

Socio-Economic Baseline of the Howe Sound Area



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Executive Summary

Introduction

This socio-economic baseline report is prepared in support of Howe Sound marine management planning. Its purpose is to provide information about community and economic conditions within the Sound and in adjacent communities.

Demographic, labour force and other socio-economic data were assembled for the region, while a GIS analysis was undertaken to identify the type and scale of commercial, industrial and residential uses of Crown land.

Community Profile

The local study area (LSA) includes the municipalities of Bowen Island, Lions Bay, Squamish, Gibsons and West Vancouver, electoral areas E and F of the Sunshine Coast Regional District and Electoral Area D of the Squamish Lillooet Regional District. The population of the LSA was approximately 78,760 in 2011, a 6.3% increase over 2006. Over the next 25 years, the LSA is expected to add approximately 20,870 new residents (29.1% increase).

Employment is concentrated in service industries as the manufacturing and resource sectors have declined over the last two decades. There is a diverse occupational base, although there is a much higher proportion of arts, culture, recreation and sport occupations when compared to BC. Average personal and household incomes are relatively high, above the BC average, but there is also a considerable range of incomes by community.

Economic Activity

The local economic base is varied, with employment and business activity in southern areas integrated into the Metro Vancouver economy. The Sunshine Coast has a very small but robust tourism sector but also active forestry and retirement sectors. The Squamish area has a relatively high dependency on tourism due to the influence of Whistler and a growing list of destination attractions, but like the Sunshine Coast it still has an important forestry sector due to the timber harvest in the Sea to Sky Natural Resource District. Wood processing capacity, on the other hand, has declined significantly in recent decades.

The number of business establishments has been growing steadily, at the same time a shift is occurring in the types of businesses being established, with fewer primary and manufacturing firms and more construction, trade and service operations. In 2014, more than one in five establishments was classified as professional and technical services, which is further evidence of the gradual, but consistent, transition in the economic base away from goods industries towards service activities.

In terms of major projects, there is a handful of residential developments either proposed or underway that will drive local population growth in the years ahead. Three industrial projects are proposed,

BURNCO aggregate at Gibsons, Woodfibre LNG and Box Canyon hydro at Port Mellon, that would have major implications for the west side of Howe Sound. The other proposed major project, Garibaldi at Squamish has received its environmental certification but will have to navigate an anticipated lengthy permitting process before construction is allowed to begin.

General Land Use

The approximate land area of the LSA is 222,000 hectares, 90% of which is Crown land and 9% private. The province of BC has issued 1,387 *Land Act* tenures, covering a total of 258,785 hectares. Close to half of all tenures are for residential use. In terms of land area occupied, environmental, institutional, industrial and commercial recreation are major uses. Residential and community uses occupy very little of the Crown land base.

The majority of Crown licences and leases issued authorize commercial and industrial activity. Licences are primarily used for communications sites and log handling facilities but there are also a large number of private moorage licences of occupation. Leases are mainly for log handling, marine activities such as marinas and wharfs, and residential uses. Nine percent of the LSA is in designated community watersheds, while water licences have been issued to 918 licensees.

The majority of the land area in the LSA is subject to the Sea-to-Sky Land and Resource Management Plan (LRMP), approved in 2008. The remainder of the land base is in the Sunshine Coast and Chilliwack natural resource districts, neither of which is subject to an LRMP.

Tourism

The Howe Sound area is renowned for its striking natural beauty and outdoor recreation features, both marine-based and land-based. The LSA has many facilities and amenities supporting recreation and tourism, including 30 recreation sites, 53 recreation trails and 14 provincial parks and reserves. Eighteen percent of the land base is within protected areas. Park attendance has been steadily growing—in 2014 attendance of 3.4 million was 36% higher than 2005 attendance of 2.5 million.

Sailing, power boating, paddling, diving, fishing, camping, hiking, backpacking, mountain biking, rock-climbing, bird watching, nature observation and many other outdoor recreation opportunities are prominent. Eco-tourism is a thriving sector in many communities, particularly Squamish and Horseshoe Bay.

Howe Sound is a major boating destination with over 300 separate sites for boat havens, marinas, private yacht clubs, public wharves, strata moorage and private moorage. There are multiple summer and youth camps hosting thousands of children annually. Angling has been gaining strength as salmon stocks rebound after a significant fall-off in the 1990s. In 2015, the number of angler days and fish caught was 25% higher than the decade previous.

Tourism businesses and services are clustered around Gibsons and Squamish, but all communities host infrastructure, amenities, attractions and services that support a growing tourism economy. The LSA has approximately fifty accommodation facilities including B&Bs, hotels, motels, resorts and

RV/campgrounds. Approximately 35 tour operators offer rental and tour services, featuring wildlife viewing, fishing tours, bareboat, fishing and skippered charters, as well as cruise-and-learn boat trips for day use and multi-day outings. Major new attractions like the Sea to Sky Gondola have drawn in hundreds of thousands of new visitors, many of them international, to complement established operators like Sewell's Marina and the Britannia Mine Museum.

Commercial Fishing

Howe Sound is a major source of wild fish stocks, but up until 2014 there had been no commercial fishery for any finfish. There are numerous closures in Howe Sound, including wild Coho, rockfish and lingcod and bivalve molluscs, but recovering stocks led to limited fisheries in 2015 and 2016. The largest commercial fishery in Howe Sound was Shrimp by Trap (64 tonnes in 2015), followed by Crab by Trap (20 tonnes in 2015) and Shrimp Trawl.

Marine Transportation

Howe Sound is an active marine transportation corridor. In 2015, 12,921 commercial vessels arrived with BC Ferry traffic and Tugs making up 95% of that traffic. This represents an average of 35 vessels entering Howe Sound daily throughout the year. Most merchant traffic is associated with the forest industry and the movement of logs and wood chips from the ports of Squamish and Port Mellon. A major shipping point is Squamish Terminals' deep-water, break-bulk facility.

During the most recent two-year period ending in March 31, 2016, 13 marine accidents and incidents were reported in Howe Sound. Most of these were collision risks (i.e. close calls), machine or systems failure or bottom contact while berthing. There was one sinking of a tug.

Forestry

Activity in the region's forest industry has declined markedly over the last two decades due to mill closures and harvest declines. Port Mellon is now the only major timber processing complex in or near the LSA. There are some smaller facilities in the area, including AJ Forest Products (Brackendale) and Terminal Forest Products chipping facility at Langdale.

Timber harvesting and management on Crown land in the LSA is administered by three separate natural resource districts, Chilliwack, Sea to Sky and Sunshine Coast. Major licensees include Canfor, Black Mount Logging and Northwest Squamish Forestry.

Utilities and Energy

Numerous utilities transect the LSA, including electric power lines, pipelines, sewer lines, telephone lines and water lines. Major licensees include BC Hydro (electric lines), Fortis BC (gas lines), Telus (telephone) and local government (water and sewer lines).

Most of the 1,096 water licences are for domestic (e.g. residential) use, followed by community waterworks and storage. Two water bottle licences have been issued, one for Ellesmere Creek, across

Howe Sound from Furry Creek and another on Powerhouse Creek to Garibaldi Springs Water Company. There are 15 licences for Power-General use on numerous tributaries across the region. The largest allocated water volumes are owned by two companies on the Mamquam River, Trans Alta and the Atlantic Power Corporation.

Aggregates

There are six active sand and gravel sites in the LSA. The Howe Sound area has undeveloped aggregate deposits with access to tide water. BURNCO Rock Products Ltd. has applied for environmental certification to construct a sand and gravel pit at McNabb Creek. The project is proposed to produce 16 million tonnes of sand and gravel with an expected economic life of 16 years.

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Abbreviations

| | |
|------------|--|
| EA..... | Electoral Area |
| GIS..... | Geographic Information System |
| LRMP..... | Land and Resource Management Plan |
| LSA..... | Local Study Area |
| MCTS..... | Marine Communications and Traffic Services |
| MV..... | Metro Vancouver |
| OGMAs..... | Old Growth Management Areas |
| RMIC..... | Regional Marine Information Centre |
| RSA..... | Regional Study Area |
| SCRD..... | Sunshine Coast Regional District |
| SLRD..... | Squamish Lillooet Regional District |
| SRMP..... | Sustainable Resource Management Plan |
| VTRZ..... | Vancouver Traffic Regulation Zone |

1 Introduction

1.1 Background and Scope

This socio-economic baseline report is prepared in support of marine, land and resource planning in Howe Sound. Its purpose is to provide information about community and economic conditions within the Sound and in adjacent communities, and to inform discussions between stakeholders about the need for and benefits of a coordinated multi-agency planning regime.

The content of the baseline was scoped to include those values most likely to be affected by changes in use of natural resources. The following parameters highlight general community conditions and activities linked to the land and marine base.

- Demographics
- Labour force
- Economic activity
- General land use
- Tourism and recreation
- Commercial fishing
- Marine transportation
- Forestry
- Utilities and Energy
- Aggregates

1.2 Approach

Demographic, labour force and other socio-economic data were assembled for the study area, using data requests to government agencies, downloads from government and public agency websites and a review of labour market and economic development studies and reports. Major information sources were Fisheries and Oceans Canada, BC Stats and Statistics Canada. A list of source documents is provided in Chapter 4.

A GIS analysis of Crown tenures and other values was the basis for identifying interests and values on the land and marine base. Data were obtained from the BC Geographic Warehouse. The GIS results were useful in identifying industrial, commercial, residential and community activities on Crown land, which were then profiled in the baseline.

1.3 Study Area

This report is an update to a similar report prepared in 2013; however readers are alerted that the physical study area has been expanded here to include all of Howe Sound, as shown in Figure 1-1. The area runs from Lighthouse Park, up the eastern coastline of the sound, past the northern border of

Squamish and Paradise Valley, and back down the western coastline to Gibsons. GIS work and all data attributed to Hillcrest Geographics conforms to this study area.

Demographic and community information is not published for the exact study area shown in Figure 1-1. The closest available administrative geography was used to scope the collection of socio-economic data—for this baseline, this is defined as the municipalities of Bowen Island, Lions Bay, West Vancouver, Squamish and Gibsons, as well as electoral areas E and F of the Sunshine Coast Regional District and Electoral Area D of the Squamish Lillooet Regional District.

1.4 Regulatory Setting

The management, use and protection of land and marine areas is subject to numerous legislative, statutory and policy instruments, primarily at the provincial level in relation to Crown land and resources. The provincial government owns most of the foreshore as well as the beds of inland sea areas such as Howe Sound. Major pieces of legislation are as follows:

- General–*Land Act*
- Forestry, Range, Public Recreation–*Forest Act, Forest and Range Practices Act, Range Act*
- Mining–*Mineral Tenures Act, Mines Act*
- Agriculture–*Agriculture Land Reserve Act*
- Tourism–*Tourism Act*
- Trapping and Guide Outfitting–*Wildlife Act*

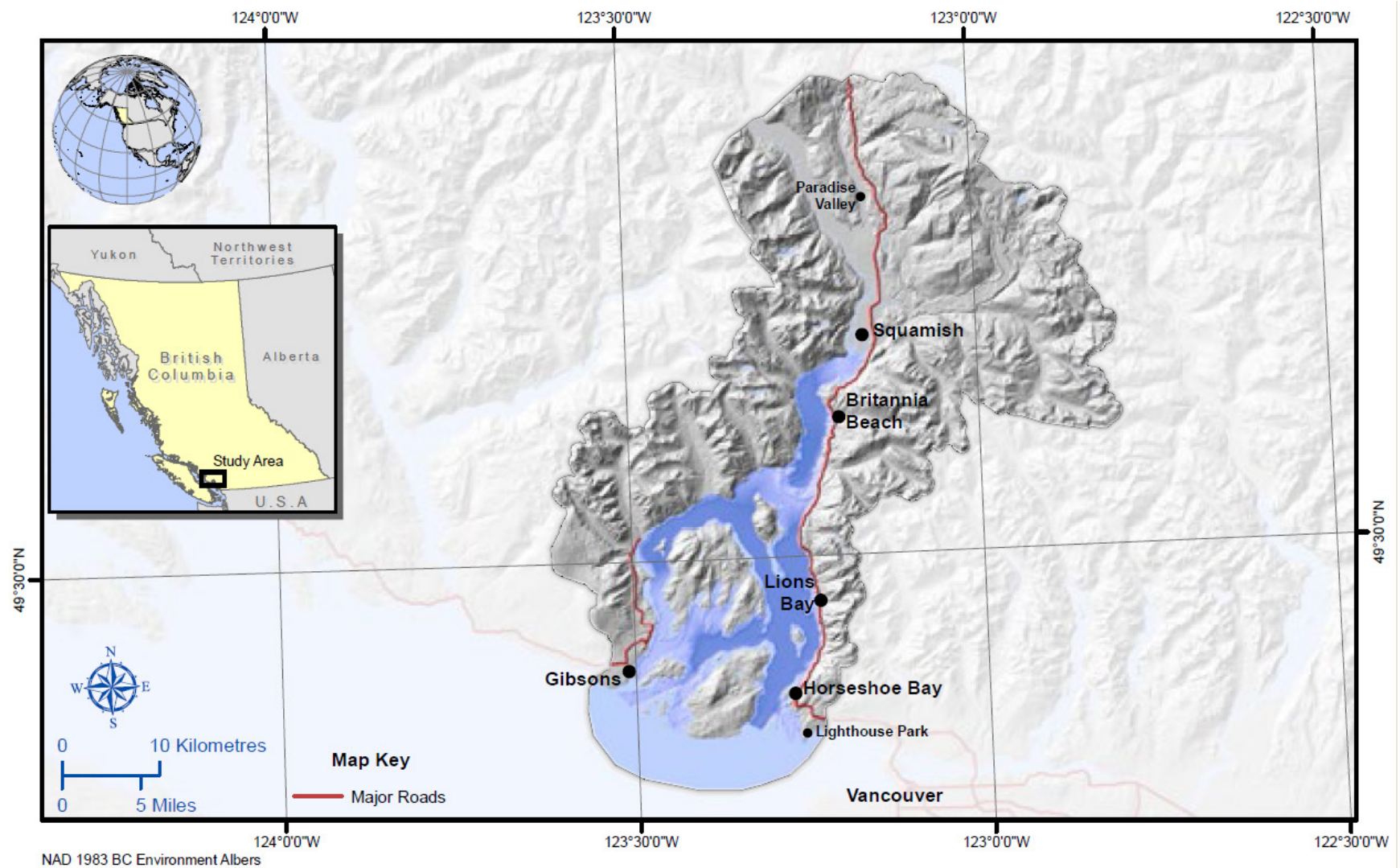
There are dozens of other provincial acts that legislate different aspects of resource-related industrial activity, but the above are primarily responsible for allowing, through licensing (tenure) arrangements with private-sector companies, development on Crown lands.

The Sea to Sky portion of the of the study area (basically the east side of the Sound north of Lions Bay) is subject to a government-approved Land and Resource Management Plan (LRMP). It is a higher level plan that broadly defines land use zones, establishes objectives that guide management of natural resources, and outlines strategies for achieving those objectives for Crown land. Old Growth Management Areas (OGMAs) have also been established through the Sunshine Coast, Chilliwack and Sea to Sky Natural Resource Districts' Sustainable Resource Management Plans (SRMPs).¹

The federal government has jurisdiction over tidal waters. Through Fisheries and Oceans Canada it is responsible for managing and protecting fish populations and fish habitat under the *Fisheries Act*. Maintenance of maritime safety is through the Coast Guard. Transport Canada is responsible for preserving the public right of navigation under the *Navigable Waters Protection Act*. Port Authorities are also established under federal legislation to manage major harbours and facilities.

¹ <https://www.for.gov.bc.ca/tasb/slrp/>

Figure 1-1 Physical Study Area



Source: David Suzuki Foundation (2015)

2 Community Profile

2.1 Demographics

Table 2-1 shows population 6.3% between 2006 and 2011, with the District of Squamish seeing the largest gain of 20.8%. During this time, the population of BC increased by 7.8% and neighbouring Metro Vancouver by 11.1%. There is a significant temporary population in Howe Sound attributable to secondary homes (e.g. cottages and cabins), tourism and the many summer camps that dot the islands and coastline.

Table 2-1 Population, 2006 and 2011

| | 2006 | 2011 | Percentage Change |
|------------------------------------|---------------|---------------|-------------------|
| District of West Vancouver | 42,865 | 44,125 | +2.9% |
| Municipality of Bowen Island | 3,470 | 3,720 | +7.2% |
| Village of Lions Bay | 1,405 | 1,410 | +0.3% |
| District of Squamish | 15,495 | 18,725 | +20.8% |
| Squamish Lillooet Electoral Area D | 840 | 835 | -0.6% |
| Town of Gibsons | 4,210 | 4,450 | +5.7% |
| Sunshine Coast Electoral Area E | 3,550 | 3,480 | +1.9% |
| Sunshine Coast Electoral Area F | 2,235 | 2,015 | -9.8% |
| Total | 74,070 | 78,760 | +6.3% |

Source: BC Stats (2013a)

Age characteristics outlined in Table 2-2 indicate a noticeably larger share of residents in the over 65 age category when compared to BC, and a corresponding deficit in young adults, that is the 20 to 34 years category.

Table 2-2 LSA and RSA Age Characteristics Compared to British Columbia, 2011

| Local Study Area | Regional Study Area | | British Columbia |
|----------------------|---------------------|---------------|------------------|
| 19 years and under | 17,220 | 21.9% | 21.6% |
| 20 years to 34 years | 10,540 | 13.4% | 19.2% |
| 35 years to 49 years | 15,985 | 20.3% | 21.5% |
| 50 years to 64 years | 18,760 | 23.2% | 22.0% |
| 65 years and older | 16,255 | 20.6% | 15.7% |
| Total | 78,760 | 100.0% | 100.0% |

Source: Statistics Canada (2012)

2.1.1 Population Projections

The local population is expected to grow by approximately 22,000 residents or approximately 28%, between 2011 and 2036. In comparison, the province will see population increase by 29.9% over the same twenty-five year period.

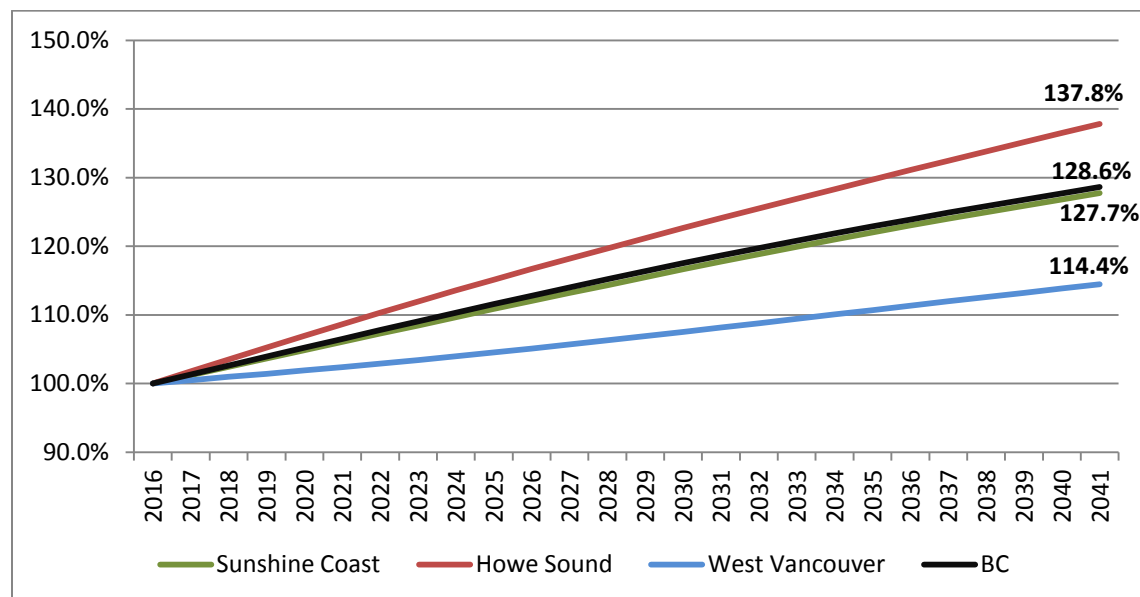
Table 2-3 Population Projections for LSA and RSA, 2011 to 2036

| | 2011 | 2021 | 2031 | 2036 | Percentage Change |
|------------------------|---------------|---------------|---------------|----------------|-------------------|
| West Vancouver | 44,125 | 46,200 | 50,555 | 52,715 | +19.5% |
| Bowen Island | 3,720 | 3,895 | 4,260 | 4,440 | +19.5% |
| Lions Bay | 1,410 | 1,475 | 1,615 | 1,685 | +19.5% |
| Squamish | 18,725 | 23,180 | 27,190 | 29,045 | +55.1% |
| Squamish Lillooet EA D | 835 | 1,035 | 1,215 | 1,295 | +55.1% |
| Gibsons | 4,450 | 4,815 | 5,165 | 5,290 | +18.9% |
| Sunshine Coast EA E | 3,480 | 3,765 | 4,040 | 4,140 | +18.9% |
| Sunshine Coast EA F | 2,015 | 2,180 | 2,340 | 2,395 | +18.9% |
| Total | 78,760 | 86,545 | 96,380 | 101,005 | +28.2% |

Source: BC Stats (2013a)

However, as illustrated in Figure 2-1, population growth rates will vary within the region. Growth will be below the provincial average on the Sunshine Coast and West Vancouver, but will exceed the average within the Sound itself, particularly the Squamish area.

Figure 2-1 Projected Percentage Change in Population for Study Area and BC, 2016 to 2041 (2011=100%)



Source: BC Stats (2015)

2.1.2 Education

Table 2-4 outlines the educational attainment for residents of Howe Sound and BC. There is a considerably higher proportion of residents with university certificates, diplomas or degrees when compared to BC. Conversely, the local area has noticeably lower share of its population that has no certificate, diploma, or degree (including high school diploma) when compared to BC.

Table 2-4 Education Attainment for Total Population over 15 Years, 2011

| Industry | Howe Sound | | BC |
|---|---------------|---------------|---------------|
| No certificate; diploma or degree | 5,930 | 10.1% | 16.7% |
| High school certificate or equivalent | 14,450 | 24.5% | 27.7% |
| Apprenticeship or trades certificate or diploma | 4,890 | 8.3% | 10.6% |
| College; CEGEP or non-university certificate or diploma | 9,150 | 15.5% | 17.2% |
| University cert. or diploma below the bachelor level | 3,725 | 6.3% | 5.7% |
| University certificate; diploma or degree | 20,840 | 35.3% | 22.1% |
| Total population 15 years and over | 54,450 | 100.0% | 100.0% |

Source: Statistics Canada (2013)

2.2 Labour Force

Table 2-5 shows the experienced labour force by industry for the LSA, RSA and BC. Employment among resource industries (e.g., forestry, mining, fishing, agriculture) and manufacturing account for a much smaller share of total employment in the LSA and RSA than they do for the province. Conversely, the proportion of employment in Professional, scientific and technical services is higher locally than in BC.

Table 2-5 Experienced Labour Force by Industry, 2011

| Industry | Regional Study Area | | BC |
|--|---------------------|-------|-------|
| 11 Agriculture and other resource-based industries | 315 | 0.9% | 2.7% |
| 21 Mining, quarrying and oil and gas extraction | 375 | 1.1% | 1.1% |
| 22 Utilities | 170 | 0.5% | 0.6% |
| 23 Construction | 2,650 | 7.6% | 7.9% |
| 31-33 Manufacturing | 1,425 | 4.1% | 6.5% |
| 41 Wholesale trade | 1,060 | 3.0% | 3.9% |
| 44 – 45 Retail trade | 3,785 | 10.9% | 11.6% |
| 48 – 49 Transportation and warehousing | 1,205 | 3.5% | 5.1% |
| 51 Information and cultural industries | 1,070 | 3.1% | 2.7% |
| 52 Finance and real estate | 1,945 | 5.6% | 4.0% |
| 53 Real estate and rental and leasing | 1,760 | 5.1% | 2.4% |

| | | | |
|---|---------------|---------------|---------------|
| 54 Professional, scientific and technical services | 4,420 | 12.8% | 7.8% |
| 55 Management of companies and enterprise | 80 | 0.2% | 0.1% |
| 56 Admin and support, waste management remediation | 1,295 | 3.7% | 4.3% |
| 61 Educational services | 2,765 | 8.0% | 7.3% |
| 62 Health care and social services | 3,395 | 9.8% | 10.8% |
| 71 Arts, entertainment and recreation | 1,335 | 3.8% | 2.5% |
| 72 Accommodation and food services | 2,530 | 7.3% | 7.8% |
| 81 Other services | 1,475 | 4.2% | 4.9% |
| 91 Public administration | 1,665 | 4.8% | 6.2% |
| Total experienced labour force 15 years and over | 34,720 | 100.0% | 100.0% |

Source: Statistics Canada (2013)

Note: The LSA includes Bowen Island, Lions Bay and Sunshine Coast Electoral Area F while the RSA includes: Squamish, Gibsons, West Vancouver, Sunshine Coast EA E and Squamish-Lillooet EA D.

Table 2-6 shows occupations for the experienced labour force in the LSA, RSA and BC. Compared to the RSA and BC, the LSA has higher proportions of art, culture, recreation and sport occupations and lower proportions of business, finance and administration occupations.

Table 2-6 Experienced Labour Force by Occupation, 2011

| Occupation | Local Study Area | | Regional Study Area | | BC |
|--|------------------|---------------|---------------------|---------------|---------------|
| 0 Management occupations | 535 | 14.3% | 5,845 | 16.8% | 10.5% |
| 1. Business; finance and administration occupations | 445 | 11.9% | 5,695 | 16.4% | 17.1% |
| 2. Natural and applied sciences and related occupations | 485 | 13.0% | 2,435 | 7.0% | 6.3% |
| 3. Health occupations | 200 | 5.4% | 2,365 | 6.8% | 5.5% |
| 4. Occupations in education; law and social, community and government services | 620 | 16.6% | 4,455 | 12.8% | 8.1% |
| 5. Occupations in art; culture; recreation and sport | 385 | 10.3% | 1,745 | 5.0% | 3.5% |
| 6. Sales and service occupations | 530 | 14.2% | 7,605 | 22.0% | 25.4% |
| 7. Trades; transport and equipment operators and related occupations | 390 | 10.5% | 3,575 | 10.3% | 15.5% |
| 8. Natural resources, agriculture and related production occupations | 55 | 1.5% | 545 | 1.6% | 3.9% |
| 9. Occupations in manufacturing and utilities | 85 | 2.3% | 450 | 1.3% | 4.2% |
| Total experienced labour force 15 years and over | 3,730 | 100.0% | 34,715 | 100.0% | 100.0% |

Source: Statistics Canada (2013)

Note: The LSA includes Bowen Island, Lions Bay and Sunshine Coast Electoral Area F while the RSA includes: Squamish, Gibsons, West Vancouver, Sunshine Coast EA E and Squamish-Lillooet EA D.

2.2.1 Labour Force Trends

The labour force in the LSA and RSA have gradually but consistently shifted to a service base from a goods base over the last two decades. In 2006 one in five workers in the LSA were employed in goods production, versus close to one in three in 1986. The decline of goods employment is a trend being

experienced by most industrialized, western nations due to globalization, competition from emerging markets and the increasing adoption of technology, particularly computer systems and the Internet.

The BC economy, and many of its communities, was built around the exploitation of extractive resources whose economic rents allowed companies to prosper, gave workers relatively high wages and helped grow communities. Increased worldwide production, increased business costs, substitution effects and other competitive drivers eventually eliminated those rents and the competitive advantage producers used to benefit from. In BC, the agriculture, wild commercial fisheries and forest sectors all experienced this transition and are no longer able to provide the tax, employment, income and other economic benefits they once did. This decline has equally affected the regional economy.

In contrast to primary and manufacturing industries, service industries and occupations that rely on intellectual, technical and human resource capital are growing in importance in the LSA and RSA. Film, movie and TV productions are an example of a growth service industry. In 2006, film accounted for approximately 1% of the region's economic base and indirectly contributes to the development of other industries such as tourism. The expansion of the knowledge-led economy is also evident in the regional labour force data. The proportion of the labour force employed in business services, natural, applied and social sciences, and arts and culture, is much higher than it is for BC. Much of this labour force has been attracted to the region because of quality of life factors, including low crime rates, access to education and health services, diverse retail, personal and business service capacity, cultural vibrancy, a healthy tourism sector, efficient transportation systems and an attractive, clean environment.

2.2.2 Incomes

As seen in Table 2-7, personal incomes vary considerably among communities. Incomes in Lions Bay are among the highest in BC, followed closely by West Vancouver and Bowen Island.

Table 2-7 Personal Income by Jurisdiction, 2009

| | Total Taxfilers | | Median Income | | Median Income Provincial Index | |
|------------------------|-----------------|---------|---------------|---------|--------------------------------|---------|
| | Males | Females | Males | Females | Males | Females |
| West Vancouver | 15,940 | 19,050 | 49,855 | 33,655 | 1.37 | 1.40 |
| Bowen Island | 1,180 | 1,250 | 46,405 | 28,235 | 1.27 | 1.18 |
| Lions Bay | 490 | 500 | 53,150 | 36,800 | 1.46 | 1.53 |
| Squamish | 6,170 | 6,200 | 42,039 | 25,725 | 1.16 | 1.07 |
| Squamish Lillooet EA D | 180 | 180 | 45,280 | 25,360 | 1.24 | 1.06 |
| Gibsons | 3,700 | 4,190 | 36,120 | 24,350 | 0.99 | 1.01 |
| Sunshine Coast EA E | n/a | n/a | n/a | n/a | n/a | n/a |
| Sunshine Coast EA F | 20 | 10 | 27,770 | 16,005 | 0.76 | 0.67 |

Source: BC Stats (2011)

2.3 Economic Activity

2.3.1 Local Area Dependencies

Local area dependencies prepared by BC Stats for the Sunshine Coast and Squamish areas are shown in Table 2-8. The data identify and quantify the sources of income that support the local economies in both areas. The profiles differ primarily in their dependency on tourism, which tends to be very high in Squamish and less so on the Sunshine Coast. Forestry has diminished considerably in the Squamish area since 1991 due to mill closures. These data are no longer being produced by BC Stats so update tables for the 2011 and 2016 census years are not available.

Table 2-8 Percentage of Income by Economic Base Sector, 1991 to 2006

| | FOR | MIN | F&T | AGF | TOU | PUB | OTH | TRAN | ONEI |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|
| Squamish | | | | | | | | | |
| 2006 | 5 | 1 | 0 | 1 | 27 | 20 | 23 | 8 | 14 |
| 2001 | 12 | 1 | 0 | 0 | 29 | 21 | 20 | 9 | 7 |
| 1996 | 14 | 0 | 0 | 1 | 25 | 20 | 23 | 9 | 7 |
| 1991 | 15 | 2 | 0 | 1 | 14 | 17 | 26 | 12 | 13 |
| Sunshine Coast | | | | | | | | | |
| 2006 | 14 | 2 | 1 | 1 | 3 | 20 | 17 | 18 | 22 |
| 2001 | 19 | 1 | 2 | 1 | 5 | 21 | 11 | 20 | 19 |
| 1996 | 20 | 2 | 2 | 1 | 5 | 19 | 14 | 19 | 19 |
| 1991 | 20 | 2 | 4 | 1 | 4 | 14 | 15 | 11 | 30 |

Source: Horne (2009)

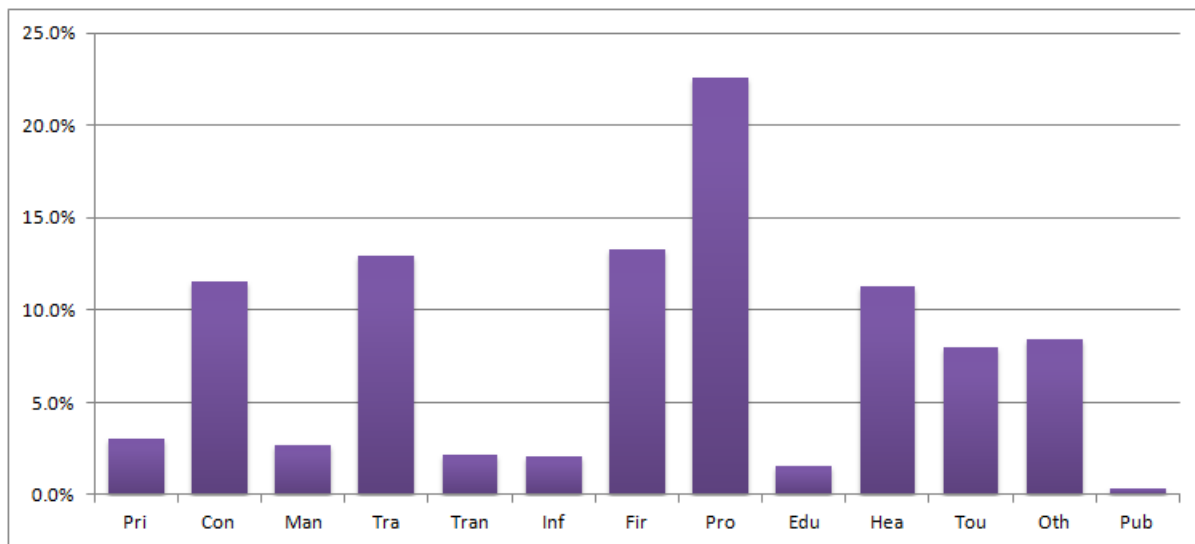
Notes:

FOR – Forestry and related manufacturing, MIN – Mining, oil and gas, F&T – Fishing and trapping, AGF – Agriculture and food processing, TOU – Tourism, PUB – Public sector including health and education, OTH – All other basic industries, TRAN – Transfer payments from government, ONEI – Other non-employment income

2.3.2 Business Counts

The number of businesses operating in the Howe Sound area in 2014 is presented in Figure 2-2. Close to one quarter of all businesses are in professional and technical services, followed by finance, real estate and leasing, transportation services, then construction.

Figure 2-2 Percentage Share of Business Location Counts by Major Industry, December 2014



Source: Statistics Canada (2015)

Note: Pri primary, Con construction, Man manufacturing, Tra trade, Tran transportation, Inf information and culture, Fir finance, real estate and leasing, Pro professional and technical, Edu education, Hea health, Tou tourism, Oth other business and personal services, Pub public administration

2.3.3 Proposed Major Projects

The Ministry of Jobs, Tourism and Skills Training (MJTST) tracks major development projects in the province. The latest results, shown in Table 2-9, indicate only one major project (BURNCO) within the LSA, although there are several major projects, including residential developments in Furry Creek and Squamish and the Box Canyon Hydroelectric Project at Port Mellon, that are in close proximity.

It is noted that since the publication date of the major projects inventory, two projects, Garibaldi at Squamish and Woodfibre LNG have each received environmental assessment process certification. On January 26, 2016, Garibaldi at Squamish was given an Environmental Assessment certificate although a considerable amount of permitting still has to be undertaken, including approval of a Master Plan by the Mountain Resorts Branch. The project also does not conform to the Regional District's Regional Growth Strategy and will have to negotiate with the Regional District or Squamish (in the event a boundary expansion is sought) for local government approval (BC Environmental Assessment Office 2016).

Woodfibre LNG received their certificate in October, 2015. The LNG facility includes various areas and infrastructure, including:

- Two LNG processing or production units;
- Floating storage and offloading unit, including mooring and marine terminal for carriers, consisting of two converted LNG carriers
- A condensate storage tank;
- A seawater cooling system;
- Wastewater treatment facilities; and
- Flare systems, with a flare derrick (BC Environmental Assessment Office 2015)

Table 2-9 Major Projects in the Study Area, 2016

| Location | | Project and Description | Estimated Investment (\$ millions) | Timing Start Finish | |
|----------------------|---|-------------------------|---------------------------------------|-----------------------------|--|
| Construction Started | | | | | |
| Furry Creek | Furry Creek Recreation/Residential Project | n/a | 1999 | n/a | |
| Squamish | Cheakamus Unit 1 and Unit 2 Generator Replacement | 74 | 2014 | 2019 | |
| | Eaglewind Master Planned Community | 80 | 2006 | n/a | |
| | Culliton Creek Power Project | 45 | 2014 | n/a | |
| West Vancouver | Rodgers Creek Development | 120 | 2013 | n/a | |
| | The Village at Park Royal Expansion | 20 | 2012 | n/a | |
| | Residential Development on Evelyn Drive | 30 | 2012 | n/a | |
| Proposed | | | | | |
| Gibsons | BURNCO Aggregate Project | 60 | n/a | n/a | |
| Port Mellon | Box Canyon Hydroelectric Project | 61 | n/a | n/a | |
| Squamish | Britannia South Mixed-use Development | 1,000 | n/a | 2026 | |
| | Squamish Oceanfront Development | n/a | n/a | n/a | |
| | Garibaldi at Squamish Ski Resort | 3,500 | 2018 | 2040 | |
| | Woodfibre LNG | 1,600 | n/a | 2018 | |
| West Vancouver | Cypress Mountain Village | n/a | n/a | n/a | |
| | Ambleside Condominium Development | 20 | n/a | 2017 | |
| Construction On Hold | | | | | |
| Furry Creek | Porteau Cove Residential Development | 200 | n/a | n/a | |
| Squamish | Waterfront Landing Residential Development | 350 | n/a | n/a | |
| | The Sustainability Block Condominiums | 150 | n/a | n/a | |

Source: BC MJTST (2015)

Note:

n/a – data not available

3 Land Use and Economic Activity

Major land uses and their associated economic activity are described in the following paragraphs.

3.1 General Land Use

The approximate distribution of land by ownership in the LSA is presented in Table 3-1. Crown land, including Indian Reserves, account for 91% of the total area of 222,053 hectares. The remainder is private land.

Table 3-1 Crown and Private Land Area in the LSA, 2016

| | Hectares | % of Total |
|-----------------|----------|------------|
| Indian Reserves | 1,867 | 0.8% |
| Crown | 200,468 | 90.3% |
| Private | 19,718 | 8.9% |
| Grand total | 222,053 | 100.0% |

Source: Hillcrest (2016)

Table 3-2 shows land act tenures in the LSA as of 2013. A total of 1,387 tenures cover a gross area of 258,875 hectares. Residential, industrial and utility uses account for more than two-thirds of all tenures. In terms of land area occupied, environmental, institutional and commercial recreation are major uses. Residential and community uses occupy very little of the Crown land base in the LSA.

Table 3-2 Land Act Tenures in the LSA by Main Purpose, 2016

| Tenure Purpose | Count | Hectares |
|---|-------|----------|
| Alpine Skiing | 2 | 5,495 |
| Commercial | 50 | 826 |
| Commercial Recreation | 61 | 90,597 |
| Communication | 67 | 99 |
| Community | 7 | 33 |
| Energy Production | 2 | 0 |
| Environment, Conservation, & Recreation | 65 | 74,137 |
| First Nations | 8 | 3,421 |
| Industrial | 113 | 1,115 |
| Institutional | 53 | 60,421 |
| Miscellaneous Land Uses | 21 | 6,169 |
| Quarrying | 29 | 486 |
| Residential | 601 | 485 |
| Transportation | 37 | 73 |
| Utility | 229 | 4,768 |
| Waterpower | 42 | 10,660 |
| Grand total | 1,387 | 258,785 |

Source: Hillcrest (2016)

Note: Most tenures are not for exclusive use of the land base and thus will overlap.

Table 3-3 shows the major tenure types in the LSA. A lease is issued where long term tenure is required and/or where substantial improvements are proposed. A licence conveys fewer rights than a lease as it gives non-exclusive use for the purpose described. A statutory right-of-way (ROW) is used to authorize linear uses of Crown land for transportation, communication, energy production and utility developments. The Crown also issues a range of other administrative instruments such as reserves and notations of interest for the optimal management and use of Crown land by government.

The majority of licences and leases in the LSA authorize commercial and industrial activity. The 371 licences are primarily used for communications sites and log handling facilities but there are also a large number of private moorage licences of occupation. The 351 leases are mainly for recreation residential, log handling, and marine activities such as marinas and wharfs.

Table 3-3 Land Act Tenures in the LSA by Tenure Type, 2016

| Tenure Type ^a | Count | Hectares ^b |
|------------------------------------|--------------|-----------------------|
| Crown Grant | 17 | 217 |
| Inventory | 76 | 339 |
| Lease | 351 | 62,131 |
| Licence | 371 | 94,501 |
| Permission | 207 | 20 |
| Permit | 12 | 131 |
| Reserve/Notation | 112 | 98,233 |
| Right-of-way | 237 | 3,196 |
| Transfer of Administration/Control | 4 | 18 |
| Grand Total | 1,387 | 258,785 |

Source: Hillcrest (2016)

Notes: a Does not include applications for tenure

b Tenures overlap so sum of areas will exceed gross crown land that is tenured

Other land use indicators are shown in Table 3-4, and include a very small area of Agricultural Land Reserve, but significant authorizations for water licences and community watersheds. Water licences are points of diversion that allow a licensee to divert or withdraw water from a stream or water body. The community watersheds are for small, unincorporated communities and rural neighbourhoods and authorized under the *Water Act* by the Comptroller of Water Rights.

Table 3-4 Other Land Use Indicators in the LSA, 2016

| Indicator | Count | Hectares |
|-----------------------------|-------|----------|
| Agricultural Land Reserve | n/a | 4,125 |
| Water Licences ^a | 918 | n/a |
| Community Watersheds | 31 | 20,355 |

Source: Hillcrest (2016)

Notes: n/a not applicable

a Includes current, pending and active applications

The management of the crown forest in the LSA is subject to one sub-regional plan. A major part of the LSA is subject to the Sea-to-Sky Land and Resource Management Plan, approved in 2008. The western reaches of the LSA is part of the Sunshine Coast Timber Supply Area, which does not have a provincial government approved land use plan, although protected areas that have established resource management objectives are set forth in legal designations for community watersheds, landscape-level biodiversity (old forest retention), identified wildlife, ungulate winter ranges, First Nations archaeological sites, scenic areas and other values (MFLNRO 2012). The Howe Landscape Unit Plan of the Sunshine Coast SRMP also prescribes some land uses in the LSA.

3.2 Outdoor Recreation and Tourism

Outdoor recreation refers to activities in the outdoors undertaken by residents. Tourism refers to activities undertaken by a person (i.e. a tourist) who travels to, or stays at, a place outside his/her usual environment either for business or for pleasure. Howe Sound provides exceptional opportunities for nature-based recreation and tourism.

3.2.1 Recreation Infrastructure

The Study Area is renowned for its striking natural beauty and outdoor recreation features, both marine-based and land-based. Major features on the Crown land base in the LSA are shown in Table 3-5. The 30 recreation sites, 53 recreation trails and 15 parks and protected areas host thousands of visitors annually and are a major destination for residents of the Lower Mainland.

Table 3-5 Recreation Sites, Trails and Parks in the LSA, 2016

| Feature | Count | Hectares |
|---|-------|----------|
| Recreation Sites | 30 | 2,768 |
| <i>Sea to Sky Natural Resource District</i> | 21 | 1,087 |
| <i>Sunshine Coast Natural Resource District</i> | 7 | 806 |
| <i>Chilliwack Natural Resource District^a</i> | n/a | 875 |
| Recreation Trails | 53 | 350 |
| <i>Sea to Sky Natural Resource District</i> | 42 | 295 |
| <i>Sunshine Coast Natural Resource District</i> | 10 | 34 |
| <i>Chilliwack Natural Resource District</i> | 1 | 21 |
| Protected Areas | 15 | 39,635 |
| <i>Provincial Parks Class A</i> | 14 | 39,633 |
| <i>Protected Area (Stawamus Chief)</i> | 1 | 2 |

Source: Hillcrest (2016)

Notes: Does not include Crippen Regional Park
a pending sites

Park attendance for the 2004 to 2014 period is shown in Table 3-6. Attendance for individual parks often varies year to year due mainly to weather, which can be a key demand driver for day, overnight and boat use on the southern coast of BC. Aggregate attendance, however, appears on the upswing,

notably for parks on or near Highway 99, those being Porteau Cove, Murrin, Shannon Falls, Stawamus Chief, and Alice Lake. Trail and recreation site use is not formally tracked so attendance trends at those facilities are unknown.

Table 3-6 Provincial Park Attendance, 2004-2014

| Park | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 |
|---------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Alice Lake Park | 292,507 | 270,860 | 303,369 | 294,619 | 293,226 | 362,130 | 266,172 | 331,652 | 396,960 | 413,954 |
| Cypress Park | 928,428 | 1,102,539 | 1,307,219 | 1,286,926 | 1,346,583 | 1,138,379 | 1,338,789 | 1,383,130 | 1,443,162 | 1,415,033 |
| Garibaldi Park | 74,531 | 85,101 | 89,129 | 101,539 | 103,849 | 105,361 | 69,569 | 75,501 | 87,489 | 97,151 |
| Halkett Bay Park | 1,277 | - | - | 355 | 230 | 438 | 234 | 413 | 286 | 133 |
| Murrin Park | 141,628 | 134,239 | 155,425 | 134,876 | 206,423 | 113,684 | 109,396 | 120,309 | 190,967 | 181,479 |
| Plumper Cove Marine Park | 14,159 | 6,909 | 11,186 | 7,722 | 8,312 | 10,561 | 9,245 | 14,119 | 11,003 | 14,667 |
| Porteau Cove Park | 321,695 | 302,024 | 356,067 | 392,513 | 427,337 | 405,395 | 483,458 | 385,542 | 547,899 | 527,884 |
| Shannon Falls Park | 412,216 | 218,407 | 243,359 | 144,498 | 123,753 | 199,563 | 277,225 | 190,151 | 393,322 | 427,979 |
| Smuggler Cove Marine Park | 17,633 | 22,036 | 14,578 | 21,109 | 17,290 | 12,821 | 18,613 | 18,313 | 11,181 | 29,295 |
| Stawamus Chief Park | 283,261 | 290,795 | 447,467 | 364,199 | 400,779 | 203,663 | 251,423 | 175,972 | 268,956 | 332,058 |
| Tetrahedron Park | 3,059 | 1,078 | 1,715 | 2,174 | 1,582 | 1,967 | 1,964 | 1,412 | 830 | 763 |
| Total | 2,490,394 | 2,433,988 | 2,929,514 | 2,750,530 | 2,929,364 | 2,553,962 | 2,826,088 | 2,696,514 | 3,352,055 | 3,440,396 |

Source: BC Parks (2015)

Note: Includes day, camping and boating use

3.2.2 Recreation Activities

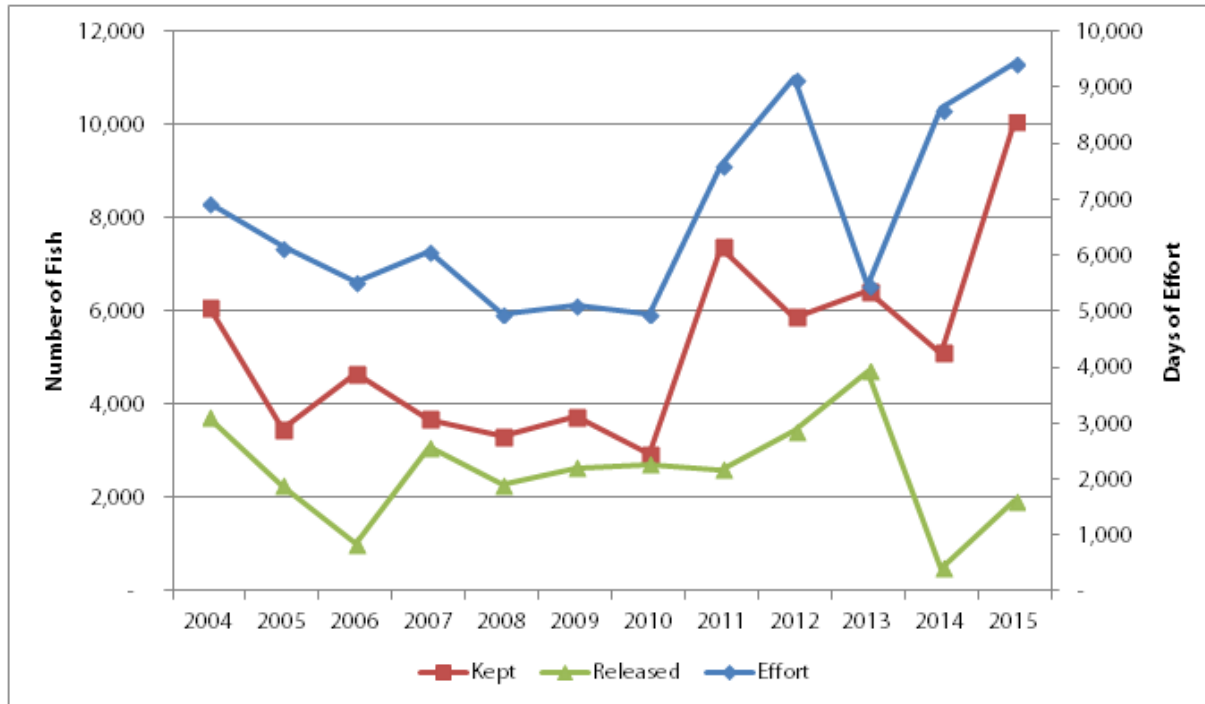
Howe Sound is noted for its sailing, power boating, paddling, diving, fishing, camping, hiking, backpacking, mountain biking, rock-climbing, bird watching, nature observation and many other outdoor recreation opportunities. The District of Squamish has billed itself as the Outdoor Recreation Capital of Canada due its outstanding natural features, accessible play areas and diverse winter-summer, water-land recreation opportunities. Eco-tourism is a thriving sector in the community.

Angling

Recreational angling continues to be a popular leisure activity in Howe Sound, supporting numerous service businesses, including rentals, charters, food and beverage and accommodation. As seen in Figure 3-1, more than 9,000 days of effort were expended in the area, resulting in a harvest of approximately 8,500 fish. Activity tends to fluctuate because of weather, run strength, closures and limits but has been particularly strong over the last five years when compared to the previous five year period. More than three quarters of the angling harvest is salmon, led by Pink, Coho and Chinook.

Flounder and sole make up another 16% of the catch. The catch of other ground species is limited due mainly to closures.

Figure 3-1 Angling Effort, Fish Kept & Released for Area 28, Sub-areas 1-9, 2004-2015



Source: DFO (2016a)

Notes: Pacific Fishery Management Area (PMFA) 28, sub-areas 1-9, includes Howe Sound and English Bay between Point Atkinson and Lions Gate Bridge.

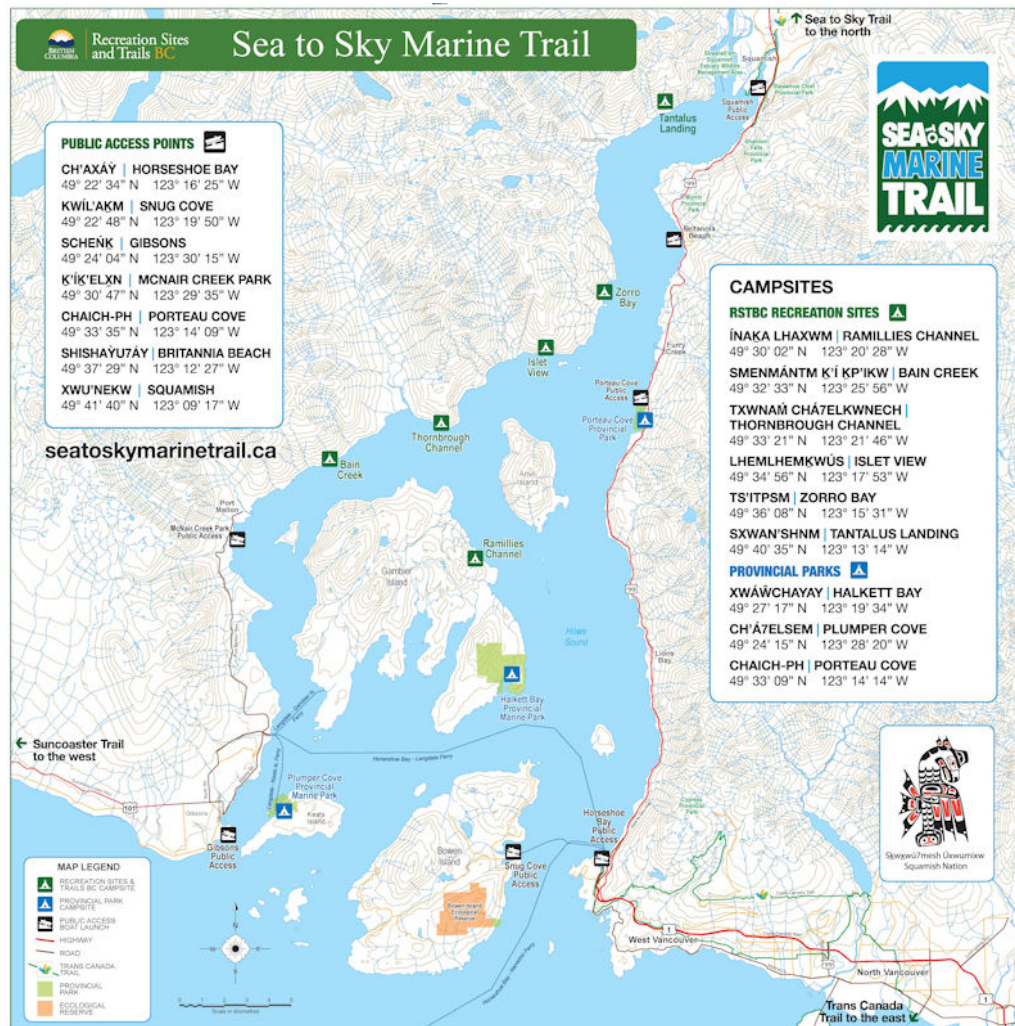
Boating

The area is a major boating destination with 392 separate tenures for boat havens (3), marinas (25), private yacht clubs (5), wharves (12), strata moorage (12) and the remainder private moorage. The Thunderbird and Burrard yacht clubs have outstations on Gambier Island at Ekins Point, while Royal Vancouver and West Vancouver yacht clubs have outstations at Centre Bay.

Howe Sound is expanding its non-motorized boating potential through the BC Marine Trails Network, which is a network of marine paths that span 27,000 km of the BC coastline. The network consists of rest stops, safe havens, campsites, or launch sites up and down the coast. The BC shoreline, which is largely Crown land, is in high-demand due to commercial and private pressures. Though it is law that shore below high tide line cannot be privately owned, much of it is in highly populated areas along the coast, making it difficult for paddlers to access land that can be used as a rest area or for camping.

The Sea to Sky Marine Trail (Figure 3-1), officially opened in June 2015, is part of the BC Marine Trails Network, but it also forms part of the Trans Canada Trail. The trail links six new campsites, several access points to the trail, new signage, three existing provincial parks and a regional park for an across-the-sound visitor experience (BC Marine Trails 2016).

Figure 3-2 Sea to Sky Marine Trail



Source: BC Marine Trails Network (2016)

Trails

Trail-based activities such as hiking, backpacking, trail riding and mountain biking are a major contributor to the region's recreation and tourism industry. In 2006, mountain biking in the Sea to Sky corridor generated \$10.3 million in expenditures, \$9.3 million in GDP and over 194 jobs (Mountain Bike Tourism Association 2007). Although studies of other trail activities have not been undertaken, they are believed to generate similar levels of use and economic activity.

The Sea-to-Sky corridor has more than 700 km of recreation trails, 77% of which are Crown land. For the most part, local clubs, groups, or individuals maintain these trails. A dramatic increase in the number of trails and trail use is due to the popularity of cycling in the corridor, which in turn has resulted in a growing list of liability, user conflict, maintenance and management issues. The popularity of the region for trail activities was the impetus behind the creation of the Sea to Sky

Corridor Recreation Trail Strategy (Sea to Sky Corridor Recreation Trail Strategy 2007), which continues to be implemented.

Education

There are multiple summer and youth camps in the LSA, hosting thousands of children annually. These include Firefly camp (Fireside Adventures), Camp Potlatch (Boys and Girls Club of South Coast BC), the “Counting on Howe Sound” experiential learning program operated by the Vancouver Aquarium, Camp Fircom (United Church), Camp Latona and Camp Elphinstone (YMCA) (Upland Consulting 2013). The Sea to Sky Outdoor School offers structured sustainability learning programs to over 2,000 students and adults annually.

3.2.3 Commercial Recreation

Table 3-7 shows licensed commercial recreation tenures in the LSA. The licensed territory of one guide outfitter covers 42% of the LSA, while 24 trap lines cover two-thirds. The heli-ski tenures owned by Black Tusk Helicopters of Squamish has portions of its heli-ski licence area in the northern extent of the LSA. The community outdoor recreation tenures are mainly for summer camps. Guided freshwater, saltwater and mountaineering licensees provide a sense of the diversity of recreation opportunities in the LSA.

Table 3-7 Licensed Commercial Recreation on Crown Land in the LSA, 2016

| Feature | Count | Hectares |
|---|-------|----------|
| Guide Outfitting Area | 1 | 92,420 |
| Limited Entry Hunting Zones | 7 | 85,450 |
| Trap lines | 24 | 141,135 |
| Commercial Recreation Tenures | 61 | 90,597 |
| <i>Heli-ski</i> | 7 | 55,423 |
| <i>Community Outdoor Recreation</i> | 6 | 59 |
| <i>Guided Freshwater Recreation</i> | 9 | 4,523 |
| <i>Guided Mountaineering/Rockclimbing</i> | 4 | 3,457 |
| <i>Guided Saltwater Recreation</i> | 4 | 13,556 |
| <i>Other</i> | 31 | 13,580 |

Source: Hillcrest (2016)

3.2.4 Services and Major Attractions

There are many tourism businesses and services within Howe Sound, with Horseshoe Bay, Gibsons and Squamish having sizable clusters. Hellobc.com shows approximately 50 accommodation facilities clustered around the LSA, 25 of which are B&Bs, 12 hotels and motels, 10 resorts and three RV facilities.

Approximately 35 tour operators offer rental and tour services in and around Howe Sound for kayaking, fishing, boat tours, horseback riding, mountain biking, mountaineering, rafting, kite boarding and general eco-tours. Major Vancouver-based operators such as Harbour Air, LandSea

Tours and Adventures and Coastal Pacific Tours provide a variety of land/sea/air tours throughout Howe Sound. The six area golf courses are anchored by the popular Furry Creek Golf and Country Club. Charter operations in Horseshoe Bay, Gibsons, Squamish and Vancouver offer rentals, bareboat charters and skippered charters, as well as cruise-and-learn boat trips for day use and multi-day outings.

Major attractions include:

- **Sea to Sky Gondola.** The Sea to Sky Gondola opened in 2014. An 8-minute gondola ride to over 885 metres above sea level offers sweeping views of Howe Sound, the forest & surrounding mountains. At the top there is access to two interpretive loop trails, a suspension bridge, and backcountry trails. The lodge provides the opportunity for cultural exhibits, events and dining. Attendance in 2015 was in the range of 300,000, well ahead of projections, and 2016 is expected to be better than by 30% (Dunn 2016, pers. comm.). What is surprising is that close to half of all visitors are from outside BC which is a clear indication of the popularity of not just the Gondola but of Howe Sound itself.
- **Sewell's Marina.** In operation since 1931, Sewell's Marina has served visitors to the Howe Sound through fishing charters, Sea Safari Eco Tours, rentals and moorage. Moorage is fully allocated and fishing charters and rentals has been growing in recent years as local salmon stocks rebuild. The Eco Tours, which focus on the marine environment, were first offered in 1997 and have steadily developed over the years, with more and more international visitors attracted by a vibrant, quality marine environment so close to a major metropolitan area. The proximity to many different species of wildlife, including whales and dolphins, is a major draw for visitors. Sewell's can employ as many as 50 workers during the peak summer season. (Sewell 2016, pers. comm.)
- **Britannia Mine Museum.** The Britannia Mine Museum is part of the Britannia National Historic Site, established by Parks Canada in 1987. The museum oversees 23 historic industrial, administrative and domestic buildings, and thousands of artifacts, archive photos, archival documents and maps. The site is also a popular film set, having hosted many feature films and TV productions. Attendance in 2015 was approximately 74,000, an increase of 8% over 2014. More than one in six visitors are international. Admission revenues were over \$1million in 2015, a three-fold increase since 2010. The museum receives high marks from Trip Advisor and other travel media (Katherine Flett 2016, pers. comm.)
- **Sea to Sky Corridor.** The Sea to Sky corridor as a marketable concept is something that didn't exist 20 years ago but which, because the 2010 Winter Olympics especially, and the combined effects of the development and marketing of many different experiences locally, has emerged as a destination in and of itself. So, for example, when the New York Times featured Squamish and the Sea to Sky Gondola in its "52 Place to Go in 2015" one of the calling cards was the draw of "an unusual combination of West Coast wilderness and accessibility" (New York Times 2015). Similarly, when CNN named Squamish as the best mountain town to visit in 2014, it was because "the Squamish area, ...was becoming a destination in its own right" (Ipick 2014). Millions of visitors are travelling to and through Howe Sound annually and account for tens of

millions in spending that accrue to local businesses and communities. As previously noted in Table 2-8, the region is the only one in BC where the economic base is dominated by tourism.

3.2.5 Festivals and Events

Festivals and events regularly draw thousands of attendees to Howe Sound communities every year. Outdoor recreation and arts/culture themes predominate, and the many road and mountain bike races have international attendees.

Table 3-8 Major Festivals and Events in the Howe Sound Area

| | |
|--|----------------------------|
| Annual Howe Sound Herring Festival | Family |
| ARC'TERYX Climbing Academy | Outdoor recreation |
| BC Bike Race | Outdoor recreation |
| Cheakamus Centre 47th Annual Open House | Family |
| Conscious Goddess Festival | Lifestyle |
| Dancing Bear Music Festival | Arts and culture |
| Gibsons Landing Jazz Festival | Arts and culture |
| Gibsons Sea Cavalcade | Family |
| Howe Sound Music Festival | Arts and culture |
| International Howe Sound Outrigger Race | Outdoor recreation |
| Just Another Bike Race (JABR) | Outdoor recreation |
| Loop the Lakes Trail Race | Outdoor recreation |
| Ore Crusher | Outdoor recreation |
| RBC GranFondo (Whistler) | Outdoor recreation |
| Rogue Arts Festival | Visual and performing arts |
| 'Round Bowen Challenge | Outdoor recreation |
| Sea to Sky Scramble Trail Run | Outdoor recreation |
| Squamish 50 | Outdoor recreation |
| Squamish ArtCrawl | Arts and culture |
| Squamish Beer Festival | Lifestyle |
| Squamish Days | Arts and culture |
| Squamish Gear Jammer | Outdoor recreation |
| Squamish Wind Festival | Outdoor recreation |
| Squamish Youth Triathlon | Outdoor recreation |
| Sunshine Coast Festival of the Performing Arts | Arts and culture |
| Test of Metal | Outdoor recreation |
| West Coast Yoga Festival | Lifestyle |

3.3 Commercial Fishing

The fishery resource of Howe Sound includes Pacific salmon, trout, herring, ground fish and shellfish. The federal department of Fisheries and Oceans Canada (DFO) is responsible for the conservation, management and enhancement of fishing for all Pacific salmon, saltwater fish, shellfish, sea mammals and marine plants. The LSA is administered as part of Area 28 (Lower Mainland/Sunshine Coast).

There are numerous closures in Howe Sound, including Sockeye, prawn, shrimp, crab and groundfish closure in sub-area 28-4 (Defence Islands), rockfish and lingcod, and all bivalve molluscs (DFO 2016b).

There is an active fishery for invertebrate species in the area (Table 3-9). The 2015 harvest of Shrimp by trap was 64.5 tonnes, approximately half of the peak harvest in 2011, but still relatively high given recent history. This harvest represented 3.5% of total provincial landings. Shrimp by trawl and Crab by trap are also commercially harvested.

Table 3-9 Commercial Landings of Selected Invertebrate Species in Howe Sound, Tonnes, 2006 to 2015

| Fishery | Species | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------|-------------------|------|------|------|------|------|-------|------|------|------|------|
| Crab by Trap | Dungeness Crab | * | 10.9 | * | * | 10.7 | 5.5 | * | * | * | 20.1 |
| Geoduck by Dive | Geoduck | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Octopus by Dive | Octopus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ** | ** |
| Shrimp by Trap | Prawn | 50.2 | 60.3 | 54.3 | 47 | 50 | 118.2 | 68.4 | 40 | 40.9 | 64.3 |
| | Coonstripe Shrimp | 0 | * | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
| | Humpback Shrimp | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
| Scallop Dive | Scallop | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ** | ** |
| Scallop Trawl | Scallop | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sea Cucumber by Dive | Sea Cucumber | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Red Sea Urchin | Red Sea Urchin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Green Sea Urchin | Green Sea Urchin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Shrimp Trawl | Pink Shrimp | 9.6 | 7.9 | 14.5 | 18.6 | 10.8 | 6.8 | 10.9 | 18 | 21.9 | 14 |
| | Sidestripe Shrimp | 6.5 | 4 | 5.7 | 4.7 | 4.7 | 4.6 | 4.9 | 5.2 | 7.7 | 4.1 |
| | Humpback Shrimp | 0 | 0 | 0 | 0 | 0 | * | 0.11 | 0 | 0 | 0 |
| | Coonstripe Shrimp | 0 | 0 | 0 | 0 | 0 | * | 0 | 0.01 | 0 | 0 |
| | Prawn | * | 0.02 | * | * | * | 0 | 0 | 0 | 0.03 | 0 |

Source: DFO (2016c)

Note: * data suppressed by DFO due to confidentiality

** permanently closed

There has been no commercial catch of pelagic species (herring, sardine, smelt) since 2013 in Howe Sound. There was a minor catch of smelt in 2011 and 2012 but the fishery has been closed since, while there has been no fishery at all for herring and sardine since 2011 (DFO 2016e).

A groundfish trawl fishery occurred in Howe Sound in 2013 and 2014 in the waters near Lions Bay, but due to confidentiality the quantity and value of the harvest is suppressed and not available for publication (DFO 2016f).

After years of inactivity, a commercial salmon harvest took place in 2013 and again in 2015. These openings, which took place over six days in both years, involved less than 10 vessels, and resulted in harvests of pink salmon of 282,400 and 100,051 fish, respectively (DFO 2016g).

3.4 Marine Transportation

3.4.1 Vessel Movements

The Howe Sound area is part of the Marine Communications and Traffic Services (MCTS) Vancouver Traffic Regulating Zone. Vancouver traffic was the first Traffic Regulating Zone in the Pacific Region and is one of the busiest Zones in Canada with Vancouver servicing as one of the key entering points for international goods to the west coast of North America. Co-located with Vancouver MCTS is the RMIC (Regional Marine Information Centre) which provides shipping information, message distribution services, notice to shipping creation/distribution, and pollution reporting services. The Vancouver Traffic Regulation Zone (VTRZ) is shown in Figure 3-3 .

Figure 3-3 Vancouver Traffic Regulating Zone Area of Responsibility



Source: DFO (2013a)

Table 3-10 presents the total trips by vessel type in the VTRZ in 2011 and 2015. There were 44,507 total trips in the VTRZ in 2015, a slight decline from the 46,234 trips made in 2011. Tugs account for the majority of trips (59% in 2011, 56% in 2015), while merchant vessels are the second-most active (28% in 2011, 31% in 2015).²

Table 3-10 Total Trips in the Vancouver Traffic Regulating Zone, 2011 and 2015

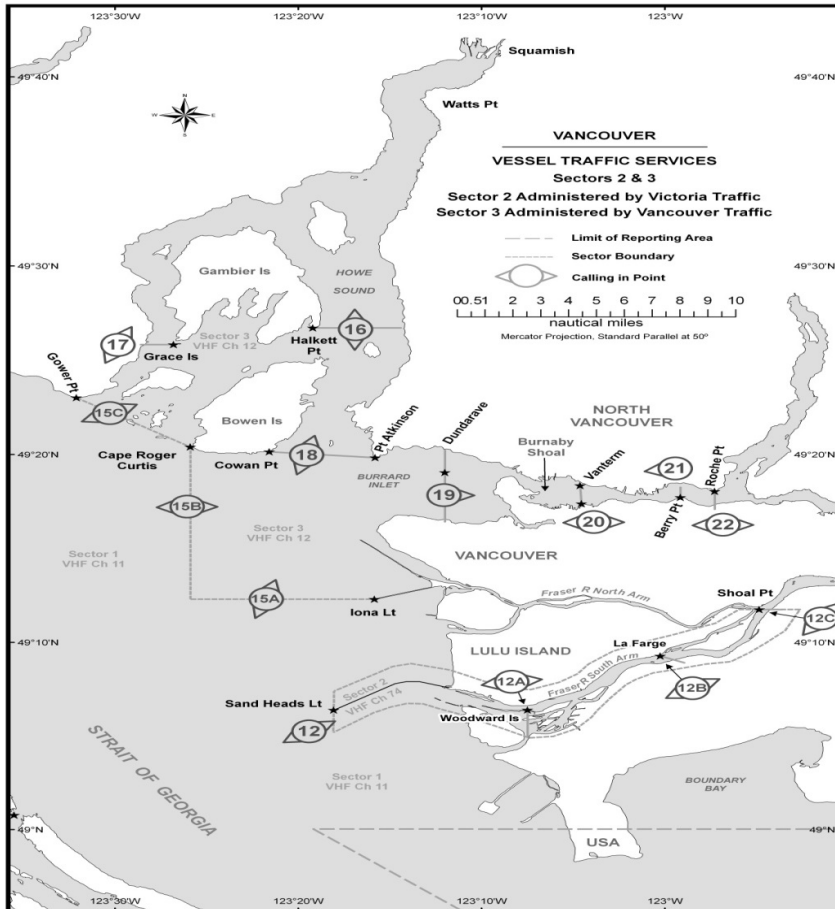
| Type of Vessel | 2011 | 2015 | Trend |
|------------------------------|---------------|---------------|----------|
| All barges alone | 143 | 149 | ↑ |
| All Coast Guard Vessels | 370 | 360 | ↓ |
| All Excursion Vessels | 18 | 9 | ↓ |
| All Fishing Vessels | 440 | 240 | ↓ |
| All Merchant Vessels | 12 837 | 13 769 | ↑ |
| • Merchant Auto | 15 | 22 | ↑ |
| • Merchant Bulk | 2 729 | 3 244 | ↑ |
| • Merchant Container | 427 | 482 | ↑ |
| • Merchant Ferry | 9 069 | 9 426 | ↑ |
| • Merchant General | 334 | 341 | ↑ |
| • Merchant Passenger | 223 | 243 | ↑ |
| • Merchant RO/RO | 35 | 6 | ↓ |
| • Merchant Other | 5 | 5 | - |
| All Other type Vessels | 19 | 1 | ↓ |
| All Pleasure Crafts | 664 | 544 | ↓ |
| All Special Vessels | 3 732 | 3 533 | ↓ |
| All Tankers | 501 | 533 | ↑ |
| • Merchant (Tanker) | 75 | 149 | ↑ |
| • Merchant Chemical | 309 | 241 | ↓ |
| • Merchant Crude | 95 | 74 | ↓ |
| • Merchant Other | 22 | 69 | ↑ |
| All Tugs | 27 211 | 25 087 | ↓ |
| All U.S. Coast Guard Vessels | 1 | 3 | ↑ |
| All Unknown Type | 3 | 3 | - |
| All War Vessels | 295 | 276 | ↓ |
| All Vessel types | 46 234 | 44 507 | ↓ |

Source: Canadian Coast Guard Western Region (2016a)

² Vessels required to participate at the call in points 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 the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length. The 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.

With regards to Howe Sound, vessels must pass by one of two Call in Points, one on either side of Bowen Island. These call in points are Call in Point 15C (Cape Roger Curtis) and Call in Point 18 (Cowan Point North). The location of these Call in Points are outlined in Figure 3-4 below and correspond closely to the entrance to the study area.

Figure 3-4 Call In Points in the Howe Sound Area



Source: Canadian Coast Guard (2013)

The number of vessels entering the Howe Sound area in 2011 and 2015 is outlined in Table 3-11. In 2011 the number of vessels arriving in Howe Sound was 12,104 with BC Ferry traffic and Tugs making up 95% of the vessels required to report. In 2015 vessel arrivals were up slightly to 12,921. In 2015, an average of 35 vessel entered Howe Sound each day throughout the year.

Most merchant traffic is associated with the forest industry, including the movement of logs and wood chips from the ports of Squamish and Port Mellon. Howe Sound's location makes it a hub for coastal timber, chip, lumber and pulp and paper handling. A major shipping point is Squamish Terminals' deep-water, break-bulk facility in Squamish. It has intermodal transportation infrastructure with access

to rail and truck services, two berths, three warehouses and specialized handling equipment. Major products include forest products, steel products and specialty cargo. (Squamish Terminals 2013)

Table 3-11 Vessel Arrivals in the Howe Sound Portion of the Vancouver Traffic Regulating Zone, 2011 and 2015

| Type of Vessel | 2011 | 2015 |
|------------------------------|---------------|---------------|
| Coast Guard Hovercraft | 76 | 85 |
| Coast Guard Patrol | 47 | 4 |
| Coast Guard Scientific | - | 14 |
| Coast Guard Tender | - | 1 |
| Fishing Vessel | 12 | 5 |
| Landing Craft | 15 | 32 |
| Merchant Bulk | 59 | 43 |
| Merchant Ferry | 8 971 | 9 261 |
| Merchant General | 60 | 68 |
| Merchant Passenger | 8 | 4 |
| Special Purpose | 44 | 33 |
| Special Purpose Research VSL | - | 3 |
| Special Purpose Diving | - | 8 |
| Special Purpose Tour | 114 | 99 |
| Tug | 2 544 | 3 071 |
| Tug Harbour | - | 1 |
| Tugs Workboat | 11 | 26 |
| Warship Surface | 8 | 8 |
| Warship Training | 93 | 114 |
| Yacht - Pleasure Crafts | 3 | 1 |
| Yacht Power | 24 | 38 |
| Yacht Sails | - | 2 |
| Other | 15 | - |
| Total | 12 104 | 12 921 |

Source: Canadian Coast Guard (2016b)

Note: Vessel Arrivals are for those vessels required to call in as they enter Howe Sound.

Note: vessels required to report include every ship twenty metres or more in length, every ship engaged in towing or pushing any vessel, other than fishing gear, where the combined length of the vessel or object being towed or pushed is twenty metres or more in length.

3.4.2 Marine Incidents and Accidents

In accordance with mandatory reporting requirements under the provisions of the *Canadian Transportation Accident Investigation and Safety Board Act*, the *Canada Shipping Act*, and the *Canada Labour Code Part II*, where a reportable marine accident or incident takes place, the owner, operator, charterer, master, pilot or any crew member of a ship shall report to the Board as much information as possible by the quickest means available. In Table 3-12 the marine incidents reported for Howe Sound between 2014 and 2016.

Thirteen incidents were reported, mainly for collision risk, machinery or systems failure or bottom contact. Only one sinking was registered.

Table 3-12 Reported Major Marine Accidents and Incidents in How Sound, 2014-2016

| OCCURENCE DATE | ACCIDENT TYPE | VESSEL TYPE | COMMENT |
|----------------|--------------------------------|----------------|---|
| 1/17/2014 | SANK - Flooding | Ships Boat | Unregistered tug "ELF" sank. |
| 2/25/2014 | Non-Reportable/Voluntary | FERRY | "QUEEN OF COQUITLAM" generator bread down. |
| 5/22/2014 | RISK OF COLLISION | FISHING | "QUEEN OF OAK BAY" close quarters situation with the fishing vessel "LORMAX". |
| 7/21/2014 | TOTAL FAILURE OF ANY MACHINERY | FISHING | Crab FV "SEA POWER" broken down near Gower Point. |
| 9/16/2014 | TOTAL FAILURE OF ANY MACHINERY | FISHING | FV "VINDICATOR" disabled due to fouling of propeller, 2 nm SE of Cowans Point. |
| 3/30/2015 | Non-Reportable/Voluntary | FERRY | "QUEEN OF OAK BAY" reported a passenger jumping overboard near Horseshoe Bay. |
| 4/23/2015 | BOTTOM CONTACT | SERVICE SHIP | Search and rescue vessel "CG506" reported bottom contact. |
| 5/16/2015 | Non-Reportable/Voluntary | FERRY | "QUEEN OF OAK BAY" reported a partial failure to the propulsion system |
| 6/19/2015 | SANK – Founders | TUG | Tug "HODDER RANGER" took on water and sank 2.6 nautical miles SSE of Port Mellon. |
| 8/3/2015 | RISK OF COLLISION | FERRY | "QUEEN OF COWICHAN" close quarters situation with the passenger vessel "SOMEDAY". |
| 10/17/2015 | RISK OF SINKING | FISHING | FV "OCEAN COMET" taking on water 1.1 nautical miles SE of Point Cowan, BC. |
| 12/18/2015 | BOTTOM CONTACT | CARGO - SOLID | Bulk carrier "KAI XUAN" bottom contact while approaching Squamish Bulk terminal. |
| 3/26/2016 | COLLISION - Struck by vessel | SAILING VESSEL | "QUEEN OF OAK BAY" contact with a partly submerged derelict sailboat in Howe Sound. |

Source: Transportation Safety Board (2016)

Note: Accidents and reportable incidents in Western region where longitude between 123° 29' 00" & 123° 34' 00" for the period between January 1, 2014 to March 31, 2016.

3.5 Forestry

Activity in the region's forest industry has declined markedly over the last two decades due to mill closures in Squamish, Woodfibre and across the Sunshine Coast, and a declining timber harvest. Port Mellon is now the only major timber processing complex in or near the LSA (Table 3-13). Howe Sound Pulp and Paper is a newsprint and kraft pulp manufacturer with markets in North and South America, and Asia. The company does not have tenure in the Sunshine Coast Timber Supply Area but obtains its chip supplies sourced from sawmills up and down the BC coast.

The curtailments in manufacturing elsewhere in the LSA have been the result of a number of converging industry and economic factors including industry trends to rationalize production, ownership consolidation, major changes in provincial forest policy, the decline of the US house market, softwood lumber trade disputes with the US, and rising timber harvesting and business costs. There is a small sawmill in Squamish (AJ Forest Products) and chip mills in Port Mellon and Langdale. As previously noted in Table 2-8, the forest industry's contribution to total community income has declined steadily in the region since 1991.

Table 3-13 Timber Processing Facilities in or Near the LSA, 2014

| Type | Company | Location | Estimated Annual Capacity | Units |
|--------|--------------------------|-------------|---------------------------|--------------------|
| Lumber | AJ Forest Products | Brackendale | 24.0 | Million Board Feet |
| Pulp | Howe Sound Pulp & Paper | Port Mellon | 600.0 | 000s Tonnes |
| Paper | Howe Sound Pulp & Paper | Port Mellon | 207.0 | 000s Tonnes |
| Chip | Pacific Fibre | Port Mellon | na | 000s BDUs |
| Chip | Terminal Forest Products | Langdale | 11.0 | 000s BDUs |

Source: MFLNRO (2015)

Note: na data not available
BDU Bone Dry Unit

Timber harvesting and management on Crown land in the LSA is administered by three separate forest districts, Chilliwack, Metro Vancouver-Squamish and Sunshine Coast. Active logging is taking place on 9,085 hectares, which is roughly 10% of the Crown operating forest and 5% of the total land base. Major licensees with operating areas in the Study Area include Northwest Squamish Forestry, Canadian Forest Products and Black Mount Logging.

Table 3-14 Active Gross Block Logging Area in the LSA, 2016

| Licence | Ha | Licensee | Ha |
|--|-------|-----------------------------|-------|
| Forest Licence Cut Block | 3,845 | Northwest Squamish Forestry | 2,202 |
| Licence to Cut Cut Block | 457 | Canadian Forest Products | 1,818 |
| Timber Licence Cut Block | 110 | Black Mount Logging | 1,087 |
| Timber Sale Licence Major Cut Block | 12 | Port Graves Holdings | 775 |
| Timber Sale Licence Minor CB Non Replaceable | 1,950 | Gambier Forest Resources | 440 |

| | | | |
|-----------------------------|-------|------------------|-------|
| Tree Farm Licence Cut Block | 1,215 | Richmond Plywood | 241 |
| Wood Lot Licence Cut Block | 1,496 | Other | 2,521 |
| Grand Total | 9,085 | Grand Total | 9,085 |

Source: Hillcrest (2016)

3.6 Utilities and Energy

Numerous utilities transect the LSA, including electric power lines, pipelines, sewer lines, telephone lines and water lines. Major licensees include BC Hydro (electric lines), Fortis BC (gas lines), Telus (telephone) and local government (water and sewer lines) (Table 3-15).

Table 3-15 Utility Licences by Sub-purpose in the LSA, 2016

| | Electric power line | Gas and oil pipeline | Sewer/effluent line | Telecommunication line | Water line | Grand total |
|----------|---------------------|----------------------|---------------------|------------------------|------------|-------------|
| Count | 60 | 81 | 24 | 30 | 26 | 221 |
| Hectares | 3,969 | 379 | 9 | 380 | 12 | 4,749 |

Source: Hillcrest (2016)

Water licences (Table 3-16) have been issued by the province for a variety of residential and commercial uses. The large majority of tenures and total committed water volume is for domestic (e.g. residential) use, followed by community waterworks and storage. The water bottle licences are for Ellesmere Creek (across Howe Sound from Furry Creek) and Powerhouse Creek near Squamish.

Table 3-16 Water Licences (points of diversion) in the LSA, 2016

| Purpose | Count | Purpose | Count |
|----------------------------------|-------|----------------------------|--------------|
| Unknown | 21 | Public facilities | 2 |
| Bottle sales | 5 | Pulpmills | 7 |
| Camps | 2 | Res. Lawn/garden | 2 |
| Conservation, construction works | 7 | Sewage disposal | 1 |
| Conservation-use of water | 11 | Snow making | 3 |
| Domestic | 581 | Stockwatering | 6 |
| Enterprise | 9 | Storage-power | 13 |
| Fire protection | 5 | Stream storage-non power | 115 |
| Irrigation | 27 | Truck washing | 1 |
| Land improve | 23 | Tunnelling | 2 |
| Ponds | 2 | Watering | 8 |
| Power-commercial | 7 | Waterworks (other) | 30 |
| Power-general | 60 | Waterworks local authority | 119 |
| Power-residential | 15 | Wharf | 1 |
| Processing | 5 | Work camps | 6 |
| | | Grand Total | 1,096 |

Source: Hillcrest (2016)

There are 18 active water licences issued for power purposes and another 14 in the application stage (Table 3-17). Power-Commercial licences are typically issued for in-house or on-site power use associated with a manufacturing or industrial facility. The Power-General licence applies to a power

development meant for public sale by a regulated utility. There is considerable market interest for the latter. The major tenure, by volume, is on the Mamquam River, where there are two separate licences, one for the Upper Mamquam operated by Trans Alta and the other by Atlantic Power Corporation.

Table 3-17 Water Licences for Power Generation in the LSA, 2016

| Licence Status | Stream | Purpose ^a | Quantity | Units |
|----------------|--------------------|-------------------------------|----------|-------|
| Current | Brooks Creek | POWER-COMMERCIAL ^b | 0.06 | MS |
| Current | Deeks Creek | POWER-COMMERCIAL | 0.35 | MS |
| Current | Ellesmere Creek | POWER-COMMERCIAL | 0.02 | MS |
| Current | Mill Creek | POWER-COMMERCIAL | 1.26 | MS |
| Current | Box Canyon Creek | POWER-GENERAL ^b | 1.25 | MS |
| Current | Cascara Creek | POWER-GENERAL | 1.40 | MS |
| Current | Culliton Creek | POWER-GENERAL | 7.50 | MS |
| Current | Furry Creek | POWER-GENERAL | 4.00 | MS |
| Current | Henriette Lake | POWER-GENERAL | 1.00 | MS |
| Current | Mamquam River | POWER-GENERAL | 57.00 | MS |
| Current | Marty Creek | POWER-GENERAL | 1.31 | MS |
| Current | McNair Creek | POWER-GENERAL | 3.30 | MS |
| Current | Nelson Creek | POWER-GENERAL | 0.18 | MS |
| Current | Skookum Creek | POWER-GENERAL | 9.90 | MS |
| Current | Sylvia Lake | POWER-GENERAL | 0.06 | MS |
| Current | Woodfibre Creek | POWER-GENERAL | 0.43 | MS |
| Current | Wutke Creek | POWER-GENERAL | 3.30 | MS |
| Current | Yanko Creek | POWER-GENERAL | 3.30 | MS |
| Active appl. | Britannia Creek | POWER-GENERAL | 5.00 | MS |
| Active appl. | Crawford Creek | POWER-GENERAL | 4.60 | MS |
| Active appl. | Foulger Creek | POWER-GENERAL | 1.00 | MS |
| Active appl. | Henriette Lake | POWER-GENERAL | 2.64 | MS |
| Active appl. | Mamquam River | POWER-GENERAL | 4.40 | MS |
| Active appl. | Mill Creek | POWER-GENERAL | 8.00 | MS |
| Active appl. | Pillchuck Creek | POWER-GENERAL | 2.00 | MS |
| Active appl. | Raffuse Creek | POWER-GENERAL | 2.38 | MS |
| Active appl. | Rainy River | POWER-GENERAL | 10.00 | MS |
| Active appl. | Scott Creek | POWER-GENERAL | 8.00 | MS |
| Active appl. | Stawamus River | POWER-GENERAL | 2.50 | MS |
| Active appl. | unnamed | POWER-GENERAL | 1.00 | MS |
| Active appl. | Woodfibre Creek | POWER-GENERAL | 2.64 | MS |
| Active appl. | ZZ Creek (78596) | POWER-GENERAL | 10.00 | MS |

Source: Hillcrest (2016)

Note: MS cubic metres per second

a Excludes residential power production

b See http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/12_204_88#section15 for definitions

3.7 Aggregates

Sand and gravel is an input to most construction projects. Table 3-18 show that there are six active aggregate pits in the LSA.

Table 3-18 Current Aggregate Pits in the LSA , 2016

| Property Name | Location | Activity Started | Activity Ended |
|------------------------|--|------------------|----------------|
| Dimension Stone Quarry | 7 km south of Squamish on Highway 99 | 1997 | 2050 |
| Mamquam River Quarry | Highway 99 Squamish | 2002 | 2020 |
| McNab Valley Project | McNab Creek | 2007 | 2023 |
| Gambier Island Copper | na | 2013 | 2018 |
| Cat Lake | na | 2015 | 2021 |
| Lot 69 | North from central Squamish along Highway 99 | 2015 | 2045 |

Source: Hillcrest (2016)

Notes: na data not available

Howe Sound is also known for its aggregate potential, which is enhanced by its ready access to tide water. In 2001, government mapped the aggregate potential of the Sunshine Coast and Howe Sound using a primary, secondary, tertiary, or unclassified ranking system. Land classified as primary has high potential, while those that are unclassified have virtually no potential. Table 3-19 indicates that 9% of the mapped potential is the primary designation, while close to 68% of the Study Area 176,886 hectares is listed as having some potential.

Table 3-19 Aggregate Potential for the LSA

| Potential Rating | Area (Hectares) |
|------------------|-----------------|
| Primary | 10,306 |
| Secondary | 14,556 |
| Tertiary | 95,601 |
| Total | 120,464 |

Source: Hillcrest (2016)

BURNCO Rock Products Ltd. sand and gravel pit, which is currently in a joint BC and Canada environmental assessment process, is planning to produce construction aggregates for use in BC's Lower Mainland. The project was originally scheduled to produce 32 million tonnes of sand and gravel with an expected economic life of 20 to 30 years. The current proposal is for one million tonnes annually for 16 years. The project is located on the northwest shore of Howe Sound near the mouth of McNab Creek. The site is accessible by water and by ATV via deactivated logging roads (BC Environmental Assessment Office 2014).

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