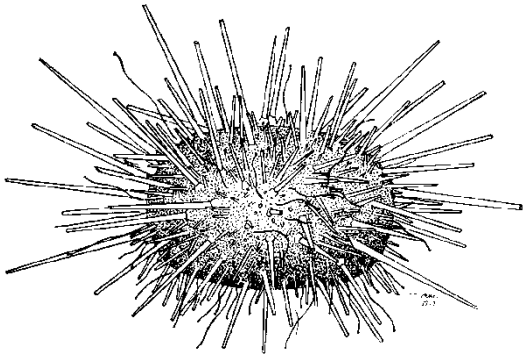
PACIFIC REGION

INTEGRATED FISHERIES MANAGEMENT PLAN

RED SEA URCHIN

AUGUST 1, 2022 TO JULY 31, 2023



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.

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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, First Nations, 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

1. OVERVIEW

1.1 Introduction

The 2022/2023 Pacific Region Red Sea Urchin Integrated Fisheries Management Plan (IFMP) encompasses the period of August 1, 2022 to July 31, 2023.

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 between 2013 and 2016 to between 60% and 80% of the coastwide TAC but has since declined to approximately 60% over the last few seasons. This decline has been due mainly to weather issues and gonad quality.

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

First Nations

First Nations' harvest for food, social and ceremonial purposes may occur where authorized by a 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 Nations Right-Based Sale Fishery

Five Nuu-chah-nulth First Nations located on the west coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) – have an Aboriginal right to fish for any species, with the exception of Geoduck, within their Fishing Territories and to sell that fish. The Department has developed a 2022/23 Five Nations Multi-species Fishery Management Plan (FMP). The FMP includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting. Feedback provided by the Five Nations during consultations was considered and incorporated into the 2022/23 FMP by DFO where possible.

The implementation of the Five Nations' right-based sale fishery continues to be an ongoing process. For further information, see the 2022/23 FMP at: https://waves-vagues.dfo-mpo.gc.ca/Library/41047977.pdf.

Recreational

A BC Tidal Waters Sport Fishing Licence is required for the recreational harvest of all species of fish, including shellfish. There were 272,800 anglers participating in BC's tidal waters recreational fishery in 2021/22. Crabs, prawns and shrimp, clams and oysters are the main species of shellfish harvested. 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.

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

First Nations and Recreational

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

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

First Nations

First Nations' harvest of red sea urchins for FSC or domestic purposes is open year round.

Commitment to Reconciliation:

DFO is committed to the recognition and implementation of Indigenous and treaty rights related to fisheries, oceans, aquatic habitat, and marine waterways in a manner consistent with section 35 of the *Constitution Act, 1982*, the United Nations Declaration on the Rights of Indigenous peoples, the United Nations Declaration on the Rights of Indigenous Peoples Act, and the federal Principles Respecting the Government of Canada's Relationship with Indigenous peoples. DFO-CCG Reconciliation Strategy provides a guidance document to better understand why and how reconciliation informs the work of the Department.

For further details on the United Nations Declaration on the Rights of Indigenous peoples see https://www.justice.gc.ca/eng/declaration/index.html

For further details on the United Nations Declaration on the Rights of Indigenous Peoples Act see https://laws-lois.justice.gc.ca/eng/acts/u-2.2/

For further details on the Principles Respecting the Government of Canada's Relationship with Indigenous peoples see https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html

DFO's Reconciliation Strategy can be found at https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/reconciliation-eng.html

For further details on reconciliation in British Columbia and Yukon, refer to https://www.pac.dfo-mpo.gc.ca/abor-autoc/reconciliation-pacific-pacifique-eng.html

Information on Indigenous fisheries and reconciliation is available at: http://www

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

Information on the Government of Canada work to advance reconciliation can be found here: https://www.rcaanc-cirnac.gc.ca/eng/1400782178444/1529183710887

Fish and marine resources are central to the culture, society, and well-being of First Nations and provide a critical connection to language, traditional knowledge, and health of communities.

FSC Fisheries:

Fisheries & Oceans Canada (DFO) remains committed to respecting First Nations' Aboriginal right to fish for food, social and ceremonial (FSC) purposes, or domestic purposes under Treaty which has priority – after conservation – over other uses of the resource.

Section 35(1) of the *Constitution Act* recognizes and affirms the existing Aboriginal and Treaty rights of the Aboriginal Peoples in Canada. However, it does not specify the nature or content of the rights that are protected. In 1990, the Supreme Court of Canada issued a landmark ruling in the *Sparrow* decision which found that the Musqueam First Nation has an Aboriginal right to fish for food, social and ceremonial (FSC) purposes. The Supreme Court found that where an Aboriginal group has a right to fish for FSC purposes, it takes priority, after conservation, over other uses of the resource. The Supreme Court has also indicated the duty to consult with Aboriginal Peoples when their fishing rights might be affected.

The Aboriginal Fisheries Strategy (AFS) was implemented in 1992 to address several objectives related to First Nations and their access to the resource. These included:

- Improving relations with First Nations
- Providing a framework for the management of the First Nations fishery in a manner that was consistent with the Supreme Court of Canada's 1990 *Sparrow* decision
- Greater involvement of First Nations in the management of fisheries
- Increased participation in commercial fisheries (Allocation Transfer Program (ATP))

AFS continues to be one of the principal mechanisms – in addition to Treaties and reconciliation agreements - to support the development of relationships with First Nations including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs.

Canada and First Nation Long-term agreements: Treaties and Reconciliation Agreements:

Five Nations Right-Based Sale Fishery

For more information, see Appendix 2 (First Nations Harvest Plan).

Treaties and Self Government Agreements

There are six modern treaties and self-government agreements in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), Maa-nulth First Nations Final Agreement (MNA), Tla'amin (Sliammon) Nation Final Agreement, Sechelt Self-government Act, and Westbank First Nation Self-government Agreement. Through these treaties, Nations work with DFO to manage treaty fisheries on an annual basis. There are also

historic treaties in British Columbia (Douglas Treaties and Treaty 8). For a detailed list of long-term fisheries arrangements in BC and Yukon, please see the internet at https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html.

Fisheries chapters in modern treaties may articulate a treaty fishing right for domestic purposes that are protected under Section 35 of the Constitution Act, 1982. Negotiated through a side agreement, some modern treaty First Nations have commercial access through a Harvest Agreement outside of the constitutionally protected treaty.

Reconciliation Agreements

In addition to negotiating treaties, the Government of Canada and Indigenous peoples can also negotiate Recognition of Indigenous Rights and Self-Determination (RIRSD) agreements, to explore new ways of working together to advance the recognition of Indigenous rights and self-determination. These agreements are led by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to enhance First Nations and DFO collaborative governance and management on fisheries, marine and aquatic matters.

Reconciliation agreements work within the legislative framework of the Fisheries Act. The Act provides the Minister of Fisheries, Oceans and the Canadian Coast Guard with the legislative authority for the proper management and control of the fisheries, the conservation and protection of fish, and regulation of the fishery.

Since 2019, the Government of Canada entered into several framework agreements with First Nations that lay the foundation for incremental development and implementation of new arrangements for collaborative governance on fisheries and marine matters. A 'framework agreement' sets out the subject matter for negotiation and describes how negotiations will proceed towards a final agreement. A final reconciliation agreement includes substantive commitments the Parties have agreed to implementing and governs the relationship between the Parties for its term of the agreement.

See the BC Treaty Commission at https://www.bctreaty.ca/index.php and CIRNAC for more information on current treaty tables at https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231 and for current RIRSD tables at https://www.rcaanc-cirnac.gc.ca/eng/1511969222951/1529103469169.

Framework Agreements:

- *GayGahlda "Changing Tide" Framework Agreement* between Haida and Canada
- *Reconciliation Framework Agreement for Fisheries Resources* between A-Tlegay Member Nations (We Wai Kai Nation, Wei Wai Kum First Nation, Kwiakah First Nation, Tlowitsis Nation, and K'ómoks First Nation) and Canada

Reconciliation Agreements:

- *Haíłcístut Incremental House Post Agreement* between Heiltsuk and Canada

- *Coastal First Nations Fisheries Resource Reconciliation Agreement* between Canada and Metlakatla, Gitxaala, Gitga'at, Kitasoo/Xai-Xais, Nuxalk, Heiltsuk, Wuikinuxv, and Haida Nations
- *Gwet'sen Nilt'I Pathway Agreement* between Tŝilhqot'in, Canada and BC
- *Burrard Inlet Environmental Science and Stewardship Agreement* between Tsleil-Waututh Nation and Canada

As DFO and First Nations develop and implement new fisheries and collaborative governance arrangements, DFO works with these Nations to engage neighbouring First Nations and stakeholders (e.g. commercial and recreational sectors).

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.

A British Columbia Tidal Waters Sport Fishing Licence is required for the recreational harvest of Red Sea Urchins. Tidal Waters Sport Fishing Licences can be purchased

over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee), or online via the National Recreational Licensing System:

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

A list of IAPs is available at:

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

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.

Aquaculture

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

1.6 Governance

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* , *the Aboriginal Communal Fishing Licences Regulations* and the *Pacific Aquaculture Regulations*. Management Areas and Subareas are described in the *Pacific Fishery Management Area Regulations*.

Marine Protected Areas (MPAs) may be established under the *Oceans Act* (1996, c. 31). National Marine Conservation Areas may be established under the *Canada National Marine Conservation Areas Act* (2002, 2. 18). Marine National Wildlife Areas may be established under the *Canada Wildlife Act* (1985, c. W-9).

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

In addition, the Sustainable Fisheries Framework is a toolbox of existing and new policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. The Sustainable Fisheries Framework provides planning and operational tools that allow these goals to be achieved in a clear, predictable, transparent, and inclusive manner, and provides the foundation for new conservation policies to implement the ecosystem and precautionary approaches to fisheries management. These policies include: 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, Fishery Monitoring Policy, 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.

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

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

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)). Information about the CSAP and publications are available at:

http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm

DFO engages in a variety of consultation, engagement and collaborative harvest planning processes with First Nations. These exchanges and involvement may include bilateral consultations, advisory processes, management boards, technical groups and other roundtable forums. Consultation is an important part of good governance, sound policy development and decision-making. It is also a component of modern treaties established between First Nations and provincial and federal governments. In addition to good governance objectives, Canada has statutory, contractual, and common law obligations to consult with Indigenous groups.

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.

1.7 Approval Process

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

2. STOCK ASSESSMENT AND SCIENCE

2.1 Biological Synopsis

Red Sea Urchins occur in waters from Baja California to Alaska and from the Aleutian Islands to Hokkaido Island, Japan. It is the largest of five species of sea urchins occurring in BC, Red Sea Urchins are 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 284 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 19 cm 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 algae. 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 plant material from the rocks, including large material like kelp forests. Once stripped of algae by sea urchins, these habitats become known as urchin barrens. 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 (*Enhydra lutris*) 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 (*Haliotis kamtschatkana*) 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 Stock Assessment

Fisheries and Oceans Canada stock assessment activities continue coast wide through the pilot multispecies benthic marine invertebrate survey (also discussed in section 2.6). The DFO co-ordinates vessel and diver participation in surveys with First Nations communities. The main survey goals are to estimate density and size frequencies of benthic marine invertebrate populations, including Red Sea Urchin, along the coast. 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.

2.4 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 (generally due to Sea Otter predation), 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 5.4.1).

2.5 Precautionary Approach

The Department follows 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. The SFF includes a decision-making framework

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

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

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

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

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

Amendments to the Fisheries Act (Bill C-68) were passed into legislation in 2019 and include new authorities to amend the Fishery (General) Regulations and requirements to maintain major fish stocks at sustainable levels, and develop and implement rebuilding plans for stocks that have declined to their critical zone. The amendments are available at:

https://www.parl.ca/LegisInfo/en/bill/42-1/C-68

Information on the proposed regulation to prescribe major fish stocks and describe requirements for rebuilding plans is available at:

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

Publication of Canada Gazette, Part I, Volume 155, Number 1: Regulations Amending the Fishery (General) Regulations on January 2, 2021 is available at:

https://gazette.gc.ca/rp-pr/p1/2021/2021-01-02/html/reg1-eng.html

This regulatory amendment to prescribe major fish stocks and describe requirements for rebuilding plans was registered and came into force on April 3, 2022 and published in Canada Gazette, Part II and is available at:

https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html

Harvest control rules compliant with the Precautionary Approach (PA) have been developed for the Red Sea Urchin fishery. The most recent Red Sea Urchin CSAS paper (Lochead et al. 2019) recommended a Limit Reference point, an Upper Stock Reference point and assessed stock status in the three regions of the coast that are commercially harvested against these reference points. All three regions were assessed individually and the three regions were combined to give a big picture look at the commercially harvestable stock status in BC. In all three regions as well as all three combined, the stock is above the recommended Upper Stock Reference point and is therefore within the Healthy Zone as defined in the Precautionary Approach (Section 2.6).

The full paper entitled, "Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia" can be found at the following link:

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2019/2019_061-eng.html

The Red Sea Urchin stock was recently assessed in the Healthy Zone, however it is acknowledged that the data used in the assessment were from surveys that were designed to estimate density and size distribution at the PFM Area or Subarea level for the purpose of providing quota options, not to provide representative data for the assessment of stock status (Lochead et al. 2019). DFO Science is currently developing a new multispecies benthic marine invertebrate survey designed specifically to generate the time-series data required for marine invertebrate stock status monitoring and assessment. This new monitoring program is intended to provide an efficient way to monitor multiple benthic invertebrate stocks and support the implementation of reference points in multiple fisheries. This new monitoring program will be vetted through the Canadian Science Advice Secretariat Regional Peer Review process. The Limit and Upper Stock Reference points recommended by DFO Science in 2019 (Lochead et al. 2019) will be formally implemented once the new stock monitoring program is operational. Continuing to manage the commercial fishery without implementing the recommended reference points is a low-risk approach as is explained in the following two paragraphs.

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 5.4.1). It is believed that Red Sea Urchin populations are far more impacted by natural predation than commercial harvesting, and that historical 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.

This reserve consists of urchins smaller than the minimum size limit, greater than 120mm test diameter and urchins with poor quality gonads, hidden in cracks and crevices inaccessible to harvesters and those at deeper than safe diving depths. Red Sea Urchins larger than 120mm 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.

2.6 Research

In 2019, the Centre for Science Advice Pacific published a peer-reviewed paper on a range of harvest rates for use in areas of the coast not yet impacted by Sea Otter predation. 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. Data collected from these research projects were used in the development of the scientific paper. Harvest rate recommendations from the paper are incorporated into the management of the Red Sea Urchin fishery after further consultation with First Nations and Industry.

Current research is focused on the development of a new multi-species benthic invertebrate monitoring program to collect the data necessary to evaluate stock status for multiple benthic invertebrate stocks, as described in Section 2.5 above.

3. INDIGENOUS KNOWLEDGE

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

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

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

4. 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 First Nations, recreational and commercial sectors of the fishery is provided.

4.1 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.

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

4.2 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 2021/2022 recreational angling season, 272,800 anglers were licensed to fish in BC's tidal waters recreational fishery. 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.

4.3 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 2019 British Columbia Seafood Year in Review document estimated the wholesale value both Red Sea Urchins and Green Sea Urchins to be $22.8 million in 2019 (values in 2020 dollars). The bulk of this value (91%) was 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 80%) 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 2021/2022, 74 out of 110 licences chose to fish in the north coast licence area. 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 usually 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.

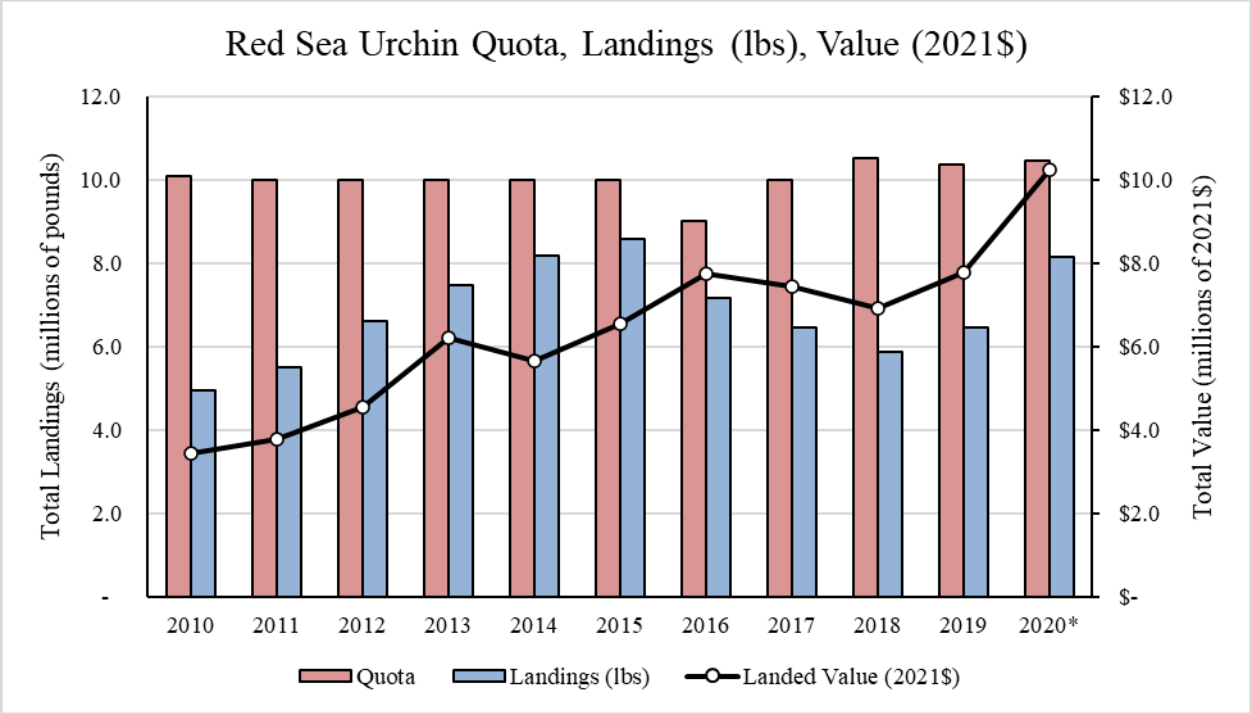
Many Red Sea Urchin vessels also participate in other dive fisheries, such as Sea Cucumber and Geoduck. Of the 38 vessels with Red Sea Urchin licences in the 2020 fishery, all vessels held one or more licences other than Red Sea Urchin. The most common licences held aside from Red Sea Urchin were Schedule II Species, Sea Cucumber, Green Sea Urchin, Salmon, Prawn and Geoduck (in that order). A Schedule II Species licence is a general species licence and includes Lingcod, Spiny Dogfish, Rockfish, Halibut, Sablefish, Skate, Sole and Flounder, Tuna and Pacific Cod.

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. Landings in the fishery steadily grew until 2015, when they hit a 10 year high of 8.56 million lbs. Thereafter, they started to decrease again until 2018 before trending upwards for 2019 and 2020. The average annual landings in the past five years (2016 to 2020) hover at around 6.8 million lbs. The trend for landed value has followed that of landings in recent years, with the value in 2020 hitting a 10 year peak due to high landings (over 8.1 million lbs) and a decade high price.

Over the past decade, the coastwide TAC of Red Sea Urchin has remained relatively constant at approximately 10 million pounds. From 2018-2020, on average of 65% of the annual TAC has been landed. The price of Red Sea Urchins was relatively steady between 2004 and 2014 but faced consistent increases between 2014 and 2017, with increases of 11%, 41%, and 7% year-over-year. Thereafter it stayed relatively steady, with only minor increases between 2%-5%. The steady increases since 2015 were due to market diversification, consisting of a decreasing reliance on the Japanese market and an expansion into other countries.



Source: DFO Logbook and Sales Slips – multiple years, quota is from Appendix 1 of previous IFMPs. *Please not that 2020 data is preliminary.

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.

Data from the 2020 season showed market demand for Red Sea Urchin was down due to COVID-19 lockdown in Japan (the largest market for BC's Red Sea Urchins). One of the fleets fishing RSU in the North Coast area was also shutdown by the processor/buyer because the processor could not get enough employees to work at the plant. Overall this impacted the season by reducing the amount of urchins landed and the number of harvesters taking part in the fishery.

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 2016 and 2019 was $18.7 million, representing an average value-added of $11.9 million per year over the landed value (BC SYIR, multiple years). In 2019, 77% 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 2016 processor employment survey found that BC seafood processing employed a monthly average of 4,882 individuals in that year. Of these, processing the wild shellfish harvest accounted for 11% of jobs (BC Ministry of Agriculture, 2018). 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 123 full time employees and $6.42 million in direct processing wages in 2019.

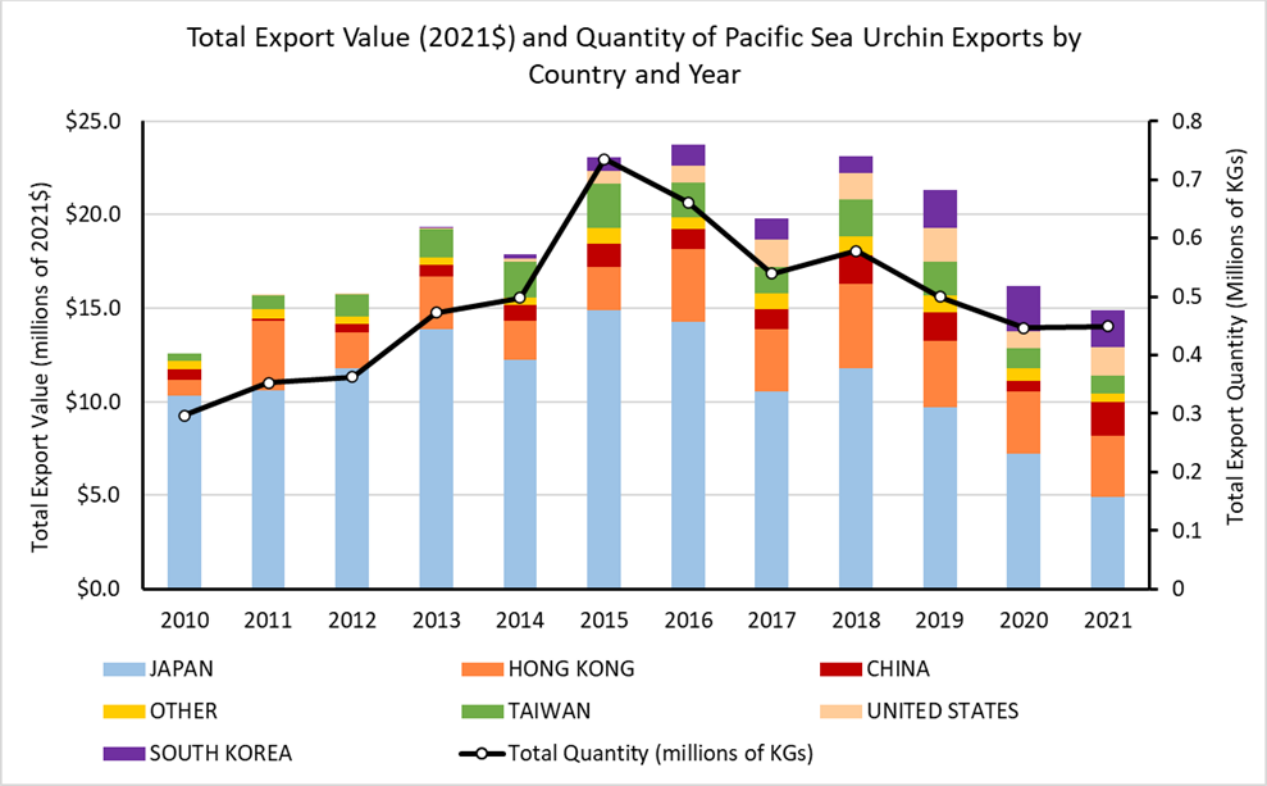
Exports – All Sea Urchins

The BC Red Sea Urchin industry is primarily an export market. Red and Green Sea Urchins are exported in various forms: either live, fresh, chilled, prepared, or preserved. In 2021, the total value of sea urchin exports from B.C. was $14.9 million. This represents a 8% decrease from the previous year, and a 28% decrease from the previous 5 year average (2016 to 2020).

Data from the 2020 season show market demand for Red Sea Urchin is down due to the COVID-19 lockdown in Japan (the largest market for Red Sea Urchin). Furthermore, transportation issues stemming from the pandemic resulted in difficulties in getting Red Sea Urchin products to market. Overall, this has impacted the season by reducing the amount of Red Sea Urchin exports.

The majority of urchin exports are roe, representing roughly 76% of the value of BC's total urchin exports over the past 5 years. 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 other countries in Asia and Europe. Over the past five years, BC has exported an average of about 208,000 kg of processed urchin roe per year, of which (42%) went to Japan.

BC sea urchin exports to Japan were steadily increasing until 2015, but have since declined. Exports to the United States and South Korea have increased in recent years, but remain small compared to Japanese markets.



Source: Statistics Canada (EXIM), 2021.

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.

5. MANAGEMENT ISSUES

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

5.1 Conservation and Sustainability

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, they 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, parts of Haida Gwaii have been harvested at a harvest rate of 1% or less since 2008 due to 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.)

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 5.1.4).

National Fishery Monitoring Policy and Catch Reporting

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

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

accounting for cost-effectiveness and practicality of implementation, and shared accountability and responsibility between DFO, Indigenous groups and stakeholders.

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

The Fishery Monitoring Policy is part of DFO's Sustainable Fisheries Framework and is available at:

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

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

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

In cases where assessment of monitoring programs identifies a gap between the current and target level of monitoring, discussions will be held between DFO Indigenous groups and stakeholders to identify options to address the monitoring gap, and the feasibility of these options (e.g. cost, technical considerations, etc.).To support Fishery Monitoring Policy principles, a collaborative approach is required.

Where monitoring options are determined to be feasible, the monitoring and reporting regime will be revised to incorporate these options, providing resource managers with sufficient information to meet Fishery Monitoring Policy objectives. Where monitoring options are not feasible, alternative management approaches are required to reduce the risk posed by the fishery. If there is no gap between the current and target level of monitoring, the management approach will not require any change.

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 in the future. However, the disease outbreak in 2016 has not made a noticeable difference in Red Sea Urchin stocks.

5.2 Social, Cultural and Economic

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 (see Appendix 2).

There are 30 communal commercial Red Sea Urchin licence eligibilities that provide economic access to First Nations through participation in the commercial fishery. See section 4.1 for more information.

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.

5.3 Compliance

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 can be 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 2018, 15 of the 33 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 10).

5.4 Ecosystem

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. Starting in 2017 managers started 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 for more information.

Depleted Species Concerns

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, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened". More information on SARA can be found at

https://www.registrelep-sararegistry.gc.ca

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*, SARA contains several prohibitions to protect species listed 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 of an individual (e.g shells) of a wildlife species that is listed extirpated, endangered or threatened. 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 (*Haliotis kamtschatkana*) is listed as Endangered under 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 10).

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

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

Marine Mammal Regulations

The *Marine Mammal Regulations* provide direction on conservation and protection of marine mammals, provide guidance for recovery of Endangered Species under the *Species at Risk Act*, and set out provisions related to reducing human disturbance of marine mammals (e.g. viewing of marine mammals) and mandatory reporting requirements in the case there is accidental contact with a marine mammal and a vessel or fishing gear. These regulations were amended in 2018 and now specify mandatory requirements to prevent disturbance of marine mammals.

As per section 7(2) of the *Marine Mammal Regulations*, disturbance is defined as a number of human actions including:

- Feeding, swimming or interacting with a marine mammal.
- Moving a marine mammal (or enticing/causing it to move).
- Separating a marine mammal from its group or going between it and a calf.
- Trapping a marine mammal or a group either between a vessel and the shore, or between a vessel and other vessels.
- Tagging or marking a marine mammal.
- Checking nautical charts for the locations of various protected areas and no go zones.
- Ensure to check nautical charts for the locations of various protected areas and no go zones.

Boats are required to maintain a minimum approach distance of 100 m for whales, dolphins or porpoises, 200m when whales, dolphins or porpoises are in a resting position or with a calf, and 200m from all Killer Whales in Pacific Canadian waters except when in southern BC coastal waters which requires a 400m minimum approach distance to all killer whales (please see section 5.4.5). For more information on safe boating behavior around whales please visit: Watching Marine Mammals and Be Whale Wise.

Any operator of a vessel or fishing gear involved in accidental contact with a marine mammal must notify DFO of the incident, as per section 39 of the *Marine Mammal Regulations.* Incident reporting includes:

- Reporting an injured, stranded, entangled or dead marine mammal to the BC Marine Mammal Response Network (Observe, Record, Report) 1-800-465-4336.
- Reporting as bycatch in a log book
- Reporting accidental contact through the marine mammal interaction form
- Depredation reporting to DFO by email at MarineMammals@pac.dfo-mpo.gc.ca or by calling 1-800-465-4336.

Please note, incidents involving abuse or harassment of a marine mammal should be reported as a fisheries violation, while injured, stranded, entangled or dead marine mammals should be reported to the BC Marine Mammal Response Network to enable a response if appropriate.

Further information regarding the *Marine Mammal Regulations* can be obtained by contacting the DFO Marine Mammal Unit (MMU) (MarineMammals@pac.dfo-mpo.gc.ca).

Marine Mammal, Leatherback Sea Turtle and Basking Shark Sightings or Entanglements

The Department appreciates your assistance in tracking the sightings of live cetaceans (whales, dolphins and porpoises), sea turtles and Basking Sharks. While there are many whale species found in Pacific Canadian waters, sightings of Basking Shark and Leatherback Sea Turtles are infrequent. The collection of sighting data is useful to scientists in determining population size and species distribution and aids in recovery efforts under the Species at Risk Act (SARA).

To report whale or turtle sightings contact the BC Cetacean Sighting Network:

Toll free: 1.866.I.SAW.ONE (1-866-472-9663)

Email: sightings@ocean.org

Website: http://wildwhales.org/

App : WhaleReport

To report Basking Shark sightings contact the Basking Shark Sightings Network:

Toll free: 1-877-50-SHARK (1-877-507-4275)

Email: BaskingShark@dfo-mpo.gc.ca,

Website: www.pac.dfo-mpo.gc.ca/SharkSightings

Marine Mammal Incident Reporting Hotline

The Department is responsible for assisting marine mammals and sea turtles in distress. If your vessel strikes a whale, or if you observe an entangled, sick, injured, distressed, or dead marine mammal in B.C. waters, please contact the B.C. Marine Mammal Response Network Incident Reporting Hotline immediately:

1-800-465-4336 OR VHF CHANNEL 16

What to report:

- Your name and contact information
- Date and time of incident
- Species
- Animal alive/dead
- Nature of injury and supporting details (if possible)
- Location: Latitude/Longitude coordinates, landmarks
- Pictures/Video taken

Southern Resident Killer Whales Management Measures

The Government of Canada is taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with direction provided in *Species at Risk Act* (SARA) recovery documents. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard and Minister of Environment and Climate Change determined the Southern Resident Killer Whale population faces imminent threats to its survival and recovery. Given the status of the population and ongoing threats to Southern Resident Killer Whale recovery, DFO implemented a number of measures in 2018 through 2021, including measures aimed at increasing prey availability and accessibility for Southern Resident Killer Whales - particularly Chinook salmon—and reducing threats related to physical and acoustic disturbance with a focus in key foraging areas within Southern Resident Killer Whale critical habitat.

Since 2018, Indigenous groups, the Indigenous and Multi-Stakeholder Advisory Group (IMAG), Technical Working Groups (TWGs) and stakeholders have provided recommendations and feedback to Ministers and Departments on a range of measures (including measures related to increasing prey availability, sanctuaries, vessel disturbance [both noise and physical disturbance], and contaminants) to support Southern Resident Killer Whale recovery.

For the 2022 fishing season, the Government of Canada intends to ensure actions for the 2022 season to mitigate threats of prey availability and acoustic and physical disturbance can be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to Canadian Pacific waters. Any in-season changes will be announced via Fishery Notices.

To address vessel disturbance in the presence of whales, a mandatory 400-metre vessel approach distance for all killer whales is in effect until May 31, 2023 in southern BC coastal waters between Campbell River and just north of Ucluelet. The *Marine Mammal Regulations* remain in effect year-round, and require maintaining a minimum 200 metre approach distance from all killer whales in Canadian Pacific waters other than those described above, and, 100 metres for other whales, porpoises and dolphins or 200 metres when the animal is in resting position or with a calf.

The Government of Canada is asking vessel operators to respect the following voluntary measures:

- Stop fishing (do not haul gear) within 1,000 metres of killer whales and let them pass;
- Reduce speed to less than 7 knots when within 1000m of the nearest marine mammal
- When safe to do so, turn off echo sounders and fish finders

- Place engine in neutral idle and allow animals to pass if your vessel is not in compliance with the approach distance regulations
- For more information on the best ways to help whales while on the water, when on both sides of the border, please visit: bewhalewise.org

For information regarding the Southern Resident Killer Whale management measures to support recovery, please contact the Marine Mammal Team (DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca) or visit https://www.canada.ca/southern-resident-killer-whales)

5.5 Ocean and Habitat Considerations

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

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

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

Canada's Marine and Coastal Areas Conservation Mandate

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

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

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

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

An overview of these tools, including a description of the role of fisheries management measures that qualify as other measures is available at: http://www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-si-eng.html.

Pacific North Coast Integrated Management Area (PNCIMA)

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

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

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

Northern Shelf Bioregion Marine Protected Area Network

The Government of Canada, the Province of BC and 18 First Nations are working together to develop a Network of marine protected areas for the Northern Shelf Bioregion which extends from the top of Vancouver Island (Quadra Island/Bute Inlet) and reaches north to the Canada - Alaska border. This bioregion has the same footprint as the Pacific North Coast Integrated Management Area. The planning process is being developed under the policy direction outlined in the National Framework for Canada's Network of MPAs, the Canada-British Columbia MPA Network Strategy, and is informed by previously developed First Nation marine plans.

Draft MPA network design scenario 1, which consists of areas proposed for conservation as well as their proposed management measures, was shared with non-partnering First Nations, who are not part of the collaborative governance arrangement, and with members of the Network Integrated and Ocean Advisory Committees in February 2019.

Governance partners considered all the input received about the first network scenario and developed scenario 2, which was discussed and further revised by partners and stakeholders during workshops held during the winter and spring of 2021. Throughout the summer and fall 2021, significant technical work was undertaken to develop a draft Network Action Plan which describes the draft network design scenario, as well as additional information such as proposed designation tools, implementation timelines, and monitoring recommended governance frameworks. Considerations are underway with respect to next steps for the process, including timelines for consultation and engagement. The Department will share more information as it becomes available. More information on MPA Network Planning is available at:

http://www.mpanetwork.ca

The Pacific North Coast Integrated Management Area Plan is available at: https://www.dfo-mpo.gc.ca/oceans/management-gestion/index-eng.html

Southern BC Marine Spatial Planning South

As part of a national marine spatial planning initiative, DFO is in pre-planning phase, collaborating with Indigenous groups and organizations, the Province of BC, and other federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks Canada and others), to gather information and data relevant to a marine spatial planning process in southern BC, which includes the Strait of Georgia and Southern Shelf bioregions. The concept of marine spatial planning is to improve coordination across jurisdictions and activities in the marine space. Deliverables by 2023 include: recommendations for a trilateral governance model/approach, a Marine Atlas (working draft), and a Framework to inform future planning phases, including the development of a marine spatial plan.

Marine Protected Areas (MPAs)

DFO is also responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO has designated three MPAs in the Pacific Region.

MPA regulations and management plans articulate any restrictions on activities taking place within the MPA, where applicable. More information on MPAs can be found at: http://www.dfo-mpo.gc.ca/oceans/conservation/areas-zones/index-eng.html, and in Appendix 10 of this IFMP.

Endeavour Hydrothermal Vents MPA

The Endeavour Hydrothermal Vents Marine Protected Area (EHV MPA) was designated in 2003 with the objective of conserving the unique hydrothermal vent ecosystems. The hydrothermal vents lie in waters 2,250 m deep 250 km southeast of Vancouver Island. For more information on the EHV MPA – including maps, boundaries, and restrictions to other fisheries or human activities – please visit: http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/endeavour/index-eng.html.

SGaan Kinghlas-Bowie Seamount (SK-B) MPA

The SG̲aan K̲inghlas – Bowie Seamount Marine Protected Area (SK-B MPA) was designated under the Oceans Act in 2008 and was established to conserve and protect the unique biodiversity and biological productivity of the area's marine ecosystem, including three seamounts (SG̲aan K̲inghlas – Bowie, Hodgkins, and Davidson) and the surrounding waters, seabed, and subsoil. The SK-B MPA is cooperatively managed by DFO and the Council of the Haida Nation (CHN) through the SK-B Management Board, and the SK-B MPA Management Plan guides the conservation and protection of the MPA. The SK-B MPA is closed to all bottom-contact fishing activities. For more information on the SK-B MPA—including maps, boundaries, and restrictions to other fisheries or human activities—please visit: http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/bowie-eng.html.

Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs (HS/QCS) MPA

The Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area (Hecate MPA) was designated under the Oceans Act in February 2017 to conserve the biological diversity, structural habitat and ecosystem function of four glass sponge reefs off the coast of British Columbia. The Hecate MPA protects rare glass sponges from human activities that may break their silica (glass) structure, or may result in smothering through increased suspended sediment. Under the Hecate MPA Regulations, human activities are regulated/managed using three different management zone types:

I. Core Protection Zones (CPZs) include the water columns surrounding the glass sponge reefs--extending from the seafloor to depths that vary depending on the Reef (100 m in Northern Reef, 120 m in the Central Reefs, 146 m in the Southern Reef).

II. Vertical Adaptive Management Zones (VAMZs) include water columns immediately above the CPZs, and each extends from that boundary to the sea surface.

III. Adaptive Management Zones (AMZs) are buffers around the CPZ/VAMZ water columns at each reef.

The CPZs are closed to anchoring and all fishing activities. In addition, the VAMZ and AMZs are closed to some commercial and recreational fishing activities. For more information on the Hecate MPA—including maps, boundaries, and restrictions to fisheries or human activities—please visit: http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html.

Offshore Pacific Area of Interest and Fishery Closure

In May 2017, DFO announced the new Pacific Offshore Area of Interest (AOI) with the intention of making it one of Canada's largest Marine Protected Areas (MPAs) by 2021. The proposed MPA will provide protection to ecologically and biologically significant seamount and hydrothermal vent features within the Offshore Pacific Bioregion. Although the AOI has not yet been designated as an MPA, much of it is protected from under the Offshore Pacific Seamounts and Vents Closure (Offshore Fishery Closure). For more information on the Offshore Fishery Closure—including maps, boundaries and restrictions to other fisheries—please visit: https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/refuges/offshore-hauturiere-eng.html.

Race Rocks Area of Interest

Race Rocks, an area off Rocky Point, south of Victoria (currently designated as a Provincial Ecological Reserve), has been identified as an area of interest.

National Marine Conservation Area Reserves (NMCARs)

Gwaii Haanas

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

and Canada and the Haida Nation have been managing the area cooperatively since 1993. In 2010, the Gwaii Haanas marine area was designated a National Marine Conservation Area Reserve.

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

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

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

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

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

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

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

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

Users of the Gwaii Haanas marine area should be aware that, as specified in the *Gwaii Haanas Agreement*, there is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). There are specific

requirements for visiting the Gwaii Haanas terrestrial area and advanced planning is necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information.

Southern Strait of Georgia National Marine Conservation Area Reserve

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

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

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

Scott Islands Marine National Wildlife Area

The Scott Islands Marine National Wildlife Area (mNWA) is the first protected marine area established by Environment and Climate Change Canada (ECCC) under the Canada Wildlife Act. In support of the conservation objectives of the Scott Islands mNWA, DFO is consulting on new regulations under the Fisheries Act to restrict certain fisheries that pose a risk to seabirds. A Notice of Intent was published in Canada Gazette Part 1 in June 2018 indicating the proposed regulations would prohibit fishing for three key forage fish species that serve as a key food source for seabirds (Pacific sand lance, Pacific saury, and North Pacific krill) as well as groundfish bottom trawling (in portions of the mNWA consistent with existing commercial closures). The anticipated pre-publishing of the regulations in Canada Gazette 1 is expected to occur in 2022.

For further information on this, please contact - DFO.ScottIslands-IlesScott.MPO@dfo-mpo.gc.ca

More information on the Scott Islands marine NWA can be found at:

https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/scott-islands-marine.html

The Scott Islands Protected Marine Area Regulations can be found at:

https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-119/index.html

Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges

17 marine refuges were established between 2016 and 2019 under the Strait of Georgia and Howe Sound Glass Sponge Reef Conservation Initiative, which aims to protect glass sponge reefs from all bottom-contact fishing activities in alignment with DFO's Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas. All commercial, recreational and Indigenous food, social and ceremonial (FSC) bottom-contact fishing activities for prawn, shrimp, crab and groundfish, are prohibited within the 17 marine refuges as well as the use of downrigger gear for recreational salmon trolling (restricted via Condition of Licence) is prohibited within portions of Subareas 28-2 and 28-4 to protect Howe Sound glass sponge reefs. Prohibition fishing activities include:

- prawn and crab by trap
- shrimp and groundfish by trawl
- groundfish by hook and line
- use of downrigger gear in recreational salmon trolling

The following link contains the closure information regarding all of the Sponge Reef Closures within the Strait of Georgia and Howe Sound:

https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html

For further information on this, please contact Danielle Derrick at Danielle.Derrick@dfo-mpo.gc.ca.

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.

Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas

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

To avoid serious or irreversible harm to sensitive benthic habitat, species and communities and to otherwise address impacts to benthic habitat, communities and species, this policy follows a five (5) step process. Following these steps, ongoing fishing activities in historically fished areas will be managed to address impacts of fishing on sensitive benthic areas through existing processes, including the advisory processes in place for the given fishery, following these steps. The

management of proposed new fishing activities in frontier areas will be addressed through a separate procedure, also using these steps. For more information on this Policy, please visit the following web site: http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/benthi-eng.htm

Rockfish Conservation Areas

There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350km^2 of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat.

DFO is currently undertaking a multi-year review of the conservation effectiveness of RCAs, including meeting the national criteria and standards for marine refuges to better conserve sensitive areas and contribute towards Canada's Marine Conservation Targets (MCT). To meet these standards, the risks to inshore rockfish, their habitat, and benthic communities will need to be avoided or mitigated. Peer-reviewed science advice also recommends that boundary changes to some RCAs will improve their spatial design by better capturing rockfish habitat features. RCAs in the Northern Shelf Bioregion have been selected for the first phase of engagement to align with the MPA network planning process in that area. Workshops with First Nations and stakeholders and online consultations were held in 2019. A summary of what we heard is available online at: https://www.pac.dfo-mpo.gc.ca/consultation/ground-fond/rca-acs/2020-heard-entendu-eng.html#6. There will be more opportunities to provide feedback on Rockfish Conservation Areas in the Northern Shelf Bioregion in the near future. DFO is also planning to review Rockfish Conservation Areas in other regions of British Columbia at a later date.

For further information on this, please contact DFO.RCA-ACS.MPO@dfo-mpo.gc.ca.

5.6 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.

5.7 National Fishery Monitoring Policy and Catch Reporting

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

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

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

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

The Fishery Monitoring Policy is part of DFO's Sustainable Fisheries Framework and is available at:

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

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

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

In cases where assessment of monitoring programs identifies a gap between the current and target level of monitoring, discussions will be held between DFO Indigenous groups and stakeholders to identify options to address the monitoring gap, and the feasibility of these options (e.g. cost, technical considerations, etc.).To support Fishery Monitoring Policy principles, a collaborative approach is required.

Where monitoring options are determined to be feasible, the monitoring and reporting regime will be revised to incorporate these options, providing resource managers with sufficient information to meet Fishery Monitoring Policy objectives. Where monitoring options are not feasible, alternative management approaches are required to reduce the risk posed by the fishery. If there is no gap between the current and target level of monitoring, the management approach will not require any change.

6. OBJECTIVES

The "longer term" objectives for this and other invertebrate fisheries in BC are outlined below.

6.1 National

DFO aims to:

- Meet conservation objectives and ensure healthy and productive fisheries and ecosystems;
- Manage fisheries to provide opportunities for economic prosperity;

- Provide stability, transparency, and predictability in fisheries management and improved governance.

6.2 Pacific Region

In 1994, the Biological 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.

6.3 Red Sea Urchin

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 continue to gather information from harvesters on Red Sea Urchin barrens and any impacts observed due to ecosystem changes (e.g Sea Star Wasting Disease, changing ocean conditions, etc.) and use for consideration in management decisions.
- 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 FSC for domestic purposes, and recreational sector harvests.

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 Red Sea Urchin commercial fishery is a shared goal between DFO and First Nations. First Nation participation in the commercial fisheries is being addressed through the ATP and PICFI (Section 4.1).

First Nations Fishery: DFO is committed to the recognition and implementation of the rights of Indigenous peoples related to fisheries, oceans, aquatic habitat and marine waterways in a manner consistent with the Principles Respecting the Government of Canada's Relationship with Indigenous Peoples.

DFO's objective is to continue to provide opportunities for First Nations to harvest fish for 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.

Information on Indigenous fisheries and reconciliation is available at:

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

Recreational Fishery:

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

DFO's objective is to develop standards for catch monitoring for all sectors, including recreational, commercial and First Nations.

For more information, see Appendix 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 10.

7. 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.*

7.1 First Nations

To date, DFO has not specified gear or catch limits in communal licences for food, social and ceremonial harvest. DFO is working together with First Nations to share First Nations' fishing plan details and remains committed to respecting First Nations' right to fish for food, social and ceremonial purposes, or domestic purposes under treaty, and the conservation and sustainability of the resource.

Red Sea Urchins may be allocated under treaty, but were unallocated under the Maa-nulth, Tsawwassen 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.

7.2 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.

7.3 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.

7.4 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 use-of-fish apply.

8. 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

9. SHARED STEWARDSHIP ARRANGEMENTS

9.1 Commercial Fishery

The PUHA funds density surveys and research activities and their costs include vessel time, diver salaries, travel costs and a salary for a biologist. Several First Nations also provide support for survey activities. DFO provides in-kind support and data analysis.

The PUHA funds all catch reporting and monitoring requirements for the commercial fishery including 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.

9.2 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 Reconciliation and Partnerships Branch, 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.

10. COMPLIANCE PLAN

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

https://www.dfo-mpo.gc.ca/fisheries-peches/enf-loi/index-eng.html

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.

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

Issue	Section	Strategy
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.

11. PERFORMANCE REVIEW

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

11.1 Stock Assessment and Research

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

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

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

11.4 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 1.6), which guide the management of Canada's fisheries, and provides other information about these fish stocks.

The Sustainability Survey for Fisheries is available at:

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.

11.5 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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13. 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 communities.

AFS	Aboriginal Fisheries Strategy - DFO's AFS was implemented in 1992 to address several objectives related to First Nations and their access to the resource and continues to be the principal mechanism that supports the development of relationships with First Nations including consultation, planning and implementation of fisheries, and development of capacity to undertake fisheries management, stock assessment, enhancement, and habitat protection programs.
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: Management Area Maps | Fisheries and Oceans Canada, Pacific Region (dfo-mpo.gc.ca)
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	Licence issued to First Nations organizations pursuant to the *Aboriginal Communal Fishing Licences Regulations* for participation in the general commercial fishery.
COSEWIC	The Committee on the Status of Endangered Wildlife in Canada. Committee of experts that assess and designate which wild species are in some danger of disappearing from 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	The culture and release of wild stocks for stock rehabilitation and/or to increase stock sizes above natural levels of abundance. An enhanced stock is a common property resource and is subject to the public right to fish.
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.
Indigenous Knowledge	There is no universal definition of Indigenous knowledge, and the composition of Indigenous knowledge is for Indigenous peoples to determine. Indigenous knowledge is intricately tied to Indigenous worldviews and ways of life, rather than knowledge in a western sense. The term Indigenous knowledge may not be universally used, and other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge, or Aboriginal Traditional Knowledge, which all convey similar concepts, may be used instead. When working with Inuit, the term Inuit Qaujimajatuqangit (IQ) is more likely to be used than Indigenous knowledge. Similarly, when working with Métis knowledge holders, the term Métis Traditional Knowledge is more likely to be used than Indigenous knowledge. The term Indigenous knowledge is used throughout this document in line with the terminology in the *Fisheries Act*.
invertebrate	An animal without a backbone.
landed 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.
transhipp	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: 2022/2023 Red Sea Urchin Commercial Fishery Harvest Plan

1. MANAGEMENT SUMMARY FOR 2022/2023

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: A two-staged area selection process was conducted in the spring of 2022 to allow harvesters to select the licence area they wished to fish for the period of August 1, 2022 to July 31, 2024. No limits were placed on the number of licences in either area. Final results: **57** licences in the North Coast and **53** in the South Coast.

1.3. Total Allowable Catch (NEW): 10,527,000 lbs (4,775.0 tonnes). The north coast TAC is set at 8,341,000 lbs. (3,783.4 tonnes) and the south coast TAC is set at 2,186,000 lbs. (991.5 tonnes).

1.4. Quota Area Quotas (NEW): Two Quota Area quotas have been increased in Port McNeill area. Quota Area quotas are outlined in Section 4 – changes are marked in bold type.

1.5. Individual Quota (IQ) (NEW): For the period of August 1, 2022 to July 31, 2023 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: 146,333 lb. South Coast IQ: 41,245 lb.

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. In addition several Subareas have been added to existing quota areas to promote exploration of suspected urchin barrens. For more information please see section 4 and Appendix 6.

1.7. Quota Area Boundary Changes (NEW): One boundary change has been made for this season in Management Area 23. Quota Areas 23A, 23B and 23C have been combined into one new Quota Area named '23D Area 23'. For complete Quota Area descriptions please see Appendix 10

1.8. Opening Schedule: The fishery will open August 1, 2022.

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 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.

2.2. Licence Category

A commercial Red Sea Urchin by dive (category ZC) or communal commercial (category FZC) licence eligibility is required to commercially harvest Red Sea Urchins by dive.

Category ZC licence eligibilities are limited entry and party-based. Category FZC licences have a First Nations group as the licence eligibility holder.

2.3. Licence Renewal Fees

In accordance with the Service Fees Act, annual licence renewal fees will be adjusted by the annual rate of inflation determined by the Consumer Price Index (CPI) published by Statistics Canada. The commercial Red Sea Urchin (Category ZC) licence renewal fee may be found on the following link: https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/fees-frais-22-23-eng.html

There is no annual licence renewal fee for communal commercial category FZC licences.

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 to exist and licence issuance will be unable to be considered in the future.

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

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

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

- Meet any Ministerial conditions placed on the licence eligibility.

- Ensure any conditions of the previous year's licence such as submission and approval of logbooks have been met.
- 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.

To avoid delays please ensure the payment and vessel designation information is submitted all at the same time through the 'Submit a Request' menu selection within the NOLS.

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.

2.5. 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.

2.6. 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:

Online Licensing - Submitting a Request and Checking the Request Status (dfo-mpo.gc.ca)

2.7. Designation of Harvesters to Fish a Communal Commercial Licence

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

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

2.8. 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, 2022 to July 31, 2024. 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 March 21, 2022. The distribution of licences for the next two seasons (August 1, 2022 to July 31, 2024) will be:

North Coast (Areas 1 to 10 and adjacent offshore areas) – **57 licences**
South Coast (Areas 11 to 29 and adjacent offshore areas) – **53 licences**

2.9. 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 2022/2023 season will be as follows:

North Coast (Areas 1 to 10 and adjacent offshore areas) – **1/57th of the North Coast TAC (146,333 lbs).**
South Coast (Areas 11 to 29 and adjacent offshore areas) – **1/53th of the South Coast TAC (41,245 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.

2.10. 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 are not eligible for Nomination.

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 2022/2023 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 outlined in Part 4 of the Safe Food for Canadians Regulations (SFCR). See CFIA's website for further information: https://inspection.canada.ca/food-safety-for-industry/toolkit-for-food-businesses/sfcr-handbook-for-food-businesses/eng/1481560206153/1481560532540?chap=0

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 2022-23 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. <u>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.</u>

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 email PACSDU@dfo-mpo.gc.ca

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, 2022 and close no later than July 31, 2023. 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 2022/2023 will be 8,341,000 lbs., (3,783.3 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	84,000
Closed for research	RU04a	Juan Perez Sound (Tar Island)	Ptn. Subarea 2-11	0
TBA	RU04b	Section Cove	Subareas 2-12, 2-13 except closures	75,000
TBA*	RU04c	Murchison-Gogit	Ptn. Subarea 2-11	80,000
TBA	RU05a	Skincuttle Inlet	Subareas 2-14, 2-15 except closures	116,000
TBA	RU05b	Carpenter Bay	Subarea 2-17 except closures	88,000
TBA	RU06	Lower 2E	Subareas 2-18, 2-19 except closures	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	RU07	Lower 2W	Ptn. Subarea 2-31; Subareas 2-32 to 2-34 except closures, ptn. Subarea 142-1	220,000
TBA	RU08a	Flamingo	Ptn. Subareas 2-31, 2-38 and 142-1 except closures; Subareas 2-35 and 2-36.	90,000
TBA	RU08b	Englefield	Ptn. Subareas 2-38, 142-1 and 142-2 except closure; Subareas 2-42 to 2-62.	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
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:				**1,998,000**
*Please see Section 4.5				
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

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	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
TBA	RU20b	Freeman Passage	Ptn. Subareas 5-11, 5-12 (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

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	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
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 5-24**,** 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	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
Mainland North Coast total:				**5,250,000**
MAINLAND CENTRAL COAST SPECIAL MANAGEMENT AREA (Areas 6, 7 to 10, 106 and adjacent offshore areas) See Section 4.6				
TBA	RU31a	Moore Islands	Ptn. Subarea 106-2	300,000

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.**				
	RU31b	Harvey Islands	Ptn. Subarea 106-2	
TBA	RU40	Woodcock Islands	Ptn. Subareas 6-13, 106-2	136,000
	RU41	Normansell Islands	Ptn. Subareas 6-13, 106-2	
TBA	RU42	Lower West Aristazabal	Ptn. Subareas 6-13, 106-2	74,000
TBA	RU46a	Laredo Sound	Ptn. Subareas 6-16, 6-17	192,000
	RU46b	Prior Pass	Ptn. Subareas 6-13, 6-17	
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:				**1,093,000**
NORTH COAST LICENCE AREA TOTAL:				**8,341,000**

4.4. North Coast Protocol

For the 2022/23 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 2022/23 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 2022/23 season in order to increase monitoring efficiency. This will be the twelfth 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. Gwaii Haanas Kelp Restoration Management Area Pilot Program

Gwaii Haanas Archipelago Management Board (AMB) partners – Department of Fisheries and Oceans, Council of the Haida Nation and Parks Canada Agency – and the PUHA are piloting a Gwaii Haanas Kelp Restoration Management Area as part of the Chiixuu tll iinasdll Nurturing Seafood to Grow kelp restoration project at Murchison Island in northern Juan Perez Sound (Subarea 2-11). The restoration area is within a community-driven Abalone Stewardship Area that has been closed to commercial Red Sea Urchin harvest since 2003 and is now also a high protection zone in the Gwaii Haanas Land-Sea-People Management Plan from 2018. Red Sea Urchin barrens are extensive around the study site area, negatively impacting the growth of kelp, sessile invertebrate communities and overall rocky reef biodiversity. A pilot kelp forest restoration program to improve abalone habitat was initiated in 2017 along 3-km of northeast Murchison Island. In order to try to maintain restoration gains over the longer term, the Gwaii Haanas AMB has partnered with the PUHA to maintain low urchin densities at the restoration site. The pilot program will involve using targeted urchin fishing and crushing unmarketable and undersized urchins within the study area and will include additional commercial harvest in an agreed upon area surrounding the study site (see map in Appendix 15).

A pre-season discussion with the Gwaii Haanas AMB will be held annually to determine if, when, and under what specified conditions, the restoration area will be open for harvest for restoration purposes. A post-season discussion involving the Gwaii Haanas AMB and PUHA will be held to debrief on the restoration maintenance activities and fishery to see if there is support to continue this pilot program in future seasons. Quota cannot be moved from the Gwaii Haanas Kelp Restoration Management Area to other areas of Haida Gwaii.

4.6. 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.

4.7. Exploratory Quota

The PUHA has advised that urchin barrens continue past the current Quota Area boundary for Quota Area RU38d. Starting in the 2021/2022 season, one adjacent Subarea (5-24) was added to RU38d to allow harvesters to explore these urchin barrens. No additional quota was added to RU38d and any quota taken from Subarea 5-24 was deducted from the existing quota for this Quota Area. This exploratory opportunity will also be permitted for the 2022/2023 season.

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	TBD
RU51	Seaforth Channel	Subarea 7-8, ptn. Subarea 7-9, Subareas 7-12, 7-15, ptn. Subarea 7-21	TBD
RU52	Tribal Group	Subarea 7-18; Ptn. Subareas 7-23, 7-24	TBD
RU53	Spider/Kildidt	Subareas 7-26, 7-27, 7-28	TBD
RU54	McNaughton Group	Ptn. Subarea 7-17, Subarea 7-25	TBD
RU55	Hakai Pass	Subareas 8-1, 8-2	TBD
RU56a	Nalau Pass	Ptn. Subarea 8-4	TBD
RU56b	Fitz Hugh Sound	Subarea 8-3, ptn. Subarea 8-4, Subarea 8-16, Ptn. Subarea 9-12	TBD
RU57a	Rivers Inlet	Subareas 9-1 to 9-4, 9-10, 9-11, Ptn. Subarea 9-12, Ptn. Subareas 10-1 and 10-2	TBD
Note: Quota will be determined in-season (TBD).			

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

The South Coast TAC will be **2,186,000 lb. (991.5 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 2022/23 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. **Changes marked in bold type.**				
NORTHERN VANCOUVER ISLAND SPECIAL MANAGEMENT AREA (Areas 11 and 12) – See section 4.8				
TBA	12E	Blackfish Sound	Subareas 12-5, 12-6, 12-20, 12-26 except closures	204,000
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	**230,000**
TBA	12L	Stephenson Islets	Ptn. Subarea 12-18	**70,000**
Northern Vancouver Island total:				**598,000**
CENTRAL VANCOUVER ISLAND URCHIN BARREN MANAGEMENT AREA (Area 13) – See Section 4.9				
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	200,000
TBA	13D	Campbell River East	Subareas 13-10, 13-12	134,000

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. **Changes marked in bold type.**				
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	85,000
TBA	13G	Stuart Island	Subareas 13-13 to 13-24, 13-26, 15-2 to 15-4	160,000
TBA	13J *	Discovery Pass	Ptn. Subarea 13-3; Subareas 13-4 and 13-5, ptn. 13-6	80,000
Central Vancouver Island total:				**1,075,000**
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	20	Sooke	Subareas 20-4 to 20-6 except closure	30,000
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. **Changes marked in bold type.**				
WEST COAST OF VANCOUVER ISLAND (Areas 23 and 123)				
TBA	23D	Area 23	Subareas 23-5 to 23-7, 23-11, 123-3 and 123-5 except closures	252,000
West Coast Vancouver Island total:				**252,000**
SOUTH COAST LICENCE AREA TOTAL:				**2,186,000**

* Please see section 4.10.

4.9. 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).			

4.10. Central Vancouver Island Urchin Barren Management Area

The Department, A-Tlegay Fisheries Society and the PUHA are piloting a Central Vancouver Island Urchin Barren Management Area 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 has been increased from 2% to up to 5% and a closure has been temporarily 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. A pre-season discussion will also be held to determine when the 13J Discovery Passage quota area will open for harvest.

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

4.11. Exploratory Quota

The PUHA has advised that urchin barrens continue past the current Quota Area boundary for Quota Area 13G. Starting in the 2021/2022 season three adjacent Subareas (15-2 to 15-4) were added to 13G to allow harvesters to explore these urchin barrens. This opportunity will continue for the 2022/2023 season. No additional quota will be added to 13G and any quota taken from Subareas 15-2 to 15-4 will be deducted from the existing quota for this Quota Area.

4.12. 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 Christine Hansen (778) 268-2079.

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. 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)

5.3.2.5. Kwoon Cove to Gowgaia Bay: Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311'N and 131°35.794'W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340'N and 131°35.859'W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52°23.489'N and 131°36.092'W, thence southwesterly to a point in water at 52°19.074'N and 131°43.794'W, thence northwesterly to a point in water at 52°38.115'N and 132°09.939'W, thence southeasterly to a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177'N and 131°56.374'W, and thence southerly following the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point. [Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)]

5.3.2.6. Wailing Island: Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210'N and 131°15.838'W easterly following the shoreline to 52°07.440'N and 131°14.307'W, thence southeasterly to a point on the northern shoreline of K'il (Flatrock Island) at 52°06.468'N and 131°10.300'W, thence easterly following the shoreline to 52°06.388'N and 131°10.079'W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018'N and 131°09.391'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884'N and 131°09.283'W, thence southeasterly to 52°05.806'N and 131°09.208'W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787'N and 131°09.097'W, thence northeasterly to the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788'N and 131°08.938'W, thence easterly following the shoreline and thence crossing the channel to 52°05.778'N and 131°08.861'W, thence southeasterly following the shoreline to 52°05.741'N and 131°08.788'W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.708'N and 131°08.697'W, thence easterly across the channel to 52°05.709'N and 131°08.673'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468'N and 131°08.425'W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414'N and 131°07.720'W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°04.366'N and131° 07.720'W, thence southwesterly to a point in water at 52°03.175'N and 131°14.399'W, thence northwesterly to a point in water at 52°05.826'N and 131°17.913'W, and thence northeasterly back to the beginning point. [SGang Gwaay (Wailing Island)]

5.3.2.7. South Kunghit Island: Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689'N and 131°03.375'W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343'N and 130°59.788'W, thence southeasterly to a point in water at 51°50.163'N and 130°53.208'W, thence southwesterly to a point in water at 51°47.954'N and 130°53.612'W, thence northwesterly to a point in water at 51°54.940'N and 131°07.779'W, and thence northeasterly to the beginning point. [Gangxid Tllgaay (South Kunghit Island)]

5.3.2.8. Lyman Point to Receiver Point: Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T'awts'iiGaay (unnamed islet) at 52°04.541'N and 130°56.293'W following the shoreline of the islet to 52°04.591'N and 130°56.348'W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652'N and 130°56.414'W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734'N and 130°56.365'W, thence northeasterly to a point in water at 52°10.222'N and 130°49.514'W, thence southwesterly to a point in water at 52°02.635'N and 130°50.918'W, thence northwesterly back to the beginning point. [Gangxid Xyuu Kun sda Kan 'Láas Kun (Lyman Point to Receiver Point)]

5.3.2.9. Benjamin Point: Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262'N and 131°01.993'W northerly following the eastern shoreline to 52°13.232'N and 131°00.777'W, thence northeasterly to a point in water at 52°17.735'N and 130°55.064'W, thence southeasterly to a point in water at 52°12.476'N and 130°49.103'W, and thence southwesterly back to the beginning point. [Kayjuu Kun (Benjamin Point)]

5.3.2.10. Head of Flamingo Inlet: Those waters of Subarea 2-37 north of a line drawn from a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455'N and 131°22.232'W southeasterly across St'aa K'ii GawGa (Flamingo Inlet) to a point on land on the opposite shore at 52°14.228'N and 131°21.503'W. [St'aa K'ii GawGa (Flamingo Inlet) – Head]

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

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

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

5.3.2.14. Skincuttle Inlet to Burnaby Island: Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521'N and 131°14.153'W southeasterly to a point in water at 52°25.979'N and 131°04.470'W, thence southeasterly to a point in water at 52°22.829'N and 131°00.867'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124'N and 131°18.347'W, thence northerly following the eastern

shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°23.055’N and 131°23.441’W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52°23.082’N and 131°22.916’W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147’N and 131°22.260’W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276’N and 131°21.333’W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949’N and 131°15.569’W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315’N and 131°14.689’W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377’N and 131°14.683’W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494’N and 131°15.832’W, and thence following the eastern shoreline to the beginning point. [Suu Kaahlii sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)]

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

5.3.2.16. Mathieson Inlet to Huxley Island: Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038’N and 131°28.071’W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone Island) at 52°29.081’N and 131°24.042’W, thence southeasterly to a point on the northern shoreline of Gaaduu Gwaay (Huxley Island) at 52°28.066’N and 131°21.772’W, thence southerly following the western shoreline of Gaaduu Gwaay (Huxley Island) to 52°25.934’N and 131°21.927’W, thence southwesterly to the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) at 52°25.435’N and 131°22.425’W, thence westerly following the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) to 52°25.460’N and 131°22.513’W, thence northwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°26.039’N and 131°25.343’W, thence northerly following the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°28.460’N and 131°27.972’W, and thence northerly to the beginning point. [Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island)]

5.3.2.17. Juan Perez Sound to Lyell Island: Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074’N and 131°26.535’W southeasterly to a point in water at 52°41.070’N and 131°14.485’W, thence southeasterly to a point in water at 52°38.677’N and 131°12.957’W, thence southwesterly to 52°35.106’N and 131°22.254’W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964’N and 131°22.963’W, thence southwesterly following the shoreline to 52°34.116’N and 131°25.603’W, thence southwesterly following the shoreline to 52°33.844’N and 131°26.324’W, thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498’N and 131°30.354’W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts’idaay (Hoskins Islets) at 52°32.405’N and 131°32.946’W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts’idaay (Hoskins Islets) to 52°32.435’N and

131°33.055’W, thence southwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211’N and 131°34.475’W, thence easterly following the eastern shoreline to 52°32.956’N and 131°37.729’W, thence northeasterly to a point on the shoreline of Kingts’ii Gwaay.yaay (Bischof Islands) at 52°34.143’N and 131°33.379’W, thence easterly following the southeastern shoreline of Kingts’ii Gwaay.yaay (Bischof Islands) to 52°34.340’N and 131°33.098’W, thence northeasterly to a point on an islet at 52°34.530’N and 131°32.890’W, thence northeasterly to a point on the southern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°35.767’N and 131°32.891’W, and thence easterly and northerly following the shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to the beginning point. [Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)]

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

5.3.2.19. Klue Passage to Lost Islands: Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°48.606’N and 131°39.403’W northeasterly to a point in water at 52°49.405’N and 131° 29.042’W, thence southeasterly to a point in water at 52°48.148’N and 131°28.849’W, thence southwesterly to a point in water at 52°44.898’N and 131°34.035’W, thence northwesterly to 52°45.113’N and 131°34.125’W, thence following the northern shoreline of K’ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220’N and 131°35.574’W, thence southwesterly to a point on T’aanuu Gwaay (Tanu Island) at 52°45.002’N and 131°36.770’W, thence northerly following the eastern shoreline of T’aanuu Gwaay (Tanu Island) to 52°46.725’N and 131°38.878’W, thence northwesterly across to a point on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837’N and 131°39.371’W, and thence northerly following the eastern shoreline to the beginning point. [T’aanuu K’aadxwah Xyangs sda Gwaay Xaa’ans (Klue Passage to Lost Islands)]

5.3.2.20. 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)

5.3.2.21. 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)

5.3.18. Portions of Subareas 101-1 and 142-2

5.3.18.1. Bowie Seamount Marine Protected Area (Portions of Subareas 101-1 and 142-2): 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: http://www.worksafebc.com

For WorkSafe BC contacts please see Appendix 14.

Appendix 2: 2022/23 Red Sea Urchin by Dive First Nations Harvest Plan

1. OVERVIEW OF THE FISHERY

Fish and marine resources are central to the culture, society, well-being, and economy of First Nations and provide a critical connection to language, traditional knowledge, and health of communities. Fisheries & Oceans Canada (DFO) remains committed to respecting First Nations' Aboriginal right to fish for food, social and ceremonial (FSC) purposes, or domestic purposes under Treaty, which has priority after conservation over other users of the resource.

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

Communal licences and, under Treaty, harvest documents (domestic purposes) are issued annually to First Nations under the authority of the *Aboriginal Communal Fishing Licences Regulations* made under the *Fisheries Act*. Communal licences and harvest documents can be amended in-season for resource conservation purposes. 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 FIRST NATIONS FISHING ACTIVITIES

First Nation 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 Licences Regulations*. Further arrangements for FSC 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 First Nations fishery in co-operation with the Department.

First Nation 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:

https://www.rcaanc-cirnac.gc.ca/eng/1100100031292/1542998607479

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:

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:

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:

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

5.2 Ahousaht, Ehattesaht, Hesquiaht, Mowachat/Muchalaht, Tla-o-qui-aht

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the Five Nations) - have an Aboriginal right to fish for any species of fish, with the exception of Geoduck, within their Fishing Territories and to sell that fish. Their fishing territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 26/126, 124 and all of PFMA 24.

The Five Nations Multi-species Fishery Management Plan (FMP) includes specific details about the fishery, such as allocation/access, licensing and designations, fishing area, harvesting opportunities, and fishery monitoring and catch reporting.

For further information see the 2022-23 FMP at:

https://waves-vagues.dfo-mpo.gc.ca/Library/41047977.pdf

Appendix 3: Red Sea Urchin by Dive Recreational Harvest Plan

1. INTRODUCTION

Tidal Waters Sport Fishing Licence

The recreational harvest of various fish and invertebrate species in BC is regulated via the *British Columbia Sport Fishing Regulations*, made under the *Fisheries Act.* A DFO Tidal Waters Sport Fishing licence is required for the recreational harvest of all species of fish and marine invertebrates.

Tidal Waters Sport Fishing licences may be purchased for a 1 day, 3 day, or 5 day period, or as an annual licence, covering the period April 1 (or date of purchase, whichever is later) to March 31 the following year. The annual licence fee is not pro-rated for annual licences purchased mid-season. Fees depend on licence duration, age (senior, adult, juvenile) and residency status. Licences for juveniles (ages 15 and under) are free. Concessionary fees are not otherwise available. There were 272,800 anglers participating in BC's tidal waters recreational fishery in 2021/22.

Alternatively licences may be purchased over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee).

Licences may be purchased online via the National Recreational Licensing System:

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

A list of IAPs is available at:

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

Online Regulations

The regulations for recreational fishing are provided online in the British Columbia Tidal Waters Sport Fishing Guide, which lists open and closed times, catch limits, size limits (where applicable) and open/closed areas.

Changes to regulations are issued in Fishery Notices which are posted online and sent to subscribers by email.

The printed Sport Fishing Guide booklet is no longer being produced or distributed to reduce costs and environmental impacts. The online Sport Fish Guide allows for in-season regulations to be accurately provided and ensures all the regulations are up to date. Staff at local DFO fishery offices can also provide regulatory information for an area of interest.

The British Columbia Tidal Waters Sport Fishing Guide is available at:

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

To view or subscribe to receive Fishery Notice notifications by email is available at:

http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm

Local DFO fishery office contact information is available at:

https://www.dfo-mpo.gc.ca/contact/regions/pacific-pacifique-eng.html

or call 604-666-0384 or email info@dfo-mpo.gc.ca

Using Mobile Devices and the FishingBC App

The FishingBC App, developed by the Sport Fishing Institute of BC, may be downloaded to a mobile device to assist with having access to regulatory information for species, areas, fishing gear while out on the water (along with other functionalities).

Please note: the DFO Sport Fishing Guide website is the official site for regulatory information in the event of a discrepancy with the FishingBC App.

The FishingBC App may be downloaded at:

http://www.fishingbcapp.ca/

The online DFO Sport Fishing Guide is available at:

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

E-licences and Paper licences

At this time most fishers continue to use the traditional paper copy of their licence; however an e-licence – which is an electronic/pdf copy of the licence – may be used on a mobile device but there are restrictions on its use.

Please consider these licensing requirements before a fishing trip:

- For all recreational tidal waters fishers that do not have an electronic copy of their licence on their mobile device, fishers must have a paper copy of their licence with proof of licence purchase to show to a fishery officer;
- For users of the FishingBC App, or on any electronic device, a PDF copy of their licence on the device is acceptable and must be immediately presented to a fishery officer upon request. Please note catch recording requirements below;
- Immediately upon retention of Chinook, Halibut, or Lingcod, fishers must record these catches on their paper licence (preferred) or in their National Recreational Licensing System account (requires internet access).
- For all fishers retaining Chinook, Halibut, or Lingcod, even with an e-licence and catch details in the FishingBC App or in their mobile device, fishers must immediately record catch for these three species on their paper licence or in their National Recreational Licensing System

Account and show these records to a fishery officer upon request.

- a paper copy of their licence; or
- their National Recreational Licensing System account (where internet access for their mobile device is available). Fishers may find it helpful to immediately take a screenshot of their

catch records when thei have internet access should they subsequently move out of cell range.

Supporting Sustainable Fisheries - Catch Reporting

The Sport Fishing Advisory Board (SFAB) is the primary consultative body for the recreational fishing community, and includes individual representatives from all geographic regions in BC as well as delegates from a number of fishing and service provider organizations. The SFAB and the recreational fishing sector strongly support effective fishery monitoring and catch reporting programs in recreational fisheries. The SFAB has been working with DFO on initiatives to strengthen fishing monitoring and catch reporting in the recreational fishery for a number of years.

Recreational fishers are required as a condition of the Tidal Waters Sport Fishing Licence to report accurate information on their recreational fishing activity and catch upon request of DFO representatives including creel surveyors, fishery officers and fishery guardians and if selected to the online iREC reporting program (see below).

internet Recreational Effort and Catch (iREC) Reporting program

The internet Recreational Effort and Catch (iREC) reporting program is an online program that has been collecting effort and catch information from Tidal Waters Sport Fishing licence holders since July 2012. All 2022/23 adult Tidal Water Recreational Fishing licences will be selected to iREC reporting program and randomly assigned to report for one month. Licence holders are required to report for only one month to limit the reporting burden. Information regarding completing the iREC report, including the month selected for reporting, the website at which to report, a unique iREC Access ID and reporting deadline are printed on each licence. Further, licence holders with a valid email address in the National Recreational Licencing system will receive emails reminding them to complete their iREC reports. Providing complete and accurate information to the iREC program when selected is a condition of licence (i.e. mandatory requirement).

The iREC reporting program is one of the sources used in developing DFO official catch and effort estimates. The iREC reporting program methodology was peer reviewed and published by the Canadian Science Advisory Secretariat (CSAS) in 2015. This program provides monthly estimates of effort for 6 fishing methods and catch for over 80 species of sport caught finfish and invertebrates in all Pacific Fishery Management Areas based on responses by Tidal Waters Sport Fishing Licence holders. The recreational fishing methods covered by the iREC reporting program include boat-based angling, angling from shore, shellfish trapping from boat and shore, beach collecting, and diving. iREC estimates are developed for methods and species not covered by the marine creel surveys, which cover only boat-based angling, and for months and areas not covered by marine creel surveys.

More information about the iREC reporting program is available at:

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

Internet Annual Recreational Catch (iARC) Reporting program

A separate online reporting program - the internet Annual Recreational Catch (iARC) reporting program – was held at the end of the season to collect the catch records of Chinook, Lingcod, and Halibut from Tidal Waters Sport Fishing Licence holders as written on their licence(s). This program ran for 8 years between 2014/15 and 2021/22. It provided information for Chinook, Lingcod and Halibut on annual quota, annual and monthly catch estimates, and Halibut length statistics.

More information about the iARC reporting program is available at:

http://www.pac.dfompo.gc.ca/fm-gp/rec/irec/iarc-eng.html

2. LOCATION OF THE FISHERY

Recreational harvest of Red Sea Urchins occurs coast-wide.

3. 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. All commercial and recreational fisheries are closed within the following areas within the Gwaii Haanas National Marine Conservation Area:

1. Kwoon Cove to Gowgaia Bay: Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311'N and 131°35.794'W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340'N and 131°35.859'W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52°23.489'N and 131°36.092'W, thence southwesterly to a point in water at 52°19.074'N and 131°43.794'W, thence northwesterly to a point in water at 52°38.115'N and 132°09.939'W, thence southeasterly to a point on land on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177'N and 131°56.374'W, and thence southerly following the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point. [Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)]

2. Wailing Island: Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210'N and 131°15.838'W easterly following the shoreline to 52°07.440'N and 131°14.307'W, thence southeasterly to a point on the northern shoreline of K'il (Flatrock Island) at 52°06.468'N and 131°10.300'W, thence easterly following the shoreline to 52°06.388'N and 131°10.079'W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018'N and 131°09.391'W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884'N and 131°09.283'W, thence southeasterly to 52°05.806'N and 131°09.208'W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787'N and 131°09.097'W, thence northeasterly to the shoreline of

Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788’N and 131°08.938’W, thence easterly following the shoreline and thence crossing the channel to 52°05.778’N and 131°08.861’W, thence southeasterly following the shoreline to 52°05.741’N and 131°08.788’W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.708’N and 131°08.697’W, thence easterly across the channel to 52°05.709’N and 131°08.673’W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468’N and 131°08.425’W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414’N and 131°07.720’W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°04.366’N and131° 07.720’W, thence southwesterly to a point in water at 52°03.175’N and 131°14.399’W, thence northwesterly to a point in water at 52°05.826’N and 131°17.913’W, and thence northeasterly back to the beginning point. [SGang Gwaay (Wailing Island)]

3. South Kunghit Island: Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689’N and 131°03.375’W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343’N and 130°59.788’W, thence southeasterly to a point in water at 51°50.163’N and 130°53.208’W, thence southwesterly to a point in water at 51°47.954’N and 130°53.612’W, thence northwesterly to a point in water at 51°54.940’N and 131°07.779’W, and thence northeasterly to the beginning point. [Gangxid Tllgaay (South Kunghit Island)]

4. Lyman Point to Receiver Point: Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T’awts’iiGaay (unnamed islet) at 52°04.541’N and 130°56.293’W following the shoreline of the islet to 52°04.591’N and 130°56.348’W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652’N and 130°56.414’W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734’N and 130°56.365’W, thence northeasterly to a point in water at 52°10.222’N and 130°49.514’W, thence southwesterly to a point in water at 52°02.635’N and 130°50.918’W, thence northwesterly back to the beginning point. [Gangxid Xyuu Kun sda Kan ’Láas Kun (Lyman Point to Receiver Point)]

5. Benjamin Point: Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262’N and 131°01.993’W northerly following the eastern shoreline to 52°13.232’N and 131°00.777’W, thence northeasterly to a point in water at 52°17.735’N and 130°55.064’W, thence southeasterly to a point in water at 52°12.476’N and 130°49.103’W, and thence southwesterly back to the beginning point. [Kayjuu Kun (Benjamin Point)]

6. Head of Flamingo Inlet: Those waters of Subarea 2-37 north of a line drawn from a point on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455’N and 131°22.232’W southeasterly across St’aa K’ii GawGa (Flamingo Inlet) to a point on land on the opposite shore at 52°14.228’N and 131°21.503’W. [St’aa K’ii GawGa (Flamingo Inlet) – Head]

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

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

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

10. Skincuttle Inlet to Burnaby Island: Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521'N and 131°14.153'W southeasterly to a point in water at 52°25.979'N and 131°04.470'W, thence southeasterly to a point in water at 52°22.829'N and 131°00.867'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124'N and 131°18.347'W, thence northerly following the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°23.055'N and 131°23.441'W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52°23.082'N and 131°22.916'W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147'N and 131°22.260'W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276'N and 131°21.333'W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949'N and 131°15.569'W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315'N and 131°14.689'W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377'N and 131°14.683'W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494'N and 131°15.832'W, and thence following the eastern shoreline to the beginning point. [Suu Kaahlii sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)]

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

12. Mathieson Inlet to Huxley Island: Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038'N and 131°28.071'W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone Island) at 52°29.081'N and 131°24.042'W, thence southeasterly to a point on the northern shoreline of Gaaduu Gwaay (Huxley Island) at 52°28.066'N and

131°21.772’W, thence southerly following the western shoreline of Gaaduu Gwaay (Huxley Island) to 52°25.934’N and 131°21.927’W, thence southwesterly to the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) at 52°25.435’N and 131°22.425’W, thence westerly following the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) to 52°25.460’N and 131°22.513’W, thence northwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°26.039’N and 131°25.343’W, thence northerly following the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°28.460’N and 131°27.972’W, and thence northerly to the beginning point. [Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island)]

13. Juan Perez Sound to Lyell Island: Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074’N and 131°26.535’W southeasterly to a point in water at 52°41.070’N and 131°14.485’W, thence southeasterly to a point in water at 52°38.677’N and 131°12.957’W, thence southwesterly to 52°35.106’N and 131°22.254’W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964’N and 131°22.963’W, thence southwesterly following the shoreline to 52°34.116’N and 131°25.603’W, thence southwesterly following the shoreline to 52°33.844’N and 131°26.324’W, thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498’N and 131°30.354’W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts’idaay (Hoskins Islets) at 52°32.405’N and 131°32.946’W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts’idaay (Hoskins Islets) to 52°32.435’N and 131°33.055’W, thence southwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211’N and 131°34.475’W, thence easterly following the eastern shoreline to 52°32.956’N and 131°37.729’W, thence northeasterly to a point on the shoreline of Kingts’ii Gwaay.yaay (Bischof Islands) at 52°34.143’N and 131°33.379’W, thence easterly following the southeastern shoreline of Kingts’ii Gwaay.yaay (Bischof Islands) to 52°34.340’N and 131°33.098’W, thence northeasterly to a point on an islet at 52°34.530’N and 131°32.890’W, thence northeasterly to a point on the southern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°35.767’N and 131°32.891’W, and thence easterly and northerly following the shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to the beginning point. [Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)]

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

15. Klue Passage to Lost Islands: Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°48.606’N and 131°39.403’W northeasterly to a point in water at

52°49.405’N and 131° 29.042’W, thence southeasterly to a point in water at 52°48.148’N and 131°28.849’W, thence southwesterly to a point in water at 52°44.898’N and 131°34.035’W, thence northwesterly to 52°45.113’N and 131°34.125’W, thence following the northern shoreline of K’ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220’N and 131°35.574’W, thence southwesterly to a point on T’aanuu Gwaay (Tanu Island) at 52°45.002’N and 131°36.770’W, thence northerly following the eastern shoreline of T’aanuu Gwaay (Tanu Island) to 52°46.725’N and 131°38.878’W, thence northwesterly across to a point on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837’N and 131°39.371’W, and thence northerly following the eastern shoreline to the beginning point. [T’aanuu K’aadxwah Xyangs sda Gwaay Xaa’ans (Klue Passage to Lost Islands)]

4. LICENSING

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

5. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES

The recreational harvest of shellfish is regulated via the *British Columbia Sport Fishing Regulations* 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

5.1 Gear

Red Sea Urchins may be harvested by handpicking only.

5.2 Daily Limits

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

5.3 Possession Limits

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

5.4 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 Regulatory Regime

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

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

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

2. LICENSING

2.1 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 itc@dfo-mpo.gc.ca Further information and application forms can be found at the website: http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html

2.2 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 - 2021/2022 Season

1. STOCK ASSESSMENT AND RESEARCH

There were no Red Sea Urchin single-species stock assessment surveys completed in 2021. 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. The paper used length-based population models and projection simulations to study the impacts of a range of harvest rates and also recommended a Limit Reference point and an Upper Stock Reference point, thereby aligning the fishery with the DFO's Sustainable Fisheries Framework and the Precautionary Approach. The requested paper was presented at a CSAP meeting in February 2019 and was accepted by the committee. The paper can be found online at: https://waves-vagues.dfo-mpo.gc.ca/Library/40857104.pdf

DFO Science is developing a coast wide multispecies benthic invertebrate monitoring program to collect size and abundance data on Red Sea Urchin, Green Sea Urchin, Purple Sea Urchin, Giant Red Sea Cucumber, Northern Abalone, *Pynopodia* Sea Stars, and their habitats. The objective of the program is to collect the data necessary to assess stock status against reference points for selected invertebrates. A multispecies dive survey was conducted in South East Haida Gwaii in September 2020. Recommendations on survey design will be presented in a CSAS Research Document in 2022.

Please contact Christine Hansen 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 Red Sea Urchin Sectoral Committee meeting was held on April 7, 2021 via the Microsoft Teams online chat platform. Representatives from the Pacific Urchin Harvesters Association, DFO Fisheries Management, DFO Science, Maa-nulth Treaty Society, A-Tlegay Fisheries Society and D&D Pacific Fisheries attended.

Coast wide landings as of May 22, 2022 (season not complete at the time of publication) are approximately 4.8 million pounds, which is slightly higher than what was landed at this point last

season. The decrease in landings over the last few seasons has been 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. Harvesters moved all over the north coast looking for urchins with good quality but quality was poor all over including around Haida Gwaii. In addition to the quality and weather issues the fleet encountered in 2021, there were also challenges with market and transporting urchins due to the global pandemic.

A licence area selection process was held in early 2022 which resulted in 17 licences moving from the north coast licence area to the south coast licence area for a total of 53 licences in the south and 57 in the north.

A Central Vancouver Island Urchin Barren Management Area was piloted for a fifth 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 an attempt to reduce the numbers of urchins in this area, the harvest rate was increased from 2% to 5% and a long term closure in Discovery Passage was temporarily reopened for commercial harvest.

A new quota area was created in 2021 within Juan Perez Sound to provide a harvest opportunity as part of an on-going kelp restoration research project within the Gwaii Haanas National Marine Conservation Area. This project is led by Parks Canada with the assistance of the Haida Fisheries Program and the Pacific Urchin Harvesters Association. The study site and surrounding area were last harvested in spring 2022.

5. COMPLIANCE

In general compliance with the catch validation program and other management programs was considered good for the 2021/22 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 2022.

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 re-designation 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. 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. 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.
2018/19	Year 8 of the VMS pilot program. The harvest rate was increased from 2% to up to 5% in the Central Vancouver Island area (Management Area 13) that are being negatively impacted by Red Sea Urchin barrens. As a result, the coastwide TAC increased by approximately 500 thousand pounds to 10,535,000 pounds. A long term closure in Discovery Passage was also temporarily reopened to commercial harvest over concerns about urchin barrens and their negative impact to the ecosystem. These actions are part of the Central Vancouver Island Urchin Barren Management Area pilot program.
2019/20	Year 9 of the VMS pilot program. Second year of the Central Vancouver Island Urchin Barren Management Area pilot program. The coastwide TAC decreased by 152,000 lbs. due to the implementation of the Gwaii Haanas National Marine Conservation Area closures. A new Quota Area (RU04c) was created in a long term closure in Juan Perez sound to support a kelp restoration research project in Gwaii Haanas NMCA.
2020/21	Year 10 of the VMS pilot program. Central Vancouver Island Urchin Barren Management Area pilot program continued. The coastwide TAC increased by 80,000 lbs due an addition of quota to the RU04c quota area to support the on-going research in the kelp restoration project in the Gwaii Haanas NMCA.
2021/22	Year 11 of the VMS pilot program. The coastwide TAC increased by 44,000 lbs due to a quota increase within the Central Vancouver Island Urchin Barren Management Area. Exploratory areas added to several Quota Areas 38d and 13G. Boundaries changed in several north coast QMAs at the request of the PUHA.

Table 2. Overview of annual red sea urchin quota, landings, value and effort, **1978 to 2019**, 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 2020/21 season was still on-going at the time of publication, harvest data is not yet available for this table.

Table 2b. Overview of annual red sea urchin applied quota, landings, value and effort for British Columbia, 1978 to date, as reported on Validation & Harvest Logs. Since 2002, harvest logs have provided the best estimate of catch and fish slips are no longer used. However, an average landed value is determined from a subsample of fish slips up until 2009. After that an estimate from Industry used - fish slips no longer available. UPDATED FEB 2022

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		Z 110	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		Z 110	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		Z 110	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		Z 110	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		Z 110	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]	Z 110	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]	Z 110	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	[4]	Z 110	41	7,413,000	1,603,000	9,016,000	7,177,327	7,177.3	10,915.8	1.00	657.52
2017/18	[4]	Z 110	43	8,413,000	2,122,000	10,535,000	6,190,323	6,190.3	9,709.8	1.00	637.53
2018/19	[4]	Z 110	42	8,261,000	2,122,000	10,383,000	5,991,768	5,991.8	8,840.3	1.00	677.78
2019/20	[3,4]	Z 110	42	8,261,000	2,122,000	10,383,000	5,467,696	5,467.7	8,561.6	1.00	638.63
2020/21	[3,4,5]	Z 110		8,341,000	2,166,000	10,463,000	4,990,748	4,990.7		1.00	

[1] South coast quota includes exploratory areas; North Coast quota new in 1993.

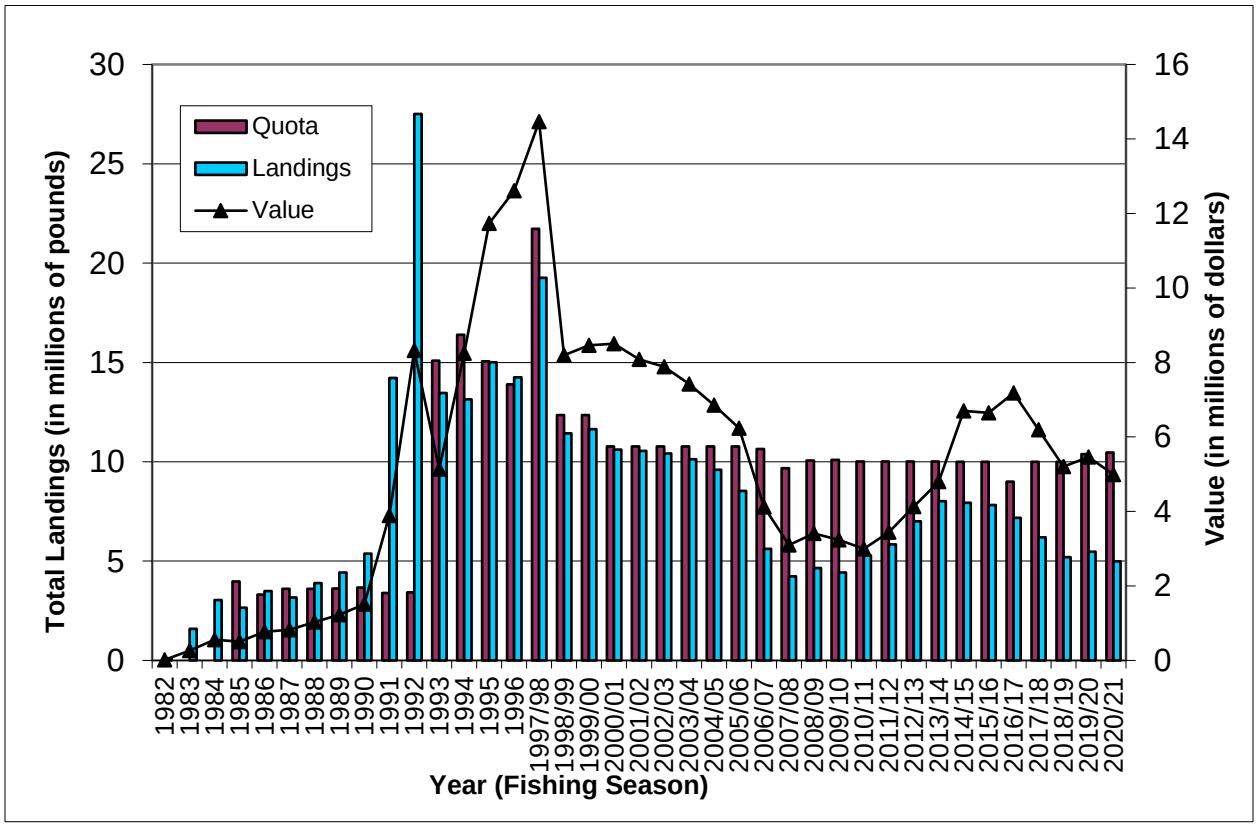
[2] Change in licensing from calender year to market-driven year. 1997/98 season ran January 1/97 to June 30/98; 1998/99 through 2001/02 seasons ran July 1 to June 30; 2002/03 through 2008/09 seasons ran August 1 to July 31

[3] Recent information should be considered preliminary

[4] Price information estimated by Industry (Mike Featherstone - pers comm)

[5] Not all information may be available due to a delay in logbook data availability in our database.

Figure 1. Annual red sea urchin quota, landings (lb.) and value for British Columbia, 1982 to 2020. Note: As the 2021/22 season was still on-going at the time of publication, harvest data is not yet available for this figure.



Appendix 6: Management Measures for Red Sea Urchin Commercial Fishery 2022/2023

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 the 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:

Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia (Lochead et al. 2019).
https://waves-vagues.dfo-mpo.gc.ca/Library/40857104.pdf

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)
https://waves-vagues.dfo-mpo.gc.ca/Library/361328.pdf

Discussion on a Precautionary Approach for Management of the Red Sea Urchin Fishery in British Columbia (Campbell et al. 1999)
https://waves-vagues.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 12 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 early 2024.

2.3 Quota Areas

The commercial fishery is managed in units called 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 were conducted from 1994 through 2016, following the Red Sea Urchin density 'broadbrush' survey protocol, to estimate the density and size distribution of Red Sea Urchin populations. The survey results were combined with other sources of information to calculate the annual commercial Total Allowable Catch (TAC). Quota is calculated for each PFM Subarea as follows:

A modified surplus production model was used to estimate maximum sustainable yield (MSY) for Red Sea Urchins (Leus et al. 2014). The total current biomass of Red Sea Urchins was calculated annually, based on density estimates for Red Sea Urchins in the 90 to 140 mm test diameter range, and changes to estimated urchin habitat along the coast taken from harvest log charts and fish harvesters' knowledge. Biomass estimates were provided to resource managers as a mean estimate with upper and lower 90 percent confidence intervals (CI). Where surveys and density estimates were not complete for an area, they were extrapolated from survey information from adjacent or nearby areas. Biomass recommendations are generally not provided for Subareas that are impacted by Sea Otter predation. Note that Red Sea Urchin transect surveys have not been conducted since 2016, so any subsequent updates to biomass estimates result from changes to estimated urchin habitat.

In 2019 DFO Science updated harvest rate recommendations for the three main regions of the coast that are commercially harvested (Haida Gwaii, mainland North Coast, South Coast inside waters) (Lochead et al. 2019). These new recommendations consist of a table with a number of harvest rate options coupled with the probability that a particular harvest rate will breach the recommended limit reference in 100 years. Given the current rate of Sea Otter recolonization in BC and the resulting impact to Red Sea Urchin stocks, it is unlikely the commercial fishery will still be operating in 100 years and if it is, it will be much smaller in scale. The harvest rate recommendations suggest that the harvest rate could be increased without any harm to the stock, particularly in Haida Gwaii and the mainland North Coast.

Managers have been using a harvest rate of between 1 and 2% on the mean biomass estimate ever since quotas were introduced in the fishery in the late 1990s. Starting in 2018, the harvest rate was increased to 5% in portions of the coast known to be impacted by Red Sea Urchin barrens – mainly in portions of Management Areas 3 to 6 and 13. The recent harvest rate advice suggests that this has been a low risk approach and that the harvest rate could be increased further in some areas with a low probability of harm to the stock. Given the coastwide TAC has not been landed in this fishery in well over a decade, there is no reason at this time move forward with a blanket increase to the harvest rate by region. Instead DFO will work with Industry, First Nations and other interested parties over the next few years to look at specific areas in which to consider a higher harvest rate.

Considering a higher harvest rate in some areas could have 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. There is currently no conservation concern for British Columbia's Red Sea Urchin stock 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.
- 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 120 mm 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 3 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 2022 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 in areas with known urchin barrens.

5.6 Limit and Upper Stock Reference Points

A main aspect of the Precautionary Approach is the use of reference points and stock status zones. 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. DFO does not have the resources to monitor Red Sea Urchin stocks coastwide or within all commercially fished areas. Implementing reference points has been a low priority since DFO has no conservation concern for this stock (see Section 4).

In 2019 DFO Science recommended an upper stock reference point and a limit reference point in Lochead et al. 2019. The plan is to implement these reference point recommendations once a stock monitoring program has been developed and implemented. DFO Science is currently developing a Multi-Species Benthic Invertebrate Survey which will hopefully support efficient stock monitoring for multiple invertebrate fisheries and give the information needed to properly implement reference points in the Red Sea Urchin fishery. In the meantime, continuing to manage the commercial fishery without implementing the recommended reference points is a low-risk approach as is explained in the following paragraph.

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

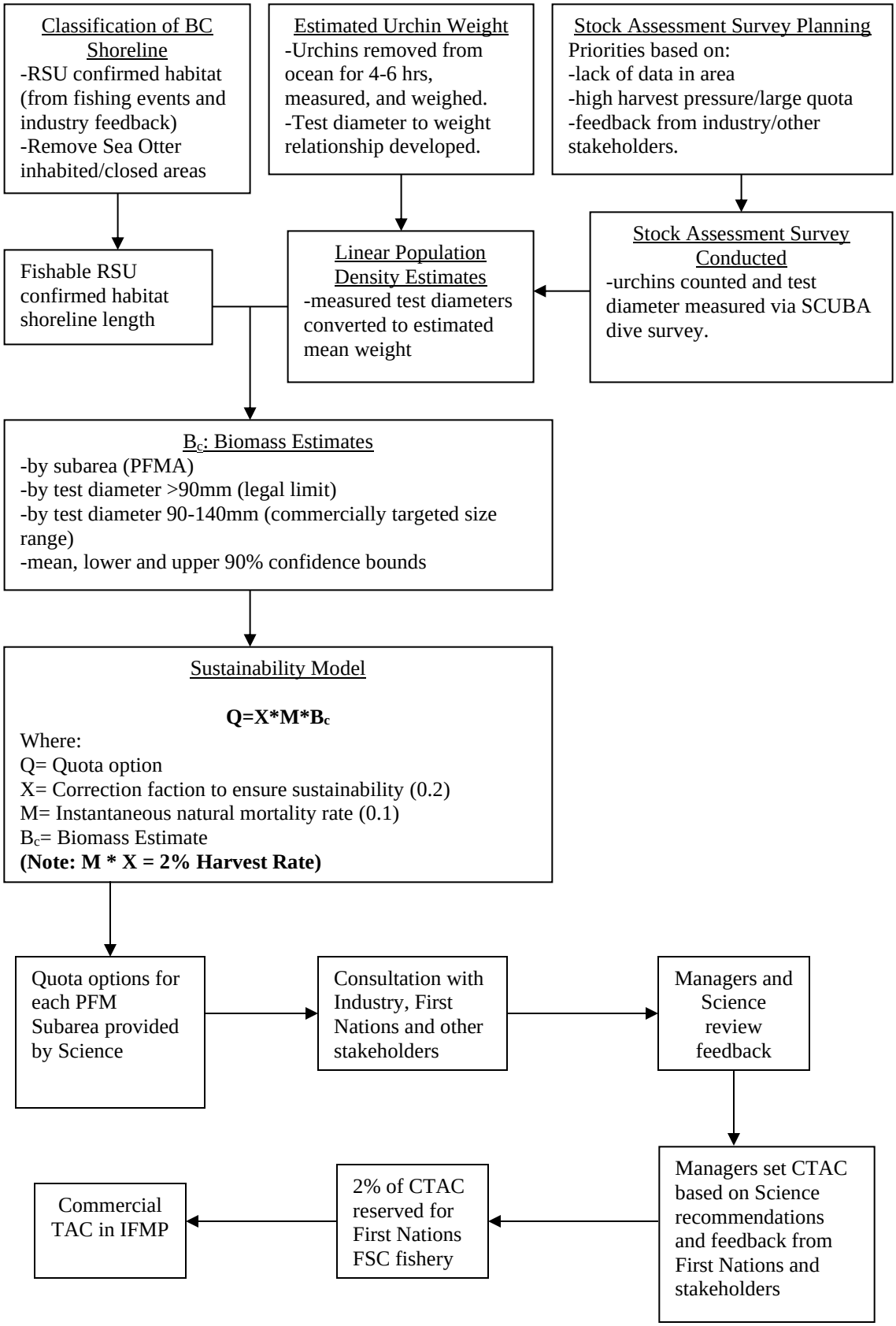
DFO’s Conservation and Protection (C&P) program is informed of any enforcement issues that may arise in the commercial fishery. For more information on the compliance plan for the Red Sea Urchin fishery please see section 10 in the IFMP.

6. OTHER IMPORTANT INFORMATION

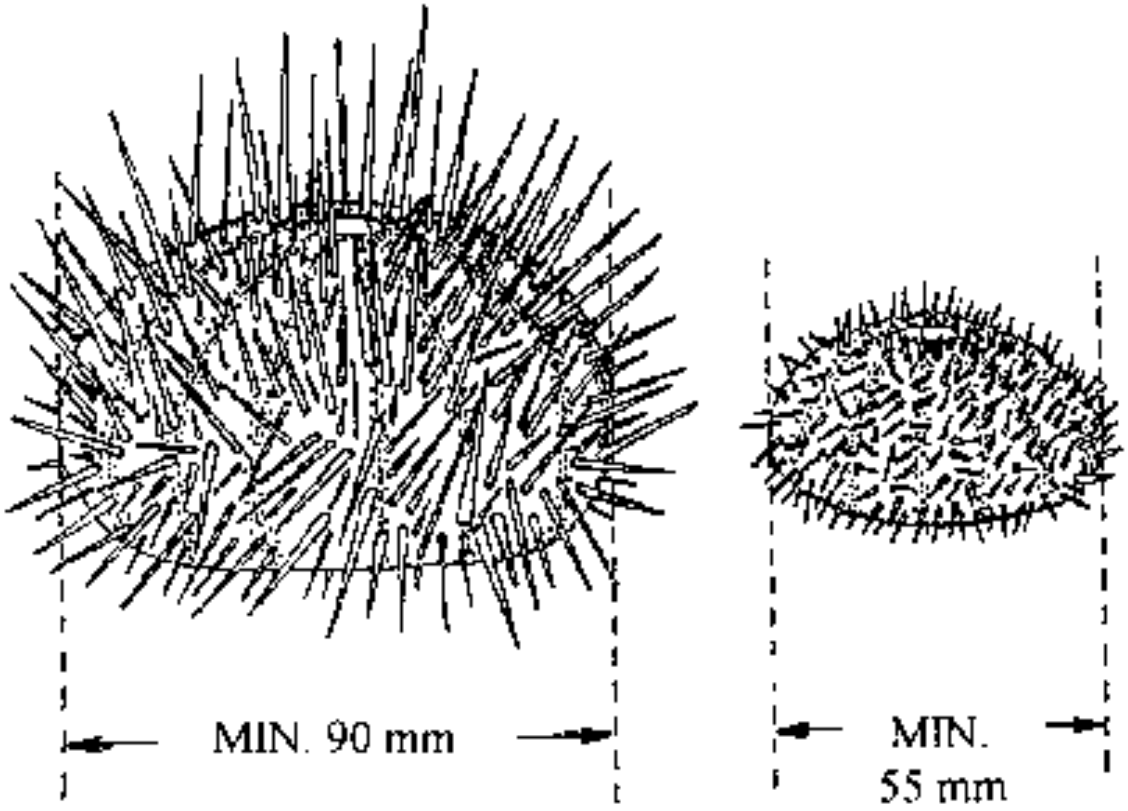
6.1 Gear

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)



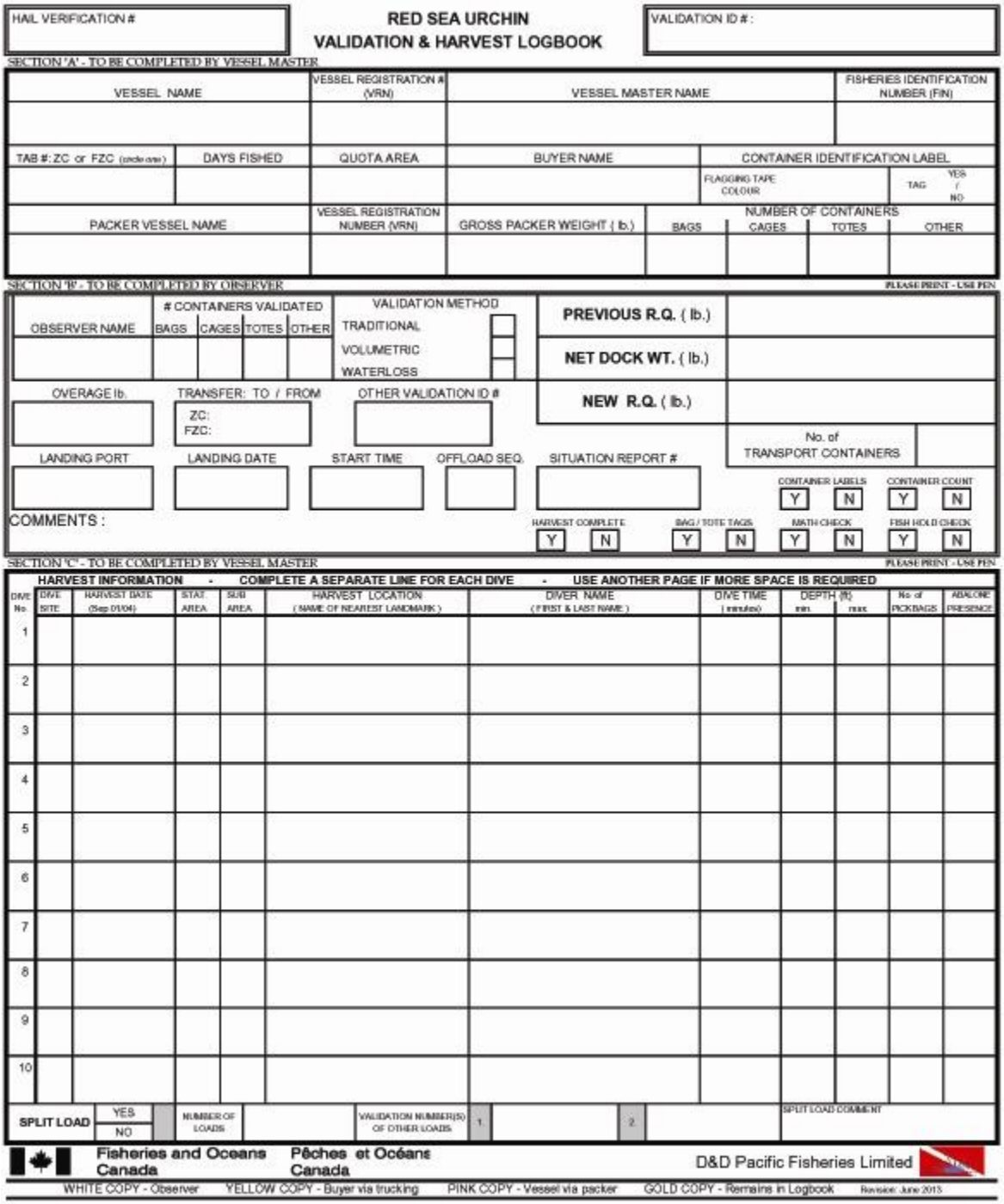
Appendix 8: Size Limits for Sea Urchins



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: 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

Fisheries and Oceans Canada / Pêches et Océans Canada

D&D Pacific Fisheries Limited

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

Appendix 10: 2022-23 Red Sea Urchin Quota Area Descriptions

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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	a) That portion of Subareas 1-2, 1-7 and 101-7 west of a line running due north from Seath Point on Graham Island except closures. b) Those portions of Subareas 101-2, 101-3 and 101-6 inside a line commencing at Seath Point on Graham Island, thence due north to a point in water at 54°17.457'N/132°53.49'W, thence due west to a point in water at 54°17.457'N/133°06.08'W, thence due south to a point in water at 54°10.547'N/133°06.08'W, thence due east to a point on Cape Knox at 54°10.583'N/133°05.242'W, thence easterly along the shoreline of Graham Island to the beginning point at Seath Point. Area 1 closures listed in section 5 of Appendix 1 in the Integrated Fisheries Management Plan.
RU02b	Virago Sound	a) Subarea 1-3. 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. Area 1 closures listed in section 5 of Appendix 1 in the Integrated Fisheries Management Plan.
RU03a	Cumshewa Inlet	Subareas 2-2 and 2-3.

Quota Area	Name	Description
RU03b	Kunga Island	a)That portion of Subarea 2-8 outside of a line commencing on a point of the eastern shoreline of Moresby Island at 52°48.606'N/131°39.403'W northeasterly to a point in water at 52°49.405'N/131° 29.042'W, thence southeasterly to a point in water at 52°48.148'N/131°28.849'W, thence southwesterly to a point in water at 52°44.898'N/131°34.035'W, thence northwesterly to 52°45.113'N/131°34.125'W, thence following the northern shoreline of Kunga Island to 52°45.220'N/131°35.574'W, thence southwesterly to a point on Tanu Island at 52°45.002'N/131°36.770'W, thence northerly following the eastern shoreline of Tanu Island to 52°46.725'N/131°38.878'W, thence northwesterly across to a point on Moresby Island at 52°47.837'N/131°39.371'W, and thence northerly following the eastern shoreline to the beginning point. [Klue Passage to Lost Islands closure] and excluding the southerly shore of Richardson Island within Richardson Passage (closure for FSC purposes). b) That portion of Subarea 2-10 outside a line commencing at a point on land on Shuttle Island at 52°40.053'N and 131°42.328'W northeasterly to a point on the western shoreline of Lyell Island at 52°40.466'N and 131°41.105'W, thence southerly following the western shoreline of Lyell Island to 52°37.301'N and 131°38.800'W, thence northwesterly to a point on land of Shuttle Island at 52°38.522'N and 131°41.409'W, and thence following the eastern shoreline of Shuttle Island to the beginning point. [Darwin Sound closure] Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.
RU04a	Juan Perez Sound	Subarea 2-11. Closed for abalone research

Quota Area	Name	Description
RU04b	Section Cove	a)Those waters of outside of a line commencing on the eastern shoreline of Moresby Island at 52°30.038'N/131°28.071'W southeasterly to a point on land on All Alone Stone Island at 52°29.081'N/131°24.042'W, thence southeasterly to a point on the northern shoreline of Huxley Island at 52°28.066'N/131°21.772'W, thence southerly following the western shoreline of Huxley Island to 52°25.934'N/131°21.927'W, thence southwesterly to the northern shoreline of Section Island at 52°25.435'N/131°22.425'W, thence westerly following the northern shoreline of Section Island to 52°25.460'N/131°22.513'W, thence northwesterly to a point on the eastern shoreline of Moresby Island at 52°26.039'N/131°25.343'W, thence northerly following the eastern shoreline of Moresby Island to 52°28.460'N/131°27.972'W, and thence northerly to the beginning point. b)That portion of Subarea 2-13 south of a line commencing at a point on the eastern shoreline of Moresby Island at 52°26.039'N /131°25.343'W, thence southeasterly to the northern shoreline of Section Island at 52°25.435'N/131°22.425'W and northeasterly to a point on Huxley Island at 52°25.934'N/131°21.927'W and north of a line commencing at a point on Moreseby Island at 52°23.055'N/131°23.441'W, thence northeasterly to the western shoreline of Kat Island at 52°23.082'N/131°22.916'W, thence easterly following the southern shoreline of Kat Island to 52°23.147'N/131°22.260'W, thence northeasterly to the western shoreline of Burnaby Island at 52°23.276'N/131°21.333'W. Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.
RU04c	Murchison/ Gogit	Those waters of Subarea 2-11 inside a line commencing at Gogit Point on Lyell Island, east to a point at 52°41.131'N/131°26.383'W, then south to a point at 52°41.116'N/131°22.687'W, then southwest to a point at 52°34.296'N/131°280.92'W, then northwest to a point at 52°34.913'N/131°29.656'W, then north 52°35.633'N/131°29.322'W, then northeast to a point at 52°36.151'N/131°27.651'W, then north to a point at 52°37.084'N/131°27.567'W, then northwest to a point 52°37.423'N/131°27.985'W, then north following the eastern shoreline of Lyell Island back to the point of commencement.

Quota Area	Name	Description
RU05a	Skincuttle Inlet	a)That portion of Subarea 2-14 east of Subarea 2-14 north of a line drawn from a point on the shoreline of Burnaby Island in Poole Inlet at 52°22.764'N/131°18.249'W southeasterly across the inlet to a point on the opposite shore at 52°22.505'N/131°17.665'W and west of a line drawn from a point on Burnaby Island at 52°24.494'N/131°15.832'W southeasterly to a point on Burnaby Island at 52°22.377'N/131°14.683'W and south of a line running from a point in water at 52°20.971'N/131°07.777'W southwesterly to a point in water at 52°20.056'N/131°11.175'W. b) That portion of Subarea 2-15 northwest of a line running from a point on Burnaby Island at 52°20.949'N/131°15.569'W, northeasterly to the easternmost point of Burnaby Island at 52°22.315'N/131°14.689'W and south of a line running from point on the eastern shoreline of Moresby Island at 52°18.124'N/131°18.347'W northeasterly to a point in water at 52°20.056'N/131°11.174'W and north of a line drawn from a point on the western shoreline of Huston Inlet at 52°15.732'N/131°15.643'W northeasterly across the inlet to a point on the opposite shore at 52°16.111'N/131°14.231'W. Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.
RU05b	Carpenter Bay	That portion of Subarea 2-17 north of a line running from a point on the shoreline of Moresby Island 52°13.232'N/131°00.777'W thence northeasterly to a point in water at 52°14.026'N/130°59.766'W. Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.
RU06	Lower 2E	a)That portion of Subarea 2-18 south of a line running from of a line drawn from the western shoreline of Rose Inlet on Moresby Island at 52°11.327'N/131°08.370'W northeasterly across the inlet to a point on the opposite shore at 52°11.328'N/131°07.115'W and south of a line running from a point on the eastern shoreline of Moresby Island at 52°10.262'N/131°01.993'W northeasterly to a point in water at 52°11.01'N/130°57.641'W. b)That portion of Subarea 2-19 north of a line running from a point on the shoreline of South Kunghit Island at 52°00.343'N/130°59.788'W to a point in water at 51°59.422'N/130°59.193'W. Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.

Quota Area	Name	Description
RU07	Lower 2W	a) That portion of Subarea 2-31 south of a line running from a point on the western shoreline of Moresby Island at 52° 07.210'N/131° 15.838'W to a point in water at 52° 05.826'N/131° 17.913'W and outside of the those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of Moresby Island at 52°07.210'N/131°15.838'W easterly following the shoreline to 52°07.440'N/131°14.307'W, thence southeasterly to a point on the northern shoreline of Flatrock Island at 52°06.468'N/131°10.300'W, thence easterly following the shoreline to 52°06.388'N/131°10.079'W, thence southeasterly to the westernmost point of Gordon Islands at 52°06.018'N/131°09.391'W, thence southerly following the shoreline of Gordon Islands to 52°05.884'N/131°09.283'W, thence southeasterly to 52°05.806'N/131°09.208'W, thence easterly following the shoreline of Gordon Islands to 52°05.787'N/131°09.097'W, thence northeasterly to the shoreline of Gordon Islands at 52°05.788'N/131°08.938'W, thence easterly following the shoreline and thence crossing the channel to 52°05.778'N/131°08.861'W, thence southeasterly following the shoreline to 52°05.741'N/131°08.788'W, thence following the shoreline of Gordon Islands to 52°05.708'N/131°08.697'W, thence easterly across the channel to 52°05.709'N/131°08.673'W, thence southerly following the shoreline of Gordon Islands to 52°05.468'N/131°08.425'W, thence southeasterly to a point on the western shoreline of Kunghit Island at 52°04.414'N/131°07.720'W, thence northerly and southerly following the shoreline of Kunghit Island to 52°04.366'N/131° 07.720'W, thence southwesterly to a point in water at 52°03.175'N/131°14.399'W, thence northwesterly to a point in water at 52°05.826'N/131°17.913'W, and thence northeasterly back to the beginning point. [SGang Gwaay (Wailing Island) closure]. b) Subareas 2-32 and 2-33. c) Subarea 2-34 except closures d) That portion of Subarea 142-1 inside of a line commencing at a point on Kunghit Island at 51°57.689'N/131°03.375'W to a point in water at 51°56.896'N/131°04.646'W, thence northwesterly to a point in water at 52°03.232'N/131°13.571'W, thence easterly to a point on Kunghit Island at 52°04.366'N/131°07.720'W. Closure descriptions are listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.

Quota Area	Name	Description
RU08a	Flamingo	a) That portion of Subarea 2-31 north of a line running from a point on the western shoreline of Moresby Island at 52° 07.210'N/131° 15.838'W to a point in water at 52° 05.826'N/131° 17.913'W except closures. b) Subareas 2-35 and 2-36 c) That portion of Subarea 2-38 south of a line commencing from a point on the western shoreline of Moresby Island at 52°23.489'N/131°36.092'W thence southwesterly to a point in water at 52°19.074'N/131°43.794'W. d) That portion of Subarea 142-1 inside a line commencing from a point on the western shoreline of Moresby Island at 52° 07.210'N/131° 15.838'W to a point in water at 52° 05.826'N/131° 17.913'W, thence northerly to a point in water at 52°21.700'N/131°39.218'W and east to a point on Moresby at 52°23.489'N/131°36.092'W. Closure descriptions listed in Appendix 1, Section 5 of the Integrated Fisheries Management Plan.
RU08b	Englefield	a) That portion of Subarea 2-38 north of a line running from a point in water at 52°38.115'N/132°09.939'W, thence southeasterly to point on land on Moresby Island at 52°38.177'N/131°56.374'W. b) Subareas 2-42 to 2-62. c) That portion of Subarea 141-1 north of a line running from a point on land on Moresby Island at 52°38.177'N/131°56.374'W thence westerly to a point in water at 52°38.152'N/132°02.01'W, thence northwesterly to a point in water at the Subarea boundary at 52°48.78'N/132°15.707'W. d) That portion of Subarea 142-2 inside a line commencing at the southeastern Subarea boundary with 142-1, thence westerly to a point in water at 52°48.78'N/132°15.707'W, thence northwesterly to a point in water at 53°02.625'N/132°33.539'W, then easterly to Hunter Point on Moresby Island at 53°02.738'N/132°31.993'W.
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.
RU11	Hippa Island	a) Subareas 2-85 to 2-87. b) That portion of Subarea 2-88 south of a line running true west from Selveston Point.

Quota Area	Name	Description
RU12	Port Louis	a) That portion of Subarea 2-88 north of a line running true west from Selveston Point. 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°28.55'N/130°50.70'W, and then running northeasterly to a point at 54°30.45N/130°47.65'W. b) That portion of Subarea 4-5 west of the meridian passing through 130°37.0'W 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.
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. 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. 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

Quota Area	Name	Description
RU14	Tree Knobs	a) That portion of Subarea 4-1 south of a parallel passing through 54 degrees 20.30 minutes north latitude. b) That portion of Subarea 4-2 north of the parallel passing through 54 degrees 13.5 minutes north latitude. 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 a point on Prescott Island [54 degrees 5.093 minutes north latitude /130 degrees 38.87 minutes west longitude] to the surfline.
RU16	Inside Stephens Island	a) That portion of Subarea 4-9 south of the parallel passing through 54 degrees 20.30 minutes north latitude. 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.
RU18a	Edye Pass	a) That portion of Subarea 4-2 south of a line running true west from a point on Prescott Island [54 degrees 5.093 minutes north latitude /130 degrees 38.87 minutes west longitude] to the surfline and north of a line running true west from a point on Henry Island [54 degrees 1.90 north latitude/130 degrees 41.122 minutes west to the surfline and east of a line running from a point on southern Henry Island at [54 degrees 0.338 minutes north latitude/ 130 degrees 40.100 minutes west longitude] then south to a point on Porcher Island at 54 degrees 0.280 minutes latitude/130 degrees 39.956 minutes west longitude. b) Subarea 4-4.
RU18b	Oval Bay	a) That portion of Subarea 4-2 south of a line running true west from a point on Henry Island [54 degrees 1.90 north latitude/130 degrees 41.122 minutes west to the surfline and west of a line running from a point on southern Henry Island at [54 degrees 0.338 minutes north latitude/ 130 degrees 40.100 minutes west longitude] then south to a point on Porcher Island at 54 degrees 0.290 minutes latitude/130 degrees 39.956 minutes west longitude. b) That portion of Subarea 4-3 north of a line running due west from Fan Point.

Quota Area	Name	Description
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) 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.
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) 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. 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)

Quota Area	Name	Description
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) Note Kitkatla closures listed in Integrated Fisheries Management Plan.
RU23	Upper Principe Channel	Subarea 5-13
RU24a	Mid Principe Channel	a) That portion of Subarea 5-17 north of a line running due east from Oar Point. 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. b) Subarea 5-19. 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. 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)

Quota Area	Name	Description
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)
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) b) Subarea 105-1. 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)

Quota Area	Name	Description
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). b) Subarea 5-21.
RU30	Lower Banks Island	a) Subarea 5-22. 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). 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)

Quota Area	Name	Description
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)
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) 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) 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. 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. 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. b) Subarea 6-12.
RU38d	Gil Island West	Subareas **5-24**, 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. 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); 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). 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. 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). 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. b) Subarea 6-14.
RU44	Lower Laredo	a) Subarea 6-15. 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). 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. 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). 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. b) Subareas 7-19 and 7-20. 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. 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; b) That portion of Subarea 7-31 south of a parallel passing through 52 degrees 16.3 minutes north latitude. 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. 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.
RU51	Seaforth Channel	a) Subareas 7-8. 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; c) Subareas 7-12 and 7-15. 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.

Quota Area	Name	Description
RU52	Tribal / McMullin Group	a) Subarea 7-18. 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). 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. b) That portion of Subarea 8-4 east of a line running from Daedalus Point on Nalau Island to Hergest Point on Hunter Island. c) Subarea 8-16. d) That portion of Subarea 9-12 north of a parallel running through Truman Point on Calvert Island.
RU57a	Rivers Inlet	a) Subareas 9-1 to 9-4, 9-10 to 9-11. b) That portion of Subarea 9-12 south of a parallel running through Truman Point on Calvert Island. 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. 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.

Quota Area	Name	Description
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. 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.
12B	Christie / Browning Pass	a) Subarea 12-10; 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

Quota Area	Name	Description
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
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 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

Quota Area	Name	Description
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]. 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. 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. 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.
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, 13-26 and **15-2 to 15-4**.
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. b) Subareas 13-4 and 13-5. 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 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.

Quota Area	Name	Description
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. 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
18A	Sidney	a) Subareas 18-3, 18-4, and 18-6. b) That portion of Subarea 19-5 north of a line running due east from Cormorant Point. 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. 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
20	Sooke	Subareas 20-4 to 20-6 except for Becher Bay closure.
23C*	**Area 23**	**Subareas 23-5 to 23-7, 23-11, 123-3 and 123-5 except the Broken Group Islands and Bamfield closures listed in Appendix 1 of this IFMP.**

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 (DFO)" means the Department of Fisheries and Oceans.

"designated service provider" means D&D Pacific Fisheries Ltd., the private sector company authorized by the Department for the purpose of assisting licence holders and vessel masters in meeting these conditions of licence with regards to reporting of information.

"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.

"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.

"Harvest log" means a log of all harvest operations that meets the requirements of the Department's Stock Assessment and Research Division Shellfish Data Unit and available from the designated service provider who provides logbook and data keypunch services.

"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 master" means the individual embarked on the vessel and responsible for the operation of the vessel and the fishing activities carried out under authority of this licence.

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

1. Species of fish permitted to be taken:

Red Sea Urchin (*Mesocentrotus 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
Email: PACSDU@dfo-mpo.gc.ca

(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. Reporting catch on fish slips:

(1) A complete and accurate written report of all fish and shellfish caught and retained under the authority of this licence shall be submitted by the vessel master on a fish slip.

(2) The record shall contain the following information:
(a) buyer's name, address and telephone number;
(b) harvester's name and address;
(c) processing plant name;
(d) landing date;
(e) vessel name and VRN;
(f) gear used to harvest the fish;
(g) Area(s) where fishing occurred and days spent fishing in each Area;
(h) the individual species of each fish sold or offloaded;
(i) the description of the product or landed form of each species sold or offloaded;
(j) the weight of each species sold or offloaded;
(k) the price paid for each species sold; and
(l) the total value of each species sold or offloaded.

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

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

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

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

15. Marine Mammal Reporting Requirements:

(1) The vessel master shall provide information regarding all interactions with marine mammals during fishing trips;
(2) For the purpose of subsection 16(1), interactions refer to cases of incidental mortality and serious injury to marine mammals. This includes accidental drowning, bycatch, entanglements, collisions, and fatalities.
(3) The vessel master shall immediately phone the Marine Mammal Incident Hotline at 1-800-465-4336 to report cases of mortality and serious harm.
(4) The vessel master shall complete the DFO reporting form "MARINE MAMMAL INTERACTION FORM."
(5) The Marine Mammal Interaction Form shall be submitted as per the instructions provided on the form.

Note: The Marine Mammal Interaction Form is available from: http://www.dfo-mpo.gc.ca/species-especes/mammals-mammiferes/report-rapport/fish-harvester-pecheur-eng.asp

16. Workers' Compensation Board Requirements

All red sea urchin divers shall be in possession of a valid commercial dive certification or 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 VESSEL SAFETY

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

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with TC; emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. The Transportation Safety Board is an independent agency that advances transportation safety by investigating selected occurrences in the air, marine, pipeline and rail modes of transportation including fishing vessel occurrences. In BC, WorkSafeBC exercises jurisdiction over workplace health and safety and conducts inspections on commercial fishing vessels in order to ascertain compliance with the Workers Compensation Act (WCA) and the Occupational Health and Safety Regulation (OHSR).

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

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

- Education and training programs
- Marine emergency duties training
- Fish Safe – Stability Education Program & 1 Day Stability Workshop
- Fish Safe – SVOP (Subsidized rate for BC commercial fishers provided)
- Fish Safe – *Safest Catch* program – **FREE** for BC commercial fishers
- Fish Safe *Safe At Sea* DVD Series – Fish Safe
- Fish Safe Stability Handbook – *Safe at Sea* and *Safest Catch* – DVD Series
- Fish Safe *Safest Catch* Log Book
- Fish Safe *Safety Quiz*
- First Aid training
- Radio Operators Course (Subsidized rate for BC commercial fishers provided)
- Fishing Masters Certificate training
- Small Vessel Operators Certificate training

Publications:

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

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

2. IMPORTANT PRIORITIES FOR VESSEL SAFETY

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

2.1. Fishing Vessel Stability

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

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

In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) No. 03/2017 announcing the coming into force of the New Fishing Vessel Safety Regulations. The initial regulations were published in the Canada Gazette Part II on July 13, 2016 and came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

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

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

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

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

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

The TSB has investigated several fishing vessel accidents since 2005 and found a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: M05W0110 - *Morning Sunrise*, M07M0088 - *Big Sisters*, M08W0189 - *Love and Anarchy*, M09L0074 – *Le Marsouin I*, M10M0014 - *Craig and Justin*, M12W0054 – *Jessie G*, M12W0062 - *Pacific Siren*, M14P0121 – *Five Star*, M15P0286 – *Caledonian*, M16A0140 – *C19496NB*, M17C0061 – *Emma Joan*,

*M*17P0052 – *Miss Cory*, M18P0073 – *Western Commander*,M18A0425 – *Charlene A* and M18A0454 – *Atlantic Sapphire.*.

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

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

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

2.2. Emergency Drill Requirements

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

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

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

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

crew, and at periodic intervals to ensure that crewmembers are familiar with emergency procedures.

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

2.3. Cold Water Immersion

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

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

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

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

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

2.4. Other Issues

2.4.1. Weather

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

2.4.2. Emergency Radio Procedures, EPIRB's and AIS

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). All fishing vessels greater than 20m in length must carry a Class A AIS, as well as a float free 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons must be registered with the Canadian Beacon Registry. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources. The TSB notes that there have been several recent occurrences on board vessels not equipped with an EPIRB, and that were either unable or did not use any other means of emergency signaling distress (e.g. M14P0121, M14A0289, M15A0189, M16A0327, M18A0076, M18A0303, M18A0078, M18P0184, M19A0082, M19P0242, M20A0258, M20A0160, M21A0315) which resulted in 26 fatalities. The carriage of both AIS and EPIRB is strongly encouraged for all fishing vessels who do not fall under the mandatory threshold.
Fish harvesters should monitor VHF channel 16 or MF 2182 KHz and make themselves and their crews familiar with other radio frequencies. All crew should know how to make a distress call and should obtain their restricted operator certificate from Industry Canada. However, whenever possible, masters should contact the nearest Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) station (on VHF channel 16 or MF 2182 kHz) prior to a distress situation developing. Correct radio procedures are important for communications in an emergency. Incorrect or misunderstood communications may hinder a rescue response. Further information is available at Radio Aids to Marine Navigation General

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

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on DSC can be found here: TC DSC Safety Bulletin. Questions regarding Coast Guard DSC capabilities can be obtained by contacting your local MCTS centre (Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333).

2.4.3. Collision Regulations

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

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

Exceptions include:

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

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

2.4.4. Buddy System

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

3. WORKSAFEBC

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

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

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

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

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

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

For further information, contact an Occupational Safety Officer:

Bruce Logan Field Services Vancouver/Richmond/Delta (604) 244-6477
Cody King Field Services Courtenay (250) 334-8733
Paul Matthews Field Services Courtenay (250) 334-8741
Wayne Tracey Field Services Central (604) 232-1939
or the Manager of Interest for Marine and Fishing, Pat Olsen (250) 334-8777

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, OHS Consultation and Education Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com or Helen Chandler, OHS Consultant at (604) 276-3174 or by email: helen.chandler@worksafebc.com.

4. FISH SAFE BC

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

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

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

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

Ryan Ford
Program Manager
Fish Safe
#100, 12051 Horseshoe Way
Richmond, BC V7A 4V4

Cell: (604) 739-0540
Office: (604) 261-9700
Email: ryan@fishsafebc.com
www.fishsafebc.com

5. TRANSPORTATION SAFETY BOARD

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation

Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or determine civil or criminal liability. Under the TSB Act, all information collected during an investigation is completely confidential.

In 2014 the TSB pacific region released three investigation reports:

- the collision between trawl fishing vessel *Viking Storm* and US long line fishing vessel *Maverick* and the subsequent fatality,
- the person over board off the prawn fishing vessel *Diane Louise* and the subsequent fatality, and
- the capsizing of the crab fishing vessel *Five Star* and subsequent fatality.

In 2016 the TSB pacific region released one investigation report:

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

In 2018 the TSB pacific region released two investigation reports:

- the capsizing and sinking of the *Miss Cory* and subsequent fatality
- the sinking of the *Western Commander* and loss of life

In 2020 the TSB pacific region is currently investigating the fatal accident involving the *Arctic Fox II* on August 11.

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

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

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

The other two recommendations address the most basic step that harvesters can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many harvesters still do not wear them. TC regulations currently require that PFDs be worn only if harvesters identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance. In June 2019, WorksafeBC amended its fishing regulation related to the use of PFDs. Under the amendments, crewmembers must wear a

PFD or lifejacket when on board a fishing vessel that has no deck or deck structure, or when on the deck of a fishing vessel that has a deck or deck structure. Crewmembers are not required to wear lifejackets or PFDs below deck or when inside a deck structure where there is risk of entrapment. This amendment removes the need for a risk of drowning to be present before a PFD must be worn.

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

To view information on the TSB's recent safety Watchlist, visit:
http://www.tsb.gc.ca/eng/surveillance-watchlist/marine/2020/marine-01.html
Reporting an Occurrence: www.tsb.gc.ca/eng/incidents-occurrence/marine/
After a reportable occurrence happens; you can fill out the TSB 1808 form or call the TSB at the contact information below.
Recently the TSB produced a Safe at Sea: Activity book on fishing safety intended for the next generation of fish harvesters (ages 4-7). Download a copy.
www.tsb.gc.ca › eng › medias-media › prudence-safe › safe-at-sea

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

Appendix 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 Appendix 14).

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/ops/fm/shellfish/index.htm

Resource Management

Regional Shellfish Co-ordinator	Lisa Mijacika	(604) 666-3869
Lead Red Sea Urchin Manager	Pauline Ridings	(250) 618-8699
Regional Recreational Fisheries Co-ordinator	Greg Hornby	(604) 666-3271
North Coast Area, Areas 1 through 10 (North)	General Inquiries	(250) 627-3499
417 2nd Avenue West, Prince Rupert		
Resource Management Biologist	Pauline Ridings	(250) 618-8699
Aboriginal Affairs Advisor – First Nations Fisheries	Melanie Anthony	DFO.NCAP-PACN.MPO@dfo-mpo.gc.ca
South Coast Area, Areas 11 through 27	General Inquiries	(250) 756-7270
3225 Stephenson Point Road, Nanaimo		
Resource Management Biologist, Nanaimo	Erin Wylie	(250) 756-7271
Resource Manager – First Nations Fisheries (NEVI)	Kent Spencer	(250) 268-5885
Resource Manager – First Nations Fisheries (SEVI)	Gerry Kelly	(250) 756-7122
Resource Manager – First Nations Fisheries (WCVI)	Kevin Conley	(250) 756-7196
Lower Fraser Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway, Delta		
A/Resource Manager – Non-Salmon Fisheries	Hong Tjhie	(236) 330-3240

Science Branch

Pacific Biological Station		
Hammond Bay Road, Nanaimo, BC V9T 6N7		
Echinoderms Program Head	Christine Hansen	(778) 268-2079
Program Head, Shellfish Data Unit	Rob Flemming	PACSDU@dfo-mpo.gc.ca

Fisheries Protection 1-866-845-6776

Negotiations and Implementation Division (604) 666-0197

Indigenous Programs Division (604) 666-6757
401 Burrard Street
Vancouver, BC V6C 3S4

Commercial Licensing

Pacific Fishery Licence Unit 200 - 401 Burrard Street Vancouver, BC V6C 3S4		(604) 666-0566

National On-line Licencing System (NOLS)

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

Aquaculture

Shellfish Aquaculture Resource Manager	Melinda Scott	(250) 754-0399

Environment Canada

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

Canadian Food Inspection Agency

Pacific Shellfish Desk		(604) 666-3737

BC Ministry of Agriculture and Lands

Aquaculture Development		(250) 387-9574

BC Ministry of Environment

Oceans and Marine Fisheries Division		(250) 387-7183

WorkSafe BC

Occupational Safety Officer, Field Services:		
Vancouver / Richmond / Delta	Bruce Logan	(604) 244-6477
Courtenay	Cody King	(250) 334-8733
Courtenay	Paul Matthews	(250) 334-8741
Central	Wayne Tracey	(604) 232-1939
Manager of Interest for Marine and Fishing	Pat Olsen	(250) 334 8777
Projects Related to Commercial Fishing	Tom Pawlowski	(604) 233-4062
	Helen Chandler	(604) 276-3174

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
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
North American Seafood Inc.	(604) 879-6822
Ocean Master Foods International Inc.	(604) 467-8485
Great Ocean Ventures Ltd.	(778) 997-1999
Ocean Gate Fishery Ltd.	(604) 271-5577

Sighting Networks

BC Cetacean and Sea Turtle Sighting Network (866) 472 9663
Email: sightings@ocean.org
On the internet at: www.wildwhales.org/
App: WhaleReport

Basking Shark Sighting Network 1 (877) 50 SHARK
Email: BaskingShark@dfo-mpo.gc.ca
On the internet at: www.pac.dfo-mpo.gc.ca/SharkSightings

DFO welcomes assistance in the reporting of any whale, leatherback sea turtle or basking shark entanglement or sighting. While there are many whale species found in Pacific Canadian waters, sightings of Basking Shark and Leatherback Sea Turtles are infrequent. The collection of sighting data is useful to scientists in determining population size and species distribution and aids in recovery efforts under the *Species at Risk Act*.

Marine Mammal Incident Reporting Hotline 1 800 465 4336 or VHF Channel 16

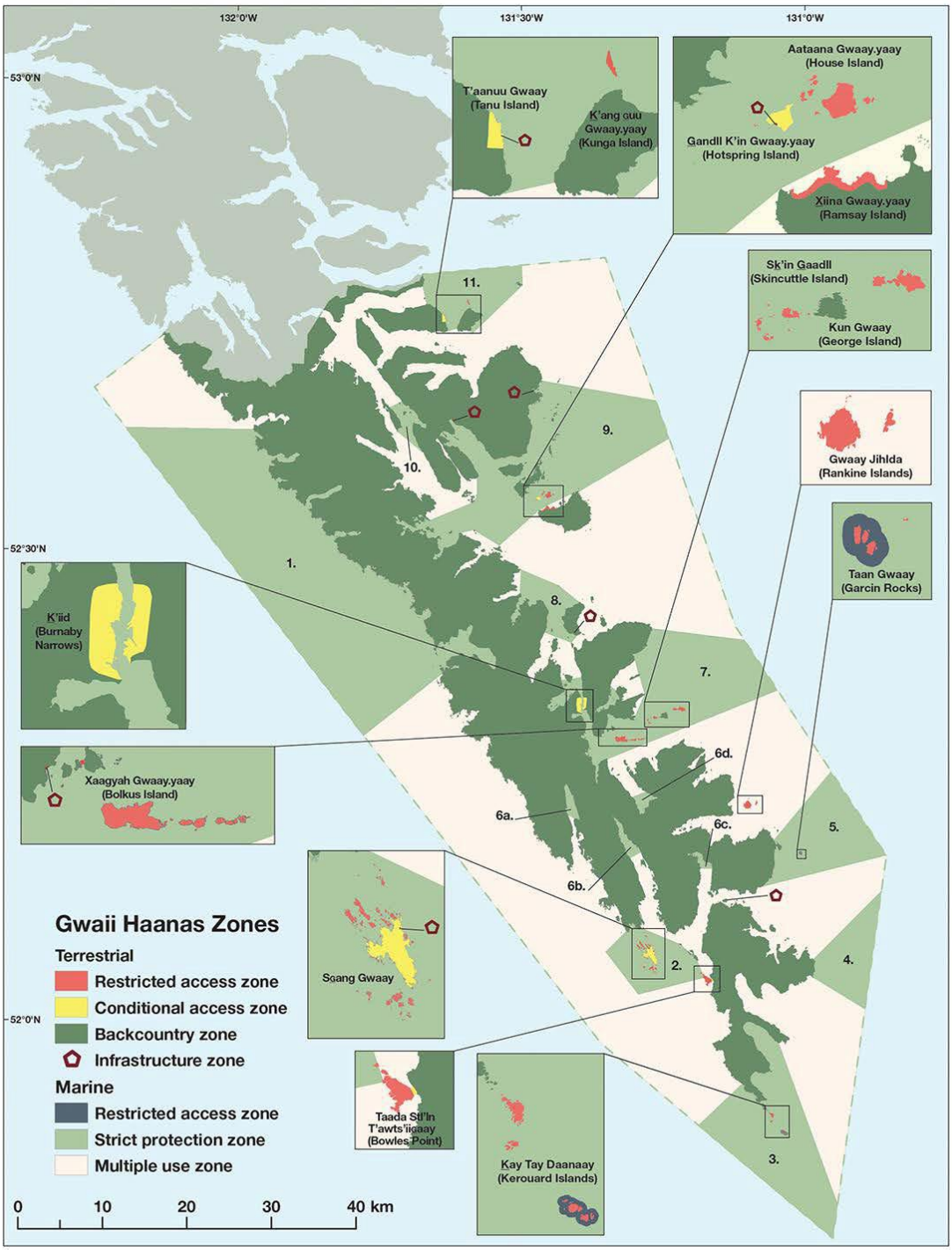
DFO is responsible for assisting marine mammals and sea turtles in distress. If your vessel strikes a whale, or if you observe an entangled, sick, injured, distressed, or dead marine mammal in B.C.

waters, please contact the Marine Mammal Incident Reporting Hotline immediately and report your name and contact information, date and time of the incident, species, whether the animal is alive or dead, nature of injury, location latitude/longitude coordinates and landmarks, and whether any pictures or video were taken.

Appendix 15: Gwaii Haanas Maps and Closure Descriptions

Section 1. Gwaii Haanas Closures

Gwaii Haanas closures (Light Green). Numbers on map correspond to numbers for the descriptions provided on the following page.



Section 2 Gwaii Haanas Closure Descriptions

GWAII HAANAS GINA ’WAADLUXAN KILGUHLGA LAND-SEA-PEOPLE MANAGEMENT PLAN

Final Zoning (Nov. 2018)

Commercial and Recreational Fishing Closures:

1. Those waters of Subareas 2-38 to 2-41 and 142-1 inside a line commencing at a point on land on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°23.311’N and 131°35.794’W northwesterly to a point on land on GuuGaalas Gwaay (south Gowdas Islands) at 52°23.340’N and 131°35.859’W, thence northerly following the shoreline of GuuGaalas Gwaay (south Gowdas Islands) to 52°23.489’N and 131°36.092’W, thence southwesterly to a point in water at 52°19.074’N and 131°43.794’W, thence northwesterly to a point in water at 52°38.115’N and 132°09.939’W, thence southeasterly to a point on land on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°38.177’N and 131°56.374’W, and thence southerly following the western shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to the beginning point. **[Kun Skuujii sda GawGaay.ya (Kwoon Cove to Gowgaia Bay)]**

2. Those waters of Subareas 2-31 and 142-1 inside a line commencing at a point on the western shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°07.210’N and 131°15.838’W easterly following the shoreline to 52°07.440’N and 131°14.307’W, thence southeasterly to a point on the northern shoreline of K’il (Flatrock Island) at 52°06.468’N and 131°10.300’W, thence easterly following the shoreline to 52°06.388’N and 131°10.079’W, thence southeasterly to the westernmost point of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°06.018’N and 131°09.391’W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.884’N and 131°09.283’W, thence southeasterly to 52°05.806’N and 131°09.208’W, thence easterly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.787’N and 131°09.097’W, thence northeasterly to the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) at 52°05.788’N and 131°08.938’W, thence easterly following the shoreline and thence crossing the channel to 52°05.778’N and 131°08.861’W, thence southeasterly following the shoreline to 52°05.741’N and 131°08.788’W, thence following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.708’N and 131°08.697’W, thence easterly across the channel to 52°05.709’N and 131°08.673’W, thence southerly following the shoreline of Sii.niihl Gwaay.yaay (Gordon Islands) to 52°05.468’N and 131°08.425’W, thence southeasterly to a point on the western shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.414’N and 131°07.720’W, thence northerly and southerly following the shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°04.366’N and131° 07.720’W, thence southwesterly to a point in water at 52°03.175’N and 131°14.399’W, thence northwesterly to a point in water at 52°05.826’N and 131°17.913’W, and thence northeasterly back to the beginning point. **[SGang Gwaay (Wailing Island)]**

3. Those waters of Subareas 2-19, 102-3, 130-3 and 142-1 inside a line commencing at a point on the western shoreline of Gangxid Tllgaay (South Kunghit Island) at 51°57.689’N and

131°03.375’W easterly following the southern shoreline of Gangxid Tllgaay (South Kunghit Island) to 52°00.343’N and 130°59.788’W, thence southeasterly to a point in water at 51°50.163’N and 130°53.208’W, thence southwesterly to a point in water at 51°47.954’N and 130°53.612’W, thence northwesterly to a point in water at 51°54.940’N and 131°07.779’W, and thence northeasterly to the beginning point. **[Gangxid Tllgaay (South Kunghit Island)]**

4. Those waters of Subareas 102-2 and 102-3 inside a line commencing at a point on land of Kildaga T’awts’iiGaay (unnamed islet) at 52°04.541’N and 130°56.293’W following the shoreline of the islet to 52°04.591’N and 130°56.348’W, thence northwesterly to the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) at 52°04.652’N and 130°56.414’W, thence northerly following the eastern shoreline of Gangxid Gwaay.yaay (Kunghit Island) to 52°05.734’N and 130°56.365’W, thence northeasterly to a point in water at 52°10.222’N and 130°49.514’W, thence southwesterly to a point in water at 52°02.635’N and 130°50.918’W, thence northwesterly back to the beginning point. **[Gangxid Xyuu Kun sda Kan ’Láas Kun (Lyman Point to Receiver Point)]**

5. Those waters of Subareas 2-17, 2-18 and 102-2 inside a line commencing at a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°10.262’N and 131°01.993’W northerly following the eastern shoreline to 52°13.232’N and 131°00.777’W, thence northeasterly to a point in water at 52°17.735’N and 130°55.064’W, thence southeasterly to a point in water at 52°12.476’N and 130°49.103’W, and thence southwesterly back to the beginning point. **[Kayjuu Kun (Benjamin Point)]**

6a. Those waters of Subarea 2-37 north of a line drawn from a point on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°14.455’N and 131°22.232’W southeasterly across St’aa K’ii GawGa (Flamingo Inlet) to a point on land on the opposite shore at 52°14.228’N and 131°21.503’W. **[St’aa K’ii GawGa (Flamingo Inlet) – Head]**

6b. Those waters of Subarea 2-34 north of a line drawn from a point on land on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.841’N and 131°15.670’W northeasterly across the inlet to a point on the opposite shoreline of GawGajaang (Louscoone Inlet) at 52°12.245’N and 131°14.568’W. **[GawGajaang (Louscoone Inlet) – Head]**

6c. Those waters of Subarea 2-18 north of a line drawn from the western shoreline of K’insiGid (Rose Inlet) on T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°11.327’N and 131°08.370’W northeasterly across the inlet to a point on the opposite shore at 52°11.328’N and 131°07.115’W. **[K’insiGid (Rose Inlet) – Head]**

6d. Those waters of Subarea 2-15 south of a line drawn from a point on the western shoreline of GawGan (Huston Inlet) at 52°15.732’N and 131°15.643’W northeasterly across the inlet to a point on the opposite shore at 52°16.111’N and 131°14.231’W. **[GawGan (Huston Inlet) – Head]**

7. Those waters of Subareas 2-13 to 2-16 and 102-2 inside a line commencing at a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°26.521’N and 131°14.153’W southeasterly to a point in water at 52°25.979’N and 131°04.470’W, thence

southeasterly to a point in water at 52°22.829’N and 131°00.867’W, thence southwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°18.124’N and 131°18.347’W, thence northerly following the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°23.055’N and 131°23.441’W, thence northeasterly to the western shoreline of Gwaay GudgiiGaagid (Kat Island) at 52°23.082’N and 131°22.916’W, thence easterly following the southern shoreline of Gwaay GudgiiGaagid (Kat Island) to 52°23.147’N and 131°22.260’W, thence northeasterly to the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°23.276’N and 131°21.333’W, thence southerly following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°20.949’N and 131°15.569’W, thence northeasterly to the easternmost point of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°22.315’N and 131°14.689’W, thence following the western shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) to 52°22.377’N and 131°14.683’W, thence northwesterly to a point on the eastern shoreline of SGwaay Kun Gwaay.yaay (Burnaby Island) at 52°24.494’N and 131°15.832’W, and thence following the eastern shoreline to the beginning point. **[Suu Kaahlii sda SGwaay Kun Gwaay.yaay (Skincuttle Inlet to Burnaby Island)]**

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

8. Those waters of Subareas 2-12 and 2-13 inside a line commencing on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°30.038’N and 131°28.071’W southeasterly to a point on land on Gwaay Guusdagang (All Alone Stone Island) at 52°29.081’N and 131°24.042’W, thence southeasterly to a point on the northern shoreline of Gaaduu Gwaay (Huxley Island) at 52°28.066’N and 131°21.772’W, thence southerly following the western shoreline of Gaaduu Gwaay (Huxley Island) to 52°25.934’N and 131°21.927’W, thence southwesterly to the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) at 52°25.435’N and 131°22.425’W, thence westerly following the northern shoreline of GaysiiGas K’iidsii Gwaay (Section Island) to 52°25.460’N and 131°22.513’W, thence northwesterly to a point on the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°26.039’N and 131°25.343’W, thence northerly following the eastern shoreline of T’aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) to 52°28.460’N and 131°27.972’W, and thence northerly to the beginning point. **[Kuuniisii Xaw GawGa sda Gaaduu Gwaay (Matheson Inlet to Huxley Island)]**

9. Those waters of Subareas 2-11 and 102-2 inside a line commencing on the eastern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°42.074’N and 131°26.535’W southeasterly to a point in water at 52°41.070’N and 131°14.485’W, thence southeasterly to a point in water at 52°38.677’N and 131°12.957’W, thence southwesterly to 52°35.106’N and 131°22.254’W, thence following the northern shoreline of Xiina Gwaay.yaay (Ramsay Island) to 52°34.964’N and 131°22.963’W, thence southwesterly following the shoreline to 52°34.116’N and 131°25.603’W, thence southwesterly following the shoreline to 52°33.844’N and 131°26.324’W,

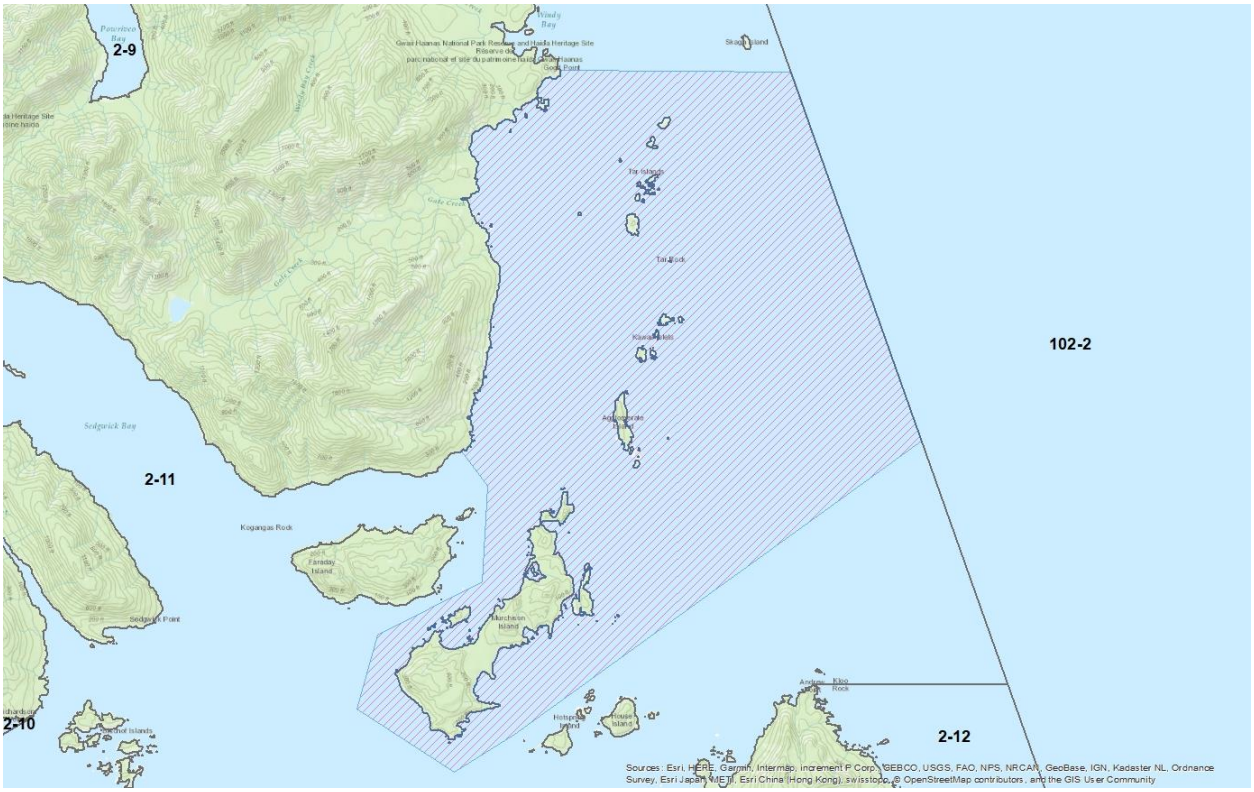
thence southwesterly to a point on Gandaawuu.ngaay Gwaay.yaay (Marco Island) at 52°31.498'N and 131°30.354'W, thence northwesterly to a point on Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) at 52°32.405'N and 131°32.946'W, thence following the northern shoreline of Gandaawuu.ngaay Gwaayts'idaay (Hoskins Islets) to 52°32.435'N and 131°33.055'W, thence southwesterly to a point on the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°32.211'N and 131°34.475'W, thence easterly following the eastern shoreline to 52°32.956'N and 131°37.729'W, thence northeasterly to a point on the shoreline of Kingts'ii Gwaay.yaay (Bischof Islands) at 52°34.143'N and 131°33.379'W, thence easterly following the southeastern shoreline of Kingts'ii Gwaay.yaay (Bischof Islands) to 52°34.340'N and 131°33.098'W, thence northeasterly to a point on an islet at 52°34.530'N and 131°32.890'W, thence northeasterly to a point on the southern shoreline of Tllga Kun Gwaay.yaay (Lyell Island) at 52°35.767'N and 131°32.891'W, and thence easterly and northerly following the shoreline of Tllga Kun Gwaay.yaay (Lyell Island) to the beginning point. **[Gandaawuu.ngaay Xyangs sda Tllga Kun Gwaay.yaay (Juan Perez Sound to Lyell Island)]**

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

11. Those waters of Subareas of 2-7 and 2-8 inside a line commencing on a point of the eastern shoreline of T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°48.606'N and 131°39.403'W northeasterly to a point in water at 52°49.405'N and 131° 29.042'W, thence southeasterly to a point in water at 52°48.148'N and 131°28.849'W, thence southwesterly to a point in water at 52°44.898'N and 131°34.035'W, thence northwesterly to 52°45.113'N and 131°34.125'W, thence following the northern shoreline of K'ang.Guu Gwaay.yaay (Kunga Island) to 52°45.220'N and 131°35.574'W, thence southwesterly to a point on T'aanuu Gwaay (Tanu Island) at 52°45.002'N and 131°36.770'W, thence northerly following the eastern shoreline of T'aanuu Gwaay (Tanu Island) to 52°46.725'N and 131°38.878'W, thence northwesterly across to a point on T'aaxwii XaaydaGa Gwaay.yaay iinaGwaay (Moresby Island) at 52°47.837'N and 131°39.371'W, and thence northerly following the eastern shoreline to the beginning point. **[T'aanuu K'aadxwah Xyangs sda Gwaay Xaa'ans (Klue Passage to Lost Islands)]**

Section 3. Gwaii Haanas Kelp Restoration Management Area Pilot Program: To support maintenance of low urchin densities within and surrounding the Gwaii Haanas Chiixuu tll iinasdll kelp forest restoration pilot project, a closure may be temporarily opened along the SE coast of Lyell Island from south of Windy Bay to Murchison Island, including offshore islets to the east upon pre-season approval by the Gwaii Haanas Archipelago Management Board. For details please see section 4.5 in Appendix 1.

Map of Quota Area RU04c Murchison/Gogit



Description of Quota Area RU04c Murchison/Gogit

Those waters of Subarea 2-11 inside a line commencing at Gogit Point on Lyell Island, east to a point at 52 41.131'N/131 26.383'W, then south to a point at 52 41.116'N/131 22.687'W, then southwest to a point at 52 34.296'N/131 280.92'W, then northwest to a point at 52 34.913'N/131 29.656'W, then north 52 35.633'N/131 29.322'W, then northeast to a point at 52 36.151'N/131 27.651'W, then north to a point at 52 37.084'N/131 27.567'W, then northwest to a point 52 37.423'N/131 27.985'W, then north following the eastern shoreline of Lyell Island back to the point of commencement.