

# Nootka

COASTAL LAND USE PLAN



[www.luco.gov.bc.ca](http://www.luco.gov.bc.ca)



Nootka  
Resource  
Board



National Library of Canada Cataloguing in Publication Data British Columbia. Nootka Resource Board.  
Nootka coastal land use plan

Issued by Land Use Coordination Office.  
ISBN 0-7726-4592-2

I. Land use - British Columbia - Nootka Sound Region - Planning. 2. Land use - British Columbia - Esperanza Inlet Region - Planning. 3. Coastal zone management - British Columbia - Nootka Sound Region. 4. Coastal zone management - British Columbia - Esperanza Inlet Region. 5. Land use - Government policy - British Columbia - Nootka Sound Region. 6. Land use - Government policy - British Columbia - Esperanza Inlet Region. 7. Environmental policy - British Columbia - Nootka Sound Region. 8. Environmental policy - British Columbia - Esperanza Inlet Region. I. British Columbia. Land Use Coordination Office. II. Title.

HD319.B7B74 2001

333.73'09711'2

C2001-960203-0

## **CONVENTIONS USED IN THIS EDOCUMENT**

### **Navigation**

- Document - click on the title in the document to link to the menu item.
- Menu - click on the menu item to link to the specified area in the document.

### **Maps**

- Area Designations - click on the green box around the unit name and number to link to the map coordinate at 400% zoom.
- Map - clicking on the unit number on the map to link back to the description of the area designation.

## **ABOUT THIS EDOCUMENT**

This eDocument was created using Adobe Acrobat 5.0 for Windows. The full view map and six cross sections of the map were created using CorelDRAW 10 and Corel PhotoPaint 10 for Windows.

**Dear Reader:**

**May 31, 2001**

Re: Endorsement of the Nootka Coastal Land Use Plan

As members of the Vancouver Island Inter-Agency Management Committee, we are pleased to endorse this local Land Use Plan for the Nootka region and confirm direction to participating ministries to implement the plan.

This integrated coastal resource management plan is a blueprint on how the coastal Crown lands of the Nootka area will be managed and developed over the next 10 years. This plan was developed in response to concerns over competing resource demands and will assist government agencies, the public, and stakeholder groups by providing a concise guide to future management and planning of public land and coastal resources in the Nootka area. The Vancouver Island Inter-Agency Management Committee will have the responsibility of coordinating plan implementation, monitoring and review.

We would like to thank the Nootka Resource Board, the Comox-Strathcona Regional District, Fisheries and Oceans Canada, stakeholders and the public for their contributions to development of the many components of this plan. This process has demonstrated that diverse interests can work together on future management and planning of coastal lands for the long-term use, development, and integrated sustainable management of the coastal lands and resource of the Nootka area. We encourage those involved in the development of this plan to continue their involvement in the plan through discussions with government agencies and the Nootka Resource Board.

We look forward to the implementation of the Nootka Coastal Land Use Plan by the provincial agencies responsible and the achievement of sustainable development in the Nootka area.



**Max Nock**  
British Columbia Assets and  
Lands Corporation



**Darrell Robb**  
Ministry of Forests



**Earl Warnock**  
Ministry of Environment, Lands and Parks



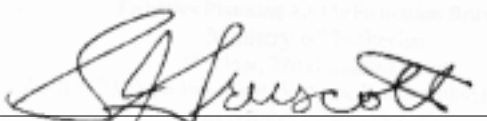
**Ted Hall**  
Ministry of Energy and Mines



**Ron Lampard**  
Ministry of Environment, Lands and Parks



**Dave Chater, Chair**  
Vancouver Island Inter-Agency  
Management Committee



**Joe Truscott**  
Ministry of Agriculture, Food  
and Fisheries



*Nootka*

**COASTAL LAND USE PLAN**

## TABLE OF CONTENTS

<i>Executive Summary</i> .....	1
<i>Introduction</i> .....	3
<i>Ministry/Agency Vision and Intent Statements</i> .....	7
<i>Resources of Nootka Area</i> .....	11
<i>Oceanographic and Physiographic Resources</i> .....	11
<i>Biological Resources</i> .....	18
<i>Economic and Resource Activities</i> .....	35
<i>Coastal Area Use Designations</i> .....	47
<i>Coastal Unit Summaries</i> .....	50
<i>Appendices</i> .....	81



Maquinna Point



## EXECUTIVE SUMMARY

The purpose of the Nootka Coastal Land Use Plan (the plan) is to address current coastal land use issues and to guide the long-term use, development and management of coastal Crown lands and resources of the Nootka Sound and Esperanza Inlet areas. The planning area applies to all the waters of the Nootka Sound and Esperanza Inlet and their associated channels and inlets, including Espinosa, Zeballos, Nuchatlitz, Tahsis, Tlupana, and Muchalat inlets, and Hecate and Cook channels.

For the purposes of this plan, the terrestrial component includes the foreshore and upland areas to the 40-metre contour line, or 200 metres inland from the high-tide level, whichever is the lesser distance. The marine component includes all inlets and channels as well as outer coast areas seaward to the Vancouver Island Land Use Plan (VILUP) boundary. Collectively, the plan area is referred to as the "Nootka area".

The plan was initiated at the request of Nootka residents, the Nootka Resource Board (NRB), and government agencies. The plan is overseen by the Vancouver Island Inter-agency Management Committee (IAMC), which coordinates all land use planning activities under provincial jurisdiction on Vancouver Island.

The plan has been developed to be compatible and work within existing, overarching government plans and policies, including the 1994 Vancouver Island Land Use Decision, and the strategic direction of the VILUP (February 2000).

An Inter-agency Technical Planning Team was established with government agency and local community participation to prepare the plan and to guide the planning process.

The Nootka Resource Board (NRB) provided the forum for local community stakeholder input along with two sets of public open houses in Gold River, Tahsis, and Zeballos. The NRB's mandate is to provide an avenue for local input and involvement in government decisions that directly affect the resource base within the Nootka Area. The NRB's mission is to protect and restore the quality and integrity of the environment in the Nootka area, and secure a sound and prosperous economy for present and future generations.

The planning process consisted of:

- development of a terms of reference (November 1999 - January 2000);
- data assembly and map creation (Spring 2000);
- initial public open houses (June 2000) to solicit public input on the planning process and resource information;
- development of planning units and objectives with government and NRB members (Summer - Fall 2000);
- public open houses (January 2001) to review planning units and objectives; and
- completion of the plan (May 2001).

The plan attempts to balance the ecological and wilderness attributes of the Nootka area with recreational, commercial, and industrial opportunities. The plan addresses short- and long-term resource conflicts related to land uses in the Nootka area.

The plan identifies 60 planning units, along with area designations, that will guide land use decisions in the Nootka area. The objective of these area designations is to minimize conflicting uses and/or to more fully realize the environmental, recreational, or commercial potential of the Nootka area. For each planning unit, a primary area designation (conservation, recreation, aquaculture, general management, industrial and commercial, and settlement) is assigned. In areas where more than one use is compatible with the primary designation, a secondary or occasionally tertiary designation is applied. In addition, a number of objectives are assigned to further outline the intended uses and prohibitions in each unit.

The plan will not alter the statutory authority or responsibility of provincial, federal, or local government, nor the rights associated with legally established land uses, including private land within the plan area. The plan and the planning process will also be without prejudice to First Nations treaty negotiations.

The planning process did not receive formal participation from First Nations, however publicly available cultural and heritage resource information was incorporated, as well as values and interests brought forward by First Nation individuals.





Yuquot

## EXECUTIVE SUMMARY

### Background and Purpose

In recent years, the Nootka Sound and Esperanza Inlet areas (the Nootka area) have experienced significant declines in the contribution of the forest sector to the local and regional economies. The closure of the Bowater Pulp Mill and declining annual allowable cuts (AACs) have had major impacts on the sector. During this transition, however, the area can anticipate growing pressures from activities such as aquaculture, recreation and tourism. These changes in the use and subsequent impacts on the Nootka area are increasingly resulting in conflicting and competing interests for a limited coastal land and foreshore base. The provincial government has made a number of commitments since 1990 to develop a comprehensive coastal planning strategy for the Nootka area which would identify resource use conflicts and develop short- and long-term plans to accommodate anticipated future demands on the Crown land base.

The purpose of the Nootka Coastal Land Use Plan (the plan) is to address current resource conflicts to guide the long-term use, development, and management of the area's coastal zone and waters. The plan provides a vision and management direction for the Nootka area through the development of 60 planning units, each of which is represented by one or more area designations as well as specific planning unit objectives.

The plan:

- applies only to a defined coastal zone and marine boundary;
- provides for area designations that emphasize specific types of land use activities and conservation;
- identifies the values and issues of agency and public concern;
- expresses the general management intent to address issues; and
- provides objectives to implement the management intent.

The plan does not affect:

- the statutory authority or responsibility of provincial, federal, or local government, nor the rights associated with legally established land uses;
- private land;
- First Nations treaty negotiations;
- marine fish resource management; and
- navigation and transportation issues.

### Planning Area

The planning area encompasses Esperanza Inlet, and the Zeballos, Port Eliza, Espinosa and Little Espinosa inlets and the water-ways within the Nootka area including the Muchalat, Tlupana and Tahsis inlets. The inland coastal zone for planning purposes is defined as 200 metres inland from the high-tide level, or to the 40-metre contour elevation, whichever is the lesser distance. The western, seaward boundary coincides with the VILUP marine boundary.

### Planning Process

The plan was undertaken by members of an Inter-Agency Planning Team (IPT) composed of representatives from the Nootka Resource Board (NRB) and local, provincial, and federal governments (Appendix A). The NRB provided the forum for community-level stakeholder consultation and collaboration. The NRB is a government-appointed body charged with the regional implementation of

### PLAN FORMAT

This plan consists of three sections:

#### Section 1

- Introduction
- Ministry and agency interest and vision statements
- Resources of the Nootka area
  - Physical
  - Biological
  - Economic

#### Section 2

- The Nootka Coastal Land Use Plan area designations
- The Nootka Coastal Land Use Plan unit summaries

#### Section 3

- Appendices

the VILUP. It is comprised of local government, community and First Nations participants. The NRB brings local issues and knowledge to the planning process.

The Vancouver Island Inter-Agency Management Committee (IAMC) oversaw the IPT, which reported to the IAMC through the Program Manager. The IAMC subsequently reported to the Land Use Coordination Office (LUCO) and the Assistant Deputy Ministers Committee on Land and Coastal Issues (ADMLUCC).

The planning process consisted of:

- Development of a Terms of Reference (November 1999 - January 2000, Appendix B);
- Data assembly and map creation (Spring 2000);
- Initial public open houses (June 2000) to solicit public input on the planning process and resource information;
- Development of planning units and objectives with government and NRB members (Summer - Fall 2000);
- Public open houses (January 2001) to review planning units and objectives; and
- Completion of the plan (May 2001).

The plan structure is based on the strategic-level Land and Resources Management Plans (LRMPs), the Barkley Sound Planning Strategy (1994), and the Sooke Foreshore Use Plan (1981). Development of the Nootka plan was centred on the following four tasks.

**Development of planning units** - Using an inventory of over 140 mapped biophysical and human-use themes, the IPT identified draft planning units on the basis of biological, physiographic, oceanographic, and existing resource uses and activities. Over the course of a number of meetings, the IPT finalized the number of units at 60.

**Development of area designations** - Area designations were developed to identify areas suitable for specific types of existing and potential uses of land and water within the plan area. Each designation provides a general description to guide regulatory and non-regulatory decisions by Crown agencies involved in land use allocation and regulation. Area designations indicate a general range of activities and uses that would be emphasized within defined boundaries. The designations do not specifically address the degree of development intensity. Generally, area designations are spatially

separate in order to avoid conflicts among other users or to realize greater overall economic, social, or environmental potential. In some circumstances, compatible activities can occur and an area will have primary and secondary uses designated. A detailed description of each area designation is provided in Section 2 of this plan.

**Development of objectives** - Objectives are specific to each planning unit although a number of planning units may have similar objectives. The purpose of the objectives is to provide detailed information on what activities are recommended within each area designation.

**Public Involvement** - Public comments were solicited through open houses in Gold River, Tahsis, and Zeballos in June, 2000 and January, 2001. These open houses provided a forum for public comment on information and data products, the planning process, and draft planning products. At each open house, written public submissions to the Nootka Resource Board on any aspect of the planning process were encouraged. The Nootka Resource Board also acted as a conduit for public input throughout the planning process. June, 2000 and January 2001 open houses were attended by a total of 102 people and 41 written submissions were received by the Nootka Resource Board.

### First Nations Participation

The Nootka plan area lies within the traditional territory of the Nuchatlaht, Ehattesaht and Mowachaht/Muchalaht First Nations. Participation from First Nations in the Nootka planning process was formally requested by the IAMC at a meeting of the Northern Region Nuuchahnulth Chiefs (NTC) in January 2000, at the inception of the planning process. Through several subsequent meetings with the Northern NTC Co chair it became apparent that the Nuchatlaht, Ehattesaht and Mowachaht/Muchalaht First Nations were not prepared to become involved in the planning process in favour of pursuing treaty negotiations with the federal and provincial governments. Individual meetings were held with these three First Nations to explain the plan terms of reference, seek additional technical information and to review the draft planning products. All meetings were held on an information sharing rather than a consultation basis.

## Relationship to Other Plans

The province approved the VILUP in February 2000. This Summary Plan provides the key components of strategic land and resource management decisions made by government for Vancouver Island as a result of the 1992 CORE process and its 1994 Land Use Decision. The VILUP is intended to provide strategic direction for the management and planning of the coastal resources for the Nootka area.

The VILUP informs this plan, and where specific zones and land uses have been designated, this plan will take direction from and be consistent with the intent of VILUP. The plan will also be informed by any land use planning initiatives of First Nations, federal, local and regional governments. Area designations developed under the plan may be changed or modified as a result of treaty negotiations.

The Nootka Sound Coastal Land Use Plan also recognizes regional and local planning initiatives, such as the conservation and economic diversification goals and objectives of the Regional District of Comox-Strathcona and local municipalities. The plan is also informed by the Shellfish Development Initiative.

## Plan Implementation

Government agencies participating in the plan are responsible for implementing plan provisions, in accordance with legislated responsibilities for land and resource management. Agencies will incorporate plan provisions into existing programs and will ensure plan compliance by resource users.

### **PLAN REVIEW, AMENDMENT AND MONITORING**

This plan will be reviewed formally every ten years to recognise changes in land use, resource development trends, growth pressures, and other emerging issues within the Nootka area. The Vancouver Island IAMC will initiate plan reviews and will be responsible for approving plan amendments considered prior to formal plan review scheduled for 2010.

The Nootka Resource Board will have an ongoing role in monitoring plan implementation by government agencies and providing advice on plan interpretation and proposed amendments. In addition, the Nootka Resource Board will participate in formal plan reviews and engage the broader public during the plan review stage at the direction of the provincial government.

Comments on the current plan, or future amendments, can be directed to:

c/o Chairperson  
Vancouver Island Interagency  
Management Committee  
2080-A Labieux Rd.  
Nanaimo, B.C.  
V9T 6J9





Muchalat Inlet

## MINISTRY/AGENCY VISION AND INTENT STATEMENTS

Each provincial ministry or agency was asked to provide a brief summary of its vision for the Nootka area, which encompasses both short- and long-term ministry and agency intents for the area. In particular, each agency was requested to provide some broad statements, or general management directions applicable to the entire plan area. While many of these statements reflect core agency mandates, roles, and responsibilities, the statements also provide information on how ministry or agencies may implement this plan.

### ■ BRITISH COLUMBIA ASSETS AND LANDS CORPORATION (BCAL) ■

BCAL is a Crown Corporation responsible for developing, marketing and leasing Crown land for residential, commercial, industrial, agricultural and recreational use.

Through land tenures, land sales and innovative business partnerships, BCAL plays a key role in supporting B.C.'s economic growth and development. BCAL's specific objectives for the Nootka area are to:

- assist communities with local development challenges to achieve their objectives;
- make Crown land available to support growth and diversification of the province's economy;
- recognize the social, environmental and aboriginal values of Crown land resources and assets;
- ensure that government receives full value from the management of Crown land resources and assets;
- ensure land uses are compatible and minimize conflicts;
- support a diverse and viable economy;
- maintain a high quality environment; and
- ensure efficient and diligent use of land.

### ■ MINISTRY OF FORESTS (MOF) ■

#### *Mission*

The Ministry of Forests manages, conserves and protects the province's forest, range and related recreational resources to ensure their sustainable use for the benefit of all British Columbians.

#### *Mandate*

- protect and conserve the forest, range and related recreational resources of the Crown;
- practice integrated resource management in the planning and management of resource use, in full cooperation with other agencies of the Crown, First Nations, public and other forest stakeholders;
- ensure that the legislated requirements for sustainable forest practices are followed, and monitor and enforce those practices in a fair and equitable manner;
- encourage, in partnership with other agencies, the maximum productivity of the Province's forest, range and recreation resources to meet the economic, social and environmental needs of British Columbians;
- encourage, in partnership with other agencies, a healthy, world leading, vigorous resource management and processing sector that creates employment opportunities for all British Columbians.
- assert the financial interest of the Crown in its forest and range resources in a systematic and equitable manner; and
- manage visual quality in all coastal areas.

### ■ MINISTRY OF ENVIRONMENT, LANDS AND PARKS (MELP) ■

The mandate of the ministry is to protect and conserve natural resources, maintain and restore the quality of land, water, and air, and manage water resources for the optimum health of humans and all living things, now and for future generations. The ministry supports human social, recreational and settlement needs, environmentally-sensitive economic development and the sustainable use of resources. The ministry's specific objectives for the Nootka area are to:

- protect, maintain and restore the diversity of coastal ecosystems;
- protect, maintain and rehabilitate native fish and wildlife populations and their habitat;
- promote sustained and healthy fresh and marine water resources;



- avoid, reduce or eliminate pollutants and wastes reaching the environment;
- maintain conservation and environmental standards while promoting economic opportunities;
- support community growth and sustainable employment with innovative environmental management and sustainable resource use; and
- provide diverse recreational opportunities while protecting B.C.'s cultural landscape and ecological features and resources.

#### ■ MINISTRY OF ENERGY AND MINES (MEM) ■

The Ministry of Energy and Mines will be the primary regulator of mineral sector activities within the plan area, through the *Mineral Tenure Act*, *Mines Act*, *Coal Act* and the 1998 Mineral Exploration code. These contain strong provisions for recognizing and minimizing potential impacts on the environment, wildlife and other special values. The ministry's specific objectives for the Nootka area are to:

- foster and support an economically healthy, sustainable and environmentally responsible mineral and energy exploration and development industry in the plan area;
- maximize social benefits and minimize environmental impacts of mineral and energy exploration and development;
- ensure access to Crown land and resources;
- ensure that the potential for offshore energy and coastal marine mineral resources is realized through environmentally responsible evaluation, extraction, processing and mitigation of impacts;
- ensure consideration of known and potential offshore energy and marine mineral resources in marine protected area recommendations and management guidelines; and
- ensure an adequate supply of aggregate for current and future needs of local communities.

This plan will not in any way affect the rights of existing tenure holders to access, explore and develop subsurface resources. In addition, staking of claims, and exploration and development activities are permitted in all areas outside of protected areas.

#### ■ MINISTRY OF AGRICULTURE, FOOD AND FISHERIES (MAFF) ■

The Ministry of Agriculture, Food and Fisheries (MAFF), through BC Fisheries, regulates and licenses commercial aquaculture of finfish, shellfish and marine plants, in addition to regulating fish buying, vending and processing activities. As the lead agency for commercial aquaculture development in the province, BC Fisheries works closely with the BC Assets and Land Corporation and BC Environment to ensure that the aquaculture industry develops in a sustainable fashion through appropriate siting of commercial facilities. This is accomplished through implementation of the Shellfish Aquaculture Development Initiative and the Salmon Aquaculture Policy Framework.

In this context, MAFF's specific objectives for the Nootka Plan area are to:

- lead the development and diversification of the fisheries and aquaculture sectors;
- provide opportunities for the development and growth of sustainable commercial finfish, shellfish and marine plant aquaculture through appropriate interagency co-ordination and public consultative processes;
- work to make capable and suitable Crown lands available for commercial aquaculture; and
- manage commercial aquaculture and provincially-regulated fisheries to provide economic, environmental and social benefits for communities within the Nootka Plan area.

#### ■ REGIONAL DISTRICT OF COMOX-STRATHCONA (RDCS) ■

A Regional District functions to provide effective local government to rural residents while concurrently representing municipalities on regional issues. This partnership allows for the creation and coordination of services for rural and urban areas. The Nootka Coastal Land Use Plan, which affects Electoral Area 'G' of the Regional District of Comox-Strathcona, will provide an important tool to assist in land use decisions and long term planning. The *Local Government Act* provides Regional Districts with the authority to develop local land use planning through a variety of mechanisms, among them Official Community Plans and Zoning Bylaws. In consultation with First Nations, federal and provincial agencies, local communities and rural residents, it is the intent of the

Regional District of Comox-Strathcona to develop local government land use regulation for the Nootka area. The Nootka Coastal Land Use Plan will serve as a guide in this process and as a resource reference for ongoing land use referrals and development proposals.

#### ■ THE NOOTKA RESOURCE BOARD (NRB) ■

The NRB was established in 1995 to provide an avenue for local public input and involvement in decisions which directly affect the resource base within the Nootka area. Board membership is drawn from local government elected officials and community volunteers who provide a balanced representation of community, land use and economic interests in the Nootka area.

The NRB advises the provincial government on land use plans and resource management policies in order to achieve their dual mission of:

- protecting and restoring the quality and integrity of the environment in the Nootka area; and
- securing a sound and prosperous economy for present and future generations of the Nootka area.

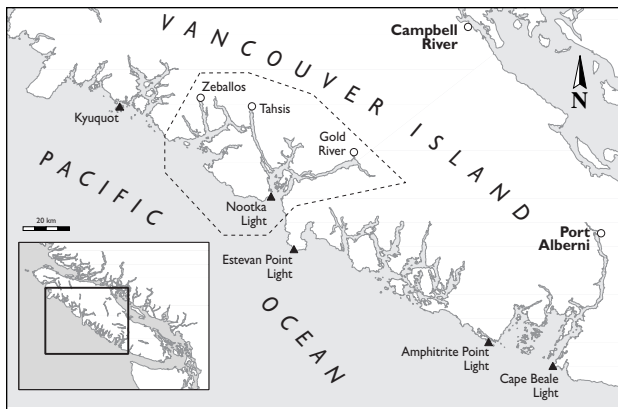


Nootka Island

# RESOURCES OF NOOTKA SOUND

## Oceanographic and Physiographic Resources

This section provides an overview of physical processes that affect the coastal environment of the Nootka area. Although these processes are not always highly visible, they provide important constraints on the potential use of the coastal zone. For example, salinity and temperature characteristics of the numerous bays and channels may limit the types of aquaculture activities that might take place (see Ricker et al. 1989). The following summaries provide a general overview of the region and are not intended for use in site-specific locations.



**Figure 1** Locations of weather stations relative to the Nootka Planning Region.

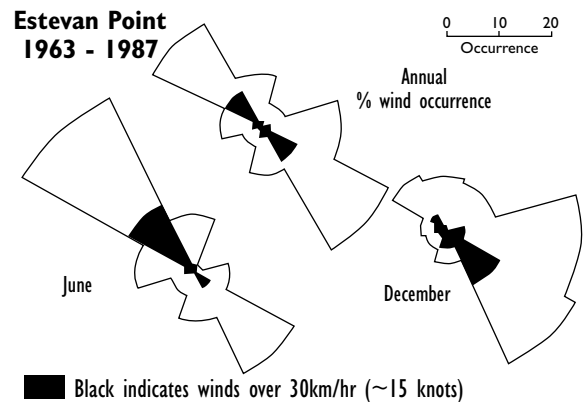
## CLIMATE

The Nootka area is characterized by a wet maritime climate with cool summers and mild, wet winters. Wind and weather patterns are controlled by the semi-permanent Aleutian Low and North Pacific High pressure centres. The former increases in intensity during the winter months whereas the Pacific High is dominant in the summer.

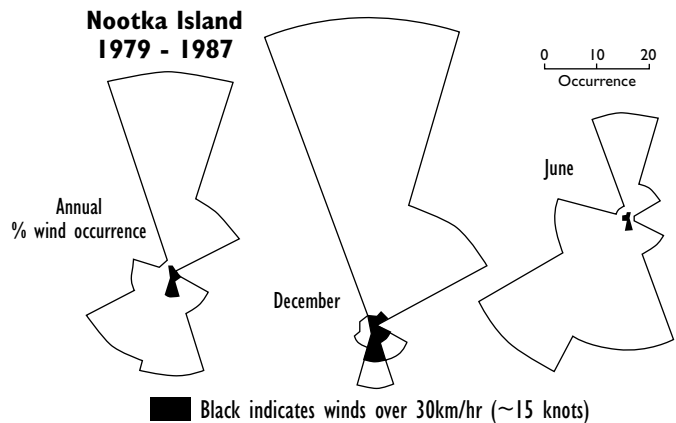
Weather data is summarized from a number of stations shown in Figure 1.

## WINDS

Winds along the coast are among the most important physical processes. They indirectly control the local wave climate and to some extent current patterns. In general, Vancouver Island's west coast tends to be dominated by northwesterly winds during the summer and by easterly and southeasterly winds during the winter. The Estevan Light data is consistent with other west coast wind data (McLaren Plansearch 1993; Figure 2). However, the Nootka Light data show significant departures from this general pattern, with southwesterly winds dominating summer periods and northerly winds dominating winter periods (Figure 3).



**Figure 2** Wind patterns from the Estevan Light summarized using wind roses. Annual, summer (June) and winter (December) patterns are shown.



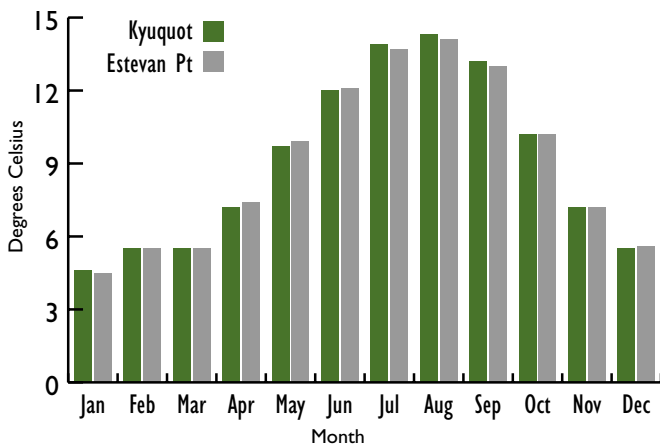
**Figure 3** Wind patterns from the Nootka Light summarized using wind roses. Annual, summer (June) and winter (December) patterns are shown.

It appears that the Nootka Light location is strongly influenced by local wind patterns in the inlets, where significant northerly outflows occur from the north in the winter and a seabreeze-type system prevails in the summer. The latter system occurs when differential heating of the land and the sea results in the generation of onshore winds.

As indicated in the windrose data, a high proportion of both summer and winter winds are greater than 30 kilometres per hour.

### ■ TEMPERATURE ■

The west coast of Vancouver Island is one of the most tempered in Canada with mean annual temperature range of around 9°C (Figure 4). The seasonal variation in temperature has peak mean monthly temperatures occurring in August and minimums occurring in January. There are normally few freezing days per year and sea ice occurrence is very rare, usually restricted to minor ice skims in estuaries or bays, where fresh water from runoff may temporarily freeze.

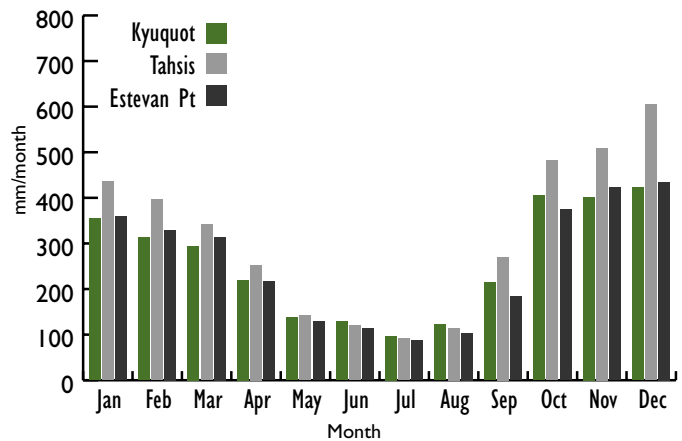


**Figure 4** Mean monthly temperatures from the Kyuquot and Estevan Light Stations (after CHS 1990)

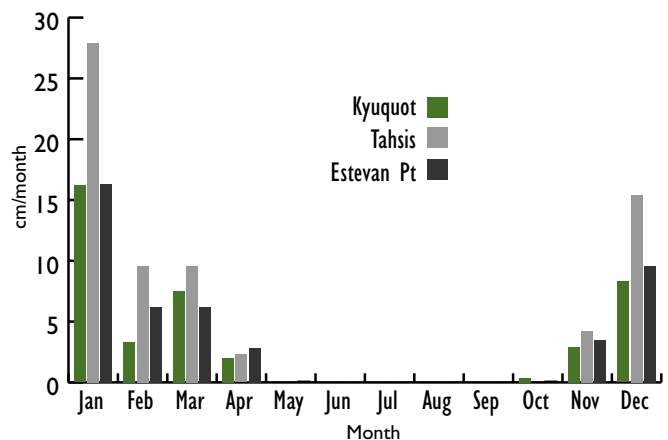
### ■ PRECIPITATION ■

The Nootka area has one of the highest annual rainfalls of Canada with around 3,000 - 4,000 mm per year. The rainfall is strongly seasonal (Figure 5) with peak rainfall occurring in the months October to December and minimum rainfall occurring in June to August. Most of the precipitation is in the form of rain, although some snowfall occurs in winter months and is important in developing a snow pack at higher

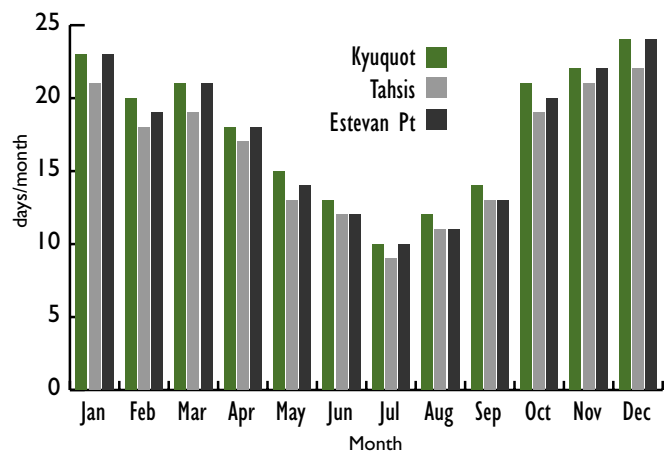
elevations in the region (Figure 6). The number of days per month with precipitation provides a slightly different perspective on the very “wet” nature of the Nootka area (Figure 7).



**Figure 5** Mean monthly rainfall from Kyuquot, Tahsis and Estevan Pt (after CHS 1990)



**Figure 6** Mean monthly snowfall from Kyuquot, Tahsis and Estevan Pt (after CHS 1990)



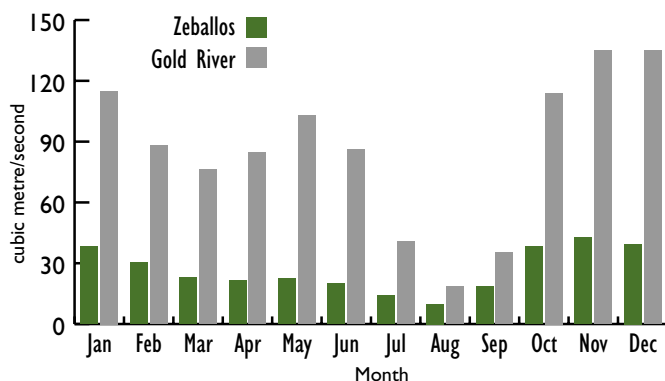
**Figure 7** Number of days of precipitation summarized by month for Kyuquot, Tahsis and Estevan Pt (after CHS 1990)

The precipitation characteristics have some important indirect effects on the coastal ecology of the region. In addition to strongly controlling terrestrial vegetation characteristics, the rainfall pattern is very important in controlling salinity regimes in coastal bays and estuaries. Firstly, there is a strong seasonal variation in runoff that is directly related to seasonal variations in precipitation. Secondly, salinity characteristics in coastal bays and estuaries are strongly affected by runoff so coastal biota must be adapted to significant seasonal variation in salinity regimes (see Figure 8).

■ RUNOFF ■

The total watershed area of the Nootka Planning Region is about 4,600 km<sup>2</sup>. Most of the watersheds are low in elevation and do not carry large snow packs. As a result, the runoff characteristics are closely linked to rainfall. Discharge curves for two rivers, Gold River (watershed 1,010 km<sup>2</sup>) and Zeballos River (watershed 181 km<sup>2</sup>) show peak discharges from November to December and minimum discharges in August (Figure 8). The large Gold River watershed includes some areas of snow pack so the discharge curve of the river shows a secondary maximum in May related to snow melt. The smaller, low-elevation watersheds show no or little snow-pack effect and the discharge curves closely follow the rainfall curves.

Like most of the rest of Vancouver Island and the Queen Charlotte Islands, the Nootka area peak runoff period occurs during the winter and estuary and bay salinities are lowest at this time. Muchalat Inlet may have depressed salinities from April to June as a result of a secondary peak in the Gold River discharge due to snow-pack melt.

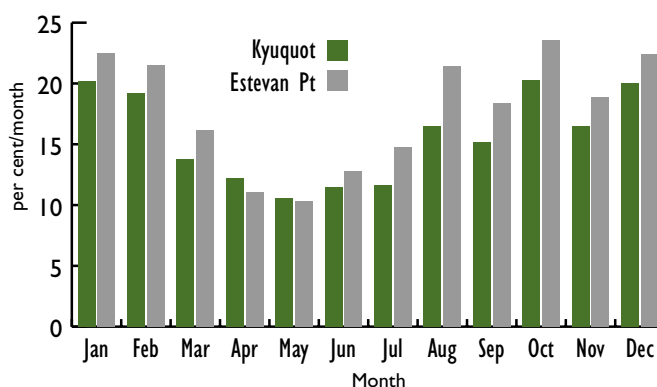


**Figure 8** Monthly summaries of river discharge data for the Zeballos and Gold Rivers (after Inland Waters Directorate 1989)

■ FOG OCCURRENCE ■

Fog is relatively common along the west coast of Vancouver Island and can constrain coastal activities such as vessel operations and flying. While there is some difference in fog occurrence between the Estevan and Kyuquot weather stations (Figure 9), the general pattern shows lowest fog occurrence in May (about 10%) and maximum fog occurrence in October through February (about 20%). The effects of coastal upwelling show up as a secondary peak in August fog occurrence (~18%), which is about 50% higher than June and July.

While the fog occurrence does not strongly influence the coastal ecology of the area, fog will affect tourism, recreational fishing and transportation activities in the area.



**Figure 9** Mean monthly summaries of fog occurrence at Kyuquot and Estevan Light Station (after CHS 1990)

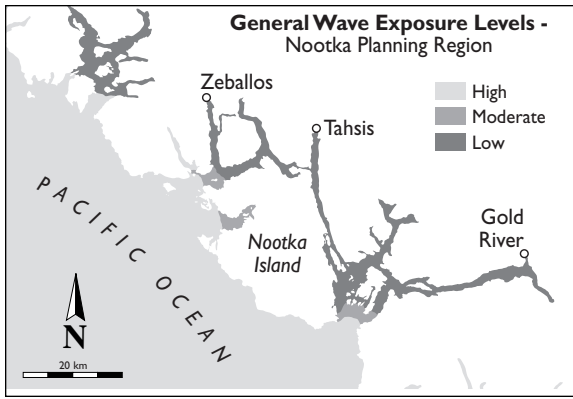
■ WAVE CLIMATE ■

The wave climate is probably the most important process affecting coastal ecology of the Nootka area and one of the most important constraints on human activity.

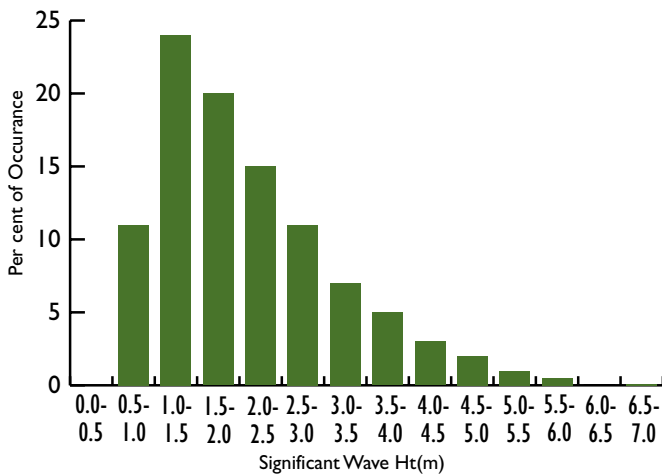
The sea state can be considered in terms of swell waves, which are generated in the offshore Pacific and propagate onto the coast, and locally-generated waves, which are formed in the areas immediately adjacent to the coast. In areas protected from the ocean swell, such as those areas within sounds and inlets, locally generated waves dominate the wave climate.

General patterns of exposure are shown in Figure 10. Offshore areas are high exposure and are dominated by swell waves, while coastal inlets have generally low exposure with locally generated waves. Transition areas affected by both swell and locally-generated waves are indicated as moderate exposure.

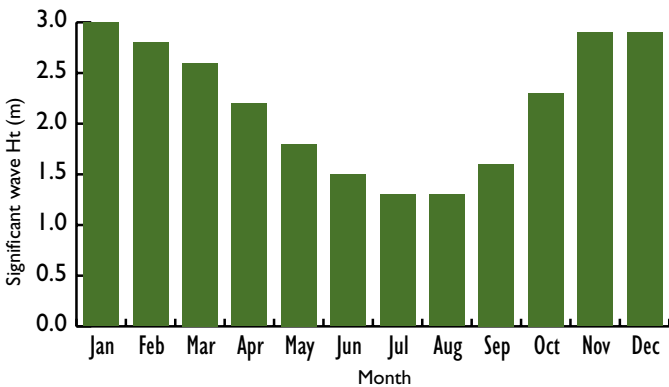




**Figure 10** Generalized areas of exposure in the Nootka Planning Region



**Figure 11** Annual summary of wave height occurrence for the West Coast of Vancouver Island (after McLaren Plansearch 1993)

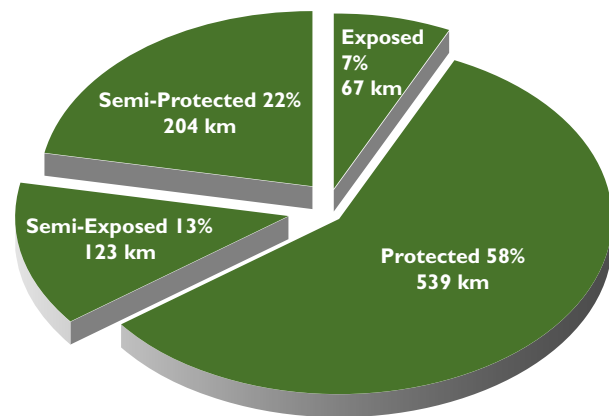


**Figure 12** Mean monthly significant wave height occurrence for the West Coast of Vancouver Island (after McLaren Plansearch 1993)

Boating activity occurs year-round in low exposure areas but is much more seasonally dependent in moderate and high exposure areas.

There is measured wave data for offshore areas of the coast, including annual distribution of waves in the offshore (Figure 11) and the seasonal variation of wave character (Figure 12). The data show that more than 90% of the waves occurring off the Nootka area are more than 1m in height (Figure 11) with about 1-2% of the waves more than 5m in height. Winter wave heights (November through February) average about 3m and are more than twice that of the summer waves (July and August average 1.3m), which is typical of the west coast wave climate.

During the shore-zone mapping of the Nootka area, estimates were made of the exposure characteristics of each shore unit, based on the observed biota within the unit. These data allow summarization of exposure on the shoreline within the planning area (Figure 13). It is important to note that while we think of the “west coast” as a very high energy, exposed environment, in reality, most (80%) of the shoreline falls into the lower two exposure categories.



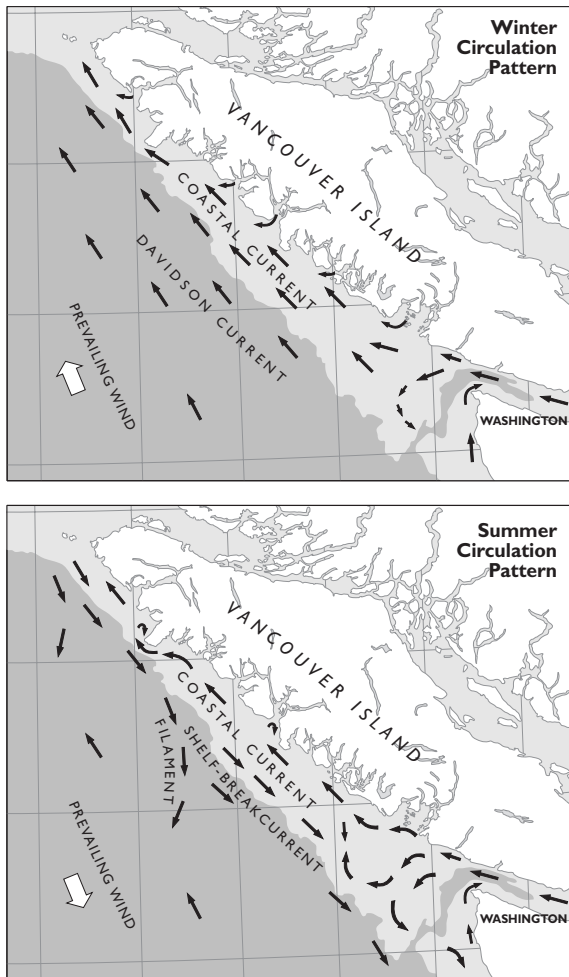
**Figure 13** Summary of shoreline exposure levels in the Nootka area

**CURRENTS**

The general seasonal circulation patterns show a northwesterly coastal boundary current along the coast of Vancouver Island throughout the year, with some reversals occurring in the summer (Figure 14). As such, most drift that is found along the shorelines of Nootka Sound and Esperanza Inlet originates from the south. This current is also important in distributing larvae, such as crab larvae, from the Strait of Georgia and areas to the south.

Tidal currents are superimposed on this general circulation pattern and there are a few areas where strong tidal currents occur in restricted passages such as the narrows between Mary Basin and Inner Basin in Nuchatlitz Inlet and in Tsoowin Narrows (2-3 knot currents at times).

Tidal currents are reported to move in a net counter-clockwise motion around the Bligh Island archipelago of Nootka Sound (Ricker et al. 1989).



**Figure 14** Generalized circulation patterns off the west coast of Vancouver Island (from Thomson *et al* 1989)

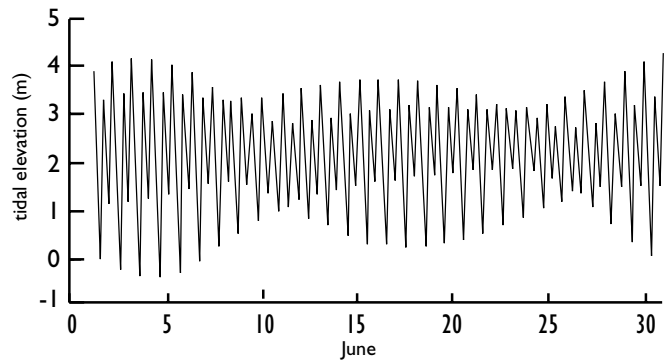
■ TIDES ■

Tidal range is about 3 to 4 metres in the Nootka area with only a small variation in range. Tidal curves (Figure 15) show that tides are mixed, semi-diurnal most of the time with one of the daily tides typically much greater in range than the other daily tide.

Tides are very important to coastal biota and the distribution of most intertidal species is intimately related to tidal height. For example, barnacles, which can tolerate long periods of emergence, are the

primary biota found in the upper intertidal zone; other species that are more sensitive to drying, are found in the lower intertidal zone.

Location	Range Mean Tide (m)	Range Large Tide (m)
Kyuquot	2.9	4.5
Esperanza Inlet	2.9	4.5
Gold River	2.8	4.4
Nootka Sound	2.7	4.3

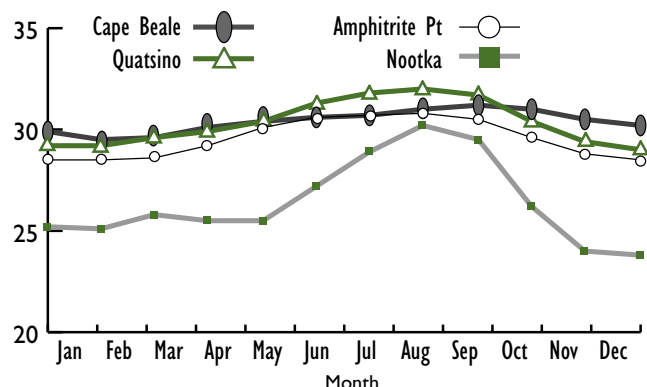


**Figure 15** Example of tidal curves for June showing the variation of tides during a monthly tidal cycle

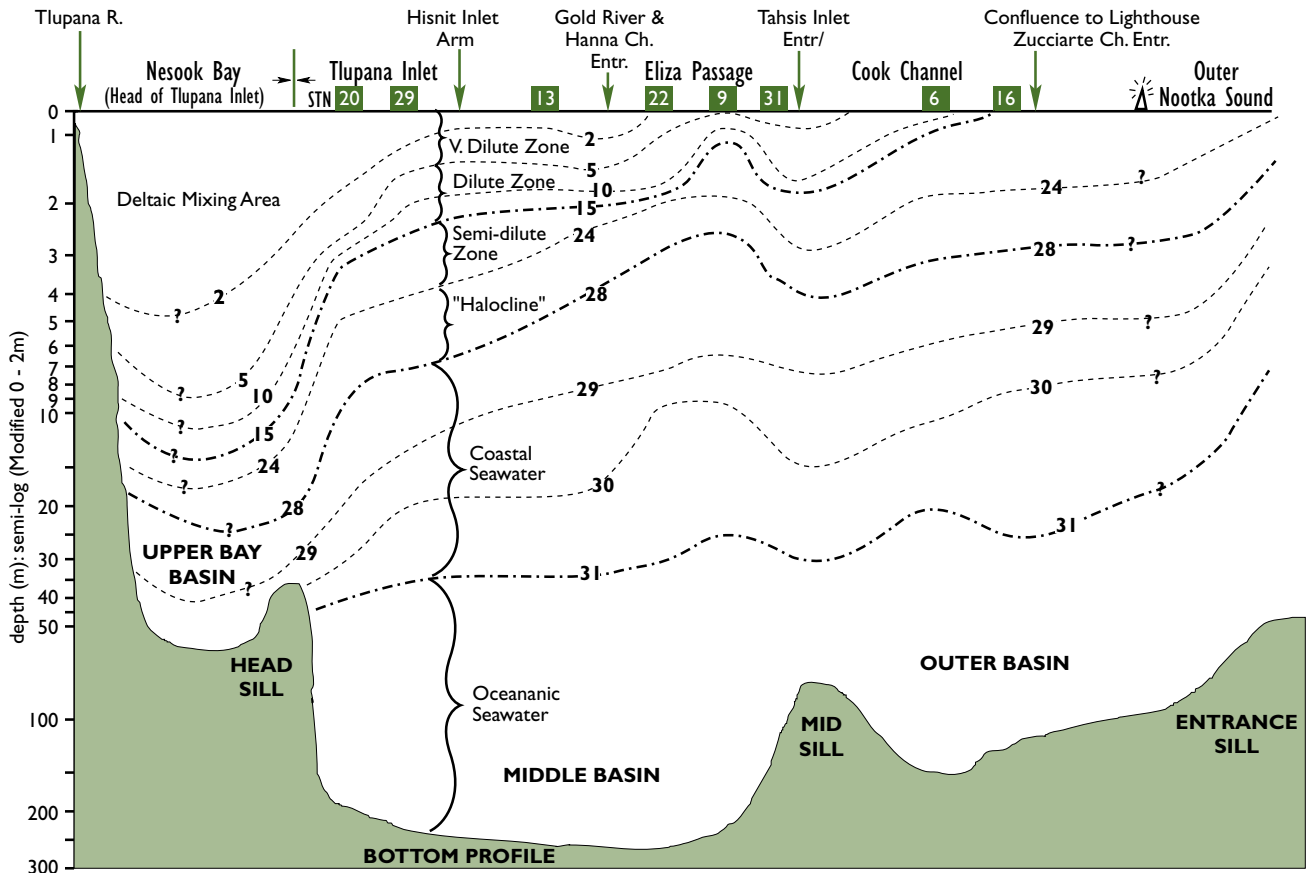
■ SEA SURFACE SALINITY ■

The sea surface salinity has been measured at the Nootka Light Station over a long period of time and mean monthly summaries show the seasonal variation (Figure 16). The data is plotted with other west coast lighthouse data to show the difference. The Nootka data shows a similar seasonal variation to other nearby light stations but the magnitude of the variation is much greater. Salinity at the Nootka station is almost double the annual variation at other nearby stations. Freshwater runoff from the watershed appears to have a much greater effect in Nootka Sound.

Measured salinity profiles within the Sound are illustrated in Figure 17. This cross-sectional diagram shows that Nootka Sound is very much like a large



**Figure 16** Mean monthly sea-surface salinity measurements made at west coast light stations (DFO unpublished data)



**Figure 17** Cross-section of Nootka Sound extending from the head of Tlupana Inlet in the east to Nootka Light in the west. Contours of equal salinity are shown on the cross section and were derived from eight station casts (see top of figure for Station Numbers) during January 1987 (from Ricker *et al* 1988)

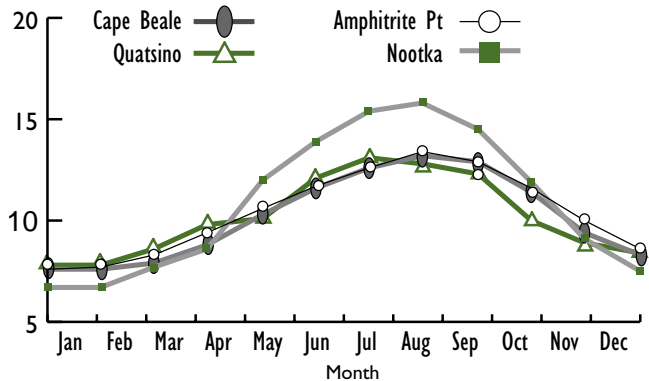
estuary with nearly fresh water at the head (Tlupana Inlet) and with brackish-type surface water and marine-oceanic water at the bottom, near the entrance. This estuarine-type stratification is likely most pronounced during the winter, during maximum river runoff (Figure 8) and least pronounced during the late summer when river runoff is at a minimum.

**■ SEA SURFACE TEMPERATURE ■**

Sea surface temperature has also been measured over a long time period at the Nootka Light station and shows a moderate seasonal variation (Figure 18) with maximum surface water temperatures in August and minimum temperatures in January and February. Temperatures are notably warmer in the summer at the Nootka Light station compared to other measurement sites.

Seasonal freezing has been reported (Ricker *et al.* 1988) at the heads of a few inlets such as Matchlee, Tlupana, and Tahsis, where fresh water may “pond” near the mouths of creeks and streams.

The picture provided by the salinity and temperature data shows a strong “estuarine-like pattern in water characteristics with colder, fresher surface water in the winter during the winter runoff peak and warmer, more saline water in the summer when runoff is low.

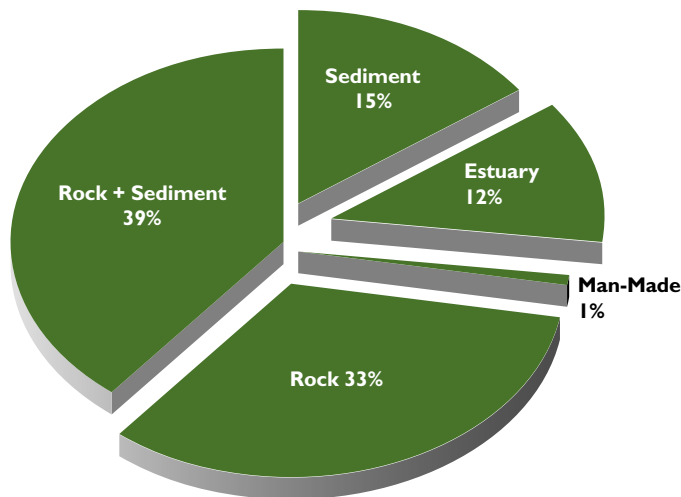


**Figure 18** Mean monthly sea-surface temperature measurements made at west coast light stations (DFO unpublished data)

## ■ SHORE-ZONE HABITATS ■

The Nootka region includes a wide variety of coastal landforms related to the complex tectonic and glacial history of the region. While the tectonics have created the northwest-southeast trending high coastal relief of the Vancouver Island, glaciers have cut steep-sided fjords perpendicular to the main coastal trend. The result is a generally steep, rock dominated coastal zone with numerous small watersheds.

Detailed mapping (Figure 19) shows that rock substrates dominate the shoreline (rock and rock plus sediment shorelines account for 72%). However, sediments occur in conjunction with rock (for example, a beach on a rock platform), with beaches, and with estuaries along 66% of the coast. The occurrence of estuaries (12% of the shoreline) is similar to other parts of Vancouver Island. The estuaries are gravelly sand deltas with a fringing wetland in the upper intertidal zone. Human-made shorelines are rare and are concentrated at the two major ports (Gold River and Tahsis).

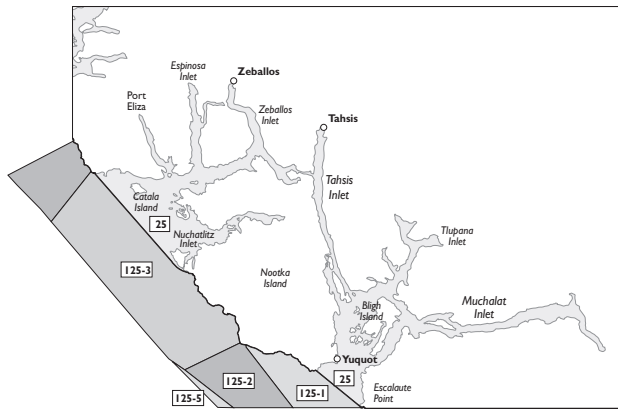


**Figure 19** Generalized shore types of the Nootka area

## REFERENCES

- Canadian Hydrographic Service 1990. Sailing directions, British Columbia Coast (South Region).
- Canadian Hydrographic Service, Fisheries and Oceans Canada, Sidney, B.C., 397p.
- Canadian Hydrographic Service 2000. Canadian Tide and Current Tables, Pacific Coast, V 1&2. Canadian Hydrographic Service, Fisheries and Oceans Canada, Sidney, B.C.
- Fisheries and Oceans Canada 2000. Unpublished sea surface temperature and salinity data for Western Vancouver island. Institute of Ocean Sciences, Department of Fisheries and Oceans, Sidney, B.C.
- Howes, D.L., P. Wainwright, J. Haggarty, J.R. Harper, R. Frith, M. Morris, M. DiMarchi, K. Neary, C. Osborne and P.D. Reimer. 1999. Coastal resource & oil spill response atlas for the West Coast of Vancouver Island. Land Use Coordination Office, Province of British Columbia, Victoria, B.C.
- Inland Waters Directorate. 1989. Historical stream flow summary, British Columbia. Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, Ottawa, 1058p.
- McLaren Plansearch. 1993. Wind and wave climate atlas, Volume IV - the West Coast of Canada. Prepared by McLaren Plansearch (1991) Limited, Halifax, N.S. for the Transportation Development Centre, Transport Canada, Montreal, Quebec.
- Ricker, K.E., J.W. Macdonald and B.D. de Lange Boom. 1988. Biophysical suitability of the Western Johnstone Strait, Queen Charlotte Strait and West Coast Vancouver Island Regions for salmonid farming in net cages. Contract Report by ESL Environmental Science Limited of Sidney, B.C. for the Aquaculture and Commercial Fisheries Branch, Ministry of Agriculture and Fisheries, Victoria,
- Thomson, R.E., B.M. Hickey and P.H. LeBlond. 1989. The Vancouver Island coastal current: fisheries barrier and conduit. In Effects of ocean variability on recruitment and an evaluation of parameters used in stock assessment models (Beamish, R. J. and G.A. McFarlane, editors), Canadian Special Publication of Fisheries and Aquatic Sciences 108:265-296.

The Nootka area includes two of the major inlets on the west coast of Vancouver Island — Nootka Sound and Esperanza Inlet. The area encompasses a variety of coastal habitats including exposed rocky platforms, semi-exposed and semi-protected island groups, and steep rocky fjords and protected estuaries at the head of the fjords. These features are typical of the west coast of Vancouver Island, providing a variety of intertidal and nearshore subtidal communities and a rich diversity of resource features. The plan area shoreward of the surf line lies almost entirely within Fisheries and Oceans Canada (DFO) Statistical Area 25 (Figure 1). The following sections provide brief descriptions of the marine plants, fish, marine invertebrates, birds, and marine mammals in the Nootka area.



**Figure 1** Nootka Plan Area, showing DFO Statistical Areas 25, 125-1, 125-2 and 125-3.

### ■ MARINE PLANTS ■

Two species of canopy-forming kelps (bull kelp, *Nereocystis luetkeana*, and giant kelp, *Macrocystis integrifolia*) are found on the west coast of Vancouver Island. These are large kelps that grow to the surface, buoyed by gas-filled floats. The two species grow on rocky substrate and often co-exist on the outer exposed coast, with *Nereocystis* forming an outer band, and *Macrocystis* growing in a band closer to the shore in protected bays and inlets. *Nereocystis* also forms a narrow fringe of canopy kelp in more protected areas such as the east side of outer coast islands and the outer shorelines of larger inlets. The growth of both *Macrocystis* and *Nereocystis* in inlets is restricted by low salinity and, at times, higher water temperatures. Canopy kelps are important rearing

habitat for a number of fish and invertebrate species, and are important foraging areas for several species of salmon. The largest kelp beds in the Nootka area are found on Bajo Reef and just west of the reef, which is one of the largest areas of canopy kelps on the west coast of Vancouver Island. Large canopy kelp beds are also found on most of the west coast of Nootka Island, Tatchu Rocks and around Escalante Point.

Eelgrass is a flowering plant related to lilies that evolved on land and later “returned” to the sea. Eelgrass grows in underwater meadows, rooted in a fine sand substrate. It is most commonly found in protected waters in the lower intertidal and shallow subtidal zones. Eelgrass beds are common at the heads of many inlets and are extremely productive rearing habitats for a variety of fish and invertebrates including Dungeness crab, lingcod, and several salmon species. Eelgrass is also an important spawning substrate for herring. Eelgrass is sensitive to many foreshore development activities including dredging, increased water turbidity and foreshore fill.

Eelgrass beds in the Nootka area have been identified from aerial video surveys and surveys of herring spawn, but locations and bed areas have not been comprehensively mapped.

Comprehensive information on the location and extent of most other species or groups of marine plants is lacking, except for descriptive information on the occurrence of intertidal algae bands based on the interpretation of aerial video surveys.

### ■ SALMON ■

There are six species of anadromous salmon which inhabit British Columbia’s coastal waters and spawn in rivers and streams; sockeye (*Oncorhynchus nerka*), pink (*O. gorbuscha*), chum (*O. keta*), chinook (*O. tshawytscha*) and coho salmon (*O. kisutch*) as well as steelhead (*O. mykiss*), which are sea-run rainbow trout. There are 53 streams in DFO Statistical Area 25 with spawning records (1953-97) for one or more of these species. The largest spawning runs are generally located in rivers that drain to the heads of larger inlets, however salmon, particularly chum and coho, also spawn in many of the smaller streams throughout the plan area. There are important salmon feeding grounds fronting Bajo Reef, major salmon-holding areas in Nootka Sound and Tlupana Inlet, and important salmon areas in outer Esperanza



Inlet west of the mouth of Espinosa Inlet. Gillnet fisheries for chum salmon take place inside the surf line in Nootka Sound and Esperanza Inlet and the commercial troll fishery is centred on the area fronting Bajo Reef. The commercial salmon fishery on the west coast of Vancouver Island has declined in size and value in recent years, particularly since 1997 with the closure of the commercial fishery for coho. The recreational fishery for salmon remains important in the area, particularly for chinook salmon.

### *Sockeye Salmon*

In the eastern Pacific, sockeye salmon range from the Columbia River to the Bering Sea. Sockeye spawn in freshwater streams and, occasionally, in lakes. Sockeye exhibit great life history variation but generally spend one to three years in freshwater lakes, after which they migrate to the ocean and spend one to three years rearing in the North Pacific. Adult sockeye enter coastal waters and return to spawn in their natal rivers and lakes between ages three and six. Recent research has shown that marine survival of juvenile sockeye is reduced during periods of warm water and low salinity (El Nino events) due to increased predation by species such as mackerel and hake. More than 20 distinctive stocks originate from the west coast of Vancouver Island. The majority of the commercial sockeye catch is taken in Barkley Sound, primarily from stocks returning to Great Central and Sproat Lake. In the Nootka area, sockeye are only taken incidentally by the commercial troll fishery (Table 1), which has historically targeted coho and chinook salmon.

Sockeye have been recorded in 32 streams in the Nootka area, but records for about nine of these streams are incidental. Gold River and the Oktwanch River have major sockeye runs. The Zeballos, Leiner and Park Rivers have recorded consistent runs.

### *Coho Salmon*

Coho salmon spawn in streams around the North Pacific from California and the Sea of Japan north to the Bering Strait. On the west coast of Vancouver Island, coho rear in stream and lakes for one and sometimes two years before migrating to sea in the spring. Most coho reside in the ocean for less than two years, usually within 1,000 kilometres of their home stream, feeding on a variety of prey, before returning to their home stream to spawn. Some

males (“jacks”) will mature and return to their birthplace to spawn in the fall of the same year. Marine survival rates of coho from the west coast of Vancouver Island have declined to about 40% of what they were 20 years ago. There have been no directed commercial fisheries for coho since 1997.

There may be as many as 700 distinct coho populations on the west coast of Vancouver Island. Many streams support very small runs. In the plan area coho spawners have been recorded in 48 streams and relatively consistently in 36 of these streams. Gold River, Conuma River, Burman River and the Tahsis River support the largest coho spawning runs in the plan area. There is a coho hatchery on the Conuma River. The Gold River coho stock is one of several stocks monitored as an indicator of stock status on the west coast of Vancouver Island.

### *Chinook Salmon*

Chinook salmon are the largest of British Columbia's salmon species and can weight up to 50 kilograms. The major chinook salmon runs are in larger rivers, particularly the Fraser River and its tributaries. Most juvenile chinook head to sea after rearing several months in fresh water but, in larger and more northerly rivers, may remain in their home stream for one to two years. Chinook returning to spawn vary in age from two to eight years.

Chinook have been recorded in 32 streams and rivers in the Nootka plan area. The largest runs are in the Conuma, Gold and Burman rivers. The Conuma run supports an important recreational fishery in Tlupana Inlet. Chinook are taken by troll and gillnet gear within the plan area, but do not form a large portion of the commercial salmon catch (Table 1).

### *Chum Salmon*

Chum salmon range from northern California to the Arctic Ocean and are widely dispersed, inhabiting over 800 rivers and streams in British Columbia. Chum usually spawn close to tidal waters including within river estuaries. Newly hatched fry move directly to marine waters and rear in nearshore areas for several months before moving further offshore. Most mature chum salmon weigh three to five kilograms.

Chum are the most widely dispersed salmon species in the Nootka area, occurring in 52 streams





and rivers, with consistent runs in 43 of these waterways. The largest chum runs are in the Conuma, Tsowin, and Tahsis rivers. Deserted Creek and numerous other streams also have significant chum runs. Chum salmon are harvested commercially by gillnet and incidentally by troll gear in Area 25. They represent the largest numbers in the commercial salmon catch but were historically less valuable than coho.

### Pink Salmon

Pink salmon (humpbacks) are the smallest but most abundant of the west coast salmon species. Males develop an extremely humped back during spawning migrations, hence the name humpback. This species is found from California to the Arctic Ocean (Mackenzie River), but are most abundant in British Columbia and southeast Alaska.

Pink salmon have a fixed two-year life cycle, and spawn in the Nootka area primarily in even years. Like chum salmon, pinks spawn in the lower reaches of streams and the newly emerged fry move immediately to marine waters, remaining close to

shore over the spring and summer months. The Burman River supports the largest spawning population of pink salmon in

the plan area, and pink salmon are also relatively abundant in Espinosa and Leider rivers. Pink salmon are harvested by the troll fishery within the plan area, but recent landings have been highly variable.

### Steelhead

Steelhead are found in rivers and streams draining into the Pacific Ocean. The steelhead is a rainbow trout that spends some of its youth in fresh water, migrates to the sea, then returns to fresh water to spawn. When fresh from the sea, they are usually bright and silvery. As they approach spawning, the male's jaw forms a "kype", a pink-to-red lateral line appears, and the body gradually darkens to a dull grey or brown.

Steelhead exhibit different life-history forms depending on the season they return from the sea to spawn and are broadly referred to as summer-run and winter-run steelhead. The summer-runs enter fresh water from early spring to late fall of the year while still immature and reach full maturity while holding in fresh water prior to spawning. Winter-runs enter the river from late fall to early spring and are fully

mature when they arrive. Run timing is genetically determined, making summer-and winter-run fish distinct races. Different runs of steelhead as well as resident rainbow can occur in the same river.

As a species, the rainbow trout is not listed at risk in British Columbia. However, many steelhead populations have suffered declines and even extinction as a result of habitat damage or overfishing. Summer-run fish, in particular, are doing poorly. The timing of their return home overlaps with salmon species, and many are taken in the commercial or food fisheries before they can return to spawn. They are highly vulnerable to human activities that alter stream flow, increase sedimentation and water temperature, or reduce cover and habitat.

There are significant runs of steelhead in the Nootka area. The Gold and Burman rivers have both winter and summer runs. Late winter runs occur in the Escalante, Conuma and Tahsis rivers. The Little Zeballos River has a winter run, while the Zeballos River has a summer run. Significant summer runs occur in the Tlupana and Sucowa Rivers. Other large watersheds (third order and greater) in the planning area likely contain steelhead populations but are poorly documented.

## ■ HERRING ■

Pacific herring (*Clupea harengus pallasii*) is a pelagic species that occurs on both sides of the north Pacific Ocean. In the eastern Pacific, herring range from California to the Beaufort Sea (Arctic Ocean). Herring mature and recruit to the spawning stock predominantly between the ages of two to five. The west coast of Vancouver Island supports one of five major B.C. herring stocks. The stock collapsed from overfishing in the early 1960's, and the commercial reduction fishery was closed in 1967. The stock recovered by the mid-1970s and the modern roe fishery began in 1972. The target harvest rate for roe herring is fixed at 20% of the forecast mature stock biomass. Since 1978, unfavourable oceanic conditions have resulted in low herring productivity, and the west coast stock can sustain a catch of less than 8,000 tonnes. Herring are also utilized for spawn-on-kelp fisheries and aboriginal food fish.

Herring spawn on a variety of marine vegetation (algae and eelgrass) in the intertidal and shallow



subtidal zones, primarily in semi-exposed and semi-protected areas. On the west coast of Vancouver Island, herring spawn primarily during the month of March. Spawning areas are well documented and major spawning occurs in Barkley Sound, Clayoquot Sound, and the eastern side of Esperanza Island (Nuchatlitz Island group), although herring also spawn in many other areas. In Esperanza Inlet, there are five main spawning areas: False Channel/Queen's Cove, Owossitsa Creek, Rosa Harbour, Inner and Outer Nuchatlitz, and Port Langford/Mary Basin. Herring also spawn on the east side of Nootka Island (McKay Passage, Marvinas Bay, Kendrick Inlet and Ewin Inlet). Herring spawn has been recorded at Bajo Point on the outside of Nootka Island, one of the few exposed coastal areas where herring spawning has been documented. Herring spawn only infrequently in the more protected upper inlets in Nootka Sound and Esperanza Inlet, with Saltery Bay (Zeballos Inlet) and Galiano Bay (Tlupana Inlet) being two documented spawning areas.

#### ■ GROUND FISH ■

Halibut, lingcod, rockfish and flatfish (sole) occur throughout the plan area, but are most abundant in the outer, more exposed areas. The commercial trawl fishery for groundfish occurs outside of the plan area, generally in waters deeper than 100 metres. There are commercial fishing grounds for hook-and-line (longline) groundfish gear at the entrance of Esperanza Inlet and Nootka Sound. Both dogfish and rockfish are taken in these areas, and lingcod is fished further offshore in waters deeper than 100 metres. Halibut, lingcod and certain species of rockfish are important components of the recreational and First Nations fishery on the west coast of Vancouver Island.

#### ■ INTERTIDAL CLAMS ■

The most commonly harvested species of intertidal clams on the west coast of Vancouver Island are native littlenecks (*Protothaca staminea*), manila clams (*Vererupis philippinarum*) and butter clams (*Saxidomus gigantea*). Cockles (*Clinocardium nuttallii*) are also harvested by coastal First Nations. Littleneck clams inhabit mixed substrates (gravel, sand, mud and shell) in the mid to lower intertidal zone. Manila clams generally are found slightly higher in the intertidal zone in similar substrates. Both species

have separate sexes. They mature between 22 and 35 mm in length, or approximately two to three years of age. In B.C., they spawn from April to October. Larvae are planktonic for three to four weeks before settling in suitable beach habitat. Maximum age in B.C. is 14 years. Butter clams are most abundant in the lower intertidal and shallow subtidal zones.

Littleneck and manila clams support commercial, recreational, and First Nation harvests. The fishery on the west coast of Vancouver Island currently lands approximately 300 tonnes per year valued at about \$1.1 million. About 25% of these clams are landed from Area 25. DFO has identified 77 intertidal clam beaches in Area 25 ranging in size from less than one to 22 hectares. The largest areas are in Hisnet Inlet, Tlupana Inlet, Herad Bay, Kendrick Inlet, Tsoowin Narrows, Espinosa and Little Espinosa inlets, Louie Bay, and Mary Basin.



#### ■ GEODUCK CLAMS ■

The geoduck clam (*Panope abrupta*) is a large subtidal clam that occurs from Alaska to the Gulf of California from the lower intertidal zone to depths of at least 110 metres. It buries up to one-metre deep in sand, silt, gravel and other soft substrates and has been fished commercially by divers in B.C. since the early 1970s. Geoducks are long lived; most commercially harvested clams are over 20 years old and geoducks can live for more than 100 years. In 1989, the fishery was converted from a total annual quota to individual licence quotas (IQs) and a three-year rotational fishery, in which specific management areas are fished once every three years. The Nootka area was fished in 1994, 1997 and 2000 and is next scheduled for 2003. The Area 25 quota in 2000 was substantially less than the previous two harvests rotations, in part, due to concerns about reductions in stock size due to sea otter predation (see marine mammals below). However geoducks remain the most valued fishery in the Nootka area.

The exact location of geoduck fishing areas is confidential as this information is derived from fishing log information. Major beds are located near Catala Island as well as at the mouth of Nuchatlitz Inlet. There are numerous smaller beds at the entrance to Esperanza and Nootka inlets.

## ■ DUNGENESS CRAB ■

Dungeness crab (*Cancer magister*) are found on sandy bottoms to depths of 100 metres and favour areas with moderate to strong currents. They are abundant in river estuaries as well as more exposed areas of the coast. Crab larvae drift in ocean currents for three to four months before settling to the bottom. Crabs grow by a process of moulting, where the old shell is cast off and the new, underlying soft shell quickly swells 15-25%, permitting the crab to grow. Shell hardening requires about two months, and soft shell crabs are highly vulnerable to predation or damage when harvested. Dungeness crab mature at two years of age, reach commercial size at three years of age and likely live about six to seven years.

Dungeness crab are fished commercially by traps (either single or longline). The Dungeness crab fishery is the second-most valued invertebrate fishery in B.C. (after geoducks). In 1998, coastwide landings totalled \$21 million. Major crab fishing areas include the Fraser River delta, the Gulf Islands, the Tofino



west coast of Vancouver Island, the northeast coast of the Queen Charlotte Islands and the Skeena River delta. The commercial harvest in Area 25 is very small,

averaging approximately 10,000 lbs from 1995-99. Crab are increasingly important resources to both First Nation and recreational harvesters. There are a number of First Nation and recreational harvest reserves in B.C. but, to date, none occur in the Nootka plan area. Muchalat Inlet is closed to crab harvest due to dioxin contamination. Important crab areas include Hisnit Inlet, Kendrick Inlet, Moutcha Bay, Kleeptee, Silverado and Tlupana estuaries, Mooya Bay and King Passage, outer Nuchatlitz Inlet, and Rolling Roadstead.

## ■ SHRIMP AND PRAWNS ■

Seven species of shrimp (spiny pink, smooth pink, sidestripe, coonstripe/dock, humpback and flexed humpback) are harvested commercially in B.C. All are members of the family Pandalidae. These shrimp species are also caught recreationally and by First

Nations. Shrimp inhabit a variety of benthic (bottom) habitats ranging from rocky to sand/mud. Some species (spiny and smooth pinks) will move upward into the water column, others remain on the bottom at all times. Most shrimp species undergo a change of sex in mid-life, starting out as males and becoming females in the final year or two of life. Shrimp live about three to four years. Spawning occurs in autumn or early winter. Eggs are carried by the females on the outside of the body and hatch in spring. Like crab, shrimp grow by shedding their exoskeleton (moulting).

Most shrimp are fished commercially using trawl gear. Coastwide landings are approximately 2,700 tonnes, with a landed value of about \$5 million. Historically, the west coast of Vancouver Island (primarily off Barkley and Clayoquot Sounds) has been the main shrimp fishing grounds on the B.C. coast. Within the Nootka area only minor quantities of shrimp (3-40 tonnes) are landed, but substantial quantities (greater than 100 tonnes) are taken by trawlers further offshore. Landings inside Area 25 are primarily sidestripe shrimp. The current annual quota for Area 25 is 20,000 lbs. Main fishing areas are outer Esperanza and Espinosa inlets, as well as around Bligh Island in Nootka Sound.

Prawns (*Pandalus platyceros*) are the largest of the Pacific coast shrimp species. Prawns are bottom dwellers found mostly on "hard" bottoms, including steeply sloped inlets to depths of 400 metres. They are fished by trap at depths of 40 to 150 metres. As with other shrimp species they undergo a change in sex from male to female and live for about four years. Coastwide, the prawn fishery lands about 1,500 tonnes annually. The fishery is valued at more than \$20 million, the third most valuable invertebrate commercial fishery after geoducks and Dungeness crab. In recent years, about 35 tonnes of prawns (2.5% of the coastwide catch) have been taken from Area 25. Prawns are also taken in the recreational fishery, but no estimates of the recreational catch are available although it has likely increased in recent years. There are First Nation fisheries for prawns managed under communal licences. The primary prawn fishing areas are along the 50 to 150 metre depth zone of the major inlets, particularly Tahsis, Zeballos, upper Esperanza and Hecate Channel.



■ SEA URCHINS ■

The red sea urchin (*Strongylocentrotus franciscanus*) is found from Baja California to Alaska, generally on rocky substrates at shallow, subtidal depths, with moderate wave exposure and moderate to strong currents. Some individuals occur as deep as 125 metres. Red urchins have separate sexes and spawn from March to September depending on local environmental conditions. Urchins graze extensively on drift and attached algae, creating “urchin barrens” (areas of rocky substrate with a high density of urchins and little, if any, attached algae). Red urchins are harvested by divers and delivered fresh to processing plants where the roe is extracted, treated and sold in Japan and North America. Red urchins have been commercially harvested since the 1970s and are managed at an exploitation rate of 2-3% of the estimated biomass.

There are important urchin areas in lower Zuciarte Channel and off southeast Nootka Island. Red urchins have been commercially harvested from Area 25, but concerns about consistent roe quality led to the closure of the fishery in 1995. Urchins are an important prey item for sea otters. The increase in sea otters in the Nootka area over the last 10 years has likely contributed to the decline in sea urchins.

■ SEA CUCUMBERS ■

The giant red or California sea cucumber (*Parastichopus californicus*) is the largest of approximately 30 sea cucumber species in B.C. and the only one that is commercially harvested. The species ranges from the Gulf of Alaska to southern California, in depths ranging from the intertidal zone to 250 metres. The California sea cucumber occupies a wide variety of substrate and current regimes, but are most abundant in areas of moderate current on cobble, boulders or crevassed bedrock. Sea cucumbers are harvested by divers. The fishery lasts for approximately three weeks during the autumn or winter months when muscle weight is greatest and the animals usually

have no internal organs. Since 1997, the B.C. coast has been divided into three areas for the management of the sea cucumber fishery: 50% of the coastline is closed to commercial harvest until sufficient information has been gathered that will ensure conservative biologically-based quotas; 25% is reserved for experimental fisheries; and 25% is open to the commercial fishery. Area 25 is a designated experimental fishery area. There is no commercial harvest of cucumbers, but there are two long-term experimental harvest areas in Tahsis and Zeballos inlets. Sea cucumbers are important to First Nations, who harvest them for food, social and ceremonial use. The level of harvest is unknown, but there are a number of First Nation/DFO initiatives underway to evaluate stock status. A small recreational fishery occurs for sea cucumbers, but landings are unrecorded.

■ BIRDS ■

The near-shore and off-shore areas of the west coast of Vancouver Island, including the Nootka area, are used year round by dozens of species of birds. Nearshore and offshore locations serve as important breeding areas, summer and wintering areas, migration corridors and staging areas. The seasonal abundance and distribution of birds is most consistent at colonies, but great variation exists over time. Information on bird distributions outside of breeding colonies and breeding season is incomplete.

There are no major seabird breeding colonies in the Nootka area. However, four breeding locations have been identified by the Canadian Wildlife Service (Table 1). Although the main colonies are known,

**Table 1:** Bird Colonies (Breeding pairs)

Colony Location	Black Oystercatcher	Brandt's Cormorant	Cassin's Auklet	Common Murre	Fork-tailed Storm Petrel	Glaucous-winged Gull	Leache's Storm Petrel	Pelagic Cormorant	Pigeon Guillemot	Rhinoceros Auklet	Tufted Puffin
Cameron Rocks	2	-	-	-	-	-	-		6	-	-
Ensanada Islet	2	-	-	-	-	2	-			-	-
Justice Rock	4	-	-	-	-	-	-			-	-
White Island	4	-	-	-	-	122	-	18		-	-

Source: Canadian Wildlife Service, 1999



**Table 2:** Waterbird Habitat Associations

Species	Habitat Association			Marsh/Estuary	Protected, fine substrate	Semi-protected fine substrate	Protected, rocky/coarse substrate	Semi-protected, rocky/coarse substrate	Semi-exposed rocky/coarse substrate	Exposed rocky/coarse substrate	Exposed beach	Anthropogenic
	H - High	M - Medium	L - Low									
Loons & Grebes	H	H	H	H	H	H	H	M	M	L	L	M
Fulmars, Shearwaters & Petrels	L	L	L	L	L	L	L	L	L	L	L	L
Cormorants	L	M	M	H	H	H	H	H	H	H	L	M
Great Blue Heron	H	H	H	M	L	L	L	L	L	L	L	M
Swans & Geese	H	H	H	H	M	M	L	L	L	L	L	H
Dabbling Ducks	H	H	H	M	L	L	L	L	L	L	L	H
Diving Ducks	H	H	H	H	H	H	H	H	H	H	L	M
Bald Eagles	H	H	H	L	H	H	H	H	H	H	M	L
Black Oystercatchers	L	L	L	H	H	H	H	H	H	H	L	L
Shorebirds	H	H	H	H	H	H	H	H	H	M	H	M
Gulls	H	H	H	H	H	H	H	H	H	H	M	H
Alcids	L	L	L	M	M	M	M	M	M	L	L	L

many species of marine birds breed at sites that have yet to be identified. Many species of seabirds that breed in the study area are “Blue or Red Listed” by the provincial government (see pg. 31). This designation identifies species whose population viability is considered sensitive or vulnerable. Table 2 summarizes the primary habitat associations of some of the more common marine birds in the Nootka area. A brief description of the more common birds in the Nootka area, taken from the Coastal Resource and Oil Spill Response Atlas for the west coast of Vancouver Island (1999), follows.

#### Loons and Grebes

The highest numbers of loons and grebes occur on marine waters in winter and during the spring and autumn migrations, while low numbers occur in the summer, as most birds breed inland on freshwater lakes and ponds.

The **red-throated loon** (*Gavia stellata*) is widely distributed along the coast and scattered throughout the interior. It prefers more inshore and protected shallower waters, including bays, inlets, harbours, lagoons and estuaries. It is rarely found in flocks larger than 50 birds. They breed from Nitinat Lake on southern Vancouver Island, north along the coast to Kitsault and the Queen Charlotte Islands, and in the vicinity of Chilkat Pass. On the coast, breeding areas are small and near freshwater lakes, often surrounded by trees. They usually are in close proximity to the sea where the loon feeds.

The **Pacific loon** (*Gavia pacifica*) is widely distributed along the coast. It is the most gregarious

of the loons and may be found in flocks of several thousand individuals in protected, southern coastal areas. It prefers deeper water than other loons, but also frequents coastal habitats such as bays, estuaries, surge narrows, channels, coves and, less commonly, inlets and lagoons. Concentrations of several thousand birds are found in the spring in areas where Pacific herring spawn and other small fish congregate.

The **common loon** (*Gavia immer*) is also widely distributed along the coast, particularly during the winter months, in more protected areas such as inlets, bays and estuaries. They may occur singly or in flocks up to 50 birds. Major overwintering areas are off the Fraser delta and the east end of Juan de Fuca Strait, but this species is also common on the west coast of Vancouver Island.

The **western grebe** (*Aechmophorus occidentalis*) is the most gregarious of the grebes. It is often found in large flocks that are either compact or strung out in a long line. On the coast, sheltered salt and brackish waters are preferred, including bays, inlets, harbours, channels, lagoons and estuaries. In early spring, large numbers have been found in areas of Pacific herring spawn.

The **red-necked grebe** (*Podiceps grisegena*) is widely distributed throughout the province. It is gregarious but rarely associates with other species of grebes. Along the coast it can be found in bays, inlets, estuaries and narrows. Large flocks are common in the autumn and winter along the coast. Main coastal wintering areas include the Strait of Georgia and sheltered parts of Juan de Fuca Strait.

*Fulmars, Shearwaters and Petrels*

Members of the fulmars, shearwaters and petrels are present year round in the waters off Vancouver Island. Offshore abundance is lowest during winter when use of the nearshore area increases. Except during portions of their breeding season, these pelagic birds spend all of their lives at sea. Two species of petrels (Leach's Storm Petrel and the Fork-tailed Storm Petrel) breed on the west coast of Vancouver Island.

**Leach's storm petrel** (*Oceanodroma leucorhoa*) is widely distributed off the B.C. coast. It is a highly pelagic species, present near the coast mostly during the summer period. They occur singly, or in small, loose groups. In summer, this species moves onshore to breed, otherwise it rarely occurs near land except when exhausted or dying birds come ashore after storms. The Leach's Storm Petrel breeds along the coast of western Vancouver Island from Seabird Rocks to Triangle Island (Scott Islands), near the entrance to Queen Charlotte Strait, as well as around the Queen Charlotte Islands.

The **forked-tailed storm petrel** (*Oceanodroma furcata*) is most commonly seen in nearshore areas in spring, summer and autumn. In nearshore areas it frequents protected waters of inlets, harbours and bays. It is usually seen singly or in loosely scattered flocks of less than 20 birds. They may gather into groups ranging up to 5,000 individuals in foggy weather conditions or over concentrations of food. This species breeds along the coast of Western Vancouver Island from Seabird Rocks to Triangle Island (Scott Islands), near the entrance to Queen Charlotte Sound, and around the Queen Charlotte Islands. All colonies are on islands, usually wooded, but always shrub or grass covered. Most are shared with Leach's Storm Petrels. They are most concentrated in Queen Charlotte Strait. The largest known colony is on Storm Islands where about 51,000 pairs bred in 1987.

#### Cormorants

Two species of cormorants occur year round on the marine waters of the Nootka area. **Brandt's Cormorant** (*Phalacrocorax penicillatus*) occurs along the B.C. coast throughout the year. It frequents bays, lagoons, harbours and narrows with strong currents where nearby rocks or islets provide roosting sites. The centre of abundance is the Gulf Islands and Juan de Fuca Strait. Other significant but smaller concentrations occur in Clayoquot Sound and

Barkley Sound. The Brandt's Cormorant breeds on the west coast of Vancouver Island in Barkley Sound, off Long Beach, and at Race Rocks. Known colonies are all on bare rocky islands. There are no known breeding colonies in the Nootka area.

The **pelagic cormorant** (*Phalacrocorax pelagicus*) is widespread and occurs along the inner and outer coastal areas of the province throughout the year. It rarely is found very far up inlets, and there are no records of freshwater locations. It prefers rocky coasts and forages in bays, harbours, lagoons, surge narrows and coves. It usually roosts on rocky unvegetated islets, reefs and cliffs but also uses log booms, spits, promontories and man-made structures such as bridges, wharves, and light stations. Twenty-eight percent of the breeding population is on the west coast of Vancouver Island. There are documented breeding areas for Pelagic Cormorants in the Nootka area.

#### Great Blue Heron

The **great blue heron** (*Ardea herodias*) is widely distributed along the coast, including Vancouver Island and the Queen Charlotte Islands. It is found in a variety of salt, brackish, and freshwater environments. On the coast it frequents sheltered and shallow bays, lagoons, inlets, coves, tidal mud-flats, sloughs, and marshes. Jetties and log booms are frequently used as communal roosting sites. There is a documented heron rookery at Bajo Point.

#### Geese and Swans

The greatest numbers of geese and swans in the Nootka area occurs between August and April. Although some individuals occur in the protected bays and estuaries year round, no nesting records exist. Geese and swans spend considerable time in non-marine (estuarine or wetland) habitats.

The following descriptions are from The Birds of British Columbia 1997, Volume 1 Nonpasserines Introduction, Loons through Waterfowl by R. Wayne Campbell, Neil K. Dawe, Ian McTaggart-Cowan, John M. Cooper, Gary W. Kaiser and Michael C.E. McNall.

During the 1940s **Canada geese** (*Branta canadensis*) were mainly a migrant and summer





visitor in B.C. In the 60s and 70s, resident populations became well established and began to increase, partly due to the natural adaptability of the species but primarily because of transplants of flightless young and breeding stock from a wide variety of races. They can be found almost anywhere permanent water and grazing areas are available. In the autumn, the coastal movement is most noticeable in the vicinity of Tofino. Numbers begin to build around the first three weeks of October and reach a peak during the first week of November.

The **black brant** (*Branta bernicla*) is widely distributed along coastal B.C., particularly the inner coast. It is extremely rare any distance from the ocean. In B.C. it occurs chiefly as a spring migrant, during which time thousands are widespread on estuaries, beaches, bays, lagoons and mudflats. The distribution of brant in the province is closely related to the distribution of eelgrass (*Zostera marina*), which is the brant's most important food.

The greater **white-fronted goose** (*Anser albifrons*) population in North America can be divided into two distinct compounds. The Pacific Flyway component is the largest with an average autumn population (1979 to 1983) of 98,000 birds. The number of geese regularly found along the coast each year is small, compared to the total population. Except during main migration periods, white-fronts are frequently found associating with Canada geese, snow geese or domestic geese. They frequent a variety of habitats, such as shallow waters of sloughs, marshes, ponds and lagoons, as well as flooded land and dry fields, lakes, mud-flats and golf courses. A few birds may be scattered along the coast in the summer. Small numbers of birds winter along the coast.

The **trumpeter swan** (*Cygnus buccinator*) is mainly a winter visitor along the coast; 70% of all records are from coastal areas and of those, 91% are from between October and March. The trumpeter swan frequents sheltered, often shallow aquatic habitats. On the coast, their habitat includes estuaries, agricultural fields, sloughs, bays and lakes, and tidal mud-flats.

#### Dabbling Ducks

The greatest numbers of dabbling ducks on marine waters occur from August through April. Very few

dabbling ducks are observed in the Nootka area between May and July, and there are no nesting records for the area. Below is a description of some of the species of dabbling ducks that can be found on the west coast of Vancouver Island. These descriptions are from *The Birds of British Columbia* (1997). Many species of both diving and dabbling ducks overwinter in the estuaries of the Burman, Gold, Tahsis, Conuma, and Zeballos rivers as well as Tluplana Inlet.

The **mallard** (*Anas platyrhynchos*) is the most abundant and widely distributed duck in B.C. Shallow marshes are preferred, but Mallards also frequent lakes, rivers, sloughs and coastal marine waters.

The **American widgeon** (*Anas americana*) occurs throughout the province from sea level to an elevation of 1,300-metres. On the coast, it occurs mostly in sheltered waters; it is seldom found along the exposed outer coast. Preferred habitats include estuaries, mudflats, lagoons, and shallow bays with seaweed and eelgrass. In winter, the American widgeon is the most numerous of the dabbling ducks along the coast, where it concentrates mainly in estuaries and nearby agricultural areas.

On the coast, the **green-winged teal** (*Anas crecca*) prefers tidal mud-flats, which are used more by this species than any other duck. It is very rarely seen on pelagic waters, but may rest during migration in marine lagoons, or just offshore in rafts of several hundred birds. This duck forages in emergent vegetation, along shorelines and in wet, shallow, muddy areas. It loafs on exposed shorelines, mud-flats, shallow marshes and lakes.

On the coast, the **northern pintail** (*Anas acuta*) prefers tidal marshes, shallow foreshore waters, estuaries, exposed eelgrass beds, mudflats, agricultural fields and lagoons. During migration, it also occurs in pelagic waters. They usually migrate as groups of 10 to 200 birds, but flocks of up to 1,500 birds have been seen. Major staging areas on the coast are Clayoquot Sound and the Fraser River delta.

#### Diving Ducks

The numbers of diving ducks in the Nootka area are greatest from autumn through spring. A few species in this group make limited use of the area for nesting, but there are no nesting records for most species. Many species of both diving and dabbling ducks overwinter in the estuaries of the Burman, Gold, Tahsis, Conuma, and Zeballos rivers as well as



Tluplana Inlet.

The **bufflehead** (*Bucephala albeola*) is distributed along the coast of B.C., including Vancouver Island and Queen Charlotte Islands. The Bufflehead is a widespread breeder throughout the interior, and an occasional breeder along the coast. There are no known breeding sites in the Nootka area.

The **harlequin duck** (*Histrionicus histrionicus*) is distributed along the B.C. coast from southern Vancouver Island and the southwest mainland coast, north to the Queen Charlottes. They are most abundant in coastal areas during the winter, breeding occurs on both the coast and interior, but there are no documented breeding sites in the Nootka area. On the coast, the birds usually frequent the turbulent waters adjacent to rocky islets and rocky shores and bays, feeding amongst kelp beds and moving to the islets and exposed rocks and reefs to loaf and preen. Major known overwintering areas are the Strait of Juan de Fuca near Victoria, the east coast of Vancouver Island and the northern Queen Charlotte Islands.

The **surf scoter** (*Melanitta perspicillata*) is generally distributed in large numbers along coastal B.C. including the coasts of Vancouver Island in winter and spring, often forming large aggregations particularly in herring spawning areas. They frequent a variety of marine and freshwater habitats. On the coast they are most often reported from the relatively open, shallow (less than 6 metres) waters of straits usually adjacent to beaches, spits and points, as well as the more protected waters of bays, harbours and lagoons. The surf scoter is one of the few waterbirds that makes use of the deep fjords. In B.C., surf scoters breed in the northern interior.

The **white wing scoter** (*Melanitta fusca*) is widely distributed along the B.C. coast at all times of the year. This scoter appears to prefer more open, deeper water than the surf scoter and is particularly fond of feeding on shellfish beds. Winter distribution is centred in two areas, Hecate Strait and the southern Strait of Georgia. White wing scoters also breed in the interior of B.C.

### Bald Eagles

**Bald eagles** (*Haliaeetus leucocephalus*) are present in the Nootka area year round. They nest in trees close to shore as well as at inland sites. Bald eagles aggregate in the spring in areas of herring spawn and in the fall and early winter, in estuaries of salmon-spawning streams.

### Black Oystercatcher

The **black oystercatcher** (*Haematopus bachmani*) occurs near shorelines year round, and nests along the coast, singly or in loose colonies on islands with suitable breeding habitat. Black oystercatchers are most frequently seen on rocky islets, reefs and spits, but also frequent lagoons, gravel and mudflats, rocky beaches, sandbars and inlets. The centre of abundance for breeding black oystercatchers is Queen Charlotte Islands (which account for 38% of the breeding population) and the west coast of Vancouver Island (which accounts for 30% of the breeding population). Within the Nootka area, black oystercatchers are known to breed at Cameron Rocks, Ensanada Islet, Justice Rock and White Rock, but may also breed on a number of other small islands.

### Gulls

Gulls are abundant and widely distributed at all times of the year. They occur mainly on marine waters, rocky islets, spits and beaches, but only the glaucous-winged gull breeds locally.

Widely distributed, **glaucous-winged gulls** (*Larus hyperboreus*) prefer nearshore areas, but regularly visit fishing vessels well offshore and may be partially pelagic in some seasons. Glaucous-winged gulls occur in extremely large numbers in bays, harbours, estuaries and rivers where Pacific herring, salmon and eulachon are found. They are very gregarious and often congregate with other marine birds. Within the Nootka area, Glaucous-winged gulls breed on Ensanada Islet and White Rock.

### Alcids

Alcids inhabit the nearshore and offshore zones of the west coast of Vancouver Island year round. Most species also breed on the west coast. Pigeon guillemots and mabled murrelets are only documented alcid breeding in the Nootka area.

The **common murre** (*Uria aalge*) is widely distributed along the inner and outer coastal areas of B.C. Its distribution in the offshore (pelagic) zone is unknown, but it may be the most abundant seabird throughout much of the year. It is not known to



occur inland or on coastal lakes. The common murre prefers protected marine waters off straits, inlets, bays and channels, especially in areas of upwelling and mixing. It congregates in certain sites such as Pacific herring spawning areas in the Strait of Georgia in the spring, and feeding grounds around the Gulf Islands near Tofino and Queen Charlotte Sound in the fall. It breeds locally from the outer coast of Barkley Sound north to Kerouard Islands on the southern tip of Queen Charlotte Islands. There are no known breeding sites in the Nootka area.

The **marbled murrelet** (*Brachyramphus marmoratus*) is the most widely distributed alcid in the province and occurs on marine waters all along the coast, usually within two kilometres of land, as well as on many coastal lakes.

Throughout the year, it inhabits protected coastal waters such as bays, inlets, fjords, lagoons, harbours, and coves, as well as exposed coastal waters.

Important foraging sites include tidal rips through narrow passages, shelves at the

mouths of inlets and shallow banks. Marbled murrelets breed in old-growth forest trees. Although breeding is probably widespread on the west coast of Vancouver Island, few nest sites have been documented.

**Cassin's auklet** (*Ptychoramphus aleuticus*) occurs along most of the outer coast with only scattered records on inner coastal waters of the Strait of Georgia. They forage in offshore waters more frequently than other alcids and are rarely seen close to shore. They breed along the west coast of Vancouver Island from Sea Bird Rocks to Scott Islands, near the entrance to Queen Charlotte Sound, throughout the Queen Charlotte Islands, and locally on the central-northern mainland coast. About 80% of the world's breeding population are found in B.C. The Scott Islands, with over 800,000 breeding pairs, supports 68% of the total B.C. population.

The **rhinoceros auklet** (*Cerorhinca monocerata*) is widely distributed along the inner and outer coastal areas of B.C. They prefer open marine waters, but are regularly seen at the mouths of bays and inlets and at the outer limits of estuaries. Only rarely does the rhinoceros auklet occur in inlets, fjords or estuaries.

Their favourite foraging and staging areas include channels, banks and other areas of upwelling. They occasionally roost on logs and other floating debris. This species breeds on the west coast of Vancouver Island, but no sites are known in the Nootka area.

The **tufted puffin** (*Fratercula cirrhata*) is widely distributed along the coast. They prefer outer coastal waters, but each year individuals are found scattered in the straits of Georgia and Juan de Fuca. They visit bays and harbours infrequently. The tufted puffin breeds from Mandarte Island, north along the western coast of Vancouver Island, on the central mainland coast, and throughout much of the Queen Charlotte Islands.

The **pigeon guillemot** (*Cephus columba*) is widely distributed all along the coastal areas of the province. It inhabits the nearshore zone, especially along stretches of rocky coastline. It is neither a deep diver nor a species of the open ocean. They are regularly found in bays, inlets, channels, surge narrows, coves and harbours but generally avoids brackish areas. Although present all along the coast throughout the year, the pigeon guillemot is mostly reported between April and September. It breeds throughout coastal B.C. from Sooke north to Langara and Dundas islands. It has been seen on most islands, cliffs and headlands and probably breeds wherever suitable nesting substrates exist. Pigeon guillemots breed at Ensanada Islets.

## ■ MARINE MAMMALS ■

**Killer whales** (*Orcinus orca*) are the largest member of the dolphin family. They primarily feed upon fish such as salmon and cod as well as squid, although they have also been observed feeding on seals, porpoises and baleen whales. Killer whale groups have been characterized according to diet, behaviour, and genetic structure. In B.C. a "transient" group tends to form small groups of two to seven animals that feed predominantly on marine mammals. Transients vocalize infrequently, make abrupt changes in swimming direction, and often stay under water for five to 15 minutes at a time. "Resident" groups form larger pods ranging from five to 25 animals, feed mainly on fish and vocalize frequently.

Killer whales occur in the Nootka area year round. They may be part of the resident or transient



populations. On occasion, “offshore” animals may be present. Most sightings near the coastline are of “transient” animals. Distribution of resident animals during the non-summer period is poorly understood. Presence of transient and offshore animals on the west coast of Vancouver Island is not predictable. Transient animals are often observed in bays, fjords, and shallow coastal areas, while offshore animals are found near offshore banks such as La Perouse Bank.

In the Pacific, **harbour porpoise** (*Phocoena phocoena*) range from the Gulf of Alaska and eastern Aleutian Islands to southern California. Harbour porpoises are the smallest cetacean in the world. They prefer cold temperate waters, usually in nearshore areas shallower than 20 metres. They are rarely found offshore in waters deeper than 175 metres. They will frequent bays, harbours, estuaries and river mouths. Use of nearshore habitats may be greatest during the summer months. Herds are typically comprised of fewer than 50 individuals. This species of porpoise tends to be wary of vessels and does not ride bow waves. They are often seen swimming quietly at the surface. Harbour porpoises feed on octopuses, squids and fish.

**Dall’s porpoises** (*Phocoenoides dalli*) are usually seen in small groups of three to 20 animals. They have black and white markings which make them look like a small killer whale. They prefer deeper ocean waters where they feed on squid, fish and crustaceans. Dall’s porpoises are not as shy of humans as harbour porpoises and bow ride the waves of boats. Dall’s porpoises are found within the Nootka area throughout the year, but no data on population sizes or distributions are available.

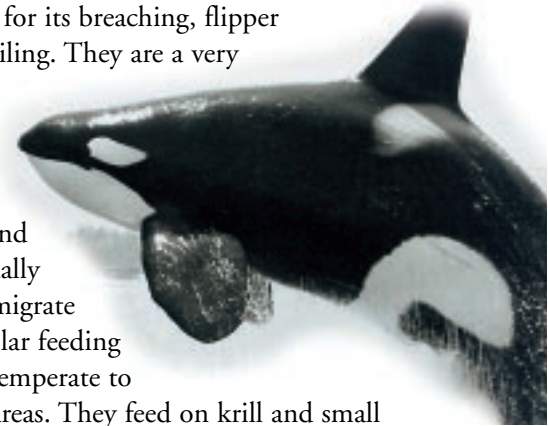
The **gray whale** (*Eschrichtius robustus*) is one of the most active of all large whales. It travels from its northern feeding grounds in the Beaufort, Bering and Chukchi seas to southern breeding grounds in Baja California and off the Korean coast. This species is seasonally common in the Nootka area, and the population is increasing. Northward migration on the west coast of Vancouver Island begins in February, peaks in late March and ends in May. Southward migration occurs from November through January, with the peak of movement occurring in late December. Some of these animals may remain on the west coast of Vancouver Island year round. During the northward migration, the eastern Pacific population travels along the west coast from 100 metres to four kilometres from shore. The southward migration is typically further offshore. During migration, many gray whales spend time feeding and

resting. At that time, the whales feed on benthic crustaceans, herring spawn and plankton. The gray whale is the only baleen bottom feeder. It filters food through the baleen plates from the clouds of mud that it stirs up from the seabed. Virtually the entire west coast from Port San Juan to Cape Scott is used by gray whales for feeding. In recent years gray whale sightings in the Nootka area have been increasing especially on the west side of Nootka Island. Typical feeding groups consist of one to eight animals. In productive feeding areas, groups of up to 20 animals may be observed.

The **humpback whale** (*Megaptera novaeangliae*) is one of the most acrobatic of all the baleen whales, and is well known for its breaching, flipper slapping and lobtailing. They are a very inquisitive species and have little fear of boats. Humpback whales are wide ranging and can be found virtually worldwide. They migrate seasonally from polar feeding grounds through temperate to tropical breeding areas. They feed on krill and small schools of fish. The humpback is listed as an “Endangered Species” and historically was hunted to near extinction. Although the stocks are recovering, the population of humpback whales is still only a fraction of its original size.

Prior to commercial whaling, humpback whales were locally common on the west coast of Vancouver Island in areas such as Barkley Sound. Movement patterns and population sizes on the west coast of Vancouver Island are poorly known. This species is present during May to June and September to November as they migrate between wintering grounds off Mexico and Hawaii, and summering grounds in the northern Pacific Ocean. In addition, several hundred individuals remain off the British Columbia coast during the summer. The number of humpback whales sighted on the west coast of Vancouver Island, particularly in nearshore areas, appears to be increasing. Most animals are found further offshore on the productive feeding grounds of the La Perouse, Swiftshire, and Amphitrite banks. Humpback whales usually travel in groups of two to five animals.

**Sea otters** (*Enhydra lutris*) occur in the Nootka area year round, and are rapidly recolonizing areas in which they were extirpated by the fur trade prior to 1911. This mammal presently inhabits the exposed



coast and protected waters of the west coast of Vancouver Island between Vargas Island and Cape Scott out to approximately the 50-metre-depth contour. The number of sea otters on the west coast of Vancouver Island in 1995 was estimated to be 1,435 animals and increasing at a rate of 19% annually. Given this high rate of increase, protection from human harvests, and the abundance of suitable habitat throughout the area, it is probable that sea otter colonies will eventually be found along the entire western coastline of Vancouver Island. Because of the dynamic nature of the sizes and distributions of sea-otter colonies, wildlife authorities must be consulted in order that accurate, up-to-date information is obtained.

Sea otters spend virtually all of their time in the ocean. Unlike other marine mammals, they do not have a layer of fat to keep them warm from the cool waters. Instead they rely on their thick fur coat for protection. Their normal position in the water is floating on their backs with their paws up. This is a method for conserving their body temperature, as their feet are not covered by fur. They generally do not stray into deep waters except when going between islands and the mainland. Their favourite areas are kelp beds. Sea otters usually congregate in groups called “rafts”. A raft may vary in size from 10 to 100 animals. Male and female otters form separate rafts. The major threat to sea otters are oil spills. When the fur gets oiled, it destroys the insulating properties of the fur and otters quickly die of hypothermia or ingestion of the oil while trying to remove it from their fur. Chief foods are abalone, sea urchins, crabs, mussel and fish. Sea otters are believed to pup near the shores of the west side of Nootka Island.

**Steller sea lions** (*Eumetopias jubatus*) are the largest member of the Otariid (eared seal) family. Their range extends around the North Pacific rim from the Kuril Islands and Okhotsk Sea through the Aleutian Islands and southern Bearing Sea, along the southern coast of Alaska and south towards California. They spend considerable time on rocky shores. They eat a variety of prey, including rockfish, greenling, salmon, and squid, clams and crabs.

Steller sea lions disperse widely along exposed and

protected shores at year-round and seasonal haul-outs. Sea lions are most abundant in the Nootka plan area during the winter. In spring, they congregate in herring spawning areas, often forming rafts of over 50 individuals.

**California sea lions** (*Zalophus californianus*) are found from the B.C. coast to Baja, Mexico. Females remain near the rookeries year round, whereas males move north after breeding. California sea lions breed on the shores of California and Mexico, and occur in B.C. only during the non-breeding period from September to May. They are mainly coastal, hauling out on rocks, beaches, buoys, docks, rafts and other floating objects. California sea lions are referred to as “opportunistic feeders” eating whatever fish is in abundance at a particular time and place. They are gregarious and extremely vocal. Triangle Island represents the northern limit of the range of the California sea lion. However, most animals occur south of Ucluelet.

The **harbour seal** (*Phoca vitulina*) is the most common pinniped on the west coast of Vancouver Island. Harbour seals are year round residents found generally within 15 kilometres of shore. Abundance in most areas peaks with spawning runs of salmon and herring, which are favoured prey. Harbour seals are commonly observed near coastal islands, reefs, sandbars, inlets, estuaries, and river mouths. Pupping and breeding typically occur during July and August. Up to 500 individuals may be observed at haul-outs, but animals tend to forage singly. Harbour seals eat fish and are most susceptible to disturbance above water when they haul-out during molting and when they give birth.

## Terrestrial Biological Resource Values

The Nootka area is heavily forested to the ocean’s edge. The area supports old growth and second growth fir, balsam, hemlock, cedar, cypress (yellow cedar), yew, alder, and other species of soft and hardwood. The majority of the forested area is within the coastal western hemlock biogeoclimatic zone. The Conservation Data Centre (CDC) maintains a Rare Natural Plant Community Tracking List of red and blue provincially listed communities. There are approximately nine different types of red or blue listed natural plant communities that occur within the Nootka area shoreline as follows:

- Sitka spruce/reedgrass  
(*Picea sitchensis/Calamagrostis nutkaensis*)
- Sitka spruce/slough sedge  
(*Picea sitchensis/Carex obnupta*)
- Sitka spruce/false lily-of-the-valley  
(*Picea sitchensis/maianthemum dilatatum*)
- Sitka spruce/Pacific crabapple  
(*Picea sitchensis/Malus fusca*)
- Western redcedar/Sitka spruce/sword fern  
(*Thuja plicata/Picea sitchensis/Polystichum munitum*)
- Western redcedar/western hemlock/sword fern  
(*Thuja plicata/Tsuga heterophylla/ Polystichum munitum*)
- Western redcedar/slough sedge  
(*Thuja plicata/Carex obnupta*)
- Western redcedar/salmonberry  
(*Thuja plicata/ Rubus spectabilis*)

- Western hemlock/western redcedar/salal\*  
(*Tsuga heterophylla/Thuja plicata/Gaultheria shallon*)

\*Occurs mainly in open coastal areas

The number of terrestrial wildlife species that are found in the coastal zone is too numerous to mention in this summary. However, a number of species utilize coastal, shoreline and nearshore environments and are briefly discussed below.

The **black bear** (*Ursus americanus vancouveri*) utilizes coastal wetland and low gradient shoreline habitats to scavenge for dead fish and birds, forage on intertidal plants, animals, and berries that grow along the shore, and as a movement corridor. Coastal black bears require a variety of habitats to meet seasonal feeding requirements, especially salmon-bearing streams. In addition, black bears use large, old trees such as western redcedar as winter den sites. These sites

## RED AND BLUE LISTED MARINE SPECIES

The provincial Conservation Data Centre (CDC) tracks plant and animal species at risk in British Columbia. These species may be at risk due to reductions in population size or threats to habitat resulting from human activities. Alternately, these species may have a very limited range within the province or a critical stage of their life cycle, such as breeding, which occurs in a very specific habitat or small area. **Red-listed species** are plants and animals that are being considered for the more formal designation of extirpated (no longer exists in the wild), endangered or threatened. Red listing these species flags them as being at risk. Blue-listed species are considered to be vulnerable in British Columbia. Vulnerable species are of special concern because of characteristics that make them particularly sensitive to human activities or natural events.

**Blue-listed species** are at a lower level of risk than red-listed species. The chart shows red- and blue-listed marine birds and mammals that occur in the Nootka area. Red and blue listings have not been completed for marine fish. CDC maintains a list of red- and blue-listed marine algae and invertebrates, but information on the distribution of these species is generally lacking in coastal British Columbia. Most data represents single occurrence records or occurrences from a very limited area. For that reason, these species are considered rare and therefore threatened or vulnerable in the province.

### Red and Blue listed marine birds and mammals found in the Nootka Plan Area

Birds		
Western Grebe	<i>Aechmophorus occidentalis</i>	Red
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	Red
Great Blue Heron, subspecies	<i>Ardea herodias</i>	Blue
Surf Scoter	<i>Melanitta perspicillata</i>	Blue
Red-Necked Phalarope	<i>Phalaropus lobatus</i>	Blue
California Gull	<i>Larus californicus</i>	Blue
Common Murre	<i>Uria aalge</i>	Red
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Red
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	Blue
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	Blue
Tufted Puffin	<i>Fratercula cirrhata</i>	Blue
Mammals		
Killer Whale (Northeast Pacific Resident population)	<i>Orcinus orca population 1</i>	Blue
Killer Whale (Northeast Pacific Offshore population)	<i>Orcinus orca population 2</i>	Blue
Killer Whale (West Coast Transient population)	<i>Orcinus orca population 3</i>	Blue
Harbor Porpoise	<i>Phocoena phocoena</i>	Blue
Gray Whale	<i>Eschrichtius robustus</i>	Blue
Humpback Whale	<i>Megaptera novaeangliae</i>	Blue
Steller Sea Lion	<i>Eumetopias jubatus</i>	Red
Sea Otter	<i>Enhydra lutris</i>	Red



are most abundant in mature and old forests. Risk factors to black bears include loss of critical feeding and denning habitat, altered seral stage distributions, road access, and bear-human conflicts.

The **black-tailed deer** (*Odocoileus hemionus columbianus*) and **Roosevelt elk** (*Cervus canadensis roosevelti*) utilize shoreline habitats to travel and to forage on vegetation such as intertidal marine algae and sedges. Adjacent stands that provide both mature coniferous trees and natural openings tend to receive the most use by black-tailed deer because they provide thermal cover and shrub forage sources in close proximity.

Important elk habitats within the plan area include the estuaries of the Burman, Mooyah, Conuma, Sucwoa, Canton, Tlupana and Tsowwin Rivers.

The **cougar** (*Felis concolor vancouverensis*) uses shoreline habitats where prey such as black-tailed deer occur. Cougars prey primarily on adult ungulates, calves and fawns. Cougars can be found in most forested habitats that support ungulate populations. They often prefer areas with rock ledges or outcrops that can be used as vantage points for hunting, resting, and to escape wolves and dogs. Maternity dens can be located in dense thickets and brush piles, in rock crevices, or under large fallen trees.

Being omnivorous, **raccoons** (*Procyon lotor vancouverensis*) take advantage of many possible prey types. Coastal raccoon use the beach as their only source for prey such as fish, marine invertebrates, small birds, and fruit. In addition, they use the shoreline as a movement corridor.

**Weasels and mink** (*Mustela*) use shoreline habitats to scavenge for dead fish and birds, hunt rodent prey along edges, and forage on intertidal animals. Mink rely heavily on aquatic habitats, and those mink found near the shoreline feed largely on marine crustaceans such as crabs. **Marten** (*Martes americana caurina*) are larger than weasels and mink, but similar in shape. They are found mainly in coniferous forests from the shoreline to timberline, however in the summer months they move to a higher elevation. In coastal areas, martens often forage and hunt on the beach for prey such as small rodents, marine crustaceans, small birds and insects. The river otter (*Lutra canadensis mira*) is highly aquatic and uses coastal habitats to forage, hunt, travel, and play.

However, they use land for denning under large tree roots or rock crevices. Coastal river otters prefer areas that include freshwater streams or ponds. Marine crustaceans and fish are the main source of food in a marine habitat. The shoreline is also used as a means of a movement corridor.

Vancouver Island is home to a subspecies of the **gray wolf** (*Canis lupus crassodon*). They utilize shoreline areas to hunt ungulates, scavenge for dead mammals, fish and birds and as a movement corridor. In winter, wolves tend to be found in areas associated with winter ranges of deer and elk. Dens can be excavated in banks or shallow hillsides among the roots of large trees and hollow logs, or in rock crevices.

---

## R e f e r e n c e s :

---

Cowan, McT.I. and Guiguet, C.J. 1979. The Mammals of British Columbia. Royal BC Museum, Victoria, B.C.

British Columbia Conservation Data Centre

Howes, D. Wainwright. P. 1999. Coastal Resource and Oil Spill Response Atlas for the west coast of Vancouver Island, Land Use Coordination Office

Emmett B. et al. 2000. Nootka Coastal Resource Use Plan: Framework for Identifying Marine Sensitive Areas. Draft discussion paper produced for the Land Use Coordination Office, Victoria B.C.

Campbell, W., Dawe, N.K., McTaggart-Cowan, I., Cooper, J.M., Kaiser, M.C.F. McNall. 1990 The Birds of BC, Volume I, Nonpasserines UBC Press

G.W. and McNall, M.C.E. 1990. The Birds of British Columbia Vols 1 and 2. Royal British Columbia Museum, Victoria, B.C.

**MARINE SENSITIVE AREAS**

This plan has developed a draft methodology to identify marine sensitive areas. The purpose of this work is to provide additional information on areas that are either sensitive or vulnerable to human activities. In this plan, a marine sensitive areas is defined as an area containing habitats, biotic communities or species important to the ecological function of the British Columbia coastal environment, that is also sensitive to human disturbance. Sensitive in this context is defined as:

- habitats or areas occupied by species that are particularly susceptible to human disturbances; and
- habitats or areas occupied by species that would experience difficulty recovering to sustainable or manageable levels if disturbed.

Marine sensitive areas are identified by the presence or absence of specific physical or biological features (or combinations of features) as shown in Figure 1. The features are straightforward and most of the information required to identify these areas is available

at the Land Use Coordination Office (LUCO) database and can be mapped relatively easily. This is a generalized definition of marine sensitive areas, the relative degree of sensitivity between various types of marine sensitive areas is not assessed, nor are differences in sensitivity to specific activities considered.

Using the physical or biological features, most heads of inlets and river floodplains — areas with estuaries, protected mud-flats, and salmon-spawning streams — are identified as marine sensitive areas at 1:20,000 scales. These are also areas where, historically, development activities, such as townsites, marine industrial sites, log dumps and storage areas, are centred. This is no accident as protected waters, flat upland and access to river valleys for transportation corridors are important to most of the historic development activities on the west coast of Vancouver Island. This fact underscores the importance of incorporating sound environmental management practices into development plans for these areas. LUCO is currently working to further refine this methodology in other areas of the province.

Substrate	+	Exposure	+	Other Physical Attributes	+	Biotic Attributes	=	Rating
Mud or Mud/sand		Protected or Very Protected						Sensitive
Mud or Mud/sand				Low Tidal Flushing or Depositional Area				Sensitive
				Estuaries				Sensitive
				Geothermal Vents				Sensitive
						Finfish Spawning Areas		Sensitive
						Marshes		Sensitive
						Eelgrass		Sensitive
						Rare/Endangered Species and Habitats		Sensitive

Consideration also needs to be given to keystone species and key life cycle attributes

**Figure 1** General framework for identifying Marine Sensitive Areas (see Emmett et al. 2000 for further background information)



Tahsis

## ECONOMIC AND RESOURCE ACTIVITIES

The following sections discuss past, current, and projected economic and resource activities in the Nootka area. Economic activities discussed in this section include forestry, aquaculture, energy and minerals, commercial fishing, and recreation and tourism.

### ■ FORESTRY ■

The major industrial activity in the Nootka area is timber harvesting. Major licensees (as of 2000) active in Nootka Sound include Doman-Western, Hecate Logging Ltd. (a joint venture between the Ehattesaht First Nations and Coulson Logging Co.), Nootka First Nations Forest Products Ltd. and the Nootka Sound Economic Development Corporation.

Compared to the volume of timber harvest in the area, manufacturing activity is comparatively small. With the closure of the Bowater pulp mill, and large volumes of timber leaving the area, governments are looking for ways to regenerate employment in the milling industries. Various opportunities for timber related industrial activity in the Gold River area are being considered to replace opportunities lost with the closure of the Bowater mill. However, timber harvest is fully allocated in nearby portions of the Strathcona TSA, and no definitive proposals have yet been announced.

According to the Ministry of Forests' (MOF) 1999 Strathcona TSA (Timber Supply Analysis), there will be long-term declines in the amount of timber harvested locally. Because Vancouver Island and Lower Mainland mills are currently operating under capacity, the likelihood of major new manufacturing facilities appearing in the region is extremely low. However, efforts by the Nootka Sound Economic Development Corporation (NSEDC) to allocate a portion of its annual allowable cut (AAC) to local value-added producers is expected to create a demand for small industrial sites.

The forest industry is reliant on the marine/coastal environment for crew transportation, camp locations, log storage and handling, and log and product transportation by tug and barge. Fixed facilities require tenures, whereas marine transportation must comply

with the *Canada Shipping Act* and its navigation regulations. Either way, there are opportunities for both positive and negative interactions between other commercial and industrial sectors, as well as with the public. The forest sector is, and can continue to be, a contributor to the recreational setting of the Nootka area through establishment of forest recreational sites, and road and trail access.

In 1998, a Nootka Sound Forest Sector Strategic Plan was funded by Forest Renewal British Columbia. As well as examining forest economic opportunities, the study addressed the forest tourism sector. The major finding was that there is an unrealized economic potential for enhancing the tourism sector, but not as a substitute to offset declining forestry employment in the area. The strategy also noted economic opportunities for joint industry/First Nations initiatives to undertake fish habitat restoration, and other forest protection efforts (e.g., road de-activation).

Log handling is prevalent throughout the Nootka area; MOF has identified more than 70 log dump areas. Log storage needs have not changed appreciably over the last 30 years and the situation is unlikely to change in the next decade. The predominant method of log transport is by barge from centrally located log handling, booming and rafting grounds. The major flow of wood is from inside the area to outside destinations.

All major licensees in the region have log storage facilities. These are established through land and foreshore leases, which are usually kept active by the companies even when the grounds themselves are not in use. Thus, companies tend to maintain their regular barge tie ups and more central sites. As new logging areas are opened up, additional sites will have to be established, but the amount of land and foreshore required is not believed to be significant. Assuming that existing leases are maintained, the region can be adequately serviced once some of the newer sites have been established.

The overall size of the local harvest is in a decline, due to recent and future expected reductions in the



AAC for the TSA and TFLs. However, the change in timber harvest volumes has not impacted the demand for log storage facilities, either in terms of the number of sites or their physical size. In the near future, the volume of wood leaving the area may actually increase as licensees such as Interfor and Weyerhaeuser resume harvesting.

The vast majority of local wood is shipped out of the area by barge either for export or to other processing facilities on the coast. Since the Bowater mill closed, the only large user of wood in the region is the Tahsis sawmill. Therefore, the log storage facilities required to supply local processing facilities

(i.e., in bound logs) are less now than they were in the past.

There is currently little or no industrial land available for even small-scale operations within local communities, which is having an adverse impact on economic development.

Typically, small industrial needs can be met through land development within municipal boundaries, but Zeballos and Tahsis are particularly vulnerable because of their estuarine locations, which places additional constraints on land development.

Options for industrial use of areas outside the municipalities are minimal as infrastructure is weak and road access difficult. Apart from the forest industry and the aquaculture sector, both of which rely on water transportation, industrial activity in the region has been negligible. There are no applications or plans for major industrial projects in the Nootka area outside of the municipalities of the Gold River, Tahsis, and Zeballos.

#### ■ EXISTING LOG HANDLING TENURES IN NOOTKA AREA ■

The following paragraphs briefly discuss the locations and types of log storage and handling sites.

The main water surface log storage facility is held by Western Forest Products Limited and is located

near Wilson Creek, on the south side of Muchalat Inlet. Some of the primary tie-ups are found at the following locations:

- 1 - Rufus, (about halfway between the Jacklah River and Houston River, S. side of Muchalat Inlet);
- 2 - On the NE side of Bligh Island;
- 3 - At Sandpoint (Tsowwin Narrows, east side of Tahsis Inlet, about 10 km south of Tahsis)
- 4 - At West Bay (just south of Tahsis, on the west side of Tahsis Inlet);

Each has an associated dryland sort, and when in operation has its own boom tie-up.

Barges are loaded primarily at Wilson Creek and Nesook Bay, although barges have been loaded at Zeballos, Sandpoint, West Bay, and at Matchlee Bay (east end, Muchalat Inlet).

Western Forest Products Limited has waterside dryland log sorts located at:

- Muchalat Inlet: Gold River Pulpmill site, Wilson Creek, McCurdy Creek, Kleeptee Creek, Houston River
- Tlupana Inlet: Head Bay, Nesook;
- Tahsis Inlet: West Tahsis, Tsowwin River;
- Nootka Island: Plumper Harbour, Kendrick Arm, Blowhole Bay;
- Zeballos Inlet: Ciriaco Creek, Zeballos, East Zeballos Inlet, Ehattesah, Little Zeballos;
- Espinosa Inlet: Espinosa
- Port Eliza Inlet: Port Eliza

#### ■ AQUACULTURE ■

Aquaculture, which is the growing of marine animals and plants in water offers significant economic potential for coastal communities in the Nootka area. A study of the economic potential of the British Columbia Aquaculture Industry prepared for the Federal government in 1999 indicated that marine fish farming could potentially contribute \$1 billion dollars annually to the province's economy and create 20,000 person years of employment, mostly in coastal communities over the next few years.

The same study also concluded that shellfish farming could potentially become a \$100 million dollar industry and create more than 1,000 person years of employment in coastal communities over the next ten years.

### Finfish Aquaculture

In 1997 the Environmental Assessment Office released the results of a major Salmon Aquaculture Review (SAR). Based on the recommendations of the SAR on ways to reduce the environmental risk of salmon farming, the province announced the provincial Salmon Aquaculture Policy Framework in the fall of 1999. Among a variety of associated policies, the Policy Framework capped the number of salmon farm tenures in the province at 121 and initiated a program to relocate poorly sited farms as well as policies regarding escape prevention, development of performance-based regulation of salmon farm wastes, improved fish health and alternative salmon farming technology. The latter policy provides for development of up to ten new pilot research and development facilities for closed containment and other technology. The province conducts an extensive environmental review and comprehensive public consultations around each application for fish farm tenure.

The preferred salmon species for culture in the area is Atlantic salmon (*Salmo salar*) but chinook salmon (*Oncorhynchus tshawytscha*) could also be cultured in the plan area. One company currently holds three tenures occupied by a total of three farms in Nootka Sound, all located in the Esperanza Inlet/Hecate Channel area. The company is interested in developing new sites in the plan area, should the cap on new farm development be lifted.

No new conventional fish farms beyond the provincial total of 121 will be developed in the Nootka plan area while the cap is maintained. However, some poorly sited farms from other areas could relocate to Nootka Sound or pilot projects may be proposed for the area, given the biophysical capability of the area, appropriate nearby infrastructure and diminished availability of potential sites in many other south coast areas. If the cap is lifted there would be considerable interest in the area for salmon farming in the plan area for the same reasons. Because there is not a cap on the development of farms for non-salmonid finfish species such as the Pacific halibut (*Hippoglossus stenolepis*) and black cod (*Anoplopoma fimbria*), there is immediate interest in development of non-salmonid fish farms in the plan area.

### Shellfish Aquaculture

In the fall of 1998, the province announced the Shellfish Aquaculture Development Initiative (SDI), designed to double the amount of land under shellfish aquaculture tenure over the next ten years. As a result of implementing the SDI in Nootka, BCAL and BC Fisheries have allocated a number of potential aquaculture sites to Nootka area First Nations for shellfish development over the next ten years. In addition, BC Fisheries, in consultation with local communities, have prepared shellfish aquaculture suitability maps which have helped to inform the Nootka Coastal Land Use Plan. The province is now receiving tenure and Aquaculture licence applications from both First Nations and non-First Nations people.

Nine shellfish aquaculture tenures exist in the plan area, located near Bligh Island, and in the Nuchatlitz, Muchalat Inlet, Three-Bay Cove-Tlupana Inlet, Kendrick Arm-Tahsis Inlet and Little Espinosa Inlet areas. Pacific oysters (*Crassostrea gigas*) are the primary culture species, but some Japanese scallops (*Patinopecten yessoensis*) and Manila clams (*Vererupis philippinarium*) are also being cultured in the area. Most of these operations are well-established, having operated for at least five years.

BC Fisheries studies indicate that water conditions in the plan area are very favourable for culture of oysters, clams, scallops and possibly other shellfish species. Wild shellfish resources, including various clam and other species, are also significant in the area and are the basis for considerable interest in wild harvesting.

Interest in shellfish culture is growing faster than for wild harvesting because culture technology and husbandry practices increase the production capacity of beaches far beyond their natural carrying capacity and also allow use of deep water, off-bottom, sites that would not naturally produce shellfish product.

### ■ ENERGY AND MINERALS ■

Coastal and offshore British Columbia is underlain by geology expected to contain important energy and mineral deposits that represent future resources of significant value to the social and economic vitality of all British Columbians. At the present time, there is a federal and a provincial moratorium on the exploration and development of offshore oil and gas



deposits. While there is no moratorium on offshore mineral development, there is no comprehensive policy framework to guide such activity.

Energy and mineral exploration and development has the potential to strengthen and diversify the economy of local communities and residents. Interest in this form of development is heightening as local communities struggle to cope with down turns in the traditional forest and fishing industries.

#### *Petroleum and Gas Potential*

The Nootka area is situated just beyond the eastern boundary of the Tofino Basin that has an estimated potential reserve of 266 billion cubic meters (9.4 trillion cubic feet) of in place gas. The Nootka plan area itself appears to have little potential for petroleum resources. There are no petroleum or gas tenures within the plan area.

Except for a brief period of exploratory drilling from 1966 to 1968, a moratorium on offshore exploration has been in place since 1959. On September 15th, 2000, a study commissioned by the province to assess public interest in developing a process to consider the future of the offshore oil and gas moratorium was released by Northern Development Commissioner John Backhouse. The report showed that northern communities support the development of such a process.

#### *Geothermal Potential*

The Nootka area holds some potential for geothermal resources as it lies just to the north of an area of moderate geothermal potential which is punctuated by surface hot springs on Flores Island. This potential resource would be insufficient for direct conversion to electricity but it may be suitable for direct space heating or recreational activity.

#### *Geology and Mineral Potential*

The Nootka plan area has high metallic mineral potential and medium industrial mineral potential in general. There are 17 known mineral occurrences, several of which have produced ore in the past.

Paleozoic to Early Mesozoic sediments and volcanic rocks of the Sicker, Vancouver and Bonanza groups are intruded by stocks of the Jurassic Island Plutonic Suite. Tertiary intrusions also disrupt the strata and have recently been divided into the Mount Washington and Tofino intrusive suites. Western portions of the map area are underlain by metamorphic and granitic rocks

of the Westcoast Complex. These are thought to have formed by migmatization of pre-existing volcanic and sedimentary rocks of the Sicker and Vancouver groups.

Mineral occurrences in the map area include several magnetite skarn and copper skarn deposits associated with the Island Plutonic Suite.

The GLENGARRY deposit (092E 001) produced a small tonnage of high-grade magnetite ore in 1959. The SILVERADO deposit (092E 016), a lead-zinc skarn, produced an unknown amount of ore which was included with production reported from the BALTIC deposit (see below).

Epigenetic polymetallic veins, with or without silver and gold, occur throughout the area. Some of these veins, such as the BALTIC (092E 026) and the ELIZA (092E 043) produced small tonnages of high grade material during the 1930s and 1940s.

A deposit of marble at the head of HISNET INLET (092E 020) was quarried in the early part of the century and several other limestone and/or marble occurrences are found along or near the areas inlets.

### ■ MINERALS IN MARINE AREAS ■

The potential for mineral deposits in the marine environment is largely unknown.

#### *Placer*

There are no known marine placer deposits in the Nootka area but there is some potential for them.

Marine placers are comprised of detrital gold, ilmenite, cassiterite, platinum group elements and other heavy minerals and they occur at the present or paleoseafloor surface. They usually occur in Holocene raised or submarine beach or strandline deposits along wave-dominated shorelines, but can also be found in coastal dunes, drowned fluvial channels, or as offshore relict lag concentrations.

Marine placers form in exposed, shoreline or nearshore environments in areas of active winnowing by waves and long-shore currents. They occur along present beaches and are also preserved as relict submerged deposits or raised strandlines that formed during glacially induced, low or high sea level stands. Beach placers accumulate mainly in the upper foreshore and backshore depositional environments. Geological settings include sand spits, barrier islands, coastal dunes, buried marine scarps, drowned fluvial

deposits and submerged residual or lag deposits overlying bedrock or till.

### Manganese

Though not currently explored for in British Columbia, there is some potential for sedimentary manganese (manganite, psilomelane, pyrolusite, rhodochrosite and other manganese minerals) resources within the Nootka Sound and offshore. These deposits form in shallow marine depositional environments (15-300 m), commonly in sheltered sites around islands along some areas of continental shelf and the interior basins. Most deposits overlie oxidized substrates. Manganese-enriched zones range from a few to over 50 m in thickness and extend from a few to over 50 km laterally.

### Offshore Hydrothermal Deposits

There is good potential for large offshore hydrothermal deposits.

### Aggregate

Aggregate resources occur along the coast both in marine and upland areas, along the lower reaches of major river valleys and less importantly on beaches and at the mouths of streams in the coastal nearshore. Quality sand and gravel deposits are valuable for local building and infrastructure, and where substantial quantities exist, there may be increased pressure for their extraction. Local communities need an adequate supply for maintenance of infrastructure and growth.

## ■ COMMERCIAL FISHING ■

Commercial fishing activities are summarized by species in Table 1. The commercial fishery has reduced in size over the past several years as a result of conservation concerns (particularly salmon species), licence buy-backs, and the decline in prices for wild salmon.

Limited quantities of salmon, halibut, cod, and herring are commercially fished in Nootka waters. Most of the commercial fishing fleet is located in Zeballos, where Neptune Packers is located. The fish landed at Zeballos tend to be black cod, dogfish, halibut, herring, and rock fish.

Littleneck and manila clams support commercial, recreational, and First Nation harvests. The fishery on the west coast of Vancouver Island currently lands

approximately 300 tonnes per year valued at about \$1.1 million. About 25% of these clams are landed from Area 25. DFO has identified 77 intertidal clam beaches in Area 25 ranging in size from less than one to 22 hectares, with the largest areas in Hisnit Inlet, Tlupana Inlet, Head Bay, Kendrick Inlet, Tsowwin Narrows, Espinoza and Little Espinosa Inlets, Louie Bay and Mary Basin.

**Table 1:** Commercial Catch 1995 - 1999

Species	Weight (lbs)	Value (\$)
Dungeness Crab	10,400	43,700
Prawn (trap)	77,200	461,800
Shrimp (by trawl)	23,100	19,700
Geoduck Clams <sup>1</sup>	173,400	1,454,600
Intertidal Clams	155,600	232,500
Chinook (troll)	51,000	90,400
Sockeye (troll)	4,800	3,100
Coho (troll) <sup>2</sup>	149,800	235,600
Pink (troll)	56,900	30,300
Chum (troll)	3,400	2,100
Chinook (gillnet)	10,300	5,300
Chum (gillnet)	539,100	161,700

<sup>1</sup> Three year rotational quotas, includes only 1997 area quota

<sup>2</sup> Closed to commercial harvest since 1997

Average (1995-1999) commercial landed weight and value of fish and invertebrates from DFO Areas 25,125-1, 125-2 and 125-3

## ■ RECREATION AND TOURISM ■

The information in this section is largely drawn from the Nootka Sound Forest Recreation and Tourism Opportunity Study (TOS), sponsored by the Nootka Sound Economic Development Corporation. The study was conducted under contract to the Ministry of Forests and the Ministry of Small Business, Tourism and Culture in 1998. This study was initiated in response to the then-pending closure of Bow Water Pulp Mill. The study included a comprehensive inventory of all tourism and recreation facilities, a summary of the natural and cultural resources important to tourism and recreation, and analyses of the potential of the resource base to support specific kinds of tourism and recreation activities. The TOS study was supported by a broad spectrum of local and First Nations' governments, recreation user groups, tourism industry and forest industry representatives. Issues and concerns expressed by these groups were used in defining development or activity potential.

In the Nootka area, the distinction between recreation and tourism can be difficult to discern. Both recreation and tourism involve people taking part in leisure activities. Tourism normally involves payment of some kind to participate in the activity, and can often be characterized by whether a guide assists the visitor.

The World Tourism Organization defines a tourist as someone who travels more than 80 kilometres, or stays overnight, thereby requiring support services for accommodation, meals, transportation and activities. By this definition, virtually all visitors to the Nootka area are 'tourists', even though a high proportion are self-contained, independent travellers from other parts of Vancouver Island. Certainly all visitors to the Nootka area have paid for the experience, both in direct travel costs, and in the cost of supplies, boats, SUVs, RVs and other equipment. The value of recreation equipment purchases is enormous, but these purchases are made in the recreationist's home market, rather than at the Nootka destination. Similarly, tours and other tourism products provided by firms that use the Nootka area but are not based locally, add to economic activity - but not necessarily to the economy of the area. A key issue in recreation and tourism management in the study area is the need to ensure that benefits from tourism and recreation accrue to local communities.

Recreation and tourism activity in the Nootka area is strongly seasonal, with most activity occurring in July and August. A high proportion of visitors are attracted by natural values, particularly sport fish, marine mammals, scenic coastal settings and karst landscapes. The cultural heritage of the area's First Nations, and the history of its settlers in fishing, mining and forestry, offer a second key attraction to visitors. Salt-water and freshwater sports fishing are the area's showcase recreational pursuits, with sea kayak touring, marine touring, wildlife viewing, caving, beach hiking, camping and scuba diving as other important coastal recreation activities. About 200 businesses have been identified as being involved in providing services to visitors in the accommodation, food and beverage, transportation and activity guiding sectors.

#### *Existing Recreation Activities and Resources*

This section describes the activities in recreation and tourism currently occurring in the Nootka area. Local knowledge has supplemented formal studies in

compiling this information. Issues relating to tourism and recreation, which have been raised by concerned stakeholders, are presented.

## ■ WATER-BASED ACTIVITIES ■

### *Freshwater River Fishing*

There is significant freshwater fishing activity within the study area. The second largest activity segment among Nootka area tourism operators was commercial freshwater guiding. The Gold River is considered by some to be the best fishing on Vancouver Island and among the premier rivers in British Columbia. Restrictions to the fishery on the east coast of Vancouver Island will increase the relative importance of this river. The fishery is not stocked (all fish are wild) and catch-and-release regulations apply. Modest development of this activity is possible, but conservation should be the prime consideration, since wild steelhead are becoming an extremely rare resource.

Popular freshwater fishing rivers include the Conuma, Sucwoa, Canton, Jacklah, Little Zeballos, and Tlupana Rivers.

### *Salt-Water Fishing*

This is by far the most popular activity for tourists and recreationists in the Nootka area. Fifty-five operators consider salt-water charters to be their primary business. The prime time to catch the large chinook (also known as tye or king) salmon is during July and August, although they are usually plentiful until early September. Halibut, red snapper, rock cod and ling cod are also available, and extend the season from mid-April to mid-October. The coho run lasts until mid-October. Late fall is also rewarding for bottom fish.

One concern to Nootka area residents is the lack of local economic benefits from self-contained fishermen. Constraints to salt-water angling include the lack of rental equipment (boats and gear), fluctuations in DFO retention regulations from year to year, and a lack of marina services in the Gold River, Yuquot, Esperanza and Zeballos areas. The popularity of salt-water fishing could be used to promote other tourism products through packaging and joint marketing efforts.

### *Ocean Kayaking*

This is an activity that is growing in popularity

**Table 2:** Fresh water fishing activities in the Nootka area

River	Season	Species/Comment
Artish River	March-April	Steelhead
	Fall	Sea run Cutthroat
Burman River	June-July	Summer Steelhead
	February-March	Winter Steelhead
	September-October	Chinook
	September	Coho
Gold River	Mid December - mid April	Steelhead - peaks in Feb (15 kg steelhead caught 1974)
	April - Mid October	Summer steelhead (May - June best)
	August	Chinook
	September-November	Coho
Heber River	June-July	Steelhead (small run)
Leiner River	June-July	Summer steelhead
	February-March	Winter steelhead
	October	Coho
	Fall	Sea run Cutthroat
Perry River	June-July	Summer steelhead
	February -March	Winter steelhead
	October	Coho
	Fall	Sea run Cutthroat
Tahsis River	June-July	Summer steelhead (small run)
	February -March	Winter steelhead (small run)
	June-September	Rainbow, sea run cutthroat
	mid September	Coho, springs, sockeye, pink, chum
Zeballos River	June-July	Summer steelhead
	February -April	Winter steelhead
	September	Chinook
	October-November	Coho
	Fall	Sea run Cutthroat

both across B.C. and in the Nootka area. Sea kayaking constitutes the third largest activity segment for tourism operators in the Nootka area. Significant growth in the number of participants can be expected to continue. Traditionally, an activity with a young-adult-market focus, it is gaining acceptance among older adults, mixed-sex singles groups and families with older children. As better known kayaking locations, such as the Broken Group, the Gulf Islands and Johnstone Strait, become saturated, attention will turn to the Nootka area. Factors that are known to attract kayakers include scenic quality, subtidal resources, marine mammals and First Nations' cultural attractions. The sea otters present in the Nuchatlitz area are becoming a major attraction. Actively used sites include:

- Bligh Island, Friendly Cove, and Spanish Pilot Group
- Little Espinosa to Catala, Garden Point, Rosa Island, and Nuchatlitz,

**Table 3:** Species and seasonal occurrence of salt water sport fisheries

Species	Season	Comments
Winter Chinook (Springs) (10-25 lbs)	November-May	
Summer Chinook (Kings/Tyee class) (30-50 lbs)	High season: July-1st week Aug Shoulder season: June and Sept	High season can be crowded with up to 300 boats fishing
Chum salmon (10-20 lbs)	Sept-October	
Coho (Bluebacks) (5-12 lbs)	May-September	
Northern Coho (10-20lbs)	High season: September - Mid November	
Halibut	January - November	Not December
Ling Cod & Red Snapper	Year round	

- Tahsis Narrows area, and
- Nootka Island (advanced users may circumnavigate the island).

Trips in the area are considered to be for intermediate to advanced kayakers.

Constraints on kayaking include high winds (predictably occurring 9 a.m. to 4 p.m. daily, and especially noticeable in Muchalat Inlet), morning fog (usually August), the presence of motorized activities (air plane, helicopter and power boat), and degradation and overcrowding of the more popular camping sites. In comparison to the number of users, there is a lack of facilities and services for kayakers in the area. Suggested services include overnight, backcountry, roofed accommodation, permanent campsites, pit toilets and garbage disposal. Scenic, unlogged views and clean beaches are quite important to the kayak tourism product. Although there are limited kayak rentals in Zeballos and Tahsis, there needs to be a greater effort on providing the knowledge that these services are available to potential users.

### *Sailing/Cruising*

Cruising or power boating is usually undertaken as a means to participate in some other activity such as fishing, scuba diving or wildlife viewing. Scenery is understood to be of importance to coastal cruising participants. The activity is clustered around existing boat launches, marinas and recreational fishing grounds. Power boats are the preferred method of transportation and communication between the local residents. These locals have a knowledge base that is marketable for tourism activities. Sailors and power boaters are attracted to fish, scenery, marine mammals, anchorages, beaches, marine birds, coastal parks, subtidal resources and historic and native features.

Sailing is not as popular as power boating as a recreational activity. Access to the Nootka area is fairly exposed and requires good navigational skills. The Nootka area can expect a “spillover” effect, as sailing activity in Clayoquot Sound increases, providing there are sufficient services and facilities. Because sailing is a “slower” activity than power boating and more dependent on weather conditions, the distribution of marinas and anchorages is particularly important.

Shoreline access and marine hazards are the most severe constraints on sailing and power boating in the Nootka area. The outer coastal area is quite exposed

and navigation can be hazardous. Other constraints include the accessibility and availability of marina facilities, garbage disposal locations, water, and suitable anchorages. The use of power boats may have a negative impact on other activities (sea kayaking), in certain locations.

### *Scuba Diving*

While not a significant tourism product, there are a number of dedicated recreational users and two operators who consider scuba diving to be their primary service offered. Popular dive locations include:

- Espinosa Inlet/Little Espinosa Inlet - “The Garden”
- Bligh Island/Spanish Pilot Group
- Garden Point
- Hecate Channel
- Tahsis Narrows
- Tsowwin Narrows (south end Tahsis Inlet)

Dive tank filling is limited to a facility in Zeballos. Potential users must bring their own equipment or arrange for rentals in Campbell River or Port McNeill. Foul weather often prevents access to popular use sites.

### *Wildlife Viewing (marine)*

Marine wildlife viewing is a growing activity on Vancouver Island. While no tourism operators offer wildlife viewing tours exclusively, half of the salt-water charter companies indicated that marine mammal viewing was an important secondary activity. The same marine mammals that attract so many visitors to Clayoquot Sound also occur in the Nootka area. Nuchatlitz has the added draw of a thriving sea otter colony, whose rarity provides a ‘marquee’ attraction for wildlife viewing tours. However, the area is generally farther from the major airports and transportation routes to the mainland than Clayoquot Sound and a lengthy run is required to reach the open ocean from settlements. Operators have also indicated that the whales do not stay in the Nootka area for the full summer season as they do in Clayoquot Sound.

### *Wildlife Viewing (terrestrial)*

In the Nootka area, land-based wildlife viewing is used to augment or is seen as part of a broader experience. There are a number of animals and birds that could be promoted, especially to international visitors. Examples are shown below:

- Elk are often seen near Upana Flats, Canton Creek, Head Bay and Conuma Hatchery.



- Bears are most active from August to October and are especially prevalent around river estuaries.
- Cougars are most active in summer when young cougars are developing their own territories.
- Eagles can be seen everywhere, any time (especially during salmon spawn).
- Swans can be seen on several of the river estuaries.

Concerns regarding the ability to guarantee that wildlife will be seen is likely to restrict development of this industry. Wildlife viewing is usually tied to scenic viewing, therefore the visual landscape in the viewing area is important.

#### *Other Water Activities*

**Windsurfing:** This sport is gaining popularity as a recreational pastime throughout the province. Location requirements include road access and a consistent wind that appears at a regular time each day. Although no present windsurfing locations have been identified, there are several locations that could be suitable, including Tahsis Inlet and Muchalat Inlet.

**Surfing:** Crawfish Cove and Calvin Creek on Nootka Island are known for their consistent wave action. One tourism operator uses the site for an annual surfing camp. The site is also used by experienced sea kayakers.

**Waterskiing, swimming and beachcombing:** Locals have indicated that these activities are popular at several coastal and lake locations.

### ■ LAND-BASED ACTIVITIES ■

#### *Camping*

The Nootka area has numerous undeveloped campsites that, in some cases, receive heavy use during the summer months. The carrying capacity of these sites is the primary constraining factor. Capacity of some of the more popular sites could be increased with the establishment of increased facilities.

Designated campsites in the area are generally road accessible and have minimum facilities such as pit toilets, picnic tables and fire pits.

Each community has some suitable RV camping but the services range from full hook-ups to no facilities. There is a lack of full facility, destination RV campgrounds, such as those found on the east coast of Vancouver Island, near Tofino and in Washington State.

#### *Backpacking and Day Hiking*

At present, five tourism operators in the Nootka area provide hiking or backpacking tours as one of their primary activities. The increase in adventure tourism, overcrowding of the popular West Coast Lifesaving Trail and desire of tour companies to offer new destinations are positive factors in the growth of this activity in the Nootka area. The Nootka Island trail on the west side of Nootka Island has the greatest commercial potential if developed.

#### *Other Recreation and Tourism Land-Based Activities*

Other recreation and tourism land-based activities include:

- Recreational mineral, rock and fossil collecting
- Mountain biking
- Natural history/photography
- Rock climbing
- Trail riding/horseback riding

### ■ RECREATION AND TOURISM FACILITIES ■

The following compilation of tourism facilities has been extracted from the Tourism Opportunity Study (TOS) survey responses and secondary sources (Tables 4-6). Totals are greater than 100 percent because operators may have several activities that are considered their primary offering. Secondary activities are incidental to the primary attraction. For instance, a fishing lodge may also offer sea kayaking, swimming and whale watching as part of their package. However salt-water fishing and the associated accommodation is their primary focus, without which they would not be in business. A total of 137 tourism operations were identified as being based in or using the Nootka area. Of these, 34 have accommodation as the only service or activity offered.

#### *Activity and Market Trends*

Trends in the recreation sector may help indicate the types of pressures and market opportunities to be expected. Growth and trends in the recreation sector are challenging to track effectively. Table 6 provides an estimate of the outdoor recreation activity growth rates from 1993 to 2003, based on information collected from major Canadian and American studies.

**Table 4:** Recreation and Tourism Facilities

Location	# Rooms with road access (hotel, motel cabin and B&B)	# Rooms with no road access (float camps)	# Campsites (private & municipal)	# FS campgrounds with designated campsites
Zeballos & area	40 rooms (7 operators)	8 beds (1 operator)	20 (no services) (2 operators)	32 sites (2 campgrounds)
Tahsis & area	66 rooms (16 operators)	20 beds (1 operator)	30 (20 w/ services) (2 operators)	8 sites (1 campground)
Gold River & area	81 rooms (not including the Chalet) (14 operators)	0 operators	80 (70 w/ services) (2 operators)	30 sites (1 campground)
Tlupana Inlet/Nootka Sound	19 rooms (3 operators)	92 beds (8 operators) 89 rooms (4 operators)	55 sites (some services) (3 operators)	45 sites (2 campgrounds)
<b>TOTAL</b>	<b>206 rooms (40 operators)</b>	<b>120 beds (10 operators) + 89 rooms (4 operators)</b>	<b>185 campsites (9 operators)</b>	<b>115 campsites (6 campgrounds)</b>

### ■ ACCESS ■

Gold River is one of only a few centres with paved highway access to Vancouver Island's west coast; this access alone draws a significant fraction of its visitors. From the Island Highway at Campbell River to Gold River is a 1.5 hour drive on a secondary paved highway. Tahsis is an hour further on a gravel road. Zeballos is a 45-minute drive on gravel from a point about an hour's drive north of Campbell River on the Island Highway.

Access difficulties serve to maintain remote characteristics that have real value to recreationists and tourists, as well as to local residents. This recreational

resource is close to huge populations. Nootka is within 250 kilometres of the millions of residents of the Vancouver area, and within 400 kilometres of the millions more in the Seattle area. The challenge in managing access is one of constraining access to maintain the quality of settings, while improving opportunities for capture of economic benefits from recreational and other resource uses.

Nootka Island contains a network of forestry roads, but is accessible only by boat. Forestry roads also provide tidewater access into most of the area's watersheds, but in many cases these roads are not connected to the highway system. While these networks are unconnected, few areas are unroaded.

**Table 5:** Tourism & Activity Market Trends in British Columbia

Activity	#Average growth in % participating	Average annual growth rate	Lower mainland participation 1993	BC participation 1994
Wildlife Viewing	13.6%	1.29%	33%	
Nature Study	13.6%	1.29%	47%	
Going to the beach	12.4%	1.18%	82%	79%
Bird watching	9.0%	0.87%	20%	
Walking for pleasure	8.8%	0.85%	92%	
Windsurfing	8.1%	0.78%	5%	
Canoeing/Kayaking	7.4%	0.72%	24%	22%
Sailing	5.8%	0.57%	14%	10%
Sightseeing	5.3%	0.52%	89%	
Powerboating	4.8%	0.47%	26%	28%
Hiking	4.0%	0.39%	41%	54%
Backpacking	3.9%	0.39%	13%	17%
Swimming (outdoor pools)	2.7%	0.26%	52%	
Fishing	1.5%	0.15%	30% fresh 22% salt	47%

Source: Balmer (1993); Consolidated projections from 8 major studies in Canada and the USA.

**Table 6:** Tourism Activities

Activity Type	# of operators indicating this is their primary activity offering	# of operators indicating the activity is either a primary or secondary activity
Accommodation	63	17
Camping		
Marina	6	
Public (accept transient boaters)	3	
Private (no transient boaters)	3	
Museum	2	
Golf course	1	
Freshwater charters (fishing)	27	29
Licensed by MoE as freshwater guides	18	
Salt water charters (fishing/tours)	55	
Salt water fishing		55
Marine mammal		24
Motor cruising		18
Sailing		3
Sea kayaking	15	19
Canoeing		4
Scuba Diving	2	8
Beachcombing		14
Swimming		15
Surfing		2
Windsurfing		1
Air tours/charters	7	7
Bus or Van tours	2	3
4x4 tours		3
Hiking	5	12
Caving/Rock climbing	3	
Caving		5
Rock climbing		4
Hunting (MoE Guide-Outfitter)	1	
Hunting		5
Horse and trail	1	1
Wildlife viewing (land or water)		29
Bird watching		16
Scenic viewing		21
Nature studies		20
Heritage viewing		17
Mountain biking		2
Mineral panning		1
Snow based activities	1	1



West Coast Nootka Island

## COASTAL AREA USE DESIGNATIONS

### ■ PLAN PROCESS ■

The Nootka plan format is based on a combination of the strategic-level Land and Resources Management Plans (LRMPs), the Barkley Sound Planning Strategy (1994), and the Sooke Foreshore Use Plan (1981). The plan was centred around the following four tasks:

- **DEVELOPMENT OF PLANNING UNITS.** Using an inventory of over 140 mapped biophysical and human-use themes, the IPT and NRB identified draft planning units on the basis of biological, physiographic, oceanographic, and existing resource uses and activities. Over the course of a number of meetings, the number of units were finalized at 60.
- **DEVELOPMENT OF AREA DESIGNATIONS.** Area designations were developed to identify suitable activities for specific areas based on existing and potential uses of land and water within the plan area. Each designation provides a general description to guide regulatory and non-regulatory decisions by Crown agencies involved in land-use allocation and regulation.
- **DEVELOPMENT OF OBJECTIVES.** Objectives are specific to each planning unit, although a number of planning units may have similar objectives. The purpose of the objectives is to provide further information on what the priority uses are within each area designation.
- **PUBLIC INVOLVEMENT.** Public comments were solicited through open houses in Gold River, Tahsis, and Zeballos in June, 2000 and January, 2001. These open houses provided a forum for public comment on information and data products, the planning process, and draft planning products. At each open house, written public submissions to the Nootka Resource Board on any aspect of the planning process were encouraged. The Nootka Resource Board also acted as a conduit for public input throughout the planning process. June, 2000 and January 2001 open houses were attended by a total of 102 people and 41 written submissions were received by the Nootka Resource Board.

A summary map of the entire plan area is supplied with this document. In addition, this section provides single-page summaries of each unit along with area designations, key values, and objectives.

The Nootka Coastal Land Use Plan applies only to a defined coastal zone and marine boundary. The plan provides area designations that emphasize specific types of land-use activities and conservation, while identifying the values and issues of agency and public concern. The general management intent is to address issues and provide objectives to implement the management intent.

The Nootka Coastal Land Use Plan does not:

- alter the statutory authority or responsibility of provincial, federal, or local government, nor the rights associated with legally established land uses;
- affect private land;
- affect First Nations treaty negotiations;
- address matters pertaining to marine fish resource management; and
- address navigation and transportation issues.

### ■ FIRST NATIONS PARTICIPATION ■

The Nootka plan area lies within the traditional territory of the Nuchatlaht, Ehattesaht and Mowachaht/Muchalaht First Nations. Participation from First Nations in the Nootka planning process was formally requested by the IAMC at a meeting of the Northern Region Nuu-chah-nulth Chiefs (NTC) in January 2000 at the inception of the planning process. Through several subsequent meetings with the Northern NTC Co chair it became apparent that the Nuchatlaht, Ehattesaht and Mowachaht/Muchalaht First Nations were not prepared to become involved in the planning process in favour of pursuing treaty negotiations with the federal and provincial governments. Individual meetings were held with these three First Nations to explain the plan terms of reference, seek additional technical information and to review the draft planning products. All meetings were held on an information sharing rather than a consultation basis.



## ■ AREA DESIGNATIONS ■

In keeping with the Terms of Reference for the Nootka Coastal Land Use Plan (Appendix B), area designations are intended to guide the long-term use, development and integrated sustainable management of the coastal lands and resources of Nootka area. It is important to note that these designations will not alter the statutory authority or responsibility of government agencies, or the rights associated with legally established land uses.

Area designations indicate a general range of activities and uses that would be emphasized within defined boundaries but do not specifically address the degree of development intensity. Generally, area designations are spatially separate in order to avoid conflicts with other users and/or to realize greater overall economic, social, or environmental potential. In some circumstances, compatible activities can occur and an area will have primary and secondary uses designated. A detailed description of each area designation is provided below.

Primary and secondary area designations do not necessarily suggest that a particular activity or use is suitable within the entire planning unit. The primary area designation indicates that the majority of a particular planning unit is suitable for that activity, while the secondary designation indicates that particular area(s) within the unit may also be suitable for the secondary activity. There may be instances, however, where primary and secondary uses will require certain separation requirements to be compatible. Given the 1:50,000 scale of the plan, however, many units are sufficiently large to accommodate multiple uses.

Planning unit boundaries should be regarded as approximate, and should be used as a general guide to assess management intent for an area. All land use applications will be subject to the provincial government referral process, therefore applications located near planning unit boundaries will be reviewed in light of adjacent planning units. In addition, key maps in the following section do not show private land or First Nation reserves.

Finally, all of the upland portions of the Nootka Coastal Land Use Plan area lie within a Resource Management Zone as determined by the Vancouver Island Summary Land Use Plan (Feb 2000). Marine portions off of Nootka Island lie within a Special Management Zone. The values, objectives, and

management direction contained within this strategic planning framework need to be considered in planning development activities.

### *Industrial/Commercial*

These areas would support resource industry infrastructure related to storage, processing, supply, production and shipment. Emphasis would be placed on the development or maintenance of:

- log handling, storage and infrastructure related to forest harvesting
- commercial marine transportation landings, anchorages and carrier routes
- loading facilities, associated docks and breakwaters
- processing facilities and docks
- industrial resource extraction including mineral, oil and gas exploration and development
- infrastructure to support air travel

### *Aquaculture*

These areas would support development of aquaculture activities that include floating and shore based physical structures associated with operations. Activities that would be emphasized would include:

- shellfish culture
- marine plant culture
- finfish culture

### *Public Recreation*

These areas, containing landscapes and features of a remote coastal setting, offer opportunities for education and recreation. Emphasis would be placed on development of activities that are compatible with remote coastal conservation and enjoyment, such as:

- public recreation sites (e.g., Forest Recreation sites)
- protected public anchorages/boat havens
- recreational fishing areas
- non-commercial wilderness trail development
- non-commercial wildlife viewing sites
- non-commercial wilderness recreation

### *Commercial Recreation*

These areas, containing landscapes and features of a remote coastal setting, would provide opportunities for the development of commercial recreational activities. Emphasis would be placed on development that is compatible with remote coastal conservation and enjoyment, such as:

- commercial recreation sites and trails
- eco-tourism opportunities (guiding, wildlife viewing)

### *Rural Development*

These areas would provide sites for the development of a limited scale of residential, service and tourist/recreational-related commercial activities. Development of permanent and/or seasonal residences, including float homes, resorts, and lodges, as well as moorage and commercial recreation facilities would be emphasized.

### *Community Development*

These areas are intended to accommodate significant residential, commercial, institutional and industrial uses. These areas include the established communities and anticipated growth areas. All activities in support of and necessary to the development and continued viability of coastal communities would be emphasized.

### *Conservation*

These areas have particular value for the conservation of natural resources and/or contain significant environmental/heritage features. Management emphasis in these areas is for the conservation of:

- heritage/cultural sites/areas
- sensitive fish and wildlife habitats (estuaries, kelp beds, colonies, haulouts, etc.)
- marine sensitive areas
- physical features (sea caves, waterfalls, etc.)

Proposals for land-use developments in these areas would be considered based on their impacts on the specific conservation values identified in the designated area.

### *General Management Areas*

These areas have potential for the full range of designated uses as identified above. Proposals for land-use developments in these areas would be reviewed on a case by case basis; the review to include a full assessment of suitability of the proposed use.

## UNIT 1 - MATCHLEE BAY

*Primary Designation:* Conservation

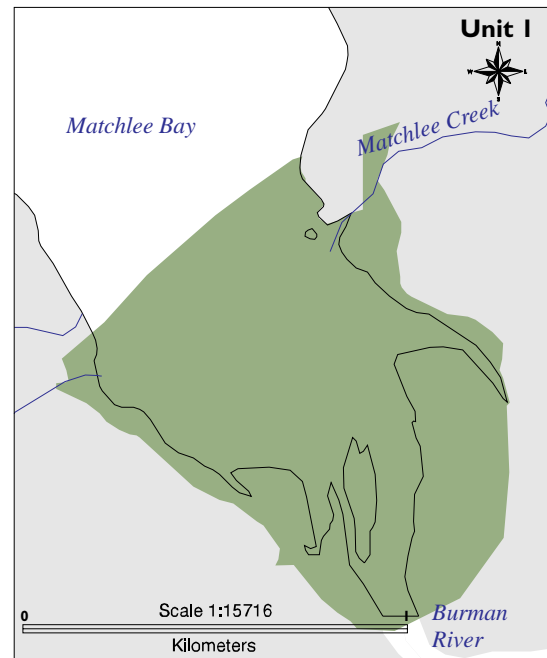
*Secondary Designation:*

*Key Values*

- Fish and wildlife habitats (Burman River Estuary)
- Marine sensitive areas
- Important elk habitat

*Objectives*

- Maintain coastal wetland habitats and protect marine sensitive areas.
- Maintain existing strategic long-term log-handling and associated industrial activities.
- Ensure road access to Upper Burman River Valley.



## UNIT 2 - GOLD RIVER

*Primary Designation:* Community Development

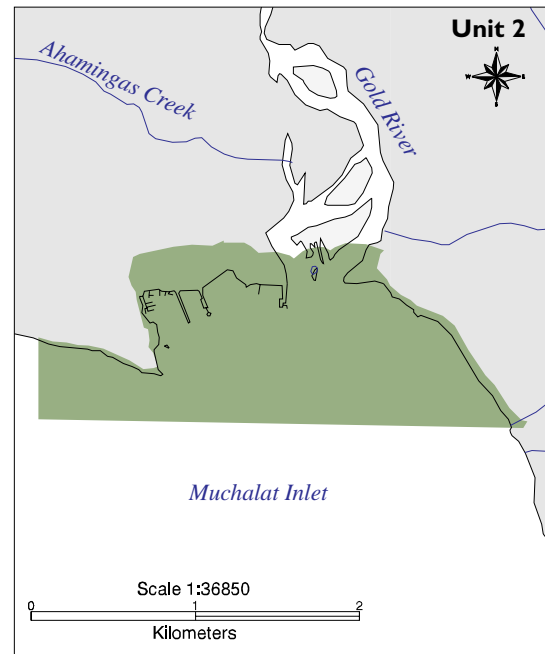
*Secondary Designation:* Conservation

*Key Values*

- Proximity to Gold River
- Fish and wildlife habitats (Gold River estuary)
- Economic development

*Objectives*

- Provide opportunities for community development.
- Maintain coastal wetland and estuary values.



### UNIT 3 - MUCHALAT INLET

*Primary Designation:* General Management

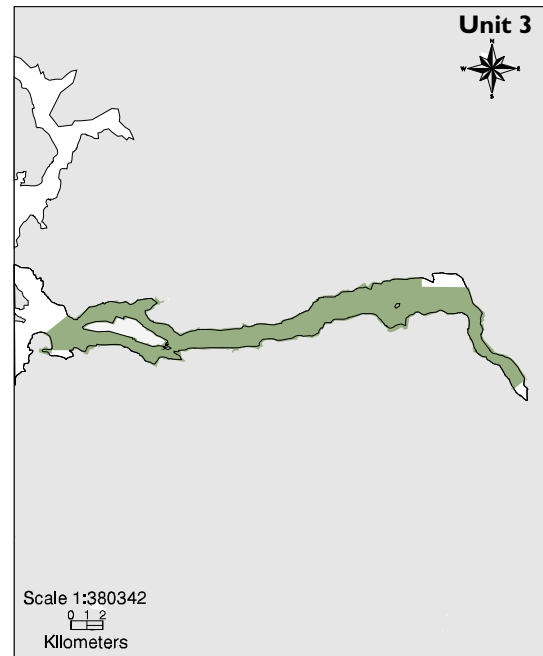
*Secondary Designation:* Industrial and Commercial

#### Key Values

- Fish and wildlife habitats associated with estuaries (Jacklah River, McCurdy Creek, Kleeptee Creek, Houston River, Silverado River)
- Marine transportation corridor
- Recreational fishing
- Forestry activities
- Existing mineral tenures in the Silverado Creek and Matchlee Bay areas and known mineral resources including the past producing Silverado deposit

#### Objectives

- Consider site specific applications for all uses in consideration of existing legal tenures.
- Maintain key long-term log-handling sites and associated industrial activities.
- Promote shellfish aquaculture opportunities adjacent to Gore Island.



### UNIT 4 - MOOYAH BAY

*Primary Designation:* Industrial and Commercial

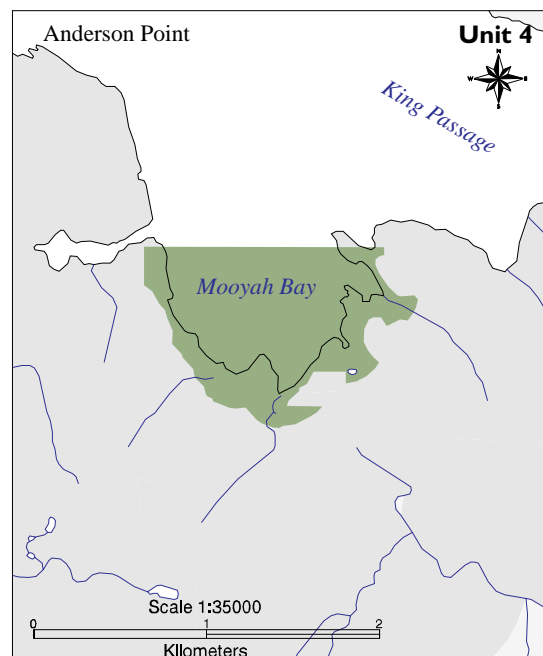
*Secondary Designation:* Aquaculture

#### Key Values

- Forestry activities
- Fish and wildlife habitats (Mooyah River estuary)
- Marine sensitive areas

#### Objectives

- Maintain strategic log handling and other associated industrial opportunities.
- Maintain existing public recreational use.
- Examine opportunities for shellfish aquaculture that are compatible with existing forestry activities.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



52 **UNIT 5 - ZUCIARTE CHANNEL**

*Primary Designation:* General Management

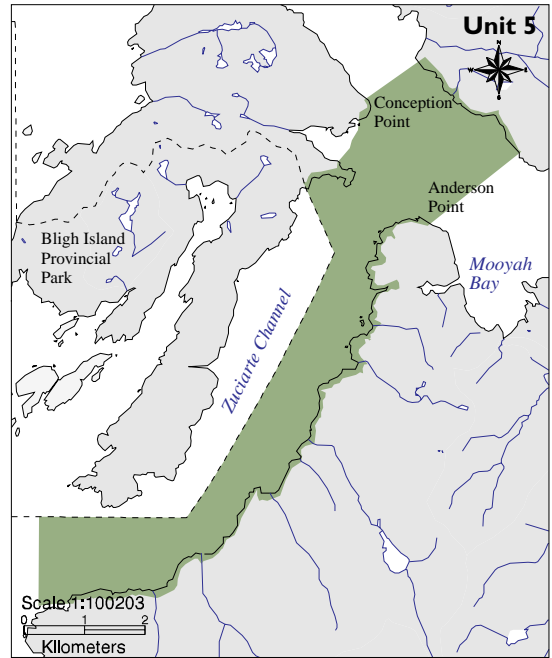
*Secondary Designation:* Aquaculture

*Key Values*

- Recreation and tourism

*Objectives*

- Consider site-specific applications for all uses in consideration of existing legal tenures.
- Provide opportunities for shellfish aquaculture development.
- Examine opportunities for finfish-aquaculture development.



**UNIT 6 - CONCEPTION BAY**

*Primary Designation:* Industrial and Commercial

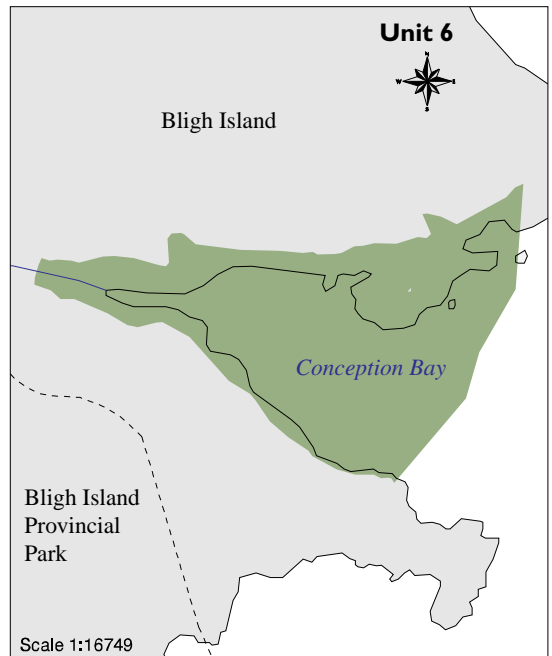
*Secondary Designation:* Rural Development

*Key Values*

- Forestry activities

*Objectives*

- Maintain strategic log-handling opportunities and associated industrial development.
- Consider rural development opportunities that are compatible with industrial activities.





## UNIT 7 - HANNA CHANNEL

*Primary Designation:* Rural Development

*Secondary Designation:* Aquaculture/Public Recreation

### Key Values

- Recreational fishing (finfish)
- Log handling and storage area

### Objectives

- Provide opportunities for resort development.
- Examine opportunities for float and upland recreational cottage development.
- Provide opportunities for finfish aquaculture.
- Provide opportunities for off-bottom shellfish aquaculture.



## UNIT 8 - BLIGH ISLAND / HANNA CHANNEL

*Primary Designation:* Industrial and Commercial

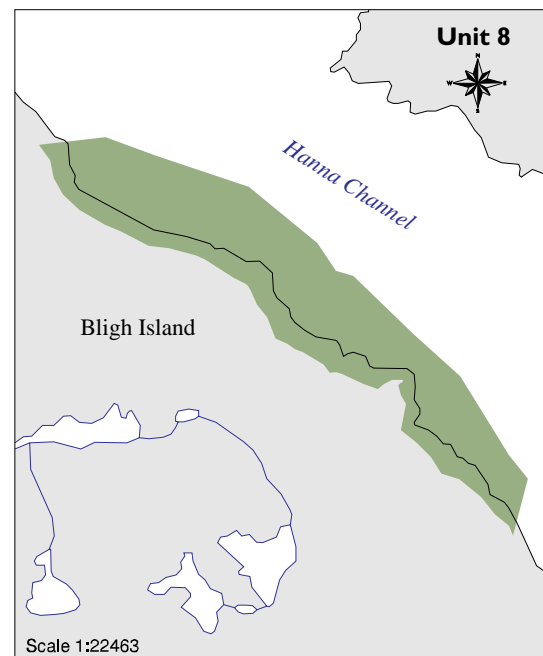
*Secondary Designation:*

### Key Values

- Recreational fishing
- Log handling and storage area

### Objectives

- Maintain long-term log handling and industrial opportunities.



## UNIT 9 - FIDALGO PASSAGE

*Primary Designation:* Rural Development

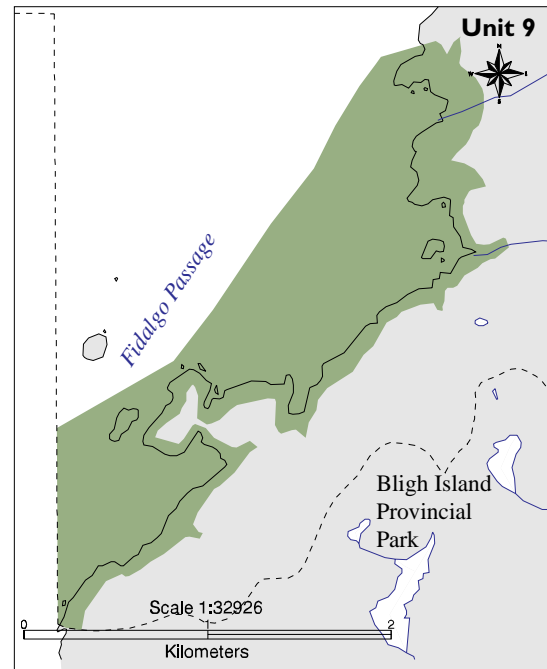
*Secondary Designation:* Aquaculture

### Key Values

- Tourism and commercial recreation
- Aquaculture capability

### Objectives

- Provide opportunities for upland resort development.
- Ensure adequate sewage disposal to protect shellfish values.
- Examine opportunities for finfish aquaculture.
- Examine opportunities for off-bottom shellfish aquaculture.
- Examine opportunities for foreshore and upland recreational cottage development.



## UNIT 10 - BOUNTY BAY

*Primary Designation:* Industrial and Commercial

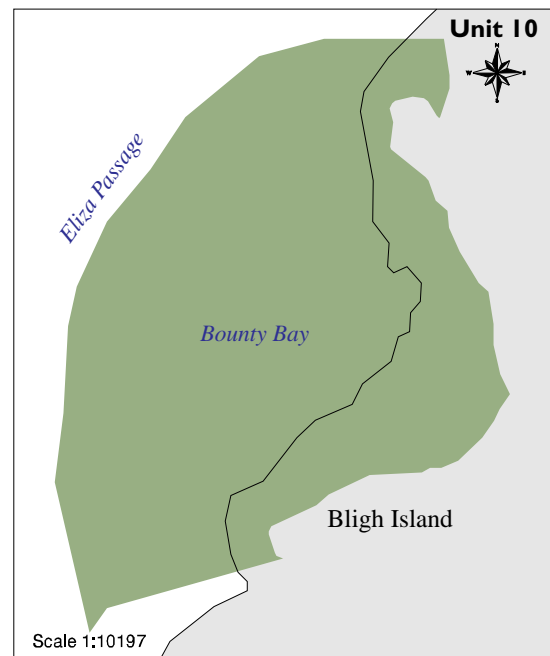
*Secondary Designation:*

### Key Values

- Recreational fishing (finfish)
- Log handling and storage area

### Objectives

- Maintain long-term log handling and associated industrial opportunities.



**UNIT 11 - TLUPANA INLET**

*Primary Designation:* General Management

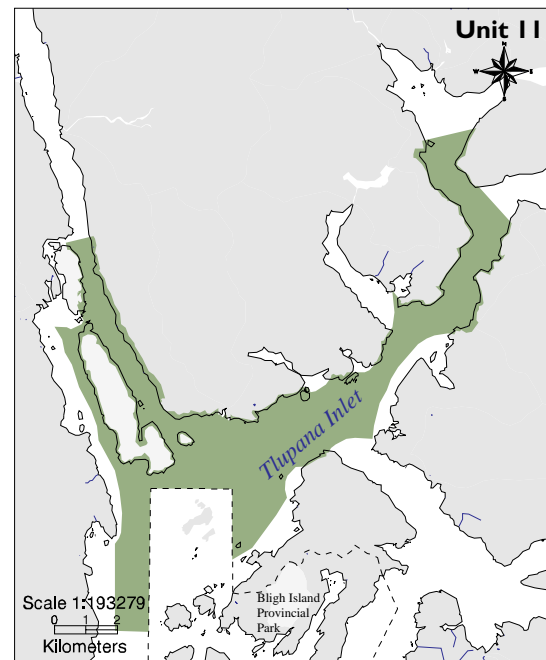
*Secondary Designation:*

*Key Values*

- Marine sensitive areas
- Log handling and storage
- Tourism and recreation facilities
- Key recreational features
- Existing mineral tenures and known mineral resources in upland areas

*Objectives*

- Consider site-specific applications for all uses in consideration of existing legal tenures.
- Maintain Cougar Creek area as a strategic site for public recreation.
- Provide opportunities for shellfish aquaculture on the west shore of Strange Island.
- Provide opportunities for finfish opportunities throughout the area.
- Maintain strategic log dumps and associated industrial activities.
- Maintain public recreational values in Jewitt Cove.
- Examine opportunities for commercial recreation and resort development.
- Maintain coastal wetland habitats and conserve marine sensitive areas.

**UNIT 12 - THREE BAY COVE TO GALIANO BAY**

*Primary Designation:* Rural Development

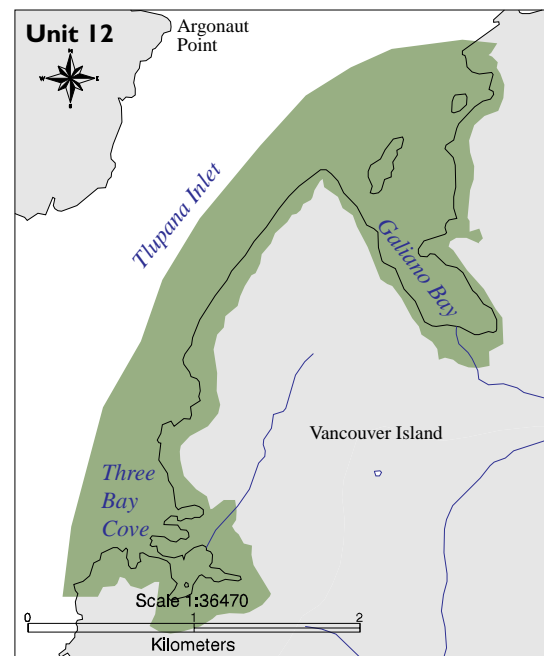
*Secondary Designation:*

*Key Values*

- Cultural and heritage resources
- Recreational use area
- Herring spawning area

*Objectives*

- Provide opportunities for foreshore development.
- Examine opportunities for upland recreational cottage development.
- Implement waste management plan.



## UNIT 13 - INNER ALLMAN LAGOON

*Primary Designation:* Conservation

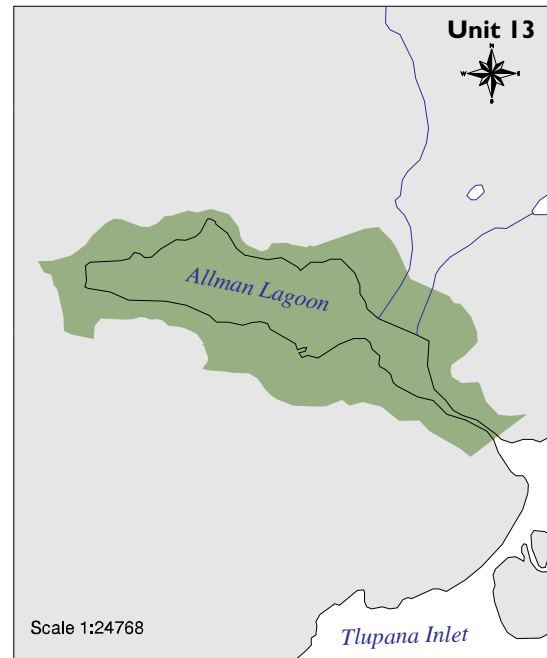
*Secondary Designation:* Public Recreation

*Key Values*

- Marine sensitive areas

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Provide opportunities for recreational shellfish harvesting.
- Provide opportunities for day-use recreation.
- Prohibit rural development.
- Conserve and maintain unique marine-freshwater interface.



## UNIT 14 - OUTER ALLMAN LAGOON

*Primary Designation:* Aquaculture

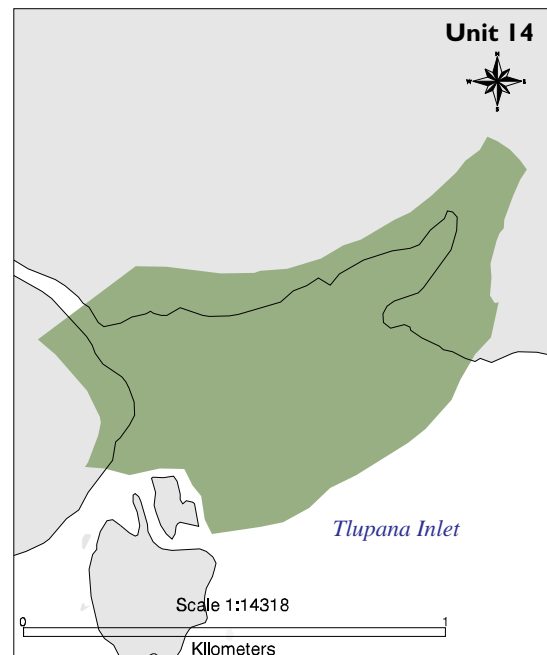
*Secondary Designation:*

*Key Values*

- Aquaculture suitability
- Recreational fishing

*Objectives*

- Provide opportunities for off-bottom shellfish aquaculture in consideration of sport fishing values.
- Maintain public access to Allman Lagoon.



**UNIT 15 - HOLE IN THE WALL**

*Primary Designation:* Rural Development

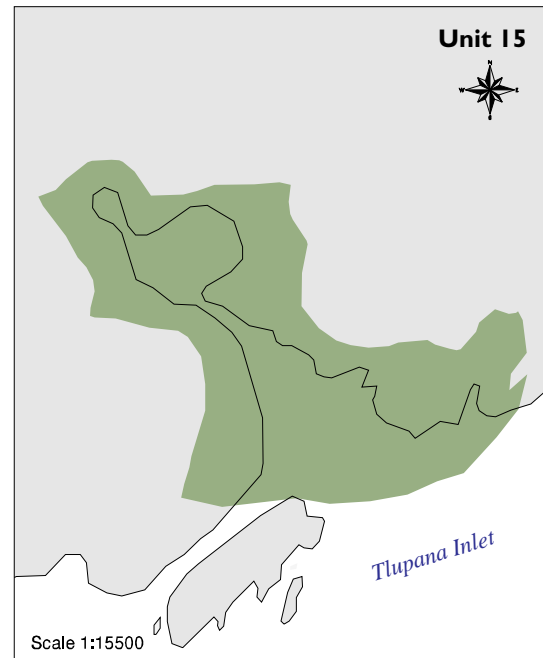
*Secondary Designation:*

*Key Values*

- Recreation and tourism

*Objectives*

- Provide opportunities for foreshore development.
- Examine opportunities for upland recreational cottage development.

**UNIT 16 - HISNIT INLET**

*Primary Designation:* Conservation

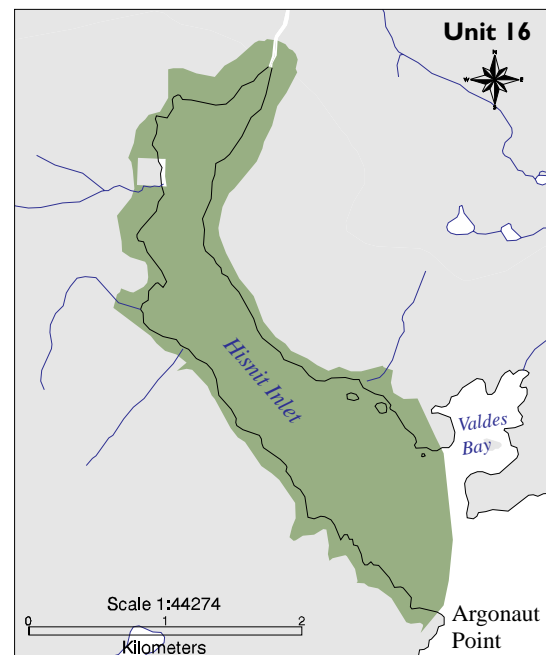
*Secondary Designation:* Aquaculture

*Key Values*

- Marine sensitive areas
- Limestone extraction
- Estuarine habitat
- Rearing area for salmonids
- Past producing limestone/marble quarry and existing mineral tenures

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Promote opportunities for off-bottom and beach shellfish aquaculture.
- Maintain opportunities for recreational shellfish harvesting.
- Restrict (deactivate) public road access to Hisnit Inlet foreshore.
- Maintain opportunities for limestone extraction within existing tenures.





**UNIT 17 VALDES BAY**

*Primary Designation:* Public Recreation

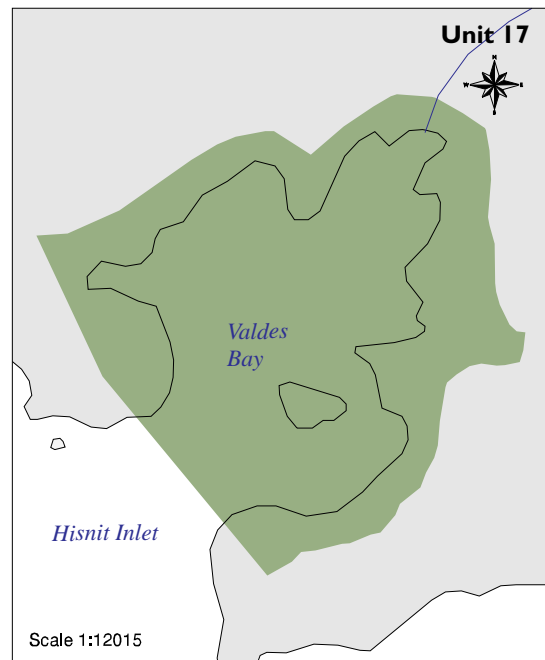
*Secondary Designation:* Conservation

*Key Values*

- Public recreation
- Provincial Boat Haven
- Scenic values

*Objectives*

- Maintain public recreation values for day use.
- Remove unauthorized float homes.

**UNIT 18 - NESOOK BAY SOUTH**

*Primary Designation:* Industrial and Commercial

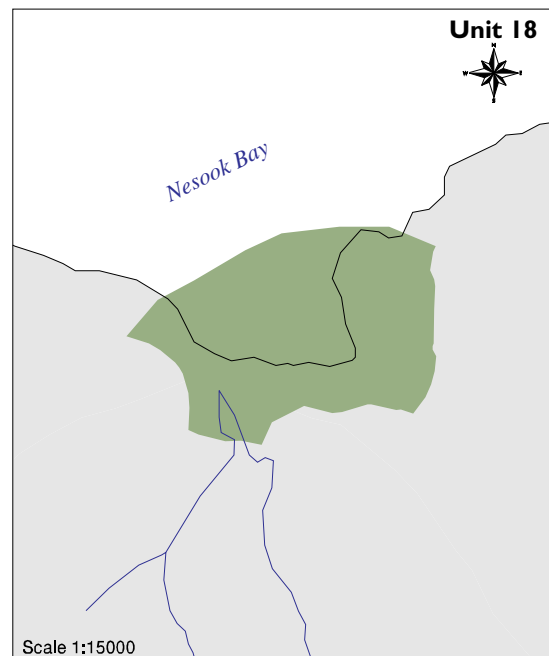
*Secondary Designation:*

*Key Values*

- Existing log handling facilities
- Marine sensitive areas

*Objectives*

- Maintain log-handling and storage facilities.
- Examine opportunities for shellfish aquaculture.



**UNIT 19 - NESOOK BAY**

*Primary Designation:* Aquaculture

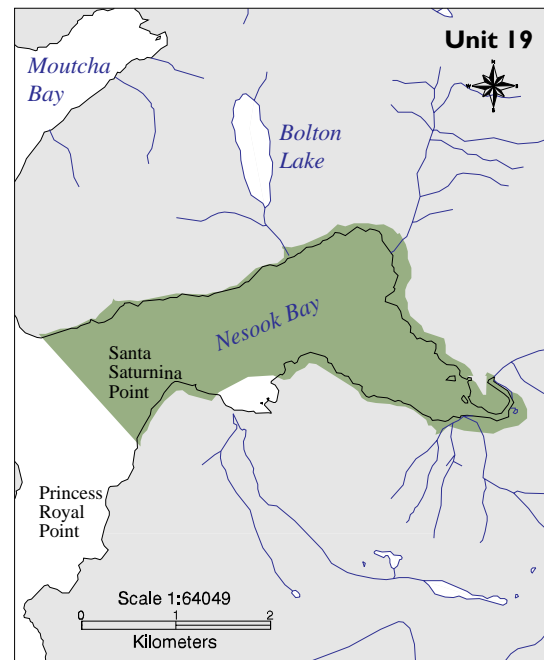
*Secondary Designation:* Conservation

*Key Values*

- Marine sensitive areas
- Estuarine habitat
- Rearing area for salmonids
- Existing mineral tenures and known mineral occurrences

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Promote opportunities for off-bottom shellfish with some beach aquaculture.
- Provide opportunities for recreational shellfish harvesting.

**UNIT 20 - MOUTCHA/HEAD BAY**

*Primary Designation:* Conservation

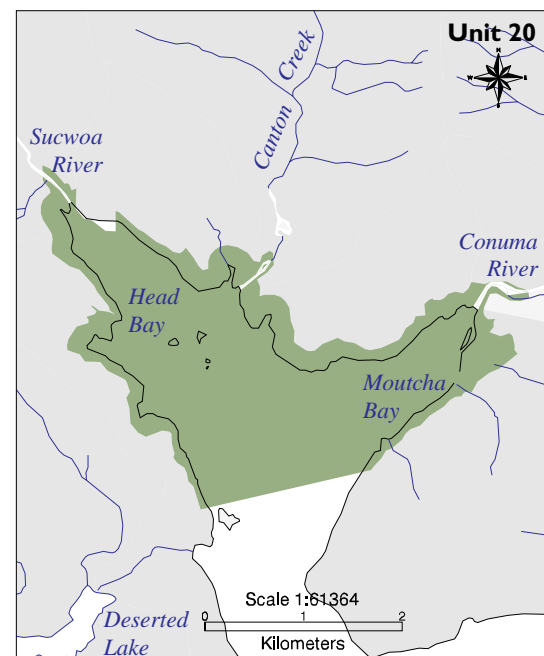
*Secondary Designation:* Industrial and Commercial

*Key Values*

- Fish and wildlife habitats (Sucwoa River, Canton Creek)
- Marine sensitive areas
- Roosevelt elk habitat
- Log-handling and storage facilities in Head Bay
- Rearing area for salmonids

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Examine opportunities for limited rural development on western and eastern shores of Head Bay.
- Maintain existing log-handling and storage facilities.
- Examine shellfish-aquaculture development opportunities.



**UNIT 21 - TAHSIS**

*Primary Designation:* Community Development

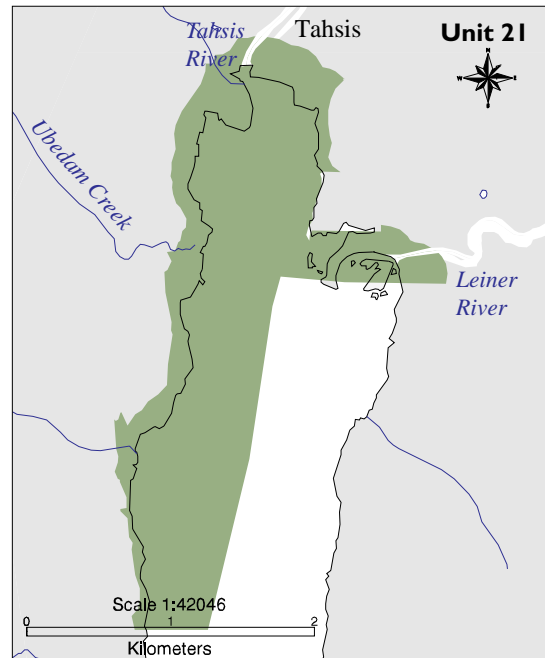
*Secondary Designation:* Conservation

**Key Values**

- Proximity to Tahsis
- Economic development
- Environmental and recreational values at the Tahsis and Leiner River estuary
- Known gold prospect

**Objectives**

- Provide opportunities for community development.
- Maintain coastal wetland and estuary values associated with the Leiner and Tahsis River mouths.

**UNIT 22 - TAHSIS INLET NORTH**

*Primary Designation:* Industrial and Commercial

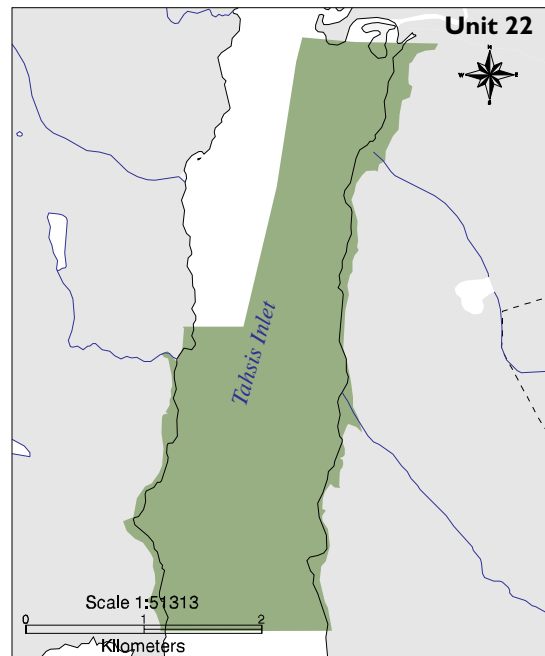
*Secondary Designation:*

**Key Values**

- Industrial and commercial activities throughout the unit
- Environmental and recreational values at the Leiner River estuary
- Wildlife Habitat Area for red-listed Keen's Long-Eared Myotis on eastern edge of unit.

**Objectives**

- Provide opportunities to enhance and facilitate industrial and commercial activities that complement/support Tahsis.
- Conserve environmental and recreation values at the Leiner River estuary.
- Provide opportunities for finfish aquaculture in the southern 2/3 of the area.
- Examine opportunities for rural development adjacent to private lands.



**UNIT 23 - TAHISIS INLET**

*Primary Designation:* General Management

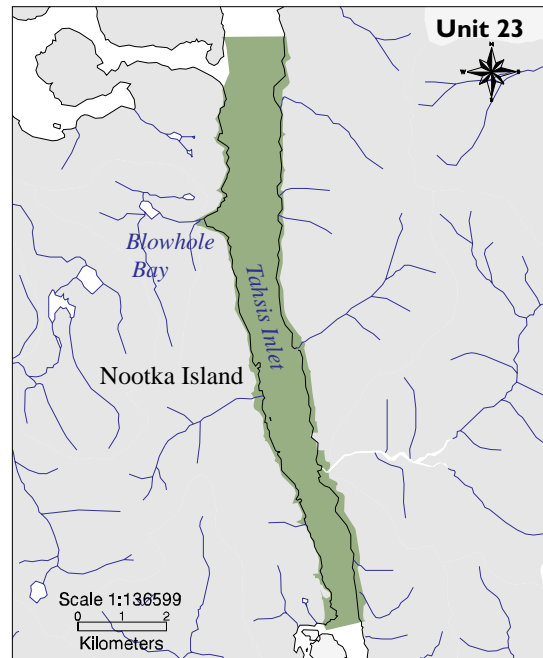
*Secondary Designation:* Industrial and Commercial

*Key Values*

- Transportation corridor
- Forestry activities
- Tsowwin River estuary

*Objectives*

- Consider site specific applications for all uses in consideration of existing legal uses.
- Maintain strategic log dumps and associated industrial activities.
- Examine opportunities for finfish aquaculture.
- Examine opportunities for commercial recreation.

**UNIT 24 - KENDRICK INLET**

*Primary Designation:* Conservation

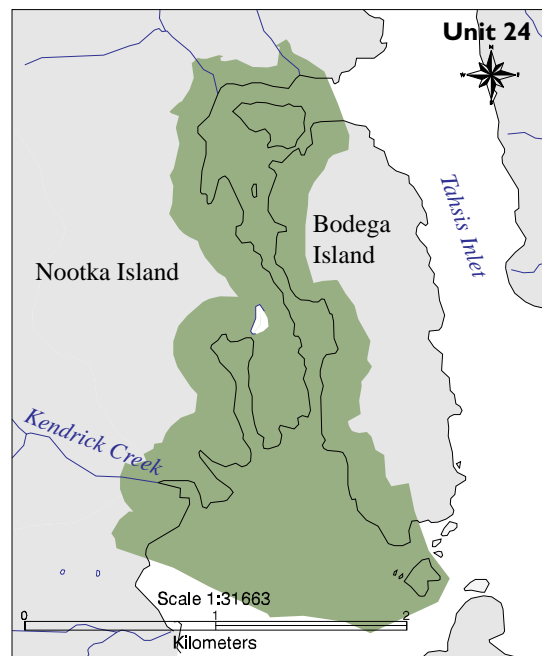
*Secondary Designation:* Aquaculture/Public Recreation

*Key Values*

- Marine sensitive areas
- Provincial Boat Haven
- Herring spawning area
- Clam beaches
- Fish habitat (Kendrick Creek Estuary)

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Discourage rural development activities.
- Provide opportunities for off-bottom shellfish aquaculture and beach culture where suitable.



62 **UNIT 25 - PLUMPER HARBOUR**

*Primary Designation:* Industrial and Commercial

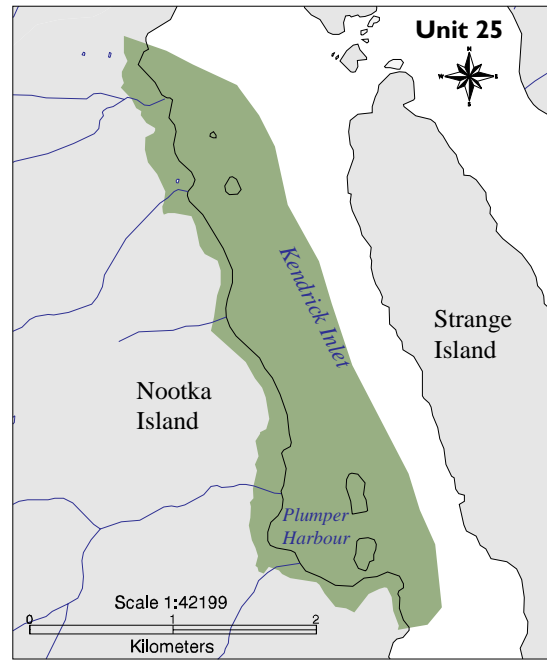
*Secondary Designation:* Rural Development

*Key Values*

- Marine sensitive areas
- Strategic access for forestry activities

*Objectives*

- Provide opportunities for industrial and commercial activities.
- Locate rural development activities in consideration of industrial and commercial activities.
- Provide limited opportunity for rural and community development.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



**UNIT 26 - MARVINAS BAY**

*Primary Designation:* Conservation

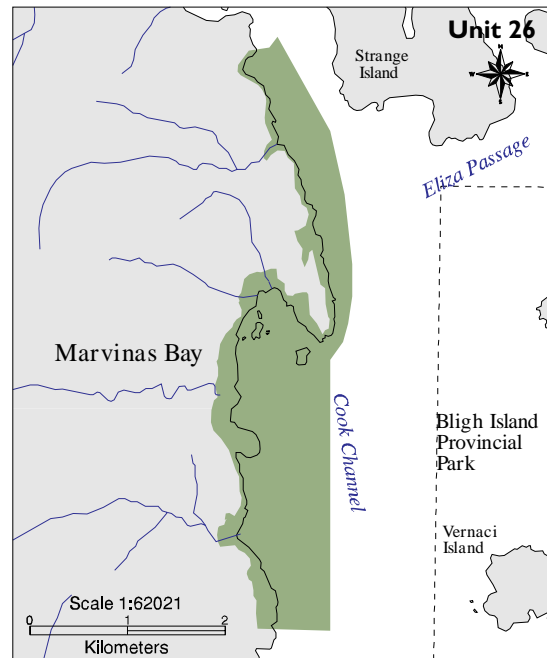
*Secondary Designation:* Public Recreation / Aquaculture

*Key Values*

- Wildlife values (particularly marine birds)
- Cultural and historical significance
- Marine sensitive area
- Herring spawning area

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Examine potential for limited shellfish aquaculture opportunities.
- Maintain public recreation values.
- Examine potential to site non-resource conflicting recreational cottages.





**UNIT 27 - YUQUOT**

*Primary Designation:* Community Development

*Secondary Designation:* Public Recreation / Conservation

**Key Values**

- Wildlife values (marine birds and mammals)
- Environmental and recreational values
- Cultural and historical significance
- Recreation and tourism
- Marine sensitive area
- Herring spawning area
- Nootka trail head

**Objectives**

- Provide opportunities for community development.
- Prohibit development on Crown islands smaller than 64 hectares.
- Ensure development accommodates and recognizes cultural and historical values.
- Identify rural development opportunities.
- Maintain public recreation values.
- Maintain coastal wetland habitats and protect marine sensitive areas.

**UNIT 28 - DISCOVERY POINT TO ESCALANTE ISLAND**

*Primary Designation:* Public Recreation

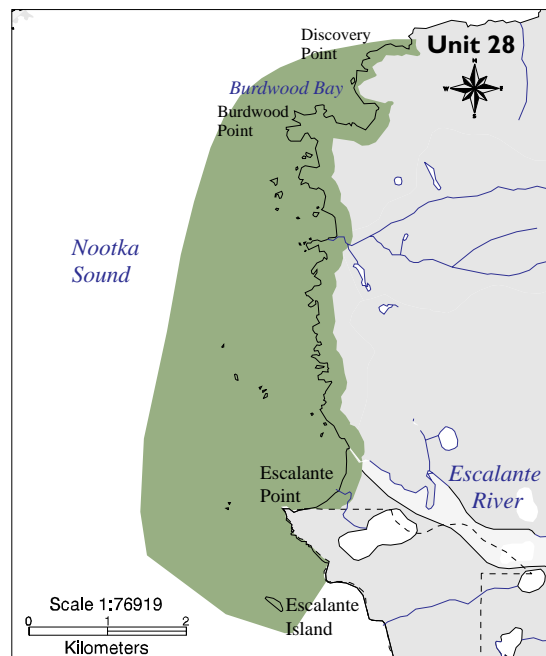
*Secondary Designation:* Commercial Recreation / Conservation

**Key Values**

- Wildlife values (marine birds and mammals)
- Environmental and recreational values
- Marine sensitive area
- Herring spawning area
- Recreational values in Burdwood Bay

**Objectives**

- Maintain public recreation values.
- Manage for non-exclusive commercial recreation activities.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



## UNIT 29 - NUCHATLITZ INLET / WEST NOOTKA ISLAND

*Primary Designation:* Public Recreation

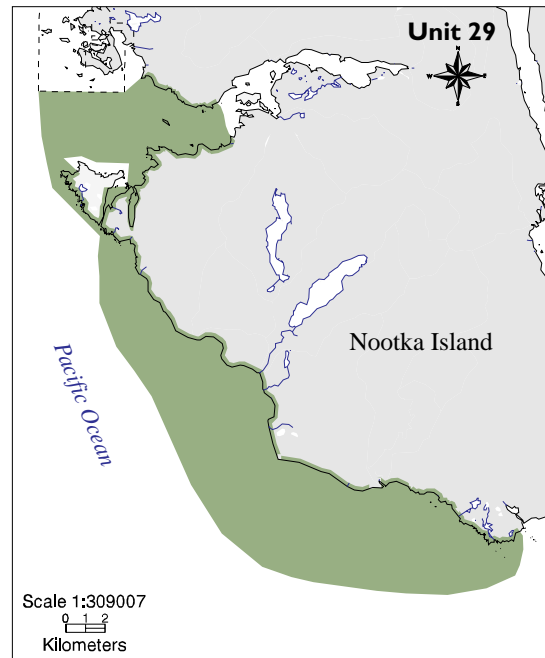
*Secondary Designation:* Conservation

### Key Values

- Wildlife (marine mammals and birds)
- Recreation and tourism
- Cultural and heritage values
- Herring spawning area
- Nootka trail
- Provincially significant kelp beds
- Existing mineral tenures undergoing active exploration

### Objectives

- Provide opportunities for public recreational camping on north shore of Nuchatlitz Inlet.
- Maintain public recreation values.
- Discourage granting of site-specific tenures for commercial recreation.
- Manage for non exclusive commercial recreation activities.
- Maintain public recreation access values associated with Nootka trail.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



## UNIT 30 - OFFSHORE PACIFIC

*Primary Designation:* General Management

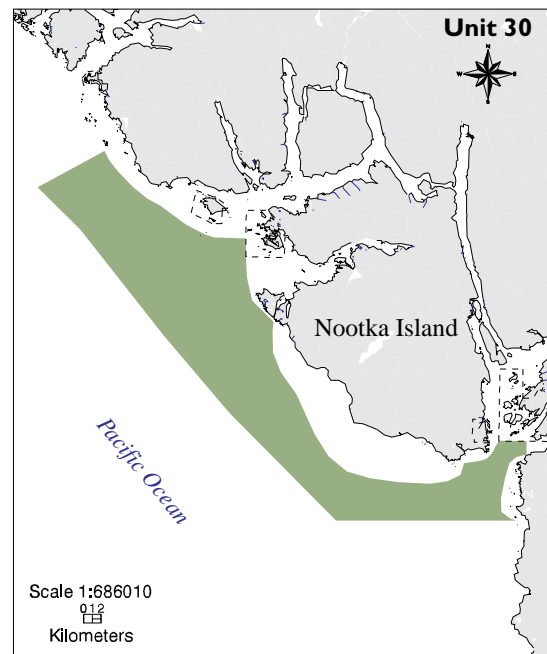
*Secondary Designation:*

### Key Values

- Marine wildlife
- Offshore petroleum resources
- Sport fishing

### Objectives

- Maintain and conserve marine values.



**UNIT 31 - TONGUE POINT**

*Primary Designation:* Rural Development

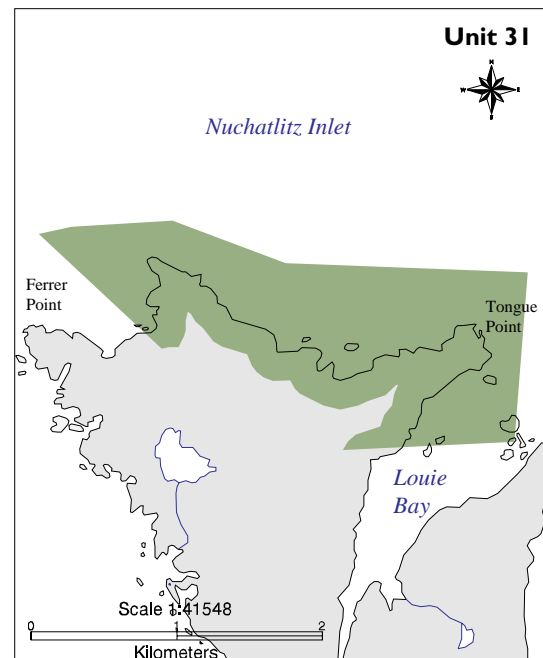
*Secondary Designation:*

*Key Values*

- Recreation and tourism
- Nootka trail head

*Objectives*

- Provide commercial tourism opportunities associated with Nootka trail head.
- Provide opportunities for commercial recreation development infrastructure.

**UNIT 32 - PORT LANGFORD**

*Primary Designation:* Public Recreation

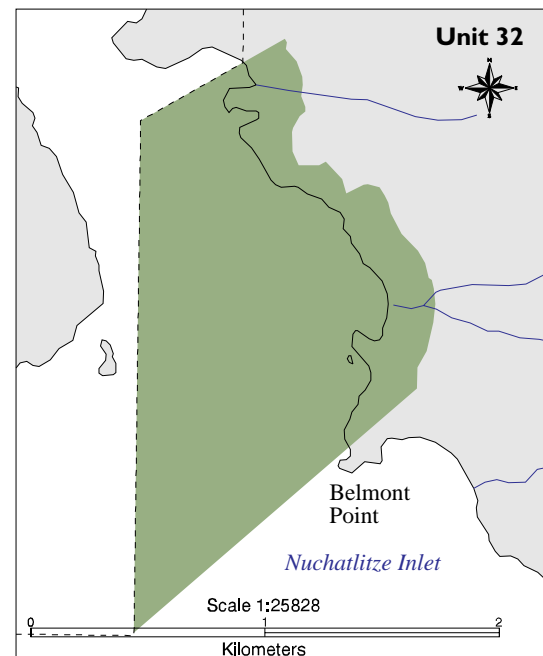
*Secondary Designation:* Rural Development / Conservation

*Key Values*

- Recreation and tourism
- Marine sensitive area
- Herring spawning area

*Objectives*

- Examine opportunities for upland cabin development.
- Examine opportunities for commercial lodge development.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



**UNIT 33 - NRB BAY**

*Primary Designation:* Rural Development

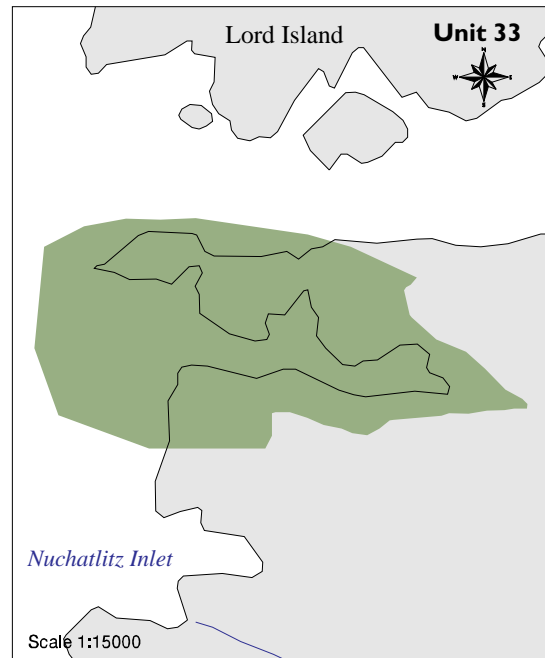
*Secondary Designation:*

*Key Values*

- Wildlife (mammals and birds)
- Recreation
- Marine sensitive area
- Herring spawning area

*Objectives*

- Examine opportunities for upland commercial and recreation cottage development.

**UNIT 34 - MARY BASIN/LAURIE CREEK**

*Primary Designation:* Conservation

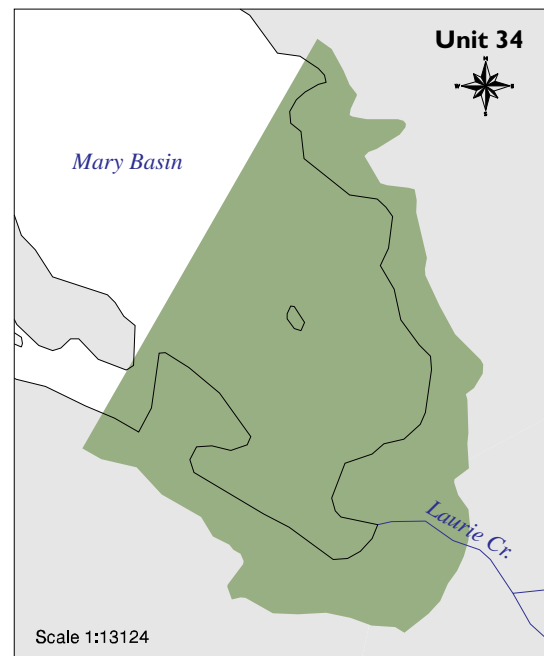
*Secondary Designation:* Public Recreation

*Key Values*

- Wildlife (mammals and birds)
- Marine sensitive areas
- Herring spawning area
- Recreation feature (waterfall)

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain wildlife values.
- Maintain public recreational values.
- Discourage rural development.



**UNIT 35 - LORD ISLAND**

*Primary Designation:* Rural Development

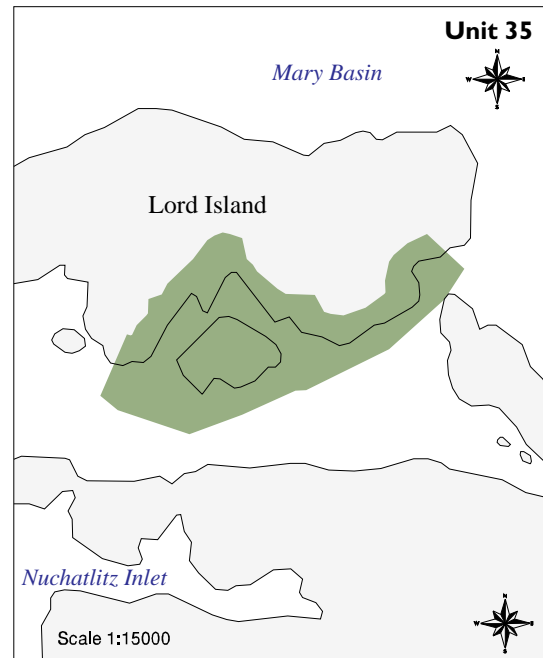
*Secondary Designation:*

*Key Values*

- Wildlife (mammals and birds)
- Recreation
- Marine sensitive area
- Herring spawning area

*Objectives*

- Provide opportunities for foreshore development.
- Examine opportunities for finfish aquaculture.
- Examine opportunities for shellfish aquaculture.

**UNIT 36 - MARY BASIN**

*Primary Designation:* Aquaculture

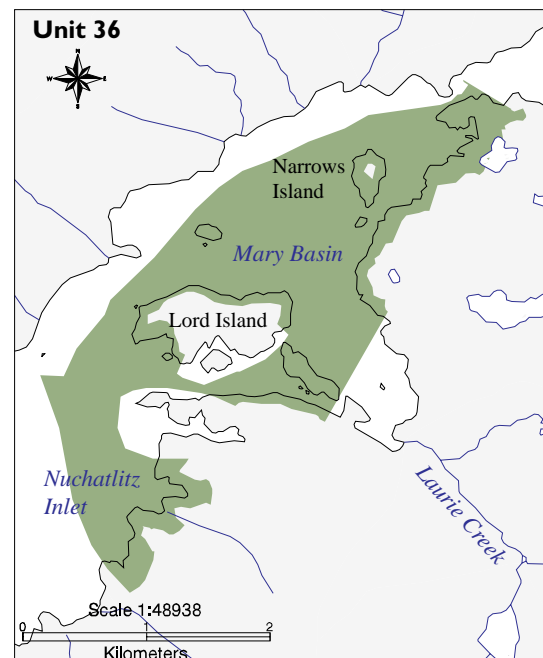
*Secondary Designation:* Conservation/Public recreation

*Key Values*

- Wildlife habitat values (mammals and birds)
- Public recreation
- Marine sensitive area
- Herring spawning area

*Objectives*

- Provide opportunities for off-bottom and beach shellfish aquaculture.
- Provide opportunities for finfish aquaculture.
- Maintain public recreational values.
- Maintain wildlife values.
- Maintain coastal wetland habitats and conserve marine sensitive areas.





## UNIT 37 - MARY BASIN / NOOTKA ISLAND

*Primary Designation:* Conservation

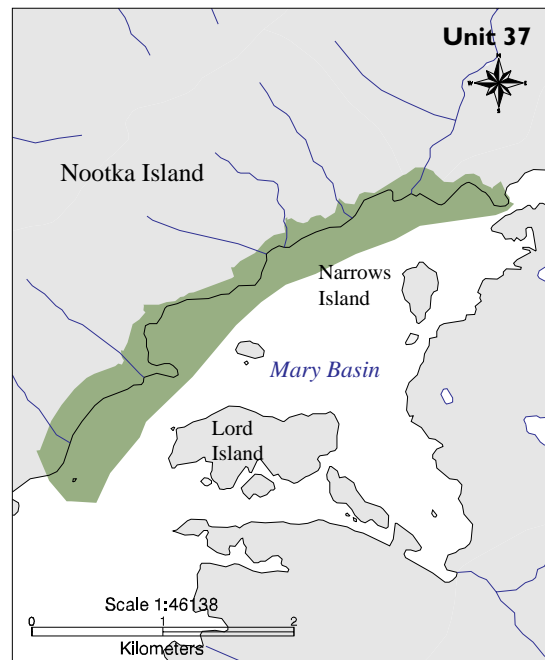
*Secondary Designation:* Public Recreation

### Key Values

- Wildlife habitat values (mammals and birds)
- Recreation
- Marine sensitive area
- Herring spawning area
- Archaeological values

### Objectives

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain wildlife values.
- Maintain public recreational values.



## UNIT 38 - INNER BASIN

*Primary Designation:* Aquaculture

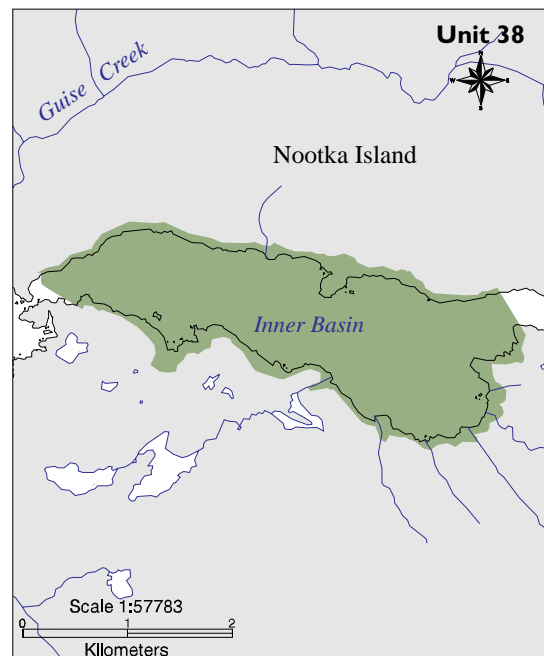
*Secondary Designation:* Conservation

### Key Values

- Wildlife (birds)
- Marine sensitive areas
- Recreation
- Winter habitat area for sea otters

### Objectives

- Provide opportunities for shellfish aquaculture.
- Provide opportunities for finfish aquaculture.
- Maintain high recreational values.
- Maintain wildlife values.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



**UNIT 39 - INNER BASIN HEAD**

*Primary Designation:* Conservation

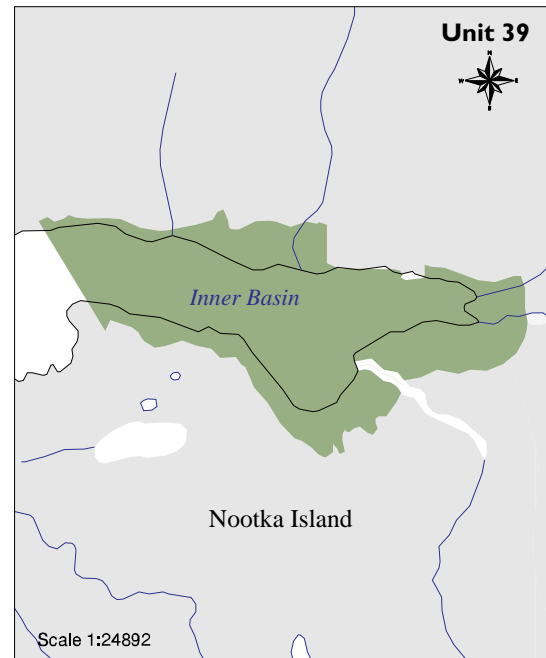
*Secondary Designation:*

*Key Values*

- Wildlife (birds, mammals)
- Marine sensitive areas
- Recreation
- Estuarine habitat

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain high recreational values.
- Maintain specific wildlife-habitat values associated with sea-otter winter use.

**UNIT 40 - TAHISIS NARROWS**

*Primary Designation:* Public Recreation

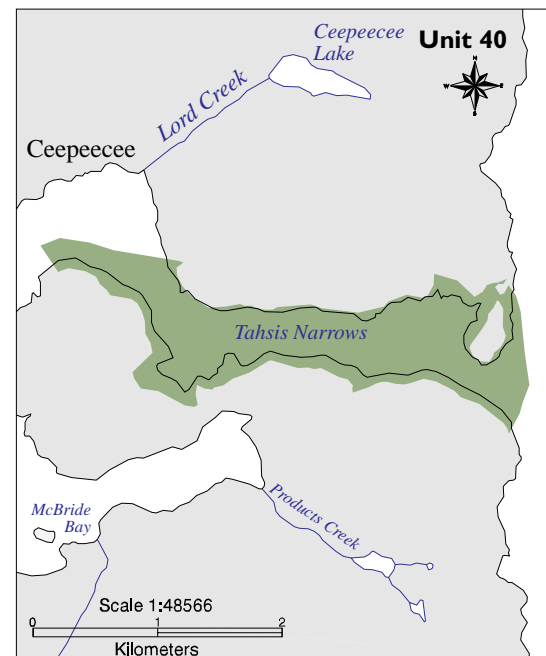
*Secondary Designation:* Aquaculture

*Key Values*

- Recreational fishing
- Dive sites

*Objectives*

- Evaluate opportunities for limited upland rural development.
- Identify and maintain dive sites.
- Maintain visual quality within Tahsis Narrows.
- Examine opportunities for off-bottom, shellfish aquaculture.



## UNIT 41 - MCBRIDE BAY / PRODUCTS CREEK

*Primary Designation:* Public Recreation

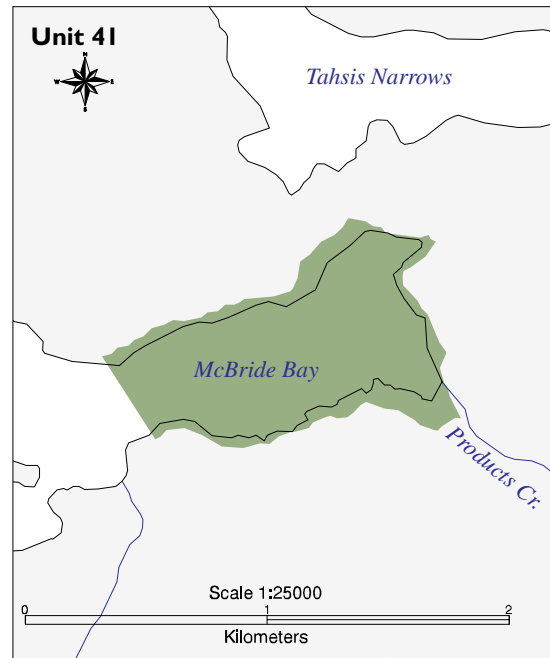
*Secondary Designation:* Conservation

### Key Values

- Marine sensitive areas
- Protected anchorage
- Heritage values

### Objectives

- Encourage public recreation opportunities.
- Remove unauthorized structures.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



## UNIT 42 - HECATE CHANNEL

*Primary Designation:* Rural Development

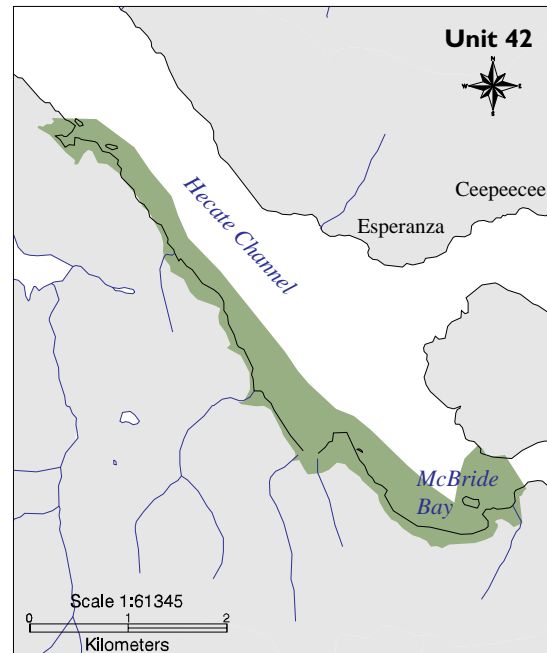
*Secondary Designation:* Aquaculture/Industrial and Commercial

### Key Values

- Marine sensitive areas
- Forestry activities

### Objectives

- Maintain existing log-handling and storage activities.
- Provide opportunities for commercial recreation and recreational cottage development.
- Provide opportunities for finfish aquaculture.
- Provide opportunities for shellfish aquaculture.
- Maintain public recreation values of the small bay at the north end of Hecate Channel.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



**UNIT 43 - ESPERANZA/CEEPEECE**

*Primary Designation:* Rural Development

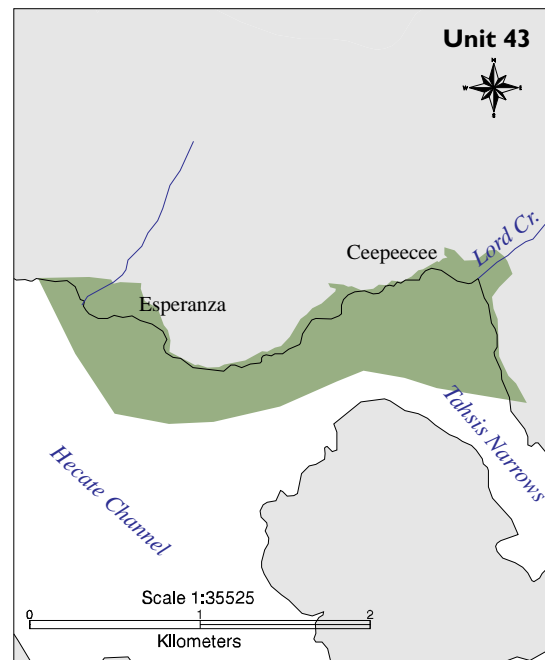
*Secondary Designation:*

*Key Values*

- Esperanza community
- Marine sensitive area
- Fish habitat (Lord Creek)

*Objectives*

- Provide opportunities for shore-based facilities to support upland rural development in consideration of adjacent private lands.
- Provide opportunities for supporting infrastructure in marine environment.
- Provide opportunities for off-bottom, shellfish culture.

**UNIT 44 - ESPERANZA INLET AND HECATE CHANNEL**

*Primary Designation:* Aquaculture

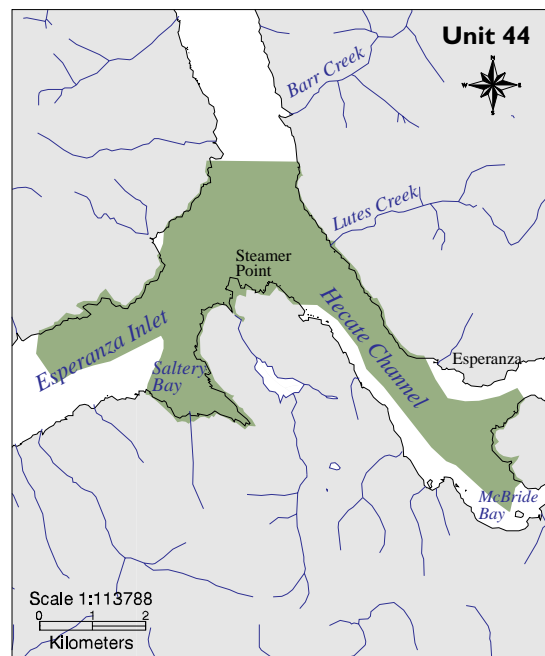
*Secondary Designation:*

*Key Values*

- Finfish aquaculture capability
- Marine sensitive area
- Herring spawning area

*Objectives*

- Promote opportunities for shellfish beach aquaculture where compatible with forestry activities.
- Provide opportunities for finfish aquaculture.
- Provide opportunities for shellfish aquaculture.



**UNIT 45 - CLIFF COVE**

*Primary Designation:* Industrial and Commercial

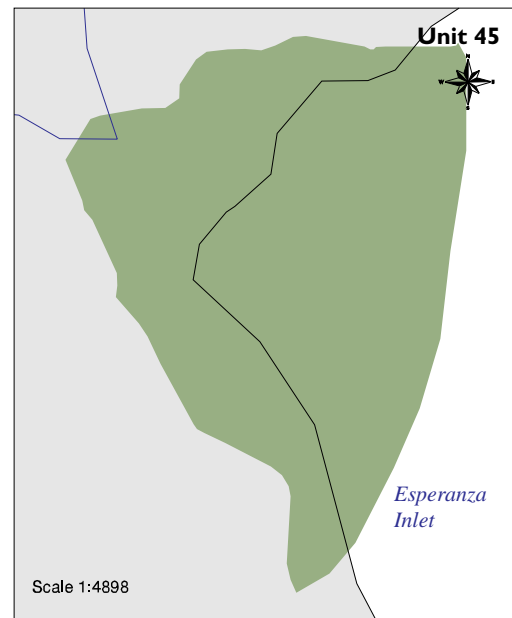
*Secondary Designation:* Rural Development

**Key Values**

- Forestry activities

**Objectives**

- Examine opportunities for recreational cottages.
- Provide opportunities for log handling and storage activities.

**UNIT 46 - ZEBALLOS INLET**

*Primary Designation:* General Management

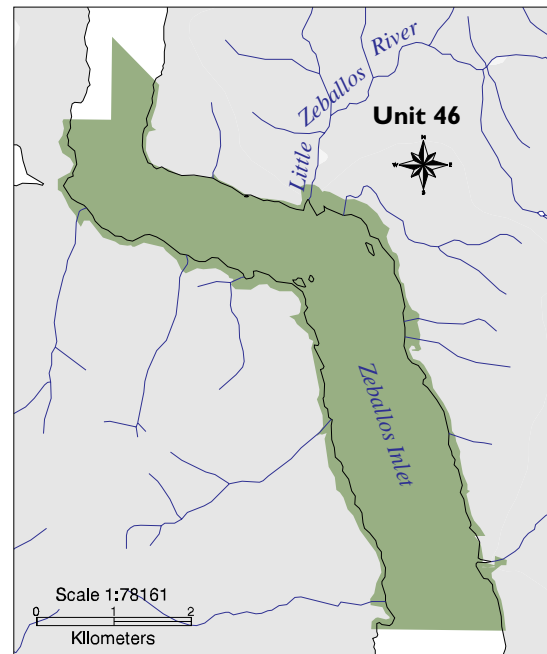
*Secondary Designation:* Industrial and Commercial

**Key Values**

- Forestry activities
- Marine sensitive area
- Fish and wildlife habitats (Little Zeballos River)
- Known gold showing

**Objectives**

- Consider site-specific applications for all uses in consideration of existing legal tenures.
- Maintain existing log-handling and storage activities.
- Examine opportunities for finfish aquaculture from the south bend of the inlet down to the boundary of Esperanza Inlet and Hecate Channel (unit 44) that do not conflict with existing prawn fishery.





**UNIT 47 - ZEBALLOS INLET WEST**

*Primary Designation:* Industrial and Commercial

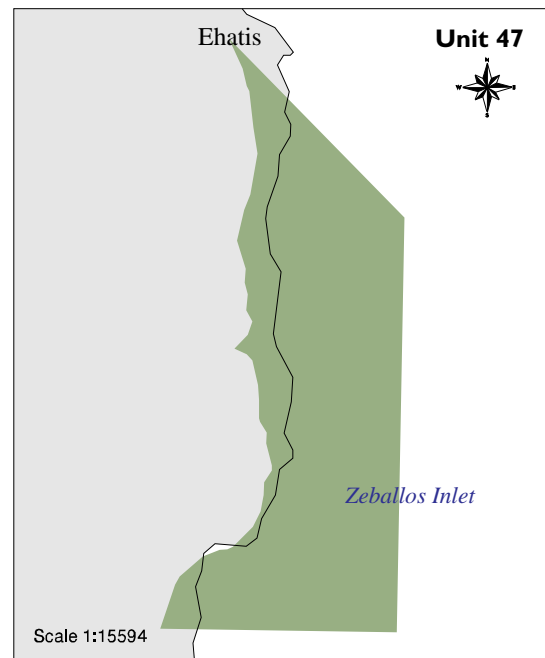
*Secondary Designation:*

*Key Values*

- Major log handling facility

*Objectives*

- Provide opportunities for commercial and industrial development.

**UNIT 48 - ZEBALLOS**

*Primary Designation:* Community Development

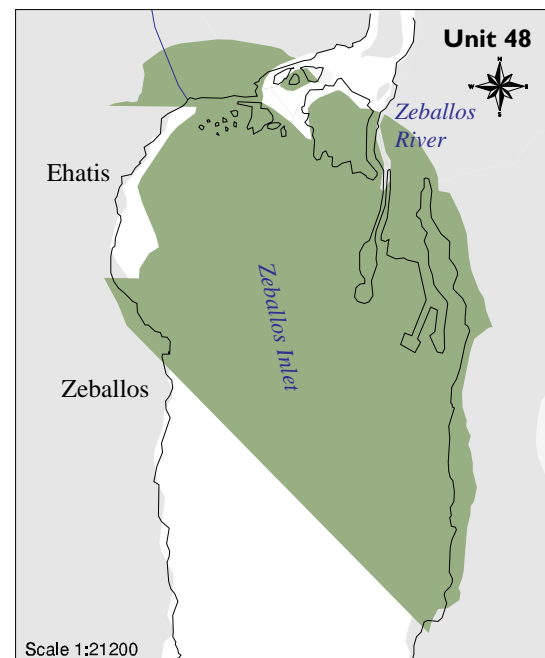
*Secondary Designation:* Conservation

*Key Values*

- Proximity to Zeballos
- Economic development
- Fish and wildlife habitats (Zeballos River estuary)
- Marine sensitive areas
- Historic and mineral-rich Zeballos mining camp in upland areas.

*Objectives*

- Provide opportunities for community development.
- Maintain coastal wetland and estuary values and protect marine sensitive areas.



**UNIT 49 - OCLUCJE**

*Primary Designation:* Community Development

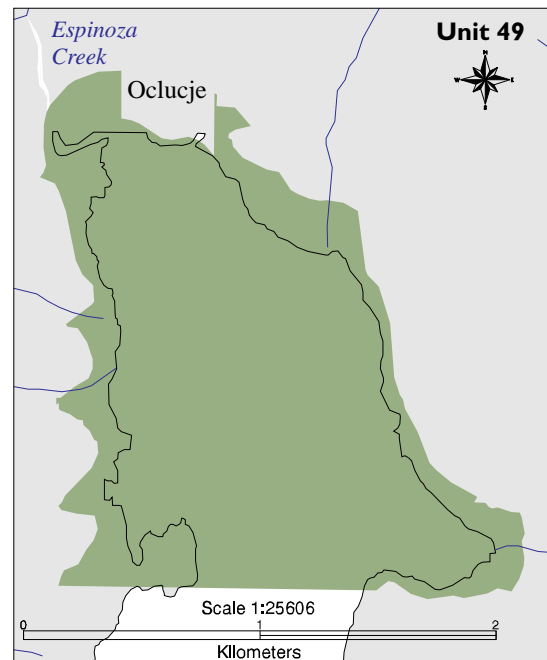
*Secondary Designation:* Conservation

**Key Values**

- Cultural and heritage values
- Marine sensitive areas
- Fish and wildlife habitats (Espinosa Creek)
- Aggregate resource potential

**Objectives**

- Provide opportunities for community development.
- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Examine opportunities for shellfish aquaculture.

**UNIT 50 - LITTLE ESPINOSA INLET**

*Primary Designation:* Conservation

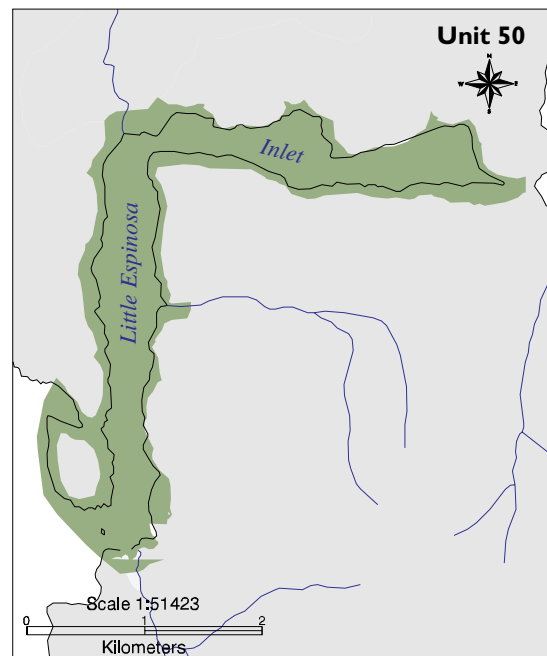
*Secondary Designation:* Public Recreation / Aquaculture

**Key Values**

- Recreational shellfish harvesting
- Marine sensitive areas
- Dive sites
- Major kayak launch and route
- High shellfish capability

**Objectives**

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Retain some clam beds for public recreational harvesting.
- Maintain known dive sites.
- Provide opportunities for beach and off-bottom, shellfish aquaculture.



**UNIT 51 - ESPINOSA INLET**

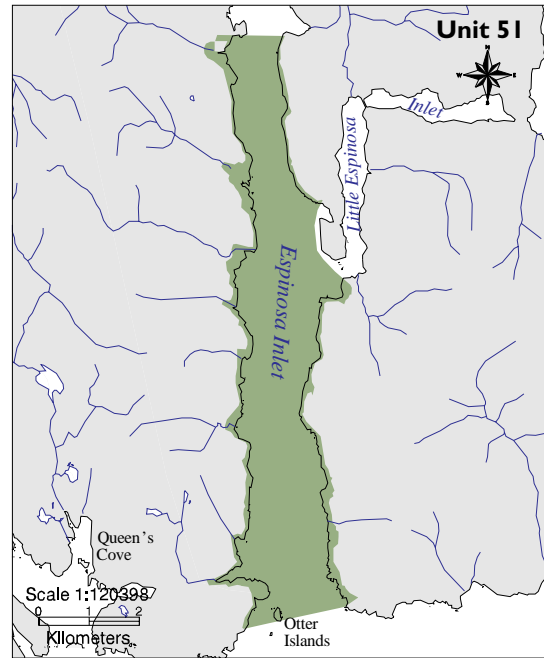
*Primary Designation:* Aquaculture

*Secondary Designation:* Industrial and Commercial

*Key Values*

*Objectives*

- Provide opportunities for finfish aquaculture.
- Provide opportunities for off-bottom, shellfish aquaculture.

**UNIT 52 - GRAVEYARD BAY**

*Primary Designation:* Conservation

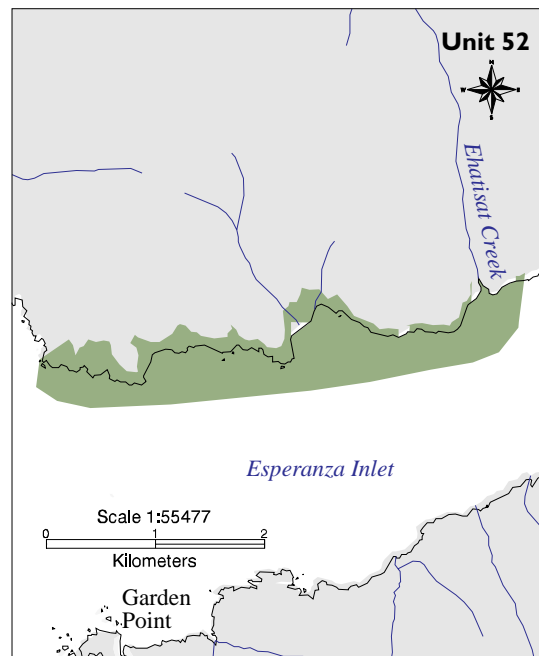
*Secondary Designation:*

*Key Values*

- Wildlife (birds, mammals)
- Marine sensitive areas
- Cultural and Heritage sites
- Herring spawning area

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Discourage recreational use.
- Examine relocation of existing log-dump sites.



**UNIT 53 - ESPERANZA INLET**

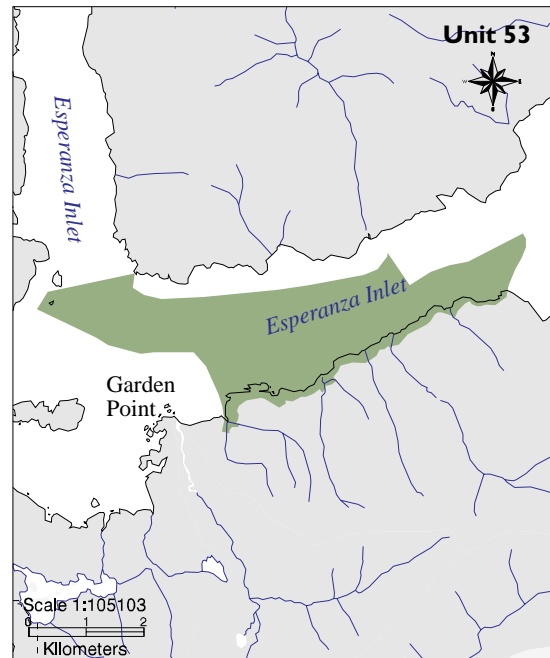
*Primary Designation:* General Management

*Secondary Designation:*

*Key Values*

*Objectives*

- Consider site-specific applications for all uses in consideration of existing legal tenures.
- Provide opportunities for finfish aquaculture.
- Provide opportunities for off-bottom shellfish aquaculture.
- Examine commercial recreation opportunities.

**UNIT 54 - GARDEN POINT**

*Primary Designation:* Public Recreation

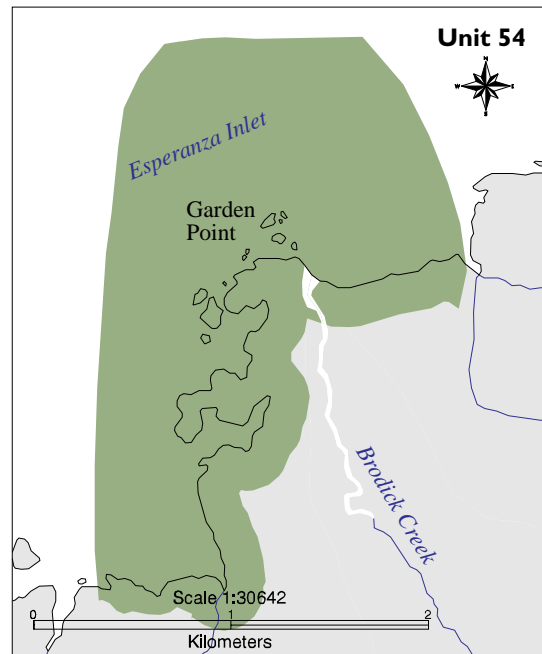
*Secondary Designation:* Conservation

*Key Values*

- Wildlife (birds, mammals)
- Marine sensitive areas
- Recreation
- Herring spawning area

*Objectives*

- Encourage public recreation opportunities.
- Discourage rural development.
- Maintain public camping sites at Garden Point.
- Maintain coastal wetland habitats and conserve marine sensitive areas.



**UNIT 55 - OWOSSITSA**

*Primary Designation:* Conservation

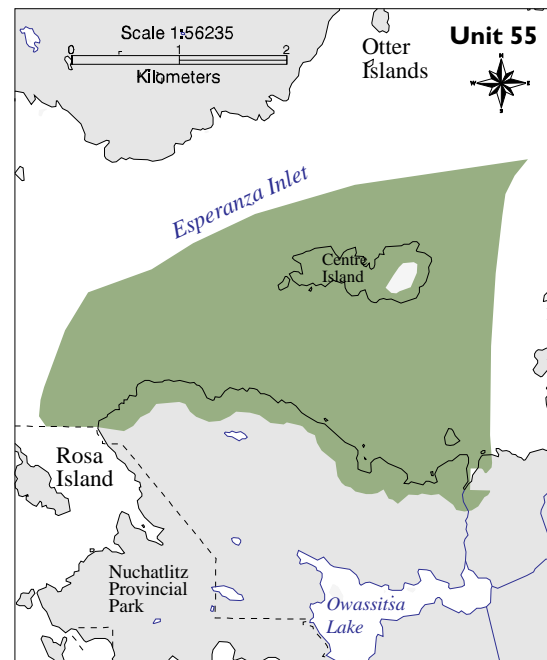
*Secondary Designation:* Public Recreation

*Key Values*

- Marine sensitive areas
- Herring spawning area

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain public recreation values (kayaking).
- Examine opportunities for additional development adjacent to private lots.

**UNIT 56 - BIRTHDAY CHANNEL**

*Primary Designation:* Conservation

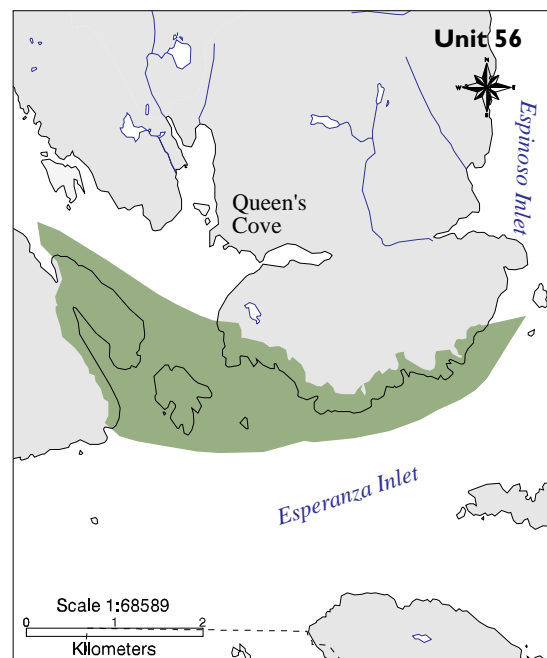
*Secondary Designation:* Public Recreation

*Key Values*

- Wildlife (birds, mammals)
- Marine sensitive areas
- Recreation
- Herring spawning area

*Objectives*

- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain public recreation values (kayaking).





**UNIT 57 - QUEEN'S COVE**

*Primary Designation:* Community Development

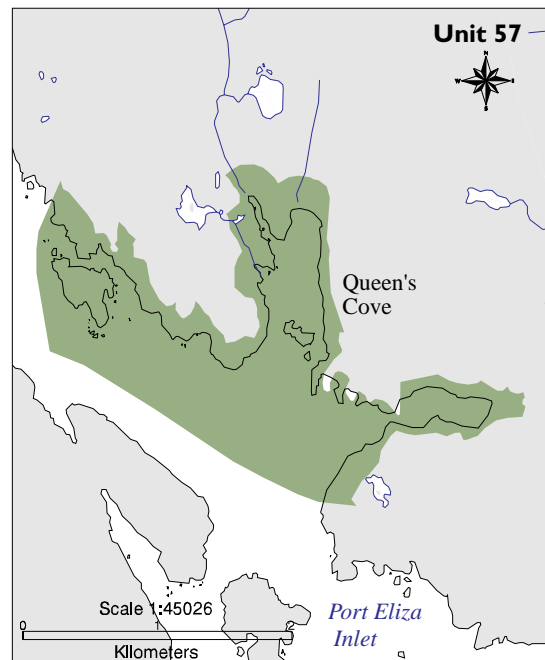
*Secondary Designation:* Conservation

*Key Values*

- Cultural and heritage sites
- Marine sensitive area

*Objectives*

- Encourage and promote Queen's Cove community development opportunities.
- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain public recreation values (kayaking).

**UNIT 58 - PORT ELIZA**

*Primary Designation:* General Management

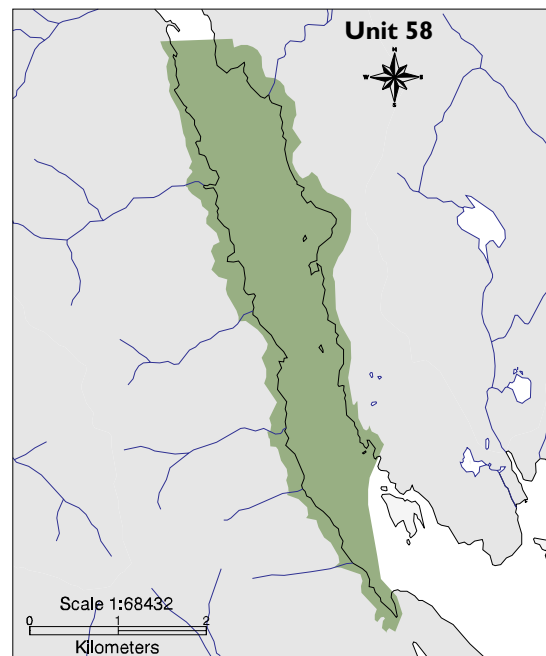
*Secondary Designation:* Aquaculture / Industrial and Commercial

*Key Values*

- Forest activities
- Past Producing gold-silver-copper deposit

*Objectives*

- Consider site-specific applications for all uses in consideration of existing legal tenures.
- Maintain existing industrial and commercial tenures.
- Provide opportunities for finfish aquaculture.
- Provide opportunities for shellfish aquaculture.



**UNIT 59 - PORT ELIZA HEAD**

*Primary Designation:* General Management

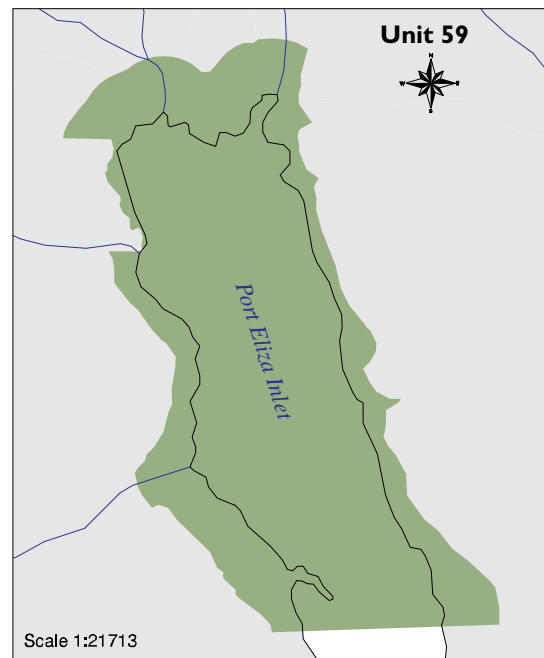
*Secondary Designation:* Conservation

**Key Values**

- Forest activities
- Marine sensitive areas
- Estuary

**Objectives**

- Consider site-specific applications for all uses in consideration of existing legal uses.
- Maintain coastal wetland habitats and conserve marine sensitive areas.
- Maintain existing log-handling sites and associated activities.

**UNIT 60 - YELLOW BLUFF BAY**

*Primary Designation:* Commercial Recreation

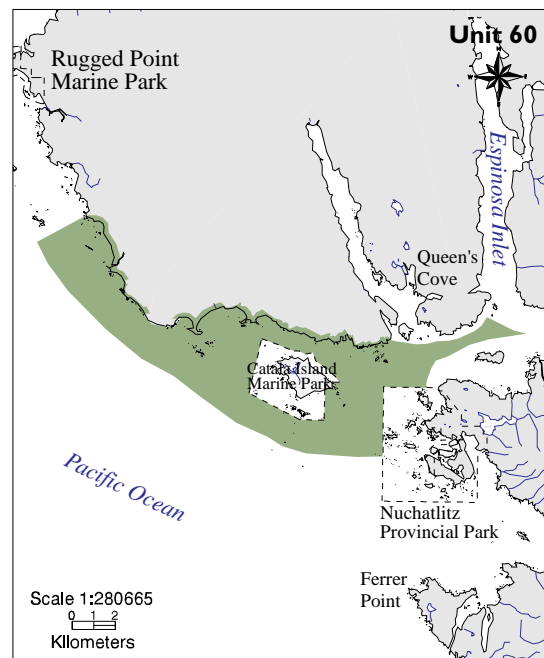
*Secondary Designation:* Conservation, Rural Development

**Key Values**

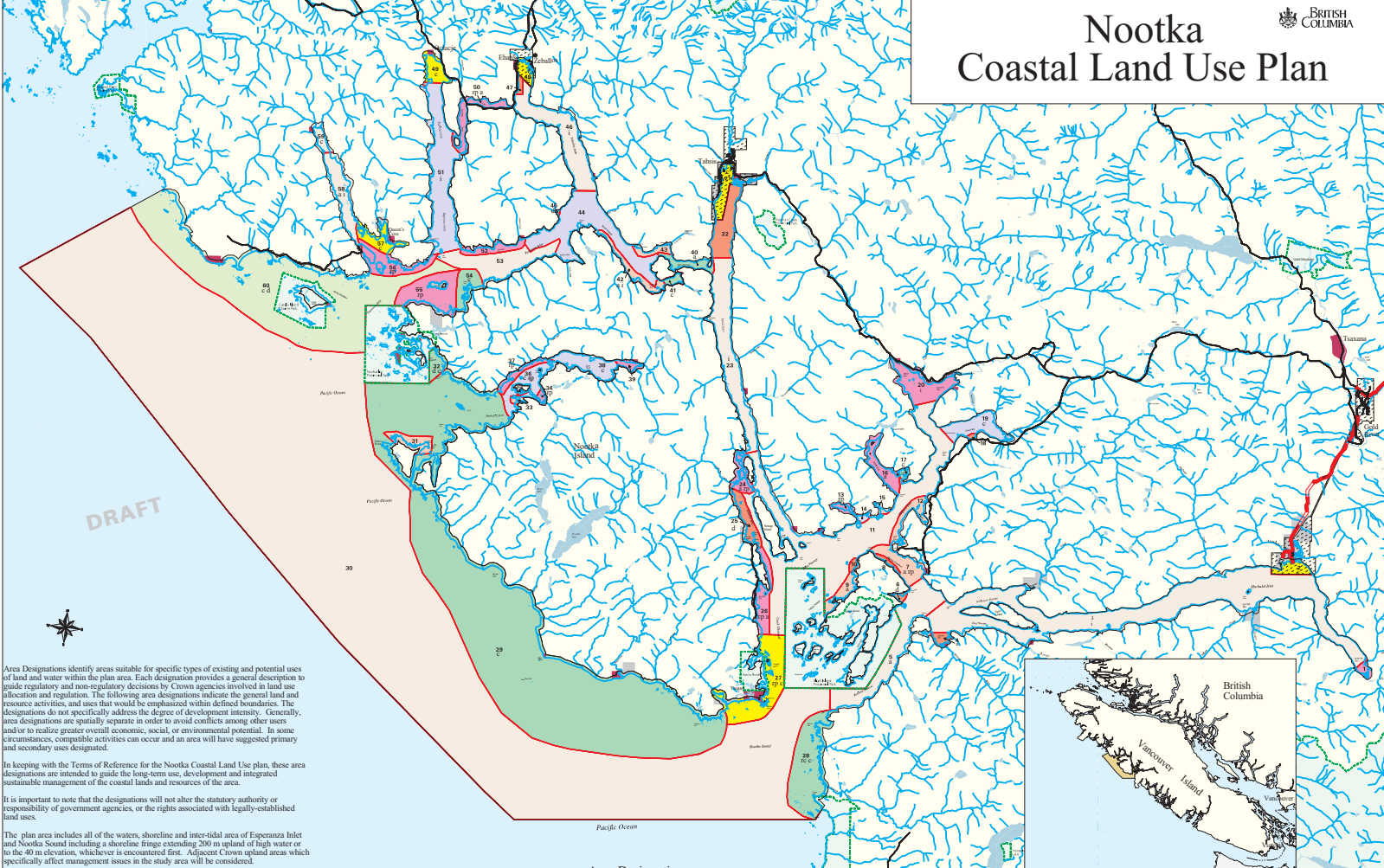
- Wildlife (birds, mammals)
- Marine sensitive areas
- Recreation
- Abandoned air strip
- Dimension stone showing

**Objectives**

- Encourage opportunities for lodges and commercial recreation tenures in the following key locations:
  - Tatchu Point area to Sandstone Point
  - Between Yellow Bluff and Peculiar Point
  - Rolling Roadstead
  - High Rocks
  - Yellow Bluff area
  - Peculiar Point
- Maintain a wilderness setting for commercial recreation.
- Focus lodge development on upland areas.
- Ensure commercial recreation activities do not negatively impact areas with high wildlife values at Tatchu Rocks and High Rocks off Yellow Bluff.
- Maintain public recreation opportunities and values.



# Nootka Coastal Land Use Plan



Area Designations identify areas suitable for specific types of existing and potential uses of land and water within the plan area. Each designation provides a general description to guide regulatory and non-regulatory decisions by Crown agencies involved in land use allocation and regulation. The following area designations indicate the general land and resource activities, and uses that would be emphasized within defined boundaries. The designations do not specifically address the degree of development intensity. Generally, area designations are spatially separate in order to avoid conflicts among other users and/or to realize greater overall economic, social, or environmental potential. In some circumstances, compatible activities can occur and an area will have suggested primary and secondary uses designated.

In keeping with the Terms of Reference for the Nootka Coastal Land Use Plan, these area designations are intended to guide the long-term use, development and integrated sustainable management of the coastal lands and resources of the area.

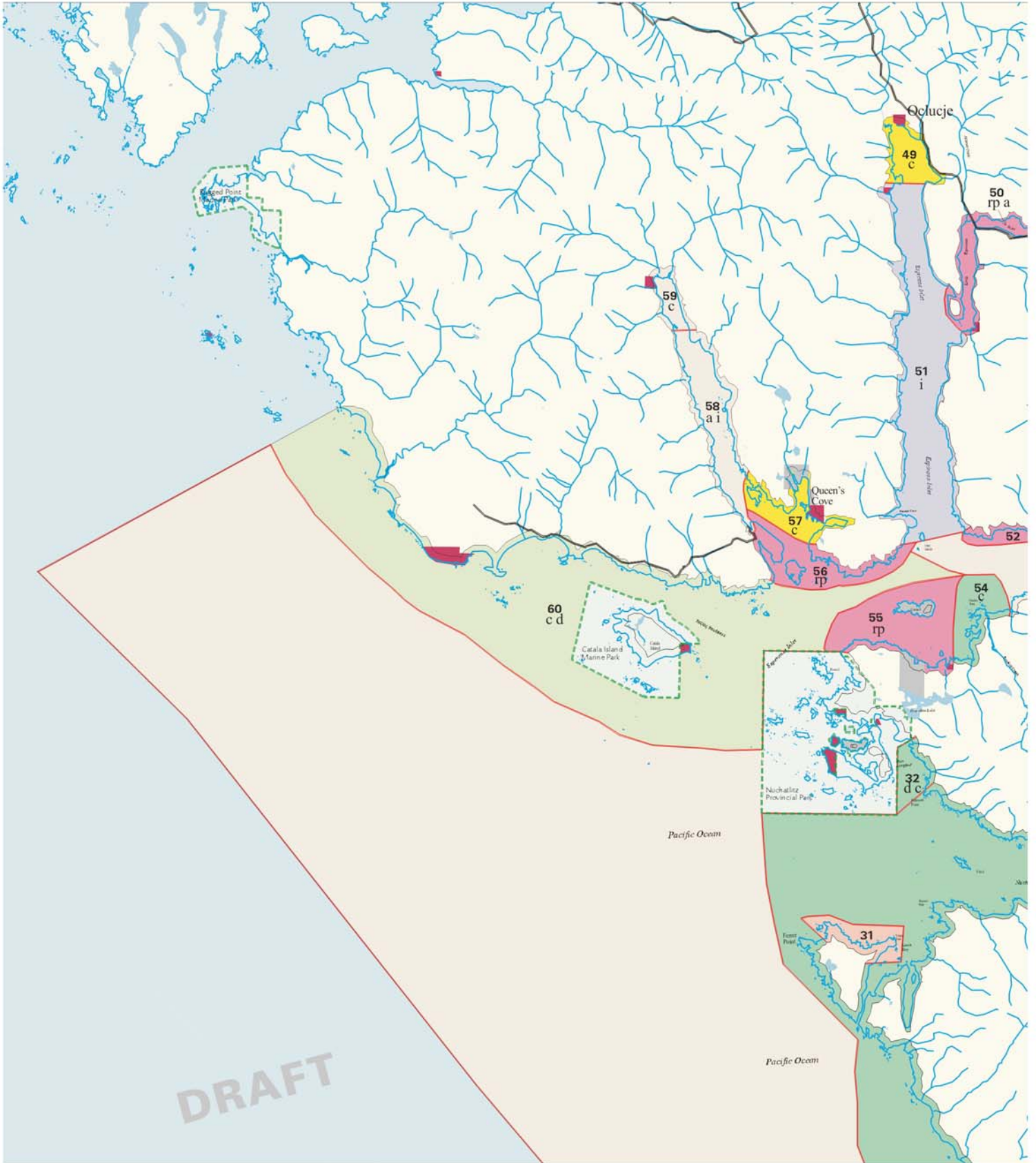
It is important to note that the designations will not alter the statutory authority or responsibility of government agencies, or the rights associated with legally-established land uses.

The plan area includes all of the waters, shoreline and inter-tidal area of Esperanza Inlet and Nootka Sound including a shoreline fringe extending 200 m upland of high water or to the 40 m elevation, whichever is encountered first. Adjacent Crown upland areas which specifically affect management issues in the study area will be considered.

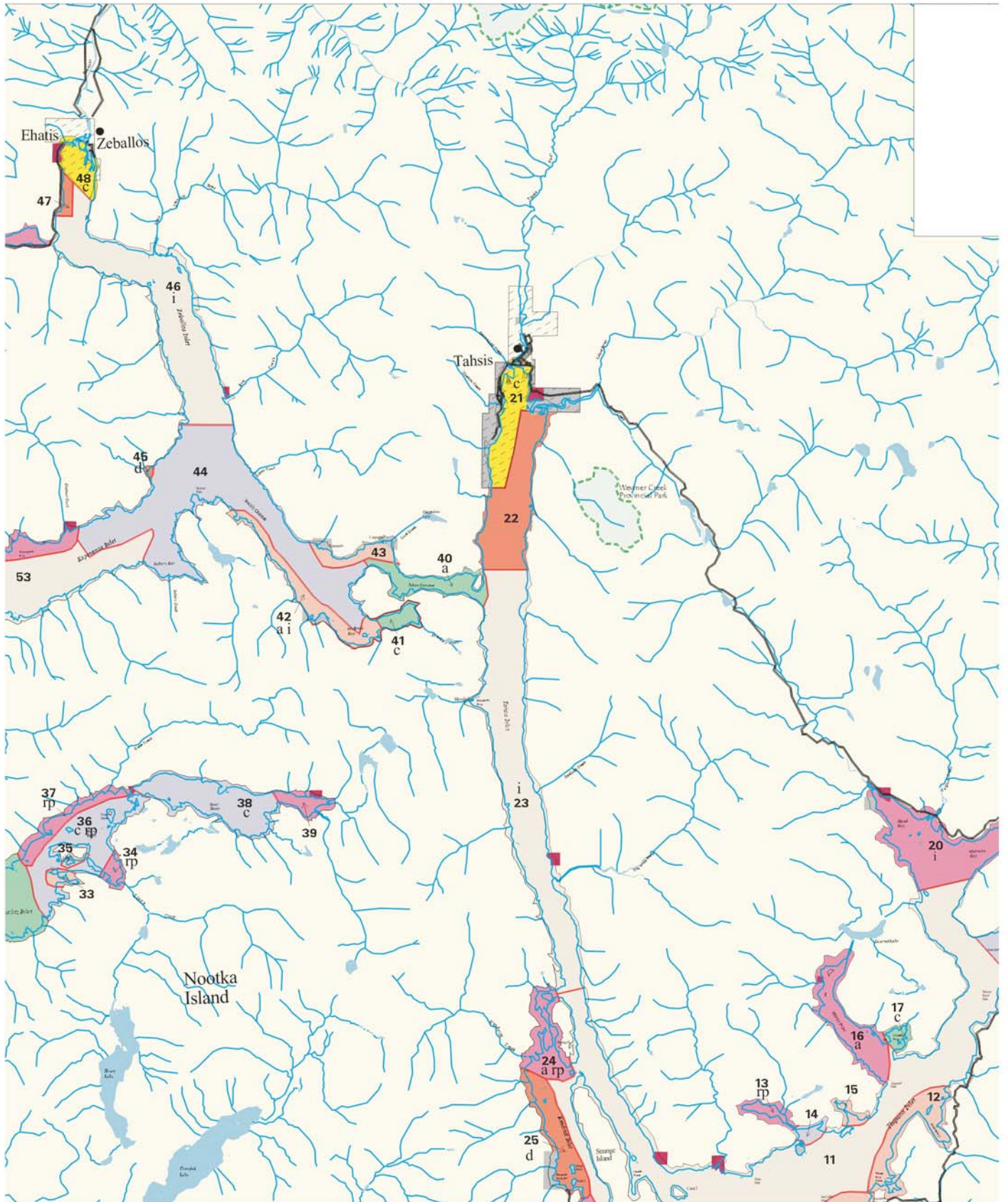


## Area Designations

<p><b>Conservation</b></p> <p>These areas have particular value for the conservation of natural resources and/or contain significant environmental and heritage features. Management emphasis in these areas is for the conservation of:</p> <ul style="list-style-type: none"> <li>- heritage/cultural sites/areas</li> <li>- sensitive fish/wildlife habitats (eg. estuaries, kelp beds, colonies, haulouts)</li> <li>- marine sensitive areas</li> <li>- physical features (eg. sea caves, waterfalls etc.)</li> </ul> <p>Proposals for land use development in these areas would be considered based on their impacts on the specific conservation values identified in the designated area.</p> <p><b>Aquaculture</b></p> <p>These areas would provide for development of aquaculture activities including floating and shore based physical structures associated with operations. Activities that would be emphasized would be:</p> <ul style="list-style-type: none"> <li>- shellfish culture</li> <li>- marine plant culture</li> <li>- finfish culture</li> </ul>	<p><b>Recreation - Public</b></p> <p>These areas, containing landscapes and features of a remote coastal setting, offer opportunities for education and recreation. Emphasis would be placed on development of activities that are compatible with remote coastal conservation and enjoyment, such as:</p> <ul style="list-style-type: none"> <li>- public recreation sites (eg. Forest recreation sites)</li> <li>- protected public anchorages and boat havens</li> <li>- recreational fishing areas</li> <li>- non commercial wilderness trail development</li> <li>- non commercial wildlife viewing sites</li> </ul> <p><b>Recreation - Commercial</b></p> <p>These areas, containing landscapes and features of a remote coastal setting, would provide opportunities for the development of commercial recreational activities. Emphasis would be placed on development that is compatible with remote coastal conservation and enjoyment such as:</p> <ul style="list-style-type: none"> <li>- commercial wilderness recreation sites and trails</li> <li>- eco-tourism opportunities (wilderness guiding, wildlife viewing)</li> </ul>	<p><b>Industrial and Commercial</b></p> <p>These areas would support resource industry infrastructure related to storage, processing, production and shipment. Emphasis would be placed on development or maintenance of:</p> <ul style="list-style-type: none"> <li>- log handling, storage and infrastructure related to forest handling</li> <li>- commercial marine transportation landings, anchorage and carrier routes</li> <li>- loading facilities, associated docks and breakwaters</li> <li>- processing facilities and docks</li> <li>- industrial resource extraction including mineral, oil and gas exploration and development</li> <li>- infrastructure to support air travel</li> </ul> <p><b>Rural Development</b></p> <p>These areas would provide sites for the development of a limited scale of residential, service and tourist/recreational-related commercial activities. Development of permanent and/or seasonal residences, including float homes, resorts and lodges, as well as moorage and commercial recreation facilities would be emphasized.</p>	<p><b>Community Development</b></p> <p>These areas are intended to accommodate significant residential, commercial, institutional and industrial uses. These areas include the established communities and anticipated growth areas. All activities in support of and necessary to the development and continued viability of coastal communities would be emphasized.</p> <p><b>General</b></p> <p>These areas have potential for the full range of designated uses as identified above. Proposals for land-use developments in these areas would be reviewed on a case by case basis; the review to include a full assessment of suitability of the proposed use.</p> <p><b>SECONDARY DESIGNATIONS</b></p> <p>Colour shows the primary focus for the unit as well as secondary focus if applicable.</p> <p>rp - Recreation Public      rc - Recreation Commercial          c - Conservation          a - Aquaculture          i - Industrial and Commercial      d - Rural Development          s - Community Development</p>	<p><b>OTHER DESIGNATIONS</b></p> <p>Private land      60 Unit Number</p> <p>Provincial Parks</p> <p>First Nation Reserves</p> <p>Municipalities</p> <p>Major Highway</p> <p>Other Roads</p> <p>Scale 1:170000</p> <p>Projection: Albers Equal Area Conic Datum NAD83          Produced by: LAND USE COORDINATION OFFICE      May 31, 2001</p>
---	---	---	---	---

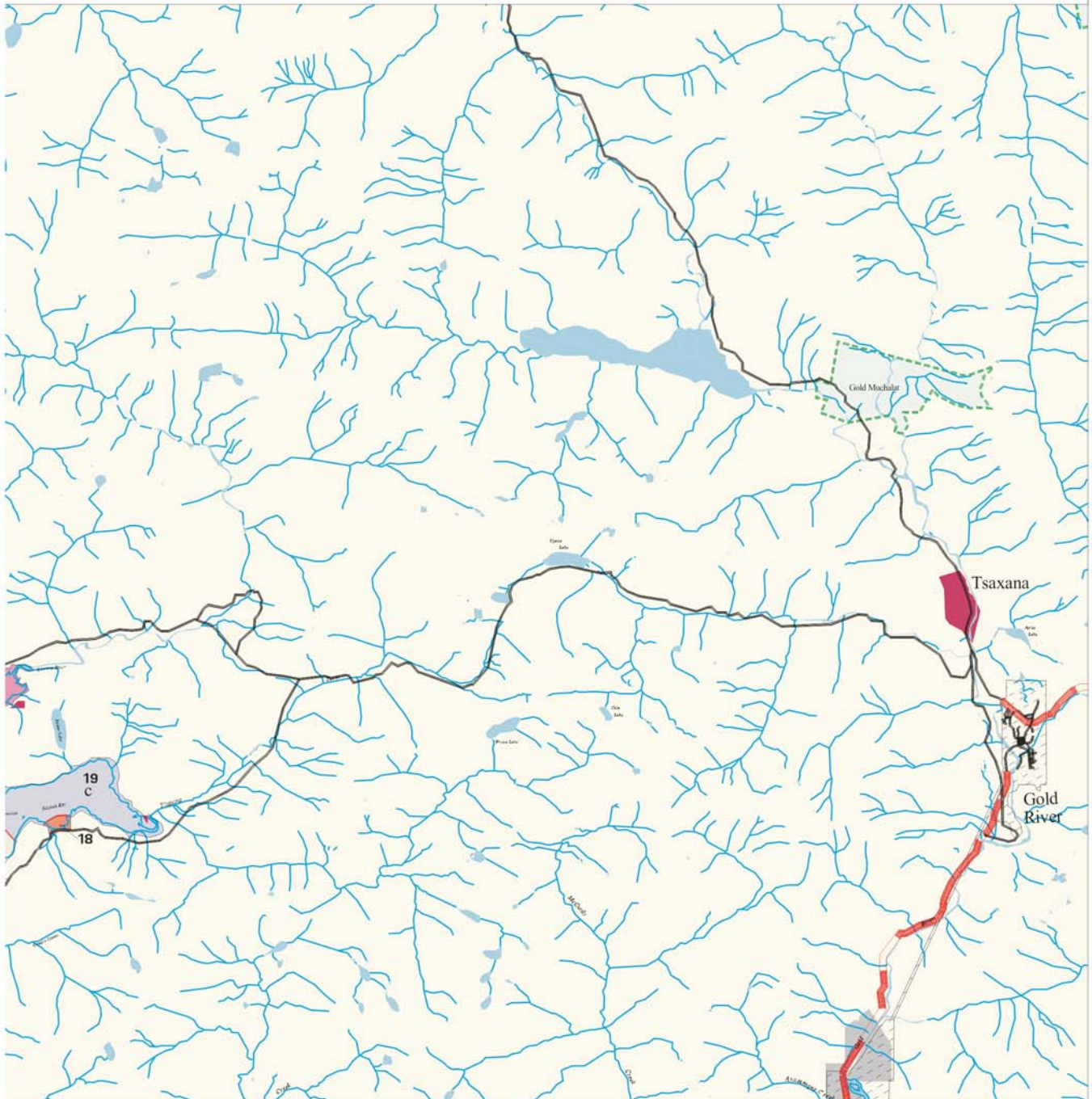








# Nootka Coastal Land Use Plan





30

Area Designations identify areas suitable for specific types of existing and potential uses of land and water within the plan area. Each designation provides a general description to guide regulatory and non-regulatory decisions by Crown agencies involved in land use allocation and regulation. The following area designations indicate the general land and resource activities, and uses that would be emphasized within defined boundaries. The designations do not specifically address the degree of development intensity. Generally, area designations are spatially separate in order to avoid conflicts among other users and/or to realize greater overall economic, social, or environmental potential. In some circumstances, compatible activities can occur and an area will have suggested primary and secondary uses designated.

In keeping with the Terms of Reference for the Nootka Coastal Land Use plan, these area designations are intended to guide the long-term use, development and integrated sustainable management of the coastal lands and resources of the area.

It is important to note that the designations will not alter the statutory authority or responsibility of government agencies, or the rights associated with legally-established land uses.

The plan area includes all of the waters, shoreline and inter-tidal area of Esperanza Inlet and Nootka Sound including a shoreline fringe extending 200 m upland of high water or to the 40 m elevation, whichever is encountered first. Adjacent Crown upland areas which specifically affect management issues in the study area will be considered.

#### Conservation

These areas have particular value for the conservation of natural resources and/or contain significant environmental and heritage features. Management emphasis in these areas is for the conservation of:

- heritage/cultural sites/areas
- sensitive fish/wildlife habitats (eg. estuaries, kelp beds, colonies, haulouts)
- marine sensitive areas
- physical features (eg. sea caves, waterfalls etc.)

Proposals for land use development in these areas would be considered based on their impacts on the specific conservation values identified in the designated area.

#### Aquaculture

These areas would provide for development of aquaculture activities including floating and shore based physical structures associated with operations. Activities that would be emphasized would be:

- shellfish culture
- marine plant culture
- finfish culture

#### Recreation - Public

These areas, containing landscapes and features provide opportunities for education and recreation. Emphasis would be placed on development of activities that are compatible with remote coastal areas such as:

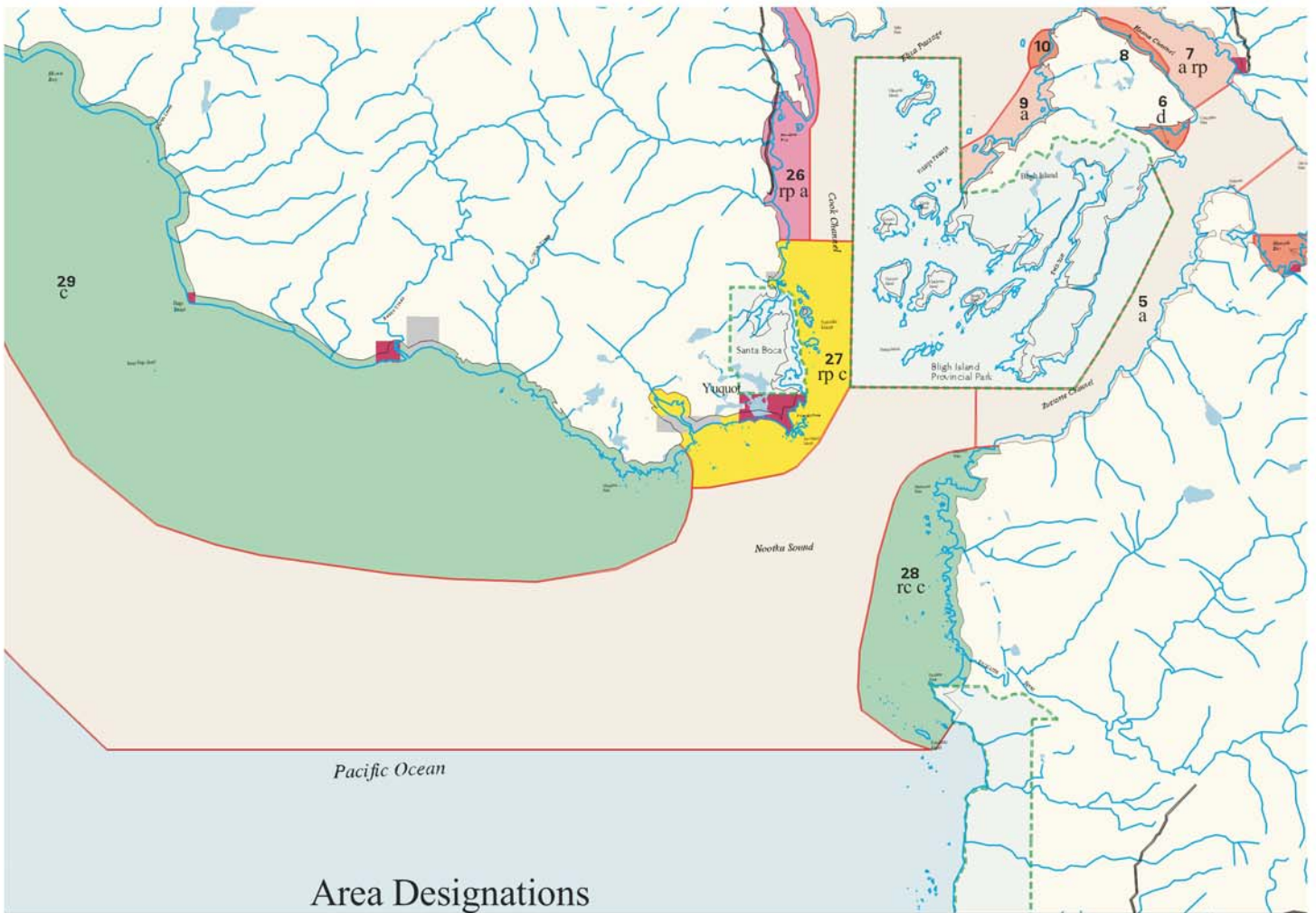
- public recreation sites (eg. Forest recreation sites)
- protected public anchorages and boat havens
- recreational fishing areas
- non commercial wilderness trail development
- non commercial wildlife viewing sites

#### Recreation - Commercial

This area, containing landscapes and features provide opportunities for the development of commercial recreation sites and trails. Emphasis would be placed on development that provides for conservation and enjoyment such as:

- commercial wilderness recreation sites and trails
- eco-tourism opportunities (wilderness guiding)





## Area Designations

of a remote coastal setting, offer  
 emphasis would be placed on development  
 coastal conservation and enjoyment,

tes)

of a remote coastal setting, would  
 commercial recreational activities.  
 it is compatible with remote coastal

ails  
 ; wildlife viewing)

Industrial and Commercial

These areas would support resource industry infrastructure related to storage, processing, production and shipment. Emphasis would be placed on development or maintenance of:

- log handling, storage and infrastructure related to forest handling
- commercial marine transportation landings, anchorage and carrier routes
- loading facilities, associated docks and breakwaters
- processing facilities and docks
- industrial resource extraction including mineral, oil and gas exploration and development
- infrastructure to support air travel

Rural Development

These areas would provide sites for the development of a limited scale of residential, service and tourist/recreational-related commercial activities. Development of permanent and/or seasonal residences, including float homes, resorts and lodges, as well as moorage and commercial recreation facilities would be emphasized.

C

These are  
 institution  
 and antici  
 developm

G

These are  
 Proposals  
 case basis  
 use.

**SECON**  
 Colour sh  
 applicabl

rp - Recre  
 c - Conse  
 i - Industr  
 s - Comm



**Community Development**

as are intended to accommodate significant residential, commercial, industrial and industrial uses. These areas include the established communities and designated growth areas. All activities in support of and necessary to the present and continued viability of coastal communities would be emphasized. General

as have potential for the full range of designated uses as identified above. For land-use developments in these areas would be reviewed on a case by case basis; the review to include a full assessment of suitability of the proposed

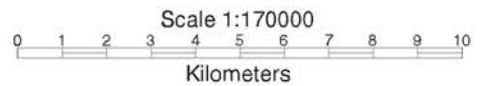
**PRIMARY DESIGNATIONS**

shows the primary focus for the unit as well as as secondary focus if applicable.

- Public Recreation
- Commercial and Commercial Community Development
- Recreation Commercial
- Aquaculture
- Rural Development

**OTHER DESIGNATIONS**

- Private land **60** Unit Number
- Provincial Parks
- First Nation Reserves
- Municipalities
- Major Highway
- Other Roads



Projection Albers Equal Area Conic Datum NAD83  
 Produced by:  
 LAND USE COORDINATION OFFICE May 31, 2001



Ferrer Point



## APPENDICES

<i>Appendix A:</i>	<i>Acknowledgements</i>	82
<i>Appendix B:</i>	<i>Terms of Reference and Workplan</i>	83
<i>Appendix C:</i>	<i>First Nations Profile</i>	87
<i>Appendix D:</i>	<i>Coastal and Marine Legislation</i>	89
<i>Appendix E:</i>	<i>Additional Information and Websites</i>	96
<i>Appendix F:</i>	<i>Glossary of Acronyms</i>	99

## Appendix A - Acknowledgements

The following participants in an Inter-agency Technical Planning Working Group contributed to the development of the Nootka Coastal Resource Use Plan:

### PROVINCIAL

- Lindsay Jones - Land Use Coordination Office (Port Alberni)
- Mark Zacharias - Land Use Coordination Office (Victoria)
- Ron Burrell - Ministry of Forests (Campbell River)
- Charlie Cornfield - Ministry of Forests (Campbell River)
- Bill Hubbard - Ministry of Environment, Lands and Parks (Nanaimo)
- Dorthe Jakobsen - Ministry of Energy and Mines (Nanaimo)
- Kris Kennett - Ministry of Environment, Lands and Parks (Parksville)
- Stafford Reid - Land Use Coordination Office (Victoria)
- Arlene Tompkins - Ministry of Environment, Lands and Parks (Nanaimo)
- Joe Truscott - Ministry of Agriculture, Food and Fish (Victoria)
- Duncan Williams - BC Assets and Land Corporation

### FEDERAL

- Scott Northrup - Fisheries and Oceans Canada (Nanaimo)

### REGIONAL DISTRICT

- Beth Rees - Regional District of Comox-Strathcona (Courtenay)
- Russ Hotsenspieler - Regional District of Comox-Strathcona (Courtenay)

### NOOTKA RESOURCE BOARD

- Larry Andrews (Gold River)
- Trudy Annand (Gold River)
- Ken Brook (Village of Zeballos)
- Dayle Crawford (Village of Gold River)
- Joyce Davies (Village of Tahsis)
- Sharon Doucet (Ehattesaht First Nation)
- Tony Ellis (Tahsis)
- Jim Fiddick (Gold River)
- Bill Heidrick (Zeballos)
- George Lerchs (Tahsis)
- Wayne Lord (Mowachaht/Muchalaht First Nation)
- Curtis Michael (Nuchatlaht First Nation)
- Tom Pater (Area "G" Comox-Strathcona Regional District)
- Maureen Plecas (Gold River)
- Ron Todd (Gold River)
- Bruce Sanderson (NRB Secretariate)

Funding for this plan was provided by:

- Forest Renewal British Columbia (FRBC)
- Corporate Resources Inventory Initiative (CRII)
- Crown Land Use Planning Enhancement (CLUPE)

Carol Ogborne of the Land Use Coordination Office provided Geographic Information System (GIS), resource analysis, and plan drafting support.

Contributions to this plan were also provided by:

Brian Emmett  
 Jim Haggarty  
 John Harper  
 Kevin Neary  
 Steve Nichol  
 Deidre Cullan  
 Sheila Savey

Layout & Design:

Dennis & Struthers Visual Communications Inc.

---

## O t h e r I n f o r m a t i o n

---

### *Catch Statistics*

John Davidson, Catch Statistic Unit, Department of Fisheries and Oceans, Vancouver

Jim Morrison, Prawn and Crab Catch, DFO South Coast Management, Nanaimo

Brenda Adkins, Commercial Salmon Catch, Pacific Biological Station, Nanaimo

### *Salmon Escapement*

Department of Fisheries and Oceans, Salmon Escapement Database.

### *Red and Blue Listed Species*

Conservation Data Centre Web site -

[www.elp.gov.bc.ca/rib/wis/cdc/index.htm](http://www.elp.gov.bc.ca/rib/wis/cdc/index.htm)

Syd Cannings, CDC, pers. comm.

## Appendix B - Terms of Reference and Workplan

January, 2000

### RATIONALE

In recent years, the Nootka coastal area has experienced rapid growth in tourism, public recreation, mariculture, aquaculture, and seasonal residential development. As a result of conflicting and competing interests, it has become increasingly difficult to provide effective management and administration of coastal Crown lands. Further, in the absence of integrated land and resource-use planning, economic investments are reduced, resource-use controversies develop, and public and interest groups grow frustrated. In Nootka Sound, completion of an Integrated Coastal Land Use Plan (the plan) will provide integrated direction to address these coastal land and resource management issues. Such an initiative is supported by the Vancouver Island Land Use Plan (VILUP) and represents an initial approach to marine unit planning. This initiative is further supported by the federal Oceans Management Strategy, Integrated Coastal Zone Management approach within the *Oceans Act* (1997). This process will provide an excellent foundation from which to develop an Integrated Coastal Zone Management process.

### PURPOSE/OBJECTIVE/SCOPE

The purpose of the plan is to produce an integrated, subregional coastal resource management plan for review and approval by the provincial government.

The plan is intended to be a product of a multi-agency process which incorporates significant local community input to guide the long-term use, development and integrated sustainable management of the coastal lands and resources of Nootka Sound.

The plan will present a common statement of intent on the part of the province on how the coastal lands of Nootka Sound will be managed and developed over the next ten years. However, it will not alter the statutory authority or responsibility of government agencies, or the rights associated with legally established land uses.

The plan will not limit the scope of treaty negotiations with the Nuu-chah-nulth Tribal Council regarding jurisdiction and ownership of land and resources.

### PLAN AREA

For the purposes of information gathering, the plan area includes all of the waters, shoreline and intertidal area of Esperanza Inlet and Nootka Sound, including a shoreline fringe extending 200 metres upland of high water or to the 40-metre elevation, whichever is encountered first. Adjacent Crown upland areas, which specifically affect management issues in the study area, will be considered. As described in the VILUP, the initial planning area includes Coastal Planning Units 15, 16, and 17 (Fig. 1). The final plan area may be adjusted based on the nature and extent of resource information available, as well as an assessment of planning needs.

### PLAN PRODUCTS

1. The plan will recommend area designations to guide future use. Area designations will include a list of compatible uses for each area, associated management recommendations and a series of maps which describe the planning units, natural resources, the existing use patterns and the final designations.
2. The plan will potentially identify clusters of potential sites or localized areas having particular capability and suitability for a range of coastal economic uses including general and backcountry commercial recreation tenures, finfish and shellfish aquaculture tenures, floating residential/recreational tenures, tourism tenures and industrial tenures. It will also identify areas with high conservation values that should either receive some form of protection or receive extra consideration to protect these values as development occurs or activities occur that could impact these values.

### RELATIONSHIP TO OTHER PLANS

The Vancouver Island Land Use Plan (VILUP) informs this plan, and where specific zones and land uses have been designated, this plan will take direction from and be consistent with the intent of VILUP. If a higher-level plan under the *Forest Practices Code Act* is established, then operational plans, and forest practices on the upland portion of the plan area will be consistent with the higher-level plan. The plan will also be informed by any land-use planning initiatives of First Nations, federal, local and regional governments. The plan will also be informed by the Shellfish Development Initiative. Area designations developed under the plan may be changed or modified as a result of treaty negotiations.

This plan will recognize and accommodate existing legal Crown land tenures. The plan will identify, to the extent possible, unauthorized use of Crown coastal lands and include recommendations to address these uses. The plan will also be informed by and be consistent with existing siting guidelines for waterborne industrial activities.

## PROCESS STEPS (WORKPLAN)

### 1. *Plan initiation*

- Inter-Agency Management Committee (IAMC)/DFO approval of plan terms of reference.
- Obtain funding and agency commitments to proceed.
- Appoint planning team.
- Inform public, other government agencies and First Nations of process.

**2. *Identify and catalogue available resource information.*** The required marine information includes existing traditional use, physical, biological, administrative and derivative datasets, such as:

- Spatial marine physical information: includes digital shoreline, bathymetry, upland topography, and digital shoreline units
- Spatial marine biological information: includes mouths of salmon-bearing streams, marine-plant, marine-fish, and marine-mammal distribution (haulouts and rookeries), marine-bird distribution (nesting areas), rare- and endangered-species locations (CDC dataset), migration and rearing areas.
- Sensitive marine habitat: includes identification of habitats.
- Spatial human-resource use: includes tourism features and facilities, commercial and sport fishing areas, designated safe anchorages, marine carrier anchorages and routes, public recreation sites, shellfish closure areas, the DFO clam beach atlas, shellfish harvest areas, archaeological sites, industrial sites.
- Base mapping: includes 1:20 K cadastral information, parks, municipalities, First Nations traditional territories, private and Crown tenures, and identification of illegal occupation of Crown foreshore and nearshore upland.
- Image information: includes current 1:20,000 digital ortho-photograph and shoreline images, especially of sites where there may be resource-use conflicts.
- Terrestrial datasets: includes inventory of visually-sensitive areas, recreational features, forest cover, Terrestrial Ecosystem mapping, etc.
- Cultural heritage/traditional use: includes traditional-use information for the purpose of identifying areas of interest to incorporate into the final plan products. Efforts will be made to work with northern Nuu-chah-nulth First Nations or to use surrogates to describe these values.
- Mineral and energy information: includes geology, tenures, known resources, etc.
- Derived datasets: includes aquaculture capability, tourism capability, and marine-wildlife-habitat capability, and mineral, oil and gas potential.
- Planning units: includes identification of areas having similar oceanographic, geographic and use attributes based on available natural resource and human-use information.

### 3. *Identify the resource values, uses and planning issues by planning unit:*

- Identify existing foreshore and adjacent upland uses (e.g., safe-haven anchorages, marine-carrier anchorages and routes) and alienations of foreshore. Classify each unit using the 1:20,000 cadastral information, Crown Land status, mineral tenure information, etc.
- Identify additional constraining situations such as private uplands, or shoreline public recreational sites, Protected Areas, Special Management Zones, or other reserves.
- Map any current applications for Crown land foreshore and upland.
- Map any unauthorized uses of Crown land foreshore and upland.
- Identify and compile resource inventories (known scenic features and recreation facilities or sites) for tourism/recreation.
- Map capability datasets such as recreation and tourism opportunity studies, aquaculture capability datasets, potential industrial-use sites (e.g., for log storage), etc.
- Map sensitive habitats.
- Seek public input on information assembly stage of plan to incorporate local knowledge. Open houses would be held by the Nootka Resource Board in the six communities within the plan area.

### 4. *Conduct planning unit analysis using resource and capability data to derive areas of similar values.*

- Identify areas suitable for salmon aquaculture using the salmon aquaculture siting guidelines recommended by EAO.
- Identify areas suitable for shellfish aquaculture using DFO clam atlas, bathymetry, and existing sanitary closure areas.
- Define areas available and capable for aquaculture, tourism or other residential/recreational/commercial/ industrial uses by overlaying capability models with alienated lands.

- Map all other resource values (e.g., visual quality, wildlife, fisheries, and critical habitat).
  - Derive the suitable uses by overlaying available capability analysis for a suite of potential uses with other, constraining resource uses.
  - Identify sensitive habitat areas by overlaying resource values and critical habitat values for red- and blue-listed species.
  - Identify specific sites at a range of scales from beaches to lengths of shoreline, where suitable commercial uses may occur, using a combination of capability, logistics, infrastructure and expert knowledge. Identify sites where other compatible or differing, sequential resource uses can occur (e.g., log boom tenures that may be available for specific terms for other uses).
  - Identify areas with potential for meeting provincial and federal criteria for Marine Protected Areas.
5. **Develop objectives and strategies for each of the resource values** identified in step four for each of the planning units.
  6. **Develop the area designations**, including the policy recommendations defining the intended emphasis(es) of each designation.
  7. **Develop draft designation maps.** Cluster areas within each planning unit with similar objectives. For example, where conservation or critical habitat are priority values the area may be designated a conservation emphasis area; where there is a clustering of recreation/tourism features or facilities, the area may be designated as a tourism/recreational emphasis area.
  8. **Develop a Compatibility/Activity-Use Matrix.** This matrix will consist of a range of commercial, industrial, environmental, settlement and public recreational activities/values and serve to clarify the range of acceptable activities in each designation.
  9. **Check consistency with VILUP and other existing plans/initiatives.** Review and compare draft product with the Vancouver Island Land Use Plan and other approved plans (e.g., FPC higher-level plans). Revise as appropriate to eliminate inconsistencies between approved plans and programs.
  10. **Identify high-conflict areas.** Identify specific sites within planning units where appropriate potential commercial uses or conservation values may be in competition.
  11. **Provide recommendations for resolution of conflicts.** In areas of conflict where the uses are incompatible, determine the most appropriate priority use for these sites.
  12. **Public Review/Input.** Seek guidance from First Nations and communities on the draft products.
  13. **Develop amendments to draft products.** Amend plan as warranted to reflect First Nations and community input.
  14. **Present the draft product for approval.** Present draft to the VI-IAMC and Fisheries and Oceans Canada for review and direction.
  15. **Implement final plan.** IAMC, Fisheries and Oceans Canada and provincial agencies will use the plan to inform resource management and allocation decision making. Presentation of final plan documents to First Nations and local communities will be made by appropriate members of the planning committee.



The planning team will seek guidance from First Nations at the following critical stages:

1. project initiation and development of the terms of reference for the planning process;
2. during the information-gathering stage;
3. comment-stage on draft products; and
4. presentation of products.

#### PUBLIC INPUT

The Nootka Resource Board will be the primary mechanism for public/community input throughout the process. There will also be public open houses at two key points during the process. Public input is necessary to:

- secure local and traditional knowledge/information; and
- get feedback on the draft planning products.

#### ROLES

##### *Planning Team*

Members of the planning team will be technical representatives of the IAMC agencies, Fisheries and Oceans Canada, the Regional District of Comox-Strathcona and the Nootka Resource Board. Technical representatives and First Nations will be invited to participate.

This planning team will be responsible for completing steps 1 - 15 of the process work plan with the assistance of the IAMC program manager. The program manager will have the discretionary authority to set subcommittees and tasks as required to complete the resource-use plan.

##### *Nootka Resource Board*

The Nootka Resource Board (NRB) will assist the planning team in ensuring that the full range of community perspectives are addressed in the planning process. This will be accomplished by including NRB participants on the planning team to incorporate local knowledge, experience and values and by the NRB hosting open houses to review plan progress and products during the planning phase. The NRB will serve as the primary mechanism for community input to the planning process.

In addition, the Nootka Resource Board will have the opportunity to review the final plan products and provide their recommendations to VIIAMC.

#### PROCESS TIMELINE

The plan will be completed within one year of initiation (January 2000 to January 2001).

## Appendix C - First Nations Profile

The members of the Mowachaht/Muchalaht, Nuchatlaht and Ehattesaht First Nations are the Nuuchahnulth speaking descendants of ancestors whose territories included all of the area known today as Nootka Sound. Until depopulation due to diseases brought by *mamatni* (white people) in the 18th and 19th centuries, the Nootka Sound First Nations lived in numerous and populous settlements spread throughout the Sound. They occupied virtually every inhabitable location, and gave the impression of a full, densely occupied landscape to early European visitors such as Captains Perez, Cook, and Quadra. Mowachaht/Muchalaht territory includes the areas around Muchalat Inlet, Tlupana Inlet, Nootka Sound and Tahsis Inlet; Nuchatlaht territory includes the northwestern portion of Nootka Island, Nuchatlitz Inlet and part of Esperanza Inlet; Ehattesaht territory encompasses the areas on the northwest side of Esperanza Inlet, including Zeballos Inlet, Espinosa Inlet, and Port Eliza. The Nootka Sound First Nations' territories are bounded on the north by those of the Ka'yuu:k't'h'/Che:k'tles7er'h' First Nation, and on the south by those of the Hesquiaht First Nation.

According to the oral histories of the First Nations, they have lived in Nootka Sound from time immemorial; archaeological evidence confirms their occupation in the region over at least 4,200 years. Over time, with resource and population fluctuations, the composition and number of local groups in Nootka Sound changed. Sometimes local groups expanded and then split to create new local groups. Amalgamations and confederations with neighbours are also known to have occurred, usually as the result of diplomatic or other initiatives designed to improve a local group's access to resources. The process of amalgamation and of "budding off" of local groups was facilitated by the fact that the First Nations practice bilateral kinship, which meant that individuals were potentially members of the local group of both their mother and father. As a result, people could move between local groups with "relative" ease.

Over time, and with increases in the native population in Nootka Sound, there was a growing pressure on local groups to expand their territory. Local groups in different areas of Nootka Sound had access to differing resources. For example, those on the outer coast had access to the rich marine resources in their territories, while the groups on the inner coast controlled the major salmon-spawning rivers and streams. The difference in the availability of resources, coupled with an expanding population, led to confederations between local groups, and, sometimes, to warfare. There is evidence that alliances between local groups began to take place perhaps 300 to 400 years ago.

An important result of the alliances between groups is that their members had access to a wider range of resources, which they could access as they became seasonally available, and which resulted in an "annual round" of

activities. The traditional annual round for the Nootka Sound First Nations began in February when people generally moved to areas where they could access the outer coast for shellfish, bottom fish, chinook salmon, herring and migratory birds. Then, in April, people would leave to reside at many resource sites on the outer coast. By late August and into early September, the rains would return, causing the inner coast rivers and streams to swell, and inviting various runs of salmon to return to their homes to spawn. At this point, people would return to their local group's home village to catch the spawning salmon and to preserve them for winter use. By mid-November, stocks of preserved foods had been gathered for the winter and people moved to be together at their main winter village. People remained there until the end of December, during which time their attention was largely devoted to ceremonial events and other concerns, with limited hunting and fishing activities. By the end of January, most of the provisions that had been stored for winter use were running low, so, by late February, people again moved towards the outer coast, where the cycle would begin again.

In the late 18th century, the Nootka Sound First Nations were visited first by Spanish explorer Juan Perez's ship in 1774, and four years later by Capt. Cook and his ships in 1778. Sea otter pelts obtained by Cook at Nootka were later sold in China for enormous profit. When this news became public, Nootka Sound became the centre of trade in the pelts, and, during this new trading economy, the First Nations groups who were able to gain control of trade with the outsiders garnered enormous benefits. However, for the First Nations, the most important result of "contact" with Europeans was the introduction of previously unknown diseases. There were at least eight major varieties of epidemic diseases introduced to the northwest coast region during the first century of contact with the *mamatni*, and it has been estimated that as much as 90% of the Nuuchahnulth population was carried away by disease between 1780 and 1920.

The origins of the Mowachaht/Muchalaht can be traced back to an alliance that formed among several groups in southern Nootka Sound, and which later expanded to include other groups and their territories around Tahsis Inlet and Tlupana Inlet; this alliance eventually came to be known as the Mowachaht. Similarly, groups in Muchalat Arm and along the Gold River formed alliances that eventually developed into a confederacy known as the Muchalaht. Although there was sometimes conflict between these two groups, they eventually joined in the late 1800s, residing together for many years at Yuquot on Nootka Island, then, between the 1960s and 1990s at Ahaminaquus on the Gold River, and, today, at Tsaxana. The Mowachaht/Muchalaht can trace their origins to as many as 17 distinct local groups within their territory.

The Mowachaht/Muchalaht First Nation today are 500 to

600 strong, with approximately 170 band members living at Tsaxana I.R. 18, near Gold River. Members also reside in Campbell River, Nanaimo, Port Alberni, Victoria and on the Mainland. The Mowachaht/Muchalaht First Nation owns Nootka First Nations Forest Products Ltd., employ Mowachaht/Muchalaht members on a seasonal basis in their Fisheries Department, and the Ahaminaquus Tourist Information Centre operates a gift shop, rents six cabins to tourists and offers guided tours at Yuquot. The Muchalaht Marina is also operated by the Mowachaht/Muchalaht during the summer months, and includes a small store and boat launch. Mt. Leighton (silviculture) is another First Nation Forestry Company owned and operated by Mowachaht/Muchalaht members.

The Nuchatlaht people, like the Mowachaht and Muchalaht, came together as the result of a historic confederacy, formed from local groups and tribes who did not join the Mowachaht to the south or the Ehattesaht to the north. Eventually, *nutcal* on the northwestern tip of Nootka Island, near the mouth of Nuchatlitz Inlet, became the centre of Nuchatlaht life. In 1987, the Nuchatlaht relocated to Ocluje on Espinosa Inlet, which provides them with better access by road to Zeballos and other communities and services. Today, there are approximately 127 members of the Nuchatlaht of whom about 40 live on their reserve at Ocluje. Other Nuchatlaht members live in the Campbell River area, Nanaimo, Victoria and on the Mainland. The Nuchatlaht operate the Nuchatlitz Forestry Company, which employs several of their members.

In earlier times, Ehattesaht territory, like others, was owned by a series of local groups with rights to specific areas and their resources. Over time, several of these local groups came together as the Ehattesaht. The main traditional winter village for the Ehattesaht came to be at *hohk*, located midway between Zeballos and Espinosa Arms. Later still, the Ehattesaht attracted two local groups from the outer coast, and another local group, the Tcinexhitath, who had suffered severe population loss through disease and warfare. Eventually, there were 14 houses at *hohk*, each the residence for the descendants of what had previously been an independent local group. Later, most of the Ehattesaht moved from *hohk* to a village at Queens Cove, and, more recently, in the 1980s, to their present community Ehatis, on a reserve next to Zeballos.

Today, the Ehattesaht have approximately 240 Band Members, 90 of them living on their reserve next to Zeballos and the rest living in Campbell River, Ocluje, Nanaimo, Victoria, Vancouver, Edmonton and Saskatchewan. In their Administrative Office they have facilities for Forestry, and some their members currently work with Coulson Air Crane, and as contractors in silviculture; they are also currently pursuing the start-up of a shake mill. The Ehattesaht Fisheries Department operates a roe-on-kelp licence, providing further employment for their membership, and they also recently began operating an oyster farm. Although they do not currently operate any tourism projects, they are pursuing opportunities in this sector.

## References

- Arima, E. Y. 1983. *The West Coast People : the Nootka of Vancouver Island and Cape Flattery*, British Columbia Provincial Museum Special Publication, no. 6. Victoria: British Columbia Provincial Museum.
- Arima, Eugene, and John Dewhirst 1990. Nootkans of Vancouver Island. In *Handbook of North American Indians, Volume 7, Northwest Coast*. W. Suttles, ed. pp. 391- 411, Vol. 7. Washington, D.C.: Smithsonian Institution.
- Drucker, Philip 1951 *The Northern and Central Nootka Tribes*. Smithsonian Institution. Bureau of American Ethnology, Bulletin 144: Washington.
- Gunther, Erna 1972 *Indian Life on the Northwest Coast of North America as Seen by the Early Explorers and Fur Traders during the Last Decades of the Eighteenth Century*. Chicago and London: University of Chicago Press.
- Inglis, Richard, and James C. Haggarty. 2000. *Cook to Jewitt: Three Decades of Change in Nootka Sound*. In *HuupauKwanum Tupaat: Nuuchah-nulth Voices, Histories, Objects and Journeys*, edited by A. L. Hoover. Victoria: Royal B.C. Museum.
- McMillan, Alan D. 1999 *Since the Time of the Transformers: The Ancient Heritage of the Nuuchah-nulth, Ditidaht, and Makah*. UBC Press: Vancouver.
- Moziño, José Mariano, and Iris Wilson Engstrand. 1991. *Noticias de Nutka: an account of Nootka Sound in 1792*. 1st paperback ed. Seattle; Vancouver: University of Washington Press; Douglas & McIntyre.
- Mowachaht/Muchalaht First Nation. 2000. *Yuquot Agenda Paper*. In *HuupauKwanum Tupaat: Nuuchah-nulth Voices, Histories, Objects and Journeys*, edited by A. L. Hoover. Victoria: Royal B.C. Museum.

## Appendix D - Coastal and Marine Legislation

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
<i>PROVINCIAL LEGISLATION</i>			
<b><i>BC Land Act</i></b>	Ministry of Environment, Lands and Parks  British Columbia Assets and Land Corporation	Governs uses of Crown lands through planning, leasing (e.g., aquaculture and shellfish harvesting), issuing easements (i.e., pipelines, power cables, etc.) or licensing to occupy (i.e., wharves, etc.) and setting policy for the disposition of Crown lands (i.e., sale or reservation). The Act provides that Crown land below the natural boundary of a body of water must not be disposed of by Crown Grant, except by order of the Lieutenant Governor in Council (i.e., almost all of the land below high tide remains the property of the provincial Crown).	The Act governs the initial, key decisions to allow any new or continuing activity on nearshore Crown land. Under the BC Land Act, authorities may prevent or allow uses that impact nearshore. It can be used to authorize the commitment of coastal areas for conservation under other statutes (e.g., Municipal Act, Park Act, Wildlife Act, etc.). Approval must be obtained before any building on or altering of upland, foreshore and intertidal areas. Recent changes in government legislation have moved the responsibility of day-to-day administration of land disposition from MELP to the BC Assets and Land Corporation (BCAL), including approving Crown land reserves, tenures and sale of Crown land. MELP is now responsible for recommending and administering Crown land disposition and land-use legislation and policies.
<b><i>BC Land Title Act</i></b>	Ministry of Environment, Lands and Parks  British Columbia Assets and Land Corporation	Regulates the registration of legal title for and subdivision of all lands. Provides authority for the registration of covenants against a title and the designation of conservation organizations authorized to enter into covenants.	Provisions of the Act require the dedication of public access to marine water when waterfront land is subdivided. Covenants can be used to protect habitats by landowners, Crown agencies and designated conservation organizations.
<b><i>BC Wildlife Act</i></b>	Ministry of Environment, Lands and Parks	Regulates game harvest limits and methods, the import, export, possession or transport of wildlife or disturbance of wildlife. It authorizes the purchase of private land and the creation of Wildlife Management Areas and Wildlife Sanctuaries. It provides for the designation of endangered or threatened vertebrates and the protection of their habitats within a Critical Wildlife Management Area.	The Act contains limited prohibitions against the damage or destruction to wildlife habitat, including the nests of birds and lands within a Wildlife Management Area. There is no requirement to list endangered or threatened species or to protect their habitats. New law to control the introduction and possession of alien species is under consideration.
<b><i>BC Park Act</i></b>	Ministry of Environment, Lands and Parks	Authorizes securing land for provincial parks; regulates all uses in provincial parks.	The Act is one of the main avenues for the province to establish Marine Protected Areas. Previous marine park development has generally been for recreational purposes. However, BC Parks Conservation Management: Part One Conservation Program Policies for marine systems provides a strong conservation focus for new parks. The Act strictly controls and limits impact on habitats in parks and recreation areas. However, the Act does not have the authority to establish strict no-taking of fish (i.e., establish refugia capability).

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
------	--------------------	-----------	--------------------

**PROVINCIAL LEGISLATION**

<b>BC Ecological Reserves Act</b>	Ministry of Environment, Lands and Parks	Authorizes provincial government securement of lands for preservation or research as ecological reserves; regulates the use of ecological reserves.	The Act secures and authorizes management of Ecological Reserves that may protect coastal habitats. This legislation has a strong conservation focus to protect representative ecological systems or populations. It's another major tool for the province to establish MPAs.
<b>BC Waste Management Act</b>	Ministry of Environment, Lands and Parks	Establishes safe limits for gas, liquid (sewage) and solid waste discharges and regulates the discharge or disposal of gas, liquid, solid and special wastes. Regulates the redevelopment of contaminated land.	The Act authorizes waste discharge or disposal levels that positively or negatively impact surface water and coastal habitats. Non-point source (NPS) pollution is not controlled under the Act, but the Environmental Program of MELP has a pro-active education initiative to reduce NPS.
<b>BC Water Act</b>	Ministry of Environment, Lands and Parks	Establishes provincial ownership of all fresh water and the beds of water bodies. It regulates licensing for the extraction and use of all water (except groundwater) and any changes in and about a stream or other water body (i.e., hydroelectric, potable, irrigation, flood control, etc.).	The Act regulates water uses and water control works that positively or negatively impact coastal habitats (i.e., dykes, dams, excavations, diversions, etc.).
<b>BC Environmental Assessment Act</b>	Environmental Assessment Office	Regulates the review and approval of major land-use developments or significant changes to existing major developments. Major developments include industrial projects, mines, energy developments, water containments, groundwater extractions, shoreline modifications, diversions, waste disposal, food processing, and transportation, tourism and recreation projects.	Under this Act, a major coastal development or activity may not be approved or it may be modified to mitigate impacts.
<b>BC Fish Protection Act</b>	Ministry of Agriculture, Food and Fisheries	Regulates impacts on some fish habitat through "policy directives" set out in regulations. Policy directives must in turn be fully reflected in local zoning and rural land-use bylaws. New or redeveloped industrial, commercial and residential uses beside streams and marine areas are regulated. It does NOT regulate agriculture, mining, forestry or hydroelectric activities. The minister may designate a water management area, including coastal areas, and require a plan for such areas.	No "policy directives" have been proclaimed. Provisions of the Act that do apply include the prohibition of new dams on designated rivers and the authority to designate water management areas. One of the purposes of this Act was to set more uniform standards under regulation so as to reduce the need for local government referrals.



NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
------	--------------------	-----------	--------------------

### PROVINCIAL LEGISLATION

<b><i>Local Government Act</i></b>	Ministry of Municipal Affairs	<p>The Act authorizes municipal and regional governments to exercise authority over land use planning, regulation (i.e. zoning), development approval, and servicing in their jurisdiction. Local government authority applies to all lands. However, the local government regulation of Crown land is subject to Section 4 of the Interpretation Act which gives the province prerogative where using lands for its own purpose. Federal lands are not subject to local jurisdiction (i.e. Indian Reserves). The provincial government retains senior authority and can be the primary regulator of land use. Local government powers are limited over lands designated for forestry or agriculture. Local governments have jurisdiction over intertidal and subtidal lands subject to the Interpretation Act. The provincial government amended the Local Government Act in 2000 to provide regional districts and their member municipalities with a framework for creating strategies to control growth at the regional level. The amendment included provincial goals to guide the development of regional growth strategies. A further amendment in 1997 enables local governments to address the protection, restoration and enhancement of the natural environment, its ecosystems and biodiversity. The authority to develop Official Community Plans (OCPs) affords the designation of lands for open space or conservation. Powers to create bylaws can be used to protect shorelines, trees, wetlands and water-courses and to control soil removal and flooding.</p>	<p>Land use zoning can positively or negatively impact nearshore habitat or other lands whose use can affect nearshore habitats. For example, zoning can be used to create buffers around wetlands and to regulate uses around sensitive habitats. OCPs can require proponents to assess environmental impacts of proposed developments, to provide disposal of surface run-off and storm water and to limit the area covered by impermeable materials in any development. Municipalities can exempt landowners from property tax on riparian land subject to a conservation covenant held by the municipality. Where new bylaws come into effect, existing uses can continue as non-conforming until such time as a landowner applies for a structural alteration, change of use or subdivision. Municipalities and regional governments can buy sensitive habitats for parks and heritage conservation. They can also regulate sewage works and waste removal. Local authorities can prevent environmental impacts whereas many federal and provincial authorities only provide for redress after damage has occurred. Local governments are not compelled to protect, restore or enhance nearshore or other habitats, although they must meet provincial water quality objectives set under the BC Waste Management Act. Generally, most local governments do not have the staff expertise or financial resources to address habitat interests, and require federal or provincial support. Local governments are likely to request financial support from the federal or provincial governments to buy land or for other forms of compensation.</p>
------------------------------------	-------------------------------	---	--

## PROVINCIAL LEGISLATION

***Forest  
Practices  
Code of  
British  
Columbia  
Act***Ministry of  
Forests

This law consists of enabling legislation, regulations, standards and guidebooks to be used to regulate forest practices in BC. It applies to all Crown land in provincial forests, wilderness areas and private lands licensed under the Forest Act of BC. Other private lands are not governed by the code except as provided under section 216.

The code addresses timber harvesting, road engineering, silviculture and soil conservation relative to accepted environmental criteria such as riparian protection and management areas, inventories, terrain hazard, soil stability and watershed assessments, biodiversity protection, visual values and wilderness preservation. The code is used to establish Riparian Management Areas (RMA) around fish-bearing water bodies or in community watersheds. RMAs contain zones with different levels of protection from timber harvesting. Coastal habitats are not specifically addressed in the code, but estuaries and areas classified as Marine Sensitive Zones (MSZ) can be protected through specific forest practices. MSZs must be identified in forest development plans required under the code. MSZs are legally binding as soon as they are approved. The Riparian Management Area Guidebook (RMAG) sets guidelines for practices in MSZs, including those for log handling in marine areas and the treatment of MSZs as downstream values. The RMAG outlines stream classifications where reserve zones and management zones are located. The general forest practices provisions of the code and the specific reference to the identification and protection of resource features apply to coastal areas not protected by a MSZ. Sensitive features in coastal habitats need to be recognized as “known resource features” and brought to the attention of the Ministry of Forests for inclusion in forest practices (e.g., commercial shellfish harvesting areas are now recognized).

***BC Mines  
Act***Ministry of  
Energy and  
Mines

Regulates the exploration, development, operation and closure of mining operations. Permits or licences are required for those activities. The Act authorizes the creation of a mine reclamation fund to cover the costs of mine reclamation where the owner fails to do so. The posting of security to mitigate impacts to watercourses and to reclaim a mine can be required.

A moratorium on oil, gas and mineral exploration off B.C.’s coast, established in 1972, remains in place. The federal and provincial governments have not yet reached agreement on the development of those resources and how to share revenues.

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
------	--------------------	-----------	--------------------

*PROVINCIAL LEGISLATION*

<i>Mineral Tenure Act</i>	Ministry of Energy and Mines	<p>The Province grants surface and subsurface rights separately. Some parcels of private land granted in earlier years included subsurface rights. For the most part, the Province owns all mineral rights on what is generally called "mineral lands" which includes both private and Crown land. Individuals and companies may acquired these rights from the Province.</p> <p>Mineral rights are issued by the Mineral Titles Branch of the Ministry of Energy and Mines according to the Mineral Tenure Act. Mineral rights exclude earth, soil, marl, peat, sand, gravel and rock used for construction purpose.</p> <p>There is currently a federal and provincial moratorium on the exploration and development of offshore oil and gas deposits and the Province has suspended the issuance of mineral, placer and coal tenure over subtidal and intertidal lands. While there is no moratorium on offshore mineral development there is no comprehensive policy framework to guide such activity.</p>	Staking and subsequent exploration and development activities may occur on coastal nearshore lands under the Act. The Mineral Tenure Act, Coal Act, Mines Act and associated Mineral Exploration Code contain strong provisions for recognizing and minimizing potential impacts on the environment, wildlife and other special values.
---------------------------	------------------------------	--	---

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
------	--------------------	-----------	--------------------

**PROVINCIAL LEGISLATION**

<b><i>Animal Disease Control Act</i></b>	Agriculture, Food and Fisheries	The Act, administered by the Provincial Veterinarian, provides a statutory authority to limit the spread of contagious diseases in animals, including aquatic animals. Discussed are the duties and powers of inspectors appointed under the Act, obligations of owners of animals and quarantine procedures.	Limiting the spread of contagious diseases in aquaculture operations decreases the risk of infection of wild fish stocks in the vicinity and also increases the economic sustainability of the industry and the coastal communities to which it contributes.
<b><i>Farm Practices Protection (Right to Farm) Act</i></b>	Agriculture, Food and Fisheries	The Act enables farmers to farm in agricultural land reserves or on licensed aquaculture sites by exempting them from nuisance lawsuits, nuisance bylaws and prohibitive injunctions if they employ normal farm practices. It also ensures that a local government may not restrict normal farm activities without approval from the Minister of Agriculture, Food and Fisheries. The Act establishes a complaint resolution process, which includes the establishment of a Farm Practices Board. The Minister may also publish and distribute standards in relation to farming areas, including licensed aquaculture sites, for the guidance of local governments in preparing rural land use bylaws, zoning and other bylaws. Local governments may also make bylaws to regulate of farm activities subject to approval of the Minister of Agriculture, Food and Fisheries.	These provisions help to ensure sustainable management of the aquaculture industries, by ensuring a cooperative arrangement for land use regulation between local governments, industry and the provincial government. The complaint resolution process also provides an efficient and cost-effective way to ensure that marine aquaculture activities adhere to normal farm practices, thereby contributing to the social sustainability of coastal communities. The complaint resolution process could also be used as a vehicle to address and mitigate microbial contamination of shellfish growing areas from upland agricultural pollution.
<b><i>Farming and Fishing Industries Development Act</i></b>	Agriculture, Food and Fisheries	The purpose of this Act is to enable producers of commodities of the farming and fishing industries to collect levies approved by the Lieutenant Governor in Council. The Minister can establish a council to administer the levied funds for the benefit of the industry by way of market development, promotion and research.	While not directly related to the management of coastal resources, this Act affects the economic sustainability of seafood industries on the coast, thereby affecting the sustainability of coastal communities.
<b><i>Fish Inspection Act</i></b>	Agriculture, Food and Fisheries	The Act ensures quality and wholesomeness in the fish industry by providing the authority to regulate activities concerning the handling, processing, storing, grading, packaging, marking, transporting, marketing and inspection of fish and fish products. The regulations ensure that fish processed and sold within British Columbia have met specific requirements.	This ensures that efforts are made throughout the production line to maintain high food quality. Given that the quality of the food depends to a significant degree on the quality of the seafood-growing environment, the seafood industries will seek growing and harvesting areas that have high quality. This influences the land allocation process because a variety of other resource users in addition to the seafood industries often compete for sites in a high quality environment, necessitating careful and equitable resource planning and allocation at local and site-specific scales.

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
<i>PROVINCIAL LEGISLATION</i>			
<b><i>Fish Protection Act</i></b>	Environment, Lands and Parks and Agriculture, Food and Fisheries.	The Act is primarily implemented by the Ministry of Environment, Lands and Parks, and protects the province's fisheries resource by ensuring water for fish, protecting and restoring fish habitat, focusing on riparian protection and enhancement, and strengthening local environmental planning, including marine areas.	Maintaining fish habitat on upland areas helps to ensure the quality of coastal environments as well as the sustainability of anadromous fish. The provision for marine planning also provides a mechanism to maintain the quality of marine environments for fish.
<b><i>Fisheries Act</i></b>	Agriculture, Food and Fisheries	The Act provides for the licensing and regulatory control of activities associated with commercial fisheries and aquaculture operations. The primary concerns are the licensing of: fish processing plants; fish buying establishments; fishermen selling their own catch; wild oyster and marine plant harvesting; and all commercial aquaculture operations within the province, whether on private or Crown land.	This Act provides the mechanism for regulatory control over aquaculture and provincially regulated fish harvesting in marine areas. As such it helps to ensure the sustainability of coastal marine areas through a number of regulatory provisions attached to Aquaculture Licences or harvesting permits as well as inspection and enforcement staff and activities.
<b><i>Fisheries Renewal Act</i></b>	Agriculture, Food and Fisheries	The Act provides for the establishment of a Crown corporation, Fisheries Renewal BC (FsRBC) which reports to the Minister of Agriculture, Food and Fisheries, for the purpose of undertaking strategic initiatives to renew the fisheries and enhance fish, fisheries and fish habitat in British Columbia.	FsRBC provides funding for projects that either contribute to the enhancement of natural stocks and habitat rehabilitation or to seafood industry development. All these contribute to the sustainability of coastal resources and communities.



NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
------	--------------------	-----------	--------------------

### FEDERAL LEGISLATION

<i>Canada Oceans Act</i>	Department of Fisheries and Oceans Canada (DFO)	The Act is a consolidation of Canada's ocean-related legislation. It provides authority for the DFO Minister to lead the development of a strategy and integrated management plans for estuarine, coastal and marine ecosystems based on public input and the principles of sustainable development, integrated management and the precautionary approach. The Act affords the creation of national Marine Protected Areas. Marine Protected Areas may be designated for the conservation and protection of commercial and non-commercial fishery resources, which includes, for the purposes of this Act: marine mammals and their habitats; endangered or threatened marine species; unique habitats; marine areas of high biodiversity or biological productivity; or any other marine resource or habitat necessary to fulfil the Minister's mandate.	The Act can be used for the development of a coastwide strategy for the maintenance and management of marine ecosystems and the creation and protection of marine protected areas. The authority to control harmful activities is limited to marine protected areas.
<i>National Marine Conservation Areas Act</i>	Parks Canada	Provides authority to create large national marine protected areas that can be zoned for multiple uses.	Can protect significant marine areas (i.e., much of Moresby Island within the Queen Charlotte Islands).
<i>Canada Fisheries Act</i>	Fisheries and Oceans Canada	Regulates fish <sup>1</sup> harvest limits and methods, the import, export, possession, rearing or transport of fish <sub>2</sub> , or the harming of fish or their habitat <sup>2</sup> . The Minister has authority to require plans and specifications to assess a proposed activity in significant fish habitat and to require mitigation of impacts to fish habitat. Freshwater-fish harvest, aquaculture and fish farms are regulated by MELP in cooperation with DFO.	Facilitates the setting of safe harvest limits and affords prevention of harvest or harvest methods that impact fish ???what do you mean exactly, incidental catch???. The Act prohibits any alteration of, destruction of, or damage to habitat, including harmful substances, such as sewage, except as may be authorized by regulations or the Minister. Mitigation measures may include the placement and maintenance of fishways, barrier screens, etc. The Act can regulate the introduction of exotic, marine species through shipping. Regulations set minimum standards for BOD, TSS and non-toxic effluents.
<i>Canada Wildlife Act</i>	Environment Canada	Provides federal authority to establish and manage National Wildlife Areas through fees, simple acquisition, or the transfer of provincial Crown land.	The Act affords opportunities to create National Wildlife Areas, but only over land or marine areas under control of Environment Canada.

1. "Fish" includes all fishes, shellfish, marine plants and marine mammals.

2. "Habitat" includes ...spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes."

NAME	RESPONSIBLE AGENCY	AUTHORITY	COASTAL MANAGEMENT
<b>FEDERAL LEGISLATION</b>			
<b><i>Migratory Birds Convention Act</i></b>	Environment Canada	Regulates the harvest, possession and transport of migratory birds.	It is the federal legislation used to establish annual, sustainable harvest levels for migratory game birds.
<b><i>National Park Act</i></b>	Parks Canada	Provides federal authority to establish and manage national parks and protected areas through fees, simple acquisition, or the transfer of provincial Crown land.	The Act affords opportunities to create national parks on land. The Marine Conservation Area Act (not promulgated) provides the legislated bases to establish marine protected areas.
<b><i>Navigable Waters Protection Act</i></b>	Transport Canada	Regulates the placement of any structures in navigable waters.	It can be used to prohibit or limit the placement of structures in intertidal and sub-tidal habitats.
<b><i>Canada Marine Act</i></b>	Transport Canada	Authorizes the establishment of Port Authorities and other matters related to maritime trade and transport. It provides environmental assessment regulations for port activities and developments under the <i>Canadian Environmental Assessment Act</i> and the <i>Canada Shipping Act</i> .	The authorities established for each port authority may require provisions for the development or protection of coastal habitats.
<b><i>Canada Shipping Act</i></b>	Transport Canada	Regulates pollution from ships, other vessels and oil handling facilities. Regulations can cover operational and accidental discharges of any pollutants from commercial vessels or recreational boats.	Ships must maintain onboard, pollution emergency plans. Regulations prohibit any discharges that are not authorized. The introduction of exotic species can be controlled in a limited way through regulating the discharge of ballast.
<b><i>Canada Environmental Assessment Act</i></b>	Environment Canada	Regulates the review and approval of federally funded, initiated or regulated activities. Environmental assessments may also be triggered by a number of provisions under the Canada Fisheries Act. Screenings or assessments are required for most new or expanded activities on federal Crown lands.	It is harmonized with the BC Environmental Assessment Act. Coastal habitats can be protected on federal and provincial Crown lands and private lands. Full public reviews are required of projects involving significant impacts.
<b><i>Canadian Environmental Protection Act</i></b>	Environment Canada	Regulates the production and control of toxic substances, including their development, manufacture, importation, transportation, distribution, storage, use, environmental release and disposal. Regulates ocean dumping and, as part of the approval process it requires public notification. Minimum national standards are set by regulation for the discharge of chlorinated dioxins and furans and for the elimination of those same chemicals from defoaming agents and wood chips used in the manufacture of pulp.	The Act assures safe limits on the entry of toxic substances into nearshore habitats. A 96% reduction in dioxins and a 97% reduction in furans occurred in pulp-mill effluents between 1990 and 1994, following enactment of regulations in 1990 and 1992. Fish and other aquatic organisms may still suffer persistent ill effects from those and other chemicals. Studies are underway to determine if such effects are present.

### *Provincial Government:*

#### **Provincial Agency Directory**

<http://www.gov.bc.ca/bcgov/popt/min.htm>

#### **Ministry of Environment, Lands and Parks**

<http://www.gov.bc.ca/elp/>

#### **Ministry of Forests**

<http://www.gov.bc.ca/for/>

#### **Ministry of Energy and Mines**

<http://www.gov.bc.ca/em/>

#### **Ministry of Agriculture, Food and Fish**

<http://www.agf.gov.bc.ca/>

#### **BC Fisheries**

<http://www.gov.bc.ca/fish/>

#### **Ministry of Small Business, Tourism and Culture**

<http://www.gov.bc.ca/sbtc/>

#### **Culture, Heritage & Archaeology**

<http://www.sbtc.gov.bc.ca/programs/culture.html>

#### **Tourism**

<http://www.sbtc.gov.bc.ca/programs/tourism.html>

#### **Land Use Coordination Office**

<http://www.luco.gov.bc.ca/>

#### **BC Assets and Land Corporation**

<http://www.bcal.bc.ca/>

### *Federal Government:*

#### **Federal Government Directory**

[http://canada.gc.ca/depts/major/depind\\_e.html](http://canada.gc.ca/depts/major/depind_e.html)

#### **Fisheries and Oceans Canada, Pacific Region**

<http://www.pac.dfo-mpo.gc.ca/>

#### **Institute of Ocean Sciences, Sidney**

<http://www.ios.bc.ca/>

#### **Oceans Canada**

<http://www.oceansconservation.com/title/title.htm>

#### **Environment Canada, Pacific Region**

[http://www.pyr.ec.gc.ca/index\\_e15ab.htm](http://www.pyr.ec.gc.ca/index_e15ab.htm)

#### **Canadian Wildlife Service**

[http://www.cws-scf.ec.gc.ca/cwshom\\_e.html](http://www.cws-scf.ec.gc.ca/cwshom_e.html)

#### **Canadian Meteorological Centre**

<http://www.cmc.ec.gc.ca/climate/default.htm>

#### **Natural Resources Canada**

[http://www.nrcan.gc.ca/gsc/index\\_e.html](http://www.nrcan.gc.ca/gsc/index_e.html)

#### **Geological Survey of Canada, Pacific Geoscience Centre, Sidney**

<http://www.pgc.nrcan.gc.ca/>

#### **Parks Canada**

[http://parkscanada.pch.gc.ca/parks/main\\_e.htm](http://parkscanada.pch.gc.ca/parks/main_e.htm)

### *First Nations:*

#### **Nuu-chah-nulth Tribal Council**

<http://www.nuuchahnulth.org/>

### *Resource Boards:*

#### **Nootka Resource Board**

<http://www.nootka.com/index.html>

### *Villages:*

#### **Gold River**

<http://www.island.net/~goldriv/>

#### **Tahsis**

<http://www.village.tahsis.bc.ca/>

#### **Zeballos**

<http://www.zeballos.com>

### *Strategies and Policies:*

#### **The Vancouver Island Summary Land Use Plan. February 2000. Province of British Columbia**

<http://www.luco.gov.bc.ca/slupinbc/vanisle/toc.htm#toc>

#### **Protected Areas Strategy. 1998. Province of British Columbia**

<http://www.luco.gov.bc.ca/pas/pasdocs.htm>

#### **Identified Wildlife Management Strategy. 1999. Ministry of Environment, Lands and Parks and Ministry of Forests**

<http://www.elp.gov.bc.ca/wld/identified/>

#### **BC Coastal Zone Position Paper. June 1998. Province of British Columbia**

<http://www.luco.gov.bc.ca/coastal/pt1.htm>

#### **Marine Protected Areas: A Strategy for Canada's Pacific Coast (Discussion Paper). August 1998. Province of BC and Government of Canada.**

<http://www.luco.gov.bc.ca/pas/mpa/disapp.htm>

#### **BC Parks Conservation Management: Part One Conservation Program Policies. for wildlife BC Ministry of Environment, Lands and Parks**

[http://www.elp.gov.bc.ca/bcparks/protect/cpp\\_p1/cpp\\_p1/wildlife.htm](http://www.elp.gov.bc.ca/bcparks/protect/cpp_p1/cpp_p1/wildlife.htm)

#### **BC Parks Conservation Management: Part One Conservation Program Policies. For Marine Systems BC.**

[http://www.elp.gov.bc.ca/bcparks/protect/cpp\\_p1/cpp\\_p1/marine.htm](http://www.elp.gov.bc.ca/bcparks/protect/cpp_p1/cpp_p1/marine.htm)

**Strategic Directions for Culture and Heritage Tourism in British Columbia.** November 1999. Ministry of Small Business, Tourism and Culture, and Tourism British Columbia

<http://www.sbtbc.gov.bc.ca/programs/culture.html>

**Protocol Agreement on the Management of Cultural Heritage Resources.** 1999. Ministry of Small Business, Tourism and Culture, and Ministry of Forests

<http://www.heritage.gov.bc.ca/arch/policy/chr.htm>

**Commercial Recreation on Crown Land Policy.** 1998. BC Ministry of Environment, Lands and Parks

<http://www.elp.gov.bc.ca/clb/crec/finalcbr.htm>

**BC Salmon Aquaculture Policy.** October 1999. Ministry of Fisheries and Ministry of Environment, Lands and Parks.

<http://www.fisheries.gov.bc.ca/news/News99/NR54Oct181999.htm>

**Crown Land Activities and Aboriginal Rights Policy Framework.** 1997. Ministry of Aboriginal Affairs.

<http://www.aaf.gov.bc.ca/aaf/pubs/crown.htm>

**BC's Interest in Fisheries and Aquaculture.** September 1997. Ministry of Aboriginal Affairs

<http://www.aaf.gov.bc.ca/aaf/nations/westbank/fish.htm>

**Policy for the Management of Fish Habitat.** 1991. (Reprint) Fisheries and Oceans Canada

[http://www.ncr.dfo.ca/habitat/Policy/english/index\\_e.htm](http://www.ncr.dfo.ca/habitat/Policy/english/index_e.htm)

**Federal Aboriginal Fisheries Strategy.** 1992. Fisheries and Oceans Canada

[http://www.dfo-mpo.gc.ca/communic/FISH\\_MAN/AFS\\_e.htm](http://www.dfo-mpo.gc.ca/communic/FISH_MAN/AFS_e.htm)

#### *Guidelines and Codes:*

**Forest Practice Code of BC Act.** Ministry of Forests

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpact/contfpc.htm>

**Forest Practices Code of BC Act, Guidebooks.** Ministry of Forests

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpc.htm>

**Biodiversity Guidebook.** September 1995. (Forest Practices Code of British Columbia Act, Strategic Planning Regulations, Operational Planning Regulation)

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm>

**Species and Plant Community Accounts for Identified Wildlife.** June 1997. (Forest Practices Code of British Columbia Act, Operational Planning Regulation)

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/other/species/index.htm>

**Managing Identified Wildlife: Procedures and Measures.** Volume 1. February 1999. (Forest Practices Code of British Columbia Act, Forest Road Regulation, Operational Planning Regulation, Silvicultural Practices Regulation, Timber Harvesting Practices Regulation)

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/other/wild/index.htm>

**Riparian Management Area Guidebook.** December 1995. (Forest Practices Code of British Columbia Act, Operational Planning Regulation, Timber Harvesting Practices Regulation, Forest Road Regulation, Range Practices Regulation)

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/riparian/rip-toc.htm>

**Coastal Watershed Assessment Procedure Guidebook (CWAP).** 1995. (Forest Practices Code of British Columbia Act, Operational Planning Regulation)

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/coastal/CWAPTOC.HTM>

**Salmon Aquaculture Review Final Report.** 1996. BC Environmental Assessment Office.

<http://www.eao.gov.bc.ca/project/aquacult/salmon/report/toc.htm>

**Mineral Exploration (MX) Code, (Mines Act).**

1998. BC Ministry of Energy and Mines  
<http://www.em.gov.bc.ca/Mining/Healsafe/mineereg.htm>

**Summary of Environmental Standards & Guidelines for Fuel Handling, Transportation and Storage.** 1995. (2nd ed) BC Ministry of Environment, Lands and Parks and BC Ministry of Forests

<http://www.elp.gov.bc.ca/epd/cpr/standard/soesgffh.html>

**A Compendium of Working Water Quality  
Guideline for British Columbia. 1998. EDITION  
updated January 2000. BC Ministry of  
Environment, Lands and Parks.**

[http://www.elp.gov.bc.ca/wat/wq/BCguidelines/  
working.html](http://www.elp.gov.bc.ca/wat/wq/BCguidelines/working.html)

**Ambient Water Quality Guidelines (Criteria) For  
Turbidity, Suspended And Benthic Sediments.  
1998. BC Ministry of Environment, Lands and  
Parks.**

[http://www.elp.gov.bc.ca/wat/wq/BCguidelines/  
turbidity.html](http://www.elp.gov.bc.ca/wat/wq/BCguidelines/turbidity.html)

**Commercial Recreation on Crown Land,  
Guidelines for Staff and Applicants. July 1998.  
Ministry of Environment, Lands and Parks**

<http://www.elp.gov.bc.ca/clb/crec/crguide.htm>



## Appendix F - Glossary of Acronyms

**Assistant Deputy Ministers Committee on Land and Coastal Issues (ADMLUC):** Provincial inter-agency committee which provides advice and direction to agency planning teams on land and coastal policy and issues.

**Allowable Annual Cut (AAC):** The allowable rate of timber harvest from a specified area of land. The chief forester sets AACs for timber supply areas (TSAs) and tree farm licenses (TFLs) in accordance with Section 8 of the *Forest Act*.

**Conservation Data Centre (CDC):** Branch of the Ministry of Environment, Lands and Parks that tracks red and blue listed species.

**Commission of Resources and the Environment (CORE):** Provincial government commission responsible for developing a public and government-wide strategy for land use and related resource and environmental management.

**Inter-agency Management Committee (IAMC):** This committee coordinates all land use planning activities under provincial jurisdiction on Vancouver Island.

**Inter-agency Planning Team (IPT):** This team is composed of representatives from the Nootka Resource Board (NRB) and local, provincial, and federal governments to undertake the Nootka Coastal Land Use Plan.

**Land and Resources Management Plans (LRMP):** Strategic (1:250,000) level land use planning underway throughout the province

**Nootka Sound Economic Development Corporation (NSEDCC):** The NSEDCC is a business owned at arm's length by the shareholder Villages of Gold River, Tahsis, and Zeballos. It holds a volume-based forest tenure that has a 40,000 cubic meter annual allowable cut in the Strathcona TSA. At present, the NSEDCC has contracted with Western Forest Products Limited to plan and engineer cut blocks, harvest wood fiber, and deliver it to log sorts near the three communities. About one-quarter of this fiber is slated for value-added customers in the Nootka Sound area.

**Nootka Resource Board (NRB):** The Nootka Resource Board (NRB) was established by the province in 1995 to provide an avenue for local public input and involvement in decisions which directly affect the resource base within the Nootka area.

**Tourism Opportunity Study (TOS):** Provincial strategic level identification of tourism potential through local knowledge and GIS modeling.

**Tree Farm License (TFL):** TFLs are privately managed Sustained Yield Units. TFLs are designed to enable owners of Crown-granted forest lands and old temporary tenures or the timber licenses which replace them, to combine these with enough unencumbered Crown land to form self-contained sustained yield management units. These licenses commit the licensee to manage the entire area under the general supervision of the Forest Service. Cutting from all lands requires Forest Service approval through the issuance of cutting permits. TFLs should not be confused with Certified Tree Farms under the Taxation Act, though some Certified Tree Farm land (Crown-granted) may comprise a part of the TFL. A TFL has a term of 25 years.

**Timber Supply Area (TSA):** An integrated resource management unit established in accordance with Section 6 of the Forest Act. TSAs were originally defined by an established pattern of wood flow from management units to the primary timber-using industries.

**Small Business Forest Enterprise Program (SBFEP):** this program permits the Ministry of Forests to sell Crown timber competitively to individuals and corporations who are registered in the SBFEP.

**Vancouver Island Land Use Plan (VILUP):** Strategic level land use plan for Vancouver Island completed as part of the CORE process.

