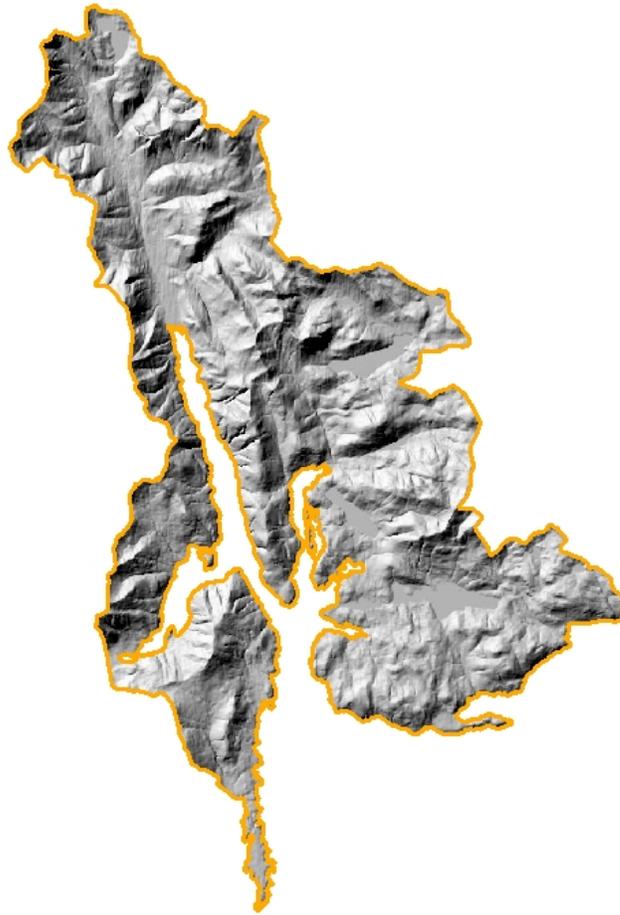


WATERSHED PLANNING IN CLAYOQUOT SOUND

VOLUME 3: SYDNEY - PRETTY - GIRL WATERSHED PLAN



CLAYOQUOT SOUND TECHNICAL PLANNING COMMITTEE

JULY 2006



**Central Region Chiefs
Administration**

Box 790, Ucluelet, B.C. V0R 3A0

July 10, 2006

Guy Louie and Jim Lornie, Co-Chairs
Clayoquot Sound Central Region Board
Post Office Box 790
100 Hittatsoo Road
Ucluelet, BC V0R 3A0

Dear Guy Louie and Jim Lornie:

**Re: Watershed Plan Endorsement for the Tofino - Tranquil (Onadsilth - Eekseuklis),
Sydney - Pretty Girl, Bedwell - Ursus - Bulson, Hesquiaht, Kennedy Lake, Upper
Kennedy River, Clayoquot River, and Fortune Channel planning units.**

On behalf of the Parties to the Clayoquot Sound Interim Measures Extension Agreement, and as recommended by the Central Region Board (CRB) in two letters to the Parties during 2005, we are pleased to endorse the watershed plans for the above watershed planning units.

The Board made several significant recommendations in both their letters, including: specific recommendations about individual plans involving technical content; that a summary plan document be completed to provide a regional synopsis of watershed reserves and other Scientific Panel objectives; that a Beach watershed plan be completed and incorporated into the summary document; and, that legal objectives be established under the *Forest and Range Practices Act*.

We understand the Clayoquot Sound Technical Planning Committee (TPC) has undertaken the following initiatives with regard to those recommendations:

- completion of technical changes for individual plans;
- begun work on a regional summary document, including incorporation of Scientific Panel objectives for the Beach planning unit; and,
- initiated inter-agency discussions with regard to setting legal objectives under the *Forest and Range Practices Act*.

We also understand that following the second public review period and during preliminary work on the regional summary document, the Planning Committee found a small number of minor errors and discrepancies in the GIS analyses results. The Committee determined that these, as well as other inconsistencies between watershed plans, could be addressed without making significant revisions to the watershed plans or the reserve networks. Therefore, they

have incorporated the necessary corrections and changes into the final versions of the watershed plans and the regional summary document.

The Parties are pleased to confirm our support for the CRB recommendations and the efforts by the Planning Committee to address them. We have instructed the TPC to ensure all changes and updates are completed, so that individual watershed plans are ready for public distribution by July 31, 2006. At that time, the plans will take effect as 'Official Watershed Plans'.

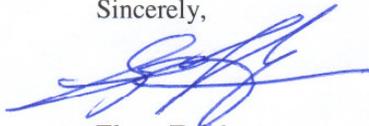
The Board made one other significant recommendation in its two letters: that the Parties identify the resources to develop and implement a comprehensive monitoring program. Now that the watershed planning process is drawing to a close, the Parties are pleased to announce we have begun discussions regarding the availability of resources that will allow for the evaluation of outstanding priorities, including the details associated with plan implementation and monitoring. The Parties recognize that these priorities are important steps on the road to sustainable ecosystem management, as envisioned by the Scientific Panel, and are crucial components to the practice of adaptive management. We anticipate our discussions will yield direction on these topics to the Board and the Planning Committee in the near future.

We wish to acknowledge the considerable work required of the CRB to conduct two public reviews of the draft watershed plans during 2005. We especially appreciate the Board's efforts to organize and summarize the results from the public processes and its own reviews, then to structure its subsequent recommendations in order to provide assistance to the Parties' review and evaluation of these plans.

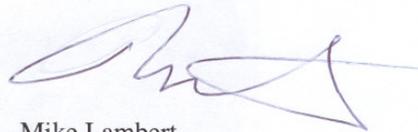
Further, we would like to thank the CRB, the Central Region First Nations, various stakeholders and interest groups, local governments, and members of the public for their contributions to the development of these plans - and, for their thoughtful comments during each review process.

We look forward to a continued close working relationship between the Parties, the Central Region Board, and the Technical Planning Committee to achieve the objectives envisioned by the Scientific Panel. Continued close cooperation between all partners will be instrumental in achieving this goal.

Sincerely,



Elmer Frank
Chairman
Central Region Chiefs



Mike Lambert
Associate Deputy Minister
Integrated Land Management Bureau

cc. Nelson Keitlah and Rudi Mayser, Co-chairs, Clayoquot Sound Technical Planning Committee

Preface

This watershed plan for the Sydney - Pretty Girl planning unit was prepared by the Clayoquot Sound Technical Planning Committee (TPC). Committee membership consists of representatives from the First Nations of Clayoquot Sound and technical staff from provincial agencies. The TPC is co-chaired by one representative each from First Nations and the Integrated Land Management Bureau (ILMB), of the Ministry of Agriculture and Lands¹. A complete membership list is provided in Appendix 1.

The primary responsibility of the TPC is to complete watershed-level planning for Clayoquot Sound. Watershed plans are compiled in a series of volumes. *Volume 1: Principles and Process* describes the planning process and objectives for the Sound (for planning purposes the boundaries of the Sound are defined as those established in the Clayoquot Sound Land Use Decision, included as Map 1). The remaining volumes, including this document, summarize the results for individual watershed planning units.

In preparing this plan, the TPC followed the recommendations of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound for watershed-level planning and identification of reserves. At times the TPC also sought additional advice from respected specialists in their field of expertise.

The intent of this watershed plan is to guide site-level forest planning and forest harvesting in the Sydney-Pretty Girl watershed planning unit, in accordance with the Scientific Panel recommendations for sustainable ecosystem management in Clayoquot Sound.

The effective date of this plan will be July 31, 2006. This plan will be subject to periodic updates and amendments to keep it current and to reflect new information.

¹ When the TPC was first established, government representatives included staff from the Ministry of Forests, the Ministry of Environment, Lands and Parks and the Ministry of Small Business, Tourism and Culture. In 2001, responsibility for resource management was transferred to the new Ministry of Sustainable Resource Management (MSRM). In 2005, the MSRM was dissolved and a new agency (Integrated Land Management Bureau, Ministry of Agriculture and Lands) assumed responsibility for land use planning.

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Executive Summary

This watershed plan encompasses the entire Sydney - Pretty Girl watershed planning unit. This unit encompasses 20,276 ha and is bounded to the west by the Hesquiaht planning unit drainages (Kanim Lake, Hesquiaht Point Creek, Satchie Creek, and Hesquiaht Lake Creek); to the north by the Mooyah River, Silverado Creek and Houston River headwaters (all of which are outside the Clayoquot Sound Land Use boundary area); to the east by the Megin River watershed; and to the south by Shelter Inlet and the mouth of Sydney Inlet. The planning unit includes all of Sydney Inlet, and large portions of Maquinna and Sulphur Passage Provincial Parks.

This watershed plan was developed in accordance with the principles and recommendations set out by the Scientific Panel on Sustainable Forest Practices in Clayoquot Sound to guide planning for sustainable ecosystem management in Clayoquot Sound. It does not apply to provincial parks, Indian Reserves, federal lands, or private land.

The purpose of the plan is to map and designate the areas that will be set aside as reserves to protect a range of forest values. The plan also maps and designates the harvestable area – that is, the land that falls outside of reserves and on which sustainable forest harvesting can take place. Within the harvestable area, special management zones are identified. In these areas, certain conditions and limitations are imposed on harvesting and other management activities in order to maintain special and sensitive values including scenic, recreation, tourism and ecosystem values.

Development of the Plan

The Scientific Panel identifies three key ecosystem management planning themes: watershed integrity, biological diversity, and human values including First Nations cultural values. The Panel sets out management goals and objectives for each of these three themes. Overall, this framework forms the backdrop to a planning process that includes broad-based regional and sub-regional plans, watershed-level plans, and site-specific plans.

The Scientific Panel identifies watershed-level planning as the cornerstone to the overall ecosystem-based management planning process. Watershed-level plans give practical meaning to ecosystem management goals and objectives, and also guide the site-level plans that direct forestry activities. Within watershed-level plans, the

designation of reserves and special management zones is the key strategy for achieving the ecosystem management objectives articulated by the Scientific Panel. In the harvestable area, a variable retention silviculture system, rate-of-cut limits and various restoration strategies provide a site-level complement to ecosystem management.

This watershed reserve plan for the Sydney - Pretty Girl watershed planning unit was developed by a Technical Planning Committee (TPC) made up of First Nations representatives and technical staff from provincial agencies, led by the Integrated Land Management Bureau. The TPC relied on the Scientific Panel reports and recommendations, as well as other expert advice, to develop the criteria for establishing reserves and special management zones.

The Sydney - Pretty Girl Watershed Reserve Network

The Scientific Panel proposed eight different kinds of reserves to protect forest values. Each of these reserve types serves as a strategy to achieve management objectives within one of the key management themes, as described below. Accompanying maps show the location of individual reserves.

Watershed Integrity

Reserves to protect hydroriparian resources

Approximately 3,528 ha have been designated as hydroriparian reserves. This represents approximately 17 percent of the total land base of the Sydney - Pretty Girl watershed planning unit (see Map 7).

Reserves to protect sensitive soils and unstable terrain

Unstable terrain reserves (areas of Class V terrain) cover approximately 1,247 ha, or 6 percent of the unit. Reserves for sensitive soils cover 728 ha or 4 percent of the land base. These layers overlap each other and other reserves at several locations. Together, unstable terrain reserves and sensitive soils reserves make up 1,936 ha or 10 percent of the total land base of the Sydney - Pretty Girl watershed planning unit (see Maps 8 and 9).

Biological Diversity

Reserves to protect red- and blue-listed plant and animal species

Approximately 1,327 ha have been set aside in ten separate Marbled Murrelet reserves within the Sydney - Pretty Girl watershed planning unit. Approximately 49 percent of this area (653 ha) was already reserved for other purposes. These reserves, in combination with other

reserves and protected areas, protect approximately 2,597 ha of class 1 and 2 Marbled Murrelet nesting habitat in this planning unit. This amounts to 39 percent of the total class 1 and 2 habitat available, or 13 percent of the land base (see Map 11).

Approximately 343 ha, or 2 percent of the land base of the Sydney - Pretty Girl watershed planning unit, have been designated as reserves for the protection of red- and blue-listed plant communities (see Map 10).

Reserves to protect forest-interior conditions in late successional forest

Currently, there are approximately 17,563 ha of old forest within the Sydney - Pretty Girl watershed planning unit. This represents 87 percent of the WPU, and 91 percent of the total forested land base. Of this, the reserve network encompasses approximately 6,645 ha, or 34 percent of the forested land base. To satisfy the Scientific Panel recommendation for minimum old growth retention of 40 percent, an additional 1,116 ha will have to be retained. Since there are 10,917 ha of old growth outside the reserve network, there is sufficient area remaining to meet that management objective. Map 12 shows the current old-growth forest and forest in interior conditions.

Within the reserve network, 3,408 ha are classed as forest-interior condition. This fully meets the old-interior forest recommendations of the Science Panel (see Map 13).

Reserves to represent all ecosystems

After the reserve network had been completed, the Committee found that 248 ha had to be added to the reserve network to satisfy ecosystem representation requirements (see Map 14).

Reserves to ensure linkages among watershed-level planning areas

Once watershed-level plans are completed for a number of adjacent watershed planning units in Clayoquot Sound, opportunities for linkage corridors will be evaluated. Where necessary, reserves that create linkages needed to support biodiversity or recreation objectives will be added to the reserve network.

Human Values

Many of the areas designated to protect culturally significant sites, scenic areas and recreational or tourism values are better characterized as special management zones than as reserves. Most of these areas are not excluded from harvesting; however, certain conditions and requirements must be met before harvesting may proceed. Only reserve buffers around recreational and tourism features, certain

cultural sites and scenic features – to the extent they are located within parks or reserves for other values – are excluded from harvesting.

Reserves to protect cultural values

Approximately 8,055 ha, or 40 percent of the Sydney - Pretty Girl watershed planning unit, has been identified by the Ahousaht First Nation (AFN) as areas of cultural significance. For reasons of confidentiality, the cultural values map included in this report (Map 15) shows only the general locations of sites of cultural importance.

Reserves to protect scenic and recreation/ tourism values

Reserves have not been established for scenic values, although many areas of high significance for scenic values have been preserved within existing parks and reserves for other values. Scenic values within the harvestable area are maintained through management criteria designed to achieve scenic class objectives and standards.

In total, 10,459 ha, or 52 percent, of the lands within the Sydney - Pretty Girl watershed planning unit have been assigned scenic class objectives: 4,111 ha to the natural-appearing scenic class objective, 5,007 ha within the minimal alteration class, and 1,341 ha within the small-scale alteration class. The remaining landscape is not classified because it is generally not visible from communities, recreation sites, and travel corridors. Of the scenic class areas, approximately 4,530 ha (43 percent) are included within parks and reserves (see Map 16).

In addition to areas that are assigned scenic class objectives and areas within other kinds of reserves, approximately 1278 ha containing features of high to very high recreation and tourism significance have been reserved, primarily along shorelines and around large lakes. This represents 6.3 percent of the land base of this planning unit. Areas surrounding recreation and tourism reserves have been identified as special management zones (see Map 17).

Summary

A total of 7,654 ha, representing 38 percent of the land base of the Sydney - Pretty Girl watershed planning unit, have been reserved from harvesting in the reserve network, including provincial parks. Map 18 shows the complete watershed reserve network.

The Sydney – Pretty Girl Harvestable Area

Once all the watershed reserve areas are mapped, the remaining area outside reserves is designated as the harvestable area. Forest harvesting

and other resource development such as road-building can take place within the harvestable area as long as this development is consistent with the Scientific Panel recommendations relating to operations, the *Forest Practices Code Act*, the *Forest and Range Practices Act*, and the watershed plan. All forest harvesting will take place in accordance with the Variable Retention Silvicultural System designed to preserve the characteristics of natural forests.

Within the harvestable area, special management zones have been identified where additional conditions and limits are imposed on forest harvesting and other operational activities. These conditions and limits ensure that the special and sensitive values in these areas - including scenic, recreation, tourism and ecosystem values - are maintained. Map 20 shows the location of the harvestable area, including Special Management Zones, as well as the reserve network.

The harvestable area within the Sydney - Pretty Girl planning unit encompasses 11,894 ha of the productive forest, representing 59 percent of the planning unit, or 61 percent of the forested land base. Special management zones comprise 9,014 ha (76 percent) of the harvestable area.

Forest management within harvestable areas is also subject to hydrological rate-of-cut limits, in accordance with Scientific Panel recommendation R3.1. Rate-of-cut limits applicable to watersheds within this planning unit are set out in Chapter 3. Map 21 shows the locations of these watersheds.

Harvesting systems will be determined at the site level in accordance with watershed-level objectives. The selection of systems and their application will be consistent with the recommendations set out by the Scientific Panel with respect to harvesting methods and equipment.

Amendments, Implementation and Monitoring

The plan will be subject to minor updates, as well as major scheduled and unscheduled amendments, as outlined in Volume 1, Chapter 4. Implementation and monitoring of the plan will be the joint responsibility of provincial resource agencies, First Nations, forest tenure holders and partners who share the common goal of sustainable ecosystem management in Clayoquot Sound, as discussed in Volume 1, Chapter 5.

1.0 The Sydney – Pretty Girl Planning Unit

1.1 The Physical Landscape

The Sydney - Pretty Girl watershed planning unit is located at the north end of the Clayoquot Sound Land Use Decision area. This planning unit is bounded by the Mooyah River and Silverado Creek headwaters to the north; Houston River to the northeast; the Megin River system to the east; Hesquiaht Lake Creek, Satchie Creek, Hesquiaht Point Creek, and Kanim Lake to the west; and the Sydney Inlet mouth and Shelter Inlet to the south. The total area of the planning unit is 20,276 ha. Map 2 shows the location of planning unit within the Clayoquot Sound Land Use Decision area.

The planning unit encompasses Stewardson Inlet, Holmes Inlet and most of fjord-like Sydney Inlet. Sydney River is the largest watershed in the unit, draining the entire northern portion (5,591 ha - almost 28 percent of the planning unit). It flows into the north end of Sydney Inlet. Other major drainages include the Ice River / Pretty Girl Lake watershed (3,555 ha) - which flows into Pretty Girl Cove; and, the Cecilia Creek / Easter Lake watershed (1,515 ha) - which flows into Young Bay. Because of steep topography and lengthy shoreline, there are many small watersheds and face drainages. There are several large lakes in the planning unit: Pretty Girl, Easter, Irving, Ellen, Cecilia, Ice and Camp.

Most of the Clayoquot Sound landscape was modified by glaciers during the Pleistocene period, and a number of features and landmarks in the planning unit bear witness to this. Evidence includes U-shaped valleys (with the Sydney as a prominent example), mountaintop arêtes at the headwaters of many drainages, and extensive glacial deposits.

Sydney River flows fairly straight, with few bends along a broad valley from its head at Irving Lake to Sydney Inlet. Generally, the west side of the Sydney watershed is characterized by steep slopes, bedrock bluffs and ridges, and numerous gullies. In contrast, the east side has steep, narrow valleys separated by broad plateaus. Adjacent to Sydney Inlet, the landscape is characterized by bedrock-controlled terrain which slopes steeply and directly to the ocean. The eastern portion of the planning unit is characterized by extensive hummocky bedrock slopes and numerous lakes, bays and coves. In most places, shorelines are dominated by bedrock outcrops.

Elevations within the planning unit range from sea level to almost 1200m on the planning unit boundary north of Pretty Girl Lake. Map 3 illustrates the topographic relief of this unit.

The climate in the Sydney - Pretty Girl unit, as throughout the west coast of Vancouver Island, is temperate and very wet. Annual precipitation near sea level exceeds 3,000 mm, becoming greater at higher elevations inland. Mean daily temperatures range from 5° C in January to 15° C in August.

1.2 The Ecological Landscape

Approximately 96 percent of the Sydney - Pretty Girl watershed planning unit supports forests dominated by western redcedar, western hemlock, mountain hemlock, yellow-cedar, and amabilis fir.

Two biogeoclimatic ecosystem classification (BEC) zones occur in the Sydney - Pretty Girl watershed planning unit: the Coastal Western Hemlock (CWH) and the Mountain Hemlock (MH). The CWH zone occupies over 95 percent of the planning unit and is represented by three variants. The CWHvh1 variant (the Southern Very Wet Hypermaritime variant) covers approximately 380 ha at two locations: a small area near the end of Stewardson Inlet, and the Openit Peninsula and adjacent low elevation area. The CWHvm1 variant (Submontane Very Wet Maritime) occurs below 600 meters elevation, and covers approximately 80 percent of the planning unit. The CWHvm2 variant (Montane Very Wet Maritime), located along the upper slopes at elevations between 600 and 800 m., covers approximately 13 percent. The MH biogeoclimatic zone is characterized by a single variant, the MHmm1 (Windward Moist Maritime) which occurs at elevations of 900+ meters. Refer to Map 4 for BEC variant locations.

50 different ecosystems are represented in the Sydney - Pretty Girl watershed planning unit.

Fifty different vegetated ecosystem types are represented within the Sydney - Pretty Girl watershed planning unit. The most common ecosystems are Western Hemlock/Amabilis Fir - Blueberry (AB) - which occupies over 40 percent of the WPU, Western Hemlock/Western Redcedar - Salal (HS) at 23 percent, and Western Hemlock/Amabilis Fir - Deer Fern (HD), at 6.5 percent.

Approximately 90 percent of the Sydney - Pretty Girl forested land base supports ecosystems that are over 140 years old. Less than 10 percent of the planning unit has been harvested. Most harvesting occurred in the 1960s and 70s, and some as recent as the early 90s. Harvested areas now support second growth forests of various ages. Map 5 shows the location and age distribution of forest stands.

This planning unit contains nesting habitat for the Marbled Murrelet, a red-listed bird species. Studies indicate a direct correlation between Marbled Murrelet nesting habitat suitability and old growth forests. Some nesting habitat has been lost in the portions of this planning unit that have been harvested, mainly overlooking and south of Stewardson Inlet.

The Sydney River watershed supports Rainbow Trout, resident Cutthroat Trout, anadromous Cutthroat Trout, Chum, Chinook, Coho, Pink, Sockeye, winter-run Steelhead, and coastal sculpin species. This watershed provides excellent spawning, rearing and overwintering habitat. The Pretty Girl/ Easter Lake watersheds support Rainbow Trout, resident Cutthroat Trout, Dolly Varden Char, Kokanee, anadromous Cutthroat, Chum, Chinook, Coho, Sockeye, winter-run Steelhead, Peamouth Chub, Prickly Sculpin, and Three-spined Stickleback. The presence of cutthroat, Dolly Varden, Kokanee, Sockeye and Peamouth Chub indicates that these watersheds have high biodiversity values. See Appendix 2 for more information.

Black Bears are common throughout Clayoquot Sound. In this planning unit, forest harvesting in the southwest corner may have contributed to an increase in bear numbers, due to the creation of early seral communities that provide an abundant supply of fruit-bearing shrubs, grasses and forbs. At a minimum, the entire planning unit provides moderate bear forage opportunities throughout the year. Denning opportunities remain moderately-high to high for this planning unit overall.

The small amount of forest harvesting likely increased spring and summer forage for Black-tailed Deer in the southwest, but it is not known if this led to an actual increase in numbers. Wilcon (1997) noted that deer tracks were common in the Sydney River valley. At the stand level, high retention levels, rate-of-cut restrictions, and minimum old growth requirements are expected to ensure critical winter habitat and security cover remain, and also to contribute to increased forage production.

There are well-established Roosevelt Elk trails in the Sydney River watershed; historically, elk have been seen in that valley and near Ice River (Wilcon, 1997). The reserve network's focus on hydros riparian areas in valley bottoms will protect valuable winter habitat.

1.3 Human Values

The Sydney - Pretty Girl planning unit lies entirely within the traditional territory of the Ahousaht First Nation. Two First Nations Reserves are located within the planning unit: Openit (I.R. 27), located on the Openit (Hot Springs) Peninsula, covers 31 ha; and Kishnacous (I.R. 28), located at the head of Sydney Inlet, covers 14 ha. Refer to Map 6 for locations.

First Nations' values are discussed in the Scientific Panel's *Report 3: First Nations' Perspectives Relating to Forest Practices Standards in Clayoquot Sound*. In the following passages in *Report 5*, the Scientific Panel highlights the close connection between Nuu-chah-nulth culture and the natural resources of the region:

Nuu-chah-nulth people view the forest and its resources as gifts of the Creator, to be used with respect and to be maintained by careful stewardship through the legislative power of tribal government found within "hahuulhi." Traditional practices of resource management include harvesting of selected trees and other forest products; highly selective controlled burning to promote production of berries, to provide grazing areas for deer, and to produce firewood; and monitoring and controlled use of all lands and waters and their resources through stewardship of hereditary chiefs.

Within each community, chiefs' territories - rivers and fisheries, hunting and gathering areas, and portions of the ocean - are delimited by boundary markers such as easily recognizable topographic features. While permanent Nuu-chah-nulth villages are situated along the coast of Clayoquot Sound, economic and cultural activities (e.g., hunting, fishing, plant gathering, and spiritual practices) occur throughout the region, from the ocean and offshore islands to remote places in the mountains. For example, culturally modified trees, places of spiritual significance (especially caves, streams, pools, waterfalls, and offshore islands) which are often personal to individuals and families, and areas used for traditional activities are scattered widely across the landscape. These places and the area's forests and water resources are essential for Nuu-chah-nulth economic, cultural, and spiritual well-being, yet both have been threatened, depleted, or damaged by the activities of non-indigenous peoples.²

The Sydney - Pretty Girl watershed planning unit contains important marine and land-based recreational and tourism features.

The planning unit also contains important recreation and tourism features, including Sydney Inlet Provincial Park which was identified for protection in the 1993 Clayoquot Sound Land Use Decision. The Park was established to protect one of the best examples of a fjord on Vancouver Island. The inlet is protected, from the Sydney River estuary to the mouth of the fjord, including the side slopes to the

² Report 5, p.38

heights of land. The total area of the park is 2,774 ha. The estuary supports four salmon species. The inlet offers opportunities for sea kayaking, pleasure boating, fishing, and scuba diving. Access is by floatplane or boat.

Most of Maquinna Provincial Park lies outside the Sydney - Pretty Girl plan area, except for a small section at the south end of Openit (Hot Springs) Peninsula. At this location, geothermal hot springs, small falls and several pools attract visitors from around the world.

A portion of Sulphur Passage Provincial Park extends along the shorelines towards Shelter Inlet at the south-eastern limit of the planning unit. Refer to Map 6 for the location of the provincial parks.

There are other important recreation and tourism features within the planning unit: the pristine scenery along inlets and around the many lakes; numerous small inlets, bays and coves offer protected and secure shelter and anchorages; wilderness experiences; good, flat camping sites under groves of significant large trees (such as near the Ice River and adjacent to several lakes); freshwater and salt water angling; and many hiking trails that begin at sea level and follow creeks with pools, falls, and small gorges to reach scenic lakes and viewpoints.

The land outside the provincial parks and two First Nations' reserves falls within the Arrowsmith TSA, and Tree Farm Licences 54 and 57. The Tree Farm Licences are held, respectively, by International Forest Products Limited (Interfor) and Iisaak Forest Resources Limited (Iisaak). In addition, there is privately-held land on Openit Peninsula and several timber licence areas managed by the Ministry of Forests and Range or by Timber Sales British Columbia. Refer to Map 6 for the location of these various tenures.

There is one mineral tenure in the planning unit which produced a small amount of copper - silver - gold several years ago.

2.0 The Sydney – Pretty Girl Watershed Reserve Network

The network of reserves set out in this watershed plan represents the cornerstone of the Scientific Panel’s ecosystem management strategy for Clayoquot Sound. For a summary of the reserve types and how they address ecosystem management objectives, as well as details of the inventories and technical analyses involved in the designation of the various reserves, see Volume 1.

2.1 Reserves to Protect Watershed Integrity

Watershed integrity is one of the three primary themes of sustainable ecosystem management identified by the Scientific Panel. The strategy for achieving this goal is the designation of reserves to protect the integrity of the hydroriparian system and the integrity of forest soils.

2.1.1 Hydroriparian reserves

Hydroriparian zones distribute water through the ecosystem and provide important habitat.

The Scientific Panel recognizes the paramount importance of water bodies and their immediate vicinity, describing these zones as the “skeleton and circulation system of the ecological landscape.” Hydroriparian ecosystems distribute water through the environment, and also contain the richest and most diverse habitats. These systems are therefore of fundamentally critical to in the protection of watershed integrity.

For a detailed description of the hydroriparian inventory assembled in accordance with the Scientific Panel’s classification system, please refer to Volume 1.

Approximately 3,528 ha have been designated as hydroriparian reserves for the Sydney – Pretty Girl planning unit. This represents approximately 17 percent of the total land base of the unit. The hydroriparian reserves are shown on Map 7.

2.1.2 Sensitive soils and unstable terrain reserves

To reduce the risk of erosion, the Scientific Panel recommends that “only stable terrain and resilient soils should be available for forest harvesting operations.”³ Watershed plans therefore must include reserves to protect sensitive soils and unstable terrain.

³ Report 5, p.169.

Only stable terrain and resilient soils will be available for forest harvesting.

The single criterion established for the designation of reserves to protect unstable slopes is that all Class V terrain – that is, the terrain most at risk of slides due to forest harvesting – must be reserved. Sensitive soils requiring reserves at the watershed level are grouped into six categories: bedrock terrain; shallow organic matter; organic soils; blocky and bouldery colluvial material; active colluvial cones or fans and alluvial fans; and poor growing sites.

Unstable terrain reserves cover approximately 1247 ha, and, 728 ha of the land base are set aside in sensitive soils reserves. Together, unstable terrain reserves and sensitive soils reserves cover 1,936 ha (10 percent) of the total land base of the unit. The locations of these reserves are shown on Map 8 and 9.

2.2 Reserves to Protect Biological Diversity

The Scientific Panel acknowledges that “maintenance of biological diversity is inextricably related to the long-term maintenance of healthy, productive ecosystems.”⁴ A series of reserves provide strategies to advance this management objective.

2.2.1 Reserves to protect red- and blue-listed species

The protection of rare species is a key strategy for maintaining biological diversity.

A key strategy for maintaining biological diversity is the protection of rare or threatened species. The Scientific Panel recommends that reserves be established at the watershed level to protect red-listed and blue-listed plant and animal species. At the same time, the Panel notes that some species require protection measures at the site level, and that planning for species protection may also occur at the sub-regional level.

Plant Species

Among the plant communities occurring in the Sydney - Pretty Girl planning unit, two are red-listed and four are blue-listed. See Appendix 3 for the Conservation Data Centre’s list of red and blue-listed plant communities in Clayoquot Sound.

The red-listed communities are Sitka Spruce/False Lily-of-the-Valley Very Wet Hypermaritime (CWHvh1/SL) and Sitka Spruce/Salmonberry Very Wet Maritime (CWHvm1/SS). Following advice from the Conservation Data Centre (CDC) the TPC reserved all red-listed communities occurring in structural stages 6 and 7 (mature and

⁴ Report 5, p.200

old forest). As a result, 147 ha of the above communities have been reserved.

The four blue-listed plant communities found in the Sydney - Pretty Girl planning unit are:

- Western Redcedar - Sitka Spruce/Skunk Cabbage (CWHvh1/RC),
- Western Redcedar - Sitka Spruce/ Skunk Cabbage (CWHvm1/RC),
- Western Redcedar - Western Hemlock/Sword Fern (CWHvm1/RS), and
- Western Redcedar - Western Hemlock/Sword Fern (CWHvm2/RS).

The TPC was advised to reserve 50 percent of blue-listed plant communities occurring in structural stages 6 and 7. As a result, 196 ha of these communities were reserved.

The list of rare natural plant communities provided by the CDC includes two yellow-listed communities, Western Redcedar - Yellow Cedar/Skunk Cabbage (CWHvm2/RC) and Mountain Hemlock-Amabilis Fir/Blueberry (MHmm1/MB), which were given an “apparently secure/vulnerable” ranking. In the Sydney - Pretty Girl planning unit, MHmm1/MB is the single most common ecological unit, encompassing 1,961 ha or just under 17 percent of the total planning unit area. For this reason, the TPC decided it was not necessary to set aside more of this site series than was already reserved by other reserve layers. Analysis indicates approximately 51 percent of the MHmm1/MB overlaps with other reserves.

In total, approximately 343 ha (2 percent of the land base of the Sydney - Pretty Girl planning unit) that support red- or blue-listed plant communities have been identified within the reserve network. The locations of the various protected plant communities are shown on Map 10.

Individual rare plants will be reserved at the site level when they are discovered.

Animal Species

The Sydney - Pretty Girl planning unit contains known nesting habitat for the Marbled Murrelet, a provincially red-listed bird. Maximum dawn murrelet counts recorded at the bottom of Pretty Girl and Sydney drainages range from 210 to 309, and 222 to 228, respectively.

39 percent of all Class 1 and 2 Marbled Murrelet habitat has been reserved.

In this planning unit, 10 murrelet reserves were identified, totalling 1,327 ha or 6.5 percent of the Sydney-Pretty Girl Watershed Planning Unit. The location of these reserves is shown on Map 11. These reserves encompass 17 percent of the important murrelet nesting habitat in the planning unit. Additional important habitat is included in reserves for other purposes and in protected areas. In total, approximately 39 percent of all class 1 and 2 Marbled Murrelet nesting habitat has been protected in murrelet reserves, other reserves and protected areas.

Other animals that are vulnerable or of particular management concern in Clayoquot Sound include Roosevelt Elk, Black Bear and Black-tailed Deer. For elk, a blue-listed species, the reserve network captures large valley bottom areas which offer high value winter habitat. This provides sufficient protection for a small population of over-wintering animals. Suitable habitat for Black Bear and Black-tailed Deer is represented in other reserves and protected areas within the Sydney - Pretty Girl planning unit, and therefore specific reserves for these species have not been identified as part of this watershed plan.

2.2.2 Reserves to protect forest-interior conditions in mature forests

The Scientific Panel recognizes the importance of maintaining sections of older forests, and of ensuring that these are large enough to maintain conditions similar to those in the interior of historic forests.

Currently, approximately 17,563 ha or 91 percent of the forested land base of the Sydney - Pretty Girl planning unit is covered by old growth forests over 141 years old. 12,899 ha or 66 percent of the old growth forest in Sydney - Pretty Girl is currently in forest-interior condition. The amount of old growth forest, and the amount of old interior forest, are currently well above the minimum amount recommended by the Scientific Panel. Please refer to Map 12 showing the current locations of old growth and interior old growth forests in the Sydney - Pretty Girl planning unit.

6,645 ha of old forest (34 percent of the total forested area) is located within provincial parks and within reserves proposed for other values (e.g. hydrosiparian, terrain, soils, murrelets, etc.). As a result, in order to satisfy the Scientific Panel recommendation for retention of 40 percent of the forested area as old growth (i.e. 7762 ha), another 1,116 ha will have to be retained during harvesting operations.

Recommendation 7.16 of *Report 5* recommends that a minimum of 20 percent of the retained old forest should be reserved in forest-interior condition. At this time, the reserve network encompasses 3,408 ha of

Approximately 51 percent of the old growth encompassed in reserves is in forest-interior condition.

old growth in forest-interior condition. This represents 51 percent of the total old growth retained in the reserve network, or 44 percent of the total old growth retention requirement of 7762 ha. Map 13 shows the location of the old and old-interior forest within the reserve network in the Sydney – Pretty Girl planning unit.

2.2.3 Reserves to represent all ecosystems

The Panel recommends that reserves to represent all ecosystems be added to the reserve network “as necessary, to ensure that the entire variety of ecosystems is represented in the reserve system to maintain plants, animals, and other organisms that have specific habitat requirements.”⁵ Representation of all ecosystems is an essential component of biological diversity.

As shown in Table 2.1, there are two biogeoclimatic zones represented within the Sydney – Pretty Girl planning unit: the Coastal Western Hemlock zone (CWH) and the Mountain Hemlock zone (MH). The CWH is represented by two subzones, which include three variants: the CWHvh1 - Southern Very Wet Hypermaritime; the CWHvm1 - Submontane Very Wet Maritime; and, the CWHvm2 - Montane Very Wet Maritime. These variants occur below 800 metres. The Mountain Hemlock zone includes two variants: MHmm1 - Moist Maritime Subzone, Windward Variant and MHmmp1, Moist Maritime Parkland. These occur above 800 metres. Refer to map 4 for the biogeoclimatic classification of this planning unit.

Table 2.1 Biogeoclimatic zones, subzones and variants occurring in the Sydney – Pretty Girl planning unit

Biogeoclimatic Zone	Subzone	Variant	Location	Total Area
Coastal Western Hemlock (CWH)	Very Wet Hypermaritime (CWHvh)	Southern (CWHvh1)	Coastal	397.7 ha
	Very Wet Maritime (CWHvm)	Submontane (CWHvm1)	Below 600 metres.	16300.6 ha
		Montane (CWHvm2)	Between 600 metres & 800 metres.	2,635.7 ha
Mountain Hemlock (MH)	Moist Maritime (MHmm)	Windward (MHmm1)	Above 800 metres near the outer coast	941.7 ha
Total				20,275.8 ha

⁵ Report 5, p. 171.

50 different ecosystem types (site series) are found in the Sydney – Pretty Girl unit.

There are 50 different naturally-vegetated ecosystem types (site series) occurring in the Sydney – Pretty Girl planning unit: 13 different site series in the CWHvh1; 18 in the CHWvm1; 14 in the CHWvm2; and 5 in MHmm1. The most commonly occurring forested ecosystems are Western Hemlock/Amabilis Fir - Blueberry (AB), Western Hemlock/Amabilis Fir - Deer Fern (HD) and Western Hemlock/Western Redcedar - Salal (HS).

Many of the site series occurring in the Sydney - Pretty Girl planning unit are defined as rare; that is, they cover less than 2 percent of the planning unit or exhibit less than 6 occurrences. Table 2.2 presents an overview of the occurrence and extent of rare site series within the different variants.

Table 2.2: Rare site series in the Sydney - Pretty Girl Planning Unit

Variant	Rare Natural Vegetated Site Series			
	#	Area (ha)	% of variant	% of PU
CWHvh1	13	369.15	100	1.82
CWHvm1	11	383.69	2.57	1.89
CWHvm2	13	417.43	16.8	2.06
MHmm1	4	179.7	19.7	0.89
All	41	1,349.97	n/a	6.66

In total, rare site series cover approximately 1,350 ha, or 7 percent, of the planning unit.

Once the reserves for all other values were mapped, the planning committee determined the degree to which the existing reserve network achieved the recommended ecosystem representation targets. In the Sydney - Pretty Girl planning unit, 13 ecosystems were found to be underrepresented in the existing reserve network:

- CWHvh1: HS, RS and YG;
- CWHvm1: HS and LS;
- CWHvm2: AB, AF, AS, HD, HS and YG;
- MHmm1: MB and MO.

In addition, the following site series-dominant tree species-age class groups were also underrepresented:

- CWHvm1/YG/YC/201-400,
- CWHvm2/HS/YC/401-600, and
- MHmm1/MB/CW/201-400.

Ecosystem polygons in underrepresented units were added to the reserve network to satisfy all representation requirements. All other ecosystem units were represented in the reserve network, in many cases well above the minimum thresholds.

Approximately 248 ha were added to the reserve network to ensure complete ecosystem representation. Map 14 shows the location of the ecosystem units that were added to the reserve network to ensure full ecosystem representation.

2.2.4 Reserves to ensure linkages between watershed planning areas

The Scientific Panel recommends that watershed planning areas be linked in order “to allow migrations of animals, to provide connectivity among plant and animal populations, or to accommodate recreational opportunities.”⁶ While such linkages are primarily an objective of sub-regional plans, the Panel also acknowledges that this objective can only be realized after some watershed-level planning has taken place.

Reserves to ensure linkages among watersheds will be established once watershed-level plans are completed for adjacent watersheds.

Once watershed-level plans are completed for a number of adjacent watershed planning units in Clayoquot Sound, opportunities for linkage corridors will be evaluated. Where necessary, reserves that create linkages needed to support biodiversity or recreation objectives will be added to the reserve network.

2.3 Reserves to Protect Human Values

The Scientific Panel recognizes that “many aspects of the Clayoquot Sound environment are important to people – both First Nations and others – for cultural, spiritual, and scenic values, and for recreational and tourism use.”⁷ Accordingly, reserves to protect these values at the watershed planning level form part of the Panel’s overall framework for sustainable ecosystem management in Clayoquot Sound.

2.3.1 Culturally Important Areas to protect First Nations’ Values

Culturally important areas include sacred sites, historic areas and areas in current use.

The Scientific Panel stresses the importance of maintaining First Nations’ cultural values, dedicating an entire report to an account of First Nations’ perspectives and recommendations on how to incorporate these perspectives in planning and management of land, water and resources in Clayoquot Sound. Culturally important areas include sacred sites, historic areas, and areas in current use. The Panel recommends that these areas be identified by the Nuuchahnulth First

⁶ Report 5, p. 171

⁷ Report 5, p. 37

Nations and that they must be protected in ways that are consistent with traditional knowledge.

Culturally Significant Areas of Ahousaht - Mapping and Inventory

Note: The material in this section, including the text and consultation flow chart, is supplied by the Ahousaht First Nation and has not been modified by the TPC.

The Scientific Panel for Sustainable Forest Practices in Clayoquot Sound determined, as of September 30, 1994 that:

First Nations' perspectives are inconsistently and incompletely addressed in existing forestry documents and standards pertaining to forest management in Clayoquot Sound. New standards and procedures are required to adequately represent First Nations' interests and involve indigenous people in forest management and associated activities within their traditional territories.⁸

New approaches for addressing these two findings were presented in Report 3: First Nations' Perspectives of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound (the Scientific Panel) and included:

- Recognize more clearly the close interrelationships that exist among the forests, waters, and marine ecosystems in Clayoquot Sound;
- Recognize the importance of Nuu-chah-nulth perspectives and traditional knowledge;
- Include Nuu-chah-nulth people and perspectives in decision-making;
- Provide educational opportunities for non-Nuu-chah-nulth forestry workers to learn about and gain an understanding of Nuu-chah-nulth history, traditional knowledge, and perspectives; and
- Provide training and employment opportunities for Nuu-chah-nulth people in forestry activities.

The Scientific Panel's Report 5 (page 166 & 167, 1995b) recommended several watershed-level planning objectives specific to First Nations:

- to identify and describe the environmental resources; natural processes; and cultural, scenic and recreational values in the planning unit;

⁸ Report 3, page 47 First Nations' Perspectives, The Scientific Panel

- to map and designate as “reserves” specific areas within the watershed that: are of special significance for First Nations peoples;
- to map and designate specific areas (termed “harvestable areas”) within the watershed where forest harvesting or other resource uses will not compromise the long-term integrity of the forest ecosystem, its use by First Nations people, or its recreational or high scenic value.
- identify reserves and harvestable areas within the watershed. Harvesting is permitted only outside reserve areas which are intended to maintain long-term ecosystem integrity in the watershed, to protect First Nations’ cultural important areas, and to protect recreational and scenic values.

The Scientific Panel’s *Report 5* (page 169) recommendation 7.16, describes how “reserve” status would be applied at the watershed level: map and designate reserves in which no harvesting will occur to protect key hydro riparian ecosystems, unstable slopes and sensitive soils, red-and-blue-listed species, late successional forest with forest-interior conditions, important cultural values, and areas with high value scenic and recreational resources; and integrate reserve establishment with the refinement and detailed mapping of various land-use zones (e.g. Protected Areas). Reserve status would be applied to protect cultural values as described on page 170 of the Scientific Panel’s *Report 5* (1995b): ...a variety of culturally important areas, including sacred areas, historic areas and current use areas. These areas must be determined by the Nuu-chah-nulth Nations and protected in ways consistent with traditional knowledge.

The Ahousaht Culturally Significant Areas Mapping Project is one initiative resulting from the Scientific Panel’s (Report 3 and 5) recommendations for new approaches to sustainable forest practices in Clayoquot Sound and the determined work of Ahousaht *Hawiih* (Hereditary Chiefs), Elders, leadership, membership, staff and those involved in negotiations related to the Interim Measures Extension Agreement (IMEA). Prior to this mapping project beginning in 1999, a network of reserves that protects a broad range of values, many which protect more than one, was established. This project mapped information on lands not-owned privately by the Ahousaht members. This project included a series of interviews, meetings, workshops and group discussions that produced several outcomes that compliment the existing network of reserves:

- The identification and mapping of areas of significance to Ahousaht in the context of cultural use: sacredness, sensitiveness, historical relevance, for current and/or future use; in three watershed planning units in Clayoquot Sound: Flores Island, Bedingfield and

Cypre; all of which lie within the *Hahuulhi* (traditional territory) of the Ahousaht *Hawiih*.

- For watershed planning, a generalized map of areas of cultural significance to Ahousaht, coded one colour.
- A categorization system and consultation process that is framed by *hishuk ish ts'awalk*, *Hahuulhi* and interests in timely decisions for development proposals.
- Further recognition of two important concepts in the history of Ahousaht's resource use in Clayoquot Sound: *hishuk ish ts'awalk* and *Hahuulhi*. *Hishuk ish ts' awalk* or "everything is one", embodies the sacredness and respect for all life forms and their approach to resource stewardship.⁹ *Hahuulhi*, the Nuuchahnulth system for hereditary ownership and control of traditional territories, represents a long history of resource use and management in Clayoquot Sound, and provides for a basis for Nuuchahnulth participation in co-managing the area and its resources.¹⁰
- The outcomes were achieved by a project team, hired by the Ahousaht Council, that included five community researchers, resource personnel from the Central Region Board and the Ahousaht GIS department, a field supervisor and a project coordinator from the Central Region Chiefs/Ma-Mook Development Corporation. This team developed an interviewing and information management protocol after consultation with Dr. Richard "Umeek" Atleo, a member of the Scientific Panel and a Professor at the Malaspina University College in Nanaimo, BC.

Confidentiality was, and continues to be at the forefront of information gathering and management. All personnel involved in this project have signed letters of confidentiality that were presented to each of the interviewees prior to the commencement of the interview. Interviewees were required to sign an acknowledgement and agreement form so that information may be recorded on acetate(s) and audio tape(s). All information is maintained by a secure management protocol and will be protected in ways consistent with traditional knowledge.

A series of maps for Ahousaht use contain detailed, confidential information provided by the interviewees. The map produced for watershed planning locates, in general, the areas of significance to the Ahousaht. The maps are dynamic in nature and the process adaptable to the presentation of new information. The areas may have cultural significance in the context of cultural use: sacredness, sensitiveness,

⁹ Report 3, page vii, First Nations' Perspectives, The Scientific Panel

¹⁰ *ibid.*

historical relevance, for current and/or future use. The Scientific Panel, page 51 and 52 of Report 3 sets out several recommendations to be considered when establishing the significance of these sites:

- R10 Before the completion of any ecosystem planning process in Clayoquot Sound, the Nuu-chah-nulth of the area (Ahousaht) within the planning is undertaken must be given the opportunity to identify, locate, and evaluate culturally important sites and areas.
- R11 The Heritage Conservation Branch typology (section 4.2.2) for classification of culturally important sites (“traditional use sites”) should be used with the categories of “Traditional Land Management Sites” and “Education and Training Sites” to be added to the categories delineated in this typology.
- R12 The determination of culturally important areas will include sites whose significance and existence are communicated by oral traditions as well as those established by physical and written evidence.
- R13 Culturally important areas identified as significant by Nuu-chah-nulth must be protected using methods appropriate to the area and to the use. For example, a buffer zone may be used to protect a culturally modified tree.

The Ahousaht, after consultation with Ahousaht *Hawiih* (Hereditary Chiefs), Elders, leadership, membership and staff, developed a categorization system and consultation process designed to protect areas of cultural significance to the Ahousaht, located within the Ahousaht *Hahuulhi* (traditional territory) that does not designate an area as a “reserve” - the Ahousaht 2001 Annual General Assembly ratified the term: “culturally significant to Ahousaht”, to identify areas of cultural significance to the Ahousaht, instead of the government’s “reserve” designation. The categorization system and consultation process are framed by the two concepts: *Hahuulhi* and *hishuk ish ts’awalk*.

Hishuk ish ts’awalk, or “everything is one,” embodies the sacredness and respect for all life forms and their approach to resource stewardship.¹¹

Hahuulhi, the Nuu-chah-nulth system for hereditary ownership and control of traditional territories, represents a long history of resource use and management in Clayoquot Sound, and provides for a basis for Nuu-chah-nulth participation in co-managing the area and its

¹¹ Report 3, page vii, First Nations’ Perspectives, The Scientific Panel

resources.¹² Prior to the arrival of Europeans in Clayoquot Sound, the Nuu-chah-nulth exercised plenary authority over their own territories.

All the lands, waterways, shorelines, and offshore islands and waters, even relatively remote areas far inland (e.g. The Ursus Valley, Port Alberni Valley, and Gold River area), fell under this system of ownership, control and resource use called Hahuulhi (“private ownership”).¹³ The boundaries of the various resource use sites owned by individual chiefs were known to all, and were formally recounted and reinforced many times through Nuu-chah-nulth oral traditions during feasts and other cultural gatherings.

Also, we know our boundary lines....These boundary lines we can show on a chart, with the old and the new boundary lines, which can tell you that these boundary lines are very important in the same way that the government is with their boundary lines with the U.S.A. and Canada....All along the Nuu-Chah-Nulth, the whole west of Vancouver Island, had their own territories.¹⁴

The Ahousaht's 2001 Annual General Assembly determined that designating areas of cultural significance to Ahousaht as “reserves”, would not be consistent with traditional knowledge: Hahuulhi or hishuk ish ts’awalk. Areas of cultural significance to Ahousaht are to be identified as “culturally significant to Ahousaht”. The designation “culturally significant to Ahousaht” would indicate to the Ahousaht, the government and other interested parties that the Ahousaht consultation process must be engaged, in order to initiate any development proposal. A designation of “culturally significant to Ahousaht” identifies the area to be of cultural significance to the Ahousaht in the context of cultural use: sacredness, sensitiveness, historical relevance, for current and/or future use.

The categorization system and consultation process provides for a secure management protocol that protects sensitive details of each area of cultural significance. Detailed Ahousaht maps and associated files include confidential information on: ownership; historical, current and future use; sacredness of an area; and other significant cultural values. Nine categories have been utilized to ensure clarity and certainty of the confidential information chronicled.

The Ahousaht consultation process is consistent with the spirit of the recommendations as set out in the Scientific Panel’s Report 3 and 5 - specific to First Nations interests, the recommendations ratified by the

¹² *ibid.*

¹³ Drucker 1951; Ellis and Swan 1981; Haiyupis 1988c, 1992; Bouchard and Kennedy 1990; Sam 1993b

¹⁴ Sam 1993b:6

Ahousaht 2001 Annual General Assembly, and interests in timely development.

- During sub regional planning, Nuu-chah-nulth Hahuulhi areas should be mapped (by the Nuu-Chah-Nulth) and the role of Hahuulhi in planning identified. At this planning level, make decisions regarding appropriate levels of protection for culturally important areas that extend across watershed boundaries. Identify such areas and initiate preliminary planning to outline watershed-level management actions to sustain values in these areas. Include participation of Nuu-chah-nulth Nations in all planning activities. (Page 165, Scientific Panel's Report 5)
- Harvesting is permitted only outside reserve areas which are intended to maintain long-term ecosystem integrity in the watershed, to protect First Nations' cultural important areas, and to protect recreational and scenic values. (page 166, Scientific Panel's Report 5).
- R7 - In consultation with the co-chairs of the Nuu-chah-nulth Tribal Council, *hahuulhi*, the traditional system for ecosystem management, must be recognized in ecosystem co-management process of Clayoquot Sound. *Hahuulhi* will be used in determining ecosystem management within the traditional boundary lines. (page 51, Scientific Panel Report 3, 1995)

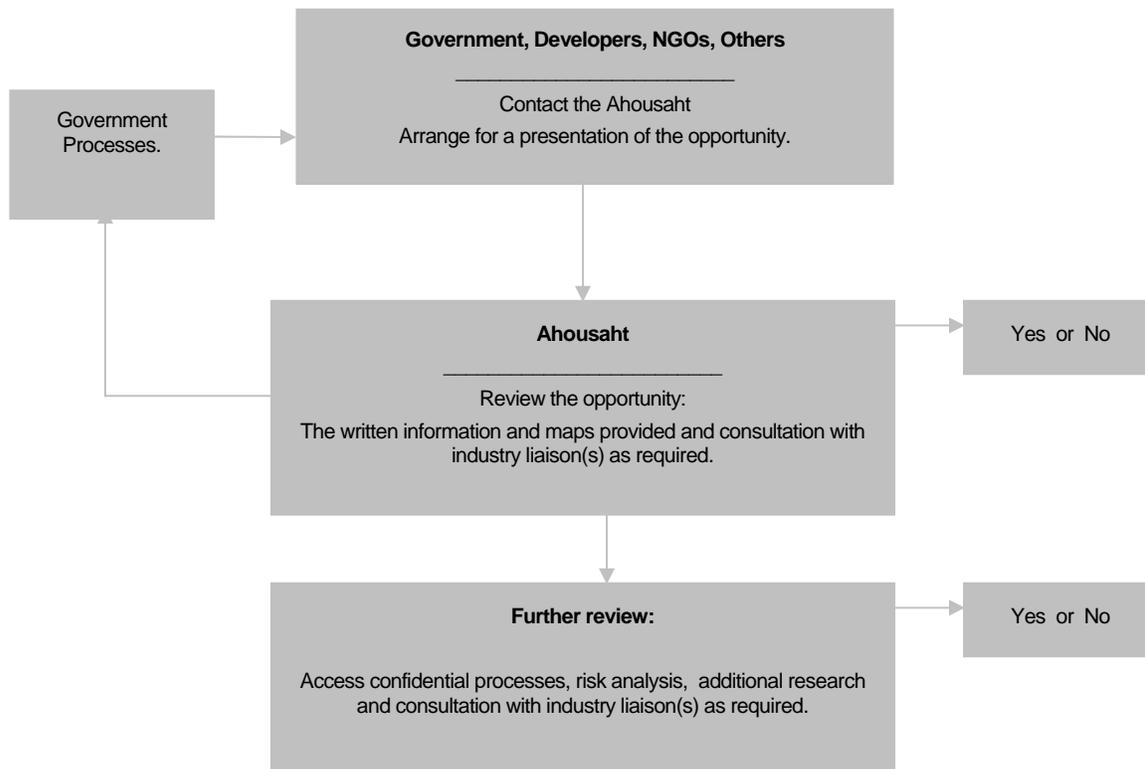
The Ahousaht consultation process impacts:

- Areas within the Hahuulhi of the Ahousaht Hawiiah that have been designated as "culturally significant to Ahousaht" and those that have yet to be identified;
- Territory located outside of the areas designated as "culturally significant to Ahousaht", and within the *Hahuulhi* of the Ahousaht *Hawiiah*.

Developers who are interested in accessing, for development purposes, the *Hahuulhi* of the Ahousaht *Hawiiah* would engage the Ahousaht consultation protocol¹⁵:

¹⁵ Note: The Ahousaht consultation process does not at this time, impact trap lines or lands owned privately by members of the Ahousaht.

Figure 2.1: Ahousaht Consultation Protocol



The Ahousaht Culturally Significant Areas Mapping Project produced the required outcomes for the watershed planning units in Clayoquot Sound which lie within the *Hahuulhi* (traditional territory) of the Ahousaht *Hawiih*. One outcome, that was not required, but is worthy of mention is that the participating youth recognize that traditional knowledge: *Hahuulhi*, is still very much alive and apart of every day life. It has also been noted that information pertaining to the significance of an area continues to emerge. Therefore, the consultation, mapping and inventory processes must be flexible, adaptive to change and to new information disclosed over time.

The Ahousaht’s 2001 Annual General Assembly ratified a motion to not use the term “reserve” to protect areas of “cultural significance to Ahousaht”. The classification, “cultural significance to Ahousaht” is consistent with traditional knowledge and the spirit of the recommendations as set out in the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, Report 3 and 5.

To realize the full spirit of the recommendations presented in the Scientific Panel's Report 3 and 5, and those provided by *Hawiih* (Hereditary Chiefs), Elders, leadership, membership and staff the Ahousaht are proposing that the remaining watershed planning units located within the Ahousaht *Hahuulhi* be documented utilizing a similar methodology. Time is of the essence in the completion of this work as many of the Elders who are holders of this significant information may not be able to pass it on as time catches up.

Approximately 8,055 ha, or 40 percent of the planning unit, has been identified by the Ahousaht First Nation to be of cultural significance. 44 percent of this area overlaps with the watershed reserve network. Map 15 shows the locations of AFN culturally significant areas.

2.3.2 Protection of scenic values

Landscape appearance is important both for aesthetic reasons and as an indicator of the health of the forest.

The Scientific Panel acknowledges that "landscape appearance is important to Nuu-chah-nulth, other residents, and visitors to Clayoquot Sound, both for aesthetic reasons and as a potential indicator of the health of the forest resource."¹⁶ Accordingly, the Panel identified the protection of scenic values as one component of the ecosystem management theme of maintaining human values.

In the Sydney - Pretty Girl planning unit, the scenic class objectives that have been assigned include scenic class 1 (small-scale alteration); scenic class 2 (minimal alteration); and scenic class 3 (natural-appearing). These scenic classes have been applied to ensure that areas of especially high scenic value receive the greatest level of protection. In addition to assigning visually sensitive areas to the above scenic class objectives, many unaltered areas with the highest visual values are located within provincial parks or placed within reserves identified for other resource values, and are thus provided the highest level of protection.

Scenic values are protected by management standards rather than through reserves.

As noted above, while reserves have not been established specifically for scenic values, many areas with identified scenic areas have been preserved within existing parks and reserves for other values. Scenic values located within the harvestable areas in the Sydney - Pretty Girl planning unit are maintained through management criteria designed to achieve scenic class objectives and standards (see Volume 1 for these management criteria).

Table 2.3 presents the breakdown of area within each scenic class in the visible portion of the Sydney - Pretty Girl planning unit, both within reserves and within the harvestable area.

¹⁶ Report 5, p. 40

Table 2.3 Sydney - Pretty Girl - scenic classes by area

Scenic Class	Reserves	Harvestable Area	Total Ha*
Natural - Appearing	2,418	1,683	4,111
Minimal Alteration	1,812	3,098	5,007
Small-Scale Alteration	300	1,021	1,341
TOTAL	4,530	5,802	10,459

*Total Ha include scenic class areas that are not located in reserves or harvestable areas

Areas comprising 52 percent of the Sydney – Pretty Girl unit have been assigned scenic class objectives.

In total, 10,459 ha or 52 percent of the planning unit have been assigned scenic class objectives. Of these, 4,530 ha (43 percent) are located within parks and reserves.

The portion of scenic area in Sydney – Pretty Girl that is located within the harvestable area will be managed in accordance with the assigned scenic class objective. Timber harvesting and road building operations within these scenic areas will be guided by the management criteria presented in Volume 1.

The remaining landscape is not classified because it is largely not visible from communities, recreation sites, and travel corridors. Any future development in these non-visible areas will take place according to Scientific Panel recommendations. In the case of future timber harvesting, variable retention silvicultural systems will be employed in all areas, visible and non-visible.

Map 16 shows the location of the various scenic class objectives in the Sydney – Pretty Girl planning unit.

2.3.3 Reserves to protect recreation and tourism values

Protection of areas with significant recreation and tourism values at the watershed level forms part of the Scientific Panel's strategy to maintain the human values associated with the Clayoquot Sound ecosystem.

Sydney Inlet Provincial Park, at 2,774 ha, was established to protect one of the best examples of a fjord on Vancouver Island. Maquinna Provincial Park lies largely outside the Sydney - Pretty Girl planning unit except for its southernmost section, which protects one of the more significant hot springs on the west coast.

Important recreation and tourism features in this planning unit outside the provincial parks include the large number of scenic small- to medium-sized lakes scattered throughout the eastern portion of the

WPU, wilderness hiking and camping opportunities, and the many small inlets and coves which offer protected anchorages for boaters.

In addition to the areas that fall within the scenic classes and within reserves for other purposes, such as hydroriparian reserves, approximately 1,278 ha containing features of high to very high recreation significance have been reserved. These areas are located primarily around large lakes. This represents 6.3 percent of the total land base of the Sydney – Pretty Girl planning unit. This reserve layer overlaps almost entirely with the hydroriparian reserve layer.

2.4 Summary: The Sydney – Pretty Girl Watershed Reserve Network

The watershed reserves identified for the Sydney – Pretty Girl unit are a cornerstone of the Scientific Panel’s framework for sustainable ecosystem management. They are designed to maintain watershed integrity, key components of biological diversity, First Nations’ cultural values, and scenic and recreational values and opportunities.

As described in Volume 1, six of the nine different reserve types identified for the Sydney - Pretty Girl planning unit are reserves in a strict sense; that is, forest harvesting is prohibited under normal circumstances (exceptions to this prohibition are described in Section 2.5 of Volume 1).

These strict reserves include those established to protect watershed integrity and biological diversity:

- hydroriparian reserves
- reserves for unstable terrain and sensitive soils
- reserves for red and blue-listed species
- reserves to protect forest-interior conditions in late successional forest
- reserves to represent all ecosystems
- reserves to ensure linkages among watershed-level planning areas.

Reserves to protect human values are better characterized as special management zones.

In contrast, many of the areas identified to protect human values – culturally important areas, scenic areas and recreational or tourism values – are included within reserves or special management zones. Most areas associated with these values are not excluded from harvesting; however, certain conditions and requirements must be met before harvesting may proceed. Volume 1, Section 3 describes management criteria for special management zones.

A total of 38 percent of the Sydney – Pretty Girl planning unit has been reserved.

Map 18 shows all the reserves in the Sydney - Pretty Girl planning unit. A total of 7,654 ha or 38 percent of the planning unit has been reserved. Many of the different reserves overlap and reserve totals and percentages are thus not cumulative. In other words, a given reserve location may be designated for a number of different reasons, and serve a multitude of conservation objectives.

3.0 Sustainable Ecosystem Management in the Sydney - Pretty Girl Watershed Planning Unit

3.1 Management Criteria for Special Management Zones

The areas in the Sydney - Pretty Girl planning unit that are identified to protect human values – that is, First Nations’ culturally important areas and areas identified for their scenic, recreational and tourism values - are better characterized as special management zones, rather than strict reserves. These special management zones are generally accessible for forest harvesting, subject to certain limits and conditions designed to preserve the areas’ sensitivities. Only areas of highest significance within these special management zones are excluded from harvesting.

The Scientific Panel also refers to special management zones in the context of hydroriparian reserves, specifically in R7.30 and 7.31 relating to lakes.

This section describes the special conditions, considerations and procedures that apply in each special management zone type.

Culturally Important Areas

Approximately 40 percent of the area of the Sydney - Pretty Girl planning unit has been identified by the Ahousaht First Nation as bearing high or moderately-high cultural significance. Consistent with traditional knowledge, culturally important areas are not designated as “reserves”. Rather, the designation “culturally significant” indicates that the Ahousaht consultation process must be engaged in order to initiate any development proposals (please refer to section 3.3.1 of this volume). Based on the cultural significance and sensitivity of the area in question, the consultation process will determine the compatibility of the development proposal with First Nations rights and interests. The process will also identify the special conditions, considerations and procedures to be met and followed should the development proceed.

Scenic Areas

Lands representing approximately 52 percent of the planning unit have been classed as scenic areas. 44 percent of these areas are located within parks or reserves for other values, and are therefore excluded from timber harvesting operations. Most of the balance is located within the harvestable area. While this area is available for timber harvesting, management activities will be guided by standards and criteria

designed to ensure that the applicable scenic class objectives are achieved.

Volume 1 describes the management standards that apply for each scenic class objective in this watershed planning unit. As proposed by the Scientific Panel, the standards are descriptive and qualitative in nature, avoiding quantification of levels of alteration and green-up.

To ensure that the applicable scenic class objectives are achieved, visual landscape design principles will be applied in the development of harvesting proposals. In accordance with Scientific Panel recommendation R6.6, visual impact assessments will be conducted prior to commencement of harvesting operations on all of the most important scenic areas (this includes, at a minimum, all areas within the 'natural appearing' scenic class objective).

For a breakdown of scenic class objectives by area for this planning unit, please refer to section 2.3.2. Map 19 shows the location of scenic areas in relation to the reserve network and the harvestable area.

Recreation and Tourism

Marine and lake shores, as well as special features such as significant trails and waterfalls, are protected by reserve buffers of varying widths. Management zones adjacent to these reserves serve to maintain the integrity of the buffers. In the Sydney - Pretty Girl planning unit, the management zones for recreation and tourism amount to 2,405 ha. Of this, 964 ha (40 percent) overlaps with the reserve layer and 1,441 ha (60 percent) occurs within the harvestable areas. Please refer to Volume 1 for a description of reserve and management zones.

Forest practices and the application of the retention system in the management zones need to be designed to ensure the integrity of recreation and tourism values encompassed in the reserves. Many (if not most) recreation and tourism features, settings and opportunities are valued for the visual enjoyment and experience they provide. For this reason, the visual impact of any forest practices must be managed and should remain minor within recreation and tourism management zones. This may be achieved by following the management standards described in Volume 1.

Lakes

The panel recommends that a special management zone be designated around all lakes, adjacent to the hydroriparian reserve zone. This

special management zone is to extend 20 m beyond the reserve zone, or up to the edge of the hydroriparian influence, whichever is greater.

The panel states that the special management zone around lakes may be subject to retention systems of harvest provided it is outside the hydroriparian reserve proper. The management zone will function as a buffer to protect the integrity of the reserve zone next to the lakeshore.

3.2 Management Criteria for Sensitive Sites

Over the years, the TPC consulted a number of experts for assistance with watershed level planning. These experts recognized the limitations inherent in the scale and intensity of watershed-level mapping. Accordingly, some provided recommendations regarding site-level measures that should be undertaken to ensure that sensitive sites are afforded adequate protection prior to and during operational management activities. Site level recommendations address a variety of sensitive sites and features, including terrain, soils and wildlife habitat.

Terrain and Soils

A team of soils and terrain specialists provided advice to the TPC on unstable terrain and sensitive soil reserves. This team described instances where terrain or ecosystem mapping does not provide sufficiently detailed information to determine whether a terrain or sensitive soils reserve is needed, or where specifically the reserve should be. The team recommends that, in such instances, the resource management decisions be based on site level assessments. See Table 3.2 in Volume 1 for the terrain types or features that should be field assessed, including any site-level management recommendations referenced in the consultation report.

Plants and Wildlife

The Scientific Panel provided recommendations for the protection of sensitive plant and animal species through the designation of reserves at the watershed level, and this watershed plan describes the area and locations of reserves. The Scientific Panel was mindful, however, that for many species protection could often be better implemented at the site level. Consequently, the Panel recommended that more refined information be collected at the site level about plant and animal species considered to be at risk by human activity. The Panel described the biodiversity objective at the site level as confirming the presence or absence of species or habitats that will affect operational management of the site.

In addition to the Scientific Panel recommendations pertaining to site-level information and management requirements for species at risk, further information on accommodating such species at both the watershed and site level can be found in the 2003 TPC report entitled *Clayoquot Sound Watershed Level Planning - Wildlife Habitat Overview*.

3.3 Silviculture, Harvesting and Transportation Systems

The Scientific Panel sets out guidelines for a new silviculture system known as the Variable Retention Silviculture System (VRSS). This system is used in all forestry activities in Clayoquot Sound. The Scientific Panel recommendations also provide guidance to forestry operators with respect to harvesting and transportation systems. For details of these recommendations and their application to ecosystem management in this watershed planning unit, please see Volume 1, Sections 3.2, 3.3 and 3.4.

3.4 Rate-of-cut

Rate-of-cut limits protect hydrological integrity. The calculation of rate-of-cut will occur at the site level of planning.

For the purposes of this watershed plan, the Panel's recommendations with respect to rate-of-cut are interpreted as limits imposed on forest development operations in order to protect the hydrological integrity of watersheds. Limits to the rate-of-cut apply to individual watersheds within the Sydney - Pretty Girl planning unit. Table 3.1 identifies the individual watersheds within this planning unit and sets out the rate-of-cut limits assigned in accordance with the Scientific Panel recommendation R3.1.

Volume 1 describes the methodology used to assign rate-of-cut limits in Clayoquot Sound. Map 21 shows the individual watersheds for this planning unit.

Table 3.1: Rate-of-Cut Limits for Sydney – Pretty Girl Planning Unit

Watershed or Map Unit	WS ID	Type	Area (ha)	Does Rate-of-cut Rule Apply?	5 Year Cut (ha)	10 Year Cut (ha)
100	212	Primary Watershed, >=200-500 ha	335	Yes	-	33.5
101	244	Primary Watershed, <200 ha	100	No	No limit	No limit
102 Total		Primary Watershed, >500 ha	5,591	Yes	279.5	-
102	28	Primary - residual area	1,638	No	-	-
102.1 Total		Secondary Watershed, >500 ha	1,709	Yes	85.5	-
102.1	64	Secondary - residual area	77	No	-	-
102.1.1	85	Tertiary Watershed, <=500 ha	460	No	-	-
102.1.2	17	Tertiary Watershed, >500 ha	1,172	Yes	58.6	-
102.2	21	Secondary Watershed, <=500 ha	453	No	-	-
102.3	7	Secondary Watershed, >500 ha	594	Yes	29.7	-
102.4	14	Secondary Watershed, <=500 ha	417	No	-	-
102.5	2	Secondary Watershed, >500 ha	780	Yes	39.0	-
103	381	Primary Watershed, >=200-500 ha	405	Yes	-	40.5
104	510	Primary Watershed, <200 ha	135	No	No limit	No limit
105	597	Primary Watershed, >=200-500 ha	343	Yes	-	34.3
106	672	Primary Watershed, >500 ha	566	Yes	28.3	-
78	501	Primary Watershed, <200 ha	171	No	No limit	No limit
79	533	Primary Watershed, >=200-500 ha	274	Yes	-	27.4
80	616	Primary Watershed, >=200-500 ha	426	Yes	-	42.6
95	632	Primary Watershed, <200 ha	166	No	No limit	No limit
96	625	Primary Watershed, >=200-500 ha	238	Yes	-	23.8
97	433	Primary Watershed, >500 ha	1,515	Yes	75.7	-
98	382	Primary Watershed, >500 ha	529	Yes	26.5	-
99 Total		Primary Watershed, >500 ha	3,555	Yes	177.8	-
99	353	Primary - residual area	16	No	-	-
99.1 Total		Secondary Watershed, >500 ha	2,409	Yes	120.5	-
99.1	143	Secondary - residual area	618	No	-	-
99.1.1	79	Tertiary - residual area	1,097	No	-	-
99.1.1.1	76	Quaternary Watershed, >500 ha	695	Yes	34.8	-
99.2	230	Secondary Watershed, >500 ha	1,130	Yes	56.5	-

The Ministry of Forests and Range will verify that forest development plans are consistent with rate-of-cut limits.

It is the forest tenure holder's responsibility to ensure that the amount of development proposed within a given watershed is consistent with the rate-of-cut that applies for that particular watershed. The Ministry of Forests and Range will verify that forest development proposed by licence holders is consistent with applicable rate-of-cut limits.

As described above, rate-of-cut will be determined at the site level in accordance with watershed-level objectives. Rate-of-cut will also be calculated at the management unit level; that is, rate-of-cut limits will be

considered along with other factors in the Chief Forester's determination of the AAC for a given tree farm licence or other management unit (or portion thereof) within Clayoquot Sound.

3.5 Restoration

While most Scientific Panel recommendations focus on the implementation of new planning approaches and new forest practices to maintain ecosystem integrity, the Panel also recognizes that past practices have led to some environmental damage and degradation. Recommendation R3.12 calls for the development of restoration plans where forest values have been degraded, with an initial focus on hydroriparian areas and large clearcuts.

International Forest Products Limited (Interfor) reports that since 1996 it has coordinated the deactivation of 24.5 kilometres of road. Following completion of road risk analyses, Interfor has determined that deactivation on another 15.3 kilometres would be desirable when funding becomes available. Interfor has also completed risk analyses and planning for restoration work for approximately 14 km of in-stream habitat and for approximately 14 hectares of riparian areas.

3.6 Summary: Harvestable Area in the Sydney - Pretty Girl Planning Unit

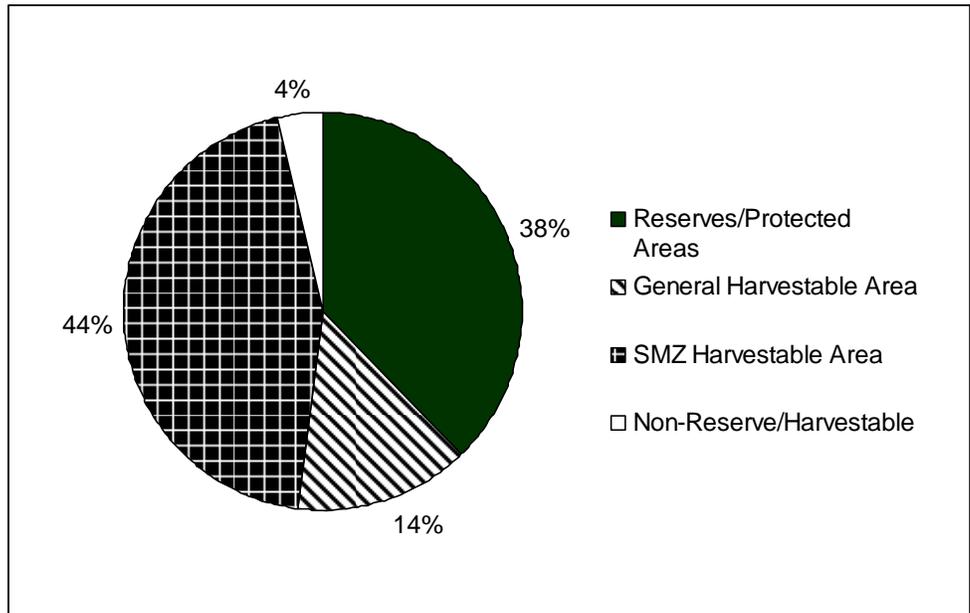
The harvestable area is the area that lies outside designated reserves. Forest harvesting can take place within the harvestable area as long as it is undertaken in a manner consistent with the Scientific Panel recommendations relating to operations, the *Forest Practices Code of British Columbia Act*, the *Forest and Range Practices Act* and the special management considerations described in Volume 1.

Approximately 61 percent of the Sydney - Pretty Girl forested land base is designated as harvestable area.

Approximately 11,894 ha, or 61 percent, of the forested land base in the Sydney - Pretty Girl watershed planning unit has been designated as harvestable area. The remainder is in reserves.

Special Management Zones comprise approximately 9,014 ha or 76 percent of the harvestable area. Map 20 shows the location of the harvestable area, including Special Management Zones, as well as the reserve network. Figure 3.1 shows the proportion of designated reserves, Special Management Zones and general harvestable area (i.e., without special management zone designation) in the Sydney - Pretty Girl planning unit.

Figure 3.1 Reserves and Harvestable Area in the Sydney - Pretty Girl Planning Unit



Appendix 1: Clayoquot Sound Technical Planning Committee

Membership on the Technical Planning Committee changed during the period it took to complete *Watershed Planning in Clayoquot Sound, Volumes 1 to 9*. The following list includes membership throughout this period:

Nelson Keitlah, First Nations Co-chair, Nuu-Chah-Nulth Tribal Council
Central Region Chiefs

Rudi Maysner, Provincial Co-chair, Integrated Land Management
Bureau, Ministry of Agriculture and Lands

Jackie Godfrey, First Nations Co-chair Alternate, Central Region Chiefs
Executive

Matthew Lucas, former Representative for Hesquiaht First Nation

Guy Louie, Representative for Ahousaht First Nation

Thomas Martin, Representative for Tla-o-qui-aht First Nations

Simon Tom, former Representative for Tla-o-qui-aht First Nations

Brian Retzer, Provincial Co-chair Alternate, ILMB, MAL

Mike Amrhein, former Clayoquot Sound Central Region Board Liaison

Dean Fenn, Ministry of Forests Liaison

Peter Verschoor, former Central Region Chiefs Strategic Planning
Forester

Marylin Touchie, Representative for Ucluelet First Nation

Colleen Charleson, Representative for Hesquiaht First Nation

Patricia McKim, Clayoquot Sound Central Region Board Liaison

Associates:

Dan Sirk, Land Information Coordinator, ILMB, MAL

Doug Fetherston, GIS Analyst, ILMB, MAL

Anette Thingsted, Planning Officer, ILMB, MAL

Lindsay Jones, Manager Representative, ILMB, MAL

Appendix 2

Appendix 2: Sydney - Pretty Girl Fish and Fish Habitat Inventory

The information in this Appendix was derived from a 1999 report prepared for the Ministry of Environment, Lands and Parks by the Nuu-chah-nulth Tribal Council.¹⁷

Literature searches suggest all fish stocks remain wild; that is, they have not been modified by hatchery introductions.

Sydney River

A 1993 fisheries inventory of four major Clayoquot Sound rivers (Bulson, Clayoquot, Cypre, and Sydney) found that the Sydney River had the highest fish density and biomass.

Fish Species

Resident game species: Rainbow Trout, Cutthroat Trout.

Anadromous game species: Chum, Chinook, Coho, Pink, Sockeye winter-run Steelhead, anadromous Cutthroat Trout.

Other species: coastal sculpins.

Habitat Values

Mainstem Reaches 1 to 8: this is a large, low gradient river with multiple braided channels and many tributaries; excellent habitat diversity to support spawning, rearing and over-wintering for all salmon species for initial 2.3 kilometres, and for Coho as far as 8 km above mouth; important native food fishery. Resident species occur throughout.

Tributaries: the mouths and lower gradient portions of most tributaries are used by resident and anadromous species as spawning, rearing and/or over-wintering habitat.

Lakes: although not confirmed, resident species are probable for Irving Lake, its outlet stream, and its major tributary.

¹⁷ Lewis, Bronwen. Interpretive Maps of Fish Habitat and Distribution in the Bedwell-Ursus-Bulson and Sydney Watershed Groups. Unpublished report prepared for the Ministry of Environment, Lands and Parks by the Nuu-chah-nulth Tribal Council. Port Alberni. October 1999.

Biodiversity Values

The Steelhead population is of regional significance because of declining numbers throughout its range, and because of its sensitivity to disturbance.

Restoration Opportunities

This watershed is undeveloped- therefore, there has been no impact on fish habitat.

The Lakes and Surrounding Area

The high concentration of small and large lakes in the eastern portion of this planning unit is unusual for Clayoquot Sound. Such habitat diversity provides refugia for unusual and regionally-significant species.

Fish Species

Resident wild species: Dolly Varden Char, Rainbow Trout, Cutthroat Trout, Kokanee.

Anadromous wild species: Chum, Chinook*, Coho, Sockeye*, winter-run Steelhead, anadromous Cutthroat Trout.

Other species: Peamouth Chub, Three-spined Stickleback, Prickly Sculpins.

* Chinook and Sockeye may be extirpated from their historical range within this portion of the WPU.

Habitat Values

Easter Lake: a barrier 100 m downstream of the outlet and another 150 m. upstream on the main tributary block fish passage; Kokanee and sculpins recorded from lake.

Cecilia Lake and Cecilia Creek: lake is accessible to spawning salmon; supports a healthy fish population, including Peamouth Chub, Cutthroat and Rainbow Trout, Coho; Sockeye recorded from lake; Chum, Coho, resident and anadromous Cutthroat recorded from creek.

Ellen Lake: downstream fish passage likely blocked by logjams; DV Char present.

Pretty Girl Lake: outlet stream is very steep with many impassable fish barriers; Rainbow and Cutthroat species recorded from lake, and expected to occur into upstream tributaries and lakes.

Ice River: Chum, Coho, Steelhead, Rainbow and Cutthroat recorded.

Numerous small watersheds and face drainages: although fish inventory data is lacking, many would be expected to support anadromous species.

Biodiversity Values

The winter-run Steelhead and the Dolly Varden populations are of regional significance because of declining numbers throughout their ranges, and because of their sensitivity to disturbance. Dolly Varden Char are a blue-listed species. Kokanee are not common in Clayoquot Sound, and Peamouth Chub are not common on Vancouver Island

Restoration Opportunities

Restoration activities not considered necessary.

Hot Springs Peninsula and Stewardson Inlet

Generally, this area is characterized by many high gradient, small streams which drain directly to the ocean. These streams tend to have low fisheries and biodiversity values.

Stewardson Inlet: Chum recorded from stream at head.

Hot Springs Cove Creek: Chum recorded; historic Coho run.

Sydney Inlet: large creek on west side of inlet supports resident Cutthroat and Rainbow Trout.

Appendix 3: Red- and Blue-listed Plant Communities in Clayoquot Sound*

Rare Plant Communities	Rank	Associated Ecosystem Units		
		BEC unit	Site Series	
			Number	Symbol
Red-Listed				
<i>Picea sitchensis</i> / <i>Maianthemum dilatatum</i> (Sitka spruce / false lily-of-the valley)	S2	CWHvh1	08	SL
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> (Sitka spruce / salmonberry)	S2	CWHvm1	09	SS
[<i>Anaphalis margaritacea</i> – <i>Aster foliaceus</i> (pearly everlasting - leafy aster)	S2	MHmm1	00	n/a]
[<i>Carex macrocephala</i> (large headed sedge) herbaceous community	S1S2	CWHvh1	00	n/a]
[<i>Phlox diffusa</i> - <i>Selaginella wallacei</i> (spreading phlox - Wallace's selaginella club moss)	S2	MHmm1	00	n/a]
[<i>Picea sitchensis</i> / <i>Trisetum canescens</i> (Sitka spruce / tall trisetum grass)	S2	CWHvh1	09	ST]
Blue-Listed				
<i>Alnus rubra</i> / <i>Maianthemum dilatatum</i> (red alder / false lily-of-the valley)	S3	CWHvh1	10	AL
<i>Picea sitchensis</i> / <i>Eurhynchium oregonum</i> (formerly <i>Kindbergia oregana</i>) (Sitka spruce / Oregon beaked-moss)	S3	CWHvh1	15	SK
<i>Picea sitchensis</i> / <i>Polystichum munitum</i> (Sitka spruce / sword fern)	S3	CWHvh1	17	SW
<i>Thuja plicata</i> / <i>Picea sitchensis</i> - <i>Lysichiton americanus</i> (western redcedar - Sitka spruce / skunk cabbage)	S3	CWHvh1	13	RC
<i>Thuja plicata</i> / <i>Picea sitchensis</i> - <i>Lysichiton americanus</i> (western redcedar - Sitka spruce / skunk cabbage)	S3	CWHvm1	14	RC
<i>Thuja plicata</i> - <i>Picea sitchensis</i> / <i>Polystichum munitum</i> (western redcedar - Sitka spruce / sword fern)	S2S3	CWHvh1	05	RF
<i>Thuja plicata</i> - <i>Tsuga heterophylla</i> / <i>Polystichum munitum</i> (western redcedar - western hemlock / sword fern)	S3?	CWHvm1	04	RS
<i>Thuja plicata</i> - <i>Tsuga heterophylla</i> / <i>Polystichum munitum</i> (western redcedar - western hemlock / sword fern)	S3?	CWHvm2	04	RS
[<i>Abies amabilis</i> - <i>Picea sitchensis</i> / <i>Oplopanax horridus</i> (amabilis (silver) fir - Sitka spruce / devil's club)	S3	CWHvm1	08	AD]
[<i>Abies amabilis</i> - <i>Picea sitchensis</i> / <i>Oplopanax horridus</i> (amabilis (silver) fir - Sitka spruce / devil's club)	S3	CWHvm2	08	AD]
[<i>Picea sitchensis</i> / <i>Calamagrostis nutkaensis</i> (Sitka spruce / Nootka reedgrass)	S3	CWHvh1	16	SR]
[<i>Picea sitchensis</i> / <i>Carex obnupta</i> (Sitka spruce / slough sedge)	S3	CWHvh1	18	SE]
[<i>Picea sitchensis</i> / <i>Malus fusca</i> (Sitka spruce / Pacific crab apple)	S3	CWHvh1	19	SC?]
[<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Cornus stolonifera</i> (black cottonwood / red-osier dogwood)	S3	CWHvm1	10	CD]
[<i>Tsuga heterophylla</i> – <i>Picea sitchensis</i> / <i>Rhytidiadelphus loreus</i> (western hemlock – Sitka spruce / lanky moss)	S3	CWHvh1	04	HM]
Yellow-Listed				
<i>Abies amabilis</i> - <i>Thuja plicata</i> / <i>Tiarella trifoliata</i> (amabilis (silver) fir - western redcedar / foamflower)	S3S4	CWHvm2	05	AF
<i>Thuja plicata</i> – <i>Chamaecyparis nootkatensis</i> / <i>Lysichiton americanus</i> (western redcedar - yellow-cedar / skunk cabbage)	S3S4	CWHvm2	11	RC
<i>Tsuga mertensiana</i> – <i>Abies amabilis</i> / <i>Vaccinium alaskaense</i> (mountain hemlock - amabilis (silver) fir / Alaskan blueberry)	S3S4	MHmm1	01	MB

*Source: BC Conservation Data Centre (CDC), November, 2004

Note: Communities found in the Sydney-Pretty Girl watershed planning unit are shown above in grey shading.

Notes on ranking system:

S1 - Critically Imperiled because of extreme rarity in the province, or because of some factor(s) making it especially vulnerable to extirpation from the province. Typically, there will be 5 or fewer occurrences or very few remaining individuals (<1,000).

S2 - Imperiled because of rarity (typically 6-20 extant occurrences or few remaining individuals) or because of some factor(s) making it vulnerable to extirpation or extinction.

S2S3 is used to indicate uncertainty about the exact status of a taxon; may fall within S2 or S3 rankings.

S3 - Vulnerable provincially either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction.

S4 - Apparently Secure is uncommon but not rare, and usually widespread in the nation or province; possible cause of long-term concern; usually more than 100 occurrences and more than 10,000 individuals.

[] - Denotes communities which are not classified as distinct ecosystem units in the TEM data base which supports sub-regional and watershed level planning; these communities may, however, be encountered at the site level of planning.

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