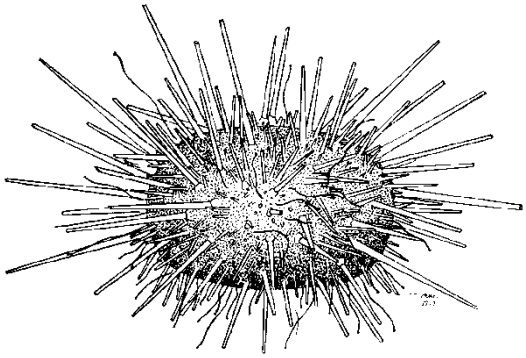
# PACIFIC REGION

# INTEGRATED FISHERIES MANAGEMENT PLAN

# RED SEA URCHIN

# AUGUST 1, 2018 TO JULY 31, 2019



Red Sea Urchin: *Mesocentrotus franciscanus*

Fisheries and Oceans Canada | Pêches et Océans Canada

Canada

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

## FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Red Sea Urchin fishery in the Pacific Region, as well as the management measures that will be used to achieve these objectives. This document also serves to communicate the basic information on the fishery and its management to Fisheries and Oceans Canada (DFO) staff, legislated co-management boards and other stakeholders. This IFMP provides a common understanding of the basic "rules" for the sustainable management of the fisheries resource.

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

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

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**ATTACHMENTS**

Appendix 1: Red Sea Urchin Commercial Harvest Plan
Appendix 2: Red Sea Urchin First Nations Harvest Plan
Appendix 3: Red Sea Urchin Recreational Harvest Plan
Appendix 4: Red Sea Urchin Aquaculture Management Measures
Appendix 5: Post Season Review
Appendix 6: Management Measures for the Commercial Fishery
Appendix 7: Information on Estimating Total Allowable Catch
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Appendix 9: Example of a Red Sea Urchin Harvest Log
Appendix 10: Red Sea Urchin Quota Area Descriptions
Appendix 11: Example of Red Sea Urchin Conditions of Licence
Appendix 12: Fishing Vessel Safety
Appendix 13: Consultation
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# 1. OVERVIEW

## 1.1. Introduction

The 2018/2019 Pacific Region Red Sea Urchin Integrated Fisheries Management Plan (IFMP) encompasses the period of August 1, 2018 to July 31, 2019.

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

## 1.2. History

The Red Sea Urchin (*Mesocentrotus franciscanus,* formerly *Strongylocentrotus franciscanus*) is one of three sea urchin species harvested in British Columbia. Red and Green Sea Urchins are fished commercially under authority of a limited licence, category "ZC" for reds and category "ZA" for greens. Purple Sea Urchins were fished under scientific permit from 1990 to 1992 and are no longer harvested commercially.

The commercial Red Sea Urchin dive fishery began in the 1970s and grew rapidly between 1982 and 1994. Licence limitation came into effect in 1991 in an attempt to control an increase in fishing effort and the number of licence eligibilities was reduced from 240 to 110. In 1994 the commercial industry formed the Pacific Urchin Harvesters Association (PUHA) which represents the interests of licence eligibility holders with regards to marketing and fishery sustainability. The PUHA is a member of the Red Sea Urchin Sectoral Committee (see Appendix 13) and provides advice and comments on this IFMP and other issues related to the commercial fishery.

Quotas and landings stabilized in 1994 when the PUHA voluntarily adopted an Individual Quota (IQ) program. The implementation of the IQ program was beneficial for the BC Red Sea Urchin industry since it promoted safety and allowed harvesters to focus on quality rather than quantity. DFO officially implemented the IQ program in 1996 and quotas remained relatively constant until 2006. A significant reduction in landings started in 2006 and for many years the Total Allowable Catch (TAC) was not completed. This was due to increased competition from other countries supplying urchin roe to the Japanese market – mainly from an illegal, unreported, unregulated Russian fishery. Landings increased significantly starting in 2013 and over the last few years the industry has landed between 70 and 80% of the coastwide TAC.

Red Sea Urchins are important to coastal First Nations, who harvest them for food, social and ceremonial purposes. Harvesting is mainly opportunistic associated with extreme tides. Recreational harvest of Red Sea Urchins is undocumented but effort is considered to be minimal.

## 1.3. Type of Fishery and Participants

### 1.3.1. First Nations

First Nations' harvest for food, social and ceremonial purposes may occur where authorized by an aboriginal communal licence or a harvest document if under treaty. The communal licence or harvest document may contain provisions for the designation of individuals by the First Nation or First Nation organization but the number harvesting Red Sea Urchins is otherwise unknown.

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of Geoduck, within their Fishing Territories (their Fishing Territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24) and to sell that fish. DFO is working with the First Nations to find the manner in which the rights of the five First Nations can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery. The outcome of these discussions could lead to in-season management changes. DFO will make efforts to advise stakeholders of any such changes in advance of changes being implemented.

### 1.3.2. Recreational

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

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

The Tidal Waters licence includes access to numerous species, including Red Sea Urchin. The number of recreational harvesters taking advantage of the bag limit for Red Sea Urchins is unknown. However, based on advice from the Sport Fishing Advisory Board of BC (SFAB), it is thought to be minimal.

### 1.3.3. Commercial

The commercial fishery is a limited entry fishery with 110 licence eligibilities. Of these, 30 are designated communal commercial licences for First Nations participation in the commercial fishery. Vessel sizes in the commercial fishery range from 8 metres to 12 metres in length. It is common practice within the industry for vessels to stack multiple licence eligibilities in order to make fishing more economical.

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

## 1.4. Location of Fishery

### 1.4.1. First Nations and Recreational

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

### 1.4.2. Commercial

With the exception of permanent closures for various purposes (see Appendix 1, Section 5), the current commercial fishery occurs coast wide in units called Quota Areas. These Quota Areas are a defined portion of Pacific fisheries waters. The Management Areas and Subareas, defined in the *Pacific Fishery Management Area Regulations*, are used in describing each Quota Area. (see Appendix 10).

## 1.5. Fishery Characteristics

### 1.5.1. First Nations

First Nations' fishing for food, social and ceremonial (FSC) purposes are the first priority after conservation and is open coast wide throughout the year. First Nations' fishing effort for FSC domestic purposes 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. While Red Sea Urchins were not allocated under the Maa-nulth, Tsawassen or Nisga'a treaties, harvesting for FSC purposes is permitted. See Appendix 2.

### 1.5.2. Recreational

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

### 1.5.3. Commercial

The commercial licence year runs from August 1 to July 31 of the following year. The fishery may open and close based on market demand and completion of area quotas. Harvest is by hand picking while diving.

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

### 1.5.4. Aquaculture

There is little interest in Red Sea Urchin aquaculture in BC.

## 1.6. Governance

### 1.6.1. Fisheries Management

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

In addition, the Sustainable Fisheries Framework is a toolbox of policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. It provides planning and operational tools that allow these goals to be achieved in a clear, predictable, transparent, inclusive manner, and provides the foundation for conservation policies to implement the ecosystem and precautionary approaches to fisheries management. These policies include: A Fishery Decision-Making Framework Incorporating the Precautionary Approach, Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas, Ecological Risk Assessment Framework for Coldwater Corals and Sponge Dominated Communities, Policy on New Fisheries for Forage Species, Policy on Managing Bycatch, Guidance on Implementation of the Policy on Managing Bycatch, and Guidance for the Development of the Policy of Rebuilding Plans under the Precautionary Approach Framework: Growing Stocks out of the Critical Zone. 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.  More information is available on the internet at:

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

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

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

### 1.6.2. Spatial Planning for Marine Conservation

A co-operative and collaborative approach to marine conservation is being implemented by Fisheries and Oceans Canada, Parks Canada, and Environment and Climate Change Canada for planning, establishing, and managing federal marine protected areas in a more systematic and efficient way.

**Marine Protected Areas** may be established by Fisheries and Oceans Canada under the *Oceans Act* (1996, c. 31) to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features, and areas of high biological productivity or biodiversity.

More information is available on the internet at:

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

**National Marine Conservation Areas** may be established by Parks Canada under the *Canada National Marine Conservations Areas Act* (2002, c. 18) to protect and conserve representative examples of Canada's natural and cultural marine heritage, and to provide opportunities for public education and enjoyment.

More information is available on the internet at:

http://www.pc.gc.ca/en/amnc-nmca/

**Marine Wildlife Areas** may be established by Environment and Climate Change Canada under the *Canada Wildlife Act* (R.S.C., 1985, c. W-9) to protect and conserve habitat for a variety of wildlife, including migratory birds and endangered species.

More information is available on the internet at:

http://www.ec.gc.ca/ap-pa/default.asp?lang=En&n=2BD71B33-1

### 1.6.3. Species at Risk

The *Species at Risk Act* (*SARA*) came into force in 2003. The purposes of the Act are "to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species that are extirpated, endangered or threatened".

In addition to existing prohibitions under the *Fisheries Act*, under *SARA* it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with *SARA*, to engage in an activity affecting the listing species or the residences of its individuals. Species listed as special concern are not included in these prohibitions.

More information on the *SARA* is available at:

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

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

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

### 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

Red Sea Urchins occur in waters from Baja California to Alaska and from the Aleutian Islands to Hokkaido Island, Japan. The largest of five species of sea urchins occurring in BC, the Red Sea Urchin is usually found on rocky substrates in shallow water areas of moderate to strong currents, typically from the intertidal zone to depths of 50 metres, although some individuals occur as deep as 125 metres.

Red Sea Urchins have separate sexes, mature at about 50 mm test diameter (TD), and recruit into the fishery at 90 mm TD. Reproduction occurs annually with timing of the spawning season varying from March to September depending on local environmental conditions such as food availability and temperature. Gonads increase in size usually from September to January. Mature males and females release eggs and sperm into the water and fertilization success will depend on local density of adults and dilution of gametes. The larvae are planktonic for 6 to 9 weeks prior to settlement on suitable habitat. Juvenile (4-50 mm TD) abundance is usually highest when associated with the spine canopy of adults as a refuge from predators. This juvenile-adult association may be important to the recruitment success of juveniles to legal size. Red Sea Urchins can live to well over 100 years old. Large specimens (over 19cm in test diameter) found in parts of BC may be around 200 years old (Ebert and Southon 2003).

### 2.2. Ecosystem Interactions

Sea urchins graze on attached or drift seaweed and kelp. They have specialized jaws consisting of five teeth with which they eat plant material. Red Sea Urchins are often found in aggregations whose combined feeding activities can remove all large plant material from the rocks, including kelp forests. These ‘urchin barrens’ can have detrimental effects on kelp forests, sessile invertebrates and on other herbivores that compete for the same food resources.

Sea urchins are eaten by sea stars and crabs, although large adults appear to be less susceptible to predation by virtue of their size and have fewer predators. Sea urchins are a main food source for Sea Otters and even the largest sea urchins are eaten by these marine mammals. Sea Otters use rocks as a tool to crack open urchin tests. Sea Otters have had a significant impact on Red Sea Urchin populations in certain areas of BC.

The presence of sea urchins is also considered a habitat attribute for northern abalone in British Columbia (COSEWIC Assessment and Update Status Report on the Northern Abalone 2009). Abalone larval settlement is thought to occur on encrusting coralline algae. The layer of encrusting

algae may be maintained by sea urchins and other herbivores which, by grazing, prevent the growth and settlement of algae and sessile invertebrates.

## 2.3. Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

Aboriginal Traditional Knowledge is not generally available.

Traditional Ecological Knowledge in the form of observations and comments collected from commercial divers and On-Grounds Monitors over many years contribute to the decisions on scientific survey locations and is considered in management decisions.

## 2.4. Stock Assessment

Fisheries and Oceans Canada, the PUHA and First Nations joint stock assessment activities continue coast wide through biomass transect surveys. The PUHA and DFO co-ordinate vessel and diver participation in surveys with First Nations communities. Fisheries and Oceans Canada develops the survey protocol, participates in the surveys and conducts the data analysis. The main survey goals are to estimate density and size frequencies of select populations to prove and/or adjust quotas accordingly, while other studies at index sites monitor relative abundance trends over time. Scientific research and stock assessment surveys are of vital importance to this fishery as it continues to be managed by the precautionary approach to Canadian fisheries.

## 2.5. Stock Scenarios

There is no indication of a conservation concern for Red Sea Urchin stocks at this time. The Red Sea Urchin fishery is managed conservatively, and apart from a few areas which have been closed or quotas reduced because populations have declined, stocks generally appear healthy. A precautionary approach to management, which ensures the Department is meeting its conservation goals, will continue for the foreseeable future. This, in turn, will ensure sustainable harvests by all user groups. The long-term goal of the Department is to increase the biological basis of the management regime through continued research on the Red Sea Urchin resource. This will be accomplished through a collaborative process involving the commercial industry, First Nations organizations and others with an interest in the resource.

Sea Otter populations are expanding in B.C. and, as Sea Otters are a major predator on Red Sea Urchins, they have had an impact on Red Sea Urchin populations in certain areas of BC. The main Sea Otter populations exist along the West Coast of Vancouver Island, Northern Vancouver Island and the central portion of the mainland coast. Sea Otter predation on Red Sea Urchins has led to the closure of some quota areas or reduction in quota along these areas of the coast. Sea Otters are expected to continue their expansion along the BC coast and, over time, this will cause a greater and greater impact on the Red Sea Urchin industry in BC.

In some areas of the BC coast there is an overabundance of Red Sea Urchins which may negatively impact ecosystem function (see sections 2.2 and 4.4.1).

## 2.6. Precautionary Approach

The Department is implementing the Sustainable Fisheries Framework (SFF), which is a toolbox of policies for DFO and other interests to sustainably manage Canadian fisheries in order to conserve fish stocks and support prosperous fisheries.

Fisheries worldwide are under increasing pressure, creating challenges for policy makers, resource managers, and industry leaders to make informed decisions regarding the conservation, recovery, and wise management of these resources. DFO held consultations throughout Canada in 2007 and 2008 to develop strategies to ease ecosystem pressures and enhance the capacity of the resource to sustain growing industry needs. Conservation policies have been developed to implement the ecosystem and precautionary approaches to fisheries management.
The fishery decision-making framework, incorporating the precautionary approach policy, applies to key harvested fish stocks managed by DFO, including commercial, recreational, or subsistence fisheries and can be found on the internet at:

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

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

- identifies three stock status zones – healthy, cautious, and critical – according to upper stock reference points and limit reference points;
- sets the removal rate at which fish may be harvested within each stock status zone; and
- adjusts the removal rate according to fish stock status variations (i.e., spawning stock biomass or another index/metric relevant to population productivity), based on pre-agreed decision rules.

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is healthy, to promote rebuilding when stock status is low, and to ensure a low risk of serious or irreversible harm to the stock. It also requires a rebuilding plan when a stock reaches low levels.

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. This approach is widely accepted as an essential part of sustainable fisheries management.

There is currently no limit or upper stock reference points in place for the commercial Red Sea Urchin fishery in BC. Historically, Red Sea Urchin populations in BC were limited by Sea Otter (*Enhydra lutris*) predation. Following the extirpation of Sea Otters from BC, the abundance of prey species increased substantially, and current Red Sea Urchin populations are considered to be at

artificially high levels. In some areas of the BC coast there is an overabundance of urchins which may negatively impact ecosystem function (see sections 2.2 and 4.4.1). It is believed that Red Sea Urchin populations are far more impacted by natural predation than commercial harvesting, and that historical equilibrium populations were low. The recolonization of Sea Otters in BC, and their expansion to the west coast of Vancouver Island, has coincided with a decrease in the urchin population in Tofino to less than 1% of previous otter-free levels. In contrast, commercial harvesting at close to 100% of the TAC over ten years has led to no significant decrease to urchin populations in the two areas of BC where time-series of survey data exist.

Furthermore, the sea urchin fishery is a gonad (roe) fishery. Population levels in most areas are higher than can be supported by the available food (kelp) and, as a result, many of the urchins have poor or no gonad development. Since only those individuals with the highest quality gonads are targeted by the fishery, there is a natural reserve of animals that remain after commercial harvest that consists of urchins smaller than the minimum size limit, urchins greater than 14cm in test diameter and urchins with poor quality gonads. Red Sea Urchins larger than 14cm test diameter are generally not harvested since they are considered unmarketable due to their large gonad size. These large urchins (called 'pumpkins' by harvesters) have large reproductive potential.

### 2.7. Research

In late 2016 Red Sea Urchin resource managers submitted a request to the Centre for Science Advice Pacific (CSAP) for scientific advice on a range of harvest rates for use in areas of the coast not yet impacted by Sea Otter predation. A peer-reviewed scientific paper on this topic is expected in late 2018. The harvest rate currently in use for the commercial fishery is a generic conservative harvest rate for use in data-limited fisheries. BC's Red Sea Urchin fishery is not a data-limited fishery. Over the last twenty years, the PUHA, DFO and First Nations have worked together on research projects that will be used along with data collected from the commercial fishery in the development of the scientific paper. This information will be used in simulation models that will evaluate alternative harvesting strategies so that an appropriate range of harvest rates can be recommended for the commercial Red Sea Urchin fishery.

## 3. ECONOMIC PROFILE OF THE FISHERY

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

### 3.1. First Nations

The Allocation Transfer Program (ATP) and Pacific Integrated Commercial Fishery Initiative (PICFI) have relinquished existing commercial licence eligibilities from fish harvesters on a voluntary basis and re-issued these to eligible First Nation organizations as communal commercial licences. The PICFI, announced in 2007, is aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations'

aspirations to be more involved are supported. The Government of Canada committed $175 million over the first five years (2007-2012) to implement the initiative. The program was renewed on a temporary basis until Budget 2017 when it was announced that PICFI is to receive permanent long term funding of $22.05 million annually.

As a result of these programs, 30 of the 110 commercial Red Sea Urchin licence eligibilities (27%) are held by First Nations for participation in the commercial fishery.

For more information on the Aboriginal Fisheries Strategy Allocation Transfer Program, contact a resource manager listed in Appendix 14 or see the internet at:

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

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

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

### 3.2. Recreational

Recreational fishing may occur to provide food for personal use, as a leisure activity, or as a combination of the two. The recreational community includes local residents, multi-species charter operators and lodges, and visiting anglers and boaters. In the 2016/2017 recreational angling season, 331,285 anglers fished in BC's tidal waters recreational fishery. Most (85%) were BC residents, with the remainder divided between Canadians from outside BC and visitors to Canada (Fisheries & Oceans Canada 2010). These activities provide a range of benefits to the participants as well as contribute directly and indirectly to economic activity.

Recreational interest in harvesting shellfish species is directed mainly at crab, prawns and shrimp. The recreational harvest of Red Sea Urchins is believed to be minimal.

### 3.3. Commercial

The Pacific Region is home to the only commercial Red Sea Urchin fishery in Canada. Red Sea Urchins are harvested by divers and delivered to processing plants where the gonad is extracted, treated and packaged for sale in Japan, Europe and North America as "Uni". The 2016 British Columbia Seafood Export Highlights document estimated the wholesale value both Red Sea Urchins and Green Sea Urchins to be $20.6 million in 2016. The bulk of this value would be from the Red Sea Urchin fishery since the Green Sea Urchin fishery is much smaller.

The profile of the commercial fishery differs between the north coast and south coast licence areas. The majority of the Red Sea Urchin TAC (approximately 79%) is in the north coast licence area. This results in a higher number of licences fishing in the north coast licence area than the south coast licence area. In 2018/2019, 87 out of 110 licences will fish in the north coast. Most fishing in the north coast occurs in remote areas and in order to make fishing economical, multiple vessels fish

together in a fleet and offload daily to a packer vessel. The fleet will stay out fishing for weeks at a time and the packer will travel to and from port to offload catch and to bring supplies to the fleet.

In the south coast licence area vessels will fish alone. Harvesters tend to prefer to fish in the south coast since there are multiple offloading ports available close to the fishing grounds and harvesters are generally able to fish during the day and return home in the evening.

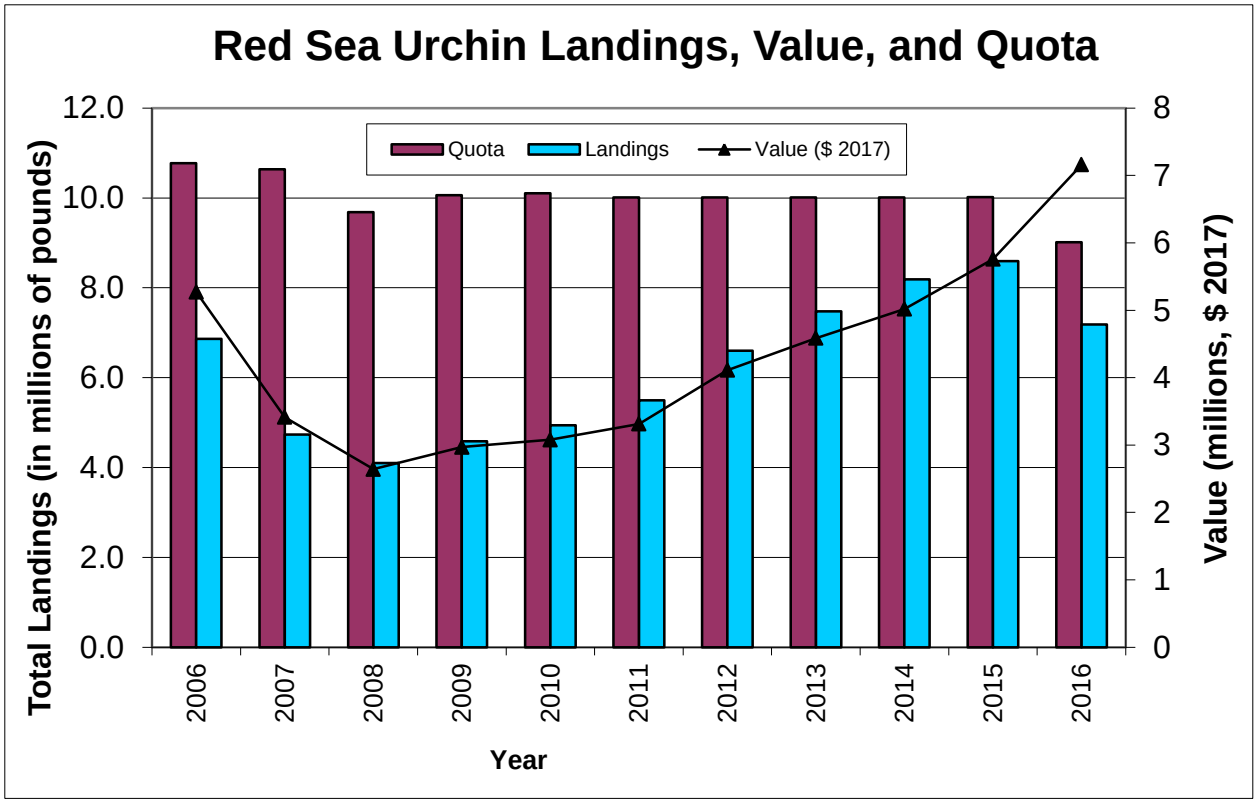
Many Red Sea Urchin vessels also participate in other dive fisheries, such as Sea Cucumber and Geoduck. Of the 38 vessels active during the 2016 fishery, 28 vessels held one or more licences other than Red Sea Urchin. The most common licences fished were sea cucumber, green sea urchin, salmon, geoduck and groundfish (in that order). Vessels active in the Red Sea Urchin fishery often generate higher revenues from their participation in the Geoduck and Sea Cucumber fisheries than from the harvest of Red Sea Urchins.

### 3.3.1. Viability and Market Trends

The commercial fishery operates year-round with the highest market demand being in December and March. In the summer months the fishery slows down considerably since gonad quality decreases substantially. The best gonads come from sea urchins harvested between October and May, after which the quality decreases as the sea urchins begin to spawn.

From the historic peak of landings in 1992 (approximately 27.5M lbs.), the market demand for BC Red Sea Urchin decreased drastically with landings dropping to below one half of the TAC between 2006 and 2011. Fishery participation also declined during this period, directly affecting the Pacific Urchin Harvesters Association (PUHA) revenues and funding for monitoring programs and market strategies. However, since 2011, Red Sea Urchin landings are on the increase.

Over the past decade, the coastwide TAC of Red Sea Urchin has remained relatively constant at approximately 10 million pounds. In the last three years, an average of 83% of the TAC was landed. The price of Red Sea Urchins has been relatively steady between 2004 and 2014. In 2015, price increased by 9% from the previous year. In 2016 the price per pound paid to harvesters increased by almost 50%, increasing interest in the Red Sea Urchin fishery, and this price stayed steady into the first half of 2017 (according to preliminary data). This price increase can be attributed to the lower Canadian dollar and a diversification in the Red Sea Urchin market.




**Source:** DFO Logbook and Sales Slips – multiple years, quota is from Appendix 1 of previous IFMPs.

Sea Otter predation is impacting quota in some parts of BC which led to a decrease in the coast wide TAC in 2016. There are a number of areas (e.g. Haida Gwaii) that are being harvested at well below the commercial harvest rate and the Department may consider increasing quota in these areas in future years. However, it is expected that Sea Otters will have greater and greater impacts on Red Sea Urchin stocks over time.

Japan is the largest consumer of urchin roe and the majority of BC product is shipped there as processed roe. The PUHA has been working to develop markets in China, other parts of Asia, Europe and the United States. Some processors have also been successful in shipping live sea urchins to market. The hope is that live product will increase the value of Red Sea Urchins similar to how the value of Geoduck increased substantially when the BC Geoduck industry started shipping live Geoduck clams to Asian markets. Some harvesters have had success selling small amounts of live urchins to the public and to local restaurants in the Vancouver area.

BC Red Sea Urchins have been recognized by the Vancouver Aquarium's Ocean Wise program as "Recommended" choice, and as a "Best Choice" by the Monterey Bay Aquarium's Seafood Watch program. Such recommendations create marketing opportunities and raise the profile of Red Sea Urchins in local, domestic, and growing export markets such as China.

### 3.3.2. Processing

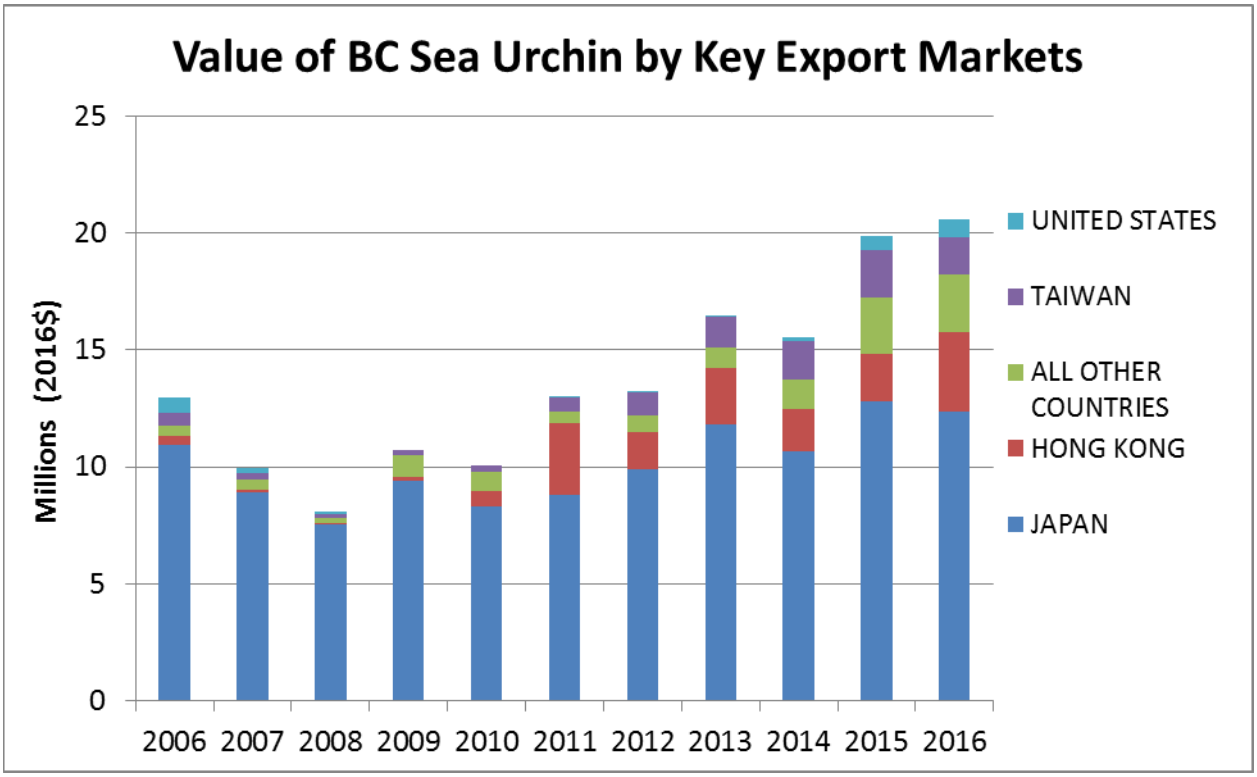
Most of the processing of landed urchins occurs in BC, contributing an additional source of economic value. The average wholesale value of Red Sea Urchins processed in BC between 2014 and 2016 was $17.59 million, representing an average value-added of $11.69 million per year over the landed value (BC SYIR, 2016). In 2016, 85% of the Red Sea Urchins harvested were landed in the North Coast, but none were processed there. Landed Red Sea Urchins are shipped live by truck to processing plants in Vancouver where processors break open the shell (test) to remove the roe. Once removed from the urchin, the roe is treated and placed in shallow trays for transit to markets.

The 2011 processor employment survey found that BC seafood processing employed a monthly average of 4,829 individuals in that year. Of these, processing the wild shellfish harvest accounted for 11% of jobs (BC Ministry of Agriculture, 2015). A 2016 report, commissioned by DFO to link seafood with processing areas and employment, showed that the processing of Red Sea Urchins requires 88 hours per metric tonne (the second most labour intensive seafood after prawns), which equates to approximately 138 full time employees and $7.17 million in direct processing wages in 2016.

### 3.3.3. Exports – All Sea Urchins

The BC Red Sea Urchin industry is primarily an export market. Sea urchins are exported in various forms: either live, fresh, chilled, prepared or preserved. In 2016, the total value of sea urchin exports from B.C. was $20.6 million. This represents a 4% increase from the previous year and is also 32% higher than the recent 5 year average (2011 to 2015).

The vast majority of urchin exports are roe, representing over 80% of the value of BC's total urchin exports over the past 5 years (Statistics Canada, 2018). The majority of BC sea urchin roe product is shipped fresh or chilled. Japan is the largest global consumer of urchin roe; however, BC urchin roe is also shipped to countries in Asia and Europe. Over the past decade, BC has exported an average of about 244,000 kg of processed urchin roe per year, of which 77% went to Japan. There is an increasing trend in BC sea urchin exports to Japan, despite a small dip in 2014 and 2016. Exports to the United States and Europe have increased in recent years, but remain small compared to Asian markets.




**Source:** Statistics Canada (EXIM), 2018.

The Canadian industry has many competitors including the Illegal, Unregulated, Unreported (IUU) fishery in Russia. Russian urchins are fished close to Japan and are therefore delivered to market fresher and cheaper than the higher-priced BC roe. The illegal Russian fishery is able to further reduce the price of roe as it does not have the associated management, stock assessment and shipping costs. There are also commercial Red Sea Urchin fisheries in California, Oregon, Washington, and Alaska. The roe market is a global one, where the harvest and market trends of other fisheries can have an impact on the BC Red Sea Urchin fishery.

## 4. MANAGEMENT ISSUES

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

### 4.1. Conservation and Sustainability

#### 4.1.1. Sea Otters

The PUHA has identified Sea Otters as their biggest concern for the future sustainability of the Red Sea Urchin industry in BC. Sea Otter populations are expanding in British Columbia and, because they are major predators on Red Sea Urchins, are having a large impact on the fishery. As a result, the Department has had to consider Sea Otters in the management of the Red Sea Urchin resource. For example, some quota areas on the West Coast of Vancouver Island, the mainland central coast and Northern Vancouver Island have had reductions in quota or have been closed because

commercially harvestable densities of Red Sea Urchins no longer exist in areas occupied by sea otters. Red Sea Urchin managers need more flexibility to manage around the impacts of Sea Otters. Some options to consider include:

- Increase quotas in portions of the coast that are currently being under-harvested (harvested at a harvest rate less than 2%) due to logistical reasons. For example, Haida Gwaii has been harvested at a harvest rate of 1% or less since 2008 due its remote location and the higher cost of fishing there in comparison to mainland areas.
- Increase harvest rates in areas that are starting to be impacted by Sea Otter predation.
- Look at opening portions of the coast currently closed to commercial harvest (e.g Marine reserves, ecological reserves, etc.) that are impacted negatively by Red Sea Urchin barrens.
- Increase the harvest rate in areas that are currently open for commercial harvest but are still being negatively impacted by Red Sea Urchin barrens (e.g. portions of Haida Gwaii, the mainland North Coast and Campbell River, etc.)

### 4.1.2. Impacts of Climate Change

Climate change will result in a wide variety of impacts, including rising sea level, loss of marine habitat, shifting distribution ranges for marine organisms and an imbalance between growth and recruitment within ecosystems. Ocean acidification is one of the climate impacts that could affect Red Sea Urchin populations in BC. Oceans absorb anthropogenic carbon dioxide ($CO_2$) which increases the acidity of the water. There are concerns about the ability of marine ecosystems to adapt to acidification. Organisms that form calcium carbonate ($CaCO_3$) skeletons and shells, such as urchins, will be greatly limited in their ability to form their skeletons or shells since a decline in pH decreases the saturation state of $CaCO_3$. Fecundity, juvenile survival and the ability to handle temperature stress may also be impacted negatively by ocean acidification (Haigh et al. 2015). Another emerging issue has been higher than normal water temperatures over the last few years (Chandler et al. 2016). Warmer water temperatures cause the amount of dissolved nitrogen in seawater to decrease leading to reduced growth rates of kelp. Kelp, the main food source of Red Sea Urchins, recruits most successfully in areas with continuously cold, high nutrient waters. Higher water temperatures may also place physiological stress on Red Sea Urchins and could lead to increased instances of disease (see section 4.1.3).

### 4.1.3. Disease

In the spring of 2016 sick or dying urchins were observed along the North and Central coasts of BC. Some urchins were still attached to the substrate but were missing all or a portion of their spines and some had already died. Samples were collected from afflicted individuals and were sent in for testing. Preliminary examination of the samples done by a disease expert at DFO suggests that the urchins were suffering from ‘bald urchin disease’. This disease has been reported in species of urchins all over the world. It has been hypothesized that increasing sea temperature will lead to an

increase in the frequency of disease outbreaks due to decreased host immunity, increased virulence of pathogens or pathogen range expansion (Burge et al., 2014).

Large scale disease events, such as what was seen with the 'sea star wasting disease' in 2014 and 2015, could have a large impact on Red Sea Urchin stocks in BC.

#### 4.1.4. Commercial Fishery Incidental Mortalities

Methods to quantify commercial fishery-induced mortalities (e.g. loss through testing of quality prior to harvest, breakage during harvest and through sorting on deck, dumping of undersize product, breakage during transport) may need to be incorporated into the Red Sea Urchin stock assessment in order to ensure sustainable harvest levels.

#### 4.1.5. Managing Urchin Water Loss

When urchins are harvested they are transported out of water to be validated and shipped. Water drains out of an urchin's test over time resulting in a reduction to individual weight. Product that takes longer to transport to port will weigh less than product that is weighed immediately after removal from the water. This issue has implications for Red Sea Urchin management since urchin quotas and landings are based on weight estimates.

### 4.2. Social, Cultural and Economic

#### 4.2.1. First Nations

Coastal First Nations may have an interest in economic opportunities from the Red Sea Urchin resource through access to the wild commercial fishery.

There are 30 communal commercial Red Sea Urchin licence eligibilities to provide economic access to First Nations through participation in the commercial fishery. See section 3.1 for more information.

#### 4.2.2. Market Conditions for the Commercial Fishery

The Russian IUU fishery negatively affected the main market for BC Red Sea Urchin roe in Japan for many years. As a result, the PUHA explored other markets such as a live urchin market in China and Hong Kong and a frozen market in Europe. A project was undertaken in 2011 to find an appropriate method of validating urchins in water in order to support the development of a live/fresh market. Commercially harvested Red Sea Urchins are traditionally weighed and validated dry but in order to keep urchins viable for a live market, they must remain in water during validation and transport. A pilot program is currently in place that allows a volumetric validation method for urchins landed in water in a select number of landing ports.

## 4.3. Compliance

### 4.3.1. Monitoring the Commercial Fishery

The PUHA and the Department are working together to increase monitoring for the north coast fishery. Due to the large coastal area and the frequency of movement of the north coast fleet, vessels can be difficult to find for fishery officers. Time and money are wasted in efforts to locate vessels in the fleet. To address these issues the PUHA has piloted Vessel Monitoring Systems (VMS) on vessels in the north coast licence area since the start of the 2011/12 fishery. In 2017, 15 of the 32 vessels that fished in the north coast licence area were equipped with VMS units. The VMS pilot program has been a success and will be extended for the upcoming season. The VMS sends near real-time location information to fishery managers and fishery officers, making planning enforcement patrols more efficient.

There are no other emerging issues for enforcement other than those already highlighted in the Compliance Plan (Section 9)

## 4.4. Ecosystem

### 4.4.1. Overabundance of Red Sea Urchins (Urchin Barrens)

There are a number of areas of the BC coast (mainly in the north coast) where there are large areas of Red Sea Urchin overabundance (urchin barrens). Urchin barrens are detrimental to the ecosystem since the combined grazing activity of the urchins inhibits the growth of kelp and sessile invertebrates, which in turn affects other species that may rely on kelp and/or sessile invertebrates for food and/or habitat. Red Sea Urchins also directly compete with other herbivores such as abalone, snails and other species of urchins for food resources. Closures for conservation purposes may not be necessary for Red Sea Urchins in areas of BC where urchin barrens are a known issue, especially if the goal of the closure is to promote a healthy ecosystem. The harvest rate used for the commercial fishery is meant to avoid a decrease in Red Sea Urchins over time and as a result, commercial harvest has not reduced urchin barrens in many areas of the north coast. Harvesters do not harvest urchins out of barrens since the gonad quality is low due to a lack of food. Only a small portion of the population located right below the kelp line (where food is abundant) is taken. Sea urchin barrens no longer exist in sea otter impacted areas, but for areas of the coast not yet impacted by sea otters other options could be tried to reduce the occurrence of barrens. One such option is to consider an increase in the harvest rate used in areas impacted by urchin barrens. For the period of August 1, 2017 to July 31, 2019 managers will consider using an increased harvest rate in portions of Management Areas 3 to 6 and 13 that are impacted by Red Sea Urchin barrens. Please see Appendix 6 section 4 for more information.

### 4.4.2. Depleted Species Concerns

The commercial Red Sea Urchin fishery is a selective fishery and there are no concerns or potential impacts on depleted species. Each Red Sea Urchin is individually selected by the harvester which

eliminates by-catch of other species. Harvest of any species other than the Red Sea Urchin is illegal under a commercial Red Sea Urchin licence.

In addition to the existing prohibitions under the *Fisheries Act*, under the *SARA* it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative (e.g shells) of an individual. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with the *SARA*, to engage in an activity affecting the listed species or the residences of its individuals. Species listed as special concern are not included in these prohibitions.

The Northern abalone is listed as Endangered under the *SARA*, and is a species that is often found in the same habitat as Red Sea Urchins. All harvest of Northern Abalone is illegal, including commercial and recreational harvest and harvest for food, social and ceremonial harvest purposes.

If any harvest or harassment of Northern Abalone is observed, please call DFO's Observe, Record and Report line as soon as possible at 1-800-465-4336 (see Section 9).

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

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

### 4.5. Oceans Management

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

The *Oceans Act*, the *Canada Wildlife Act*, and the *National Marine Conservation Areas Act* have given rise to several initiatives on the BC coast, which are listed below. As goals, objectives, and management plans are finalized for these initiatives, the Department's management of fisheries will be adapted as appropriate, in consultation with interested parties through Integrated Fisheries Management processes.

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

*Canada's Marine and Coastal Areas Conservation Mandate*

The Government of Canada is committed to protecting 10% of Canada's marine and coastal areas by 2020. The 2020 marine conservation target is both a domestic target (Canada's Biodiversity Target 1) and an international target as reflected in the Convention on Biological Diversity's Aichi

Target 11 and the United Nations General Assembly's 2030 Agenda for Sustainable Development under Goal 14.

To meet these targets, Canada is establishing MPAs, National Marine Conservation Areas, marine National Wildlife Areas and "other effective area-based conservation measures" ("other measures"), in consultation with industry, non-governmental organizations, and other interested parties.

An overview of the DFO tools, including a description of the role of fisheries management measures that qualify as other measures, is available on the internet at:

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

More information on the background and drivers for Canada's marine conservation target is available on the internet at:

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

*Marine Protected Areas (MPAs):* DFO is responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated three MPAs in the Pacific Region, the SGaan Kinghlas-Bowie Seamount, Endeavour Hydrothermal Vents and the Hecate Strait/Queen Charlotte Sound Glass Sponge Reefs. All three areas are offshore and do not include Red Sea Urchin fishing areas.

Work is ongoing also to consider MPA designation for the Race Rocks area off Rocky Point south of Victoria currently designated as a Provincial Ecological Reserve. This area is already closed for commercial Red Sea Urchin harvest.

In May 2017, DFO announced a new Area of Interest (AOI) within the Offshore Pacific Bioregion off the coast of BC, with the intention of making it one of Canada's largest Marine Protected Areas by 2020. This Offshore Pacific AOI is an important part of DFO's national approach to achieve the Government of Canada's Marine Conservation Targets to increase Canada's marine and coastal protected areas to 10% by 2020. Since this AOI is offshore, it does not overlap with any Red Sea Urchin fishing areas. More information on the Offshore Pacific AOI can be found on the internet at: http://www.dfo-mpo.gc.ca/oceans/aoi-si/offshore-hauturiere-eng.html

More information on MPAs can be found at: http://www.dfo-mpo.gc.ca/oceans/networks-reseaux/index-eng.html

*Northern Shelf Bioregion MPA Network*

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 MPAs. The National Framework for Canada's Network of MPAs provides strategic direction for the design of a national network of 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 MPAs. Regionally, the Canada-British Columbia MPA 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 MPA network planning will identify new areas of interest for protection by DFO, Parks Canada, Environment and Climate Change Canada (ECCC), the Province of BC, and any other agencies with a mandate for protecting marine spaces.

The Province of BC, the Government of Canada and 17 First Nations are working together to implement the Strategy in the Northern Shelf Bioregion, which extends from the top of Vancouver Island (Quadra Island/Bute Inlet) and reaches north to the Canada - Alaska border. This bioregion has the same footprint as the Pacific North Coast Integrated Management Area (Section 4.4.2.7). Ocean Advisory Committees have been established to provide input and advice on key elements of the planning process. The committees include broad representation from interested stakeholders, supporting dialogue and building shared understanding on MPA network planning.

Sites identified for marine conservation through the network planning process will contribute to the Government of Canada's commitment to protecting 10% of marine and coastal areas by 2020. Future MPAs in this network may overlap or include prawn and shrimp fishing areas depending on the type and nature of the MPA.

More information on MPA Network Planning can be found at:

http://mpanetwork.ca/bcnorthernshelf/whats-happening/

*Gwaii Haanas and Strait of Georgia National Marine Conservation Area Reserves*

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5000 km2 land and sea protected area in the southern portion of Haida Gwaii, approximately 100 kilometers off the north coast of BC. The Haida Nation declared a Haida Heritage Site in 1985. The terrestrial part of Gwaii Haanas was designated a National Park reserve by the Government of Canada soon after. In 2010, following an extensive public consultation process, the marine area of Gwaii Haanas was given the designation of National Marine Conservation Area Reserve.

Gwaii Haanas is managed by the Archipelago Management Board, a cooperative body made up of equal representation from the Government of Canada (represented by DFO and Parks Canada) and the Council of the Haida Nation. The Gwaii Haanas marine area is currently managed under the Interim Management Plan and Zoning Plan, which includes "balancing protection and ecologically sustainable use" in its guiding principles. The Zoning Plan identifies six areas that are closed to commercial and recreational fishing. These closures can be found in Section 5 of Appendix 1.

Development of a Land-Sea-People Management Plan for the Gwaii Haanas National Marine Conservation Area is underway. The Management Plan and zoning process will be developed in consultation with key stakeholders. Annual fishing plans will be developed in consultation through

DFO's established integrated fisheries planning and advisory processes. The management plan is due to be finalized in 2018. The final zoning plan could lead to in-season management changes. DFO will make every effort to advise stakeholders of any such changes in advance of changes being implemented.

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

Parks Canada, in partnership with the Government of British Columbia, launched a feasibility assessment for a NMCA reserve in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011. Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the feasibility assessment. If the results of the feasibility assessment indicate that establishment of an NMCAR is practical and feasible, an establishment agreement between the Governments of Canada and BC will be negotiated and an interim management plan developed. If the NMCAR is determined to be feasible, further consultations related to establishment agreements and Aboriginal rights will also take place with First Nations. Commercial and recreational fishing sectors, communities, landowners, recreational and environmental organizations and other stakeholders will also have opportunities to provide input in the development of the interim management plan. For more information on this proposed NMCAR please see:

http://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca/dgs-ssg

*Cold-Water Coral and Sponge Conservation Strategy:* DFO's Pacific Region Cold-Water Coral and Sponge Conservation Strategy encompasses short and long-term goals and aims to promote the conservation, health and integrity of Canada's Pacific Ocean cold-water coral and sponge species. The Strategy also takes into consideration the need to balance the protection of marine ecosystems with the maintenance of a prosperous economy. It was created with input from stakeholders throughout the Pacific Region and will help regional partners and stakeholders to understand how DFO's existing programs and activities tie into cold-water coral and sponge conservation. Red Sea Urchins are collected by hand and the fishery occurs in depths shallower than 20 meters. Due to these factors, the Red Sea Urchin fishery is unlikely to have an impact on coral and sponges.

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

http://waves-vagues.dfo-mpo.gc.ca/Library/344719.pdf

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

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

*Scott Islands Marine National Wildlife Area*: Under the *Canada Wildlife Act*, Environment Canada may establish marine National Wildlife Areas (NWAs). The Scott Islands proposed Marine National Wildlife Area, located off the northern tip of Vancouver Island, is being considered for designation through amendment to the *Wildlife Area Regulations*. DFO would continue to regulate and administer fisheries within the proposed area. Environment Canada and DFO will develop a collaborative approach and agreement regarding management of fisheries in the area.

*Pacific North Coast Integrated Management Area (PNCIMA):*

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

The endorsement of the PNCIMA plan supports the Government of Canada's commitment to collaborative oceans management for the Pacific North Coast and provides a joint federal-provincial-First Nations planning framework for conservation and management of human activities in the Pacific North Coast. The plan includes marine protected area network development as a planning priority. It is anticipated that the network development will support the Government of Canada's commitment to protecting 10% of Canada's marine and coastal areas by 2020.

The Pacific North Coast Integrated Management Area Plan is available online at: www.pncima.org

### 4.6. Gear Impacts

Red Sea Urchin harvest occurs in less than 18 metres of depth by divers who use short aluminum hand rakes to scoop urchins into large mesh bags. The mesh bags are attached to lift bags or buoys that the diver will fill with air to lift the harvested urchins to the surface for pick up by the tender vessel. Red Sea Urchin harvesting occurs on rocky reefs and the impact of the urchin rake on the reef environment is believed to be negligible. Red Sea Urchin harvest is too shallow to impact most coral and sponges species.

## 5. OBJECTIVES

Sections 5.1 to 5.3 outline the "longer term" objectives for this and other invertebrate fisheries in BC. Section 5.4 describes the species-specific and "shorter term" objectives for Red Sea Urchins.

### 5.1. National

DFO aims to:

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

### 5.2. Pacific Region

In 1994, the Biological Objectives Working Group of the Pacific Scientific Advice Review Committee (PSARC) identified three biological objectives for management of Pacific Region fish and invertebrate stocks (Rice et al. 1995):

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

The objectives remain relevant today, particularly in light of development of the national objectives around sustainable fisheries.

### 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 and revised in 1997, are:

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

## 5.4. Red Sea Urchin

### 5.4.1. Conservation and Sustainability

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

- To conduct ongoing surveys and research to improve information on Red Sea Urchin stocks and their biological characteristics.
- To continue to gather information from harvesters on the impacts of sea otters on the Red Sea Urchin resource.
- To manage the commercial fishery to an appropriate scale in order to avoid any risks of localized overfishing.
- To track accurate harvest information for all users. For the commercial fishery this will be accomplished through a Dockside Monitoring Program. There are currently no programs in place for tracking First Nations and recreational sector harvests.

### 5.4.2. Social, Cultural and Economic

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

**Commercial Fishery:** DFO's objective is to continue to work collaboratively with the commercial industry on sustainable resource use and long-term economic viability of the Red Sea Urchin seafood industry recognizing that commercial fisheries play a vital role in Canada's economy. This includes adapting to changing resource and market conditions and extracting optimal value from world markets. An example is the PUHA and DFO working together to develop a method to weigh and validate urchins in water for the possible development of a live market for Red Sea Urchins.

Vessel safety is an objective shared between DFO, Transport Canada, Transportation Safety Board, and WorkSafeBC (Appendix 12). All parties acknowledge the role of vessel masters and crew in responsibility for their own decisions regarding fishing vessel operations. DFO's objective, in conjunction with other responsible agencies, is to adopt an affirmative action profile in respect of vessel safety considerations.

First Nations involvement in the commercial fishery is a shared goal between DFO and Aboriginal people. First Nation participation in the commercial fisheries is being addressed through the ATP and PICFI (Section 3.1).

**First Nations Fishery:** DFO's objective is to continue to provide opportunities for First Nations to harvest fish for food, social and ceremonial purposes, in a manner consistent with the decision of the Supreme Court of Canada in the *Sparrow Decision*, and other court decisions. For more information, see Appendix 2 or the Internet at:

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

It is an objective to provide DFO treaty negotiators and First Nations with fishery related information in support of treaty negotiations, expeditiously.

**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 environments 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.

### 5.4.3. Compliance

DFO's objective is to pursue opportunities to monitor and enforce the Red Sea Urchin fishery, in conjunction with the monitoring and enforcement priorities in the Pacific Region. For more information please see the Red Sea Urchin compliance plan in section 9.

## 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. First Nations

To date no limits have been placed on First Nations' harvest for food, social and ceremonial purposes. Red Sea Urchins may be allocated under treaty, but were unallocated under the Maa-nulth, Tsawassen and Nisga'a Treaties. The Tla'amin treaty came into effect on April 5, 2016 and is the first treaty in BC to include an allocation for Red Sea Urchins. The Tla'amin allocation is for a maximum of 6,300 pounds of whole Red Sea Urchin.

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

### 6.2. Recreational

The daily recreational limit for sea urchins (all species) is 12 with a possession limit of 24. Gear is limited to handpicking only. There is no size limit for the recreational fishery.

### 6.3. Commercial

The commercial fishery is managed using a Total Allowable Catch (TAC), limited entry licensing, Individual Quotas (IQ), a minimum size limit and area quotas. For more information please see Appendices 1 and 6.

### 6.4. Experimental, Scientific, Educational or Public Display

DFO supports and facilitates scientific investigations related to Red Sea Urchins. 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.

### 6.5. Request 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 (see Contacts in Appendix 14).

## 7. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

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

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

## 8. SHARED STEWARDSHIP ARRANGEMENTS

### 8.1. Commercial Fishery

The PUHA and DFO undertake a collaborative agreement annually for stock assessment activities in support of the commercial fishery. PUHA funds density surveys and research activities and their costs include vessel time, diver salaries, travel costs and a salary for a biologist. DFO provides in-kind support and data analysis.

The PUHA funds a dockside monitoring program and a hail program to track all commercial Red Sea Urchin landings.

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

### 8.2. Fisheries and Oceans Canada

Two Science and two Resource Management personnel are directly involved in this fishery. Contributions to the IFMP are provided by the Fisheries Management Directorate, the Science Branch, the Shellfish Data Unit, the Conservation and Protection Directorate, the Pacific Fishery Licence Unit, the Treaty and Aboriginal Policy Directorate, the Recreational Fisheries Division, the Oceans Directorate and numerous administrative personnel. Generally, all personnel are multi-tasked, i.e. fishery managers work on all dive fisheries.

## 9. COMPLIANCE PLAN

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

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

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

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

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

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

## 9.1. Enforcement Issues and Strategies

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

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

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

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

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

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

| **Issue** | **Section** | **Strategy** |
|---|---|---|
| Licensing Verification<br>• Vessel licensed.<br>• Experimental licence.<br>• No Fisher Registration Card (FRC).<br>• Fail to produce FRC. | PFR S.22<br>F(G)R S.52<br>F(G)R S.68(1)<br>PFR S.25<br>F(G)R S.11 | At-sea and dockside inspections will occur when opportunities exist. These inspections may include checks of all licensing documents on board the vessel to ensure compliance with the regulations. |

| Issue | Section | Strategy |
|---|---|---|
| Fishing during closed time/area. | PFR S.63 | Patrols utilizing patrol vessels will be pursued when opportunities exist. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for priority fisheries. |
| Size Limit | PFR S 70(1) | 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 have been notified by fisheries management that a violation has occurred. The investigation will be pursued when larger priorities permit. Possibilities may exist to use the regional enforcement charter aircraft in co-ordination with other patrols scheduled for priority fisheries, to track vessels in the fishery. |
| Fail to maintain a Validation & Harvest Logbook. | F(G)R S.22(7) | At sea and dockside inspections will occur when opportunities exist. Investigations may also occur on an opportunistic basis after C&P have been notified by fisheries management that a violation has occurred. The investigation will be pursued when larger priorities permit. |
| Marking and tagging of pick bags, and any other type of enclosures containing harvested Red Sea Urchins. | F(G)R S.22(7) | At sea and dockside inspections will occur when opportunities exist. |
| Landings validated at time of offloading. | F(G)R S.22(7) | Dockside inspections and monitoring will be pursued when opportunities exist. |

## 10. PERFORMANCE REVIEW

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

### 10.1. Stock Assessment and Research

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

### 10.2. First Nations Fishery

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

### 10.3. Recreational Fishery

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

### 10.4. Commercial Fishery

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

The Sustainability Survey for Fisheries is available at:

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

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

### 10.5. Compliance

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

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## 12. 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. |
| Area | Defined in Section 2 of the *Pacific Fishery Management Area Regulations*. A map of Pacific Fishery Management Areas is available on the Department's Internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm |
| aquaculture | As defined by the United Nations Food and Agriculture Organization (FAO), aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Aquaculture implies some form of intervention in the rearing process to increase production, such as regular stocking, feeding, protection from predators, etc. It also implies individual or corporate ownership of the cultivated stock. |
| catch verification program | A program designed to monitor, record, and verify catches, also called the Validation Program. |
| Communal Licence | Issued to First Nations organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations*, to carry on fishing and related activities. |
| communal commercial licence | Issued to First Nations organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the general commercial fishery. Licences issued are equivalent to the capacity of licences that have been retired under the Treaty and Aboriginal Policy Directorate Licence Retirement/Allocation Transfer Program. |
| COSEWIC | The Committee on the Status of Endangered Wildlife in Canada. |
| Centre for Scientific Advice – Pacific (CSAP) | Centre for Scientific Advice - Pacific (formerly, Pacific Scientific Advice Review Committee), chaired by DFO and including other federal and provincial government agency representatives and external participants. |
| Canadian Science Advisory Secretariat (CSAS) | Canadian Science Advisory Secretariat - coordinates the peer review of scientific issues for Fisheries & Oceans Canada. The different Regions of Canada conduct their resource assessment reviews independently, tailored to regional characteristics and stakeholder needs. CSAS facilitates these regional processes, fostering national standards of excellence, and exchange and innovation in methodology, interpretation, and insight. |

| | |
|---|---|
| DFO | Fisheries & Oceans Canada. On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. |
| enhancement | Adding to (enhancing) the biomass of a species in the wild by spawning and growing juvenile animals, subsequently releasing them to their natural habitat for further growth. Usually requires little or no further intervention after release. |
| Food, Social and Ceremonial (FSC) | A fishery conducted by First Nations for food, social and ceremonial purposes. |
| IFMP | Integrated Fisheries Management Plan. |
| IQ | Individual quota. In the Red Sea Urchin fishery differs between the north and south licence areas depending on the number of licences in each area. |
| invertebrate | An animal without a backbone. |
| landed or off-loaded | The transfer of Red Sea Urchins from a vessel in water to land. |
| landed value | Value of the product when landed by a licensed fishing vessel. |
| landings | Quantity of a species caught and landed. |
| Observer | An individual who has been designated as an observer by the Regional Director General for Pacific Region pursuant to Section 39 of the *Fishery (General) Regulations*. |
| PICFI | Pacific Integrated Commercial Fisheries Initiative - DFO's PICFI is an initiative aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported. |
| Precautionary Approach (PA) | In resource management, the PA is, in general, about being cautious when scientific information is uncertain, unreliable or inadequate and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to the resource. Information on the adoption of a PA framework for fisheries management in Canada is available at: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm |
| PUHA | Pacific Urchin Harvesters Association |

| | |
|---|---|
| PSARC | Pacific Scientific Advice Review Committee. |
| Quota Area | A defined portion of Pacific fisheries waters. Areas and Subareas, as described in the *Pacific Fishery Management Area Regulations*, are used in describing Quota Areas. Each Quota Area has a name, e.g. 12A, and is assigned a maximum allowable catch in pounds (lb.). |
| service provider | An agency contracted by fish harvesters or their harvesters association to co-ordinate notification, catch validation, fishery monitoring, biological sampling, and data submission requirements. The service provider may train and recommend candidates for certification by Fisheries and Oceans Canada as observers. |
| SFAB | Sports Fishing Advisory Board, which provides advice to DFO on matters of recreational (sport) fishing. |
| stakeholder | All people and groups with an interest in the fisheries resource. |
| stock assessment | Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reaction of populations to alternative management choices. |
| Subarea | As in Section 2 of the *Pacific Fishery Management Area Regulations* |
| TAC | Total allowable catch. The amount of catch that may be taken from a stock, determined by analytical procedures to achieve management objectives. |
| 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. |
| tranship | The transfer of Red Sea Urchins from a vessel to another vessel. |
| validated | Red Sea Urchins that have been weighed by an observer and the weight entered into the Red Sea Urchin Validation and Harvest Logbook, or an approved alternative log. |
| VMS | Vessel Monitoring System. A near real-time location monitoring system installed on Red Sea Urchin commercial vessels. |

# Appendix 1: 2018/2019 Red Sea Urchin Commercial Fishery Harvest Plan

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## 1. MANAGEMENT SUMMARY FOR 2018/2019

**1.1. Minimum Size Limit:** 90 mm test diameter, between the spines, measured through the greatest diameter of the Red Sea Urchin test (shell).

**1.2. Area Licensing (NEW):** A two-staged area selection process was conducted in 2018 to allow harvesters to select the licence area they wished to fish for the period of August 1, 2018 to July 31, 2020. No limits were placed on the number of licences in either area. For the period of August 1, 2018 to July 31, 2020, the number of licences in the North Coast: **87**, South Coast: **23.**

**1.3. Total Allowable Catch (NEW):** 4,778.6 tonnes (10,535,000 lbs.). The north coast TAC is set at 8,413,000 lbs. (3,816.1 tonnes) and the south coast TAC is set at 2,122,000 lbs. (962.5 tonnes).

**1.4. Quota Area Quotas (NEW):** A number of changes have been made to quota area quotas for the 2018/2019 season. Quotas around Campbell River (Management Area 13) have been increased in response to reports of Red Sea Urchin overabundances (see Section 4.8 and Appendix 6 section 4). All Red Sea Urchin management area quotas are shown in Section 4 – changes are marked in bold type.

**1.5. Individual Quota (IQ) (NEW):** For the period of August 1, 2018 to July 31, 2019 the individual quotas in the north and south coast will differ. The IQ for each licence area will be determined by dividing the total allowable commercial catch for the licence area by the number of licences who selected the licence area for the season. **North Coast IQ = 96,701 lbs., South Coast IQ = 92,261 lbs.**

**1.6. Managing the Fishery in Portions of the BC coast impacted by Red Sea Urchin Barrens:** A harvest rate of up to 5% will be considered in areas with Red Sea Urchin barrens (overabundances) as part of an ecosystem management approach in Management Areas 3 to 6 and 13. For more information please see section 4 of Appendix 6.

**1.7. Central Vancouver Island Urchin Barren Management Area Pilot Program (NEW):** In response to complaints about Red Sea Urchin barrens around the Campbell River area, a closure will be temporarily reopened in Discovery Passage and the harvest rate will be increased from 2% to up to 5% in existing quota areas in the vicinity of Campbell River. For more information please see section 4.8.

**1.8. Supplemental Harvest (NEW):** Supplemental harvest of Red Sea Urchins will be considered for research purposes. Any authorized supplemental harvest is expected to be in addition to the TAC and IQ allocated for the current season and must be performed by either a ZC or FZC licensed vessel. For more information please see section 4.2.

**1.9. Gwaii Haanas National Marine Conservation (NMCA) Area Zoning (NEW):** A final decision on the Gwaii Haanas NMCA zoning is expected sometime in 2018. The final zoning plan could lead to in-season management changes. DFO will make every effort to advise stakeholders of any such changes in advance of changes being implemented. For more information please see section 4.5 of the IFMP.

**1.10. Opening Schedule:** The fishery will open August 1, 2018.

## 2. LICENSING REQUIREMENTS FOR THE COMMERCIAL FISHERY

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

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

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

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

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

*Licence Renewal*

In order to retain the privilege to be issued a commercial licence in the future, it is critical that you renew your licence and pay the applicable licence renewal fees through the online system on an annual basis, whether fishing takes place or not. Should the licence not be renewed by July 31st of the next calendar year, the licence eligibility will cease to exist and DFO will be unable to consider any licence issuance requests in the future.

### 2.2. Licence Category

A category ZC or FZC licence is required to commercially harvest Red Sea Urchins by dive.

## 2.3. Licence Renewal Fees

The annual licence renewal fee for a commercial, category ZC licence is $530.00. There is no licence renewal fee associated with a communal commercial licence (FZC).

## 2.4. Licence Application and Issuance

Renewal of a commercial Red Sea Urchin licence and payment of the fees must be done on an annual basis to retain the privilege to be issued the licence in the future regardless of whether or not fishing is carried out. Those commercial red sea urchin licences not renewed by July 31st will cease and licence issuance will be unable to be considered in the future.

Upon the Department receiving the required payment, and information (e.g. designated vessel) and any required documentation, the licence will be issued and notification will be sent via email to advise licence holders/vessel owners that a change has been made to their online account. The licence documents, licence conditions and receipt will be available to be printed at that time.

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

- Ensure any Ministerial conditions placed on the licence eligibility are met.
- Ensure any conditions of the previous year's licence such as completion and submission of logbooks are met and accepted.
- Designate a registered commercial fishing vessel eligible for a commercial or communal commercial licence for salmon, schedule II, Sablefish, Halibut, crab, shrimp, prawn, Geoduck or groundfish trawl.

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

The stacking limit has been discontinued. There is now no limit on the number of ZC licences allowed to be designated to a vessel at any given time. Harvesters should, however, keep in mind that the season extensions will not be granted for harvesters that have run out of time to complete Individual Quotas by the end of the season.

## 2.5. Designation of Harvesters to Fish a Communal Commercial Licence

Under the *Aboriginal Communal Fishing Licence Regulations*, every person working on a vessel that is fishing under authority of a Communal Commercial Licence must be

designated by the First Nation that holds the licence. The designation must be made in writing and include the person's name and reference the Communal Commercial Licence.

First Nations licence holders interested in obtaining an example template to use to designate their fish harvesters may contact a DFO Resource Manager or Pacific Fishery Licencing Unit office (see Contacts in Appendix 14).

## 2.6. Area Licensing

Licence eligibilities have been assigned to either the South Coast licence area or the North Coast licence area based on the two staged licence eligibility holder selection process for the period of August 1, 2018 to July 31, 2020. There were no limits placed on the number of applications in either area; however all applications for licence area selection must have been received by the Department prior to April 4, 2018. The distribution of licences for the next two seasons (August 1, 2018 to July 31, 2020) will be as follows:

North Coast (Areas 1 to 10 and adjacent offshore areas) – **87 licences**
South Coast (Areas 11 to 29 and adjacent offshore areas) – **23 licences**

## 2.7. Individual Quotas (IQ)

The holder of a licence eligibility for commercial harvest of Red Sea Urchin is provided the opportunity to harvest up to the amount of product listed on their area licence. This amount will equal the total allowable commercial catch for the licence area divided by the number of licences choosing to apply for a licence in that area. The individual quota for the 2018/2019 season will be as follows:

North Coast (Areas 1 to 10 and adjacent offshore areas) – **1/87$^{th}$ of the North Coast TAC ( 96,701 lbs).**
South Coast (Areas 11 to 29 and adjacent offshore areas) – **1/23$^{rd}$ of the South Coast TAC (92,261 lbs).**

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

## 2.8. Licence Documents

Red Sea Urchin licence documents are valid from the date of issue to July 31 of the following calendar year.

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

## 2.9. Vessel Re-designations

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

Navigate to 'Submit a Request' Re-Designate a vessel. Full instructions can be found at

http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/forms/vessel-redesignation-transfert-bateau-eng.htm

## 2.10. Licence Eligibility Nominations

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

The following requirements must be met:

a) Any Condition of Licence such as the completion of logbooks have been submitted and approved by the Shellfish Data Unit.

b) Communal commercial (category FZC) licence eligibilities may not be nominated as these are allocated annually to First Nations groups.

## 2.11. Licence to Transport Red Sea Urchins

Any registered vessel with a commercial or communal commercial salmon, schedule II, Geoduck, Sablefish, crab, shrimp, groundfish and Prawn licence, a transporting, category D or a Herring seine licence, category HS may transport Red Sea Urchins under special Conditions of Licence which are included with all vessel-based licences issued for the current fishing year. For further information contact a Pacific Fishery Licence Unit.

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

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

### 2.12. Processing

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

## 3. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

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

Fish Harvesters are required to report harvest time and location information to a service provider prior to fishing, following fishing, and prior to landing Red Sea Urchins. To track daily harvests and ensure that area quotas are not exceeded, all catch must be weighed and validated at the first point of landing by a Fisheries and Oceans Canada certified observer.

The agency (service provider) contracted by the PUHA to provide notification, validation, biological sampling and data services for the 2018/2019 Red Sea Urchin fishery is:

D&D Pacific Fisheries Ltd.
Box 1445, Gibsons, BC V0N 1V0

Tel: (604) 886-4819
Fax: (604) 886-8288
Hail-in Line: (800) 775-5505

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

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

Each IQ equals the total allowable commercial quota for the licence area divided by the number of licences selected for that area. Harvest of Red Sea Urchins over the IQ, after the permitted quota overage adjustments, may be subject to prosecution and seizure of the overage.

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

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

### 3.3. Containers Used to Hold or Transport Red Sea Urchins (Condition #7)

There are several requirements for the type, size and marking of containers used to hold or transport Red Sea Urchins and the condition of containers for food inspection purposes.

Any containers used in the transport of "fish" (including urchins) for export must meet the requirements of Schedule V of the Fish Inspection Regulations. This states that the contact surfaces of fish storage areas in vehicles and of containers used for transporting fish shall be smooth, free from cracks and crevices and made of non-corrodible material. There is also a requirement for containers to be covered. Acceptable materials include plastic, aluminium and fibreglass; however, an exemption has been granted for the use of well-painted wooden totes to transport fish to processing plants. See CFIA's website for further information:

http://www.inspection.gc.ca/food/fish-and-seafood/eng/1299799645255/1299799784160

### 3.4. Transhipment (Condition #8)

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

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

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

## 3.6. Oral Reports (Condition # 11)

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

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

## 3.7. Validation of Catch (Condition # 10)

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

The vessel master must be in possession of a Fisheries and Oceans Canada approved catch Validation and Harvest Logbook assigned to the Red Sea Urchin licence. The Validation and Harvest Logbook must be on board the licensed vessel while fishing for Red Sea Urchins or while Red Sea Urchins are on board. Validation and Harvest Logbooks that meet the Department's approval are available from the service provider or from the Pacific Urchin Harvesters Association.

The PUHA and Fisheries and Oceans Canada have developed two alternate methods of validation in order to support the development of a live market program for Red Sea Urchins. Traditionally urchins destined for the processed market are landed dry, but to maintain the quality required for live markets, urchins must be transported in sea water. One of the alternate validation methods includes a volumetric measurement of containers holding urchins that will then be converted to a 'dry' weight. The other method includes removing urchins briefly from a container of sea water to weigh them and then returning them to the container. The 'wet' weight would then be converted to a 'dry' weight. DFO implemented the two alternate validation methods as a pilot program for the 2013/14 season. The pilot program will be extended for the 2018-19 season and may be extended to ports in other parts of the coast. The PUHA has agreed to pay for the enhanced dockside monitoring that will be required. Vessels involved with this pilot program will be required to contact a resource manager listed in Appendix 14 in order to sign up for the pilot program.

### 3.7.1. Validation and Harvest Log Entries

At the first point of landing, all Red Sea Urchins will be weighed with a government-certified scale and the weight entered on the Validation and Harvest Log. The vessel master is responsible for completing sections A and C of the Validation and Harvest Log.

The vessel master shall also ensure that chart entries are completed showing all locations fished for that validation. All harvest information must be fully entered and complete before validation takes place. The Validation and Harvest Log will remain with the licensed vessel, with one copy accompanying the product to its destination and one copy handed over to the observer at the time of validation, along with the harvest charts. The observer shall compare harvest charts to Validation and Harvest Logs to ensure that harvest information is consistent between both. The original white copy of the Validation and Harvest Log handed to the observer, along with the harvest charts for each day's harvest must be received by the service provider contracted by the Pacific Urchin Harvesters Association, within one month of the harvesting having occurred. To meet the one month requirement for submission of data, it is recommended that fish harvesters forward their information to the service provider well in advance of this time limit.

### 3.7.2. Quota Confirmation

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

### 3.7.3. Quota Overages

3.7.3.1. Quota Area TAC Overages

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

3.7.3.2. IQ Overages

Small quantities of Red Sea Urchins which exceed the licence's annual quota (up to 500 lb.) can be transferred to another Red Sea Urchin licence provided certain conditions are fulfilled. If all of these conditions are not met, overages will not be transferred to another licence. In the following explanation, the Red Sea Urchin licence which has exceeded its quota is called Licence "A", and the licence to which quota is transferred is called Licence "B".

i) Transfer of Quota to another Licence on the Same Vessel - If two or more licences are assigned to the same vessel then a quota overage from one licence may be transferred to the Red Sea Urchin licence which has quota remaining. Overage of the last Red Sea Urchin licence quota on the same vessel may be transferred to another vessel's Red Sea Urchin licence in accordance with policy described below.
ii) Maximum Allowable Transfer of Quotas between Licences on Different Vessels - In the event of a quota overage on Red Sea Urchin Licence "A", a maximum of 500 lb. of red sea urchins may be transferred to another vessel's Red Sea Urchin licence (Licence "B"). Harvest of Red Sea Urchins over the IQ after the permitted quota overage adjustments may be subject to prosecution and seizure of the overage. Only

one transfer of quota overage is allowed. The quota overage cannot be divided between multiple licences.

iii) Remaining Quota on Second Licence - The amount transferred cannot exceed the remaining quota of Red Sea Urchin Licence "B".

iv) Red Sea Urchin Licence Area - Both vessels involved in the transfer must be licensed to fish in the same licence area and have active licences for that licence year (the provision for landing at the same port has been removed).

v) Documentation - The Red Sea Urchin Validation and Harvest Log for each of the licences involved in the transfer must be present at the time of the validation. Both vessel masters must make their intention to transfer or receive quota overage clear to the observer prior to unloading. In the event of a packer landing, a note signed by both vessel masters should accompany the product to advise the observer that there is a mutual agreement to transfer.

## 3.8. Catch and Fishing Data

It is a Condition of Licence and the responsibility of the licence holder to ensure that harvest and chart information is received by Fisheries and Oceans Canada Shellfish Data Unit and meets the conditions outlined below.

### 3.8.1. Harvest Data

The vessel master is responsible for the provision and maintenance of an accurate record, a "log", of daily harvest operations. 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, Shellfish Data Unit.

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

Validation & Harvest Logbooks meeting Fisheries and Oceans Canada requirements are available from the service provider contracted by the PUHA to provide data services for the red sea urchin fishery. The service provider will provide the Validation & Harvest Logbook coding and data entry service, including the electronic capture of harvest chart information into GIS, thus complying with the requirements for submission of a hard (paper) copy and electronic copy including fishing location information, for harvest data.

The original white page copy of the log, the accompanying chart record and the electronic copies must be forwarded within one month of the harvesting having occurred. Fish harvesters having validation services completed by the service provider contracted by the PUHA will receive this service as part of that contract. The information must be sent to:

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

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

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

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

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

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

**Fisheries and Oceans Canada wishes to remind fish harvesters that harvest logs must be completed accurately during fishing operations and submitted to Fisheries and Oceans Canada in accordance with the timing set out in Conditions of Licence. Failure to complete or submit logs in a timely manner is a violation of Condition of Licence.**

### 3.8.4. Confidentiality of Harvest Data

Harvest data, including fishing location data supplied through latitude/longitude co-ordinates, loran or chart records, collected under the Validation and Harvest Logbooks for Shellfish Fisheries programs, are collected for use by Fisheries and Oceans Canada in the proper assessment, management and control of the fisheries. Upon receipt by Fisheries and Oceans Canada of harvest data and/or fishing location information supplied by the fish harvester in accordance with conditions of licence, Section 20(1)(b) of the *Access to Information Act* prevents the Department from disclosing to a third party,

records containing financial, commercial, scientific or technical information that is confidential information. Further, Section 20(1)(c) of the *Act* prevents the Department from giving out information, the disclosure of which could reasonably be expected to result in material financial loss or could reasonably be expected to prejudice the competitive position of the fish harvester.

### 3.9. Other

#### 3.9.1. Lost Product

Product lost or wasted at sea will use the following protocol.

i) The weight of product lost from the deck of the catcher vessel and/or packer vessel during transport will be applied to both the catcher vessel's individual quota and the applicable area quota.
ii) The weight of product spoiled or wasted because of weather-related delays will also be applied to both the catcher vessel's individual quota and the applicable area quota.
iii) The Department, in consultation with the service provider, will use the estimated packer or ground weight and appropriate water loss calculation for the harvest site to determine an estimated dock weight.

Situations requiring use of this protocol will be discussed with the PUHA prior to implementation.

#### 3.9.2. Export of Red Sea Urchins

Licence conditions regarding Validation and Harvest Logs and fish slips must be complied with, even for Red Sea Urchins exported from British Columbia that have not gone through a federally registered processing plant.

## 4. OPEN TIMES AND QUOTA AREAS

### 4.1. General Information

The commercial fishery will open no earlier than August 1, 2018 and close no later than July 31, 2019. Red sea urchin Quota Areas within the North and South Coast licence areas will be fished in the following manner. Please note research and permanent area closures as listed in Section 5.

A fishery notice will announce the actual opening date and time. All openings referred to in this plan are tentative until confirmed by issuance of variation order accompanied by fishery notice.

Fishery timing, through scheduled openings, is determined in consultation with the PUHA and the Sea Urchin Processors Association (SUPA) to maintain optimal value for the sea urchin roe. The South Coast fishery takes place primarily during the winter, the period of traditional peak market demand. The North Coast fishery is scheduled to provide a continuous year-round supply of high quality product.

The following is the protocol for adjustments to fishery timing:

a) The PUHA, on behalf of licence eligibility holders, will co-ordinate area openings with Fisheries and Oceans Canada. The Department requires a **minimum of 48 hours notice** from the PUHA (exclusive of weekends and holidays) to open a new Quota Area.
b) A "Quota Area" is a defined portion of Pacific fisheries waters. Areas and Subareas, as described in the Pacific Fishery Management Area Regulations, are referenced in describing Quota Areas. Each Quota Area has a name (i.e. RU01a Lepas Bay), and is assigned a total allowable catch.
c) Fishers are required to offload their catch at a designated landing port or to a packer prior to fishing in a new Quota Area.
d) If weather or roe quality halts all fishing in a Quota Area, Fisheries and Oceans Canada may consider a change to the opening schedule. Alterations to the opening schedule will be based on recommendation from the PUHA.

## 4.2. Supplemental Harvest

Supplemental harvest of Red Sea Urchins will be considered for research purposes. Any authorized supplemental harvest is expected to be in addition to the TAC and IQ allocated for the current season and must be performed by either a ZC or FZC licensed vessel. If a supplemental harvest opportunity is approved, ZC and FZC licence holders will be able to apply for supplemental conditions of licence that will permit this activity. A selection process, harvest amount and schedule will be developed in consultation with the PUHA and other project proponents.

## 4.3. North Coast Licence Area (Areas 1 through 10 and adjacent off-shore areas)

Fisheries and Oceans Canada and the PUHA will collaborate to schedule North Coast openings over the season in order to meet market demands and to prevent local stock depletion.

The North Coast commercial red sea urchin TAC for 2018/2019 will be 8,413,000 lbs., (3,816.1 t) apportioned between the Quota Areas shown in the table below. All weights referred to in the tables below are the weights that are determined during validation at the **first point of landing** (in pounds).

| Opening Sequence | Quota Area | Name | Description | Quota (lbs.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10. **Changes marked in bold type.** | | | | |
| **HAIDA GWAII (Areas 1, 2 and adjacent offshore areas)** | | | | |
| TBA | RU01a | Lepas Bay | Ptn. Subarea 1-1 | 100,000 |
| TBA | RU01b | Frederick Island | Ptn. Subarea 1-1 | 35,000 |
| TBA | RU02a | Langara Island | Ptn. Subareas 1-2, 1-7, 101-2, 101-3, 101-6, 101-7 except closures | 205,000 |
| TBA | RU02b | Virago Sound | Subarea 1-3, ptn. Subareas 1-2, 1-7, 101-6, 101-7 except closures | 105,000 |
| TBA | RU03a | Cumshewa Inlet | Subareas 2-2, 2-3 except closure | 0 |
| TBA | RU03b | Kunga Island | Subareas 2-8, 2-10 except closures | 120,000 |
| Closed for research | RU04a | Juan Perez Sound (Tar Island) | Ptn. Subarea 2-11 | 0 |
| TBA | RU04b | Section Cove | Subareas 2-12, 2-13 except closure | 75,000 |
| TBA | RU05a | Skincuttle Inlet | Subareas 2-14, 2-15 | 200,000 |
| TBA | RU05b | Carpenter Bay | Subarea 2-17 | 120,000 |
| TBA | RU06 | Lower 2E | Subareas 2-18, 2-19 except closure | 200,000 |
| TBA | RU07 | Lower 2W | Subareas 2-31 to 2-34 except closure, ptn. Subarea 142-1 | 220,000 |
| TBA | RU08a | Flamingo | Subareas 2-35 to 2-46 and ptn. 142-1 except closures | 90,000 |
| TBA | RU08b | Englefield | Subareas 2-47 to 2-62 and 142-2 | 100,000 |
| TBA | RU09 | Van Inlet | Subarea 2-68 | 100,000 |
| TBA | RU10 | Rennel Sound | Subareas 2-69 to 2-84 except closure | 200,000 |

| Opening Sequence | Quota Area | Name | Description | Quota (lbs.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10. **Changes marked in bold type.** | | | | |
| TBA | RU11 | Hippa Island | Subareas 2-85 to 2-87, ptn. Subarea 2-88 | 110,000 |
| TBA | RU12 | Port Louis | Ptn. Subarea 2-88, Subareas 2-89 to 2-100 | 90,000 |
| **Haida Gwaii Total:** | | | | **2,070,000** |
| | | | | |
| **MAINLAND NORTH COAST (Areas 3 to 6 and adjacent offshore areas)** | | | | |
| TBA | RU13a | Dundas Island North | Subareas 3-1, 3-2, 3-3, 3-7, 3-11 | 380,000 |
| TBA | RU13b | Dundas Island South | Ptn. Subareas 4-1, 4-5 | 200,000 |
| TBA | RU13c | Melville Island | Ptn. Subareas 4-1, 4-5, 4-9, 4-13 | 60,000 |
| TBA | RU13d | Nares Islets | Ptn. Subarea 4-1 | 60,000 |
| TBA | RU14 | Tree Nobs | Ptn. Subareas 4-1, 4-2, 4-13 | 320,000 |
| TBA | RU15 | Outside Stephens Island | Ptn. Subarea 4-2 | 100,000 |
| TBA | RU16 | Inside Stephens Island | Ptn. Subareas 4-9, 4-13 | 120,000 |
| TBA | RU17 | Kelp Pass | Subarea 4-12 | 60,000 |
| TBA | RU18a | Edye Pass | Ptn. Subarea 4-2, Subarea 4-4 | 120,000 |
| TBA | RU18b | Oval Bay | Ptn. Subarea 4-2, Ptn. Subarea 4-3 | 140,000 |
| TBA | RU19 | Porcher Inlet | Subarea 5-9 | 60,000 |
| TBA | RU20a | Cape George | Ptn. Subarea 4-3 | 60,000 |

| Opening Sequence | Quota Area | Name | Description | Quota (lbs.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10. **Changes marked in bold type.** | | | | |
| TBA | RU20b | Freeman Passage | Ptn. Subareas 5-11, 5-12<br>(closed inside Freeman Spit) | 80,000 |
| TBA | RU21 | Willis Bay | Ptn. Subareas 5-10, 5-11 | 100,000 |
| TBA | RU22a | Hankin Rock | Ptn. Subarea 5-10 | 50,000 |
| TBA | RU22b | Beaver Pass | Ptn. Subarea 5-10 | 54,000 |
| TBA | RU23 | Upper Principe Channel | Subarea 5-13 | 142,000 |
| TBA | RU24a | Mid Principe Channel | Ptn. Subarea 5-17; Subarea 5-18 | 54,000 |
| TBA | RU24b | Lower Principe Channel | Ptn. Subarea 5-17, Subarea 5-19, Ptn. Subarea 6-9 north of Fleishman Point | 70,000 |
| TBA | RU25 | Petrel Channel | Subareas 5-14, 5-15, 5-16. | 20,000 |
| TBA | RU26 | Larsen Harbour | Ptn. Subareas 5-11, 5-20 | 108,000 |
| TBA | RU27a | Upper Banks Island | Ptn. Subarea 5-20 | 160,000 |
| TBA | RU27b | Mid Banks Island | Ptn. Subarea 5-20 | 108,000 |
| TBA | RU28 | Bonilla Island | Ptn. Subarea 5-20, Subarea 105-1, ptn. Subarea 105-2 | 250,000 |
| TBA | RU29 | Kingkown Inlet | Ptn. Subarea 5-20, Subarea 5-21 | 100,000 |
| TBA | RU30 | Lower Banks Island | Subarea 5-22, ptn. Subareas 105-2, 106-1 | 400,000 |
| TBA | RU32 | Calamity Bay | Ptn. Subarea 6-9 | 250,000 |
| TBA | RU33 | Otter Pass | Ptn. Subarea 6-9 | 300,000 |
| TBA | RU34a | Langley Pass | Ptn. Subarea 6-9 | 50,000 |

| Opening Sequence | Quota Area | Name | Description | Quota (lbs.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10. **Changes marked in bold type.** | | | | |
| TBA | RU34b | Develin Bay | Ptn. Subarea 6-9 | 50,000 |
| TBA | RU35 | Oswald Bay | Ptn. Subareas 6-9, 106-1 | 150,000 |
| TBA | RU36a | Estevan Group East | Ptn. Subareas 6-9, 6-10 | 200,000 |
| TBA | RU36b | Estevan Group South | Ptn. Subareas 6-9, 106-1 | 110,000 |
| TBA | RU37 | Rennison Island | Ptn. Subareas 6-9, 6-10, 6-11, 6-13 | 96,000 |
| TBA | RU38a | Campania Island | Ptn. Subarea 6-10 (west Campania Island) | 200,000 |
| TBA | RU38c | Surf Inlet | Ptn. Subarea 6-10, Subarea 6-12 | 50,000 |
| TBA | RU38d | Gil Island West | Subareas 6-5, 6-27 and 6-28 | 54,000 |
| TBA | RU38e | McKay Reach | Subarea 6-7 | 20,000 |
| TBA | RU38f | Whale Channel | Subareas 6-6, 6-8, Ptn. Subarea 6-10, Subarea 6-26 | 54,000 |
| TBA | RU39 | Upper West Aristazabal | Ptn. Subareas 6-13, 106-2 | 190,000 |
| TBA | RU40 | Woodcock Islands | Ptn. Subareas 6-13, 106-2 | 40,000 |
| TBA | RU41 | Normansell Islands | Ptn. Subareas 6-13, 106-2 | 96,000 |
| TBA | RU43 | Upper Laredo | Ptn. Subarea 6-11, Subarea 6-14 | 30,000 |
| TBA | RU44 | Lower Laredo | Subarea 6-15, ptn. Subarea 6-16 | 50,000 |
| TBA | RU45 | Laredo Inlet | Ptn. Subarea 6-16, Subarea 6-19 | 20,000 |
| TBA | RU46a | Laredo Sound | Ptn. Subareas 6-16, 6-17 | 96,000 |
| TBA | RU46b | Prior Pass | Ptn. Subareas 6-13, 6-17 | 96,000 |
| Mainland North Coast total: | | | | **5,578,000** |

| Opening Sequence | Quota Area | Name | Description | Quota (lbs.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10. **Changes marked in bold type.** | | | | |
| | | | | |
| **MAINLAND CENTRAL COAST SPECIAL MANAGEMENT AREA (Areas 6, 7 to 10, 106 and adjacent offshore areas) See Section 4.4** | | | | |
| TBA | RU31a | Moore Islands | Ptn. Subarea 106-2 | 300,000 |
| | RU31b | Harvey Islands | Ptn. Subarea 106-2 | |
| TBA | RU42 | Lower West Aristazabal | Ptn. Subareas 6-13, 106-2 | 74,000 |
| TBA | RU47b | Day Point | Ptn. Subareas 7-1, 7-2, 7-3, 7-31 | 50,000 |
| TBA | RU48 | Milbanke Sound | Ptn. Subarea 7-3 | 96,000 |
| TBA | RU49 | Finlayson Channel | Subareas 7-4, 7-5, 7-6, ptn. Subarea 7-9 | 96,000 |
| TBA | RU50 | Mathieson Channel | Ptn. Subarea 7-9 | 96,000 |
| TBA | RU57b | West Calvert Island | Area 109, Ptn. Subarea 10-1 | 8,000 |
| TBA | RU57c | Grief Bay | Ptn. Subarea 10-1 | 20,000 |
| TBA | RU58 | Smith Inlet | Ptn. Subarea 10-2, Subareas 10-3, 10-4, 10-5, 10-7, 10-8, 10-12 | 25,000 |
| Mainland Central Coast Special Management Area Total: | | | | **765,000** |
| **NORTH COAST LICENCE AREA TOTAL:** | | | | **8,413,000** |

### 4.4. North Coast Protocol

For the 2018/19 season the On-Grounds Monitoring program for the north coast fishery will once again be suspended. The PUHA and DFO will work together to develop and implement a fishing protocol for the 2018/19 fishing season. Certain members of the PUHA will be designated as “On-Grounds Co-ordinators” and will aid in keeping track of fleet movements and north coast area quotas.

A Vessel Monitoring System (VMS) will be piloted by the north coast fishing groups for the 2018/19 season in order to increase monitoring efficiency. This will be the eighth year of the VMS pilot program. **Each north coast fishing group will be required to have at least one vessel equipped with a functional VMS unit at all times or fishing activity will cease.** More detail will be available in the North Coast Fishing Protocol available from the service provider or resource managers (please see contacts in Appendix 14).

The Department will evaluate the north coast fishing protocol as the season progresses to ensure that all licence conditions and management requirements for the fishery are being met. If enforcement, quota tracking, or management issues arise in-season, the Department may reinstate the On-grounds Monitoring (OGM) requirement for the fishery or may implement other management actions.

### 4.5. Mainland Central Coast Special Management Area

Sea Otters have expanded their range in Management Areas 6, 7 to 10 and 106 (Mainland Central Coast) over the last few years and have adversely affected the commercial Red Sea Urchin fishery. In the past, Quota Areas that have been impacted by Sea Otter predation have either been closed or have had their quotas reduced. The Mainland Central Coast Special Management Area will allow greater flexibility in portions of Management Areas 6, 7 to 10 and 106. See section 5.4 in Appendix 6.

'Fallback' quota will be available in Quota Areas impacted by Sea Otters. This will allow harvesters an opportunity to scout for and harvest Red Sea Urchins in these areas since not all portions of a Quota Area may be impacted by Sea Otters. This does not increase the overall Total Allowable Catch (TAC) or Individual Quotas (IQ). Any quota fished in these areas will reduce available quota in (an)other area(s) within the Mainland Central Coast Special Management Area so the overall TAC is not exceeded.

**Fallback quota for the Mainland Central Coast Special Management Area**

| Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|
| RU47a | Thompson Bay | Ptn. Subareas 7-1, 7-2, Subareas 7-19, 7-20, ptn. Subarea 7-21, Subarea 7-32 | 20,000 |
| RU51 | Seaforth Channel | Subarea 7-8, ptn. Subarea 7-9, Subareas 7-12, 7-15, ptn. Subarea | 20,000 |

| | | | |
|---|---|---|---|
| | | 7-21 | |
| RU52 | Tribal Group | Subarea 7-18; Ptn. Subareas 7-23, 7-24 | 20,000 |
| RU53 | Spider/Kildidt | Subareas 7-26, 7-27, 7-28 | 20,000 |
| RU54 | McNaughton Group | Ptn. Subarea 7-17, Subarea 7-25 | 20,000 |
| RU55 | Hakai Pass | Subareas 8-1, 8-2 | 20,000 |
| RU56a | Nalau Pass | Ptn. Subarea 8-4 | 20,000 |
| RU56b | Fitz Hugh Sound | Subarea 8-3, ptn. Subarea 8-4, Subarea 8-16, Ptn. Subarea 9-12 | 20,000 |
| RU57a | Rivers Inlet | Subareas 9-1 to 9-4, 9-10, 9-11, Ptn. Subarea 9-12, Ptn. Subareas 10-1 and 10-2 | 20,000 |

### 4.6. South Coast (Areas 11 through 29 and adjacent offshore areas)

The South Coast TAC will be **2,122,000 lb. (962.5 tonnes)**, apportioned between the Quota Areas shown in the table below. All weights referred to in the tables below are the weights that are determined during validation at the **first point of landing** (in pounds). Openings in the South Coast are to be determined in-season based on advice from the PUHA. The timing of each area's harvest is expected to be similar to last season's schedule. **The PUHA has requested that Quota Area 17 (Nanaimo) be set aside for vessels involved with the fresh/live market program for the 2018/19 season.**

| Opening Sequence | Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10.<br>**Changes marked in bold type.** | | | | |
| **NORTHERN VANCOUVER ISLAND SPECIAL MANAGEMENT AREA (Areas 11 and 12) – See section 4.6** | | | | |
| TBA | 12E | Blackfish Sound | Subareas 12-5, 12-6, 12-20, 12-26 except closures | 204,000 |

| Opening Sequence | Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10.<br>**Changes marked in bold type.** | | | | |
| TBA | 12H | Northern Johnstone Strait | Subareas 12-1 to 12-3, 12-21 to 12-24 | 94,000 |
| TBA | 12K | Port McNeill | Subareas 12-4, 12-8, 12-17, portion of Subarea 12-18 (excluding Stephenson Islets), Subarea 12-19 and except closures | **216,000** |
| TBA | 12L | Stephenson Islets | Ptn. Subarea 12-18 | **64,000** |
| **Northern Vancouver Island total:** | | | | **578,000** |
| | | | | |
| **CENTRAL VANCOUVER ISLAND URCHIN BARREN MANAGEMENT AREA (Area 13) – See Section 4.8** | | | | |
| TBA | 13A | Kelsey Bay - Proper | Subareas 13-32 to 13-34 | 82,000 |
| TBA | **13B** | Campbell River South | Subareas 13-1, 13-2, ptn Subarea 13-3, ptn. Subarea 14-13 | **300,000** |
| TBA | 13C | Campbell River North | Subareas ptn. 13-6, 13-7 to 13-9, 13-11, 13-27, 13-28 | **170,000** |
| TBA | 13D | Campbell River East | Subareas 13-10, 13-12 | **134,000** |
| TBA | 13E | Cordero Channel | Subareas 13-25, 13-41, 13-42 | 34,000 |
| TBA | 13F | Kelsey Bay – East | Subareas 13-29 to 13-31, 13-35 to 13-40 | 71,000 |
| TBA | 13G | Stuart Island | Subareas 13-13 to 13-24, 13-26 | **160,000** |
| TBA | **13J * (NEW)** | **Discovery Pass** | **Ptn. Subarea 13-3; Subareas 13-4 and 13-5, ptn. 13-6** | **80,000** |

| Opening Sequence | Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10.<br>**Changes marked in bold type.** | | | | |
| **Central Vancouver Island total:** | | | | **1,031,000** |
| | | | | |
| **SOUTHERN VANCOUVER ISLAND ) Areas 14, 17 to 20 and 29** | | | | |
| TBA | 14A | Comox | Subareas 14-5, 14-7, 14-8, 14-10, ptn. Subareas 14-9, 14-11 and 14-12 | 25,000 |
| TBA | 14B | Cape Lazo | Ptn. Subareas 14-9, 14-11, 14-12, 14-13 | 12,000 |
| **Set aside for Fresh/ Live Program** | 17 | Nanaimo | Area 17 except closure, Subarea 29-5 | 67,000 |
| TBA | 18A | Sidney | Subareas 18-3, 18-4, 18-6, ptn. Subarea 19-5, Subarea 19-6 | 30,000 |
| TBA | 18B | Mayne/Saturna Island | Subareas 18-1, 18-2, 18-5, 18-9, 18-11, 29-4 | 57,000 |
| TBA | 19 | Victoria | Subareas 19-3, 19-4, ptn. Subarea 19-5 | 40,000 |
| TBA | 20A | Sooke | Ptn. Subarea 20-5 (West of Possession Pt.); Subarea 20-6 | 10,000 |
| TBA | 20B | Becher Bay | Ptn. Subarea 20-5 (East of Possession Pt.) and excluding closures (see Appendix 10) | 10,000 |
| TBA | 20C | Jordan River | Subarea 20-4 | 10,000 |
| **Southern Vancouver Island total:** | | | | **261,000** |
| | | | | |

| Opening Sequence | Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|---|
| Note: Most Quota Areas area comprised of portions of Areas and Subareas. Complete descriptions of Quota Areas are provided in Appendix 10.<br>**Changes marked in bold type.** | | | | |
| **WEST COAST OF VANCOUVER ISLAND (Areas 23 and 123)** | | | | |
| TBA | 23A | Bamfield | Subareas 23-5 to 23-7 except closures | 78,000 |
| TBA | 23B | Ucluelet | Subareas 23-11, 123-3 except closures | 130,000 |
| TBA | 23C | Offshore Area 23 | Subarea 123-5 | 44,000 |
| **West Coast Vancouver Island total:** | | | | **252,000** |
| **SOUTH COAST LICENCE AREA TOTAL:** | | | | **2,122,000** |

* Opening Quota Area 13J Discovery Pass may be delayed to complete research work in the area.

### 4.7. Northern Vancouver Island Special Management Area

Sea Otters have expanded their range in Management Areas 11 and 12 (Northern Vancouver Island) over the last few years and have adversely affected the commercial Red Sea Urchin fishery. In the past, Quota Areas that have been impacted by Sea Otter predation have either been closed or have had their quotas reduced. The Northern Vancouver Island Special Management Area, in keeping with DFO Science advice, will allow greater flexibility in portions of Management Areas 11 and 12.

'Fallback' quota will be available in quota areas impacted by Sea Otters. This will allow harvesters an opportunity to scout for and harvest Red Sea Urchins in these areas, since not all portions of a Quota Area may be impacted by Sea Otters. This does not increase the overall Total Allowable Catch (TAC) or Individual Quotas (IQ). Any quota fished in these areas will reduce available quota in other area(s) within the Northern Vancouver Island Special Management Area so the overall TAC is not exceeded.

Within the Special Management Area, quota may be moved from regular quota areas to fallback quota areas but may not be moved between regular quota areas.

**Fallback quota for the Northern Vancouver Island Special Management Area**

| Quota Area | Name | Description | Quota (lb.) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 11 | Allison Harbour | Ptn. Area 11 | TBD |
| 12A | Bates Pass | Ptn. Subarea 12-12 | TBD |
| 12B | Christie/Browning Pass | Subarea 12-10, ptn. Subarea 12-11 | TBD |
| 12C | Port Hardy | Subarea 12-15, ptn. 12-16 | TBD |
| 12F | Deserter Island | Ptn. Subarea 12-13 | TBD |
| 12G | Wells Pass | Subareas 12-7, 12-38 to 12-42 except closure | TBD |
| 12J | Shadwell Pass | Ptn. Subarea 12-12 | TBD |
| Note: Quota will be determined in-season (TBD). | | | |

### 4.8. Central Vancouver Island Urchin Barren Management Area

The Department, A-Tlegay Fisheries Society and PUHA are piloting a Central Vancouver Island Urchin Barren Management Area for the 2018-19 season as part of an ecosystem management approach in Management Area 13. Red Sea Urchin barrens exist around Management Area 13 and may be negatively impacting the growth of kelp and sessile invertebrates. In order to reduce the number of Red Sea Urchins in this area, the harvest rate will be increased from 2% to up to 5% and a closure will be reopened in Discovery Passage. A post-season discussion involving DFO, A-Tlegay Fisheries Society and PUHA will be held to see if there is support to continue this pilot program in future seasons. Please note that the opening of quota area 13J Discovery Passage may be delayed to allow completion of research in the area.

Within the Central Vancouver Island Urchin Barren Management Area, quota may not be moved between quota areas.

### 4.9. Live Market Validation Pilot Program

The Department and the PUHA are piloting an alternate validation program to trial two new methods of catch validation. The two new validation methods are intended to allow the validated weight of urchins destined for the live-market (transported submerged in sea water) to count towards the same amount of quota as urchins destined for the traditional processed market (transported out of water).

The two alternate validation methods will include a volumetric method and a water-loss conversion method and are described in the Live Market Validation Pilot Program Protocol available from the service provider or resource managers (see contacts in

Appendix 14). Participants will be limited to those landing urchins destined for the live/fresh market. These alternate methods of validation are not to be used for urchins heading to the processed market.

## 5. CLOSURES

It is the fish harvesters' responsibility to ensure that an area is open before harvesting.

### 5.1. Notification of Closures

Additional closures may be announced in-season by Fishery Notice. Prior to fishing in an area, fish harvesters are advised to consult the local Fisheries and Oceans Canada office or to contact a resource manager listed in Appendix 14.

### 5.2. Research Area Closures

Some areas have been designated as research or study areas and are closed to commercial fishing. Fishing is permitted in these areas only under a scientific licence. Studies undertaken in these areas are a co-operative effort between Fisheries and Oceans Canada, the PUHA and local First Nations and include investigations into size limits and the effects of various harvest strategies on resident stocks. For further information on the research areas, please contact Dan Leus (250) 756-7147.

### 5.3. Permanent Closures

The following areas are closed for commercial Red Sea Urchin harvest.

#### 5.3.1. Area 1

5.3.1.1. Kiusta I.R.: That portion of Subarea 1-2 inside a line commencing at 54 degrees 10.5 minutes north latitude, 133 degrees 00.9 minutes west longitude, then due north to the 20 fathom contour line as shown on Canadian Hydrographic Service Chart #3868, then following the 20 fathom contour line to 54 degrees 11.4 minutes north latitude, 133 degrees 01.8 minutes west longitude, then due south to 54 degrees 11.1min north latitude, 133 degrees 01.8 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.2. Dadens I.R.: That portion of Subarea 1-2 inside a line commencing at 54 degrees 11.2 minutes north latitude, 132 degrees 58.9 minutes west longitude, then running true south to the north shore of Lucy Island; then following the north shore of Lucy Island to the westernmost point; then running to 54 degrees 11.3 minutes north latitude, 132 degrees 59.9 minutes west longitude, then running true east to 54 degrees

11.3 minutes north latitude, 132 degrees 59.3 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.3. Egeria Bay I.R.: That portion of Subarea 1-2 inside a line commencing at 54 degrees 12.9 minutes north latitude, 132 degrees 59.1 minutes west longitude, then running true east to the 20 fathom contour as shown on Canadian Hydrographic Service Chart #3868, then following the 20 fathom contour to 54 degrees 13.2 minutes north latitude, 132 degrees 58.5 minutes west longitude, then running true west to 54 degrees 13.2 minutes north latitude, 132 degrees 59.2 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.4. Dibrell Bay I.R.: That portion of Subarea 1-2 inside a line commencing at 54 degrees 13.8 minutes north latitude, 132 degrees 58.3 minutes west longitude, then running true east to the 20 fathom contour; the following the 20 fathom contour as shown on Canadian Hydrographic Service Chart #3868 to 54 degrees 14.05 minutes north latitude, 132 degrees 57.6 minutes west longitude, then true west to 54 degrees 14.05 minutes north latitude, 132 degrees 58.3 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.5. Rhodes Point I.R.: A portion of Subarea 1-2 inside a line commencing at 54 degrees 12.9 minutes north latitude and 133 degrees 01.7 minutes west longitude, then running true south to the 10 fathom contour as shown on Canadian Hydrographic Service Chart #3868, then following the 10 fathom contour to 54 degrees 13.2 minutes north latitude, 133 degrees 02.8 minutes west longitude, then running true east to 54 degrees 13.2 minutes north latitude, 133 degrees 02.2 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.6. Langara Point I.R.: That portion of Subarea 101-6 inside a line commencing at 54deg 15.03min north latitude, 133 degrees 03.7 minutes west longitude, then running true west to the 20 fathom contour as shown on Canadian Hydrographic Service Chart #3868, then following the 20 fathom contour to 54 degrees 15.3 minutes north latitude, 133 degrees 04.4 minutes west longitude, the running true east to 54 degrees 15.3 minutes north latitude, 133 degrees 03.6 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.1.7. Shag Rock: That portion of Subarea 1-3 inside a 0.25 nautical mile ribbon boundary off Indian Reserve #13 located due south of Shag Rock. The boundary begins 0.25 nautical miles north of Indian Reserve #13 and ends 0.25 nautical miles south of Indian Reserve #13. (First Nations access for food, social and ceremonial purposes)

5.3.1.8. Nankivell Point: That portion of Subarea 1-7 inside a 0.25 nautical mile ribbon boundary beginning at Nankivell Point and heading westerly along the shore for one nautical mile. (First Nations access for food, social and ceremonial purposes)

### 5.3.2. Area 2

5.3.2.1. Subareas 2-4 to 2-7 (Cumshewa Inlet/Skedans): This area is closed to undertake recruitment and mortality studies.

5.3.2.2. McCoy Cove (in Cumshewa Inlet): That portion of Subarea 2-3 lying inside a line from a boundary sign located true north of Haans Islet, thence easterly to the sector light located at the south-easterly entrance to McCoy Cove. (First Nations access for food, social and ceremonial purposes)

5.3.2.3. Skedans Bay: That portion of Subarea 2-7 shoreward of a line from Skedans Point to Vertical Point. (First Nations access for food, social and ceremonial purposes)

5.3.2.4. Tanu Island: That portion of Subarea 2-8 which is the easterly shore of Tanu Island north of Klue Point to the most north-easterly tip of Tanu Island. (First Nations access for food, social and ceremonial purposes)

5.3.2.5. Richardson Pass: That portion of Subarea 2-8 including the southerly shore of Richardson Island within Richardson Passage. (First Nations access for food, social and ceremonial purposes)

5.3.2.6. Juan Perez Sound: That portion of Subarea 2-11 east of a line running from Sedgwick Point on Lyell Island to Ramsay Point on Ramsay Island. (Abalone Recovery Strategy Research Area)

5.3.2.7. Windy Bay: That portion of Subarea 2-11 shoreward of a line between Fuller Point and Gogit Point on Lyell Island. (First Nations access for food, social and ceremonial purposes)

5.3.2.8. Hotsprings and House Islands: That portion of Subarea 2-11 lying inside the ten fathom edge surrounding Hot Springs Island and House Island. (First Nations access for food, social and ceremonial purposes)

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

5.3.2.10. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site, **Louscoone Estuary**: Those waters of Subareas 2-33 and 2-34 north of a line drawn from 52º11.828’ N and 131º15.662’ W east to 52º12.269’ N and 131º14.579’ W. (National Marine Conservation Area).

5.3.2.11. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site, **Flamingo Estuary**: Those waters of Subarea 2-37 north of a line drawn from 52º14.523’ N and 131º22.24’ W southeast to 52º14.245’ N and 131º21.481’ W. (National Marine Conservation Area).

5.3.2.12. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site, **Gowgaia Estuary**: Those waters of Subarea 2-41 east of a line drawn from 52º24.947’ N and 131º32.13’ W southeast to 52º24.233’ N and 131º32.021’ W. (National Marine Conservation Area).

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

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

5.3.2.15. West Skidegate Channel and Buck Channel: Subareas 2-63, 2-64, 2-66 and 2-67. (First Nations access for food, social and ceremonial purposes)

5.3.2.16. Shields Bay: That portion of Subarea 2-77 south of a line from Dawson Head true north to the opposite shore. (First Nations access for food, social and ceremonial purposes)

### 5.3.3. Area 5

5.3.3.1. Kitkatla Inlet/Schooner Pass: Subarea 5-3 and a portion of Subarea 5-10 north of a line running from the north-western tip of McCauley Island to a boundary sign on the northwest tip of Spicer Island and north of a line running from Boys Point on Dolphin

Island to a boundary sign located on the south-westernmost tip of Spicer Island. (First Nations access for food, social and ceremonial purposes)

5.3.3.2. Kitkatla Village: That portion of Subarea 5-10 north and east of a line running from the northern tip of the entrance to Dolphin Lagoon on Dolphin Island west to a point on the Prager Islands located at 53 degrees 46.85 minutes north latitude, 130 degrees 29.8 minutes west longitude, thence northerly to a point on the Shakes Islands located at 53 degrees 47.5 minutes north latitude, 130 degrees 29.0 minutes west longitude; thence true north to the boundary line. (First Nations access for food, social and ceremonial purposes)

### 5.3.4. Area 7

5.3.4.1. West Price Island: That portion of Subarea 7-31 north of a parallel passing through 52 degrees 16.3 minutes north latitude. (Research area: recruitment and mortality studies.)

### 5.3.5. Area 12

5.3.5.1. Numas Islands: In Area 12, those waters in the vicinity of the Numas Islands that lie inside a line that begins at 50 degrees 47.9 minutes north latitude, 127 degrees 07.6 minutes west longitude, then to 50 degrees 46.6 minutes north latitude, 127 degrees 02.4 minutes west longitude, then to 50 degrees 44.3 minutes north latitude, 127 degrees 04.0 minutes west longitude, then to 50 degrees 45.7 minutes north latitude, 127 degrees 09.3 minutes west longitude, then to the beginning point. (Interim Restricted Fishing Area for Rockfish Conservation; Red Sea Urchin Commercial Fishery Closure)

5.3.5.2. Subarea 12-25 (Port Neville) (Marine Reserve/Research Area)

### 5.3.6. Area 14

5.3.6.1. Hornby Island: Portions of Subareas 14-5, 14-6, 14-7, 14-9 and 14-12 described as those waters of Lambert Channel and the Strait of Georgia, inside a line commencing at Shingle Spit on Hornby Island, thence 239 degrees true for 0.5 nautical miles, thence 126 degrees true for 3.5 nautical miles, thence 64 degrees true for 6.7 nautical miles, thence 304 degrees true for 2.3 nautical miles, thence 213 degrees true for 0.5 nautical miles to Cape Gurney on Hornby Island. (Marine Reserve)

### 5.3.7. Area 15

5.3.7.1. All waters within a 0.25 nautical mile radius of the southerly end of the Beach Gardens breakwater in Subarea 15-1. (Marine Reserve)

5.3.7.2. 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)

5.3.7.3. 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)

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

5.3.7.5. 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)

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

### 5.3.8. Area 16

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

### 5.3.9. Area 17

5.3.9.1. Subareas 17-4 to 17-9 (Stuart Channel) (First Nations access for food, social and ceremonial purposes)

### 5.3.10. Area 18

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

### 5.3.11. Area 19

5.3.11.1. Ogden Point: Those waters of Subarea 19-3 inside a line commencing at 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)

5.3.11.2. 10 Mile Point: Those waters of Subareas 19-4 and 19-5 within 0.4 nautical miles of Cadboro Point navigation light. (Marine Reserve)

5.3.11.3. Race Rocks: Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve) This area is being considered for a Marine Protected Area (MPA). The closure boundary description may change.

### 5.3.12. Area 20

5.3.12.1. Race Rocks: Those waters of Subareas 19-3 and 20-5 within 0.5 nautical miles of Great Race Rock. (Marine Reserve). This area is being considered for a Marine Protected Area (MPA). The closure boundary description may change.

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

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

5.3.12.4. Becher Bay: Those waters of Subarea 20-5 north of a line running from Church Point to Beechy Head. (First Nations access for food, social and ceremonial purposes)

### 5.3.13. Area 23

5.3.13.1. 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)

5.3.13.2. Bamfield Marine Station Research Area Closure: Those waters of Subareas 23-4, 23-6 and 23-7 bounded by a line commencing at the light at Whittlestone Point and running directly to the southern tip of Haines Island; from the north-western tip of Haines Island to the southern tip of Seppings Island; from the north-western tip of Seppings Island to Kirby Point on Diana Island; from Kirby Point directly to the northwest tip of Fry Island; from the north-western tip of Fry Island to the nearest adjacent point on Tzartus Island; from Foucault Bluff on Tzartus Island to the northwest tip of Nanat Island; from the eastern tip of Nanat Island to the nearest adjacent point on Vancouver Island and thence along the coastline of Vancouver Island to the point of commencement. (Research Area)

### 5.3.14. Area 24

5.3.14.1. Area 24: Moser Point Study Area: That portion of Subarea 24-8 in the vicinity of Moser Point on Vargas Island described as: “inside of, or northerly of, a line from the most south-westerly point of Echachis Island, thence north-westerly to Wilf Rock; thence north-westerly 312 degrees true east for 0.45 nautical miles to an unnamed island in the La Croix Group designated on Canadian Hydrographic Service Chart #3649 as having a

height of land of 20 feet, thence due north to the shore of Vargas Island; thence following along the shore of Vargas Island in a north-easterly direction to the unnamed point immediately south of the Yarksis Indian Reserve; thence south-easterly across Father Charles Channel to the northernmost point on Wickaninnish Island; thence along the western shoreline of Wickaninnish Island to the southernmost point; thence in a straight line to the north-western point of Echachis Island; thence southerly along the western shoreline of Echachis Island to the point of commencement." (Research Area)

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

5.3.14.3. Hotsprings Cove: Those waters of Subarea 24-2 and 124-3 enclosed by a line commencing at a point on the Vancouver Island shoreline 2.5 km northwest of Barney Rocks, thence to a point 500 m true south (offshore), thence to Barney Rocks, thence to Sharp Point and returning along the shoreline to the point of commencement. This closure includes Hotsprings Cove, Mate Islands, Barney Rocks and the bays west of Mate Islands. (First Nations access for food, social and ceremonial purposes)

5.3.14.4. Ahous Point: The area within 1 nautical mile radius of Ahous Point on Vargas Island at 49 degrees 09.59.2 minutes north latitude, 126°01.21.5min west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.14.5. Siwash Cove: The area within 0.5 nautical mile radius of the prominent point of land at 49 degrees 15.43.6 minutes north latitude, 126 degrees 11.18.5 minutes west longitude, immediately to the southeast of Siwash Cove on Flores Island. (First Nations access for food, social and ceremonial purposes)

5.3.14.6. Chetarpe: All waters within 0.5 (1/2) nautical miles of the prominent point on Vancouver Island near Chetarpe at position 49 degrees 14.64 minutes north latitude and 126 degrees 0.85 minutes west longitude. (First Nations access for food, social and ceremonial purposes)

5.3.14.7. Hayden Pass: The waters known as Hayden Pass between Obstruction Island and Flores Island. (First Nations access for food, social and ceremonial purposes)

**5.3.15. Area 25**

5.3.15.1. Friendly Cove and Santa Gertrudis Cove: That portion of Subareas 25-6 and 25-7 inside a line from a white triangular fishing boundary sign on Nootka Island near the northerly entrance to Santa Gertrudis Cove, thence true east 0.25 nautical miles, thence true south one nautical mile, thence westerly to Yuquot Point on Nootka Island, thence to

the point of commencement. (First Nations access for food, social and ceremonial purposes)

### 5.3.16. Area 26

5.3.16.1. Kyuquot Bay: A portion of Subarea 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. (Kyuquot Sound Marine Communities Study Area)

5.3.16.2. Entrance to Crowther Channel: A portion of Subarea 26-6 on the west side of Union Island commencing at position 50 degrees 0.4 minutes north latitude, 127 degrees 19.3 minutes west longitude and identified on the map attached to this plan. (Kyuquot Sound Marine Communities Study Area)

5.3.16.3. Checleset Bay Fishery Closure Area: Those portions of Areas 26 and 126 enclosed by a line drawn from a point on the Brooks Peninsula (50 degrees 05.18 minutes north latitude, 127 degrees 49.58 minutes west longitude), thence due south to the 50 degrees parallel, thence due east to Alert Point on Lookout Island, thence north-easterly to a point on Vancouver Island near McLean Island (50 degrees 02.1 minutes north latitude, 127 degrees 25.03 minutes west longitude), thence north-westerly along the shore of Vancouver Island to Malksope Point (50 degrees 05.53 minutes north latitude, 127 degrees 28.95 west longitude), thence due west to a point midchannel on the southeast end of Gay Passage (50 degrees 05.53 minutes north latitude, 127 degrees 30.1 minutes west longitude), thence midchannel through Gay Passage to a point midchannel on the northwest end of Gay Passage (50 degrees 06.7 minutes north latitude, 127 degrees 31.8 minutes west longitude), thence north-westerly to the shore of Vancouver Island, just west of Theodore Point (at 127 degrees 32.8 minutes west longitude, 50 degrees 07.7 minutes north latitude), thence westerly along the Vancouver Island shore to an unnamed point on the east side of Nasparti Inlet (50 degrees 08.75 minutes north latitude, 127 degrees 38.6 minutes west longitude), thence westerly across Nasparti Inlet to an unnamed point on Vancouver Island (50 degrees 08.7 minutes north latitude, 127 degrees 37.8 minutes west longitude), thence along the Vancouver Island shore to the point of commencement. (Sea Otter Reserve)

### 5.3.17. Area 28

5.3.17.1. 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)

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

### 6.3.19 Portions of Subareas 101-1 and 142-2

6.3.19.1 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)

## 6. WORKSAFE BC

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

The Red Sea Urchin fishery, and other dive fisheries, is legislated by the requirements for occupational divers, found in Part 24 of the *Occupational Health and Safety Regulation* (OHSR) and as commercial fishing ventures, also found in Part 24 of the OHSR. Many of the general sections of the Regulation also apply, for example: Part 8 - Personal Protective Equipment, addresses issues related to safety head gear, safety foot ware and personal floatation devices. Part 17 addresses issues on rigging and Part 5 addresses issues of exposure to chemical and

biological substances. The entire regulation can be acquired from the Provincial Crown Printers or by visiting the WorkSafeBC website at:

www.worksafebc.com

For further information, contact an Occupational Safety Officer:

| | | |
|---|---|---|
| Mark Lunny | Courtenay | (250) 334-8732 |
| Cody King | Courtenay | (250) 334-8733 |
| Gregory Matthews | Courtenay | (250) 334-8734 |
| Jessie Kunce | Victoria | (250) 881-3461 |
| Bruce Logan | Lower Mainland | (604) 244-6477 |

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

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski (604) 233-4062 or by email: tom.pawlowski@worksafebc.com

**Appendix 2: 2018/19 Red Sea Urchin by Dive First Nations Harvest Plan**

## 1. OVERVIEW OF THE FISHERY

Fisheries & Oceans Canada's policy on the management of First Nations fishing identifies First Nations harvests for food, social and ceremonial (FSC) purposes as the first priority after conservation. Fisheries & Oceans Canada seeks to provide for the effective management and regulation of the First Nation fishery through negotiation of mutually acceptable and time-limited agreements which outline provisions pertaining to the fisheries and co-management activities. The agreements include provisions by which First Nations manage fishing by their members for FSC purposes, in addition to outlining First Nation involvement in a range of co-management activities and economic development opportunities which may include, but not be limited to, habitat enhancement, FSC catch monitoring and enforcement, fish management and community research.

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

First Nations may also participate in the commercial fishery (see Section 3.1 of the Integrated Fishery Management Plan).

## 2. MANAGEMENT MEASURES FOR THE FIRST NATIONS FISHERY

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

There is no size limit for the FSC Red Sea Urchin fishery.

## 3. OPEN TIMES

First Nations fisheries can occur year-round in all areas.

## 4. LICENSING

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

## 5. CONTROL AND MONITORING OF ABORIGINAL FISHING ACTIVITIES

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

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

Aboriginal access to fish for food, social and ceremonial purposes is managed through a communal licence which can permit the harvest of Red Sea Urchins.

For additional information on communal licences, see the Internet at:

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

### 5.1. Treaty Fisheries

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

*Nisga'a Domestic Fishing*

The Harvest Agreement for domestic (FSC) purposes under the Nisga'a Final Agreement (Treaty) came into effect on May 11, 2000. The Nisga'a territory is located within the Nass River valley on the northwest coast of BC.

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

www.aadnc-aandc.gc.ca/eng/1100100031747/1100100031749

*Tsawwassen Domestic Fishing*

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

More information on the Treaty can be found at:

www.aadnc-aandc.gc.ca/eng/1100100022734/1100100022757

*Maa-nulth Domestic Fishing*

The Maa-nulth First Nations fishery for domestic (FSC) purposes under the Maa-nulth First Nations Final Agreement (Treaty) came into effect on April 1, 2011. The Maa-nulth First Nations comprise five individual First Nations: Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations, Toquaht Nation, Uchucklesaht Tribe and the Yuułu?ił?ath First Nation on the west coast of Vancouver Island.

More information on the Treaty can be found at:

www.maanulth.ca/downloads/treaty/2010_maa-nulth_final_agreement_english.pdf

*Tla'amin Domestic Fishing*

The Tla'amin fishery for domestic (FSC) purposes under the Tla'amin Final Agreement (Treaty) came into effect on April 5, 2016. The Tla'amin Nation is located near the City of Powell River, 130 km northwest of Vancouver.

This treaty includes an allocation for Red Sea Urchins. The allocation is for 6,300 pounds of whole Red Sea Urchins from within the Tla'amin Fishing Area which includes portions of Management Areas 13, 14, 15 and 16.

More information on the Treaty can be found at:

www.aadnc-aandc.gc.ca/eng/1397050017650/1397050094605

### 5.2. T'aaq-wiihak Fishing

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First

Nations) - have Aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck.

DFO is working with the First Nations pursuant to the rights found by the courts, to find "the manner in which the plaintiffs' rights can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery." The outcome of these discussions could lead to in-season management changes. DFO will make every effort to advise stakeholders of any such changes in advance of changes being implemented.

The Department is currently considering fishing opportunities for the Nations for the 2018-2019 season within the T'aaq-wiihak First Nations' Fishing Territories as described by the courts (found on the West Coast of Vancouver Island, within Pacific Fishery Management Areas 24/124, 25/125, and portions of 26/126. It is anticipated that discussions will be ongoing.

**Appendix 3: Red Sea Urchin by Dive Recreational Harvest Plan**

## 1. LOCATION OF THE FISHERY

Recreational harvest of red sea urchins occurs coast-wide.

## 2. OPEN TIMES AND AREAS

Recreational fisheries are open year-round in all areas, or as described in the British Columbia Tidal Waters Sport Fishing Guide for the recreational fishery.

## 3. LICENSING

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

## 4. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES

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

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

### 4.1. Gear

Red Sea Urchins may be harvested by handpicking only.

### 4.2. Daily Limits

The daily recreational limit for sea urchins (all species) is 12.

### 4.3. Possession Limits

Possession limits for sea urchins (all species) are two times the daily limit.

### 4.4. Size Limit

There is no size limit for the recreational sea urchin fishery.

# APPENDIX 4: RED SEA URCHIN AQUACULTURE MANAGEMENT MEASURES

## 1. INTRODUCTION

### 1.1. BC Aquaculture Regulatory Progam

In February 2009, a BC Supreme Court decision ruled that only the federal government has the authority to regulate the fisheries aspects of aquaculture. A subsequent appeal was upheld, and in October 2009 Fisheries and Oceans Canada (DFO) received a Cabinet mandate to move forward with a new regulatory regime.

The *Pacific Aquaculture Regulation* (PAR) was drafted and published on July 9th 2010 in Canada Gazette I, and Treasury Board provided approval of the new BC Aquaculture Regulatory Program (BCARP). DFO received direction from Cabinet that the new Program will include enhanced focus on 3 key areas:

- Enforcement
- Information Management
- Public Reporting

In December 2010**,** the *Pacific Aquaculture Regulation* was published in Canada Gazette Part II. A DFO – Province of Britsh Columbia (BC) Memorandum of Understanding was signed. Licence applications were sent out to all BC licensed fin fish, shellfish and fresh water land-based aquaculture facilities and new federal licences were issued for December 19th 2010. The new regulation provides authorities needed to manage aquaculture as a fishery, consistent with DFO's mandate to protect wild fish and fish habitat.

Through 2011 to 2013, new aquaculture application processes were under development, along with consultation with First Nations and stakeholders, integrated planning and licence conditions review.

### 1.2. National Aquaculture Strategic Action Plan Initiative (NASAPI)

NASAPI was adopted in 2011 as a national initiative led by the Canadian Council of Fisheries and Aquaculture Ministers to enhance economically, environmentally and socially sustainable aquaculture development in all regions of Canada. The West Coast Shellfish Sector Strategic Action Plan supports alternative species development. More information can be found at:

http://www.dfo-mpo.gc.ca/aquaculture/lib-bib/nasapi-inpasa/shellfish-west-mollusques-ouest-eng.pdf

## 2. LICENSING

### 2.1. Aquaculture Land Tenures

Aquaculture tenures continue to be issued by the Province of British Columbia. More information can be found at: http://www2.gov.bc.ca/gov/content/industry/natural-resource-use/land-use/crown-land/crown-land-uses/aquaculture

### 2.2. Broodstock Collection

The collection of broodstock for aquaculture purposes is facilitated through a collection licence from DFO Fisheries Management and a licence from the Introductions and Transfers Committee to permit transfer of brood stock to a hatchery. National policy permits up to 0.1% of the total allowable catch (TAC), in addition to the commercial TAC, to be allocated for aquaculture purposes such as brood stock collection.

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

### 2.3. Aquaculture Licensing

In December 2010 the jurisdiction for aquaculture licensing changed from the BC Ministry of Agriculture and Lands (MAL) to DFO.

An application process has been developed with BC, DFO and Transport Canada to harmonize tenure and licence processes through FrontCounter BC. DFO is working to develop phased, integrated approaches for the development of aquaculture involving new and emerging species. In developing these approaches, DFO will be considering the following factors: science advice, existing policy, socio-economic and environmental considerations.

Until these phased approaches are in place, DFO will not be considering applications for sea urchin aquaculture under the *Pacific Aquaculture Regulations.*

Further information regarding shellfish aquaculture can be obtained by contacting DFO at Shellfish.Aquaculture@dfo-mpo.gc.ca.

Contact FrontCounter BC for further licence applications details by email to frontcounterbc@gov.bc.ca; in person: at any FrontCounter BC office nearest you http://www.frontcounterbc.gov.bc.ca or by Mail to FrontCounter BC 2080a Labieux Rd, Nanaimo, BC V9T 6J9

## 3. CLOSURES

### 3.1. Harvesting on Aquaculture Tenures

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

## APPENDIX 5: POST-SEASON REVIEW: 2017/2018 Season

### 1. Stock Assessment and Research

The scheduled survey of the Carpenter Bay index site in Haida Gwaii wasn't completed as planned in 2017 but is now scheduled to be conducted in summer 2018. Carpenter Bay is one of the three locations that have been repeatedly surveyed for stock monitoring purposes.

In 2017, fishery managers submitted a Centre for Science Advice Pacific (CSAP) request for DFO Science to recommend a range of sustainable harvest rates based upon the research information collected in BC over the last few decades. Work is underway on this paper and it is expected to be delivered in the Fall of 2018.

Please contact Dan Leus or Janet Lochead for more information (see contacts in Appendix 14).

### 2. First Nations Fishery

Catch information is collected by some First Nations, by fisheries program personnel or by Band administration offices. Fisheries and Oceans Canada (DFO) is working on initiatives to receive, store and manage shellfish food, social and ceremonial (FSC) harvest information. Some catch data have been collected under Aboriginal Fisheries Strategy (AFS) agreements. Sea urchins (any species) constitute roughly 3% of the reported catch by weight of any shellfish species (1991-2008).

### 3. Recreational Fishery

No advice or comments were received from the recreational sector over the last few seasons. The amount of Red Sea Urchins harvested by the recreational sector is unknown but believed to be minimal.

### 4. Commercial Fishery

The 2017 Red Sea Urchin Sectoral Committee meeting was held on April 11, 2017 in Nanaimo. Representatives from DFO (Resource Management and Science), the Pacific Urchin Harvesters Association and D&D Pacific Fisheries attended. A Haida First Nation representative joined in by phone.

Coast wide landings as of May 28, 2018 (season not complete at the time of publication) are approximately 6 million pounds, which is approximately 1 million pounds less than the landings at this point last season. This decrease in landings was due to poor weather conditions in the north coast throughout the season and poor gonad quality encountered around Campbell River and portions of the north coast.

A Special Management Area (SMA) was created for the Mainland Central Coast in Management Areas 7 to 10 and adjacent offshore areas. This SMA works the same way as the Northern Vancouver Island Special Management Area that was implemented in 2013. Both Special Management Areas were put in place as a way to manage around the impacts of Sea Otter range expansion. Please see section 4.4 in Appendix 1 for more information.

Managers raised the harvest rate from 2% to up to 5% in areas with Red Sea Urchin barrens (overabundances) as part of an ecosystem management approach in Management Areas 3 to 6. Due to this, the TAC returned to its previous level of approximately 10 million pounds.

Meeting records from previous Sectoral Committee meetings are available from a resource manager (see contacts, Appendix 14).

## 5. Compliance

In general compliance with the catch validation program and other management programs was considered good for the 2017/18 season, with the majority of the issues being minor infractions such as missing logbook data or insufficient hail notification. The Vessel Monitoring System pilot in the north coast licence area is considered a success and has received positive feedback from fishery officers and resource managers.

## 6. Historic Information

**Table 1.** History of Management Actions in the Red Sea Urchin Fishery, 1971 to 2016.

| Year | Management Actions |
|---|---|
| **1971 to 1977** | First reported landings. Participation very low. All landings in South Coast. |
| **1971 to 1977** | C Licences (prior to 1982) |
| **1971 to 1977** | Minimum size limit 100 mm |
| **1982 to 1985** | Steady increase in effort and landings. |
| **1982 to 1985** | Schedule II plus ZC Licences; 64 (1983), 85 (1984), 86 (1985) |
| **1986** | Steady increase in effort and landings. Minor landings in North Coast. |
| **1987** | Harvest logs and fish slips required. North Coast fishery open year-round, no quotas; focused in Central Coast due to proximity to South Coast plants. South Coast: quotas set for many areas, based on 1981 and 1984 surveys; harvesting period reduced to highest market demand (October 15 to February 15, Sunday through Thursday). |
| **1987** | Voluntary compliance closures for First Nations use. |
| **1988** | Harvest logs and fish slips required. North Coast: experimental management with minimum and maximum size limits; fishery open year-round. South Coast areas open 4 d/week (Sunday through Wednesday), with the exception of WCVI, open 7 d/week from September 11 to October 15. |
| **1988** | SA 2-13 closed to set boundaries for rotational areas. |
| **1988** | Minimum size limit 100 mm (Maximum 140 mm in NC) |
| **1989** | Fishing notification and catch reporting required. North Coast: experimental management continues; rotational fisheries. South Coast openings Sunday through Wednesday at varying periods throughout the year. |
| **1990** | Fishing notification and catch reporting required. 1990 Harvest Logbooks. North Coast fishery open year-round; area restrictions and rotational fishery. South Coast quotas mostly arbitrary; area quotas set to limit expansion until stock and biological information is collected and evaluated; fishery limited to traditional peak market demand, October to February; openings 4 to 7 d/week at periods throughout the year. |
| **1991** | Fishing notification and catch reporting required. 1991 Harvest Logbooks. North Coast effort and landings increased significantly; research requested in support of lowering the size limit; rotational fishery January 7 to December 31. South Coast openings varied throughout year. |
| **1991** | Licence limitation (October 21/91). |
| **1992** | Notification, catch reporting and fishing data requirements. North Coast: rotational areas. South Coast openings built around markets; most openings for 4 d/week; additional exploratory areas implemented for WCVI. |
| **1992** | North Coast closures considered for First Nation allocation. New closures in Areas 14, 15, 16. |

| | |
|---|---|
| **1993** | Landings monitored at first point of landing. Pacific Urchin Harvesters Association (PUHA) steering committee established. Maximum size limit removed. North Coast: reductions in NC Quota anticipated; rotational areas; three fishing periods: January to May, June to August, October to December. South Coast: quota lowered due to overages in 1992; area, opening and quota changes; all openings Monday through Thursday. |
| **1994** | Voluntary Individual Quota (IQ) program instituted by Industry. Landings validated by independent company hired by PUHA. Management plan more detailed. New logbook requirements. Export requirements. North Coast: new timing and allocation of quota to areas. |
| **1994** | New South Coast closures and study area. |
| **1994** | Area licensing – North and South Coast, divided at Cape Caution. Annual area selection. |
| **1995** | Voluntary IQ program continues. Notification and catch reporting program established. PUHA research fund established. North Coast: schedule of openings established to disperse fishery throughout year; On Grounds Monitor on the grounds January to April and October to December. South Coast: quota reduced to compensate for overage in 1994. |
| **1995** | New closures in North Coast. |
| **1996** | Two year IQ pilot program. Vessel length restrictions waived. Industry funded catch monitoring and validation program. Catch validation at first point of landing required. Designated landing ports. Fishing notification requirements. Quota overage, transfer and relinquishment requirements. North Coast: schedule of openings; On Grounds Monitor on grounds for 8 months. South Coast: minimum 3 vessels hailed before area opens. |
| **1996** | Licence stacking to maximum of three per vessel. All but Native Band licences transferable. Catch must be weighed and validated by a D&D Pacific Fisheries Ltd. observer at the time of offloading. |
| **1996** | Up to 150 lb. Quota overage permitted |
| **1997/98** | IQ pilot continues. Catch validation. 18-month fishery to facilitate a change to licensing year. Harvest log and Validation log amalgamated. Chart records required. New container marking requirements. North Coast: two licences reassigned to the North Coast - total 91. South Coast: two licences reassigned from the South Coast - total 19; decrease in TAC. |
| **1997/98** | Four new closures: SAs 17-4 to 17-9, SAs 18-7 and 18-8, ptn. SA 5-10, ptn. SAs 24-9 and 24-11. |
| **1997/98** | Up to 200 lb. Quota overage permitted |
| **1998/99** | IQ pilot continues. Management plan August, 1 1998 through June 30, 1999. Product must be offloaded (at a designated port) before moving to new area. North Coast: “Block System” used to manage area openings. |
| **1998/99** | Licence year July 1 to June 30. New licence redesignation and stacking procedures. All holding and transport containers shall be marked in a highly visible manner showing the fishing vessel’s name and CFV#. |
| **1998/99** | Up to 500 lb. Quota overage permitted |
| **1998/99** | Six new area closures in effect (in Subareas 1-2 and 101-2) for First Nations access for FSC purposes |
| **2000/01** | IQ pilot continues. Reduction in size limit to 90 mm and reduction in TAC by 12%. Plant sampling to assess the size reduction. North Coast: new fishing protocol continues. |
| **2001/02** | Licence stacking increase to a maximum of 5 active licences per vessel. IQ pilot continues. Plant sampling continues. North Coast: new fishing protocol continues.<br>Protocol to address loss/wastage of product at sea implemented |
| **2007/08** | A two-staged process conducted to allow fishers to select the area they would like to fish. No limits were placed on the number of licences in either area. This resulted in unequal IQs between the north and south coast. On Grounds Monitor program suspended.<br>TAC decreased due to a move from a spatial bed area model to a linear model for estimating biomass. |
| **2008/09** | A new North Coast Fishing protocol was developed that includes no set opening schedule in the IFMP, all |

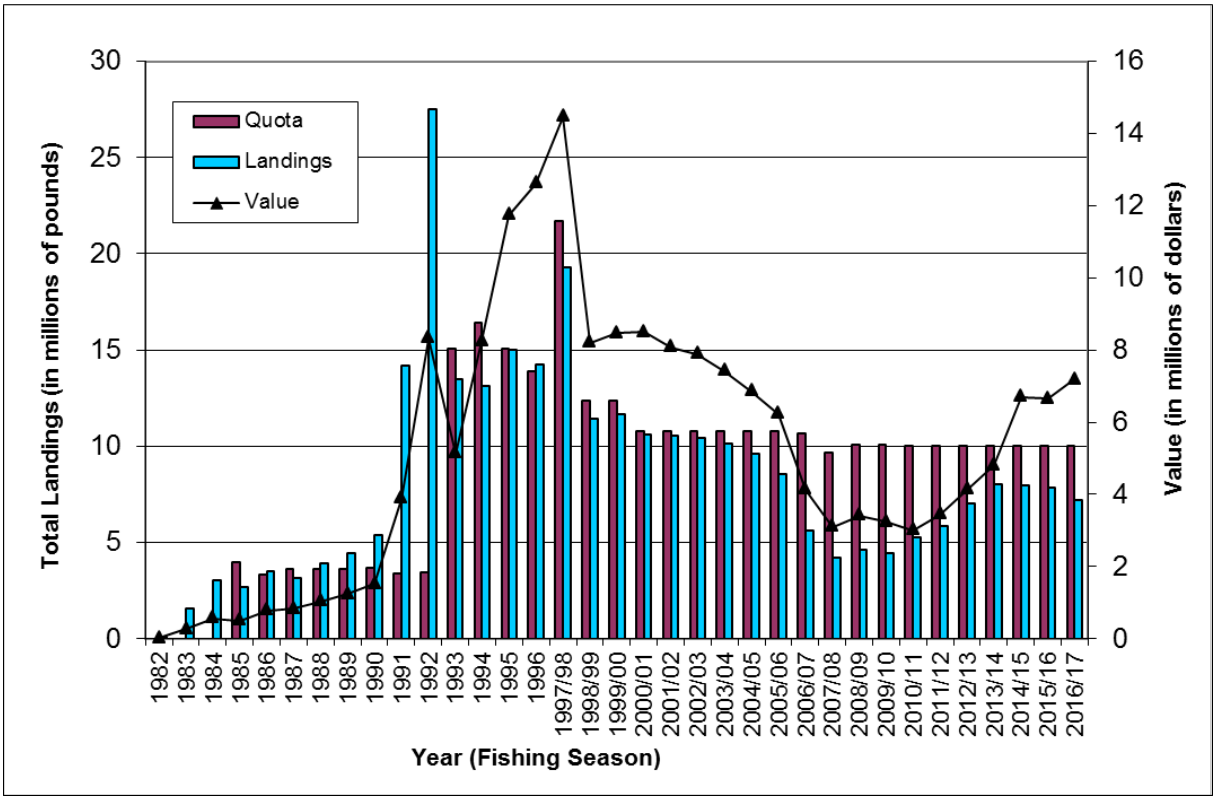
| | |
|---|---|
| | openings are TBA and designated members of the urchin fleet act as On-Grounds Coordinators. (continued through 2009). Unequal IQs for north coast and south coast licence areas. For the 2008/09 season 68 licences were designated to the north coast with an IQ of 125,309 pounds and 42 licences were designated to the south coast with and IQ of 36,738 pounds. Supsension of OGM program continued. |
| **2009/10** | Unequal quotas for the north coast and south coast licence areas. For the 2009/10 season 61 licences were designated to the north coast with an IQ of 139,688 pounds and 49 licences were designated to the south coast with an IQ of 32,306 pounds. Supsension of OGM program continued. Hail-in report requirement changed in the conditions of red sea urchin licence. |
| **2010/11** | Unequal quotas for the north coast and south coast licence areas. A ballot was held and as a result 58 licences were designated to the north coast with an IQ of 145,052 pounds and 52 licences were designated to the south coast with an IQ of 30,769 pounds. Suspension of OGM program continued. Quota area boundary change: RU26 and RU27a were combined into RU27c and RU27b and RU29 were combined into RU27d. |
| **2011/12** | The Vessel Monitoring System (VMS) pilot program began. For the pilot program each fleet fishing in the north coast licence area had to have at least one vessel equipped with a VMS or fishing activity would be ceased. Unequal quotas for the north coast and south coast licence areas. A ballot was held and as a result 58 licences were designated to the north coast with an IQ of 145,052 pounds and 52 licences were designated to the south coast with an IQ of 30,769 pounds. There were no boundary changes, however the quotas for several quota areas were combined. |
| **2012/13** | Year 2 of the VMS pilot program. Unequal quotas for the north coast and south coast licence areas. A ballot was held and as a result 61 licences were designated to the north coast with an IQ of 137,918 pounds and 49 licences were designated to the south coast with an IQ of 32,714 pounds. The licence stacking limit was waived as a pilot program for 2012/13. The commercial coastwide TAC increased slightly from 10,013,000 pounds to 10,016,000 pounds as the result of new survey information. A volumetric validation method was piloted for harvesters landing for a live-market – limited to Steveston landing port. |
| **2013/14** | Year 3 of the VMS pilot program. Year 1 of a three year (2013 to 2016) IFMP. An area selection ballot was held and as a result 63 licences were designated to the north coast with an IQ of 133,539 pounds and 47 licences were designated to the south coast with an IQ of 34,106 pounds. Area selections will be in effect for 3 years. Licence stacking limit waived. Commercial TAC remained at 10,016,000 lb. Volumetric validation method continued to be used at the Steveston landing port for the Fresh/Live market. Northern Vancouver Island Special Management Area developed for portions of Management Area 12 in response to sea otter expansion in the area. Quota area boundary change: RU27c split into RU26 and RU27a and RU27d split into RU27b and RU29. These quota areas were instead combined. |
| **2014/15** | Year 4 of the VMS pilot program. Year 2 of a three year (2013 to 2016) IFMP. Seasonal closures previously put in place during the herring fishery were discontinued. |
| **2015/16** | Year 5 of the VMS pilot program. Year 3 of a three year (2013 to 2016) IFMP. Changes made to the harvest logs and chart data section of the Conditions of Red Sea Urchin licence. |
| **2016/17** | Year 6 pf the VMS pilot program. IFMP returned to an annual schedule to allow for greater flexibility. Several Quota Areas were split into smaller quota areas at the request of the PUHA. The north coast TAC was reduced by 1 million pounds due to impacts from sea otter predation on the mainland central coast. A planned in-season increase of 1 million pounds in Haida Gwaii did not occur so the coast wide TAC dropped by 1 million pounds to 9,016,000 pounds. |
| **2017/18** | Year 7 of the VMS pilot program. The harvest rate was increased from 2% to up to 5% in portions Management Areas 3 to 6 impacted by Red Sea Urchin barrens. This change mitigated the quota lost to Sea Otter predation in 2016, so the TAC returned to its previous level of 10,016,000 pounds. A Special Management Area was created in the Central Coast to manage around Sea Otter range expansion in Management Areas 7 to 10 and adjacent offshore areas. |

**Table 2.** Overview of annual red sea urchin quota, landings, value and effort, **1978 to 2017**, as reported on Validation and Harvest logs. Since 2002, harvest logs have provided the best estimate of catch as fish slips are no longer used. Average landed value is determined from a subsample of fish slips or an estimation of average price is provided by Industry (Mike Featherstone – pers comm). Note: As the 2017/18 season was still on-going at the time of publication, harvest data is not yet available for this table.

| Year (Fishing Season) | Licences Issued | Vessels with Landings | North Coast Quota (lb) | South Coast Quota (lb) | Total Quota (lb.) | Total Landings (lb.) | Calculated Landed Value ($000 ) | Total Diver Hours | Whole Landed Value from fish slips ($/lb) | Effort (lb/diver hr)[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1982 | C | 4 | | | | 100,031 | 15.9 | 75.6 | 0.16 | 1,323.45 |
| 1983 | Z 64 | 26 | | | | 1,587,811 | 262.4 | 1,428.4 | 0.17 | 1,111.63 |
| 1984 | Z 85 | 32 | | | | 3,035,661 | 555.8 | 3,781.6 | 0.18 | 802.76 |
| 1985 | Z 86 | 31 | | 3,975,000 | 3,975,000 | 2,655,172 | 506.5 | 2,881.6 | 0.19 | 921.43 |
| 1986 | Z 103 | 49 | | 3,307,000 | 3,307,000 | 3,487,707 | 773.7 | 3,397.0 | 0.22 | 1,026.69 |
| 1987 | Z 184 | 72 | | 3,600,000 | 3,600,000 | 3,165,007 | 823.6 | 3,429.4 | 0.26 | 922.91 |
| 1988 | Z 184 | 81 | | 3,600,000 | 3,600,000 | 3,888,377 | 1,032.4 | 5,056.7 | 0.27 | 768.96 |
| 1989 | Z 240 | 98 | | 3,625,000 | 3,625,000 | 4,419,692 | 1,230.5 | 5,409.4 | 0.28 | 817.03 |
| 1990 | Z 188 | 86 | | 3,675,000 | 3,675,000 | 5,378,467 | 1,508.7 | 7,478.7 | 0.28 | 719.17 |
| 1991 | Z 102 | 76 | | 3,400,000 | 3,400,000 | 14,215,282 | 3,887.3 | 16,402.5 | 0.27 | 866.65 |
| 1992 | Z 108 | 102 | | 3,425,000 | 3,425,000 | 27,513,282 | 8,326.6 | 31,170.0 | 0.30 | 882.68 |
| 1993 [1] | Z 107 | 95 | 12,000,000 | 3,089,000 | 15,089,000 | 13,462,133 | 5,135.8 | 17,201.5 | 0.38 | 782.61 |
| 1994 | Z 110 | 95 | 13,000,000 | 3,401,000 | 16,401,000 | 13,138,897 | 8,247.7 | 18,942.0 | 0.63 | 693.64 |
| 1995 | Z 108 | 88 | 12,000,000 | 3,051,000 | 15,051,000 | 15,006,570 | 11,732.8 | 21,397.7 | 0.78 | 701.32 |
| 1996 | Z 109 | 77 | 11,815,907 | 2,788,023 | 13,900,180 | 14,255,832 | 12,607.4 | 18,180.3 | 0.88 | 784.14 |
| 1997/98 [2] | Z 110 | 82 | 17,966,949 | 3,751,341 | 21,718,290 | 19,264,286 | 14,465.2 | 30,227.4 | 0.75 | 637.31 |
| 1998/99 | Z 110 | 64 | 10,216,115 | 2,133,035 | 12,349,150 | 11,426,155 | 8,194.1 | 16,554.4 | 0.72 | 690.22 |
| 1999/00 | Z 110 | 58 | 10,216,115 | 2,133,035 | 12,349,150 | 11,645,998 | 8,464.4 | 16,664.8 | 0.73 | 698.84 |
| 2000/01 | Z 110 | 53 | 8,911,000 | 1,860,533 | 10,771,533 | 10,615,916 | 8,504.0 | 14,063.2 | 0.80 | 754.87 |
| 2001/02 | Z 110 | 48 | 8,911,000 | 1,860,533 | 10,771,533 | 10,543,412 | 8,079.9 | 13,010.9 | 0.77 | 810.35 |
| 2002/03 | Z 110 | 46 | 9,106,839 | 1,664,691 | 10,771,530 | 10,410,140 | 7,883.4 | 12,860.6 | 0.76 | 809.46 |
| 2003/04 | Z 110 | 44 | 9,106,839 | 1,664,691 | 10,771,530 | 10,126,765 | 7,423.4 | 13,288.7 | 0.73 | 762.06 |
| 2004/05 | Z 110 | 44 | 9,106,839 | 1,664,691 | 10,771,530 | 9,602,335 | 6,854.9 | 12,642.8 | 0.71 | 759.51 |
| 2005/06 | Z 110 | 46 | 9,106,839 | 1,664,691 | 10,771,530 | 8,539,044 | 6,233.5 | 11,450.5 | 0.73 | 745.74 |
| 2006/07 | Z 110 | 38 | 8,993,658 | 1,644,000 | 10,637,658 | 5,624,660 | 4,123.2 | 7,079.3 | 0.73 | 794.52 |
| 2007/08 | Z 110 | 36 | 8,195,000 | 1,490,000 | 9,685,000 | 4,229,733 | 3,100.6 | 5,740.6 | 0.73 | 736.81 |
| 2008/09 | Z 110 | 30 | 8,521,000 | 1,543,000 | 10,064,000 | 4,645,989 | 3,405.7 | 5,757.7 | 0.73 | 806.92 |
| 2009/10 | Z110 | 26 | 8,521,000 | 1,583,000 | 10,104,000 | 4,430,875 | 2,614.2 | 5,373.9 | 0.59 | 824.52 |
| 2010/11 | Z110 | 32 | 8,413,000 | 1,600,000 | 10,013,000 | 5,286,672 | 3,013.4 | 6,414.0 | 0.57 | 824.24 |
| 2011/12 | Z110 | 31 | 8,413,000 | 1,603,000 | 10,016,000 | 5,847,353 | 3,449.9 | 7,124.0 | 0.59 | 820.80 |
| 2012/13 | Z110 | 38 | 8,413,000 | 1,603,000 | 10,016,000 | 7,007,742 | 4,134.6 | 8,043.0 | 0.59 | 871.28 |
| 2013/14 | Z110 | 42 | 8,413,000 | 1,603,000 | 10,016,000 | 8,023,520 | 4,814.1 | 10,102.0 | 0.60 | 794.25 |
| 2014/15 [4] | Z110 | 40 | 8,413,000 | 1,603,000 | 10,016,000 | 7,941,705 | 6,750.4 | 10,276.8 | 0.85 | 772.78 |
| 2015/16 [4] | Z110 | 41 | 8,413,000 | 1,603,000 | 10,016,000 | 7,830,021 | 6,655.5 | 11,022.7 | 0.85 | 710.35 |
| 2016/17 [3,4] | Z110 | 41 | 8,413,000 | 1,603,000 | 10,016,000 | 7,177,327 | 7,177.3 | 10,915.8 | 1.00 | 657.52 |

[1] South coast quota includes exploratory areas; North Coast quota new in 1993.
[2] Change in licensing from calender year to market-driven year. 1997/98 season ran January 1/97 to June 30/98; 1998/99 through 2001/02 seasons ran July 1 to June 30; 2002/03 through 2008/09 seasons ran August 1 to July 31
[3] Recent information should be considered preliminary
[4] Price information estimated by Industry (Mike Featherstone - pers comm) - no fish slip data available

**Figure 1.** Annual red sea urchin quota, landings (lb.) and value for British Columbia, 1982 to 2017.



## APPENDIX 6: MANAGEMENT MEASURES FOR THE RED SEA URCHIN COMMERCIAL FISHERY – 2018/2019

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

## 1. SCIENTIFIC BASIS OF THE CURRENT MANAGEMENT REGIME

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

Framework for Estimating Quota Options for the Red Sea Urchin (*Strongylocentrotus franciscanus*) Fishery in British Columbia Using Shoreline Length and Linear Density Estimates (Leus et al. 2014)
http://www.dfo-mpo.gc.ca/Library/361328.pdf

Discussion Paper on a Precautionary Management Approach for Management of the Red Sea Urchin Fishery in British Columbia (Campbell et al. 1999)
http://www.dfo-mpo.gc.ca/Library/246961.pdf

There are a number of other important scientific papers that have contributed to our knowledge of Red Sea Urchins and to the current management regime. Please see section 11 in the IFMP for a full list of references.

## 2. MANAGEMENT MEASURES TO CONTROL HARVEST EFFORT

### 2.1. Limited Entry Licensing

Licence limitation was implemented in January 1991 in order to control fishing effort. There are currently 110 licence eligibilities for the commercial fishery. Red Sea Urchins are commercially harvested under the authority of a commercial licence (ZC) or a communal commercial licence (FZC).

### 2.2. Area Licensing

Area licensing is a measure put in place to spread harvest effort over a wide geographic area. Every year each of the 110 licence eligibilities is assigned to one of two licence areas: North Coast and South Coast of British Columbia, and occurs in four geographic locations within those licence areas: (West Coast Vancouver Island (Areas 20 to 27, 111, 121 and 123 to 127), East Coast Vancouver Island (Areas 11 to 19, 28 and 29), North Coast (Areas 3 to 10, 103 to 110) and Haida Gwaii (Areas 1 and 2, 101, 102 and 142). When the Individual Quota (IQ) program was first implemented in 1994, the IQs were equal for each licence. The number of allowable licences assigned to the licence areas was based on biomass estimates and the annual TAC set for each licence area. For the 2007/2008 season the PUHA recommended to the Department that the limits placed on

the number of licences in each licence area (North and South) be removed. There are currently no limits placed on the number of licences that may apply to fish in each of the licence areas.

The Department (as recommended by the PUHA) runs a two-staged licence selection process to allow licence holders to choose a licence area. These processes are run every two or three years. The next process will be held in April 2020.

### 2.3. Quota Areas

The commercial fishery is managed in units call Quota Areas (QA). QAs are comprised of entire Pacific Fishery Management Subareas, or in combination with portions of Subareas. QAs are much smaller than licence areas and are used to further spread fishing effort within each licence area. Each QA has a name, e.g. RU02a Langara Island, and is assigned a quota. For a complete list of QAs please see Appendix 10.

## 3. MANAGEMENT MEASURES TO CONTROL HARVEST

### 3.1. Total Allowable Catch

The amount of Red Sea Urchins harvested commercially in BC is limited by a Total Allowable Catch (TAC). Two percent of the coast-wide TAC is reserved, for planning purposes, for First Nations use for food, social and ceremonial purposes. This two percent is removed from the coast-wide TAC (or CTAC) prior to calculating the commercial TAC. See section 4 for information on how the commercial TAC is calculated.

### 3.2. Individual Quota Program

Each of the 110 licence eligibilities is assigned a portion of the commercial TAC as an Individual Quota (IQ) based on which licence area it is assigned to. The use of IQs in the commercial Red Sea Urchin fishery has resulted in a more orderly fishery, a safer fishery, has given the industry more flexibility in opening times and locations, and allows the Department to better meet conservation goals. IQs are calculated by dividing the commercial quota in each licence area by the number of licences that applied to fish in that area.

### 3.3. Area Quotas

In conjunction with area licensing, the coast-wide commercial TAC is divided into licence area quotas. The commercial TAC is further divided into QA quotas which are based on biomass estimates provided by DFO Science.

### 3.4. Minimum Size Limit

The minimum size limit for Red Sea Urchins is 90 mm test diameter, between the spines, measured through the greatest diameter of the Red Sea Urchin test (shell). See Appendix 8 for a diagram on how to measure sea urchins.

The use of a size limit in this fishery is considered precautionary and allows Red Sea Urchins several years of spawning before becoming available for commercial harvest.

## 4. CALCULATION OF TOTAL ALLOWABLE CATCH

Transect surveys are conducted, following the Red Sea Urchin density 'broadbrush' survey protocol, to estimate the density and biomass of Red Sea Urchin populations. The survey results are used to calculate the annual commercial Total Allowable Catch (TAC). Quota is calculated for each PFM Subarea as follows:

A modified surplus production model is used to estimate maximum sustainable yield (MSY) for red sea urchins. The total current biomass of Red Sea Urchins is calculated annually, based on density estimates for Red Sea Urchins in the 90 to 140 mm test diameter range, new survey results, and changes to estimated urchin habitat along the coast taken from harvest log charts and fish harvesters' knowledge. A natural mortality rate of 0.10 is assumed, and a correction factor of 0.20, for conservation purposes, provides for a conservative harvest rate of approximately two percent (Campbell et al 1999). Quotas are provided to resource managers as a mean estimate with upper and lower 90 percent confidence intervals (CI). Where surveys and density estimates are not complete for an area, they are extrapolated from survey information from adjacent or nearby areas. Quota recommendations are generally not provided for Subareas that are impacted by Sea Otter predation.

For the period of August 1, 2017 to July 31, 2019 managers will consider a harvest rate of up to 5% of the mean biomass estimate provided by DFO Science in portions of Management Areas 3 to 6 and 13 that are impacted by Red Sea Urchin barrens. This is a pilot program in which an increase to the harvest rate historically used will be permitted until peer-reviewed science advice is received on harvest rates in late 2018 (see section 2.7 in the IFMP). This pilot program has the dual benefit of providing increased commercial harvest opportunities while potentially reducing sea urchin numbers in areas that have urchin barrens due to urchin overabundances. Managers are confident that this will maintain the precautionary management approach to this fishery for the following reasons:

- A minimum size limit of 90 millimeters (mm) test diameter (TD) is in place coastwide. Red Sea urchins first reproduce at around 50 mm in TD and can grow to sizes of 190 mm TD or larger. Only red sea urchins in a size range of between 90 and 140 mm are used in the biomass estimates used to calculate the commercial TAC. Furthermore, commercial harvesters mostly harvest urchins between 90 mm and 120 mm in size due to market preferences. This leaves reproductive individuals both in a size range of 50 mm to 90 mm and those larger than 120 mm. Gamete production in Red Sea Urchins increases with size, so the urchins with the highest reproductive potential are left behind by the commercial fishery.
- Red Sea Urchin quotas are calculated using only shoreline identified either through harvest events (from harvest charts filled out by harvesters) or by Red Sea Urchin harvesters. It is unlikely that all Red Sea Urchin habitat is being harvested around the coast and that Red Sea Urchin biomass is being underestimated in some areas.
- The harvest rate currently recommended by DFO Science is ultra-conservative and is meant to be used for data-limited fisheries (Gulland's Model). The Red Sea Urchin fishery is not

data-limited and there are more than twenty years of harvest data and research information that could be used to recommend an appropriate harvest rate. Fishery managers have requested that DFO Science analyse the available information in order to recommend a harvest rate based on relevant data from British Columbia. A peer-reviewed scientific paper is expected in late 2018.

- Red Sea Urchin overabundances (urchin barrens) exist in portions of the BC coast and are believed to be impacting ecosystem function (see section 5.5). Managers will consider using a higher harvest rate in areas with Red Sea Urchin barrens. Urchin barrens continue to persist in areas that have been commercially harvested for over 20 years at the current harvest rate making this a low-risk approach.

- Historically, Red Sea Urchin populations in BC were limited by Sea Otter (*Enhydra lutris*) predation. Following the extirpation of Sea Otters from BC, the abundance of prey species increased substantially, and current Red Sea Urchin populations are considered to be at artificially high levels. It is believed that Red Sea Urchin populations are far more impacted by natural predation than by commercial harvest, and that historical equilibrium populations were low. The recolonization of Sea Otters in BC, and their expansion to the west coast of Vancouver Island, has coincided with a decrease in the urchin population in Tofino to less than 1% of previous otter-free levels. In contrast, commercial harvesting at close to 100% of the TAC over ten years has led to no significant decrease to urchin populations in the two areas of BC where time-series of survey data exist.

- Sunflower Star (*Pycnopodia helianthodes*) populations in BC dropped drastically starting in 2014 due to a 'sea star wasting disease' event. Sunflower Stars are a major predator on Red Sea Urchins and their decreased presence in the ecosystem may contribute to higher numbers of Red Sea Urchins in areas not yet impacted by Sea Otter predation.
- The sea urchin fishery is a gonad (roe) fishery. Population levels in most areas are higher than can be supported by the available food (kelp) and, as a result, many of the urchins have poor or no gonad development. Since only those individuals with the highest quality gonads are targeted by the fishery, there is a natural reserve of animals that remain after commercial harvest that consists of urchins smaller than the minimum size limit, urchins greater than 12 cm in test diameter and urchins with poor quality gonads. An additional natural reserve of urchins exist with urchins that are inaccessible to harvesters due to their location in cracks and crevices and at a deeper than safe diving depths.

Under the IQ program for the Red Sea Urchin fishery, two percent of the coast-wide TAC for Red Sea Urchins is reserved, for planning purposes, for First Nations for food, social and ceremonial (FSC) purposes. See Appendix 7 for more detail on quota calculations. See Appendix 1, section 4 for detailed quota area quotas.

## 5. OTHER MANAGEMENT MEASURES

### 5.1. Catch Monitoring and Reporting Requirements

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

Commercial harvesters are responsible for keeping an accurate record of their daily harvest operations in a harvest logbook and a record of each location fished by each diver on a harvest chart. Additional harvest information is collected from fish slips. Harvest data are submitted to DFO for use in the proper assessment, management and control of the Red Sea Urchin fishery. For more details see Section 4 in Appendix 1.

### 5.2. Vessel Monitoring System Pilot Program

The PUHA and the Department are working together to increase monitoring for the north coast fishery. Due to the large coastal area and the frequency of movement of the north coast fleet, vessels can be difficult to find by fishery officers. Prior to the adoption of the VMS pilot program, fishery officers wasted time and money in attempts to locate vessels in the fleet. The PUHA has piloted a Vessel Monitoring Systems (VMS) on vessels in the north coast licence area since the start of the 2011/12 fishery. The VMS sends near real-time location information to fishery managers and fishery officers, making enforcement patrols more efficient.

In the north coast, harvesters work in groups to make fishing in remote areas more efficient and cost effective. For the pilot program, each fishing group must have at least one vessel equipped with a VMS or fishing activity will have to be ceased. This allows fishery officers to keep track of the location of north coast fishing groups. In 2017 15 of the 33 vessels fishing in the north coast licence area will be equipped with VMS units.

### 5.3. North Coast Fishing Protocol

The north coast fishing protocol was put into place after the On-Grounds Monitoring (OGM) requirement was waived by the Department in 2007. Traditionally the OGM's role was to guide the north coast fishery by facilitating communication from the fishing grounds between the harvesters and the service provider in order to keep track of remaining quotas and the number of vessels fishing. When the OGM requirement was waived, the Department and the PUHA replaced it with an On-Grounds communicator program. OGCs are harvesters who volunteer to communicate multiple times a day with the service provider in order to relay remaining quotas and fishing plans to the rest of the fishing group.

The North Coast Fishing Protocol outlines requirements for the VMS pilot program, the OGC program and specific rules for fishing in the north coast licence area. The North Coast fishing Protocol is available from the service provider (D&D Pacific Fisheries) or a resource manager. See Appendix 14 for contact information.

## 5.4. Managing the Fishery around Expansion of Sea Otters

Historically, Red Sea Urchin populations in BC were limited by Sea Otter (*Enhydra lutris*) predation. Following the extirpation of Sea Otters, the abundance of Red Sea Urchins increased substantially in BC, and the current population is considered to be at an artificially high level. The recolonization of Sea Otters in portions of the BC coast has led to a significant decrease in the Red Sea Urchin population in those areas to the point where there are no longer densities of Red Sea Urchins high enough to support commercial harvest. It is expected that Sea Otters will continue to expand their range in BC and impact Red Sea Urchin populations further over time. The only option at this time is to manage around the Sea Otter range expansion. Historically the Department closed Sea Otter impacted areas of the coast to commercial harvest since quotas could no longer be achieved in those areas. Other management options are being considered such as increasing quota in areas not yet impacted by Sea Otters, such as Haida Gwaii and the mainland North Coast. Other options could include looking at different harvest rates in areas in which Sea Otters are starting to impact or areas directly adjacent to Sea Otter inhabited areas. Special Management Areas have been set up in sea otter impacted areas in the mainland Central Coast and Northern Vancouver Island. See sections 4.4 and 4.6 of Appendix 1 for more information.

## 5.5. Red Sea Urchin Barrens

Red Sea Urchin overabundances occur in many parts of the BC coast, especially around Haida Gwaii and the mainland North Coast. These urchin overabundances are usually referred to as 'urchin barrens'. The combined feeding activity of large numbers of Red Sea Urchins can remove and/or inhibit the growth of kelp forests and other macroalgae. Sea urchin overgrazing can also cause physical disturbances to the seafloor by affecting the distribution of many sessile invertebrates (e.g sponges and anemones) that rely on attaching directly to rocky substrates (Graham 2004). A study of Californian giant kelp forests found that areas deforested by sea urchin grazing showed a more than 40% reduction in the diversity of sessile invertebrates and a 25% decrease in secondary consumers such as carnivorous sea stars and fishes (Graham 2004). It is likely that a similar situation occurs in BC's Red Sea Urchin barrens.

The current harvest rate used for the commercial fishery is derived from Gulland's model intended for use on sparsely investigated and lightly exploited stocks. The ultra-conservative harvest rate currently in use is meant to ensure a sustainable fishery in which red sea urchin populations remain stable. An ecosystem based management approach would be to consider reducing the number of Red Sea Urchins in areas impacted by urchin barrens through increased harvest. Since there is no conservation concern for Red Sea Urchin stocks (outside of Sea Otter inhabited areas), fishery managers will consider increasing the harvest rate beyond the recommended 2% in areas with known urchin barrens.

## 5.6. Limit Reference Point

A main aspect of the Precautionary Approach is the use of reference points and stock status zones. There are a number of reasons why reference points have not been recommended for the Red Sea Urchin fishery. In order for reference points to be useful,

the resource needs to be assessed multiple times to get an idea of whether stock status changes over time. The time, money and effort required to survey all Red Sea Urchin Quota Areas multiple times would be prohibitive, so reference points are of limited use for Red Sea Urchin management. Also, the sea urchin fishery is a gonad (roe) fishery. Population levels in most areas are higher than can be supported by the available food (kelp) and, as a result, many of the urchins have poor or no gonad development. Since only those individuals with the highest quality gonads are targeted by harvesters, there is a natural reserve of animals that remain after commercial harvest that consists of urchins smaller than the minimum size limit, urchins greater than 140 mm in test diameter and urchins with poor quality gonads. Red Sea Urchins larger than 140 mm test diameter are generally not harvested since they are considered unmarketable due to their large gonad size. These large urchins (called 'pumpkins' by harvesters) have large reproductive potential.

### 5.7. Enforcement

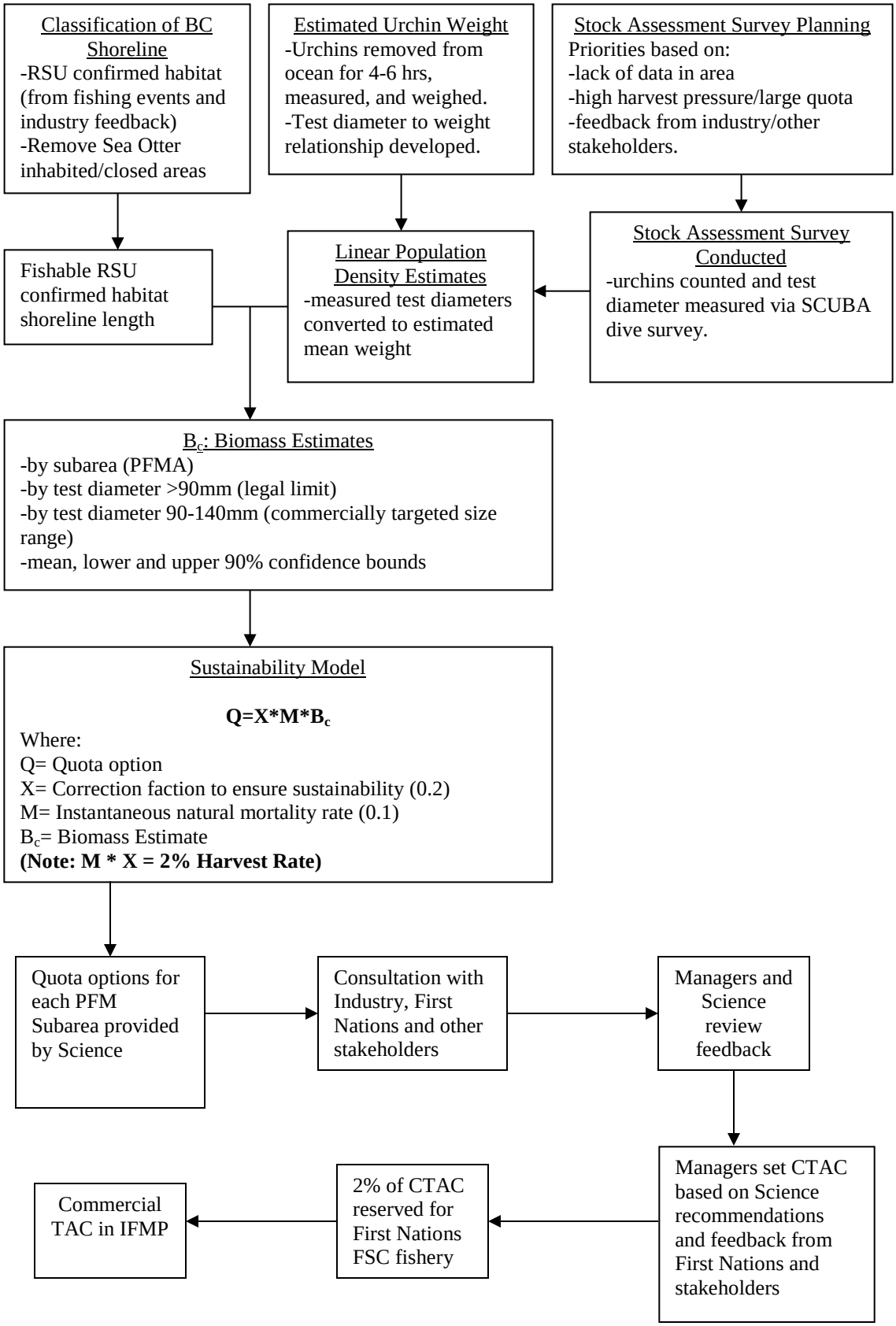
DFO's Conservation and Protection (C&P) program is informed of any enforcement issues that may arise in the commercial fishery. For more information on the compliance plan for the Red Sea Urchin fishery please see section 9 in the IFMP.

## 6. OTHER IMPORTANT INFORMATION

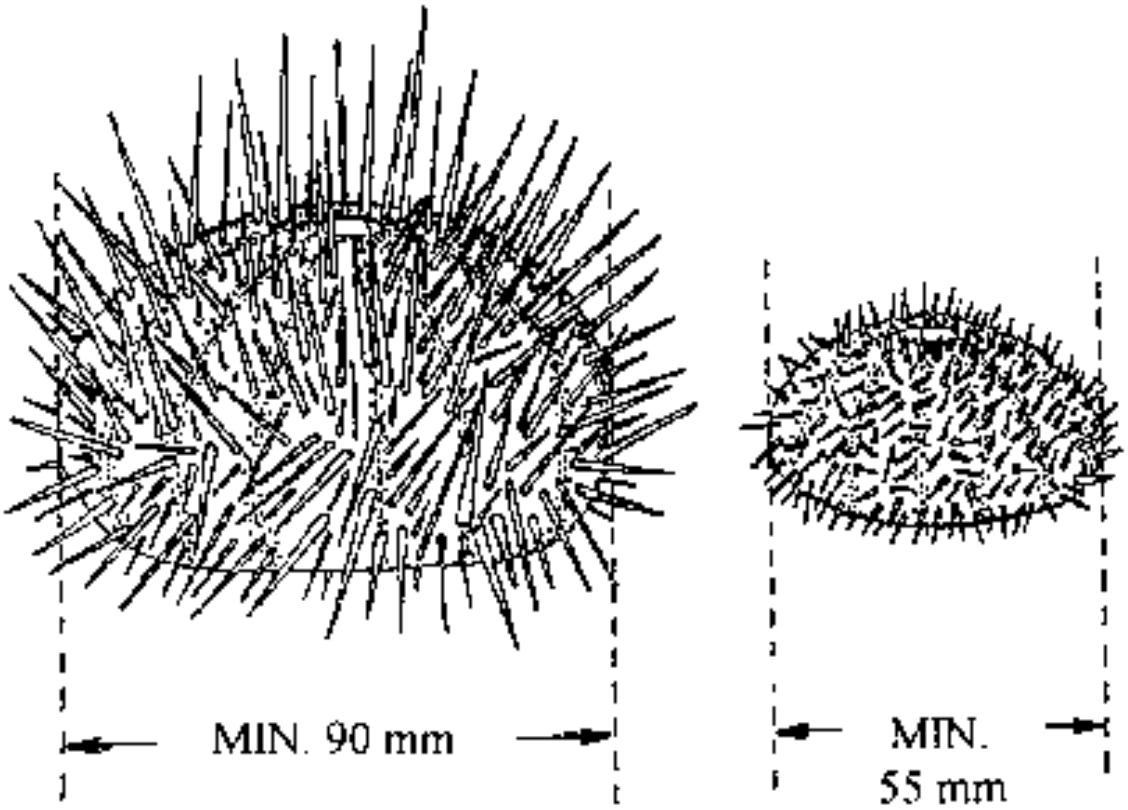
### 6.1. Gear

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

**Appendix 7: Information on Estimating Total Allowable Catch of Red Sea Urchin (RSU) by Pacific Fisheries Management Area (PFMA)**



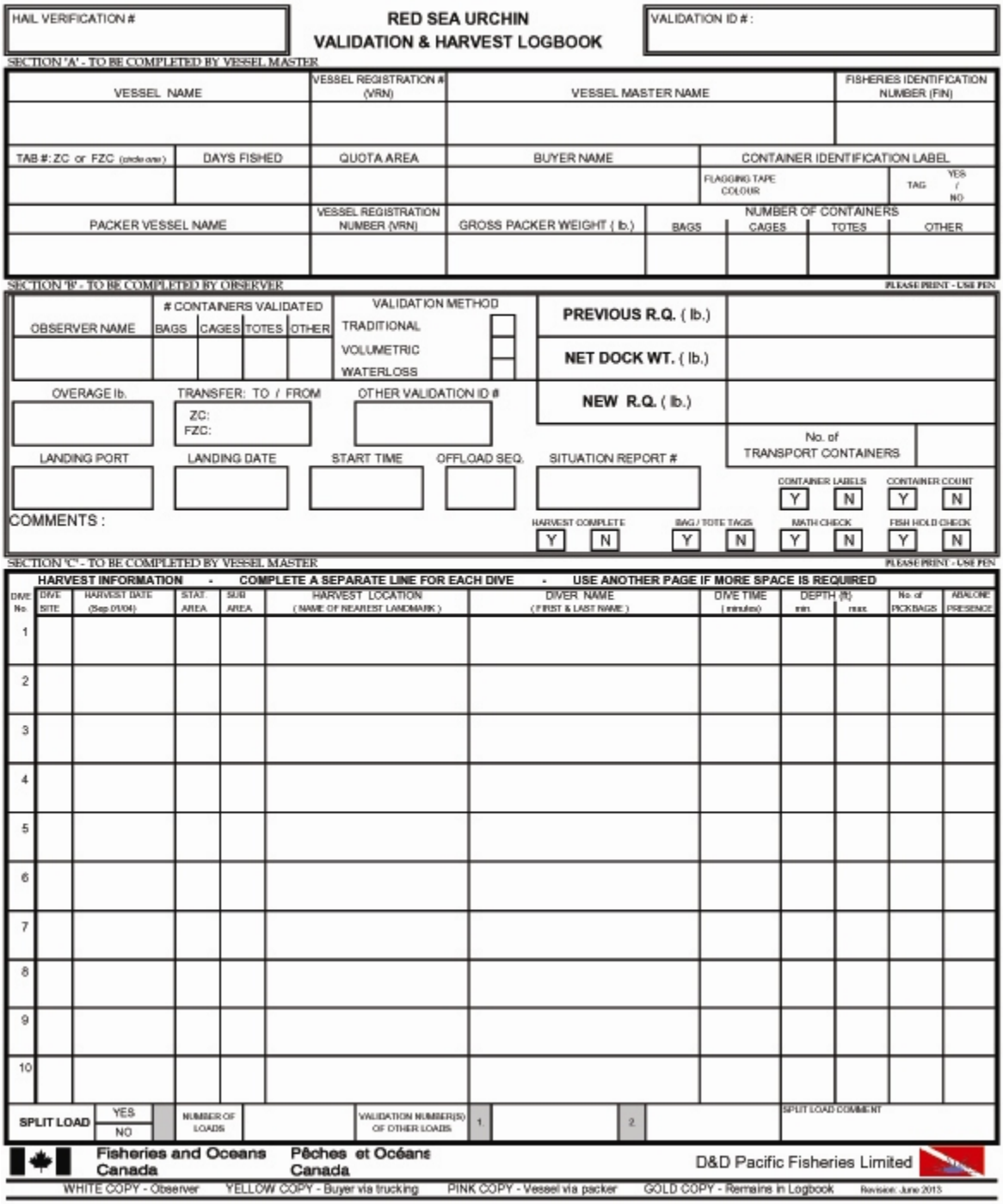
**Appendix 8: Size Limits for Sea Urchins**




**RED SEA URCHIN** **GREEN SEA URCHIN**

The minimum size limit for sea urchins is measured between the spines, through the greatest diameter of the Red Sea Urchin test (shell)

## Appendix 9 – Example of the Validation and Harvest Log



HAIL VERIFICATION #

**RED SEA URCHIN**
**VALIDATION & HARVEST LOGBOOK**

VALIDATION ID # :

SECTION 'A' - TO BE COMPLETED BY VESSEL MASTER

| VESSEL NAME | VESSEL REGISTRATION # (VRN) | VESSEL MASTER NAME | FISHERIES IDENTIFICATION NUMBER (FIN) |
|---|---|---|---|
| | | | |

| TAB #: ZC or FZC (circle one) | DAYS FISHED | QUOTA AREA | BUYER NAME | CONTAINER IDENTIFICATION LABEL | |
|---|---|---|---|---|---|
| | | | | FLAGGING TAPE COLOUR | TAG YES / NO |

| PACKER VESSEL NAME | VESSEL REGISTRATION NUMBER (VRN) | GROSS PACKER WEIGHT ( lb.) | NUMBER OF CONTAINERS | | | |
|---|---|---|---|---|---|---|
| | | | BAGS | CAGES | TOTES | OTHER |
| | | | | | | |

SECTION 'B' - TO BE COMPLETED BY OBSERVER — PLEASE PRINT - USE PEN

| OBSERVER NAME | # CONTAINERS VALIDATED | | | | VALIDATION METHOD | | |
|---|---|---|---|---|---|---|---|
| | BAGS | CAGES | TOTES | OTHER | TRADITIONAL | | PREVIOUS R.Q. ( lb.) |
| | | | | | VOLUMETRIC | | NET DOCK WT. ( lb.) |
| | | | | | WATERLOSS | | NEW R.Q. ( lb.) |

| OVERAGE lb. | TRANSFER: TO / FROM | OTHER VALIDATION ID # | No. of TRANSPORT CONTAINERS |
|---|---|---|---|
| | ZC:<br>FZC: | | |

| LANDING PORT | LANDING DATE | START TIME | OFFLOAD SEQ. | SITUATION REPORT # | CONTAINER LABELS | | CONTAINER COUNT | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Y | N | Y | N |

COMMENTS :

| HARVEST COMPLETE | | BAG / TOTE TAGS | | MATH CHECK | | FISH HOLD CHECK | |
|---|---|---|---|---|---|---|---|
| Y | N | Y | N | Y | N | Y | N |

SECTION 'C' - TO BE COMPLETED BY VESSEL MASTER — PLEASE PRINT - USE PEN

**HARVEST INFORMATION - COMPLETE A SEPARATE LINE FOR EACH DIVE - USE ANOTHER PAGE IF MORE SPACE IS REQUIRED**

| DIVE No. | DIVE SITE | HARVEST DATE (Sep 01/04) | STAT AREA | SUB AREA | HARVEST LOCATION ( NAME OF NEAREST LANDMARK ) | DIVER NAME ( FIRST & LAST NAME ) | DIVE TIME ( minutes) | DEPTH (ft) min | DEPTH (ft) max | No. of PICKBAGS | ABALONE PRESENCE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |

| SPLIT LOAD | YES / NO | NUMBER OF LOADS | | VALIDATION NUMBER(S) OF OTHER LOADS | 1 | | 2 | | SPLIT LOAD COMMENT |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

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WHITE COPY - Observer YELLOW COPY - Buyer via trucking PINK COPY - Vessel via packer GOLD COPY - Remains in Logbook Revision: June 2013

**Appendix 10: 2018-19 Red Sea Urchin Quota Area Descriptions**

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3. INSIDE WATERS ..... 16
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An asterisk (*) indicates a change in Quota Area boundaries.

Descriptions of closures that fall within these Quota Areas are shown in Appendix 1, Section 5.

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

## 1. HAIDA GWAII

| Quota Area | Name | Description |
|---|---|---|
| **RU01a** | Lepas Bay | That portion of Subarea 1-1 north of a line running due west from White Point. |
| **RU01b** | Frederick Island | That portion of Subarea 1-1 south of a line running due west from White Point. |
| **RU02a** | Langara Island | Those portions of Subareas 1-2, 1-7, 101-2, 101-3, 101-6, 101-7 west of a line running due north from Seath Point on Graham Island. Note Area 1 closures listed in Integrated Fisheries Management Plan. |
| **RU02b** | Virago Sound | a) Subareas 1-3.<br>b) Those portions of Subareas 1-2, 1-7, 101-6 and 101-7 east of a line running due north from Seath Point on Graham Island and west of a line running due north from Wiah Point.<br>Note Area 1 closures listed in Integrated Fisheries Management Plan. |

| Quota Area | Name | Description |
|---|---|---|
| **RU03a** | Cumshewa Inlet | Subareas 2-2 and 2-3. |
| **RU03b** | Kunga Island | Subareas 2-8, 2-10. Note Tanu Island and Richardson Pass closures listed in Integrated Fisheries Management Plan. |
| **RU04a** | Juan Perez Sound | Subarea 2-11. Closed for abalone research |
| **RU04b** | Section Cove | Subareas 2-12, 2-13. Note Burnaby Narrows closure listed in Appendix 1 of the Integrated Fisheries Management Plan. |
| **RU05a** | Skincuttle Inlet | Subareas 2-14 and 2-15. |
| **RU05b** | Carpenter Bay | Subarea 2-17. |
| **RU06** | Lower 2E | Subareas 2-18 and 2-19. Note Cape Saint James closure listed in Appendix 1 of the Integrated Fisheries Management Plan. |
| **RU07** | Lower 2W | a) Subareas 2-31, 2-32, 2-33 and 2-34.<br>b) That portion of Subarea 142-1 south of a parallel passing through 52 degrees 09 minutes north latitude.<br>Note Louscoone Estuary and Anthony Island (SGang Gwaay) closures listed in Appendix 1 of the Integrated Fisheries Management Plan. |
| **RU08a** | Flamingo | a) Subareas 2-35 to 2-46.<br>b) That portion of Subarea 142-1 north of a parallel passing through 52 degrees 09 minutes north latitude.<br>Note Flamingo Estuary and Gowgaia Estuary closures listed in Appendix 1 of the Integrated Fisheries Management Plan. |
| **RU08b** | Englefield | Subareas 2-47 to 2-62 and 142-2. |
| **RU09** | Van Inlet | Subarea 2-68. |
| **RU10** | Rennel Sound | Subareas 2-69 to 2-84. Note Shields Bay closure listed in Integrated Fisheries Management Plan. |

| Quota Area | Name | Description |
|---|---|---|
| **RU11** | Hippa Island | a) Subareas 2-85 to 2-87.<br>b) That portion of Subarea 2-88 south of a line running true west from Selveston Point. |
| **RU12** | Port Louis | a) That portion of Subarea 2-88 north of a line running true west from Selveston Point.<br>b) Subareas 2-89 to 2-100. |

## 2. NORTH AND CENTRAL COAST

| Quota Area | Name | Description |
|---|---|---|
| **RU13a** | Dundas Island North | Subareas 3-1, 3-2, 3-3, 3-7 and 3-11. |
| **RU13b** | Dundas Island South | a) That portion of Subarea 4-1 north of a line running 222 degrees true from Farwest Point on Dunira Island (using Canadian Hydrographic chart # 3959), excluding the Nares Islets Quota Area described as: that portion of Subarea 4-1 northeast of a line running from Gore-Langton Point on Dundas Island to a point at 54 degrees 28.55 minutes north latitude, 130 degrees 50.70 minutes west longitude, and then running north-easterly to a point at 54 degrees 30.45 minutes north latitude, 130 degrees 47.65 minutes west longitude.<br>b) That portion of Subarea 4-5 west of the meridian passing through 130 degrees 37.0 minutes west longitude and north of a line from the northernmost point of Dunira Island, thence true east to the meridian passing through 130 degrees 37.0 minutes west longitude. |

| Quota Area | Name | Description |
|---|---|---|
| **RU13c** | Melville Island | a) That portion of Subarea 4-1 south of a line running 222 degrees true from Farwest Point on Dunira Island (using Canadian Hydrographic chart # 3959) and north of the parallel passing through 54 degrees 20.30 minutes north latitude.<br><br>b) That portion of Subarea 4-5 south of a line from the northernmost point of Dunira Island, thence true east to the meridian passing through 130 degrees 37.0 minutes west longitude, and west of the meridian passing through 130 degrees 37.0 minutes west longitude.<br><br>c) Those portions of Subareas 4-9 and 4-13 north of the parallel passing through 54 degrees 20.30 minutes north latitude. |
| **RU13d** | Nares Islets | That portion of Subarea 4-1 northeast of a line running from Gore-Langton Point on Dundas Island to a point at 54 degrees 28.55 minutes north latitude, 130 degrees 50.70 minutes west longitude, and then running north-easterly to a point at 54 degrees 30.45 minutes north latitude, 130 degrees 47.65 minutes west longitude |
| **RU14** | Tree Knobs | a) That portion of Subarea 4-1 south of a parallel passing through 54 degrees 20.30 minutes north latitude.<br><br>b) That portion of Subarea 4-2 north of the parallel passing through 54 degrees 13.5 minutes north latitude.<br><br>c) That portion of Subarea 4-13 north of the parallel passing through 54 degrees 13.5 minutes north latitude and south of a parallel passing through 54 degrees 20.30 minutes north latitude. |
| **RU15** | Outside Stephens Island | That portion of Subarea 4-2 south of the parallel passing through 54 degrees 13.5 minutes north latitude and north of a line running true west from the southern tip of Stephens Island to the surf line. |
| **RU16** | Inside Stephens Island | a) That portion of Subarea 4-9 south of the parallel passing through 54 degrees 20.30 minutes north latitude.<br><br>b) That portion of Subarea 4-13 south of the parallel passing through 54 degrees 13.50 minutes north latitude. |
| **RU17** | Kelp Pass | Subarea 4-12. |

| Quota Area | Name | Description |
|---|---|---|
| **RU18a** | Edye Pass | a) That portion of Subarea 4-2 east of a line running from a point on Prescott Island [54 degrees 5.626 minutes north latitude /130 degrees 38.4907 minutes west longitude] south to a point on Henry Island [54 degrees 2.61 north latitude/130 degrees 39.57 minutes west , along the eastern shoreline of Henry Island to a point on southern Henry Island at [54 degrees 0.2344 minutes north latitude/ 130 degrees 40.640 minutes west longitude] then south to a point on Porcher Island at 54 degrees 0.1783 minutes latitude/130 degrees 39.580 minutes west longitude.<br>b) Subarea 4-4. |
| **RU18b** | Oval Bay | a) That portion of Subarea 4-2 south of a line running true west from the southern tip of Stephens Island to the surf line and west of a line running from a point on Prescott Island [54 degrees 5.626 minutes north latitude /130 degrees 38.4907 minutes west longitude] south to a point on Henry Island [54 degrees 2.61 north latitude/130 degrees 39.57 minutes west , along the eastern shoreline of Henry Island to a point on southern Henry Island at [54 degrees 0.2344 minutes north latitude/ 130 degrees 40.640 minutes west longitude] then south to a point on Porcher Island at 54 degrees 0.1783 minutes latitude/130 degrees 39.580 minutes west longitude.<br>b) That portion of Subarea 4-3 north of a line running due west from Fan Point. |
| **RU19** | Porcher Inlet | Subarea 5-9. |
| **RU20a** | Cape George | That portion of Subarea 4-3 south of a line running due west from Fan Point. |
| **RU20b** | Freeman Passage | a) That portion of Subarea 5-11 north of the parallel passing through 53 degrees 48.0 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3761)<br>b) Subarea 5-12 except that portion south of a line running from Joachim Spit at 53 degrees 49.506 minutes north latitude, 130 degrees 38.813 minutes west longitude easterly to Goschen Island at 53 degrees 49.566 minutes north latitude, 130 degrees 37.416 minutes west longitude. |

| Quota Area | Name | Description |
|---|---|---|
| **RU21** | Willis Bay | a) That portion of Subarea 5-10 south and west of a line running from the northern tip of the entrance to Dolphin Lagoon located at 53 degrees 46.7 minutes north latitude, 130 degrees 28.1 minutes west longitude on Dolphin Island, thence west to a point on the Prager Islands located at 53 degrees 46.85 minutes north latitude, 130 degrees 29.8 minutes west longitude, thence northerly to a point on the Shakes Islands located at 53 degrees 47.5 minutes north latitude, 130 degrees 29.0 minutes west longitude, thence true north to the Subarea 5-10 boundary line; west of the line running from Boys Point on Dolphin Island due south to the parallel passing through 53 degrees 42.7 minutes north latitude; and north of the parallel passing through 53 degrees 42.7 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3947)<br><br>b) That portion of Subarea 5-11 south of the parallel passing through 53 degrees 48.0 minutes north latitude and north of the parallel passing through 53 degrees 42.7 minutes north latitude.<br><br>Note Kitkatla closures listed in Integrated Fisheries Management Plan. |
| **RU22a** | Hankin Rock | That portion of Subarea 5-10 south of the parallel passing through 53 degrees 42.7 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3927) |
| **RU22b** | Beaver Pass | That portion of Subarea 5-10 south of a line running from the north-western tip of McCauley Island to a boundary sign on the northwest tip of Spicer Island; south of a line running from a boundary sign located on the south-westernmost tip of Spicer Island to Boys Point on Dolphin Island, then due south to the parallel passing through 53 degrees 42.7 minutes north latitude; and north of the parallel passing through 53 degrees 42.7 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3927)<br><br>Note Kitkatla closures listed in Integrated Fisheries Management Plan. |
| **RU23** | Upper Principe Channel | Subarea 5-13 |

| Quota Area | Name | Description |
|---|---|---|
| **RU24a** | Mid Principe Channel | a) That portion of Subarea 5-17 north of a line running due east from Oar Point.<br>b) Subarea 5-18 |
| **RU24b** | Lower Principe Channel | a) That portion of Subarea 5-17 south of a line running due east from Oar Point.<br>b) Subarea 5-19.<br>c) That portion of Subarea 6-9 north of a parallel running through the Sisters Islands from 53 degrees 10.686 minutes north latitude, 129 degrees 46.803 minutes west longitude. |
| **RU25** | Petrel Channel | Subareas 5-14, 5-15 and 5-16 |
| **RU26** | Larsen Harbour | a) That portion of Subarea 5-11 south of a line running true west from Baird Point on McCauley Island.<br>b) That portion of Subarea 5-20 north of the parallel passing through 53 degrees 35 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3927) |
| **RU27a** | Upper Banks Island | That portion of Subarea 5-20 south of the parallel passing through 53 degrees 35 minutes north latitude, east of a line running 140 degrees true from 53 degrees 35 minutes north latitude and 130 degrees 38.8 minutes west longitude, north of a parallel running east and west through Cliff Point, except that portion of Subarea 5-20 adjacent to the western shore of the Antle Islands described as: east of a line running from the boundary marker at Laverock Point (53 degrees 30.97 minutes north latitude, 130 degrees 29.13 minutes west longitude), then to a point west of the Antle Islands at 53 degrees 28.12 minutes north latitude, 130 degrees 28 minutes west longitude, then to a marker on Banks Island at 53 degrees 27.82 minutes north latitude, 130 degrees 24.4 minutes west longitude. (Refer to Canadian Hydrographic Service Chart #3927) |
| | | |

| Quota Area | Name | Description |
|---|---|---|
| **RU27b** | Mid Banks Island | That portion of Subarea 5-20 east of a line running 140 degrees true from 53 degrees 35 minutes north latitude, 130 degrees 38.8 minutes west longitude, south of a parallel running east and west through Cliff Point, except that portion of Subarea 5-20 adjacent to the western shore of the Antle Islands described as: east of a line running from Laverock Point (53 degrees 30.97 minutes north latitude, 130 degrees 29.13 minutes west longitude), then to a point west of the Antle Islands at 53 degrees 28.12 minutes north latitude, 130 degrees 28 minutes west longitude, then to a marker on Banks Island at 53 degrees 27.82 minutes north latitude, 130 degrees 24.4 minutes west longitude. (Refer to Canadian Hydrographic Service Chart #3927) |
| **RU28** | Bonilla Island | a) That portion of Subarea 5-20 south of the parallel passing through 53 degrees 35 minutes north latitude; west of line running 140 degrees true from 53 degrees 35 minutes north latitude, 130 degrees 38.8 minutes west longitude; north of a line running from Kelp Point on Banks Island true west to the surf line. (Refer to Canadian Hydrographic Service Chart #3927)<br>b) Subarea 105-1.<br>c) That portion of Subarea 105-2 north of a line running from Kelp Point on Banks Island true west to the surf line. (Refer to Canadian Hydrographic Service Chart #3741) |
| **RU29** | Kingkown Inlet | a) That portion of Subarea 5-20 east of a line running from Laverock Point (53 degrees 30.97 minutes north latitude, 130 degrees 29.13 minutes west longitude), to a point west of the Antle Islands at 53 degrees 28.12 minutes north latitude, 130 degrees 28 minutes west longitude, then to a marker on Banks Island at 53 degrees 27.82 minutes north latitude, 130 degrees 24.4 minutes west longitude (Refer to Canadian Hydrographic Service Chart #3927).<br>b) Subarea 5-21. |

| Quota Area | Name | Description |
|---|---|---|
| **RU30** | Lower Banks Island | a) Subarea 5-22.<br>b) That portion of Subarea 105-2 south of a line running from Kelp Point on Banks Island true west to the surf line (Refer to Canadian Hydrographic Service Chart #3741).<br>c) That portion of Subarea 106-1 north of a parallel passing through Finnerty Point on Nichol Island. |
| **RU31a** | Moore Islands | That portion of Subarea 106-2 west of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude, and north of a parallel passing through 52 degrees 36.40 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3726) |
| **RU31b** | Harvey Islands | That portion of Subarea 106-2 west of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude, and south of a parallel passing through 52 degrees 36.40 minutes north latitude. (Refer to Canadian Hydrographic Service Chart #3726) |
| **RU32** | Calamity Bay | That portion of Subarea 6-9 north of the parallel passing through 53 degrees 08.0 minutes north latitude and west of the meridian passing through 129 degrees 49.78 minutes west longitude. (Refer to Canadian Hydrographic Service Chart #3741) |
| **RU33** | Otter Pass | That portion of Subarea 6-9 south of a parallel running through the Sisters Islands from 53 degrees 10.686 minutes north latitude, 129 degrees 46.803 minutes west longitude, and north of a parallel passing through Flynn Point on Trutch Island, excluding the Calamity Bay Quota Area described as: that portion of Subarea 6-9 north of the parallel passing through 53 degrees 08.0 minutes north latitude and west of the meridian passing through 129 degrees 49.78 minutes west longitude. (Refer to Canadian Hydrographic Service Charts #3741 and #3724) |
| **RU34a** | Langley Pass | That portion of Subarea 6-9 west of a meridian running through 129 degrees 38.420 minutes west longitude; south of a parallel passing through Flynn Point on Trutch Island; and north of a parallel passing through Finnerty Point on Nichol Island. (Refer to Canadian Hydrographic Service Chart #3795) |

| Quota Area | Name | Description |
|---|---|---|
| **RU34b** | Develin Bay | That portion of Subarea 6-9 east of a meridian running through 129 degrees 38.420 minutes west longitude and south of a parallel passing through Flynn Point on Trutch Island. (Refer to Canadian Hydrographic Service Chart #3795) |
| **RU35** | Oswald Bay | a) That portion Subarea 6-9 south of a parallel passing through Finnerty Point on Nichol Island, and northwest of a parallel running true west from a point on Dewdney Island at 52 degrees 57.41 minutes north latitude, 129 degrees 38.16 minutes west longitude south-westerly to the subarea boundary. (Refer to Canadian Hydrographic Service Chart #3724)<br><br>b) That portion of Subarea 106-1 south of a parallel passing through Finnerty Point on Nichol Island and north of a parallel running true west from a point on Dewdney Island at 52 degrees 57.41 minutes north latitude , 129 degrees 38.16 minutes longitude. |
| **RU36a** | Estevan Group East | Those portions of Subareas 6-9 and 6-10 west of a line running 132 degrees true from Humphreys Point on Lotbiniere Island southerly to the parallel running true west from McPhee Point on Princess Royal Island, north of the parallel running true west from McPhee Point on Princess Royal Island, and east of a line running 130 degrees true from Goodacre Point. (Refer to Canadian Hydrographic Service Chart #3724) |
| **RU36b** | Estevan Group South | a) That portion of Subarea 6-9 west of a line running 130 degrees true from Goodacre Point, north of a parallel running true west from McPhee Point on Princess Royal Island, and south of a parallel running true west from a point on Dewdney Island at 52 degrees 57.41 minutes north latitude, 129 degrees 38.16 minutes west longitude. (Refer to Canadian Hydrographic Service Chart #3724)<br><br>b) That portion of Subarea 106-1 south of a parallel running true west from a point on Dewdney Island at 52 degrees 57.41 minutes north latitude, 129 degrees 38.16 minutes west longitude and north of a parallel running true west from McPhee point on Princess Royal Island. |

| Quota Area | Name | Description |
|---|---|---|
| **RU37** | Rennison Island | a) Those portions of Subareas 6-9 and 6-10 south of a line running true west from McPhee Point on Princess Royal Island.<br><br>b) That portion of Subarea 6-11 north of a line running from McPhee Point on Princess Royal Island to Ulric Point on Aristazabal Island.<br><br>c) That portion of Subarea 6-13 north of line running from Ulric Point on Aristazabal Island to the southern tip of Rennison Island, then true west to the surf line. (Refer to Canadian Hydrographic Service Chart #3724) |
| **RU38a** | Campania Island | That portion of Subarea 6-10 west of a line running due south from the southernmost point of Campania Island at 52 degrees 57.579 minutes north latitude, 129 degrees 19.464 minutes west longitude. |
| **RU38c** | Surf Inlet | a) That portion of Subarea 6-10 north of the parallel running true west from McPhee Point on Princess Royal Island and east of the line running from Ulric Point on Aristazabal Island to the entrance to Clarke Cove on Princess Royal Island at 52 degrees 58.30 minutes north latitude, 129 degrees 11.59 minutes west longitude.<br><br>b) Subarea 6-12. |
| **RU38d** | Gil Island West | Subareas 6-5, 6-27 and 6-28. |
| **RU38e** | McKay Reach | Subarea 6-7. |
| **RU38f** | Whale Channel | a) Subareas 6-6, 6-8 and 6-26.<br><br>b) That portion of Subarea 6-10 north of the parallel running true west from McPhee Point on Princess Royal Island, east of a line running due south from the southernmost point of Campania Island at 52 degrees 57.579 minutes north latitude, 129 degrees 19.464 minutes west longitude, and west of the line running from Ulric Point on Aristazabal Island to the entrance to Clarke Cove on Princess Royal Island at 52 degrees 58.30 minutes north latitude, 129 degrees 11.59 minutes west longitude. |

| Quota Area | Name | Description |
|---|---|---|
| **RU39** | Upper West Aristazabal | a) That portion of Subarea 6-13 south of a line running from Ulric Point on Aristazabal Island to the southern tip of Rennison Island, thence true west to the surf line and north of the parallel passing through 52 degrees 40.0 minutes north latitude (Refer to Canadian Hydrographic Service Chart #3724);<br><br>b) That portion of Subarea 106-2 east of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude, south of a line running from Ulric Point on Aristazabal Island to the southern tip of Rennison Island, thence true west, and north of the parallel passing through 52 degrees 40.0 minutes north latitude. |
| **RU40** | Woodcock Islands | a) That portion of Subarea 6-13 south of the parallel passing through 52 degrees 40.0 minutes north latitude, and north of the parallel passing through 52 degrees 35.6 minutes north latitude (through Howse Island).<br><br>b) That portion of Subarea 106-2 east of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude, south of the parallel passing through 52 degrees 40.0 minutes north latitude, and north of the parallel passing through 52 degrees 35.6 minutes north latitude (through Howse Island). |
| **RU41** | Normansell Islands | a) That portion of Subarea 6-13 south of the parallel passing through 52 degrees 35.6 minutes north latitude (through Howse Island); and north of the parallel passing through 52 degrees 32.0 minutes north latitude (Refer to Canadian Hydrographic Service Chart #3726.<br><br>b) That portion of Subarea 106-2 east of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude; south of the parallel passing through 52 degrees 35.6 minutes north latitude (through Howse Island), and north of the parallel passing through 52 degrees 32.0 minutes north latitude. |

| Quota Area | Name | Description |
|---|---|---|
| **RU42** | Lower West Aristazabal | a) That portion of Subarea 6-13 south of the parallel passing through 52 degrees 32.0 minutes north latitude, and north of the parallel passing through 52 degrees 27.62 minutes north latitude (refer to Canadian Hydrographic Service Chart #3726).<br><br>b) That portion of Subarea 106-2 east of a line running 144 degrees true from the northern boundary of Subarea 106-2 at 129 degrees 30.12 minutes west longitude; south of the parallel passing through 52 degrees 32.0 minutes north latitude; and north of the parallel passing through 52 degrees 27.62 minutes north latitude. |
| **RU43** | Upper Laredo | a) That portion of Subarea 6-11 south of a line running from McPhee Point on Princess Royal Island to Ulric Point on Aristazabal Island.<br><br>b) Subarea 6-14. |
| **RU44** | Lower Laredo | a) Subarea 6-15.<br><br>b) That portion of Subarea 6-16 north of a line running true west from Wilby Point on Swindle Island, and west of a line running from Wilby Point on Swindle Island to Dallain Point on Princess Royal Island. (Refer to Canadian Hydrographic Service Chart #3737) |
| **RU45** | Laredo Inlet | a) That portion of Subarea 6-16 east of a line running from Wilby Point on Swindle Island to Dallain Point on Princess Royal Island (Refer to Canadian Hydrographic Service Chart #3737).<br><br>b) Subarea 6-19. |
| **RU46a** | Laredo Sound | a) That portion of Subarea 6-16 south of a line running true west from Wilby Point on Swindle Island.<br><br>b) That portion of Subarea 6-17 east of a meridian passing through 128 degrees 56.0 minutes west longitude. |
| **RU46b** | Prior Pass | a) That portion of Subarea 6-13 south of a parallel running through 52 degrees 27.62 minutes north latitude (Refer to Canadian Hydrographic Service Chart #3726).<br><br>b) That portion of Subarea 6-17 west of a meridian passing through 128 degrees 56.0 minutes west longitude. |

| Quota Area | Name | Description |
|---|---|---|
| **RU47a** | Thompson Bay | a) Those portions of Subareas 7-1 and 7-2 east of a meridian running due south from Aldrich Point on Price Island.<br><br>b) Subareas 7-19 and 7-20.<br><br>c) That portion of Subarea 7-21 south of a line running through the tidal rapids in Gale Passage at 52 degrees 12.5 minutes north latitude.<br><br>d) Subarea 7-32. |
| **RU47b** | Day Point | a) Those portions of Subareas 7-1, 7-2 and 7-3 west of a meridian running due south from Aldrich Point on Price Island;<br><br>b) That portion of Subarea 7-31 south of a parallel passing through 52 degrees 16.3 minutes north latitude.<br><br>Note Price Island closure listed in the Integrated Fisheries Management Plan. |
| **RU48** | Milbanke Sound | That portion of Subarea 7-3 east of a meridian running due south from Aldrich Point on Price Island. |
| **RU49** | Finlayson Channel | a) Subareas 7-4, 7-5, and 7-6.<br><br>b) That portion of Subarea 7-9 north of a parallel passing through Jermaine Point on Dowager Island. |
| **RU50** | Mathieson Channel | That portion of Subarea 7-9 north of a line running from Cross Point on Lady Douglas Island southerly along the Subarea boundary to a point west of Rankin Point on Cecelia Island, then to Rankin Point on Cecilia Island; north of a line from Rankin Point on Cecilia Island to Knarled Point on the Don Peninsula; and south of a parallel passing through Jermaine Point on Dowager Island. |

| Quota Area | Name | Description |
|---|---|---|
| **RU51** | Seaforth Channel | a) Subareas 7-8.<br>b) That portion of Subarea 7-9 south of a line running from Cross Point on Lady Douglas Island southerly along the Subarea boundary to a point west of Rankin Point on Cecelia Island, then to Rankin Point on Cecilia Island, then to Knarled Point on the Don Peninsula;<br>c) Subareas 7-12 and 7-15.<br>d) That portion of Subarea 7-21 north of a line running through the tidal rapids in Gale Passage at 52 degrees 12.5 minutes north latitude. |
| **RU52** | Tribal / McMullin Group | a) Subarea 7-18.<br>b) Those portions of Subareas 7-23 and 7-24 south of a parallel passing through 52 degrees 10.0 minutes north latitude near Poole Islet in Raymond Channel and Quinoot Point in Joassa Channel. (Refer to Canadian Hydrographic Service Chart #3787) |
| **RU53** | Spider / Kildidt | Subareas 7-26, 7-27 and 7-28 |
| **RU54** | McNaughton Group | a) That portion of Subarea 7-17 southwest of a line running from Beak Point on Hunter Island to German Point on Campbell Island (Refer to Canadian Hydrographic Service Chart #3787).<br>b) Subarea 7-25. |
| **RU55** | Hakai Pass | Subareas 8-1 and 8-2 |
| **RU56a** | Nalau Pass | That portion of Subarea 8-4 west of a line running from Daedalus Point on Nalau Island to Hergest Point on Hunter Island |
| **RU56b** | Fitz Hugh Sound | a) Subarea 8-3.<br>b) That portion of Subarea 8-4 east of a line running from Daedalus Point on Nalau Island to Hergest Point on Hunter Island.<br>c) Subarea 8-16.<br>d) That portion of Subarea 9-12 north of a parallel running through Truman Point on Calvert Island. |

| Quota Area | Name | Description |
|---|---|---|
| **RU57a** | Rivers Inlet | a) Subareas 9-1 to 9-4, 9-10 to 9-11.<br>b) That portion of Subarea 9-12 south of a parallel running through Truman Point on Calvert Island.<br>c) Those portions of Subareas 10-1 and 10-2 east of a meridian running through 127 degrees 54.12 minutes west longitude and north of a parallel running true west from the Dugout Rocks light. |
| **RU57b** | West Calvert Island | a) Area 109.<br>b) That portion of Subarea 10-1 west of a meridian passing through 127 degrees 56.7 minutes west longitude, and north of a line running due west from the Dugout Rocks light. |
| **RU57c** | Grief Bay | That portion of Subarea 10-1 west of a meridian running through 127 degrees 54.12 minutes west longitude, east of a meridian passing through 127 degrees 56.7 minutes west longitude, and north of a line running due west from the Dugout Rocks light |
| **RU58** | Smiths Inlet | a) That portion of Subarea 10-2 south of a line running true west from the Dugout Rocks light.<br>b) Subareas 10-3, 10-4, 10-5, 10-7, 10-8 and 10-12. |

## 3. INSIDE WATERS

| Quota Area | Name | Description |
|---|---|---|
| **11** | Allison Harbour | Area 11, except that portion of Subarea 11-2 inside a line starting at Davey Rock then running to 51deg 04.430min north latitude, 127deg 54.762min west longitude, then to 51deg 04.430min north latitude, 127deg 38.084min west longitude and returning to Davey Rock. |
| **12A** | Bates Pass | That portion of Subarea 12-12 south of a line running from Pivot Point on Hope Island to a point on Vansittart Island at 50 degrees 54.633 minutes north latitude, 127 degrees 48.651 minutes west longitude, and south of a line running from Magicienne Point on Vansittart Island through Shade Island to Nigei Island. |

| Quota Area | Name | Description |
|---|---|---|
| **12B** | Christie / Browning Pass | a) Subarea 12-10;<br>b) That portion of Subarea 12-11 southwest of a line running from 51deg 04.43min north latitude, 127deg 54.762min west longitude and returning to Davey Rock. |
| **12C** | Port Hardy* | Subareas 12-15 and 12-16. |
| **12E** | Blackfish Sound | Subareas 12-5, 12-6, 12-20, 12-26. Note Numas Islands closure listed in the Integrated Fisheries Management Plan |
| **12F** | Deserter Island | That portion of Subarea 12-13 east of a line starting at Davey Rock then running to 51deg 04.43min north latitude, 127deg 38.084min west longitude |
| **12G** | Wells Pass | Subareas 12-7, 12-38 to 12-42. Note Numas Island closure listed in the Integrated Fisheries Management Plan |
| **12H** | Northern Johnstone Strait | Subareas 12-1 to 12-3, 12-21 to 12-24 |
| **12I** | Buckle Group | Those portions of Subareas 11-2, 12-11, 12-12, 12-13 inside a line starting at Davey Rock then running to 51deg 04.43min north latitude, 127deg 54.762min west longitude, then to 51deg 04.43min north latitude, 127deg 38.084min west longitude and returning to Davey Rock |
| **12J** | Shadwell Pass | That portion of Subarea 12-12 north of a line running from Pivot Point on Hope Island to a point on Vansittart Island at 50deg 54.633min north latitude, 127deg 48.651min west longitude; north of a line running from Magicienne Point on Vansittart Island through Shade Island to Nigei Island; and southwest of a line running from 50deg 49.445min north latitude, 127deg 48.347min west longitude and returning to Davey Rock |

| Quota Area | Name | Description |
|---|---|---|
| **12K** | Port McNeill | a) Subareas 12-4, 12-8, 12-17 and 12-19. Note Numas Islands closure listed in the Integrated Fisheries Management Plan<br>b) Subarea 12-18 excluding the Stephenson Islets (That portion of Subarea 12-18 within the following: 50 degrees 34. 45 min north latitude, 126 degrees 50.32 min west longitude to 50 degrees 35.115 north latitude, 126 degrees 49. 405 longitude west to 50 degrees 34.270 north latitude, 126 degrees 48.324 west longitude to 50 degrees 33.562 north latitude, 126 degrees 49.055 west longitude, to 50 degrees 34.133 north latitude, 126 degrees 50.104 west longitude to 50 degrees 34. 45 min north latitude, 126 degrees 50.32 min west longitude. |
| **12L** | Stephenson Islets | That portion of Subarea 12-18 within the following: 50 degrees 34. 45 min north latitude, 126 degrees 50.32 min west longitude to 50 degrees 35.115 north latitude, 126 degrees 49. 405 longitude west to 50 degrees 34.270 north latitude, 126 degrees 48.324 west longitude to 50 degrees 33.562 north latitude, 126 degrees 49.055 west longitude, to 50 degrees 34.133 north latitude, 126 degrees 50.104 west longitude to 50 degrees 34. 45 min north latitude, 126 degrees 50.32 min west longitude. |
| **13A** | Kelsey Bay - Proper | Subareas 13-32 to 13-34 |
| **13C** | Campbell River North* | a) Portion of Subarea 13-6 north of a line drawn true west from North Bluff on Quadra Island [50 degrees 08.691 minutes north/125 degrees 21.072 minutes west] across Seymour Narrows to a fishing boundary sign on Vancouver Island [50 degrees 08.673 minutes north/125 degrees 21.696 minutes west].<br>b) Subareas 13-7 to 13-9, 13-11, 13-27, 13-28. Note Area 13 Study Area closure listed in the Integrated Fisheries Management Plan |
| **13B** | Campbell River South | a) Subareas 13-1 and 13-2.<br>b) Portion of Subarea 13-3 south of a line drawn from the light at the end of the south government dock breakwater at Campbell River to Cape Mudge lighthouse.<br>c) Portion of Subarea 14-13 north of a line running from Oyster River from 49 degrees 52.145 minutes north latitude, 125 degrees, 06.870 minutes west longitude. |

| Quota Area | Name | Description |
|---|---|---|
| **13D** | Campbell River East | Subareas 13-10, 13-12 |
| **13E** | Cordero Channel | Subareas 13-25, 13-41 and 13-42 |
| **13F** | Kelsey Bay - East | Subareas 13-29 to 13-31, 13-35 to 13-40 |
| **13G** | Stuart Island | Subareas 13-13 to 13-24 and 13-26 |
| **13J** | **Discovery Passage*** | a) Portion of Subarea 13-3 north of a line drawn from the light at the end of the south government dock breakwater at Campbell River to Cape Mudge lighthouse.<br>b) Subareas 3-4 and 3-5.<br>c) Portion of Subarea 13-6 south of a line drawn true west from North Bluff on Quadra Island [50 degrees 08.691 minutes north/125 degrees 21.072 minutes west] across Seymour Narrows to a fishing boundary sign on Vancouver Island [50 degrees 08.673 minutes north/125 degrees 21.696 minutes west]. |
| **14A** | Comox | a) Subareas 14-5, 14-7, 14-8 and 14-10<br>b) Portions of Subareas 14-9, 14-11 and 14-12 south of a line running due east from Balmoral Beach at 49 degrees 40.034 minutes north latitude, 124 degrees 53.961 minutes west longitude. |
| **14B** | Cape Lazo | a) Portions of Subareas 14-9, 14-11 and 14-12 north of a line running due east from Balmoral Beach at 49 degrees 40.034 minutes north latitude, 124 degrees 53.961 minutes west longitude.<br>b) Portion of Subarea 14-13 south of a line running due east from Oyster River from 49 degrees 52.145 minutes north latitude, 125 degrees, 06.870 minutes west longitude. |
| **17** | Nanaimo | Area 17 and Subarea 29-5. Note Stuart Channel closure listed in the Integrated Fisheries Management Plan |

| Quota Area | Name | Description |
|---|---|---|
| **18A** | Sidney | a) Subareas 18-3, 18-4, and 18-6.<br>b) That portion of Subarea 19-5 north of a line running due east from Cormorant Point.<br>c) Subarea 19-6. |
| **18B** | Mayne / Saturna Island | Subareas 18-1, 18-2, 18-5, 18-9, 18-11 and 29-4 |
| **19** | Victoria | a) Subareas 19-3, 19-4.<br>b) That portion of Subarea 19-5 south of a line running due east from Cormorant Point. Note Ogden Point, 10 Mile Point and Race Rocks closures listed in management plan. |

## 4. WEST COAST VANCOUVER ISLAND

| Quota Area | Name | Description |
|---|---|---|
| **20A** | Sooke | a) That portion of Subarea 20-5 west of Possession Point (a line at 48 degrees 20. 205 min north latitude, 123 degrees 42.500 min west longitude to the surfline.<br>b) Subarea 20-6. |
| **20B** | Becher Bay | That portion of Subarea 20-5 east of Possession Point (a line at 48 degrees 20. 205 min north latitude, 123 degrees 42.500 min west longitude to the surfline and south of a line running from Church Point to Beechy Head [Becher Bay FSC closure] and excluding the Race Rocks Marine Reserve. |
| **20C** | Jordan River | Subarea 20-4. |
| **23A** | Bamfield | Subareas 23-5 to 23-7. Note Broken Group Islands and Bamfield closures listed the Integrated Fisheries Management Plan |
| **23B** | Ucluelet | Subareas 23-11 and 123-3. Note Broken Group Islands and Bamfield closures listed in the Integrated Fisheries Management Plan |
| **23C** | Offshore | Subarea 123-5 |

| Quota Area | Name | Description |
|---|---|---|
| **24A** | Sydney Inlet | Subarea 24-2. Note Hotsprings Cove closure listed in management plan. (Closed) |
| **24B** | Wickaninnish | Subarea 24-8. Note Moser Point closure listed in the Integrated Fisheries Management Plan. (Closed 2006/07 for First Nations access) |
| **24C** | Tofino | Subareas 24-6, 124-3 (Closed 2006/07 for First Nations access) |
| **27A** | Quatsino Outside | Subareas 27-1 to 27-3. (Closed for three years 2003/2004 to 2006/2007) |
| **27B** | Quatsino Inside | Subareas 27-7 to 27-11. (Closed for three years 2003/2004 to 2006/2007) |
| **111** | Cape Scott | Area 111, Subarea 12-14. (Closed) |

**Appendix 11: Example of Red Sea Urchin Conditions of Licence**

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

**CONDITIONS OF [YEAR] RED SEA URCHIN LICENCE**
Licence Period: August 1, [YEAR] to July 31, [YEAR]

Authority

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

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

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

For information on management of the red sea urchin fishery obtain a copy of the current Red Sea Urchin - Integrated Fisheries Management Plan from a resource manager at 250-756-7118 or 250-756-7271. The Management Plan is intended for general information purposes only. Where there is a discrepancy between the Plan and the *Fisheries Act* and regulations or these conditions, the *Fisheries Act* and regulations and these conditions prevail.

PART 1

Application

This Part applies to fishing for those species of fish set out in section 1 of this Part.

Definitions

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

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

“Department” means the Department of Fisheries and Oceans.

“discarded” means not placing the red sea urchin in a container or removing a red sea urchin from a container and not validating that red sea urchin.

“harvested” means removing, by any means, red sea urchin from the substrate of the ocean floor.

“landed” or “landing” means the transfer of red sea urchin from a vessel in water to land.

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

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

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

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

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

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

“Quota Area” means those areas enumerated and described in Appendix 10 of the current Red Sea Urchin – Integrated Fisheries Management Plan.

“tranship” means the transfer of red sea urchin from a vessel to another vessel.

“validated” means red sea urchin have been weighed by an observer and the weight entered into the Red Sea Urchin Validation & Harvest Log (see sections 10 and 12) or an alternative log approved by the Department.

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

1. Species of fish permitted to be taken:

Red Sea Urchin (Strongylocentrotus franciscanus)

2. Licence Expiry Date:

This licence expires on July 31, [YEAR].

3. Quantities permitted to be taken:

(1) The maximum quantity of red sea urchin authorized to be taken under this licence shall not exceed the limit on the current Red Sea Urchin licence.

4. Minimum size limit:

The minimum size of Red Sea Urchin that may be taken is 90 mm in shell diameter, measured between the spines, through the greatest diameter of the shell.

5. Waters in which fishing is permitted:

Area of fishing is as set out in this licence.

6. Fishing gear permitted to be used:

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

7. Fishing Multiple Quota Areas

All red sea urchin caught in a Quota Area shall be landed or transhipped prior to the commencement of fishing in a new Quota Area.

8. The type, size and marking of containers to hold or transport red sea urchin and the marking of such containers:

(1) All red sea urchin delivered to designated landing ports or transhipped from the licensed vessel to another vessel licensed for the transportation of fish shall be placed in containers which are labelled. The label must be waterproof and marked with the vessel name and vessel registration number of the vessel used to harvest that product.

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

9. Transhipment:

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

(1) all red sea urchin are in containers and tagged as per section 7;
(2) the number of containers are recorded in the log;
(3) the “packer weight” (determined by subtracting the weight of the containers from the weight of the product) is recorded in the log;
(4) a copy of the log accompanies the product to the designated port; and
(5) the product is landed at a designated port and validated by an observer.

10. Locations permitted for the landing of red sea urchin:

Red sea urchin shall be landed at one of the following ports:

(1) North Coast: Queen Charlotte City, Masset, Prince Rupert, Port Edward, Klemtu, Bella Bella, or Port Hardy.

(2) South Coast: Port Hardy, Port McNeill, Kelsey Bay, Nanaimo, Quadra Island, Comox, Campbell River, Sidney, Sooke, Victoria, Ucluelet, Steveston, or Vancouver.

This condition applies to both the licensed vessel and, if the vessel master chooses to tranship his catch to another vessel, to the vessel receiving the red sea urchin.

11. Validation:
(See Explanatory Note after section 14)

(1) All red sea urchin harvested or removed from the sea bed floor under the authority of this licence must be validated at the point and time the fish are landed.

(2) Prior to validation of red sea urchin no person shall:

(a) smash the shells or slit the membranes of the red sea urchin to drain the waters; or
(b) dump, throw overboard, or otherwise discard red sea urchin which have been harvested and retained in accordance with the *Fisheries Act* and the regulations made thereunder.

(3) All weights shall be determined using a scale approved by Industry Canada.

(a) Registered participants in the live-market validation pilot program shall validate their catch by undrained weight or by volume in the manner set out in the Alternate Validation Pilot Protocol sheet available to registrants from the resource manager.

(5) The vessel master of the licensed vessel or, if the catch is transhipped to another vessel, the vessel master of that vessel shall provide the observer with a hard copy of the Validation & Harvest Logbook upon completion of each validation.

(6) The vessel master of the licensed vessel or, if the catch is transhipped to another vessel, the vessel master of that vessel shall provide to the observer at the point of landing, access to the vessel’s fish holds, freezers and other fish storage areas at any time during the landing.

12. Oral Reports:

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

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

(2) Upon failure to arrive at fishing location within 24 hours of time stated in subsection 11(1), the vessel master shall report the following information to the designated Red Sea Urchin service provider:

(a) vessel name and vessel registration number; and
(b) details of change in fishing plans.

(3) At least 24 hours prior to moving to a new Quota Area, the vessel master shall report the following information to the designated Red Sea Urchin Provider:

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

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

(5)Hail-in Report:

No more than 24 hours after a fishing trip, the vessel master shall make a Hail-in Report by contacting the designated Red Sea

Urchin service provider at (800) 775-5505 to report the following information:

(a) vessel name, vessel master’s name and vessel registration number;
(b) species fished (i.e. red sea urchin);
(c) Subarea(s) fished; and
(d) time that fishing stopped.

OR

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

(a) vessel name, vessel master’s name and vessel registration number;
(b) species to be landed (i.e. red sea urchin);
(c) name of the designated port and location therein where the catch shall be landed;
(d) anticipated time of landing;
(e) name of fish processor or buyer that is buying or transporting the catch; and
(f) if applicable, the method of transporting the catch to a fish processor.

13. Harvest Logs and Chart Data:
(See Explanatory Note after section 14)

(1) The vessel master shall maintain a log of all harvest operations and provide this information in both hard (paper) copy and electronic copy to the Department. The content and format of this log (paper and electronic) must meet the requirements as defined by the Shellfish Data Unit for the current licence year.

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

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

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

(5) The log shall be produced for examination on demand of a fishery officer, fishery guardian or an observer.

(6) The vessel master shall provide a chart record for each day's harvest operations, indicating the locations fished, to the service provider contracted by the Pacific Urchin Harvesters Association, within one month of the harvesting having occurred.
(a) The chart shall be marked with:
(i) the vessel registration number;
(ii) the licence tab number; and
(iii) the validation I.D. numbers.

The validation I.D. number is the unique page number assigned to each validation page of the Red Sea Urchin Validation and Harvest Log.
(b) Each harvest site shall be clearly marked on the chart with dive number, validation I.D. number and the dates that fishing activity occurred at each site. The dive numbers on the chart record shall correspond to the dive numbers in the log.

(c) The information for each day's harvest operations shall be recorded on the chart record no later than midnight of that day and provided to the service provider within one month of that day's harvest operations.

(7) The vessel master shall make provisions to have chart information referred to in subsection 12(6) electronically captured into Geographic Information System (GIS) software that meets the requirements as defined by the Shellfish Data Unit for the current licence year.

(8) The completed log pages (business copy)and electronic copy of the log shall be available within 28 days following the end of each month in which fishing occurred, to:

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

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

(9) In the event that a licence holder does not fish during the current fishing season, the licence holder shall submit a nil report. One page from the harvest logbook identifying the vessel, licence tab number and the year with 'nil' entered in the body of the log and signed by the licence holder constitutes a nil report.

14. Fish Slips:

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

(2) A report must be made even if the fish are used for bait, personal consumption or disposed of otherwise.
(3) The report shall be mailed not later than seven days after the offloading and sent to:

Fisheries and Oceans Canada
Regional Data Unit
Suite 200 - 401 Burrard Street
Vancouver B.C.  V6C 3S4

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

15.  Workers' Compensation Board Requirements

All red sea urchin divers shall be in possession of a Workers' Compensation Board Seafood Harvesting Diving Certificate.

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

# APPENDIX 12: FISHING VESSEL SAFETY

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## 1. OVERVIEW – FISHING SAFETY

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with TC; emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In BC, 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 a Memorandum of Understanding (MOU, 1996) have formalized cooperation to establish, maintain and promote a safety culture within the fishing industry.

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

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

Education and training programs

Marine emergency duties training

Fish Safe – Stability Education Program & 1 Day Stability Workshop

Fish Safe – SVOP/Safe on the Wheel Course

Fish Safe – Safest Catch Program – **FREE** for BC commercial fishers

First Aid training

Radio Operators Course

Fishing Masters Certificate training

Small Vessel Operators Certificate training

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
- Amendments to the *Small Fishing Vessel Inspection Regulations* (can be obtained from: http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php)
- 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 Quick

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

www.fishsafebc.com

www.worksafebc.com

## 2. IMPORTANT PRIORITIES FOR VESSEL SAFETY

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

### 2.1 Fishing Vessel Stability

Vessel stability is paramount for safety. Care must be given to the stowage and securing of all cargo, skiffs, equipment, fuel containers and supplies, and also to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability (i.e. loose water or fish on deck), loading and unloading operations, watertight integrity and the vessel's freeboard. Know the limitations of your vessel; if you are unsure contact a 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. These instructions must 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 *Fishing Vessel Safety 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 include fishing vessels involved in the catch of herring or capelin. In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) No. 03/2017 announcing the coming into force of the *New Fishing Vessel Safety Regulations*. The initial regulations were published in the Canada Gazette Part II on July 13, 2016 and came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

As of July 13, 2017, the following fishing vessels must successfully undergo a stability assessment by a competent person:

- A new fishing vessel that has a hull length of more than 9 m;
- A fishing vessel more than 9 m and that has undergone a major modification or a change in activity that is likely to adversely affect its stability ;
- A fishing vessels that is fitted with an anti-roll tank at any time;
- A fishing vessel more than 15 gross tonnage and used for catching herring or capelin during the period beginning on July 6, 1977 and ending on July 13, 2017

A fishing vessel that is not required to undergo a stability assessment shall have adequate stability to safely carry out the vessel's intended operations. Guidelines are still being developed to help small fishing vessel owners and operators meet their regulatory requirements. Additionally, Transport Canada published a Stability Questionnaire (SSB No. 04/2006) and Fishing Vessel Modifications Form (SSB No. 01/2008) which enable operators to identify the criteria which will trigger a stability assessment. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires one, or to receive guidance on obtaining competent assessor.

In 2008, TC issued SSB No. 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 a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: M02W0102 - *Fritzi-Ann*, M05W0110 - *Morning Sunrise*, M07M0088 - *Big Sisters*, M08W0189 - *Love and Anarchy*, M09L0074 – *Le Marsouin I*, M10M0014 - *Craig and Justin*, M12W0054 – *Jessie G*, M12W0062 - *Pacific Siren*, M14P0121 – *Five Star* and M15P0286 - *Caledonian* .

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

In 2013, Fish Safe developed a code of best practices for the food and bait herring fishery and the prawn fishery: 'Food and Bait – Best Practice Reminders'; 'Prawn Industry - Best Industry Recommended Practices.' Please contact Ryan Ford at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Ryan Ford – Cell phone: (604) 739-0540 - Email: ryan@fishsafebc.com.

## 2.2 Emergency Drill Requirements

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

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.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The reports findings highlighted the lack of safety drills and safety procedures and practices.

The Safest Catch program, delivered by Fish Safe and **free** to BC commercial fishers, includes comprehensive practice of drills such as abandon ship, man overboard and firefighting drills.

## 2.3 Cold Water Immersion

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

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

## 2.4 Other Issues

### 2.4.1 Weather

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

### 2.4.2 Emergency Radio Procedures

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

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

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

www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on MCTS and DSC can be obtained by contacting a local Coast Guard MCTS centre (located in Victoria **or** Prince Rupert or from the Coast Guard website:

www.ccg-gcc.gc.ca/Pacific).

### 2.4.3 Collision Regulations

Fish harvesters must be knowledgeable of the *Collision Regulations* and the responsibilities between vessels where risk of collision exists. Navigation lights must be kept in good working order and must be displayed from sunset to sunrise and during all times of restricted visibility. To help reduce the potential for

collision or close quarters situations which may also result in the loss of fishing gear, fish harvesters are encouraged to monitor the appropriate local Vessel Traffic Services (VTS) VHF channel when travelling or fishing near shipping lanes or other areas frequented by large commercial vessels. Vessels required to participate in VTS include:

a) every ship twenty metres or more in length,

b) every ship engaged in towing or pushing any vessel or object, other than fishing gear,

c) where the combined length of the ship and any vessel or object towed or pushed by the ship is forty five metres or more in length; or

d) where the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length.

Exceptions include:

a) a ship towing or pushing inside a log booming ground,

b) a pleasure yacht *less than* 30 metres in length, and

c) a fishing vessel that is *less than* 24 metres in length and not *more than* 150 tons gross.

More detailed information on VTS can be obtained by calling (250) 363-8904 or from the Coast Guard website: http://www.ccg-gcc.gc.ca/eng/CCG/Home.

2.4.4 Buddy System

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

## 3. WORKSAFEBC

WorkSafeBC exercises jurisdiction over workplace health and safety, including the activities of crews of fishing vessels. Commercial fishing, diving, and other marine operations are subject to the provisions of the *Workers Compensation Act (WCA)* and

requirements in Part 24 of the Occupational Health and Safety Regulation (OHSR). Many general hazard sections of the OHSR also apply to commercial fishing and other marine operations. For example, Part 8: Personal Protective Clothing and Equipment addresses issues related to safety headgear, safety foot wear, and personal floatation devices (PFDs). Part 15 addresses issues related to rigging; Part 5 addresses issues of exposure to chemical and biological substances; and Part 3 addresses training of young and new workers, first aid, and accident investigations. Part 3 of the *WCA* also defines the roles and responsibilities of owners, employers, supervisors, and workers. The OHSR and the *WCA* are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: www.worksafebc.com

For further information, contact an Occupational Safety Officer:

| | | |
|---|---|---|
| Mark Lunny | Courtenay | (250) 334-8732 |
| Cody King | Courtenay | (250) 334-8733 |
| Gregory Matthews | Courtenay | (250) 334-8734 |
| Jessie Kunce | Victoria | (250) 881-3461 |
| Bruce Logan | Lower Mainland | (604) 244-6477 |

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

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski (604) 233-4062 or by email: tom.pawlowski@worksafebc.com

## 4. FISH SAFE BC

Fish Safe encourages Vessel masters and crew to take ownership of fishing vessel safety. Through this industry driven and funded program Fish Safe provides fishing relevant tools and programs to assist fishers in this goal. The Fish Safe Stability Education Program and 1 Day Stability Workshop are available to all fishers who want to improve their understanding of stability and find practical application to their vessel's operation. The SVOP/Safe on the Wheel Course is designed to equip crew with the skills they need

to safely navigate during their wheel watch. The Safest Catch Program, along with fisher-trained Safety Advisors, is designed to give fishers the tools they need to create a vessel specific safety management system.

Fish Safe is managed by Ryan Ford, Program Coordinator John Krgovich, interim Program Assistant Yana Ingelsman, bookkeeper Rhoda Huey and an experienced team of fisher Safety Advisors. All activities and program development is directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board). The advisory committee meets quarterly to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

Fish Safe also works closely with WorkSafeBC to improve the fishing injury claims process. For further information contact:


Ryan Ford

Program Manager — Cell: (604) 739-0540

Fish Safe — Office: (604) 261-9700

#100, 12051 Horseshoe Way — Email: ryan@fishsafebc.com

Richmond, BC V7A 4V4 — www.fishsafebc.com


## 5. TRANSPORTATION SAFETY BOARD

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or determine civil or criminal liability. Under the TSB Act, all information collected during an investigation is completely confidential.

In 2014 the TSB released three investigation reports:

- the collision between trawl fishing vessel *Viking Storm* and US long line fishing vessel *Maverick* and the subsequent fatality,

- the person over board off the prawn fishing vessel *Diane Louise* and the subsequent fatality, and
- the capsizing of the crab fishing vessel *Five Star* and subsequent fatality.

In 2016 the TSB released one investigation report:

- the capsizing of the trawl *Caledonian* and subsequent fatalities.

The TSB issued five recommendations following the *Caledonian* report. Three recommendations issued are aimed at ensuring all crews have access to adequate stability information that meets their needs. That means:

- All commercial fishing vessels should have a stability assessment appropriate for their size and operation.
- The information from that assessment must then be kept current, and it must be used to determine safe operating limits.

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline. Or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps. Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that fishers can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many fishers still don't wear them. Regulations currently require that PFDs be worn only if fishers identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC and WorksafeBC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance.

For more information about the TSB, visit the website at www.tsb.gc.ca

For information about the TSB's investigation into fishing safety, or to view a brief video, visit:

http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp

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

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

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

## APPENDIX 13: CONSULTATION

### RED SEA URCHIN SECTORAL COMMITTEE AND RESEARCH SUBCOMMITTEE

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

The Sectoral Committee meets annually in the spring to review and provide advice to the Department regarding management issues pertaining to the fishery and on the proposed Integrated Fisheries Management Plan (IFMP). The Sectoral Committee and Research Subcommittee terms of reference and meeting calendar are available from the Resource Managers listed in Contacts or from the Department's consultation Internet site at:

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

Area Committees for each commercial licence area discuss the observations, opinions and desires of the area fish harvesters and the industry association (PUHA) with respect to the harvest plan. All advice, where practical and useful, is considered

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

A multi-sector advisory committee (Red Sea Urchin Sectoral Committee) meeting is held. Discussion arising from this meeting may result in some final changes to the plan, which then progresses through an internal DFO approval process.

## APPENDIX 14: CONTACTS

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

Invertebrate Internet Page:
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 |
| Lead Red Sea Urchin Manager | Pauline Ridings | (250) 756-7118 |
| Regional Recreational Fisheries Co-ordinator | Carole Eros | (604) 666-3271 |
| | | |
| North Coast Area, Areas 1 through 10 (North) | General Inquiries | (250) 627-3499 |
| 417 2nd Avenue West, Prince Rupert | Fax | (250) 627-3427 |
| Resource Management Biologist | Pauline Ridings | (250) 756-7118 |
| Aboriginal Affairs Advisor – First Nations Fisheries | Amy Wakelin | (250) 627-3492 |
| Resource Manager - Recreational Fisheries | | (250) 627-3409 |
| | | |
| South Coast Area, Areas 11 through 27 | General Inquiries | (250) 756-7270 |
| 3225 Stephenson Point Road, Nanaimo | Fax | (250) 756-7162 |
| Resource Management Biologist, Nanaimo | Erin Wylie | (250) 756-7271 |
| Aboriginal Affairs Advisor – First Nations Fisheries | Kevin Conley | (250) 756-7196 |
| Resource Manager - Recreational Fisheries | Brad Beaith | (250) 756-7190 |
| | | |
| Lower Fraser Area, Areas 28 and 29 | General Inquiries | (604) 666-8266 |
| Unit 3, 100 Annacis Parkway, Delta | Fax | (604) 666-7112 |
| Resource Manager - Shellfish | Anna Magera | (604) 916-6743 |
| Resource Manager – First Nations Fisheries | Matthew Parslow | (604) 666-6608 |
| Resource Manager - Recreational Fisheries | Barb Mueller | (604) 666-2370 |

### Conservation and Protection

| | | |
|---|---|---|
| Red Sea Urchin Enforcement Plan | Patricia DeMille | (250) 627-3430 |

### Science Branch

| | | |
|---|---|---|
| Pacific Biological Station | Janet Lochead | (250) 756-7139 |
| | Dan Leus | (250) 756-7147 |

### Commercial Licensing

National On-line Licencing System (NOLS)
Web: www.dfo-mpo.gc.ca/fm-gp/sdc-cps/index-eng.htm

E-mail: SDC-CPS@dfo-mpo.gc.ca
Telephone: 1-877-535-7307
Fax: 613-990-1866
TTY: 1-800-465-7735

| | | |
|---|---|---|
| Pacific Fishery Licence Unit<br>200 - 401 Burrard Street<br>Vancouver, BC V6C 3S4 | | (604) 666-0566 |
| Pacific Fishery Licence Unit<br>417 2nd Avenue West<br>Prince Rupert, BC V8J 1G8 | | (250) 627-3413 |
| Pacific Fishery Licence Unit<br>60 Front Street<br>Nanaimo, BC V9R 5H7 | | (250) 754-0400 |

**Aquaculture**

| | | |
|---|---|---|
| Shellfish Advisor, Aquaculture Division | Gabrielle Kosminder | (250) 754-0394 |

**Canadian Food Inspection Agency**

| | | |
|---|---|---|
| Pacific Shellfish Desk | | (604) 666-3737 |

**BC Ministry of Agriculture**

| | | |
|---|---|---|
| Industry Specialist, Marine Fisheries & Seafood | Allison Witter | (250) 356-5362 |

**WorkSafe BC**

| | | |
|---|---|---|
| Occupational Safety Officer, Courtenay | Mark Lunny | (250) 334-8732 |
| Occupational Safety Officer, Courtenay | Greg Matthews | (250) 334-8734 |
| Occupational Safety Officer, Courtenay | Cody King | (250) 334-8733 |
| Occupational Safety Officer, Victoria | Jessie Kunce | (250) 881-3461 |
| Manager of Interest for Marine and Fishing | Pat Olsen<br>toll free | (250) 334 8777<br>1 888 621 7233 (ext. 8777) |
| Projects related to commercial fishing | Tom Pawlowski<br>toll free | (604) 233-4062<br>1 888 621 7233 (ext. 6922) |

**Pacific Urchin Harvesters Association (PUHA)** www.puha.org

| | |
|---|---|
| Mike Featherstone, President | (604) 230-1686 |
| Al Shanks, Director | (250) 335-2051 |
| David McRae, Director | (250) 595-5577 |
| Tim Joys, Director | (604) 241-7815 |
| Chris Grant, Director | (250) 203-8858 |

| | |
|---|---|
| John Parkin, Director | (250) 334-4879 |
| Ken Ridgway Jr., Director | (250) 729-2670 |
| Bob Hegedus, Director | (604) 989-4732 |
| Jim Dyck, Director | (250) 723-6106 |
| John Lindsay, Director | (604) 885-7274 |
| Alfa Wong, Director | (604) 821-0133 |
| Ross Morris, Secretary/Treasurer | (604) 524-0322 |

**Red Sea Urchin Service Provider** www.d-dpacificfisheries.com

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

**Red Sea Urchin Processors**

| | |
|---|---|
| Grand Hale Marine Products | (604) 325-9393 |
| Territory Seafoods | (604) 322-7700 |
| Paladin International | (604) 821-0133 |
| Sung Fish | (604) 255-4718 |
| Seagate Fisheries | (604) 278-8684 |
| RBS Seafood Harvesting | (250) 383-6410 |
| Lobster Man | (604) 687-4228 |
| North Delta Seafoods | (778) 372-2872 |

**Sighting Networks**

BC Cetacean and Sea Turtle Sighting Network (866) 472 9663
Email: sightings@vanaqua.org or turtles@vanaqua.org
On the internet at:
www.wildwhales.org/sightings/ or www.bcreptiles.ca/reportsightings.htm#1

Basking Shark Sighting Network 1 (877) 50 SHARK
Email: sharks@dfo-mpo.gc.ca
On the internet at:
www.dfo-mpo.gc.ca/species-especes/sharks/report-eng.html