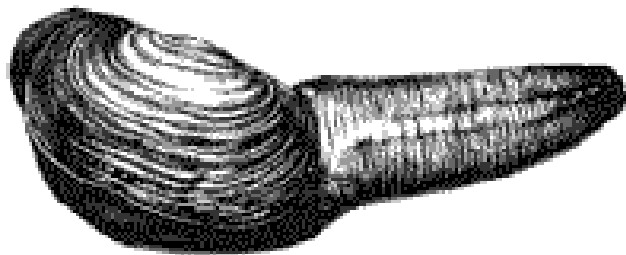


PACIFIC REGION

**INTEGRATED FISHERIES
MANAGEMENT PLAN**

**GEODUCK AND
HORSE CLAM**

**JANUARY 1 TO
DECEMBER 31, 2010**



Geoduck clam: *Panopea abrupta*



Horse clam: *Tresus* spp.



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 regulations, the regulations are the final authority. A description of Areas and Subareas referenced in this Plan can be found in the Pacific Fishery Management Area Regulations.

FOREWORD

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

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

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

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1. OVERVIEW

1.1. Introduction

This Integrated Fisheries Management Plan (IFMP) for geoducks and horse clams covers the period January 1 to December 31, 2010.

The IFMP provides a broad context to the management and interrelationships of all fishing sectors of the geoduck and horse clam dive fisheries. Section 2 considers present stock status. Section 4 describes the most important current management issues. Section 5 describes the objectives to address issues identified in Section 4. Sections 6 and 7 describe the management procedures that will be employed during the year.

Information in addition to that presented here is available in the Canadian Manuscript Report of Fisheries and Aquatic Sciences series (Harbo and Wylie 2006). Stock Assessment papers are listed in Section 11 References. Fishery updates (now called Post-Season Reviews) are available from resource management staff listed in Contacts (Appendix 15). A Stock Status Report for geoducks is available from the PSARC Internet site at:

<http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/ssrs/invert-eng.htm>

Note that Appendices 3 to 5 detail the Aboriginal, recreational and aquaculture harvest plans. The commercial harvest plan is detailed in Appendices 6 through 14.

The term “clam” is used throughout this plan and refers to both geoducks and horse clams.

1.2. History

A detailed history of the commercial geoduck and horse clam fisheries, showing areas open, quotas, landings, number of participants, numbers of licences and vessels, values and reasons for management decisions, is contained in annual Post-Season Reviews that are available from the resource managers (see Contacts, Appendix 15).

The commercial dive fishery for geoducks (*Panopea abrupta*) and horse clams (*Tresus capax* and *T. nuttallii*) in BC began in 1976. The fishery expanded rapidly until 1979 when licences were limited and harvest quotas were set for conservation. In 1989, with the support of the commercial industry, a management program with individual vessel quotas (IQ or IVQ) for geoducks was initiated. As part of this initiative, area licensing and a three-year area rotation period for the fishery was established. Geoduck licence quotas were set at 1/55 of the annual coast-wide quota.

Horse clams, generally harvested incidentally to geoducks, were not included in the IVQ system.

An “experimental” horse clam fishery began in 2003 and opportunities will continue in 2010. This fishery will test the market for horse clams, and provide harvest and biological information needed to do further assessments of this fishery. The current low levels of harvest and the low price per pound has resulted in little market development. A review of horse clam fishing opportunities has been recommended.

1.3. Type of Fishery and Participants

1.3.1. First Nations

Aboriginal harvest for food, social and ceremonial purposes may occur coastwide where authorized by a communal licence. There are an unknown number of Aboriginal harvesters for geoduck and horse clam in the Pacific Region.

1.3.2. Recreational

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

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

The Tidal Waters licence includes access to numerous species, so the number of recreational harvesters taking advantage of the bag limit for geoducks and horse clams is unknown.

The fishing effort by recreational harvesters and First Nations fisheries for food, social and ceremonial purposes is thought to be minimal, due to the general inaccessibility of these deep-water clams.

1.3.3. Commercial

Geoducks and horse clams are harvested commercially by divers. There are 55 commercial licences, generally fished on 39 or 40 vessels.

1.3.4. Aquaculture

There has been considerable interest in geoduck aquaculture in British Columbia since the early 1990s. Since that time, industry stakeholders and the Provincial Government have invested in developing and refining geoduck hatchery, nursery, and culture methods in British Columbia.

Opportunities to enter into this industry will be provided in a phased approach. Three interim policy documents have been developed. The policy documents outline the conditions within which geoduck aquaculture will occur on both existing shellfish farms and how new applications will be accepted and assessed.

See the Provincial Government website at:

<http://www.al.gov.bc.ca/fisheries/shellfish/geoduck/main.htm>

and Appendix 5 for more information.

1.3.5. Enhancement

The Underwater Harvesters Association (UHA) has undertaken an experimental geoduck “enhancement” program since 1995, which involves seeding several crown land subtidal sites in the Strait of Georgia. Areas seeded for enhancement purposes are not removed from access to the commercial wild fishery and are intended to increase fishery production and the recruitment

of juveniles into the wild geoduck fishery. An updated seeding plan, study design, and monitoring and evaluation protocols have been developed.

1.4. Location of Fishery

1.4.1. First Nations and Recreational

Aboriginal and recreational harvest may occur coastwide, where appropriately licensed, and the area is not subject to sanitary or biotoxin contamination. The entire British Columbia coast north of Cape Caution (Areas 1 to 11 inclusive) is closed for the harvest of bivalves, unless the appropriate testing is in place to ensure safe harvest. See the Internet at:

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

1.4.2. Commercial

With the exception of permanent closures for various purposes (see Appendix 6, Section 3), and in-season changes to openings due to biotoxin contamination, the current commercial fishery occurs coastwide in units called Geoduck Management Areas (GMAs). GMAs are a defined portion of Pacific fisheries waters. Areas and Subareas, as described in the *Pacific Fishery Management Area Regulations*, are referenced in describing GMAs. Each GMA has a name (i.e. QCA02 Cumshewa Inlet East), and is assigned a total allowable catch (see Appendices 6 and 9).

1.4.3. Aquaculture

Geoduck aquaculture occurs in the Strait of Georgia. Geoduck broodstock have been collected since 1993 and juvenile seed geoducks have been successfully produced at licensed hatcheries. Five deep-water geoduck areas were selected in 1995 (two sites near Marina Island, two near Savary Island, and one near Texada Island) and placed under tenure with the Province of BC for aquaculture.

The Department is also currently working with the Province of BC in planning and implementing a phased expansion of geoduck aquaculture opportunities within the Strait of Georgia consistent with the mandates of both governments.

See Appendix 5 for more information.

1.4.4. Enhancement

The first harvests of enhanced geoduck occurred as part of the South Coast Inside Waters area quota and IVQs in 2007, 2008 and 2009, and will continue for 2010, 2011 and 2012. The harvests take place in small, marked locations and are monitored. Where necessary, efforts are made to rebury small geoducks.

1.5. Fishery Characteristics

1.5.1. First Nations

First Nations harvest for food, social and ceremonial purposes may be open year round, based on available sanitary and biotoxin contamination sampling and results, and is limited to the gear specified for bivalve harvest in the communal licence.

1.5.2. Recreational

The recreational fishery may be open year round, based on available sanitary and biotoxins contamination sampling and results, and is limited to hand digging methods. Commercial gear (“stingers”) cannot be used for recreational harvest.

1.5.3. Commercial

The commercial licence year is from January 1 to December 31. The fishery may open and close during that timeframe based on sanitary and biotoxin contamination conditions and market demand. Divers use high pressure water delivered through a nozzle (known as a “stinger”) to loosen the substrate around the clam and allow the diver to lift the clams out live.

A pre-determined schedule of openings and closures varies from year to year, but is planned to allow for a year-round supply of geoducks to the market. Commercial fishery schedules for 2010 are shown in Appendix 6, Tables 1, 2 and 3.

The fishery operates under a Total Allowable Catch (TAC) with individual vessel quotas (IVQ) combined with area licensing. There is a three-year area rotation period for the fishery within the North Coast and Inside Waters licence areas. The West Coast Vancouver Island licence area switched back to an annual harvest for all areas in 2002, when more timely information on the possible impact of sea otters was needed.

Geoduck IVQs are set at 1/55 of the annual coast-wide quota, and vessel owners are required to select one of three licence areas in which to fish.

1.6. Governance

The *Fisheries Act* and the regulations made thereunder.

- Areas and Subareas, as described in the *Pacific Fishery Management Area Regulations*, are referenced in describing Geoduck Management Areas.
- Fishery (General) Regulations (i.e. Conditions of Licence) and the Pacific Fishery Regulations, 1993 (i.e. open times).
- The British Columbia Sport Fishing Regulations (1996) and the Aboriginal Communal Fishing Licences Regulations.
- The Oceans Act.
- The Species at Risk Act.

These documents are available on the Internet at:

http://www.pac.dfo-mpo.gc.ca/ops/fm/toppages/actreg_e.htm

In addition, the new national Sustainable Fisheries Framework contains policies for adopting an ecosystem based approach to fisheries management including:

- A Fishery Decision-Making Framework Incorporating the Precautionary Approach;
- Managing Impacts of Fishing on Benthic Habitat, Communities and Species;
- Policy on New Fisheries for Forage Species.

Along with existing economic and shared stewardship policies, these will help the department meet objectives for long-term sustainability, economic prosperity, and improved governance. See the Internet at:

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

Scientific advice for this fishery is peer-reviewed through a committee called the Pacific Region Scientific Advice Review Committee (PSARC).

The Geoduck and Horse Clam Sectoral Committee is the primary body guiding management decision-making processes for this fishery. Others include a Research Subcommittee, and 'licence area committees' for the North Coast, Inside Waters and West Coast Vancouver Island (WCVI). See Appendix 17.

1.7. Approval Process

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

2. STOCK ASSESSMENT, SCIENCE AND TRADITIONAL KNOWLEDGE

2.1. Geoduck

2.1.1. Biological Synopsis

The geoduck clam (*Panopea abrupta*, Conrad 1849) occurs from Alaska to the Gulf of California in the northeast Pacific, from the intertidal zone to depths of at least 110 metres. It buries itself up to a metre deep in sand, silt, gravel and other soft substrates.

Geoducks have separate sexes. Spawning occurs annually, primarily from June to July. Females release from 7 to 10 million eggs, which, after fertilization, develop through several stages in the water column until settling on the bottom within 40 to 50 days. At a shell length of 2mm, juvenile geoducks burrow into the substrate and can bury to a refuge depth of 60cm in two years.

The end of the burrowing stage coincides with the beginning of annual reproductive capacity. Mature sex organs are found in clams ranging from 2 to 107 years old, suggesting that individuals may be capable of reproducing for over a century.

Geoducks are among the longest-lived animals in the world and can reach over 150 years of age.

They grow rapidly in the first 10 to 15 years, after which time growth in shell length almost ceases and is replaced by a thickening of the shell and a slow increase in body weight.

Geoducks begin to recruit to the fishery at age 4 and are fully recruited at 10 to 12 years.

See the Stock Status Report for more detail:

<http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/ssrs/invert-eng.htm>

2.1.2. Ecosystem Interactions

Geoduck and horse clam populations can overlap the distribution of eelgrass beds within their deeper subtidal boundaries. Eelgrass beds are recognized as sensitive habitat and are critical for many fish and shellfish species for at least part of their lifecycle.

Along the WCVI, from Clayoquot Sound northward, and in portions of the Central Coast, sea otters have established themselves in sufficient numbers to have an impact on geoduck populations and on fish harvesters' ability to harvest quotas.

2.1.3. Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

Aboriginal Traditional Knowledge is not generally available.

Traditional Ecological Knowledge in the form of observations and comments collected from commercial divers and patrolmen over many years contributes to decisions on scientific survey locations and is considered in management decisions.

2.1.4. Stock Assessment

Since the early 1980s, a long-term approach has been used in the management of geoduck stocks, with the harvest plan being scaled over a 50 year time period. Annual harvest rates were originally set at 1% of the estimated original (pre-fishery) biomass, with the objective of taking no more than that replaced by recruitment of juveniles into the biomass. The original biomass is estimated as the product of estimates of harvestable bed area, original geoduck density and the mean geoduck weight on each bed. These parameter estimates are largely determined from harvest log data and from surveys conducted jointly by the commercial industry, First Nations and Fisheries and Oceans Canada. The harvest rate multiplied by the biomass yields an annual Total Allowable Catch (TAC).

An improvement to the biomass and quota calculation model was presented to the Pacific Science Advice Review Committee (PSARC) in November 2005 (Zhang and Hand 2006) and, since then, stock assessment and resource management personnel have worked toward full implementation of the recommendations of the Research Document. In 2006, some areas of the coast were managed under the "original biomass" model, while others were piloted under the "current biomass" model.

Starting with the 2007 fishery year, geoduck quota options are calculated as *1.2 to 1.8%* of the range of *current* biomass estimates of each bed. The use of current biomass for quota calculations eliminates the uncertainties around estimating original biomass. Estimates of biomass are determined through density surveys; biomass of unsurveyed beds is estimated by extrapolating from surveyed beds and using density categories where appropriate. Exploitation rates based on current densities vary by region and are determined from age-structure projection modelling by Zhang and Hand (2006).

The coastwide TAC for 2010 will remain unchanged from recent years at 3,463,800 lb. Where the licence area TAC (and therefore the number of licences fishing in that area) changes, a realignment of licences to the three licence areas may be necessary. There is a small change to licence distribution for 2010 to account for changing TACs by licence area. See Appendix 2, Stock Assessment Results and Appendix 6, Commercial Harvest Plan.

2.1.5. Stock Scenarios

The prospect for this fishery is that it is sustainable under the current assessment and management framework. Reductions in stocks are expected from sea otter predation, as sea otter populations increase and expand. Enhancement of geoduck stocks in the Strait of Georgia will

directly provide additional quota and may, combined with additional stocks planted for aquaculture, provide increased recruitment due to higher concentrations of spawning adults.

Continued improvement in the estimates of geoduck density and bed area are anticipated through the results of on-going surveys, better and more detailed bed descriptions and locations from harvesters in logbooks (aided by GPS technology) and on-grounds monitor reports.

There are large numbers of geoducks that inhabit natural refugia. These include deep water stocks, as divers are limited to depths of less than 20 meters, populations in gravel- or shell-packed substrates from which geoducks are difficult to extract, individuals considered aesthetically inferior and unacceptable to the market, and stocks in contaminated areas and areas closed for various purposes (i.e. research, parks, sea otter protection, sea bird protection). These form a protected breeding pool that is exclusive of the fishable population. In addition, the habit of geoducks to retract their necks in response to disturbance serves to protect a portion of the exploitable population.

Experimental work on the effect of fishing on recruitment has found that recruitment to an area is similar between heavily and lightly harvested populations (Campbell and Ming 2003). Age compositions from biological samples and reports from fish harvesters indicate that there has been some strong recruitment in recent years in some geoduck beds.

2.1.6. Precautionary Approach

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

Fisheries worldwide are under increasing pressure, creating challenges for policy makers, resource managers, and industry leaders to make informed decisions regarding the conservation, recovery, and wise management of these resources. DFO held consultations throughout Canada in 2007 and 2008 to develop strategies to ease ecosystem pressures and enhance the capacity of the resource to sustain growing industry needs. New conservation policies have been developed to implement the ecosystem and precautionary approaches to fisheries management. These new policies, incorporated into development of new Integrated Fisheries Management Plan (IFMP) templates, will join existing policies in a framework to promote sustainable fisheries.

The new *fishery decision-making framework incorporating the precautionary approach* policy (<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/precaution-eng.htm>) applies to key harvested fish stocks managed by DFO, including commercial, recreational, or subsistence fisheries.

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

In general, the *precautionary approach* in fisheries management is about being cautious when scientific knowledge is uncertain, and not using the absence of adequate scientific information as a reason to postpone or fail to take action to avoid serious harm to fish stocks or their ecosystem. This approach is widely accepted as an essential part of a sustainable fisheries management.

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

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

The Department plans to review the existing assessment framework for the geoduck fishery against the new policy. The current management plan for the geoduck fishery has established limit reference points.

The Geoduck Stock Assessment Framework (Hand et al 2002) describes the concept of Limit Reference Points as established in 1995 when resource managers adopted a 50-year time horizon for this fishery. Subsequent age-structured projection modelling and a shift from using original biomass to current biomass estimates have helped the assessment and management of this fishery progress further into defining “precaution”. It is anticipated that, after the publication of an updated Assessment Framework, we will be able to discuss ways to function in a precautionary manner without bed-based reference points.

Currently, the proxy “Limit Reference Point” is 40%. Beds that have been fished heavily in the past, with a reduction of 60% or more of the estimated original biomass, are closed to harvest until they are surveyed and assessed.

2.1.7. Research

Research studies to investigate aspects of recruitment, growth and the response of geoduck populations to fishing were initiated in the early 1990s in selected sites in the Strait of Georgia and the WCVI (Campbell et al 2004, Zhang and Campbell 2004). Since geoducks are long-lived and the recruitment process slow, these experiments are on-going.

DFO, the UHA, and First Nations have conducted surveys since 1992 to estimate geoduck density. To date, over 80 surveys have been conducted coast-wide. Biological samples are collected during most surveys, and age compositions and growth parameters are obtained from them (Bureau et al 2002, 2003). Some survey results have been published as part of PSARC research documents (available from the PSARC Secretariat in Nanaimo at (250) 756-7208). Published survey reports form part of the Canadian Technical Report of Fisheries and Aquatic Sciences series (Campbell et al 1995a, 1995b, 1998; Babuin et al 2006; Hand et al 1998) and the Canadian Manuscript Report of Fisheries and Aquatic Sciences series (Hand and Dovey 1999, 2000). See the References in Section 11, or the Internet at:

<http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/resdocs/index-eng.htm>

The availability of this substantial accumulation of biological information warranted a new assessment of the geoduck stocks and re-evaluation of harvest rates in BC. Age-structured projection modeling was conducted to investigate the impacts of alternative exploitation intensities on estimates of current, rather than virgin, geoduck populations. Recommendations, presented to the PSARC Invertebrate Subcommittee in November 2005 (Zhang and Hand 2006), were that exploitation rates of 1.2% on the WCVI, 1.6% in the QCI and 1.8% to the rest of the

coast be applied. On the WCVI, 1.8% was used in areas impacted by otters. Considering the high rate of otter predation, the difference between 1.2% and 1.8% in the commercial fishery was judged to be negligible.

2.2. Horse Clam

It is generally believed that Aboriginal and recreational harvesters collecting “geoducks” are likely taking horse clams as these are more available in shallow and intertidal areas.

Due to a lack of stock assessment information, the commercial fishery for horse clams has been limited since 1992 to an incidental fishery open only when the geoduck fishery is open. Studies on the productivity of horse clam stocks and preliminary abundance surveys led to two pilot fisheries for horse clams, one at Comox Bar in the Strait of Georgia and another in Lemmens Inlet on the West Coast of Vancouver Island. These closely monitored fisheries began in 2003, and the Comox Bar fishery continues to date; the Lemmens Inlet fishery was discontinued as the substrate at harvestable depths was not easily fished.

The Comox Bar area was re-surveyed in 2007, after which the fishery may take place with an assigned quota of 20,500 lb. (10,000 kg). Market feedback to date indicates the fishery is not profitable within the current quota and the monitoring and survey requirements that are funded by the UHA. The survey and fishery data will provide some insight into stock response to harvest and the market receptiveness to the product.

The prospect for this fishery is that the fishery is sustainable under the current TAC and management framework. Harvestable beds with sufficient quantities of horse clams to make the survey requirements economic appear to be very limited at this time. Horse clams tend to be widely distributed and are often found in areas of eel grass, and thus are often not available to the commercial fishery.

3. SOCIAL, CULTURAL AND ECONOMIC IMPORTANCE

3.1. Socio-Economic Profile

The Pacific Region has the only commercial geoduck clam fishery within Canada. Harvested geoducks are shipped to processing plants where they are packed and usually delivered live to Asian markets.

The Canadian industry has two main competitors, the Washington and Alaskan geoduck fisheries. Washington is a well-established producer, whereas Alaska only started harvesting and processing geoduck in 2002. In 2007, geoduck clams accounted for an estimated 3% of the overall BC seafood wholesale value, and approximately 25% of the shellfish wholesale value.

There is a limited recreational and First Nations fishery for geoduck; any catch is more likely to be horse clam because they are often found in shallower, more intertidal waters, and are more accessible to those that hand dig for clams.

Much of the profitability of the commercial fishery comes from the managing of the timing of and rate at which product enters the market. The ‘stability’ issue is affected by changing quotas.

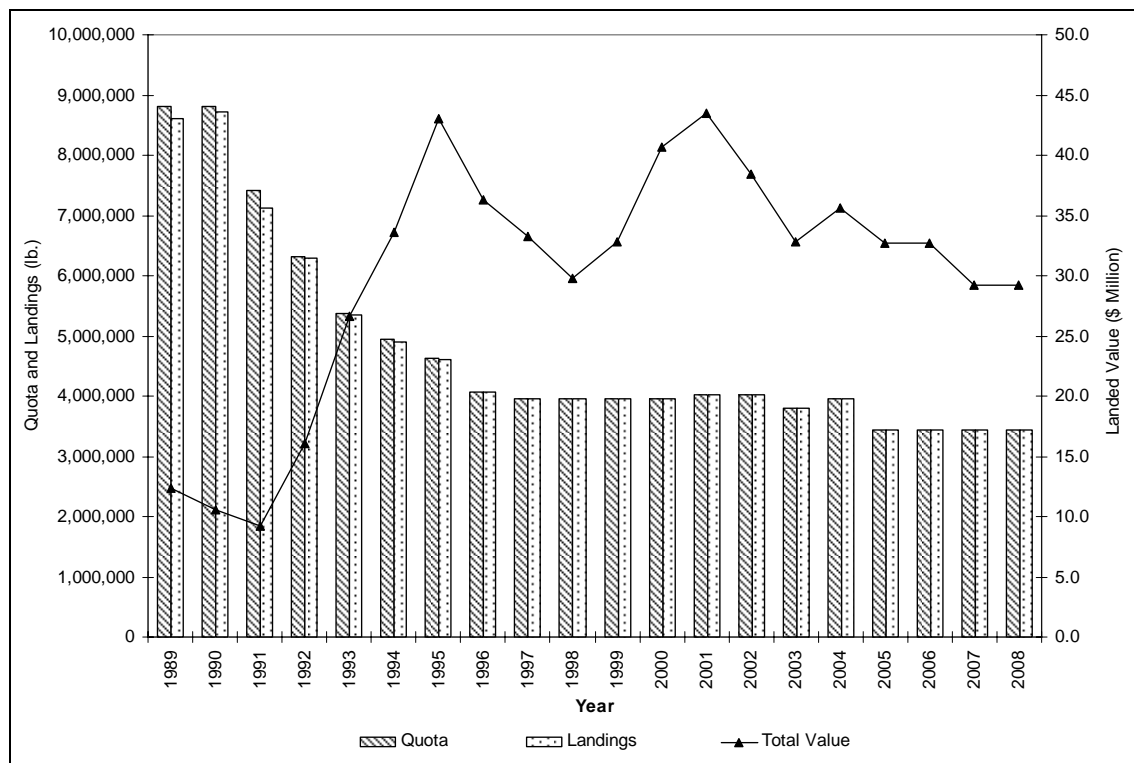
The UHA maintains that fluctuating quotas (which occurs when concerns about stocks or new information about stock sizes change and influence the calculation of biomass) is interpreted by

the market as lack of stability, and will influence price, thus profit. The commercial fishery is managed to maximize long-term profitability and stability, and to allow for an orderly year-round supply of product.

Coast-wide landings of geoducks peaked in 1987 at 12.7 million lb. (5,735 t), but as a result of decreasing quotas, landings decreased and averaged approximately 4 million lb. (1,814 t) between 1996 and 2004. The drop was a result of stock assessments and increasingly conservative management strategies. A subsequent decrease in quota brought landings between 2005 and 2009 to just over 3.4 million lb. (1,542 t). As a result of these reductions in quotas, there has been a shift in area selection since 1994, with more licences assigned to the North Coast area.

The price paid to fish harvesters for geoduck has increased significantly since the inception of the fishery in 1975 when the price paid was 7.5 cents per pound and the product frozen and used locally for bait, clam chowder, and clam fritters. Price increases have been primarily due to premium prices paid for live geoducks in Hong Kong and the Peoples Republic of China. In recent years, the average landed value has been \$8 per pound. The total export value of geoduck from Canada from 2004 to 2008 averaged \$39 million per year.

Quota, catch, and landed value for the years since the inception of the IVQ program are shown in the following graph.



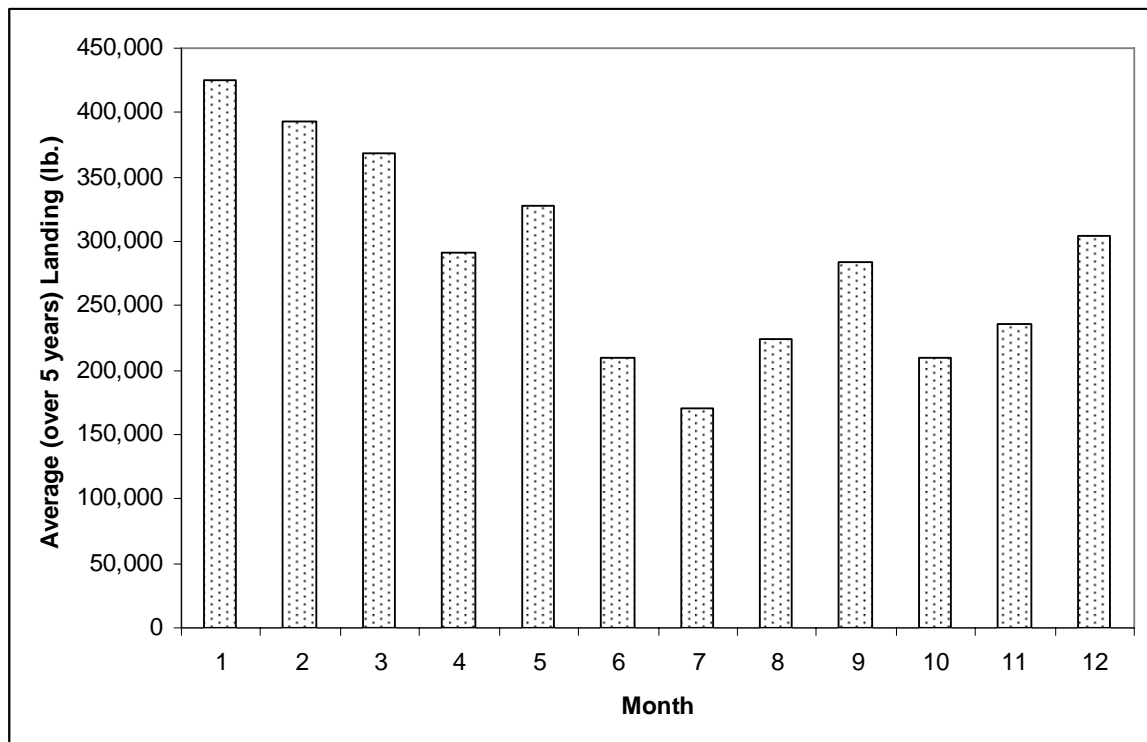
Vessel owners select the geoduck area they wish to fish annually. The distribution of licences for the IVQ program is shown in the table below.

Year	North Coast	Inside Waters	WCVI	Total
1989	22	12	21	55
1990	22	12	21	55

1991	22	12	21	55
1992	23	12	20	55
1993	24	12	19	55
1994	27	10	18	55
1995	30	11	14	55
1996	31	13	11	55
1997	29	9	17	55
1998	31	9	15	55
1999	31	9	15	55
2000	31	9	15	55
2001	33	7	15	55
2002	34	7	14	55
2003	36	7	12	55
2004	36	7	12	55
2005	38	6	11	55
2006	38	6	11	55
2007	40	6	9	55
2008	40	6	9	55

3.2. Viability and Market Trends

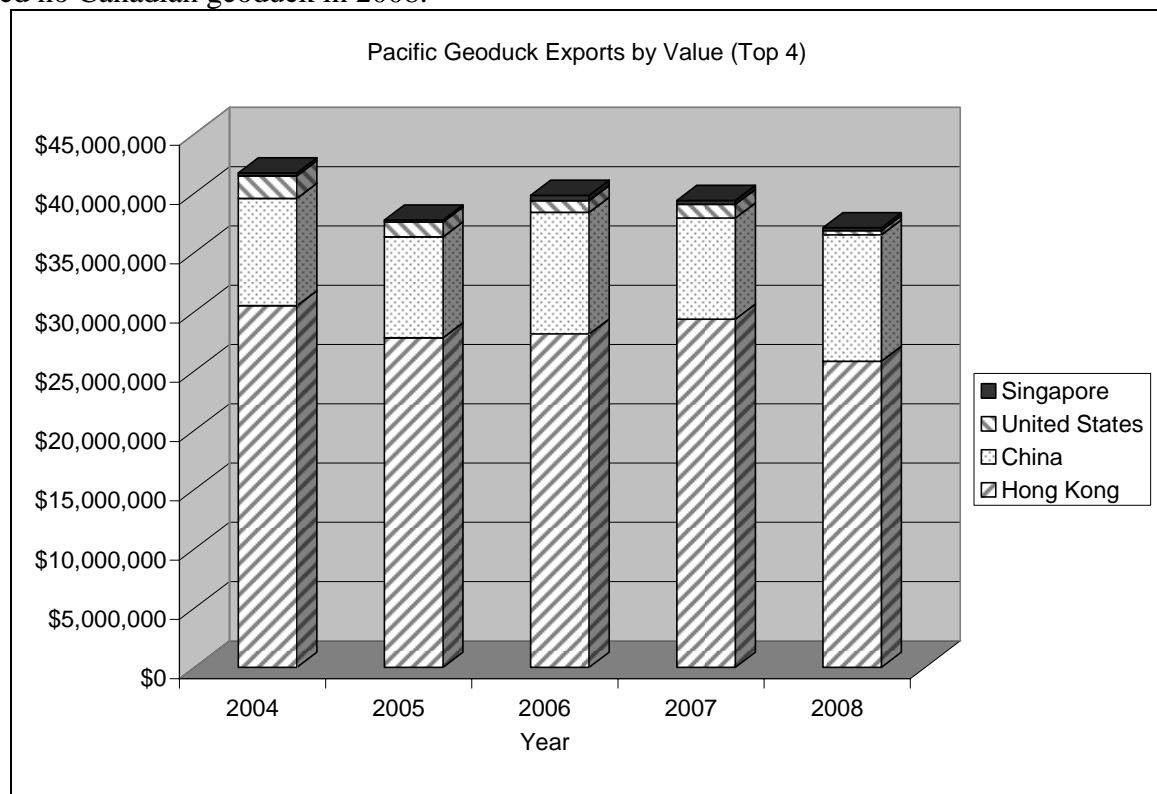
Barring closures due to biotoxins or sanitary contamination, the fishery operates year-round in any given year. Market demand may decrease in summer months. The average catch per month for the last five years is shown below.



3.3. Processing & Exporting

Approximately 98% of Canadian geoduck is exported to 3 locations. Hong Kong was the largest importer of Canadian Geoduck in 2008 with 69.6% of exports, followed by China and the USA.

In 2008, Canadian Geoduck exporters received an average price of \$9.59/lb. – a decrease from 2007 when the average price per pound reached a 4 year high at \$10.72/lb. Japan, which paid on average \$20/lb. for Canadian geoduck in 2004, 2005 & 2006, paid only \$7.46/lb. in 2007 and imported no Canadian geoduck in 2008.



(Source- Statistics Canada)

4. MANAGEMENT ISSUES

The following sections highlight the on-going, or longer-term, management issues that are being addressed in this fishery. Specific management objectives designed to mitigate these issues are detailed in Section 5. There are few immediate, or annual, management issues that need addressing; however, when short-term issues arise, they will be detailed in this section.

4.1. First Nations

The level of First Nations' harvest of geoduck and horse clam for food, social and ceremonial purposes is unknown at this time. Catch monitoring programs are being developed in collaboration with some Aboriginal organizations.

4.2. Recreational

The level of recreational harvest of geoduck and horse clams is unknown at this time, although it is generally accepted to be minimal. Catch monitoring programs for all sport caught fish are being developed in collaboration with recreational fishery organizations, and any information on geoducks and horse clams will be included in the compilation.

4.3. Commercial Geoduck

Managing the Commercial Fishery to an Appropriate Scale: Under the IVQ program, biomass and quota options have always been calculated on a bed-by-bed basis. Actually managing the fishery on a bed basis has occurred in varying ways coastwide, and was fully implemented in all licence areas in 2007. Information has been collected through Bed Questionnaires since 2004 and requires interpretation in order to implement an appropriate future scale of management. When harvesters fish a Geoduck Management Area (which is made up of several to many beds), they often go to the bed which is the most productive, or easiest to fish, or which is most familiar to them. Consequently, fishing effort is not spread across the whole GMA relative to the bed area. This can result in some beds in the GMA being overharvested while others are underharvested and can, in turn, result in a reduction in quota for the whole GMA while there are still productive beds available.

High Grading: Reports of dumping low quality commercially harvested geoducks, or “high grading,” are occasionally received. High grading is a violation under the Fisheries Act. There is, however, pressure from within the commercial industry to land and sell all geoducks regardless of their size and quality. High grading is a conservation concern. Once harvested, geoducks cannot dig themselves back into the substrate. Unreported mortalities from high grading, if great enough, could compromise conservation.

Poaching: As a consequence of the current high prices paid for geoducks, incentives to poach are large, and unfortunately, the ability to enforce difficult. As with high grading, unreported mortalities resulting from illegal harvests are a conservation concern. Further, the product taken by poaching may come from waters not tested for PSP or from areas closed due to high levels of faecal contamination. This could pose a significant risk to public health and safety. It is reported that much of the product taken illegally is sold in domestic markets.

Uncertainty of Fishery Timing Due to Biotoxin Blooms: In some areas and at certain times, PSP blooms that result in fishery closures may make it impossible to harvest geoduck quotas within the time frame set out in the fishing plan.

Effects of Sea Otters on Commercial Geoduck Harvesting: Along the WCVI from Clayoquot Sound northward, and, to some extent, in the Central Coast areas, sea otters have established themselves in sufficient numbers to have a significant impact on geoduck populations and on fish harvesters’ ability to harvest quotas. Sea otters are efficient predators on geoducks and other bottom fauna (such as urchins, crabs, and other clams), and there is concern over the effect otters will have on the geoduck fishery in areas where otters are present. In some areas on the West Coast of Vancouver Island, geoduck fishing has been severely curtailed due to sea otter predation. At the same time, some areas with sea otter predation appear to be experiencing good recruitment of juveniles.

Interaction of the wild geoduck fishery with geoduck enhancement and aquaculture: Geoduck aquaculture has the potential to remove significant areas from the wild fishery, thus reducing commercial TAC. At the same time, planted geoducks can increase the spawning biomass and potentially increase wild production. Concerns about genetic diversity and disease need to be addressed to protect wild geoduck populations.

There is also a concern that illegal harvest of wild geoduck could be reported as coming from aquaculture

Interaction of the Commercial Geoduck Harvest with Eelgrass Beds: Only a little is known of the effects of harvesting geoducks or horse clams adjacent to eelgrass beds. See Section 4.6.

4.4. Depleted Species Concern

The geoduck and horse clam fishery is a selective fishery and there are no concerns potential impacts on depleted species such as sea otters.

4.5. Oceans and Habitat Considerations

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

PNCIMA: As part of Canada's Oceans Strategy, DFO is initiating an integrated management planning process for the Pacific North Coast Integrated Management Area (PNCIMA). The PNCIMA is bounded by the BC-Alaska border, the base of the shelf slope and the mainland, stretching south as far as Campbell River and the Brooks Peninsula. The PNCIMA initiative marks a shift toward a broader ecosystem approach to ocean management. This is consistent with the Government of Canada's overall direction and with Fisheries and Oceans Canada's new Wild Salmon Policy. The PNCIMA initiative will bring the area's stakeholders together to develop an integrated management plan for the region that achieves conservation, sustainable resource use, and economic development goals for oceans and coastal areas. The PNCIMA initiative will also function as an umbrella for various ocean management processes, complementing and linking existing processes and tools, including IFMPs.

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 two MPAs in the Pacific Region. The Endeavour Hydrothermal Vents, designated in 2003, lie in waters 2,250m deep 250 km southeast of Vancouver Island. The Bowie Seamount, designated in 2008, is 180 km west of Queen Charlotte Islands (Haida Gwaii) rising from a depth of over 3,000 m to within 25 m of the sea surface. Work is ongoing to consider MPA designations for other areas along the Pacific Coast, including the Race Rocks area off Rocky Point south of Victoria (currently designated as a Provincial Ecological Reserve) and the Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs.

National Marine Conservation Areas (NMCAs): The Canada *National Marine Conservation Areas Act* provides for the establishment of National Marine Conservation Areas (NMCAs). Parks Canada, DFO and the Council of the Haida Nation are currently working together to establish the Gwaii Haanas NMCA through the exchange of information on marine resources, fisheries and cultural data and coordinated consultations. Following establishment, measures respecting the management of the Gwaii Haanas NMCA will be articulated in future IFMPs.

DFO is also working with other federal and provincial agencies to coordinate efforts towards establishing a national system of Marine Protected Areas to fulfill Canada's commitments to the UN Convention on Biological Diversity.

More information on integrated management planning and Pacific MPAs under Canada's *Oceans Act* can be found at:

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

Coldwater Coral and Sponge Conservation Strategy: DFO is working with other federal and provincial agencies, First Nations, and stakeholders to develop a coldwater coral and sponge conservation strategy for the Pacific Coast. The Strategy outlines the Department's approach to the management of corals and sponges along Canada's Pacific coast. Fishing activities will be evaluated against the Department's national policy for *Managing the Impacts of Fishing on Sensitive Benthic Areas*.

4.6. Gear Impacts

Very little is known about the potential impacts of geoduck harvest on the benthos. These concerns are generally focused on the harvesting process as high-pressure water hoses ("stingers") are used to liquefy the substrate around the clams in order to extract them. This technique is commonly used by aquaculturists and in the wild fishery. Cultured or enhanced geoduck densities are generally much higher than wild stocks and therefore impacts from harvests of cultured or enhanced clams may be amplified.

What little experimentation has been done is linked to relatively small-scale, experimental plots. The only study to examine intertidal harvesting effects on the environment has been the unpublished research by Dr. Chris Pearce, DFO (funded in the last few years by ACRDP and BC MAL). While preliminary analyses of the results show that impacts to the benthos are relatively limited (in terms of duration and scale), this research was relatively small-scale, using a harvest plot size of 3 x 20 m. No published studies to date have examined the potential effects of intertidal or subtidal geoduck harvest on nearby sensitive aquatic vegetation (e.g. eelgrass).

A larger-scale, joint intertidal-subtidal project is underway (headed by Dr. Chris Pearce) with the industry partners Abrupt Shellfish Incorporated and the UHA Research Society. This project is examining potential harvest impacts to both the benthic sedimentary environment and nearby eelgrass populations. Results from this project are expected in 2010.

Information obtained from the study will help inform a review of the fishery against the requirements under the national policy for managing the impacts of fishing on sensitive benthic areas. The ecological risk analysis framework drafted under this policy will be used to determine the level of risk in this fishery and whether mitigation measures are required in any areas.

5. OBJECTIVES

Sections 5.1 to 5.3 and 5.5 outline the "longer term" objectives for this and other invertebrate fisheries in BC. Section 5.4 describes the species-specific and "shorter term" objectives for geoduck and horse clam.

5.1. National

DFO aims to:

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

5.2. Pacific Region

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

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

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

5.3. Invertebrate Resource Management

Management goals and objectives have been defined for invertebrate fisheries in annual management plans produced by the Department since 1990. The management goals and objectives, as written by Invertebrate Fisheries Management and revised in 1997, are:

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

- To provide opportunities for a recreational fishery.

5.4. Geoduck and Horse Clam

5.4.1. Stock Conservation

The biological objective is to harvest the available biomass on a sustainable basis and to manage this on a bed-quota basis. The management objectives to accomplish these biological objectives are to:

- Conduct ongoing surveys and research to improve information on geoduck stocks, bed location, and biological characteristics.
- Reduce uncertainty in geoduck biomass estimates by constantly improving information on the three key elements of biomass estimation: bed area, clam weight, and clam density.
- Harvest at a maximum sustainable annual (geoduck) harvest rate of 1.2 to 1.8% of estimated current biomass.
- Track accurate harvest information for all users. For the commercial fishery this will be accomplished through a Dockside Monitoring Program.
- Close beds that are close to or have exceeded the biological reference point of an aggregate harvest of 60 percent of the estimated original biomass. *Note: This biological reference point may not be meaningful in areas where sea otters are abundant and where sea otter predation has been documented.*
- Manage the commercial fishery to an appropriate scale in order to avoid any risk of localized overfishing.
- Limit horse clam harvest until basic biological parameters allowing calculation of a TAC are known.

5.4.2. Sustainability

Two primary issues are of particular concern when considering the sustainability of the geoduck fishery. The first is the presence of sea otters in areas where the geoduck fishery is carried out; the second is the appropriateness of the management objectives above. The objectives for addressing these issues are to:

- Build an ecosystem-based adaptive management strategy that will allow a geoduck fishery even with the recovery of otters. The UHA funds on-grounds monitors whose tasks now include, among others, collecting data on otters and their effects on geoduck populations, such as otter counts and recording effects of otter predation on geoduck beds.
- Complete an historical and socio-economic review of BC shellfish fisheries and sea otters. The technical report is intended to assist shellfish managers to work with shellfish harvesters to develop innovative solutions to mitigate the economic effects of sea otters (e.g. geoduck enhancement in the Strait of Georgia).
- Periodically re-evaluate harvest data and data collected through surveys and other observations. The Department, in collaboration with the UHA, continues to review population age structure and recruitment, and refines estimates of bed size (through geo-reference studies), clam sizes (through market samples and biological samples), and

densities (through surveys). The estimates of current biomass from surveys and extrapolation to unsurveyed areas require on-going study.

5.4.3. Ecosystem

Harvest and culture activities should occur in a manner that will minimize impacts to eelgrass beds and other sensitive fish habitats. Harvesters should avoid eelgrass beds when anchoring and dragging air hoses. DFO Habitat Management advises that activities are unlikely to negatively impact eelgrass beds if they occur at least 10 meters away. If commercial harvesters have any concerns or questions that a fishing activity may adversely affect fish habitat, they are encouraged to contact the local habitat manager.

5.4.4. Social, Cultural, and Economic Considerations

5.4.4.1. **First Nations:** The Department will continue to provide opportunities for First Nations to harvest fish for food, social and ceremonial purposes, in a manner consistent with the decision of the Supreme Court of Canada in the *Sparrow Decision*, and other court decisions. For more information, see the Internet at:

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

or see Appendix 3.

5.4.4.2. **Recreational:** The Department will continue to provide opportunities for a recreational fishery for geoducks and horse clams. For more information, see Appendix 4.

5.4.4.3. **Commercial:** The Department will continue to work collaboratively with Industry to:

- Maximize the long term profitability and stability of the geoduck and horse clam fishery and industry in BC.
- Manage the fishery to allow for a year round supply of product to the market.
- Establish and monitor conditions of harvest to develop knowledge of the stock.
- Develop policies and programs that will allow for the orderly development of geoduck and horse clam culture activities with no undue detrimental effect on the wild stocks or the wild fishery.
- Ensure safe harvest of shellfish through compliance with the Canadian Shellfish Sanitation Program programs.
- Manage the fishery to increase safety for harvesters.
- Implement protocols to address the impact of PSP on completion of the annual quota.

5.4.4.4. **Aquaculture and Enhancement:** The Department will continue to collaborate with the Provincial Government to develop policies and programs that will allow for the orderly development of geoduck and horse clam culture activities without undue detrimental effect on the wild stocks or wild fishery. *Note: There are no explicit decision rules yet in place. The Government of Canada has committed to support aquaculture, and this includes geoducks and horse clams. The issue of 'undue detrimental effect' is being addressed by the ongoing development of policies to govern geoduck aquaculture development. See Appendix 5.*

5.5. Compliance Objectives – Food Safety

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

- sets standards for the harvest and handling of all bivalves within Canadian tidal waters;
- commits by way of the Agreement to improve sanitary practices within the shellfish industry;
- designates the responsibilities of DFO, EC and CFIA to properly facilitate the mandate of the CSSP to Canadians and foreign governments; and
- strives to increase the efficiency and effectiveness of the CSSP by co-operation, communication, and participation.

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

6. ACCESS AND ALLOCATION

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

6.1. First Nations

To date, no limits have been placed on Aboriginal harvest for food, social and ceremonial purposes.

6.2. Recreational

The daily limit for geoduck is three per day; the daily limit for horse clam is six per day. The possession limits for all clam species are two times the daily limit.

6.3. Commercial

The coast-wide commercial geoduck total allowable catch (TAC) for 2010 is 3,463,800 lb. (1,562.1 tonnes). 6,300 lb. of the TAC is allocated for biological samples; additional small harvests are authorized for biotoxin monitoring and broodstock collection. A commercial TAC of 3,437,500 lb. provides for an Individual Vessel Quota (IVQ) of 62,500 lbs. In addition, there is a limited supplemental harvest opportunity of enhanced geoduck and geoduck harvested from areas tenured for the purpose of aquaculture, both of which are conducted through amended licence conditions.

Commercial horse clam harvests will be permitted only in those areas opened for geoducks. The incidental harvest of horse clams while fishing for geoduck is limited to small area caps, whereas areas with a survey-based TAC may be harvested in addition to the IVQ.

6.4. Aquaculture and Enhancement

The first priority in managing fish stocks is conservation, followed by First Nations obligations. Beyond that, the needs of aquaculturalists will be given equitable consideration to those of other users in the commercial and recreational sectors.

DFO will aim to facilitate access for relatively low numbers of wild juvenile or adult fish for limited time periods (e.g., for broodstock development), where populations would face insignificant to low risk from the additional harvest pressure (DFO 2004).

Wild geoduck on an aquaculture tenure may only be harvested as a bycatch to the planted crop (see DFO 2004).

7. MANAGEMENT MEASURES FOR THE DURATION OF THE PLAN

See the Harvest Plans, Appendix 3 to 6 for detail on the following:

- Total Allowable Catch (TAC);
- Fishing Seasons/Areas;
- Control and Monitoring of Removals;
- Decision Rules;
- Licensing;
- Habitat Protection Measures.

8. SHARED STEWARDSHIP ARRANGEMENTS

8.1. Commercial

The UHA and DFO have signed a five year 2008-2012 Joint Project Agreement (JPA) which details the working relationship between the Department and the UHA. This JPA requires an annual work plan of activities related to the commercial geoduck fishery that are to be accomplished by both parties and the annual financial contributions of each party to the geoduck science, management and enforcement programs. In 2009, the total Department costs of managing the geoduck fishery was estimated to be \$762,123, with a portion contributed directly by the UHA to cover some Fisheries Management and Stock Assessment salaries, fishery related costs, and directed geoduck enforcement activities.

Other UHA funded projects identified in the JPA include undertaking surveys for stock assessment purposes, on-grounds monitors in the north coast and on the WCVI, and a coastwide dockside monitoring program. The on-grounds monitors are present with the fleet on every day of fishing to ensure compliance with regulations, collect fishing data, and serve as a contact point with the fleet. The total cost to the UHA of these programs in 2009 was estimated at \$848,848.

The aggregate funded value of these programs directly related to the management and operations of the fishery was over \$1.1 million in 2009.

The UHA contributes to a coast-wide PSP/biotoxin sampling program administered by CFIA. The value of this program was approximately \$294,000 in 2009.

The UHA also funds and conducts enhancement activities (seeding juvenile geoducks).

The UHA's cost for programs directly related to the management and operations of the geoduck fishery was reported to be over \$1.2 million in 2009.

8.2. Fisheries and Oceans Canada

Several Stock Assessment and three Fisheries Management personnel are directly involved in this fishery for some part of their activities. Contributions to the IFMP are provided by Fisheries Management in the areas and at regional headquarters, the Science Branch, the Shellfish Data Unit, C&P, the Pacific Fishery Licence Unit, the Treaty and Aboriginal Policy Directorate, and numerous administrative personnel. Generally, all personnel are multi-tasked, i.e. Resource Managers may work on all dive fisheries.

9. COMPLIANCE PLAN

9.1. Overview

The enforcement policy and activities of the Department are the responsibility of the Conservation and Protection program (C&P). Fishery officers and marine enforcement officers working throughout Pacific Region carry out enforcement activities for the C&P program. First Nations fishery guardians assist DFO Fishery Officers in a number of locations where joint enforcement protocols are in place. Observers designated by the Department, complement enforcement staff by performing a monitoring, verification and sampling function. In addition, charter patrolmen (On-Grounds Monitors) are contracted by the Association and service provider to carry out observe, record and report activities.

Enforcement of the geoduck and horse clam fisheries will remain a low priority to Fisheries and Oceans Canada, except where human health and safety issues are identified. This includes harvest from all areas that are closed for paralytic shellfish poison, sewage contamination and other health related closures. C&P staff will pursue opportunities to monitor and enforce issues and problems related to these fisheries in conjunction with the monitoring and enforcement activities dedicated to the identified priority fisheries in the Pacific Region. This industry is mostly self-enforcing and, because of the present management principles, conservation is not at issue. For this reason, except as stated above, C&P will not be dedicating patrols to this fishery.

9.2. Main Program Activities

9.2.1. In-season

Boardings are conducted by at-sea fishery officers operating program vessels, marine enforcement officers operating Canadian Coast Guard (CCG) vessels, and charter patrolmen on a variety of contracted vessels.

Commercial fishing vessels are boarded and checks are conducted for licensing of the vessel and participants, approved cages and tagging of harvested product and harvest log completion.

Where concerns have been identified, fishery officer dive teams investigate harvest depth, and possible high grading or damage to habitat by harvesters.

Packer vessels are checked for licensing compliance and to ensure adherence to the Conditions of Licence (requirements for cages, tags, and harvest log data).

9.2.2. Dockside Monitoring

Commercial vessels and packer vessels are checked at dockside to ensure compliance with Conditions of Licence and verification of all catch.

9.2.3. Vehicle Inspections

Transport trucks are inspected during fishing seasons in concert with other enforcement agencies; they can be inspected at plants, loading and offload sites, and at other control points.

9.3. Fishery Patrol Vessels

All at-sea patrols will be conducted using CCG patrol vessels staffed with marine enforcement officers and/or fishery officers, and program vessels (primarily seven metre rigid hull inflatable boats), with fishery officers on board.

9.4. Air Surveillance

Air surveillance resources will be utilized to patrol closed areas and gear counts of vessels sighted fishing geoducks. The aircraft takes many photos of vessels fishing during these patrols. Special attention is paid to PSP and contaminated closures which can occur at any time of the year.

9.5. Enforcement Issues and Strategies

ISSUE	SECTION	STRATEGY
Licensing Verification: Vessel licensed. No fishers' registration card (FRC). Fail to produce FRC.	Pacific Fishery Regulations (PFR) Section (S) 22, PFR S 25, Pacific Fishery (General) Regulations (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 regulations.
Harvest from contaminated area.	<i>Management of Contaminated Shellfish Regulations</i> (MCSR) S 3	Opportunistic patrols. May use charter aircraft in co-ordination with scheduled priority fisheries patrols. Patrols are increased for all bivalve fisheries when areas close due to PSP. Due to hail-in requirements, commercial fish harvesters can be notified of closures.
Fish during closed time/area.	PFR S 63	Patrols utilizing program vessels will be made when opportunities exist. May use charter aircraft in co-ordination with other scheduled priority fisheries patrols.

ISSUE	SECTION	STRATEGY
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) (Fail to comply with terms and Conditions of Licence.)	At-sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after notification by Fisheries Management that a violation may have occurred. Charter aircraft may be used in co-ordination with scheduled priority fisheries patrols to track vessels.
Fail to use proper cage. Fail to tag cage. Fail to use proper tag.	F(G)R S 22(7)	At-sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after notification by Fisheries Management that a violation may have occurred.
Fail to maintain Harvest Log Book.	F(G)R S 22(7)	At-sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after notification by Fisheries Management that a violation may have occurred.
Fail to weigh before transhipping to packer.	F(G)R S 22(7)	At-sea and dockside inspections will occur when opportunities exist. Investigations will occur on an opportunistic basis after notification by Fisheries Management that a violation may have occurred.
Packer fails to hail.	F(G)R S 22(7)	Dockside inspections will occur when opportunities exist.
Pack without Conditions of Licence attached.	F(G)R S 22(7)	Dockside inspections will occur when opportunities exist.
Fail to have clams weighed and validated at landing.	F(G)R S 22(7)	Dockside inspections will occur when opportunities exist.
Smash shells or slit membrane. Dump or throw overboard.	F(G)R S 22(7)	Surveillance during offloads. Reports from observers.
Fail to provide assistance to observers. Fail to permit observers to carry out duties.	F(G)R S 46,47,48,49	Fishery officers will attend when observers are having difficulties. Where difficulties cannot be resolved, enforcement action may be taken.

ISSUE	SECTION	STRATEGY
High grading of product underwater and on board.	F(G)R S 22(7)	Peer pressure within the commercial sector is a deterrent. Fishery officers will continue to respond to reports of this activity through normal enforcement checks, surveillance and dives of harvest sites.
Damaging eelgrass beds.	F(G)R S 22(7) FA S 35(1)	Dives will be conducted by fishery officers or Oceans, Habitat and Enhancement Branch (OHEB) staff, normally as a result of a complaint from those who have observed harvesting in a known eelgrass bed.
Fail to advise observer of transfer of quota.	F(G)R S 22(7)	Fishery officers will respond if Fisheries Management and the contractor cannot resolve the issue.
Obstruct or assault fishery officer or fishery guardian.	FA S 62	Enforcement action will be taken for this offence. Fishery officers in all communities work closely with police agencies e.g. RCMP and Municipal Police and Conservation Officer Service; backup can usually be quickly acquired. All fishery officers have radio frequencies for all agencies.

10. PERFORMANCE REVIEW

10.1. Management Plan Evaluation Criteria

10.1.1. Pacific Region Objectives

- Were adequate steps taken to insure that geoduck and horse clam stocks are not biologically threatened?
- Were there enough spawners to provide replacement progeny?
- Were stocks managed so as to have no collateral ecological effects?

10.1.2. Invertebrate Resource Management Objectives

- Were goals for conservation and protection of geoduck stocks and their habitat met?
- Did the Department meet the food, social and ceremonial needs of First Nations with respect to geoducks and horse clams?
- Were co-management goals achieved?
- Were goals around health and safety achieved?
- What opportunities for aquaculture development were provided?
- What opportunities for a recreational fishery were provided?

10.1.3. Geoduck and Horse Clam Objectives

- Were there advances in the understanding of oceans and aquatic resources relative to geoducks and horse clams? How many research and survey activities were conducted?
- Was harvest limited to 1.8% of the current biomass?

- Did the commercial Dockside Monitoring Program function appropriately, and what advances in catch monitoring for other sectors were made?
- How many beds have been closed upon reaching the limit reference point?
- Were area boundaries and fishing times adjusted so as to spread effort appropriately across all harvestable beds?
- Were improvements in understanding of horse clam populations made?

10.1.4. Current Geoduck Management Issues

- Have any advances been made in determining appropriate scale of management?
- Were any actions taken to control high grading?
- Were any actions taken to control poaching?
- Were any changes to scheduling required to mitigate biotoxin blooms?
- Have any management measures been implemented to address the effects of sea otters on geoduck populations?
- Are any further measures required to ensure that fishing activity does not adversely affect fish habitat, in particular eelgrass?

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12. GLOSSARY

Aboriginal Traditional Knowledge (ATK)	Knowledge that is held by and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual, and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines.
abundance	Number of individuals in a stock or a population.
age composition	Proportion of individuals of different ages in a stock or in the catches.
aquaculture	As defined by the United Nations Food and Agriculture Organization (FAO), aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans, and aquatic plants. Aquaculture implies some form of intervention in the rearing process to increase production, such as regular stocking, feeding, protection from predators, etc. It also implies individual or corporate ownership of the cultivated stock.
Area and Subarea	Defined in Section 2 of the Pacific Fishery Management Area Regulations. A map of Pacific Fishery Management Areas is available on the Department's Internet site at: www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm
biomass	Total weight of all individuals in a stock or a population.
bycatch	The unintentional catch of one species when the target is another.
catch validation program	A program designed to monitor, record, and verify catches.
chart datum	The zero tide elevation on a hydrographic chart which usually approximates the lowest tide level for the local area.
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	Committee of experts that assess and designate which wild species are in some danger of disappearing from Canada.
communal commercial licence	Licence issued to First Nations organizations pursuant to the Aboriginal Communal Fishing Licences Regulations for participation in the general commercial fishery.
communal licence	A licence issued to First Nations organizations under Section 4 of the Aboriginal Communal Fishing Licences Regulations, pursuant to the Fisheries Act, to carry on fishing and related activities.
CSSP	Canadian Shellfish Sanitation Program ensures that bivalve shellfish are harvested from waters meeting acceptable sanitary and biotoxin

	criteria.
dockside monitoring program (DMP)	A monitoring program that is conducted by a company that has been designated by the Department, which verifies the species composition and landed weight of all fish landed from a commercial fishing vessel.
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.
fishing effort	Quantity of effort using a given fishing gear over a given period of time.
Food, Social, and Ceremonial (FSC)	A fishery conducted by Aboriginal groups for food, social and ceremonial purposes.
GMA	Geoduck Management Area. Subdivisions of the coast of BC appropriate to the purpose of managing portions of the coast-wide quota.
harvest quotas	A fixed amount of catch provided as an opportunity for harvest to a licensed fisher or vessel.
high grading	Sorting through the catch and discarding less desirable animals (small, dark, other characteristics) underwater at the time of harvest, or on board the vessel.
intertidal	The area of the ocean shoreline located between the highest high water and lowest low water tidal levels.
invertebrate	An animal without a backbone.
IVQ	Individual Vessel Quota: a portion of the total allowable catch (TAC) allocated annually to an individual vessel licence. In the geoduck fishery, each IVQ is equivalent to 1/55 of the commercial TAC.
landed value	Value of the product when landed by the licensed vessel.
landing	Quantity of a species caught and landed. Harvested animals transferred from a vessel to land.
natural mortality	Mortality due to natural causes, symbolized by the mathematical symbol M.
observer	An individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries and Oceans Canada pursuant to section 39 of the Fishery (General) Regulations and in the employ of a service provider company that has been certified by the Canadian General Standards Board (CGSB) for Dockside Monitoring.
observer coverage	When a licence holder is required to carry an officially recognized observer onboard their vessel for a specific period of time to verify the amount of fish caught, the area in which it was caught and the method by which it was caught.
OGM, on-grounds monitor	“On-Grounds Monitor” means a third party individual, who may or may not be designated as an “Observer”, whose role is to co-ordinate sampling for the Marine Biotxin Monitoring Program, communicate with dockside observers, write Incident Reports, advise operators of

	open and close times and fishing locations, monitor effort, co-ordinate fishing activity to avoid excessive harvesting in specific geoduck and horse clam beds, observe product transfers to packer vessels, check dive harvest information, and record other observations about the prosecution of the geoduck and horse clam fishery, and about sea otter impacts.
Population	Group of individuals of the same species, forming a breeding unit, and sharing a habitat.
precautionary approach	Set of agreed cost-effective measures and actions, including future courses of action, which ensures prudent foresight, reduces, or avoids risk to the resource, the environment, and the people, to the extent possible, taking explicitly into account existing uncertainties and the potential consequences of being wrong.
PSARC	Pacific Scientific Advice Review Committee, chaired by DFO and including other federal and provincial government agency representatives and external participants.
PSP	Paralytic Shellfish Poisoning. A marine biotoxin sometimes found in bivalves. Also commonly referred to as “red tide”.
quota	Portion of the total allowable catch that a unit such as vessel class, country, etc. is permitted to take from a stock in a given period of time.
recruitment	Amount of individuals becoming part of the exploitable stock e.g. that can be caught in a fishery. The process whereby young animals are added to a fishable stock or population.
sampling program	A program in which representative samples of animals are collected for the calculation of parameter estimates that describe such things as weight, length or age within the general population.
shell ageing	The process of examining growth marks on a bivalve shell to determine the animal’s age.
spawner	Sexually mature individual.
Species at Risk Act (SARA)	The Act is a federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides the legal protection of wildlife species and the conservation of their biological diversity.
stakeholders	Individuals or groups with an interest in a particular fishery or activity.
stock	Describes a population of individuals of one species found in a particular area, and is used as a unit for fisheries management. Ex: NAFO area 4R herring.
stock assessments	Scientific evaluation of the status of a species belonging to a same stock within a particular area in a given time period. Results of analyses of fisheries and research data used to evaluate the effects of fishing on a stock or population and to predict the reactions of populations to alternative management choices.
substrate	The ground (often the ocean bottom) and its composition, in or on which animals live.

subtidal	A portion of the bottom of the ocean that is not exposed at low tide stages. The ocean bottom at elevations below low water or chart datum.
tonne	Metric tonne, which is 1000kg or 2204.6 lb.
total allowable catch (TAC)	Total allowable catch: the amount of catch that may be taken from a stock, determined by analytical procedures, to achieve management objectives.
total validated landings	The sum of all landed geoducks which have been validated by the Validation Program.
Traditional Ecological Knowledge (TEK)	A cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.
validation	The verification, by an observer, of the weight of fish landed.

APPENDIX 1: POST-SEASON REVIEW

Overall, the 2009 fishing season was successful. All 55 licences were active in the fishery and were designated to 40 vessels. At this time, it appears that the season quota will be taken by the end of the season.

The complete 2009 performance review will be available in the document entitled Invertebrate Post-season Review - Geoduck 2009. Contact the resource manager (see Contacts, Appendix 15).

Annual (Post-Season) Review Summary of the 2009 Season

- No specific action was taken to control high grading.
- No specific action was taken to control poaching.
- Progress has been made with the Province of BC and interested parties, such as shellfish growers, First Nations, and wild harvesters, to explore sustainable ways to expand geoduck aquaculture activities.
- Although modifications to the fishing plan to deal with PSP blooms were made on several occasions, these blooms, and the effects on the timing of the fishery, remain one of the challenging in-season issues in this fishery.
- The on-grounds monitors for the West Coast Vancouver Island (WCVI) and the Central Coast made some observations about sea otter effects in the areas.

A pilot directed fishery on horse clams started in 2003, and continues to date.

APPENDIX 2: STOCK ASSESSMENT RESULTS

Geoduck resources in the Pacific Region are assessed and managed on a bed-by-bed basis. There are over 4,500 geoduck beds defined in the current system. Populations can be summarily defined on a broader scale, using Pacific Region Management Areas (“Area” in the table below) and commercial geoduck licences areas. For definition of these areas, see the Internet at:

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

Licence Area	Management Region	Area	General Vicinity	Bed Area (ha)	Density (min geoducks/m)	Density (max geoducks/m)	Density (avg geoducks/m)	Biomass (lb)
N	QCI	1	Queen Charlotte Islands	183.1	0.26	0.99	0.85	2,902,384
N	QCI	2		2,337.3	0.00	4.33	1.23	72,596,598
N	QCI	102		9.6	0.99	0.99	0.99	206,733
	QCI Total			2,529.9				75,705,715
N	PR	3	Prince Rupert	219.8	0.91	3.25	1.97	9,393,480
N	PR	4		575.7	1.49	5.77	2.31	38,018,344
N	PR	5		824.2	0.51	5.36	2.06	51,900,198
N	PR	6		809.7	0.26	6.89	1.84	39,471,189
N	PR	106		101.3	1.02	9.93	2.81	10,327,056
	PR Total			2,530.7				149,110,268
N	CC	6	Bella Bella	556.6	0.51	8.77	1.91	23,651,384
N	CC	7		1,242.5	0.44	9.59	1.86	54,075,885
N	CC	8		164.9	0.25	3.40	1.83	6,934,447
N	CC	9		90.5	1.60	1.61	1.60	3,490,690
N	CC	10		109.8	1.60	1.61	1.60	3,645,200
	CC Total			2,164.3				91,797,606
G	IW	12	Port Hardy	820.9	0.16	2.69	1.23	24,898,192
G	IW	13		792.7	0.22	0.40	0.23	4,782,553
G	IW	14	Comox	4,150.8	0.08	0.58	0.23	20,958,545
G	IW	15	Sechelt	1,227.0	0.04	0.33	0.21	4,533,044
G	IW	16		739.1	0.15	0.61	0.23	4,476,212
G	IW	29		168.8	0.23	0.79	0.29	1,065,195
G	IW	17	Nanaimo	704.7	0.22	0.54	0.23	3,940,953
G	IW	18		211.9	0.23	1.11	0.27	2,219,591
G	IW	19	Victoria	578.3	0.22	0.23	0.22	3,630,790
	IW Total			9,394.3				70,505,075
W	WCVI	20	Sooke	299.4	0.37	0.37	0.37	1,893,864
W	WCVI	23	Barkley Sound	590.9	0.22	2.00	0.46	7,880,808
W	WCVI	24	Tofino	2,181.3	0.32	2.48	0.86	49,700,135
W	WCVI	124		14.1	0.82	0.82	0.82	330,544
W	WCVI	25	Nootka/Esperanza	1,037.0	0.18	1.63	0.40	9,204,888
W	WCVI	26	Checleset	614.6	0.23	0.79	0.37	5,746,779
W	WCVI	27	Quatsino	712.3	0.04	2.03	0.43	6,271,630
	WCVI Total			5,449.6				81,028,648
	Grand Total			22,068.8				468,147,312

APPENDIX 3: GEODUCK AND HORSE CLAM FIRST NATIONS HARVEST PLAN

1. OPEN TIMES AND AREAS

Aboriginal harvest for food, social and ceremonial purposes is open year round if authorized by a communal licence and not closed for sanitary or biotoxin (e.g., paralytic shellfish poisoning (PSP) or red tide) contamination.

2. CLOSURES

2.1. Two Types of Contamination Closures

The consumption of clams from areas closed due to contamination concerns can be life threatening.

With the exception of Subarea 1-5 (McIntyre Bay), the entire British Columbia coast north of Cape Caution (Areas 1 to 11 inclusive) is closed for the harvest of bivalves. Area-specific and fishery-specific testing may be conducted in collaboration with Environment Canada (sanitary) and the Canadian Food Inspection Agency (PSP).

For Subarea 1-5 and all areas south of Cape Caution, harvesters are strongly advised to check for sanitary and biotoxin contamination closures prior to harvesting any bivalves (clams, mussels, oysters, scallops, cockles) by:

- calling our toll-free line 1-866-431-3474
- checking the following website:
www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
- calling a local DFO office (see Contacts section of IFMP or check blue pages of the phone book).

Remember to check for both types of contamination closures that may affect bivalves: sanitary closures and Paralytic Shellfish Poisoning (PSP or red tide) closures.

2.1.1. Sanitary (Contamination) Closures

Sanitary closures are in place in areas that have been tested and found to contain unacceptable levels of contaminants. Please visit the DFO website above to view maps and descriptions of these closures, prior to harvesting any shellfish:

Harvesters are advised that permanent bivalve harvesting closures (no harvesting for any purpose) are in place all waters within:

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility;
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

2.1.2. Paralytic Shellfish Poisoning Closures

Closures due to Paralytic Shellfish Poisoning (PSP) are frequent and often encompass large areas. These closures can occur on very short notice with the closure taking effect immediately.

Consumption of shellfish that contain the toxin causing PSP can cause paralysis or death.

Check to ensure that the area where you intend to harvest is open immediately prior to harvesting using the contact information above.

2.2. Shellfish Tenure Closures

Clam harvesting is prohibited on all clam and oyster tenures except with explicit permission of the tenure holder. All clam and oyster tenures must be marked with standard red-dyed concrete markers.

3. CONTROL AND MONITORING OF ABORIGINAL FISHING ACTIVITIES

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

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

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

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

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

APPENDIX 4: GEODUCK AND HORSE CLAM RECREATIONAL HARVEST PLAN

1. INTRODUCTION

Recreational fisheries in Canada are guided by the following five principles which are outlined in “An Operational Policy Framework” (Fisheries and Oceans Canada, 2001).

1. Recreational fishing is a socially and economically valuable and legitimate use of fishery resources.
2. Fisheries and Oceans Canada is responsible for providing sustainable recreational harvesting opportunities as part of integrated management plans consistent with its policies.
3. Recreational harvesters have responsibility for shared stewardship for resource conservation and enhancement.
4. Mechanisms for federal/provincial cooperation in areas of shared jurisdiction will be established and strengthened.
5. Fisheries and Oceans Canada has a leadership role to coordinate policies/programs with the federal government that relate to recreational fishing.

Canada’s Policy for Recreational Fisheries is available online at:

www.dfo-mpo.gc.ca/communic/fish_man/opera/OPF-PC_E.htm

2. LICENSING

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

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

3. OPEN TIMES AND AREAS

Recreational harvest of geoduck and horse clam can occur in those areas and at those times where there are no closures (see Section 4).

4. CLOSURES

4.1. Two Types of Contamination Closures

The consumption of clams from areas closed due to contamination concerns can be life threatening.

With the exception of Subarea 1-5 (McIntyre Bay), the entire British Columbia coast north of Cape Caution (Areas 1 to 11 inclusive) is closed for the harvest of bivalves. Area-specific and fishery-specific testing may be conducted in collaboration with Environment Canada (sanitary) and the Canadian Food Inspection Agency (PSP).

For Subarea 1-5 and all areas south of Cape Caution, harvesters are strongly advised to check for sanitary and biotoxin contamination closures prior to harvesting any bivalves (clams, mussels, oysters, scallops, cockles) by:

- calling our toll-free line 1-866-431-3474
- checking the following website:
www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
- calling a local DFO office (see Contacts section of IFMP or check blue pages of the phone book).

Remember that there are two types of contamination closures that may affect bivalves: sanitary closures and Paralytic Shellfish Poisoning (PSP or red tide) closures.

4.1.1. Sanitary (Contamination) Closures

Sanitary closures are in place in areas that have been tested and found to contain unacceptable levels of contaminants. Please visit the DFO website above to view maps and descriptions of these closures, prior to harvesting any shellfish:

Harvesters are advised that permanent bivalve harvesting closures (no harvesting for any purpose) are in place all waters within:

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility;
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

4.1.2. Paralytic Shellfish Poisoning Closures

Closures due to Paralytic Shellfish Poisoning (PSP) are frequent and often encompass large areas. These closures can occur on very short notice with the closure taking effect immediately.

Consumption of shellfish that contain the toxin causing PSP can cause paralysis or death.

Check to ensure that the area where you intend to harvest is open immediately prior to harvesting using the contact information above.

4.2. Shellfish Tenure Closures

Clam harvesting is prohibited on all clam and oyster tenures except with explicit permission of the tenure holder. All clam and oyster tenures must be marked with standard red-dyed concrete markers.

5. CONTROL AND MONITORING OF RECREATIONAL FISHING ACTIVITIES

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

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

5.1. Gear

Geoduck and horse clam may be harvested by handpicking. Commercial gear (“stingers”) cannot be used for recreational harvest.

5.2. Daily Limits

Geoduck: The daily limit for geoduck is three per day.

Horse Clam: The daily limit for horse clam is six per day.

5.3. Possession Limits

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

APPENDIX 5: GEODUCK AND HORSE CLAM AQUACULTURE HARVEST PLAN

1. INTRODUCTION

There has been considerable interest in geoduck aquaculture in British Columbia since the early 1990s. Since that time, industry stakeholders and the Provincial Government have invested millions of dollars in developing and refining geoduck hatchery, nursery and culture methods in British Columbia.

Opportunities to enter into this industry will be provided in a phased approach. Three interim policy documents have been developed. The policy documents outline the conditions within which geoduck aquaculture will occur on both existing shellfish farms and how new applications will be accepted and assessed.

See the Ministry of Agriculture and Lands (MAL) Internet site at:

<http://www.al.gov.bc.ca/fisheries/shellfish/geoduck/main.htm>

2. LICENSING

2.1. Broodstock Collection

The collection of broodstock for enhancement and aquaculture purposes is facilitated through a collection licence from DFO Fisheries Management and a Transplant Permit from the Introductions and Transfers Committee. National policy permits up to 1% of the total allowable catch, in addition to the commercial TAC, to be allocated for aquaculture purposes such as brood stock collection. It is anticipated that up to 1,800 lb. of geoduck may be collected as broodstock.

Contact the Aquaculture Management Division at (604) 666-6831 or a resource manager listed in Appendix 15.

2.2. Pre-Seed Harvest

There may be supplemental harvest opportunities under the *DFO Policy for Access to Wild Aquatic Resources as it Applies to Aquaculture (2004)*. The purpose of the pre-seeding harvest is to “*facilitate access to a new lease and reduce conflict in communities when there is significant stock of high value on a lease area, and where a number of commercial fish harvesters may be displaced, as a condition to recommending its approval of a lease site, DFO or the province may require that a specified species be harvested from the lease prior to its occupation*”. Any authorized pre-seed supplemental harvest is expected to be in addition to the TAC and IVQ allocated for the current season; when the pre-seed harvest policy is completed and approved, licence holders will be able to apply for supplemental conditions of licence that will permit this activity. This supplemental harvest opportunity will be available for all G-licensed vessels; a selection process, and harvest amount and schedule will be developed in consultation with the UHA.

For further information, please contact a PFLU or a resource manager (see Contacts, Appendix 15).

3. CLOSURES

There are two types of contamination closures that may affect bivalve harvest: Paralytic Shellfish Poisoning or “red tide” closures and sanitary closures. Unless harvest for aquaculture purposes is authorized by a license issued under the *Management of Contaminated Fisheries Regulations*, both closures apply to any collection of broodstock. See the Internet for more information:

www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm

3.1. Shellfish Tenure Closures

Harvesting is prohibited on all clam and oyster tenures except with explicit permission of the tenure holder. All clam and oyster tenures must be marked with standard red-dyed concrete markers.

4. CONTROL AND MONITORING OF AQUACULTURE FISHING ACTIVITIES

A “Management Plan” or “Development Plan” is filed with and approved by the Licensing, Compliance and Enforcement Branch of MAL for the species and location. See the Internet at:

<http://www.al.gov.bc.ca/fisheries/licences/licences-shellfish.htm>

APPENDIX 6: GEODUCK AND HORSE CLAM COMMERCIAL HARVEST PLAN

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1. MANAGEMENT HIGHLIGHTS AND CHANGES FOR 2010

- **Total Allowable Catch:** The coast-wide geoduck total allowable catch (TAC) is 3,463,800 lb. (1,562.1 tonnes). 6,300 lb. of the TAC is allocated for biological samples; additional small harvests are authorized for biotoxin monitoring and broodstock collection. 3,437,500 lb. provides for an Individual Vessel Quota (IVQ) of 62,500 lbs. In addition, there will be a limited supplemental harvest opportunity of enhanced geoduck and geoduck on tenures tenured for geoduck aquaculture conducted through amended licence conditions. See Sections 4.3 and 4.4.
- **Area Licensing:** For 2010 only, a licence will have half the quota from the WCVI and half from the Inside Waters. Otherwise the licence distribution remains the same as 2009. The licence split by area is: 6½ licences in Inside Waters, 8½ licences on the West Coast of Vancouver Island, and 40 licences in the North Coast.
- **Bed-by-Bed Management:** All areas will continue to be operated using bed-by-bed (and subbed) quotas. On-Ground Monitors (OGM) will be present on the North Coast and West Coast of Vancouver Island and will, with the full support of the Department, request that fish harvesters move when bed or subbed quotas are achieved. Non-compliance with the OGMs' request will result in a fishery closure pending resolution of the problem. Bed quotas for the Inside Waters are monitored by the service provider and Dockside Observers; an OGM is not required for fishing in the Inside Waters. The "fallback" quota protocol implemented in 2008 remains in effect. See Section 4.8.4.
- **Harvest Locations:** Some areas of fishing and Geoduck Management Area (GMA) boundaries, names or rotations have changed; see Section 4, Tables 1, 2 and 3 in this appendix. See Appendix 9 for GMA descriptions. Also see Appendix 11, 12 and 13 for maps of GMAs. GMAs that have changed since the last rotation are flagged with an asterisk (*).
- **Horse Clams:** A limited directed fishery for horse clams will be allowed annually on Comox Bar (GMA 14B03) for 20,500 pounds. Divers are requested to provide comment on other horse clam populations on Harvest Logs. Reporting by species is requested. See Section 5.
- **Harvest Logs and Bed Questionnaires:** The Department is requesting the continued submission of bed-by-bed information on geoducks to improve the data used in the population assessment and modelling process. To simplify the process, a new Validation & Harvest Logbook was created in 2008 to include the key questions from the Bed Questionnaire used in prior years. Vessel Masters and divers can now complete the Harvest Log dive information and Bed Questionnaire information all on one page. See Section 4.8.6 and Appendix 7.
- **Geo-referencing Harvest Areas:** Reporting (in Section C of the Validation and Harvest Log) of latitude and longitude of dive locations continues to be a mandatory requirement. Submission of harvest charts will not be required for licence areas with a full-time OGM (North Coast and WCVI). Harvest charts will still be required for the Inside Waters. See Section 6.3.

- **Licence Stacking:** The licence stacking limitation is five active licences per vessel. This standardizes stacking options in the commercial dive fisheries. See Section 2.5.
- **Quota Transfer to Avoid Small Overages:** Small quantities of geoduck that exceed the licence's annual quota, to a maximum of 500 pounds can be transferred to another geoduck licence provided certain conditions are fulfilled. See Section 6.2.6.
- **Season Extensions:** Ongoing high PSP levels and/or poor weather has made it difficult in some seasons for vessels to complete their IVQ by December 31. At the request of the Underwater Harvesters Association (UHA), the Department may allow an extension for 15 days into the next season under some basic conditions. See Section 4.7.
- **Vessel Replacement:** New vessel replacement rules were implemented in 2009. See Section 2.7 for details of the new flexibility in vessel length. Owners of vessels that currently hold both a Geoduck and Horse Clam and a Schedule II licence eligibility are reminded that they may apply to place the Schedule II licence eligibility on a vessel that does not exceed the overall length of the original (1989) geoduck and horse clam licensed vessel. Such applications should be made within a reasonable time frame.
- **Regulations on Approved Human Waste Containment Devices:** The Canadian Food Inspection Agency (CFIA), Environment Canada (EC), and Fisheries and Oceans Canada (DFO) introduced changes to the Canadian Shellfish Sanitation Program (CSSP) shellfish harvesting and handling requirements in 2008. See Section 3.2.
- **Harvesting Bivalves near Waste Water Treatment Plants:** Plans are underway annually to improve the CSSP program, the management of bivalve shellfish harvest activities around waste water treatment plants and the response to potential failures. See Section 3.3.

2. LICENCE REQUIREMENTS

2.1. Licence Category

A category G licence is required to harvest geoducks and horse clams sub tidally.

Category G amended licence conditions are required to participate in any supplemental harvest opportunities.

2.2. Licence Fees

Currently the annual licence application fee is calculated as follows:

- The **product** of \$252 multiplied by the number of tonnes of geoduck authorised to be taken under the licence.
- That **product**, minus 40 percent of that **product**, or \$1,000, whichever is less.

Since all IVQs are equal for the geoduck fishery, the licence application fees are \$6,144.20.

Licence fees to participate in supplemental harvest opportunities (Enhanced or Pre-Seed) will be calculated using the formula noted above.

2.3. Licence Application and Issuance

Applications must be completed and submitted with the required fees to a Pacific Fishery Licence Unit (PFLU) by December 31 of each year to maintain the licence eligibility whether or not it is fished. A separate application must be submitted for each licence eligibility.

The vessel owner(s) or any authorised representative of the vessel owner(s) may sign the application form. Where the vessel owner is a company or First Nation, only an authorized signing authority may sign the application. The PFLU must have on record a copy of either a Confirmation of Signing Authorities or an Amendment to Confirmation of Signing Authorities form listing the authorised signing authorities.

Prior to annual licence issue, vessel owners must ensure that:

- Any Ministerial conditions placed on the licence eligibility have been met, such as completion and submission of all harvest logs for the previous season (for further information contact the Shellfish Data Unit at (250) 756-7306 or (250) 756-7022) and completion and submission of all fish slips for the previous season (for further information contact the Regional Data Unit at (604) 666-2716).
- All outstanding vessel quota overages are satisfactorily resolved.

2.3.1. Supplemental Harvest Opportunities

Issuance of the current season Geoduck licence must be completed, as noted above, prior to requesting any supplemental harvest amendment. Eligible vessels (see Section 4.4) may submit a ‘Request for Amendment – Geoduck Supplemental Harvest’ and obtain amended licence conditions to participate.

2.4. Fisher Identification Number (FIN)

A unique Fisher Identification Number (FIN) is assigned to each vessel owner and holders of commercial licence eligibilities, or Fisher Registration Cards (FRC) in the Pacific Region. This allows for quick and accurate identification. (The FIN is printed on your Fisher Registration Card (FRC) and both party and vessel based licences.)

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

For further information, please contact a PFLU or a resource manager (see Contacts, Appendix 15).

2.5. Licence Stacking

A vessel may hold a maximum of five geoduck licence eligibilities. These may all be for the same licence area or may be for a combination of licence areas.

2.6. Area Licensing

The Coast is divided into three areas, the North Coast, WCVI, and Inside Waters of Vancouver Island. Vessel owners select an area annually for each of the 55 category G licence eligibilities.

Licence eligibilities will be assigned to the Inside Waters, WCVI, or North Coast areas. To ensure equal individual quotas, the coast-wide distribution of licences will be as follows:

- Inside Waters (Gulf), portions of Areas 12 through 19, and 29: 6½ licences.
- WCVI, portions of Areas 20, 23, 24, 25, 26, and 27, and related offshore areas: 8½ licences.
- North Coast, portions of Areas 1 through 10, and related offshore areas: 40 licences.

2.7. Vessel Replacement

The Geoduck and Horse Clam commercial industry, through the UHA, recommended changes to the Vessel Replacement Rules in this fishery and the Department evaluated and agreed with their recommendations.

Geoduck vessel applications are accepted at any time. The owner of a Geoduck licensed vessel may make application to replace the current vessel with the following rules:

- Geoduck and Horse Clam licence eligibilities do not become married to other vessel-based licence eligibilities and may be separated.
- Geoduck and Horse Clam licence eligibilities may be placed either permanently or temporarily on any Canadian commercially registered fishing vessel that does not exceed the overall length (OAL) of the vessel that held the licence eligibility as of 1989 plus 50%. This is subject to Departmental policies governing the placement of other vessel-based licence eligibilities also held on the vessel being replaced.
- Where the receiving vessel does not already hold a vessel based licence eligibility, the Schedule II privileges associated with the Geoduck and Horse Clam eligibility must be relinquished. In addition, owners of vessels that currently hold both a Geoduck and Horse Clam and a Schedule II licence eligibility may apply to place the Schedule II licence eligibility on a vessel that does not exceed the OAL of the original (1989) geoduck and horse clam licensed vessel. Such applications should be made within a reasonable time frame. This is consistent with the commitment made by the Department in the Geoduck Fishery - 1989 Enterprise Allocation document.
- For further information on the revised vessel replacement rules, please contact a Pacific Fishery Licence Unit or any of the Geoduck and Horse Clam resource managers (see Contacts, Appendix 15).

2.8. Licences to Collect Geoduck Samples in a Biotoxin Closed Area

Under the *Management of Contaminated Fisheries Regulations*, a licence is required for sampling of geoducks from a PSP closed area. For further information, contact the CFIA Shellfish Operations Specialist in Burnaby at (604) 666-3737, Archipelago Marine Research at (800) 663-7152 or a resource manager (see Contacts, Appendix 15).

The collection of geoduck for biotoxin monitoring samples is conducted by contractors and authorized through Scientific Licence. To maintain the open areas necessary to conduct the commercial fishery, a number of biotoxin monitoring stations are maintained throughout the season. In the Inside Waters and WCVI, these stations are operated collaboratively by a number of different bivalve harvesting groups, including the UHA. In the North Coast, stations specifically for geoduck harvest are maintained by the UHA and its contractors.

2.9. Collection of Geoduck for Broodstock

The collection of broodstock for enhancement and aquaculture purposes is facilitated through a collection licence from Fisheries Management and a Transplant Permit from the Introductions and Transfers Committee. National policy permits up to 1% of the total allowable catch, in addition to the commercial TAC, to be allocated for aquaculture purposes such as brood stock collection. It is anticipated that up to 1,800 lb. of geoduck may be collected as broodstock. See Appendix 5.

2.10. Vessels Using a Packer

There are specific licence conditions for packer vessels to transport geoducks. All vessels with a valid vessel-based licence or a transporting licence (Category D) licence are issued licence conditions to transport geoducks and are subject to those conditions. For additional information regarding these conditions, contact the PFLU.

3. CLOSURES

Closures to the commercial fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, Research, Navigation, contamination, or biotoxins. In addition to the following information on contamination and biotoxin closures, see Section 3.4 and 3.5 for information on all other seasonal and permanent closures.

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

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

- It remains the responsibility of the *vessel master* to ensure that an area is not closed for harvest due to Sanitary or Biotoxin Contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of fishing, the vessel master must take care to confirm that an area is open for harvesting either through the DFO website at:
www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in the Appendix 15.
- In remote areas of the coast, the vessel master often needs to rely on a service provider or on-grounds monitors for transmission of information. However, while OGMs direct and track harvesting by bed for stock assessment purposes, the responsibility and accountability to comply with the *Fisheries Act* and to ensure that the fishing area is open and approved for harvest remains with the vessel master.
- Information may also be available through weekly broadcasts over a commercial or marine radio station (“the weather channel”). In the North Coast, this method is only updated weekly on Tuesdays and it is recommended that the sources listed above be the primary avenue for information.

3.1.1. Sanitary (Contamination) Closures

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

www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm

A copy of this list may also be obtained from the resource managers (see Contacts, Appendix 15). Sanitary closures are amended annually in April and November, and may also be amended in-season. Consequently, harvesters are advised to check the Internet, prior to fishing in an area, to ensure that they have the most recent contamination closure information.

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

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility; and
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

3.1.2. Biotoxin Closures

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

www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm

3.2. Human Waste Containment Regulations

Disposal of human waste into waters where shellfish are harvested or adjacent to shellfish harvest areas creates unnecessary and potentially serious health risks for shellfish consumers.

The Canadian Food Inspection Agency (CFIA), Environment Canada (EC) and DFO introduced changes to the Canadian Shellfish Sanitation Program (CSSP) shellfish harvesting and handling requirements in 2008. Every vessel involved in shellfish harvesting is required to have an onboard approved human waste receptacle. Approved waste receptacles include: an impervious container with tight fitting lid, a portable toilet, a fixed toilet with holding tank or a Transport Canada approved marine sanitation device. In addition all persons on board a harvest vessel must sanitize their hands after using such devices. For further information, contact CFIA (see Contacts, Appendix 15).

3.3. Harvesting Bivalves in the Vicinity of Waste Water Treatment Plants

Concerns have been raised to improve processes where bivalve shellfish are harvested in the vicinity of waste water treatment plants. Increased controls will be implemented starting in 2009 to prevent shellfish harvest in areas where a planned or unplanned release or discharge at a waste water treatment plant may potentially cause contamination.

Conditional Management Plans may be developed on a priority basis to manage harvest activities along with improved detection, notification, and response to potential release or discharge events at a waste water treatment plant.

The Department will be consulting with shellfish harvesters in areas where Conditional Management Plans must be developed.

For further information, contact Elysha Gordon at (250) 754-0229.

3.4. Seasonal Area Closures for Commercial Geoduck and Horse Clam Fisheries

The following are seasonal closures to protect herring spawn and herring spawning grounds.

3.4.1. Inside Waters

Open times in the fishery will be scheduled to prevent conflict with herring fisheries and herring spawning activity in the South Coast districts. Fish harvesters will be notified of closures by the service provider. For further information call a resource manager (see Contacts, Appendix 15).

- Area 12: portions normally close March 1 to April 30
- Area 13: typically no closures
- Area 14: portions normally close February 15 to April 15
- Area 15: portions normally close February 15 to April 15
- Area 16: portions close as required
- Area 17: portions normally close March 1 to April 15
- Area 18: portions normally close March 1 to April 15
- Area 19: portions normally close March 1 to April 15
- Area 29: portions close as required

3.4.2. West Coast Vancouver Island

Open times in the fishery will be scheduled to prevent conflict with herring fisheries and herring spawning activity in the South Coast districts. Fish harvesters will be notified of closures by the service provider or OGM. For further information call a resource manager (see Contacts, Appendix 15).

- Area 23: portions normally close February 24 to April 15
- Area 24: portions normally close February 24 to April 15
- Area 25: portions normally close February 24 to April 15
- Area 26: portions normally close March 15 to April 15
- Area 27: portions normally close February 15 to April 15

3.4.3. North Coast

Open times in the fishery will be scheduled to prevent conflict with herring fisheries and herring spawning activity in the North Coast. Fish harvesters will be notified of closures by the North Coast or lead geoduck resource manager.

3.5. Permanent Area Closures for Commercial Geoduck and Horse Clam Fisheries

All harvesting of geoducks and horse clams shall be conducted from bottom deeper than 10 feet below chart datum (i.e. deeper than 10 feet at the lowest tides). No harvesting of geoduck and horse clams shall take place in eelgrass beds.

No person shall fish for, take, catch, or have in possession geoduck and horse clams from the following areas.

3.5.1. Area 2

3.5.1.1. Burnaby Narrows: Subarea 2-16 and a portion of Subarea 2-13 west of a line running 328 degrees true through the northwest tip of Section Island (Section Cove). (Park)

3.5.2. Area 13

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

3.5.2.2. S.W. Marina Island. A portion of Subarea 13-15 east of a line located at 125 degrees 03.900 minutes west longitude to the line located at 125 degrees 03.400 minutes west longitude and north of a line located at 50 degrees 2.850 minutes north latitude to the line located at 50 degrees 03.300 minutes north latitude (Research Closure).

3.5.3. Area 13, 14, 15

3.5.3.1. Mitlenatch Island: All waters within 1.0 nautical miles of Mitlenatch Island in Subareas, 13-1, 15-3, 14-13, and 15-2. (Park)

3.5.4. Area 17

3.5.4.1. Hammond Bay: Subarea 17-21 inside a line from Neck Point to Lagoon Head. (Research Closure)

3.5.4.2. Gabriola Site: A portion of Subarea 17-16, including Percy Anchorage and False Narrows, bounded inside a line from a marker near the entrance to Descanso Bay to Duke Point, thence to Purvis Point, along the northern shore of Mudge Island to the most southeasterly point on Mudge Island, thence north-easterly to a marker on Gabriola Island, thence in a westerly direction along the south shore of Gabriola Island to the point of commencement. (Research Closure)

3.5.5. Area 23

3.5.5.1. 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)

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

3.5.6. Area 24

3.5.6.1. Portions of Subareas 24-6 and 24-7: The east coast of Dunlap Island, from the most northerly point of Dunlap Island to Robert Point on Meares Island, then following the Meares Island shore southerly to a point true east of the most southerly point of Dunlap Island, then a straight line to the most southerly point of Dunlap Island. (Research Closure)

3.5.6.2. Ritchie Bay: A portion of Subarea 24-7 from Robert Point on Meares Island, thence following the shore easterly to the most northern headland of Ritchie Bay, thence in a straight line to Robert Point. (Research Closure)

3.5.6.3. Ahous Bay Whale Sanctuary: A portion of Subarea 24-6, inside of a straight line from Ahous Point on Vargas Island, thence northerly to a point at 126 degrees 01.849 minutes west longitude, 49 degrees 11.137 minutes north latitude, thence due east to Vargas Island.

3.5.6.4. 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)

3.5.7. Area 26

3.5.7.1. Checleset Bay Fishery Closure Area- Ecological Reserve: Those portions of Areas 26 and 126 enclosed by a line drawn from a point on the Brooks Peninsula (at 127 degrees 49.58 minutes west longitude., 50 degrees 05.18 minutes north latitude), thence due south to the 50 degrees parallel, thence due east to Alert Point on Lookout Island, thence northeasterly to a point on Vancouver Island near McLean Island (at 127 degrees 25.03 minutes west longitude, 50 degrees 02.1 minutes north latitude), thence northwesterly along the shore of Vancouver Island to Malksope Point (at 127 degrees 28.95 minutes west longitude, 50 degrees 05.53 minutes north latitude), thence due west to a point midchannel on the southeast end of Gay Passage (at 127 degrees 30.1 minutes west longitude, 50 degrees 05.53 minutes north latitude), thence midchannel through Gay Passage to a point midchannel on the northwest end of Gay Passage (at 127 degrees 31.8 minutes west longitude, 50 degrees 06.7 minutes north latitude.), thence northwesterly to the shore of Vancouver Island, just west of Theodore Point (at 127 degrees

32.8west 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 (at 127 degrees 38.6 minutes west longitude, 50 degrees 08.75 minutes north latitude), thence westerly across Nasparti Inlet to an unnamed point on Vancouver Island (at 127 degrees 39.9 minutes west longitude, 50 degrees 08.7 minutes north latitude), thence along the Vancouver Island shore to the point of commencement.) (Provincial Ecological Reserve - sea otters and habitat)

3.5.8. Area 28

3.5.8.1. 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)

3.5.8.2. 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 metres east of the most southeasterly point of Whyte It.; thence following the southern shoreline of Whyte It. at a distance of 100 metres to a point lying 100 metres from the most southwesterly point of Whyte It.; thence in a straight line to a point lying 100 metres west of White Cliff Point; thence following the shoreline at a distance of 100 metres in a northerly direction to a point 100 metres north of Lookout Point; thence following the shoreline at a distance of 100 metres in an easterly direction to a point 100 metres perpendicular to the most northerly point of Whytecliff Park; thence to the most northerly point of Whytecliff Park on the mainland. (Marine Reserve)

3.5.8.3. Point Atkinson Reef: That portion of Subarea 28-6 bounded by a line commencing at the southwest entrance to Starboat Cove thence seaward in a southwest direction for 85 metres, thence westerly following the shoreline for 100 metres, thence in a north east direction to a point on land. (Marine Reserve)

4. GEODUCK

4.1. Species

Geoducks (*Panopea abrupta*)

4.2. Gear

Hand-held, manually operated water nozzles guided and controlled from underwater by a diver. Each water nozzle shall have a maximum inside diameter of 5/8 inch (1.59 cm).

4.3. Vessel Quotas

A geoduck licence provides the operator of the category G licensed vessel the opportunity to fish for horse clams and **62,500 pounds** of round, whole weight geoduck clams per licence eligibility for the licence year. "Weight" is defined as net validated weight taken at the first point of landing.

No portions of any vessel quota may be transferred to any other category G licence eligibility except under the conditions in Section 6.2.6.

4.4. Geoduck Experimental Enhancement

Enhancement policies and scientific advice will continue to be developed.

There may be a limited supplemental harvest opportunity at experimental geoduck enhancement sites in the Strait of Georgia. This supplemental harvest opportunity will be available for all G-licensed vessels; a selection process, and harvest amount and schedule will be developed in consultation with the UHA.

Harvest rates of 80% over one to two years have been set as an initial experiment only, to test harvest efficiency. In the future, lower harvest rates or a minimum baseline density of geoducks remaining may be set as the limit reference point. Estimated geoduck density within enhancement sites after 80% harvest is estimated to range from 0.26-1.06/m², compared to natural current surveyed densities of 0.16-1.14/m² and original densities of 0.08 to 1.60/m² with an average of 0.38/m² in the Strait of Georgia. Any horse clams within the enhancement sites will be harvested at the same time as the geoducks.

The harvest is tentatively planned as:

Season	GMA	Name	Description
2010	17A01	Icarus Point	Portion of Subarea 17-18
2010	17B01	Gabriola Island	Portion of Subarea 17-10
2011	15A	North Savary Island	Portion of Subarea 15-2
2011	15G	Sutil Point	Portion of Subarea 15-3
2012	16A03	Texada Island	Portion of Subarea 16-21
2012	16B03	Jelina Island	Portion of Subarea 16-19

Interested participants should notify the UHA by January 11 of the current season.

Opportunity for harvest at the enhancement sites will be provided through supplemental conditions of licence. The UHA will develop a fishing plan with interested licence holders, and provide the Department with advice on participants and amounts of harvest. Eligible participants may contact the PFLU for licence amendment requests. Standard licensing amendment procedures, fees, notification, and reporting requirements will apply.

In the event that the UHA is unable to provide advice on a fishing plan, the Department will accept applications from all interested participants by **January 31 of the current season**. The quota for the enhanced plots will be divided equally amongst all applicants. The application and licensing procedure is expected to take three weeks.

The harvest sites will be monitored and, under authority of a scientific licence, divers will be permitted to rebury the smaller geoducks, especially those <1.2 lb. The UHA vessel Tony 1 will be on site for the enhancement area openings, to determine accurate piece counts, and may also rebury smaller geoducks.

4.5. Geoduck Aquaculture (Pre-seed Harvest)

There may be supplemental harvest opportunities under the *DFO Policy for Access to Wild Aquatic Resources as it Applies to Aquaculture (2004)*. See Appendix 5.

4.6. Fishing Season

For further detail on the Canadian Shellfish Sanitation Program, see the Internet at:

<http://www.inspection.gc.ca/english/fssa/fispoi/csspccsme.shtml>

4.6.1. Growing Water Surveys (Environment Canada)

For 2010, growing water surveys and classification are in place for the planned commercial fishing areas. Effective November 2009, there are changes to classification in Areas 13, 15, 18, 19, 20, 23, 26; see the Internet for more information:

www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm

Closures may be implemented on short notice in the event of changes to contamination status and/or following the April and November Pacific Region Interdepartmental Shellfish Classification (PRISC) meetings; harvesters should always check before leaving for the fishing grounds.

4.6.2. Biotoxin Monitoring (Canadian Food Inspection Agency)

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

Three consecutive samples containing acceptable levels of biotoxin must be received in order for CFIA to lift a harvest restriction in an area. CFIA will make recommendation to lift the PSP prohibition and a harvest site can then be considered by DFO for Aboriginal, commercial or recreational harvesting. The resource manager will prepare the documentation necessary for an area opening for approval by the Regional Director General.

4.6.3. Open Times (Fisheries & Oceans Canada)

A "GMA" is a defined portion of Pacific fisheries waters. Areas and Subareas, as described in the Pacific Fishery Management Area Regulations, are referenced in describing GMA's. Each GMA has a name (i.e. QCF06 Poole Inlet), and is assigned a total allowable catch.

- GMA's assigned to the current season's fishery will be opened as biotoxin monitoring permits and when requested by the UHA. Fisheries will begin on January 1, weather and biotoxin monitoring permitting. Subsequent openings, as requested by the UHA, will be conducted as biotoxin monitoring permits. See Section 3 Closures.
- The UHA, on behalf of owners of geoduck licensed vessels, will request area openings in consultation with DFO. The Department requires a minimum of 48 hours notice from the association (exclusive of weekends and holidays) to open a new GMA. Decisions to open and/or move the fishery will be relayed to the fishing grounds by the service provider (the OGM in some areas).
- Vessel masters must hail to the service provider prior to commencing fishing (see Section 6.1). Vessel masters are responsible for checking an area is open prior to commencing fishing.
- Any alteration to the prescribed fishing plan will be discussed through the Area Committee and the UHA. Any deviations from the fishing plan, not so discussed, will result in closure of the fishing area and/or the fishery until the matter is resolved.

4.7. Licence Amendment to Extend Season

Persistent high PSP levels and/or poor weather has made it difficult in some seasons for vessels to complete their IVQ by December 31. At the request of the UHA, the Department may allow an extension for 15 days into the next season understanding that:

- Owners of geoduck licensed vessels with quota remaining must apply to the PFLU for amended conditions that will permit harvesting into the next calendar year. Allow ten business days plus mailing time.
- The UHA will ensure that all PSP testing and required monitoring is in place for the duration of the extension.
- The extra costs of monitoring the extension will be funded through regular UHA programs.
- All Conditions of Licence for the boats remaining fishing will be met.
- The subsequent licence area fishery will be delayed for all licence holders until the On-Grounds Monitor is in place and/or the areas are opened.
- The subsequent fishery may open early than January 15 if the previous fishery has been completed.

Owners of geoduck licensed vessels who have quota remaining in the current season's fishery will be diligent in continuing to fish as soon as weather and/or biotoxin levels permit.

4.8. Bed by Bed Management

4.8.1. Calculation of Bed Quotas

Biomass estimates by bed are calculated through Density Categories (DC) from fish harvesters' advice and comments, or Regional Densities (RD) from surveys (see Zhang et al 2006). Bed quotas are assigned through one of following methods.

4.8.1.1. Surveyed Beds

Where survey density information is available, an estimate of current biomass (B_{current}) is used to establish a quota. Science Branch provides a range of biomass estimates and a range of quota options based on a fixed harvest rate. Biomass estimates are calculated from Density Categories and Regional Densities; the lower 95% confidence interval and mean quota options are calculated. Surveyed beds may be harvested up to the mean quota option based on advice from the area committees.

4.8.1.2. Unsurveyed Beds

For unsurveyed beds, estimates of current biomass are extrapolated from the Regional Density or from bed Density Categories where available. The bed may be harvested to a maximum of the average of the lower 95% confidence interval and the mean quota option, and based on advice from the area committees. Fish harvesters may advise that a bed does not exist, the bed area or density is overestimated, or recommend lower/zero quotas based on quality or other factors.

4.8.1.3. Closed Beds

Beds that have been fished heavily in the past, with a reduction of 60 percent or more of the estimated original biomass (the limit reference point is 40%), are no longer available for fishing; zero quota is assigned. Exceptions were made on the WCVI in 2009 where otter predation is documented; this 'experimental' fishery will be reviewed prior to reimplementation.

4.8.2. Assigning Bed Quotas

The estimates of bed area, geoduck densities (used in current biomass calculations), harvest records, and quota options available are discussed pre-season with each Area Committee. If bed-quota advice from the Area committees falls within the range of options provided by Science; the committee-recommended quota is assigned.

Often the quota assigned may not be as high as recommended by the Area Committees. These beds will be recorded and considered for future survey or assessment.

4.8.3. Fishing Assigned Bed Quotas

The service provider, through the OGM in some areas, will notify the geoduck vessel crews of the allocated quota in each geoduck bed to be fished. In the absence of detailed bed maps, fish harvesters must obtain the bed number and the allocated bed quota from the OGM or service provider. Fish harvesters are expected to harvest up to the allocated bed quotas and to follow the harvest instructions of the OGM or service provider. It is recognized that some beds will have small quotas to be taken and additional effort will be required to harvest these small bed quotas.

For the Inside Waters, where there is no OGM, the service provider will distribute dive harvest charts, and geoduck bed maps are available for fish harvesters to determine the bed numbers and bed quotas and to record their daily harvest locations. The Department requests that fish harvesters attempt to distribute their effort and harvest throughout the entire bed as it is drawn on the map to determine whether the bed boundaries are drawn correctly. Little information is gained when fish harvesters harvest all of the catch from one position. The service provider will distribute regular updates on fishing activity and remaining bed quotas to the fish harvesters.

4.8.4. Changing Assigned Quotas In-season

Additional fishing opportunities may be provided (to a maximum of the mean quota option) following consultation with the resource manager. A decision to harvest more than the assigned quota will be based on advice from the OGM, the Area Committees, and Science Branch.

4.8.4.1. Fallback Beds

- For a variety of reasons (quality, remote location, exposure, impact by sea otters), the advice from the Area Committees may be to set the quota below the options available from Science (following the management decision rules outlined above), or to zero.
- However, following consultation in-season with the resource manager and if conditions are appropriate, the bed may be fished within the options originally provided by Science. This is known as ‘Fallback’.
- Fallback quota **may** be available *up to the mean option for surveyed beds and the average of the lower 95% confidence interval and the mean option for unsurveyed beds.*
- Fallback quota **must** be fished from a new location within the subbed. A new harvest site within the subbed is defined as one outside the radius of a hose length away from any known (current season) fishing locations. An average hose-length is defined as 250 feet. Harvest at any new site will be restricted to 20 cages for Inside Waters, 20 cages for WCVI, and 40 cages for North Coast (see Section 4.8.4.2 (b)). The harvest of fallback quota will not be permitted from any recent (current season) harvest sites.

4.8.4.2. Unfishable Quotas

It may be difficult or impossible to achieve the quota at some beds for a variety of reasons (e.g., weather and sea states, geoducks may not be showing, bed biomass may have been overestimated). It is requested that fish harvesters attempt to fish the bed on different occasions or try different portions of the bed as indicated. If it is not possible to harvest the quota from a given bed, the OGM or service provider will consult with divers and resource managers and document the reasons. There are several options to resolve the situation which are, in order of preference:

- a.) Fish another bed in the same GMA that is deemed to have fallback quota available. Fish the beds to which a fallback quota was applied (see above).
- b.) Scout for new beds in the same GMA. Finding new beds may offset the losses that result from reduced bed areas, densities, and resulting biomass estimates. Whenever possible, scout for new beds within the same GMA. To distribute effort on a new bed, the following protocol is applied:
 - i.) Inside Waters: 1,000 lb. or 20 cages per hose length limit; an average hose-length is defined as 250 feet. The diver will move outside the radius of his hose length after the harvesting limit is reached.
 - ii.) West Coast: 1,500 lb. or 30 cages per hose length limit; an average hose-length is defined as 250 feet. The OGM will direct the diver to move outside the radius of his hose length after the harvesting limit is reached.
 - iii.) North Coast: 2,000 lb. or 40 cages per hose length limit; an average hose-length is defined as 250 feet. The OGM will direct the diver to move outside the radius of his hose length after the harvesting limit is reached.
- c.) Move the unharvested quota to another GMA that is deemed to have harvestable quota available. Fish the other GMA to a higher quota, using fallback options. Only areas scheduled for the current fishing season may be fished.
- d.) If none of the above options is reasonable, the fish harvesters may not be able to achieve the GMA quota, area quota and ultimately the IVQ.
- e.) If there are disputes, the area will be closed, and only reopened after successful resolution of the issue.

4.8.4.3. Disruptions Due to Paralytic Shellfish Poisoning Blooms

The Department may, at its discretion, transfer quotas in-season between harvest areas to mitigate access problems and/or harvest delays resulting from Paralytic Shellfish Poisoning (PSP) closures. Quota transfers will take place within the annual harvest rate for an area and will not exceed the recommended mean quota option for the area to which the quota will be transferred. In-season quota adjustments will not result in an increase in the annual coast-wide TAC.

Industry is advised that quota adjustments and in-season transfers to address PSP closures must be made through written request by the UHA to the lead manager for the fishery (see Contacts, Appendix 15).

The Department will deal with the impact of PSP on implementation of the fishing plan by implementing the following protocols:

- Fishing the open areas at a higher rate and implementing a “payback” system over the next several years. In this scenario, the annual harvest rate will be violated in some areas

in the short term, but in the subsequent rotation, this additional harvest is “paid back” by foregoing the harvest assigned to that year. This is, in effect, a temporary longer-term rotation and the annual harvest rate is adhered to over the two rotational cycles. It is simple to implement, since Growing Water Surveys and Biotoxin Monitoring Programs would be in place for these areas.

- Fishing areas in other rotations and implementing a “payback” system over the next several years. In this scenario, product is “borrowed” from areas not included in the current rotation, and paid back in the appropriate year. This strategy entails a trade of quota between rotational harvest areas. It is not as simple to implement, since Growing Water Surveys and Biotoxin Monitoring Programs must be in place prior to implementing the change to the management plan.

4.8.5. Role of the On-Grounds Monitors (OGM)

The OGM (see Section 6) will, from time to time, request that fish harvesters move from a geoduck bed or GMA if he/she determines that excessive amounts of quota are being harvested from that bed.

The OGM has the responsibility to request that vessels move when a bed or subbed quota has been taken:

- in order to assess and harvest all geoduck beds with allocated quota;
- to fish in all documented beds with allocated quota - large and small, shallow and deep, regardless of the market quality of the clams;
- to fish in and record comment from all of the documented bed area.

All vessels are expected to participate in the harvest of the marginal, less popular and/or less productive beds. Vessels are expected to comply with the OGM’s request. The Department will close an area immediately if there are problems in compliance.

4.8.6. Bed Questionnaires

To improve the data used in the population assessment and modelling process, and to provide quotas that are more reflective of Area Committee advice, the Department is requesting the voluntary submission of information on geoduck beds. Prior to 2008, Bed Questionnaires were distributed at the beginning of the season to owners of all geoduck licensed vessels. To simplify the process, a new Validation & Harvest Logbook has been created to include the key questions from the Bed Questionnaire used prior to 2008. Vessel Masters and divers can now complete the Harvest Log dive information and Bed Questionnaire information all on one page. See Appendix 7.

Geoduck Bed Questionnaires are used in all areas of the coast to collect and improve bed information that is used to calculate bed quotas. Divers should complete the questions along with their dive harvest information, and submit them to the OGM or Observer (Dockside Validator). The OGM does not alter the information provided on the beds; however data, such as the GMA, the bed number and the coordinates of the fishing location, must be checked for accuracy for the information to be useful. The combined log and questionnaire is forwarded to the service provider for data entry.

If there are large variations between the information supplied on the Bed Questionnaire portion of the logbook and Stock Assessment's information, the beds in question will be prioritized for an assessment (biomass) survey in future years.

4.9. Inside Waters

4.9.1. Designated Landing Ports

Fish harvesters must land their catch at one of the following designated landing ports:

Rotation 1	2010	<ul style="list-style-type: none"> – Port Hardy, Port McNeill, Comox, Deep Bay, French Creek, Nanaimo, Ladysmith – Pre-Seed Harvest: Campbell River, Heriot Bay, Lund, Westview
Rotation 2	2011	<ul style="list-style-type: none"> – Port Hardy, Port McNeill, Comox, French Creek, Nanaimo – Pre-Seed Harvest: Campbell River, Heriot Bay, Lund, Westview
Rotation 3	2012	<ul style="list-style-type: none"> – Port Hardy, Port McNeill, Comox, Deep Bay, French Creek, Lund, Nanaimo, Cowichan Bay, Sidney – Pre-Seed Harvest: Campbell River, Heriot Bay, Lund, Westview

Note: Madeira Park may be used as a landing port if prior arrangements have been made with the service provider to ensure that an Observer and scale are available.

4.9.2. Inside Waters Openings and Quotas

The 2010 geoduck TAC for the Inside Waters is 406,250 pounds (and an additional 1,100 pounds for biosamples). This has been subdivided and assigned to the GMAs shown in Table 1. Six and one half (6.5) licences will be assigned to these areas in 2010.

Enhanced geoduck harvest may be scheduled in the Inside Waters, and available to all geoduck-licensed vessels under an application procedure. See Section 4.4.

Table 1: 2010 Geoduck Management Areas and Quotas - Inside Waters

GMA	Name	Description	Quota (lb.)
12A01	Northern Island	Subarea 12-11 and a portion of Subarea 12-16	39,250
12A02	Walker Group	Subareas 12-10 and 12-13	1,500
12B01a	East side Vansittart Island	Portion of Subarea 12-12	26,000
12B01b	West side Vansittart Island	Portion of Subarea 12-12	10,000
12B02	Northern Goletas Channel	Subarea 12-15	41,200
12B03a	Southern Goletas Channel	Portion of Subarea 12-16	58,055
14B01	Comox Bar	Portions of Subareas 14-7, 14-9 and 14-10	95,000
14C01	Comox Can Buoy to North Baynes Sound	Portion of Subarea 14-11	0
14C02	North Baynes Sound	Subarea 14-15	14,000
14C03	South Baynes Sound	Portion of Subarea 14-8	0
16D01	Thormanby Island (annual)	Portions of Subareas 16-1 and 16-2	24,000

17A01	Icarus Point/Lantzville Shore	Subarea 17-18	15,873
17A02	Nanoose Bay to Blunden Point	Subarea 17-19	6,000
17A03	Nanoose Bay	Subarea 17-20	3,100
17B01	North Gabriola Island to Neck Point	Subareas 17-10, 17-12, 17-13, 17-14, 17-15 and a portion of Subarea 17-16	41,572
17B02	Pylades Channel	Portion of Subareas 17-4 and 17-16, Subarea 17-17	0
17B03	Boat Harbour to Chemainus	Portions of Subareas 17-4, 17-5 and 17-6	25,000
17B04	Southern portion of Area 17	Subareas 17-1, 17-2, 17-3, portions of Subareas 17-4, 17-5 and 17-6, and Subarea 17-8 and 17-9	2,700
29*	Outside Valdes Island	Portion of Subarea 29-5	3,000
Subtotal (lb.)			406,250
Biological Samples (lb.)			1,100
Total Allowable Catch (lb.)			407,350

* Indicates a change in boundary, rotation, or name.

1. See Section 3 for Closures within these areas, Appendix 9 for complete GMA descriptions and Appendix 11 for maps.
2. A portion of the TAC from each licence area has been allocated for biological samples, to be harvested by the UHA.

4.10. West Coast of Vancouver Island

4.10.1. Designated Landing Ports

Fish harvesters must land their catch at one of the following designated ports: Port Alberni, Ucluelet, Tofino, Zeballos, Fair Harbour.

4.10.2. West Coast Openings and Quotas

The 2010 geoduck TAC for the WCVI is 531,250 pounds (and an additional 1,100 pounds for biosamples). This has been subdivided and assigned to the GMAs shown in Table 2 below. Eight and one half (8.5) licences will be designated to these areas in 2010.

West Coast openings will occur under the following schedule, as determined through consultation with the UHA:

- Protected areas of Area 24 will be available at the start of the year.
- As soon as Area 23 biotoxin sampling permits, this area will open and the quota completed before moving back to Area 24.
- By mid April at the latest, Area 24 will close, and Area 27 to 25 may open and be fished from north to south. Vessels will work together with a packer to fish the areas.
- Mission Group and Rolling Roadstead will be fished toward the end of this opening sequence.
- Finally, the remainder of Area 24 will open. Vessels will fish exposed areas during good weather, and protected areas to finish the season.

Note: If PSP closures are a problem in Area 23, some fishing in fallback areas of Area 20, 25, 26, or 27 may be necessary.

Enhanced geoduck harvest may be scheduled in the Inside Waters, and available to all geoduck-licensed vessels under an application procedure. See Section 4.4.

Table 2: 2010 Geoduck Management Areas and Quotas - West Coast Vancouver Island

GMA	Name	Description	Quota (lb.)
Protected portion of Area 24 will open January 1 or upon request			
24A06a1	Yellow Bank North	Portion of Subarea 24-7	14,000
24A06a2	Yellow Bank South	Portion of Subarea 24-7	33,324
24A06b	East Maurus Channel	Portion of Subarea 24-6	1,212
24A06c	Elbow Bank North	Portion of Subarea 24-6	10,000
24A06d	Elbow Bank South	Portion of Subarea 24-6	2,000
24B02b	Calmus Pass	Portion of Subarea 24-6	13,878
24B03	Millar Channel	Portions of Subareas 24-4 and 24-6	180,000
24C01	Sydney Inlet	Subarea 24-2	9,067
24D01b	Shelter Inlet	Subareas 24-3, a portion of Subarea 24-4, Subareas 24-13 and 24-14	6,642
24D01c	McKay Island	Portion of Subarea 24-4, Subarea 24-5	582
Southern WCVI will open upon request			
20A	Sooke	Subareas 20-4, 20-5 and 20-6	0
23A01	Maggie River	Portions of Subareas 23-10 and 20-11	26,246
23A02	Macoah Pass	Portions of Subareas 23-10 and 23-11	3,500
23B	Toquart Bay & Pipestem Inlet	Portion of Subarea 23-10	0
23C	Mayne Bay, Stopper, Bryant & Curwen Islands	Subarea 23-9 and a portion of Subarea 23-10	7,689
23D01	Pinkerton Islands	Portion of Subarea 23-8	0
23D02	Canoe Island to Useless Inlet	Portions of Subareas 23-4, 23-6, 23-7 and 23-8	10,456
23E01	Trevor Channel to Alberni Inlet	Subarea 23-3 and a portion of Subarea 23-4	0
23E02	Chain Group	Portion of Subarea 23-4, Subarea 23-5 and portions of Subareas 23-6 and 23-7	7,281
Northern WCVI will open approximately April 10, all other areas will close			
27I	Klaskish Inlet	Subarea 27-6	0
27H	Klaskino Inlet	Subarea 27-5	0
27G	Exploratory	Portions of Subareas 27-1 and 27-2	
27F	Sea Otter Cove	Portion of Subarea 27-1	0
27E	San Josef Bay	Portion of Subarea 27-1	0
27D	Kains Island	Portion of Subarea 27-2	0
27C	Forward Inlet	Subarea 27-3	0

GMA	Name	Description	Quota (lb.)
27B	Cliffe Point to Lawn Point	Portion of Subarea 27-2	0
27A	Quatsino Inlet	Subarea 27-7	0
26F	Inlets - exploratory	Portion of Subarea 26-2, and Subareas 26-4 and 26-5	0
26D04	South of Rugged Point	Portion of Subarea 26-1	0
26D03	North of Rugged Point	Portions of Subareas 26-1 and 26-2	0
26D02	Amai & Cachalot Inlets	Portions of Subareas 26-2 and 26-3	0
26D01	SW Union Island	Portions of Subareas 26-1, 26-2 and 26-6	0
26C	Central Kyuquot Inlets	Portions of Subareas 26-1, 26-2 and 26-6	0
26B	Mission Group	Portions of Subareas 26-1, 26-6 and 26-7	14,000
26A	North Inlets	Portions of Subareas 26-7, 26-8, 26-9 and 26-10	0
25D	Nootka	Subareas 25-3 to 25-8, Subarea 25-15	15,215
25C	Rosa Harbour	Portion of Subarea 25-13	0
25B	Nuchatlitz	Portion of Subarea 25-13, Subarea 25-14	0
25A	Esperanza	Subareas 25-9, 25-10, 25-11, 25-12 and a portion of Subarea 25-13	25,000
Remainder of Area 24 will open once Northern WCVI is complete			
24A02a	Yarksis	Portion of Subarea 24-8	30,000
24A02b	East Side Father Charles Channel	Portion of Subarea 24-8	0
24A03	Tonquin/Wickaninnish	Portion of Subarea 24-8	0
24A04	Epper/Dunlap	Portions of Subareas 24-6 and 24-7	44,511
24A05	Lemmens Inlet	Subarea 24-9	3,500
24B01a	Bartlett Island	Portion of Subarea 24-6	0
24B01b	Blunden Island	Portion of Subarea 24-6	23,755
24B02a	Coomes Bank	Portion of Subarea 24-6	0
24B04	Russell Channel	Portion of Subarea 24-6	49,392
24C02	Exposed	Subarea 24-1, a portion of Subarea 24-8, Subarea 124-3	0
24D01a	Fortune Channel	Subareas 24-10 and 24-12	0
24D02	Indian Island	Portion of Subarea 24-11	0
Subtotal (lb.)			531,250
Biological Samples (lb.)			1,100
Total Allowable Catch (lb.)			532,350

* Indicates a change in boundary, rotation, or name.

¹. See Section 3 for Closures within these areas, Appendix 9 for complete GMA descriptions and Appendix 12 for maps.

². A portion of the TAC from each licence area has been allocated for biological samples, to be harvested by UHA.

The OGM (see Section 6) will, from time to time, request that fish harvesters move from a geoduck bed or GMA if he/she determines that excessive amounts of quota are being harvested from that bed.

4.11. North Coast

4.11.1. Designated Landing Ports

Fish harvesters must land their catch at one of the following designated ports: Prince Rupert, Port Edward, and Port Hardy.

4.11.2. North Coast Openings and Quotas

The 2010 geoduck TAC, for the North Coast area is 2,500,000 pounds (and an additional 4,100 pounds for biosamples). This has been subdivided and assigned to the GMAs shown in Table 3 below. Forty licences will be designated to these areas in 2010. Areas will be opened upon request as biotoxin sampling permits.

Enhanced geoduck harvest may be scheduled in the Inside Waters, and available to all geoduck-licensed vessels under an application procedure. See Section 4.4.

Table 3: 2010 Geoduck Management Areas and Quotas – North Coast

GMA	Name	Description	Quota (lb.)
CCA01	McMullin Group	Portion of Subarea 7-18	10,000
CCA02	Stryker Island	Portion of Subareas 7-18, 7-23	68,667
CCA03	Tribal Group	Portion of Subarea 7-18	71,981
CCA04	Admiral Group	Portion of Subarea 7-18	29,432
CCA05	Prince Group	Portion of Subarea 7-25	25,155
CCA06a	Latta Island	Portion of Subarea 7-25	27,126
CCA06b	Hunter Channel	Portion of Subareas 7-17, 7-18, 7-25	24,265
CCA07a	McNaughton Group North	Portion of Subarea 7-25	38,160
CCA07b	McNaughton Group - Kinsmen	Portion of Subarea 7-25	17,918
CCA07c	McNaughton Group South	Portion of Subarea 7-25	29,870
CCA07ex ptl	Superstition Point Experimental Area	Portion of Subarea 7-25	0
CCA08	Simmonds Group	Portion of Subarea 7-25	99,686
CCA09	Goose Island North	Portion of Subarea 7-25	0
CCA10	Goose Island South	Portion of Subarea 7-25	0
CCA11	Spider Island	Portion of Subarea 7-27	82,634
CCA12a	Typhoon Island	Portion of Subarea 7-27	0
CCA12b	South Edna Island	Portion of Subarea 7-27	61,284
CCA12c	Triquet Island	Portion of Subarea 7-27	75,865
CCA13	Spider Anchorage (Ronald)	Portion of Subarea 7-27	72,389
CCA14	Serpent Group	Portion of Subarea 7-27	18,587
CCA15a	Kittyhawk Group North	Portion of Subarea 7-28	52,803

GMA	Name	Description	Quota (lb.)
CCA15b	Kittyhawk Group South	Portion of Subareas 7-27, 7-28	40,820
CCB01	Mathieson Channel	Portion of Subarea 7-9	40,202
CCB02	Moss Passage	Portion of Subarea 7-3, Subarea 7-4, a portion of Subarea 7-9	62,768
CCB03	Ivory Island	Portion of Subarea 7-9	50,289
CCB04	Berry Inlet	Subarea 7-8, a portion of Subarea 7-12	47,611
CCB05a	Seaforth Channel West	Portion of Subarea 7-12	43,175
CCB05b	Seaforth Channel East	Portion of Subareas 7-12, 7-17, Subarea 7-22, a portion of Subarea 7-23	28,405
CCB06	St. John Harbour	Portion of Subarea 7-32	18,217
CCB07	Cape Mark (Bowling Alley)	Portion of Subarea 7-32	20,512
CCB08	Godfrey Rock	Portion of Subareas 7-1, 7-32	20,000
CCB09	Princess Alice Island	Subarea 7-20	20,000
CCB10	Thompson Bay	Portion of Subarea 7-21	39,139
CCB11	Houghton Islands	Portion of Subarea 7-19 and 7-21	26,127
CCB12	Joassa Channel/Raymond Passage	Portion of Subarea 7-23, Subarea 7-24	39,464
CCC01	Nalau Passage	Portion of Subarea 8-2, Subarea 8-4	82,500
CCC02	Stirling Island West	Subarea 7-26, a portion of Subarea 7-27	43,022
CCC03	Choked Passage	Portion of Subareas 8-1, 8-2	128,595
CCC04*	South Hakai Passage	Portion of Subarea 8-2, Subarea 8-3, portion of Subarea 8-16	37,777
CCC05*	Fitz Hugh Sound	Portion of Subarea 8-16, Subarea 9-12	15,500
CCC06	Rivers Inlet	Portion of Subarea 9-1, Subareas 9-2, 9-3, 9-4, 9-11	76,485
CCC07	Calvert Island North	Portion of Subarea 9-1	0
CCC08	Calvert Island South (Grief Bay)	Portion of Subarea 9-1, Subareas 10-1, 10-2	18,125
CCC09	Smith Inlet North	Portion of Subareas 10-3, 10-4	0
CCC10	Smith Inlet South	Portion of Subareas 10-3, 10-4	0
CCD01a	Rennison Island	Portion of Subarea 6-11	25,000
CCD01b	West Laredo Channel (north of Baker Point)	Portion of Subarea 6-11	60,000
CCD01c	West Laredo Channel (south of Baker Point)	Portion of Subarea 6-14	51,300
CCD02	East Laredo Channel	Portion of Subarea 6-14	49,445
CCD03	Laredo Inlet	Portion of Subareas 6-16, 6-19	100,174
CCD04	Kitasu Bay	Subarea 6-18	103,461
CCD05	Larkin Point	Portion of Subarea 6-16	45,121
CCD06	Laredo Channel	Subarea 6-15, a portion of Subarea 6-16	27,500
CCD07	East Aristazabal Island South	Portion of Subareas 6-13, 6-17	56,900
CCD08	Rudolf Bay	Portion of Subarea 6-17	1,856

GMA	Name	Description	Quota (lb.)
CCD09a	West Higgins Passage (a)	Portion of Subareas 6-16, 6-17	36,554
CCD09b	West Higgins Passage (b)	Portion of Subareas 6-16, 6-17	31,296
CCD10	SW Price Island (Day Point)	Portion of Subareas 7-1, 7-2, 7-31	93,420
CCD11	West Price Island	Portion of Subarea 7-31	62,116
CCD12	Milbanke Sound South	Portion of Subarea 7-3	15,000
CCD13	Milbanke Sound North (East Higgins)	Portion of Subarea 7-3	36,302
Subtotal (lb.)			2,500,000
Biological Samples (lb.)			4,100
Total Allowable Catch (lb.)			2,504,100

* Indicates a change in boundary, rotation, or name.

¹. See Section 3 for Closures within these areas, Appendix 9 for complete GMA descriptions and Appendix 13 for maps.

². A portion of the TAC from each licence area has been allocated for biological samples, to be harvested by the UHA.

The OGM (see Section 6) will, from time to time, request that fish harvesters move from a geoduck bed or GMA if he/she determines that excessive amounts of quota are being harvested from that bed. Details of sea otter raft locations and predation should be documented on the bed questionnaire section of the logbook and by the OGM.

5. HORSE CLAM

5.1. Species

Horse clams (*Tresus capax* and *T. nuttallii*)

5.2. Gear

Hand-held, manually operated water nozzles guided and controlled from underwater by a diver. Each water nozzle shall have a maximum inside diameter of 5/8 inch (1.59 cm).

5.3. Fishing Season

The harvest of horse clams is closed January 1 to December 31 by regulation and is opened concurrently with the geoduck fishery. The open times and areas for horse clams will be the same as those for geoducks. See Section 3 Closures.

5.4. Harvest Log Information

Divers are requested to provide comments on their harvest logs about horse clam populations. This information will be collated by Science and may be used to develop stock surveys and to provide advice on different harvesting opportunities.

The Department is requesting that horse clam landings be reported by species: *Tresus nuttallii* or *Tresus capax*. This information will be used in combination with ongoing stock survey data to provide direction on future fisheries. The current format of the harvest log

does not support reporting by species; however the comments section at the bottom of the form may be used to provide information. Descriptions of the two species are available upon request. Contact a Resource Manager.

5.5. Inside Waters

Horse clam harvests will be permitted only in those areas opened for geoducks. **Harvest in eelgrass beds is not permitted.** Landings of horse clams may not exceed the following:

Area 12	1 tonne	2,205 lb.
Area 13	1 tonne	2,205 lb.
Area 14, other than 14B03 Comox Bar	1 tonne	2,205 lb.
Area 15	1 tonne	2,205 lb.
Area 16	1 tonne	2,205 lb.
Area 17	1 tonne	2,205 lb.
Area 18	1 tonne	2,205 lb.
Area 19	1 tonne	2,205 lb.
Area 29	1 tonne	2,205 lb.

Whereas the incidental harvest of horse clams while fishing for geoduck is limited as described above, and is to be recorded as part of the IVQ, areas with a survey-based TAC may be harvested in addition to the IVQ. However, divers must ensure that any incidental harvest of geoduck while harvesting horse clams is restricted to that allowed within IVQ or the quota overage allowance as described in Section 6.2.6. The survey-based TAC for Inside Waters is:

Geoduck Management Area 14B03 Comox Bar	10 tonne	20,500 lb.
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All horse clam landings must be validated, following the protocol in this IFMP. Designated landing ports are the same as for geoduck. Harvest at depths less than 10 feet below chart datum or in eelgrass beds is not permitted.

5.6. West Coast of Vancouver Island

Horse clam harvests will be permitted only in those areas opened for geoducks. **Harvest in eelgrass beds is not permitted.** Landings of horse clams may not exceed the following:

Area 20	1 tonne	2,205 lb.
Area 23	1 tonne	2,205 lb.
Area 24	5 tonne	11,025 lb.
Area 25	1 tonne	2,205 lb.
Area 26	1 tonne	2,205 lb.
Area 27	0.5 tonne	1,100 lb.

The incidental harvest of horse clams while fishing for geoduck is limited as described above, and is to be recorded as part of the IVQ. Areas with a survey-based TAC may be harvested in addition to the IVQ; discussions are ongoing between the Department and the UHA about directed horse clam fisheries in Area 24.

All horse clam landings must be validated, following the protocol in this IFMP. Designated landing ports are the same as for geoduck. Harvest in eelgrass beds is not permitted.

5.7. North Coast

The horse clam fishery will open concurrently with the geoduck fishery. **Harvest in eelgrass beds is not permitted.** The Department will monitor the fishery through the OGM, and may impose in-season closures if harvests occur in eelgrass beds or if harvest levels exceed acceptable levels.

All horse clam landings must be validated, following the protocol in this IFMP. Designated landing ports are the same as for geoduck.

6. CONTROL AND MONITORING OF COMMERCIAL FISHING ACTIVITIES

Control and monitoring of the commercial fishery is achieved largely through the Catch Validation Program (Dockside Monitoring Program, DMP). Commercial fish harvesters, through the UHA, contract with a third party to validate landings of geoduck at the first point of landing. The individuals who carry out this duty are called dockside validators, and are designated Observers by DFO. The validated weights are used to track harvests to ensure that IVQs and bed quotas have not been exceeded. Geoducks which arrive at fish plants must be accompanied by a tag upon which is recorded the vessel name, vessel registration number (VRN), “G” tab number, and the date and location of harvest.

Vessels are required to notify the service provider prior to engaging in fishing, and prior to landing clams. Each vessel must also carry and fill out a “Geoduck Validation & Harvest Logbook” with details of harvest activity.

The service provider contracts vessel-based OGMs, to provide the following services: co-ordinating sampling for the Marine Biotoxin Monitoring Program, communicating with dockside observers, writing Incident Reports, advising operators of open and close times and fishing locations, monitoring effort, co-ordinating fishing activity to avoid excessive harvesting in specific geoduck beds, observing product transfers to packer vessels, checking dive harvest information for completeness, recording information about the characteristics of geoduck beds as relayed by divers, and recording other observations about the prosecution of the geoduck and horse clam fishery and about sea otter impacts. The OGMs are present during every opening in the North Coast and WCVI areas.

The service provider, including the OGM, and the area resource managers, will work with the lead resource manager to fish each geoduck bed to the recommended quota, and will direct the fleet as to fishing location and quantity. It is the OGM’s responsibility to monitor effort within both geoduck beds and management areas on a daily basis, manage fishing activity to avoid excessive harvesting in specific geoduck areas, and to report excess harvesting to the resource managers.

THE OGM HAS THE RESPONSIBILITY TO REQUEST THAT VESSELS MOVE WHEN A BED OR SUBBED QUOTA HAS BEEN TAKEN. VESSELS ARE EXPECTED TO COMPLY WITH THE OGM’S REQUEST. THE DEPARTMENT WILL CLOSE AN AREA IMMEDIATELY IF THERE ARE PROBLEMS IN COMPLIANCE.

The Department has been notified by the UHA that the service provider contracted by the UHA for the purpose of notification, catch validation, fishery monitoring, biological sampling, and

data submission is Archipelago Marine Research Ltd of Victoria. The service provider can be reached at (800) 663-7152 or (250) 383-4535.

6.1. Notification Procedure

The following are responsibilities of notification for the master of a “G” licensed vessel, as detailed in the Conditions of Licence of the Geoduck and Horse Clam Licence. Where feasible, at least 24 hours notice will be given.

6.1.1. Notification by a Harvest Vessel

Prior to fishing geoducks and horse clams, upon cancellation of a fishing trip, after fishing, and prior to delivering, the master of the vessel must notify the service provider of the following information:

- Vessel name and VRN.
- GMA in which fishing will take, or has taken, place.
- Date and time of arrival on, or departure from, the fishing grounds.
- Date and time of landing, landing port and location at the port.

Notification may be completed through the service provider at (800) 663-7152 or (250) 383-4635, or through the service provider’s representatives (On-Grounds Monitor or Dockside Observer). For telephone numbers of Observers, contact the service provider.

6.1.2. Notification by a Packer Vessel

If geoduck or horse clams have been transhipped to a packer vessel for delivery to a landing port, then the master of the packer vessel must notify an Observer with the same details noted as above.

6.2. Catch Validation

6.2.1. Validation & Harvest Logbooks

Prior to validation of shellfish no person shall, smash the shells or slit the membranes of the shellfish to drain the waters, or dump, throw overboard or otherwise discard shellfish that have been harvested and retained in accordance with the *Fisheries Act* and the regulations made thereunder.

The vessel master must be in possession of a DFO approved Validation & Harvest Logbook assigned to the vessel’s geoduck licence. The Validation & Harvest Logbook must be on board the licensed vessel while fishing for geoducks or while geoducks are on board.

The Validation & Harvest Logbook and the Bed Questionnaire were combined into one form in 2008 (see example of logbook in Appendix 7). The “Geoduck and Horse Clam Validation & Harvest Logbook” issued by the UHA is approved for both form and content by the Shellfish Data Unit. Logbooks are available by calling (604) 734-5929 or (250) 752-7205. Any alternatives to the Validation & Harvest Logbook must be approved by the Shellfish Data Unit prior to use.

At each landing and validation, the vessel master will provide the Observer with the completed harvest section of the Validation & Harvest Logbook.

The vessel master is responsible for providing specific fishing location information in the form of latitude and longitude of dive location in the Validation & Harvest Logbook. For the Inside Waters area only, fishing location information must also be provided on copies of maps that will be available from the Observers. For confidentiality, harvest maps may be mailed directly to the Shellfish Data Unit. Observers can provide fish harvesters with pre-addressed envelopes for this purpose.

The Validation & Harvest Logbook assigned to each geoduck licence on the fishing vessel shall remain aboard the vessel at all times during the harvest of geoduck and horse clams.

The vessel master, on request of a fishery officer, fishery guardian, or Observer must produce the Validation & Harvest Logbook.

6.2.2. Standard Geoduck and Horse Clam Cages

All geoduck and horse clams shall be packed in cages with a maximum weight (while empty), of five pounds per cage. The cages and cage dividers shall be clean and fabricated from approved material. The weight of any cage dividers (or liners) must be deducted from validation weights (contact the CFIA; see Contacts, Appendix 15).

6.2.3. Tagging of Geoducks and Horse Clam Cages

All geoducks and horse clams delivered to packers or to designated landing ports shall be in cages that are tagged. The tags must be waterproof on which the following information shall be written with water resistant ink (see Appendix 8):

- Vessel name and Vessel Registration Number (VRN)
- Geoduck licence number (G Tab)
- Harvest date
- Geoduck Management Area (GMA), i.e. 24D01c
- Pacific Fishery Management Area and Subarea, i.e. 24-4
- Location of catch (bed code(s) where possible), i.e. 24-4-1(1)
- Common name of the product, i.e. “geoduck clam” or “horse clam”

To increase traceability of product, it is highly recommended that fish harvesters use bed code as an identifier for the harvested product. An example of a modified cage tag is given in Appendix 8. In addition, transcribing the Variation Order Number from the fishery notice that announces the opening onto the cage tag will provide harvesters and plant operators with additional verification that product is coming out of areas that have been opened by CFIA and DFO.

Contact the Resource Manager or Archipelago Marine Research for examples of how new cage tags may be printed.

These tags are meant to accompany the product to the point of sale or consumption, both in Canada and abroad.

6.2.4. Landings of Geoduck and Horse Clams

All geoducks and horse clams or portions of geoducks and horse clams removed from the substrate of the ocean floor must be retained and validated, upon landing, by an Observer.

At the point of off-loading, the catch must be weighed by a DFO certified Observer with a government certified scale. The net weight must be entered with a maximum deduction of five pounds per cage for cage weight. The weight of any cage dividers (or liners) must also be deducted. The Validation & Harvest Logbook must remain with the licensed vessel, with copies accompanying the product to its destination.

If the catch cannot be weighed, due to extenuating circumstances, either a coast-wide average net weight of 50 pounds per cage or a calculated vessel average cage weight, determined by a fishery manager, may be used and entered on the Validation & Harvest Logbook.

In exceptional circumstances, such as a vessel or packer sinking, the average cage weight will be assigned by the Observer or by a resource manager.

In the event that the plant weights are higher than dock weights, the greater of the two shall be used.

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

6.2.5. Landing Catch Transhipped to a Packer Vessel

When geoduck and horse clams have been transhipped to a packer vessel for delivery to a landing port, the master of the packer vessel shall ensure the following requirements are met:

- All geoducks and horse clams transhipped from the catcher vessel must be validated at landing by an Observer.
- All geoducks and horse clams must be weighed, and this weight recorded in the Geoduck and Horse Clam Validation & Harvest Logbook at the time of transhipment.
- Prior to validation of shellfish no person shall, smash the shells or slit the membranes of the shellfish to drain the waters, or dump, throw overboard or otherwise discard shellfish that have been harvested and retained in accordance with the Fisheries Act and the regulations made thereunder.
- If the catch cannot be weighed, due to extenuating circumstances, either a coast-wide average net weight of 50 pounds per cage or a calculated vessel average cage weight, determined by a resource manager, may be used and entered on the Validation & Harvest Logbook.
- The packer vessel master shall provide the observer with a hard copy of the Validation & Harvest Logbook prior to each validation.
- The packer vessel master 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.

6.2.6. Quota Transfer to Avoid Small Overages

Small quantities of geoduck that exceed the licence's annual quota, to a maximum of 500 pounds (increased from 200 lb. in 2008 to allow more flexibility where clams of differing weights are landed), can be transferred to another geoduck licence provided the conditions below are fulfilled. If all of these conditions are not met, Observers will not transfer the overage to another licence. **Harvest of geoducks over the IVQ, after the transfers to avoid small overages, may be subject to prosecution and seizure of the overage.**

Transfers between licences at some time after the landing event may be performed solely at the discretion of the fishery manager and the service provider. Validation errors that may occur at the time of the overage transfer will be corrected.

6.2.6.1. Conditions for Quota Transfer to Avoid Small Overages

In the following explanation, the geoduck licence which has exceeded its quota is called licence “A” and the licence to which quota is transferred is called licence “B.”

- Transfer of Quota to a Second Licence on the Same Vessel - If two or more licences designated to the same licence area are assigned to the same vessel then a quota overage from one licence may be transferred to the geoduck licence that has quota remaining. An overage to the last geoduck licence quota on the same vessel may be transferred to another vessel’s geoduck licence in accordance with conditions below.
- Maximum Allowable Transfer of Quotas between Licences on Different Vessels - In the event of a quota overage on geoduck licence “A,” a maximum of 500 pounds of geoduck may be transferred to another vessel’s geoduck licence (licence “B”). Both licences must be designated to the same licence area. Only one transfer of quota overage is allowed. The quota overage cannot be divided between a number of licences.
- Remaining Quota on Second Licence - The amount transferred cannot exceed the remaining quota of geoduck licence “B.”

6.2.6.2. Documentation

Both vessel masters must make their intentions to transfer or receive quota overage clear to the Observer. This is easily accomplished in situations where the vessel operators interact with the observer at the point of landing.

In the event of a packer landing, instructions from the on-grounds monitor, a note signed by both vessel masters, or the transfer request form provided with the Validation & Harvest Logbook are required to advise the Observer that there is a mutual agreement to transfer. The master of the packer vessel should not be obligated to forward a verbal transfer request from the fishing vessel operators to the observer as the message may be forgotten or misinterpreted.

If, on the last day of fishing, a vessel has an overage for which no transfer has been arranged, the service provider will attempt to facilitate a transfer at a later date.

6.2.7. Lost, seized or destroyed product

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

- 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 vessel quota and the applicable area quota.
- The weight of product spoiled or wasted because of weather-related delays will also be applied to both the catcher vessel’s individual vessel quota and the applicable area quota.
- 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 reviewed with the UHA and service provider.

6.3. Catch and Fishing Data

It is the responsibility of the vessel owner for the provision and maintenance of an accurate record, a “log,” of daily harvest operations. This log must be completed and a copy submitted to the Shellfish Data Unit in both hard copy (paper) and electronic form in an approved format as defined by DFO Marine Ecosystem and Aquaculture Division. The Validation & Harvest Logbook supplied by the service provider under contract to the UHA is an approved format harvest log.

For fish harvesters who wish to have catch data requirements completed by an Observer other than the service provider under contract to the UHA, contact the Shellfish Data Unit to obtain the requirements and acceptable data formats for supplying Validation & Harvest Logbook, fishing location information and electronic data in a format which meets the Conditions of Licence. It remains the vessel owner’s responsibility to ensure that the requirements are fully completed.

The following section describes the requirements for the harvest information section of the Validation & Harvest Logbook, (see Appendix 7 for an example of the log).

6.3.1. Harvest Information

The vessel master, prior to each landing and validation, must complete the harvest section (Section C) of the Validation & Harvest Logbook. The following detailed harvest information must be completed for each diver for each dive made during a fishing day:

- Dive number.
- Dive site reference.
- Area, Subarea, and bedcode.
- Harvest date.
- Latitude and longitude of harvest location (required since 2004). More than one line in the harvest section of the Validation & Harvest Logbook may be used for this purpose.
- Diver name.
- Duration of dive.
- Minimum and maximum depth of dive.
- The number of pieces harvested for each dive
- The number of cages harvested for each dive.

A total piece count for each validation page must also be completed.

6.3.2. Fishing Location Information (Charts and GIS data)

6.3.2.1. Inside Waters Licence Area

The vessel master is responsible for reporting latitude and longitude position for each dive on the Validation & Harvest Log. In addition, the vessel master is responsible for the provision of a chart record of the locations fished. This harvest chart must be marked directly with the vessel name, the VRN, the licence number and validation ID numbers. Each harvest site must be clearly marked on the chart with a dive site reference (such as a letter designation) or dive numbers, validation ID numbers and dates that fishing activity occurred at each site.

6.3.2.2. WCVI Licence Area

The vessel master is responsible for reporting latitude and longitude position for each dive on the Validation & Harvest Log.

6.3.2.3. North Coast Licence Area

The vessel master is responsible for reporting latitude and longitude position for each dive on the Validation & Harvest Log.

6.3.3. Validation & Harvest Logbooks

The original white page copy of the log, the fishing location information, and the electronic copy *must be forwarded within 28 days following the end of each month in which fishing occurred.*

This information must be sent to:

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

Catch information must be recorded in the harvest log by midnight of the day of fishing.

The logbook must be at the harvest site. Logbooks must be produced for examination on demand of a fishery officer, guardian, or a fishery observer designated under the *Fisheries Act*.

FISHERIES AND OCEANS CANADA WISHES TO REMIND COMMERCIAL FISH HARVESTERS THAT VALIDATION & HARVEST LOGBOOKS 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. DELAY OF COMPLETION OR SUBMISSION OF LOGS IS A VIOLATION OF A CONDITION OF LICENCE.

6.3.4. Submission and Release of Validation & Harvest Log Data

The vessel owner of record, as reported to the PFLU, is responsible to ensure that the vessel master has completed and submitted a copy of the harvest log data. The Department can only release harvest log data to the reported vessel owner, and only upon written request.

6.3.5. Nil Report for Validation & Harvest Log

In the event that a licence is issued but not fished, the vessel owner 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 Validation & Harvest Logbook identifying the vessel, licence tab number, and the year with “Nil” entered in the body of the log and signed by the vessel owner constitutes a Nil Report.

6.3.6. Confidentiality of Harvest Data

Harvest data, including fishing location data supplied through latitude and longitude co-ordinates, loran or chart records, collected under the harvest logbooks for shellfish fisheries programs, are collected for use by DFO in the proper assessment, management, and control of the fisheries. Upon receipt by DFO of harvest log data and/or fishing location information,

supplied by the fish harvesters in accordance with Conditions of Licence, Section 20(1) (b) of the *Access to Information Act* prevents DFO 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 DFO 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 licence eligibility holder.

6.3.7. Fish Slip Requirements

An accurate written report shall be furnished on a fish slip of all fish and shellfish caught under the authority of this licence. A report must be made even if the fish and shellfish landed are used for bait, personal consumption, or otherwise disposed. The written report shall be posted *no later than seven days after the offloading* and sent to:

Regional Data Unit
Fisheries and Oceans Canada
Suite 200 - 401 Burrard Street
Vancouver, BC V6C 3S4
Phone: (604) 666-2716

Fish slip books may be purchased at the above address, or at most DFO offices.

7. GENERAL INFORMATION

7.1. WORKSAFE BC

The geoduck fishery, and other dive fisheries, are 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 footwear, 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 Internet Site at:

www.worksafebc.com

See Appendix 16 for more information.

7.2. Sales of Geoducks and Horse Clams

The *B.C. Fish Inspection Act* Section 12 (1.1) states: “No person shall sell or attempt to sell any harvested bivalve molluscs unless the molluscs were, before the sale or attempted sale, processed in an establishment that at the time of processing held a valid certificate of registration issued by the CFIA”. Geoduck and horse clam harvesters may sell their clams only to a duly licensed fish buyer.

APPENDIX 7: EXAMPLE OF GEODUCK AND HORSE CLAM VALIDATION & HARVEST LOGBOOK

VALIDATION IN: ☐ GEODUCK ☐ HORSE CLAM

NUMBER: 80-

VALIDATION IN: ☐ GEODUCK ☐ HORSE CLAM

DIVER		SUB		BED		HARVEST LOCATION		DIVER		PIECE		CAGES	
LINE	DIVE	DATE	AREA	SUB	BED	(LAT & LONG)	(LAT & LONG)	MINUTES	MINUTES	DEPTH (m)	COUNT	MAX.	CAGES
1	B	4/25	9	5	(2)	52° 08.311', 129° 42.693'	(example) Clarie, Jim	87	24	34	302	15	
2													
3													
4													
5													
6													
7													

HORSE CLAM EXAMPLE

TRUE PIECE COUNTS ?		WAS A HARVEST CHART COMPLETED?		TOTALS	
YES	NO	YES	NO	MINUTES	PIECES CAGES

1. DENSITY OF GEODUCKS ? (# geoducks / square m): 0 (none), 1 (less than 1), 2 (1 to 2), 3 (2 to 3), or give number if more than 3 geoducks per sq. metre.

2. MARKET QUALITY: Average for bed: 1 (excellent), 2 (good), 3 (fair), 4 (poor)

3. JUVENILES: Are you finding young, thin-shelled geoducks? How many? 0 (none), 1 (few), 2 (more than a few), 3 (many thin-shelled clams)

4. Recommendations for quota change? 1 (delete bed, not viable), 2 (overfished - bed needs a rest), 3 (decrease bed quota), 4 (maintain bed quota), 5 (increase bed quota)

5. "DIGABILITY" How easy or difficult is it to dig in this bed? 1 (easy), 2 (moderate), 3 (difficult)

6. DENSITY OF HORSE CLAMS in bed? (# horse clams / square m): 0 (none), 1 (less than 1), 2 (1 to 2), 3 (2 to 3), or give number if more than 3 horse clams per sq. metre.

BED INFO COMMENTS ?

DO YOU HAVE FURTHER COMMENTS ON: Estimated size of Bed, Sea Otters - present / absent, or Average Clam Size ? → Please refer to Line No. or Bed No. above.

APPENDIX 8: EXAMPLES OF SHELLFISH CAGE TAGS

To increase traceability of product, it is highly recommended that fish harvesters use bed code as an identifier for the harvested product. In addition, transcribing the Variation Order Number from the fishery notice that announces the opening onto the cage tag will provide harvesters and plant operators with additional verification that product is coming out of areas that have been opened by CFIA and DFO. **Contact the Resource Manager or Archipelago Marine Research for examples of how new cage tags may be printed.**

VESSEL NAME	VRN xxxxx
G-Tab: _____	Harvest Date: _____
Quota Area (Geoduck Management Area, GMA): _____	
Area-Subarea-Bedcode [e.g. 24-6-4(2)] : _____	
Location of Catch: _____ (e.g., Point, Cove, Bank, Inlet, Island)	
Product Type: <input type="checkbox"/> Geoduck <input type="checkbox"/> Horse Clam	

Example of a shellfish cage tag for a specific vessel

INFINITY SEAFOODS INC <i>460 Distant Pl., Vancouver, B.C. V1P 2L4, 284-6632</i>		
Vessel: _____	VRN: _____	
G-Tab: _____	Harvest Date: _____	
Quota Area (Geoduck Management Area, GMA): _____		
Area-Subarea-Bedcode [e.g. 24-6-4(2)] : _____		
Location of Catch: _____ (e.g., Point, Cove, Bank, Inlet, Island)		
Product Type: <input type="checkbox"/> Geoduck <input type="checkbox"/> Horse Clam <input type="checkbox"/> Sea Urchin <input type="checkbox"/> Sea Cucumber <input type="checkbox"/> Other _____		

Example of a generic shellfish cage tag supplied by processor

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

- Vessel name and Vessel Registration Number (VRN)
- Geoduck licence number (G Tab)
- Harvest date
- Geoduck Management Area (GMA), e.g. 24D01c
- Pacific Fishery Management Area and Subarea, e.g. 24-4
- Location of catch (bed code(s) where possible), e.g. 24-4-1(1)
- Common name of the product, i.e. “geoduck clam” or “horse clam”

APPENDIX 9: 2010 GEODUCK AND HORSE CLAM MANAGEMENT AREA DESCRIPTIONS

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Sanitary contamination closure numbers are noted for reference where available. A copy of the complete list may also be obtained from the resource managers (see the Contacts section in the IFMP). Sanitary closures are amended annually in April and November, and may also be amended in-season. Consequently, harvesters are advised to check the Internet, prior to fishing in an area, to ensure that they have the most recent contamination closure information. See:

http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm

1. INSIDE WATERS (GULF) LICENCE AREA 2010

Geoduck Management Area 12A01

Northern Island

1. Subarea 12-11
2. That portion of Subarea 12-16 north of a line from the Doyle Island light due west to a point south of the Noble Islets light, thence to Boxer Point on Nigei Island. NOTE: Contamination closure number 12.17

Geoduck Management Area 12A02

Walker Group

Subareas 12-10 and 12-13.

Geoduck Management Area 12B01a

East side Vansittart Island

A portion of Subarea 12-12 except that portion of Subarea 12-12 described as GMA 12B01b.

Geoduck Management Area 12B01b

West side Vansittart Island

A portion of Subarea 12-12:

1. west of a line drawn from a point on Vansittart Island at 50 degrees 55.241 minutes north latitude, 127 degrees 47.950 minutes west longitude, due north to the Subarea 12-12 boundary and
2. northwest of a line drawn from a point on Vansittart Island at 50 degrees 54.605 minutes north latitude, 127 degrees 48.417 minutes west longitude, to Pivot Point on Hope Island at 50 degrees 54.360 minutes north latitude, 127 degrees 50.164 minutes west longitude.

Geoduck Management Area 12B02

Northern Goletas Channel

Subarea 12-15.

NOTE: Contamination closure number 12.22.

Geoduck Management Area 12B03a

Southern Goletas Channel

1. That portion of Subarea 12-16 south of a line from the Doyle Island light due west to a point south of the Noble Islets light, thence to Boxer Point on Nigei Island;
2. That portion of Subarea 12-16 west of a line drawn from the junction of the boundaries of Subareas 12-9, 12-10, 12-11 and 12-16 southwest to a point due east of Duval Point, then west to Duval Point and southwesterly to Vancouver Island, except GMA 12B03.

Geoduck Management Area 14B01

Comox Bar

1. That portion of Subarea 14-7 within 1.0 nautical miles of the eastern shore of Denman Island;
2. That portion of Subarea 14-9 south of a line from the East Cardinal Buoy at 49 degrees 41.52 minutes north latitude, 124 degrees 49.72 minutes west longitude to the P54 buoy at 49 degrees 38.75 minutes north latitude, 124 degrees 51.5 minutes west longitude excluding waters within 0.5 nautical mile of Hornby Island;
3. That portion of Subarea 14-10 excluding the waters within 0.5 nautical mile radius of Phipps Point on Hornby Island.

Geoduck Management Area 14C01

Comox Can Buoy to North Baynes Sound

A portion of Subarea 14-11 south of a line drawn from the Comox Bell Buoy P-54, thence to the northern end of White Spit and southwest to a point on the Vancouver Island shore the foot of Argyle Road at 49 degrees 36.88 minutes north latitude, 124 degrees 54.18 minutes west longitude.

NOTE: Contamination closure number 14.1, 14.22A.

Geoduck Management Area 14C02

North Baynes Sound

Subarea 14-15.

NOTE: Contamination closure number 14.3, 14.22A.

Geoduck Management Area 14C03

South Baynes Sound

Subarea 14-8, except that portion east of a line running from the eastern end of Mapleguard Point in Deep Bay at 49 degrees 28.081 minutes north latitude, 124 degrees 43.600 minutes west longitude northwesterly to a point on Denman Island north of Repulse Point at 49 degrees 29.369 minutes north latitude, 124 degrees 45.391 minutes west longitude.

NOTE: Baynes Sound is under a Special Management Plan which may limit times of harvest (contact Resource Manager for details) and includes numerous Contamination closures.

Geoduck Management Area 16D01

Thormanby Island (annual)

Portions of Subareas 16-1 and 16-2 within 2.0 nautical miles of North and South Thormanby Islands, except in Welcome Passage where the boundary is mid-passage between North and South Thormanby Islands and the mainland shore.

NOTE: Contamination closure number 16.C.

Geoduck Management Area 17A01

Icarus Point/Lantzville Shore

Subarea 17-18.

NOTE: numerous Contamination closures.

Geoduck Management Area 17A02

Nanoose Bay to Blunden Point

Subarea 17-19.

NOTE: Contamination closure number 17.27.

Geoduck Management Area 17A03

Nanoose Bay

Subarea 17-20.

NOTE: Contamination closure number 17.11.

Geoduck Management Area 17B01

North Gabriola Island to Neck Point

1. Subareas 17-10, 17-12, 17-13, 17-14, 17-15;
2. A portion of 17-16 west of a line drawn from the easternmost point on Mudge Island due north to Gabriola Island.

NOTE: numerous Contamination closures.

Geoduck Management Area 17B02

Pylades Channel

1. That portion of Subarea 17-4 northeast of a line from the midpoint of a line drawn between Reynolds Point and the most northwesterly point of Link Island drawn to Danger Reefs thence west to Blackberry Point on Valdes Island;
2. That portion of Subarea 17-16 east of a line drawn from the easternmost point on Mudge Island due north to Gabriola Island;
3. Subarea 17-17.

NOTE: Contamination closure number 17.6, 17.9, 17.B.

Geoduck Management Area 17B03

Boat Harbour to Chemainus

Those portions of Subareas 17-4, 17-5 and 17-6 southwest of a line from the midpoint of a line drawn between Reynolds Point and the most northwesterly point of Link Island, then to Danger Reefs, then to Bare Point near Chemainus Harbour.

NOTE: numerous Contamination closures.

Geoduck Management Area 17B04

Southern portion of Area 17

1. Subareas 17-1, 17-2, 17-3;
2. Portions of 17-4, 17-5 and 17-6 east of a line drawn from Danger Reefs south to Bare Point near Chemainus Harbour and south of a line drawn from Danger Reefs to Blackberry Point on Valdes Island;
3. Subareas 17-8 and 17-9.

NOTE: numerous Contamination closures.

*Geoduck Management Area 29 (boundary change)

Outside Valdes Island

That portion of Subarea 29-5 north of a line running due east from Dionisio Point.

NOTE: Contamination closure number 29.5.

2. WEST COAST VANCOUVER ISLAND LICENCE AREA 2010

Geoduck Management Area 20A

Sooke

Subareas 20-4, 20-5, and 20-6.

NOTE: Contamination closure number 20.1, 20.2.

Geoduck Management Area 23A01

Maggie River

Those portions of Subarea 23-10 and Subarea 23-11:

1. southerly of a line across Toquart Bay from Harris Point on Vancouver Island to an unnamed point on Vancouver Island at 49 degrees 01.76 minutes north latitude, 125 degrees 21.48 minutes west longitude;
2. westerly of a line from a point on the line across Toquart Bay approximately 300m offshore at 49 degrees 01.11 minutes north latitude, 125 degrees 21.30 minutes west longitude to a point offshore from west Larkins Island, then to the easternmost point of Island 49 in the David Island group, and then to light on southern Forbes Island; and
3. northwest of a line in Newcombe Channel and Macoah Passage running from 48 degrees 59.59 minutes north latitude, 125 degrees 21.96 minutes west longitude to 48 degrees 54.08 minutes north latitude, 125 degrees 29.52 minutes west longitude.

NOTE: Contamination closure number 23.2.

Geoduck Management Area 23A02

Macoah Pass

Those portions of Subarea 23-10 and Subarea 23-11:

1. southeast of a line in Newcombe Channel and Macoah Passage running from 48 degrees 59.59 minutes north latitude, 125 degrees 21.96 minutes west longitude to 48 degrees 54.08 minutes north latitude, 125 degrees 29.52 minutes west longitude, and
2. northwest of a line running from a point offshore from west Larkins Island, then to the easternmost point of Island 49 in the David Island group, and then to light on southern Forbes Island.

Geoduck Management Area 23B

Toquart Bay & Pipestem Inlet

A portion of Subarea 23-10 north and easterly of a line across Toquart Bay from Harris Point on Vancouver Island to an unnamed point on Vancouver Island at 49 degrees 01.76 minutes north latitude, 125 degrees 21.48 minutes west longitude.

NOTE: Contamination closure number 23.12.

Geoduck Management Area 23C

Mayne Bay, Stopper, Bryant & Curwen Islands

1. Subarea 23-9;
2. A portion of Subarea 23-10 southerly of a line across Toquart Bay from Harris Point on Vancouver Island to an unnamed point on Vancouver Island at 49 degrees 01.76 minutes north latitude, 125 degrees 21.48 minutes west longitude and easterly of a line from a point on the line across Toquart Bay approximately 300m offshore at 49 degrees 01.11 minutes north latitude, 125 degrees 21.30 minutes west longitude, southerly to a point offshore from west Larkins Island, then to the easternmost point of Island 49 in the David Island group, and then to light on southern Forbes Island.

NOTE: Contamination closure number 23.3, 23.C.

Geoduck Management Area 23D01

Pinkerton Islands

A portion of Subarea 23-8:

1. north of the northern boundary of the Broken Islands Closure and
2. west of a line drawn due south from an unnamed point on Vancouver Island northeast of Canoe Island at 48 degrees 57.425 minutes north latitude, 125 degrees 15.679 minutes west longitude.

Geoduck Management Area 23D02

Canoe Island to Useless Inlet

1. Portions of Subarea 23-4, 23-6 and 23-7 west of a line drawn from Baeria Rocks to Hornby Rocks (at 48 degrees 48.792 minutes north latitude, 125 degrees 17.694 minutes west longitude) and north of a line from Baeria Rocks easterly to an unnamed point on Seddall Island at 48 degrees 57.744 minutes north latitude, 125 degrees 03.995 minutes west longitude.
 2. A portion of Subarea 23-8 north of the northern boundary of the Broken Islands Closure and east of a line drawn due south from an unnamed point on Vancouver Island northeast of Canoe Island at 48 degrees 57.425 minutes north latitude, 125 degrees 15.679 minutes west longitude.
- NOTE: Contamination closure number 23.6, 23.9, 23.10, 23.13.

Geoduck Management Area 23E01

Trevor Channel to Alberni Inlet

1. Subareas 23-3; and
2. A portion of Subarea 23-4 excepting that portion of Subarea 23-4 included in the Bamfield Study Area.

NOTE: Contamination closure number 23.B.

Geoduck Management Area 23E02

Chain Group

1. Portions of Subareas 23-4, 23-6 and 23-7 east of a line drawn from Baeria Rocks to Hornby Rocks (at 48 degrees 48.792 minutes north latitude, 125 degrees 17.694 minutes west longitude), south of a line from Baeria Rocks easterly to an unnamed point on Seddall Island at 48 degrees 57.744 minutes north latitude, 125 degrees 03.995 minutes west longitude, and excluding portions of these Subareas included in the Bamfield Study Area, and
2. Subarea 23-5.

Geoduck Management Area 24A02a

Yarksis

A portion of Subarea 24-8:

1. bounded by a line on the north from Rassier Point to Schindler Point and
2. bounded on the west by the shoreline of Vargas Island and
3. bounded on the east by a line drawn between Moser Point on Vargas Island to an unnamed point northwest of Kakawis (at 49 degrees 11.4 minutes north latitude, 125 degrees 55 minutes west longitude).

Geoduck Management Area 24A02b

East Side Father Charles Channel

A portion of Subarea 24-8:

1. bounded on the west by a line from an unnamed point near Kakawis (at 49 degrees 11.4 minutes north latitude, 125 degrees 55 minutes west longitude) to Moser Point and
2. bounded on the south, east and north by a line from Moser Point on Vargas Island to the western most point of Wickaninnish Island, thence easterly along the shore of Wickaninnish Island to the beacon on the northeast shore of Wickaninnish Island, thence to a mid-channel buoy (Y3), thence due east to Esowista Peninsula, thence north along the shore to Grice Point, thence to Schindler Point, thence to Rassier Point.

NOTE: Contamination closure number 24.1.

Geoduck Management Area 24A03

Tonquin/Wickaninnish

A portion of Subarea 24-8 (Templar Channel):

1. south of a line from the beacon on the east shore of Wickaninnish Island, thence northeast to a mid-channel buoy (Y3), thence due east to Esowista Peninsula; and
2. bounded on the west and southwest by a line from the western most point of Wickaninnish Island, thence due south to the southern boundary of Subarea 24-8, which is a line from Cox Point to the south western most point Vargas Island, near Ahous Point, thence along the Subarea 24-8 southern boundary line to Cox Point, thence along the shore of Vancouver Island to the point on Esowista Peninsula due east of the midchannel buoy Y3.

Geoduck Management Area 24A04

Epper/Dunlap

1. That portion of Subarea 24-6 bounded on the west by a straight line from a prominent unnamed point on Vancouver Island approximately 1/2 mile northwest of the western most point of Morfee Island (at 49 degrees 13.6 minutes north latitude, 125 degrees 58.1 minutes west longitude) southeast to the western most point of Morphee Island, along the south shore of Morphee Island to the light on the south end of Morphee Island, thence to the western most point on Dunlap Island, thence southeast along the shore of Dunlap Island to the southernmost point of Dunlap Island, thence due east to Meares Island, thence northerly along the shore of Meares Island to Roberts Point, thence to the eastern most point on Kraan Head thence to the point of commencement;
2. Subarea 24-7 excluding that portion southerly or inside of a line from Kraan Head, thence northeast to the northernmost point of Saranac Island, southerly along the shore of Saranac Island to southernmost point, thence southeast to the unnamed point on Meares Island on the northern shore of Ritchie Bay, thence southwest along the shore of Ritchie Bay to Robert Point, thence back to the point of commencement at Kraan Head.

Note: A portion of Subarea 24-6 included in a line from Robert Point on Meares Island westerly to the northern point on Dunlap Island, thence following the eastern shore of Dunlap Island to the southernmost point, thence due east to Meares Island, thence along the shore to the point of commencement is closed as a Research Area.

Geoduck Management Area 24A05

Lemmens Inlet

Subarea 24-9 excluding a portion south of a line from a point on the shore of Vancouver Island at 49 degrees 07.2 minutes north latitude, 125 degrees 49.0 minutes west longitude, thence to a point on an unnamed islet in the McBey Islets at 49 degrees 07.4 minutes north latitude, 125 degrees 49.1 minutes west longitude, thence easterly to a point on an unnamed islet in the McBey islets at 49 degrees 07.4 minutes north latitude, 125 degrees 48.6 minutes west longitude,

thence to a point on the shore of Vancouver Island at 49 degrees 07.2 minutes north latitude, 125 degrees 48.3 minutes west longitude.

Note: McBey Islets are closed as they are included in the Pacific Rim National Park.

NOTE: Contamination closure number 24.1 and Pacific Rim Park closure.

Geoduck Management Area 24A06a1

Yellow Bank North

A portion of Subarea 24-7 inside a line drawn from the eastern most point of Kraan Head, northeast to the Northern most point of Saranac Island, thence to Robert Point, thence to the point of commencement at Kraan Head.

Geoduck Management Area 24A06a2

Yellow Bank South

A portion of 24-7 inside a line drawn from:

- the northernmost point of Saranac Island to Robert Point,
- thence northeast along the shore to an unnamed point on Meares Island on the northern shore of Ritchie Bay at 49 degrees, 13.91 minutes north latitude, 125 degrees, 55.85 minutes west longitude,
- thence northeast along the shore to an unnamed point on Meares Island southeast of the southernmost point of Saranac Island,
- thence to the southernmost point of Saranac Island,
- thence along the shore of Saranac Island to the point of commencement.

Note: The waters of Ritchie Bay are closed as a Research Area.

Geoduck Management Area 24A06b

East Maurus Channel

A portion of Subarea 24-6 along the Meares Island shore between Schindler Point and an unnamed point on Meares Island due east of the southern tip of Dunlap Island, out to the 20 metre depth contour.

Geoduck Management Area 24A06c

Elbow Bank North

A portion of Subarea 24-6 east of a line commencing at the western most point of Dunlap Island, thence southwest to an unnamed point on Vargas Island at 49 degrees 12.445 minutes north latitude, 125 degrees 57.140 min west longitude, thence southeast along the shore of Vargas Island to an unnamed point at 49 degrees 12.321 minutes north latitude, 125 degrees 57.128 minutes west longitude, thence due east to its intersection with the GMA 24A6b boundary, thence north along the western boundary of GMA 24A6b to its intersection with a line between the southern tip of Dunlap Island due east to a point on Meares Island, thence westerly to the southernmost point of Dunlap Island, thence to the point of commencement.

Geoduck Management Area 24A06d

Elbow Bank South

A portion of Subarea 24-6 south of a line from to an unnamed point at 49 degrees 12.321 minutes north latitude, 125 degrees 57.128 minutes west longitude, thence due east to its intersection with the GMA 24A6b boundary, thence south along the western boundary of GMA 24A6b to its intersection with a line between Schindler Point and Rassier Point, thence northwesterly along the line between Schindler Point and Rassier Point, thence northwesterly along the shore of Vargas Island to the point of commencement.

Geoduck Management Area 24B01a

Bartlett Island

A portion of Subarea 24-6 south and west of a line commencing at Rafael Point and following the shore to an unnamed point on the eastern side of Siwash Cove at 49 degrees 15.737 minutes north latitude, 126 degrees 11.285 minutes west longitude, thence to Monks Islet light, thence southwest through the southeast point of Lawrence Island to the Subarea 124-3 boundary, thence northwest along the Subarea boundary to the point of commencement.

Geoduck Management Area 24B01b

Blunden Island

A portion of Subarea 24-6:

- south and east of a line drawn from Monks Islet light southeast through the southeast point of Lawrence Island to the Subarea 124-3 boundary; and
- east of a line drawn from Monks Light due south to a to an unnamed point on Vargas Island at 49 degrees 13.0 minutes north latitude, 126 degrees 01 minutes west longitude.

Note: Ahous Bay is closed as a whale sanctuary.

Geoduck Management Area 24B02a

Coomes Bank

A portion of Subarea 24-6 bounded on the east by a straight line from a prominent unnamed point on Vancouver Island approximately 1/2 nautical mile northwesterly of the western most point of Morfee Island at 49 degrees 13.619 minutes north latitude, 125 degrees 58.393 minutes west longitude, thence to the western most point on Morfee Island, thence west to a light at Eby Rock at 49 degrees 13.143 minutes north latitude, 126 degrees 01.189 minutes west longitude, thence to Monks Island light, thence northerly to the unnamed point immediately south of Chetarpe I.R. at 49 degrees 14.7 minutes north latitude, 126 degrees 09 minutes west longitude, thence to the point of commencement.

Geoduck Management Area 24B02b

Calmus Pass

A portion of Subarea 24-6 bounded by a line drawn near Eby Rock at 49 degrees 13.143 minutes north latitude, 126 degrees 01.189 minutes west longitude to the western most point on Morphee Island, thence along the shore of Morfee Island to the southernmost point, thence easterly to the western most point on Dunlap Island, thence southwest to an unnamed point on Vargas Island at 49 degrees 12.445 minutes north latitude, 125 degrees 57.140 minutes west longitude thence west along the shore of Vargas Island to an unnamed point on Vargas Island at 49 degrees 12.984 minutes north latitude, 126 degrees 01.0433 minutes west longitude, thence to the point of commencement near Eby Rock.

Geoduck Management Area 24B03

Millar Channel

Portions of Subarea 24-4 and 24-6:

- bounded on the north by a line from Clifford Point to an unnamed point on Flores Island at 49 degrees 17.622 north latitude, 126 degrees 03.521 minutes west longitude; and
- bounded on the south by a straight line from a prominent point to the south of Chetarpe I.R. at 49 degrees 14.7 minutes north latitude, 126 degrees 09 minutes west longitude bearing 302 degrees true in a northwest direction to a prominent point of land located 0.7 nautical miles southwest of Yates Point on Flores Island.

Geoduck Management Area 24B04

Russell Channel

A portion of Subarea 24-6 south of a line drawn from a point 0.7 nautical miles southwest of Yates Point on Flores Island to the unnamed point south of Chetarpe Indian Reserve on Vancouver Island at 49 degrees 14.7 minutes north latitude, 126 degrees 09 minutes west longitude, thence southerly to Monks Islet light, thence westerly to the unnamed point on the west side of Siwash Cove on Flores Island, thence along the shore of Flores Island to the point of commencement.

Geoduck Management Area 24C01

Sydney Inlet

Subarea 24-2.

NOTE: Contamination closure number 24.7.

Geoduck Management Area 24C02

Exposed

1. Subareas 24-1;
2. A portion of Subarea 24-8 southerly of a line from Moser Point to the western most point of Wickaninnish Island, thence due south to the southern boundary of Subarea 24-8;
3. Subarea 124-3.

Geoduck Management Area 24D01a

Fortune Channel

Subareas 24-10 and 24-12.

NOTE: Contamination closure number 24.4.

Geoduck Management Area 24D01b

Shelter Inlet

1. Subarea 24-3;
2. A portion of Subarea 24-4 north of a line drawn from an unnamed point on Flores Island at 49 degrees 20.991 minutes north latitude, 126 degrees 04.912 minutes west longitude to an unnamed point on Vancouver Island at 49 degrees 20.440 minutes north latitude, 126 degrees 03.535 minutes west longitude;
3. Subareas 24-13 and 24-14.

NOTE: Contamination closure number 24.5.

Geoduck Management Area 24D01c

McKay Island

1. A portion of Subarea 24-4 south of a line drawn from an unnamed point on Flores Island at 49 degrees 20.991 minutes north latitude, 126 degrees 04.912 minutes west longitude to an unnamed point on Vancouver Island at 49 degrees 20.440 minutes north latitude, 126 degrees 03.535 minutes west longitude and north of a line drawn from Clifford Point at 49 degrees 17.144 minutes north latitude, 126 degrees 01.877 minutes west longitude to an unnamed point on Flores Island at 49 degrees 17.622 minutes north latitude, 126 degrees 03.521 minutes west longitude;
2. Subarea 24-5.

NOTE: Contamination closure number 24.6.

Geoduck Management Area 24D02

Indian Island

A portion of Subarea 24-11 excluding waters south of a line from a point on Indian Island at 49 degrees 06.963 minutes north latitude, 125 degrees 46.890 minutes west longitude thence southwest to a point on the Vancouver Island shore at 49 degrees 06.662 minutes north latitude, 125 degrees 47.358 minutes west longitude and west of a line from the eastern most point of Indian Island due south to Vancouver Island.

Geoduck Management Area 25A

Esperanza

1. Subareas 25-9 to 25-12;
2. A portion of Subarea 25-13 north and west of a line from Ferrer Point to a light at Middle Reef, thence to the north tip of Flower Islet, thence to the most westerly point of Centre Island, thence due south to Nootka Island.

NOTE: numerous contamination closures.

Geoduck Management Area 25B

Nuchatlitz

1. A portion of Subarea 25-13 east of a line from Ferrer Point to the southeast most point of a peninsula on Nootka Island at 49 degrees 47.922 minutes north latitude, 126 degrees 56.431 minutes west longitude;
2. Subarea 25-14.

NOTE: Contamination closure number 25.5.

Geoduck Management Area 25C

Rosa Harbour

A portion of Subarea 25-13: - bounded on the north and west by a line from Ferrer Point to the light at Middle Reef thence to the north tip of Flower Islet thence to most westerly point of Centre Island thence due south to Nootka Island; and - bounded on the south and east by a line from Ferrer Point to the southeast most point of a peninsula on Nootka Island at 49 degrees 47.922 minutes north latitude, 126 degrees 56.431 minutes west longitude.

Geoduck Management Area 25D

Nootka

1. Subareas 25-3 to 25-8
2. Subarea 25-15.

NOTE: numerous contamination closures.

Geoduck Management Area 26A

North Inlets

Those portions of 26-7 thorough 26-10, except the Checleset Bay Ecological Reserve described as those portions of Areas 26 and 126 enclosed by a line drawn from:

- a point on the Brooks Peninsula at 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 northeast to a point on Vancouver Island near McLean Island at 50 degrees 2.1 minutes north latitude, 127 degrees 25.03 minutes west longitude,
- thence northeast along the shore of Vancouver Island to Malksope Point at 50 degrees 05.53 minutes north latitude, 127 degrees 28.95 minutes west longitude,

- thence due west to a point midchannel on the southeast end of Gay Passage at 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 at 50 degrees 06.7 minutes north latitude, 127 degrees 31.8 minutes west longitude,
 - thence northwest to the shore of Vancouver Island, just west of Theodore Point at 50 degrees 07.7 minutes north latitude, 127 degrees 32.8 minutes west longitude,
 - thence westerly along the Vancouver Island shore to an unnamed point on the east side of Nasparti Inlet at 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 at 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.
- NOTE: Contamination closure number 26.5, 26.6.

Geoduck Management Area 26B

Mission Group

1. That portion of Subarea 26-1 northwest of a line running due south from Amos Island light to the surfline;
2. That portion of Subarea 26-6 southerly of a line running from a point on the east side of McLean Island at 50 degrees 01.7 minutes north latitude, 127 degrees 23.5 minutes west longitude, easterly to Gayward Rock, thence to Amos Island light, thence due south to the common boundary separating Subareas 26-6 and 26-1, and north of line from Unsworth Point on Union running due east to a point on Vancouver Island;
3. That portion of Subarea 26-7 east of a line running from Lookout Island to the westernmost point of McLean Island.

Geoduck Management Area 26C

Central Kyuquot Inlets

1. That portion of Subarea 26-1 bounded on the west by a line from the Amos Island light true south to the Subarea boundary and on the east by a line from Racoon Point true south to the boundary;
2. That portion of Subarea 26-2 south of a line from the eastern most point of Surprise Island to Hohoae Point on Hohoae Island, thence along the southern shore of Hohoae Island to an unnamed point on the east side of Hohoae Island at 50 degrees 02.032 minutes north latitude, 127 degrees 12.811 minutes west longitude, thence southeast to a point on the Vancouver Island shore at 50 degrees 01.404 minutes north latitude, 127 degrees 11.762 minutes west longitude and north of a line from Unsworth Point on Union Island due east to a point on Vancouver Island;
3. That portion of Subarea 26-6 north and east of a line from a point on the east side of McLean Island at 50 degrees 01.7 minutes north latitude, 127 degrees 23.5 minutes west longitude, thence to Gayward Rock, thence to the Amos Island light, thence true south to the common boundary between Subareas 26-6 and 26-1.

NOTE: numerous contamination closures.

Geoduck Management Area 26D01

SW Union Island

Those portions of Subareas 26-1, 26-2 and 26-6: - east of a line running from Racoon Point due south to the surfline; and - westerly of a line running midchannel between Union Island and

Whiteley Island between a line running from Unsworth Point on Union Island due east to a point on Vancouver Island on the north and a line running between an unnamed point on Union Island at 50 degrees 0.299 north latitude, 127 degrees 14.298 minutes west longitude due east to a point in a bay on Vancouver Island at 50 degrees 0.312 minutes north latitude, 127 degrees 09.096 minutes west longitude on the south, - thence midchannel in Kyuquot Channel out to the surfline. NOTE: Contamination closure number 26.13.

Geoduck Management Area 26D02

Amai & Cachalot Inlets

Portions of Subareas 26-2 and 26-3: - east of a line running midchannel between Union Island and Whiteley Island; - south of a line running from Unsworth Point on Union Island due east to a point on Vancouver Island on the north; and - north of a line running between an unnamed point on Union Island at 50 degrees 0.071 minutes north latitude, 127 degrees 15.043 minutes west longitude due east to a point in a bay on Vancouver Island at 50 degrees 0.078 minutes north latitude, 127 degrees 11.202 minutes west longitude.

NOTE: numerous contamination closures.

Geoduck Management Area 26D03

North of Rugged Point

Portions of Subareas 26-1 and 26-2:

- east of a line drawn midchannel in Kyuquot Channel out to the surfline; - south of a line running between an unnamed point on Union Island at 50 degrees 0.071 minutes north latitude, 127 degrees 15.043 minutes west longitude due east to a point in a bay on Vancouver Island at 50 degrees 0.078 minutes north latitude, 127 degrees 11.202 minutes west longitude; and
- west of a line drawn southwest 232 degrees from a point near Rugged Point at 49 degrees 57.773 minutes north latitude, 127 degrees 15.097 minutes west longitude out to the boundary.

Geoduck Management Area 26D04

South of Rugged Point

A portion of Subarea 26-1 east of a line drawn southwest 232 degrees from a point near Rugged Point at 49 degrees 57.773 minutes north latitude, 127 degrees 15.097 minutes west longitude out to the boundary.

Geoduck Management Area 26F

Inlets - exploratory

1. Those portions of Subarea 26-2 northeast of a line from the easternmost point of Surprise Island, thence to Hohoae Point on Hohoae Island, thence along the southern shore of Hohoae Island to an unnamed point on the east side of Hohoae Island at 50 degrees 02.032 minutes north latitude, 127 degrees 12.811 minutes west longitude, thence southeast to a point on the Vancouver Island shore at 50 degrees 01.404 minutes north latitude, 127 degrees 11.762 minutes west longitude;

2. Subareas 26-4 and 26-5.

NOTE: numerous contamination closures.

Geoduck Management Area 27A

Quatsino Inlet

Subarea 27-7.

NOTE: numerous contamination closures.

Geoduck Management Area 27B

Cliffe Point to Lawn Point

A portion of Subarea 27-2 southerly and easterly of a line from Cliffe Point to the Kains Island light, thence to Lawn Point on Vancouver Island.

Geoduck Management Area 27C

Forward Inlet

Subarea 27-3.

NOTE: Contamination closure number 27.4.

Geoduck Management Area 27D

Kains Island

A portion of Subarea 27-2 bounded:

- on the east by a line true north from Cliffe Point to the opposite shore;
- on the north by a line from Montgomery Point to Kains Point;
- on the west by a line from Cape Parkins to Kains Island light; and
- on the south by a line from the Kains Island light to Cliffe Point.

Geoduck Management Area 27E

San Josef Bay

A portion of Subarea 27-1 east of a line from Hanna Point southeast to the unnamed point at the southern entrance to San Josef Bay.

Geoduck Management Area 27F

Sea Otter Cove

A portion of Subarea 27-1 inside or north of a line from Hanna Point to the most southerly point of Winifred Island to the most southerly point of Cape Russell.

Geoduck Management Area 27G

Exploratory

1. Portions of Subareas 27-1 and 27-2 outside or westerly of a line from Lawn Point to Kains Island light, thence to Cape Parkins, thence northwest along the shore of Vancouver Island to Topknot Point;
2. That portion of Subarea 27-1 inside a line from Topknot Point north to the most southerly point of Winifred Island then east to Hanna Point and then south to the unnamed point at the southern entrance to San Josef Bay;
3. That portion of Subarea 27-1 from the most northwest point of Cape Russell along the Subarea boundary to the most southwest point of Cape Scott.

Geoduck Management Area 27H

Klaskino Inlet

Subarea 27-5.

Geoduck Management Area 27I

Klaskish Inlet

Subarea 27-6.

3. NORTH COAST LICENCE AREA 2010

Geoduck Management Area CCA01

McMullin Group

That portion of Subarea 7-18 west of a line running from the northern tip of Goose Island to the most southeasterly tip of Stryker Island, and south of a line running from Fingal Point on Princess Alice Island to the southwestern most tip of Huron Island.

Geoduck Management Area CCA02

Stryker Island

1. That portion of Subarea 7-18 west of a line running from the northern tip of Goose Island to the most southeasterly tip of Stryker Island, and north of a line running from Fingal Point on Princess Alice Island to the southwestern most tip of Huron Island;
2. That portion of Subarea 7-23 in Louise Channel south of a line running through 52 degrees 06.475 minutes north latitude.

Geoduck Management Area CCA03

Tribal Group

That portion of Subarea 7-18 east of a line running from the northern tip of Goose Island to the most southeasterly tip of Stryker Island, and west of the meridian passing through 128 degrees 17.5 minutes west longitude.

Geoduck Management Area CCA04

Admiral Group

That portion of Subarea 7-18 east of the meridian passing through 128 degrees 17.5 minutes west longitude, and west of a line running from the southwestern tip of Campbell Island to the northwestern tip of Dodwell Island.

Geoduck Management Area CCA05

Prince Group

That portion of Subarea 7-25 east of the meridian passing through 128 degrees 20min west long., north of the parallel passing through 51 degrees 58.9 minutes north latitude, and west of a line running from the southwestern tip of Campbell Island to the northwestern tip of Dodwell Island and from Stubbs Point on Dodwell Island southwesterly to the northwestern point of the McNaughton Group at 51 degrees 58.6 minutes north latitude, 128 degrees 13.9 minutes west longitude.

Geoduck Management Area CCA06a

Latta Island

That portion of Subarea 7-25 east of a line running from Stubbs Point on Dodwell Island southwesterly to the northwestern point of the McNaughton Group at 51 degrees 58.6 minutes north latitude, 128 degrees 13.9 minutes west longitude, north of the parallel passing through 51 degrees 57.8 minutes north latitude, and south of a line bearing 101 degrees true from Stubbs Point on Dodwell Island to a point on Hunter Island.

Geoduck Management Area CCA06b

Hunter Channel

1. That portion of Subarea 7-17 south of a line running across Lama Passage at the Napier Point light at 52 degrees 07.9 minutes north latitude;

2. That portion of Subarea 7-18 and 7-25 east of a line from the southwestern tip of Campbell Island to the northwestern tip of Dodwell Island;
3. That portion of 7-25 north of a line bearing of 101 degrees true from Stubbs Point on Dodwell Island east to a point on Hunter Island.

Geoduck Management Area CCA07a

McNaughton Group North

That portion of Subarea 7-25 south of the parallel passing through 51 degrees 57.8 minutes north latitude, west of a line running from the outermost point on the north shore of the entrance to Kinsmen Inlet at 51 degrees 56.14 minutes north latitude, 128 degrees 11.82 minutes west longitude southerly to the outermost point on the south shore of the entrance to Kinsmen Inlet at 51 degrees 55.25 minutes north latitude, 128 degrees 11.54 minutes west longitude and east of a line commencing on the eastern shore of the northern island of the McNaughton Group at 51 degrees 57.8 minutes north latitude, then following the eastern shore of that island to the southern tip of that island, then true south to the adjacent island, then following westerly along that island to the narrowest point between it and the island directly to the west, then true west to that island, then south and westerly along the shore of that island to the southwesternmost point of that island, then true south to that island directly south of it, then following the shoreline easterly and southerly to the parallel passing through 51 degrees 55.65 minutes north latitude to its intersect with the Kinsmen Inlet boundary.

Geoduck Management Area CCA07b

McNaughton Group - Kinsmen

That portion of Subarea 7-25 east of a line running from the outermost point on the north shore of the entrance to Kinsmen Inlet at 51 degrees 56.14 minutes north latitude, 128 degrees 11.82 minutes west longitude southerly to the outermost point on the south shore of the entrance to Kinsmen Inlet at 51 degrees 55.25 minutes north latitude, 128 degrees 11.54 minutes west longitude.

Geoduck Management Area CCA07c

McNaughton Group South

That portion of Subarea 7-25 east of a line running from the southernmost point of the McNaughton Group at 51 degrees 54.27 minutes north latitude, 128 degrees 14.34 minutes west longitude, then south to 51 degrees 53.97 minutes north latitude, 128 degrees 14.29 minutes west longitude, west of a line running from the outermost point on the north shore of the entrance to Kinsmen Inlet at 51 degrees 56.14 minutes north latitude, 128 degrees 11.82 minutes west longitude southerly to the outermost point on the south shore of the entrance to Kinsmen Inlet at 51 degrees 55.25 minutes north latitude, 128 degrees 11.54 minutes west longitude, and south of the parallel passing through 51 degrees 55.65 minutes north latitude to its intersect with the Kinsmen Inlet boundary.

Geoduck Management Area CCA07exptl

Superstition Point Experimental Area

That portion of Subarea 7-25 south of a line running from Superstition Point on Hunter Island northeasterly to a point at 51 degrees 53.97 minutes north latitude, 128 degrees 14.29 minutes west longitude.

Geoduck Management Area CCA08

Simmonds Group

That portion of Subarea 7-25 east of the meridian passing through 128 degrees 20 minutes north latitude, south of the parallel passing through 51 degrees 58.9 minutes north latitude and west of the line from Stubbs Point on Dodwell Island to a point on the northern island of the McNaughton Group at 51 degrees 58.6 minutes north latitude, 128 degrees 13.9 minutes west longitude, then following the eastern shore of that island to the southern tip of that island, then true south to the adjacent island, then following westerly along that island to the narrowest point between it and the island directly to the west, then true west to that island, then south and westerly along the shore of that island to the most southwestern point of that island, then true south to that island directly south of it, and then southerly to the southernmost point of that island at 51 degrees 54.27 minutes north latitude, 128 degrees 14.34 minutes west longitude, then south to 51 degrees 53.97 minutes north latitude, 128 degrees 14.29 minutes west longitude on Hunter Island and north of a line running from Superstition Point on Hunter Island northeasterly to a point at 51 degrees 53.97 minutes north latitude, 128 degrees 14.29 minutes west longitude.

Geoduck Management Area CCA09

Goose Island North

That portion of Subarea 7-25 north of the parallel passing through 51 degrees 56.6 minutes north latitude and west of the meridian passing through 128 degrees 20 minutes west longitude.

Geoduck Management Area CCA10

Goose Island South

That portion of Subarea 7-25 south of the parallel passing through 51 degrees 56.6 minutes north latitude and west of the meridian passing through 128 degrees 20 minutes west longitude.

Geoduck Management Area CCA11

Spider Island

That portion of Subarea 7-27 north of the parallel passing through 51 degrees 50.0 minutes north latitude and west of a line across the narrowest point in Spitfire Channel between Hurricane Island and Hunter Island.

Geoduck Management Area CCA12a

Typhoon Island

That portion of Subarea 7-27 south of the parallel passing through 51 degrees 50 minutes north latitude, and north and west of a line commencing at 51 degrees 50 minutes north latitude, 128 degrees 14.44 minutes west longitude, running south to the northern tip of the most northern island of the Edna Islands, then following the northern shore of north Edna Island to the narrowest point in the channel between north and south Edna Islands, then to south Edna Island, then following the shoreline to the point at 51 degrees 49.42 minutes north latitude, 128 degrees 15.27 minutes west longitude and running 230 degrees to the Subarea boundary.

Geoduck Management Area CCA12b

South Edna Island

That portion of Subarea 7-27 south of the parallel passing through 51 degrees 50 minutes north latitude, south and east of a line commencing at 51 degrees 50 minutes north latitude, 128 degrees 14.44 minutes west longitude, running south to the northern tip of the most northern island of the Edna Islands, then following the northern shore of north Edna Island to the narrowest point in the channel between north and south Edna Islands, then to south Edna Island, then following the shoreline to the point at 51 degrees 49.42 minutes north latitude, 128 degrees 15.27 minutes west longitude and running 230 degrees to the surfline, and west of a line

commencing at 51 degrees 50 minutes north latitude, 128 degrees 14.0 minutes west longitude, and running due south to northernmost of the Anne Islands at 51 degrees 49.73 minutes north latitude, 128 degrees 14.0 minutes west longitude, then following the western shore of north Anne Islands to the narrowest point in the channel between north Anne Island and the island due south, then due south to the island and following the shoreline to the southwestern point of this island at 51 degrees 49.25 minutes north latitude, 128 degrees 13.99 minutes west longitude, then to the northern point of the Lyte Group at 51 degrees 49.06 minutes north latitude, 128 degrees 14.33 minutes west longitude, then following the northern shore to 51 degrees 49.0 minutes north latitude, 128 degrees 14.42 minutes west longitude, then westerly to 51 degrees 48.94 minutes north latitude, 128 degrees 14.73 minutes west longitude on Island "120" of the Lyte Group, then following the northern shore to 51 degrees 48.92 minutes north latitude, 128 degrees 14.86 minutes west longitude on the western side of Island "120" of the Lyte Group and true west to the Subarea boundary.

Geoduck Management Area CCA12c

Triquet Island

That portion of 7-27 south of a line commencing at the southwestern point of the Anne Islands at 51 degrees 49.25 minutes north latitude, 128 degrees 13.99 minutes west longitude, then running to the northern point of the Lyte Group at 51 degrees 49.06 minutes north latitude, 128 degrees 14.33 minutes west longitude, then following the northern shore to 51 degrees 49.0 minutes north latitude, 128 degrees 14.42 minutes west longitude, then westerly to 51 degrees 48.94 minutes north latitude, 128 degrees 14.73 minutes west longitude on Island "120" of the Lyte Group, then following the northern shore to 51 degrees 48.92 minutes north latitude, 128 degrees 14.86 minutes west longitude on the western side of Island "120" of the Lyte Group and true west to the Subarea boundary, and west of a series of lines from the southern tip of Island "195" of the Anne Islands at 51 degrees 49.21 minutes north latitude, 128 degrees 13.92 minutes west longitude to the north shore of Island "135" of the Anne Islands at 51 degrees 49.09 minutes north latitude, 128 degrees 13.92 minutes west longitude, then following the western shore to the southern tip at 51 degrees 48.81 minutes north latitude, 128 degrees 13.86 minutes west longitude, and then southeasterly to Island "175" at 51 degrees 48.56 minutes north latitude, 128 degrees 13.73 minutes west longitude, then following the western shore to the south shore at 51 degrees 48.50 minutes north latitude, 128 degrees 13.63 minutes west longitude, then due south to the Subarea boundary.

Geoduck Management Area CCA13

Spider Anchorage (Ronald)

That portion of Subarea 7-27 south of the parallel passing through 51 degrees 50 minutes north latitude, and east of a line commencing at 51 degrees 50 minutes north latitude, 128 degrees 14.0 minutes west longitude, and running due south to northernmost of the Anne Islands at 51 degrees 49.73 minutes north latitude, 128 degrees 14.0 minutes west longitude, then following the western shore of north Anne Island to the narrowest point in the channel between north Anne Island and the island due south, then due south to the island and following the shoreline to the southwestern point of this island at 51 degrees 49.21 minutes north latitude, 128 degrees 13.92 minutes west longitude, then to the north shore of Island "135" of the Anne Islands at 51 degrees 49.9 minutes north latitude, 128 degrees 13.92 minutes west longitude, then following the western shore to the southern tip at 51 degrees 48.81 minutes north latitude, 128 degrees 13.86 minutes west longitude, and then southeasterly to Island "175" at 51 degrees 48.56 minutes north latitude, 128 degrees 13.73 minutes west longitude, then following the western shore to the south

shore at 51 degrees 48.50 minutes north latitude, 128 degrees 13.63 minutes west longitude, then due south to the Subarea boundary and west of a line running from the southern tip of Hurricane Island to the northern tip of Manley Island, and west of a line running from 51 degrees 48.46 minutes north latitude, 128 degrees 11.47 minutes west longitude on the southeastern shore of Manley Island true south to the Subarea boundary.

Geoduck Management Area CCA14

Serpent Group

That portion of Subarea 7-27 south of a line running from the northeasternmost point of Manley Island to the northwesternmost tip of Camel Island, east of a line running from 51 degrees 48.46 minutes north latitude, 128 degrees 11.47 minutes west longitude on the southeastern shore of Manley Island true south to the Subarea boundary, and west of the meridian passing through 128 degrees 9 minutes west longitude.

Geoduck Management Area CCA15a

Kittyhawk Group North

That portion of Subarea 7-28 north of a line running from the southernmost point of Hunter Island at the entrance to Spitfire Channel to a point on the northwestern tip of Clare Island at 51 degrees 50.03 minutes north latitude, 128 degrees 08.43 minutes west longitude.

Geoduck Management Area CCA15b

Kittyhawk Group South

1. That portion of Subarea 7-27 east of a line across the narrowest point in Spitfire Channel between Hurricane Island and Hunter Island, east of a line from the southern tip of Hurricane Island to the northern tip of Manley Island, and north of a line from the most northeasternmost point of Manley Island to the northwestern tip of Camel Island and west of a line from the southeastern tip of Clare Island to the northeastern tip of Camel Island;
2. That portion of Subarea 7-28 south of a line running from the southernmost point of Hunter Island at the entrance to Spitfire Channel to a point on the northwestern tip of Clare Island at 51 degrees 50.03 minutes north latitude, 128 degrees 08.43 minutes west longitude.

Geoduck Management Area CCB01

Mathieson Channel

That portion of Subarea 7-9 north of a line from Schubert Point to Lang Point, and east of the meridian passing through 128 degrees 24.11 minutes west longitude.

Geoduck Management Area CCB02

Moss Passage

1. That portion of Subarea 7-3 east of the meridian passing through 128 degrees 30 minutes west longitude;
2. Subarea 7-4;
3. That portion of Subarea 7-9 in Moss Passage west of the meridian passing through 128 degrees 24.11 minutes west longitude.

Geoduck Management Area CCB03

Ivory Island

That portion of Subarea 7-9 south of a line running from Schubert Point on Don Peninsula to Lang Point on Lady Douglas Island.

Geoduck Management Area CCB04

Berry Inlet

1. Subarea 7-8;
2. That portion of Subarea 7-12 north and west of a line running from Fisher Point near Berry Inlet southerly to 52 degrees 15.26 minutes north latitude, 128 degrees 20.87 minutes west longitude, then easterly to 52 degrees 15.26 minutes north latitude, 128 degrees 14.64 minutes west longitude and true north to the Subarea boundary.

Geoduck Management Area CCB05a

Seaforth Channel West

That portion of Subarea 7-12 south of a line running from Fisher Point near Berry Inlet southerly to 52 degrees 15.26 minutes north latitude, 128 degrees 20.87 minutes west longitude, then easterly to 52 degrees 15.26 minutes north latitude, 128 degrees 14.64 minutes west longitude and true north to the Subarea boundary, and west of a line running from Idol Point true north to the boundary of Berry Inlet.

Geoduck Management Area CCB05b

Seaforth Channel East

1. That portion of Subarea 7-12 south of a line running from Fisher Point near Berry Inlet southerly to 52 degrees 15.26 minutes north latitude, 128 degrees 20.87 minutes west longitude, then easterly to 52 degrees 15.26 minutes north latitude, 128 degrees 14.64 minutes west longitude and true north to the Subarea boundary, and east of a line running from Idol Point true north to the boundary of Berry Inlet;
2. That portion of Subarea 7-17 north of a line running across Lama Passage at the Napier Point light (52 degrees 07.9 minutes north latitude);
3. Subarea 7-22;
4. That portion of Subarea 7-23 north of the parallel passing through 52 degrees 12.39 minutes north latitude.

Geoduck Management Area CCB06

St. John Harbour

That portion of Subarea 7-32 north of the parallel passing through 52 degrees 10.7 minutes north latitude.

Geoduck Management Area CCB07

Cape Mark (Bowling Alley)

That portion of Subarea 7-32 south of the parallel passing through 52 degrees 10.7 minutes north latitude and west of a line running southwesterly through a chain of islets from 52 degrees 10.17 minutes north latitude, 128 degrees 29.92 minutes west longitude, to 52 degrees 09.55 minutes north latitude, 128 degrees 30.85 minutes west longitude, and then continuing southerly through the chain of islets to where it intersects with the Subarea boundary.

Geoduck Management Area CCB08

Godfrey Rock

1. That portion of Subarea 7-1 east of a line running due south from Cape Mark to 52 degrees 06.51 minutes north latitude, 128 degrees 32.45 minutes west longitude, then east to where it intersects with the Subarea boundary;
2. That portion of Subarea 7-32 east of a line running southwesterly through a chain of islets from 52 degrees 10.17 minutes north latitude, 128 degrees 29.92 minutes west longitude to 52

degrees 09.55 minutes north latitude, 128 degrees 30.85 minutes west longitude, and then continuing southerly through the chain of islets to where it intersects with the Subarea boundary.

Geoduck Management Area CCB09

Princess Alice Island

Subarea 7-20.

Geoduck Management Area CCB10

Thompson Bay

That portion of Subarea 7-21 north of a line running through 52 degrees 08.568 minutes north latitude, 128 degrees 24.224 minutes west longitude.

Geoduck Management Area CCB11

Houghton Islands

Those portions of Subarea 7-19 and 7-21 south of a line running through 52 degrees 08.568 minutes north latitude, 128 degrees 24.224 minutes west longitude.

Geoduck Management Area CCB12

Joassa Channel/Raymond Passage

1. That portion of Subarea 7-23 south of the parallel passing through 52 degrees 12.39 minutes north latitude and north of a line running through 52 degrees 06.88 minutes north latitude;
2. That portion of Subarea 7-23 in Louise Channel north of a line running through 52 degrees 06.475 minutes north latitude.
3. Subarea 7-24;

Geoduck Management Area CCC01

Nalau Passage

1. That portion of Subarea 8-2 north of a line bearing 248 degrees true from Koeys Point through Hakai Pass;
2. Subarea 8-4.

Geoduck Management Area CCC02

Stirling Island West

1. Subarea 7-26;
2. That portion of Subarea 7-27 east of the meridian passing through 128 degrees 9 minutes west longitude and east of a line from the southeastern tip of Clare Island to the northeastern tip of Camel Island.

Geoduck Management Area CCC03

Choked Passage

1. That portion of Subarea 8-1 north and east of a line running from the most northwestern point of Calvert Island west to the meridian passing through 128 degrees 10 minutes west longitude, then north to a point on the meridian of 128 degrees 10 minutes west longitude due west of Odlum Point, then to Odlum Point;
2. That portion of Subarea 8-2 south and west of a line commencing at the northwesternmost tip of Calvert Island at 51 degrees 41.27 minutes north latitude, 128 degrees 6 minutes west longitude, and running to the westernmost tip of Rattenbury Island, then to Odlum Point on Odlum Island.

*Geoduck Management Area CCC04 (boundary change)

South Hakai Passage

1. That portion of Subarea 8-2 north and east of a line commencing at the northwesternmost tip of Calvert Island at 51 degrees 41.27 minutes north latitude, 128 degrees 6 minutes west longitude, and running to the westernmost tip of Rattenbury Island, then to Odium Point on Odium Island, and south of a line bearing 248 degrees true from Koeys Point through Hakai Pass;
2. Subarea 8-3;
3. That portion of Subarea 8-16 west of a line running from Wedgborough Point to Guise Point.

*Geoduck Management Area CCC05 (boundary change)

Fitz Hugh Sound

1. Subarea 8-16, except that portion west of a line running from Wedgborough Point to Guise Point;
2. Subarea 9-12.

Geoduck Management Area CCC06

Rivers Inlet

1. That portion of Subarea 9-1 east of the meridian passing through 127 degrees 50 minutes west longitude;
2. Subareas 9-2, 9-3, 9-4, and 9-11.

Geoduck Management Area CCC07

Calvert Island North

That portion of Subarea 9-1 west of the meridian passing through 127 degrees 50 minutes west longitude, and north of a line running east from Harold Point to 127 degrees 50 minutes west longitude

Geoduck Management Area CCC08

Calvert Island South (Grief Bay)

1. That portion of Subarea 9-1 west of the meridian passing through 127 degrees 50 minutes west longitude, and south of a line running east from Harold Point to 127 degrees 50 minutes west longitude;
2. Subareas 10-1 and 10-2.

Geoduck Management Area CCC09

Smith Inlet North

That portion of Subareas 10-3 and 10-4 north of a line bearing westerly from Barb Point to its intersection with the western boundary of Subarea 10-3 at 51 degrees 18 minutes north latitude.

Geoduck Management Area CCC10

Smith Inlet South

Those portions of Subareas 10-3 and 10-4 south of a line bearing westerly from Barb Point to its intersection with the western boundary of Subarea 10-3 at 51 degrees 18 minutes north latitude.

Geoduck Management Area CCD01a

Rennison Island

That portion of Subarea 6-11 west of a line running from Ulric Point on Aristazabal Island true north to the Subarea boundary.

Geoduck Management Area CCD01b

West Laredo Channel (north of Baker Point)

That portion of Subarea 6-11 east of a line running from Ulric Point on Aristazabal Island true north to the Subarea boundary.

Geoduck Management Area CCD01c

West Laredo Channel (south of Baker Point)

That portion of Subarea 6-14 west of a line commencing at 52 degrees 50 minutes north latitude, 129 degrees 10.8 minutes west longitude, and running 148 degrees true.

Geoduck Management Area CCD02

East Laredo Channel

That portion of Subarea 6-14 east of a line commencing at 52 degrees 50 minutes north latitude, 129 degrees 10.8 minutes west longitude, and running 148 degrees true.

Geoduck Management Area CCD03

Laredo Inlet

1. That portion of Subarea 6-16 east of a line running from Dallian Point to Wingate Point;
2. That portion of Subarea 6-19 south of a line running from Waser Point true east.

Geoduck Management Area CCD04

Kitasu Bay

Subarea 6-18.

Geoduck Management Area CCD05

Larkin Point

That portion of Subarea 6-16 west of a line running from Dallian Point to Wingate Point, east of the meridian passing through 128 degrees 51 minutes west longitude, and north of the parallel passing through 52 degrees 29.80 minutes north latitude.

Geoduck Management Area CCD06

Laredo Channel

1. Subarea 6-15;
2. That portion of Subarea 6-16 northwest of a line running from Dallian Point on Princess Royal Island to Tildesley Point on Aristazabal Island.

Geoduck Management Area CCD07

East Aristazabal Island South

1. That portion of Subarea 6-13 south and east of a line running 226 degrees from 52 degrees 29.3 minutes north latitude, 129 degrees west longitude;
2. That portion of Subarea 6-17 west of the meridian passing through 128 degrees 51 minutes west longitude.

Geoduck Management Area CCD08

Rudolf Bay

That portion of Subarea 6-17 east of the meridian passing through 128 degrees 51 minutes west longitude, and south of a line bearing true east and west through the light on Jaffrey Rock.

Geoduck Management Area CCD09a

West Higgins Passage (a)

Those portions of Subarea 6-16 and 6-17 east of the meridian passing through 128 degrees 51 minutes west longitude, north of a line bearing true east and west through the light on Jaffrey Rock, south of the parallel passing through 52 degrees 29.80 minutes north latitude, and west and north of a line running from a point at 52 degrees 28.76 minutes north latitude, 128 degrees

45.56 minutes west longitude on Swindle Island, west to a point on an island at 52 degrees 28.78 minutes north latitude, 128 degrees 46.10 minutes west longitude, then running southerly around the eastern shoreline to the southwesternmost point, then true south to Island "185", southerly around the eastern shoreline to a southwestern point at 52 degrees 28.04 minutes north latitude, 128 degrees 46.68 minutes west longitude and thence southwest 225 degrees to the parallel passing true east and west through the light on Jaffrey Rock.

Geoduck Management Area CCD09b

West Higgins Passage (b)

Those portions of Subareas 6-16 and 6-17 east of a line running from a point at 52 degrees 28.76 minutes north latitude, 128 degrees 45.56 minutes west longitude on Swindle island, west to a point on an island at 52 degrees 28.78 minutes north latitude, 128 degrees 46.10 minutes west longitude, then running southerly around the eastern shoreline to the southwesternmost point, then true south to Island "185", southerly around the eastern shoreline to a southwestern point at 52 degrees 28.04 minutes north latitude, 128 degrees 46.68 minutes west longitude, and thence southwest 225 degrees to the parallel passing true east and west through the light on Jaffrey Rock.

Geoduck Management Area CCD10

SW Price Island (Day Point)

1. That portion of Subareas 7-1 and 7-2 north of the parallel passing through 52 degrees 14.5 minutes north latitude;
2. That portion of Subarea 7-31 south of the parallel passing through 52 degrees 19 minutes north latitude.

Geoduck Management Area CCD11

West Price Island

That portion of Subarea 7-31 north of the parallel passing through 52 degrees 19 minutes north latitude.

Geoduck Management Area CCD12

Milbanke Sound South

That portion of Subarea 7-3 west of the meridian passing through 128 degrees 30 minutes west longitude, and south of a line running from Keith Point on Dowager Island true west.

Geoduck Management Area CCD13

Milbanke Sound North (East Higgins)

That portion of Subarea 7-3 west of the meridian passing through 128 degrees 30 minutes west longitude, and north of a line running from Keith Point on Dowager Island true west.

APPENDIX 14: EXAMPLE OF CONDITIONS OF GEODUCK & HORSE CLAM 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 conditions of licence will be attached to the licence issued by a Pacific Fishery Licensing Unit.

CONDITIONS OF [YEAR] GEODUCK & HORSE CLAM LICENCE

Licence Period: January 1, [Year] to December 31, [Year]

Authority

The Department of Fisheries and Oceans has authority to set licensing 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 geoduck and horse clam fishery obtain a copy of the [Year] Geoduck and Horse Clam Integrated Fisheries Management Plan from a Pacific Fishery Licensing Unit Office. The Management Plan is intended for general information purposes only.

Where there is a discrepancy between the Plan and the Regulations or Conditions, the Regulations and Conditions prevail.

PART 1

Application

This Part applies to fishing for geoduck and horse clam.

Definitions

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

“container” means a mesh harvest bag or a plastic tote used for the gathering, handling, or transportation of geoduck or horse clam.

“Department” means the Department of Fisheries and Oceans.

“discarding” means not placing harvested geoduck or horse clam in a container or removing a geoduck or horse clam from a container and not validating that geoduck or horse clam.

“harvesting” means removing, by any means, geoduck or horse clam from the substrate of the ocean floor.

“landed” or “landing” means the transfer of geoduck or horse clam from a vessel in the water to land.

“log” means the Geoduck and Horse Clam Validation & Harvest Log (see section 8 and explanatory note after section 12) or an alternative log approved by the Department of Fisheries and Oceans.

“Observer” means an individual who has been designated as an Observer by the Regional Director General for the Pacific Region of Fisheries and Oceans Canada pursuant to section 39 of the *Fishery (General) Regulations* and in the employ of a service provider company that has been certified by the Canadian General Standards Board (CGSB) for Dockside Monitoring.

“tranship” means the transfer of geoduck or horse clam from a vessel to another vessel.

“validated” means geoduck or horse clam that have been weighed by an Observer and the weight entered into the Geoduck and Horse Clam Validation & Harvest Log (see section 8 and explanatory note after section 12) or an alternative log approved by the Department of Fisheries and Oceans.

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

“wasting” means discarding, failing to gather harvested geoduck or horse clam, or failing to validate harvested geoduck or horse clam suitable for human consumption.

1. SPECIES OF FISH PERMITTED TO BE TAKEN:

Geoduck (*Panopea abrupta*) and horse clam (*Tresus spp.*)

2. QUANTITIES PERMITTED TO BE TAKEN:

The licensed vessel is permitted to catch and retain a maximum of [quota] lbs. of geoduck.

3. WATERS IN WHICH FISHING IS PERMITTED:

(1) Geoduck Licence Area as set out in this licence.

(2) All harvesting of geoduck and horse clam shall be conducted from the seabed in waters at least 10 feet below chart datum (i.e. deeper than 10 feet at the lowest low tide).

4. FISHING GEAR PERMITTED TO BE USED:

(1) All harvesting of geoduck and horse clam shall be conducted using hand-held, manually operated water nozzles guided and controlled underwater by a diver.

(2) Each water nozzle shall have a maximum inside diameter of 5/8 inch.

(3) All geoduck and horse clam or portions of geoduck and horse clam which have been removed from the substrate of the ocean floor are considered to have been harvested and must be landed and validated. (See section 8) The following steps must be taken when harvesting geoduck and horse clam:

- (a) all geoduck and horse clam and portions of geoduck and horse clam which have been harvested must be immediately placed in a container;
- (b) geoduck and horse clam must remain in the container while taken to the surface and loaded onto the catcher boat;
- (c) on the catcher boat, geoduck and horse clam may be removed from the first container and immediately placed in another container;
- (d) geoduck and horse clam must remain in the second container until landed and validated; and
- (e) no harvested geoduck or horse clam may be discarded or wasted.

5. THE TYPE AND SIZE OF CONTAINERS TO HOLD OR TRANSPORT GEODUCKS OR HORSE CLAM AND THE MARKING OF SUCH CONTAINERS:

- (1) All geoduck or horse clam shall be packed in cages with a maximum weight (while empty) of 5 lbs. per cage. The cages shall be clean and fabricated from approved material.
- (2) All geoduck or horse clam delivered to designated landing ports or transhipped to another vessel shall be in cages which are tagged. The tags must be waterproof and provide the following information written in water resistant ink:
 - (a) vessel name and vessel registration number;
 - (b) geoduck licence number;
 - (c) harvest date;
 - (d) harvest Subarea and Geoduck Management Area;
 - (e) location of catch; and
 - (f) common name of the product, i.e. geoduck or horse clam.

An example of a tag is illustrated in the [Year] Geoduck and Horse Clam Integrated Fisheries Management Plan.

6. TRANSHIPMENT:

Geoduck or horse clam 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 geoduck or horse clam are in containers and the containers are tagged as per section 5;
- (2) the number of containers is 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.

7. LOCATIONS PERMITTED FOR THE LANDING OF GEODUCK AND HORSE CLAM:

Geoduck and horse clam must be landed at one of the following ports:

(1) For fisheries off the east coast of Vancouver Island: Port Hardy, Port McNeill, Comox, Deep Bay, French Creek, Nanaimo, Ladysmith, and Sidney. Madeira Park may be used as a landing port if prior arrangements have been made with the service provider to ensure that an Observer and scale are available.

(2) For fisheries off the west coast of Vancouver Island: Port Alberni, Ucluelet, Tofino, Gold River, Zeballos, Fair Harbour, Winter Harbour and Coal Harbour.

(3) For fisheries in waters north of Cape Caution: Port Hardy, Prince Rupert, and Port Edward.

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 catch.

8. VALIDATION:

(see explanatory note after section 12)

(1) Subject to subsection 8(4), all geoduck and horse clam harvested or removed from the seabed floor under the authority of this licence must be validated at the point and time of landing.

(2) Prior to validation of geoduck and horse clam no person shall:

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

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

(4) If the requirement to weigh geoduck and horse clam at the point of landing cannot be met because weigh scales are not available, the owner and/or operator of the licensed vessel or, if the catch is transhipped to another vessel, the vessel master of that vessel shall have an Observer enter the total number of cages in the log.

(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 log prior to 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.

9. ORAL REPORTS:

(1) The vessel master shall, under the circumstances set out in subsections 9(2), report the information set out therein by notifying in person an observer or by telephoning (800) 663-7152. Where feasible, at least 24 hours notice will be given.

(2) Before a fishing trip, upon cancellation of a fishing trip, after fishing, and prior to delivering geoducks and horse clams:

- (a) vessel name, vessel master's name, and vessel registration number;
- (b) Area, Subarea, and Geoduck Management Area(s);
- (c) date and time of arrival on, or departure from, the fishing location; and

(d) date and time of landing, landing port and location at the port.

10. HARVEST LOGS AND CHART RECORDS:

(See explanatory note after section 12)

(1) The vessel master must 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 [Year] 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 must be kept on board the licensed vessel.

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

(6) The vessel master must enter latitude and longitude co-ordinates for each dive in the log.

(7) For geoduck and horse clam harvested from Areas 12 to 19 or 29, the vessel master must provide a chart record of the locations fished to the Department.

(a) The chart must 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 Geoduck and Horse Clam Validation & Harvest Log. If an alternative log is used, the validation I.D. number is the unique page number provided by the Shellfish Data Unit when the licence holder contacts the Unit to obtain the information necessary to fulfil the log requirements. (see explanatory note after section 12).

(b) Each harvest site must be clearly marked on the chart with a dive site reference or dive number, validation I.D. number and the dates that fishing activity occurred at each site. The dive numbers on the chart record must 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.

(8) The completed log pages (original copy), electronic copy of the log and, for geoduck and horse clam harvested in Areas 12 to 19 or 29, the chart record of locations fished, must be forwarded within 28 days following the end of each month in which fishing occurred to:

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

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

(9) In the event that a licence holder does not fish the [Year] fishing season, the licence holder is responsible for submitting a nil report. One page from the harvest log 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.

11. FISH SLIPS:

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

Fisheries and Oceans Canada
Regional Data Unit
Suite 200 – 401 Burrard Street
Vancouver, BC V6C 3S4

This report must be made within seven days of the offloading regardless of whether or not the catch has been sold within that period.

Fish slip books may be purchased at most Departmental Offices. Phone (604) 666-2716 for more information.

12. WORKSAFEBC REQUIREMENTS:

All geoduck and horse clam divers shall be in possession of a WorkSafeBC (Workers' Compensation Board) Seafood Harvesting Diving Certificate.

***Explanatory Note** - harvest log, fishing location information and validation: the Geoduck and Horse Clam Validation & Harvest Log issued by the Underwater Harvesters' Association is approved for both form and content by the Shellfish Data Unit. A service bureau contracted by the Underwater Harvesters' Association will provide, for a fee, the logbook and coding, keypunch, bonded chart coding, mapping and validation services.*

APPENDIX 15: CONTACTS

Observe, Record and Report (Enforcement Line)	(800) 465-4336
Fisheries Information and Shellfish Contamination Closure Update (24 Hours)	(866) 431-3474
(Greater Vancouver)	(604) 666-2828
Invertebrate Internet Page	www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/index.htm

Fisheries Management

Regional Resource Manager - Invertebrates	Russell Mylchreest	(604) 666-3869
Lead Geoduck Resource Manager	Erin Wylie	(250) 756-7271
Regional Recreational Fisheries Co-ordinator	Devona Adams	(604) 666-3271
North Coast Area, Areas 1 to 10	General Inquiries	(250) 627-3499
417 2nd Avenue West	Fax	(250) 627-3427
Prince Rupert, BC V8J 1G8		
Resource Management Biologist	Sandra Davies	(250) 627-3007
Resource Manager - First Nations Fisheries		(250) 627-3436
Resource Manager - Recreational Fisheries	Mark Reagan	(250) 627-3409
South Coast Area, Areas 11 to 26	General Inquiries	(250) 756-7270
3225 Stephenson Point Road	Fax	(250) 756-7162
Nanaimo, BC V9T 1K3		
Resource Management Biologist (Lead Manager)	Erin Wylie	(250) 756-7271
Resource Manager - Comox	David Fogtmann	(250) 339-3799
Resource Manager - First Nations Fisheries	Paul Preston	(250) 720-8941
	Jonathon Joe	(250) 756-7243
Resource Manager - Recreational Fisheries	Bill Shaw	(250) 756-7152
Lower Fraser Area, Areas 28 and 29	General Inquiries	(604) 666-8266
Unit 3, 100 Annacis Parkway	Fax	(604) 666-7112
Delta, BC V3M 6A2		
Resource Management Biologist	Bridget Ennevor	(604) 666-6390
Resource Manager - First Nations Fisheries		(604) 666-8426
Resource Manager - Recreational Fisheries	Debra Sneddon	(604) 666-6509

Conservation and Protection

Enforcement Plan	Bryan Jubinville	(250) 754-0221
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Science Branch

Pacific Biological Station	Claudia Hand	(250) 756-7139
Hammond Bay Road	Dominique Bureau	(250) 756-7114
Nanaimo, BC V9R 5K6		

Habitat Management

North Coast, Queen Charlotte Islands	Nathan Ferguson	(250) 559-4412
North Coast, Prince Rupert	Joy Hillier	(250) 627-3453
South Coast, Vancouver Island	Scott Northrup	(250) 756-7275
Lower Fraser River	Dale Paterson	(604) 666-0315

Commercial Licensing

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

Shellfish Officer	Kerry Marcus	(250) 754-0210
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Other DFO Area Offices	Telephone	Fax	Area of responsibility
NORTH COAST			
Queen Charlotte City	(250) 559-4413	(250) 559-4678	1, 2, 101, 102, 130, 142
Prince Rupert District	(250) 627-3433	(250) 627-3495	3-6 (north), 103-106
CENTRAL COAST			
Bella Coola	(250) 799-5345	(250) 799-5540	6 (south), 7 – 10, 107 - 110
Port Hardy	(250) 949-6422	(250) 949-6755	11, 12 (north), 27, 111, 127
Campbell River	(250) 850-5701	(250) 286-5854	12 (south), 13
SOUTH COAST			
Nanaimo	(250) 754-0235	(250) 754-0309	14 – 17, 29 (west)
Victoria	(250) 363-3252	(250) 363-0191	18 - 20
Port Alberni	(250) 724-0195	(250) 724-2555	21 - 26, 121 - 126
FRASER RIVER			
Steveston	(604) 664-9250	(604) 664-9255	28, 29 (east)

Environment Canada

Growing Water Quality Classification and Surveys	Walter Hajen	(604) 666-2947
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Canadian Food Inspection Agency

Molluscan Shellfish Program Specialist	Liliana Rodriguez-Maynez	(604) 666-3578
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Molluscan Shellfish Operations	Andre Youssef	(604) 666-3737
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BC Ministry of Agriculture and Lands

Aquaculture Development	Al Castledine	(250) 387-9574
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BC Ministry of Environment

Oceans and Marine Fisheries Division		(250) 953-3423
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WorkSafe BC

Occupational Safety Officer	Courtenay	Mark Lunny	(250) 334-8732
	Courtenay	Pat Olsen	(250) 334-8777
	Victoria	David Clarabut	(250) 881-3469
	Richmond	Bruce Logan	(604) 244-6477
	Terrace	Shane Neifer	(250) 615-6640

Focus Sector Manager for Fishing	Mark Peebles	(604) 279-7563
	toll free 1-888-621-7233 (ext. 7563)	

Underwater Harvesters Association

North Coast Area Committee		
John Palychuk, Chairperson		(250) 338-9690
Mike Dudek		(250) 248-2245
Mike Featherstone		(604) 932-4559
Dan Larsen		(604) 945-0456
Paul Hackert		(250) 339-2616
Chris Sorensen		(250) 753-3436
Victor Anysymiw		(250) 339-2652

Inside Waters Area Committee		
Steve Renshaw, Chairperson		(250) 592-0882
Jamie Austin		(250) 752-7205
Rob Hais		(250) 390-4967
Ken Ridgway		(250) 758-2756
Bob Antifave		(250) 390-3253
Ron Kowatski		(250) 390-3005

West Coast Vancouver Island Area Committee		
Les Tulloch, Chairperson		(604) 986-5170
Terry Keith		(250) 725-2168
Marc Boudreau		(250) 753-8193
Ron Hais		(250) 390-3134
Glenn Hicke		(250) 743-8211
Pete Devine		(250) 743-2254

Geoduck Service Provider

Archipelago Marine Research Ltd.
525 Head Street
Victoria, BC V9A 5S1

Eric Rome	(250) 383-4535
Fax	(250) 383-0103
Commercial Fishery Hail Line	(800) 663-7152

Geoduck Processors

Clear Bay Fisheries Inc.
Evergreen International Food Stuffs Ltd.
Sea World Fisheries Ltd.
Tri-Star Seafood Supplier Ltd.
Vancouver Int. Enterprises Ltd.

Julian Ng	(604) 276-2515
Jack Lai	(604) 253-8835
Tony Wong	(604) 254-0525
Claude Tchao	(604) 273-3324
Mr. Hu	(604) 231-3703

APPENDIX 16: SAFETY AT SEA

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

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

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

Useful publications include Gearing Up for Safety (WorkSafe BC), Safe At Sea DVD Series (Fish Safe), Stability Handbook (Fish Safe), Measuring Stability DVD (Fish Safe), Safest Catch DVD (Fish Safe) and Transport Canada Publication TP 10038 '*Small Fishing Vessel Safety Manual*' which can be obtained from TC or printed from their website:

www.tc.gc.ca/MarineSafety/Tp/Tp10038/tp10038e.htm

Other useful tools available for ensuring a safe voyage include: Education and Training Programs, Marine Emergency Duties, Fish Safe Stability Education, First Aid, Radio Operators Course, Fishing Masters Certificates, Small Vessel Operators Certificate etc.

Fish Safe has launched the new Safest Catch program that trains fishermen as safety advisors to be available to assist other fishermen in developing vessel specific on board fishing safety programs. Drills training and safety procedures are the focus and new tools such as the Safe At Sea Procedures Guide and Safety Quick Emergency Drills Guide are available to all BC Commercial fishermen. If you want more information, see the contact below.

1. IMPORTANT PRIORITIES FOR VESSEL SAFETY

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

1.1. Fishing Vessel Stability

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

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

1.2. Emergency Drill Requirements

The master must establish procedures and assign responsibilities to each crew member for emergencies such as crew member overboard, fire, flooding, abandoning ship, and calling for help.

The Crewing Regulation under the Canada Shipping Act (CSA) states that as of July 30th 2002 all seafarers, including fish harvesters, must have a Basic Safety Certificate (MED A1 or A3 depending upon vessel and operating waters) within 6 months of becoming a crewmember, regardless of time at sea. The MED A1 is a three day course, and must be taken by all crew regardless of duty station.

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

1.3. Cold Water Immersion

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

1.4. Other Issues

1.4.1. 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:

www.weatheroffice.ec.gc.ca/marine/region_03_e.html

1.4.2. Emergency Radio Procedures

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

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

Since August 1, 2003 all commercial vessels greater than 20 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Industry Canada site at:

www.ic.gc.ca/eic/site/ic1.nsf/eng/h_00014.html

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

www.pacific.ccg-gcc.gc.ca

1.4.3. Collision Regulations

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

- every ship twenty metres or more in length,
- every ship engaged in towing or pushing any vessel or object, other than fishing gear,
- 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

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

More detailed information on VTS can be obtained by calling (604) 775-8862 or from Coast Guard website:

www.pacific.ccg-gcc.gc.ca/mcts-sctm/index_e.htm.

1.4.4. Buddy System

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

2. FISH SAFE

Fish Safe is a fisherman driven initiative coordinated by Gina Johansen and directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board). The advisory committee meets quarterly to discuss safety issues and give direction to Fish Safe in the development of education and tools for fishermen.

Vessel masters and crew are encouraged to become more knowledgeable regarding vessel stability. FishSafe BC developed the Fish Safe Stability Education Course, which is available to all fishermen who want to improve their understanding of stability and find practical application to their vessel's operation.

Gina Johansen, Program Manager
Fish Safe
2-11771 Horseshoe Way
Richmond, BC V7A 4V4
Phone: 604-261-9700
Email: fishsafe@telus.net

www.fishsafebc.com

3. WORKSAFE BC

Commercial fishing is legislated by the requirements for diving, fishing and other marine operations found in Part 24 of the Occupational Health and Safety Regulation (OHSR). Many general hazard sections of the OHSR also apply. For example, Part 8: Personal Protective Clothing and Equipment addresses issues related to safety headgear, safety foot wear and

personal floatation devices. Part 15 addresses issues on rigging, Part 5 addresses issues of exposure to chemical and biological substances, and Part 3 addresses training of young and new workers, first aid, and accident investigation issues. Part 3 of the Workers Compensation Act (WCA) defines the roles and responsibilities of owners, employers, supervisors, and workers. The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafe BC website:

www.worksafebc.com

For further information, contact an Occupational Safety Officer:

Mark Lunny	Courtenay	(250) 334-8732
Pat Olsen	Courtenay	(250) 334-8777
David Clarabut	Victoria	(250) 881-3469
Bruce Logan	Richmond	(604) 244-6477
Shane Neifer	Terrace	(250) 615-6640

Mark Peebles, Focus Sector Manager for Fishing	Richmond	(604) 279-7563
		toll free 1-888-621-7233 (ext. 7563)

Ellen Hanson – projects related to commercial fishing		(604) 233-4008
		toll free 1-888 621-7233 (ext. 4008)
		Ellen.Hanson@worksafebc.com

APPENDIX 17: CONSULTATION

GEODUCK SECTORAL COMMITTEE AND RESEARCH SUBCOMMITTEE

A consultative process exists for the geoduck fishery and is a major part of the planning for the fishery. The primary consultative body for geoducks is the Geoduck Sectoral Committee. This committee includes representatives from Fisheries and Oceans Canada, commercial vessel owners, processors, First Nations, BC Ministry of Agriculture and Lands, and recreational fish harvesters. Members of the Underwater Harvesters' Association (UHA) represent commercial fish harvesters on this committee.

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

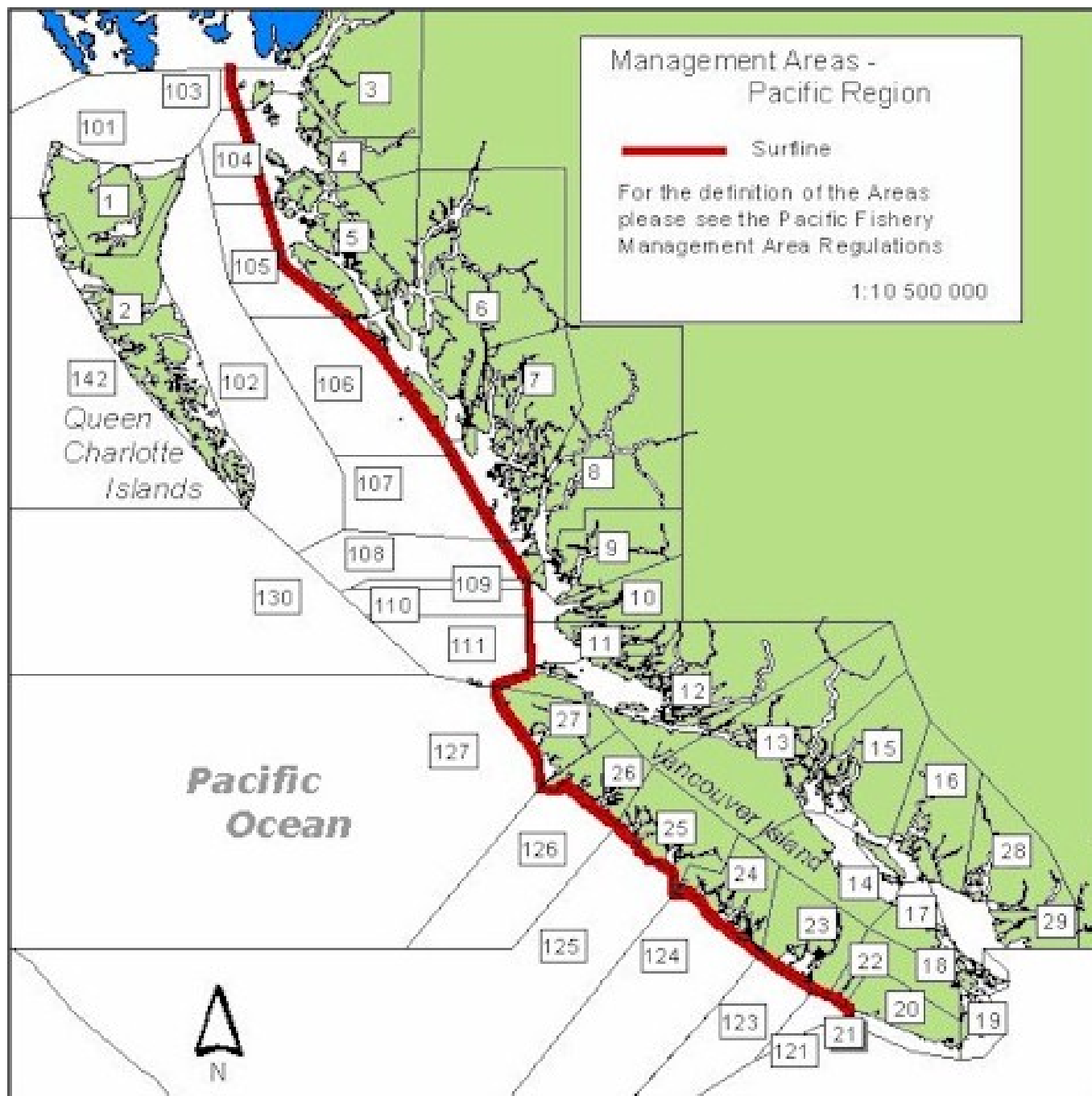
http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/shellfishInvertebrates/geoduck/default_e.htm

Area Committees for each commercial licence area discuss the observations, opinions and desires of the area fish harvesters and the industry association (UHA) with respect to the harvest plan. All advice, where practical and useful, is considered. Often a Steering Committee is called, which consists of all three of the Area Committees together, to ensure there is consensus and coast-wide integration of quota considerations.

The draft IFMP incorporates new science advice and all practical advice on quota options, and is made available to all interested parties: UHA, 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 (Geoduck and Horse Clam 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 10: MAP OF PACIFIC REGION FISHING AREAS



APPENDIX 11: MAPS OF 2010 GEODUCK MANAGEMENT AREAS – INSIDE WATERS

Harvesters are reminded that these maps and the area descriptions in Appendix 9 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. Geoduck Management Area Maps

Thick lines represent Geoduck Management Areas. See Appendix 9 Geoduck Management Area Descriptions for complete details.

For more detail on Pacific Fishery Management Areas and Subareas, see the Internet at:

http://www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm

2. Closures to Commercial Fisheries

Closures to the commercial fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, Research, Navigation, contamination or biotoxins. In addition to the following information on contamination and biotoxin closures, see Appendix 6, Section 3.4 and 3.5 for information on all other seasonal and permanent closures.

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

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

- It remains the responsibility of the *vessel master* to ensure that an area is not closed for harvest due to Sanitary or Biotoxin Contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of fishing, the vessel master must take care to confirm that an area is open for harvesting either through the DFO website at:
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Appendix 15 of the Integrated Fisheries Management Plan.
- In remote areas of the coast, the vessel master often relies on a service provider or on-grounds monitors for transmission of information. However, while OGMs direct and track harvesting by bed for stock assessment purposes, the responsibility and

accountability to comply with the *Fisheries Act* and to ensure that the fishing area is open and approved for harvest remains with the vessel master.

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

2.2. Sanitary (Contamination) Closures

Shellfish may not be harvested for direct marketing from closed contaminated areas except by special permit licence under the *Management of Contaminated Fisheries Regulations*. Currently there is not an approved depuration process for geoduck. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following Fisheries and Oceans Canada Internet site:

http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm

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

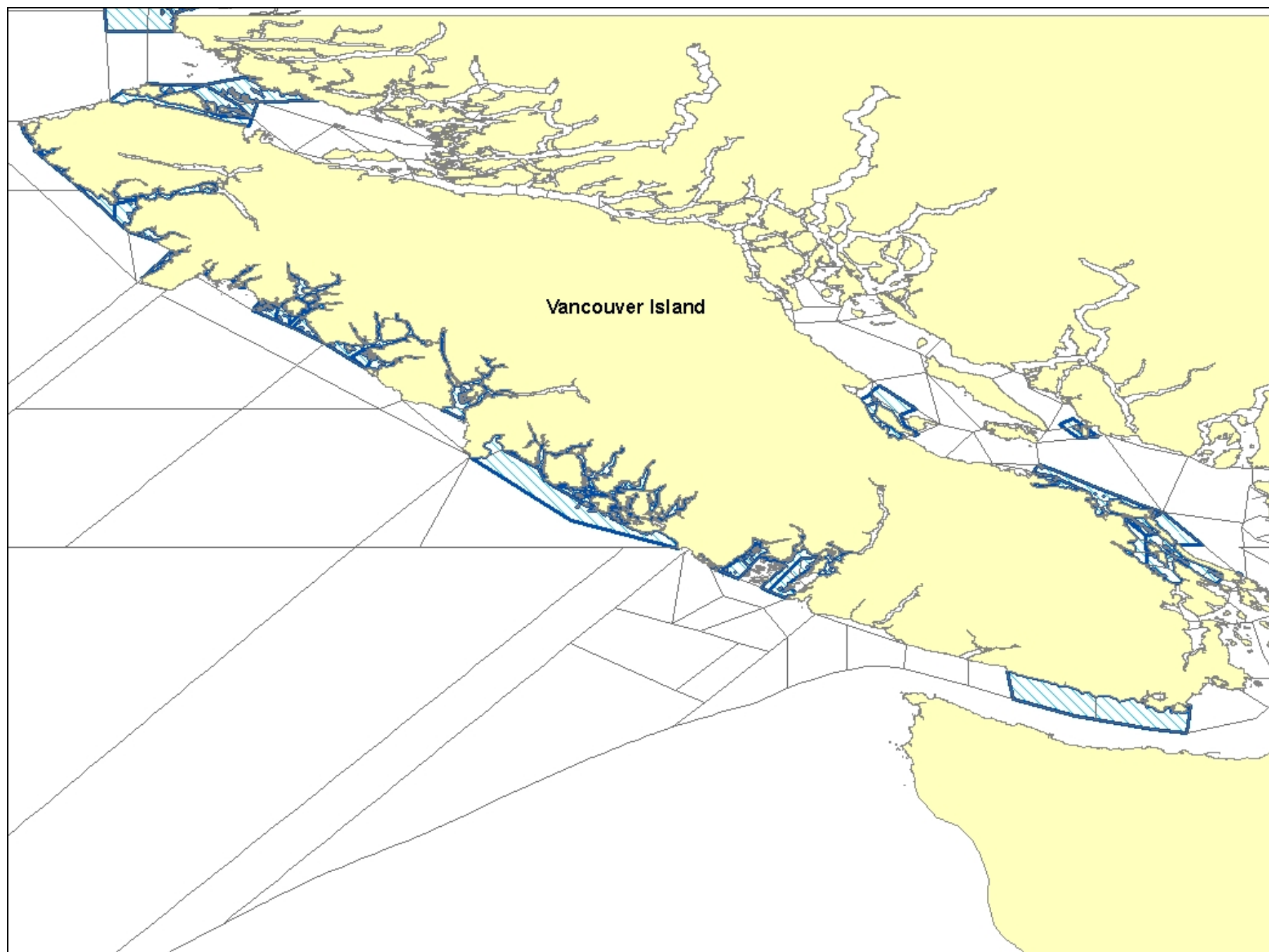
Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility; and
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

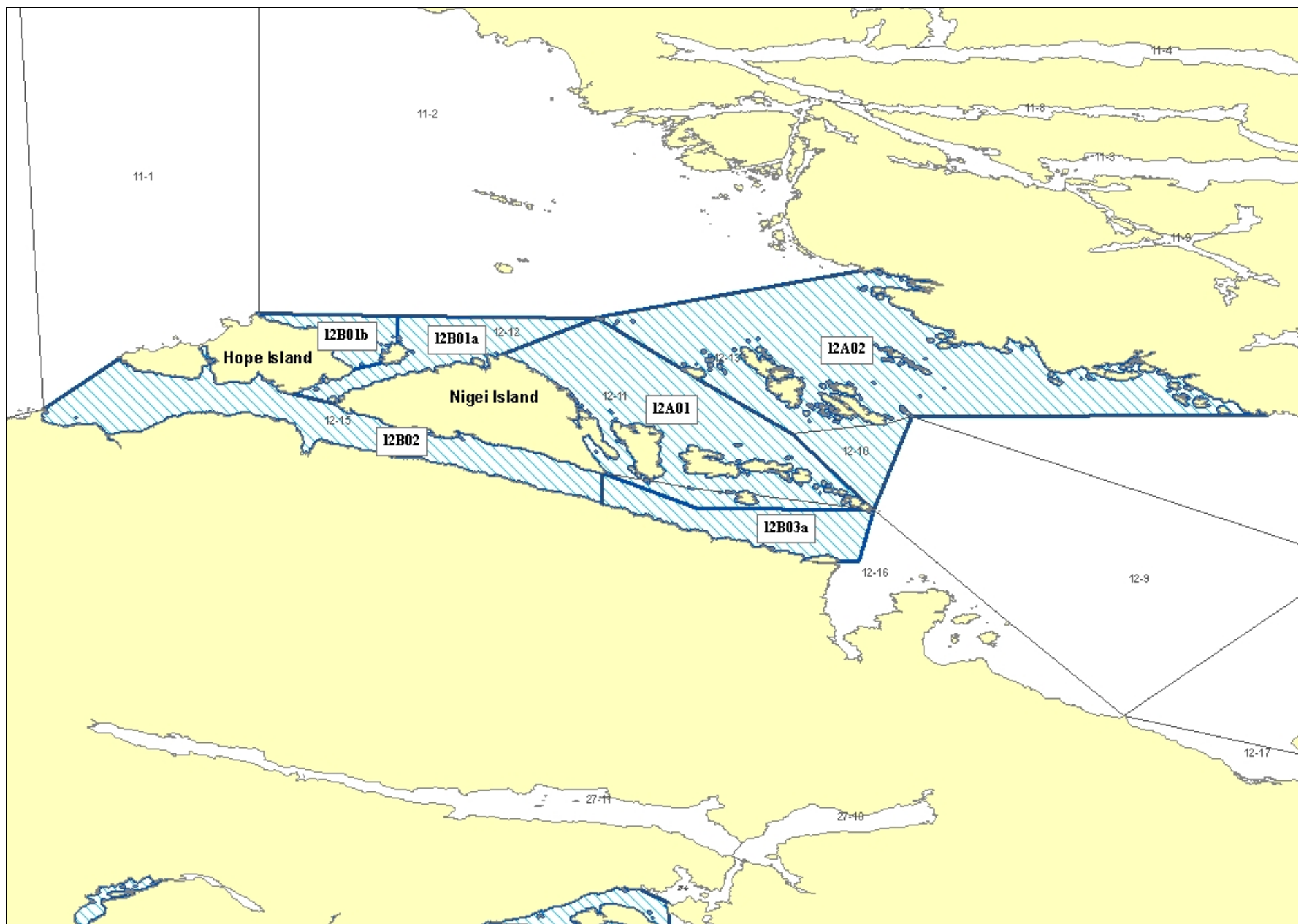
2.3. Biotoxin Closures

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

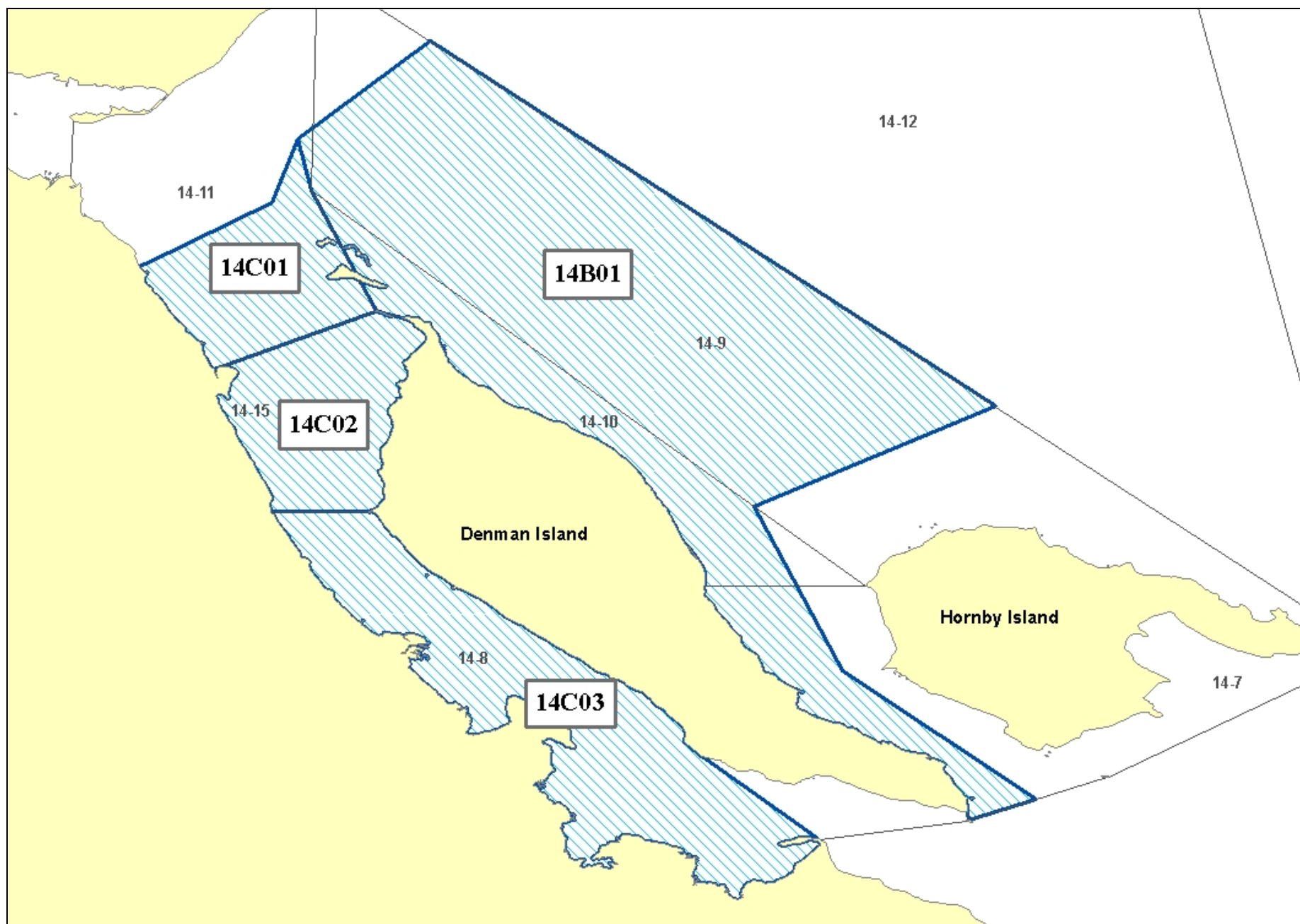
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm



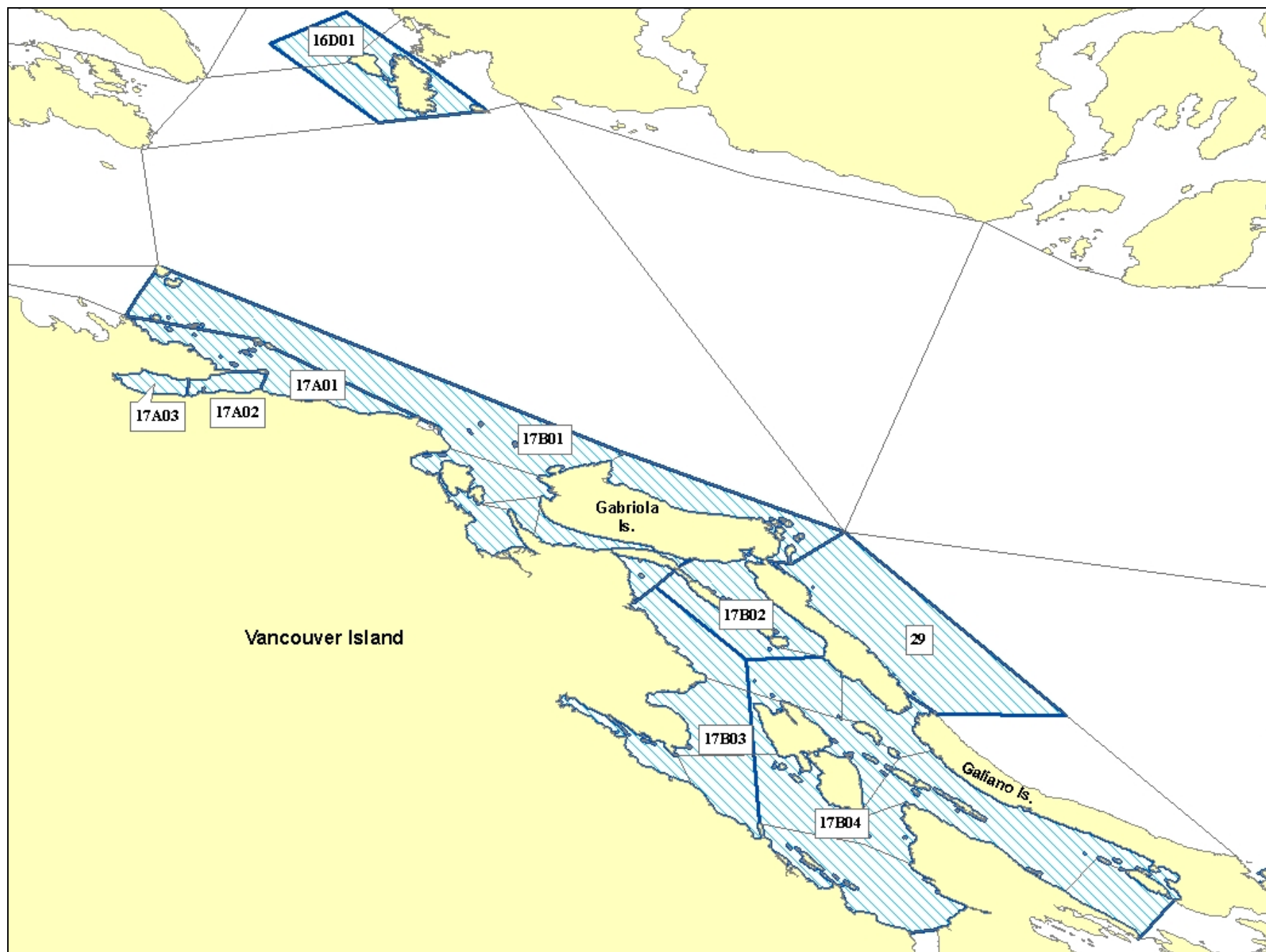
British Columbia South Coast Licence Areas – Gulf and West Coast Vancouver Island



GMAs: 12A01, 12A02 and 12B01 to 12B03



GMAs: 14B01 and 14C01, 14C02, 14C03.



GMAs: 16D01, 17A01, 17A02, 17A03, 17B01, 17B02, 17B03, 17B04 and 29.

APPENDIX 12: MAPS OF 2010 GEODUCK MANAGEMENT AREAS – WEST COAST VANCOUVER ISLAND

Harvesters are reminded that these maps and the area descriptions in Appendix 9 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. Geoduck Management Area Maps

Thick lines represent Geoduck Management Areas. See Appendix 9 Geoduck Management Area Descriptions for complete details.

For more detail on Pacific Fishery Management Areas and Subareas, see the Internet at:

http://www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm

2. Closures to Commercial Fisheries

Closures to the commercial fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, Research, Navigation, contamination or biotoxins. In addition to the following information on contamination and biotoxin closures, see Appendix 6, Section 3.4 and 3.5 for information on all other seasonal and permanent closures.

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

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

- It remains the responsibility of the *vessel master* to ensure that an area is not closed for harvest due to Sanitary or Biotoxin Contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of fishing, the vessel master must take care to confirm that an area is open for harvesting either through the DFO website at:
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Appendix 15 of the Integrated Fisheries Management Plan.
- In remote areas of the coast, the vessel master often relies on a service provider or on-grounds monitors for transmission of information. However, while OGMs direct and track harvesting by bed for stock assessment purposes, the responsibility and

accountability to comply with the *Fisheries Act* and to ensure that the fishing area is open and approved for harvest remains with the vessel master.

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

2.2. Sanitary (Contamination) Closures

Shellfish may not be harvested for direct marketing from closed contaminated areas except by special permit licence under the Management of Contaminated Fisheries Regulations. Currently there is not an approved depuration process for geoduck. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following Fisheries and Oceans Canada Internet site:

http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm

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

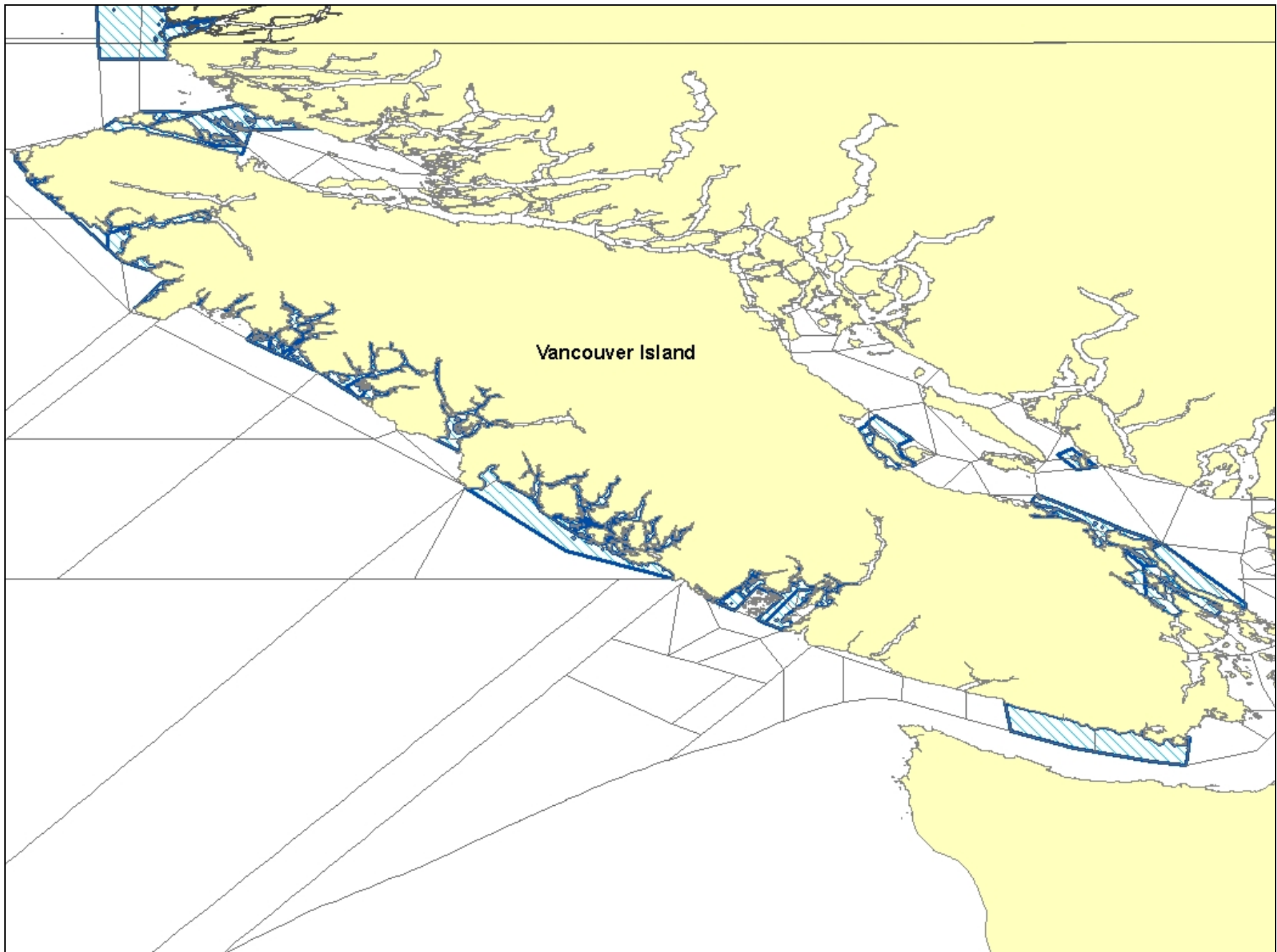
Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility; and
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

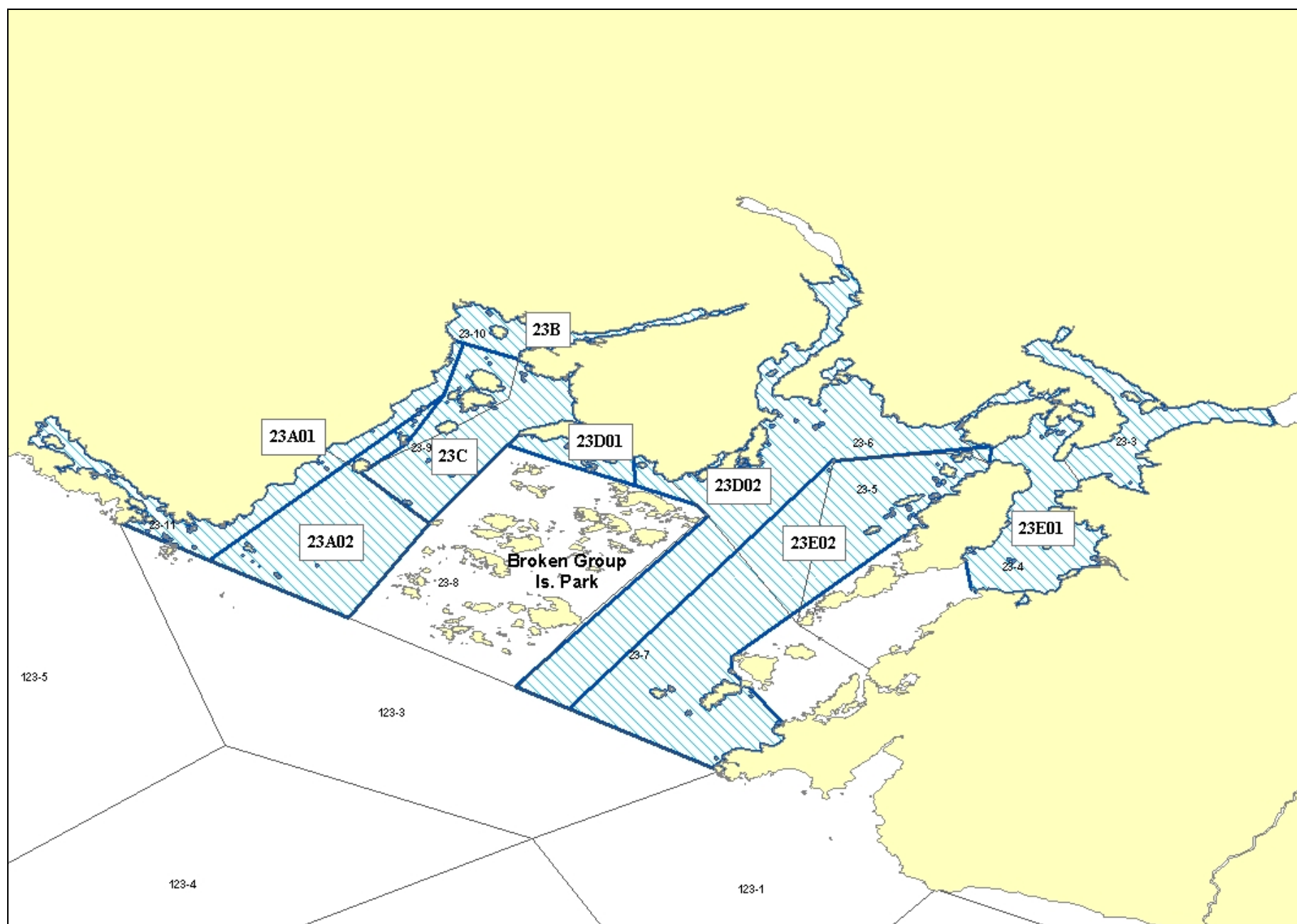
2.3. Biotoxin Closures

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

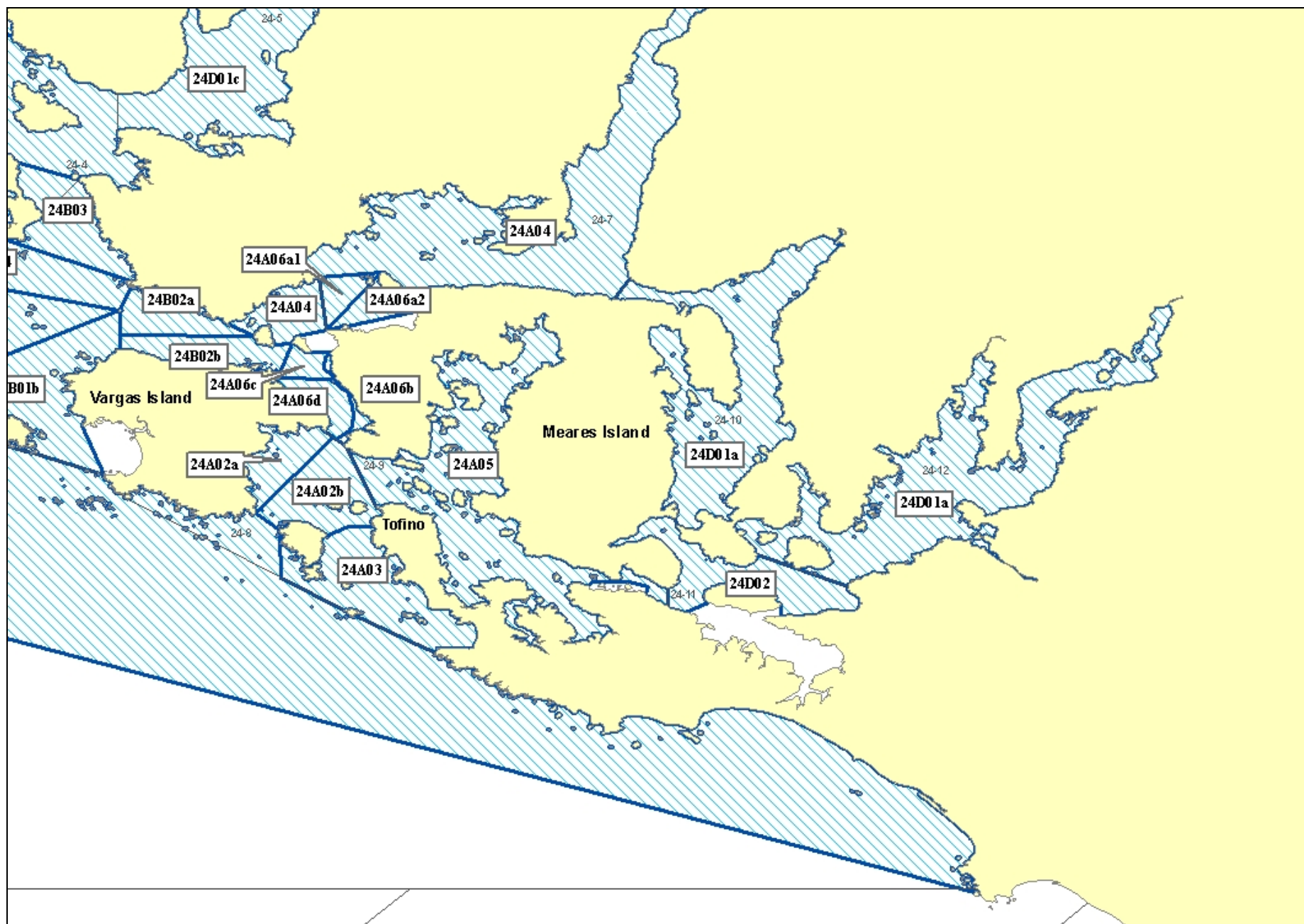
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm



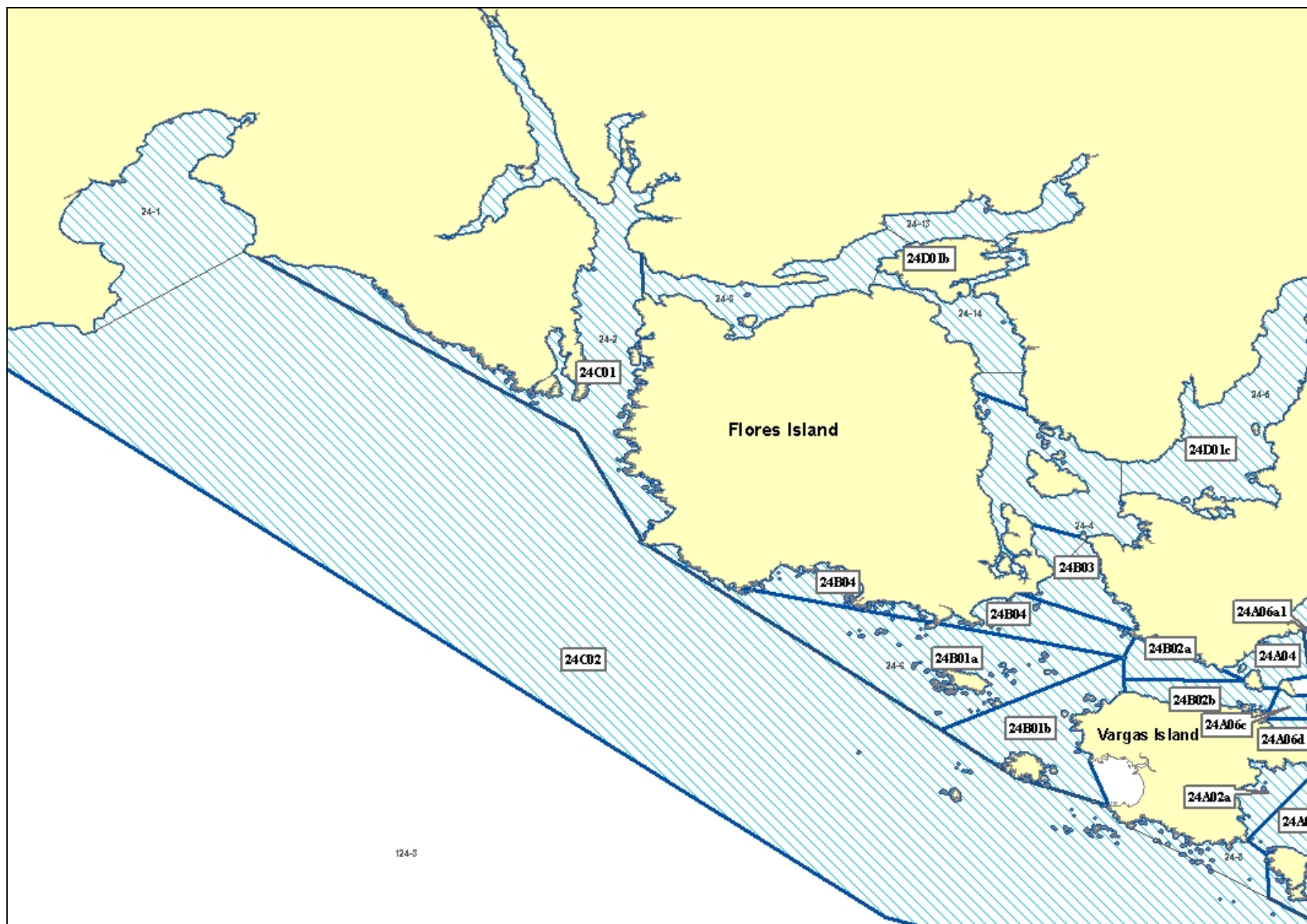
British Columbia South Coast Licence Areas – Gulf and West Coast Vancouver Island



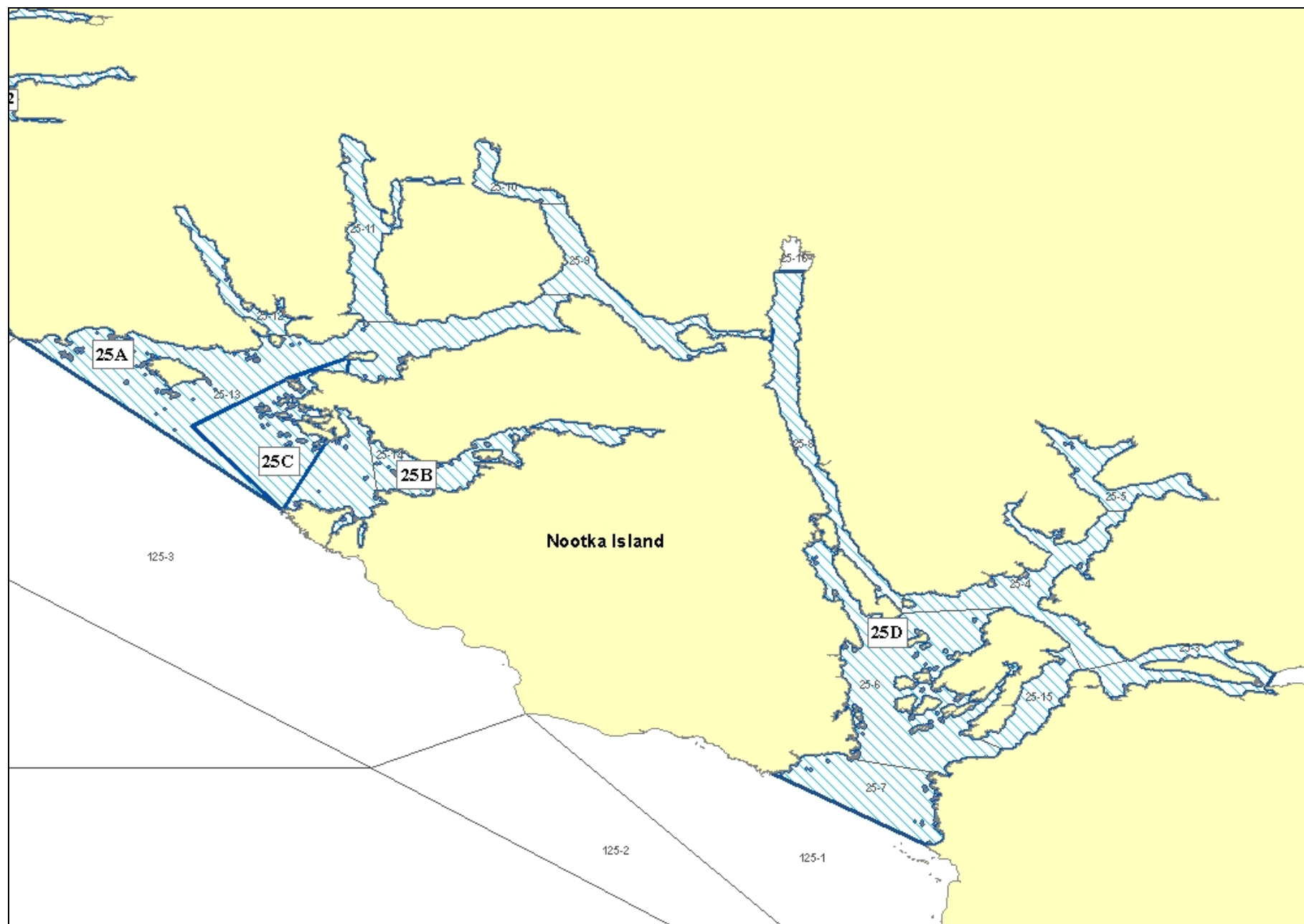
GMAs: 23A01, 23A02, 23B, 23C, 23D01, 23D02, 23E01 and 23E02.



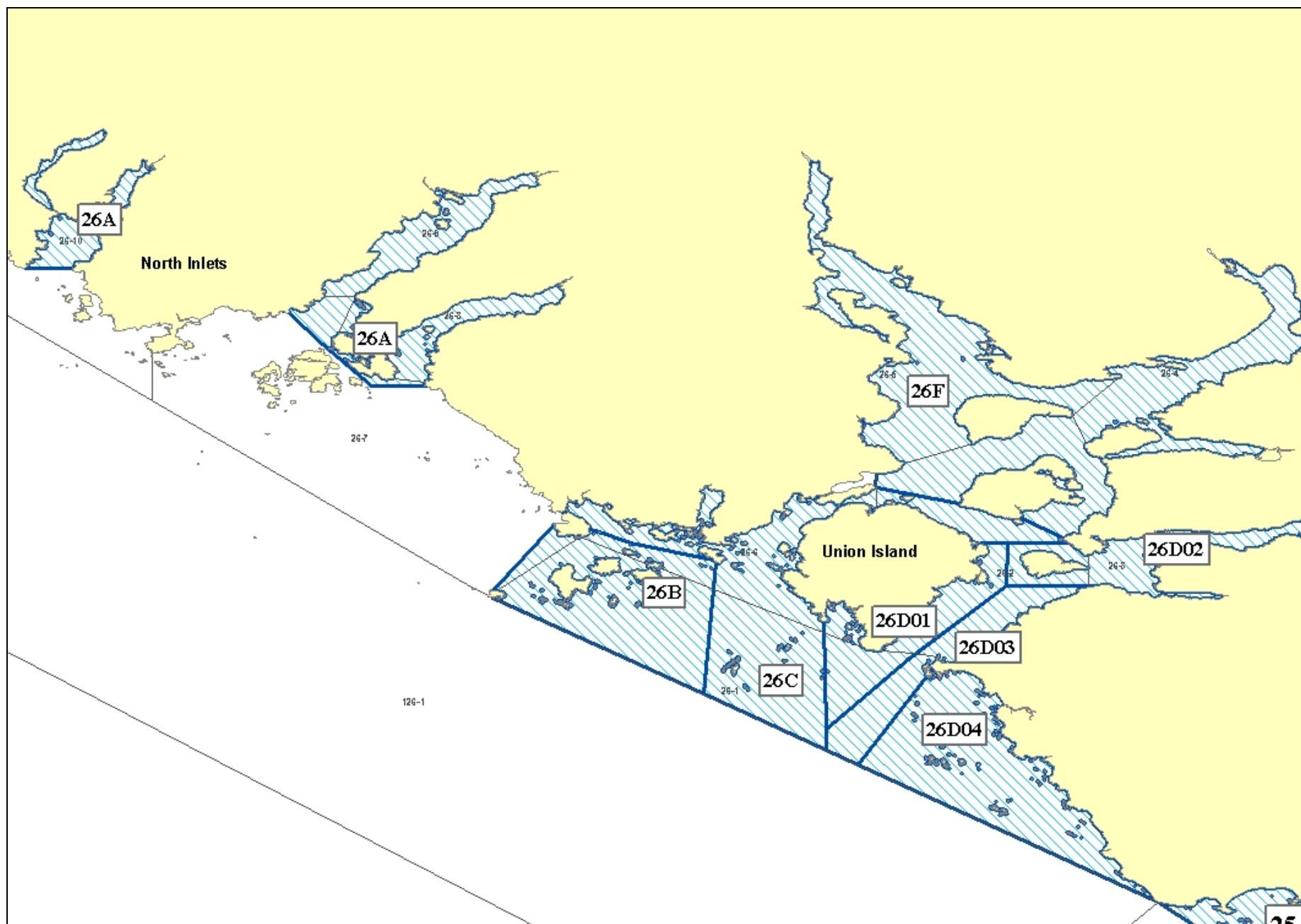
GMAs: 24A02a, 24A02b, 24A03, 24A04, 24A05, 24A06a, 24A06b, 24A0c, 24A06d, 24B02a, 24B02b, 24D01a, 24D02.



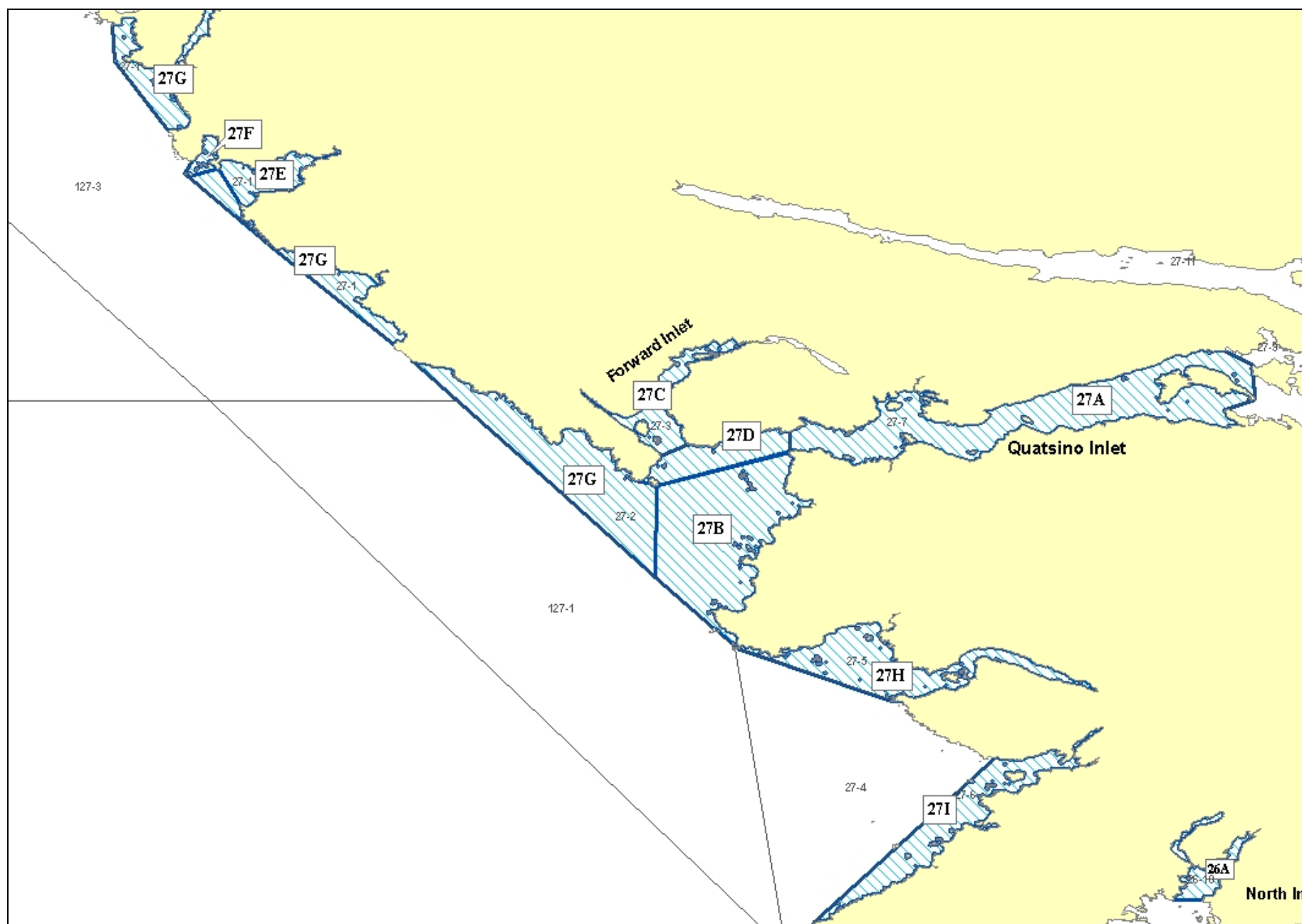
GMAs: 24B01a, 24B01b, 24B02a, 24B02b, 24B03, 24B04, 24C01, 24C02, 24D01b, 24D01c.



GMAs: 25A, 25B, 25C, 25D



GMAs: 26A, 26B, 26C, 26D01, 26D02, 26D03, 26D04 and 26F



GMAs: 27A, 27B, 27C, 27D, 27E, 27F, 27G, 27H, 27I.

APPENDIX 13: MAPS OF 2010 GEODUCK MANAGEMENT AREAS – NORTH COAST

Harvesters are reminded that these maps and the area descriptions in Appendix 9 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. Geoduck Management Area Maps

Thick lines represent Geoduck Management Areas. See Appendix 9 Geoduck Management Area Descriptions for complete details.

For more detail on Pacific Fishery Management Areas and Subareas, see the Internet at:

http://www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap_e.htm

2. Closures to Commercial Fisheries

Closures to the commercial fishery may be in place for a variety of reasons: Aboriginal and recreational access, Parks, Marine Reserves, Research, Navigation, contamination or biotoxins. In addition to the following information on contamination and biotoxin closures, see Appendix 6, Section 3.4 and 3.5 for information on all other seasonal and permanent closures.

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

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

- It remains the responsibility of the *vessel master* to ensure that an area is not closed for harvest due to Sanitary or Biotoxin Contamination. Fishing in a closed area is an offence under the *Fisheries Act*. Consumption of product harvested from within a closed area poses a serious health risk.
- Prior to commencement of fishing, the vessel master must take care to confirm that an area is open for harvesting either through the DFO website at:
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/Biotoxins/closures/default_e.htm
or the toll-free information line at 1-866-431-3474, or by contacting a local DFO office directly. Contact information is available in Appendix 15 of the Integrated Fisheries Management Plan.
- In remote areas of the coast, the vessel master often relies on a service provider or on-grounds monitors for transmission of information. However, while OGMs direct and track harvesting by bed for stock assessment purposes, the responsibility and

accountability to comply with the *Fisheries Act* and to ensure that the fishing area is open and approved for harvest remains with the vessel master.

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

2.2. Sanitary (Contamination) Closures

Shellfish may not be harvested for direct marketing from closed contaminated areas except by special permit licence under the Management of Contaminated Fisheries Regulations. Currently there is not an approved depuration process for geoduck. There are both seasonal and permanent sanitary contamination closures. Descriptions and maps of contaminated closures may be found at the following Fisheries and Oceans Canada Internet site:

http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm

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

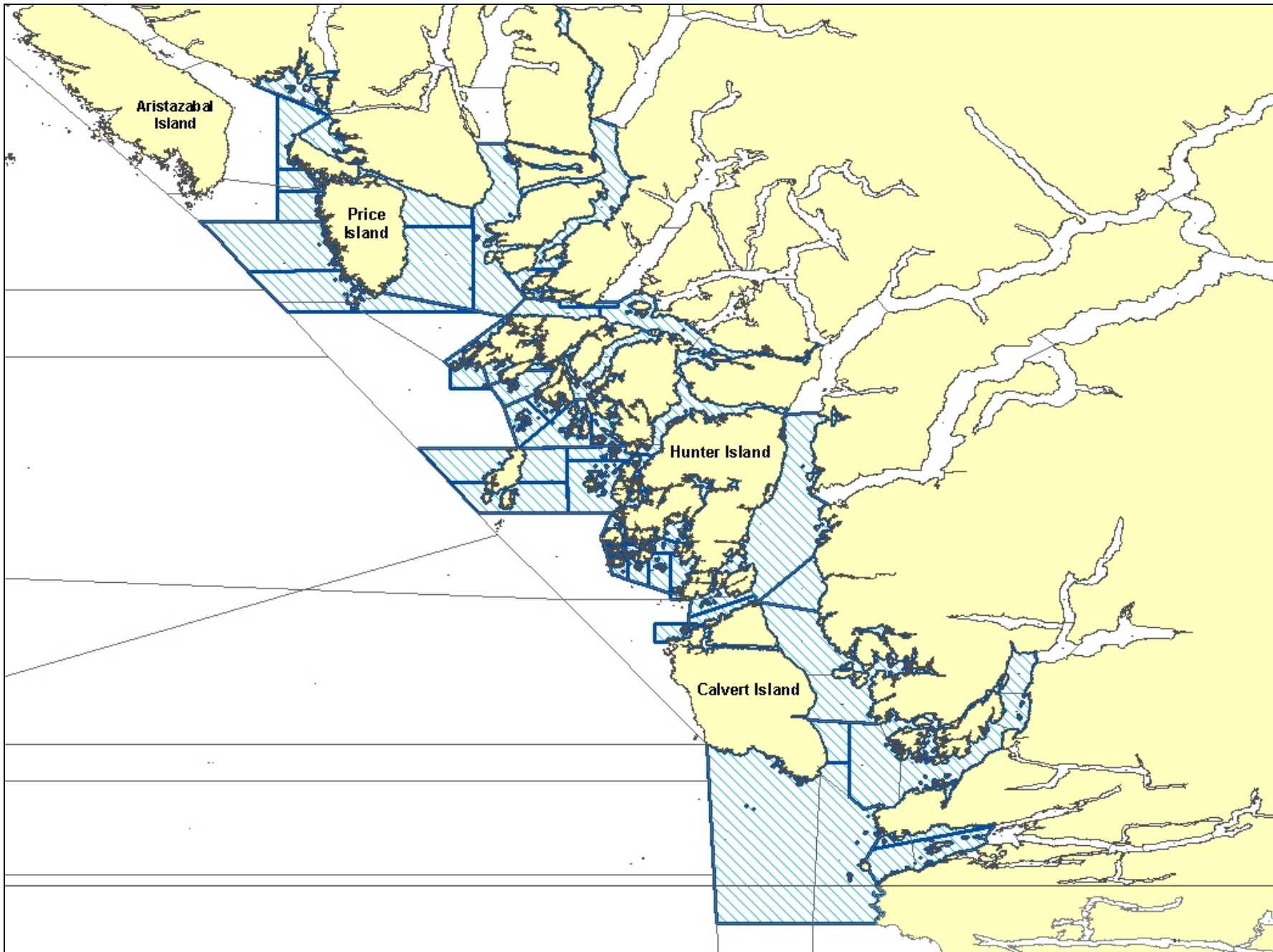
Permanent bivalve harvesting closures are in place for Canadian fisheries waters of the Pacific Ocean within:

- 300 m radius around industrial, municipal and sewage treatment plant outfall discharges;
- 125 m radius of any marina, ferry wharf, finfish net pen, and, subject to subsection (c), any floating living accommodation facility; and
- 25 m of any floating living accommodation facility located within a shellfish aquaculture tenure where a zero-discharge waste management plan is a condition of the Provincial aquaculture licence and is approved by the Regional Interdepartmental Committee.

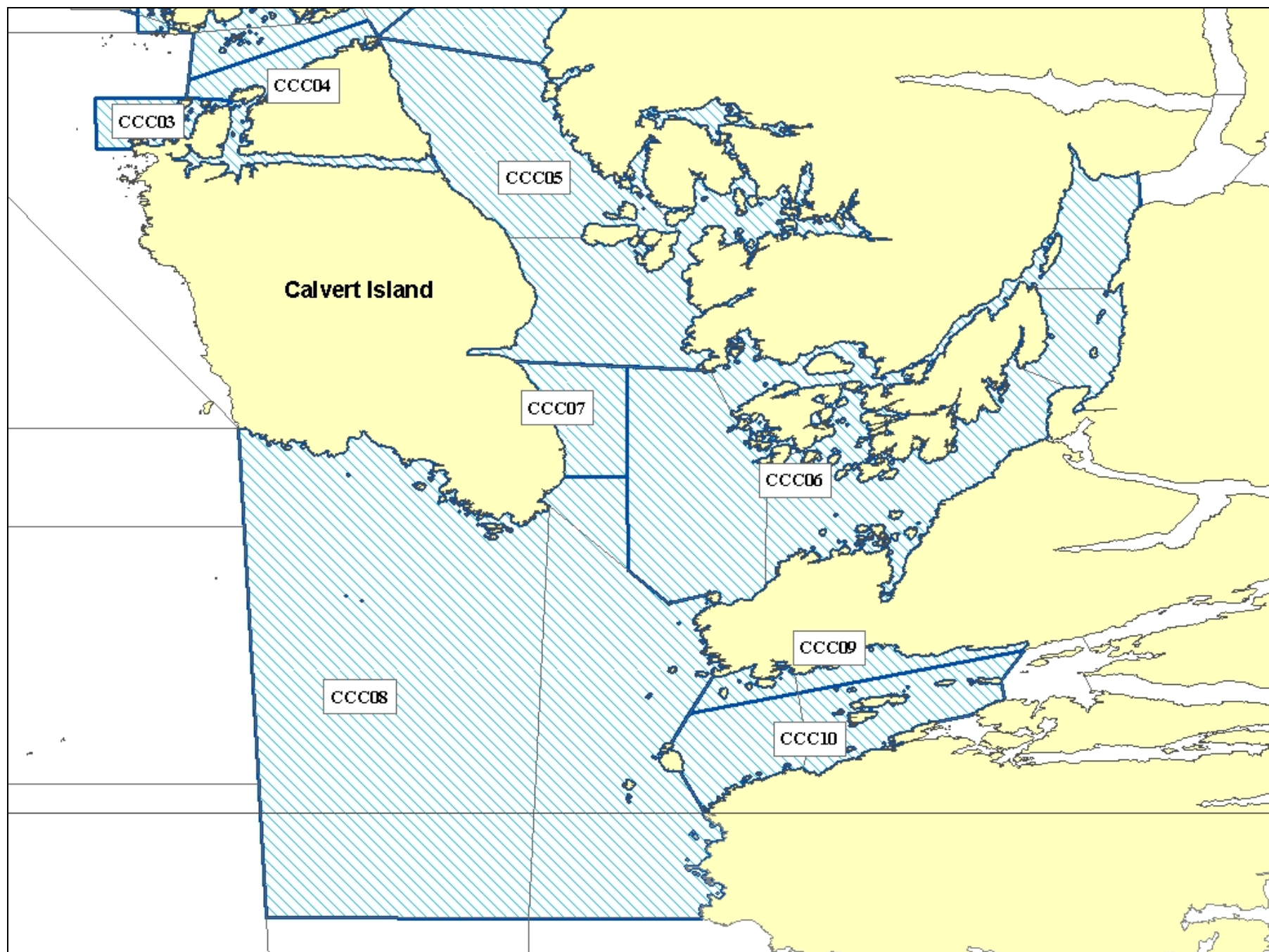
2.3. Biotoxin Closures

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

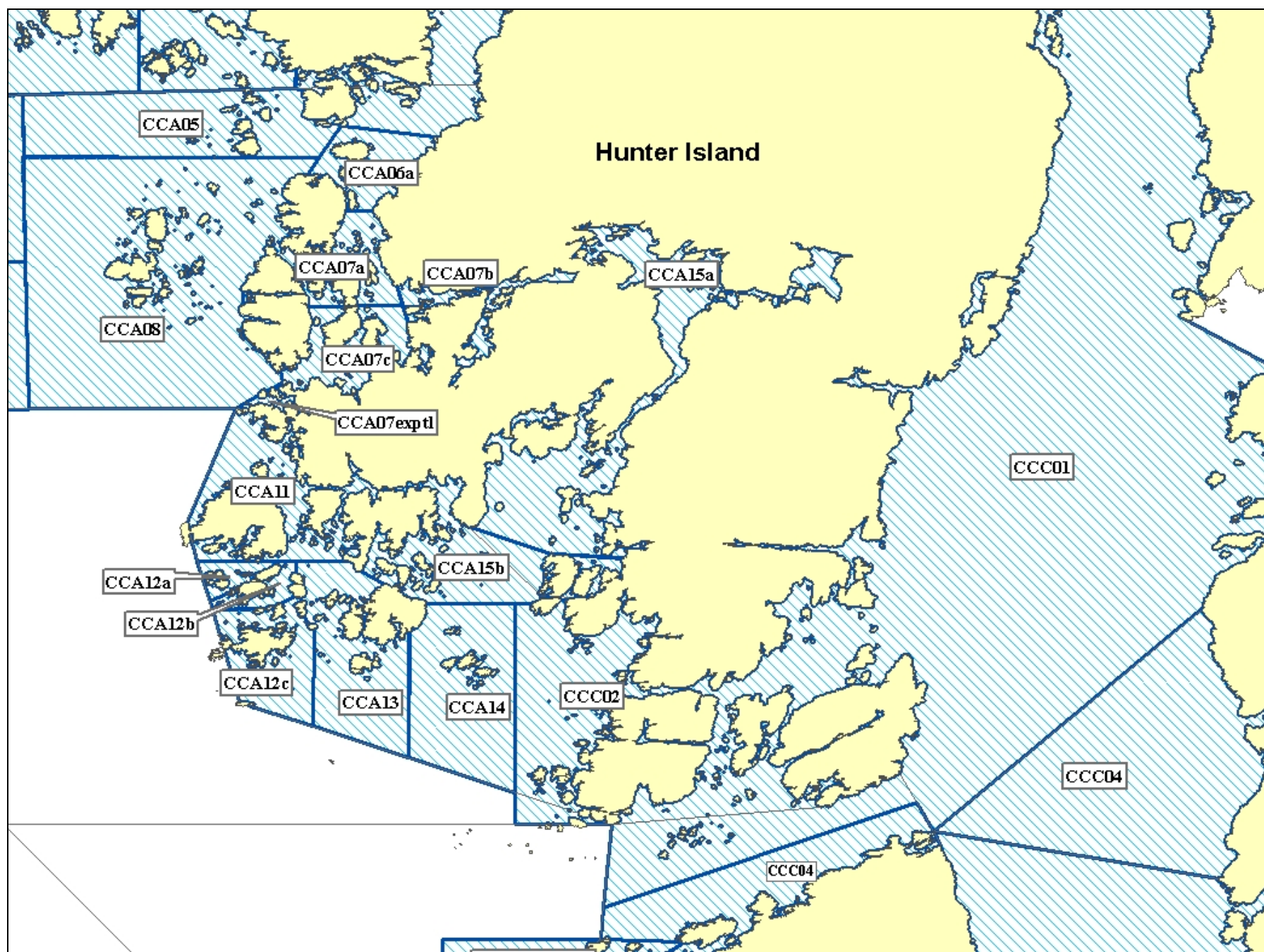
http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/biotoxins/closures/default_e.htm



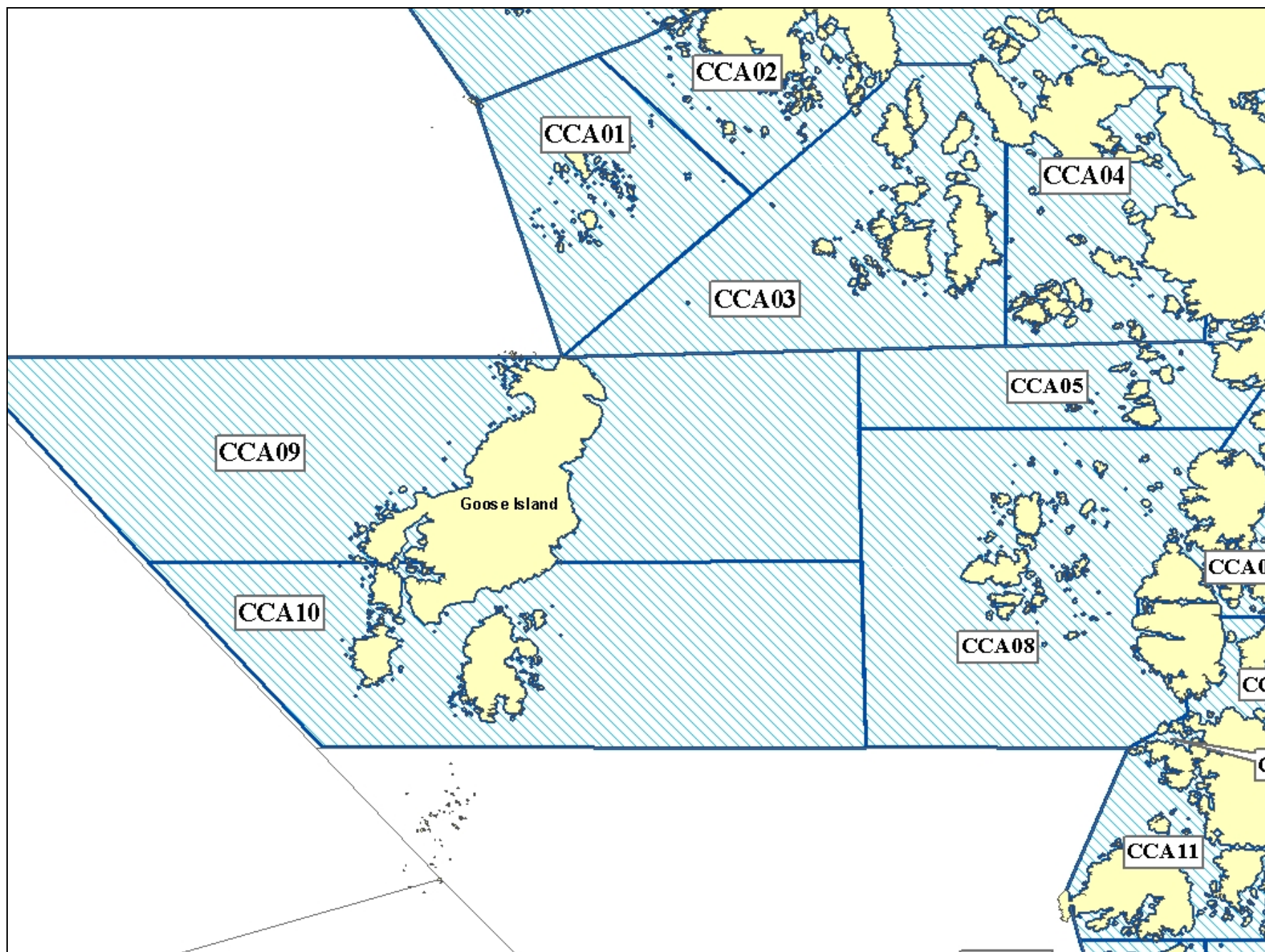
North Coast Licence Area – Central Coast



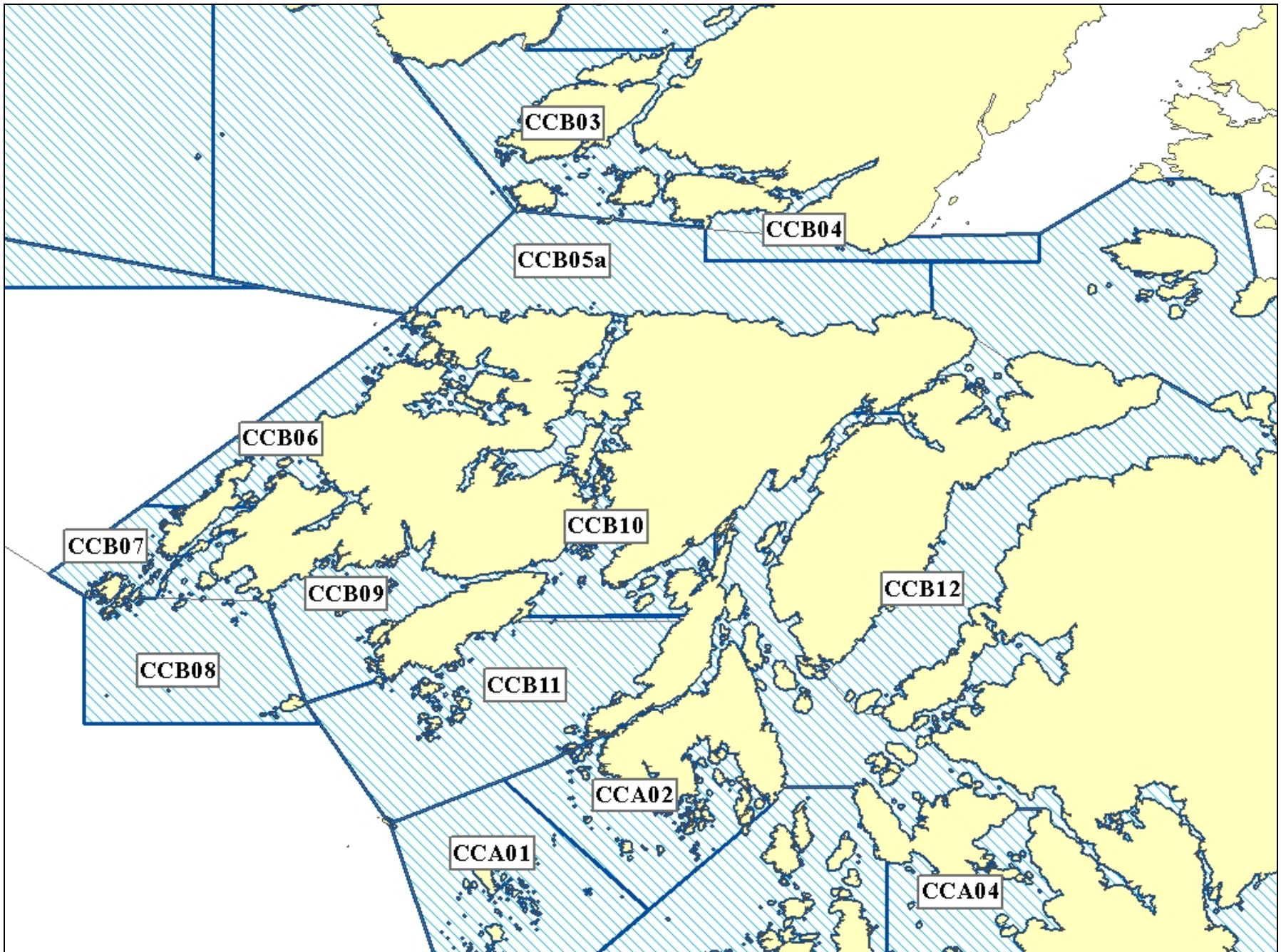
GMAs: CCC03 to CCC10



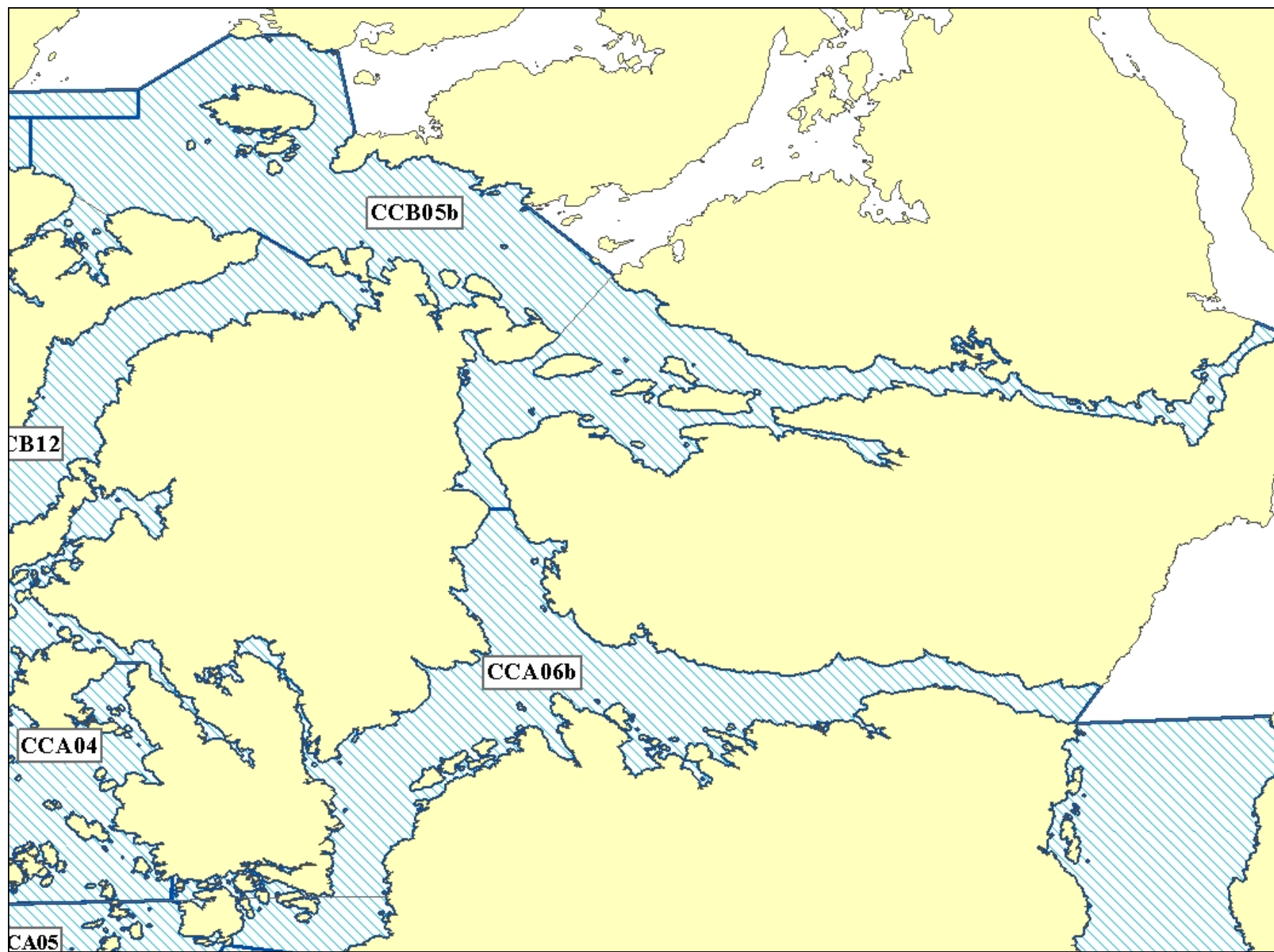
GMAs: CCA05 to CCA08, CCA11 to CCA15, CCC01, CCC02, CCC04



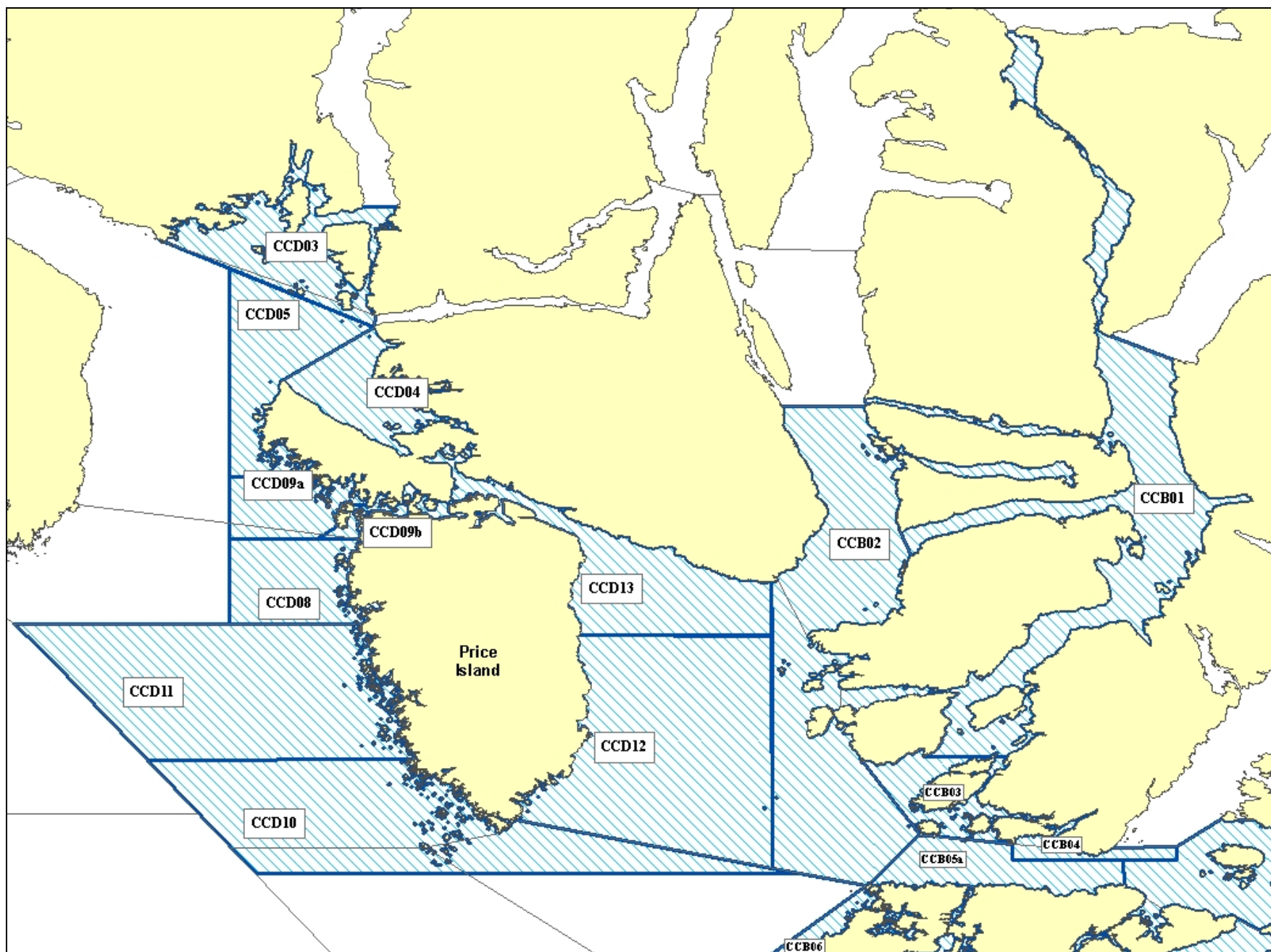
GMAs: CCA01 to CCA05, CCA08 to CCA10



GMAs: CCA01, CCA02, CCA04, CCB03 to CCB12



GMAs: CCB05b and CCA06b



GMAs: CCB01, CCB02, CCD03 to CCD05, CCD08 to CCD13