

Salmon Landscape Unit Plan
For Old Growth Management Areas



**Ministry of Forests, Lands and
Natural Resource Operations**

South Coast Region

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Executive Summary

The Salmon Inlet Landscape Unit is situated on the North and South sides of Salmon Inlet on the southern mainland coast (see FIGURE 1). The Landscape Unit (LU) covers a total of 64,995 hectares (ha), excluding ocean, and is within the Pacific Range Ecoregion¹. Watersheds included within the LU that drain into Salmon Inlet are Clowhom River, Misery Creek, Sechelt Creek, Taquat Creek, Red Tusk Creek, Thornhill Creek, Slippery Creek and Dempster Creek. Coastal Western Hemlock (CWH) and Mountain Hemlock (MH) Biogeoclimatic Ecosystem Classification (BEC) zones with Natural Disturbance Types (NDT1 and NDT2)² are located within this LU. There is also a significant amount of high elevation non-forested areas in NDT 5.

Four protected areas, Sechelt Inlet Marine Park Thornhill and Kunechin Point sites, Tetrahedron Park, and Tantalus Park are within the Salmon Inlet LU. Portions of Kunechin Point, Tetrahedron Park, and Tantalus Park were identified as having suitable characteristics for biodiversity conservation. Although these areas contribute to meeting the old forest targets, they are not established as Old Growth Management Areas (OGMA) as part of the landscape unit planning.

The Salmon Inlet LU has been assigned an Intermediate Biodiversity Emphasis option (BEO). Old seral forest representation targets are based on a percentage of productive forest by BEC unit. Old seral representation targets have been achieved through the spatial delineation of OGMA that are a combination of old forest and recruitment forest.

The old seral forest representation target for the CWH dm is 702 ha. To meet this target, 726 ha have been delineated in OGMA.

The old seral forest representation target for CWH vm1 is 901 ha. To meet this target, 915 ha have been delineated in OGMA.

The old seral forest representation target for CWH vm2 is 1,726 ha. To meet this target, 1,742 ha have been delineated in OGMA.

The old seral forest representation target for the MH mm1 is 1,477 ha. To meet this target, 1,503 ha have been delineated in OGMA.

The old seral forest representation target for the MH mm2 is 6 ha. To meet this target, 47 ha have been delineated in OGMA.

¹ Demarchi, D. 1996. An introduction to the ecoregions of British Columbia. Wildlife Branch, Ministry of Environment, Lands and Parks, Victoria. Ministry of Sustainable Resource Management. Update March 2004. British Columbia; Ecoregion Ecosystem Classification Units, Ver. 2.01.

² NDT1 encompasses those ecosystems with rare stand-initiating events. NDT2 includes ecosystems with infrequent stand initiating events. NDT5 is Alpine Tundra or other parkland ecosystems that are not considered forested. For a more complete description of NDTs see the *Biodiversity Guidebook* (1995).

To mitigate substantial effects on the future timber supply, areas were identified that had potential future harvest opportunity. In addition to this, Ungulate Winter Ranges (UWR) for mountain goat have recently been established for the Sunshine Coast. An effort was made to reduce the impact on the future timber supply by overlapping OGMAs with these proposed UWR areas. Areas identified as Class 1, 2 or 3 marbled murrelet habitat, both in the THLB and in the non-contributing (NC) were also given high priority for inclusion as OGMAs.

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1.0 Introduction

Landscape unit plans are to provide direction on biodiversity particular to old forest retention at both the landscape and stand levels. Biodiversity is defined as: *the diversity of plants, animals and other living organisms in all their forms and levels of organisation, and includes the diversity of genes, species and ecosystems as well as the evolutionary and functional processes that link them*³.

Planning for Old Growth Management Areas (OGMA) is recognized as a high priority for the province. Landscape unit planning is an important component of the *Forest Range and Practices Act* (FRPA) that provides the legal framework for legal establishment of objectives to address landscape and stand level biodiversity values. Implementation of this initiative is intended to maintain certain biodiversity values. Managing for biodiversity through retention of old growth forests is considered important not only for wildlife, but can also provide important benefits to ecosystem management, protection of water quality and preservation of other natural resources. Although not all elements of biodiversity can be, or need be, maintained on every hectare, a broad geographic distribution of old growth ecosystems is intended to sustain the genetic and functional diversity of native species across their historic ranges.

The Salmon Inlet Landscape Unit (LU) has been assigned a Biodiversity Emphasis Option (BEO) rating of intermediate. This report describes the biodiversity conservation management strategy for the Salmon Inlet LU and associated OGMA objectives consistent with *priority biodiversity* as outlined in the Landscape Unit Planning Guide.

Reference material on government policy, planning processes and biodiversity concepts associated with landscape unit planning include:

Ministry of Sustainable Resource Management, Coast Region, Lower Mainland:
Landscape Unit Planning Standards, March 2004

1995 Biodiversity Guidebook

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

1999 Landscape Unit Planning Guide

http://ilmbwww.gov.bc.ca/lup/srmp/background/lup_landscape.html

Sustainable Resource Management Planning Framework: A Landscape-level Strategy for Resource Development

<http://ilmbwww.gov.bc.ca/lup/srmp/doc/SRMPI-May1-Final-Web1.pdf>

1999 Vancouver Forest Region Landscape Unit Planning Strategy, Vancouver Forest Region Landscape Unit Planning Document, Nanaimo, BC

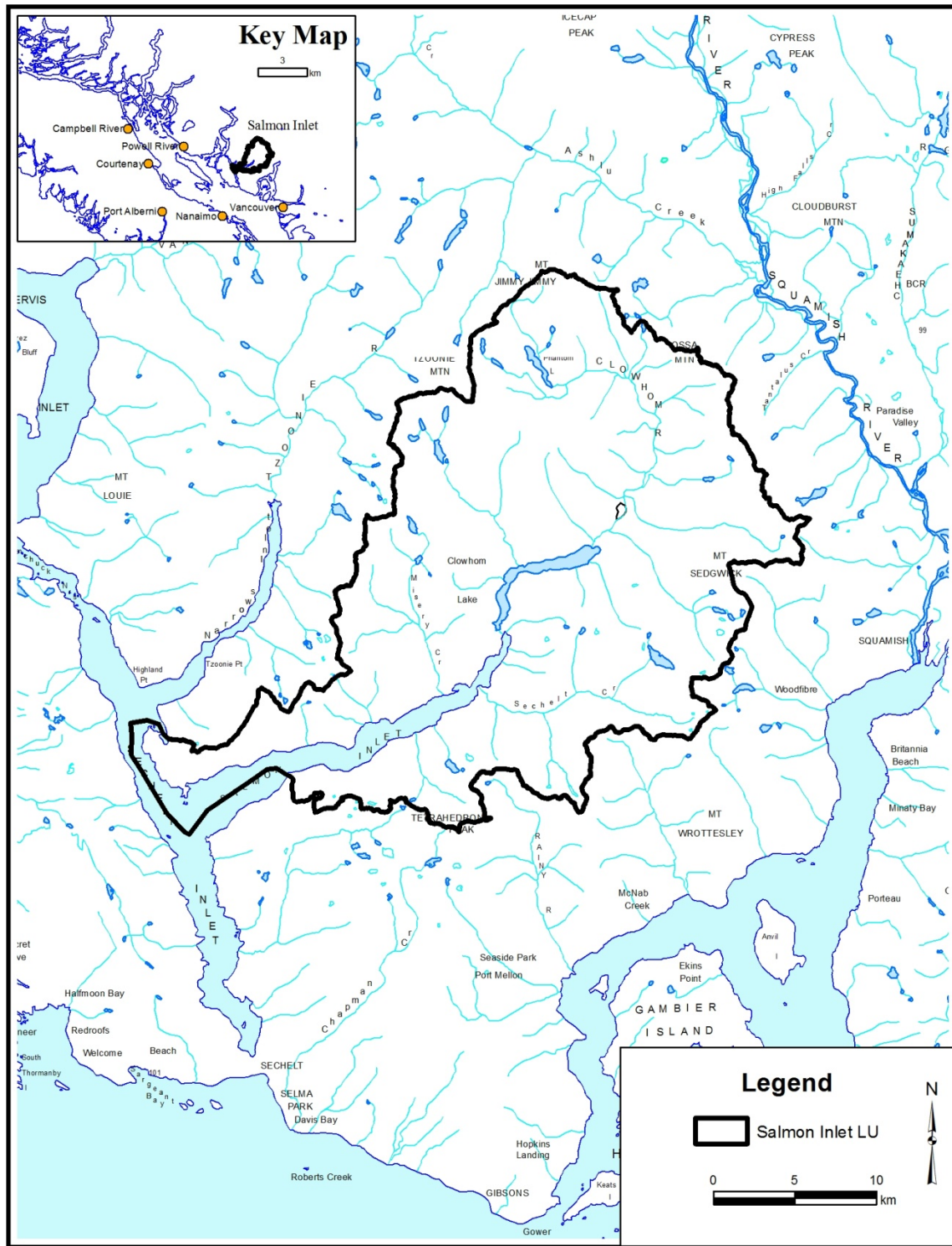
³ from BC Ministry of Forests and BC Environment. 1995. Biodiversity Guidebook.

2.0 Salmon Inlet Landscape Unit Description

The Salmon Inlet LU is situated on the North and South sides of Salmon Inlet on the southern mainland coast (see FIGURE 1). The LU covers a total of 64,959 hectares (ha), excluding ocean, and is within the Pacific Range Ecoregion. Watersheds included within the LU that drain into Salmon Inlet are Clowhom River, Misery Creek, Sechelt Creek, Taquat Creek, Red Tusk Creek, Thornhill Creek, Slippery Creek and Dempster Creek. The LU is characterized by rugged topography with steep mountainous terrain, deep river valleys and marine coastline along Salmon Inlet. Fire disturbance coupled with a long harvest history has resulted in the majority of the LU characterized by stands in early, mid, and mature seral stages. Undisturbed old forest stands are present in the upper elevations and as small patches unevenly distributed across lower elevations.

Of the total area, 36,191 ha (54%) are within the Crown Forested Land Base (CFLB) with 24,167 ha in the Timber Harvesting Land Base (THLB) and 12,026 in the Non-Contributing Land Base (NCLB) according to Sunshine Timber Supply Review (TSR) 3 (June 2001). The remaining 28,768 ha of the LU are classified as non-forested or non-Crown (rock, alpine tundra, water, private land, etc.) and have been excluded from OGMA target calculations.

FIGURE 1. Location of the Salmon Inlet Landscape Unit



SALMON INLET LANDSCAPE UNIT

2.1 Biophysical

The Salmon Inlet LU occurs within the Pacific Ranges Ecoregion or Southern Pacific Ranges Ecoregion (Demarchi 1996). The coastal waters of Salmon Inlet are located within the Georgia-Puget Basin Ecoregion or Strait of Georgia Ecoregion.

Predominantly, its climate is maritime, with warm, dry summers and wet winters. The majority of precipitation occurs in the fall and winter, which at higher elevations creates a snow pack that feeds the LU's stream network.

There are five Biogeoclimatic (BEC) subzones or variants, which fall within three natural disturbance types (NDTs). Coastal Western Hemlock Zone – Submontane Very Wet Maritime variant (CWHvm1), Montane Very Wet Maritime variant (CWHvm2) and Mountain Hemlock Zone – Windward Moist Maritime variant (MHmm1) fall within NDT 1. Coastal Western Hemlock zone – Dry Maritime variant (CWH dm) lies within NDT 2. Salmon Inlet also has substantial high elevation non-forested areas in NDT5 (Alpine Tundra).

In the lower elevation variants, the Salmon Inlet LU has sustained substantial levels of disturbance. Forested stands on lower elevation productive sites (typically on slopes with low to moderate gradient) have been disturbed by forest fires and past timber harvesting. A significant portion, 38%, of the forest within the LU is comprised of stands that are less than 40 years old.

The Salmon Inlet LU has several complex ecosystems including wetlands, numerous avalanche tracks providing herbaceous forage, and natural meadows.

2.2 Summary of Land Status

Land status within the Salmon Inlet LU is summarised in Table 1. There are 171 hectares of private land within the Salmon Inlet LU which have been excluded from the OGMA selection process.

Table 1. Land Status of the Salmon Inlet Landscape Unit

Code	Ownership Class	Total Area (ha)	Total of LU (%)	Crown Forested Land Base (ha)	Excluded Area (ha)
40N	Private	171	0.3%	0	171
62C	TSA or PSYU	63,166	97.2%	35,803	27,363
63N	Provincial Park	1,622	2.5%	388	1,234
	Total	64,959	100%	36,191	28,768.

note: differences in totals (≤ 1 ha) are due to rounding

Table 1 includes area that is not reported on in subsequent tables because it does not contribute to OGMA targets. This excluded land base primarily consists of non-Crown, non-forest, and non-productive forest.

Table 2 provides a summary based on BEC variant. Old seral representation targets (which are the basis of OGMA's) described later in this report (Table 4)) are applied by BEC variant to ensure the OGMA's are distributed across each BEC variant ensuring adequate protection of different ecosystem types. Targets are determined and applied based on the crown forest area in each BEC variant.

Table 2 also describes land base classification used in Sunshine Coast TSR III. These classifications attempt to estimate the amount of forest area that is expected to contribute to timber supply – this is the area frequently referred to as the THLB. THLB information is used in Landscape Unit planning and OGMA delineation to avoid impacts on timber supply. However, operationally the harvestable area does not correlate one-to-one with the THLB. Ideally the THLB and the harvestable area would be the same. The reality is that the inventories and assumptions used to identify the THLB area are not always accurate and/or correct operationally. This problem is further complicated by the economics of timber harvesting which change often and can vary significantly from one year to the next. This makes the process of identifying old growth management areas that have the least impact on timber supply very difficult. There is usually some harvesting of forest that did not contribute to timber supply forecast used in the last AAC determination. As a result it is possible that OGMA delineation can have an impact on timber supply greater than that anticipated based on a “THLB impact” assessment.

Alpine Tundra (AT) BEC zone is included in Table 2 to account for all the area within the LU. Old growth targets are not set for this ecotype as it is predominantly non-forest and does not make up part of the productive forest land base. However, it is possible that small forested areas may be captured in the alpine, and where analysis determines that they are suitable for biodiversity conservation may be selected as OGMAs.

Table 2. Land Status using Crown Forest Land Base Classification within the Salmon Inlet Landscape Unit

BEC Unit	Total Area (ha)	Crown Forested Land Base (ha)*	Timber Harvesting Landbase (Ha)	Non-Contributing Landbase (Ha)	Excluded Land Base (Ha)
CWH dm	8,999	7,799	6,348	1453	1,199
CWH vm 1	7,600	6,934	6,136	797	666
CWH vm 2	16,698	13,274	8,789	4,485	3,424
MH mm 1	18,931	7,773	2,875	4,897	11,158
MH mm 2	60	32	0	32	28
AT	12,672	379	17	362	12,293
TOTAL	64,959	36,191	24,167	12,026	28,768

note: differences in totals (≤1 ha) are due to rounding

3.0 Key Resource Tenure Holders

The planning process included the identification of other key resource(s) tenure holdings including those administered by agencies such as the Ministry of Forests Lands and Natural Resource Operations (FLNR) and the Ministry of Energy and Mines.

3.1 Forest Tenure Holders

The majority of the Salmon Inlet LU's crown forested land base is subject to Forest Licenses held by International Forest Products Limited , A&A Trading Limited and Northwest Hardwoods. As well, Tsain-ko Forestry Development Corporation holds a non-replaceable forest license in the Sechelt Creek watershed and along the southern shore of Salmon Inlet.

The OGMA's described in this report were selected to minimize OGMA placement in areas identified as future harvest opportunities by major tenure holders operating within the LU.

3.2 Mining Tenure Holders

There are eight mineral tenures within the Salmon Inlet LU. Exploration and development activities are permitted in OGMA's. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then a suitable replacement OGMA will be identified.

3.3 Hydroelectric Energy & Independent Power Producers

Within Salmon Inlet LU BC Hydro operates the Clowhom Dam which is located where Salmon Inlet is separated from Clowhom Lake. Two Independent Power Producers (IPP), Clowhom Hydromax and Regional Power also have operations within the LU which extend to the back end of Clowhom River where the confluence with Phantom Lake occurs.

Transmission lines run along the north side of Salmon Inlet and up Sechelt Creek. Also there are power lines extending along the north side of Clowhom Lake where they cross to the east side of Clowhom River.

4.0 Significant Resource Values

4.1 Wildlife and Fisheries

The Identified Wildlife Management Strategy (2004) includes a list of 85 wildlife species and subspecies that are considered to be at risk. These species require special management of critical habitat to maintain or restore populations or distributions. The primary mechanisms for protecting this habitat are through the designation of Wildlife Habitat Areas (WHA) or Ungulate Winter Ranges (UWR) established under the Government Actions Regulation. Not

all 85 of these species have a range that is within the geographic area covered in this plan. Wildlife resources of primary management concern in the Southgate LU include marbled murrelet (*Brachyramphus marmoratus*), mountain goat (*Oreamnos americanus*), grizzly bear (*Ursus arctos*) and Northern Goshawk (*Accipiter gentilis laingi*).

Potential marbled murrelet nesting habitat was mapped within the Salmon Inlet LU consistent with the Standard Methods for Identifying Marbled Murrelet Habitat in British Columbia Using Air Photo Interpretation and Low-level Aerial Survey⁴. Stands suitable for marbled murrelet nesting habitat have attributes that also make them suitable for selection as OGMA. They are typically old growth or mature stands that have old growth attributes. Overlap with wildlife habitat such as marbled murrelet is a coarse filter consideration in OGMA delineations and where appropriate it has occurred.

The Salmon Inlet LU is an important area for mountain goats and Columbia black-tailed deer (*Odocoileus hemionus columbianus*). Winter range habitat for mountain goats was legally established as Ungulate Winter Range (UWR) in 2012. Established WHA's or UWRs containing stands suitable for old forest representation were considered for selection as OGMA to maximise conservation benefits while minimising overall impacts.

The river systems within the Salmon Inlet LU support populations of resident cutthroat trout (*Oncorhynchus clarki clarki*), rainbow trout (*Oncorhynchus mykiss*), Dolly Varden char (*Salvelinus malma*), Prickly Sculpin (*Cottus aleoticus*) and both summer and winter steelhead (*Oncorhynchus mykiss*) trout runs. Current regulations applicable to riparian areas under the Forest Planning and Practices Regulation (FPPR) along with Forest Stewardship Plan (FSP) riparian results and strategies will manage for the effectiveness and function of the riparian values associated with these and other riparian areas within the LU. Where it has been deemed appropriate, OGMA have been delineated adjacent to riparian areas. OGMA have been delineated in or adjacent to riparian areas where suitable forest stand structure exists.

4.2 Timber Resources

The THLB in the Salmon Inlet LU is estimated at 24,167 ha. Removals from the productive forest land base include inoperable terrain, avalanche tracks, riparian reductions, and wildlife tree patches. There is a long history of timber harvesting and fire disturbance in this LU. Despite this, harvesting opportunities still exist; mainly of second growth timber. Based on forest cover inventory and current harvest history, Figure 3 shows the seral distribution of the Crown forested land base across all BEC zones in the Salmon Inlet LU.

Tree species in the Salmon Inlet LU include Douglas-fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), lodgepole pine (*Pinus contorta*), amabilis fir (*Abies amabilis*), subalpine fir (*Abies lasiocarpa*), sitka spruce (*Picea sitchensis*), yellow-cedar (*Callitropsis nootkatensis*), mountain hemlock (*Tsuga mertensiana*) and deciduous species [such as bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*)].

⁴ Burger, A.E. 2003. Standard methods for identifying and ranking nesting habitat of Marbled Murrelets in British Columbia using air photo interpretation and low-level aerial surveys. Ministry of Water, Land and Air Protection Biodiversity Branch, Victoria B.C.

4.3 Water Quality

There are no community watersheds in the Salmon Inlet LU.

4.4 Recreation

Recreation opportunities include, but are not limited to rock-climbing, mountaineering, angling, hunting, kayaking, camping, scuba diving, sailing and wildlife viewing.

Two sites of the Sechlet Inlet Marine Park are along the shores of Salmon Inlet. Kunechin Point and Thornhill provide safe pull-outs for camping, swimming, fishing, and kayaking. Scuba diving opportunities also exist at Kunechin Point where the former Canadian destroyer Chaudiere Artificial Reef is located.

A portion of Tetrahedron Park is located within Salmon Inlet LU on the south side of Salmon Inlet in upper elevations. Recreational opportunities are limited but include hiking, cross-country skiing, and overnight use of remote wilderness cabins.

Upper elevations of Tantalus Park cross into the Salmon Inlet LU at the back end of the Clowhom valley within MHmm1 and AT BEC zones. Recreational opportunities within the park include canoeing, rock climbing, fishing, hiking, hunting, and swimming. There are also remote wilderness cabins and campsites for backcountry recreation enthusiasts.

4.5 Mineral Resource Values

Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregate resources are valuable to the province, but are difficult to characterize. Exploration and development activities related to mineral and gas extraction are permitted in OGMA's and therefore establishment of OGMA's will not impact the status of these permits or tenures.

4.6 Hydroelectric Energy

Hydroelectric power is currently being produced within this LU. OGMA's have been located around known and existing locations of transmission and power lines and are not expected to impact the production of hydroelectric energy.

5.0 Existing Higher Level Plans

Landscape Unit Plan objectives must be consistent with direction in established higher level plans applicable to the plan area. There currently is no designated higher level plan for the Sunshine Coast Forest District that pertains to the Salmon Inlet LU.

6.0 First Nations

The Salmon Inlet LU is located within the traditional territory of the *Shíshálh (Sechelt)* Nation. The *Shíshálh* Nation has been consulted with regarding this Landscape Unit Plan and associated Order and OGMA.

Establishment of OGMA will not affect First Nations Aboriginal rights and title, or affect traditional cultural activities.

There are no Indian Reserves in this LU.

7.0 OGMA Selection Methodologies

7.1 Selection of OGMA

The Landscape Unit Planning Guide (LUPG), dated March 1999 provides direction for selecting suitable OGMA candidate stands which maximizes their value to biodiversity conservation. Ecological suitability, managing Identified Wildlife species, ungulate winter range and ecosystem representation are priority selection criteria. An important part of the OGMA selection process, is to ensure that separate planning processes complement each other.

In addition to including areas with specific habitat requirements, other factors, such as patch size, spatial distribution and connectivity were considered during OGMA delineation. Opportunities to recruit larger patches to provide for forest interior conditions were favoured over smaller patches. As well, specific efforts were made to ensure OGMA were spatially distributed throughout the LU.

Recruitment:

Due to the past disturbance history of the forest stands within this LU, a recruitment strategy was developed to provide long term temporal and spatial distribution of OGMA. This is especially important in CWHdm and CWHvm1 where there is little old growth remaining.

Within CWHdm the majority of the remaining old growth exists on the steep dry slopes and in riparian gullies along the marine coastline of Salmon Inlet. Further up the valley, the watersheds that drain into Clowhom Lake have little old growth remaining in this BEC variant. A recruitment strategy was developed to provide for spatial distribution of OGMA for the long term along the shores of the lake. Stands intended for recruitment OGMA were chosen based on their ecological qualities such as riparian influence, marbled murrelet habitat, old growth stand characteristics, or connectivity. For example OGMA 65 is a mature stand of hemlock and Douglas-fir with scattered veteran trees along the river banks and is located at the confluence of Bear Creek and Clowhom Lake. The location of this recruitment OGMA is important because it will provide structure for future OGMA area along the northern shores of Clowhom Lake.

In this LU CWHvm1 encompasses the low, valley bottom habitat types that are important to many wildlife species. Within this variant there is little old growth remaining to delineate for OGMA. To mitigate this situation, a recruitment strategy was developed to incorporate this biologically valuable habitat. For example, recruitment OGMA occurs along the riparian corridor of Clowhom River and Misery Creek. The temporal diversity of OGMA is increased through incorporation of younger stands that display old growth characteristics, such as veteran trees, as well as including marbled murrelet nesting habitat.

Although connectivity is not a primary objective in biodiversity planning (see *Landscape Unit Planning Guide*), it was considered when delineating OGMA in the Salmon Inlet LU. Connectivity opportunities from lower to higher elevations may only exist in a few areas due to the contiguous lower elevation disturbance history. Also, the inaccessible and higher elevation areas have a higher proportion of old growth. With the inclusion of the younger aged stands in the constrained forest, such as within riparian reserve zones, the connectivity between lower and higher elevation OGMA will be maintained and improve over time.

Wildlife:

Certain wildlife species are particularly susceptible to mortality in winter and connecting or aggregating OGMA may help facilitate movement. There are currently no established WHAs in the Salmon Inlet LU.

UWRs for Mountain Goat were established for the Sunshine Coast in 2012. In order to reduce the impact on the future timber supply, stands suitable for selection as old forest representation within UWR areas were delineated as OGMA.

Areas identified as Class 1, 2 or 3 marbled murrelet habitat, both in the THLB and in the non-contributing portion of the land base, were also given high priority for inclusion as OGMA.

7.2 Boundary Mapping

OGMA boundaries were delineated using ortho imagery, satellite imagery, TRIM-based mapping, air photos and, where possible, forest cover polygons. OGMA boundaries were mapped to natural features (i.e. streams, slides, etc.) as well as edges of forest stands to ensure they could be located on the ground. OGMA were also delineated to include complete forest stands wherever possible to reduce operational uncertainty and increase ease of OGMA mapping.

Forest cover polygons were found to be inaccurate in many places for the delineation of OGMA boundaries. Some forest cover polygons, when overlaid with satellite images were seen to exclude areas of forested land and the forest polygon boundaries were not aligned properly. The misalignment was not due to a GIS projection or coordinate shift. Data associated with these forest cover polygons was, therefore, not spatially correct and attributes will not represent the contents of the delineated OGMA polygons. Areas where inventory mapping was mis-typed were examined using satellite imagery. Some of these stands were identified as having suitable stand composition to contribute towards the biodiversity targets and therefore were selected as OGMA.

7.3 Assessment and Review

OGMAs were selected in the Salmon Inlet LU based on a review of stand attributes in an effort to maximize their value from a biodiversity standpoint while minimizing timber supply impact. Spatial distribution throughout the LU was also a selection criterion. Satellite images, aerial photography, and input from field staff with local, on the ground knowledge were used to designate OGMAs. Structural attributes of the stand were used to determine its sufficiency as OGMA rather than relying solely on forest cover information. Specific rationale for the selection of each OGMA is in Appendix 1.

7.4 Amendment Policy

A FLNR Coast Region policy provides direction to forest tenure agreement holders when applying for amendments to OGMA legal objectives. Amendment procedures cover such things as minor or major amendments for resource development (e.g. roads, bridges, boundary issues, rock quarries and gravel pits), or relocation of OGMAs. The policy also discusses acceptable management activities and review procedures. The amendment policy forms an integral part of this plan.

In general, most OGMA boundaries are not ‘permanently fixed’, they can be moved over time so long as biodiversity objectives are maintained. Replacement OGMAs are required to be equivalent or better than the original. As stand succession proceeds, some currently unsuitable forests may become good OGMA candidates and as such periodic assessment or revision to the OGMAs may occur.

8.0 OGMA Mitigation of Timber Supply Impacts

During delineation of OGMAs careful consideration was made to mitigate short and long term impacts of timber supply. OGMAs were delineated first in the forest stands least likely to be harvested. Considerable input by field staff was used to determine where these locations exist. Timber that is currently considered to be operationally uneconomical for timber harvesting due to its high accessibility cost and low timber value located within the THLB was targeted for inclusion in OGMAs. Generally, more harvestable land base was required in the lower elevation variants due to greater disturbance history. In some circumstances younger stands were selected over older ones where the conservation value was assessed and determined to be equal or greater than that of the older stands. This recruitment strategy was instrumental in mitigating the future impacts to the timber supply while meeting the biodiversity objectives in the Salmon Inlet LU.

OGMAs were also selected, where ecologically suitable, to overlap with areas that are otherwise unavailable for timber harvesting such as within or adjacent to proposed UWR or high value (Rank 1) marbled murrelet habitat. This resulted in larger patches which allows for greater opportunity to maintain connectivity between adjacent patches and minimize the impacts to the timber supply.

Old growth targets were easily achieved in CWHvm2 and MHmm1 BEC variants. Many of these OGMA were delineated to be contiguous with OGMA in the adjacent lower elevation CWHvm1 and CWHdm variants. The OGMA in these upper elevation BEC variants significantly increase the biological value of this plan by increasing OGMA patch size, connectivity and spatial distribution over the LU.

Through succession, stands not currently selected may become suitable for OGMA designation requiring the periodic assessment and revision of OGMA. Old forest stands that have been approved for harvesting were excluded from candidate OGMA following direction outlined in the *Landscape Unit Planning Guide*.

9.0 OGMA Analysis

The Salmon Inlet LU was ranked as an intermediate BEO through the biodiversity value ranking process⁵. This intermediate designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA.

A rationale for each OGMA designation for the Salmon Inlet LU is provided in Appendix 1. The location of proposed OGMA is identified in the maps that are a part of this plan.

The total amount of OGMA required in each variant is outlined in table 3. The OGMA delineated as part of the Salmon Inlet Landscape Unit Plan meet the old growth targets consistent with those targets specified in the Landscape Unit Planning Guide.

Areas within Tetrahedron Park, Sechelt Inlet Marine Park, or Tantalus Park that were identified as having suitable characteristics for biodiversity conservation have been identified and contribute to the old forest targets for the Salmon Inlet LU.

⁵ see the Vancouver Forest Region Landscape Unit Planning Strategy, 1999

Table 3 indicates that 31% of OGMA's are delineated in the THLB. The bulk of the THLB impact is attributable to OGMA's in the CWHdm, vm1 and vm2. This is due in part to the natural disturbance and harvest history in these BEC units which has resulted in less old forest currently existing.

Table 3. Old Growth Management Areas: Targets and Established

BEC	Old Growth Target (%)	Old Growth Target (ha)	Established OGMA (ha)	OGMA in THLB		OGMA in NCLB & Excluded	
				(ha)	(%)	(ha)	(%)
CWHdm	9%	702	726	429	59	297	41
CWHvm1	13%	901	916	544	59	372	41
CWHvm2	13%	1,726	1,742	392	23	1,349	77
MHmm1	19%	1,477	1,503	155	10	1,348	90
MHmm2	19%	6	47	0	0	47	100
Total		4,812	4,933	1,520	31	3,413	69

Note: Differences in totals (1 ha) are due to rounding.

APPENDIX 1. OGMA Summary and Rationale

OGMA Number	Total Area (ha)	Rationale
2	75.7	Age Class 9, Protected Area, Riparian, high elevation alpine forest
3	28.3	Age Class 9
4	72.9	Age Class 9, Riparian
5	60.2	Age Class 7, Draft UWR
8	54.2	Age Class 9, high elevation alpine forest
9	5.9	Age Class 6 & 8, Draft UWR, excluded is forested
10	115.8	Age Class 9, MAMU1,2,3, Draft MAMU WHA, Riparian
11	9.7	Age Class 9
12	17.7	Age Class 9
13	105.2	Age Class 9, UWR
14	116.4	Age Class 7 & 9, UWR
15	54.6	MAMU 2, 3, , Age Class 9
17	5.8	Age Class 9, Riparian, excluded is forested.
19	17.4	MAMU 1, Age Class 8
20	61.8	UWR, Age Class 4, 7 & 9, MAMU 3, excluded is forested
21	95.2	Age Class 6, & 8, Recruitment, Protected Area
22	50.3	UWR, Age Class 7- 9
23	14.8	UWR, Age Class 8
24	9.7	Age Class 9, Riparian
25	72.6	Age Class 9, Riparian, excluded is Alpine Forest
26	42.2	MAMU 1, Age Class 9, Draft WHA, Recruit, Riparian
27	3.5	Age Class 9
28	100.5	Age Class 6-8, Riparian, interior forest condition, Draft UWR
29	31.2	Age Class 9, Riparian, excluded is Alpine Forest
30	22.0	Age Class 9
32	29.5	UWR, Age Class 9
35	29.9	Age Class 9, Alpine Forest
37	25.4	UWR, MAMU 3, Age Class 9, excluded area is forested
38	93.5	UWR, Age Class 9
44	13.6	Age Class 9
47	19.1	MAMU 3, prop MAMU WHA
49	54.4	Age Class 2 & 9, MAMU 1 & 3
50	84.8	Age Class 6&8, Draft UWR, proposed MAMU WHA, MAMU 3, excluded area is forested
53	53.5	MAMU 1 - 3, Age Class 9
54	145.7	UWR, Age Class 9, excluded is forested AF & NP polygons
57	32.5	UWR, Age Class 8
61	102.2	Age Class 8 & 9, MAMU 1-3, Riparian, Recruitment

OGMA Number	Total Area (ha)	Rationale
63	36.6	UWR, Age Class 9
64	120.0	UWR, Age Class 8 & 9, Excluded is forested
65	20.8	MAMU3, Age Class 6 & 7, Riparian, recruitment
66	14.7	Age Class 9
69	18.9	Age Class 9, MAMU 2, Riparian
72	15.6	Age Class 8 & 5, Riparian shoreline, Recruitment
73	18.1	Age class 4 & 8, Riparian, Recruitment
74	17.7	UWR, Age Class 9, Alpine forest
75	57.7	Age Class 4 & 5, Riparian, Recruitment
76	17.3	MAMU 1 & 2, Age Class 9, Riparian
77	5.9	Age Class 9, Riparian
79	15.7	MAMU2 & 3, Age Class 9
80	40.7	Age Class 9
83	35.6	Age Class 9
85	25.9	Age Class 9
86	39.9	Age Class 9, Alpine, Riparian
88	53.6	Age Class 9, Alpine Forest
90	13.2	Age Class 9, Alpine Forest
94	89.3	Age Class 9, Alpine Forest
97	26.6	MAMU3, Age Class 4 & 8, Connectivity
98	46.5	Riparian, Age Class 9, MAMU 1-3
100	14.6	Age Class 9
101	12.8	Age Class 9
102	3.8	Age Class 9
103	49.2	Age Class 6 & 9, MAMU 2 & 3, connectivity
104	20.0	Age Class 9
107	55.9	Age Class 8 >200 & 9, MAMU 3, prop WHA
110	39.6	UWR, Age Class 9
111	70.4	Age Class 9, Riparian
112	97.1	MAMU 2 & 3, Draft WHA, Age Class 8-9, recruitment
113	61.8	MAMU 2 & 3, Age Class 9
114	6.2	MAMU3, Age Class 9
115	34.0	Age Class 9
116	20.2	Age Class 9, MAMU 3
118	13.1	Age Class 9, Protected Area
119	24.3	Protected Area, Age Class 9
120	13.3	Age Class 9
122	20.3	MAMU 3, Age class 8 & 9

OGMA Number	Total Area (ha)	Rationale
124	27.7	Age Class 9
126	23.7	Age Class 9
127	23.1	Age Class 9
130	30.3	MAMU3, Age Class 9, Connectivity, Riparian
131	5.5	Age Class 9
134	11.0	Age Class 9
135	13.5	Age Class 9
136	5.2	Age Class 9
140	7.2	Age Class 9
141	11.7	Age Class 9
142	12.6	Age Class 9
143	11.6	MAMU 2, Age Class 9
146	34.5	Age Class 9
147	27.1	Age Class 9, Riparian, Connectivity
148	13.9	Age Class 9
150	23.7	Age Class 9
151	60.7	Age Class 9, MAMU 2 & 3, Riparian, Connectivity
152	62.8	Age Class 8 & 9, MAMU 3, Riparian, Recruit
153	6.7	Age Class 9
156	25.4	Age Class 9
157	14.7	Age Class 9, MAMU 2
158	5.3	Age Class 9 & 5
162	55.2	Protected Area, Age Class 9
166	22.2	Age Class 7 & 9
174	9.2	Age Class 9
183	76.4	Age Class 9, MAMU 3, gullies
185	37.6	Age Class 8 > 200 & 9
187	10.9	Age Class 9, Riparian
188	30.7	Age Class 9, Shoreline riparian
189	6.6	Age Class 9
190	12.7	Age Class 9
191	23.3	Age Class 9
195	18.0	Age Class 9
196	15.5	Age Class 9 & 5, riparian, recruitment
245	88.0	UWR, Age Class 7-8, MAMU3
246	12.1	Recruitment
250	5.7	Riparian, Age Class 8, recruitment
252	10.0	Riparian, Age Class 8
253	26.4	Age Class 9
254	21.6	Age Class 2,3, 9, Riparian, connectivity

OGMA Number	Total Area (ha)	Rationale
260	87.2	Age Class 7 & 8, Draft UWR, excluded is forested
262	56.4	UWR, Forested not NSR, Age Class 6, alpine
266	42.6	MAMU 3, Age Class 9
269	17.6	Age Class 9
272	11.4	Age Class 9, Alpine Forest
275	6.7	UWR , Age Class 8 &9
276	37.6	Age Class 9
278	7.9	MAMU 2, Forested, no VRI, Riparian
279	5.7	MAMU 2, 3, Riparian, Age Class 8, Recruitment
280	10.7	MAMU 1, Age Class 9, Riparian corridor
281	7.4	Age Class 9
282	6.2	Age Class 9
283	12.4	Age Class 9, Riparian gully
284	9.9	Age Class 9
286	20.2	Age Class 9
289	15.0	Age Class 9
290	32.6	Age Class 9, Lakeshore riparian, Protected Area
291	14.2	Age Class 9, Lakeshore riparian
292	3.5	Age Class 9
293	33.3	Age Class 9, Riparian, Recruitment
294	9.0	UWR, Age Class 9
297	13.0	Age Class 9, Riparian, valley bottom
299	29.2	Age Class 9, Draft UWR
300	28.0	Age Class 9 & 5, recruitment
301	16.0	Age Class 7 & 8, shoreline
305	6.8	Recruitment, Riparian, Forest near swamp
310	74.2	Age Class 9, interior forest condition, riparian
312	55.5	Age Class 9, Protected Area
313	24.0	Age Class 6,8 9, recruitment
314	8.8	Age Class 9
315	18.8	MAMU 1, Age Class 8, Riparian, prop WHA
316	8.6	UWR, Age Class 9
318	3.7	Recruitment
319	7.2	UWR, Age Class 9
320	5.8	UWR, Age Class 9
321	31.6	Tetrahedron Park, Age class 9
Grand Total	4933	

APPENDIX 2. Public Consultation Summary

Advertising was placed in the following publications: BC Gazette (December 24, 2013), Campbell River Mirror (December 20, 2013), Powell River Peak (December 20, 2013), Sechelt Reporter (December 20, 2013). The public consultation period was set for December 20, 2013 to February 18, 2014. This period was extended until March 20, 2014 at the request of the Sunshine Coast Conservation Association. Copies of the Order, LU Plan and maps were made available on the internet as well as paper copies at the MFLNRO offices at Powell River and Campbell River. At the request of the Sunshine Coast Conservation Association, paper copies were also made available at the Provincial Parks office in Sechelt.

Date	Received From	Comment Summary	Reply
Jan. 16, 2014	Billy Griffith Egmont, BC	Support establishment of OGMA's,	Acknowledgement and thanks.
Feb. 17, 2014	Sunshine Coast Regional District	Recommendation to include overlays of areas designated for harvesting, a summary of OGMA's in Parks and "unharvestable" areas. Plan does not consider Grizzly Bear or Wolf Habitat.	Acknowledgement and thanks.
Feb. 18, 2014	Ken WU Ancient Forest Alliance	Support for expansion of OGMA's on the Sunshine Coast. Encourages establishment of OGMA's in lower elevations. As well as in yellow cedar stands such as Dakota Bowl (not part of these 5 LUs).	Minister's Response Letter: Acknowledgement and thanks. Explanation of OGMA Targets. Informing of recent establishment of 2 new OGMA's in the Dakota Bowl area.
Mar. 3, 2014	Dwight Yochim, RPF Truck Loggers Association	Working Forest already constrained. What is target for OGMA's? Is the OGMA coming from THLB or existing protected areas?	Explanation of the OGMA targets. Advised we have worked very closely with the licensees in order to meet the required targets without unduly reducing the timber supply. Advised OGMA's have been co-located in other constrained areas.
Mar. 20, 2014	Lannie Keller & Eve Flager Discovery Islands Ecosystem Advocacy	Extensive review comments largely on policy and procedures issues. A request to be advised if and when Draft plans will be revised.	Acknowledgement and thanks. Advised that revisions to Draft LUPs as a result of their comments not anticipated.
Mar. 20, 2014	Jason Herz Sunshine Coast Conservation Association	Extensive review comments largely on policy and procedures issues. Some Specific recommendations on Salmon LU.	Acknowledgement and thanks. Advised that revisions to Draft LUPs as a result of their comments not anticipated.