

WATERSHED PLANNING IN CLAYOQUOT SOUND

VOLUME 9: FORTUNE CHANNEL 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'.

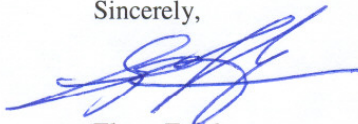
The Board made one other significant recommendation in its two letters: that the Parties identify the resources to develop and implement a comprehensive monitoring program. Now that the watershed planning process is drawing to a close, the Parties are pleased to announce we have begun discussions regarding 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.

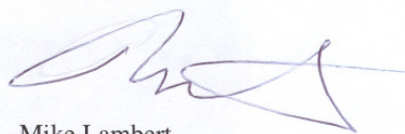
Further, we would like to thank the CRB, the Central Region First Nations, various stakeholders and interest groups, local governments, and members of the public for their contributions to the development of these plans - and, for their thoughtful comments during each review process.

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 plan for the Fortune Channel 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 Fortune Channel watershed planning unit, in accordance with the Scientific Panel recommendations for sustainable ecosystem management in Clayoquot Sound.

The effective date of this plan is 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 Fortune Channel watershed planning unit, which covers 10,249 hectare. The plan area includes all upland areas adjacent to Tofino and Tranquil Inlets, the entire McCaw Peninsula, and the large peninsula between Tofino Inlet and Fortune Channel. It is bounded to the north by the Tofino-Tranquil and the Bedwell-Ursus-Bulson planning units, to the east by Clayoquot River and Kennedy Lake planning units, and to the south and west by the waters of Grice Bay, Dawley Passage, Fortune Channel and Warn Bay. All islands within Tofino and Tranquil Inlets, including Warne Island and Indian Island, are part of the planning unit.

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 (SP) 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 plan for the Fortune Channel 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 Fortune Channel 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 2,025 hectares have been designated as hydroriparian reserves. This represents approximately 20 percent of the total land base of the Fortune Channel watershed planning unit (see Map 7).

Reserves to protect sensitive soils and unstable terrain

Unstable terrain reserves (areas of Class V terrain) cover approximately 620 hectares, or six percent of the planning unit. Reserves for sensitive soils cover 382 ha or almost 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 935 ha or 9 percent of the total land base of the Fortune Channel watershed planning unit (see Maps 8 and 9).

Biological Diversity

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

Almost 125 hectares have been set aside in two separate Marbled Murrelet reserves within the Fortune Channel watershed planning unit. Approximately 24 percent of this area (30 ha) was already reserved for other purposes. These reserves, in combination with other reserves and protected areas, protect approximately 793 ha of class 1 and 2 Marbled

Murrelet nesting habitat in this planning unit. This amounts to 42 percent of the total class 1 and 2 habitat available. See Map 11 for locations of murrelet reserves.

Approximately 165 ha, or 1.4 percent of the land base of the Fortune Channel 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 6,039 ha of old forest within the Fortune Channel watershed planning unit (WPU). This represents 59 percent of the WPU, and 61 percent of the total forested land base. Of this, the reserve network encompasses approximately 2,547 ha, or 25 percent of the forested land base. In order to meet the SP recommendation for minimum old growth retention of 40 percent, another 1,422 ha of old forest will have to be retained outside the reserve network. Map 12 shows the current old-growth forest and forest interior conditions.

Within the reserve network, 869 ha are classed as forest-interior condition. This represents 22 per cent of the old forest retention requirement; and, thus meets the Science Panel recommendation that 20 per cent of old forest be interior-forest (see Map 13).

Reserves to represent all ecosystems

After the reserve network had been completed, the Committee found that 601 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

The Ahousaht First Nation (AFN) and the Tla-o-qui-aht First Nations (TFN) have territories in the Fortune Channel watershed planning unit. Generally, these territories are separated by the height-of-land along the eastern edges of Rolling Stone Creek watershed and several smaller drainages immediately to the south. There is overlap in several small watersheds draining into Fortune Channel on the southern end of the main peninsula, and on Indian Island. Approximately 4,503 ha, or 44 percent of the Fortune Channel watershed planning unit, have been identified by the Ahousaht First Nation and the Tla-o-qui-aht First Nations as areas of cultural significance. For reasons of confidentiality, the cultural values maps included in this report (Map 15 (TFN) and Map 15 (AFN) show 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, 9,634 ha, or 94 percent of the lands within the Fortune Channel watershed planning unit have been assigned scenic class objectives: approximately 2,137 ha to the natural-appearing scenic class objective, 5,982 ha within the minimal alteration class, and 1,515 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 3,816 ha (40 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 1,247 ha containing features of high to very high recreation and tourism significance have been reserved, primarily along marine shores. This represents 12 percent of the land base of this planning unit. Areas surrounding recreation and tourism reserves have been identified as special management zones; these areas amount to 1,993 ha or 19 per cent of the planning unit (see Map 17).

Summary

A total of 3,967 ha, representing 39 percent of the land base of the Fortune Channel watershed planning unit, have been reserved from harvesting in accordance with the recommendations of the Scientific Panel. Map 18 shows the complete watershed reserve network.

The Fortune Channel Harvestable Area

Once all the watershed reserve areas are mapped, the remaining area outside reserves is designated as the harvestable area. Forest harvesting and related 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 Fortune Channel planning unit encompasses 6,087 ha of the productive forest, representing 59 percent of the planning unit, or 61 percent of the forested land base. Special management zones comprise 5,826 hectares 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 4. 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 Fortune Channel Planning Unit

1.1 The Physical Landscape

The Fortune Channel watershed planning unit is located in the southern half of the Clayoquot Sound Land Use Decision area. It covers 10,249 hectares and includes the upland areas surrounding Tofino and Tranquil Inlets, as well as McCaw Peninsula and the peninsula between Tofino Inlet and Fortune Channel. It is bounded to the north by the Tofino-Tranquil and the Bedwell-Ursus-Bulson planning units, to the east by Clayoquot River and Kennedy Lake plan areas, and to the south and west by the waters of Grice Bay, Dawley Passage, Fortune Channel and Warn Bay. Map 2 shows the location of planning unit within the Land Use Decision area.

Most drainage basins are small as the planning unit is characterised by a multitude of small streams or face units draining directly into Fortune Channel, Grice Bay, and Tofino and Tranquil Inlets. Three watersheds exceed 500 hectares: Virge Creek (508 ha), Rolling Stone Creek (624 ha), and an unnamed creek flowing into the south end of Deer Bay (555 ha). The mouths of Virge and Rolling Stone Creeks occur over large fluvial fans. There are no major lakes within the planning unit.

Elevations within the planning unit range from sea level to over 1200 metres on the planning unit's north-eastern and north-western boundaries. Map 3 illustrates the topographic relief for this unit.

Due to its proximity to the ocean, most of the planning unit has a temperate climate, with warm summers and mild, wet winters. Annual precipitation at sea level exceeds 3,000 mm - but, increases considerably at higher elevations inland. Most precipitation falls between October and May. Freezing winter temperatures for extended periods are uncommon throughout most of the planning unit because of lower elevations and the direct influence of the marine environment. As a result, there is little snow accumulation except at the highest elevations.

1.2 The Ecological Landscape

Approximately 97 percent of the Fortune Channel planning unit supports forests dominated by western redcedar, western hemlock, mountain hemlock, yellow-cedar, Sitka spruce and amabilis fir.

Two biogeoclimatic ecosystem classification (BEC) zones occur in the Fortune Channel watershed planning unit: the Coastal Western

Hemlock (CWH) and the Mountain Hemlock (MH). The CWH zone occupies 95 percent of the planning unit; and, is represented by three variants. The CWHvh1 variant (Southern Very Wet Hypermaritime) covers almost 47 per cent of the unit, predominantly in the south as well as the west facing shores along Fortune Channel and Tofino Inlet. The CWHvm1 variant (Submontane Very Wet Maritime) occurs below 600 meters elevation, and covers approximately 38 percent of the planning unit. The CWHvm2 variant (Montane Very Wet Maritime), located on upper slopes at elevations between 600 and 800 m., covers approximately 11 percent. The MH biogeoclimatic zone is characterized by one variant and one sub-variant. The MHmm1 variant (Windward Moist Maritime) occupies less than 5 percent of the WPU, at elevations of 900+ meters. The MHmmp1 (Moist Maritime Parkland MH) sub-variant occurs above 1200m, and occupies less than 1 percent of the planning unit area. Refer to Map 4 for BEC variant locations.

There are 47 different vegetated ecosystems represented within the Fortune Channel planning unit. The most common are Western Hemlock/Western Redcedar - Salal (HS) in the CWHvh1 and CWHvm1 variants - which occupy 28.4 and 7.4 percent of the planning unit, respectively; and, Western Hemlock/Amabilis Fir - Blueberry (AB) in the CWHvm1 and CWHvm2 variants - which occupy 18.3 and 6.2 per cent of the planning unit, respectively.

Approximately 97 percent of the Fortune Channel planning unit is forested - with more than 61 per cent of the forested land base over 140 years old. Harvesting commenced in the 1940s on the west facing slopes of Tofino Inlet, and continued into the 1990s throughout the plan area. Almost 36 per cent of the planning unit supports forests less than 60 years old. In the late 1990s, International Forest Products Limited initiated trials of Scientific Panel forest harvesting recommendations, with some of the first harvesting in British Columbia to employ variable retention harvesting. The Interfor blocks were in the Rolling Stone watershed. Map 5 shows the location and age distribution of forest stands in the Fortune Channel planning unit.

The plan area 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. As a result, harvesting would have decreased the amount of suitable nesting habitat available within this planning unit.

Limited fisheries surveys indicate at least nine Fortune Channel watersheds support salmonids; and, it's likely that many small unsurveyed creeks support at least one species in their lower reaches. Coho have been recorded from most creeks surveyed; Chum,

anadromous and resident Cutthroat Trout, and Rainbow Trout confirmed for several; and, Sockeye escapements documented from Woman Island Creek.

Black Bears are common throughout Clayoquot Sound. The Fortune Channel planning unit supports moderate to high bear use, and well-worn bear trails are common^{2,3}. Generally, forage, security and denning habitat values in the western portion of the planning unit are moderate to high throughout the year. East of Tofino Inlet, spring forage values tend to be low or very low, with only a small number of areas providing forage of moderate or better value. As the season progresses, forage increases, until by summer, food is not limiting. Forage values are high throughout the planning unit during late summer and autumn when bears are preparing for winter. The creation of early seral communities following forest harvesting increased berry, grass and herb production - however, these understory forage species will gradually decline at many locations as the second growth conifer overstory fills in. Denning habitat values range from moderate to high throughout the plan area.

Black-tailed Deer and Roosevelt Elk numbers are not known for this planning unit. Ecosystem mapping biologists determined that observed sign indicated low to moderate deer use for the plan area^{2,3}. Forest harvesting has increased spring and summer forage opportunities, but it is not known if this led to an increase in population numbers. Overall, deer forage habitat is rated as moderate or better for all seasons throughout the plan area. Suitable winter habitat is widely available throughout much of the planning unit east of Tofino Inlet³; and, moderately high winter range habitat can be found on the south facing slopes in the remainder, e.g. in the Virge Creek and Rolling Stone Creek watersheds¹. Roosevelt Elk are present in low numbers, if present at all². Overall, elk habitat values are moderate throughout the year west of Tofino Inlet³, and low to moderate east of the inlet¹. Sufficient elk habitat is available in this planning unit to support a small population, if they were to become established. At the watershed level, the hydriparian reserve network offers valuable valley bottom and south-facing winter habitat for elk and deer, respectively. At the stand level, high retention levels, rate-of-cut restrictions, and minimum old growth requirements are expected to ensure maintenance of critical winter habitat and security cover, while contributing to increased forage production.

² Madrone. ND. *Addenda, Wildlife Interpretations for Ecosystem Mapping of the Clayoquot Sound Area, Year One (1996-1997)*. Report prepared for the Ministry of Forests, Port Alberni Forest District. Madrone Consultants Limited, Duncan, BC.

³ Madrone. 1999. *Wildlife Interpretations for Terrestrial Ecosystem Mapping for the Clayoquot Sound Area, Interim Document, Year 3*. Report prepared for the Ministry of Forests, Port Alberni Forest District. Madrone Consultants Limited, Duncan, BC. March 1999.

1.3 Human Values

The Fortune Channel planning unit lies within the traditional territories of both the Ahousaht and the Tla-o-qui-aht First Nations. There is one Ahousaht reserve located in its entirety within this planning unit: IR 30 occupies 37.7 ha on the southeast corner of Indian Island.; and, one reserve partially in the planning unit: Quortsowe (IR 13) covers 14.6 ha, at the top of Warn Bay. There are portions of three Tla-o-qui-aht reserves located within the planning unit: Kootowis (IR 4), on the mouth of Kootowis Creek, covers 15 ha; Okeamin (IR 5), near the Kennedy River outlet, covers 9.7 ha; Onadsilth (IR 9), on the mouth of Tofino Creek, covers 18.2 hectares. 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 Nuuchahnulth culture and the natural resources of the region:

Nuuchahnulth 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 Nuuchahnulth 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 Nuuchahnulth economic, cultural, and spiritual well-being, yet both have been threatened, depleted, or damaged by the activities of non-indigenous peoples.⁴

Archaeological sites have been recorded along the shoreline. All of these sites are of First Nations origin. This information along with other

⁴ *Report 5*, p.38

The Fortune Channel watershed planning unit supports a magnificent marine ecosystem in association with the Dawley Passage tidal narrows.

previously recorded data fills a substantial gap in the archaeological site database for Nuuchah-nulth traditional territory.

The planning unit also contains important recreation and tourism features. Dawley Passage Provincial Park is located at the south end of Fortune Channel and encompasses 93 ha of foreshore and 62 ha of upland area. The park protects a magnificent variety of marine life associated with the fast currents of the Dawley Passage tidal narrows; and, thereby, provides great scuba diving opportunities. The sheltered waters around Dawley Passage provide opportunities for canoeing and kayaking. In addition, much of Indian Island and the north shore of Grice Bay are part of Pacific Rim National Park Reserve. Parks Canada facilitates boat access to this area by maintaining a public boat launch on the south shore of Grice Bay. Beyond the park areas, Fortune Channel is one of Clayoquot Sound's most popular tourism corridors for fishing, boating and wilderness camping.

Most of the planning unit outside the parks and First Nations reserves falls within Tree Farm Licence 57, which is held by Iisaak Forest Resources Limited (Iisaak), or Tree Farm Licence 54, held by International Forest Products. The McCaw Peninsula and adjacent face drainages to the north are managed by the Ministry of Forests and Range, within the Arrowsmith Timber Supply Area. There are privately-held lands south of the Kennedy River estuary, and on Fortune Channel, northwest of the head of Gunner Inlet. Refer to Map 6 for locations of these various tenures.

There are eight mineral tenures in the planning unit. Mineral occurrences are confirmed, and the unit is rated high to very high for industrial and metallic mineral potential.

2.0 The Fortune Channel 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 environment 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 of paramount importance 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 2,025 ha have been designated as hydroriparian reserves for the Fortune Channel planning unit. This represents approximately 20 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."⁵ Watershed plans, therefore, must include reserves to protect sensitive soils and unstable terrain.

⁵ 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 620 ha; and, 382 ha of the land base are set aside as sensitive soils reserves. These layers overlap at some locations. Together, unstable terrain reserves and sensitive soils reserves cover 935 ha (9 percent) of the total land base for 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.”⁶ 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 Fortune Channel planning unit, one is red-listed and four are blue-listed. See Appendix 2 for the Conservation Data Centre’s list of red and blue-listed plant communities in Clayoquot Sound.

The red-listed community is a very minor occurrence of Sitka spruce/false lily-of-the-valley Very Wet Hypermartime (CWHvh1/SL). Following advice from the Conservation Data Centre (CDC) the TPC reserves all red-listed communities occurring in structural stages 6 and 7 (mature and old forest). As a result, the TPC confirmed the entire ecosystem (1.3 ha) was captured by the reserve network.

⁶ Report 5, p.200

The four blue-listed plant communities found in the Fortune Channel planning unit are:

- CWHvh1/ RC and /SW; and,
- CWHvm1/RC and /RS.

The TPC was advised to reserve 50 percent of blue-listed plant communities occurring in structural stages 6 and 7. The TPC added area to the reserve network for those plant communities where the shortfall was at least 2 hectares.

The CDC has given “vulnerable / apparently secure” ranking to three yellow-listed plant communities in the Fortune Channel planning unit: Amabilis Fir - Western Redcedar / Three-leaved foamflower (CWHvm2/AF), Western Redcedar - Yellow-cedar / Skunk Cabbage (CWHvm2/RC), and Mountain Hemlock - Amabilis Fir / Blueberry (MHmm1/MB). The TPC decided special management considerations were not necessary for either the CWHvm2/AF or the CWHvm2/RC because 52 and 65 percent, respectively, of each site series was already captured by the reserve network. The MHmm1/MB is the most common ecological site series within the Mountain Hemlock zone. For this reason, the TPC decided it was not necessary to set aside more of this site series than was already captured by other reserve layers – which amounted to about 31.4 percent of the MHmm1/MB.

In total, approximately 165 ha (1.6 percent of the land base of the Fortune Channel planning unit) that support red- or blue-listed plant communities have been identified within the reserve network. The locations of protected plant communities are shown on Map 10.

Generally, individual rare plants will receive protection by site level measures when discovered during stand-level reconnaissance work.

Animal Species

The Fortune Channel planning unit contains known nesting habitat for the Marbled Murrelet, a provincially red-listed bird. Water, Land and Air Protection biologists (Leigh-Spencer, 2005) recommended two murrelet reserves for this planning unit, totalling 125 ha or 1.2 percent of the total WPU area. Additional important habitat is included in reserves for other purposes and in protected areas. In total, approximately 793 ha, or 42.4 percent of all class 1 and 2 Marbled Murrelet nesting habitat remaining in this planning unit, have been protected in the various reserve layers and protected areas. The location of murrelet reserves are shown on Map 11.

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

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 valley bottom areas which offer high value winter habitat. Considering that elk appear to be very casual visitors to this area, the amount of reserved areas, plus the suite of management strategies recommended by the Science Panel, are expected to provide protection for over-wintering animals. Suitable habitat for Black Bear and Black-tailed Deer is represented in other reserves and protected areas within the Fortune Channel 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 6,039 ha or 61 percent of the forested land base of the Fortune Channel planning unit is covered by old growth forests over 141 years old. Over 41 percent (2,507 ha) of this old growth is 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 this planning unit.

2,547 ha of old forest (25 percent of the total forested area) are located within provincial parks and within reserves proposed for other values (e.g. hydrioparian, terrain, soils, murrelets). In order to meet the Science Panel recommendation for minimum old growth retention of 40 percent, 3,969 ha must be retained as old growth in this planning unit. Therefore, 1,442 ha of old forest will have to be retained outside the reserve network.

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. The total forested land base for this planning unit is 9,922 hectares. Applying Scientific Panel recommendations, 3,969 ha (40 percent) must be retained as old growth, and a minimum of 794 ha (20 percent of 3,969) must be forest interior. At this time, 869 ha are encompassed within the reserve network as forest-interior condition, which exceeds the SP recommendation. Map 13 shows the location of the old and old-interior forest within the reserve network in the Fortune Channel planning unit.

The forest interior old growth in reserves exceeds the Science Panel recommendation.

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.”⁷ Representation of all ecosystems is an essential component of biological diversity.

As shown in Table 2.1, there are two biogeoclimatic zones in the Fortune Channel planning unit: the Coastal Western Hemlock zone (CWH) and the Mountain Hemlock zone (MH). The CWH is represented by two subzones, the CWHvh and the CWHvm. The CWHvh subzone is represented by one variant: the CWHvh1; and, the CWHvm subzone by two variants: the CWHvm1 - Submontane Very Wet Maritime, and the CWHvm2 - Montane Very Wet Maritime. These variants occur below 800 metres. The Mountain Hemlock zone includes one variant, the MHmm1 - Moist Maritime Subzone, Windward Variant; and, one sub-variant, the 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 Fortune Channel planning unit

Biogeoclimatic Zone	Subzone	Variant	Location	Total Area
Coastal Western Hemlock (CWH)	Very Wet Hypermaritime (CWHvh)	Southern (CWHvh1)	Coastal	4,802 ha
	Very Wet Maritime (CWHvm)	Submontane (CWHvm1)	Below 600 metres.	3,863 ha
	Very Wet Maritime (CWHvm)	Montane (CWHvm2)	Between 600 metres & 800 metres.	1,090 ha
Mountain Hemlock (MH)	Moist Maritime (MHmm)	Windward (MHmm1)	Above 800 metres near the outer coast	487 ha
	Moist Maritime (MHmmp)	Windward Parkland (MHmmp1)		5 ha
				10,247 ha.

Forty-seven different ecosystem types (site series) are found in the Fortune Channel unit.

There are 47 different naturally-vegetated ecosystem types (site series) in the Fortune Channel planning unit: 17 in the CWHvh1; 14 in the CWHvm1; 12 in the CWHvm2; 3 in the MHmm1; and, 1 in the MHmmp1. The most common are Western Hemlock/Western

⁷ Report 5, p. 171.

Redcedar – Salal (HS) - which occupies 37.5 percent of the WPU; Western Hemlock/ Amabilis Fir - Blueberry (AB) – which occupies 24.5 of the WPU; and, Western Redcedar / Yellow-cedar - Salal (RS) - which covers 7.3 percent.

Many of the site series occurring in the Fortune Channel 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 vegetated site series within the different variants.

Table 2.2: Rare site series in the Fortune Channel Planning Unit

Variant	Rare Natural Vegetated Site Series			
	#	Area (ha)	% of variant	% of PU
CWHvh1	12	198.3	4.1	1.9
CWHvm1	10	353.1	9.1	3.5
CWHvm2	11	438.5	40.2	4.3
MHmm1	2	175.2	36.1	1.7
MHmmp1	1	2.5	50	.02
All	36	1,167.6	n/a	11.4

In total, rare site series cover approximately 1,168 ha, or 11.4 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 Fortune Channel planning unit, 13 ecosystems were found to be underrepresented in the existing reserve network:

CWHvh1: LR and RC;

CWHvm1: AB, AF, HS and YG;

CWHvm2: AB, AF, AS, HD and HS;

MHmm1: MB and MO.

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

CWHvh1/LR/YC/201-400

CWHvm1/AB/BA/201-400

CWHvm2/AB/HW/201-400

CWHvm2/HD/HW/201-400

CWHvm2/HS/CW/201-400

MHmm1/MB/HW/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 above the minimum thresholds.

Approximately 601 ha had to be added to the reserve network to ensure complete ecosystem representation. Map 14 shows the location of the polygons added to the reserve network.

2.2.4 Reserves to ensure linkages between watershed planning areas

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

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.”⁸ 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.

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.”⁹ 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

⁸ Report 5, p. 171

⁹ Report 5, p. 37

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

The Ahousaht First Nation and the Tla-o-qui-aht First Nations have territories in the Fortune Channel watershed planning unit. Generally, these territories are separated by the height-of-land running along the eastern edge of the Rolling Stone watershed - but, there is overlap at the southern end of the peninsula between Tofino Inlet and Fortune Channel, and on Indian Island. The following sections provide consultation guidelines from these First Nations.

For reasons of confidentiality, the cultural values maps included in this report (Map 15a and Map 15b) show only the general locations of sites of cultural importance.

First Nations Culturally Significant Areas - Mapping and Inventory

Watershed Planning for Tla-o-qui-aht First Nations Cultural Values

The material in this section, plus the pertinent information shown on Map 15 (TFN), was prepared by the Tla-o-qui-aht First Nations.

The Tla-o-qui-aht First Nations (TFN) are the only First Nations with territory in the eastern portion of the Fortune Channel Watershed Planning Unit. The area encompassed by watersheds draining into Grice Bay, Tranquil, Tofino and Gunnar Inlets, and the south end of Fortune Channel lies within TFN traditional territories.

The TFN are members of the Clayoquot Sound Technical Planning Committee (TPC) - which is responsible for watershed level planning in Clayoquot Sound. The TFN are solely responsible for First Nations cultural input with regard to watershed plan areas overlapping with TFN territory. The following Scientific Panel recommendations guide the Tla-o-qui-aht First Nations and the Technical Planning Committee with respect to First Nations cultural input into the watershed plans:

In Report 3 (Scientific Panel, 1995), Recommendation 10: "Before the completion of any ecosystem planning process in Clayoquot Sound, the Nuu-Chah-Nulth of the area within which the planning is undertaken must be given the opportunity to identify, locate, and evaluate culturally important sites and areas."

Report 3, Recommendation 15: "Planning inventories undertaken in Clayoquot Sound for ecosystem management must be done in full consultation with and full participation of the Nuu-Chah-Nulth of Clayoquot Sound. Nuu-Chah-Nulth cultural resources and culturally

important areas must be incorporated in planning inventories before completion of the planning process.”

In Report 5 (Scientific Panel, 1995), Recommendation 7.16 states: “At the watershed level, map and designate reserves in which no harvesting will occur to protect key hydriparian 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 scenic and recreational resources.”

Under direction from Chief and Council, TFN staff initiated a consultative process within their communities to identify, inventory and evaluate areas of cultural importance in their territories. Before beginning, it was necessary for the TFN to develop interview and consultation methodologies and protocol to allow for the collection of cultural information while respecting that some of this information was confidential or sensitive. Once acceptable protocol was endorsed by the TFN Chief and Council, staff proceeded to collect information from community members through a series of interviews, meetings, and workshops.

After TFN staff identified and inventoried areas of cultural importance, it became necessary to determine how to inform the watershed planning process while respecting the sensitivity of cultural values. Chief and Council provided this guidance. They decided the TFN could provide consultation advice to individual watershed plans without releasing sensitive information - by showing areas of cultural importance on watershed maps, accompanied by explanatory text.

Cultural information has been passed on by TFN Elders to the present *Hawiih* (Hereditary Chiefs) and other community members. The Elders share their knowledge and, through their teachings, confirm *Hahouthlee*, the hereditary chief's responsibility for community, land and resources within their territories.

All information compiled during this project is considered to be confidential, and is stored in the TFN community. It is available to Chief and Council and, at their discretion, to TFN members involved in review of resource management proposals. It is anticipated that this information will facilitate TFN response during future consultations and reviews.

The TFN determined it was not necessary to locate areas of cultural importance within no-harvest reserves, as had been envisioned by the Scientific Panel. Instead, the TFN chose to identify areas according to their significance, and then develop consultation

protocol according to the cultural values associated with different classifications.

Map 15 shows the TFN culturally sensitive areas in this watershed planning unit. Also, if not otherwise indicated, all creeks and streams shown on this map are considered to have high cultural significance - and require a buffer equivalent to the Scientific Panel hydriparian reserve width plus an additional 30%. It is extremely important to provide protection for water resources within TFN territory because the Tla-o-qui-aht recognize water is critical to life.

Some road corridors are recognized by the TFN as important routes providing access to areas of cultural importance.

All activities proposed within Tla-o-qui-aht territory require consultation to ensure that TFN values and interests are not impacted. The level of consultation and the outcome will differ depending on the cultural significance of the area. For activities proposed in areas not shown to be culturally significant, the TFN expect the review period would be shorter and the TFN response would not request many changes or modifications. However, if a proposed activity is located in a culturally-significant area, depending on the location of the proposed activity, the TFN response would take more time and would likely request modifications or restrictions.

To achieve effective consultation for activities proposed within their territories, the TFN recommend that interested parties or proponents provide Chief and Council with as much information as possible, and as early as possible in the process. Submissions should include descriptions of the activity proposed, maps showing accurate locations of areas involved, and other pertinent details, including but not limited to: timing, access considerations, species affected. The length of time allotted for review must be sufficient to allow the TFN to learn about the proposed activity, consult with Elders and other community members, and consider outstanding information needs. The TFN may request assistance if they anticipate their participation requires extra resources.

The Tla-o-qui-aht First Nations consider all the information provided by the accompanying map and the above text to be part of a dynamic planning process; that is, this information is expected to be adaptive and to change and evolve in response to new knowledge and experiences.

Approximately 2,898 ha, or 28.3 percent of the planning unit, has been identified by the Tla-o-qui-aht First Nations to be of cultural significance. Map 15 shows the locations of TFN culturally-significant areas.

Culturally Significant Areas of Ahousaht - Mapping and Inventory

The material in this section, including the text and consultation flow chart, was supplied by the Ahousaht First Nation.

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.¹⁰

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;

¹⁰ 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 Nuuchahnulth 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 watershed planning

units in Clayoquot Sound 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.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 resources.¹²
- 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,

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

¹² *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 Nuuchah-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 Nuuchah-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.¹³

Hahuulhi, the Nuuchah-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 Nuuchah-nulth participation in co-managing the area and its

¹³ Report 3, page vii, First Nations’ Perspectives, The Scientific Panel

resources.¹⁴ 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").¹⁵ 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.¹⁶

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

¹⁴ *ibid.*

¹⁵ Drucker 1951; Ellis and Swan 1981; Haiyupis 1988c, 1992; Bouchard and Kennedy 1990; Sam 1993b

¹⁶ Sam 1993b:6

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

- During sub regional planning, Nuuchahnulth Hahuulhi areas should be mapped (by the Nuuchahnulth) 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 Nuuchahnulth 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 Report 5).
- R7 - In consultation with the co-chairs of the Nuuchahnulth 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).

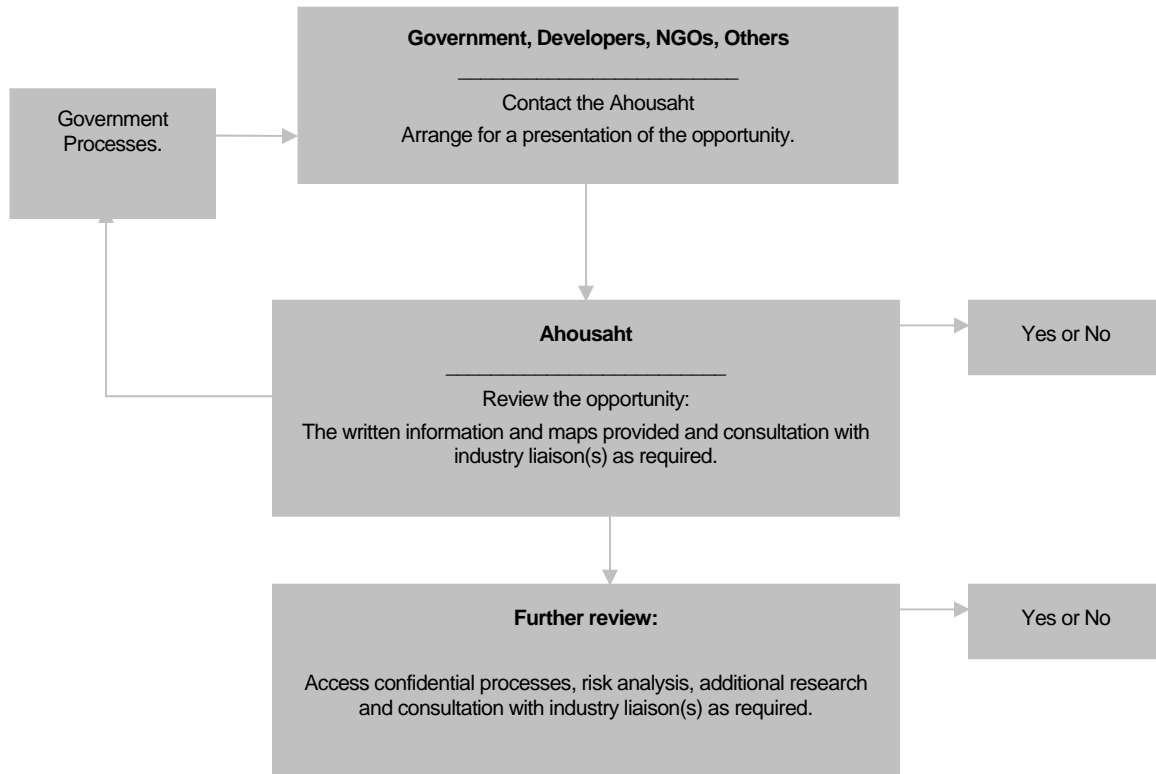
The Ahousaht consultation process impacts:

- Areas within the Hahuulhi of the Ahousaht Hawiith 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 *Hawiith*.

Developers who are interested in accessing, for development purposes, the *Hahuulhi* of the Ahousaht *Hawiith* would engage the Ahousaht consultation protocol¹⁷. Figure 3.1 illustrates the Ahousaht Consultation Protocol.

¹⁷ Note: The Ahousaht consultation process does not at this time, impact trap lines or lands owned privately by members of the Ahousaht.

Figure 3.1: 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 1,874 ha, or 18.2 percent of the planning unit, have been identified by the Ahousaht First Nation to be of cultural significance. Map 15 (AFN) shows the locations of these culturally significant areas.

In total, 4,503 hectares, or 44 percent of the Fortune Channel Watershed Planning Unit, have been identified by the Tla-o-qui-aht and Ahousaht First Nations to be of cultural significance. Of this, there are 261 hectares where the AFN and TFN indicate there is overlap of their respective areas. Fifty-six percent of the total area identified by both First Nations to be culturally significant is located within the watershed reserve network.

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."¹⁸ Accordingly, the Panel identified the protection of scenic values as one component of the ecosystem management theme of maintaining human values.

In the Fortune Channel 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 Fortune Channel planning unit are maintained through management criteria designed to

¹⁸ Report 5, p. 40

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 Fortune Channel planning unit, both within reserves and within the harvestable area.

Table 2.3 Fortune Channel - scenic classes by area

Scenic Class	Reserves	Harvestable Area	Total* Ha
Natural - Appearing	1,097	1,011	2,137
Minimal Alteration	2,319	3,558	5,982
Small-Scale Alteration	400	1,075	1,516
TOTAL	3,816	5,644	9,634

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

Areas comprising 94 percent of the Fortune Channel unit have been assigned scenic class objectives.

In total, 9,634 ha or 94 percent of the planning unit have been assigned scenic class objectives. Of these, 3,816 ha (almost 40 percent) are located within parks and reserves.

The portion of scenic area in Fortune Channel 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, or 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.

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.

Dawley Passage Provincial Park, at 154 ha, is located at the south end of Fortune Channel. The park was established to protect high biodiversity values associated with a fast water marine ecosystem. Dawley Passage protects sub-tidal habitat for the only known occurrence of the red-listed white hydrocoral, and possesses a high diversity of marine

species. In addition, the park contains a number of Nuu-chah-nulth First Nations heritage sites and provides for a variety of marine-based recreational opportunities. Dawley Passage is a popular destination for canoeing, kayaking, scuba diving and fishing.

Indian Island and the north shore of Grice Bay are part of Pacific Rim National Park Reserve. Grice Bay is an important wintering habitat and stopover for migrating waterfowl. A boat launch is located on the south shore of Grice Bay, providing ready access to Fortune Channel.

In addition to the areas that fall within the scenic classes and within reserves for other purposes, such as hydriparian reserves, approximately 1,247 ha containing features of high to very high recreation significance have been reserved. These areas are located primarily around marine shores. This represents 12 percent of the total land base of the Fortune Channel planning unit. This reserve layer (Map 17) overlaps almost entirely with the hydriparian reserve layer.

2.4 Summary: The Fortune Channel Watershed Reserve Network

The watershed reserves identified for the Fortune Channel 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 Fortune Channel planning unit are reserves in a strict sense; that is, forest harvesting is prohibited under normal circumstances. Exceptions are described in Section 2.5 of Volume 1.

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

- hydriparian 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 39 percent of the Fortune Channel planning unit has been reserved.

Map 18 shows all the reserves in the Fortune Channel planning unit. A total of 3,967 ha or 39 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 Fortune Channel Watershed Planning Unit

3.1 Management Criteria for Special Management Zones

The areas in the Fortune Channel 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 44 percent of the area of the Fortune Channel planning unit has been identified by the Tla-o-qui-aht and Ahousaht First Nations as having cultural significance. Consistent with traditional knowledge, culturally important areas are not designated as “reserves”. Rather, the designation “culturally significant” indicates that the Ahousaht and Tla-o-qui-aht consultation processes must be engaged in order to initiate any development proposals (please refer to section 2.3.1 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 whether special conditions, considerations or procedures are recommended if the development proposal were to proceed.

Scenic Areas

Lands representing approximately 94 percent of the planning unit have been classed as scenic areas. Forty 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 Fortune Channel planning unit, the management zones for recreation and tourism amount to 1,993 ha (Map 17). Of this, 521 ha (26 percent) overlaps with the reserve layer and 1418 ha 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 hydriparian 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 recommended 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 with regard to accommodating these species and

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

Table 3.1: Rate-of-Cut Limits for Fortune Channel Watershed Planning Unit

Watershed or Map Unit	WS	Type	Area (ha)	Does rate of cut Rule Apply?	5 Year Cut (ha)	10 Year Cut (ha)
5	1272	Primary Watershed, <200 ha	92	No	No limit	No limit
6	1265	Primary Watershed, <200 ha	183	No	No limit	No limit
7	1203	Primary Watershed, >500 ha	555	Yes	27.7	-
12	1196	Primary Watershed, >=200-500 ha	223	Yes	-	22.3
13	1225	Primary Watershed, <200 ha	196	No	No limit	No limit
14	1249	Primary Watershed, <200 ha	128	No	No limit	No limit
16	1175	Primary Watershed, >=200-500 ha	375	Yes	-	37.5
17	1151	Primary Watershed, >=200-500 ha	229	Yes	-	22.9
18 (Virge)	1122	Primary Watershed, >500 ha	508	Yes	25.4	-
32.1 (Rolling Stone)	1186	Primary Watershed, >500 ha	624	Yes	31.2	-
200	1144	Not a watershed - face unit	1,088	No	-	-
200	1155	Not a watershed - face unit	251	No	-	-
200	1211	Not a watershed - face unit	625	No	-	-
200	1466	Not a watershed - face unit	13	No	-	-
200	1231	Not a watershed - face unit	91	No	-	-
200	1252	Not a watershed - face unit	2,141	No	-	-
200	1266	Not a watershed - face unit	109	No	-	-
200	1271	Not a watershed - face unit	926	No	-	-
200	1369	Not a watershed - face unit	138	No	-	-
200	1371	Not a watershed - face unit	863	No	-	-
200	1395	Not a watershed - face unit	192	No	-	-
205	1096	Not a watershed - face unit	295	No	-	-
205	1134	Not a watershed - face unit	140	No	-	-
205	1172	Not a watershed - face unit	29	No	-	-
205	1185	Not a watershed - face unit	127	No	-	-
205	1209	Not a watershed - face unit	94	No	-	-

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 hydriparian areas and large clearcuts.

Since the mid-1990s, International Forest Products (Interfor) has completed landslide rehabilitation on approximately 11 hectares, and deactivation on approximately 84 km of logging roads in this planning unit¹⁹. Weyerhaeuser Limited reports that it has permanently deactivated 85 kilometres of logging roads in the Fortune unit, semi-permanently deactivated 4.2 kms, and, completed riparian restoration on 42 ha²⁰.

For the above restoration work, individual licensees coordinated treatment priorities according to effectiveness, need, and risk. Further restoration is contemplated, subject to funding availability.

3.6 Summary: Harvestable Area in the Fortune Channel 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 6,087 ha, or 61 percent of the forested land base in the Fortune Channel watershed planning unit, has been designated as harvestable area. The remainder is in reserves.

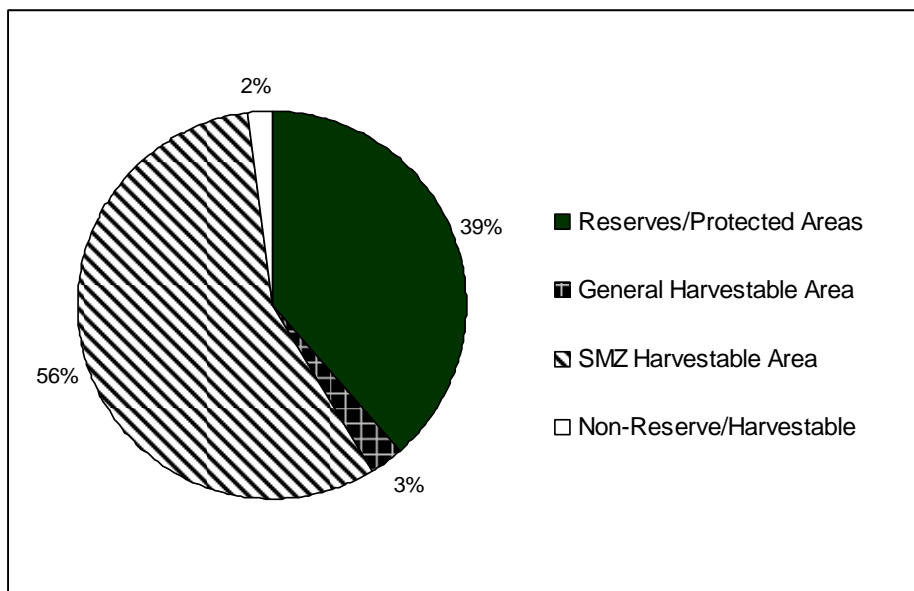
Special Management Zones comprise approximately 5,826 ha, or 96 percent of the harvestable area. Map 20 shows the location of the harvestable area, including Special Management Zones, as well as the reserve network. Figure 3.1 shows the proportion of designated reserves, Special Management Zones and general harvestable area (i.e., without special management zone designation) in the Fortune Channel planning unit.

Approximately 61 percent of the forested land base in the Fortune Channel planning unit is designated as harvestable area.

¹⁹ Warttig, Warren, 2004. Pers. Comm. (Dec 9, 2004 E-mail. Subject: RE: Restoration summary).

²⁰ McLennan Shawn. 2005. Pers. Comm. (Jan 10/2005 E-mail. Subject: RE: Restoration summary); and, MacDonald, Rick. 2005. Pers. Comm. (Jan 10/2005 E-mail. Subject: RE: Restoration summary)

Figure 3.1 Reserves and Harvestable Area in the Fortune Channel 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, Nuuchah-Nulth Tribal Council
Central Region Chiefs

Rudi Mayser, 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: Red- and Blue-listed Plant Communities in Clayoquot Sound*

Rare Plant Communities	Rank	Associated Units	Ecosystem	
			Site Series	
<u>Red-Listed</u>		BEC unit	Number	Symbol
<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]
<u>Blue-Listed</u>				
<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 oreganum</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>Rhytidadelphus loreus</i> (western hemlock - Sitka spruce / lanky moss)]	S3	CWHvh1	04	HM]
<u>Yellow-Listed</u>				
<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 Fortune Channel 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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