# The Marine Economy & the Regional District of Mt. Waddington in BC

**Prepared for:**

Living Oceans Society
&
Regional District of Mt. Waddington

**Funded by:**

Environment Canada Under the Project K5A20-10-4045

*Quantifying Nature's Bounty: The Contribution of Marine Ecosystems to Local Communities*

**Prepared by:**

GSGislason & Associates Ltd.
Vancouver, Canada

March 2011

# Summary


**Introduction**

- the study identifies the economic importance of a wide range of private sector marine-based activities on the economy of the Regional District of Mount Waddington (RDMW) which is located on the Northern portion of Vancouver Island. The study demonstrates the linkages between the economic livelihoods of people, businesses and communities to the marine environment.
- the study involved interviews with 87 individuals - 54 from a special Marine Recreation Business Survey (23 sport fishing, 31 other businesses) and 33 from targeted interviews with other business, government & First Nations - as well as review & synthesis of existing information/data.
- the focus is the economic measures and employment accruing to individuals living in RDMW i.e., RDMW residents.

**Results**

- the marine industries generate $48 million in wages & benefits and 1,160 person-years of employment directly to RDMW residents from the following activities (see Exhibit A).

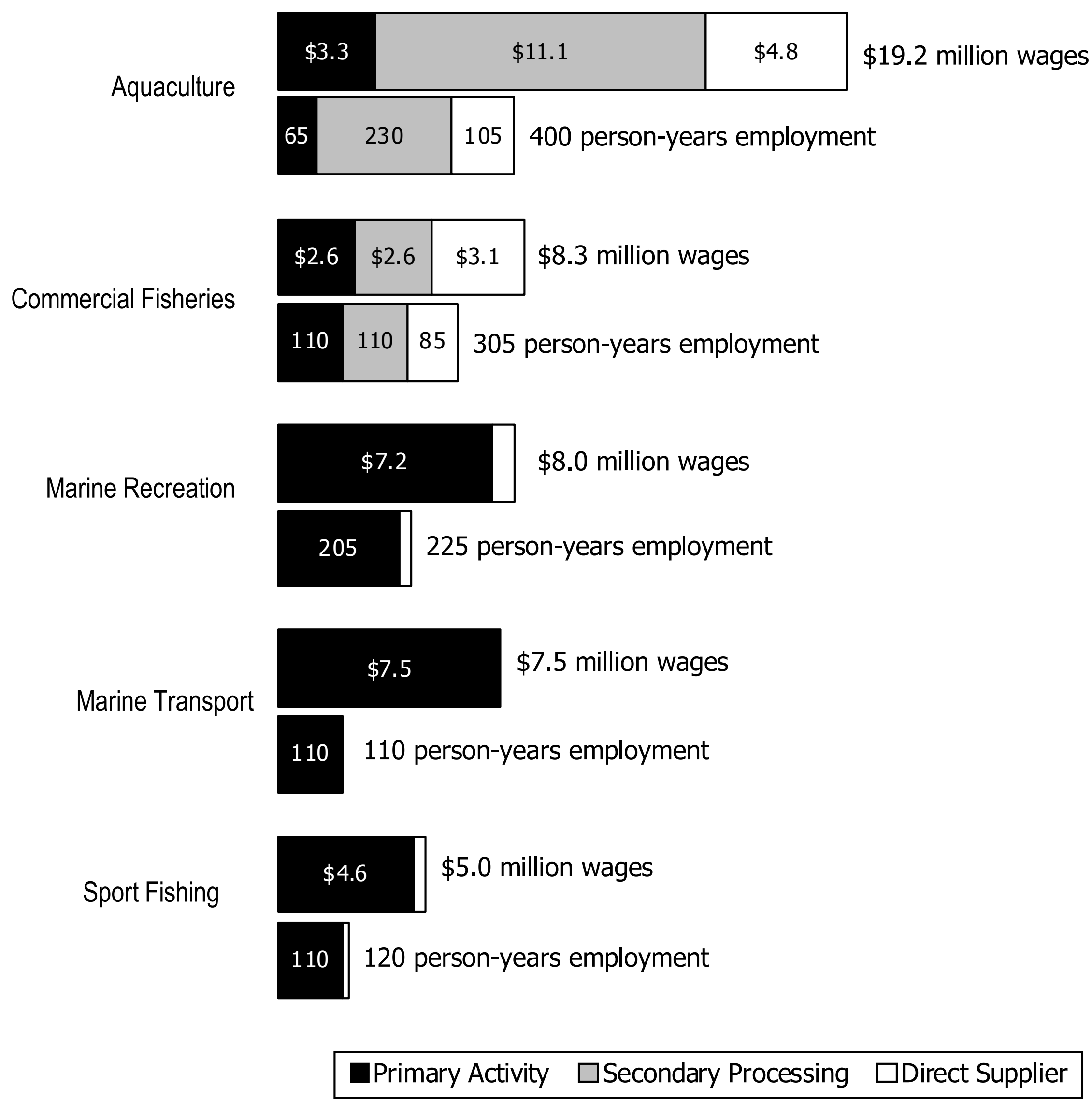
| Direct Industry Impacts* | | Wages & Benefits $ million | Employment person-years or PYs |
|---|---|---|---|
| Commercial Fisheries | | 8.3 | 305 |
| Aquaculture | | 19.2 | 400 |
| Marine Recreation | - Sport Fishing | 5.0 | 120 |
| | - Other | 8.0 | 225 |
| Marine Transport | | 7.5 | 110 |
| Total | | 48.0 | 1,160 |

- multiplier effects from indirect supplier impacts and from induced consumer respending impacts on the retail sector add another $7.2 million in wages & benefits and another 180 person-years of employment to the tally - total impacts therefore are $55.2 million in wages and 1,340 person years employment.
- 2 in 7 private sector person years of employment in the RDMW is attributable to the marine sector.
- the influence of the ocean on the lives and livelihoods of RDMW residents is more pervasive than indicated by these market-based economic measures. The ocean is integral not just to the economy, but also to the culture, way of life, and collective identity of the region. The ocean environment provides significant benefits to First Nations through seafood harvesting activities. The ocean also provides key ecosystem services that underpin many of the identified industries and make coastal life as we know it possible.

**Conclusion**

- clearly the influence of the marine environment on the lives and livelihoods of residents of the RDMW is profound.
- this is an important study as, for the first time, the wages & employment accruing to local residents alone from the marine environment are identified for a particular region in British Columbia.

## Exhibit A: Direct Contribution of Marine Sectors to RDMW Economy 2009




*Note:* 1. *Total BC direct impacts - $48.0 million in wages & 1160 person-years of employment.*
2. *Marine Recreation - excludes sport fishing.*
3. *Marine Transport - includes ferries, tugs & water taxis, and forest sector ship loading etc.*

# Preface

The Living Oceans Society (LOS) and the Regional District of Mount Waddington (RDMW) retained GSGislason & Associates Ltd. to analyze economic impacts of certain ocean-related activities on the economy of the Regional District. The consultant has benefited from discussions with industry, government, and others. Notwithstanding this assistance, the analysis and conclusions are those of the consultant alone.

The Living Oceans Society and the Regional District of Mount Waddington provided the seven maps included as Appendix E of the report. The first four maps by the LOS were based on spatial information collected during the study.

# Acronyms

| | | |
|---|---|---|
| AHRT | - | Additional Hotel Room Tax |
| BC | - | British Columbia |
| DFO | - | Canada Department of Fisheries & Oceans |
| FN | - | First Nation |
| FSC | - | Food Social Ceremonial |
| LOS | - | Living Oceans Society |
| MOE | - | BC Ministry of Environment |
| PY | - | person-year |
| RD | - | Regional District |
| RDMW | - | Regional District of Mount Waddington |
| SWOT | - | Strengths, Weaknesses, Opportunities, Threats |

# Table of Contents

# 1.0 Introduction

The economy of the Regional District of Mount Waddington (RDMW) on Northern Vancouver Island is highly dependent on the marine environment. This fact, however, is not well known. The result is that the people, businesses and communities dependent on the ocean for livelihoods can get eclipsed by other economic sectors that can more coherently assert their importance.

This study identifies the economic importance of a wide range of private sector marine-based activities such as the seafood industry, marine recreation and the like. Such analysis can help engender understanding of the importance of these sectors and the underlying ocean environment to the well-being of Mount Waddington residents.

### The RDMW Study Area

The map at the end of this section gives the RDMW land area including the northern portion of Vancouver Island, the adjacent mainland area plus intermediary islands. The marine environment around the RDMW corresponds to Canada Department of Fisheries & Oceans (DFO) Statistical Areas 11, 12 and 27.

The total 2006 population of the RDMW, according to the 2006 Census of Canada, was 11,650 people with 23% or 2,730 comprising aboriginal people. The employment base or level in the Regional District (RD) was 5,890.

### Study Objectives & Focus

The study objective is to identify the contribution of particular marine-based businesses to the economy of the RDMW thereby demonstrating the linkages between the economic livelihoods of people, businesses and communities to the marine environment. The particular sectors identified for analysis are:

- aboriginal fisheries;
- commercial fisheries (harvesting, processing plus certain supply sector activities);
- aquaculture (growout processing plus certain supply sector activities);
- recreational fishing (lodges plus charters plus independent angling);
- marine recreation (marine tourism operators plus independent marine recreation);
- marine transport (the ferry system plus tugs/barges plus forest sector transport).

For each sector, the study produces three economic indicators: 1) revenues, 2) wages, and 3) employment in person years for the year 2009 (although some variance from this is required for aboriginal fisheries). A person-year is adopted as the employment measure so that seasonal employment can be converted to an annual basis equivalent to year-round jobs e.g., one 8-month job plus one 4-month job equals one person-year of employment.

The focus of the study is the economic measures accruing to Mt. Waddington interests. For example, if a marine business operating in the RDMW has workers drawn from outside the RD then these workers are not included in the local employment figures. Only employment to RDMW residents is included.

## Information Sources

The study involved both primary (interview) and secondary (literature review) research including:

- a review of studies & data sources profiling the marine sectors under consideration including spatial data e.g., salmon farm site location
- special tabulations of commercial fisheries data by Canada Department of Fisheries and Oceans (DFO) and of aquaculture data by BC Ministry of Environment (MOE)
- farmed salmon company purchase records for businesses located in RDMW
- an interview program with 33 representatives of marine businesses, government, and First Nations including a four day trip to conduct interviews in Port Hardy, Port McNeill, Campbell River, and Victoria

## The Marine Tourism Survey

In addition, a key information source was a special survey of sports fishing and other marine tourism businesses. This survey was needed because, unlike the commercial fishing and aquaculture sectors for example, administrative data to profile marine sector output and revenues do not exist. The Living Oceans Society (LOS) provided an initial list of businesses - then we eliminated businesses that were closed or non-tourism businesses and added several other businesses.

| Marine Tourism Survey | No. Identified | No. Interviewed | |
|---|---|---|---|
| Sport Fishing Charters & Lodges | 26 | 23 | 88% |
| Other Marine Tourism* | 33 | 31 | 94% |
| | 59 | 54 | 92% |

*e.g., whale watching, scuba diving, sea kayaking, marine resorts, water taxis, etc.*

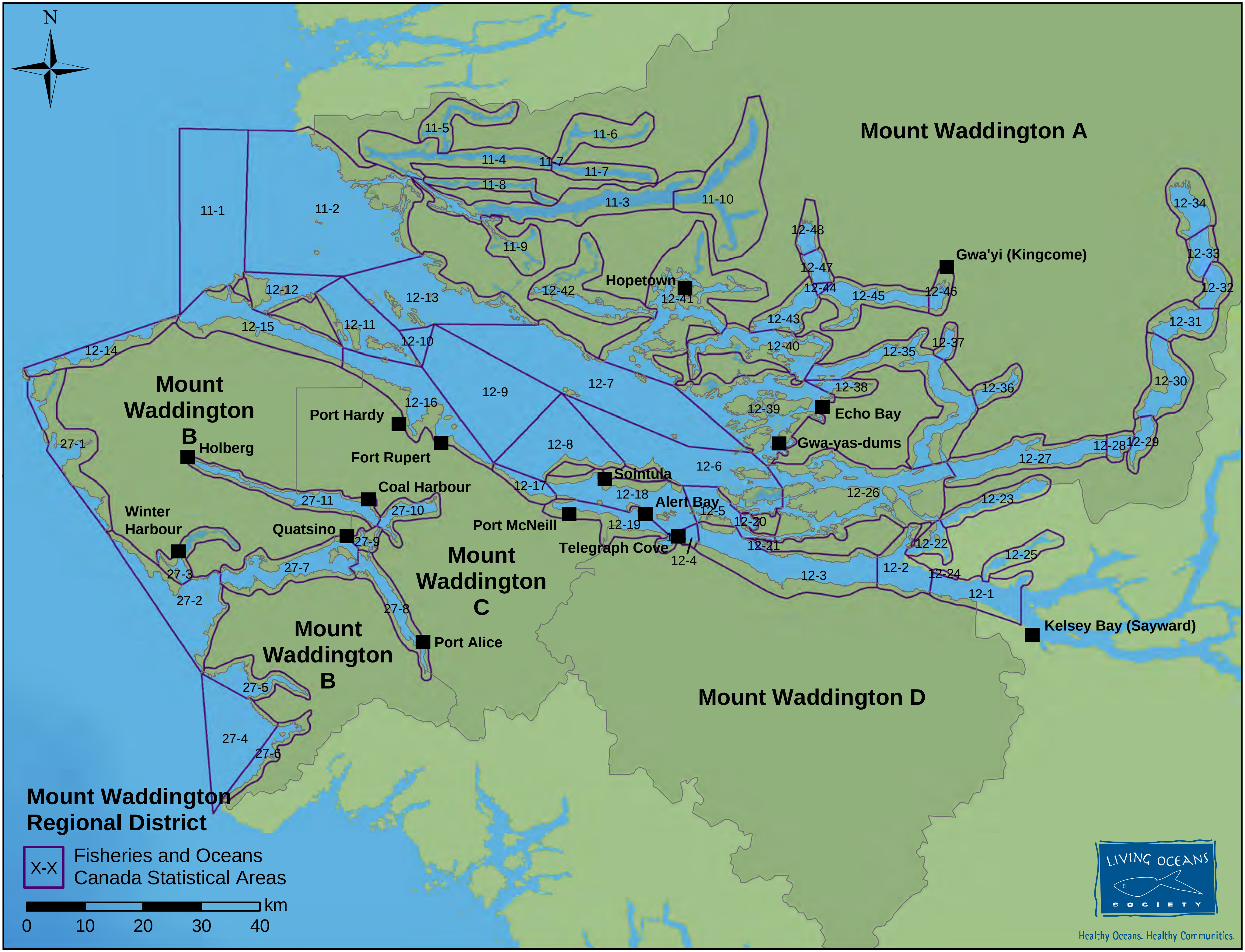
Cooperation to the survey was exceptional with interviews completed for 92% or 54 of the 59 businesses identified - there were no refusals. Those not interviewed were individuals that could not be contacted e.g., some resorts in the Broughton Archipelago area could not be contacted as they operate only seasonally with the owner-operators moving to Southern Canada in winter.

Appendix A presents lists of those interviewed - both the 33 general marine businesses plus the 54 marine tourism businesses (as well as the Interview Guide for the marine tourism survey).

## Report Outline

The next section presents an analysis of aboriginal fisheries by bands located in the RDMW Study Area. It is the first of the remaining six (6) sector profiles in the report. Each profile follows a similar format, 2 pages of text following by a data table or exhibit. Several appendices provide supplemental material e.g., Appendix D compares the RDMW economy to the provincial economy, Appendix E gives several maps provided by the LOS and the RDMW that document region of activity.

The terms "ocean" and "marine" are used interchangeably in the report. All dollar figures are presented in nominal or current dollars and refer to activity for the year 2009 unless otherwise stated.



N
Mount Waddington A
Mount Waddington B
Mount Waddington B
Mount Waddington C
Mount Waddington D
11-1
11-2
11-3
11-4
11-5
11-6
11-7
11-7
11-8
11-9
11-10
12-1
12-2
12-3
12-4
12-5
12-6
12-7
12-8
12-9
12-10
12-11
12-12
12-13
12-14
12-15
12-16
12-17
12-18
12-19
12-20
12-21
12-22
12-23
12-24
12-25
12-26
12-27
12-28
12-29
12-30
12-31
12-32
12-33
12-34
12-35
12-36
12-37
12-38
12-39
12-40
12-41
12-42
12-43
12-44
12-45
12-46
12-47
12-48
27-1
27-2
27-3
27-4
27-5
27-6
27-7
27-8
27-9
27-10
27-11
Gwa'yi (Kingcome)
Hopetown
Echo Bay
Gwa-yas-dums
Port Hardy
Fort Rupert
Holberg
Coal Harbour
Sointula
Alert Bay
Winter Harbour
Quatsino
Port McNeill
Telegraph Cove
Port Alice
Kelsey Bay (Sayward)
Mount Waddington Regional District
X-X
Fisheries and Oceans Canada Statistical Areas
km
0
10
20
30
40
LIVING OCEANS SOCIETY
Healthy Oceans. Healthy Communities.

## 2.0 Food, Social & Ceremonial Aboriginal Fisheries

The aboriginal people of British Columbia use the fish and shellfish resources from the marine environment for Food, Social & Ceremonial (FSC) use.

Harvests of fish and shellfish provide an important source of food to aboriginal people. The harvesting activities also provide very important social and cultural benefits:

- Distribution - sharing of food among an extended family and the economy
- Cultural expression and continuity - providing linkages to traditional lifestyles and ancestors, providing intergenerational transfer of knowledge
- Socialization - integrating young people into work roles and the economy

The ensuing analysis focuses on the food value alone of FSC activities in the RDMW.

### Activities in the RDMW

Ten aboriginal bands with a 2009 population of 5,062 people - 2,403 on reserve and 2,659 off reserve - are located in the RDMW (see Exhibit 1).

The bands harvest a variety of salmon, groundfish and shellfish using net, hook & line, trap and hand gear.

Often a large boat, for example a seine boat, will harvest the fish on behalf of the band. The band then will distribute the fish to elders and others in the communities. Some bands without access to suitable fishing vessels will arrange for another band to harvest fish on their behalf.

The FSC fish is used for home consumption as well as community feasts. The fish can be consumed canned or "jarred", fresh, smoked, dried or frozen. As well, band members will ship jarred fish, and sometimes fresh fish, to band members living off reserve in southern BC.

### Output & Values

Fisheries & Oceans Canada provided, on a confidential basis, FSC catch information for several bands in the RDMW (primarily the larger bands) - the population of these bands comprise over three quarters of the RDMW band population total. We then made adjustments to the data to extrapolate the information to a reasonable RD total for FSC catch for all bands.

The harvest of FSC fish can vary greatly from year to year depending on the availability of fish particularly salmon. For example, the total weight of FSC fish harvested in 2010 was more than three times that in 2009 due to a huge 2010 return of sockeye salmon.

We value the FSC catch at the wholesale value of equivalent fish caught in the commercial fishery. Our interviews suggest that, in times of FSC harvest shortages, some First Nation people will purchase fish directly from commercial fishermen or purchase fish from retail stores - the wholesale value lies partway between the fishermen or landed value and the retail value.

The FSC catch and equivalent food value then is (see Exhibit 1):

- approximately 59,600 kg of fish & shellfish in 2009 and 219,800 kg of fish & shellfish in 2010
- approximately $0.4 million of food value in 2009 and $1.8 million of food value in 2010

| Species Group | Weight kg | | Food Value $000 | |
|---|---|---|---|---|
| | 2009 | 2010 | 2009 | 2010 |
| Salmon | 27,500 | 197,000 | 134 | 1,547 |
| Groundfish | 26,600 | 18,600 | 226 | 164 |
| Shellfish | 5,500 | 4,200 | 45 | 42 |
| | 59,600 | 219,800 | 405 | 1,753 |

The figures represent 25-90 kg of fish, depending on the year, for each on reserve aboriginal person.

No employment or wages are ascribed to FSC activities since these activities are not commercial in nature.

However, we note that the majority of aboriginal people living in the RDMW, numbering about 2,500, benefit through the distribution of fish and participation in community feasts.

We emphasize that the value is an incomplete value as it does not include the important social and cultural benefits of FSC harvesting and processing activities.

We also emphasize that the above estimates should be viewed as illustrative - there is considerable uncertainty and data issues as to FSC catch reporting.

**Subregional Activity**

The majority of FSC harvesting activities occur in Statistical Area 12 although harvests are drawn from Statistical Areas 11 and 27 as well - see Exhibit 1.

We note that other bands located outside the RDMW, such as the A-tlegay Fisheries Society based in Campbell River, can conduct FSC harvesting activities in Statistical Areas 11 and 12 (i.e., the FSC catch figures reported do not comprise total FSC harvests by all BC bands in Statistical Areas 11, 12 and 27).

The first and last maps of Appendix E document the location of First Nations and their traditional territories respectively.

## Exhibit 1: Local RDMW Marine Related Activity - FSC Fisheries

### A) Aboriginal Bands in RDMW

| Band & Number | Nearby Location | 2009 Population On Reserve & on Crown Land | Off Reserve | Total | Statistical Areas Fished |
|---|---|---|---|---|---|
| 1. Da'Naxda'xw FN (635) | Alert Bay | 57 | 136 | 193 | 12 |
| 2. Gwa'Sala-Nakwaxda'xw (724) | Port Hardy | 501 | 350 | 851 | 10,11,12 |
| 3. Gwawaenuk Tribe (627) | Port Hardy | <20 | <20 | <20 | 12 |
| 4. Kwakiutl (626) | Fort Rupert | 322 | 369 | 691 | 12 |
| 5. Kwicksutaineuk (625) | Alert Bay | 74 | 201 | 275 | 12 |
| 6. Mamalilikulla (629) | Village Island | 60 | 329 | 389 | 12 |
| 7. 'Namgis FN (631) | Alert Bay | 968 | 662 | 1,630 | 12 |
| 8. Quatsino (633) | Coal Harbour | 223 | 240 | 463 | 11,12,27 |
| 9. Tlatlasikwala (632) | Port Hardy | 42 | 19 | 61 | 12 |
| 10. Tsawataineuk (632) | Kingcome Inlet | 156 | 353 | 509 | 12 |
| | | 2,403 | 2,659 | 5,062 | |

*Source: Indian & Northern Affairs Canada, "Registered Indian Population by Sex and Residence 2009", 2010.*

### B) Estimated Weight & Food Value of FSC Catch by RDMW Aboriginal Bands

| Species | | Weight round kg 2009 | Weight round kg 2010 | $ per kg | Food Value $000 2009 | Food Value $000 2010 |
|---|---|---|---|---|---|---|
| Salmon | - Chinook | 300 | 800 | 12.00 | 4 | 10 |
| | - Sockeye | 8,100 | 189,100 | 8.00 | 65 | 1,513 |
| | - Coho | 1,800 | 400 | 7.00 | 13 | 3 |
| | - Pink | 16,800 | 5,700 | 3.00 | 50 | 17 |
| | - Chum | 500 | 1,000 | 4.00 | 2 | 4 |
| Groundfish | - Halibut | 18,500 | 14,200 | 10.00 | 185 | 142 |
| | - Yelloweye | 6,100 | 2,000 | 5.00 | 31 | 10 |
| | - Other | 2,000 | 2,400 | 5.00 | 10 | 12 |
| Shellfish | Clams | 2,000 | 900 | 5.00 | 10 | 9 |
| | - Crabs | 2,600 | 2,500 | 9.00 | 23 | 23 |
| | - Prawns | 900 | 800 | 13.00 | 12 | 10 |
| Total | | 59,600 | 219,800 | | 405 | 1,753 |

*Source: Weight - GSGislason estimates based on raw, incomplete FSC harvest data reported to DFO.*
*$ per kg - GSGislason estimates based on MOE "Seafood Industry Year in Review" data.*

## 3.0 Commercial Fishery

The commercial (wild) fishery is a renewable resource extraction, processing, and food distribution industry that produces a variety of protein products that are distributed throughout the world.

The industry is diverse in terms of the species harvested, harvesting gear employed, products, and domestic and export markets penetrated.

**Activities in the RDMW**

RDMW residents hold a total of 403 commercial fishing licences for salmon, herring, groundfish and shellfish - see Exhibit B.1, Appendix B - with close to a quarter of these comprising clam hand harvesting licences.

The commercial fishing industry involves several linkages or activities between the aquatic environment and the final consumer. Our definition of the industry includes:

- Harvesting - commercial fishermen harvest salmon, herring, groundfish, and shellfish using a variety of nets (seine, gillnet, trawl), hooks and lines (troll, longline), traps, diving techniques, or other gear
- Processing - raw fish and shellfish reach commercial processors via packing by sea to processing plants, custom unloading at transhipment points, and trucking. Commercial processors then transform raw fish and shellfish into a variety of live, fresh whole, frozen whole, fillet, steak, smoked, canned, roe, and other products
- Marketing - the selling and distribution of processed products through wholesale and retail food channels

The value of the product at the time of harvest, but before processing, is called "landed value". The value of the product after processing is called "wholesale value". The value of the product at the retail level for product sold domestically, or at the border for product exported, is called "market value".

Almost all the fish landed or processed in RDMW is sold to southern BC, other Canadian, or international markets i.e., only a small amount is consumed within the RDMW. For this reason, we concentrate on RDMW economic activity tied to fishing and processing operations.

Keltic Seafoods in Port Hardy has a large processing facility - the plant does primarily custom unloading but also does some custom processing. The Keltic plant also has a reduction plant for conversion of fish offal into meal and oil. Hardy Buoys of Port Hardy also does some custom processing of wild-caught fish. And Scarlett Point Seafoods with an office in Port Hardy is a fish broker.

Port Hardy is a major landing point for commercially caught fish - especially for trawl-caught groundfish. The fish is offloaded from vessels and trucked to Southern BC destinations for processing (see GSGislason 2010).

**Revenues**

The local fishing fleet in 2009 caught $7 million worth of fish, had a wage bill of $2.0 million and generated 90 person-years of employment (see Exhibit 2 at end of this Section).

More fishing jobs and wages were generated by local residents gaining positions on non-RDMW owned vessels, an estimated 20 person-years of employment and $0.6 million in wages.

The 110 person-years of fishing employment is much less than the total number of fishing jobs in the RDMW due to the seasonal nature of the vocation (DFO reports that 322 RDMW residents had a Fisher Registration Card in 2009 - see Exhibit B.1, Appendix B).

As discussed before, fishing employment is augmented significantly by processing plant employment and by employment in businesses supplying goods & services to fishing vessels and processing plants.

### Local Economic Impacts

The local RDMW economic impacts from the commercial fishing industry in 2009 are:

- $8.3 million in local wages & benefits, and
- 305 person-years of employment

Two out of every three wage dollars and two out of every three person-years of employment come from processing and supplier activities as opposed to fishing activities (see Exhibit 2). Employment in fishing and fish processing is about 3-4% of the provincial totals.

| Commercial Fishing Businesses | | Wages & Benefits $ million | Employment PYs |
|---|---|---|---|
| Seafood Companies | - Fishing | 2.6 | 110 |
| | - Processing | 2.6 | 110 |
| Supplier Companies | | 3.1 | 85 |
| TOTAL | | 8.3 | 305 |

The wage bill and employment figures for the fishing component would have been higher in 2010 due to a huge return of sockeye salmon.

### Subregional Activity

Fishing by RDMW licence holders occur along the whole coast e.g., a RDMW commercial roe herring licence holder may fish in the Strait of Georgia near Comox (there are no roe herring fisheries in Statistical Areas 11, 12 or 27). Most of the fish caught by local boats, except for salmon, would be caught in waters outside Statistical Areas 11, 12 or 27.

The community location of commercial licence holders is given in Exhibit B.1, Appendix B and displayed visually in the second map of Appendix E. Industry suppliers are located primarily in Port Hardy.

## Exhibit 2: Local RDMW Marine Related Activity - The Commercial Fishery

**A) Fishing 2009**

| | Landed Value $000 | Wages $000 | Employment PYs |
|---|---|---|---|
| **Local Boats** | | | |
| Salmon | 1,250 | 400 | 30 |
| Herring | 950 | 300 | 20 |
| Groundfish & Other Finfish | 3,400 | 800 | 15 |
| Shellfish | 1,400 | 500 | 25 |
| Total | 7,000 | 2,000 | 90 |

**B) Local RDMW Activity 2009**

| | Local Activity | | |
|---|---|---|---|
| | Value/Exp $000 | Wages $000 | Employment PYs |
| **Direct Industry** | | | |
| Fishing - Local Boats | 7,000 | 2,000 | 90 |
| - Southern Boats | NA | 600 | 20 |
| Processing (inc. offloading at Keltic) | NA | 2,600 | 110 |
| Subtotal | NA | 5,200 | 220 |
| **Direct Suppliers** | | | |
| Offloading (exc. Keltic) | 1,400 | 950 | 35 |
| Trucking | 2,400 | 600 | 15 |
| Fuel | 4,000 | 200 | 5 |
| Supply & Services* | 3,000 | 1,350 | 30 |
| Subtotal | 10,800 | 3,100 | 85 |
| **Total Local Activity** | NA | 8,300 | 305 |

*Source: Estimates based on interviews, material in Appendix B and GSGislason & Associates Ltd. "Economic Impacts from a Reduced Groundfish Trawl Fishery in British Columbia", June 2010..*

* *Marine hardware, electronics, food stores, engine repair etc.*

# 4.0 Aquaculture

Aquaculture is the growing of fish or shellfish in a controlled aquatic environment. Farmed fish and shellfish are reared from the egg/seed stage to a market-sized product. Akin to other farming industries, the aquaculture industry has significant control over the timing and quantity of product shipped to market.

**Activities in the RDMW**

The farmed finfish in the RDMW is almost exclusively Atlantic salmon - there is a very small amount of sablefish farmed (and no other species of salmon are farmed in the RDMW). In the RDMW there presently is no commercial shellfish farming although there is potential.

The farmed salmon industry involves several linkages or activities between the aquatic environment and the final consumer. Our definition of the industry includes:

- egg to juvenile phase - the hatching and rearing of finfish from egg to juvenile phase
- growout phase - the rearing of product in the ocean to market size i.e., "farming"
- harvesting & processing - the harvesting and processing of grown fish into gutted whole fish, fillets, portions etc.
- marketing - the selling and distribution of the processed products

The value of the product at the time of harvest, but before processing, is called "farm gate value". The value of the product after processing is called "wholesale value". The value at the retail level for product sold domestically, or at the border for product exported, is called "market value".

Almost all the farmed salmon grown or processed in RDMW is sold to southern BC, other Canadian, or international markets i.e., only a minute amount is consumed within the RDMW. For this reason, we concentrate on RDMW economic activity tied to growout and processing operations.

Three companies grow Atlantic salmon in the ocean environment surrounding the Regional District of Mount Waddington - the companies are Marine Harvest, Mainstream Canada and Grieg Seafood. All three companies have provincial headquarters in the city of Campbell River which lies south of the RDMW on Vancouver Island.

Live farmed salmon is loaded onto a marine transport or harvest boat, stunned and bled and delivered to the processing plant.

Marine Harvest processes the output from RDMW farms as well as Campbell River area farms at the Port Hardy Processing Plant (PHPP), which they own, into gutted head-on whole fish and fillets. Some of this primary-processed fish is sold to Hardy Buoys, a smoking and value-added seafood processor in Port Hardy - but the vast majority of PHPP output is trucked to southern markets. Mainstream Canada and Grieg Seafood process their RDMW-grown salmon in Campbell River area plants.

Foenix Forest Technologies Inc. in Port McNeill produces a compost for garden use from PHPP fish waste and forest bark (called Sea Soil™).

## Output & Revenues

In 2009 the three companies harvested 19,500 tonnes whole bled fish worth $100 million at the farm gate from 16 farm sites - see Exhibit 1. This 2009 production level was substantially less than in previous years due to biophysical conditions, corporate strategies as to the optimal time to harvest etc. The production level from the RDMW rebounded to 30,000 plus tonnes in 2010. The RDMW typically produces about 40 to 50% of total Atlantic salmon production in the Province.

Including the added value from processing - the farm fish from the RDMW, the farm fish from sites near Campbell River outside the RD, and the Foenix composting operation - results in a value of $178 million for processed farmed fish in RDMW (figures derived from BC Ministry of Environment data).

The farmed salmon companies spent $13.6 million directly at supply businesses located in RDMW - see Exhibit 3 (figures derived from purchase order data provided by the companies).

## Local Economic Impacts

The local economic impacts of the aquaculture (farmed salmon) sector to RDMW in 2009 are:

- $178.3 million in revenues,
- $19.2 million in local wages & benefits, and
- 400 person-years of local employment.

| Farmed Salmon Business | Revenue/ Expenditures $ million | Wages &Benefits $ million | Employment PYs |
|---|---|---|---|
| Farmed Salmon Companies | 178.3 | 14.4 | 295 |
| Supplier Companies | 13.6* | 4.8 | 105 |
| TOTAL | NA | 19.2 | 400 |

** inc. in farmed salmon company revenues*

The farmed salmon company employment of 295 PYs refers to jobs filled by RDMW residents only (and excludes the approximately 140 jobs located in the RDMW but filled by workers who commute from Campbell River, Comox etc. outside the RD, and excludes head office jobs in Campbell River). Most farmed salmon jobs are full-time year round jobs.

## Subregional Activity

Two thirds or more of growout activity occurs in the Broughton Archipelago area (Statistical Area 12) – see fifth map of Appendix E for growout locations. All local processing occurs in Port Hardy.

The breakdown of the local farmed salmon company workforce by community residence is approximately - 60% Port Hardy, 30% Port McNeill & Telegraph Cove and 10% other e.g., Alert Bay, Coal Harbour, Port Alice, Sointula.

James Walkus Fishing and Cards Aquaculture, both located in Port Hardy, are significant marine transport and equipment suppliers respectively to the industry.

## Exhibit 3: Local RDMW Marine Related Activity - Aquaculture

**A) Farm Production in RDMW**

| | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| Number of Farm Sites | 52 | 52 | 52 | 52 |
| Number of Sites with Production | 18 | 15 | 20 | 16 |
| Farm Production tonnes round | 38,500 | 28,500 | 36,800 | 19,500[2] |
| Farm Gate Value $000[1] | 179,000 | 136,800 | 182,200 | 99,500[2] |

**B) Local RDMW Activity 2009**

| | Local Activity | | |
|---|---|---|---|
| | Value/Exp $000 | Wages $000 | Employment PYs |
| Farming & Processing | 178,300[3] | 14,400[6] | 295[4,6] |
| Supply Expenditures $000[5] | | | |
| Marine Transport & Trucking | 5,750 | 1,730 | 30 |
| Fuel | 400 | 20 | 1 |
| R&M | 600 | 300 | 6 |
| Supplies | 3,800 | 1,520 | 38 |
| Services | 3,000 | 1,200 | 30 |
| TOTAL | 13,550 | 4,770 | 105 |
| Total Local Activity | NA | 19,170 | 400 |

*Source: MOE information plus salmon farming industry list of local RDMW suppliers plus interviews with salmon farming companies as to local employment levels.*

1 *Value at farm site before processing.*

2 *Farm production from RDMW was down & farm production from the Campbell River area was up in 2009.*

3 *Wholesale value for farm product processed in RDMW (inc. farm production from Campbell River area), farm gate otherwise value.*

4 *Person-years (PY) employment - 50 hatchery & growout, 230 processing (inc. employment at Hardy Buoys and at Foenix), 15 logistics/other.*

5 *Expenditures/activities to business located in the RDMW.*

6 *Includes wages & employment accruing to RDMW residents only.*

# 5.0 Ocean Recreational Fishing

Angling is a form of outdoor recreation. Most anglers fish not only to catch fish but also to enjoy the broader recreational experience - the "expectation and opportunity" of angling.

**Activities in the RDMW**

The quality of the angling experience is affected by fish availability, fishing success rates, fish species and size, and several non-fish related factors, such as the environmental setting and camaraderie with other anglers. Angling activity is measured not in units of fish caught or harvested, but in "angler-days" - defined as one angler fishing for any part of a single day.

Anglers may access a range of services to enhance their experience, or they may rely on their own resources. Despite its diversity, the angling experience can be classified into the following major categories:

- Lodges typically offer all-inclusive packages comprising accommodation, meals, boat and fuel, fishing equipment, and sometimes a fishing guide.
- Charters are angling packages that include boat, equipment and guide, but not usually accommodation or meals.
- Independent anglers are responsible for their own fishing gear, boat and fuel, accommodation, meals, and transportation.

The RDMW is a prime angling location for local residents and visitors alike. The region offshore offers exceptional opportunities for salmon (chinook, coho, pink) and "bottom fish" (halibut, lingcod, yelloweye).

With the decline in salmon abundance, specifically coho, in Georgia Strait many anglers have moved to the north end of Vancouver Island. And several new charter fishing and lodge operations have started in the region.

**Output & Revenues**

DFO Pacific Region has conducted a sport fishing creel survey in the RDMW Study Area for several years. However, the survey does not cover all months of the year, all parts of the study area and all types of recreational fishing - shore angling and shellfish harvesting are excluded, the survey covers only June through August. DFO also conducts a logbook program for lodges and charters but compliance is less than 100%.

DFO Pacific Region estimates of RDMW Study Area angling effort has been about 24,000 angling boat trips in recent years for the June to August period (Exhibit C.1, Appendix C). This suggests an annual effort level of about 100,000 angler-days based on: 1) average of three anglers per boat, and 2) the 3 month period comprising 75% of annual activity i.e., sport fishing is very seasonal (but this 100,000 angler-day figure still does not cover all study area regions, and does not cover shore angling and shellfish harvesting).

DFO Ottawa conducts a comprehensive mail survey of licenced anglers every 5 years. Results for 2005 suggest total angling effort for the Johnstone Strait area of Vancouver Island of about 200,000 angler-days (Exhibit C.2, Appendix C), or double the annual activity level inferred from the DFO Creel Survey.

For the purpose of our analysis we employ a 2009 activity figure for the RDMW of 175,000 angler-days which lies closer to the DFO mail survey estimate - we view this latter estimate as more reliable.

Using the data in Appendix C, we generated the RDMW sport fishing sector profile of Exhibit 4 i.e., $55 million spent in BC from the 175,000 angler days in RDMW (the amount spent in the RD would be much less than this). For lodge and charter anglers, the figures include angler expenditures on travel, meals, accommodation, etc that do not flow through the tills of lodges and charters.

**Local Economic Impacts**

The local RDMW economic impacts from the sport fishery in 2009 are (Exhibit 4):

- $25.0 million in local expenditures,
- $5.0 million in local wages & benefits, and
- 120 person-years of employment (most sport fishing jobs are seasonal jobs).

| Sport Fishing Businesses | Revenue/ Expenditures $ million | Wages &Benefits $ million | Employment PYs |
|---|---|---|---|
| Direct Angler | 25.0 | 4.6 | 110 |
| Suppliers to Lodges & Charters | 2.0* | 0.4 | 10 |
| TOTAL | NA | 5.0 | 120 |

** inc. in lodges & charter revenues*

The figures were derived from the fishing lodge & charter survey conducted for this study (Exhibit 5 in Section 6 to follow), the background information in Appendix C, and professional judgement. The estimates include an allowance for economic activity related to local purchases by lodges and charters.

The $25 million in local expenditures is about 4% of the BC total.

**Subregional Activity**

Fishing for salmon generally occurs closer to shore than fishing for halibut, lingcod or yelloweye groundfish. Area 27 off Quatsino Sound has exceptional fishing for halibut and other groundfish.

Exhibit C.1, Appendix C displays the relative distribution of catch by species among Statistical Areas 11, 12 and 27 - over 60% of angling effort appears to occur in Statistical Area 12.

The lodge & charter survey identified several specific fishing locations e.g., the North side of Malcolm Island, Blackfish Sound, Triangle Island, Double Bay, Cape Caution, offshore from Port Hardy Airport, Cracroft Point (see third map of Appendix E).

## Exhibit 4: Local RDMW Marine Related Activity - The Sport Fishery

### A) RDMW Angler Activity

| | Type of Angling | | | |
|---|---|---|---|---|
| | Lodge | Charter | Independent | All |
| **Angler-Days '000** | 10 | 5 | 160 | 175 |
| **Angler Purchases in BC $ million** | | | | |
| Boats & Equipment | 0 | 0 | 25 | 25 |
| Lodges & Charters | 8 | 2 | 0 | 10 |
| Other Direct Costs | 4 | 2 | 14 | 20 |
| All | 12 | 4 | 39 | 55 |

### B) Local RDMW Economic Benefits

| | Type of Angling | | | |
|---|---|---|---|---|
| | Lodge | Charter | Independent | All |
| **Local Expenditures $000** | | | | |
| Boats & Equipment | 0 | 0 | 5,000 | 5,000 |
| Lodges & Charters | 8,000 | 2,000 | 0 | 10,000 |
| Other Direct Costs | 2,000 | 1,000 | 7,000 | 10,000 |
| All | 10,000 | 3,000 | 12,000 | 25,000 |
| **Local Wages $000** | | | | |
| Boats & Equipment | 0 | 0 | 800 | 800 |
| Lodges & Charters | 500 | 700 | 0 | 1,200 |
| Other Direct Costs | 500 | 300 | 1,800 | 2,600 |
| All | 1,000 | 1,000 | 2,600 | 4,600 |
| **Local Employment PYs** | | | | |
| Boats & Equipment | 0 | 0 | 16 | 16 |
| Lodges & Charters | 13 | 20 | 0 | 33 |
| Other Direct Costs | 12 | 7 | 42 | 61 |
| All | 25 | 27 | 58 | 110 |

*Source: Derived from Marine Tourism Survey (reported in Exhibit 5, Section 6) and information in Appendix C.*

# 6.0 Ocean Recreation/Leisure

The ocean-based recreation sector is very difficult to analyze in that it does not fit into a grouping of (supply side) industries - rather the recreation sector encompasses a variety of consumer (demand side) activities/expenditures that are tied to the ocean environment.

These activities include whale watching, ocean boating and sailing, surfing, scuba diving, kayaking, guided kayak trips, beach activities, marine park visitation and the like.

Ocean-based recreation should not be restricted only to tourists. Non-tourists or locals comprise an important component of the overall ocean-based recreation sector.

**Activities in the RDMW**

The RDMW is a world class tourism and recreation destination. The region offers a variety of active and passive recreation opportunities ranging from kayaking, scuba diving, surfing and hiking to beachcombing & nature viewing. The region draws tourists from around the world including the US and Europe as well as Canada.

Cape Scott Provincial Park located on the NW top of Vancouver Island is 22,200 hectares in size. In 2008 the North Coast Trail - a 43 km trail in the park from Shushartie Bay to Nissen Bight - opened. The U'Mista Cultural Centre in Alert Bay provides museum tours, First Nations cultural performances and traditional First Nations meals for the 300-400 visitors from the 4-5 pocket cruise ship arrivals each year.

Individuals may use package operators who can provide transport, equipment, instruction/education, and sometimes meals and accommodation for recreation activities, or can undertake self-directed activities e.g. tourists undertaking activities on their own or local residents undertaking boating or other activities.

**Output & Revenues**

Unfortunately there are no figures available as to ocean-related recreation user days for the RDMW Study Area. In fact, there are no overall tourism statistics, ocean related or non-ocean related, for the region. However, a recent study indicated that outdoor recreation participation rates for Vancouver Island residents 18 years of age or older were - 47% oceanside beach activities, 32% whale watching/other marine wildlife viewing, and 30% motorized boating in the ocean (BC Tourism Trade & Investment pers. comm.).

The economic study of the importance of the ocean to the BC economy suggested that: 1) the revenue/value of ocean-related recreation for total BC in 2005 was $3.8 billion (this included saltwater angling, cruise ship and ferries spending), and 2) the Vancouver-Island share of the total was approximately 50% or $1.9 billion (GSGislason 2007 p.26-27).

Our discussions with tourism representatives and our professional judgement suggest that the RDMW Study Area should comprise about 4% of the Vancouver Island total or $75 million (4% is about double the RDMW share of Vancouver Island population - see Exhibit D.1, Appendix D). This figure includes saltwater angling in the area as well as ferries and cruise tourism - angling expenditures are estimated at $25 million (see Section 5), ferry expenditures are estimated at $5 million (see Section 7 following), and cruise tourism to Alert Bay is less than $0.1 million.

The remaining ocean recreation expenditures then are $45 million broken out as:

- marine tourism package businesses - $20 million
- other recreation expenditures - $25 million

The $20 million package figure comes from our Marine Tourism Survey (see Exhibit 5 next page), with a 30% allowance for additional businesses not covered by our interview program. The other $25 million in expenditures represent self-directed ocean recreation activities.

### Local Economic Impacts

The local RDMW economic impacts from the ocean or marine recreation sector then is:

- $45 million in local expenditures,
- $8.0 million in local wages & benefits, and
- 225 person-years of employment (most marine recreation jobs are seasonal).

The $45 million is 2% of the provincial total of $2.4 billion that excludes angling, ferries and cruise.

| Sector Type | | Revenue/ Expenditures $ million | Wages &Benefits $ million | Employment PYs |
|---|---|---|---|---|
| Ocean Recreation | - Packages | 20.0 | 3.2 | 105 |
| | - Other | 25.0 | 4.0 | 100 |
| Suppliers to Package Providers | | 4.0* | 0.8 | 20 |
| TOTAL | | NA | 8.0 | 225 |

** inc. in package operator revenues*

The figures were derived from the Marine Tourism Survey conducted for this study (Exhibit 5) as well as information from the provincial report on ocean recreation (GSGislason 2007) and professional judgement. We also added an estimate for local activity arising from suppliers to package operators (20% of package operator revenue).

### Subregional Activity

The Marine Tourism Survey identified some specific regions for ocean recreation activities.

| Activity | Location | Activity | Location | Activity | Location |
|---|---|---|---|---|---|
| 1. Whale watching | Robson Bight<br>entrance to Knight Inlet<br>Malcolm Island | 4. Kayaking | Echo Bay<br>Nigei Island<br>God's Pocket<br>Nuchatlitz Inlet | 7. Marine Resorts | Telegraph Cove<br>Sullivan Bay<br>Echo Bay<br>Kwatsi Bay<br>Jennis Bay<br>Tribune Channel |
| 2. Bear watching | Glendale Cove<br>(in Knight Inlet) | 5. Diving | Browning Wall<br>Hurst Island<br>Stubbs Island | | |
| 3. General viewing | Scott Islands Group<br>Kelsey Bay<br>Hope Island | 6. Surfing | Cape Scott | | |

The above regions are illustrative as there are literally hundreds or even thousands of locations for recreation opportunities in the RDMW (see fourth map of Appendix E for some locations).

## Exhibit 5: RDMW Marine Tourism Survey

| | Sport Fishing Businesses | | | Other Marine Tourism Businesses | | | |
|---|---|---|---|---|---|---|---|
| | Lodges | Charters | Resorts | Viewing[1] | Activities[2] | Resorts[3] | Transport[4] |
| **No. Respondents** | 4 | 16 | 3 | 10 | 8 | 5 | 8 |
| **Revenues $000** | 4,000 | 1,100 | 2,300 | 7,500 | 1,300 | 3,900 | 2,600 |
| **Wages & Employment** | | | | | | | |
| Wages $000 | 1,180 | 430 | 650 | 2,140 | 610 | 890 | 640 |
| Jobs | 62 | 30 | 65 | 84 | 48 | 65 | 17 |
| Employment PYs | 27 | 12 | 29 | 43 | 20 | 34 | 13 |
| **Local Wages & Employment** | | | | | | | |
| Local Wages $000 | 240 | 380 | 500 | 730 | 330 | 780 | 510 |
| Local Jobs | 17 | 25 | 45 | 38 | 27 | 59 | 15 |
| Local Employment PYs | 6 | 11 | 21 | 18 | 12 | 30 | 11 |
| **Season** | | | | | | | |
| Main Months | mid June to Sept | May to Sept | May to Sept | Whales - late June to Sept<br>Bears & Other - May to Sept | Kayak - June to Sept<br>Scuba - Mar to Oct | May to Sept | May to Sept |

*Source: Marine Tourism Survey conducted for this study (see Interview Guide in Appendix A).*

1 *3 whale watching, 3 bear viewing & 4 general nature viewing businesses.*

2 *3 kayaking, 4 scuba diving & 1 surfing businesses.*

3 *1 Vancouver Island resort, 3 small marine resorts in Broughton Archipelago plus 1 large resort complex in Port Hardy.*

4 *5 water taxi & 3 air charter businesses.*

# 7.0 Ocean Transport

The ocean transport sector in principle, includes ferry services, international ports & shipping as well as coastal shipping. The sector also includes the wide variety of ocean transport support services required such as tugboats and water taxis.

### Activities in the RDMW

There are two important marine transport activities within the RDMW: 1) an extensive ferry system, and 2) a group of tugboats, water taxis etc. that move supplies and people. We also include marine-related operations of the forest industry in the ocean transport sector.

The ferry system in the RDMW operated by BC Ferries has three routes (BC Ferries 2009/10 Annual Report):

- Route #10: Bear Cove in Port Hardy to Bella Bella to Prince Rupert - 2009/10 tariff revenue of $9.5 million from 13,600 vehicles and 42,800 passengers
- Route #25: Alert Bay to Sointula to Port McNeill - 2009/10 tariff revenue of $1.6 million from 91,200 vehicles and 247,100 passengers
- Route #40: (seasonal) from Bear Cove in Port Hardy to Mid Coast - 2009/10 tariff revenue of $1.5 million from 2,500 vehicles and 7,700 passengers

The Route #25 ferry travels exclusively within RDMW waters whereas the other two routes have Port Hardy as the southern terminus.

A group of tugboat/barge and water taxi companies provide service to the forest industry, to other business sectors, and for community resupply in remote locations such as the aboriginal community in Kingcome Inlet.

The Neucel Specialty Cellulose Ltd. plant in Port Alice has part of its workforce devoted to loading and unloading ships.

### Revenues

We ascribe the following revenues to RDMW from ferry, tugboat/water taxi, and forestry operations:

- $5 million from ferry tariff revenue, and another,
- $4 million from tugboat & water taxis, and
- $14 million from the marine component of forestry operations.

The $5 million ferry tariff revenue total is less than the sum of the route revenues above since, apart from the local Route #25, the revenue needs to be split among different regions of the coast.

We estimate a $4 million tug & water taxi revenue base from our interviews (this figure excludes tug & water taxi revenues attributable to salmon farming and ocean recreation sectors).

The $14 million revenue from forestry is derived from the assumption that revenue per employee is $350,000 (per GSGislason 2007a, p. C-2).

## Local Economic Impacts

The local RDMW economic impacts from the marine transport sector are:

- $23 million in local revenues,
- $7.5 million in local wages & benefits, and
- 110 person-years in local employment.

RDMW impacts are about 3% of the provincial totals.

| Marine Transport Sector | Revenues $ million | Wages &Benefits $ million | Employment PYs |
|---|---|---|---|
| Ferries | 5.0 | 3.5 | 50 |
| Tugs & Water Taxis | 4.0 | 1.2 | 20 |
| Forestry | 14.0 | 2.8 | 40 |
| TOTAL | 23.0 | 7.5 | 110 |

The Route #10 and #40 ferries have a shift rotation of 2 weeks on-2 weeks off and accordingly workers can come from all over coastal BC. We estimate that 50 person-years of local RDMW employment is attributable to the three ferry routes in total.

The figures for tugs & water taxis - predominantly attributable to tugs - are estimates derived from the general interviews conducted for this study.

Forest sector employment tied to the marine environment is estimated at 40 person-years - 2% of about 900 logging jobs (for log sort), 5% of about 100 wood products manufacturing jobs (for dewatering functions and loading vessels), and 5% of 400 pulp & paper manufacturing jobs at Neucel (for loading ships). The logging and wood products job counts come from the 2006 Census for RDMW - see Appendix D.

## Subregional Activity

The region of operation for the ferries is defined from the ferry routes.

Tugs and barges serving the forest industry can operate throughout the RDMW. As well, some operators serve Central Coast forestry operations which are outside the RDMW.

The Neucel pulp plant is located in Port Alice.

## Exhibit 6: Ferry System Profile North Island 2009/10

| | 2009/10 Ferry Routes | | |
|---|---|---|---|
| | #10 Year Round | #25 Year Round | #40 Seasonal |
| | Bear Cove to Prince Rupert | Alert Bay-Sointula-Port McNeill | Bear Cove to Mid Coast |
| **Traffic Counts** | | | |
| No. of Vehicles | 13,600 | 91,200 | 2,500 |
| No. of Passengers | 42,800 | 247,100 | 7,700 |
| **Financial $ million** | | | |
| Operating Revenue* | 11.9 | 1.8 | 1.7 |
| Operating Costs | 26.0 | 4.9 | 5.3 |
| **Total Employment**** | | | |
| Ferry Crew* | 40/60 | 21 | 58 |
| Relief/Casual/Seasonal | 20 | 14 | inc. under Route #10 |
| Ground | 2 | 2 | inc. under Route #10 |

*Source: BC Ferries Annual Report 2009/10 plus interviews with BC Ferries.*

* *operating revenue = tariff revenue + ancillary revenue + social program fees + contracted routes fees.*

** *employment is not necessarily RDMW residents (we estimate RDMW employment to be 50 person-years).*

- *Route #10 - 40 (2 watches of 20) in winter & 60 (2 watches of 30) in summer.*
- *Route #25 - 3 watches of 7 people.*
- *Route #40 - 2 watches of 29 people.*

# 8.0 Synthesis & Conclusions

This study has documented the important linkages between the marine environment and the economy of the RDMW of Northern Vancouver Island. The study has demonstrated that the contribution of the ocean to the economic livelihoods of the people, businesses and communities of the area is large and broadly based.

The Exhibit 7 following can be summarized as:

| RDMW Marine Sector Impacts | Wages & Benefits $ millions | Employment person-years |
|---|---|---|
| Direct Industry Impacts | 48.0 | 1,160 |
| Multiplier Impacts* | 7.2 | 180 |
| Total Impacts | 55.2 | 1,340 |

* *indirect suppliers & induced consumer respending.*

The 1,340 employment count does not include local DFO and other public sector employees with ocean-related duties (including these likely would add less than 5% to the count).

Significant information gaps existed in analyzing each marine sector, but problems were most acute for the ocean recreation sector. The Marine Tourism Survey provided valuable data and insight.

The 2006 total employment level of the RD from the Census of Canada was 5,890 - split approximately 20% public sector on education, health care, governments, and 80% private sector (see Appendix D). The marine-based economy of RDMW with its 1,340 person-years of employment therefore generates approximately 28% of all private sector employment, or 2 in 7 jobs, in the RD. The economies of Port Hardy, Port McNeill, Telegraph Cove, Alert Bay and Sointula are intimately tied to the ocean environment.

The influence of the ocean on the lives and livelihoods of RDMW residents is more pervasive than indicated by these market-based economic measures. The ocean is integral not just to the economy, but also to the culture, way of life, and collective identity of the region. The ocean environment provides significant benefits to First Nations through seafood harvesting activities. The ocean also provides key ecosystem services that underpin many of the identified industries and make coastal life as we know it possible.

For example, in our interviews and in the Marine Tourism Survey we asked individuals the importance of a healthy marine environment to their business. The view was unanimous, except for certain businesses servicing the forest industry, that a healthy ocean was critical to business viability.

In conclusion, the influence of the marine environment on the lives and livelihoods of residents of the Regional District of Mount Waddington is profound.

Finally, one should note that this study is groundbreaking and unique in that, for the first time, the contribution of the marine economy to a region's actual employment level has been estimated i.e., the employment includes only permanent residents of the region. The study therefore can serve as a prototype for future regional marine sector studies in the Province.

## Exhibit 7: Local RDMW Nature Related Activity - Summary

| | | Wages & Benefits $ million | Employment person-years or PYs |
|---|---|---|---|
| **Direct Industry Impacts*** | | | |
| Commercial Fisheries | | 8.3 | 305 |
| Aquaculture | | 19.2 | 400 |
| Marine Recreation | - Sport Fishing | 5.0 | 120 |
| | - Other | 8.0 | 225 |
| Marine Transport | | 7.5 | 110 |
| Total | | 48.0 | 1,160 |
| **Indirect & Induced Multiplier Impacts**** | | 7.2 | 180 |
| **Total Impacts** | | 55.2 | 1,340 |

* *this report.*

** *indirect supplier & induced consumer spending - GSGislason estimates based on Horne (2009) and judgement.*

# Bibliography


BC Ministry of Environment, "Seafood Industry Year in Review", Annual.

BC Stats, "Census of Canada".

British Columbia Ferry Services Inc., "Annual Report to the British Columbia Ferries Commission - Year Ended March 31, 2010".

GSGislason & Associates Ltd., "British Columbia Seafood Sector and Tidal Water Recreational Fishing: A Strengths, Weaknesses, Opportunities and Threats Assessment (SWOT)", Prepared for BC Ministry of Agriculture, Food & Fisheries, February 2004.

Gislason, Gordon and David Egan, "The British Columbia Farmed Salmon Industry - Regional Economic Impacts", Prepared by the ARA Consulting Group Inc., December 1994.

GSGislason & Associates Ltd., "Regional Benefits of Small Craft Harbours - North Vancouver Island", Prepared for DFO Pacific Region Small Craft Harbours Branch, March 2005.

GSGislason & Associates Ltd., "Economic Contribution of the Oceans Sector in British Columbia", Prepared for the Canada/British Columbia Oceans Coordinating Committee, April 2007.

GSGislason & Associates Ltd., "Economic Impacts from a Reduced Groundfish Trawl Fishery in British Columbia", Prepared for BC Ministry of Environment, June 2010.

Horne, Garry, "British Columbia Local Area Economic Dependencies 2006", Prepared for BC Stats, March 2009.

Indian and Northern Affairs Canada, "Registered Indian Population by Sex and Residence 2009".

Nelson Bros Fisheries Ltd., "Pacific Commercial Fishing Fleet - Financial Profiles for 2007", Prepared for Canada Fisheries & Oceans, 29 April 2009.

# Appendix A

## Interviews & Surveys

## Exhibit A.1: Interviews - Marine-Related Business, Government & First Nations

| Name | Activity/Affiliation | Business Location |
|---|---|---|
| 1. Alert Bay Harbour Authority | harbour | Alert Bay |
| 2. Alert Bay Towing | tugboats & barges | Alert Bay |
| 3. Archipelago Marine Research Ltd. | commercial catch monitoring | Victoria |
| 4. Aquatrans | trucking | Greater Vancouver |
| 5. BC Ferries-Headquarters | ferries | Victoria |
| 6. BC Ferries-North Island | ferries | Port McNeill |
| 7. BC Ministry of Environment | seafood statistics | Victoria |
| 8. BC Tourism Trade & Inv | marine recreation | Victoria |
| 9. Cards Aquaculture | farmed salmon equipment | Port Hardy |
| 10. DFO-North Island | FSC catch statistics | Port Hardy |
| 11. DFO-Pacific Region | commercial fishing licences | Vancouver |
| 12. Foenix Forest Technologies Inc. | fish waste - forest bark compost | Port McNeill |
| 13. Fort Rupert Band | FSC fisheries | Port Hardy |
| 14. Grieg Seafood | farmed salmon growout | Campbell River |
| 15. Hardy Buoys | seafood processor | Port Hardy |
| 16. James Walkus Fishing Ltd. | farmed fish transport | Port Hardy |
| 17. Keltic Seafoods | seafood processor | Port Hardy |
| 18. Mainstream Canada | farmed salmon growout | Campbell River |
| 19. Marine Harvest-Headquarters | farmed salmon growout & processing | Campbell River |
| 20. Marine Harvest-Operations | farmed salmon growout | Telegraph Cove |
| 21. Namgis Band | fisheries | Alert Bay |
| 22. Namgis Band | FSC fisheries | Alert Bay |
| 23. Neucel Specialty Cellulose | cellulose wood pulp | Port Alice |
| 24. Oban Ventures Ltd. | farmed fish transport | Victoria |
| 25. Odd Grydeland Consulting | farmed salmon consultant | Campbell River |
| 26. Petrocan | fuel | Port Hardy |
| 27. Port Hardy Chamber of Commerce | tourism | Port Hardy |
| 28. Port McNeill Chamber of Commerce | tourism | Port McNeill |
| 29. Port McNeill Harbour Authority | harbour | Port McNeill |
| 30. Ramsay, David | hook & line groundfish fishermen | Port McNeill |
| 31. Scarlett Point Seafoods | fish broker | Port Hardy |
| 32. Tourism Vancouver Island | tourism | Nanaimo |
| 33. U'Mista Cultural Centre | museum | Alert Bay |

## Exhibit A.2: Survey Interviews - Sport Fishing Operations

| Name | Owner Location | Type |
|---|---|---|
| 1. Old Skipper Fishing Charters | Coal Harbour | charter |
| 2. Castaway Marine Charters | Port Alice | " |
| 3. Rumble Beach Fishing Charters | Port Alice | " |
| 4. Bear Cove Cottages | Port Hardy | " |
| 5. Castle Point Charters | Port Hardy | " |
| 6. Free Spirit Charters | Port Hardy | " |
| 7. Sea Otter Charters | Port Hardy | " |
| 8. Starfish Charters | Greater Vancouver | " |
| 9. Tides & Tales Sport Fishing | Port Hardy | " |
| 10. Code 3 Charters | Port McNeill | " |
| 11. Leisure Suit Charters | Port McNeill | " |
| 12. North Island Fishing Adventures | Port McNeill | " |
| 13. Oli's Fishing Charters | Comox | " |
| 14. Timberland Fishing Charters | Port McNeill | " |
| 15. Codfather Charters | Port Hardy | " |
| 16. Chad's Coastwide Sport Fishing | Greater Vancouver | " |
| 17. Quatsino Lodge | Comox | lodge |
| 18. Pacific Outback Resort | Greater Vancouver | " |
| 19. Sund's Lodge | USA | " |
| 20. Qualicum Rivers Winter Harbour Fishing | Qualicum Beach | " |
| 21. Alder Bay Resort | Port McNeill | resort |
| 22. Telegraph Cove Resort | Telegraph Cove | " |
| 23. Cluxewe Resort | Port McNeill | " |

## Exhibit A.3: Survey Interviews - Marine Tourism Operations (Non-Sport Fishing)

| Name | Owner Location | Type |
|---|---|---|
| 1. Seasmoke Whale Watching | Alert Bay | whale watching |
| 2. McKay Whale Watching | Port McNeill | whale watching |
| 3. Stubbs Island Whale Watching | Telegraph Cove | whale watching |
| 4. Knight Inlet Lodge | Black Creek | bear watching |
| 5. Great Bear Nature Tours | Port Hardy | bear watching |
| 6. Tide Rip Tours | Comox | bear watching |
| 7. Quatsino Sound Tours | Coal Harbour | nature observation |
| 8. Ocean Rose Coastal Adventures | Coal Harbour | nature observation |
| 9. Nimmo Bay Resort | Port McNeill | nature observation |
| 10. Hidden Cove Lodge | Coal Harbour | nature observation |
| 11. Kingfisher Wilderness Adventures | Port McNeill | kayaking |
| 12. Broughton Paddlers Inn | Sointula | kayaking |
| 13. North Island Kayak | Telegraph Cove | kayaking |
| 14. Browning Pass Hideaway | Port Hardy | diving |
| 15. God's Pocket Resort | Greater Vancouver | diving |
| 16. North Island Dive & Kayak Centre | Port Hardy | diving |
| 17. Sun Fun Divers | Port McNeill | diving |
| 18. Surf Nawalakw | Port Hardy | surfing |
| 19. Greenway Sound Marine Resort | Port McNeill | marine resort |
| 20. Jennis Bay Resort | Jennis Bay | marine resort |
| 21. Kwatsi Bay Marina | Kwatsi Bay | marine resort |
| 22. Cape Scott Water Taxi | Port Hardy | water taxi |
| 23. Catala Charters | Port Hardy | water taxi |
| 24. Palyn Water Taxi | Port McNeill | water taxi |
| 25. Port McNeill Water Taxi | Port McNeill | water taxi |
| 26. Silver Bay Ventures | Port McNeill | water taxi |
| 27. Grizzly Helicopters Ltd. | Port McNeill | air tours |
| 28. Pacific Eagle Aviation | Port McNeill | air tours |
| 29. West Coast Helicopters | Port McNeill | air tours |
| 30. Quarterdeck Marina & Hotel | Port Hardy | marina complex |
| 31. Telegraph Cove Marina | USA | marina complex |

Company: ______________________________

Location: ______________________________

Name: ______________________________

PH: ____________ Email: ______________

## Mt. Waddington Marine Sector - Interview Guide

Gordon Gislason and Edna Lam of GSGislason & Associates Ltd. have been retained by Living Oceans Society and Mt. Waddington Regional District (RD) to assess the importance of marine businesses to the economy of the Regional District. Any information that you provide will be kept strictly confidential.

---

**A. Your Operation**

1. Briefly describe the service that your business provides. In which marine areas does your business operate? (describe particular channels, banks etc or use the map e.g. 12-4 near Telegraph Cove).

   ______________________________

   ______________________________

   ______________________________

   ______________________________

   ______________________________

2. How much employment & labour does your business involve?

   _________ people for e.g., 2 people for 12 months plus

   _________ person-months 4 people for 4 months = 6 people for 40 months in total

3. What share of workers live in the RD? _________% or _________ workers from RD

**B. Your Revenue Base & Wage Bill**

4. Approximately what was your revenue base (before taxes levied on sales)?

   in 2009 $__________________

   in 2010 $__________________ projected

5. Approximately what share of this revenue goes to pay labour (including a draw for yourself and working owners/partners)?

   roughly ________% goes to labour inc. benefits or $ ____________ per year

**C. Importance of a Healthy Marine Environment?**

6. Is a healthy marine environment important to your operation? If **"Yes"**, what aspects of the marine environment do you utilize in your operation? (e.g., particular species, geographic features).

   ______________________________

   ______________________________

   ______________________________

## THANK YOU


| | | | |
|---|---|---|---|
| Gordon Gislason | PH: 604/685-7936 | Edna Lam | PH: 604/733-3894 |
| Email: gsg@gsg.bc.ca | Fax: 604/685-7993 | Email: ednalam@lynx.net | Fax: 604/733-5429 |

# Appendix B

## Background - Commercial Fishing

## Exhibit B.1 Commercial Fishing Licences – Regional District of Mt. Waddington 2009

| | RDMW | | | | | | |
|---|---|---|---|---|---|---|---|
| **A. FISHING LICENCES** | Quatsino | Port Hardy | Port McNeill | Alert Bay | Sointula | All | BC Total Licences |
| **SALMON** | | | | | | | |
| Seine "AS" | 1 | 11 | 0 | 5 | 2 | 19 | 276 |
| Gillnet "AG" & "N" | 1 | 13 | 5 | 15 | 49 | 83 | 1,406 |
| Troll "AT" | 3 | 9 | 2 | 1 | 1 | 16 | 538 |
| Subtotal | 5 | 33 | 7 | 21 | 52 | 118 | 2,220 |
| **HERRING** | | | | | | | |
| Roe Herring - Seine "HS" | 0 | 11 | 0 | 2 | 0 | 13 | 252 |
| - Gillnet "HG" | 3 | 44 | 3 | 10 | 13 | 73 | 1,268 |
| Spawn-on-Kelp "J" | 0 | 2 | 0 | 0 | 0 | 2 | 36 |
| Subtotal | 3 | 57 | 3 | 12 | 13 | 88 | 1,556 |
| **GROUNDFISH & OTHER FISH** | | | | | | | |
| Halibut "L" | 1 | 11 | 1 | 3 | 9 | 25 | 435 |
| Sablefish "K" | 0 | 1 | 0 | 0 | 0 | 1 | 48 |
| Groundfish Trawl "T" | 0 | 0 | 0 | 1 | 1 | 2 | 142 |
| Rockfish Hook & Line "ZN" | 0 | 11 | 9 | 6 | 2 | 28 | 262 |
| Sardine by Seine "ZS" | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| Eulachon "ZU" | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Category "C"/Schedule II | 3 | 7 | 6 | 3 | 4 | 23 | 479 |
| US Tuna | 0 | 1 | 0 | 0 | 0 | 1 | 179 |
| Subtotal | 4 | 31 | 16 | 13 | 16 | 80 | 1,586 |
| **SHELLFISH** | | | | | | | |
| Crab "R" | 1 | 3 | 0 | 0 | 0 | 4 | 221 |
| Prawn "W" | 0 | 1 | 1 | 1 | 1 | 4 | 252 |
| Geoduck "G" | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| Red Urchin "ZC" | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| Green Urchin "ZA" | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| Sea Cucumber "ZD" | 0 | 0 | 0 | 0 | 0 | 0 | 85 |
| Shrimp Trawl "S" | 1 | 0 | 1 | 0 | 8 | 10 | 243 |
| Euphausid "ZF" | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Clam by Hand "ZF" | 15 | 67 | 1 | 16 | 0 | 99 | 1,102 |
| Subtotal | 17 | 71 | 3 | 17 | 9 | 117 | 2,136 |
| **TOTAL** | 29 | 192 | 29 | 63 | 90 | 403 | 7,498 |
| **B. OTHER LICENCES** | | | | | | | |
| Fisher Registration Cards (FRCs) | 12 | 123 | 23 | 84 | 80 | 322 | 6,072 |

*Note: Alert Bay – includes Simoon Sound & Kingcome Inlet*
*Quatsino – includes Coal Harbour*

*Source: Derived from data provided by DFO Licensing (based on residence of owner).*

## Exhibit B.2: Commercial Licence Counts and Landed Value 2009

| | 2009 Total Licences | 2009 Landed Value $000 | $000 per Licence |
|---|---|---|---|
| **SALMON** | | | |
| Seine "AS" | 276 | 9,500 | 34 |
| Gillnet "AG" & "N" | 1,406 | 5,400 | 4 |
| Troll "AT" | 538 | 8,800 | 16 |
| Subtotal | 2,220 | 23,700 | NA |
| **HERRING** | | | |
| Roe Herring - Seine "HS" | 252 | 5,100 | 20 |
| - Gillnet "HG" | 1,268 | 10,500 | 8 |
| Spawn-on-Kelp "J" | 36 | 1,800 | 50 |
| Subtotal | 1,556 | 17,400 | NA |
| **GROUNDFISH & OTHER FISH** | | | |
| Halibut "L" | 435 | 31,500 | 72 |
| Sablefish "K" | 48 | 24,000 | 500 |
| Groundfish Trawl "T" | 142 | 49,200 | 346 |
| Rockfish Hook & Line "ZN" | 262 | 2,000 | 8 |
| Sardine by Seine "ZS" | 25 | 3,000 | 120 |
| Eulachon "ZU" | 16 | - | - |
| Category "C"/Schedule II | 479 | 2,000 | 4 |
| US Tuna | 179 | 15,800 | 88 |
| Subtotal | 1,586 | 125,500 | NA |
| **SHELLFISH** | | | |
| Crab "R" | 221 | 32,200 | 146 |
| Prawn "W" | 252 | 33,000 | 131 |
| Geoduck "G" | 55 | 31,800 | 578 |
| Red Urchin "ZC" | 110 | 3,000 | 27 |
| Green Urchin "ZA" | 49 | 300 | 6 |
| Sea Cucumber "ZD" | 85 | 3,900 | 46 |
| Shrimp Trawl "S" | 243 | 1,300 | 5 |
| Euphausid "ZF" | 19 | 300 | 16 |
| Clam by Hand "ZF" | 1,102 | 2,200 | 2 |
| Subtotal | 2,136 | 108,000 | NA |
| **TOTAL** | 7,498 | NA | NA |

*Source: DFO Licencing and MOE SYIR.*

# Appendix C

## Background - Sport Fishing

## Exhibit C.1: DFO Sport Fishing Estimates - RDMW Marine Areas 2009

| | Statistical Areas | | | |
|---|---|---|---|---|
| | **11** | **12** | **27** | **All** |
| **Boat Trips*** | 1,200 | 15,080 | 7,550 | 23,830 |
| **Kept Catch*** | | | | |
| Chinook | 2,320 | 8,450 | 6,220 | 16,990 |
| Sockeye | - | 50 | <10 | 50 |
| Coho | 1,150 | 7,410 | 14,910 | 23,470 |
| Pink | 90 | 13,590 | 830 | 14,510 |
| Chum | 10 | 90 | 40 | 140 |
| Halibut | 1,580 | 3,390 | 6,000 | 10,970 |
| Lingcod | 780 | 420 | 3,720 | 4,920 |
| Rockfish | 2,080 | 2,270 | 6,930 | 11,280 |
| Other Finfish | 70 | 1,120 | 140 | 1,330 |

* *activity refers to June to August period only.*

*Source: DFO Pacific Region.*

## Exhibit C.2: Days Fished by Region in BC Saltwater 2005

| | Angler Origin | | | |
|---|---|---|---|---|
| | BC | Other Canada | Outside Canada | All |
| **Region of Fishing** | | | | |
| Queen Charlotte Islands | 85,400 | 32,700 | 42,500 | 160,600 |
| North Coast | 72,500 | 21,900 | 17,100 | 111,500 |
| Central Coast | 66,800 | 16,700 | 36,700 | 120,200 |
| Johnstone Strait* | 140,100 | 16,200 | 42,400 | 198,700 |
| Georgia Strait | 949,700 | 40,800 | 46,900 | 1,037,400 |
| Barkley Sound | 297,200 | 24,600 | 39,900 | 361,700 |
| WCVI** | 164,700 | 14,900 | 47,300 | 226,900 |
| Total | 1,776,400 | 167,800 | 272,800 | 2,217,000 |

*Source: DFO Ottawa, Results from "2005 Survey of Recreational Fishing", May 2007.*

* *includes Statistical Areas 11, 12 and part of 13.*
** *includes Statistical Area 27.*

## Exhibit C.3: BC Saltwater Recreational Fishing Profile 2002

| | Lodge | Charter | Independent | All |
|---|---|---|---|---|
| **Angler-Days '000** | 200 | 100 | 1,800 | 2,100 |
| **Angler Purchases $ millions** | | | | |
| Boats & Equipment | 1 | 1 | 223 | 225 |
| Lodges/Charters | 120 | 30 | 0 | 150 |
| Other Direct Costs | 35 | 20 | 120 | 175 |
| | 156 | 51 | 343 | 550 |

*Source: GSGislason & Associates Ltd., "British Columbia Seafood Sector and Tidal Water Recreational Fishing - A Strengths, Weaknesses, Opportunities and Threats (SWOT) Assessment", Prepared for BC Ministry of Agriculture Food & Fisheries, Victoria BC, February 2004 p.176.*

# Appendix D

## 2006 Census Data

## Exhibit D.1: 2006 Census - RDMW Population & Labour Force

| | RDMW | | | | | | |
|---|---|---|---|---|---|---|---|
| | Quatsino | Port Alice | Port Hardy | Port McNeill | Alert Bay | Sointula | Total |
| **Population** | | | | | | | |
| Total | 390 | 820 | 4,530 | 3,665 | 1,195 | 1,050 | 11,650 |
| 15+ Years of Age | 295 | 710 | 3,525 | 2,945 | 925 | 890 | 9,290 |
| Aboriginal | 230 | 25 | 1,160 | 225 | 870 | 220 | 2,730 |
| **Work** | | | | | | | |
| Labour Force - Total | 200 | 450 | 2,485 | 2,335 | 640 | 505 | 6,615 |
| - Employed | 175 | 400 | 2,135 | 2,240 | 540 | 400 | 5,890 |
| - Unemployed | 30 | 45 | 330 | 90 | 120 | 105 | 720 |
| Participation Rate % | 67.8% | 63.4% | 70.5% | 79.3% | 69.2% | 56.7% | 71.2% |
| Unemployment Rate % | 15.0% | 10.0% | 13.3% | 3.9% | 18.8% | 20.8% | 10.9% |

*Source: BC Stats "2006 Census of Canada".*

*Note:*
1. *Quatsino inc. Hope Island (IR), Mt. Waddington B (SRD), Quatsino Subdivision 18 (IR).*
2. *Port Alice is the Village of Port Alice.*
3. *Port Hardy inc. Port Rupert 1 (IR), Kippase 2 (IR), Port Hardy (DM), Tsulquate 4 (IR).*
4. *Port McNeill inc. Mt. Waddington C (SRD), Mt. Waddington D (SRD), Port McNeill (T).*
5. *Sointula is Mt. Waddington A (SRD).*
6. *Total populations of the Province and Vancouver Island are 4,113,485 and 704,635 respectively from the 2006 Census.*

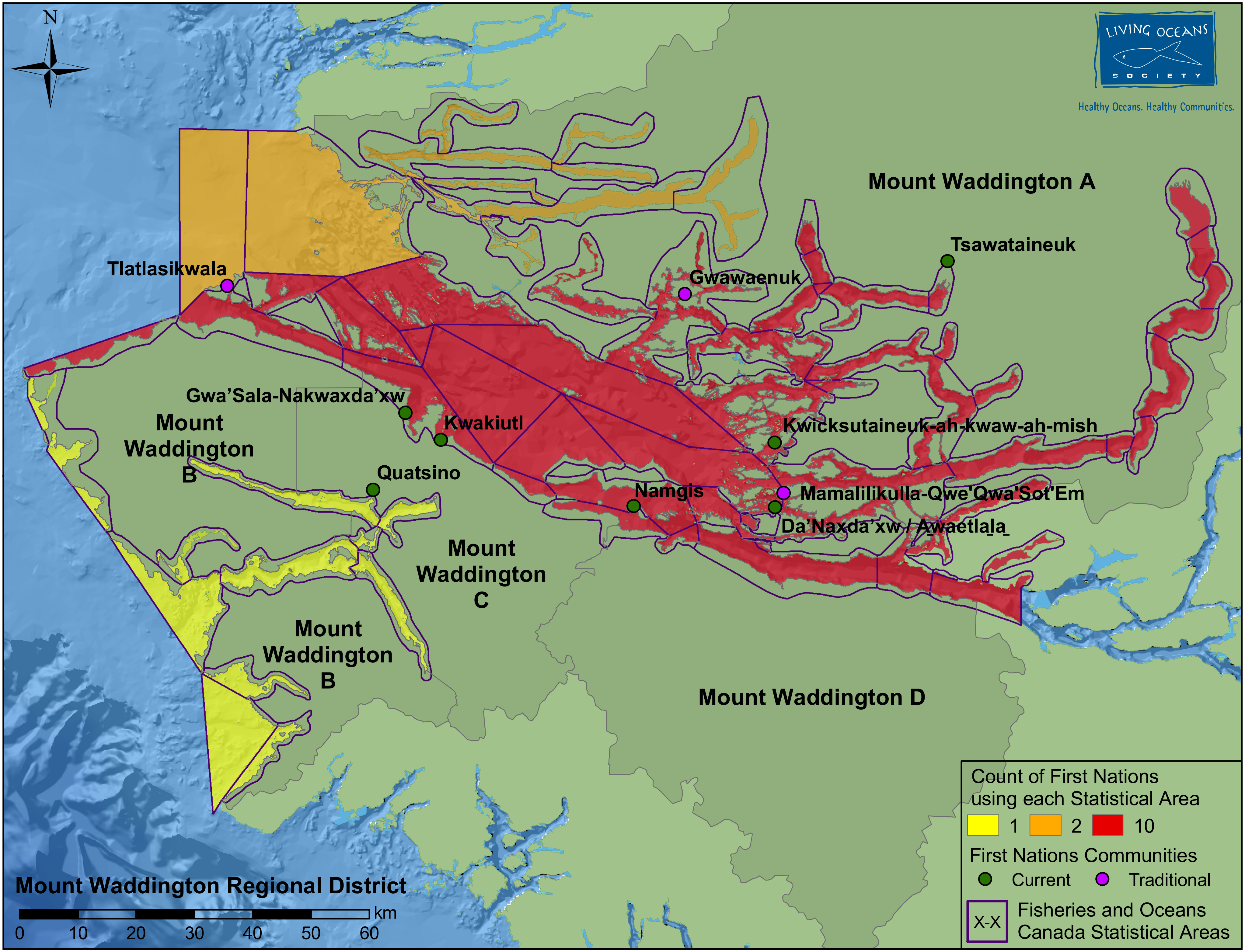
## Exhibit D.2: 2006 Census - Labour Force by Industry

| Industry | | Number RDMW | Number BC | % RDMW |
|---|---|---|---|---|
| Primary | - Farms | 120 | 40,105 | 0.3% |
| | - Forestry & Logging | 895 | 21,440 | 4.2% |
| | - Fishing & Hunting | 275 | 5,235 | 5.3% |
| | - Support to Farms & Forestry | 85 | 9,705 | 0.1% |
| Mining, Oil & Gas | | 25 | 20,020 | 0.1% |
| Utilities | | 20 | 11,250 | 0.2% |
| Construction | | 300 | 166,100 | 0.2% |
| Manufacturing | - Seafood | 280 | 5,070 | 5.5% |
| | - Wood Products | 105 | 38,620 | 0.3% |
| | - Paper | 200 | 14,125 | 1.4% |
| | - Other | 105 | 131,305 | 0.1% |
| Wholesale Trade | | 195 | 92,020 | 0.2% |
| Retail Trade | | 640 | 248,955 | 0.3% |
| Transportation | - Water & Support | 80 | 10,910 | 0.7% |
| | - Other | 320 | 104,005 | 0.3% |
| Information & Culture | | 50 | 58,905 | 0.1% |
| Finance & Insurance | | 100 | 84,215 | 0.1% |
| Real Estate etc | | 70 | 50,725 | 0.1% |
| Professional, Technical, Scientific | | 300 | 162,430 | 0.2% |
| Mgt of Companies | | - | 3,105 | - |
| Admin & Support, Waste Mgt | | 180 | 97,305 | 0.2% |
| Education | | 390 | 152,565 | 0.3% |
| Health Care & Social Assistance | | 450 | 213,090 | 0.2% |
| Arts, Entertainment, Recreation | | 145 | 51,365 | 0.3% |
| Accommodation Services | | 170 | 38,525 | 0.4% |
| Food Services | | 305 | 141,525 | 0.2% |
| Public Admin | | 445 | 110,585 | 0.4% |
| Other Services | | 215 | 109,895 | 0.2% |
| Unclassified/ Not Applicable | | 145 | 33,285 | 0.4% |
| TOTAL | | 6,610 | 2,226,385 | 0.3% |

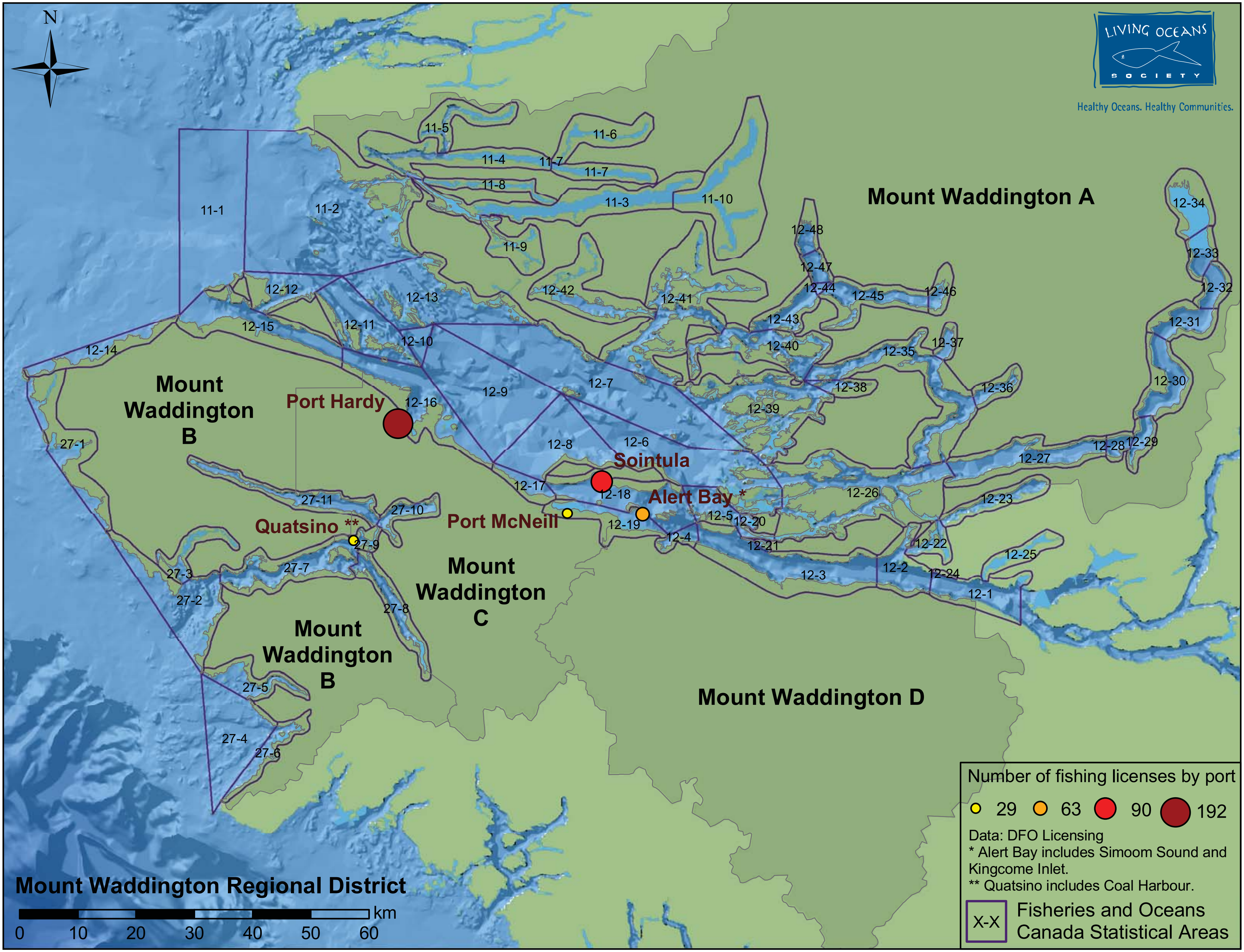
Source: BC Stats & Statistics Canada “2006 Census of Canada”.

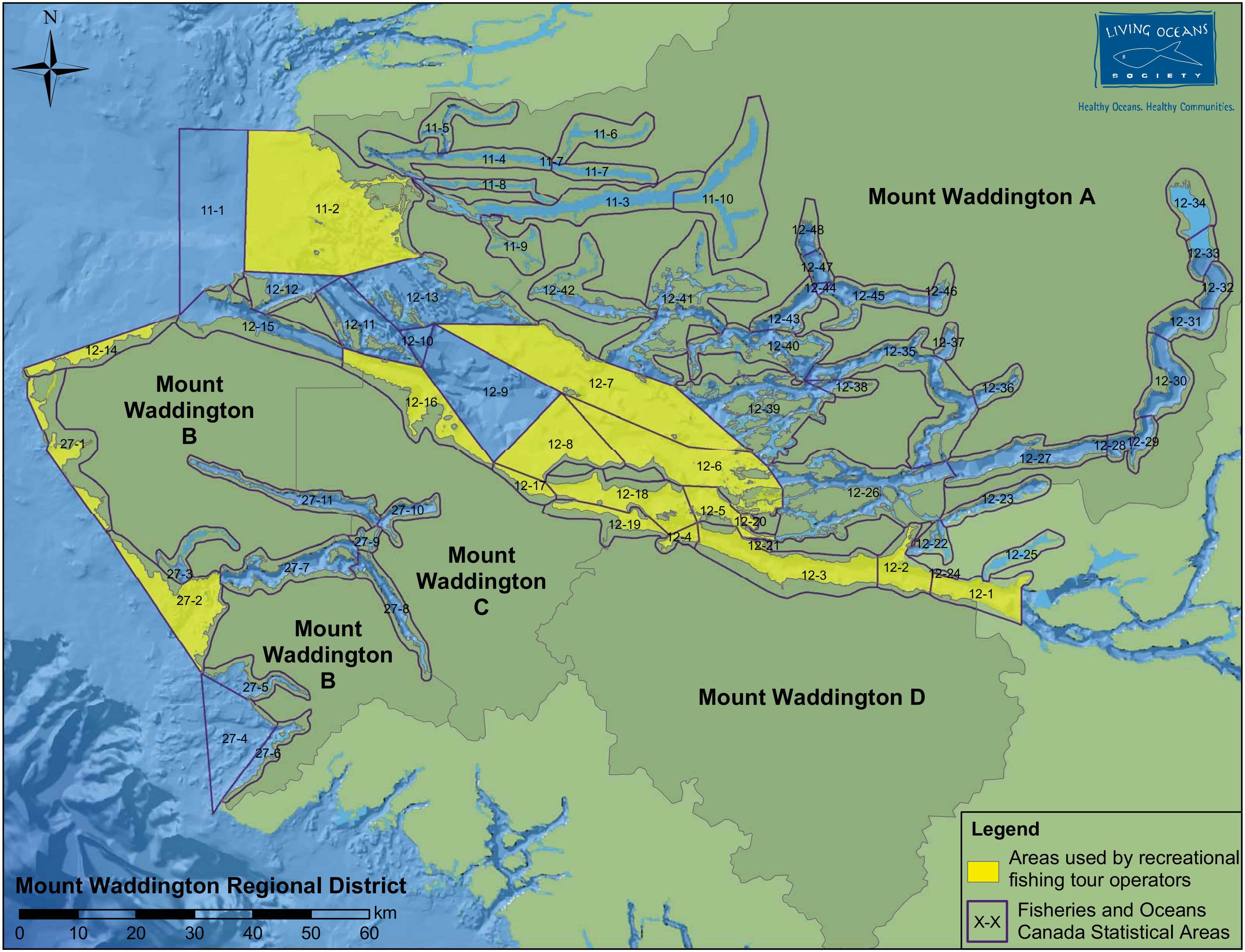
# Appendix E

## Maps Provided by Living Oceans Society & Regional District of Mt. Waddington

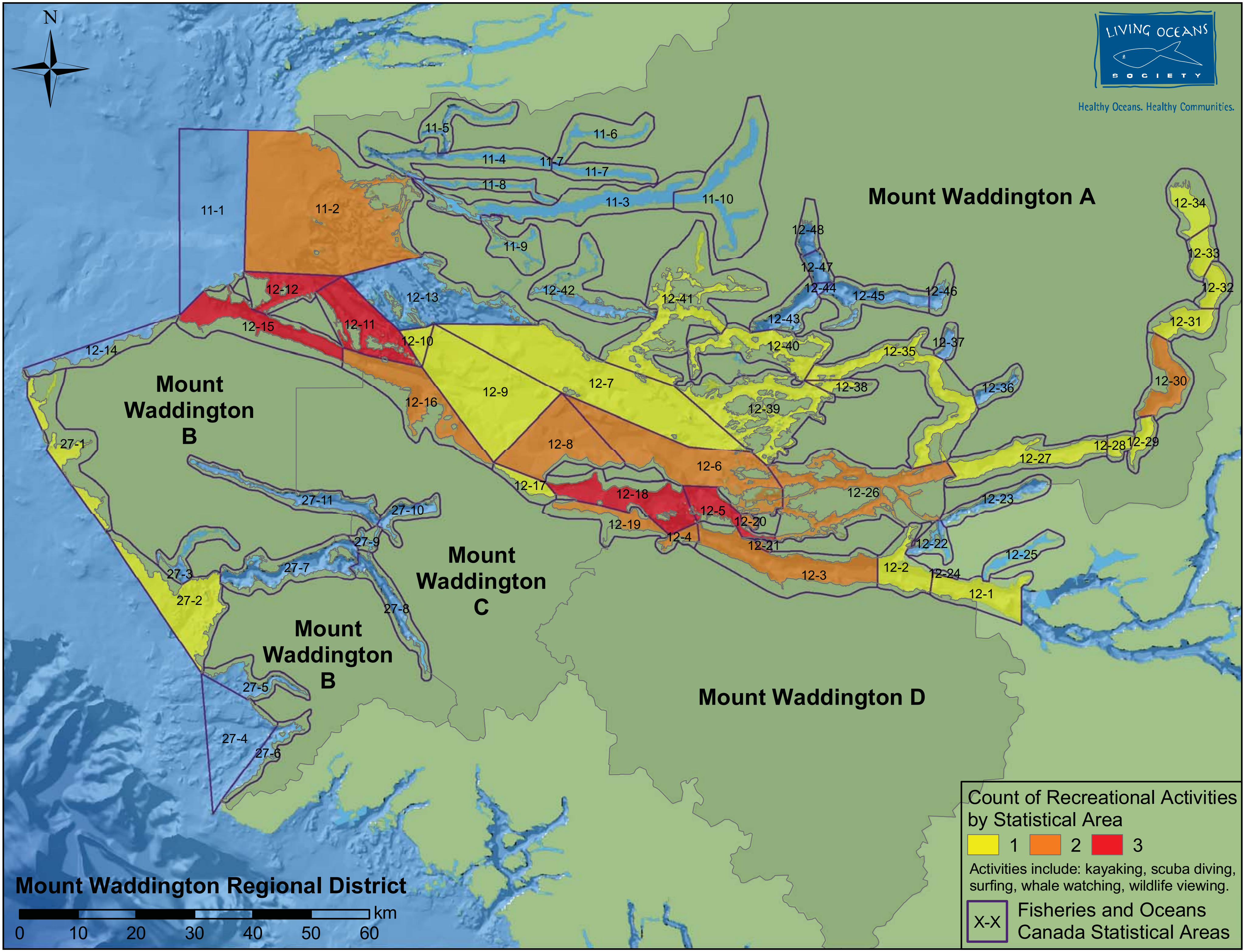


N
LIVING OCEANS
SOCIETY
Healthy Oceans. Healthy Communities.
Mount Waddington A
Tsawataineuk
Gwawaenuk
Tlatlasikwala
Gwa'Sala-Nakwaxda'xw
Kwakiutl
Mount Waddington B
Quatsino
Kwicksutaineuk-ah-kwaw-ah-mish
Namgis
Mamalilikulla-Qwe'Qwa'Sot'Em
Da'Naxda'xw / Awaetlala
Mount Waddington C
Mount Waddington B
Mount Waddington D
Count of First Nations using each Statistical Area
1
2
10
First Nations Communities
Current
Traditional
X-X
Fisheries and Oceans Canada Statistical Areas
Mount Waddington Regional District
km
0
10
20
30
40
50
60


N
LIVING OCEANS SOCIETY
Healthy Oceans. Healthy Communities.
Mount Waddington A
Mount Waddington B
Mount Waddington B
Mount Waddington C
Mount Waddington D
Port Hardy
Sointula
Alert Bay *
Port McNeill
Quatsino **
11-1
11-2
11-3
11-4
11-5
11-6
11-7
11-7
11-8
11-9
11-10
12-1
12-2
12-3
12-4
12-5
12-6
12-7
12-8
12-9
12-10
12-11
12-12
12-13
12-14
12-15
12-16
12-17
12-18
12-19
12-20
12-21
12-22
12-23
12-24
12-25
12-26
12-27
12-28
12-29
12-30
12-31
12-32
12-33
12-34
12-35
12-36
12-37
12-38
12-39
12-40
12-41
12-42
12-43
12-44
12-45
12-46
12-47
12-48
27-1
27-2
27-3
27-4
27-5
27-6
27-7
27-8
27-9
27-10
27-11
Number of fishing licenses by port
29
63
90
192
Data: DFO Licensing
* Alert Bay includes Simoom Sound and Kingcome Inlet.
** Quatsino includes Coal Harbour.
X-X Fisheries and Oceans Canada Statistical Areas
Mount Waddington Regional District
0 10 20 30 40 50 60 km



N
LIVING OCEANS SOCIETY
Healthy Oceans. Healthy Communities.
Mount Waddington A
Mount Waddington B
Mount Waddington C
Mount Waddington B
Mount Waddington D
11-1
11-2
11-3
11-4
11-5
11-6
11-7
11-7
11-8
11-9
11-10
12-1
12-2
12-3
12-4
12-5
12-6
12-7
12-8
12-9
12-10
12-11
12-12
12-13
12-14
12-15
12-16
12-17
12-18
12-19
12-20
12-21
12-22
12-23
12-24
12-25
12-26
12-27
12-28
12-29
12-30
12-31
12-32
12-33
12-34
12-35
12-36
12-37
12-38
12-39
12-40
12-41
12-42
12-43
12-44
12-45
12-46
12-47
12-48
27-1
27-2
27-3
27-4
27-5
27-6
27-7
27-8
27-9
27-10
27-11
Mount Waddington Regional District
km
0 10 20 30 40 50 60
Legend
Areas used by recreational fishing tour operators
X-X Fisheries and Oceans Canada Statistical Areas

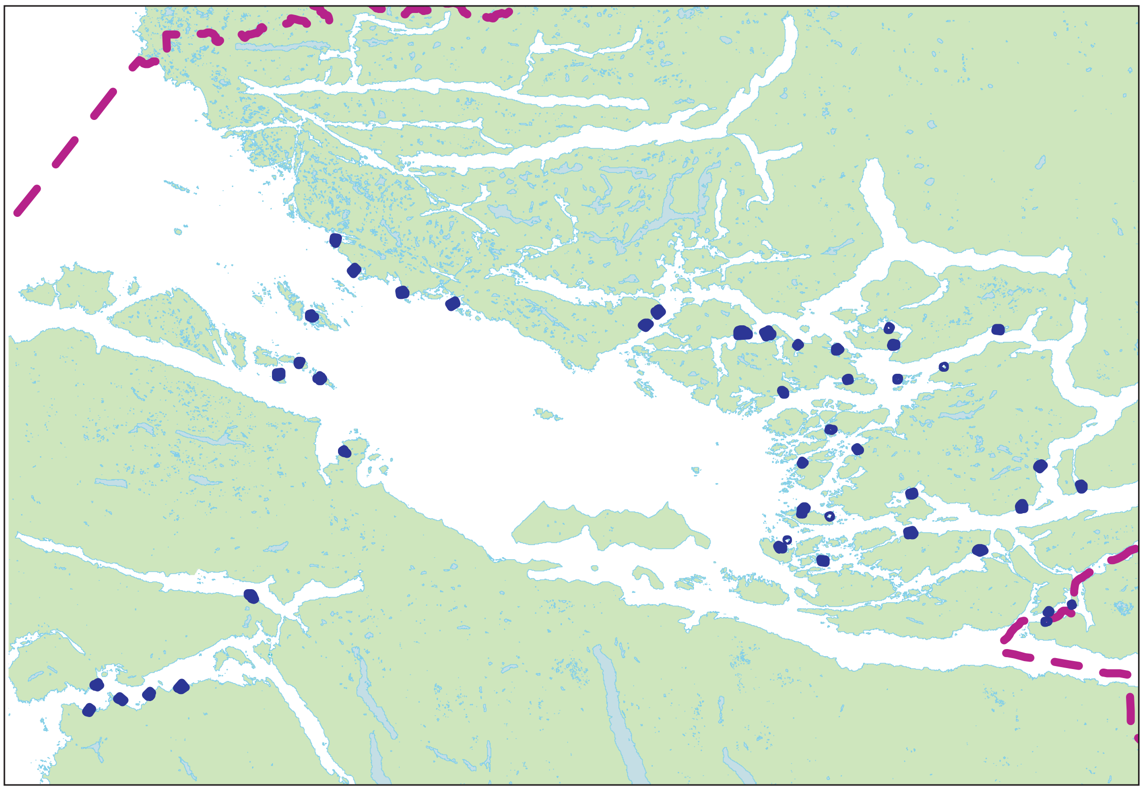


N
LIVING OCEANS SOCIETY
Healthy Oceans. Healthy Communities.
Mount Waddington A
Mount Waddington B
Mount Waddington C
Mount Waddington D
11-1
11-2
11-3
11-4
11-5
11-6
11-7
11-8
11-9
11-10
12-1
12-2
12-3
12-4
12-5
12-6
12-7
12-8
12-9
12-10
12-11
12-12
12-13
12-14
12-15
12-16
12-17
12-18
12-19
12-20
12-21
12-22
12-23
12-24
12-25
12-26
12-27
12-28
12-29
12-30
12-31
12-32
12-33
12-34
12-35
12-36
12-37
12-38
12-39
12-40
12-41
12-42
12-43
12-44
12-45
12-46
12-47
12-48
27-1
27-2
27-3
27-4
27-5
27-6
27-7
27-8
27-9
27-10
27-11
Count of Recreational Activities by Statistical Area
1
2
3
Activities include: kayaking, scuba diving, surfing, whale watching, wildlife viewing.
X-X
Fisheries and Oceans Canada Statistical Areas
Mount Waddington Regional District
km
0
10
20
30
40
50
60

# Location of licensed aquaculture activity in the Regional District of Mount Waddington

**Aquaculture Regions**

- Fin Fish
- Municipal Boundary
- Lakes
- Ocean
- Land

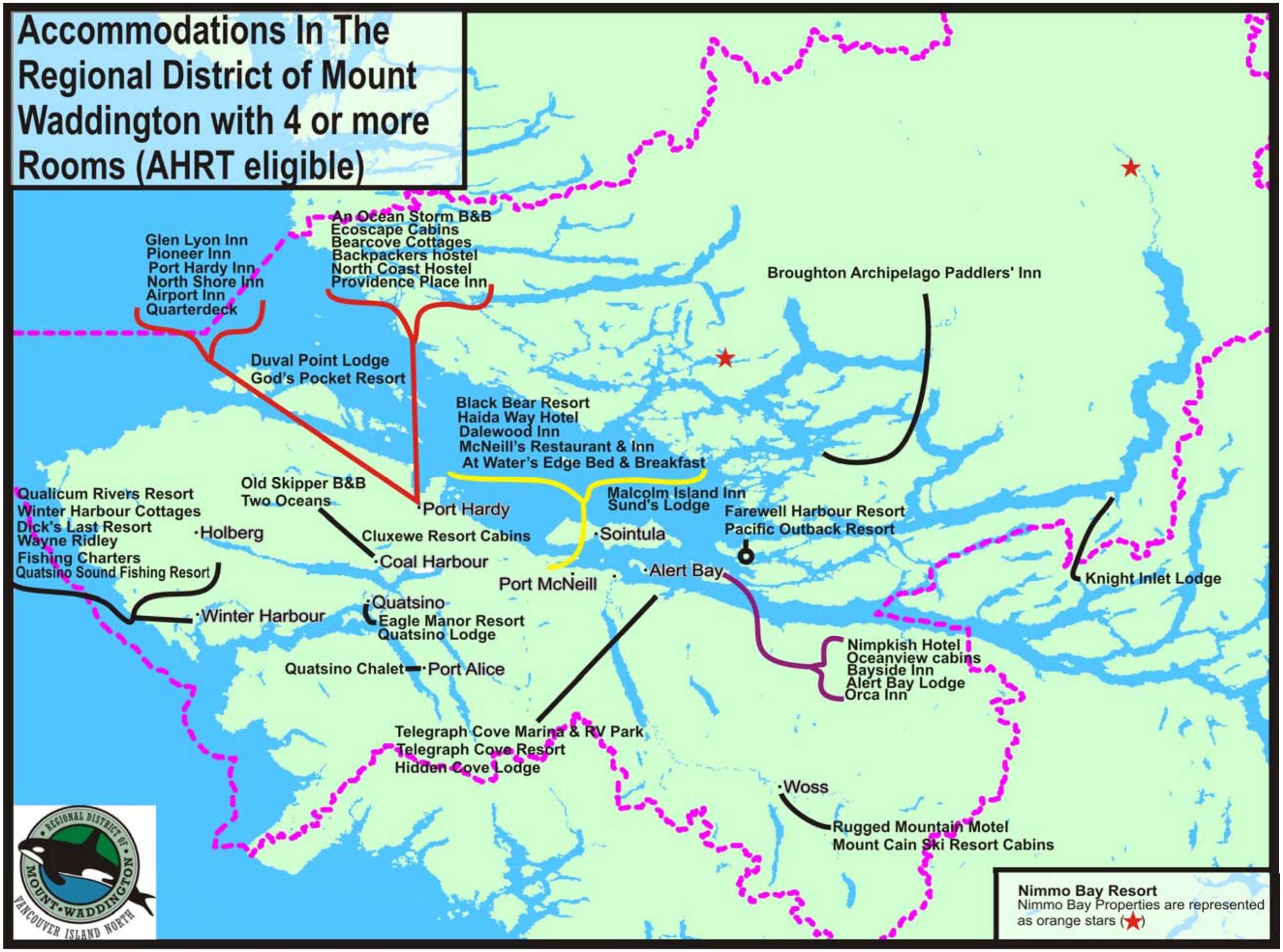


**<u>2010 BCA Property Assessment Value:</u>**
**All aquaculture industry properties in the Regional District of Mount Waddington.**

| | Assessed Land Value ($) | Assessed Improvements Value ($) |
|---|---:|---:|
| **Area A** | 1,540,047 | 15,075,600 |
| **Area B** | 502,619 | 1,697,900 |
| **Area C** | 109,037 | 496,400 |
| **Area D** | 1418 | 57200 |
| **All Unincorporated** | 2,133,121 | 17,327,100 |
| **Port Hardy** | 472,200 | 4,816,000 |
| **TOTAL** | 2,605,321 | 22,143,100 |

Source: Regional District of Mount Waddington

# Accommodations In The Regional District of Mount Waddington with 4 or more Rooms (AHRT eligible)



Source: *North Island Protocol Agreement* with inclusion of the Douglas Treaty Area for information purposes

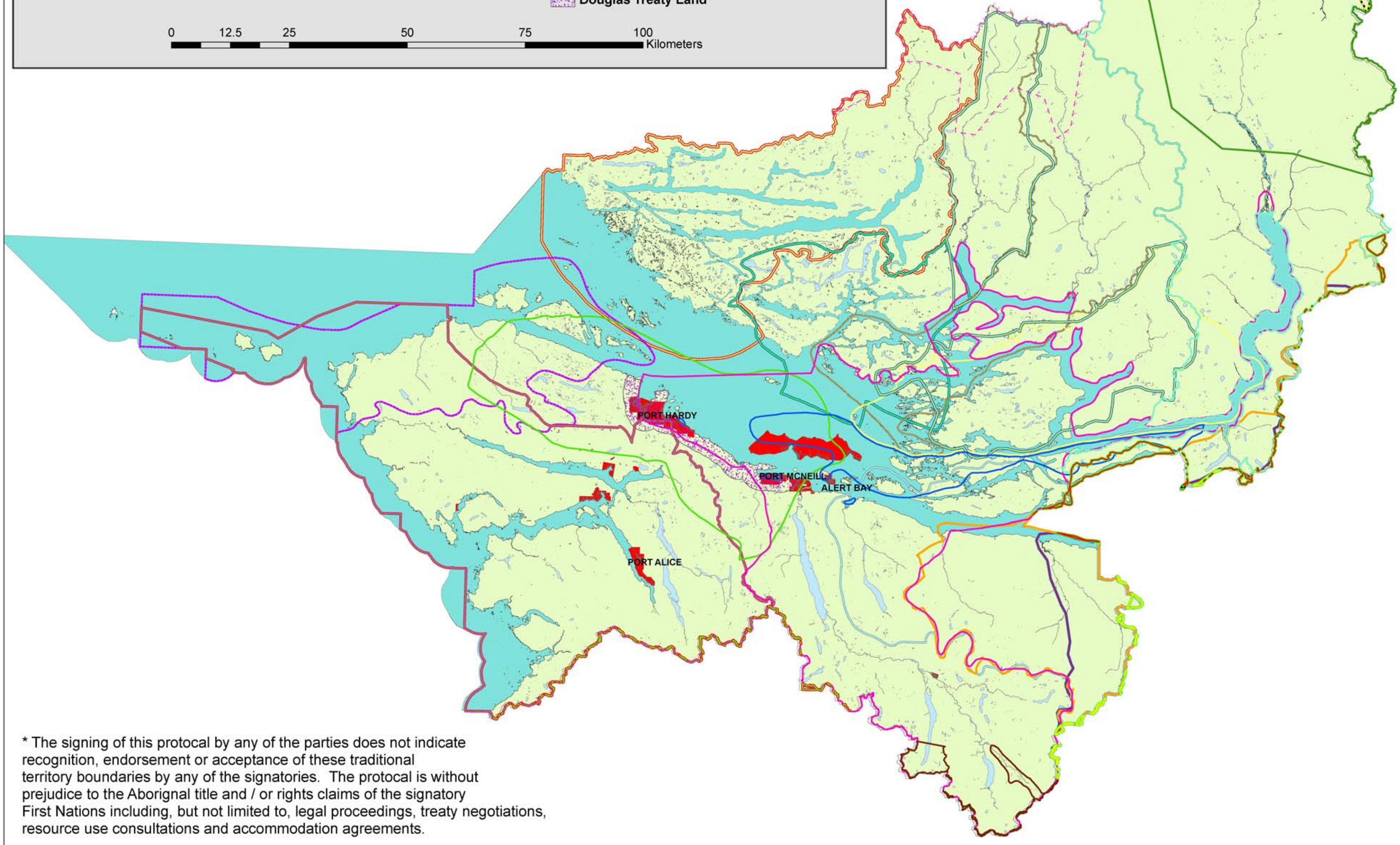
## Mount Waddington Regional District Communities and First Nation Traditional Territories

March 2010

Legend

- Campbell River First Nation
- Cape Mudge First Nation
- Comox First Nation
- Da'naxda'xw First Nation
- Ehattesaht
- Gwa'Sala-Nakwaxda'xw
- Gwawaenuk Tribe
- Homalco Indian Band
- Ka:'yu:k't'h/che:k:tles7et'h' First Nation
- Kwaikah First Nation
- Kwakiutl
- Kwicksutaineuk-Ah-Kwaw-Ah-Mish
- Mamalilikula
- Mowachaht/Muchalaht First Nation
- Namgis First Nation
- Nuxalk Nation
- Oweekeno
- Quatsino First Nation
- Qwe'Qwa A' Sot'Enox
- Tlatlasikwala
- Tlowitsis First Nation
- Tsawataineuk
- Tsilhqotin Nation
- Ulkatcho
- Municipal and Unincorporated Communities
- Douglas Treaty Land

0 12.5 25 50 75 100 Kilometers




* The signing of this protocal by any of the parties does not indicate recognition, endorsement or acceptance of these traditional territory boundaries by any of the signatories. The protocal is without prejudice to the Aborignal title and / or rights claims of the signatory First Nations including, but not limited to, legal proceedings, treaty negotiations, resource use consultations and accommodation agreements.