provides an overview of the commercial, recreational and First Nations fisheries. Section 2 presents a biological synopsis and stock assessment. Section 3 provides a socio-economic profile. Section 4 describes the emerging management issues that may impact management measures in the fishery. Section 5 describes objectives for the fishery reflecting stock status presented in Section 2 and to address the issues identified in Section 4. Section 6 discusses access and allocation. Section 7 directs to the Appendices for the fishery management procedures that will be employed during the year to meet the objectives. Section 8 describes shared stewardship arrangements to achieve objectives. Section 9 provides enforcement information. Section 10 describes the ways and means by which the achievement of the objectives will be assessed in the following year. Sections 11, 12 and 13 provide references, internet sites and a glossary to define terms.

The Commercial Harvest Plan for Crab by trap is attached to this IFMP as Appendix 1. Appendix 2 is the Recreational Harvest Plan. Appendix 3 is the First Nations Harvest Plan. Appendix 4 discusses vessel safety. Appendix 5 contains an example of the Crab trap commercial harvest log and a copy of the required gear questionnaire. Appendix 6 contains diagrams on where to determine crab soft-shell and correct rot cord placement. Appendix 7 contains maps of the licence areas, restricted areas and Area A soft-shell management areas. Appendix 8 contains DFO, Service Provider, and Sectoral Committee contact information. Appendix 9 contains the fishery monitoring and catch reporting standards for electronic monitoring, catch and summary reporting, biological sampling, area A hails, and plastic trap tag requirements.

1.2. History

Dungeness crab are the most important crab species of British Columbia and are harvested coastwide for First Nation, recreational and commercial purposes. The inception of the commercial fishery occurred before the turn of the century with the first recorded landings in 1885 (Butler, 1984). The recreational fishery has an equally long history and coastal First Nations have traditionally harvested Dungeness crab for food, social and ceremonial purposes.

Size restrictions have been the primary management tool for Dungeness crab since 1906 when a 6 inch (153 mm) size limit was initiated. This limit was changed to 6.5 inches (165 mm) in 1914. The 165 mm minimum size limit (measured across the maximum width of the carapace,

commonly called “spine to spine”) was designed to protect sexually mature male crabs for at least one year prior to harvest.

Few females reach the size limit but were protected from the commercial fishery by a regulation from 1926 to 1957 that prohibited the retention of ovigerous females. This regulation was revoked in 1957 as redundant with the size limit; however, it was reintroduced as a condition of licence in the commercial fishery prohibiting the retention of all females in 1991.

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

An “R” category licence for crab was initiated by the Department in 1990 in response to high levels of fishing effort on crab. The licence eligibility criterion was 15 000 lbs cumulative crab landings from 1987 to 1989. There are now 221 crab licence eligibilities for this fishery.

The fishery is currently managed under a precautionary regime that includes a minimum harvestable size limit, limited commercial licensing, area licensing, trap limits, soak limits, sex restrictions, soft-shell restrictions, and gear restrictions.

1.3. Type of Fishery and Participants

The Pacific Region crab-by-trap fisheries include commercial, recreational and First Nations fisheries.

The commercial fishery is a limited entry fishery with 221 licence eligibilities distributed throughout the pacific coast in seven management areas. A management area is typically selected every three years by all licence holders, (details provided below). For 2013, 32 have been designated as communal commercial licences for First Nations participation in the commercial fishery. All licences in the commercial fishery are single-licensed vessels and vessel size ranges from 4.85 m to 20.43 m. The number of crew varies with the size of the vessel. A single person may operate smaller vessels while larger vessels may operate with a captain and three or four crewmembers.

Crab Area Selection 2000 - 2013

Year	A	B	E	G	H	I	J	Total
2000	48	19	39	14	47	36	19	222
2001-2002	48	19	39	13	48	36	19	222
2003-2005	41	17	42	13	55	36	18	222
2006	56	11	35	14	43	41	22	222
2007-2008	56	12	35	14	42	41	22	222
2009	52	17	26	19	45	42	21	222
2010*-2012	53	13	26	20	40	51	18	221
2013**	47	16	36	19	51	32	20	221

*One licence was retired in 2010 from Area I.

**For the 2013 fishing season all licences have been allocated and consist of 189 commercial licences (“R”) and 32 communal commercial licences (“FR”).

Recreational fishing may occur to provide food for personal use, as a leisure activity, or as a combination of the two. The recreational community includes local residents, multi-species charter operators and lodges, and visiting anglers and boaters.

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

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

In 2011, there were more than 296,000 BC tidal water licences sold. 85% of these licences were issued to Canadian residents with most out-of-province anglers visiting from Alberta and Washington State

National and provincial summary information from the Survey of Recreational Fishing in Canada 2010 is available on the internet at:

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

First Nations’ harvest for food, social and ceremonial purposes may occur where authorized by an aboriginal communal licence, harvest document, or under fishery treaty agreements. First Nations will typically designate harvesters from their communities under their communal licence.

1.4. Location of Fishery

Commercial fishing for Dungeness crab (*Cancer magister*) and Red Rock crab (*Cancer productus*) occurs throughout BC waters. Golden King crab (*Lithodes aequispinus*) and Red King crab (*Paralithodes camtschatica*) fishing occasionally occurs in the North and Central Coast areas where it is permitted under arrangement with the Regional DFO Crab Manager and amended Crab Conditions of Licence. Retention of graceful crab (*Cancer gracilis*) is no longer permitted under a category R or FR licence. Appendix 7 shows the map of the seven commercial crab management areas in the Pacific Region.

First Nations' communal licences and harvest documents identify the location where First Nations may fish for food, social and ceremonial harvest. Harvest areas are generally in close proximity to First Nation reserve lands.

Recreational crab fishing occurs predominately in near shore areas in close proximity to BC coastal communities.

1.5. Fishery Characteristics

The commercial crab fishery is a limited entry, competitive fishery for male crab only. It is divided into seven management areas having distinct management regulations. Some of the management measures within these areas include size, sex, and hardness restrictions, seasonal closures, gear limits, gear marking and size requirements, daily fishing time restrictions and weekly haul limits. Catch is close to 100% Dungeness crab and this fishery has fishery monitoring and catch reporting requirements to address conservation, harvest allocation, and theft issues. In 2011, all active harvesters hired a service provider to meet biosampling, electronic monitoring, gear identification, and harvest logbook requirements.

The recreational fishery is an open entry fishery open all year round in most areas. Management measures include female non retention and size limits for Red Rock and Dungeness crab, specific buoy and trap regulations, and area specific daily and possession limits. There are also additional regulations within select areas.

First Nations' fishing for food, social and ceremonial (FSC) purposes are the first priority after conservation and are open coast-wide throughout the year. First Nations fishing effort for an FSC domestic purpose has not been limited by catch quantity, except in those Nations where the Council or fisheries program has established their own catch limits for band members, or where allocated under treaty. Gear marking is required and the main target species is Dungeness crab. First Nations are subject to the same size limit as the recreational and commercial fisheries: a minimum of 165mm for Dungeness crab, and 115mm for Red Rock crab. In support of sustainable fishing First Nations are requested to release all female crab, in a manner that causes the least possible harm.

1.6. Governance

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

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

These documents are available on the internet at:

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

More information on the SARA is available at:

www.sararegistry.gc.ca

In addition, the 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, and Policy on New Fisheries for Forage Species. 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:

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

Scientific advice for this fishery is peer-reviewed primarily through a committee called the Canadian Science Advisory Secretariat (CSAS) (formerly, the Pacific Scientific Advice Review Committee (PSARC))

A consultative process exists for the crab by trap fishery and is a major part of the planning for the fishery. The primary consultative body for crab is the Crab Sectoral Committee. This committee includes representatives from Fisheries and Oceans Canada, commercial licence eligibility holders, processors, First Nations, recreational harvesters, the Province of BC, and others with an interest in the resource (see Appendix 8 for committee members). The Sectoral

Committee meets annually (or more frequently as required) to review and provide advice to the Department regarding management issues pertaining to the fishery and on the proposed management plan. Beginning in 2010, the industry sub-committee of the Crab Sectoral Committee also meets annually (or more frequently as required) to address commercial harvester concerns. In 2012, a research sub-committee was also launched to address technical issues. In future this research sub-committee will be open to anyone interested in attending.

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

http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/shellfishInvertebrates/crab/default_e.htm

1.7. Approval Process

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

2. STOCK ASSESSMENT, SCIENCE AND TRADITIONAL KNOWLEDGE

2.1. Biological Synopsis

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

Mating is generally synchronous coast-wide in BC, normally occurring in the late spring (April/May). Males can only breed newly moulted (soft) females and will carry them around in a mating embrace when they are about to moult, and even several days after to ensure no other males mate with her. Females store the sperm so they can fertilize the eggs at a later date. In October and November, the eggs are fully developed and are fertilized as they are extruded. Since females can fertilize at least two successive batches of eggs from one breeding event, they can skip-moult (only need to breed every second year). Females can produce 200,000 to two million eggs depending on her size. The eggs adhere to the abdomen and are protected and aerated by the female throughout the winter. The eggs hatch late winter/early spring depending on the area and water temperature.

Dungeness crab larvae emerge first into the water as prezoeae, but moult quickly (within one hour) to the first zoea stage. The spined zoeae are distributed by ocean currents for up to four months and move offshore and alongshore during late winter and the winter-to-spring transition period. Upwelling occurs around April/May and, after five zoea stages, megalopae appear in large near-shore concentrations between May and September. Megalopae look like little crabs,

are strong swimmers, and seek out favourable habitat to settle on where they metamorphose into the first post-larval instar.

Dungeness crabs grow by moulting, a process whereby the old shell is shed. The new shell underneath absorbs water and swells to a new size 15-30% larger, and then hardens over a period of several months. Juvenile crabs moult many times throughout the year. It takes about two years—and more than 10 moults—for a juvenile crab to reach sexual maturity (120 mm carapace width) after which males moult annually. Males do not effectively breed much below about 140 mm carapace width, and breeding success improves with size. It takes 12 to 16 moults and 3 to 4 years from time of settlement for a crab to reach legal size after which crabs usually moult only once more. Larger males frequently "skip-moult"; that is, not moult for 2 years. Females grow more slowly than males because most of their energy is devoted to egg-production rather than growth and often "skip-moult" once they become sexually mature (100 mm carapace width). Dungeness crabs live about six to nine years. Males generally do not grow larger than 215 mm, and females 165 mm carapace width.

2.2. Ecosystem Interactions

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

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

Climate change may affect Dungeness crab populations in several ways, although such impacts are unclear at this time. One consequence of climate change is warmer ocean temperatures which could influence egg development and mortality because eggs generally develop faster in warmer water, but experience higher mortality. Warm currents, such as those produced from El Nino events, bring with them to BC non-native predators like mackerel, which probably feed on crab larvae. A warmer ocean will likely also alter the timing of moulting periods. Another serious consequence of burning fossil fuels is ocean acidification whereby seawater becomes more acidic when it absorbs atmospheric carbon dioxide. Ocean acidification may pose a significant threat to crustaceans because it may impede their ability to produce calcareous structures.

2.3. Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

Aboriginal Traditional Knowledge has not generally been available.

2.4. Stock Assessment

Dungeness crab stock assessment is done by DFO, a Service Provider hired by Industry, the Area A Crab Association, and several First Nation groups. Commercial style traps with closed escape ports are set on ground lines or floated singly at depths ranging between 5 and 100 m. Those biological data collected from crabs caught in traps include: sex, shell condition, injuries, mating marks, and size. The catch per unit effort (CPUE) can be determined when standardized fishing gear are used. DFO surveys Areas I and J twice each year, before and after the commercial fishery. Other research surveys are conducted to answer specific science and/or management questions, and to explore areas of the coast from where limited or no crab biological data have been collected. The Service Provider collects fishery independent and dependent data from Areas E, G, and H semi-monthly from January to June and monthly July to December. They also sample commercial vessels irregularly in other areas of the coast. The Area A Crab Association samples five sites in Hecate Strait during the spring and summer months. Several First Nation groups do their own assessment of local stocks with varying sampling frequencies.

2.5. Stock Scenarios

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

2.6. Precautionary Approach

The Department has recently implemented the Sustainable Fisheries Framework (SFF), within the management of its Canadian fisheries in order to maintain ecosystem integrity and support sustainable fisheries. The SFF includes a decision-making framework incorporating a precautionary approach to commercial, recreational, and food-social-ceremonial fishing.

In general, the precautionary approach in fisheries management is about being cautious when scientific knowledge is uncertain, and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to fish stocks or their ecosystem. To date, this approach is widely accepted as an essential part of a sustainable fisheries management. In the spring of 2010, it was discussed in Halifax Nova Scotia at The National Workshop on Precautionary Approach Frameworks For Canadian Input Control Fisheries (Lobster and Dungeness Crab)

Next steps include further develop on implementation measures that support its intent - to ensure all crab populations and the species within its community remain healthy and sustainable.

See the Internet at:

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

2.7. Research

DFO will be conducting stock assessment surveys in Areas I and J on the Fraser River delta to understand stock composition, moult timing, and injuries before and after the commercial fisheries takes place. Such survey work has been done regularly since the early 1990s; this long-term data series from one of BC's most important crab grounds provides valuable insight into crab population dynamics. Allocation of resource between various user groups, including commercial, recreational, and First Nations, has become an issue requiring investigation of the availability of crabs seasonally. Surveys will be carried out in several locations about the Fraser River delta area to evaluate the relative abundance of crabs there and to evaluate effectiveness of the current management to allow access for crab.

Harvesters in Crab Area A have taken the lead with the development of a sampling program to document moult times and soft-shell periods and to provide other population data necessary to understanding of the crab fishery in Hecate Strait/McIntyre Bay. DFO Stock Assessment staff have been involved in the development of this program and in the interpretation of the information collected which is presently being used as an aid to manage this resource proactively. In 2013, fishery dependent biological sampling will also be conducted in Crab Area A to further compliment this program and its support for precautionary approach initiatives.

The Service Provider hired by the commercial fleet will continue to collect crab biological data from commercial vessels in most areas of the coast. In addition, monthly fishery independent trap sampling will be done in Areas E, G, and H to identify moult timing, population structure, and injury rates.

Several First Nation groups, in their traditional territories, will conduct their own crab stock assessment surveys in conjunction with FSC fishing to better understand soft-shell periods, the impacts of commercial and recreational fishing on crab stocks, and changes due to commercially closed areas.

3. ECONOMICS OF THE FISHERY:

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

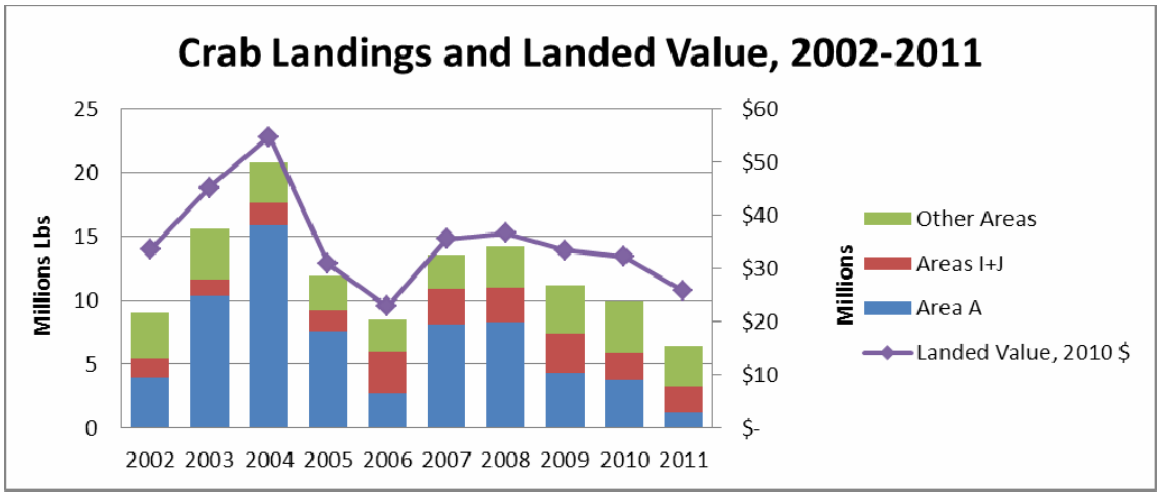
3.1. Commercial

British Columbia's commercial crab fishery is among its most important, accounting for 4.8% of the wholesale value of the province's seafood products (BC Seafood Industry YIR, 2010). From 2008 to 2010, the crab harvest accounted for 38% of BC's harvest of wild shellfish, by weight and 33% by landed value. Crab products are also among the province's most significant exports, exceeded only by Atlantic and sockeye salmon (BC Seafood Industry YIR, 2010).

The overall coast wide reported commercial landings for the 2011 season was 3,791 tonnes compared to 5,498 tonnes landed in 2010. The 2011 commercial harvest record is the lowest in 11 years, and a 35% drop from the previous year's harvest.

The overall coast wide reported commercial landed value in 2011 was $26.9 million compared to $32.3 million in 2010. Like total landings, the value of the commercial harvest has decreased for the fourth consecutive year, however, the value of the harvest has been partially buoyed by an increase in the average price per pound.

Catch and landed value for the last 10 years are shown in the following graph. Catch values have been adjusted for inflation and are reported in 2010 dollars.



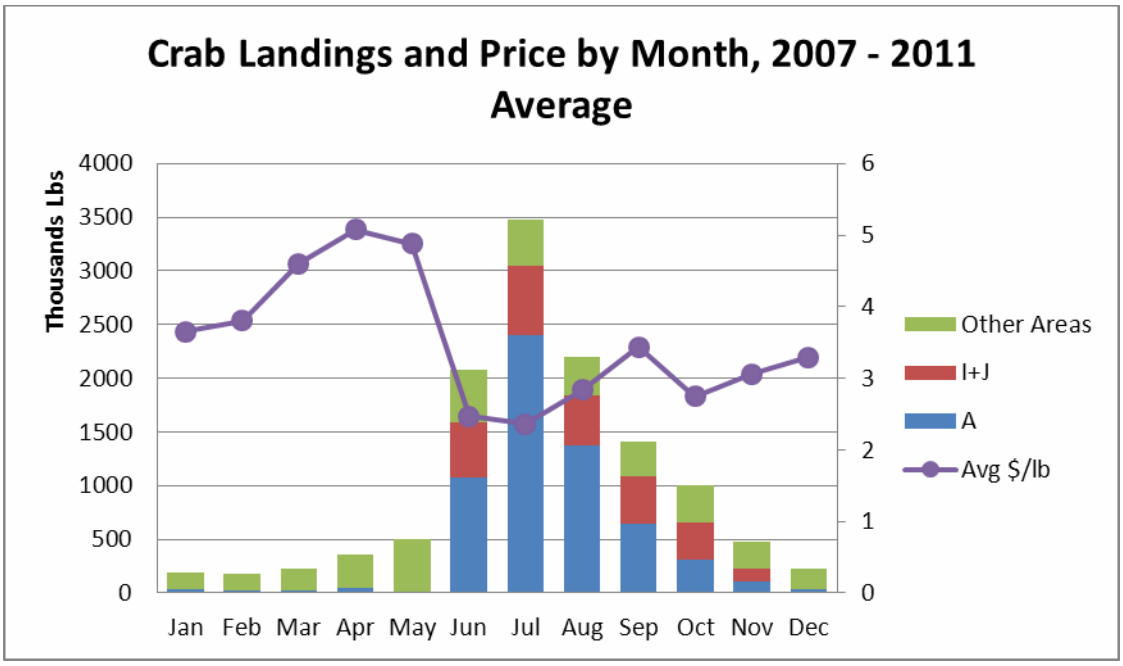
Source: Harvester logbook and sales slip data, multiple years.

3.1.1 Viability and Market Trends

On average the commercial crab fleet landed $32.5M per year from 2007 to 2011, making it one of the most valuable species harvested in British Columbia[1].

Although it varies year-to-year, about half of the catch in the fishery occurs in July and August. Areas A, I, and J generally open in June or July following closures to protect soft shell crab. The following chart shows average monthly landings by area as well as price per pound.

[1] DFO sales slip and logbook data

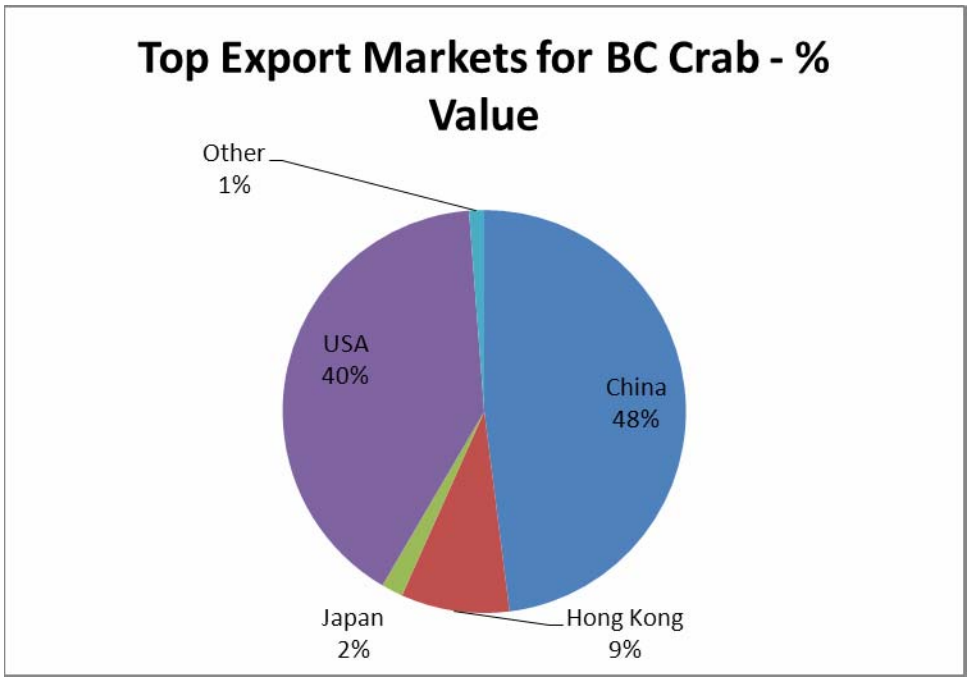


Source: Harvester logbook and sales slip data, multiple years.

Dungeness crab is generally marketed live to both domestic and export markets. Analysis of seafood processor employment and DFO data indicates that the Dungeness crab harvest generates approximately 330 FTEs of employment in the province's seafood processing sector. It is processed mainly in the Greater Vancouver and Prince Rupert areas (Fraser & Associates, 2008).

Over the past five years, exports of crab accounted for roughly 6% of all BC seafood exports[2]. Historically, most exported crab went to the USA, but a growing amount goes to China, which overtook the USA as the biggest importer of crab from BC in 2009. The chart below shows the distribution of crab out of BC to 99% of its export markets[3].

[2] Industry Canada Online Trade Data
[3] BC Crab export information may include some Alaskan caught crab



Source: Statistics Canada

Additional information is available through:

British Columbia Ministry of Agriculture. (2011). BC Seafood Industry Year in Review.

Fraser & Associates. (2008). Linkages Between the Primary Fish Production and Fish Processing Sectors in British Columbia. Final Phase 2 Report. Prepared for the Department of Fisheries and Oceans, Pacific Region.

Nelson, Stuart. (2011). Pacific Commercial Fishing Fleet: Financial Profiles for 2009. Prepared for Fisheries and Oceans Canada, Pacific Region. June. Pacific Commercial Fishing Fleets Financial Profile Series, 2011-4. 160pp.

3.2. Recreational

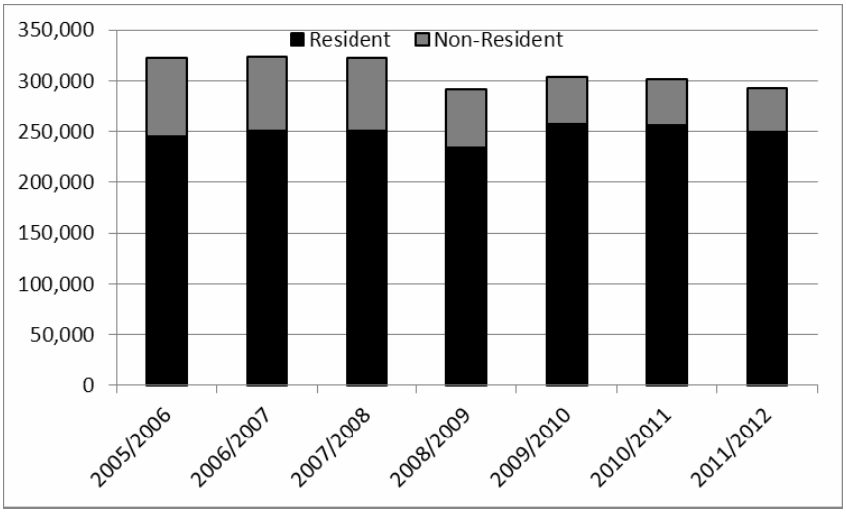
The national Survey of Recreational Fishing in Canada, conducted every five years, provides an estimate of individual expenditures and major purchases for recreational fishing. Typically, BC's tidal water recreational fishery has been the third largest recreational fishery in Canada in terms of direct expenditures and major purchases[3]. While resident anglers, who make up the majority of anglers in BC's tidal waters, had the largest expenditures, at $562.8 million in 2010, recreational fishing by non-residents adds money to the provincial economy. In 2010, non-resident direct expenditures (including fishing packages) and major purchases totalled $143 million. This number understates the overall contribution of non-resident tidal water anglers, however, as it only includes expenditures directly attributable to their fishing experience[4].

[3] Based on the Survey of Recreational Fishing in Canada, multiple years.

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

While opportunities for recreational fishing in BC's tidal waters attract international anglers[5], they are coming in smaller numbers (see graph below), while the number of resident anglers is relatively stable[6]. Recreational fishing continues to be important to the BC economy, but the rate of growth is slowing. In real terms, total direct expenditures and major purchases grew by nearly 15% from 2000 to 2005, but by only 1.82% from 2005 to 2010[7]. This slowdown is due mainly to a drop in expenditures by international anglers of 47% between 2005 and 2010. Expenditures by resident anglers, on the other hand, increased by 18% over that same period.

BC Tidal Water Recreational Fishing Licences Sold, 2005 to 2012



Source: DFO. www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/stat-eng.htm

Most of the direct expenditures and major purchases (60%) and package expenditures (72%) were attributable to salmon fishing[8] but interest in shellfish has increased, with 18% of resident anglers indicating crabs as preferred species[9] (Fisheries & Oceans Canada, 2010). The Survey of Recreational Fishing in Canada shows that fishing days spent on recreational shellfish harvesting increased by 13% from 2005 to 2010.

National and provincial summary information from the Survey of Recreational Fishing in Canada 2010 is available on the internet at:

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

[5] For example, 47% of international anglers reported that had there not been tidal water fishing opportunities they would not have chosen British Columbia as their travel destination (Survey of Recreational Fishing in Canada, 2010).
[6] Note that while the graph shows that nearly 300,000 licences were sold in 2011/12, not all of these were annual licences. Many were licences for 1-5 days.
[7] Growth rates reported in this section are real growth rates based on expenditures adjusted to account for inflation, measured in 2010 constant dollars.
[8] Based on analysis of the 2005 data.
[9] Survey respondents were asked to list any and all preferred species, so the 18% reporting that crabs are a preferred species does not mean they don't also fish recreationally for other finfish or shellfish species.

3.3. First Nations

First Nations are interested in economic opportunities. There are currently 32 communal commercial crab-by-trap licence eligibilities to provide economic opportunity to First Nations through participation in the commercial fishery (Section 3.1). The Allocation Transfer Program (ATP) retires existing commercial licence eligibilities from fish harvesters on a voluntary basis and re-issues these to eligible First Nation organizations as communal commercial licences. The Pacific Integrated Commercial Fisheries Initiative (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. PICFI builds on fisheries reform work begun in response to the 2004 reports of the First Nations Panel on Fisheries and the Joint Task Group on Post-treaty Fisheries, as well as subsequent discussions in a wide variety of forums that have confirmed the need for PICFI. The Government of Canada committed $175 million over five years to implement the initiative.

For more information on the Aboriginal Fisheries Strategy (AFS) ATP or PICFI contact a resource manager listed in Section 14 or see the internet at:

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

4. MANAGEMENT ISSUES

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

4.1. Conservation and Sustainability

Improved understanding of the biology related to crab recruitment, growth, moulting, and migration is required to better understand and manage the impacts of crab fishing.

There is a concern that undersized, female and soft-shell crab are being removed through either illegal harvests or incidental mortality due to intensive fishing. Due to increased injury and mortality, the capture and handling of undersized, female, and soft-shell crab is a conservation concern.

Illegal crab trap gear continues to be a conservation concern. Crab traps having undersized, missing, or closed escape rings contribute to higher undersized, female, and soft-shell mortalities. If lost, these traps can continue to fish until they structurally deteriorate or become buried in the substrate. Fishing in excess of trap allocations also threatens the sustainability of the resource.

4.2. Social, Cultural and Economic

4.2.1. Commercial

The commercial sector remains concerned about the selling of inferior illegal crab that is either undersized, female and/or having a soft-shell. These activities not only affect the sustainability

of the resource but can also impact market access and prices. Illegal sales that involve crab harvested from dioxin closure areas remain a concern as the selling and consumption of contaminated crab is both an economic and public health issue. The commercial sector is also concerned about the implementation of non-science based commercial closures.

4.2.2. Recreational

The Department has received a number of requests from the Sport Fishing Advisory Board (SFAB) for non-commercial harvest areas. The goal of these proposed closures is to improve First Nation FSC and recreational access to crabs in those areas where crab resources are highly utilized by all stakeholders. However, limited catch and effort information remains an issue when assessing these requests.

Some information on recreational crab harvesting is gathered during dockside creel surveys primarily designed to gather salmon, halibut, and rockfish information. Annual recreational estimates are also acquired by a national survey of recreational fishing but are only made every five years.

Since 2009, buoy counts have been conducted in key areas of the south coast. During these surveys, GPS location and buoy type information is collected to provide a relative index of recreational and FSC crab and prawn fishing effort across areas and between seasons within areas.

New initiatives to improve recreational catch and effort include an implementation plan for fishery monitoring and catch reporting in the Pacific Region and development of a monthly on-line recreational survey.

4.2.3. First Nations

The Department has received a number of written commercial and/or recreational closure requests from First Nations to improve food, social, ceremonial (FSC) access and opportunity.

There is little catch and effort reporting for FSC crab fisheries and as a result, the Department has limited information upon which to assess the fishery.

4.2.4. International

Concern remains for crab commercially caught in Canada not compliant with United States size restrictions. This issue may have long term implications that may affect market share for United States destined product.

While Canadian and American Dungeness crab fisheries use similar management regimes (size, sex and season), the size limit in British Columbia is the smallest allowed in Pacific Coast commercial fisheries for Dungeness crab from California to Alaska. At 165 mm, it is approximately 5 mm smaller than the size allowed in the southern states and 12 mm smaller than that of Alaska. All American size limits are measured across the maximum breadth of the carapace excluding the spines (notch to notch) as opposed to the Canadian size limit that

includes the spines (point to point). Equivalents are provided in the table below. The Alaskan size limit is 6.5 inches (notch to notch), for both recreationally and commercially caught Dungeness crab. Washington, Oregon and California commercial size limits are 6.25 inches (notch to notch), but recreational size limits vary from 6.25 inch (notch to notch), size limit for recreational harvesters in Hood Canal and Puget Sound; 6.0 inches on the west coast of Washington State, and 5.75 inches in Oregon.

Commercial Size Limits by Location	Notch to Notch (inches)	Notch to Notch (mm)	Point to Point (mm)
British Columbia	6.07	154.3	165
Washington, Oregon, California	6.25	158.8	169.9
Alaska	6.5	165.1	176.6

Combined spine lengths (Y) (cm) were calculated from carapace width excluding spines (X) (cm) as Y=0.0715X-0.029. (Butler 1961)

4.3. Compliance

During 2011, DFO consulted with stakeholders regarding proposed changes to the *BC Sport Fishing Regulations* which regulate aspects of recreational fishing for prawns and crab. Changes that have been submitted for gazetting include: Eliminating line floating at the surface; mandatory requirement to have phone numbers (or Unique Fisher Identification #'s) on floats; and rot cord for round stainless steel crab traps. One additional proposed change is having unique floats for crab and prawn gear.

For other emerging issues please review the Compliance Plan in Section 9.

4.4. Ecosystem

4.4.1. Depleted Species Concerns

By-catch of non-target species has not been a concern in the crab by trap fisheries due to the nature of trap fishing and the minimal diversity of by-catch. Non-target species are easily sorted and quickly returned to the water with presumed low mortality.

4.4.2. 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 three principles: sustainable development, integrated management, and the precautionary approach.

For more information on the *Oceans Act*, please visit:

http://www.pac.dfo-mpo.gc.ca/oceans/index-eng.htm

4.4.3. Pacific North Coast Integrated Management Area

As part of Canada's Oceans Strategy, DFO has initiated an integrated management planning process for the Pacific North Coast Integrated Management Area (PNCIMA). The PNCIMA is bounded by the BC-Alaska border, the base of the shelf slope and the mainland, stretching south as far as Campbell River and the Brooks Peninsula. The PNCIMA planning process marks a shift toward a broader ecosystem approach to ocean management. This is consistent with the Government of Canada's overall direction and with Fisheries and Oceans Canada's new Wild Salmon Policy. The PNCIMA planning process is bringing the area's regulators, First Nations, and stakeholders together to develop an integrated management plan for the region that will identify goals and objectives for achieving conservation, sustainable resource use, and economic development for oceans and coastal areas. These goals and objectives will provide guidance to the management of oceans activities. The integrated management plan will also identify valued ecological, socio-economic and cultural components of PNCIMA and outline a risk-based approach to identifying potential management priorities for these valued components. The plan will also help coordinate various ocean management processes, complementing and linking existing processes and tools, including IFMPs.

4.4.4. 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 by 2012. Regionally, the draft *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 BC, and any other agencies with a mandate for protecting marine spaces. Future network MPAs may overlap and/or include fishing areas, depending on the type and nature of the MPA.

4.4.5. 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 Bowie Seamount, designated in 2008, is 180 km west of Queen

Charlotte Islands (Haida Gwaii) 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.

With respect to fishing activities, the Bowie Seamount MPA regulations state:

3. No person shall a) disturb, damage or destroy, or remove from the Area, any living marine organism or any part of its habitat; or b) carry out any activity – including depositing, discharging or dumping any substance – that is likely to result in the disturbance, damage, destruction or removal of a living marine organism or any part of its habitat.

4. Despite section 3, the following activities may be carried out in the Area:

    a. commercial fishing that is carried out in accordance with the *Fisheries Act* and its regulations;

    b. recreational fishing that is carried out in accordance with the *Fisheries Act* and its regulations;

    c. fishing that is carried out in accordance with the *Aboriginal Communal Fishing Licences Regulations*

At this time, all fisheries are restricted within the Endeavour and Bowie Seamount MPAs, except for a Sablefish trap fishery permitted only in Zone 2 of the Bowie Seamount MPA through a condition of licence.

Work is ongoing to consider MPA designations for other areas along the Pacific Coast, including the Race Rocks area off Rocky Point south of Victoria (currently designated as a Provincial Ecological Reserve) and the Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs. Changes to existing IFMPs with respect to fishing activities may be required upon designation of these MPAs. In addition, alignment of IFMPs and MPA Management Plans will be necessary.

More information on integrated management planning, Pacific Region MPAs and Pacific MPA planning under Canada's *Oceans Act* can be found at: www.pac.dfo-mpo.gc.ca/oceans/index-eng.htm

4.4.6. National Marine Conservation Areas

The Canada *National Marine Conservation Areas Act* provides for the establishment of National Marine Conservation Areas (NMCAs). Following extensive consultation with interested parties, Parks Canada, in collaboration with Fisheries and Oceans Canada (DFO) and the Council of the Haida Nation, established the Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Gwaii Haanas Marine Area) on June 17, 2010. The Gwaii Haanas Marine Area is located in the southern portion of Haida Gwaii (Queen Charlotte Islands) approximately 100 kilometres off the north coast of British Columbia. The Marine Area comprises 3,500km^2 of water and seabed adjacent to the existing Gwaii Haanas National Park Reserve and Haida Heritage Site and was established to protect and conserve ecosystems and culture while providing for ecologically sustainable use of the marine resources.

As part of the establishment process, Parks Canada, the Council of the Haida Nation and DFO developed an Interim Management Plan and preliminary zoning plan for the Gwaii Haanas Marine Area. This plan identifies six zones described in Appendix 7 which are closed to commercial and recreational fishing. Development of long term management and zoning plans for the Gwaii Haanas Marine Area is scheduled to be completed by 2015 and will take place in consultation with the commercial and recreational fishing sectors through DFO's established integrated fishery planning and advisory processes.

Commercial fishing activities within the Gwaii Haanas Marine Area will be managed through DFO's the Integrated Fisheries Management process. Annual fishing plans will be developed in consultation with stakeholders and specific actions (e.g., openings, closures, gear restrictions) for the Gwaii Haanas Marine Area will be taken under the authority of the *Fisheries Act* and its regulations. Please refer to the harvest plans for maps describing the closures.

4.4.7. 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 will develop a collaborative approach and agreement regarding management of fisheries in the area.

4.4.8. Gear Impacts

Crab by trap gear is bottom contact gear (ground lines and traps). The Ecological Risk Assessment Framework drafted under the 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:

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

Traps can impact biogenic structures (e.g., corals and sponges) through crushing, entanglement or scouring. The potential impact of traps on marine habitats is dependent on a variety of factors, including characteristics of the bottom where they are set, weight, size and construction of traps, retrieval methods, sea state, weather, tides and currents and ground line length. An evaluation of the nature and scale of impacts is an important step in identifying appropriate mitigation measures. A scientific review of the potential impacts of fishing gears, excluding mobile bottom-contacting gears but including traps, on marine habitats and communities (CSAS Proceeding Series 2010/002 and CSAS Science Advisory Report 2010/003) is available on the internet at:

www.isdm-gdsi.gc.ca/csas-sccs/applications/publications/index-eng.asp

Whales have been found entangled in trap ground lines and buoy lines. Sea turtles and basking sharks have also been entangled in trap lines but this has been a rare occurrence in Canada. As *SARA*-listed species, prohibitions make it illegal to kill, harm, harass or capture these species, and measures must be taken to avoid the incidental capture and entanglement of these species.

DFO coordinates a network of government and non-government experts in disentanglement and to assist in response to sick, injured, distressed or dead animals (Section 14). Modification of fishing gear has been successful in mitigating entanglement rates for cetaceans elsewhere (i.e., U.S.A. and Atlantic Canada) and recommendations to enact cost-effective modifications to gear may be considered in future. Sightings of these species are infrequent in Pacific Canadian waters but are useful to scientists in determining population sizes and distribution (Section 14 to report sightings).

5. OBJECTIVES

Sections 5.1 to 5.3 outline the "longer term" objectives for this and other invertebrate fisheries in the Pacific Region. Sections 5.4 and 5.5 describe the species-specific "shorter-term" objectives for the crab by trap fisheries.

5.1. National

Fisheries and Oceans Canada aims to:

- Meet conservation objectives and to 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, now CSAP) identified three biological objectives for management of Pacific Region fish and invertebrate stocks (Rice et al, 1995). The objectives remain relevant today, particularly in light of development of the national objectives around sustainable fisheries:

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

5.3. Invertebrate Resource Management

Management goals and objectives have been defined for invertebrate fisheries in annual management plans produced by the Department since 1990. The management goals and objectives, as written by Invertebrate Fisheries Management (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. Crab by Trap

Objectives for the Pacific crab fishery are:

5.4.1. Conservation and Sustainability

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

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

2.) To maintain sustainability of the fishery through trap allocations.

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

the grounds, and to reduce overall effort. Effort reductions through reduced commercial trap inventories have not been realized in some areas. Harvesters have changed fishing patterns and increased the frequency that traps are hauled.

3.) To obtain accurate catch records

Catch is the only indication of abundance in the crab fisheries. Lack of compliance with catch log submission, inaccurate and fraudulent catch reporting creates problems with the analysis of catch data from the commercial crab fishery.

5.4.2. Social, Cultural and Economic

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

Commercial Fishery: Fisheries and Oceans Canada will continue to work collaboratively with Industry, First Nations organizations and others to ensure conservation and sustainability of the crab resource and fishery. First Nation participation in the commercial fisheries is being enhanced through licences provided by ATP and PICFI (Section 3.4).

Management of the crab resource will progress from a precautionary regime to one based on biological information through assessment and application of data collected from biological sampling programs, electronic monitoring programs, harvest logs, surveys and research.

The Department will continue to work collaboratively with the Crab Sectoral Committee to ensure sustainable fisheries.

The reduction of illegal sales will continue to be a priority. Consultation on closures will continue in local area meetings and advisory processes.

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

The document "Recreational Fisheries in Canada, An Operational Policy Framework" is available on the internet at:

www.dfo-mpo.gc.ca/fm-gp/policies-politiques/op-pc-eng.htm

Recreational fisheries in the Pacific Region are also guided by "A Vision for Recreational Fisheries in British Columbia 2009-2013" developed cooperatively by DFO, the Province of BC and the SFAB. The recreational fisheries Vision is available at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/docs/rec-vision-eng.pdf

First Nation Fishery: Fisheries and Oceans Canada provides opportunities for First Nations priority access to the fishery for food, social and ceremonial purposes. The Department will continue to provide opportunities for First Nations to crab, in a manner consistent with the decision of the Supreme Court of Canada in *Sparrow*, and other decisions.

To address First Nation closure requests an evaluation and decision framework was drafted in consultation with stakeholders. Review of these requests, using the framework, is ongoing and further consultation with certain First Nations may be required.

Catch monitoring programs are being developed in collaboration with some First Nations organizations and standards for all fishery monitoring and catch reporting programs are being developed.

5.4.3. Compliance

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

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

5.4.4. Ecosystem

DFO's objective is to use the Ecological Risk Assessment Framework drafted under the Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas (Section 1.6) 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* (Section 4.4). 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 (Section 4.4). The SFAB has also agreed to avoidance of sponge reefs for recreational fishing in Saanich Inlet (Appendix 2).

Objectives may also be defined in a recovery strategy, action plan, or management plan with *SARA*-listing.

6. ACCESS AND ALLOCATION

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

6.1. Commercial

Conservation objectives are being met primarily through size, sex, and in some cases seasonal fishing restrictions. Female crab are protected and only male crab are harvested after they have had the opportunity to breed. Increased effort by the commercial fishery is a concern that is partially addressed through trap limits and vessel length restrictions.

6.2. Recreational

The total combined daily limit for Dungeness, Red Rock and Alaska King crab in Areas 1 to 10, 21 to 27 is six per day; in Areas 11 to 20, 28 and 29, it is four per day. The possession limits for crab are two times the daily limit. See Appendix 2 for the Recreational Harvest Plan.

The Department will continue to review harvest sharing with the commercial fishery. If any changes are approved after the IFMP is finalized they may be implemented in season in 2013.

6.3. First Nations

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

Currently, there are no limits on First Nation harvest. See Appendix 3 for the First Nation Harvest Plan.

6.4. Experimental, Scientific, Educational or Public Display

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

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

6.5. Requests for Access

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

Requests for improved recreational access are directed to DFO through the SFAB process and the representatives to the Crab Sectoral Committee (Appendix 8). The SFAB usually meets twice a year (in the late spring and mid winter) to discuss and advise DFO on recreational fishing

plans, recreational fishery regulations, and any areas of concern to the recreational fishing community. Information on the SFAB is available at:

www.pac.dfo-mpo.gc.ca/fm-gp/rec/sfab-ccps-eng.htm

7. MANAGEMENT MEASURES FOR DURATION OF PLAN

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

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

8. SHARED STEWARDSHIP ARRANGEMENTS

8.1. Commercial Fishery

Vessel owners/licence eligibility holders are required to make arrangements with an industry-funded service provider for the delivery of in-season information to DFO as required by conditions of licence regarding electronic monitoring, biosampling, and catch reporting. The 2012 commercial crab service providers were Pacific Coast Fishery Services Inc and Ecotrust Canada, (see Appendix 8 for contact information).

8.2. Fisheries and Oceans Canada

Two Science, (Marine Ecosystem and Aquaculture Division) and six Resource Management personnel are directly involved in this fishery. 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 Fishery Licence Unit, the Aboriginal Fisheries Strategy, the Recreational Fisheries Division, the Oceans Directorate and numerous administrative personnel. Generally, all personnel are multi-tasked.

9. COMPLIANCE PLAN

9.1. Overview

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

- Direction from regional or national headquarters;
- Whether the fishery contains a stock of concern (identified with input from Chiefs of respective disciplines Resource Management, Habitat, etc.);
- Timing (do we have staff available and is it a year-round activity or periodic (e.g. habitat versus early timed Fraser Chinook); and

- Funding availability.

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

The level of enforcement effort expended in ensuring compliance in the crab fishery will depend on the level of the priority set for this fishery in the seasonal priority setting as identified above in Section 9.1. The commercial crab fishery is Region-wide and enforcement effort may vary depending on fishing pressure identified in particular areas. In-season consultation with the fishery managers may identify areas of concern that can elevate the priority level for enforcement staff. Where enforcement activities are undertaken, the scope and deployment of resources deployed will encompass those areas outlined in the sections below (see Sections 9.2 to 9.5).

9.2. Main Program Activities

9.2.1. Priorities

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

- investigate landings of undersize, female and soft-shell crab,
- survey closed areas for illegal activity,
- check compliance with escape rings and rot cord requirements,
- work with fishery managers to investigate fraudulent reporting of crab landings in fish slips and harvest logs, and
- investigate irregularities reported by observers and service providers.

9.2.2. Dockside Monitoring

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

9.2.3. Vehicle Inspections

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

9.2.4. Fishery Patrol Vessels

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

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

9.2.5. Air Surveillance

Fishery officers and marine enforcement officers will conduct monitoring and compliance patrols at-sea using program vessels, Canadian Coast Guard (CCG) vessels and air surveillance from charter aircraft.

9.2.6. Enforcement Issues and Strategies

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

Issue	Section	Strategy
Licensing Verification - Vessel licensed - Experimental licence - No Harvesters Registration Card (FRC). - Fail to produce FRC.	PFR S.22 F(G)R S.52 F(G)R S.68(1) PFR S.25 F(G)R S.11	At-sea and dockside inspections will occur when opportunities exist. These inspections may include checks of all licensing documents on board the vessel to ensure compliance with the regulations.
Fish during closed time/area	PFR S.63	Patrols utilizing patrol vessels will be pursued when opportunities exist. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for Priority fisheries.
Size limit.	PFR S. 66	At sea and dockside inspections will be pursued when opportunities exist.
Fail to provide proper landing and hail information, lack of notification for change of area, cancellation of trip, or incorrect reporting of area fished	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after C&P has been notified by fisheries management that a violation has occurred. The investigation will be pursued when larger priorities permit. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for priority fisheries, to track vessels in the fishery.
Fail to have an operational Electronic Monitoring System	F(G)S. 22(7)	At sea and dockside inspections will occur to measure compliance with this provision.

Issue	Section	Strategy
Fail to maintain "Validation and Harvest Logbook"	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist. Investigations may also occur on an opportunistic basis after C&P has been notified by Fisheries Management that a violation has occurred. The investigation will be pursued when larger priorities permit.
Exceed allowable trap limits	F(G)R S.22(7)	At sea inspections to determine compliance with this provision.
Fail to use appropriate biodegradable escape mechanisms.	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist.
Fail to use appropriate escape rings.	F(G)R S.22(7)	At sea and dockside inspections will occur when opportunities exist.
Fail to report crab exports.	F(G)R S.22(7)	Dockside and transporting inspections will occur when opportunities exist.

Enforcement action took place during the 2012 season relating to the Conditions of Licence. It was focused on compliance with trap construction, buoy marking, harvest of soft-shell and undersize crab, logbook records, and fishing in areas closed to harvest. Canadian and United States enforcement staff conducted patrols along the International boundaries to ensure compliance with that boundary.

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

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

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

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

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

Fishery managers, resource management biologists, and shellfish assessment biologists have prepared impact statements for use in court cases. These have been useful in allowing the courts to understand the implications of the offence and for increasing the resultant fines clearly.

Recently, impact statements pertaining to crab have included a section that suggests the Judge direct fines to a special purpose account, held by the Department, to fund research, education, equipment, and investigations pertaining to crab biology and management of the fishery.

10. POST-SEASON REVIEW

10.1. Commercial Fishery

10.1.1. Conservation and Sustainability

Concerns with increased mortality from handling soft-shell crab and, from the industry perspective, with the marketing of inferior product led to the non-retention of soft-shell crab. In 2001, a soft-shell crab was defined as a crab having a durometer measurement of 65 units or less. Based on advice from industry that this value was too low, the definition was increased to 70 units. Feedback has indicated that this value is better and more representative of a hard crab available to the fishery.

To address some of these concerns, electronic monitoring (EM) or 100 percent at-sea observer coverage was required on all commercial crab vessels commencing April 1, 2006. To date, all vessels have selected the electronic monitoring option in favour of the more cost bearing observer monitoring approach. However, in cases where EM hardware requirements are not being met, observers have been deployed as an interim measure to fulfill monitoring requirements and enable further fishing activity. In the spring of 2013 all electronic monitoring service providers, (excluding Area A) will monitor commercial vessel trap hauling activity every 10 seconds and provide daily vessel position and activity data to the Department.

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

Commercial area trap allocation caps and individual vessel allocation traps occur in all areas, (Please refer to the Commercial Harvest Plan in Appendix 1). In 2013, a new cap has been established for both Sooke Harbour and Sooke Basin. In future greater trap limit considerations may be required in select areas or portions.

11. PERFORMANCE REVIEW

11.1. Commercial Fishery

In efforts to support conservation and compliance within the commercial crab fishery, in-season and post-season reviews will be conducted for 2013. These reviews will include fleet and service provider compliance evaluations.

12. REFERENCES

Butler, T. H. 1961. Growth and Age Determination of the Pacific Edible Crab, Cancer magister Dana. J. Fish. Res. Board. Can. 18 (5):873-891.

Butler, T. H. 1984. Dungeness crab. Underwater World. Fisheries and Oceans Canada. 4 p.

Hicks, D. and B.A. Johnson. 1999. A device to measure shell hardness of Dungeness crabs and trial application in the Kodiak Island, Alaska, commercial fishery. N. Am. J. Fish. Manage. 19:581-590.

Rice, J., R.D. Humphreys, L. Richards, R. Kadowaki, D. Welch, M. Stocker, B. Turris, G.A. McFarlane, F. Dickson and D. Ware (eds). 1995. Pacific Stock Assessment Review Committee (PSARC) Annual Report for 1994. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2318.

13. INTERNET SITES

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

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

Crab Fisheries Consultation Webpage:

http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/shell-inv/crabe/index-eng.htm

Pacific Region Area and Subarea maps:

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

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

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

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

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

Pacific Region, Recreational Fisheries information web site:

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

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

www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/index-eng.htm

Pacific Region, Science, Infectious diseases of shellfish:

www.pac.dfo-mpo.gc.ca/sci/shelldis/title_e.htm

14. GLOSSARY

AAROM	Aboriginal Aquatic Resources and Oceans Management (AAROM) program - DFO's AAROM funds aggregations of First Nation groups to build the capacity required to coordinate fishery planning and program initiatives and is focused on developing affiliations between First Nations to work together at a broad watershed or ecosystem level where there are common interests and where decisions and solutions can be based on integrated knowledge of several Aboriginal communities.
Aboriginal Traditional Knowledge (ATK)	Knowledge that is held by, and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual, and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines.
AFS	Aboriginal Fisheries Strategy - DFO's AFS was implemented in 1992 to address several objectives related to First Nations and their access to the resource and continues to be the principal mechanism that supports the development of relationships with First Nations including consultation, planning and implementation of fisheries, and development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.
abundance	Number of individuals in a stock or a population.
aquaculture	As defined by the United Nations Food and Agriculture Organization (FAO), aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Aquaculture implies some form of intervention in the rearing process to increase production, such as regular stocking, feeding, protection from predators, etc. It also implies individual or corporate ownership of the cultivated stock.

Area and Subarea	Defined in Section 2 of the *Pacific Fishery Management Area Regulations*. A map of Pacific Fishery Management Areas is available on the DFO internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
ATP	Allocation Transfer Program - DFO's ATP facilitates the voluntary relinquishment of commercial licence eligibilities and the designation of the equivalent commercial fishing capacity to eligible Aboriginal groups as communal commercial licence eligibilities.
By-catch	The unintentional catch of one species when the target is another.
C&P	Fisheries & Oceans Canada, Conservation and Protection Branch.
carapace	The exoskeleton that covers the head and thorax, upon which commercial fishing size limits are based.
communal commercial licence	Issued to First Nation organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the commercial fishery.
communal licence	Issued to First Nation's organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
COSEWIC	The Committee on the Status of Endangered Wildlife in Canada.
crustaceans	A biologically related group of the class Crustacea that includes crabs, lobsters and shrimps.
Centre for Scientific Advice - Pacific (CSAP)	Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice Review Committee), chaired by DFO and including other federal and provincial government agency representatives and external participants.
Canadian Science Advisory Secretariat (CSAS)	Canadian Science Advisory Secretariat - coordinates the peer review of scientific issues for Fisheries & Oceans Canada. The different Regions of Canada conduct their resource assessment reviews independently, tailored to regional characteristics and stakeholder needs. CSAS facilitates these regional processes, fostering national standards of excellence, and exchange and innovation in methodology, interpretation, and insight.
DFO	Fisheries & Oceans Canada. On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.
electronic monitoring	Equipment to digitally record: individual trap hauls; fishing activity; and fishing location, date, and time while the vessel is fishing. A licensed vessel is considered to be fishing while it has traps in the water.
Food, Social and Ceremonial (FSC)	A fishery conducted by First Nations for food, social and ceremonial purposes.

ghost fishing	A situation where fishing gear continues to cause mortalities after it has been lost, abandoned, or discarded. This commonly occurs in trap fisheries when the trap is lost and animals in the trap die and thereby bait the trap with their bodies attracting more animals.
Harvest document	Issued to a First Nation pursuant to the *Aboriginal Communal Fishing Licences Regulations* in respect of a First Nation's fishing right defined under treaty to carry on fishing and related activities for food, social and ceremonial (FSC) purposes.
IFMP	Integrated Fishery Management Plan
inshore	Coastal waters landward of the "surfline".
invertebrate	An animal without a backbone.
landed or off-loaded	The transfer of crab from a vessel in water to land.
landed value	Value of the product when landed by a licensed fishing vessel.
landings	Quantity of a species caught and landed.
Observer	An individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries & Oceans Canada pursuant to Section 39 of the *Fishery (General) Regulations.*
offshore	Coastal waters seaward of the "surfline".
pelagic	Belonging to the upper layers of the open sea.
PICFI	Pacific Integrated Commercial Fisheries Initiative - DFO's PICFI is an initiative aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported.
population	Group of individuals of the same species, forming a breeding unit, and sharing a habitat.
Precautionary Approach (PA)	In resource management, the PA is, in general, about being cautious when scientific information is uncertain, unreliable or inadequate and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to the resource. Information on the adoption of a PA framework for fisheries management in Canada is available at: www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/precaution-eng.htm
PSARC	See CSAP.
recruitment event	The large or unprecedented survival of crab from a single spawning or year class or group of year classes that enter and dominate a population.
sampling program	A program in which representative samples of animals are collected for the calculation of parameter estimates that describe such things as weight, length or age within the general population.

service provider	An agency contracted by vessel owners or their harvesters association to co-ordinate notification, fishery monitoring, biological sampling, and data submission requirements. The service provider may train and recommend candidates for certification by Fisheries and Oceans Canada as observers.
SFAB	Sports Fishing Advisory Board, which provides advice to DFO on matters of recreational (sport) fishing.
single trap gear	Crab fishing gear where each trap is equipped with a buoy line and buoy and is not connected by line to other traps.
shellfish	Any species of invertebrate that may be harvested in commercial, recreational or First Nations fisheries.
soft-shell management areas	Sixteen smaller management units within Crab Management Area A from which biological data are collected. These areas open and close independently of one another.
Species at Risk Act (*SARA*)	A federal Act to prevent wildlife species from being extirpated or becoming extinct and to provide for their recovery. It provides the legal protection of wildlife species and the conservation of their biological diversity.
stakeholders	Individuals or groups with an interest in a particular fishery or activity.
stock	Describes a population of individuals of one species found in a particular area, and is used as a unit for fisheries management.
stock assessments	Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reactions of populations to alternative management choices.
Subarea	A subdivision of an Area, as described in the Pacific Fishery Management Area Regulations. (See maps at Area or Subarea internet link above).
substrate	The ground (often the ocean bottom) and its composition, in or on which animals live.
tonne (t)	Metric tonne, which is 1000 kg or 2204.6 lbs.
Traditional Ecological Knowledge (TEK)	A cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.

APPENDIX 1: 2013 COMMERCIAL HARVEST PLAN

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1. CHANGES AND HIGHLIGHTS FOR 2013

Fisheries and Oceans initiated consultations with stakeholders in 2007 with the goal of making significant management changes to address concerns in the fishery. Discussions regarding harvest sharing opportunities occurred in 2011 and will continue in 2013. Changes could be considered in-season.

Management actions for 2013 include:

Fishery Monitoring

- All Licence holders must make arrangements with an approved service provider in order to fulfil fishery monitoring and catch reporting program requirements as specified in Appendix 9 on Biological Sampling, Electronic Monitoring (EM) or Observing, Harvest Logbooks, Plastic Trap Tags, and Mid-Year and Year-end summary reports.
- Significant changes to EM will come into effect on April 1, 2013, including timelier, automated data delivery and improved compliance reporting.
- The Hail program will continue in Area A, but will discontinue in all other licence areas (replaced by EM reports of daily activity).
- Commercial biological sampling requirements have increased in all areas
- Programs will be evaluated in-season to determine if service providers in each licence area will be approved for the 2014 fishing season.
- New plastic trap tags specific to each vessel will be required in Areas B, E, G, H and I. Having plastic trap tags in Area I is a new requirement.
- For Area 24 (E), the requirement for two plastic trap tag colours has been removed.

Licensing

- Online licensing will commence January 1st, 2013. Requirements for service provider arrangement and submission of 2012 harvest logs prior to renewal will remain in place. Failure to meet requirements in a timely manner may result in licence issuance delay.
- For the 2013 fishing season all licences have been allocated and consist of 189 commercial licences ("R") and 32 communal commercial licences ("FR").
- The 2012 area re-selection process for 2013 to 2015 has resulted in 47 licences in Area A (from 53), 16 in B (from 13), 36 in E (from 26), 19 in G (from 20), 51in H (from 40), 32 in I (from 51), and 20 in J (from 18).
- In Area E, sub-area licensing, known as "Options", will continue in 2013. Areas included in each of the three Options are as follows:
    - Sooke Option – Area 20, 21, 22, 25, 26, 121, 123-1, 125 and 126
    - Tofino Option – Area 21, 22, 23, 24, 25, 26, 121, 123, 124, 125 and 126
    - Quatsino Option – Area 21, 22, 25, 26, 27, 121, 123-1, 125, 126 and 127

Trap Limits

- Vessel trap allocations have changed according to area re-selection.
- A new area cap of 420 traps has been implemented for both Sooke Harbour and Sooke Basin. The 10 vessels that have chosen the Area E Sooke option in 2013 are permitted to fish 42 traps in these areas.

- The Area I 100 trap limit time period has been changed to 0800 June 15th to 0759 July 5th.

Other Management Measures

- Weekly trap haul restrictions in Areas E, G, and H will continue. However, the Area G weekly trap haul restriction time period has been changed to January 15 to April 15th.
- Standard buoys and some registration of buoy colours will continue for Areas A, G, J, Area E Sooke Option, and Area E Tofino Option Trap Limit Area.
- All traps fished in all areas must have two escape rings of 105mm or larger situated not more than 100mm from the top of the frame
- The use of hanging bait will continue to be prohibited in Areas H, I and J, and Area E Tofino Trap Limit Area. See Section 2.12 for details.
- For Areas I and J, in 2013, the new maximum trap size will have a diameter no greater than 44 inches (112 cm) and a height no greater than 14 inches (36 cm); this is 348 litres in volume. This new maximum trap size was phased in over a four-year period beginning in 2008 for Areas I and J.

Closures

- Commercial closure consultations will continue and could result in in-season management changes.
- Area B (Areas 3 to 10 inclusively) will close from 0001 hours January 1, 2012 to 0001 hours March 1st, 2013 and from 0001 hours December 1st to 2359 hours December 31st, 2013.
- New commercial fishery closures put in place for 2012 to provide First Nations FSC and recreational opportunities will remain in place for 2013. These include Becher Bay and Pedder Bay in Area E, and Comox Harbour, Horton Bay and Dinner Bay (Mayne Island) in Area H. See Sections 5.4 and 5.6 for detailed descriptions.
- Portions of Area A within the Gwaii Haanas National Marine Conservation Area, identified by the interim management plan as fully protect areas, will remain closed to commercial and recreational harvest in 2013.
- Consultation regarding the boundaries for the Race Rocks Marine Protected Areas will be ongoing in 2013. The description of the closure for the Race Rocks MPA is likely to be modified from the description given in this IFMP and may be changed in-season if required. See Section 5.4.1.2 or 5.6.1.15 for more details.
- The Roberts Bank/Deltaport/Tsawwassen BC Ferries navigational closure will continue in 2013. See Section 5.7.1.7 for details.

2. MANAGEMENT MEASURES FOR THE COMMERCIAL FISHERY

2.1. Species

Dungeness crab (*Cancer magister*)

Red Rock crab (*Cancer productus*)

Red and Golden King crab (*Paralithodes camtschatica & Lithodes aequispinus*), permitted to be retained in the North and Central coast only, under amended crab conditions of licence and local area crab manager specifications.

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

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

2.2. Size Limits

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

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

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

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

2.3. Non-retention of Female Crabs

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

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

Briarosaccus callosus is identified by a reddish-brown, 1 to 2 cm diameter capsule(s), which is the egg sac of the parasite, located under the abdomen (i.e. where the crab eggs would normally be carried).

Retention of female crabs or their roe (eggs or larvae) represents a threat to conservation of crab stocks.

2.4. Non-retention of Soft-shell Crabs

Soft-shell crabs may not be retained. A crab is considered soft-shell if the underside of the shell (carapace) yields or flexes under pressure. Crab shell hardness is measured with a durometer, which is a spring driven device specifically designed to measure the shell hardness of Dungeness crab. Durometers are available from PTC Instruments, 2301 Federal Avenue, Los Angeles, CA 90064 (www.ptc1.com). The Dungeness crab durometer is model 307LCRB-4. The appropriate place on a crab to determine if the crab shell is soft is on the underside of the carapace between the widest point of the carapace and the attachment of the leg bearing the claw. The durometer should be positioned just anterior to the shell suture line as indicated in Appendix 6. The durometer shall be applied to this location on the crab as per the manufacturer's instructions. The indenter of the durometer should be pressed to the crab shell until the foot of the durometer is flush with the surrounding shell. Soft-shell crabs are those crabs that do not exceed a durometer measurement of 70 units.

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

In many areas harvesters have advised the Department that the use of fish frames or "hanging bait" greatly increases the catch of soft-shell crab. Accordingly, the use of hanging bait has been prohibited in several areas. Commercial harvesters should avoid fishing during soft-shell periods in order to minimize damage to crab populations, and to maximize the landed value of harvested product. In-season closures may be implemented in locations where a high incidence of soft-shell is observed. Soft-shell crabs left in traps are subject to increased risk of mortality through cannibalism.

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

2.5. Area Licences

In 2013, crab licence owners selected an area to fish for the three-year period commencing January 1, 2013 and ending December 31, 2015. A description of the crab areas is below and a map is in Appendix 7.

Area	Licences	Description	Management Area
A	47	Queen Charlotte Islands	Areas 1, 2, 101 to 110 inclusive, 130 and 142.
B	16	North and Central Coast Mainland	Areas 3 to 10 inclusive.
E	36	West Coast Vancouver Island	Areas 20 to 27 inclusive, 121 and 123 to 127 inclusive.
G	19	Johnstone Strait	Areas 11, 12, 13, 15 and 111.

Area	Licences	Description	Management Area
H	51	Strait of Georgia	Areas 14, 16 to 19 inclusive and Subarea 29-5.
I	32	Fraser River	Areas 28 and 29 excluding Subareas 29-5 and 29-8.
J	20	Boundary Bay	Subarea 29-8.

2.5.1. Area E sub-area licensing

Sub-area licensing within crab management Area E, known as "Options", will continue in 2013. As part of the area selection completed in 2012, licences selecting to fish in Area E were required to choose one of three Options:

- Sooke Option – Area 20, 21, 22, 25, 26, 121, 123-1, 125 and 126 (10 licences)
- Tofino Option – Area 21, 22, 23, 24, 25, 26, 121, 123, 124, 125 and 126 (24 licences)
- Quatsino Option – Area 21, 22, 25, 26, 27, 121, 123-1, 125, 126 and 127 (2 licences)

The sub-area licensing selection will be valid from January 1, 2013 until December 31, 2015. Licences will not be permitted re-designate or move between areas within Area E during the next three years.

Note: within each Area E Option, there are also Trap Limit Areas; see section 2.7.3.

2.6. Service Provider Arrangements & Licensing Requirements

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

2.7. Trap Limits

Trap limits have been established in each area coast-wide:

Area A Trap Allocation, (Max = 35,000)

Vessel Length	# of Vessels	Total Traps	Final Licence Limit
<13m	30	17,700	590
13-14m	5	3,930	786
14-15.8m	4	3,932	983
>15.8m	8	9,432	1179
Total	47	34,994	

Trap Allocations (Area B TO J)*

col #	1	2	3	4	5
Area	**Area Limit**	**2013 Licences**	**Area Limit / Licences**	**Individual Cap**	**Final Licence Limit (Min. of col # 3 & 4)**
B	7600	16	475	400	400
E				350	350
E_Quatsino*	600	2	300	200	200
E_Sooke*	420	10	42	350	42
E_Tofino*	1600	24	67	350	67
G	5600	19	295	400	295
H	12900	51	253	300	253
I*	8400	33	255	200	200
J	3600	20	180	200	180

*Please note: Not all area and time specific details have been provided above. Please refer to the appropriate section below on area specific details.

Compliance with trap limits is monitored through several programs including electronic monitoring or at-sea observers, plastic trap tags, and on-grounds compliance checks. Harvesters must take an active role in ensuring compliance with trap limits by meeting their trap tagging, reporting and monitoring requirements.

Areas will be closed if compliance with trap limits is unacceptable.

2.7.1. Area A

Trap limits in Area A are based on vessel length:

- 590 traps per vessel less than 42.5 feet (13 m) in length.
- 786 traps per vessel from 42.5 to 46 feet (14 m) in length.
- 983 traps per vessel from 46 to 52 feet (15.8 m) in length.
- 1179 traps for vessels in excess of 52 feet in length.

2.7.1.1. McIntyre Bay

No licensed vessel in Area A shall fish more than one half of total vessel trap allocation in McIntyre Bay from the date of opening until 08:00 hours November 1, 2013. McIntyre Bay includes Subarea 101-7 and that portion of Subarea 1-5 east of Skonun Point, and that portion of 101-10 northwest of Rose Spit (northwest of a line from 54º 09’ north latitude 131º 40’ west longitude thence to 54º 12’ north latitude 131º 38’ west longitude thence to 54º 14.9’ north latitude 131º 30.7’ west longitude).

2.7.2. Area B

Each licensed vessel in Area B may fish a maximum of 400 crab traps.

2.7.2.1. Nass Estuary

A maximum of 200 traps per vessel may be fished within the boundaries of the seasonal opening of the Nass River Estuary. These traps form part of the total 400 traps allocated to each vessel in Area B. The Nass River Estuary Seasonal Closure area and open time is described in Section 5.3.1.1

2.7.3. Area E

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

2.7.3.1. Sooke Option

A maximum of 42 traps per licence eligibility may be fished in Subarea 20-6 (Sooke Harbour) and 42 traps per licence eligibility in Subarea 20-7 (Sooke Basin). These traps form part of the total 350 traps allocated to each vessel in Area E.

420 traps has recently been established as the area trap cap for both Sooke Harbour and Sooke Basin. These caps were requested by industry to address First Nations, Recreational, and Commercial concern of too many traps permitted to be fished in areas too small to support them.

2.7.3.2. Tofino Option

No vessel licensed for Area E shall fish more than 67 traps in total in Subareas 24-1 through 24-14 inclusive (all of Area 24). These traps form part of the total 350 traps allocated to each vessel in Area E.

2.7.3.3. Quatsino Option

During the period from January 1 to June 30 and October 1 to December 31, a fleet maximum of 600 traps and a vessel maximum of 200 traps may be fished within the QTLA, (Quatsino Trap Limit Area comprised of subareas 27-7 to 27-11 inclusive). Since there area 2 licences eligible to fish in the QTLA a maximum of 200 traps per licence eligibility may be fished.

During the period of July 1 to September 30 a fleet maximum of 75 traps may be fished within the QTLA. Since there are 2 licences eligible to fish in the QTLA, each vessel may fish 37 traps each.

2.7.4. Area G

Each licensed vessel in Area G may fish a maximum of 295 crab traps.

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

2.7.5. Area H

Each licensed vessel in Area H may fish a maximum of 253 crab traps.

2.7.6. Area I

A graduated trap limit was developed for Area I on the advice of industry:

- Each licensed vessel in Area I may fish a maximum of 100 traps from 08:00 hours June 15 to 07:59 hours, July 5, 2013.
- Each licensed vessel in Area I may fish a maximum of 200 traps from 08:00 hours July 5 until 16:00 hours, November 30, 2013.

Setting and hauling of crab gear including lines and buoys attached to traps will be permitted only once per day. This is referred to as single-hauling.

2.7.7. Area J

Each licensed vessel in Area J may fish a maximum of 180 crab traps.

2.8. Trap Haul Restrictions

In 2013, restrictions on the frequency that traps may be hauled will be in place in Areas E, G, and H during portions of the spring. These restrictions are described below. At other times and areas, traps may be hauled only once per day.

2.8.1. Area E

A calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday evening. Common Areas (Area 21, 22, 25, 26, 121, 123-1, 125 and 126), Subareas 20-1 to 20-5, Subareas 27-1 to 27-6 and Area 127:

- From March 15 to May 15, harvesters may only haul their traps once per calendar week.
- From May 16 to December 31, harvesters may only haul their traps twice per calendar week in Subareas 20-3 to 20-5.

Sooke (Subareas 20-6 and 20-7):

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

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

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

2.8.2. Area G:

In all of Area G: From January 15 to April 15 harvesters may only haul their traps once per calendar week. A calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday.

Area G weekly trap haul restriction time has recently been changed. This change was requested by industry to align restrictions with Area H timing in order to improve market access. Interpretation of biological data on soft-shell timing could result in a future amendment.

2.8.3. Area H:

In all of Area H: From January 15 to April 15, harvesters may only haul their traps once per calendar week. A calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday

2.9. Trap Size Limit

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

2.9.1. Area I and J Trap Size Limit

Trap size will have a diameter no greater than 44 inches (112 cm) and a height no greater than 14 inches (36 cm); this is 348 litres in volume. This new maximum trap size was phased in over a four-year period beginning in 2008 for Areas I and J.

2.10. Escape Holes

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

2.11. Biodegradable Escapement Mechanisms

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

2.11.1. Rot Cord

Rot cords may only be used on traps with a rigid frame, a freely opening hinged lid, and a **volume less than 400 litres**. (400 litres is approximately equal to a circular trap 117 cm in diameter and 36 cm high.) The trap lid must be secured by a loop of no greater than **#120 untreated cotton twine** such that the trap lid will open freely when the rot cord is broken. The rot cord must be attached to the rubber strap by a cow hitch and attached to

the hook by a cow hitch (Appendix 6). If the hook is attached permanently to the trap, the trap lid shall close using a single loop of the rot cord from the rubber strap. The rubber strap shall be under tension. No other fastenings may impede the hinged lid of the trap from opening. **The opening area created by the hinged lid must exceed the rot panel area requirement (described below), or exceed the size of the largest trap entrance.**

2.11.2. Rot Panel

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

2.11.3. Rot Panel Alternative

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

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

2.12. Hanging Bait

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

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

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

2.13. Maximum Soak Time of 18 days

No person shall set a trap and leave the trap in the water for more than 18 consecutive days without lifting the trap from the water and removing all of the crab from it.

2.14. Daylight Fishery - Areas H, I and J

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

2.15. Bait Ban in Area J

There will be a bait ban for the first two days the fishery is open. Traps shall be wired open with no bait or bait jars inside the traps for the first two days of the fishery (08:00 hours July 15 to 08:00 hours July 17). Bait may be placed in traps beginning at 08:00 hours on July 17. Any crabs caught in traps prior to the traps being baited at 08:00 hours on July 17 shall be released. Crabs may be retained after the traps have been baited, returned to the water, and rechecked. Retention of crabs is permitted only after 12:00 hours on July 17.

2.16. Packers, Barges and Mother Ships

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

In **Area I**, harvesters may use another vessel to bring traps, lines, and buoys to the grounds on opening day, June 15, 2013 and/or August 1, 2013 to bring the remainder of the trap limit onto the grounds. In **Areas J**, harvesters may use another vessel to bring traps, lines, and buoys to the grounds on **opening day only**. Opening day will be July 15, 2013 in Area J. **All gear must be fished from the licensed vessel.**

3. OPEN TIMES

With exception of those permanent and seasonal closures noted in Section 5 of this plan, the closed time for the harvest of crab shall be varied to permit fishing from January 1 to December 31, 2013. Harvesters are advised to check local area charts and public notices for no fishing or no access zones for navigational and military purposes.

4. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

4.1. Octopus Retention

All harvesters are required to accurately report information about octopus caught and retained in their logbooks. There is no longer a separate octopus logbook, octopus catch information in now included as part of the Crab by Trap Logbook and all octopus catch must be recorded. This information is required to develop a further understanding of the distribution and population strength of octopus species caught by commercial trap harvesters. Octopus may not be retained if caught in octopus closure areas. All octopus caught in octopus closure areas must be removed from the trap and released immediately in the location where they were caught, in a manner that will cause least harm. See Section 5.9 for further information.

4.2. Traps

All crab traps fished in **Area A** must be marked either by engraving the vessel registration number (VRN) on the escape hole strut, or on the tunnel, or by applying a brightly coloured plastic tag bearing the VRN to the trap. The VRN on the trap shall match the registration number of the vessel fishing the gear. The Crab Sectoral Committee and Fisheries and Oceans

Canada suggest that harvesters in all areas mark their traps with their VRN by engraving or stamping the VRN into the tunnel or escape hole strut. Traps recovered without proper identification could be seized or destroyed.

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

4.3. Trap Tags

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

4.3.1. Radio Frequency Identification (RFID) Chips:

For vessels participating in an electronic vessel monitoring program (see 4.9.2), radio frequency identification (RFID) chips are required. One RFID chip shall be attached to each trap, or to the buoy, when using single buoyed gear. Vessel operators are required to scan every RFID chip as the trap is hauled onboard, with an RFID chip scanner to record RFID information from each trap hauled. All aspects of RFID chip procurement, distribution, administration, and data entry are the responsibility of the vessel owner/licence holder to arrange with the service provider.

Vessel operators are required to use and scan only those RFID chips registered in the vessel's inventory. RFID chip inventories for each vessel must be updated at the beginning of each fishing season, and include two classifications of chips: "main" and "spare"; two additional classifications of chips, "lost" and "non-inventory", must be added to the vessel's chip inventory and their use reported as part of the EM program. Detailed requirements for RFID chip inventory management are provided in Appendix 9 (Annex 1).

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

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

4.3.2. Plastic Trap Tags

In order to help ensure vessel trap limits are adhered to in the commercial crab fishery, plastic trap tags are required in Areas B, E, G, H, and I. New plastic ID tags are required for 2013 fishing season. The tags are unique to each vessel. Only traps with Fisheries and Ocean Canada approved plastic trap tags are permitted to be on-board the licensed vessel during the period when crab fishing is open.

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

A 10% allowance will be is issued for lost traps.

For Areas B, E, G, and H, if the vessel master requires more replacement tags than the 10% allotted for lost traps, a complete new set of replacement tags must be issued to the vessel master by their service provider, with a new colour, a new ID number, and the letter "RP" on them. All the old tags must be returned to the service provider within 14 days of the new tags being issued.

For Area I, if the vessel master requires more replacement tags than the 10% allotted for lost traps a request for more tags must be made to the Area I Crab Manager. When trap tags are replaced, only the valid tag shall remain on the trap. Old tags must be removed and destroyed and replaced with the replacement tags at the first opportunity the gear is hauled. The implementation of plastic traps tags for Area I is new for 2013. A lower vessel trap allocation and higher trap losses justified different management rules. In 2013, the trap tag program will be further reviewed.

Area E Tofino Option

In 2013, trap tags issued for Area E Tofino Option no longer include two trap tag colours within the total trap complement of 350, for tags fished inside and outside of Area 24. The distinction was considered unnecessary in light of single marked buoy requirements for all traps fished in 24-1 to 24-14.

4.4. Buoys

Buoys must exceed a minimum diameter of 12 cm and have a volume greater than 2.5 litres. (This is approximately equivalent to a cylinder 12 cm in diameter and 22cm long or a sphere 17cm in diameter.) All buoys used for marking crab fishing gear must remain floating on the surface of the water and be adequately visible so as to pose no navigational hazard. This regulation does not apply in Subareas 4-12, 4-15, 29-3, 29-4, 29-6, 29-7, 29-9 and 29-10 during any period in which fishing for salmon with a net is authorized in that Subarea. This regulation is in place to avoid potential gear conflict between resource user groups. Utility cans, bleach bottles and other domestic containers are not permitted.

4.4.1. Buoy Registration

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

Area G & E (Sooke): Licence holder fishing within area G and the area E-Sooke trap limit area must register buoys with a unique colour combination with the DFO Area Crab Manager. A colour photograph is required.

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

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

4.4.2. Special Buoy Requirements

4.4.2.1. Subarea 19-5 - Waters of Sidney and Cordova Channels

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

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

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

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

No further action with respect to the request for closure of commercial and recreational crab fisheries in Sidney and Cordova Channels will be undertaken until the extent of the mitigation provided by improved buoys can be determined. Discussions with Transport Canada are on-going for possible changes in 2013.

4.5. Buoy and Trap Lines

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

4.5.1. Areas A and J

A buoy and buoy line shall be attached to each trap fished in Areas A and J. The traps must not be connected with lines.

4.5.2. Area E Tofino Trap Limit Area

A buoy and buoy line shall be attached to each trap fished in Area 24 (24-1 to 24-14 inclusive). The traps must not be connected with lines.

4.6. Standard Buoy Marking

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

4.7. Navigation Lights

Harvesters are reminded to be familiar with and adhere to the requirements concerning navigational lights as per the *International Regulations for Preventing Collisions at Sea, 1972*.

Fishing vessels and other vessels when underway are required by regulation to travel with high intensity deck lights extinguished. Vessels in contravention are subject to penalties.

4.8. Holding Cages

4.8.1. Marking of Holding Cages

All holding cages must be identified with the registration number of the crab licensed vessel which harvested the impounded crabs. Harvesters are encouraged to maintain holding cages so that crab mortalities are minimized. If holding cages are unmarked, or if crab mortalities are observed in cages, the crabs may be seized or released by Fishery Officers.

4.8.2. Storage of Holding Cages

Holding cages containing crab may not be left in closed areas unless tied to the licensed vessel or to a dock.

4.9. Fishery Monitoring Programs

Full fishery monitoring, either through an at-sea observer or an electronic monitoring (EM) system, has been required in this fishery since April 1, 2006. This requirement will continue for the commercial fishery. For the 2013 season, vessel owners/licence eligibility holders in all crab management areas may elect one of the following two options for full (100 percent) fishery monitoring:

- Participation in an at-sea observer monitoring program (see 4.9.1); or
- Participation in an approved EM program (see 4.9.2).

During 2013, other monitoring programs will provide reports to Fisheries and Oceans Canada on plastic trap tags (see 4.3.2) for all licence areas except A and J, to monitor compliance with trap limits, and fishing activity (hails) for Area A (see 4.11). In all crab management areas, harvest logbooks (4.12.1) and on-grounds biological sampling (4.100) are also required.

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

For more information on these programs, please contact a local area manager or see the 2013 Fishery Monitoring and Catch Reporting Program Standards (Appendix 9).

4.9.1. At-sea Fishery Monitoring

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

4.9.2. Electronic Monitoring

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

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

The vessel master of a vessel participating in an EM program must ensure the EM system on their vessel is installed and fully operational for the entire period when traps are in the water. The Conditions of Licence reflects the option to participate in these programs and vessel masters must ensure that their Conditions of Licence are met. For a complete

description of what meets the requirements for EM programs and data delivery requirements including compliance reporting, please see Appendix 9

Video monitoring will not be required, except where requested by industry such as in Area A. However, if overall compliance with non-video EM systems is poor, the Department may consider implementing a requirement for all vessels to be equipped with a video camera.

4.10. On-Board Biological Sampling

The introduction of a biological sampling component to on-grounds inspections was implemented in 2005. On-board monitoring and biological data collection will occur throughout the 2013 fishing season, and must be completed by DFO certified At-Sea Observers. Agents of the service provider will report significant violations of Conditions of Licence immediately to the local crab fishery manager or to the O.R.R. line at 1-800-465-4336.

The biological information collected shall be entered into a Fisheries and Oceans Canada approved database and submitted to the Department in electronic form no later than seven days following the date sample collection occurred.

A brief summary of area specific details have been provided below. A more complete set of area specific biosampling details are located in Appendix 9 (Annex 5).

4.10.1. Area A

Area A biological sampling initiatives for 2013 include a soft-shell monitoring program and fishery-dependent biosampling. In Area A, vessels must arrange for biological sampling to be collected at-sea and reported to the Department.

4.10.2. Area B

In Area B, sampling will occur in predetermined index site areas. Sampling frequency will be twice per month from March 1st to June 30 and once per month from July 1st to November 30th. Upon data review sampling sites may change to address conservation concerns in other areas.

4.10.3. Areas E, G, & H

In Areas E, G, and H, increased biosampling requirements have been in place since 2009 including fishery-independent sampling (test fishing) and commercial harvest sampling at index sites; these requirements will remain in place for 2013.

The intention of increased sampling is to collect additional information on biological characteristics of crab populations in the areas, including soft-shell periods; this will be used to evaluate future management options.

4.10.4. Areas I & J

Minimum coverage for fishery-dependent sampling will be more specific at one day per licensed vessel in Fraser River (Area I), and one day in Boundary Bay (Area J) due to short fishing seasons and the small geographic areas.

4.11. Fishery Notification Procedures – Hails

The requirement for Area "A" trip hails will continue in 2013. However, the hail program in all other areas has been replaced by electronic monitoring (EM) daily activity reports. Data delivery requirements for the hail program are detailed in Appendix 9 (Annex 6).

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

4.12. Catch and Fishing Data

4.12.1. Harvest Log Data

The vessel master/license holder is responsible for the provision and maintenance of an accurate record, a "log" of daily harvest operations. This log must be completed and a copy submitted in both hard (paper) copy and electronic form in an approved format as defined by Fisheries and Oceans Canada Marine Ecosystems and Aquaculture Division's Shellfish Data Unit. (See Appendix 5 for an example of the Harvest Log).

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

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

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

Fisheries and Oceans Canada
Shellfish Data Unit
Pacific Biological Station
3190 Hammond Bay Road
Nanaimo, B.C., V9T 6N7
Phone: (250) 756-7022 or (250) 756-7306

In February 2012 Fisheries & Oceans Canada announced a moratorium on logbook changes for 2012/2013. Program development will occur under the System Modernization Initiative in conjunction with a suite of service delivery changes. Full

requirements and acceptable data formats for electronic harvest logs in this fishery are currently under development. Information on the service delivery changes may be found on the department's website, at www.dfo-mpo.gc.ca/fm-gp/sdc-cps/index-eng.htm.

As an alternative to harvest log provision through a service provider, the vessel master/licence holder may provide a hard copy log in the same form and providing the same particulars as shown in the fishing log sample attached as Appendix 5 Example of Crab Fishery Harvest Log. The vessel master/licence holder must also provide an electronic copy of the harvest data, which is required to be a true and accurate transcription of the hard copy data, delivered on a 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 full requirements and acceptable data formats that meet the Conditions of Licence. The hard copy and the electronic copy of the harvest log must be forwarded within 28 days following the end of the month in which fishing occurred. This information must be sent to the above address.

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

4.12.1.1. Gear Questionnaire

A gear questionnaire is an important component of the logbook requirement under the Conditions of Licence. A new questionnaire must be filled out and submitted to the Shellfish Data Unit with the first submission of harvest logs every season, and for any change to the gear used during the season. Copies of the gear questionnaire can be obtained by contacting the Shellfish Data Unit; a copy may be included in the front of the Crab Trap Harvest Logbook. Licence conditions will not be considered to be met unless at least one complete gear questionnaire has been received during the season. If a licence holder is unsure whether a gear questionnaire has been submitted, they can contact the Shellfish Data Unit. A copy of the gear questionnaire is included in Appendix 5.

4.12.1.2. Submission and Release of Harvest Log Data

The license 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 harvest log data to the reported license holder, and only upon written request.

4.12.1.3. Nil Report for Harvest Log - Licence Issued but not Fished

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

FISHERIES AND OCEANS CANADA REMINDS HARVESTERS THAT HARVEST LOGS MUST BE COMPLETED ACCURATELY DURING FISHING OPERATIONS AND SUBMITTED TO THE DEPARTMENT IN ACCORDANCE WITH THE TIMING SET OUT IN CONDITIONS OF LICENCE. DELAY OF COMPLETION OR SUBMISSION OF LOGS IS A VIOLATION OF A CONDITION OF LICENCE.

4.12.1.4. Confidentiality of Harvest Data

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

4.12.2. Octopus

Octopus retention and release information has been incorporated into the crab harvest logbook. A separate log specific to octopus is no longer required. The retention privilege of octopus currently permitted in the crab trap fishery may be reviewed if unsatisfactory compliance with octopus catch reporting requirements occurs.

4.12.3. Fish Slip Requirements

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

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

Fish slip books may be purchased at most Fisheries and Oceans Canada offices. Phone (604) 666-2716 for more information.

5. CLOSURES

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

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

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

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

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

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

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

The Navigational restricted area around Roberts Bank/Deltaport/Tsawwassen BC Ferries will continue to be a navigational closure in 2013. The description of this closure is provided below. A map describing this closure is provided in Appendix 7.

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

5.1.1. Restricted Areas

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

5.1.1.1. Ganges Harbour, Chart 3478, NAD 83

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

Restricted area description:

Outer North, Latitude 48º50.096, Longitude 123º27.191'W
Outer South, Latitude 48º50.057'N, Longitude 123º27.251'W
Inner North, Latitude 48º51.134'N, Longitude 123º29.241'W
Inner South, Latitude 48º51.127'N, Longitude 123º29.367'W

5.1.1.2. Tsehum Harbour, Chart 3476, NAD 83

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

North East point Latitude 48º40.234'N, Longitude 123º23.850'W
South East point Latitude 48º40.183'N, Longitude 123º23.916'W
Bearing 290º True Inbound
Bearing 110º True Outbound

Restricted area description:

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

At latitude 48º40'25"N / 123º24'33"W is on a transit from the marked wreck on the south shore to the small Islet just south of Kingfisher Point. The channel turns north and narrows to approximately 30 meters, staying within the bounds of the marked navigation channel. The Channel terminates at its northern end at latitude 48º40'43"N, longitude 123º24'45"W which is at the port hand day mark (square green/white).

5.1.1.3. Roberts Bank/Deltaport/Tsawwassen BC Ferries

To ensure and maintain a safe approach for deep-sea vessels, ferries and berthing tugs transiting in and out of the Roberts Bank/Deltaport and BC Ferries terminal, crab fishing is prohibited within the area described in Section 5.7.1.7 and shown on a map in Appendix 7.

5.1.1.4. Dogfish Bank BC Ferries Lane

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

mile wide corridor, with one-half nautical mile on either side of a line between 53° 39.9' N, 131° 26.2' W and 53° 27.58' N, 131° 49.3' W.

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

5.2. Queen Charlotte Islands - Area A

5.2.1. Area A Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013:

5.2.1.1. Portions of Area 2:

Subarea 2-1

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

Subarea 2-2

Those waters inside a line that begins at 53°15.632'N 131°49.290'W [Spit Point] then true east to 53°15.632'N 131°46.232'W [surfline] then southerly following the surfline to 53°06.533'N 131°38.748'W [Gray Point] then northerly following the shoreline to the beginning point;

Subarea 2-3

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

Subarea 2-4

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

Subarea 2-63

Those waters of Buck Channel and adjacent waters inside a line that begins at 53°09.121'N 132°37.757'W [surfline] then true east to 53°09.121'N 132°35.137'W

[Tcenakun Point] then following the southerly shoreline of Chaatl Island to 53°07.576'N 132°24.043'W [Chaatl Island] then true east to 53°07.576'N 132°23.622'W [Demariscove Point] then westerly following the shoreline to 53°05.732'N 132°34.496'W [Buck Point] then northerly following the surfline to the beginning point;

Subarea 2-64

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

Subarea 2-65

Those waters of Dawson Inlet and Dawson Harbour lying northerly of a line that begins at 53°09.163'N 132°30.818'W [Mercer Point] then to 53°08.687'N 132°29.959'W [Newton Point];

Subarea 2-66

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

Subarea 2-67

Those waters of Skidegate Channel and adjacent waters lying easterly of the meridian passing through 132°16.966'W at McLellan Point and westerly of the meridian passing through 132°23.622'W at Demariscove Point;

Subarea 2-77

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

5.2.1.2. Bowie Seamount:

Area bounded by a series of rhumb lines drawn from a point 53°03′07.6″ N, 135°50′25.9″ W, to a point 53°16′20.9″ N, 134°59′55.4″ W, then to a point 53°39′49.2″

N, 135°17′04.9″ W, then to a point 53°39′18.0″ N, 135°53′46.5″ W, then to a point 53°52′16.7″ N, 136°30′23.1″ W, then to a point 53°49′19.6″ N, 136°47′33.1″ W, then to a point 53°40′02.5″ N, 136°57′03.5″ W, then to a point 53°13′59.2″ N, 136°10′00.0″ W, then back to the point of commencement as laid out in the Bowie Seamount Marine Protected Area Regulations. (Marine Protected Area)

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

Burnaby Narrows

Those Portions of Subareas 2-13 and 2-16 that begins at 52°23.071'N 131°20.427'W then east to 52°23.079'N 131°22.79'W then following the southern shoreline of Kat Island east to 52°23.104'N 131°22.193'W then east to 52°23.303'N 131°21.277'W then following the western shoreline of Burnaby Island south to 52°20.982'N 131°20.427'W then west to 52°20.733'N 131°21.063'W the following the eastern shoreline of Moresby Island north to beginning point.

Louscoone Estuary

That portion of Subarea 2-34 northerly of a line that begins at 52°11.828'N 131°15.662'W then east to 52°12.269'N 131°14.579'W. Includes all waters north of these coordinates to the northern most extent of Louscoone Inlet

Flamingo Estuary

That portion of Subarea 2-37 northerly of a line that begins at 52°14.523'N 131°22.24'W then east to 52°14.245'N 131°21.481'W. Includes all waters north of these coordinates to the northern most extent of Flamingo Inlet

Gowgaia Estuary

That portion of Subarea 2-41 easterly of a line that begins at 52°24.947'N 131°32.130'W then east to 52°24.233'N 131°32.021'W. Includes all waters east of these coordinates to the eastern most extent of Gowgaia Bay

Cape Saint James

Those portions of Subareas 2-19, 102-3, 130-3 and 142-1 that begins at 51°56.509'N 131°1.547'W then southwest to 51°55.499'N 131°02.468'W then southeast to 51°52.493'N 130°57.907'W then south to 51°51.655'N 130°57.78'W then southeast to 51°50.395'N 130°56.561'W then to northeast to 51°51.054'N 130°54.702'W then north to 51°53.826'N 130°55.64'W then northwest to 51°58.517'N 130°59.468'W then west to 51°58.727'N 131°0.620'W then following the southern shoreline of Kungit Island west to beginning point.

SGang Gwaay

Shoreward of the 1 nautical mile ribbon boundary surrounding Anthony Island. (Park)

5.2.2. Area A Seasonal Crab Closures

5.2.2.1. Area A (excluding McIntyre Bay and Naden Harbour):

Area A closed 00:01 hours, March 1 to 08:00 hours, August 1, 2013. The Department may endorse a soft-shell monitoring program. If a program is in place, the Area, or portions of the Area (see Appendix 7 for a map and a description of the Area A Soft-shell Management Areas), could close earlier or later than March 1 if sampling indicates a change to the closing date is appropriate. If a program is in place, the Area, or portions of the area, could open earlier or later than August 1 if sampling indicates a change to the opening date is appropriate. (Soft-shell Closure)

5.2.2.2. McIntyre Bay:

Subarea 101-7

Those waters of Dixon Entrance inside a line that begins at 54°14.923'N 132°58.587'W [McPherson Point] then to 54°10.509'N 132°00.000'W [in water] then to 54°09.000'N 131°40.000'W [Rose Point] then following the surfline to 54°14.258 'N 132°57.851'W [Andrews Point] then northerly following the shoreline to the beginning point;

That portion of Subarea 1-5 east of Skonun Point, and that portion of 101-10 northwest of Rose Spit (northwest of a line from 54º 09' north latitude 131º 40' west longitude thence to 54º 12' north latitude 131º 38' west longitude thence to 54º 14.9' north latitude 131º 30.7' west longitude) closed 00:01 hours, March 1 to 08:00 hours, September 1, 2013. The Department may endorse a soft-shell monitoring program. If a program is in place, the area could close earlier or later than March 1 if sampling indicates a change to the closing date is appropriate. If a program is in place, McIntyre Bay could open earlier or later than September 1 if sampling indicates a change to the opening date is appropriate. (Soft-shell Closure)

5.2.2.3. Naden Harbour

Subarea 1-4

Those waters of Naden Harbour and adjacent waters lying southerly of a line that begins at 54°02.830'N 132°34.166'W [Mary Point] then to 54°03.010'N 132°32.731'W [Deepwater Point] closed 00:01 hours, March 1 to 08:00 hours, October 15, 2013. The Department may endorse a soft-shell monitoring program. If a program is in place, the area could close earlier or later than March 1 if sampling indicates a change to the closing date is appropriate. If a program is in place, Naden Harbour could open earlier or later than October 15 if sampling indicates a change to the opening date is appropriate. **Ring net fishery only**. (Soft-shell Closure)

5.2.3. Area A Potential Crab Closures - 2013 review

Requests for commercial closures in several portions of Area A have been forwarded by the Sport Fishing Advisory Board. Consultations will take place that may result in management actions in-season in 2013.

5.3. North Coast Mainland - Area B

5.3.1. Area B Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013:

5.3.1.1. Kincolith:

Those portions of Subarea 3-12 and the Nass River estuary inside a line that begins at 55°00.626'N 130°00.329'W [Nass Point] then to 55º00.000'N 130º01.000'W then to 54º58.200'N 129º55.000'W then to 54°59.082'N 129°55.053'W [Fort Point navigation marker] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.2. Stewart:

That portion of 3-15 lying northerly of the parallel passing through 55°37.617'N [Green Islets] and easterly of the international boundary between Canada and the United States;

Subarea 3-16

Those waters of Portland Canal and adjacent waters lying northerly of the parallel passing through 55°47.807'N at Engineers Point and easterly of the international boundary between Canada and the United States. (First Nations FSC and Recreational Access Closure)

5.3.1.3. Prince Rupert:

That portion of Subarea 4-9 inside a line that begins at 54°20.141'N 130°27.678'W [Observation Point] then to 54°19.921'N 130°29.696'W [Doolan Point] then following the easterly shoreline of Tugwell Island to 54°19.125'N 130°30.980'W [Dawes Point] then to 54°18.447'N 130°28.457'W [Straith Point] then to the beginning point;

Subarea 4-10

Those waters of Prince Rupert Harbour and adjacent waters inside a line that begins at 54°20.141'N 130°27.678'W [Observation Point] then following the shoreline of Tuck Inlet to 54°20.197'N 130°16.490'W [Pethick Point] then to 54°20.052'N 130°17.009'W [Ritchie Point] then following the westerly shoreline of Kaien Island to 54°14.079'N 130°20.085'W [near Bishop Island] then to 54°14.113'N 130°22.665'W [Lima Point] then following the easterly shoreline of Digby Island to 54°18.447'N 130°28.457'W [Straith Point] then to the beginning point;

Subarea 4-11

Those waters of Porpoise Harbour, Wainwright Basin, Morse Bay, and adjacent waters lying southerly of a line that begins at 54°20.052'N 130°17.009'W [Ritchie Point] then to 54°20.197'N 130°16.490'W [Pethick Point] and northerly of a line that begins at 54°12.152'N 130°18.514'W [Ridley Island] then to 54°12.097'N 130°18.142'W [Lelu Island] then northerly following the shoreline to 54°12.634'N 130°17.485'W [Lelu Island] then true east to 54°12.634'N 130°17.199'W [Tsimpsean Peninsula]. (First Nations FSC and Recreational Access Closure)

5.3.1.4. Kitkatla:

Subarea 5-3

Those waters of Kitkatla Channel and adjacent waters inside a line that begins at 53°50.268'N 130°30.206'W [Chief Point] then easterly following the shoreline to 53°49.704'N 130°20.488'W [Sparrowhawk Point] then to 53°47.766'N 130°18.771'W [McCauley Island] then to 53°47.308'N 130°23.724'W [Browning Island] then to 53°47.490'N 130°24.571'W [Dolphin Island] then following the northerly shoreline of Dolphin Island to 53°47.819'N 130°25.981'W [Kitkatla Village on Dolphin Island] then to 53°49.194'N 130°30.009'W [Goschen Island] then to the beginning point;

Subarea 5-10

Those waters of Browning Entrance and adjacent waters inside a line that begins at 53°49.194'N 130°30.009'W [Goschen Island] then to 53°47.819'N 130°25.981'W [Kitkatla Village on Dolphin Island] then following the southerly shoreline of Dolphin Island to 53°47.490'N 130°24.571'W [Dolphin Island] then to 53°47.308'N 130°23.724'W [Browning Island] then to 53°47.766'N 130°18.771'W [McCauley Island] then southerly following the shoreline to 53°40.427'N 130°24.525'W [Baird Point] then to 53°38.261'N 130°27.990'W [Banks Island] then to 53°47.291'N 130°33.162'W [Viscount Point] then northeasterly following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.5. Kitimat:

Subarea 6-1

Those waters of Douglas Channel, Devastation Channel, Kitimat Arm, and adjacent waters lying northeasterly of a line that begins at 53°45.238'N 129°01.852'W [Paisley Point] then to 53°41.498'N 129°05.121'W [Grant Point] then following the shoreline to 53°41.197'N 129°04.789'W [Maitland Island] then to 53°40.494'N 129°04.797'W [Hawkesbury Island] then following the easterly shoreline of Hawkesbury Island to 53°33.600'N 128°53.406'W [Eva Point] then to 53°34.147'N 128°49.007'W [Staniforth Point] then to 53°33.903'N 128°46.107'W [mainland]. (First Nations FSC and Recreational Access Closure)

5.3.1.6. Coghlan Anchorage:

That portion of Subarea 6-2 west of a line begins at 53°25.478'N 129°14.242'W [Halsey Point] then to 53°24.728'N 129°14.214'W [Dawson Point] then following the westerly shoreline of Promise Island to 53°22.022'N 129°15.699'W [Thom Point] then to 53°21.878'N 129°16.208'W [Waterman Point] then northerly following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.7. Kitkiata Inlet:

That portion of Subarea 6-2 west of a line begins at 53°37.876'N 129°13.853'W [Gertrude Point] then to 53°36.798'N 129°14.411'W [Helen Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.8. Kiskosh Inlet:

That portion of Subarea 6-2 west of a line begins at 53°31.180'N 129°13.955'W then to 53°30.579'N 129°14.140'W. (First Nations FSC and Recreational Access Closure)

5.3.1.9. Kynoch Inlet:

Subarea 7-11

Those waters of Kynoch Inlet lying easterly of a line that begins at 52°46.109'N 128°07.820'W [Garvey Point] then to 52°45.582'N 128°06.788'W [Kynoch Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.10. Fitz Hugh Sound:

Subarea 8-3:

Those waters of Fitz Hugh Sound including the Koeye River estuary inside a line that begins at 51°44.011'N 127°59.798'W [Kelpie Point Light] then to 51°48.949'N 127°53.842'W [Uganda Point] then southerly following the shoreline to 51°42.967'N 127°53.462'W [Whidbey Point] then to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.1.11. Dean Channel:

Subarea 8-7

Those waters of Dean Channel and adjacent waters lying northeasterly of a line that begins at 52°16.065'N 127°47.100'W [Boscowitz Point] then to 52°14.759'N 127°45.956'W [Rattenbury Point] and southwesterly of a line that begins at 52°27.297'N 127°17.586'W [north of Eucott Bay] then to 52°26.354'N 127°16.415'W [Edward Point]. (First Nations FSC and Recreational Access Closure)

5.3.1.12. Burke Channel:

Subarea 8-13

Those waters of Burke Channel and adjacent waters inside a line that begins at 52°12.377'N 127°29.953'W [King Island] then to 52°11.198'N 127°28.355'W [Cathedral Point] then to 52°09.508'N 127°31.638'W [Mapalaklenk Point] then

southerly following the shoreline to 51°54.326'N 127°52.267'W [Edmund Point] then to 51°55.448'N 127°54.337'W [Walker Point] then following the easterly shoreline of Humchitt Island to 51°55.884'N 127°53.892'W [Humchitt Island] then true east to 52°55.884'N 127°53.684'W [King Island] then northerly following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.3.2. Area B Seasonal Crab Closures

All of Area B (Areas 3 to 10 inclusively) will close from 0001 hours January 1, 2012 to 0001 hours March 1st, 2013 and from 0001 hours December 1st to 2359 hours December 31st, 2013. This closure is supported by the majority of Area B licence holders to improve gear compliances and reduce over-soak violations.

5.3.2.1. Khutzeymateen Inlet:

Subarea 3-10:

Those waters of Khutzeymateen Inlet and adjacent waters lying easterly of a line that begins at 54°42.989'N 130°13.731'W [Keemein Point] then to 54°43.589'N 130°13.050'W [Welgeegenk Point] closed to commercial crab fishing from January 1 to 12:00 hours, March 1, 2013, and from 00:01 hours November 16 to December 31, 2013. (Winter Ice Closure)

5.3.2.2. Nass Estuary:

Those portions of Subareas 3-12, 3-18 and the Nass River estuary inside a line begins at 54°58.995'N 130°06.270'W [Ramsden Point Light] then to a boundary sign three nautical miles southwest of Arrandale on Mylor Peninsula then following the shoreline to 54°58.933'N 129°50.385'W [Leading Point] then to 54°59.620'N 129°53.467'W [east of Mill Bay] then following the shoreline to 55°00.626'N 130°00.329'W [Nass Point] then dues west to a boundary sign on the opposite mainland shore then following the shoreline to the beginning point closed January 1 to 12:00 hours October 1, 2013 and from 00:01 hours, November 16 to December 31, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.3. Stewart:

That portion of 3-15 lying southerly of the parallel passing through 55°37.617'N [Green Islets] and easterly of the international boundary between Canada and the United States closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.4. Big Bay:

That portion of Subarea 4-8 east of a line that begins at 54°28.461'N 130°25.712'W [Shattock Point] then to 54°27.342'N 130°27.049'W [Simpson Point] closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.5. Prince Rupert:

That portion of Subarea 4-9 inside a line that begins at 54°21.803'N 130°29.243'W [Ryan Point] then to 54°20.355'N 130°30.519'W [Chapman Point] then following the easterly shoreline of Tugwell Island to 54°19.921'N 130°29.696'W [Doolan Point] then to 54°20.141'N 130°27.678'W [Observation Point] then following the shoreline to the beginning point closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.6. Kitkatla:

Subarea 5-4

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°53.961'N 130°41.984'W [Porcher Peninsula] then true east to 53°53.961'N 130°39.758'W [Gurd Island] then following the southerly shoreline of Gurd Island to 53°53.765'N 130°35.208'W [Gurd Island] then to 53°53.765'N 130°33.400'W [Snass Point] then to 53°52.233'N 130°30.941'W [Whiteley Point] then southerly following the shoreline to 53°50.268'N 130°30.206'W [Chief Point] then to 53°49.194'N 130°30.009'W [Goschen Island] then following the northeasterly shoreline of Goschen Island to 53°51.024'N 130°33.962'W [Nubble Point] then to 53°51.333'N 130°35.312'W [Coquitlam Island] then to 53°51.542'N 130°36.661'W [Porcher Peninsula] then northerly following the shoreline to the beginning point;

Subarea 5-5

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.438'N 130°35.062'W [Porcher Island] then southerly following the shoreline to 53°53.765'N 130°33.400'W [Snass Point] then true west to 53°53.765'N 130°35.208'W [Gurd Island] then northerly following the shoreline to 53°55.237'N 130°37.984'W [Gurd Point] then to the beginning point;

Subarea 5-6

Those waters of Dries Inlet and adjacent waters lying northerly of a line that begins at 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.438'N 130°35.062'W [Porcher Island];

Subarea 5-7

Those waters of Serpentine Inlet and adjacent waters lying northerly of a line that begins at 53°55.060'N 130°40.843'W [Porcher Peninsula] then to 53°56.184'N 130°38.170'W [Porcher Island] and;

Subarea 5-8

Those waters of Kitkatla Inlet and adjacent waters inside a line that begins at 53°55.060'N 130°40.843'W [Porcher Peninsula] then to 53°56.184'N 130°38.170'W [Porcher Island] then to 53°55.237'N 130°37.984'W [Gurd Point] then southerly following the shoreline to 53°53.961'N 130°39.758'W [Gurd Island] then true west to 53°53.960'N 130°41.984'W [Porcher Peninsula] then northerly following the shoreline to the beginning point closed by variation order and notice to industry during the herring seine and roe-on-kelp fisheries. (Herring Seine and Roe-on-Kelp Closure)

5.3.2.7. Portions of Area 6:

Subarea 6-3

Those waters of Verney Passage, Ursula Channel, and adjacent waters inside a line that begins at 53°33.600'N 128°53.406'W [Eva Point] then to 53°34.147'N 128°49.007'W [Staniforth Point] then southerly following the shoreline to 53°18.723'N 128°53.302'W [mainland] then to 53°18.867'N 128°56.685'W [Pilot Point] then following the northerly shoreline of Gribbell Island to 53°22.910'N 129°07.364'W [Gribbell Island] then true west to 53°22.910'N 129°09.921'W [Money Point] then following the easterly shoreline of Hawkesbury Island to the beginning point and;

Subarea 6-4

Those waters of Gardner Canal and adjacent waters lying southerly of a line that begins at 53°34.147'N 128°49.007'W [Staniforth Point] then to 53°33.903'N 128°46.107'W [mainland] closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.8. Khutze Inlet:

Subarea 6-23

Those waters of Khutze Inlet lying easterly of a line that begins at 53°05.259'N 128°33.381'W [Asher Point] then to 53°04.041'N 128°33.051'W [Griffin Point] closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.9. Portions of Area 7:

Subarea 7-6

Those waters of Finlayson Channel inside a line that begins at 52°53.012'N 128°30.634'W [Sarah Head] then true east to 52°53.012'N 128°29.883'W [mainland] then following the shoreline to 52°49.124'N 128°23.499'W [Carter Point] then to 52°48.316'N 128°23.541'W [Fawn Point] then following the westerly shoreline of Roderick Island to 52°38.529'N 128°26.799'W [Roderick Island] then true west to 52°38.529'N 128°30.330'W [Pering Point] then northerly following the shoreline to the beginning point;

Subarea 7-10

Those waters of Mathieson Channel and adjacent waters inside a line that begins at 52°46.109'N 128°09.358'W [Pooley Island] then true east to 52°46.109'N 128°07.820'W [Garvey Point] then to 52°45.582'N 128°06.788'W [Kynoch Point] then southerly following the shoreline to 52°34.310'N 128°14.752'W [Hird Point] then to 52°35.229'N 128°17.203'W [Charles Head] then northerly following the shoreline to the beginning point;

Subarea 7-13

Those waters of Spiller Channel and adjacent waters lying southerly of the parallel passing through 52°23.665'N near Mosquito Bay and northerly of a line that begins at 52°15.694'N 128°17.072'W [Don Peninsula near Foote Islets] then to 52°15.735'N 128°14.647'W [Hyndman Reefs Light] then to 52°16.773'N 128°12.912'W [Grief Island] then following the northerly shoreline of Grief Island to 52°16.742'N 128°12.261'W [Grief Island] then true east to 52°16.742'N 128°11.656'W [Yeo Island];

Subarea 7-14

Those waters of Spiller Channel, Bullock Channel, Briggs Inlet and adjacent waters lying northerly of a line that begins at 52°23.665'N 128°09.896'W [near Mosquito Bay] then true east to 52°23.665'N 128°07.908'W [Yeo Island] then following the northerly shoreline of Yeo Island to 52°19.144'N 128°02.819'W [Ettershank Point] then to 52°19.177'N 128°01.551'W [Coldwell Point] then to 52°19.085'N 128°00.469'W [Florence Peninsula];

Subarea 7-15

Those waters of Return Channel and adjacent waters inside a line that begins at 52°19.144'N 128°02.819'W [Ettershank Point] then to 52°19.177'N 128°01.551'W [Coldwell Point] then to 52°19.085'N 128°00.469'W [Florence Peninsula] then easterly following the shoreline to 52°22.251'N 127°53.051'W [Roscoe Point] then to 52°21.764'N 127°52.023'W [Clatse Point] then southerly following the shoreline to 52°18.201'N 127°55.805'W [near Albert Islet] then true west to 52°18.201'N 127°57.968'W [Jagers Point] then following the westerly shoreline of Cunningham Island to 52°12.252'N 128°05.718'W [Dumas Point] then to 52°13.595'N 128°07.398'W [Chatfield Island] then following the northerly shoreline of Chatfield Island to 52°14.911'N 128°10.574'W [Noon Point] then to 52°16.477'N 128°10.894'W [Yeo Island] then easterly following the shoreline to the beginning point;

Subarea 7-16

Those waters of Roscoe Inlet and adjacent waters lying northeasterly of a line that begins at 52°22.251'N 127°53.051'W [Roscoe Point] then to 52°21.764'N 127°52.023'W [Clatse Point];

Subarea 7-17

Those waters of Hunter Channel, Lama Passage, and adjacent waters inside a line that begins at 52°11.109'N 128°06.733'W [Dryad Point] then to 52°12.252'N 128°05.718'W [Dumas Point] then following the southerly shoreline of Cunningham Island to 52°11.355'N 127°53.653'W [Madigan Point] then to 52°11.111'N 127°53.058'W [Georgie Point] then following the westerly shoreline of Denny Island to 52°04.549'N 127°56.547'W [Start Point] then to 52°03.829'N 127°57.056'W [Kaiete Point] then following the northerly shoreline of Hunter Island to 52°00.589'N 128°09.961'W [Hunter Island] then true west to 52°00.589'N 128°11.012'W [Soulsby Point] then northerly following the shoreline to the beginning point closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.2.10. Portions of Area 9:

Subarea 9-2

Those waters of Rivers Inlet inside a line that begins at 51°30.536'N 127°41.792'W [Penrose Island] then to 51°30.246'N 127°41.186'W [Walbran Island] then following the southerly shoreline of Walbran Island to 51°31.166'N 127°34.918'W [Walbran Island] then to 51°30.398'N 127°32.954'W [west of Johnston Bay] then southerly following the shoreline to 51°28.498'N 127°33.745'W [north shoreline of Draney Narrows] then to 51°28.375'N 127°33.947'W [south shoreline of Draney Narrows] then southwesterly following the shoreline to 51°22.624'N 127°44.777'W [Mainland, near Open Bight] then to 51°27.209'N 127°44.705'W [Dimsey Point] then to 51°27.348'N 127°44.219'W [Joachim Island] then following the easterly shoreline of Joachim Island to 51°27.762'N 127°43.838'W [Joachim Island] then to 51°27.982'N 127°43.341'W [Penrose Island] then following the easterly shoreline of Penrose Island to the beginning point;

Subarea 9-3

Those waters of Rivers Inlet inside a line that begins at 51°34.251'N 127°34.217'W [Walbran Island] then to 51°34.210'N 127°31.450'W [near Ida Island] then southerly following the shoreline to 51°30.398'N 127°32.954'W [west of Johnston Bay] then to 51°31.166'N 127°34.918'W [Walbran Island] then northerly following the shoreline to the beginning point;

Subarea 9-4

Those waters of Rivers Inlet inside a line that begins at 51°38.657'N 127°30.325'W [near Whannock Cove] then to 51°37.393'N 127°30.284'W [Stone Point] then southerly following the shoreline to 51°34.210'N 127°31.432'W [near Ida Island] then

to 51°34.251'N 127°34.217'W [Walbran Island] then westerly following the shoreline to 51°34.477'N 127°34.820'W [McLeod Point] then to 51°34.638'N 127°34.982'W [near Dawsons Landing] then northerly following the shoreline to the beginning point;

Subarea 9-6

Those waters of Rivers Inlet and adjacent waters lying easterly of a line that begins at 51°39.432'N 127°25.749'W [McAllister Point] then to51°38.301'N 127°26.792'W [near Scandinavia Bay] closed January 1 to 12:00 hours October 1, 2013. (First Nations FSC and Recreational Access Closure)

5.3.3. Area B Potential Crab Closures - 2013 review

Requests for commercial closures in portions of Area B have been forwarded by several First Nations and the SFAB. Consultations will take place that may result in management actions in-season in 2013.

5.4. West Coast Vancouver Island - Area E

5.4.1. Area E Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013.

5.4.1.1. Port Renfrew:

That portion of Subarea 20-2 northerly of a line that begins at 48°32.574'N 124°29.861'W [Owen Point] then to 48°34.395'N 124°24.440'W.

5.4.1.2. Race Rocks:

Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve) This closure is within both Area 'H' and Area 'E'.

5.4.1.3. Becher Bay – Inside:

That portion of Subarea 20-5 inside a line that begins at 48°20.111'N 123°36.205'W then to 48°20.010'N 123°35.511'W then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.4.1.4. Alberni Inlet:

Subarea 23-1

Those waters of Alberni Inlet lying northerly of the parallel passing through 49°06.222'N. (First Nations FSC and Recreational Access Closure)

5.4.1.5. Pacific Rim National Park, Broken Group Islands:

Those portions of Subareas 23-6, 23-7, 23-8, 23-9 and 23-11 inside a line that begins at 48°57.752'N 125°19.689'W then to 48°55.575'N 125°12.795'W then to 48°50.221'N 125°18.865'W then to 48°51.757'N 125°23.699'W then to 48°54.318'N 125°23.719'W then to the beginning point. (Park)

5.4.1.6. Ahousat/Millar Channel:

That portion of Subarea 24-4 inside a line that begins at 49°18.030'N 126°04.140'W [northern end of McNeill Peninsula] then to 49°18.030' N 126°03.710' W then to 49°17.483' N 126°03.024' W then to 49°16.814' N 126°02.960' W then to 49°16.439' N 126°02.608' W then to 49°16.226' N 126°02.823' W [Yates Point].

5.4.1.7. Tofino Navigation Channel:

No buoys are permitted in those portions of Subareas 24-4, 24-6, 24-8, 24-9 and 124-3 shown in Appendix 7. (Navigation Closure)

5.4.1.8. Muchalat Inlet:

Subarea 25-1

Those waters of Muchalat Inlet lying easterly of the meridian at 126°12.867'W at the Muchalat Inlet south shore Light;

Subarea 25-2

Those waters of Muchalat Inlet lying westerly of the meridian at 126°12.867'W at the Muchalat Inlet south shore Light and easterly of a line that begins at 49°38.680'N 126°20.888'W [Muchalat Inlet Light] then to 49°38.150'N 126°21.250'W [Ous Point];

Subarea 25-3

Those waters of King and Williamson Passages lying westerly of a line that begins at 49°38.680'N 126°20.888'W [Muchalat Inlet Light] then to 49°38.150'N 126°21.250'W [Ous Point] and easterly of a line that begins at 49°39.178'N 126°26.457'W [Atrevida Point Light] then to 49°38.767'N 126°28.292'W [Anderson Point Light]. (Dioxin Closure)

5.4.2. Area E Seasonal Crab Closures

5.4.2.1. Becher Bay – Outside:

That portion of Subarea 20-5 north of a line that begins at 48°20.196'N 123°37.377'W then to 48°19.848'N 123°37.243'W [Lamb Islet] then to 48°19.848'N 123°35.568'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.4.2.2. Pedder Bay:

That portion of Subarea 20-5 north of a line that begins at 48°19.927'N 123°32.892'W [Manor Point] then to 48°20.245'N 123°32.458'W then following the Pedder Bay shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15.

5.4.2.3. Sooke Harbour:

That portion of Subarea 20-6 inside a line that begins at 48°22.500'N 123°42.012'W [Trollope Point] then to 48°22.651'N 123°42.643'W then to 48°22.770'N 123°42.684'W then following the shoreline to 48°22.684'N 123°41.487'W [Billings Point] then to 48°22.444'N 123°41.487'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.4.2.4. Ucluelet Harbour:

That portion of Subarea 23-11 north of a line that begins at 48°55.289'N 125°30.572'W then to 48°55.295'N 125°31.429W [Francis Island] then following the southerly shore of Francis Island to 48°55.313'N 125°31.572'W then to 48°55.329'N 125°31.711'W then following the shoreline to the beginning point closed to commercial crab fishing from 00:00 hours January 1 to 23:59 hours March 31 and 00:01 hours October 1 to 23:59 hours December 31. (First Nations FSC and Recreational Access Closure)

5.5. Johnstone Strait - Area G

5.5.1. Areas G Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013:

5.5.1.1. Nimpkish:

Subarea 12-19

Those waters of Broughton Strait inside a line that begins at 50°36.260'N 127°04.710'W [Ledge Point] then to 50°35.910'N 127°01.490'W [Haddington Island South Light] then to 50°35.213'N 126°57.052'W [Yellow Bluff Light] then following the southerly shore of Cormorant Island to 50°34.791'N 126°54.329'W [Gordon Bluff] then to 50°33.108'N 126°51.257'W [Lewis Point Light] then following the shoreline to the beginning point.

5.5.1.2. Discovery Passage:

Subarea 13-3

Those waters of Discovery Passage inside a line that begins at 50°07.837'N 125°21.532'W [Wilfred Point Light] then to 50°07.830'N 125°20.870'W [Maud Island Light] then northerly following the shoreline to the dam, then across the dam to the shoreline of Quadra Island, then southerly following the shoreline to 50°03.142'N 125°13.866'W [north entrance to Quathiaski Cove] then to 50°02.496'N 125°13.287'W [south entrance to Quathiaski Cove] then southerly following the shoreline to 49°59.913'N 125°11.737'W [Cape Mudge Light] then true west to 49°59.913'N 125°13.794'W [Vancouver Island] then northerly following the shoreline to 50°02.664'N 125°15.037'W [Tyee Spit] then true east to 50°02.664'N 125°14.215'W [Discovery Passage] then to 50°04.392'N 125°15.510'W [Discovery Passage] then true west to 50°04.392'N 125°16.608'W [Orange Point] then northerly following the shoreline to the beginning point;

Subarea 13-4

Those waters of Quathiaski Cove on Quadra Island lying easterly of a line that begins at 50°03.142'N 125°13.866'W [north entrance to Quathiaski Cove] then to 50°02.496'N 125°13.287'W [south entrance to Quathiaski Cove];

Subarea 13-5

Those waters of Discovery Passage and the Campbell River lying westerly of a line that begins at 50°04.392'N 125°16.608'W [Orange Point] then true east to 50°04.392'N 125°15.510'W [Discovery Passage] then to 50°02.664'N 125°14.215'W [Discovery Passage] then true west to 50°02.664'N 125°15.037'W [Tyee Spit]. This includes the tidal portion of the Campbell River;

Subarea 13-6

Those waters of Discovery Passage inside a line that begins at 50°11.181'N 125°22.914'W [Vancouver Island] then to 50°10.827'N 125°21.137'W [Separation Head] then southerly following the shoreline to 50°07.830'N 125°20.870'W [Maud Island Light] then to 50°07.837'N 125°21.532'W [Wilfred Point Light] then northerly following the shoreline to the beginning point;

Subarea 13-11

Those waters of Kanish Bay lying easterly of a line that begins at 50°16.644'N 125°23.000'W [Granite Point] then to 50°14.883'N 125°22.016'W [Bodega Point];

That portion of Subarea 13-7 southeast of a line that begins at 50°10.827'N 125°21.137'W [Separation Head] then to 50°11.487N 125°20.344W;

That portion of Subarea 13-10 east of a line that begins at 50°17.702N 125°18.922W [Chonat Point] then to 50°17.367N 125°18.922W;

That portion of Subarea 13-14 inside a line that begins at 50°00.696'N 125°08.802'W [Francisco Point] then northerly along the shore for 5 km to 50°03.208'N 125 10.347W then true east to the 200 m contour then following the 200 m contour south to 50°00.696'N 125°06.956'W then to the beginning point. (Dioxin Closure)

5.5.1.3. Owen Bay:

That portion of Subarea 13-12 north of a line from 50°18.872'N 125°14.203'W [Walters Point] to 50°18.872'N 125°13.339'W. (Dioxin Closure)

5.5.1.4. Heydon Bay:

That portion of Subarea 13-43 westerly of a line that begins at 50°35.649'N 125°33.219'W then to 50°34.700'N 125°33.652'W. (First Nations FSC and Recreational Access Closure)

5.5.2. Area G Potential Crab Closures - 2013 review

Requests for commercial closures in several portions of Area G have been forwarded by local First Nations. Consultations will take place that may result in management actions in-season in 2013.

5.6. Strait of Georgia - Area H

5.6.1. Area H Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013:

5.6.1.1. Comox Harbour:

Subarea 14-11

Those waters of Comox Harbour inside a line that begins at 49°42.059'N 124°51.581'W [Cape Lazo] then to 49°38.488'N 124°51.685'W [Comox Bar Light and Bell Buoy P54] then to 49°36.540'N 124°50.647'W [Longbeak Point] then to 49°35.613'N 124°53.240'W [near Hart Creek] then northerly following the shoreline to 49°38.707'N 124°55.541'W [Gartley Point] then to 49°39.618'N 124°55.505'W [Goose Spit Light] then northerly following the shoreline to the beginning point.

Subarea 14-14

Those waters of Comox Harbour inside a line that begins at 49°39.618'N 124°55.505'W [Goose Spit Light] then to 49°38.707'N 124°55.541'W [Gartley Point] then following the shoreline to the beginning point.

5.6.1.2. Pender Harbour:

Subarea 16-4
Those waters of Pender Harbour lying easterly of a line that begins at 49°37.878'N 124°03.443'W [Henry Point] then true south to 49°37.497'N 124°03.443'W [Francis Peninsula] then following the easterly shoreline of Francis Peninsula to 49°36.995'N 124°01.988'W [Bargain Narrows] then true south to 49°36.985'N 124°01.988'W [Bargain Narrows].

5.6.1.3. Porpoise Bay:

That portion of Subarea 16-5 inside a line that begins at 49°29.917'N 123°44.798'W then to 49°29.917'N 123°46.401'W then following the shoreline to the beginning point.

5.6.1.4. Stuart Channel South:

Subarea 17-9

Those waters of Stuart Channel inside a line that begins at 48°55.777'N 123°42.363'W [Bare Point] then to 48°54.840'N 123°37.612'W [North Reef Light] then to 48°53.963'N 123°35.559'W [Parminter Point] then southerly following the shoreline to 48°51.000'N 123°34.242'W [Erskine Point] then to 48°50.851'N 123°35.530'W [Grave Point] then northerly following the shoreline to the beginning point;

Those portions of 17-6 and 17-7 lying inside a line that begins at 48°57.934'N 123°39.673'W [Donckele Pt] 48°58.155'N 123°40.417'W [south-eastern entrance to Preedy Harbour, Thetis Island] then to 48°58.241'N 123°41.441'W [Dayman Island] then to 48°58.283 123°41.706'W [Scott Island] then to 48°58.882'N 123°46.105'W [Sharpe Point] then to 48°58.296'N 123°47.239'W then following the westerly shoreline of Vancouver Island to 48°55.777'N 123°42.363'W [Bare Point] then to 48°54.840'N 123°37.612'W [North Reef Light] then to 48°53.963'N 123°35.559'W [Parminter Point] then to 48°56.031'N 123°37.921'W [Josling Point] then following the westerly shore of Kuper Island to the beginning point. (Dioxin Closure)

5.6.1.5. Stuart Channel North:

Those portions of Subareas 17-4 and 17-5 west of a line that begins at 49°05.799'N 123°48.039'W [Reynolds Point] then to 49°02.255'N 123°42.580'W [Miami Islet] then to 49°00.466'N 123°45.806'W [south of Kulleet Bay]. (Dioxin Closure)

5.6.1.6. Satellite Channel:

Those portions of Subareas 18-6 and 18-7 that begins at 48°42.472'N 123°30.216'W then to 48°42.815'N 123°28.800'W then to 48°41.883'N 123°28.285'W then to 48°41.540'N 123°29.699'W then to the beginning point. (British Columbia Provincial Ecological Reserve #67) Note: some electronic charts do not correspond to these boundaries. You must ensure that you use the above coordinates when determining the closure area.

5.6.1.7. Burgoyne Bay:

That portion of Subarea 18-7 east of a line that begins at 48°47.259'N 123°33.235'W [Bold Bluff Point] then to 48°48.820'N 123°33.235'W. (Dioxin Closure)

5.6.1.8. Maple Bay:

Those waters of Subarea 18-7 westerly of a line from 48°48.500'N 123°35.322'W [Paddy Mile Stone] to 48°49.257'N 123°35.318'W [Arbutus Point]. (Dioxin Closure)

5.6.1.9. Cowichan Bay:

Subarea 18-8

Those waters of Cowichan Bay lying westerly of a line that begins at 48°44.564'N 123°34.203'W [Separation Point] then to 48°42.945'N 123°33.292'W [Cherry Point]. (First Nations FSC and Recreational Access Closure)

5.6.1.10. Fulford Harbour:

Subarea 18-10

Those waters of Fulford Harbour inside a line that begins at 48°43.998'N 123°25.533'W [Isabella Point] then to 48°45.220'N 123°23.219'W [Eleanor Point]

5.6.1.11. Sidney Spit:

Those waters easterly of a line that begins at 48º39.223'N 123º 20.763'W [navigation light at the north end of Sidney Island] then to 48º38.245'N 123º20.437'W then following the shoreline to the beginning point. (Recreational Access Closure)

5.6.1.12. Patricia Bay:

Commercial crab harvesters are advised to avoid setting gear within in that portion of Patricia Bay in Saanich Inlet (portion of Subarea 19-8) inside a line that begins at 48º39.18'N 123º29.35W then to 48º39.18'N 123º29.02'W then to 48º38.97'N 123º29.02'W then to 48º38.97'N 123º29.35'W then returning to the beginning point in order to avoid entanglement with sea bed oceanographic instruments deployed by the University of the Victoria Venus project. Please note that there is also a power and data cable from this location running to shore in Pat Bay, as described in a notice to mariners. For additional information see: www.venus.uvic.ca/index.html

5.6.1.13. Victoria Harbour:

That portion of Subarea 19-1 inside a line that begins at 48º26.444'N 123º23.267'W [Chapman Point] then to 48º26.409'N 123º23.317'W then following the shoreline to 48°25.024'N 123°24.494'W [Macauley Point] then to 48°24.814'N 123°23.633'W [the light at the western end of the Ogden Point breakwater] then following the shoreline to the beginning point. (Dioxin Closure)

5.6.1.14. Ogden Point:

Those portions of Subarea 19-3 inside a line that begins at 48°24.814'N 123°23.633'W [the light at the western end of the Ogden Point breakwater] then to 48°24.387'N 123°23.280'W [Brotchie Ledge Light] then to 48°24.649'N 123°22.701'W [Holland Point]. (Marine Reserve)

5.6.1.15. Race Rocks:

Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve) This closure is within both Area 'H' and Area 'E'.

5.6.1.16. Ganges Harbour:

No buoys are permitted in that portion of Subarea 18-3 shown in Appendix 7. (Navigation Closure)

5.6.1.17. Dinner Bay:

That portion of 18-2 inside a line from 48°50.427'N 123°19.984'W then to 48°50.010'N 123°19.675'W [Dinner Point] then following the shoreline to the beginning point. (First Nations FSC and Recreational Access Closure)

5.6.1.18. Horton Bay:

That portion of 18-5 inside a line that begins at 48°50.123'N 123°14.703'W then to 48°50.062'N 123°14.571'W then following the shoreline to 48°49.566'N

5.6.1.19. Tsehum Harbour:

No buoys are permitted in that portion of Subarea 19-5 shown in Appendix 7. (Navigation Closure)

5.6.1.20. Cordova Channel:

Those waters of Subarea 19-5 inside a line that begins at 48º35.990'N and 123º23.400'W [Turgoose Point] then to 48º37.040' N 123º22.780' W [light off NW point of James Island] then following the shoreline of James Island to 48º35.370' N 123º20.960' W then to 48º33.490'N 123º21.750'W [Cowichan Head] then northerly following the shoreline to the beginning point.

5.6.2. Area H Seasonal Crab Closures

5.6.2.1. Kuper Island:

That portion of Subarea 17-8 that begins at 48°59.397'N 123°39.126'W [Thetis Island] then to 48°59.181'N 123°38.201'W [navigational buoy near Centre Reef] then to 48°58.897'W 123°37.627'W [Norway Island] then following the northerly shoreline of Norway Island to 48°58.549'N 123°37.021'W then to 48°58.121'N 123°36.838'W then to 48°57.981'N 123°36.575'W then to 48°56.031'N 123°37.921'W [Josling Point] then following the easterly shoreline of Kuper Island to 48°59.043'N 123°39.648'W then to 48°59.122'N 123°39.648'W then following the southerly shoreline of Thetis Island to the beginning point closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.2.2. Sechelt Inlet:

That portion of Subarea 16-5 inside a line that begins at 49°31.389'N 123°46.759'W [Four Mile Point] then to 49°31.943'N 123°47.393'W [Carlson Point] then following the shoreline to 49°29.917'N 123°46.401'W then to 49°29.917'N 123°44.798'W then following the shoreline to the beginning point from March 15 to September 15, 2013 closed to commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.2.3. Nanaimo Harbour:

Subarea 17-14:

Those waters of Newcastle Channel and Nanaimo Harbour lying southerly of a line that begins at 49°11.598'N 123°56.936'W [Pimbury Point] then to 49°11.677'N 123°56.829'W [Shaft Point] then following the southwesterly shoreline of Newcastle Island to 49°11.023'N 123°55.553'W [Newcastle Island] then true south to 49°10.638'N 123°55.553'W [Protection Island] then following the southwesterly shoreline of Protection Island to 49°10.226'N 123°55.082'W [Gallows Point] then to 49°09.996'N 123°53.676'W [Jack Point] and northerly of the parallel passing through 49°06.952'N at the Cedar Road Bridge on the Nanaimo River closed to

commercial crab fishing from 00:01 March 15 to 23:59 September 15. (First Nations FSC and Recreational Access Closure)

5.6.3. Area H Potential Crab Closures- 2013 review

Requests for commercial closures in portions of Area H have been forwarded to local First Nations. Consultations will take place that may result in management actions in-season in 2013.

5.7. Fraser River - Area I

5.7.1. Area I Year Round Crab Closures

The following areas will be closed January 1 to December 31, 2013:

5.7.1.1. Howe Sound:

Subarea 28-1

Those waters of Howe Sound inside a line that begins at 49°25.664'N 123°28.767'W [near Langdale ferry landing] then to 49°26.083'N 123°26.853'W [Gambier Island] then following the southerly shoreline of Gambier Island to 49°26.735'N 123°19.302'W [Halkett Point] then to 49°25.189'N 123°18.962'W [Hood Point] then following the westerly shoreline of Bowen Island to 49°20.397'N 123°25.979'W [Cape Roger Curtis] then to 49°20.907'N 123°27.903'W [Worlcombe Island] then to 49°21.500'N 123°29.157'W [Popham Island] then to 49°23.021'N 123°32.166'W [Gower Point] then northerly following the shoreline to the beginning point;

Subarea 28-2

Those waters of Howe Sound inside a line that begins at 49°32.108'N 123°22.823'W [Ekins Point Light] then to 49°33.251'N 123°21.500'W [east of McNab Creek] then to 49°33.348'N 123°19.415'W [Domett Point] then following the westerly shoreline of Anvil Island to 49°30.614'N 123°18.214'W [Irby Point] then to 49°31.558'N 123°15.673'W [Brunswick Point] then southerly following the shoreline to 49°19.823'N 123°15.880'W [Point Atkinson Light] then to 49°20.135'N 123°21.643'W [Point Cowan] then following the easterly shoreline of Bowen Island to 49°25.189'N 123°18.962'W [Hood Point] then to 49°26.735'N 123°19.302'W [Halkett Point] then northerly following the easterly shoreline of Gambier Island to the beginning point;

Subarea 28-3

Those waters of Thornbrough Channel inside a line that begins at 49°33.251'N 123°21.500'W [east of McNab Creek] then to 49°32.108'N 123°22.823'W [Ekins Point Light] then following the westerly shoreline of Gambier Island to 49°26.083'N 123°26.853'W [Gambier Island] then to 49°25.664'N 123°28.767'W [near Langdale ferry landing] then northerly following the shoreline to the beginning point;

Subarea 29-1

Those waters of the Strait of Georgia inside a line that begins at 49°28.409'N 123°53.287'W [Reception Point] then southeasterly following the shoreline to 49°23.021'N 123°32.166'W [Gower Point] then to 49°25.100'N 123°42.717'W [White Islets Light] then to the beginning point;

Those portions of 29-2 and 29-3 north of a line that begins at 49°28.409'N 123°53.287'W [Reception Point] to 49°19.615'N 123°25.979'W then to 49°19.823'N 123°15.880'W [Point Atkinson Light].

5.7.1.2. Point Atkinson Reef:

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

5.7.1.3. Burrard Inlet:

Subarea 28-10

Those waters of Burrard Inlet lying westerly of a line from 49°19.023'N 123°08.230'W [First Narrows Bridge] to 49°18.796'N 123°08.440'W [First Narrows Bridge] and easterly of a line from 49°17.959'N 123°01.590'W [Second Narrows Bridge] to 49°17.561'N 123°01.582'W [Second Narrows Bridge]. (Navigational Closure)

5.7.1.4. False Creek:

Subarea 28-8

Those waters of English Bay lying southeasterly of a line that begins at 49°18.069'N 123°09.526'W [Ferguson Point] then to 49°16.554'N, 123°12.113'W [near Jericho Dock]. (Navigational Closure)

5.7.1.5. Whytecliff Park:

That portion of Subarea 28-2 bounded by a line commencing from the most southerly point of Whytecliff Park; thence in a straight line to a point located 100 m east of the most south-easterly point of Whyte Inlet; thence following the southern shoreline of Whyte Inlet at a distance of 100 m to a point lying 100 m from the most south-westerly point of Whyte Inlet; thence in a straight line to a point lying 100 m west of White Cliff Point; thence following the shoreline at a distance of 100 m in a northerly direction to a point 100 m north of Lookout Point; thence following the shoreline at a distance of 100 m in an easterly direction to a point 100 m perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

5.7.1.6. Porteau Cove:

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

5.7.1.7. Roberts Bank/Deltaport/Tsawwassen BC Ferries:

Portions of Subarea 29-7 are closed to commercial fishing in 2013. To ensure and maintain a safe approach for deep sea vessels, ferries, and berthing tugs transiting in and out of the Deltaport and BC Ferries terminals, crab fishing is prohibited with those waters bounded by the following coordinates:

Commencing from the in-shore end of the turning basin:

49 01’34” North Latitude 123 08’47” West Longitude
49 01’28” North Latitude 123 08’32” West Longitude
49 00’57” North Latitude 123 08’27” West Longitude
49 00’56” North Latitude 123 08’11” West Longitude
49 00’36” North Latitude 123 07’48” West Longitude
49 00’26” North Latitude 123 07’59” West Longitude
49 00’22” North Latitude 123 07’50” West Longitude
49 00’28” North Latitude 123 07’35” West Longitude
49 00’07” North Latitude 123 07’07” West Longitude
49 00’07” North Latitude 123 11’16” West Longitude
49 00’55” North Latitude 123 11’16” West Longitude
49 00’46” North Latitude 123 10’35” West Longitude
49 01’05” North Latitude 123 10’19” West Longitude
49 00’49” North Latitude 123 09’32” West Longitude
49 00’57” North Latitude 123 08’27” West Longitude

5.7.1.8. Fraser Delta - Venus Project:

Harvesters are advised that the installation of sea bed oceanographic monitoring equipment by the University of Victoria VENUS project may occur prior to the 2013 fishery. The location of the instrument arrays will be available from the VEUNS project website prior to installation and harvesters are advised to familiarize themselves with the locations of the instruments prior to the 2013 fishery. For additional information see: www.venus.uvic.ca/index.html

5.7.2. Area I Seasonal Crab Closures

5.7.2.1. Fraser River:

Areas 28 and 29, excluding Subareas 29-5 and 29-8 is closed January 1 to 08:00 hours June 15, 2013 and from 16:00 hours November 30 to December 31, 2013.

The opening date is conditional on soft-shell sampling results if sampling occurs. The area could open earlier or later if sampling indicates a change to the opening date is appropriate. (Soft-shell and Conservation Closure)

5.7.3. Area I Potential Crab Closures - 2013 review

Requests for commercial closures in portions of Area I have been forwarded by local First Nations. Consultations will take place that may result in management actions in-season in 2013.

5.8. Boundary Bay - Area J

5.8.1. Area J Seasonal Crab Closures

5.8.1.1. Boundary Bay:

Subarea 29-8 is closed January 1 to 08:00 hours July 15, 2013 and 16:00 hours November 30 to December 31, 2013. There will be a two day bait ban for the first two days the fishery is open. Reopening is conditional on soft-shell sampling results. The area could open earlier or later if sampling indicates a change to the opening date is appropriate. (Soft-shell and Conservation Closure)

5.9. Octopus Closures

All octopus caught in octopus closure areas must be removed from the trap and released immediately in the location where they were caught, in a manner that will cause least harm. The retention of incidentally caught octopus species is prohibited within the following areas:

5.9.1. Area 6

5.9.1.1. Subarea 6-2 (First Nations FSC access closure)

5.9.2. Area 13

5.9.2.1. Discovery Passage:

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

5.9.2.2. Mitlenach Island

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

5.9.3. Area 14

5.9.3.1. Hornby Island:

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

5.9.3.2. Mitlenatch Island

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

5.9.4. Area 15

5.9.4.1. Vivian Island

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

5.9.4.2. Rebecca Rock

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

5.9.4.3. Dinner Rock

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

5.9.4.4. Emmonds Beach

All waters within 0.5 nautical miles of the unnamed reef off Emmonds Beach, located approximately 4.0 nautical miles south of Lund in Subarea 15-2. (Marine Reserve)

5.9.4.5. Mitlenatch Island

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

5.9.4.6. Beach Gardens

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

5.9.5. Area 16

5.9.5.1. Skookumchuck Narrows Provincial Park

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

5.9.6. Area 19

5.9.6.1. Ogden Point

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

5.9.6.2. 10 Mile Point

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

5.9.6.3. Race Rocks

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

Note: Consultation regarding the boundaries for the Race Rocks Marine Protected Areas will be ongoing in 2013. Changes to boundary descriptions resulting from consolations may occur in season.

5.9.6.4. Saanich Inlet

Subareas 19-7 to 19-12 inclusive. (First Nations FSC and Recreational access closure)

5.9.7. Area 20

5.9.7.1. Botanical Beach Provincial Park

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

5.9.7.2. Pacific Rim National Park, Juan de Fuca

That portion of Subarea 20-1 between the lowest low water on record and the highest high water on record from Bonilla Light thence following the shoreline of Vancouver Island easterly to Owen Point. (Park)

5.9.8. Area 21

5.9.8.1. Pacific Rim National Park

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

5.9.9. Area 23

5.9.9.1. Pacific Rim National Park, Broken Group Islands

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

5.9.9.2. Pacific Rim National Park

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

5.9.9.3. Bamfield Marine Station Research Area Closure

Those waters of Pacific Fishery Management Subareas 23-4, 23-6 and 23-7 bounded by a line commencing at the light at Whittlestone Point and running directly to the southern tip of Haines Island; from the northwestern tip of Haines Island to the southern tip of Seppings Island; from the northwestern tip of Seppings Island to Kirby

Point on Diana Island; from Kirby Point directly to the northwest tip of Fry Island; from the northwestern tip of Fry Island to the nearest adjacent point on Tzartus Island; from Foucault Bluff on Tzartus Island to the northwest tip of Nanat Island; from the eastern tip of Nanat Island to the nearest adjacent point on Vancouver Island and thence along the coastline of Vancouver Island to the point of commencement. (Research Area)

5.9.10. Area 26

5.9.10.1. Checleset Bay Fishery Closure Area

Those waters of Checleset Bay within Subareas 26-7, 26-8 and 26-10 and 126-1 on the northwest coast of Vancouver Island enclosed by the coordinates 49° 59’ to 50° 6.3’ N and 127° 26’ to 127° 39’ W. (Ecological Reserve)

5.9.10.2. Kyuquot Sound Marine Communities Study Area

Kyuquot Bay: A portion of 26-6 inside or northerly of a line from White Cliff Head to Racoon Point and identified on the Kyuquot map attached to this plan, and:

Entrance to Crowther Channel: A portion of 26-6 on the west side of Union Island commencing at position 50° 0.4’ N, 127° 19.3’ W and identified on the map attached to this plan. (Research Closures)

5.9.11. Area 28

5.9.11.1. Porteau Cove

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

5.9.11.2. Whytecliff Park

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

5.9.11.3. Burrard Inlet

Subarea 28-10. (Navigational Closure)

5.9.11.4. False Creek

Subarea 28-8. (Navigational Closure)

6. LICENSING

6.1. Licence Category

A crab (category R) or a communal commercial (category FR) licence is required to commercially harvest crab by trap. Category R licence eligibilities are limited entry and vessel based. Communal commercial category FR licence eligibilities are party based and First Nations' organization holds the licence eligibility, which is designated annually to a vessel that meets the licensing requirements, including length restrictions.

6.2. Licence Fees

The annual crab licence fee is $590.00. There is no fee for a communal commercial licence.

6.3. Licence Application Requirements

6.4. Licence Application and Issuance

Prior to annual licence issue, vessel owners must:

- Ensure any Ministerial conditions placed on the licence eligibility have been met
- Ensure any conditions of the previous year's licence are met, e.g. completion, submission, and approval of harvest logs, or fish slips. For further information please contact the Shellfish Data Unit at (250) 756-7306 or (250) 756-7022.
- Provide confirmation to DFO from an approved service company(s) indicating that arrangements have been made in order to fulfill Biosampling, Electronic Monitoring, Hail (Area A Only), Plastic Trap Tag, Logbook, and Summary Reporting requirements as specified in Appendix 9.

6.4.1. Licensing service changes effective 2013

Licensing service changes will be implemented in 2013. A web-based information system will replace in-person payments of licensing fees at Pacific Fishery Licencing Unit offices early in 2013. For the first time, fish harvesters will be able to go online to purchase and renew their commercial fishing licences and to receive in-season licensing services, including the ability to request their licences, obtain their licence conditions, as well as print and pay for their licences. DFO will begin a phased adoption of the new system by industry to obtain their fishing licences starting **January 1, 2013**, with full industry adoption by April 1, 2013. This will include a phased roll-out of new client services to fish harvesters, including online assistance and a toll-free number for information and questions.

January 1 to March 31, 2013: During the three-month phase-in period, service at the counter will continue to be available for fish harvesters who wish to take advantage of the Department's traditional method of service to obtain their 2013 fishing licences.

April 1, 2013: Full use of the new online licensing system by the fishing industry will begin and service at the counter will cease to be available. As part of the online services offered, fish harvesters will have the opportunity, if desired, to establish an alternate person to access his or her account and to make requests and payments on his or her behalf. The new client services will also include the ability for fish harvesters to make an appointment with DFO staff, as needed, to complete a licensing transaction. Fish harvesters will also have the opportunity to make credit card or Interac payments directly online through the new system or, if preferred, to pay for their licence at their bank.

Information on the new system may be found on the DFO internet site, at:

www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm

6.5. Licence Documents

Crab licence documents are valid from the date of issue to December 31 of each calendar year.

Replacements for lost or destroyed licence documents may be obtained by completing a Declaration Concerning Licence Documents form. Please contact a PFLU office for further details.

7. OTHER RESTRICTIONS AND GENERAL INFORMATION

7.1. Domoic Acid and Paralytic Shellfish Poison

In some areas, high levels of naturally-occurring toxins such as domoic acid (DA) and paralytic shellfish poison (PSP) have been found in the viscera of Dungeness crabs. DA can cause a variety of gastrointestinal symptoms and also fatigue, disorientation, and memory loss. In extreme circumstances, ingestion of high concentrations of PSP and DA can be fatal to humans. Crab harvesters should be aware of the potential for PSP and DA accumulation in crabs harvested in areas where there are concerns or closures due to increased marine biotoxin levels, which could lead to fishery closures. Fishers may be called upon to help prevent fishery closures by contributing to area sampling programs and should always keep accurate harvest information.

All bivalve fisheries were closed in Subarea 1-5 in Haida Gwaii in September 2012 due to high concentrations of domoic acid detected in clam samples submitted to the marine biotoxin monitoring program. In cooperation with the Area A Association and their service provider Ecotrust Canada, McIntyre Bay crab samples were obtained for Canadian Food Inspection Agency analysis. All results for the submitted crab samples showed negligible amounts of DA and the area was cleared from contamination concerns.

7.2. Violations and Licence Suspensions

The Crab Sectoral Committee has recommended the application of court imposed licence suspensions in cases of serious violations in this fishery.

7.3. Groundfish Taken for Bait

Harvesters are reminded that any groundfish taken for bait must be taken in accordance with the appropriate groundfish licence and attached licence conditions. Dockside monitoring is an essential element of groundfish stock monitoring and quota management. Therefore, it is important that harvesters using any groundfish for bait (e.g. dogfish, rockfish, and flatfish), land, and validate that groundfish catch prior to using it for bait, in accordance with the Schedule II Conditions of Licence under which authority that groundfish species are taken.

7.4. Vessel Stability

The *Small Fishing Vessel Inspection Regulations* currently require, with certain exceptions,[1] 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.

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.

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.* In 2012 two prawn fishing vessels in BC, *Jessie G* and *Pacific Siren* both capsized with prawn traps on deck and are currently under investigation.

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[1] According to section 5 of the *Small Fishing Vessel Inspection Regulations*, there are exceptions for vessels built before July 6, 1977.

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 or the local Transport Canada Marine Safety office. For more vessel safety information please refer to Appendix 4.

APPENDIX 2: 2013 RECREATIONAL HARVEST PLAN

1. INTRODUCTION

Recreational fisheries in Canada are guided by principles which area outlined in "An Operational Policy Framework", Fisheries and Oceans Canada, 2001", available on the Internet at:

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

"*A Vision for Recreational Fisheries in British Columbia 2009-2013* developed cooperatively by DFO, the Province of BC and the SFAB serves as a framework for developing initiatives and actions to support achievement of a collective vision for the recreational fishery in B.C." The recreational fisheries Vision is available at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/docs/rec-vision-eng.pdf

BC Recreational regulations are described in the British Columbia Tidal Waters Sport Fishing Guide.

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/SFG-GPS-eng.htm

2. OPEN TIMES AND CLOSURES

Recreational harvest of crab occurs year-round.

There are some areas that are either closed to crab harvest or have consumption advisories. Please see the Tidal Waters Sport Fishing Guide or visit the DFO website for more details:

www.pac.dfo-mpo.gc.ca/recfish/Opportunities/shellfish_e.htm

2.1. Pacific North Coast Integrated Management Area

As part of Canada's Oceans Strategy, DFO has initiated an integrated management planning process for the Pacific North Coast Integrated Management Area (PNCIMA). The PNCIMA is bounded by the BC-Alaska border, the base of the shelf slope and the mainland, stretching south as far as Campbell River and the Brooks Peninsula. The PNCIMA planning process marks a shift toward a broader ecosystem approach to ocean management. This is consistent with the Government of Canada's overall direction and with Fisheries and Oceans Canada's new Wild Salmon Policy. The PNCIMA planning process is bringing the area's regulators, First Nations, and stakeholders together to develop an integrated management plan for the region that will identify goals and objectives for achieving conservation, sustainable resource use, and economic development for oceans and coastal areas. These goals and objectives will provide guidance to the management of oceans activities. The integrated management plan will also identify valued ecological, socio-economic and cultural components of PNCIMA and outline a risk-based approach to identifying potential management priorities for these valued components. The plan will also help coordinate various ocean management processes, complementing and linking existing processes and tools, including IFMPs.

2.2. 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 by 2012. Regionally, the draft *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 BC, and any other agencies with a mandate for protecting marine spaces. Future network MPAs may overlap and/or include fishing areas, depending on the type and nature of the MPA.

2.3. National Marine Conservation Areas

The Canada *National Marine Conservation Areas Act* provides for the establishment of National Marine Conservation Areas (NMCAs). Following extensive consultation with interested parties, Parks Canada, in collaboration with Fisheries and Oceans Canada (DFO) and the Council of the Haida Nation, established the Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Gwaii Haanas Marine Area) on June 17, 2010. The Gwaii Haanas Marine Area is located in the southern portion of Haida Gwaii approximately 100 kilometres off the north coast of British Columbia. The Marine Area comprises 3,500km^2 of water and seabed adjacent to the existing Gwaii Haanas National Park Reserve and Haida Heritage Site and was established to protect and conserve ecosystems and culture while providing for ecologically sustainable use of the marine resources.

As part of the establishment process, Parks Canada, the Council of the Haida Nation and DFO developed an Interim Management Plan and preliminary zoning plan for the Gwaii Haanas Marine Area. This plan identifies six zones described in Appendix 7 which are closed to commercial and recreational fishing. Development of long term management and zoning plans for the Gwaii Haanas Marine Area is scheduled to be completed by 2015 and will take place in consultation with the commercial and recreational fishing sectors through DFO's established integrated fishery planning and advisory processes.

Commercial fishing activities within the Gwaii Haanas Marine Area will be managed through DFO's Integrated Fisheries Management process. Annual fishing plans will be developed in consultation with stakeholders and specific actions (e.g., openings, closures, gear restrictions) for the Gwaii Haanas Marine Area will be taken under the authority of the *Fisheries Act* and its regulations. Please refer to the harvest plans for maps describing the closures.

2.4. 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 will develop a collaborative approach and agreement regarding management of fisheries in the area.

3. LICENSING

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 are available at many tackle stores and marinas or online at the following website:

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

4. MANAGEMENT MEASURES FOR THE RECREATIONAL FISHERY

The regulations are summarized in the British Columbia Tidal Waters Sport Fishing Guide which lists closed times, daily and possession limits and some closed areas. A copy of the Sport Fishing Guide is available online at:

http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/SFG-GPS-eng.htm

4.1. Size Limits

Recreational harvesters may not harvest any Dungeness crab that measures less than 165 mm or any red rock crab that measures less than 115 mm.

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

4.2. Non Retention of Female Crabs

Recreational harvesters are required to release all female Dungeness and red rock crabs immediately, in a manner that causes the least harm possible.

4.3. Gear

Crab may be harvested using dip nets, ring nets, traps, hand picking while diving, or handpicking. It is illegal to use more than two rings, two dip nets or two traps or more than two of these in combination to fish for crabs. It is illegal to use snares in catching or attempting to catch fish or crabs.

All traps used to harvest crabs must be equipped with a biological escape mechanism to allow crab to escape and prevent ghost fishing in the event that a trap is lost. Biological escape mechanisms (rot cord) are further described in Appendix 10.

4.4. Daily Limits

Box Crab and Puget Sound King Crab

- The daily limit for box crab is one per day coast wide.

Dungeness and Red Rock Crab

- The total combined daily limit for Dungeness and Red Rock crab in the south coast inside waters (Areas 11 to 20, 28, and 29) is four per day.
- The total combined daily limit for Dungeness and Red Rock crab in the north and west coast (Areas 1 to 10 and 21 to 27) is six per day.

King Crab

- The daily limit for King crab is two per day, except for areas 11 to 20, 28, and 29
- No retention of king crab in Areas 11 to 20, 28, and 29.

Shore Crabs

- The daily limit for shore crabs is 75 per day, except in Areas 28 and 29.
- No retention of shore crabs in Areas 28 and 29.

Other Species of Crab

- The daily limit for all other species of crab not listed is 4 per day coastwide.

4.5. Possession Limits

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

4.6. Proposed Regulation Changes for Crab and Prawns.

During 2013, the Department will be consulting with stakeholders regarding proposed changes to the BC Sport Fishing Regulations and the recreational fishing conditions of licence which regulate aspects of recreational fishing for crab and prawns.

There is one proposed change to the recreational crab and prawn regulations:

- Having unique floats for crab and prawn gear

APPENDIX 3: 2013 FIRST NATIONS HARVEST PLAN

1. OVERVIEW OF THE FISHERY

The Department seeks to provide for the effective management and regulation of the First Nation fishery through negotiation of mutually acceptable and time-limited agreements which outline provisions pertaining to the fisheries and co-management activities. The agreements include provisions by which First Nations manage fishing by their members for food, social and ceremonial purposes, in addition to outlining First Nation involvement in a range of co-management activities and economic development opportunities which may include, but not be limited to, habitat enhancement, catch monitoring and enforcement, fish management and community research.

The First Nations harvest of crab for food, social and ceremonial purposes is regulated through the *Aboriginal Communal Fishing Licences Regulations* made under the *Fisheries Act*. Communal licences are issued annually to First Nations under the authority of these regulations and include a mechanism for designating individuals and vessels to fish under the authority of that licence, outline the harvest area, any harvest or gear limitations, as well as the harvest reporting requirements. Communal licences can be amended in-season for resource conservation purposes. Even where an agreement cannot be concluded, Fisheries and Oceans Canada issues communal fishing licences to First Nations organizations.

First Nations involvement in the fishery is a shared goal between the Department and Aboriginal people. It is a means to stimulate First Nation economic development opportunities and develop fisheries expertise in First Nation communities, while serving as the basis for more co-operation between First Nation communities and the commercial fishery sectors. First Nation participation in the commercial fisheries is being accommodated through the Allocation Transfer Program. The Department's Allocation Transfer Program (ATP) retires existing commercial licence eligibilities from harvesters on a voluntary basis and re-issues these to eligible First Nation organizations as communal commercial licences (category "FR" licences).

A total of 32 crab licences have now been categorised as FR licences. This represents 15% of the commercial fleet. All FR licences has been allocated to First Nation groups for the 2013 season.

The Pacific Integrated Commercial Fisheries Initiative (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. PICFI builds on fisheries reform work begun in response to the 2004 reports of the First Nations Panel on Fisheries and the Joint Task Group on Post-treaty Fisheries, as well as subsequent discussions in a wide variety of forums that have confirmed the need for PICFI.

For more information on the Aboriginal Fisheries Strategy (AFS) ATP or PICFI, contact a resource manager listed in Appendix 1 of the Integrated Fisheries Management Plan or check the Department's website at:

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

2. MANAGEMENT MEASURES FOR THE FIRST NATIONS FISHERY

In recent years, DFO has observed a much greater harvest of crabs for FSC purposes than in the past and observed an increasing number of commercial vessels harvesting crabs for FSC purposes with commercial gear. DFO is becoming increasingly concerned about the impact such harvest will have on the conservation and sustainability of the resource. In the past, effort was small enough that there was no need to have gear or catch limits for FSC harvest. In 2014, DFO is considering introducing licence conditions for the FSC fishery, such as trap limits, to address the concern about commercial vessels and gear being used to harvest crab for FSC purposes. DFO welcomes First Nations views on this issue by contacting the Lead Fishery Manager for Crab by Trap or a Resource Manager for their area (See Appendix 8 for contact information).

First Nations fisheries are subject to the same size limit as the recreational and commercial fisheries: a minimum of 165 mm for Dungeness crab, and 115 mm for red rock crab. Crab are measured in a straight line through the greatest breadth of the carapace. Undersized crabs must be returned to the water immediately, in a manner that causes the least harm possible.

In support of sustainable fishing, First Nations harvesters are requested to release all female crab, in a manner that causes the lease possible harm.

In some areas, commercial fishery closures are used to provide crab fishing opportunities to First Nations harvesters for FSC purposes.

All traps used to harvest crabs must be equipped with a biological escape mechanism to allow crabs to escape and to prevent ghost fishing in the event that a trap is lost. Biological escape mechanisms are further described in Appendix 10.

3. OPEN TIMES AND CLOSURES

First Nations fisheries occur year-round.

There are some areas that are either closed to crab harvest or have consumption advisories because of contamination from heavy metals or dioxins and furans. These closures are listed below, but closures and advisories can change during the year. Contact a local DFO office for closures details.

3.1. Area 4

The harvesting of crab is prohibited in those waters of Porpoise Harbour, Wainwright Basin, Morse Bay, and adjacent waters inside a line from the southernmost point of Kaien Island to the northwesternmost point of Ridley Island, thence to the westernmost point of Lelu Island, thence northerly along the shoreline to the northernmost point of Lelu Island, thence to a marker on the shore of Tsimpsean Peninsula opposite and bounded to the north by a line from Pethick Point to Ritchie Point on Kaien Island. (Dioxin contamination)

3.2. Area 13

Consumption of **crab hepatopancreas** harvested in Discovery Passage should not exceed **100 g/week**. This area includes those waters north of a line from the Cape Mudge

Lighthouse on Quadra Island true west to the shore of Vancouver Island and south of a line from Separation Head (Quadra Island) true west to Vancouver Island.

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

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

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

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

3.3. Area 17

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

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

3.4. Area 18

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

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

3.5. Area 19

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

Esquimalt Harbour: For those waters north of a line connecting Fisgard Light House, Scroggs Rocks, and Duntze Head the following maximum weekly intakes are recommended (the recommended maximum amounts that could be consumed per week of a specific seafood assuming that none of the other seafoods would be consumed in the same week).

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

3.6. Area 25

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

3.7. Area 28

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

Consumption of **crab hepatopancreas** harvested in the waters south of a line from Brunswick Point west to Irby Point on Anvil Island and along the shoreline to Domett Point on Anvil Island, west to McNab Point on the mainland, to Ekins Point on Gambier Island, to a line from Reception Point to a point 1.5 km true south of Cape Roger Curtis on Bowen Island, west to Point Atkinson **should not exceed 130 g/week**.

4. LICENSING

First Nations access to fish for food, social and ceremonial purposes is managed through a communal licence which permits the harvest of crabs.

5. CONTROL AND MONITORING OF FIRST NATIONS FISHING ACTIVITIES

The Department's policy on the management of First Nations fishing identifies First Nations harvests for food, social and ceremonial purposes as the first priority after conservation. The Department negotiates AFS agreements annually with over 70 Aboriginal Organizations that represent 164 of the 200 First Nations in British Columbia and the Yukon. Several of these agreements include provisions for the harvest of crab for food, social and ceremonial purposes. The level of harvest is unknown at this time. First Nations access to fish for food, social and ceremonial purposes is managed through a communal licence. This fishery is regulated through the issuance of communal licences to First Nations and/or First Nations Organizations. These licences are issued under the authority of the *Aboriginal Communal Fishing Licences Regulations*.

Communal licences and Fisheries Agreements may contain provisions for the designation of individuals by the First Nation, or First Nations organizations, to access the allocation provided under the communal licence, as well as provisions for monitoring and reporting by the group of the First Nations fishery in co-operation with the Department.

First Nations communal licences specify the locations permitted for use by First Nations for food, social and ceremonial harvests. Harvesting generally takes place in areas fronting or adjacent to reserves.

Appendix 4 : 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 leaving on a voyage the owner, master or operator must ensure that the fishing vessel is capable of safely making the passage. Critical factors for a safe voyage include the seaworthiness of the vessel, vessel stability, having the required safety 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

1. 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.

1.1. 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.* In 2012 two prawn fishing vessels in BC, *Jessie G* and *Pacific Siren* both capsized with prawn traps on deck and are currently under investigation.

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 or the local Transport Canada Marine Safety office.

1.2. 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.

1.3. 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. 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).

1.4. Other Issues

1.4.1. 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

1.4.2. 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: http://www.ccg-gcc.gc.ca/e0003845

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.pacific.ccg-gcc.gc.ca

1.4.3. 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 (604) 775-8862 or from the Coast Guard website: http://www.ccg-gcc.gc.ca/e0003901

1.4.4. 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.

1.5. 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 Gina McKay, Project Coordinator John Krgovich, Program Assistant, Dionne Riley, 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 WorkSafe BC to improve the fishing injury claims process.
For further information, contact:

Gina McKay	Phone: 604-261-9700
Program Manager	Cell: 604-339-3969
Fish Safe	Fax: 604-275-7140
#2, 11771 Horseshoe Way	Email: fishsafe@fishsafebc.com
Richmond, BC V7A 4V4	www.fishsafebc.com

2. WorkSafeBC

Commercial fishing is legislated by the requirements for diving, fishing and other marine operations found in Part 24 of the Occupational Health and Safety Regulation (OHSR). Many general hazard sections of the OHSR also apply. 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 investigation issues. Part 3 of the Workers Compensation Act (WCA) 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:

Shane Neifer	Terrace	(250) 615-6640
Bruce Logan	Lower Mainland	(604) 244-6477
Wayne Tracey	Lower Mainland	(604) 232-1960
David Clarabut	Victoria	(250) 881-3469
Pat Olsen	Courtenay	(250) 334-8777
Mark Lunny	Courtenay	(250) 334-8732

or the Manager of Interest for 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.

3. 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.

For more information about the TSB, visit their 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 - TSB 1808 Form
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: HARVEST LOG EXAMPLE & GEAR QUESTIONNAIRE

APPENDIX 5.1: EXAMPLE OF A CRAB FISHERY HARVEST LOG

CRAB TRAP HARVEST LOG

V.R.N. [ ][ ][ ][ ][ ][ ] Vessel _____ Skipper _____ Skipper F.I.N. [ ][ ][ ][ ][ ][ ][ ] Year [2][0][ ][ ]

Fishing Method: (check all that apply)
[x] Ground lines
[ ] Singles

Bait Fastener: (check all that apply)
[x] Jars
[ ] Cages
[ ] Clips / hooks

Bait Type: squid

Depths: (check one)
[ ] Fathoms
or
[x] Meters

Catch Weights: (check one)
[x] Pounds
or
[ ] Kilograms

deliver to:
Shellfish Data Unit
3190 Hammond Bay Road
Nanaimo, B.C.
V9T 6N7

	DATE HAULED		SOAK TIME		LATITUDE / LONGITUDE		STATISTICAL		DEPTH		SPECIES	CATCH INFORMATION		No. of	[ ] KG [x] LB Octopus				PBS	REMARKS
	month	day	days OR hours		Give one representative point for each string		area	sub-area	Min.	Max.		Number of pieces	Weight of Catch	Traps Pulled	Released		Kept		CODE	
			Days	Hours	Latitude	Longitude									#	Wt.	#	Wt.		
1	0 3	1 5	2		49° 01.123'	123° 01.123'	2	9 8	4	10	Dungeness	32	52	50			2	25		
2	↓	↓ ↓	↓		49° 01.456'	123° 00.456'	↓	↓ ↓	↓	↓	↓	24	38	↓						
3	↓	↓ ↓	↓		49° 01.789'	123° 00.789'	↓	↓ ↓	↓	↓	↓	42	67	↓	1	5				

EXPLANATION OF CRAB LOG TERMS

A NEW LINE OF DATA AND NEW POSITION SHALL BE REPORTED FOR EACH STRING OR GROUP OF TRAPS. A STRING IS DEFINED AS TRAPS CONNECTED BY A LINE. A GROUP IS DEFINED AS SINGLE TRAPS OR SHORT STRINGS OF TRAPS IN A DISTINCT AREA (eg. A BAY) NOT CROSSING A STATISTICAL AREA OR SUB-AREA BOUNDARY, WITH NO 2 TRAPS MORE THAN 0.5 NAUTICAL MILES (1KM) APART.

TERM	DESCRIPTION
Catch Weights	Check off pounds or kilograms
Depth units	Check off fathoms or meters (depths in feet converted to fathoms by dividing by 6)
Bait Type	Indicate bait used; for example herring, squid, salmon heads
Bait Fastener	Indicate if bait is in a container or held on by a clip or hook, or mix of both
Fishing Method	Indicate whether traps were attached to a ground line, single buoyed, or mix of both
Date Hauled	Date gear hauled. Month (01 to 12), Day (01 to 31): For example, gear hauled on March 15 would be entered as 03 15
Soak Time	Length of time traps were in water fishing. Record as days **OR** hours, **NOT BOTH** Example, gear set July 15 at 3pm and hauled July 18 at 8am would be 2 days OR 41 hours
Latitude/Longitude	Record the position of one end of a string of gear or a representative position for a group of traps Format should be **49° 01.123' 123° 01.123'**, (degree decimal minutes). 3 decimal places must be used

TERM	DESCRIPTION
Statistical area and sub-area	Statistical area and sub area must be recorded. If a string of traps crosses a boundary 75% of the traps must be in the reported sub-area and the co-ordinate given must also be within that sub area.
Species	Usually Dungeness, use a new line for each species caught
Catch Information	Report number of pieces and/or weight estimates
Octopus	For each string of gear record the total number and total weight of octopus released and kept. Indicate pounds or kilograms for Octopus weights.

Note: Gear questionnaires are included with license renewal packages and must be submitted with the first harvest log of the season to the Shellfish Data Unit. Gear questionnaires must have been received at the Shellfish Data Unit for harvest log data to be considered complete.

APPENDIX 5.2 2013 CRAB TRAP QUESTIONNAIRE

Your 2013 crab trap gear questionnaire is due with the first submission of your 2013 harvest logs.

MAIL TO:

Shellfish Data Unit
Pacific Biological Station
3190 Hammond Bay Rd.
Nanaimo, B.C. V9T 6N7
Phone: (250) 756-7022 or
(250) 756-7306

month day year

Date Completed: _____/_____/_____

Captain's Name: _____

Vessel Name: _____ **CFV/VRN**: | | | | | | |

Who filled out this form: (give name) _____

Fishing Area: (circle) A B E G H I J

Species Trapped: ☐ Dungeness Crab ☐ Red King Crab ☐ Red Rock Crab ☐ Golden King Crab

Total Number of Traps: _____ (total number of traps used this year)

Trap Details: Fill in ALL information for each type of trap to be used this season (see reverse for instructions):

Trap Type #1

No. of Traps	Shape (**check one**)	Diameter (inches)	Height (inches)	Frame Type (**check only one**)	Mesh Type (**check only one**)	Escape Ring Size (mm)
_____	☐ **Circular** ☐ Square ☐ Conical	_____	_____	☐ Rubber Wrapped Iron ☐ Rubber Wrapped Iron with Stainless Top ☐ Stainless ☐ Other_____	☐ Stainless ☐ Synthetic	☐ 100mm ☐ 105mm ☐ 110mm ☐ other _____

No. of Traps	Shape (**check one**)	Diameter (inches)	Height (inches)	Frame Type (**check only one**)	Mesh Type (check only one)	Escape Ring Size (mm)

Trap Type #2

_____ _	☐ **Circular** ☐ Square ☐ Conical	_____ _	_____ _	☐ Rubber Wrapped Iron ☐ Rubber Wrapped Iron with Stainless Top ☐ Stainless ☐ Other_____	☐ Stainless ☐ Synthetic	☐ 100mm ☐ 105mm ☐ 110mm ☐ other _____

Trap Type #3

No. of Traps	Shape (**check one**)	Diameter (inches)	Height (inches)	Frame Type (**check only one**)	Mesh Type (**check only one**)	Escape Ring Size (mm)
_____ _	☐ **Circular** ☐ Square ☐ Conical	_____ _	_____ _	☐ Rubber Wrapped Iron ☐ Rubber Wrapped Iron with Stainless Top ☐ Stainless ☐ Other_____	☐ Stainless ☐ Synthetic	☐ 100mm ☐ 105mm ☐ 110mm ☐ other _____

Other: (eg; Rings, rectangular, or traps not included above. Give description, number or traps, measurements, frame type, mesh type, escape ring size, etc.)

_____

_____

Trap Loss: _____ **Number** of traps lost during **2011** season

Major causes of this Trap Loss: ☐ Unknown ☐ Theft or Vandalism ☐ Weather Related
(check all that apply) ☐ Run over by other vessels, ferries, draggers, etc
☐ Other, please state_____

Global Positioning System (GPS) use:

Do you use a GPS during fishing activities to report fishing location on harvest logs? ☐ Yes ☐ No

If **yes**, indicate GPS settings: (a) Datum ☐ NAD83 (b) Spheroid ☐ GRS80
(use check boxes) → ☐ WGS84 ☐ Clarke1866
☐ Other _____ (specify) ☐ Other _____ (specify)
☐ Unknown ☐ Unknown

Instructions for Crab Trap Gear Questionnaire

A crab trap gear questionnaire must be filled out for each vessel every year.

The gear questionnaire is part of the harvest log program and must be filled out at the beginning of the season and submitted with the first harvest log submission of the year. It is the responsibility of the license holder to ensure that a crab trap gear questionnaire is submitted.

Date Completed: Fill in the complete date on which the gear questionnaire was filled out.

Captain's Name: Write the name of the captain or vessel master at the time the gear questionnaire is completed.

Vessel Name: Write the name of the boat.

CFV/VRN: Write the VRN (Vessel Registration Number, previously CFV) of the boat.

Who filled out this form: Print your name.

Fishing Area: Circle the letter of the crab area in which you fish.

Species Trapped: Check the box beside each species of crab targeted or retained.

Total Number of Traps: Fill in the total number of traps you are using.

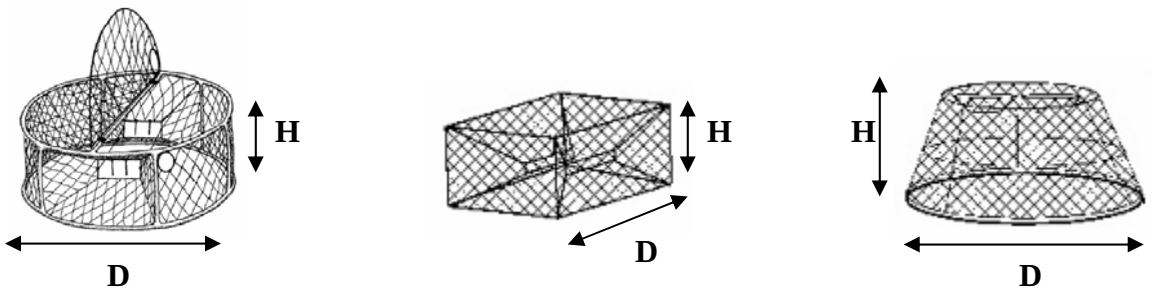
Trap Details: If all of your traps are the same, fill in the details under trap type #1

If you have more than one type, fill out a section for each type of trap. Each section should have only one shape, one frame type, one mesh type, and one escape ring size. If you have more than three types of traps, group similar traps with the same shape, same frame type, same mesh type, and same escape ring size and give average measurements. If you still have more than three types of traps, fill in the three most common types and describe the remaining traps under "Other Traps"

No. of Traps: Write the number of each type of traps.

Shape: Check **only one** shape (most traps are circular) for each section.

Circular **Square (or rectangular)** **Conical**



Diameter: Give the diameter of a circular, width of a square trap, or the diameter of the base of a conical trap (D in diagrams above).

Height: Give the height of the trap (H in diagrams above).

Frame Type: Check **only one** of the four options

Mesh Type: Check off **either** stainless steel **or** Synthetic (nylon, plastic, etc).

Escape Ring Size: Check **only one** of the common sizes or fill in a different size in mm

Other: eg; Rings, rectangular, or traps not included above. Give description, number of traps, measurements, frame type, mesh type, escape ring size, etc

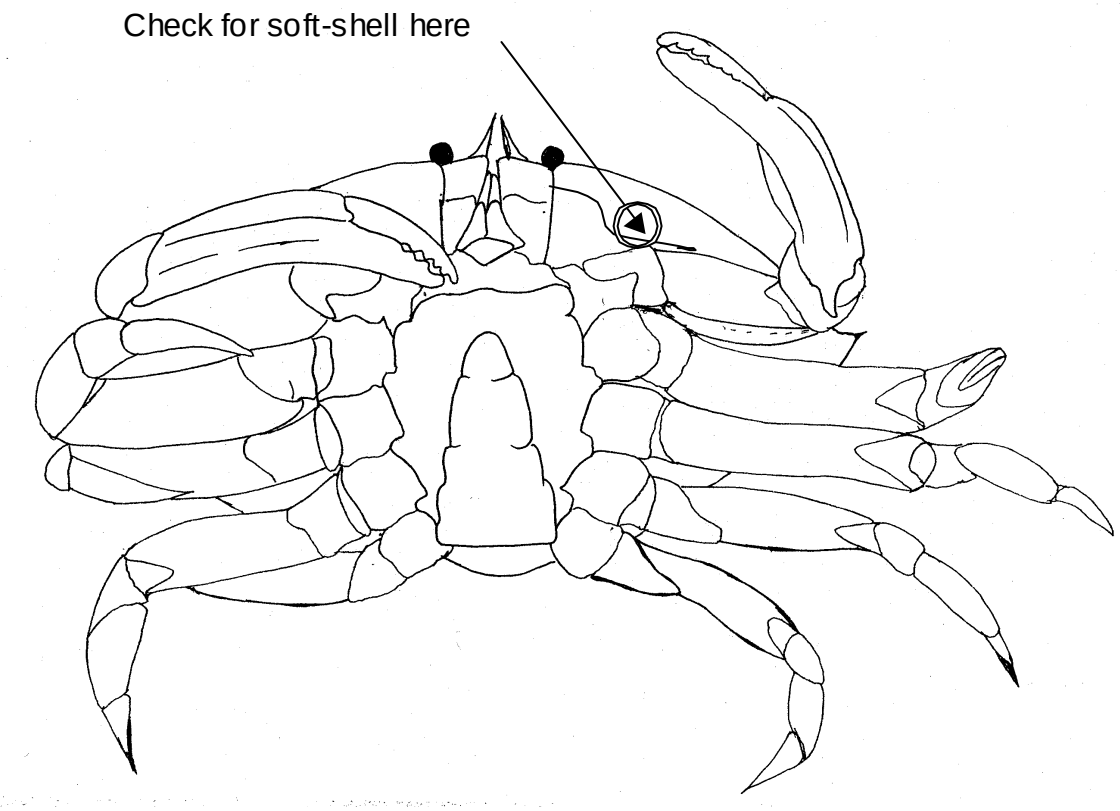
Trap loss: Record the number of traps lost during the **previous** year.

Global Positioning System (GPS) use: Check off either Yes or No and if the response is Yes, use the check boxes to indicate settings

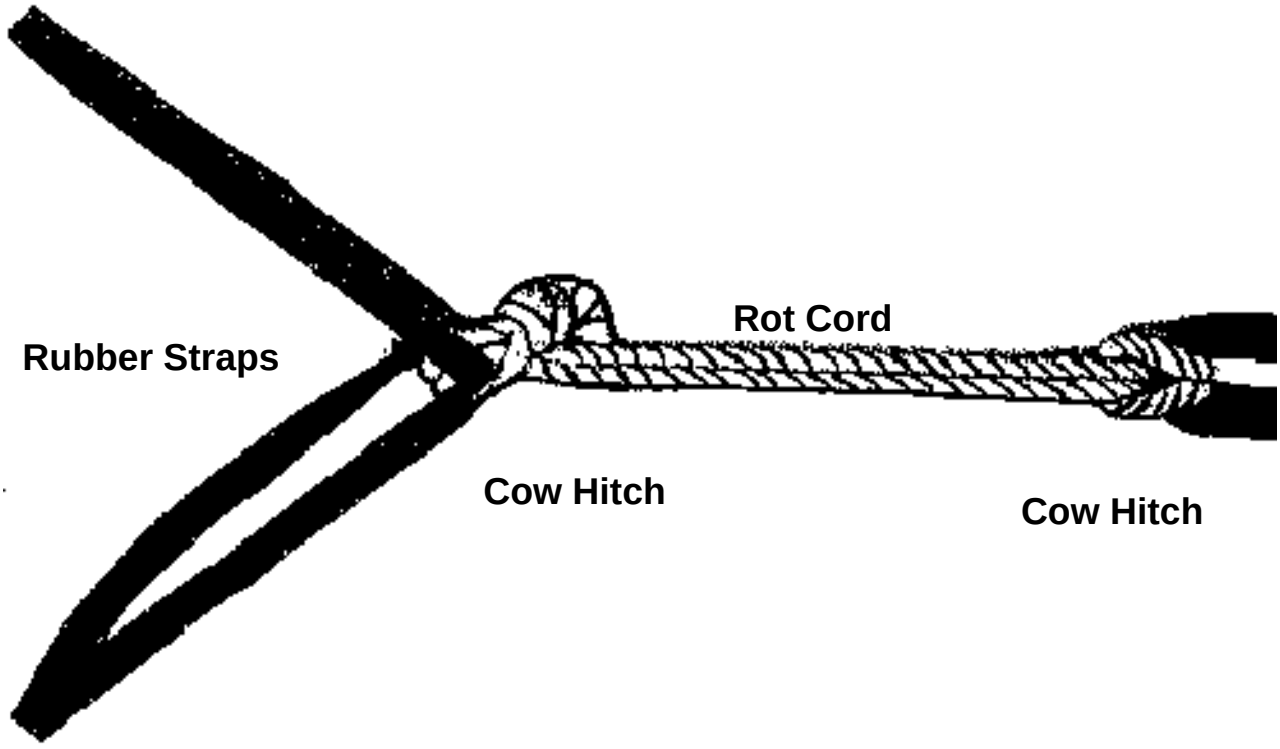
APPENDIX 6: DIAGRAMS

APPENDIX 6.1 DIAGRAM OF WHERE TO CHECK CRAB FOR SOFT-SHELL

This diagram is of the underside of a male Dungeness crab. The arrow indicates the location where a crab shall be checked for soft-shell. The circle indicates the correct position for the placement of the foot of the durometer when measuring shell hardness. The adjacent curved line is the suture line.

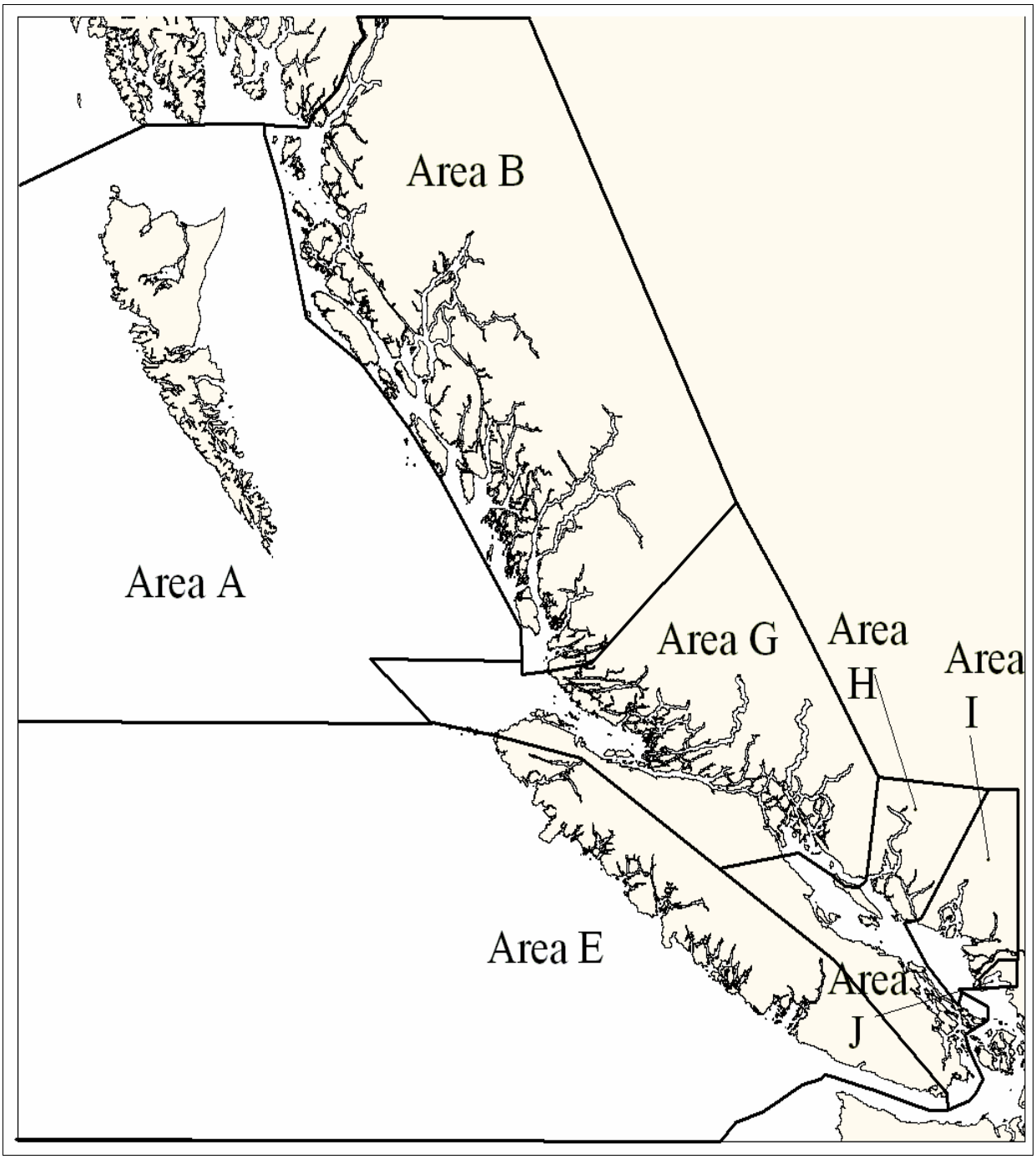


APPENDIX 6.2 ROT CHORD DIAGRAM PLACEMENT



APPENDIX 7: MAPS

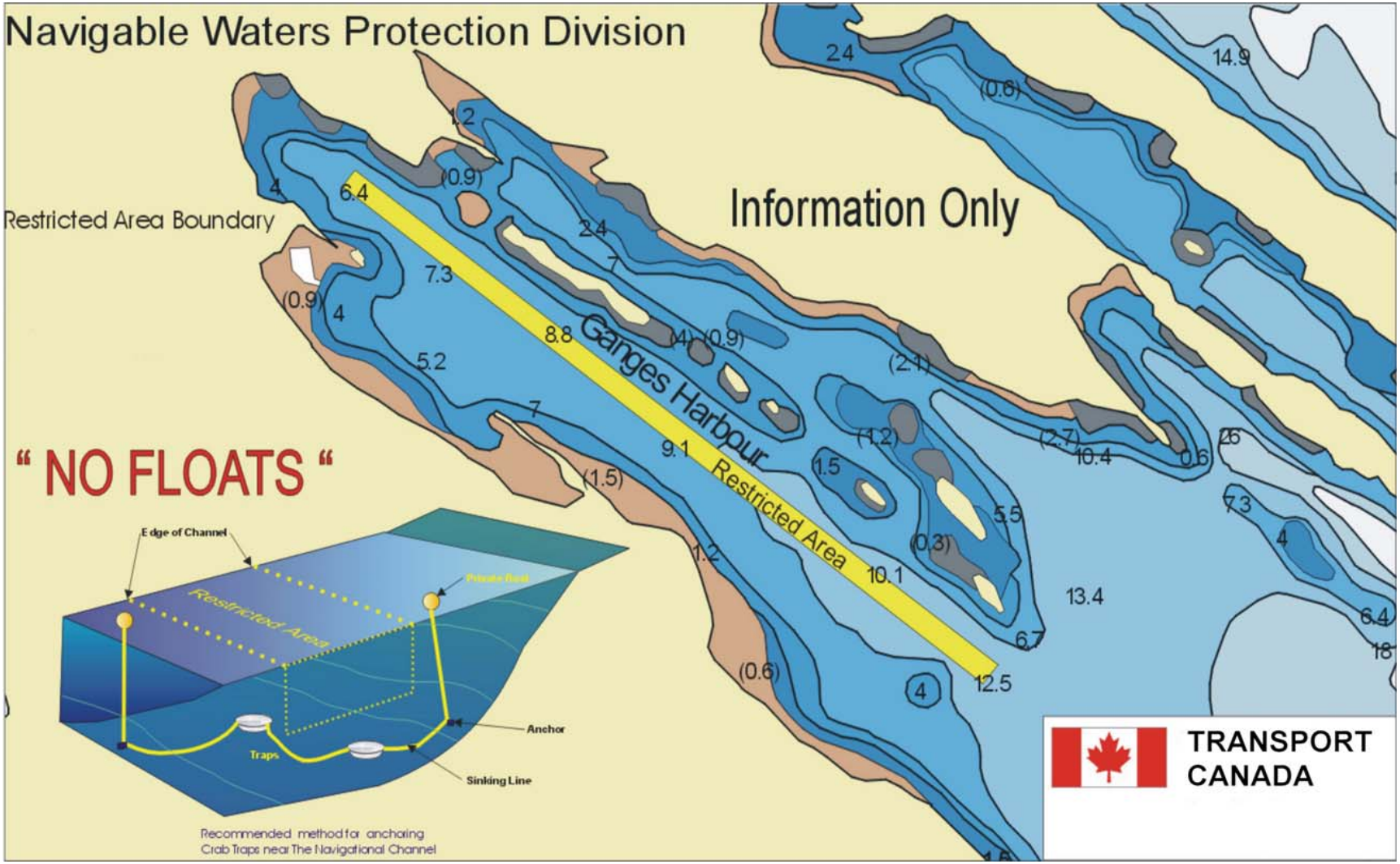
7.1 MAP OF COMMERCIAL CRAB MANAGEMENT AREAS



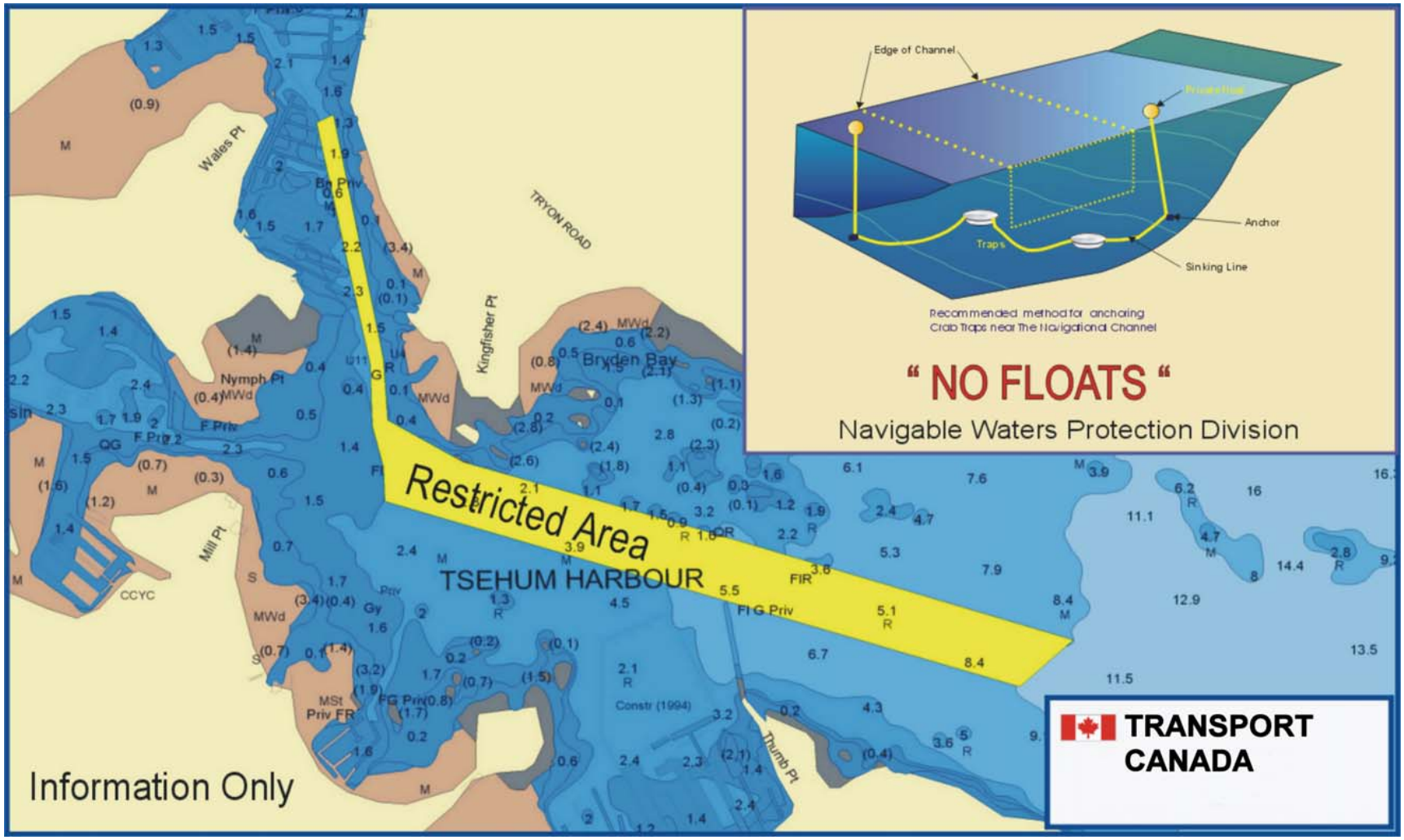
Appendix 7.1: Map of Crab Commercial Management Areas

7.2 MAPS OF RESTRICTED FISHING AREAS

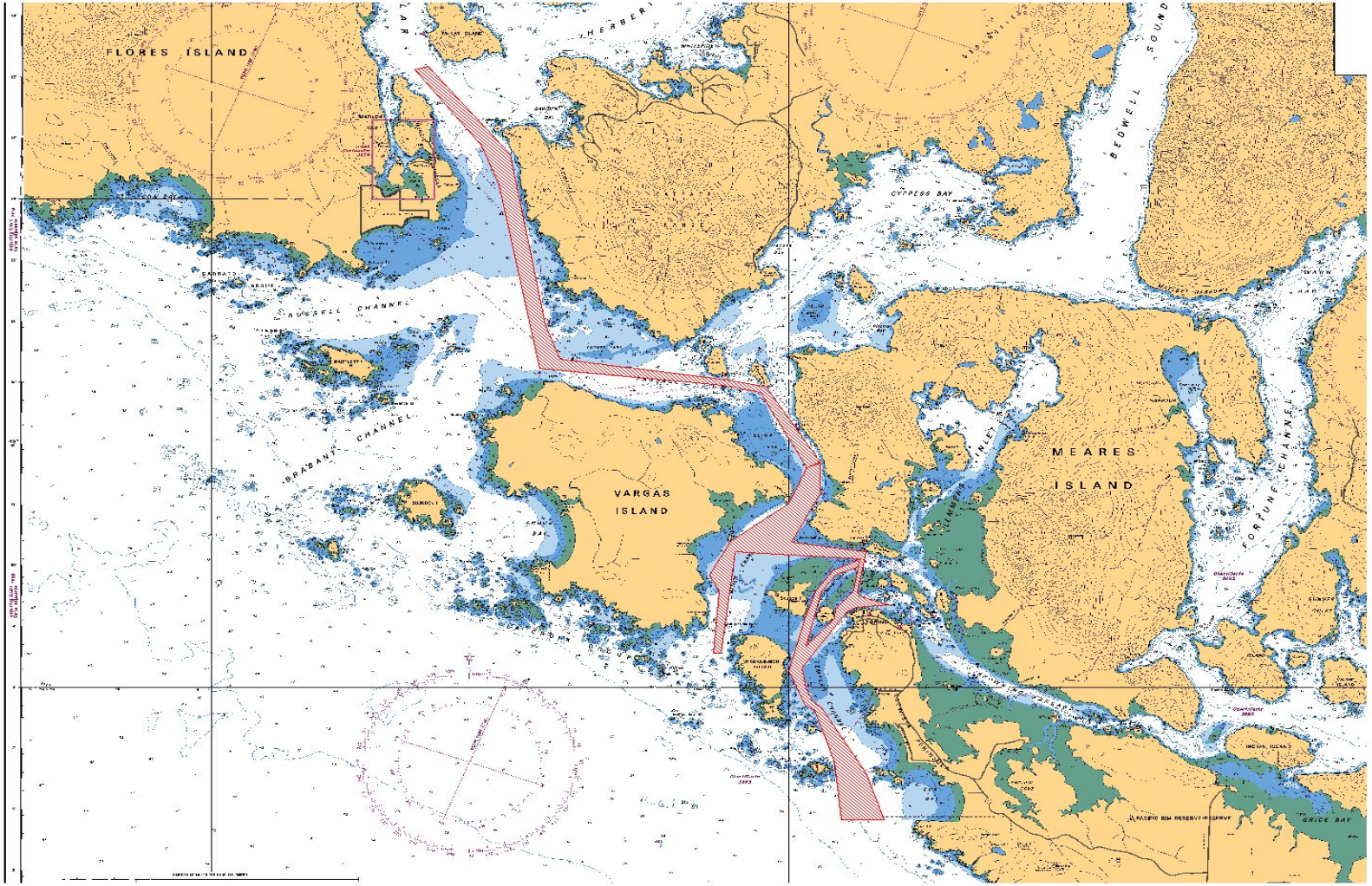
Ganges Harbour



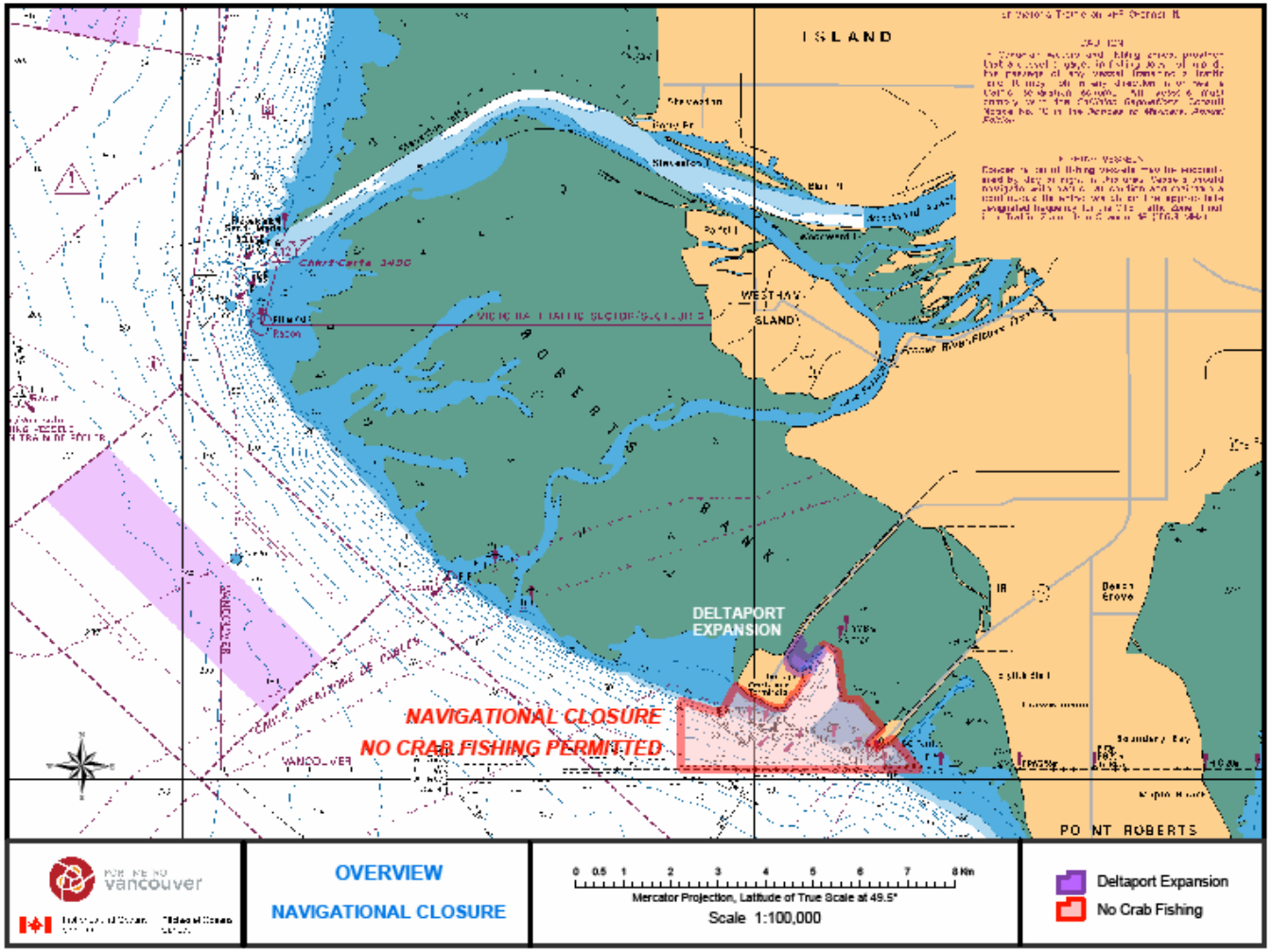
Tsehum Harbour



Tofino Area

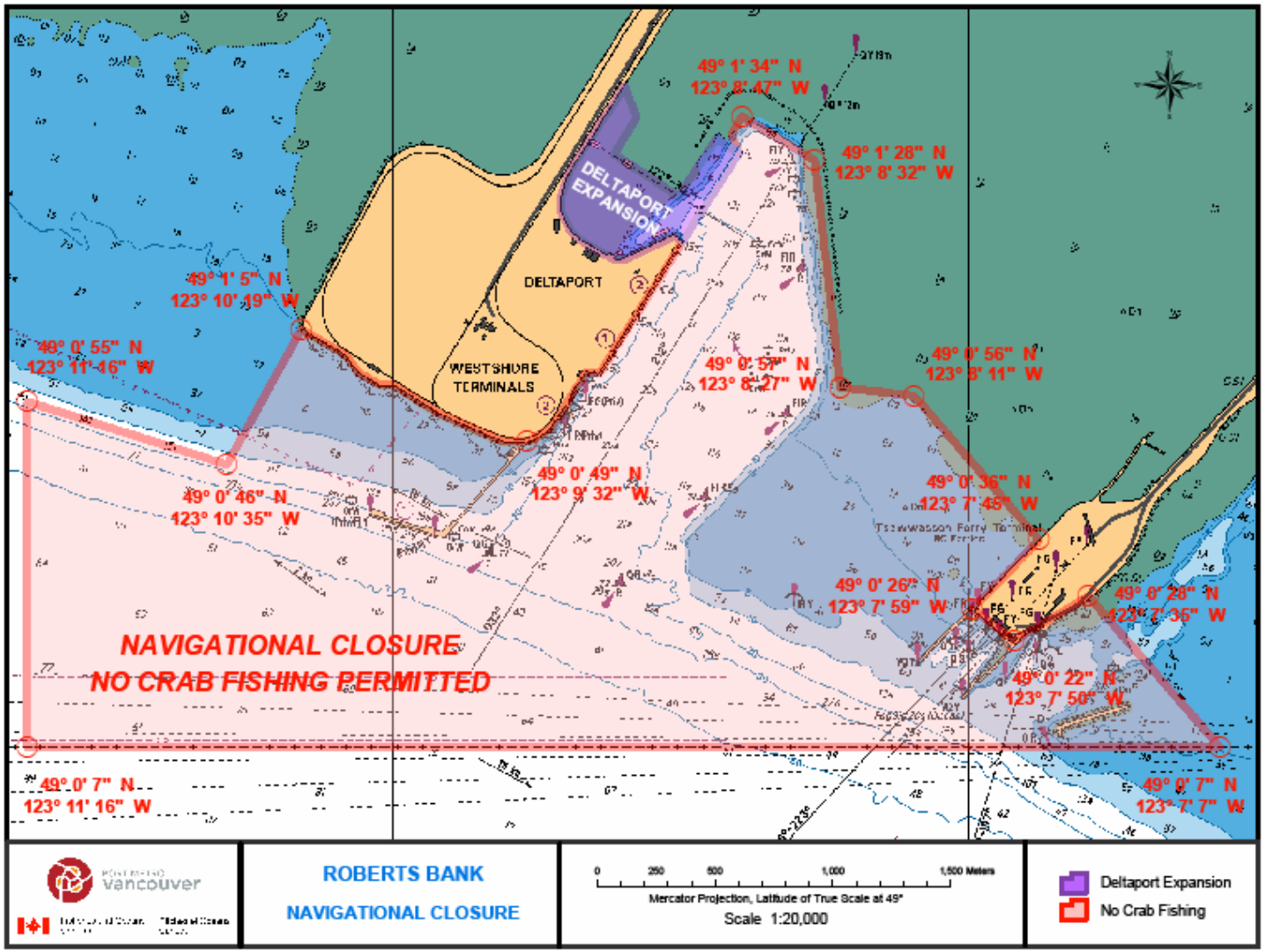

FLORES ISLAND
CYPRESS BAY
BEDWELL SOUND
CAUSERIE CHANNEL
BRABANT CHANNEL
VARGAS ISLAND
MEARES ISLAND
FORTUNE CHANNEL
GRICE BAY

<u>Deltaport, Roberts Bank</u>: No Fishing Zone Overview



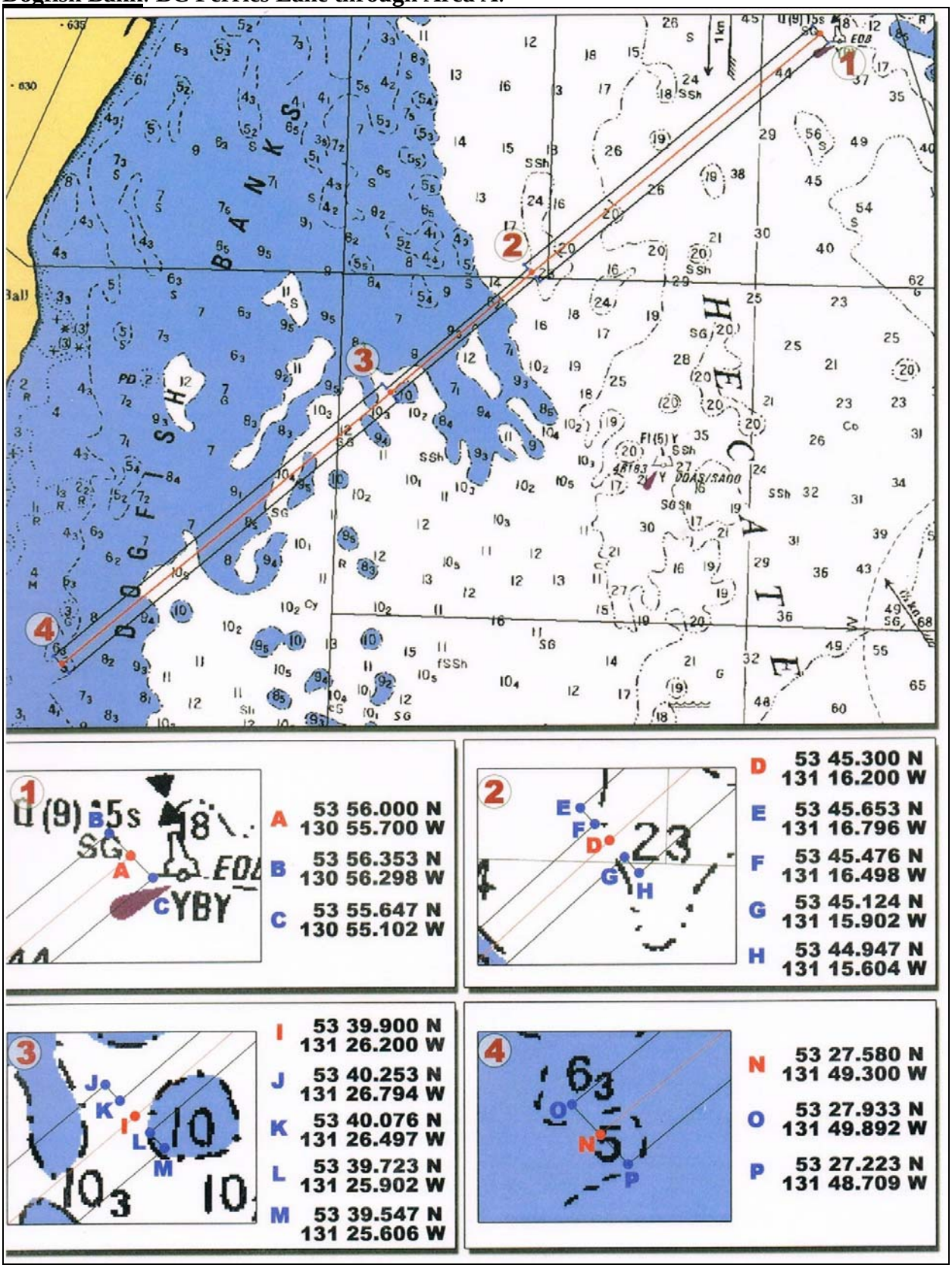
Map created on November 25, 2008.

<u>Deltaport, Roberts Bank</u>: No Fishing Zone



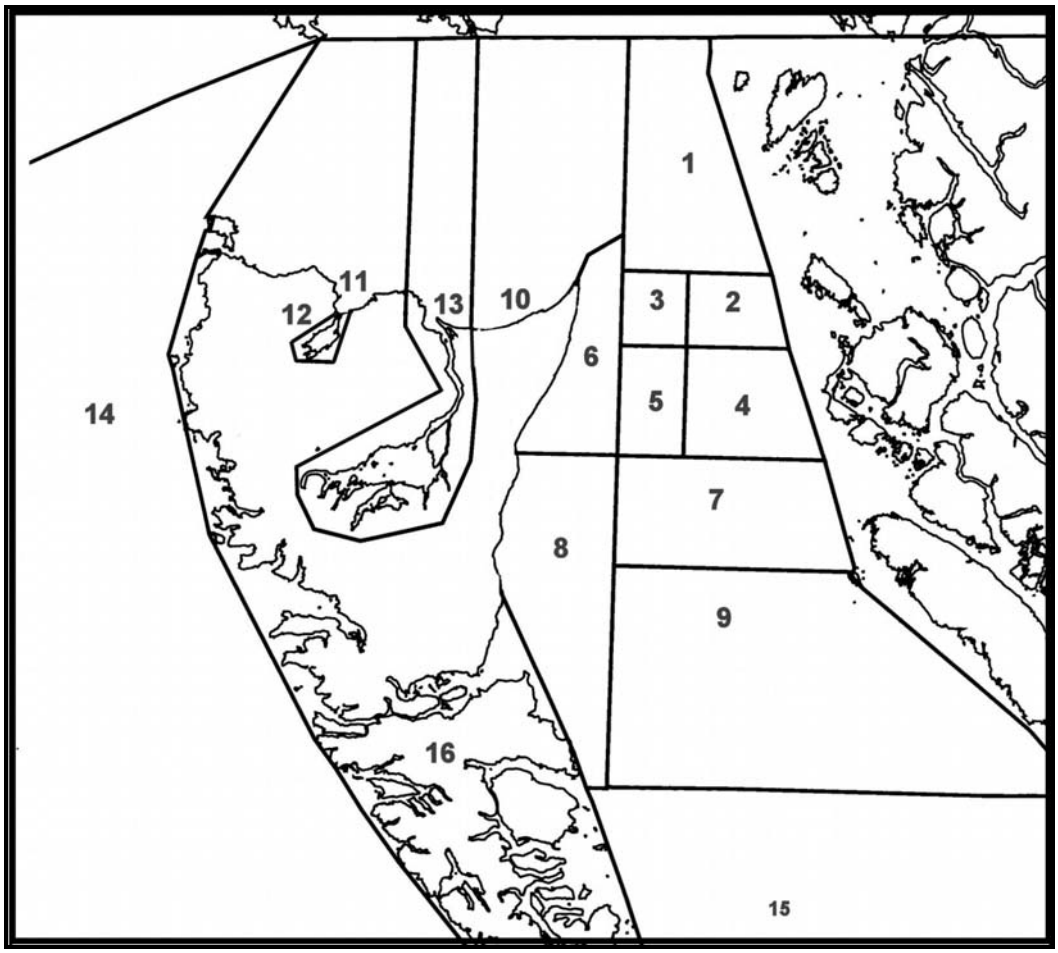
Map created on November 25, 2008.

<u>Dogfish Bank</u>: BC Ferries Lane through Area A.



Appendix 7.2: Maps of Restricted Fishing Areas

7.3 MAP OF AREA "A" SOFT-SHELL MANAGEMENT AREAS



Area A soft-shell descriptions:

1. Area 103, Subarea 104-1, those portions of Subareas 101-8 to 101-10 east of the meridian running through 131°30' west longitude and those portions of Subareas 104-2, 104-4 and 104-5 that are north of the parallel running through 54°10' north latitude.

2. Those portions of Subareas 104-2 and 104-3 that lie:
   - south of the parallel passing through 54°10' north latitude
   - north of the parallel passing through 54°00' north latitude, and
   - east of the meridian passing through 131°15' west longitude.

3. Those portions of Subareas 102-1, 104-3 and 104-5 that lie inside a line:
   - that begins at 54°10' N 131°30' W
   - then true east to 54°10' N 131°15' W
   - then true south to 54°00' N 131°15' W
   - then true west to 54°00' N 131°30' W
   - then to the beginning point.

4. Those portions of Subareas 104-3 and 105-1 that lie:
   - south of the parallel passing through 54°00' north latitude,
   - north of the parallel passing through 53°45' north latitude, and
   - east of the meridian passing through 131°15' west longitude.

5. Those portions of Subareas 102-1, 104-3, 104-5 and 105-1 that lie inside a line:
   - that begins at 54°00' N 131°30' W
   - then true east to 54°00' N 131°15' W
   - then true south to 53°45' N 131°15' W
   - then true west to 53°45' N 131°30' W
   - then to the beginning point.

6. That portion of Subarea 101-10 that lies southeasterly of a line:
   - that begins at 54°09' N 131°40' W [Rose Spit]
   - then to 54°12' N 131°38' W
   - then to 54°14.9' N 131°30.7' W
   - and that portion of Subarea 102-1 that lies north of the parallel passing through 53°45' north latitude and west of the meridian passing through 131°30' west longitude.

7. Those portions of Subareas 102-1 and 105-1 that lie:
   - south of the parallel passing through 53°45' north latitude
   - north of the parallel passing through 53°30' north latitude, and
   - east of the meridian passing through 131°30' west longitude.

8. Those portions of Subareas 102-1 and 102-2 that lie:
   - south of the parallel passing through 53°45' north latitude
   - north of the parallel passing through 53°00' north latitude, and
   - west of the meridian passing through 131°30' west longitude.

9. Those portions of Area 105 and Subareas 102-1, 102-2 and 106-1 that lie:
   - south of the parallel passing through 53°30' north latitude
   - north of the parallel passing through 53°00' north latitude, and
   - east of the meridian passing through 131°30' west longitude.

10. Those portions of Subareas 1-5 and 101-4 to 101-10 that lie:
    - east of the meridian passing through 132°04' west longitude at Skonun Point, and
    - west of the meridian passing through 131°30' west longitude,
    - except for that portion of Subarea 101-10 that lies southeasterly of a line
    - that begins at 54°09' N 131°40' W [Rose Spit]
    - then to 54°12' N 131°38' W
    - then to 54°14.9' N 131°30.7' W.

11. Subareas 1-2, 1-3, 1-7 and those portions of Subareas 101-4 to 101-7 that lie west of the meridian passing through 132°19' west longitude at Wiah Point.

12. Subarea 1-4 (Naden Harbour).

13. Subarea 1-6 those portions of Subareas 1-5, and 101-4 to 101-7 that lie:
    - east of the meridian passing through 132°19' west longitude, and
    - west of the meridian passing through 132°04' west longitude.

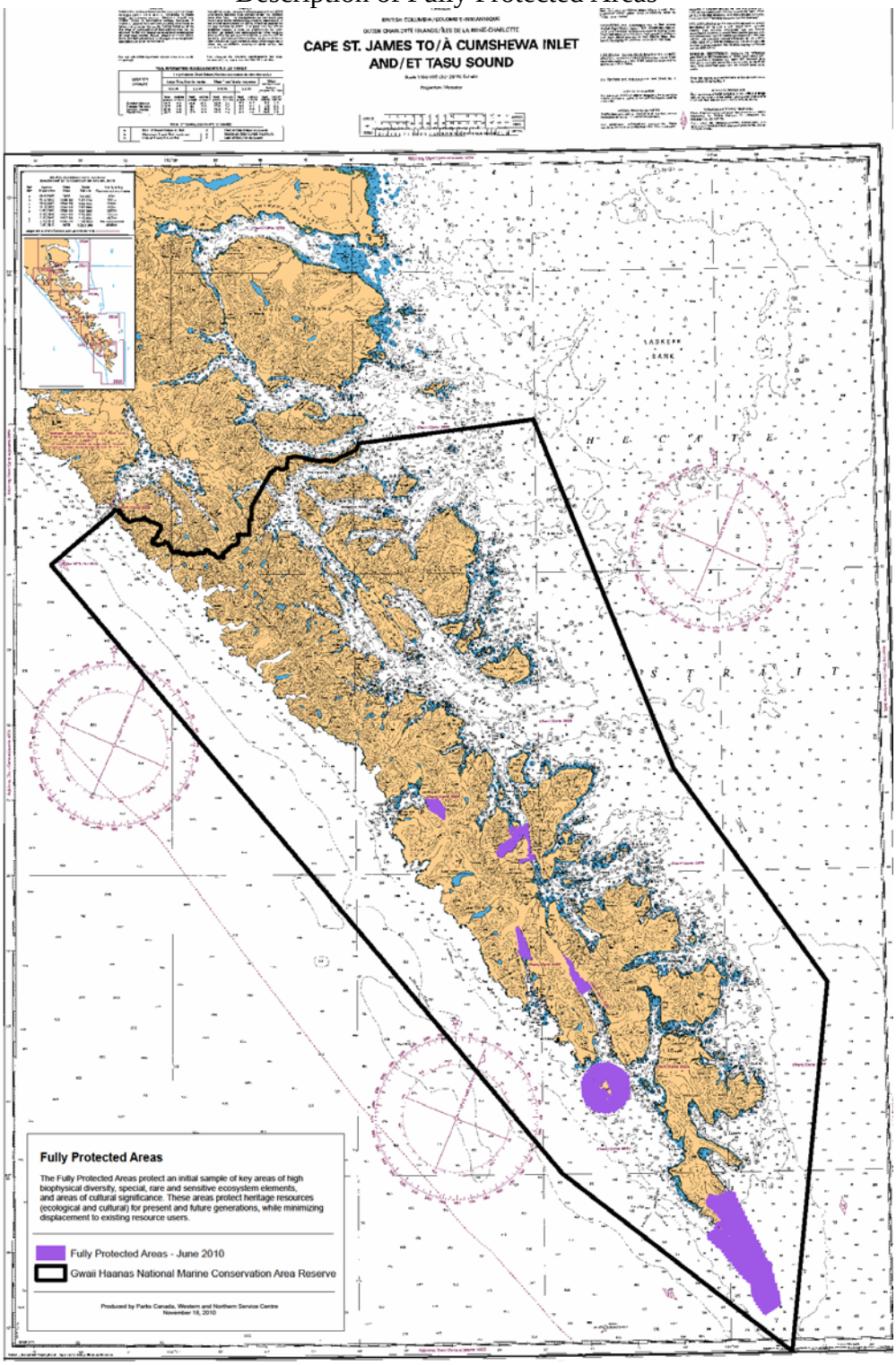
14. Areas 130 and 142, and Subareas 101-1, 101-2 and 101-3 (WCQCI)

15. Areas 107 to 110, Subareas 102-3 and 106-2 and those portions of Subareas 102-2, and 106-1 that lie south of the parallel passing through 53°00' north latitude (SHS)

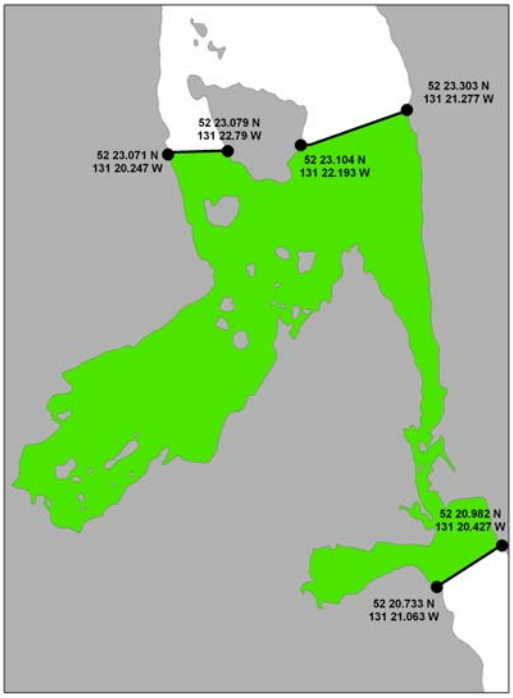
16. Subareas 1-1, 2-5 to 2-62, 2-68 to 2-76, 2-78 to 2-100 (QCI)

APPENDIX 7.4: Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site

Description of Fully Protected Areas



Burnaby Narrows



Description: A biophysical hotspot which supports one of the most abundant, diverse and colourful intertidal communities found in temperate waters anywhere in the world.

Location/Coordinates:

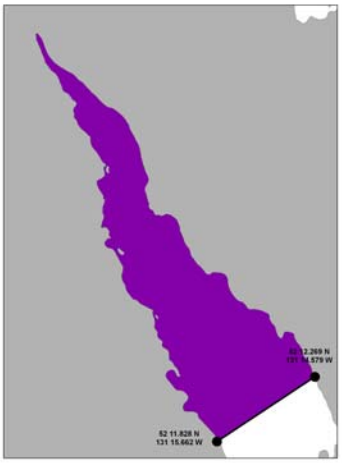
Begin at	52 23.071 N	131 20.427 W
East to	52 23.079 N	131 22.79 W
Follow southern shoreline of Kat Island		
East to	52 23.104 N	131 22.193 W
East to	52 23.303 N	131 21.277
Follow western shoreline of Burnaby Island		
South to	52 20.982 N	131 20.427 W
West to	52.20.733 N	131 21.063 W
Follow the eastern shoreline of Moresby Island north to beginning point		

Louscoone Estuary

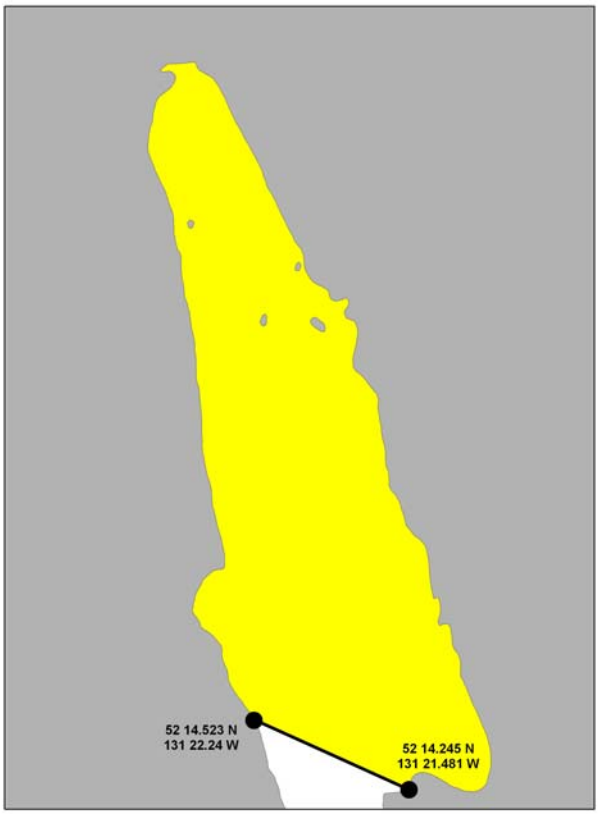
Description: One of three highly productive and biologically rich estuarine ecosystems that act as important nutrient and energy interfaces between the land and the sea.

Location/Coordinates:

Begin at	52 11.828 N	131 15.662 W
East to	52 12.269 N	131 14.579 W
Includes all waters north of these coordinates to the northern most extent of Louscoone Inlet		



Flamingo Estuary



Description: One of three highly productive and biologically rich estuarine ecosystems that act as important nutrient and energy interfaces between the land and the sea.

Location/Coordinates:

Begin at	52 14.523 N	131 22.24 W
East to	52 14.245 N	131 21.481 W

Includes all waters north of these coordinates to the northern most extent of Flamingo Inlet

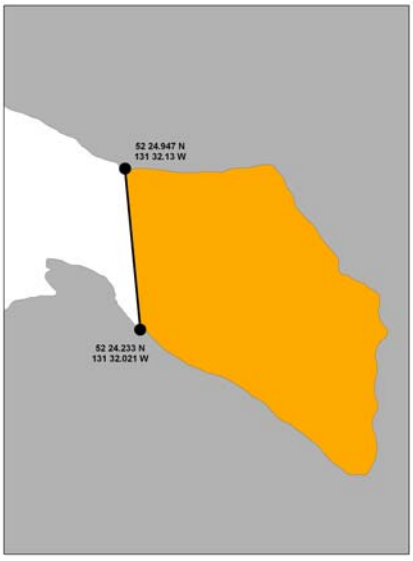
Gowgaia Estuary

Description: One of three highly productive and biologically rich estuarine ecosystems act as important nutrient and energy interfaces between the land and the sea.

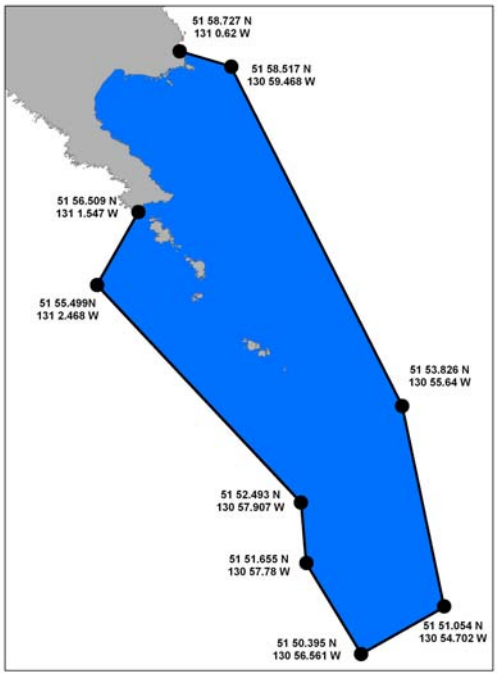
Location/Coordinates:

Begin at	52 24.947 N	131 32.13 W
East to	52 24.233 N	131 32.021 W

Includes all waters east of these coordinates to the eastern most extent of Gowgaia Bay



Cape Saint James



Description: Unique Oceanographic area characterized by strong tidal mixing which exerts a huge impact on primary and secondary productivity of surrounding waters.

Location/Coordinates:

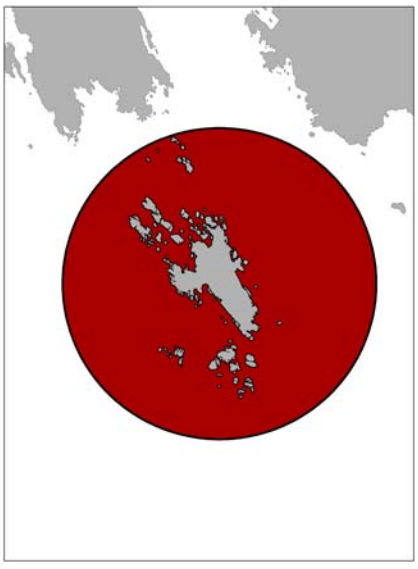
Begin at	51 56.509 N	131 1.547 W
South West to	51 55.499 N	131 2.468 W
South East to	51 52.493 N	130 57.907 W
South to	51 51.655 N	130 57.78 W
South East to	51 50.395 N	130 56.561 W
North East to	51 51.054 N	130 54.702 W
North to	51 53.826 N	130 55.64 W
North West to	51 58.517 N	130 59.468 W
West to	51 58.727 N	131 0.62 W

Follow the southern shoreline of Kungit Island west to beginning point

SGang Gwaay

Description: Important Haida village site protected by the Haida Nation and Parks Canada, recognized by UNESCO as a world heritage site. The site commemorates the living culture of the Haida people and their relationship to the land and the sea.

Location/Coordinates:
Shoreward of the 1 nautical mile ribbon boundary surrounding Anthony Island (Heritage Site)



APPENDIX 8: CRAB CONTACTS
APPENDIX 8.1: CRAB SECTORAL COMMITTEE 2013

The Sectoral Committee 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-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/shellfishInvertebrates/crab/default_e.htm

Fisheries and Oceans Canada

Shaun Davies (Chair)	Lead (Area A & B) Crab Manager
David Fogtmann	Area E & G Manager
Bridget Ennevor	Area I & J Manager
Mike Kattilakoski	Area H Manager
Sylvia Humble	Crab Data Manager
Jeff Johansen	Regional Resource Manager
Juanita Rogers	Lead South Coast Manager
Jason Dunham	Science
Stefan Beckmann	Enforcement

Commercial Crab Area Representatives

Area A – Queen Charlottes/Hecate Strait
Area A Crab Association
Dan Edwards, CEO
Phone: (250) 624-3225 / Cell: 250-266-0082
Email: danedwards@telus.net

Area B - North Coast
Le Tung Mong
Phone: (250) 627-4627
Fax: 1-250-627-4444

Area E - West Coast
Henry Heggelund Phone: (250) 642-3316
Email: hheggelund@shaw.ca

Jeff Edwards Phone:(250) 726-4279
Email: lisbethe@telus.net

Yan Ji Du Phone: (250) 322-7818

Area G - Johnstone Strait
Steve Fleck
Phone: (250) 890-3483
Email: safleck@shaw.ca

Area H - Strait of Georgia/Gulf
Kelvin Campbell
Phone: (250) 656-7445
Email: kcfishing@shaw.ca

Area I - Fraser River
Peter Policnic Phone: (604) 813-6187
Email: policnic@shaw.ca

Loc Nguyen Phone: (604) 760-3503
Email: sellingmybrain@hotmail.com

Area J - Boundary Bay
Phuong Nguyen
Phone: (778) 883-7565
Email: don_nguyen@hotmail.com

Commercial Crab Service Providers

Ecotrust North Coast Office
Amanda Barney
Suite 6 - 222 Third Avenue West
Prince Rupert, BC V8J 1L1
Phone: 250.624.4191
Fax: 604.682.1944
amanda@ecotrust.ca

Ecotrust South Coast Office
12A Victoria Crescent
Nanaimo, BC V9R 3B8
Phone:: 250.755.7877
Fax: 604.682.1944
amanda@ecotrust.ca

Pacific Coast Fishery Services Inc.
Willem Buitendyk
270 Suneagle Dr.
Saltspring Island BC, V8K 1E5
Phone: (250) 391-7686
willem@pcfish.ca

First Nations Representatives

Seats remain open to all groups interested in assessment and management of the resource.

Recreational Fishing Representatives

Sport Fishing Advisory Board	Chuck Ashcroft	(250) 338-9935
	Wayne Harling	(250) 753-1864
	Paul Rickard	(250) 748-9952

APPENDIX 8.2: CRAB BY TRAP CONTACTS 2013

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

Invertebrate Internet Page:
http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/index-eng.htm

Resource Management

Regional Shellfish Co-ordinator	Jeff Johansen	(604) 666-3869
Regional Recreational Fisheries Co-ordinator	Devona Adams	(604) 666-3271
North Coast Area, Areas 1 to 10 (North)	General Inquiries	(250) 627-3499
417 2nd Avenue West, Prince Rupert, BC V8J 1G8	Fax	(250) 627-3427
Resource Management Biologist	Shaun Davies	(250) 627-3477
Resource Manager - First Nations	Karen Kimura-Miller	(250) 627-3020
Resource Manager - Recreational	Mark Reagan	(250) 627-3409
South Coast Area, Areas 11 to 26	General Inquiries	(250) 756-7270
3225 Stephenson Point Road, Nanaimo, BC V9T 1K3	Fax	(250) 756-7162
Resource Manager - Nanaimo	Mike Kattilakoski	(250) 756-7315
Resource Manager - Comox	Dave Fogtmann	(250) 339-3799
Resource Manager - First Nations	Mike Spence	(250) 720-4448
Resource Manager - Recreational	Brad Beaith	(250) 756-7190
Fraser River Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway, Delta, BC V3M 6A2	Fax	(604) 666-7112
Resource Management Biologist	Bridget Ennevor	(604) 666-6390
Resource Manager – Recreational	Brian Matts	(604) 666-2096

Conservation and Protection

Lead Crab Enforcement Representative	Stefan Beckmann	(250) 363-3252

Science Branch

Pacific Biological Station Hammond Bay Road Nanaimo, BC V9T 6N7	Jason Dunham	(250) 729-8363

Commercial Licensing

Pacific Fishery Licence Unit 480 - 555 West Hastings Street Vancouver, BC V6B 5G3	(604) 666-0566

Pacific Fishery Licence Unit (250) 627-3413
417 2nd Avenue West
Prince Rupert, BC V8J 1G8

Pacific Fishery Licence Unit (250) 754-0400
60 Front Street
Nanaimo, BC V9R 5H7

WorkSafe BC

TeleClaim 1-888-967-5377
Report an Emergency 1-888-621-7233

Occupational Safety Officer, Courtenay	Mark Lunny	(250) 334-8732
Occupational Safety Officer, Courtenay	Pat Olsen	(250) 334-8777
Occupational Safety Officer, Victoria	David Clarabut	(250) 881-3469
Occupational Safety Officer, Richmond	Bruce Logan	(604) 244-6477
Occupational Safety Officer, Terrace	Shane Neifer	(250) 615-6640
Focus Sector Manager for Fishing, Richmond	Mike Ross	(250) 881 3419
Projects related to commercial fishing contact:	Ellen Hanson	(604) 233-4008
	toll free 1-888 621-7233 (ext. 4008)	
	Ellen.Hanson@worksafebc.com	
BC Ministry of Environment, Oceans and Marine Fisheries	Dennis Chalmers	(250)387-0389

Sighting Networks

To report a whale sighting contact the BC Cetacean Sighting Network:
Toll free: 1-866-I-SAW-ONE (1-866-472-9663)
Fax: (604) 659-3599
Email: sightings@vanaqua.org
Internet: http://wildwhales.org/sightings/

Logbook pages may be mailed to:
B.C. Cetacean Sightings Network
Vancouver Aquarium
PO Box 3232
Vancouver, B.C. V6B 3X8

To report a turtle sighting contact the Sea turtle Sighting Network:
Toll free: 1-866-I-SAW-ONE (1-866-472-9663)
Fax (604) 659-3599
Email: turtles@vanaqua.org
http://www.bcreptiles.ca/reportsightings.htm - 1

To report sick, injured, distressed or dead marine mammals and sea turtles contact the Marine Mammal Incident Reporting Hotline: Toll free: 1-800-465-4336

To report a basking shark contact the Basking Shark Sightings Network:
Toll free: 1-866-50-SHARK
Email: BaskingShark@dfo-mpo.gc.ca
http://www.pac.dfo-mpo.gc.ca/SharkSightings

Report All Poachers and Polluters (RAPP):

Toll-free hotline: 1 877 952-7277 (RAPP)
or Report online: http://www.env.gov.bc.ca/cos/rapp/form.htm

Available 24 hours a day, seven days a week, RAPP allows the public to report known or suspected poachers and polluters – anonymously and without risk of confronting the offender.

Observe, Record and Report (ORR):

Help to protect our Fisheries Resource toll-free hotline:: 1-800-465-4336

APPENDIX 9

British Columbia Commercial Crab
Fishery Monitoring and Catch Reporting Program Standards
For the Licence Year 2013

Revised December 1, 2012

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1. PURPOSE OF THIS DOCUMENT

This document describes the official Fisheries and Oceans Canada standards for fishery monitoring and catch reporting in the commercial crab fishery, including data collection, data submission, and reporting. The document defines the requirements for the 2013 licence year and will be adapted for subsequent seasons as necessary. Through conditions of licence commercial harvesters are required to establish programs for:

- Vessel activity monitoring through an electronic monitoring system or through at-sea observer coverage;
- Trap limit compliance through plastic trap tags;
- Harvest logbook reporting;
- Fish Slip reporting;
- Biological sampling;
- Fishing Hail reporting (Licence Area 'A' only); and
- Buoy Marking (Licence Areas 'A', 'G', and portion of 'E')

This document is intended to be used by commercial licence holders in discussions with third-party service providers who may be interested in bidding on the opportunity to provide these programs and requirements on behalf of licence holders.

Persons applying for a licence for the 2013 season will be required to demonstrate that they have made arrangements, either individually or through an area association, for an approved service provider to conduct each element of the fishery monitoring programs on their behalf.

Commercial licence holders, and/or associations or service providers acting on their behalf are required to submit detailed proposals outlining how each of the fishery monitoring and catch reporting program requirements will be met. It is essential that proposals demonstrate how a company's program, staff, and equipment will function to meet the minimum program standards of the Department described in this document. 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 January 1, 2013 or the start of the fishery in a particular licence area, with the exception of the electronic monitoring program which will be required no later than April 1, 2013. Where electronic monitoring programs have not been established by this date, licence holders will be required to carry a DFO-designated Observer on their vessels at all times while engaged in fishing. Please contact the Compliance Program Officer, Enforcement Operations (604-666-1796) for more information.

All biological sampling conducted at-sea must be conducted by an approved DFO-designated Observer.

The Department requires that all licence holders within a single crab licence area choose a single service provider for the electronic monitoring program in that licence area. A single service provider for each licence area must also be established for the biological sampling program. The electronic monitoring and biological sampling programs do not have to be provided by the same service provider. Individual licence holders within a licence area may also choose to select a different service provider to provide logbook services.

To assist the Department and crab licence holders in evaluating the efficiency and effectiveness of the programs, it is expected that service providers will participate in a post-season review and performance evaluation of the programs (see Sections 4 and 5).

2. MONITORING OBJECTIVES FOR COMMERCIAL CRAB FISHERY

Over-arching objectives for monitoring of the fishery were developed at the beginning of the electronic monitoring program, and have been recently updated to include:

- Collect accurate harvest and effort data
- Collect accurate and timely data on vessel activity
- Collect data to support compliance with conditions of licence
- Collect biological data on target and non-target catch
- Collect economic data from the fishery

3. MONITORING PROGRAMS

The monitoring of the commercial crab fishery during the 2013 fishing season will be accomplished through six programs. It is expected that most harvesters will meet the monitoring requirements through electronic monitoring, plastic trap tags, harvest logbook, fish slip, biological sampling, hail reporting, and buoy marking programs. Detailed reporting standards for each of these programs are provided in Annexes 1 thru 6.

3.1. Fishery Monitoring

3.1.1. Electronic Monitoring

Harvesters may choose to use an electronic monitoring program to meet the objectives of collecting accurate and timely data on vessel activity and compliance with conditions of licence.

Data delivery requirements consist of providing raw data as well as reports based on the analysis of these data, including violations of conditions of licence, and summary reports providing details of fishing activity for each vessel. The detailed information on

equipment requirements, fields and formats required for data collection and summary reporting, and the required timeliness of delivering these reports, is provided in Annex 1.

3.1.2. At-Sea Observers

Vessel owners/licence holders electing not to participate in the electronic monitoring programs must arrange for 100% at-sea observer designated by the Regional Director General for monitoring, and must ensure the program includes a method to accurately monitor and report on all the detailed standards outlined in this document. At-sea observers must participate in a training program specific to crab trap monitoring, and must be designated under Section 39 of the *Fishery (General) Regulations*. Details on required information reports are provided in Annex 2. Contact a Resource Manager for more information (see Section 6).

3.1.3. Plastic Trap Tags

In order to help ensure vessel trap limits are adhered to, each licence holder in Crab Areas B, E, G, H, and I, shall purchase a limited number of new plastic trap tags for the 2013 fishing season. Each trap active in the fishery shall have an approved plastic trap tag attached to the trap. The tags shall indicate the licence year and have an identification number unique to each individual vessel. Each vessel will be issued a total number of tags equal to their trap limit plus 10% to allow for replacements. Extra replacement tags may only be used to replace lost tags. For Areas B, E, G, and H, if the vessel master requires more replacement tags than the 10% allotted, a complete new set of replacement tags shall be issued. New replacement tags shall be marked with the letters "RP" and be a different colour than the original set issued. New replacement tags shall also indicate the licence year and be unique to each individual vessel. All the old tags must be returned to the service provider within 14 days of the new tags being issued. For Area I, if the vessel master requires more replacement tags than the 10% allotted for lost traps a request for more tags must be made to the Area I Crab Manager.

Trap tag inventory data must be reported to the Department following the specific data format and reporting timelines detailed in Annex 3. Information must be updated within 24 hours of tags being issued.

3.2. Catch Reporting

3.2.1. Harvest Logbooks

The goal of this program is to obtain accurate harvest and effort data in the commercial crab fishery. As a Condition of Licence, the vessel master/license holder is responsible for the provision and maintenance of an accurate record, a "log" of daily harvest operations. This log must be completed and a copy submitted in both hard (paper) copy and electronic form in an approved format as defined by Fisheries and Oceans Canada Marine Ecosystems and Aquaculture Division's Shellfish Data Unit. Licence holders may use a service provider to meet the requirement for provision of electronic data (see

Annex 4). Alternately, licence holders may elect to meet this requirement independent of a service provider. Contact the Shellfish Data Unit for further information.

3.2.2. Fish Slips

The fish slip program is intended to collect economic data from the fishery. Service providers are not required in order to fulfill program requirements. Licence holders are responsible for ensuring fish slips are submitted. It is a Condition of Licence that an accurate written report shall be furnished on a fish slip of all fish and shellfish caught under the authority of this licence. A report must be made even if the fish and shellfish landed are used for bait, personal consumption, or otherwise disposed. This includes all crab and octopus retained under authority of the licence. The written report shall be posted not later than seven days after the offloading and sent to:

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

Fish slip books may be purchased at most Fisheries and Oceans Canada offices. Phone (604) 666-2716 for more information.

3.3. Biological Sampling

The collection of biological data on crab populations is required in each licence area. Each licence holder must make arrangements for a designated Observer to collect and provide data according to the standards outlined in Annex 5. During a sampling event, the observer must be positioned in such a way as to accurately collect all required data. Generally, this means the observer will need to be onboard the commercial vessel while the samples are being removed from the commercial traps, in order to collect accurate gear information and ensure proper sampling by trap. Observers must have access to the traps being sampled if requested in order to collect necessary data on the fishing gear.

The intention of the sampling is to collect information on biological characteristics of crab populations which will be used to evaluate future management options. Data will help support development of management approaches in accordance with the Precautionary Approach, as well as help to determine softshell periods.

The biological information collected shall be entered into a Fisheries and Oceans Canada approved database and submitted to the Department in electronic form no later than seven (7) days following the end of the month when data were collected. Detailed requirements are outlined in Annex 5.

3.4. Hail Program – Licence Area ‘A’

Vessels fishing within Licence Area 'A' during the 2013 season shall arrange to have hail information on fishing activity reported prior to leaving port when intending to haul fishing gear; prior to moving to a new fishing location; and a minimum of 2 hours prior to returning to port.

The data fields to be reported are detailed in Annex 6.

3.5. Registration of Unique Buoy Colour Designs

Licence holders fishing within Licence Areas A, G, and the Tofino trap limit area of Licence Area E must register with the Department their unique colour buoy design for the 2013 fishing season. A colour photograph is required. Only the colour combination registered with the Department for a particular licence may be used during fishing.

Licence holders within Licence Area 'A' must make arrangements for the registry of their buoy with a service provider.

Licence holders within Licence Area 'G' must provide a colour photograph to their local DFO crab manager. See contact list in section 6.

Licence holders within the special Tofino trap limit area of Licence Area 'E' must register their buoy design with the local Tofino DFO office.

4. MID-YEAR AND YEAR-END SUMMARY REPORTS

As a condition of licence each licence holder is responsible for providing a report to the Department on fishing activity during the course of the season. In practice, it is expected that most licence holders will arrange with a service provider to prepare a summary report on their behalf that may be combined with other licence holders' information into a licence area report. A mid-year report must be completed by August 21, 2013 for the fishing period of January 1, 2013 to July 31, 2013. A year-end report shall be completed by January 31, 2014 covering the period of the entire fishing season. A copy of these reports shall be provided to the Department lead crab resource manager in electronic format by the required completion dates. A public copy of the report shall also be provided to licence holders for which the service provider is contracted to perform duties on their behalf. Confidential information on individual vessels may be provided to the Department. It is expected that no confidential fishing information on individual vessel's harvest or economic information will be shared or released in the public version of the report, nor will it be released to any party other than DFO or the authorized licence holder of record for that crab fishing licence.

Mid-year and year-end reports shall include:

- For each of the program elements (Electronic Monitoring, plastic trap tags, logbooks, and biological sampling), a description of duties performed by the service provider (excluding confidential information in the public version).
- Summary of program elements completed and not completed on behalf of licence holders.

- Summary of Incident/Occurrence Reports by month and violation type, excluding confidential information in public versions.
- Issues or problems encountered during the period.
- Recommendations to licence holders and the Department on possible management changes to the fishery, or changes to the monitoring programs.

5. PROGRAM EVALUATION CRITERIA

The performance of the service providers in meeting the requirements of the monitoring programs will be evaluated against program criteria during the 2013 licence year. Service providers failing to meet a minimum level of performance in a particular program during the 2013 season will not be approved by the Department to perform those duties in 2014.

The Department is not responsible for third-party contracts or other arrangements between individual licence holders and service providers. It is the responsibility of licence holders to ensure that arrangements are in place to meet all DFO licence conditions for the 2013 commercial crab licence.

The Department reminds all licence holders that licence conditions and program designs may change in 2014 or subsequent years.

As part of an on-going program evaluation process, DFO will review over-all performance against the evaluation criteria every two months. Feedback will be provided to both the service provider(s) and local area licence holder representative(s). Opportunities to improve performance will be documented during the first 8 months of the year. Service providers unable to reach a satisfactory level of performance in a program will be notified, along with local licence holders, prior to September 15, 2013 that DFO will not approve their company for work on this program in 2014. Failure to meet performance standards in one program will not eliminate a service provider from potential future eligibility for conducting other programs.

5.1. Electronic Monitoring

- Success of data collection and transmission / delivery within the specified timeframe
- Availability of updated raw data to DFO on a daily basis
- Documentation of equipment issues, malfunctions and repair as defined in Annex 1
- Rate of equipment malfunctions, and timeliness of equipment repair
- Timeliness and completeness of reporting violations as defined in Annex 1
- Timeliness and completeness of providing summary reports as defined in Annex 1
- Accuracy of RFID tag inventory, and timeliness of update and delivery to DFO

5.2. Biological Sampling

- Percentage of sampling sites fully completed for data collection during period
- Number of months during period failing to meet full sampling requirements

- In those Licence Areas with index sites (E, G, & H), a monthly report that shows sampling date, index site, total number of Dungeness Crab measured should be provided. This should be done separately for commercial and fishery-independent sampling. Explanations of why sampling periods were missed or fewer than 200 crabs collected should be provided.
- For Licence Areas I & J, a monthly report that shows sampling date, names of vessels sampled, and the total number of Dungeness Crab measured should be provided.

5.3. Harvest Logbooks

- Timeliness of data entry and delivery
- Accuracy of data transcription (measured in error rate per page)

5.4. Plastic Trap Tags

- Documentation and tracking of plastic tag issuance as required in Annex 3

6. CONTACT INFORMATION FOR MORE INFORMATION

Biological Sampling	Jason Dunham	(250) 729-8363
Harvest Logbook Data	Leslie Barton	(250) 756-7306
Lead Resource Manager	Shaun Davies, Prince Rupert	(250) 627-3477
Area Resource Managers	Guy Parker, Nanaimo	(250) 756-7163
	David Fogtmann, Comox	(250) 339-3799
	Mike Kattilakoski, Nanaimo	(250) 756-7315
	Bridget Ennevor, Lower Fraser Area	(604) 666-6390
	Sylvia Humble, Data Manager	(250) 756-7297

Project Name:	PacFish Information Management Framework
Document Title:	DFO Data Transfer Specifications: Electronic Monitoring
File Number:	
Author:	Sylvia Humble
Organization:	Fisheries and Oceans Canada
Version:	2.0
Date:	December 1, 2012

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

- **Fishery(s):** Commercial Crab by Trap
- **Fishery Season:** 2013
- **Data Collection Program Name:** Electronic Monitoring (EM)
- **Associated Fishery Data Manager:** Resource Management - Invertebrates, South Coast Area

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Equipment and Data Collection Requirements

1. EQUIPMENT REQUIREMENTS

System equipment shall:

- Accurately monitor the vessel 24 hours per day, seven days per week while it is engaged in fishing. Fishing is defined as the entire period of time that traps are in the water.
- Accurately record and store data.
- Have Global Positioning System (GPS) capable of Wide Area Augmentation System (WAAS) differential GPS with typical position errors of less than three metres.
- For vessels within all Licence Areas except Area A:
    - automatically transmit the collected data to the approved service provider prior to midnight each day where possible, with a maximum of 14 days between successful transmissions to the service provider;
    - provide a feedback mechanism to indicate to the vessel master if the data has not been sent within the last 24 hours;
    - where requested for enforcement purposes, and where possible, automatically transmit the data to the service provider throughout the day as data are collected (with ability to make this change in transmission frequency via remote command by the service provider);
    - where cellular data transmission is not possible for a particular vessel due to remote location of it's home port, alternative arrangements can be made for data delivery within a maximum of 14 days from data collection.
- Provide a feedback mechanism to indicate to the vessel master if the system is operational and functioning properly;
- Include an independent and reliable power supply capable of meeting program standards; and
- Be tamper-proof.

For vessels within all Licence Areas except Area A, if the collected data cannot be transmitted within 14 days since the last transmission, the vessel master shall notify the service provider as soon as possible (explanation is required in violation report: Table 9).

2. VESSEL ACTIVITY

System equipment must accurately record vessel location, date, time, and speed (vessel position data) at a minimum frequency of every two minutes while the vessel is active (travelling, setting, or hauling traps). A higher frequency is required to identify Trap Hauling Activity (see section 3) if a hydraulic sensor is not employed. If the vessel is within 50 metres of the southern Canada/USA international border and travelling at a speed of less than four knots, the equipment shall record data at a minimum of every 10 seconds.

While the vessel is not active (not engaged in travelling, setting, or hauling traps), equipment shall record vessel position data at a minimum of every 60 minutes.

3. TRAP HAULING ACTIVITY

The electronic monitoring program must accurately identify trap-hauling activity by one of two means:

- A hydraulic sensor that allows trap hauling activity to be identified independently of RFID chip scans. The equipment shall collect data every time the vessel is engaged in hauling traps; or
- If the vessel is travelling at a speed of less than four knots, the equipment shall collect vessel position data at a minimum of every 10 seconds.

4. TRAP IDENTIFICATION: RFID CHIPS

The electronic monitoring program must accurately identify individual traps. A radio frequency identification (RFID) chip is required on each trap fished by licensed crab vessels. Vessel operators are required to scan every RFID chip as the trap is hauled onboard, with an RFID chip scanner to record RFID information from each trap hauled. System equipment shall provide a feedback mechanism to indicate to the vessel master if the scanner is functioning properly (RFID chips are successfully scanned and recorded).

All aspects of RFID chip procurement, distribution, administration, and data entry are the responsibility of the vessel owner/licence holder to arrange with the service provider. The service provider will enter the trap RFID chip inventory data into a database that they provide, and submit it to the Department within 24 hours of issuing chips.

Vessel operators are required to use and scan only those RFID chips registered in the vessel's inventory. RFID chip inventories for each vessel must be updated at the beginning of each fishing season. For Licence Areas open to fishing year-round, the operator is responsible for arranging for the service provider to update the vessel's entire RFID chip inventory within the first 30 days of fishing for the 2013 licence year. Each vessel's RFID chip inventory must include two classifications of RFID chips at the beginning of the licence year:

1. "Main": main set of RFID chips (actively fished traps), limited to the vessel's trap limit. These chips can be scanned into the main inventory by the vessel master while on the water, as long as this process and its timing are arranged with the service provider.
2. "Spare": secondary set of RFID chips, limited to a maximum of 10% of the vessel trap limit. The spare chips can be scanned into the main inventory by the vessel master (using chips they already own) as long as this process and its timing is arranged with the service provider.

As the fishing season progresses, each vessel's RFID chip inventory is to be updated to include two more classifications as needed:

3. "Lost": "Main" RFID chips that have not been scanned for a period of more than 36 days (twice the maximum soak time) are reclassified as lost.

4. "Non-Inventory": All RFID chips scanned during the licence year that were not scanned into that vessel's RFID chip inventory for the current year (none of the above three categories apply).

If, due to trap loss, additional RFID chips are needed above the initial 10% designated as "spare", the vessel master may arrange with the service provider to register additional RFID chips to the vessel's inventory as "spare". However, if lost traps are found, the vessel master is responsible for removing the traps with the RFID chips from the water.

The RFID chip inventory for each vessel must be provided to DFO within seven days of the 30-day requirement for completing initial inventories for the licence year, and within 24 hours of updating the inventory during the fishing year. Inventories are to be updated within 24 hours of the RFID chip data indicating that categories 3) or 4) apply. If RFID chips are falsely classified as "lost" due to scan failure, the vessel master must arrange with the service provider to replace any RFID chips that are no longer scanning, and update the vessel's "main" RFID chip inventory. If lost traps are found, the vessel master must arrange to update the vessel's "main" RFID chip inventory.

When a trap is taken out of the water and replaced, the vessel master is responsible for switching the RFID chips so that all traps in the water are fitted with RFID chips in that vessel's inventory for the current year.

5. VIDEO CAMERAS (AREA A ONLY)

In Licence Area A, the electronic monitoring program must accurately monitor fishing activity by camera as described below:

- EM equipment capable of collecting video data.
- Digital video recording of all deck activity while the vessel is outside of harbour limits. This shall be collected by a minimum of one camera. Multiple cameras may be required if vessels have more than one hauling station.
- While the vessel is travelling, setting, or hauling traps/gear, the equipment shall collect data at a minimum of every 10 seconds and video shall be recorded continuously at a frame rate and quality adequate to monitor onboard activities. Camera quality shall be sufficient such that unique buoy colours can be determined, by-catch species can be identified and activity such as gear tangles and line cutting can be observed.
- While the vessel is not engaged in travelling, setting, or hauling traps and the vessel is within harbour limits, video data collection is not required. If video data collection is disabled at the dock, the EM system must automatically restart video collection as the vessel departs harbour limits. Vessel tracking information must be continually collected at all time the vessel has gear deployed.
- Accurately identify trap-hauling activity using video recording of activity focused on the hauling stations in addition to the hydraulic sensor.

Video data for an observed violation shall be saved by the service provider for potential use in enforcement actions. Video data for which no observed violations have occurred is not required to be stored and is not required to be submitted to the Department.

Further details on Area A video monitoring requirements are provided in the document: Request for Proposals, Fishery Monitoring Services for the Area A Commercial Crab Fishery (contact the local area manager for details).

Data Transfer Requirements

The electronic monitoring program is comprised of four types of data delivery processes. Data transfer requirements and format are described in the following four sections. All data submitted becomes the exclusive property of Fisheries and Oceans Canada.

For all tables, all fields are mandatory unless they are not applicable or values are unknown, in which case a null (blank) value is to be entered.

1. DAILY RAW DATA DELIVERY

The vessel owner / licence holder shall ensure the service provider provides the raw fishing data for each of the three fishing data types (vessel position data, hydraulic data if applicable, and RFID chip data), as well as a record of data transmission, as described below.

- **Format:** Comma Separated Value (*.csv).
- **Medium:**
  - For Area A: an internet server provided by the service provider
  - For all Licence Areas except Area A: DFO File Transfer Protocol (FTP) site (DFO's internet server for the exchange of files between DFO staff and external groups; site and login details will be provided)
- **Timeliness:**
  - For vessels in Area A, the licence holder shall ensure that the service provider retrieves all data from the vessel within 30 days of data collection.
  - For vessels within all Licence Areas except Area A, raw data must be automatically transmitted to the approved service provider prior to midnight each day where possible, with a maximum of 14 days between successful transmissions to the service provider (as per section 1, Equipment Requirements, p. 3). If data cannot be delivered within 14 days, the vessel master shall notify the service provider as soon as possible (explanation is required in violation report: Table 9).
  - All data received by the service provider shall be made available to DFO on a daily basis (no more than 24 hours after data received)
  - For vessels within all Licence Areas except Area A, where requested for enforcement purposes, and where possible, raw data for particular vessels

must be accessible to the Department on a near real-time basis, throughout the day as data are collected (see Equipment Requirements, section 1)

- Tables posted on FTP for DFO download shall be updated daily to meet the timeliness requirement of delivery within 24 hours of service provider receipt. These tables shall include all data to date for at least the current month (thus replacing previous versions of data files for the current month). Tables for previous months that have been updated in the past 30 days must also remain posted (i.e., tables for previous months that have not been updated with new data in the past 30 days are not required to be posted)

Table 1: Vessel position data

- **File Naming Conventions:** [licence area]_TRACK_[month: 2 digits]_[year: 4 digits] (e.g., B_TRACK_01_2011.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date and time of vessel location record	YYYY-MM-DDTHH:MM:SS (e.g. 2013-03-31T23:59:59) (corrected for UTC offset)
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal (e.g. 222.1)
Speed	Speed (nautical miles per hour)	Decimal, one decimal place (e.g. 2.1)
Sat_num	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite Quality[1]	Integer
HDOP	Horizontal Dilution of Precision[2]:	Decimal
EPE	Estimated Position Error[3] (metres)	Decimal

Table 2: Hydraulic data

- **File Naming Conventions:** [licence area]_HYD_[month: 2 digits]_[year: 4 digits] (e.g., B_HYD_01_2011.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date of hydraulic pressure record	YYYY-MM-DDTHH:MM:SS (e.g. 2013-03-31T23:59:59) (corrected for UTC offset)

[1] Satellite Quality is an indication of satellite fix type i.e. 0 = fix not available, 1 = Non-differential GPS fix is available, 2 = Differential GPS (WAAS) fix available, 6 = Estimated (definitions taken from Garmin GPS specifications)

[2] HDOP is a measure of the relative GPS receiver/satellite geometry and corresponding accuracy (GPS industry standard). Lowest value (1) represents the highest precision, and values >20 are considered poor.

[3] EPE is a measure of horizontal position error in meters (GPS industry standard).

Field Name	Description	Field Type/Size
Pressure	Hydraulic pressure	Integer
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal
Speed	Speed (nautical miles per hour)	Decimal
Sat_number	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite quality	Integer
HDOP	Horizontal Dilution of Precision	Decimal
EPE	Estimated Position Error (metres)	Decimal

Table 3: Trap RFID Chip Data.

- **File Naming Conventions:** [licence area]_RFID_[month: 2 digits]_[year: 4 digits] (e.g., B_RFID_01_2011.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Datetime	Date and time of RFID chip scan	YYYY-MM-DDTHH:MM:SS (e.g. 2013-03-31T23:59:59) (corrected for UTC offset)
Chip_num	Unique RFID chip identification number	Text
Latitude	Latitude (decimal degrees)	Decimal (e.g. 54.1923416)
Longitude	Longitude (decimal degrees)	Decimal, negative (e.g. -130.338375)
Heading	Heading (degrees)	Decimal
Speed	Speed (nautical miles per hour)	Decimal
Soak	Number of days since last scan of this RFID chip	Integer
Sat_num	Number of satellites used to acquire the position	Integer
Sat_quality	Satellite quality	Integer
HDOP	Horizontal Dilution of Precision	Decimal
EPE	Estimated Position Error (metres)	Decimal

Table 4: Record of Transmission of Vessel Position Data

- **Description:** Record of all data transmission events (when vessel position data are transmitted from the vessel to the service provider's internet server)
- **File Naming Conventions:** [licence area]_TRANSMISSION_[year: 4 digits] (e.g., B_TRANSMISSION_2013.csv)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer

Field Name	Description	Field Type/Size
Datetime	Date of transmission of vessel position data	YYYY-MM-DDTHH:MM:SS (e.g. 2013-03-31T23:59:59) (corrected for UTC offset)

2. DAILY TRAP HAUL LOCATION REPORTS

The vessel owner / licence holder shall ensure the service provider prepares daily trap haul location reports from the electronic data as described below. These reports are not required for Area A where fishing activity is monitored through a hail program.

Table 5: Summary of Trap Hauls (RFID chip scans) by Pacific Fishery Management Subarea and Date.

- **Format:** Microsoft Excel 2002 or earlier version (*.xls) or Excel 2002 XML Spreadsheet (*.xmlss)
- **Medium:** DFO FTP site or service provider website
- **Timeliness:**
  - Trap haul location reports shall be provided or updated within 24 hours of receiving data indicating RFID chip scans.
  - Table must be updated on a daily basis to include all trap haul location reports for the year to date.
- **File Naming Conventions:** Activity_[licence area]_[year: 4 digits] (e.g., Activity_B_2013.xls)
- **Special Requirements:** For each vessel and fishing date, at least one record is required; a separate record is required for each Subarea fished on a given fishing date.

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Year	Year of RFID chip scans	Integer (4 digits)
Month	Month of RFID chip scans	Integer (2 digits)
Day	Day of RFID chip scans	Integer (2 digits)
PFMA	Pacific Fishery Management Area[4] in which trap scans recorded on given date	Integer (e.g. 24)
Subarea	Pacific Fishery Management Subarea in which trap scans recorded on given date	Integer (e.g. 9)
Chip_Scans	Number of trap hauls (RFID chip scans) recorded in given Subarea on given fishing date	Integer

3. DAILY EQUIPMENT MALFUNCTION AND ISSUE REPORTS

[4] Areas and Subareas are described in the Pacific Fishery Management Area Regulations

The vessel owner / licence holder shall ensure the service provider reports all malfunctions or suspected malfunctions of EM equipment (e.g. GPS, scanner, hydraulics, data storage or transmission hardware, etc.), and any repair or servicing of equipment. Data requirements are described below.

Table 6: Equipment Malfunctions and Issues

- **Format:** Microsoft Excel 2002 or earlier version (*.xls) or Excel 2002 XML Spreadsheet (*.xmlss)
- **Medium:** DFO FTP site or Service Provider website
- **Timeliness:**
  - Must be reported within 24 hours of the service provider becoming aware of the malfunction or required repair / servicing
  - If, after initial report, the EM system is serviced or the service provider acquires new information on the status of the malfunction, the record must be updated with details (or a new record added) within 24 hours.
  - Table must be updated with new records as per the above timelines, to include all equipment reports for the year to date.
- **Special Requirements**: If a malfunction has occurred, comment is required as to whether fishing continued during the malfunction (see Fishing Comments field).
- **File Naming Conventions:** Equipment_[licence area]_[year: 4 digits] (e.g., Equipment_B_2013.xls)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Incident_ID	Unique identification number for this record	Integer
Date_of_Detection	Date on which the service provider became aware of the issue or required repair / servicing	Short Date (month/day/year, e.g. 12/31/13)
Mode_of_Detection	How the service provider became aware of the malfunction (i.e. reported by fisher, detected from data analysis)	Text
Date_of_Malfunction	Date on which the malfunction occurred	Short Date (month/day/year, e.g. 12/31/13)
Date_of_Service	Date of repair or service	Short Date (month/day/year, e.g. 12/31/13)
Technician_Name	Name of person completing repair or service	Text
Description	Description of equipment issue or required service, and details of any repair or service completed.	Memo

Field Name	Description	Field Type/Size
Fishing_Comments	Confirmation of whether the vessel continued to fish (set or haul gear) without a fully functioning EM system (e.g., yes, no, unknown, or any relevant comment)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

4. VIOLATION REPORTS

From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares reports of violations as described below. All violations (including seven types defined below) must be reported in a summary table (Table 7), and detailed reports are required for each type of violation, as described under Table 8 through Table 14.

- **Format:** Microsoft Excel 2002 or earlier version (*.xls) or Excel 2002 XML Spreadsheet (*.xmlss). Table 7 through Table 14 are to be included as separate worksheets in an Excel workbook, with worksheet names provided below for each table. Each sheet to include all violations reported for the year to date.
- **Medium:** DFO FTP site or Service Provider website
- **File Naming Conventions:** [Licence Area]_Violations_2013.xls
- **Special Requirements:** DFO will provide direction to Service Providers on additional analysis that may be required for violation reporting and enforcement purposes.

Table 7: Violation Summary Data

- **Description:** This table provides a summary of violations by vessel and month, including all violations reported in Table 8 through Table 14.
- **Timeliness:** Table must be updated whenever a new violation is reported, to include all violations reported to date (see timeliness requirements for each type of violation).
- **Worksheet name:** Violation_Summary

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Violation_Type	Type of violation reported. Use the name of the worksheet specified for each of the following violation tables	Text

Number_occurrences	Number of occurrences of this type of violation in the current month (number of records in specific violation table)	Integer

Table 8: Closed Area Violations

- **Description:** Violations are defined as any fishing inside a closed area boundary while the closure is in effect**.** Violations are to be reported by individual dates. Where fishing occurs inside a seasonal closure, only those occurrences during the closed period are to be reported.
- **Timeliness:**
  - For Area A, report within 31 days of recording data indicating a violation, including comments/ verification of violation.
  - For all other Licence Areas, report within 24 hours of the service provider receiving data indicating a violation.
- **Worksheet name:** Closed_Areas

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Violation ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Day	Day of violation	Integer (2 digits)
Closure Name	Closed area name	Text
Hauls_less_50m	Number of trap hauls (RFID chip scans) less than 50 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Hauls_50_100m	Number of trap hauls (RFID chip scans) from 50 to 100 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Hauls_100m_plus	Number of trap hauls (RFID chip scans) more than 100 metres inside closure boundaries while closure in effect (excluding dock areas)	Integer
Tracks_less_50m	Number of vessel positions less than 50 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer
Tracks_50_100m	Number of vessel positions from 50 to 100 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer
Tracks_100m_plus	Number of vessel positions more than 100 metres inside closure boundaries while closure in effect (while travelling below four knots, excluding dock areas)	Integer

Field Name	Description	Field Type/Size
Comments	Comments/ verification of violation (Area A only)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

Table 9: Data Delivery Violations

- **Description:** Violations are defined as:
  - For Area A, raw data not provided to DFO within 31 days of data collection
  - For all Licence Areas except Area A, raw data not delivered to service provider within 14 days since last data delivery.
- **Timeliness:**
  - Report in Table 9 within 24 hours of violation
  - Update record to provide investigation/ comment within seven days of violation.
  - When data received, update record with data receipt date and time, and total lag time (data fields: Next_Date, Next_Time, Delivery_Lag_Time).
- **Special Requirements:** If an equipment problem is indicated, it must also be reported in Table 6.
- **Worksheet name:** Data_Delivery

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Last_Date	Date of last data delivery	Short Date (month/day/year, e.g. 12/31/13)
Last_Time	Time of last data delivery	hh:mm:ss (e.g. 23:59:59)
Next_Date	Date of next data delivery (to be entered when data received)	Short Date (month/day/year, e.g. 12/31/13)
Next_Time	Time of next data delivery (to be entered when data received)	hh:mm:ss (e.g. 23:59:59)
Delivery_Lag_Time	Number of days between subsequent data receipt events (to be entered when data received).	Decimal (2 decimal places)
Comments	Comments must include an explanation or possible reason for the data delivery violation. Note special requirement above.	Memo

Field Name	Description	Field Type/Size
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

Table 10: Time Gaps

- **Description:** Violations are defined as any gap in vessel position data that is:
  - greater than one hour while in port; or
  - greater than 10 minutes while at sea.
- **Timeliness:**
  - For vessels in Area A, report violations within 31 days of recording data indicating a time gap, including investigation/ comments.
  - For all other Licence Areas, report within 24 hours of the service provider receiving data indicating a time gap, and update record to provide investigation/ comments within seven days.
- **Special Requirements:** If an equipment problem is indicated, it must also be reported in Table 6.
- **Worksheet name:** Time_Gaps

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Last_Date	Date of last vessel position before interruption	Short Date (month/day/year, e.g. 12/31/13)
Last_Time	Time of last vessel position before interruption	hh:mm:ss (e.g. 23:59:59)
Next_Date	Date of next vessel position after interruption.	Short Date (month/day/year, e.g. 12/31/13)
Next_Time	Time of next vessel position after interruption.	hh:mm:ss (e.g. 23:59:59)
Time_Gap	Number of hours between subsequent vessel positions	Integer
Comments	Comments must include an explanation or possible reason for the time gap. If an equipment problem is indicated, it must also be reported in Table 6.	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)

Field Name	Description	Field Type/Size
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

Table 11: Violations of Weekly Trap Haul Restrictions

- **Description:** Violations are defined as any number of traps exceeding the weekly trap haul restriction in Licence Areas E, G, and H, for a calendar week[5] during which the restriction is in effect. Please see the IFMP for details of trap haul restrictions and their timing.
- **Timeliness:** Must be reported within 24 hours of the service provider receiving data from the given vessel indicating a violation (end of calendar week).
- **Worksheet name:** Weekly_Hauls

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Haul_Area_Code*	Portions of licence area E with specific trap haul restrictions. Required only for violations in Area E	Text
Stat_Week	Calendar week of the year (DFO to provide definitions of numbered weeks)	Integer, 2 digits
Traps_Hauled_2 times	Number of unique traps hauled twice during the week, in the licence area or special area where the restriction applies	Integer
Traps_Hauled_3_ times_plus	Number of unique traps hauled three or more times during the week, in the licence area or special area where the restriction applies	Integer
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

* Codes defined as follows:

Haul Area Code	Description

[5] A calendar week is described as 00:01 hours Sunday to 23:59 hours Saturday.

Haul Area Code	Description
COMMON_PLUS	PFMA 21, 22, 25, 26, 121, 123-1, 125, 126 (Common Areas, i.e. areas common to all sub-area licence Options); Subareas 20-1 to 20-5 (portion of the Sooke Option); and Subareas 27-1 to 27-6 and Area 127 (portion of the Quatsino Option).
SOOKE_20_3_5	Subareas 20-3 to 20-5 (portion of the Sooke Option).
SOOKE_20_6_7	Subareas 20-6 and 20-7 (portion of the Sooke Option).
TOFINO_23_24	Areas 23, 24, 123-2 to 123-9, and 124 (portion of the Tofino Option)

Table 12: Soak Limit Violations

- **Description:** Violations are defined as any number of traps soaked longer than 18 days, as indicated by the number of days between subsequent scans of RFID chips. Given that time between subsequent trap scans may exceed 18 days without a soak time violation, "false" reports must be excluded for the following cases:
  - where these traps have been moved (last scanned in a different location, i.e. more than one kilometre away or in a different PFM Subarea);
  - where the RFID chips have not previously been used, or have not been used for more than six months;
  - where the traps represent individual missed trap scans on a string of gear (i.e. the RFID chip that is "over soak" is within 100 metres of other RFID chips that were scanned more recently by the same vessel).
  - Note that all exclusions must be reported in Table 17: Summary of trap hauls and soak time
- **Timeliness:**
  - For vessels in Area A, report violations within 31 days of recording data indicating a violation, including comments / verification of violation.
  - For all other Licence Areas, report violations for each vessel within seven days of receiving data for the end of the fishing month for that vessel.
- **Special Requirements:**
  - If soak time violations occur in multiple Subareas for a given vessel and date, they must be reported as separate records of soak time violations by date and Subarea.
  - Any apparent soak time violations that occur due to an EM equipment issue or malfunction (i.e. not recording or storing data while the vessel was hauling traps, or scanner malfunction) must also be reported in Table 6.
- **Worksheet name:** Soak_Limit

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer

Field Name	Description	Field Type/Size
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Day	Day of violation	Integer (2 digits)
PFMA	Pacific Fishery Management Area in which the violation occurred.	Integer
Subarea	Pacific Fishery Management Subarea in which the violation occurred.	Integer
Soak_19_29_days	Number of trap hauls (RFID chip scans) on this date, that show between 19 and 29 days since last scan, excluding "false" reports of soak violations*	Integer
Soak_30_days_plus	Number of trap hauls (RFID chip scans) on this date, that show 30 or more days since last scan, excluding "false" reports of soak violations*	Integer
Comments	Comments/ verification of violation (Area A only)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

* "false" reports to be excluded are defined above (see Description)

Table 13: Trap Limit Violations

- **Description:** Violations are defined as:
  - Any non-inventory RFID chips are scanned; OR
  - Number of traps fished (unique RFID chips scanned) in the month is in excess of the trap limit per vessel for the licence area, or for areas within Licence Areas A, B, and E where specific trap limits apply. Please see the IFMP for details on area-specific trap limits and their timing.
  - For areas where specific trap limits are in effect only during specific months, violation reports must include only those incidents where vessels exceed the area-specific trap limits during the months when the limits are in effect.
- **Timeliness:**
  - For vessels in Area A, report violations within 31 days of recording data for the end of the fishing month for that vessel, including comments / verification of violation.
  - For all other Licence Areas, report violations for each vessel within seven days of receiving data for the end of the fishing month for that vessel.
- **Worksheet name:** Trap_Limit

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces

Field Name	Description	Field Type/Size
Trap_Area_Code*	Areas within Licence Areas A, B, and E where trap limits differ from licence area trap limits	Text
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Traps_total	Number of actively fished traps (unique RFID chips scanned) in the current month. This number should equal the sum of the number of traps reported in the categories below.	Integer
Traps_main	Number of unique RFID chips scanned in the current month that are categorized as “main” in this vessel’s RFID chip inventory	Integer
Traps_spare	Number of unique RFID chips scanned in the current month that are categorized as “spare” in this vessel’s RFID chip inventory	Integer
Traps_lost	Number of unique RFID chips scanned in the current month that are categorized as “lost” in this vessel’s RFID chip inventory	Integer
Traps_non_inventory	Number of unique RFID chips scanned in the current month that are not designated in this vessel’s RFID chip inventory for the current year.	Integer
Comments	Comments/ verification of violation (Area A only)	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

* Codes for these specific areas are defined as follows:

Trap Area Code	Description
A_MCINTYRE	McIntyre Bay (see IFMP for timing of trap limit)
B_NASS	Nass Estuary (during seasonal opening)
E_SOOKE_20_6	Subarea 20-6
E_SOOKE_20_7	Subarea 20-7
E_TOFINO	Area 24 inclusive
E_QUATSINO	Subareas 27-7 to 27-11

Table 14: Failure to scan RFID chips on traps

- **Description:** Full reporting of failure to scan RFID chips is required, based on analysis of RFID chip and hydraulic / vessel position data for each vessel. All incidents of apparent fishing activity without associated chip scans must be reported.

- **Timeliness:**
  - For vessels in Area A, report violations within 31 days of recording data indicating a violation.
  - For all other Licence Areas, report violations for each vessel within 24 hours of receiving data indicating a likely violation, and update record to provide investigation/ comments within 15 days of receiving data for the end of the fishing month for that vessel.

- **Special Requirements:**
  - Violations must be listed and detailed by date and PFM Area. If a vessel fails to scan RFID chips in multiple PFM Areas on a given day, these incidents must be reported as separate records by PFM Area.
  - If a scanner problem is indicated, it must also be reported as an equipment malfunction in Table 6.

- **Worksheet name:** Scan_Failure

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Violation_ID	Unique identification number for this incident (must be unique among all violation types)	Integer
Year	Year of violation	Integer (4 digits)
Month	Month of violation	Integer (2 digits)
Day	Day of violation	Integer (2 digits)
PFMA	Pacific Fishery Management Area in which the violation occurred.	Integer
Subarea	Pacific Fishery Management Subarea in which the violation occurred.	Integer
Description	Description of the extent of the violation (apparent # strings or traps not scanned), and details of locations where the scan failure occurred	Memo
Record_Entry_Date	Date on which this record was first entered	Short Date (month/day/year, e.g. 12/31/13)
Record_Update	Date on which this record was last updated	Short Date (month/day/year, e.g. 12/31/13)

5. MONTHLY EM DATA SUMMARY REPORTS

From the electronic data, the vessel owner / licence holder shall ensure the service provider prepares monthly reports as described below.

- **Format:**
  - Microsoft Excel 2002 or earlier version (*.xls) or Excel 2002 XML Spreadsheet (*.xmlss).
  - Table 15 through Table 17 are to be included as separate worksheets in an Excel workbook, with worksheet names provided below for each table. Each table shall include a record for each vessel in each licence area, for each month of the year to date.
- **Medium:** DFO FTP site or Service Provider website
- **Timeliness:**
  - For vessels in Area A, monthly summary tables to be delivered within 31 days of the end of the month in which fishing occurred.
  - For all other Licence Areas, monthly summary tables to be delivered within 15 days of the end of the month in which fishing occurred. Records for previous months must be updated if and when data for those months are received late, to provide up-to-date summary statistics for each month of the year to date.
- **File Naming Conventions:** EM_Summary_2013.xls

Table 15: Summary of electronic monitoring status.

- **Special Requirements:** All licensed vessels must be listed in this table for each month of the year
- **Worksheet Name:** EM_Status

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Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel	Vessel name	Text
Active_Hours	Total number of hours the electronic monitoring system was required to be collecting information per month (based on the number of hours in the month)	Integer
Working_Hours	Total number of hours the electronic monitoring system was collecting information per month.	Integer
Time_Gaps	Total time gaps: number of hours the electronic monitoring system was not collecting information per month	Integer
Active_Tracks	Number of vessel positions recorded while in “active” mode (travelling)	Integer

Field Name	Description	Field Type/Size
Sleep_Tracks	Number of vessel positions recorded while in “sleep” mode (at port)	Integer
Average_Active_Track_Time	Average time between recorded positions while in “active” mode (minutes)	Integer
Average_Sleep_Track Time	Average time between recorded positions while in “sleep” mode (minutes)	Integer
Track_Days	Total number of days on which vessel position data were collected	Integer
Hyd_Days	Total number of days on which hydraulic data were collected	Integer
RFID_Days	Total number of days on which RFID chip scan data were collected	Integer
Last_Data_Date	Last day of the month on which track data were present. If blank, no data were submitted.	Integer

Table 16: Summary of total numbers of trap RFID chips scanned

- **Worksheet Name:** Traps_Fished

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel_Name	Vessel Name	Text
Trap_Limit	total trap allocation	Integer
Unique_Traps_Month	Number of actively fished traps (unique RFID chips scanned) in the current month	Integer
Unique_Traps_Year	Cumulative number of traps fished (unique RFID chips scanned) in the current year to date	Integer
Traps_main	Number of unique RFID chips scanned in the current month classified in the vessel’s current inventory as “main”	Integer
Traps_spare	Number of unique RFID chips scanned in the current month classified in the vessel’s current inventory as “spare”	Integer
Traps_lost	Number of unique RFID chips scanned in the current month classified in the vessel’s current inventory as “lost”	Integer
Traps_non_inventory	Number of unique RFID chips scanned in the current month not in the vessel’s current inventory.	Integer

Table 17: Summary of trap hauls and soak time

- **Worksheet Name:** Soak_Time

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month of the year	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel Name	Vessel Name	Text
Haul Count	Total number of trap hauls (RFID chip scans) in the fishing month	Integer
Soak_18_days_less	Number of trap hauls (RFID chip scans) showing 18 days or less since last scan, in the fishing month.	Integer
Soak_19_29_days	Number of trap hauls (RFID chip scans) showing between 19 and 29 days since last scan, in the fishing month, excluding "false" reports of soak violations*	Integer
Soak_30_days_plus	Number of trap hauls (RFID chip scans) showing 30 or more days since last scan, in the fishing month, excluding "false" reports of soak violations*	Integer
Number_hauls_excluded	Number of trap hauls showing more than 18 since last scan, in the fishing month, that were excluded (not reported in the last two categories)*	Integer

* "false" reports to be excluded are defined under Table 12: Soak Limit Violations (see Description).

Table 18: Summary of monthly trap haul frequency

- **Worksheet Name:** Haul_Frequency

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text – 1 character, capital letter, no spaces
Year	Year	Integer (4 digits)
Month	Month	Integer (2 digits)
VRN	Vessel Registration Number	Integer
Vessel	Vessel name	Text
Unique Traps Month	Number of actively fished traps (unique RFID chips scanned) in the current month	Integer
5_times_less	Number of traps hauled (scanned) 5 times or less during the month	Integer
6_15_times	Number of traps hauled more than 5 times and up to 15 times during the month.	Integer
15_30_times	Number of traps hauled more than 15 times and up to 30 times during the month.	Integer
31_times_plus	Number of traps hauled 31 times or more during the month.	Integer

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

- **Fishery(s):** Commercial Crab by Trap
- **Fishery Season:** 2013
- **Data Collection Program Name:** At-Sea Observers
- **Associated Fishery Data Manager:** Resource Management – Invertebrates, Pacific Region

Data Transfer Requirements

On each fishing day, information shall be recorded in the following two tables.

- **Format:** Microsoft Excel 2002 or earlier version (*.xls) or Excel 2002 XML Spreadsheet (*.xmlss)
- **Medium:** DFO ftp site or Email to Local Area Crab Manager

Timeliness: **The observer shall prepare information reports within 7 days of fishing activity. Data recorded for the week should be appended into each table (i.e. one of each of**

- **Table 1** and **Table 2** is submitted for the week)

Table 1: Daily Fishing Trip Information

- **File Naming Conventions:** [VRN]_Trip_[Date of weekly data delivery] (e.g. 311288_Trip_06_30_2012)

Field Name	Description	Field Type/Size
Area	Licence Area (A, B, E, G, H, I, or J)	Text, 1 char, no spaces
VRN	Vessel Registration Number	Integer
Vessel_Name	Name of Vessel	Text
Vessel_Mast_Name	Name of Vessel Master	Text
Observer_Name	Name of Onboard Observer	Text
Conf_Log	Confirmation of a valid logbook on board	Memo
Conf_Log_current	Confirmation that logbooks are up to date	Memo
Conf_fish_activ	Confirmation that the vessel fishing activity location report is up to date (Licence Area A only)	Memo
Fish_activ_verf_num	Fishing activity location report verification number (Licence Area A only)	Integer
Crabs_retained	An estimate of the total number of crabs retained on board the vessel from all the traps hauled on this date	Integer
Crabs_released	An estimate of the total number of crabs released by the vessel from the traps hauled on this date	Integer
Octopus_num	Total number of Octopus caught in all the traps hauled on this date	Integer
Num_traps	Total number of traps hauled on this date	Integer

Table 2: Trap Information

- **File Naming Conventions:** [VRN]_Trap_[Date of data delivery] (e.g. 311288_Trap_06_30_2012)

Field Name	Description	Field Type/Size
VRN	Vessel Registration Number	Integer
Date	Date of fishing	Short Date (month/day/year)

Field Name	Description	Field Type/Size
Latitude	Latitude (decimal degrees) of trap (where traps are on a string, record this field only for the first and last trap on the string)	

Field Name	Description	Field Type/Size
Longitude	Longitude (decimal degrees) of trap (where traps are on a string, record this field only for the first and last trap on the string)	
Conf_tag	Confirmation of plastic tag on trap	Memo
Tag_num	Plastic tag number	Integer
Conf_buoy	Confirmation that buoys labeled with VRN and proper colours (where traps are on a string, record this field only for the first and last trap on the string)	Memo

Project Name:	PacFISH Information Management Framework
Document Title:	DFO Data Transfer Specifications: Plastic Trap Tags
File Number:	
Author:	Shaun Davies
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	December 1, 2012

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

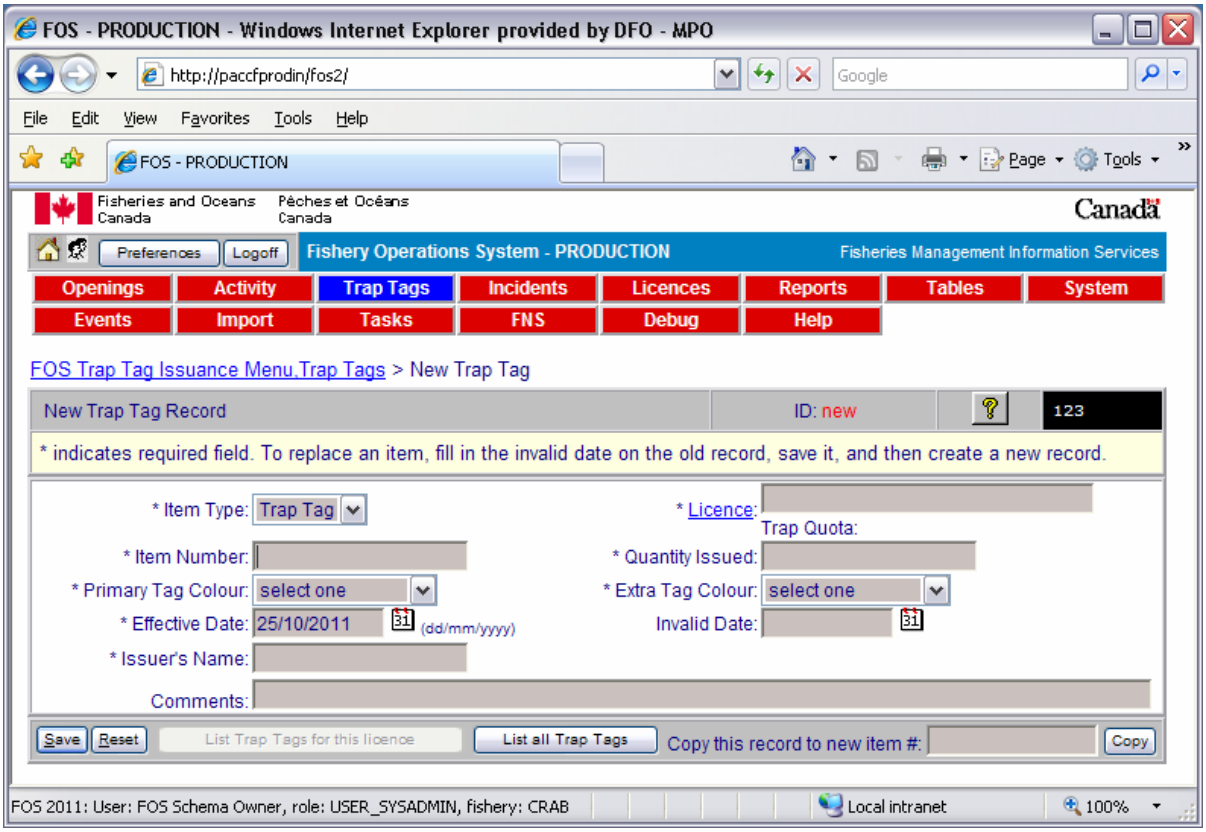
- **Fishery(s):** Commercial Crab by Trap
- **Fishery Season:** 2013
- **Data Collection Program Name:** Plastic Trap Tags
- **Associated Fishery Data Manager:** Fisheries Management Data Service

Data Transfer Requirements

- **Format:** data will be entered directly into a DFO website application. Please note that DFO may be updating the Department's Fisheries Operating System data delivery system during the 2013 calendar year. In the event of changes, a new data delivery mechanism may be required.
- **Medium:** Direct data entry into the approved Departmental Database**.**
- **Timeliness:** within 24 hours of being issued the crab trap tags
- **Data Ownership:** All data submitted becomes the exclusive property of Fisheries and Oceans Canada.
- **File Naming Conventions:** n/a (data will be entered directly into a web application)

Data Transfer Format

Please note that all trap tag data are to be entered into the web-based Fishery Operation System. The Departmental database specifications and screen shot below will provide an overview of the data to be entered. For fields that are not applicable, a null (blank) value is to be entered.



The following table describes the fields to be entered on the FOS web application:

Field Name	Description	Mandatory?	Form Type
Item Type	Item Type is always "Trap Tag" (select this option from form)	Y	Drop down
Licence	Licence tab number (select from licence search form)	Y	Licence search
Item Number	Numbers printed on the series of plastic tags issued (e.g. 001-300)	Y	Textbox
Quantity Issued	Number of tags issued on this date	Y	Textbox
Primary Tag Colour[1]	Colour of primary tags (enter if issuing primary tags at this time)	N	Drop down
Extra Tag Colour[2]	Colour of extra tags (enter if issuing extra tags at this time)	N	Drop down
Effective Date	Date on which the tags will be valid (e.g. the latter of Jan. 1 or issue date)	Y	Date picker
Invalid Date	Date on which the tags will become invalid (e.g. Dec. 31)	Y	Date picker
Issuer's Name	Issuer's Name	Y	Textbox
Comments	Any relevant information (e.g. number of primary vs. extra tags, Item Numbers specific to each)	N	Textbox

[1] Primary Tag Colour Options

ORANGE
WHITE
YELLOW
PINK
RED
GREY
GREEN
BLUE-DARK
BEIGE
BLUE-LIGHT
BLACK
PURPLE
GOLD
BROWN
FL.PINK
BURGUNDY

[2] Extra Tag Colour Options

ORANGE
WHITE
YELLOW
PINK
RED
GREY
GREEN
BLUE-DARK
BEIGE
BLUE-LIGHT
BLACK
PURPLE
GOLD
BROWN
FL.PINK
BURGUNDY

Project Name:	PacFish Information Management Framework
Document Title:	DFO Data Transfer Specifications: Harvest Logbooks
File Number:	
Author:	Leslie Barton
Organization:	Fisheries and Oceans Canada
Version:	1.0
Date:	December 1, 2012

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.

- **Fishery(s):** Commercial Crab by Trap
- **Fishery Season:** 2013
- **Data Collection Program Name:** Shellfish Crab Harvest Log Program (paper-based)
- **Associated Fishery Data Service:** Shellfish Data Unit

Data Transfer Requirements

- **Format:** MS Access 2002 (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 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 Fishery Data Service (Shellfish FDS). Service Provider is to notify Shellfish FDS 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 FDS-approved alternative. The mailing address is:

  Shellfish Data Unit
  Pacific Biological Station
  Fisheries and Oceans Canada
  3190 Hammond Bay Road,
  Nanaimo, BC, V9T 6N7
- **Timeliness:** Within three weeks of the date of receipt of hardcopy by the Service Provider.
- **Data Ownership:** All data submitted becomes the exclusive property of Fisheries and Oceans Canada.
- **File Naming Conventions:** Files should be named such that the Service Provider, Fishery, Origin (paper-based [P]) Unique Batch number and year (YYYY) are all present in the file name (e.g. ABCCo_Crab_P_B389_2011).
- **Special Requirements:**
  - The electronic version must be a true and accurate transcription of the hardcopy data. Each record will represent, at a minimum, one string of gear within a Pacific Fisheries Management Sub-Area, where all traps have the same soak time. Fish harvesters are required to report fishing for each individual string of traps.
  - 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 FDS 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 FDS will be indicated using red pen.

Data Transfer Format

More extensive descriptions of data fields marked with an asterisk are available following the table.

Field Name	Description	Mandatory?	Field Type/Size	Value if N/A or Unknown	Validation Rules
CFV	Vessel Registration Number (VRN) of Vessel	Yes	Long Integer		
FIN	Vessel Master Fisher Identification Number (FIN)		Long Integer	Null	
YEAR	Year of fishing event	Yes	Integer		
MONTH	Month of fishing event	Yes	Integer or byte		1-12
DAY	Day of fishing event	Yes	Integer or byte		Valid calendar day (1-31)
SOAK_DAYS	* Soak Time in Days		Integer or byte	0	
SOAK_HOURS	* Soak Time in Hours		Integer	0	
MIN_DEPTH	Minimum Depth reported		Integer	0	
MAX_DEPTH	Maximum Depth reported		Integer	0	
STAT_AREA	*Statistical Area (Pacific Fishery Management Area; PFMA)		Integer or byte	0	Valid PFM Area from PacFish Data Standard list
SUB_AREA	*Statistical Sub-area (PFM sub-area)		Integer or byte	0	Valid PFM Sub-area from PacFish Data Standard list
SPECIES_CODE	* Species Code	Yes	Text – 3 characters		Valid PacCode from PacFish Data Standard list
CATCH_NUMBER	Number of crabs landed		Integer	0	
WEIGHT	Total landings		Integer	0	
NUM_TRAPS	Number of traps pulled		Integer	0	
DEPTH_UNIT	*Depth Unit	Yes	Text – 1 character	U	
WEIGHT_UNIT	*Weight Unit	Yes	Text – 1 character	U	
BAIT_METHOD	*Bait Attachment: Jars, Clips or Cages	Yes	Text – 1 character	U	

Field Name	Description	Mandatory?	Field Type/Size	Value if N/A or Unknown	Validation Rules
BAIT_CODE	*Bait code for type of bait used	Yes	Text – 3 characters	UNK	
PBS_CODE	*Remarks Code		Integer or byte	0	
FISHING_METHOD	*Fishing Method	Yes	Text – 1 character	U	
LAT_DEG	*Degrees of Latitude		Integer or byte	Null	
LAT_MIN	*Minutes of Latitude		Single (floating point)	Null	
LONG_DEG	*Degrees of Longitude		Integer or byte	Null	
LONG_MIN	*Minutes of Longitude		Single (floating point)	Null	
PAGE_NUM	Page Number	Yes	Long Integer		
LINE_NUM	Line Number	Yes	Integer or byte		
OCT_NUM_REL	Number of Octopus Released		Integer	Null	
OCT_WGT_REL	*Weight of Octopus Released		Single Float	Null	
OCT_NUM_KPT	Number of Octopus Kept		Integer	Null	
OCT_WGT_KPT	*Weight of Octopus Kept		Single Float	Null	
REC_STATUS	*Status of Record	Yes	Integer or byte		

Soak Time

Fish harvesters have an option to report Soak Times in one of two ways, either as days for soaks of 1 or more days, or hours for soaks of less than a day. Use only one and enter 0 in the other. Sometimes fish harvesters will report something like 1 day, 4 hours, which can be recorded as 28 hours. Sometimes fish harvesters will report 1 day 24 hours, which is interpreted to mean the fish harvester has reported the same time in both places, and is recorded as 1 day, 0 hours.

Statistical Area / Sub-Area

This is the Pacific Fisheries Management Area (PFMA) and Sub-Area as specified in the *Fisheries Act*, Pacific Fishery Management Area regulations.

Species Codes

Use the following codes for crab species being reported.

Species	Species Code	Species	Species Code
Dungeness	**XKG**	Red King	**VNH**
Red Rock	**XLA**	Brown (Golden) King	**VMC**

Depth Unit

Enter **'M'** for depths in Meters, or **'F'** for Fathoms, **'U'** if Unknown.

Weight Unit

Enter **'P'** for weights reported in Pounds, or **'K'** for Kilograms, **'M'** for crab in Kilograms and octopus in Pounds (this is mainly to be consistent with the prawn fishery and may not get used), **'U'** if Unknown.

Bait Attachment: Jars, Clips or Cages

Use the following codes to reports how bait is held: **'J'** for Jars or containers, **'C'** for Clips or hooks, '**K**' for Cages, **'B'** for Bags, **'V'** for Various (more than one selected), **'O'** for Other (none of the above), or **'U'** for Unknown.

Bait Code

Use the following codes for the type of bait most commonly used:

QID ---------- Squid	**HER** -------- Herring	**CLA** --------- Clams
GEO ---------- Geoducks	**ZOR** -------- Razor Clams	**DOG** -------- Dogfish
TIN ---------- Tinned Fish	**PEL** --------- Pellets	**AST** --------- Fish Paste
OCT ---------- Octopus	**EUL** --------- Eulachons (all Smelt species)	
ROC ---------- Whole Rockfish	**SAL** ---------- Salmon (all species + heads + frames)	
FRA ---------- Fish Frames (not Salmon)	**KKK** ------- Hake	**MIX** ---------- Mixed Fish Species (and offal and scraps)
UNK ---------- Unknown	**XXX** -------- Experimental	**YYY** ------- Other

A mixture of two baits listed above can be coded as first code letter (**W**)ith first code letter. For example, squid and razor clams would be coded as **QWZ**. A mix of herring and smelt would be coded as **HWE**. For a mixture of greater than 2 types of bait, use the most dominant/common type (if possible) with mixed fish species (and offal and scraps) e.g. **HWM**. (see exception codes below)

Additional codes for rarely encountered bait types include:

PIL -------- Pilchards **TBT** --------- Turbot **KOD** -------- Codfish

These codes should not be used in mixture situations as described in the previous paragraph. In the event that these items are indicated as mixed with another bait type, code as "bait type from common list above" (**W**)ith "**Y**"(other), e.g. Clam with codfish = CWY

Exception codes for 3 way mixtures include:

HCQ ---------- Herring with clam and squid **HDB** ---------- Herring with dogfish and gurdy

Remarks Code

Use code 99 to indicate that the data entry person has a problem (interpretation or other) with the record. Data entry person is to use pencil to write '99' in the REMARKS column of the paper log and include a sticky note affixed to the log page with a brief description of the issue. The sticky note must project up from the page such that it is easily seen. Example problems: "handwriting hard to interpret", "damage to page", etc.

Occasionally Shellfish FDS staff will enter a numeric code in the Remarks field of the harvest log (identified by red pen). These codes are to be transcribed to the electronic version of the data.

Fishing Method

Use the following codes to report what the traps are attached to.

Enter **'G'** for Groundlines, **'S'** for Singles (individually buoyed), **'B'** for Both, **'U'** if Unknown.

Latitude/Longitude Position Fields

The latitude and longitude data are to be entered as degrees and decimal minutes. For instance, for a latitude of 49 degrees, 10 minutes, 15 seconds, you would enter 49 in the LAT_DEG field, and 10.25 in the LAT_MIN field (15 divided by 60 gives 0.25 minutes). Values for longitude are entered as positive values.

Weight of Octopus Released

The total or combined weight of all octopus released in a string or group of traps.

Weight of Octopus Kept

The total or combined weight of all octopus retained in a string or group of traps.

Status of Record

Use the following codes for the status of each record.

Status	**Code**
Record **Newly Submitted** to Shellfish Data Unit	0
Record has been **Previously Submitted** and is **Unchanged**	1
Record has been **Edited** and **Re-submitted** to Shellfish Data Unit	2

British Columbia Commercial Crab Fishery
Biological Sampling Program for Licence Year 2013

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December 1, 2012

Table of Contents

1.0 Introduction

The objective of a biological sampling program in the commercial Dungeness crab (*Metacarcinus magister*) trap fishery is to collect biological data on target and non-target catch. The commercial fishery is managed with a minimum size limit (165 mm carapace width point-to-point), non-retention of females and soft shell crabs, and in certain areas there are seasonal closures to protect moulting male crabs. The fishery targets large male Dungeness crabs. Non-target catch or bycatch include discarded Dungeness crabs such as sublegal males, females, and soft crabs, and species other than Dungeness crabs.

For management purposes, the British Columbian (BC) coast is divided into seven crab management areas (CMAs) (Fig. 1).

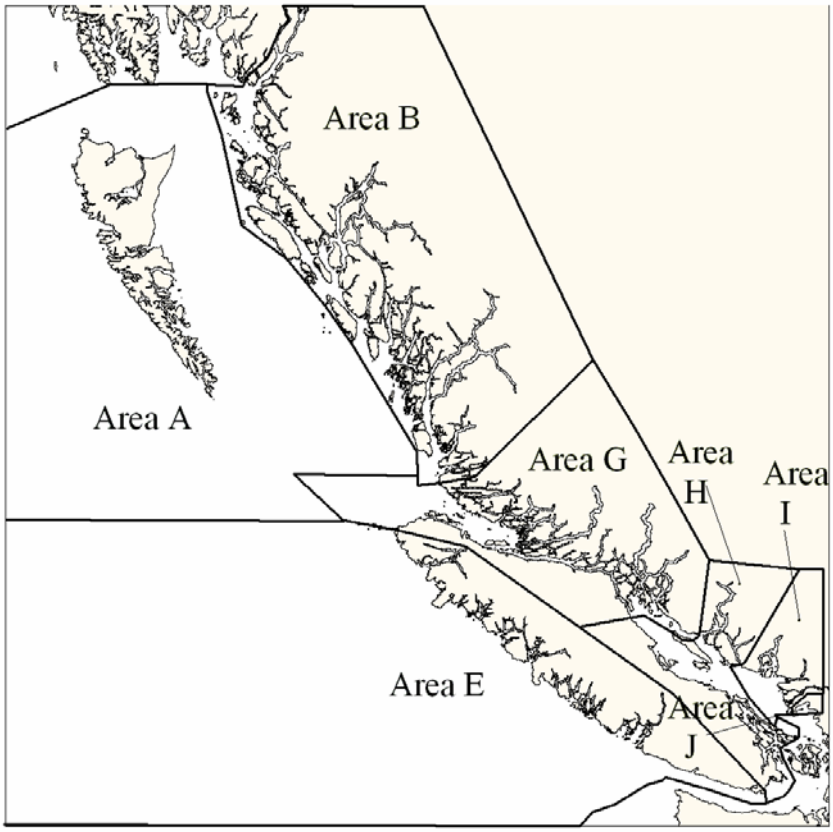

Figure 1. Crab Management Areas (CMAs) in British Columbia.

A particular commercial vessel must choose and fish in only one CMA for a three year period. Not all management measures are consistent between CMAs.

Crab Reform is underway in BC. Fisheries managers and the various sectors (commercial, recreation, First Nations) are exploring alternative ways to improve management of the Dungeness crab fishery. Management issues include: unbalanced allocation between sectors, excessive handling mortality, over-exploitation, and timing of future soft shell closures. Ecosystem-based management policies falling under the Sustainable Fisheries Framework policy suite, including the Precautionary Approach, Bycatch and Discards, Benthic Areas and Forage Species policies, will guide management direction in the future and the types of biological information required. It has been acknowledged that existing crab biological information is insufficient to support proposed management changes; therefore, it is the intent of this document to outline the 2013 crab biological sampling program by CMA to improve data being collected by service providers (SP) for the commercial fishery. The crab biological sampling program will continue to evolve as Science, Fisheries Management, and Industry work together to ensure BC's crab resources remain healthy and the fisheries sustainable and economically prosperous.

There are two important documents that compliment this one. The crab survey manual by Dunham et al. (2011) provides much detail about the collection of crab biological information and it should be used in conjunction with this document. The Integrated Fisheries Management Plan (IFMP) provides additional detail regarding management of the various crab fisheries (Fisheries and Oceans Canada 2012). Please contact the appropriate Area Manager to obtain copies.

2.0 Crab Biological Sampling Program

The crab biological sampling program has three components:

1) commercial catch sampling,
2) fishery independent standardized sampling, and
3) soft shell sampling to determine moult timing.

Note that sampling programs vary depending on the CMA.

Catch sampling on commercial vessels is done by trained, certified observers and occurs during the commercial fishing season to understand how effectively the variety of commercial gear catches target and bycatch species. The commercial fleet uses a variety of trap types, bait types, and soak times. Commercial catch sampling must be spread equitably throughout the duration of the fishing season to ensure sampling occurs at the beginning, middle, and end of each fishing season.

Fishery independent standardized sampling is done separately from the commercial fleet and crabs are collected using standardized trap gear. Standardized trap gear means the fishing gear is similar in terms of trap type, bait type, and soak time. Fishing standardized gear allows comparisons to be made of trap catches between different locations and time periods. Standardized sampling is done by the SP, DFO, and other groups such as First Nations.

Soft shell sampling is done to determine moult timing in a particular area. Focussed, frequent biological sampling during certain times of the year is useful for determining general moult times. When the soft shell period is known, a sampling program may monitor the timing of the moult to fine tune the opening and closing dates of the fishery.

2.1 Area A

2.1.1 *Commercial catch sampling*

In 2012 fishery managers are initiating a pilot commercial sampling program in Area A with the understanding the program may evolve in subsequent years. Please see Attachment A for more details.

2.1.2 *Fishery independent standardized sampling*

At present, fishery independent standardized sampling is not required in Area A.

2.1.3 *Soft shell sampling*

At Industry's request, a soft shell sampling program exists in Area A to support expansion of harvest opportunities beyond precautionary fishing season opening and closing dates defined in the IFMP. Data are collected by one vessel with harvesters trained in crab sampling methods. Commercial (nonstandard) gear is used. Sampling occurs February through July, every two weeks, for about six months when the fishery is closed. In general five sites are sampled using 15 traps at each site. Sample sizes are not larger than 200 crabs per site. Please see Attachment B for more details.

2.2 Area B

2.2.1 *Commercial catch sampling*

Commercial catch sampling occurs in index sites which are predetermined fixed areas identified from electronic monitoring data as places of heavy fishing activity. Only commercial vessels fishing in index sites are sampled. This means some vessels might be sampled more than once, and others possibly never if they do not fish in the index sites. Sampling frequency is high and sampling occurs at regular intervals throughout the year. Furthermore, a greater number of crabs are sampled. This sampling approach is new for Area B in 2013. Please see Attachment C for more details.

2.2.2 *Fishery independent standardized sampling*

At present, fishery independent standardized sampling is not required in Area B.

2.3 Areas E, G, and H

2.3.1 *Commercial catch sampling*

Commercial catch sampling in index sites has been occurring in Areas E, G, and H since 2009. Please see Attachment D for more details.

2.3.2 *Fishery independent standardized sampling*

Fishery independent sampling occurs in index sites with the primary objective to determine moult timing. Please see Attachment D for more details.

DFO conducted regular research surveys in Area E (Tofino) in the mid 1980s and 90s for approximately 10 years.

There is interest by other groups, primarily First Nations, to conduct their own crab surveys in local areas. In anticipation of this, Fisheries & Oceans Canada Marine Ecosystems and Aquaculture Division (MEAD) has produced a crab survey manual that will help to standardize crab surveys attempted by other parties (see Dunham et al. 2011).

2.3.3 *Soft shell sampling*

At present, there are no programs in place to monitor softshell periods.

2.4 Areas I and J

2.4.1 *Commercial catch sampling*

Each commercial vessel is required to be visited once during the fishing season and sampling is conducted by a certified observer. During each visit, a minimum of five traps, or a minimum of 50 crabs, whichever total is reached first, must be sampled. If 50 crabs are not captured in five traps then additional traps must be sampled.

Commercial catch sampling must be spread equitably both spatially and temporally throughout the fishing season. Sampling must occur during every two week period of the fishing season and a similar proportion of vessels sampled during each period (Table 1).

Table 1. Suggested number of vessels to be sampled every two week period during the fishing season for crab biological data. Note vessel numbers may vary depending on area selection results.

Date	Area I vessels	Area J vessels
June 15-30	5	
July 1-15	5	

July 16-31	5	2
August 1-15	5	2
August 16-31	5	2
September 1-15	5	2
September 16-30	4	2
October 1-15	4	2
October 16-31	4	2
November 1-15	4	2
November 16-30	4	2
Total	50	18

2.4.2 *Fishery independent standardized sampling*

DFO conducts research surveys twice each year before and after the commercial fishing season. The time series is approximately 20 years.

2.4.3 *Soft shell sampling*

There are seasonal closures in Areas I and J with set opening and closing dates. However, there are no soft shell sampling programs to adjust the opening and closing dates of the fishing seasons.

3.0 Crab Biological Information

Biological sampling must be conducted by DFO certified at-sea observers who have participated in a training program for crab biological sampling. Observers must be designated under Section 39 of the *Fishery (General) Regulations*. Direction of observers on the grounds will be done by the SP in conjunction with the local crab fishery manager and vessel masters (Fisheries and Oceans Canada 2012).

To ensure data quality, DFO Science suggests two people, one of whom is a certified observer, should work together to collect crab biological data. Typically one person (the observer) holds and measures the crabs; the other person records biological data either on waterproof data sheets or electronically.

During a sampling event, the observer must be positioned in such a way as to accurately collect all data detailed in Appendices E, F, and G. Generally, this means the observer will need to be onboard the commercial vessel while the samples are being removed from the commercial traps, in order to collect accurate gear information and ensure that samples from each trap are kept separate, and that all catch and bycatch from each trap is retained.

Trap catches must be sampled separately and not combined with other trap catches to ensure catch per unit effort (CPUE) can be estimated. All species of crabs caught in each trap should be described with respect to species, sex, shell condition, injuries, mating marks, various other observations, and the maximum carapace width exclusive of spines (notch-to-notch) measured. Although the crab fisheries target Dungeness crabs, the information is applicable to all species of crabs with the exception of King crabs (Golden king, *Lithodes aequispinus*; Red king, *Paralithodes camtschaticus*; Puget Sound king, *Lopholithodes mandtii*) where length is substituted for the width measurement. Please refer to Dunham et al. (2011) for more details regarding the collection of crab biological information. Normally all crabs in all traps are measured during research sampling, or all crabs in selected traps when commercial sampling. The information for individual crabs is recorded by trap.

Collecting crab biological data provides information about: sex composition, injury rates, size structure, discard ratios, Catch Per Unit Effort (CPUE), soft shell periods, mating periods, egg production, larval release times, and year-to-year variation and trends.

Bycatch is an important component of all fisheries and needs to be documented. Observers are responsible for identifying and recording all bycatch species caught in traps.

4.0 Recording Crab Survey Information

When recording crab biological data in the field, the following forms should be completed for every group/string of traps (singles or ground lines):

a) Fishing Gear Header Form
b) Crab Biological Data Form
c) Bycatch Form.

The Fishing Gear Header Form provides general information about each string. This form is linked to the Crab Biological Data Form where individual trap and crab data are recorded. The Bycatch Form is where catch data of species other than crabs are recorded.

4.1 Fishing Gear Header Form

For each group of traps, information such as general location, date, GPS position, details about the fishing gear, depth, and soak time is collated on the Header Form and will be linked to all traps and crabs in the sample. Please refer to Attachment E for form fields and codes. The Fishing Gear Header Form is called “Headers” in Access.

4.2 Crab Biological Data Form

Individual trap catch information for a particular group of traps is recorded on the Crab Biological Data Form along with individual crab biological data. Relevant crab biological information includes species, sex, shell condition, injuries, mating marks, observations, and size. Please refer to Attachment F for form fields and codes. The Crab Biological Data Form is called "LF" in Access.

4.3 Bycatch Form

Bycatch is pooled for all traps sampled in a particular string and recorded on the Bycatch Form. Please refer to Attachment G for form fields and codes. The Bycatch Form is called "ByCatch" in Access.

5.0 Data Delivery

Complete data (header, biological, and by-catch forms) shall be made available to the Shellfish Data Unit in an acceptable electronic format (Microsoft Access 2002 or earlier) via the DFO Contractor Data Exchange FTP site within seven days following the end of the month when data were collected. Please note electronic data are the responsibility of the SP and any data lost before they have been safely stored in the Shellfish Data Unit will have to be collected again by the SP.

Regarding the Area A soft shell sampling program, data sheets shall be provided to DFO in Prince Rupert within one day of arriving in port (may be submitted by fax if necessary). Original data forms must be submitted to DFO as soon as possible.

Shaun Davies
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References

Dunham, J.S., Phillips, A., Morrison, J., and Jorgensen, G. 2011. A manual for Dungeness crab surveys in British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 2964: viii + 68 p.

Fisheries and Oceans Canada. 2012. Pacific Region Integrated Fisheries Management Plan. Crab by Trap. January 1 to December 31, 2012. 111 p.

Attachment A: Biological Sampling Program for Area A

Objective

To improve the collection of Dungeness crab biological data including shell condition, injuries, abundance, discards, and bycatch.

Types of Data

In 2012 fishery dependent data—catch sampling on commercial vessels—will be collected by fishery independent certified observers.

Sampling (Index) Sites

Biological sampling shall occur in areas (to be determined from electronic monitoring data) where fishing intensity has been relatively high.

Sampling Frequency

The sampling program will start immediately when the commercial fishery opens in the summer months, normally between June and August. Four times during the fishing season, approximately once every two months, an observer will be deployed on a commercial vessel for the duration (four to six days) of the fishing trip. Each day aboard the vessel the observer will sample every third trap hauled. At least 80 traps will be sampled each day.

Attachment B: Soft Shell Sampling Program for Area A

Shaun Davies is the Program Authority for the Soft-shell Sampling Program and can be reached in the office at (250) 627-3477.

Sample Locations

Table 1: Soft-shell sampling locations in Area A.

Site	Position 1				Position 2			
	Latitude		Longitude		Latitude		Longitude	
2	54	4.700	131	6.700	54	3.800	131	6.700
3	54	7.700	131	21.300	54	6.900	131	20.600
4	53	58.700	131	6.500	53	59.800	131	6.400
5	53	54.600	131	24.800	53	53.700	131	24.700
7	53	39.700	131	21.100	53	38.900	131	20.600

- Do not move sample traps without permission of the Program Authority.
- Traps should be set approximately 50 seconds apart with the vessel traveling at seven knots.
- If there are insufficient numbers of crab in the designated sampling sites, harvesters should contact the Program Authority to move traps.

Gear

- Harvesters will require: a sufficient number of plastic totes suitable for holding the catch from a single trap and keeping catch from each trap separate; callipers; and a durometer (available from the Association).
- Sampling forms will be provided by a DFO approved service provider.
- Sample traps should be the same size and configuration as commercial traps, in good condition, and all of the same design and size.
- Traps shall have closed escape ports (using rot cord) while fishing under scientific licence during commercial closure times.

Sampling

- Test fishers will set and haul 15 traps per site approximately every two weeks. Test fishers must be flexible and willing to sample more or less frequently if required.
- One sampling event entails hauling and sampling after two weeks and re-baiting, then returning after a 24 hour soak period to haul and sample. Traps are then left for two weeks.
- Each time traps are hauled a sample must be collected.

- Two crew are required for sampling, one to measure crabs and one to record data.
- Catch from each trap must be kept separate.
- If a hauled trap is open or damaged, do not sample from that trap.
- Record data from each trap in the same order as they were hauled.
- Record durometer readings for a minimum of 25 crabs per sample site.
- Record fishing gear, catch, and by-catch information on paper data sheets. Everything caught in sample traps must be recorded.
- Record data on sheets according to the codes on the instruction sheet provided.
- A sample consists of every crab caught in all 15 traps at a site if less than 200 crabs are caught.
- If the total catch at a particular site is more than 200 crabs, then traps may be randomly sub-sampled so that approximately 200 crabs are sampled. Please ensure all crabs in every trap chosen for sampling are examined.
- Data sheets shall be provided to DFO in Prince Rupert within five days of sample collection (may be submitted by fax if necessary). Original data forms MUST be submitted to DFO as soon as possible.

Attachment C: Biological Sampling Program for Area B

Objectives

To improve the collection of Dungeness crab biological data including shell condition, abundance, discards, and bycatch.

Types of Data

In 2013, only fishery dependent data—catch sampling on commercial vessels—will be collected.

Sampling (Index) Sites

Biological sampling shall occur only in the subareas identified below at the mouth of the Skeena River. The Skeena River index site has been divided into two broad sampling areas.

1) Skeena River mouth - northern portion of PFMA 4-12 around Smith Island
   - PFMAs 4-12, -15 around Kennedy Island.

The service provider must respect any commercial crab fishing closures currently existing in the index site subareas as outlined in the 2013 Crab by Trap Integrated Fisheries Management Plan.

Sampling Frequency

- Twice per month April 16 to June 30 (sampling days spaced 15 days apart).
- Once per month July to November (sampling periods spaced 30 days apart).
- In total, sampling shall occur 10 times per year.

Sampling Details

In total a minimum of 200 Dungeness crabs (all sizes) must be collected from four commercial vessels during each sampling event. A minimum of 100 crabs must be collected from each area in the index site from at least 10 traps set on two different strings (five traps per string). All crabs observed in sampled traps must be measured.

Attachment D: Biological Sampling Program for Areas E, G, and H

Objectives

To improve the collection of Dungeness crab biological data including shell condition, abundance, discards, and bycatch to:

1) refine soft shell periods; and
2) evaluate a range of in-season management options.

Types of Data

Two types of fisheries data are collected:

1) Fishery dependent data – catches sampled on commercial vessels; and
2) Fishery independent data – catches sampled from standardized gear set by the service provider.

Sampling (Index) Sites

Biological sampling shall occur only in the subareas identified below.

- Area E
    1. Sooke (PFMAs 20-4, -5, -6, -7)
    2. Tofino (PFMAs 24-6, -8, -9)

  Please note sampling shall not occur in Becher Bay (20-5) and Sooke Harbour (20-6) during the seasonal closures.

- Area G
    1. Retreat Passage, between Bonwick and Gilford Islands and Health Bay (part of PFMA 12-39)
    2. Village Channel, Indian Channel, and Beware Passage (portions of PFMAs 12-6, -26). Includes the Indian and Carey Groups. Enclosed by the following islands: Village, Crease, Swanson, Compton, Harbledown, and Turnour.

- Area H
    1. Sidney (PFMAs 19-5, -6)
    2. Ganges (PFMA 18-3)
    3. Nanaimo (PFMAs 17-13, -14, -15, -16)

  Please note sampling shall not occur around Sidney Spit (19-6) and a portion of Cordova Channel (19-5). No buoys are permitted in Ganges (18-3) and Tsehum Harbours (19-5). Sampling is permitted during the seasonal closure in Nanaimo Harbour (17-14).

The service provider must respect any commercial crab fishing closures (except Nanaimo Harbour) currently existing in the index site subareas as outlined in the 2013 Crab by Trap Integrated Fisheries Management Plan.

Sampling Frequency at Each Site

- Twice per month January to June (sampling periods spaced 15 days apart)
- Once per month July to December (sampling periods spaced 30 days apart)
- In total, sampling will occur 18 times per year at each site.

Sampling Details

1) Fishery dependent data – a minimum of 200 crabs (all sizes) will be collected from at least 20 traps set on 4 different strings (5 randomly picked traps per string) at each site. Crabs can be collected from different commercial vessels.
2) Fishery independent data - a minimum of 200 crabs (all sizes) will be collected from at least 20 *standardized* traps set on 2 strings at each site.

- In total, a minimum of 400 crabs (all sizes) will be collected from commercial vessels and gear set by the service provider during each sampling event at every site. All crabs observed in sampled traps must be measured.

  Standardized trap gear:
    - commercial style circular stainless traps 90 centimetres (36 inches) diameter by 26 centimetres (10 inches) high with two opposing tunnels, each with a single set of triggers. The frames are steel, rubber wrapped on the bottom ring, and covered by stainless steel mesh with approximately 6 centimetre (2½ inch) squares or diamonds.
    - existing escape ports are closed with rot cord.
    - two large herring torn in half are placed in a 500 millilitre bait jar with small (one millimetre in diameter) holes in the lid and sides. The bait jar is suspended not touching the ground in the center of the trap.
    - traps are soaked overnight between 16 and 28 hours, as close to 24 hours as possible.

Attachment E: Fishing Gear Header Form (Headers in Access)

Vessel – name of the vessel being sampled.
VRN – Vessel Registration Number, aka CFV.
Vessel Master – name.
Observer name or identification – name and contact information.
Source – source of fishing, either commercial vessel or service provider. See listed codes.
Stat Area – Pacific Fishery Management Area (e.g. 17).
Subarea – Pacific Fishery Management Subarea (e.g. 13).
Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.
Set Number – unique identifier for each group of traps. Should start at 01 and be consecutive.
Set Year (e.g. 2013)
Set Month – month when the trap gear was set. Months are numbered 1 to 12 (e.g. 08 would be August).
Set Day – day when the trap gear was set. Days are numbered 1 to 31 (e.g. 22).
Set Time – time when traps entered the water. Use the 24-hour clock (e.g. 10:15).
Haul Year (e.g. 2013).
Haul Month – month when the trap gear was hauled (e.g. 08 would be August).
Haul Day – day when the trap gear was hauled (e.g. 23).
Haul Time – time when traps were hauled. Use the 24-hour clock (e.g. 09:25).
Start Latitude Degrees – GPS position at one end of the string. Record in degrees.
Start Latitude Minutes – GPS position at one end of the string. Record in minutes and thousandths of minutes (e.g. 12.579).
Start Longitude Degrees – GPS position at one end of the string. Record in degrees.
Start Longitude Minutes – GPS position at one end of the string. Record in minutes and thousandths of minutes (42.681).
End Latitude Degrees – GPS position at other end of the string. Record in degrees.
End Latitude Minutes – GPS position at other end of the string. Record in minutes and thousandths of minutes.
End Longitude Degrees – GPS position at other end of the string. Record in degrees.
End Longitude Minutes – GPS position at other end of the string. Record in minutes and thousandths of minutes.
Fix Type – How was position determined? See listed codes.
Min Depth – minimum depth gear fished in a set. Record in meters.
Max Depth – maximum depth gear fished in a set. Record in meters.
Soak Hours – time between the Set Time and Haul Time, rounded to the nearest hour (e.g. 21 hours).
Bait Code – type of bait used in traps. See listed codes.

Fishing Method – are trap gear set on ground lines or as singles? See listed codes.
Number Traps in String – total number of traps fished on the string being sampled (e.g. 15).
Trap Spacing – spacing between traps in meters.
Number Traps Sampled – number of traps sampled from the entire string (e.g. 5).
Gear Code – describes the type of traps being fished. On commercial vessels all samples should come from the same trap type. See listed codes.
Trap Height – height of trap measured in inches.
Trap Dimensions – diameter of trap measured in inches.
Mesh Type – distinguish between stainless and synthetic mesh traps. See listed codes.
Ring Number – number of escape rings on the trap (e.g. 2).
Ring Size 1 – diameter of one escape ring in millimetres.
Ring Size 2 – diameter of the second escape ring in millimetres.
Corresponding page number from Commercial Crab Harvest Log (integer)
Comments – record anything about the set that may influence how someone will interpret the data (e.g. lost 2 traps in the set or lots of juvenile flatfish in the traps, etc.).

Fishing Gear Header Form Codes

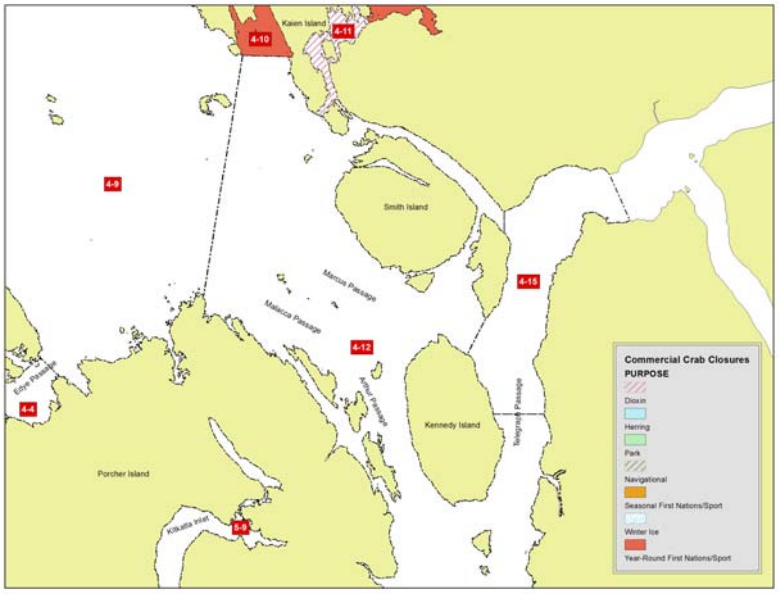
Source

Code	Description
IL	Independent index length
CL	Commercial index length

Index Sites

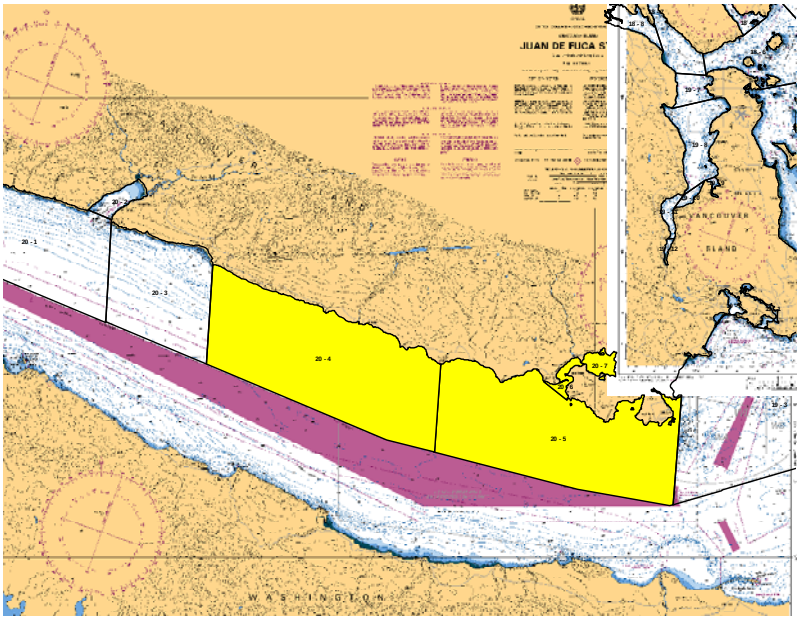
Area B

Skeena River mouth (northern portion of PFMA 4-12 around Smith Island).
Skeena River mouth (PFMAs 4-12, -15 around Kennedy Island).

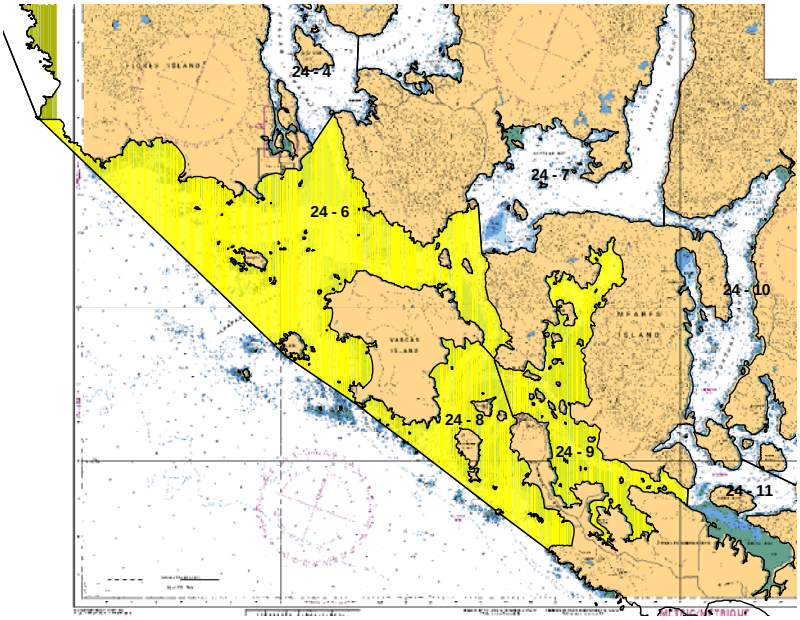


Area E

Sooke (PFMAs 20-4, -5, -6, -7)

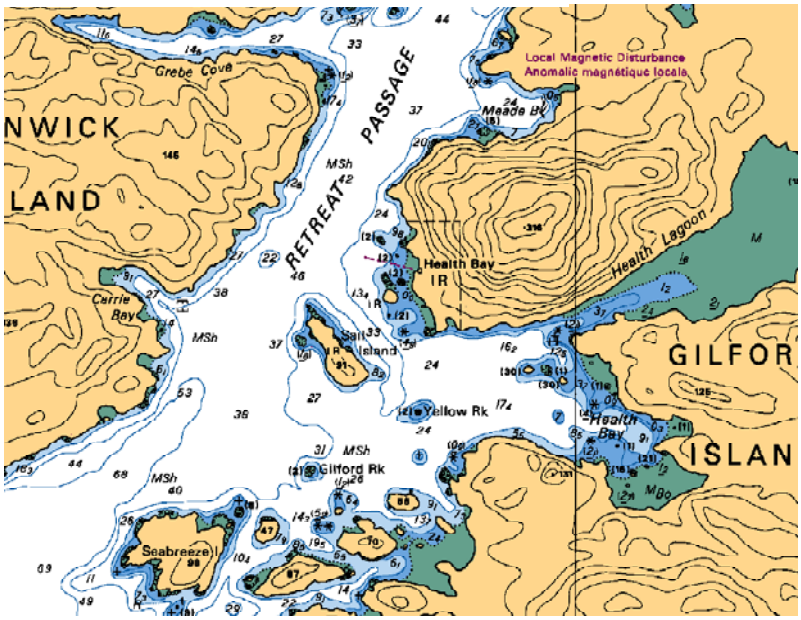


Tofino (PFMAs 24-6, -8, -9)

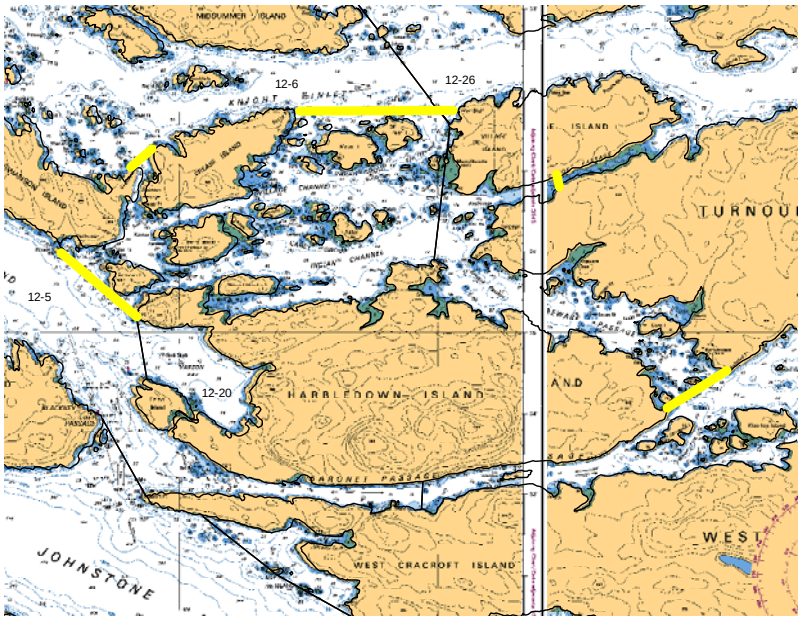


Area G

Retreat Passage (part of PFMA 12-39)

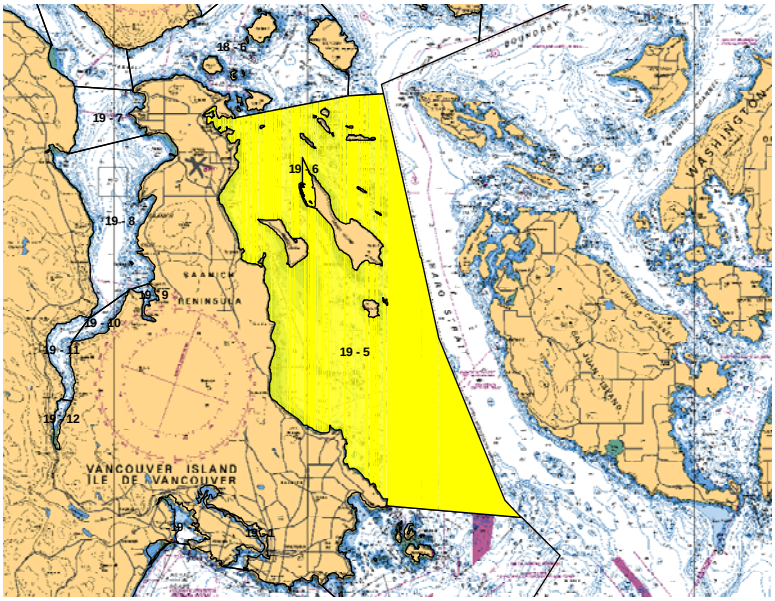


Village and Indian Channel, and Beware Passage (portions of PFMAs 12-6, -26)

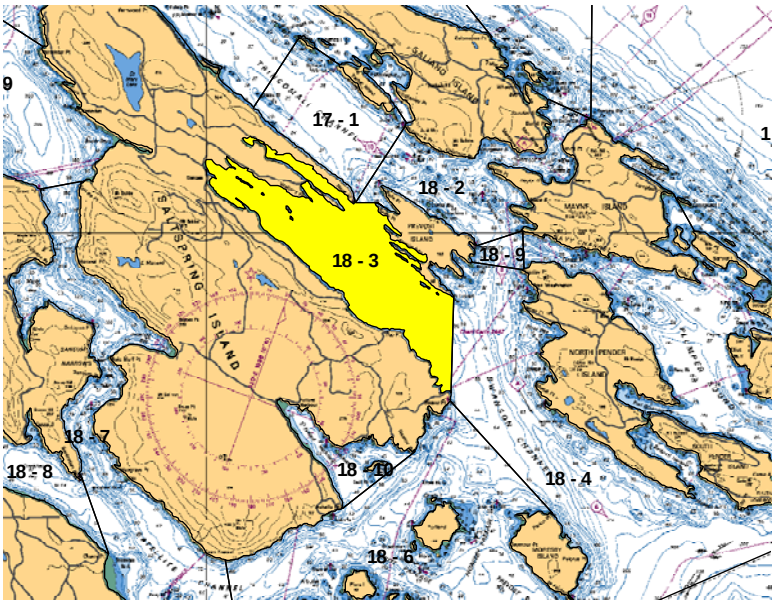


Area H

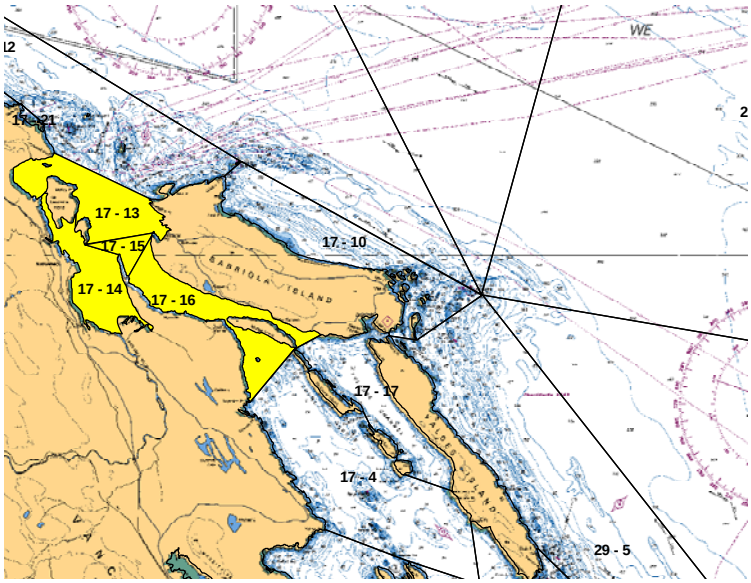
Sidney (PFMAs 19-5, -6)



Ganges (PFMA 18-3)



Nanaimo (PFMAs 17-13, -14, -15, -16)



Fix

Code	Description
C	Chart
D	Differential GPS
G	GPS
L	Loran
W	WAAS

Bait

Code	Description
CLA	Clams
DOG	Dogfish
EUL	Eulachons (not smelt)
XXX	Experimental
FRA	Fish Frames (not salmon)
AST	Fish Paste
GEO	Geoducks
KKK	Hake
HER	Herring
MIX	Mixed Fish Species (and offal and scraps)
OCT	Octopus
YYY	Other
PEL	Pellets
ZOR	Razor Clams
SAL	Salmon (all species and heads and frames)
QID	Squid
TIN	Tinned Fish
UNK	Unknown
ROC	Whole Rockfish

A mixture of two baits listed above can be coded as first code letter (W)ith first code letter. For example, squid and herring would be coded as QWH. A mix of herring and hake would be coded as HWK. For a mixture with more than two types of bait, use the most dominant/common type (if possible) with "mixed fish species (and offal and scraps)" e.g. HWM (see exception codes below).

Additional codes for rarely encountered bait types include:

Code	Description
KOD	Codfish
PIL	Pilchards
TBT	Turbot

These codes should not be used in mixture situations as described in the previous paragraph. In the event that these items are indicated as mixed with another bait type, code as "bait type from common list above" (W)ith "Y"(other), e.g. Clam with codfish = CWY.

Exception codes for three way mixtures include:

Code	Description
HCQ	Herring with clams and squid
HDB	Herring with dogfish and gurdy

Fishing Method

Code	Description
S	Single
G	Ground line

Gear Code

Code	Description
70	Commercial Crab Trap with regulation escape ports
71	Circular Crab Traps, 40” × 12” light rubber wrapped steel frame, synthetic mesh, open ports
71A	Circular Crab Traps, 40” × 12” steel rubber wrapped frame, stainless mesh, 2 soft mesh tunnels, no escape ports
72	42” diameter circular Crab Trap, ocean type, Hecate Strait heavy steel frame
73	Tanner Crab Trap, commercial, square pyramidal large top loading traps (with 120 mm escape ring), 2.75” mesh
73H	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted HIGH, 2.75” mesh
73L	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted LOW, 2.75” mesh
73M	Tanner Crab Trap, commercial, square pyramidal large top loading traps, 120 mm escape ring mounted MIDDLE, 2.75” mesh
74	Tanner Crab Trap, square pyramidal research trap, no escape ring, 2.75” mesh
75	Research Crab Trap, inlet type, 36” diameter, escape ports open, stainless (same as code 76 but with ports open)
76	Research Crab Trap, inlet type, 36” diameter, no escape ports, stainless, regular survey traps used by DFO
80	Crab Ring
82	Conical Nesting Snow Crab Trap, top loading, 48” × 18” with A1 mesh
82A	Conical Nesting Snow Crab trap, side loading, 48” × 18” with 2” synthetic mesh
83	Service Provider Dungeness crab trap, 36” diameter × 10” high, stainless, no escape ports
99	Unknown or Other

Mesh Type

Code	Description
SS	Stainless
NW	Synthetic

Attachment F: Crab Biological Data Form (LF in Access)

Vessel – name of the vessel being sampled.
VRN – Vessel Registration Number, aka CFV.
Haul Year (e.g. 2013)
Haul Month – month when trap gear was hauled (e.g. 08).
Haul Day – day when trap gear was hauled (e.g. 23). This field relates the Data Form to the Header Form.
Set Number – unique identifier for each group of traps. This field relates the Data Form to the Header Form. Should start at 01 and be consecutive.
Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.
Trap Number – consecutive, starting at 01.
Trap Usability – identifies circumstances that may influence trap catch. See listed codes. Normally the trap usability code = 0 (no problems with the trap).
Species – codes for various crab species captured in the trap. See listed codes (e.g. XKG for Dungeness crab).
Sex – male or female. See listed codes.
Shell Condition – an indicator of shell hardness and age. See listed codes.
Injury – codes for various injuries. See listed codes. Leave blank if no injuries are observed.
Claws Missing – number of missing claws. Note injuries that occur during sampling are not recorded. Can be 1 or 2. Leave blank if claws are intact.
Legs Missing – number of missing legs. Note injuries that occur during sampling are not recorded. Can be 1 to 8. Leave blank if legs are intact.
Marks – mating marks on the insides of the claws on older shell males. See listed codes. Leave blank if no mating marks are observed.
Observation – a list of a variety of observations. See listed codes. Leave blank if not applicable.
Notch Width – width of the crab measured in millimetres, notch-to-notch, excluding the spines (e.g. 158).

<u>Notes</u>

Durometer – a device designed to measure shell hardness (e.g. 70). Only required in the Area A sampling program.

Biological Data Form Codes

Trap Usability

Codes	Description
0	Trap is fishing normally, no problems. This is the default.
1	Hole in trap.
2	Trap malfunction (triggers open, trap upside down, lid sprung, etc.)
3	No bait.
4	Freshly dead fish in trap causes unusual attraction.
5	Trap contents stolen by someone else.
6	Cannibalism event. Crabs in trap have been dismembered and eaten by other crabs. Most common with soft shell crabs. Shell and body parts show claw marks, meat incompletely extracted. Marked difference from octopus predation.
7	Octopus predation. Remains of dismembered shells present, but some parts may be intact with all the meat gone. Octopus enzymes dissolve all the meat. Few to no live crabs in the trap.
8	Octopus in trap. Usually empty shells and a notable absence of live crabs.
11	Live fish in trap.
12	Starfish in trap. Sometimes starfish, especially sunflower stars, smother the bait and reduce attraction. Crabs may not enter or the starfish kills and eats them. Record this usability code only if there is a noticeable effect in trap catch.
15	Functional trap empty. Nothing wrong with the trap, but no crabs caught. Note when code 15 is used, 848 should be entered as the species code.

Species (crab)

Code	Common Name	Scientific Name
VMI	Brown box	*Lopholithodes foraminatus*
XKG	Dungeness	*Metacarcinus magister*
VMC	Golden king	*Lithodes aequispinus*
XKE	Graceful	*Cancer gracilis*
ZCA	Graceful decorator	*Oregonia gracilis*
XMB	Green	*Carcinus maenas*
XAF	Helmet (Horse)	*Telmessus cheiragonus*
VAC	Hermit sp.	Family Paguridae
ZGE	Longhorn decorator	*Chorilia longipes*
ZDF	Northern kelp	*Pugettia producta*
ZBA	Pacific lyre	*Hyas lyratus*
VMJ	Puget Sound king	*Lopholithodes mandtii*
VNI	Red king	*Paralithodes camtschaticus*
XLA	Red rock	*Cancer productus*
VIF	Scaled	*Placetron wossnessenskii*
ZGC	Sharp nose	*Scyra acutifrons*
ZAF	Southern tanner	*Chionoecetes bairdi*
VLC	Spiny lithode	*Acantholithodes hispidus*
VSA	Squat lobster	Family Galatheidae
848	Only used with Trap Usability = 15. Signifies no crabs caught.	

Sex

Code	Description
1	Male
3	Female
4	Female with eggs
5	Female spent (eggs hatching)

Shell Condition

Code	Description
1	New hard shell. No deflection on underside of carapace with heavy pressure from thumb. Very little claw wear and tips of claws are sharp and hooked. Few signs of wear or abrasions on carapace. May have barnacles, but these may be small.
2	New springy soft shell. Evident by slight shell deflection with heavy pressure on underside of carapace. Little epiphytic growth, fouling, or abrasion. Barnacles, if present, will be small. Underside of carapace still has dense orange or yellowish hair.
3	New crackly soft shell. Shell is easily deformed by finger pressure. Usually there is bright orange downy hair on underside of carapace.
4	New plastic soft shell. Shell is extremely soft. Crab has moulted within the past few days.
5	Moulting crab. The shell has split at the suture line at the back; however, the crab has not yet exited the old shell. Generally this stage lasts only one day. Shell conditions 4 and 5 indicate a moult is in progress and tend to be rare in data because crabs often avoid traps when moulting. The exception is in abandoned traps which act as a refuge for moulting crabs.
6	Old hard shell. Shows claw wear and often barnacle encrustation or other fouling growth. In exposed conditions the shell may appear clean and bright, but the claws will show signs of wear. Carapace spines will also be blunted as may be tips of walking legs.
7	Very old hard shell. Much claw wear, fouling growth. Males typically show old mating marks which have worn through claw; may have shell disease; tips of walking legs may be black or rotting off. Crab is lethargic and likely will not moult again or may soon die.
8	Between a new (code 1) and old (code 6) hard shell. Shell shows signs of wear, especially on teeth and tips of claws, but the crab is still relatively clean and vigorous. Typically the shell is hard, although prior to a moult the shell will soften slightly. Many crabs with this code indicate a moult is imminent.
9	Carapace in trap. Possible reasons include: a newly moulted crab was so soft it managed to squeeze out of the trap, a crab was cannibalized or devoured by an octopus, or a crab died and washed out of the trap as it was hauled to the surface.

Injuries

Code	Description
1	Deformed shell. Occurs at time of moult. Often misshapen shell or point rounded. Cannot obtain an accurate width measurement and should not be used for shell width analysis.
2	Hole or crack in shell.
3	Torn abdomen.
4	Regenerating claw(s).
5	Regenerating leg(s).
6	Regenerating both claw(s) and leg(s).
7	Multiple injuries. Record when more than one injury code is required.
8	Shell disease. Black spots on legs, claws, and underside of shell.
9	Dead. Crab died in the trap. Likely to occur with moulting, soft-shell, or very old shell crabs. May also be the result of octopus predation or amphipod kill. Even if sex is not apparent (due to missing body) measure the crab anyway. Ensure the shell is actually from a dead crab and not from a new moult. If this were the case, the gills and usually the lower portion of the shell will be attached and there will be a very soft crab of larger size in the sample.

Missing Claw(s) and/or Leg(s)

Record the number of missing claws and/or legs. Only older injuries, those missing limbs where the stump end has a black sheath covering it, are recorded.

Mating Marks

Code	Description
1	Old (yellow)
2	New (white)

Observations

Code	Description
1	Moulting pair. When a moulted shell and the new crab are linked in the same trap. Data are recorded as if they are two separate crabs. The moulted shell is shell 9, the new crab is shell 4 and a 1 is entered for both crabs in the observation column.
2	Mating pair. Record in similar manner as for a moulting pair.
3	Limb bud. A fleshy miniature limb extruded sometime before a moult takes place. The bud indicates the crab is planning to moult as opposed to skip moulting. Record with the appropriate injury code.
4	Pink joints. Possible indication of microsporidia infection in the musculature.

Attachment G: ByCatch Form (ByCatch in Access)

Vessel – name of the vessel being sampled.
VRN – Vessel Registration Number, aka CFV.
Haul Year (e.g. 2013)
Haul Month – month when trap gear was hauled (e.g. 08).
Haul Day – day when trap gear was hauled (e.g. 23).
Set Number – unique identifier for each group of traps. Should start at 01 and be consecutive. This field relates the By-Catch Form to Header and Data Forms.
Geographic Location (GeogLoc) – general location where sampling is being conducted (e.g. Departure Bay). Include, if applicable, the index site – a predetermined sampling location based on concentrated commercial fishing effort (e.g. Sidney). Must be a text field.
Species – species captured other than crabs. See listed codes. Note this list is not exhaustive. Please contact the Data Unit for questions about bycatch codes.
Number Caught – total number of each species other than crabs collected from the set (all traps pooled).
Weight – collective weight in kilograms of each species other than crabs collected from the set (all traps pooled). Can be estimated if no scale is available.
Weight Estimated? – Is the weight estimated and not measured using a scale? Enter "Y" for yes and "N" for no.

ByCatch Form Codes

Cephalopods	Code	Common Name	Scientific Name
	98E	Pacific giant octopus	*Enteroctopus dofleini*
	98D	Octopus	Order Octopoda
	98G	Red octopus	*Octopus rubescens*
	98F	Smooth skin octopus	*Benthoctopus leioderma*
	91G	Stubby squid	*Rossia pacifica pacifica*
Echinoderms	Code	Common Name	Scientific Name
	4PD	Bat star	*Asterina miniata*
	4RA	Blood star	*Henricia leviuscula*
	5HA	Brittle stars	Class Ophiuroidea
	4XF	Fish-eating star	*Stylasterias forreri*
	6BB	Green urchin	*Strongylocentrotus droebachiensis*
	4OC	Leather star	*Dermasterias imbricata*
	4GD	Rainbow star	*Orthasterias koehleri*
	4HC	Mud star	*Ctenodiscus crispatus*
	4ZC	Giant pink	*Pisaster brevispinus*
	4ZA	Purple star	*Pisaster ochraceus*
	4GD	Sand star	*Luidia foliolata*
	6NA	Sea cucumbers	Class Holothuroidea
	4AB	Sea lilies	Class Crinoidea
	4GA	Sea stars	Class Asteroidea
	4TA	Sun star	Family Solasteridae
	4XE	Sunflower star	*Pycnopodia helianthoides*
	4JD	Vermillion star	*Mediaster aequalis*
Flatfish	Code	Common Name	Scientific Name
	596	Pacific sanddab	*Citharichthys sordidus*
	625	Slender sole	*Lyopsetta exilis*
Rockfish	Code	Common Name	Scientific Name
	407	Copper	*Sebastes caurinus*
	410	Darkblotched	*Sebastes crameri*
	414	Greenstriped	*Sebastes elongatus*
	424	Quillback	*Sebastes maliger*
	442	Yelloweye	*Sebastes ruberrimus*

Bycatch Form codes

Roundfish	Code	Common Name	Scientific Name
	455	Sablefish	*Anoplopoma fimbria*
	225	Pacific hake	*Merluccius productus*
	467	Lingcod	*Ophiodon elongatus*
	319	Northern ronquil	*Ronquilus jordani*
	222	Pacific cod	*Gadus macrocephalus*
	228	Pollock walleye	*Theragra chalcogramma*
	230	Red brotula	*Brosmophycis marginata*
	461	Kelp greenling	*Hexagrammos decagrammus*
	466	Whitespotted greenling	*Hexagrammos stelleri*
Sculpins	Code	Common Name	Scientific Name
	519	Blackfin	*Malacocottus kincaidi*
	499	Buffalo	*Enophrys bison*
	508	Dusky	*Icelinus burchami*
	521	Great	*Myoxocephalus polyacanthocephalus*
	502	Red Irish lord	*Hemilepidotus hemilepidotus*
	491	Roughback	*Chitonotus pugetensis*
	522	Sailfin	*Nautichthys oculofasciatus*
	472	Sculpins	Family Cottidae
	497	Spinyhead	*Dasycottus setiger*
	513	Spotfin	*Icelinus tenuis*
	518	Pacific staghorn	*Leptocottus armatus*
	510	Threadfin	*Icelinus filamentosus*
Selachii	Code	Common Name	Scientific Name
	044	Spiny dogfish	*Squalus acanthias*
	066	Spotted ratfish	*Hydrolagus colliei*

Attachment H: Data Entry Database Field Descriptions

Sampling data are to be supplied to DFO in an electronic format consisting of a Microsoft Access database file (Version 2002 or earlier) containing at least three tables with the following names (in bold): **Headers** (this is all data collected on the Fishing Gear Header Form; Attachment E), **LF** (this is all data collected on the Crab Biological Data Form; Attachment F) and **ByCatch** (this is all data collected on the ByCatch Form; Attachment G).

Filenames should indicate, at least: sampling year, batch number or ID, and who the Service Provider is.

For compatibility purposes, all fields listed here must be included and named as indicated, whether they contain data or not. Other tables, such as look-up tables, may be included at the service provider's discretion. Additional fields may be added to the three main tables as well at the service provider's discretion.

Sample Tables/Database may be obtained from the Shellfish Data Unit at DFO.

Field Names and Data Typing for Table 'HEADERS' (see Attachment E)

Item	Field Name	Type	Size
Artificial number, index key and link to Dependent tables LF and ByCatch	**Key**	LongInteger	4
Source of the data (code)	**Source**	Text	2
Set Number, or Sample Number	**SetNum**	Integer	2
Year when gear Hauled.	**Year**	Integer	2
Month when gear Hauled.	**Month**	Byte	1
Day when gear Hauled	**Day**	Byte	1
Trap soak time in hours.	**Soak_hrs**	Integer	2
Soak time days (where applicable).	**Soak_days**	Byte	1
Hours of soak, Same thing as "Soak_hrs", Included for historic compatibility.	**HoursSoak**	Integer	2
Minimum depth in meters.	**MinDepth**	Integer	2
Maximum depth in meters	**MaxDepth**	Integer	2
PFMA Statistical Area,	**StatArea**	Byte	1
PFMA Statistical Sub-Area.	**SubArea**	Byte	1
Sub-Sub-Area (Not Used, included for historic database compatibility only)	**Locality**	Byte	1
Chart Reference for where the Set was Located (for cross-reference purposes)	**GeogLoc**	Text	50
Integer Degree of Latitude at start of string.	**StartLatDeg**	Integer	2
Decimal Minutes of Latitude at start of String (recorded to 3 decimal places, e.g. 23.975)	**StartLatMin**	Single	4
Integer Degree of Longitude at start of string.	**StartLongDeg**	Integer	2
Decimal Minutes of Longitude at start of String (recorded to 3 decimal places e.g. 42.468)	**StartLongMin**	Single	4
Integer Degrees of Latitude, end of string.	**EndLatDeg**	Integer	2
Decimal Minutes of Latitude, end of string.	**EndLatMin**	Single	4
Integer Degrees of Longitude, end of string.	**EndLongDeg**	Integer	2
Decimal Minutes of Longitude, end of string.	**EndLongMin**	Single	4
How position was obtained. G = GPS, etc.	**FixType**	Text	1
Who took the sample and did the measuring.	**SamplerCode**	Byte	1
Who entered this set into the computer form or onto the hardcopy form.	**CoderCode**	Byte	1
Unused – for historic compatibility only.	**VesselCode**	Integer	2
VRN (CFV) of commercial boat sampled (or Vessel ID of service provider boat where doing Independent Lengths)	**CFV**	Long Integer	4
3 character code for type of bait used.	**BaitCode**	Text	3

Item	Field Name	Type	Size
Distance in meters between traps on string.	**TrapSpacing**	Integer	2
Unused – for historic compatibility only.	**FrameType**	Text	2
Code for type of Mesh on the traps.	**MeshType**	Text	2
Unused – for historic compatibility only.	**TrapShape**	Byte	1
Trap diameter (or length of side if square), in Inches.	**TrapDimension**	Byte	1
Trap Height in Inches.	**TrapHeight**	Byte	1
Number of escape port rings (where exist)	**RingNumber**	Byte	1
Size in MM of diameter of escape ports	**RingSize**	Byte	1
Size in MM of diameter of escape ports (if ports exist of different size than RingSize).	**RingSize2**	Byte	1
Unused – for historic compatibility only.	**TriggerNumber**	Byte	1
Code how bait is normally attached	**BaitMethod**	Text	1
Code, Groundlines or Single traps used ?	**FishingMethod**	Text	1
Number of traps in the string (where known)	**NumTrapsInString**	Byte	1
Number of traps Sampled in this set.	**NumTrapsSampled**	Byte	1
Total number of Dungeness crabs sampled in this string.	**NumCrabsSampled**	Integer	2
Number of legal size male Dungeness crabs sampled in this string.	**NumLegalMales**	Integer	2
Number of sub-legal size male Dungeness crabs sampled in this string.	**NumSubLegalMales**	Integer	2
Number of female Dungeness crabs sampled in this string.	**NumFemales**	Integer	2
Unused – for historic compatibility only.	**VaxCode**	Byte	1
Unused – for historic compatibility only.	**CardCode**	Byte	1
Unused – for historic compatibility only.	**YearSet**	Byte	1
Unused – for historic compatibility only.	**MonthSet**	Byte	1
Unused – for historic compatibility only.	**DaySet**	Byte	1
Any relevant Comment noted by Sampler or Coder.	**Comment**	Text	1
Flag whether data has been uploaded to main DFO database (always = NO)	**Uploaded**	Yes/No	1

Field Names and Data Typing for Table 'LF' (see Attachment F)

Item	Field Name	Type	Size
Link to Header table key field	**Hkey**	Long Integer	4
Counter to create a unique index key with, possibly indicates line number on H/C page.	**Line**	Integer	2
Code Sex of crab sampled	**Sex**	Byte	1
Width measurement type, (should always be N=notch to notch)	**WidthType**	Text	1
Unused – for historic compatibility only.	**WidthSpine**	Byte	1
Width in mm, notch to notch (rounded down to the nearest mm)	**WidthNotch**	Byte	1
Code for Shell Hardness.	**Shell**	Byte	1
Code for Injuries.	**Injury**	Byte	1
Number of Claws missing, (except where caused by sampling)	**ClawsMissing**	Byte	1
Number of Legs Missing, (except where caused by sampling)	**LegsMissing**	Byte	1
Code Mating marks	**Marks**	Byte	1
Code Unusual information about the crab.	**Observation**	Byte	1
Order in which the sampled traps are pulled in the string,'1' is the first trap in string.	**TrapNum**	Byte	1
Code type of Trap being Sampled	**GearCode**	Text	4
Code problems/malfunction with the trap (Default is "0" if trap is OK).	**TrapUsability**	Byte	1
Pacific Region Species Code XKG = Dungeness, XLA = Red Rock, etc.	**Species**	Text	3

Field Names and Data Typing for Table 'ByCatch' (see Attachment G)

Item	Field Name	Type	Size
Link to Header table key field	**H_key**	Long Integer	4
Counter to create a unique index key with,	**Line**	Integer	2
Pacific Region Species Code	**Species**	Text	3
Weight caught in Kilograms	**Weight**	Single	4
Is the Weight Estimated (Yes) or was it Actually Weighted (No).	**Estimated**	Yes/No	1
Number of individuals of this species	**Num_Caught**	Integer	2
Unused – for historic compatibility only.	**Num_per_kg**	Integer	2

Project Name:	PacFISH Information Management Framework
Document Title	DFO Data Transfer Specifications: Area A Hail Program
Author:	Shaun Davies
Organization:	Fisheries and Oceans Canada
Date:	December 1, 2012

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

- **Fishery(s):** Commercial Crab by Trap
- **Fishery Season:** 2013
- **Data Collection Program Name:** Hail Notification (Area A)
- **Associated Fishery Data Manager:** Resource Management – Invertebrates, Pacific Region

Rationale

The Commercial Crab Licence Area "A" trip hail program is integral to the following activities:

- Downloading of vessel hard drive data
- Electronic monitoring system maintenance and upgrades
- Immediate information on time, effort, and fleet distribution
- Fishery-dependent biosampling objectives
- Seasonal soft-shell closure decisions

Data Transfer Requirements

- **Format:** Microsoft Access or Microsoft Excel (2002 or earlier versions, *.xls) or Excel 2002 XML Spreadsheet (*.xmlss)
- **Medium:** DFO ftp site or Email to Local Area Crab Manager
- **Timeliness:**
  - The vessel master shall arrange to have a fishing activity report entered into the database:
    (a) prior to leaving port when intending to haul trap gear;
    (b) prior to moving to a new location; and
    (c) as soon as practical once fishing activities have been completed for each fishing trip, and prior to returning to port.

- All data shall be made available to DFO no more than 24 hours after the data has been received by the service provider.

File Naming Conventions: A_Hail_2013

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

FIELD NAME	DESCRIPTION	FIELD TYPE/SIZE
CONFIRM_NUM	Confirmation Number	Number
TRIP_COMPLETE	Trip completed?	YES OR NO
FISHING_COMPLETE	Fishing completed?	YES OR NO
CALL_DATE	Date call made	Short Date (month/day/year, e.g. 12/31/13)
CALL_TIME	Time call made	Short Time (e.g. 23:59)
CALLER_NAME	Name of caller	Text
VESSEL_NAME	Name of Vessel	Text
VESSEL_VRN	VRN # of Vessel	Text
VESSEL_MAST_NAME	Vessel Master's name	Text
TRIP_STATUS	Trip Status[1]	Text
TRIP_TYPE	Type of Trip[2]	Text
PFMA	PFMA[3]	Number
PFM_SUB_AREA	PFM Subarea[3]	Number
COMMENTS	Comments	Memo
HAIL_OP	Hail Operator	Memo

[1] TRIP STATUS
START
END
LOCATION CHANGE
UPDATE
CANCEL

[2] TRIP TYPE
COMMERCIAL
COMMERCIAL W/ SAMPLING
SAMPLING

[3] Areas and Subareas are described in the Pacific Fishery Management Area Regulation. The hail operator shall provide additional sub-areas intended to be fished during the same trip.