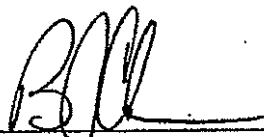


**HARRISON-CHEHALIS WILDLIFE MANAGEMENT AREA
MANAGEMENT PLAN**

December 31, 1997

Approved:



**B. J. Clark, RPBio
Regional Manager
Environmental Stewardship
Lower Mainland Region**

Date

Dec 17/02

TABLE OF CONTENTS

| | Page |
|---|------|
| 1.0 INTRODUCTION | 1 |
| 1.1 Purpose | 1 |
| 1.2 Effective Period of Plan | 2 |
| 2.0 GENERAL DESCRIPTION OF THE MANAGEMENT AREA | 5 |
| 2.1 Location | 5 |
| 2.2 Land Status | 5 |
| 2.3 Physiography and Geology | 5 |
| 2.4 Climate | 6 |
| 2.5 Vegetation | 6 |
| 2.6 Land Capability | 9 |
| 3.0 HISTORICAL AND PRESENT RESOURCE VALUES AND LAND USE | 9 |
| 3.1 Wildlife | 9 |
| 3.1.1 Fish | 9 |
| 3.1.2 Herptiles | 10 |
| 3.1.3 Birds | 10 |
| 3.1.3.1 Aquatic and Shoreline Birds | 10 |
| 3.1.3.2 Birds of Prey | 11 |
| 3.1.3.3 Other Birds | 11 |
| 3.1.4 Mammals | 11 |
| 3.2 Fisheries | 11 |
| 3.3 Water | 11 |
| 3.4 Recreation | 12 |
| 3.5 Heritage Sites | 12 |
| 3.6 Mining | 12 |
| 3.7 Crown Reserves | 12 |
| 3.7.1 Parks U.R.E.P. Reserve | 13 |
| 3.7.2 D.F.O Section 12 Map Reserve | 13 |
| 3.8 Land/Water Use Jurisdictions | 13 |
| 3.8.1 Navigable Waters | 13 |
| 3.8.2 Environment and Heritage | 14 |
| 3.8.2.1 Fisheries and Oceans Canada | 14 |
| 3.8.2.2 Environment Canada | 14 |
| 3.8.2.3 Ministry of Environment, Lands, and Parks | 14 |
| 3.8.2.4 Heritage | 15 |
| 3.8.3 Municipalities and Regional District | 16 |
| 3.8.3.1 Fraser Valley Regional District | 16 |
| 3.8.3.2 District of Kent | 16 |
| 3.8.4 Private Lands | 16 |
| 3.8.5 Leased lands | 17 |

TABLE OF CONTENTS continued

| | Page |
|---|------|
| 4.0 MANAGEMENT PLAN | 17 |
| 4.1 Conservation of Fish and Wildlife Resources | 17 |
| 4.2 Management Principles | 17 |
| 4.3 Management Goal | 18 |
| 4.4 Management Objectives | 18 |
| 4.4.1 Harrison-Chehalis WMA Management Objectives | 18 |
| 4.4.2 Regional Objectives | 19 |
| 4.4.3 Provincial Wildlife Management Objectives | 19 |
| 4.5 Potential Land/Resource Use Conflict Resolution | 20 |
| 4.5.1 Agricultural Industries | 20 |
| 4.5.2 Non Agricultural Industries | 20 |
| 4.5.3 BC TEL Transmission Lines | 21 |
| 4.5.4 Public Use | 21 |
| 4.5.5 Land Claims | 21 |
| 4.5.6 Leased Lands | 22 |
| 4.5.7 Dykes Bordering the WMA | 22 |
| 4.6 Management Prescriptions or Policies | 22 |
| 4.6.1 Habitat Enhancement | 22 |
| 4.6.2 Viewing and Public Access | 23 |
| 4.6.3 Mining | 23 |
| 4.6.4 Research and Monitoring | 23 |
| 5.0 LEGAL ARRANGEMENTS | 23 |
| 6.0 PROVISIONS FOR REVIEW | 24 |
| 7.0 SUMMARY | 24 |
| 8.0 REFERENCES | 25 |

LIST OF FIGURES

Figure 1. Location of the Harrison-Chehalis Wildlife Management Area. 1

Figure 2A. Harrison-Chehalis Wildlife Management Area Land Tenure. 3

Figure 2B. Harrison-Chehalis Wildlife Management Area Land Tenure. 4

Figure 3. Harrison-Chehalis WMA habitat features. 7

LIST OF TABLES

Table 1. Wetland habitat classifications 8

LIST OF APPENDICES

Appendix A. Legal Descriptions and Land Tenure for the Harrison-Chehalis WMA and
Adjacent Properties. 26

Appendix B. Vertebrates of the Harrison-Chehalis Wildlife Management Area. 31

Appendix C. Harrison River Fish Species, escapement and life history timing. 34

Appendix D. Acronyms 35

1.0 INTRODUCTION

The primary value and purpose of the Harrison-Chehalis Wildlife Management Area (WMA) and the terms of tenure are outlined below.

1.1 Purpose

The lower Fraser Valley's floodplain habitats have greatly diminished during the last 100 years since dyking began along the Fraser River and its tributaries. The riverine and freshwater delta habitats of the Harrison and Chehalis Rivers provide important wintering, migration and/or breeding habitats for salmonids, aquatic birds and mammals, bald eagles, and upland wildlife which make use of the river edge and floodplain areas. As riverine habitats of the lower Fraser Valley are subject to ongoing development pressures, the wetlands of the Harrison and Chehalis Rivers become increasingly more important as wildlife habitat. This site provides an excellent opportunity to protect and manage these riverine habitats.

The area covered by this plan (Figures 1 and 2) contains wildlife resources, wildlife viewing potential, and existing riverine recreational opportunities. This plan sets a direction for the management of the fish and wildlife resources of the portions of the Harrison River, Chehalis delta, and Morris Creek delta falling within the Harrison-Chehalis WMA. The purpose of this plan is to do the following:

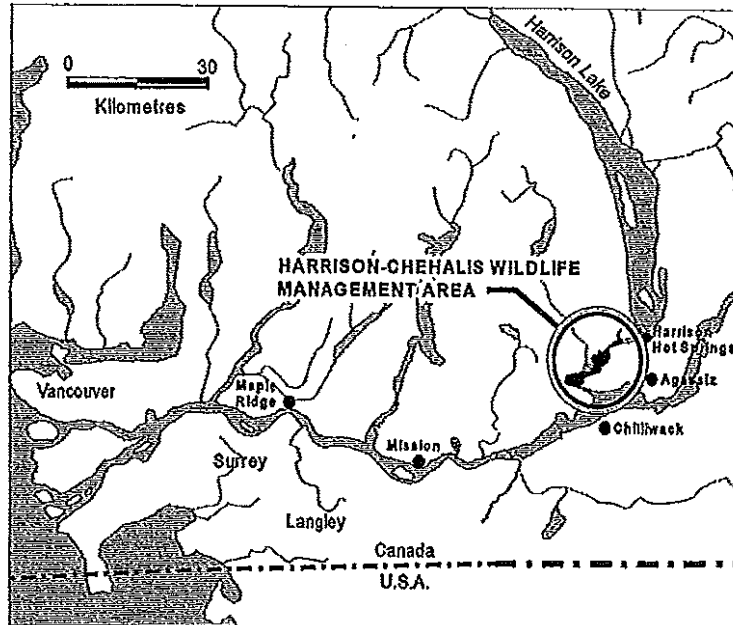


Figure 1. Location of the Harrison-Chehalis Wildlife Management Area.

- summarize the biophysical features of the Harrison-Chehalis WMA;
- outline management practices that will be applied to protect habitats and maintain the biological productivity for wildlife;
- outline policies governing recreational use of the WMA; and
- address existing land uses and conflicts, legal arrangements and agreements with third parties as they apply to these lands.

This plan was developed to comply with the requirements of Section 4 of the Provincial Wildlife Act, under which a WMA is declared, and Section 17 (Designated Use Area) of the Provincial

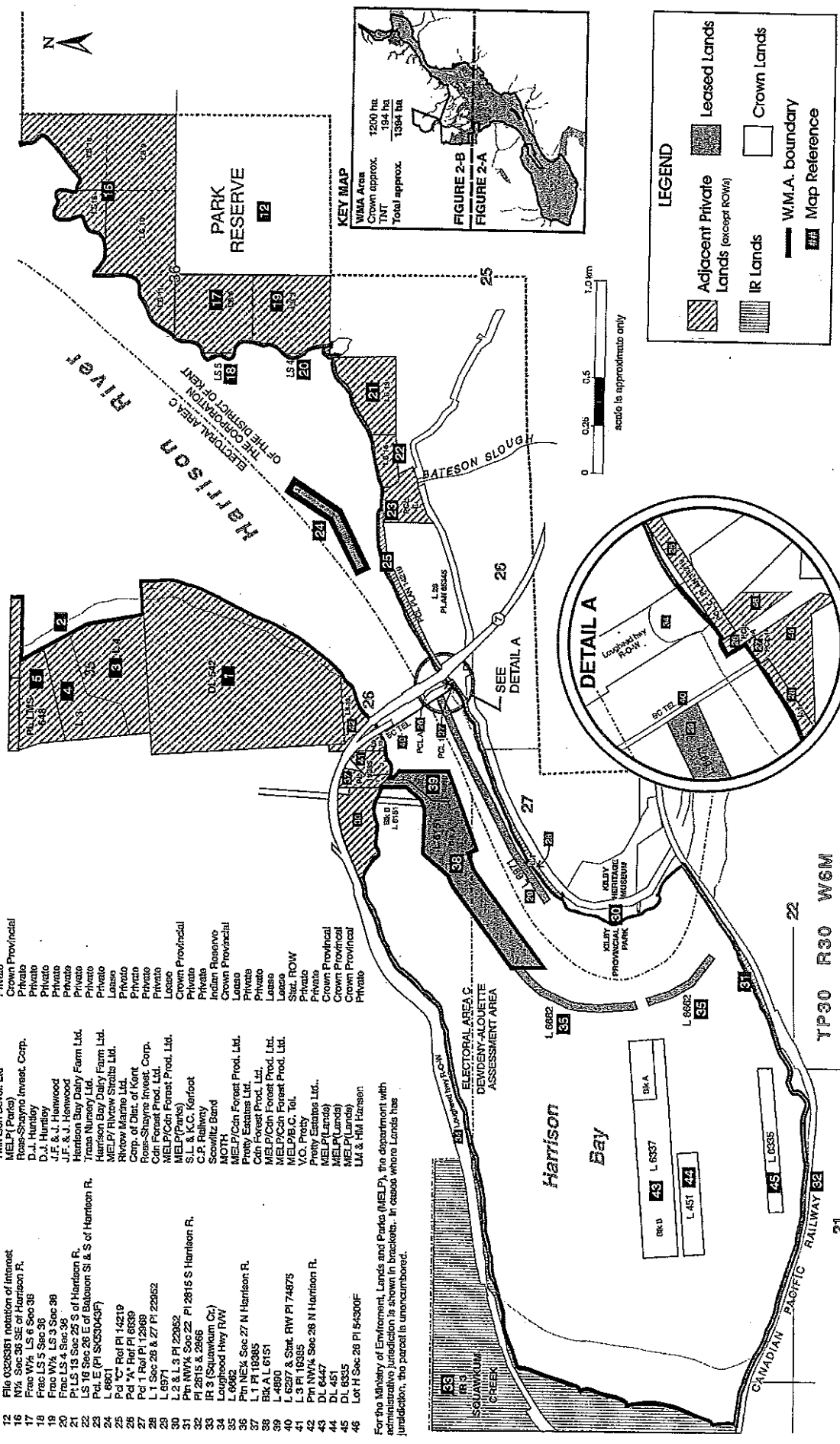
Land Act, which would convey management of the area to Fish, Wildlife, and Habitat Protection (FWHP) for designated use purposes.

1.2 Effective Period of Plan

This plan will be in effect for 30 years from the date of the establishment of the Section 17 Designated Use Area. It may be subject to review and revision every five (5) years, or more frequently if required, to reflect changing management objectives for the WMA.

**FIGURE 2A: HARRISON-CHEHALIS WILDLIFE MANAGEMENT AREA
LAND TENURE MAP**

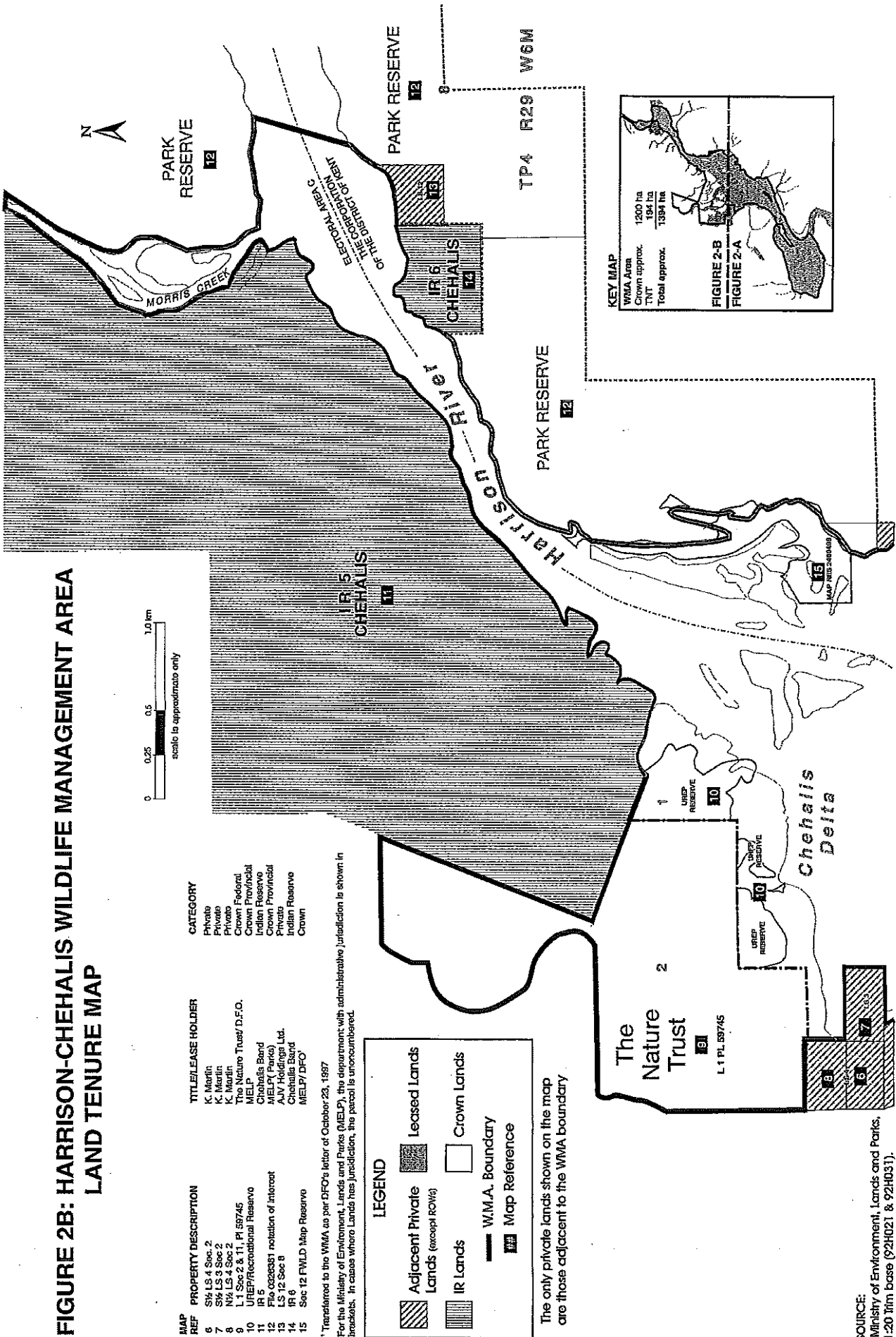
| MAP REF | PROPERTY DESCRIPTION | TITLE/LEASE HOLDER | CATEGORY |
|---------|-----------------------------------|--------------------|----------|
| 1 | DL 542 | Private | Private |
| 2 | Lot LMP 6821, 23880, 69493 | Private | Private |
| 3 | L 4 PI 69456 | Private | Private |
| 4 | L 3 PI 69455 | Private | Private |
| 5 | Strata PI LMS 648 | Private | Private |
| 12 | File 0303981 notation of interest | Private | Private |
| 16 | RYA Sec 36 SE of Harrison R. | Private | Private |
| 17 | File 0303981 notation of interest | Private | Private |
| 18 | File 0303981 notation of interest | Private | Private |
| 19 | File 0303981 notation of interest | Private | Private |
| 20 | File 0303981 notation of interest | Private | Private |
| 21 | File 0303981 notation of interest | Private | Private |
| 22 | File 0303981 notation of interest | Private | Private |
| 23 | File 0303981 notation of interest | Private | Private |
| 24 | File 0303981 notation of interest | Private | Private |
| 25 | File 0303981 notation of interest | Private | Private |
| 26 | File 0303981 notation of interest | Private | Private |
| 27 | File 0303981 notation of interest | Private | Private |
| 28 | File 0303981 notation of interest | Private | Private |
| 29 | File 0303981 notation of interest | Private | Private |
| 30 | File 0303981 notation of interest | Private | Private |
| 31 | File 0303981 notation of interest | Private | Private |
| 32 | File 0303981 notation of interest | Private | Private |
| 33 | File 0303981 notation of interest | Private | Private |
| 34 | File 0303981 notation of interest | Private | Private |
| 35 | File 0303981 notation of interest | Private | Private |
| 36 | File 0303981 notation of interest | Private | Private |
| 37 | File 0303981 notation of interest | Private | Private |
| 38 | File 0303981 notation of interest | Private | Private |
| 39 | File 0303981 notation of interest | Private | Private |
| 40 | File 0303981 notation of interest | Private | Private |
| 41 | File 0303981 notation of interest | Private | Private |
| 42 | File 0303981 notation of interest | Private | Private |
| 43 | File 0303981 notation of interest | Private | Private |
| 44 | File 0303981 notation of interest | Private | Private |
| 45 | File 0303981 notation of interest | Private | Private |
| 46 | File 0303981 notation of interest | Private | Private |



The only private lands shown on the map are those adjacent to the WMA boundary

SOURCE: Ministry of Environment, Lands and Parks, 1:20 film base (92H021).

**FIGURE 2B: HARRISON-CHEHALIS WILDLIFE MANAGEMENT AREA
LAND TENURE MAP**



0 0.25 0.5 1.0 km
scale is approximate only

| MAP REF | PROPERTY DESCRIPTION | TITLE/LEASE HOLDER | CATEGORY |
|---------|-----------------------------------|--------------------------|------------------|
| 6 | SW 1/4 Sec. 2 | K. Martin | Private |
| 7 | SE 1/4 Sec. 2 | K. Martin | Private |
| 8 | NW 1/4 Sec. 2 | The Nature Trust/ D.F.O. | Crown Federal |
| 9 | L 1 Sec. 2 & 11 PL 99745 | MELP | Crown Provincial |
| 10 | UREP/Recreational Reserve | Chehalis Band | Indian Reserve |
| 11 | IR 5 | MELP (Parcs) | Crown Provincial |
| 12 | File 6326381 notation of interest | AJV Holdings Ltd. | Private |
| 13 | LS 12 Sec. 8 | Chehalis Band | Indian Reserve |
| 14 | IR 6 | MELP/ DFO | Crown |
| 15 | Sec 12 FWLD Map Reserve | | |

* Transferred to the WMA on per DFO's letter of October 23, 1997.
For the Ministry of Environment, Lands and Parks (MELP), the department with administrative jurisdiction is shown in brackets. In cases where Lands has jurisdiction, the parcel is unnumbered.

LEGEND

- Adjacent Private Lands (except ROWs)
- Leased Lands
- IR Lands
- Crown Lands
- W.M.A. Boundary
- Map Reference

The only private lands shown on the map are those adjacent to the WMA boundary

KEY MAP
WMA Area 1200 ha
Crown approx. 184 ha
TP4 1384 ha
Total approx.

FIGURE 2-B
FIGURE 2-A

SOURCE: Ministry of Environment, Lands and Parks, 1:20 1/4m base (92H021 & 92H031).

2.0 GENERAL DESCRIPTION OF THE MANAGEMENT AREA

This section describes the location and biophysical characteristics of the Wildlife Management Area.

2.1 Location

The Harrison-Chehalis WMA encompasses the Harrison River from the railroad bridge at the outlet of Harrison Bay, upstream to the delta of Morris Creek. It includes crown-owned portions of Harrison Bay, the lower Harrison River, the Chehalis River delta, and Morris Creek delta below the normal high water mark (Figures 2A and 2B). It is located within Fish and Wildlife Management Unit 2-9, on Highway 7, about 6 km north of Chilliwack. It also includes The Nature Trust of B.C.'s (TNT) property at the mouth of the Chehalis River.

2.2 Land Status

The Harrison-Chehalis WMA contains almost 1,400 ha in the Fraser Valley Regional District, including 1200 ha of crown land, and 194 ha belonging to TNT that is leased to Fisheries and Oceans Canada. Most of this area is unencumbered crown land, including 30 ha in a Section 11 UREP reserve administered by Lands. Encumbrances on crown land include 9 ha comprising two water lots with log storage and handling leases and a B.C. Tel right-of-way. The area is mostly riverine habitat, except for 100 ha of forest on the TNT property.

Legal descriptions and land tenure information of the WMA and of adjacent private properties are located in Appendix A and on Figures 2A and 2B.

2.3 Physiography and Geology

The Harrison-Chehalis WMA falls within the Fraser Lowlands Ecoregion of the Lower Mainland Ecoregion of the Georgia Depression Ecoregion (Campbell *et al* 1990).

The geological origins of the shorelines adjacent to Harrison Bay are Quaternary Pleistocene and postglacial deposits. The former, found along the north and south shorelines, consists of ice-contact gravel and sand containing till lenses and clasts of glaciomarine stony clayed silt, more than 5 m thick. The east and west shorelines are postglacial Fraser River channel deposits consisting either of sand and gravel occurring along the present day river channels, or higher areas of channel and overbank deposits, sandy loam, loamy sand and minor silt loam and silt.

The Chehalis delta is classed as mountain stream channel gravel and minor sand up to 10+ m thick. The surrounding mountainous areas, which reach to the shoreline of the river in several places, are pre-tertiary mesozoic and upper palaeozoic bedrock of various origins, often overlain with thin (less than 2 m thick) glacial, colluvial and eolian sediments.

2.4 Climate

The lower Fraser Valley experiences warm, sunny summers and relatively mild, wet winters. Freezing temperatures and snow are of relatively short duration (an average of 18 days of snow per year) due to the marine effects of the Strait of Georgia. The adjacent mountains cause prevailing air currents to rise rapidly over the area, causing overcast and rainy weather in all months (mean annual precipitation is more than 185 cm). Gale-force winds and abundant precipitation are common during late fall and winter (October to March) when more than 70% of the precipitation falls. Mean annual temperature at Chilliwack is 10.4 deg. C. (Env. Can., 1993), ranging from a mean of 2.0 deg. C in January to a mean of 18.3 deg. C in July.

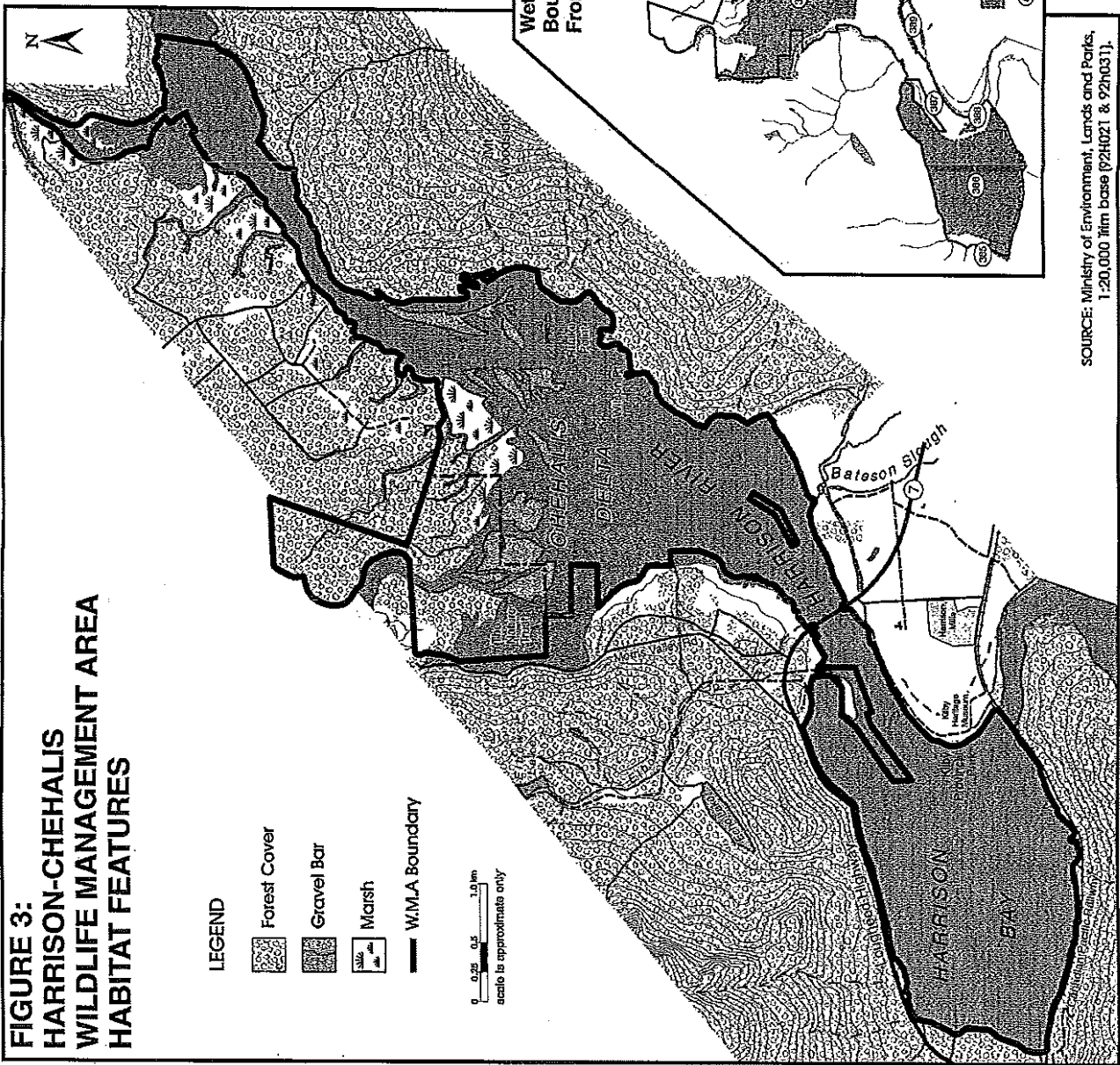
2.5 Vegetation

The Harrison-Chehalis WMA is within the Coastal Western Hemlock Biogeoclimatic Zone. The area occupied by the WMA encompasses all or part of nine wetland complexes identified in the Canadian Wildlife Service's Wetlands of the Fraser Lowlands, 1989: an inventory by Ward *et al.* (1992). The locations of these sites are shown in Figure 3 and their wetland classifications are provided in Table 1. The site also included other riverine areas, and forest on The Nature Trust (TNT) property.





There have been no vegetation surveys of the riverine habitats of the Harrison-Chehalis WMA. Substrates exposed at low water are mostly bare gravel, flat, sand, and mud. In the shallows of the backwater sloughs of the Chehalis delta there is a dense growth of submergent aquatic plants such as *Sparganium* spp., *Elodea* spp. and *Potamogeton* spp. Some vegetation (possibly *Elodea* spp.) also occurs in the shallows of Harrison Bay. Some of the islands in the Chehalis delta have grasses, shrubs, and at higher elevations, alders (*Alnus rubra*). Grasses occur in between the high and low water marks along portions of the Harrison River.

Property owned by TNT is largely Douglas fir (*Pseudotsuga menziesii*) coniferous forest. Other upland habitats include alder-dominated coniferous forest, hardhack-dominated (*Spiraea douglasii*) shrublands, and reed canarygrass-dominated (*Phalaris arundinacea*) grasslands. A portion of the area is river channel and gravel bars.

**FIGURE 3:
HARRISON-CHEHALIS
WILDLIFE MANAGEMENT AREA
HABITAT FEATURES**



LEGEND

-  Forest Cover
-  Gravel Bar
-  Marsh
-  W.M.A. Boundary

0 0.25 0.5 1.0 km
scale is approximate only

SOURCE: Ministry of Environment, Lands and Parks, 1:20,000 film base (92H021 & 92H031).

Table 1. Wetland habitat classifications

| Wetland Number | Name | Wetland Classification | | Area ha |
|----------------|--------------------------------------|------------------------|-------------------------------|---------|
| 385 | Harrison Bay, western shore | 100% | stream marsh | *11.1 |
| 386 | Harrison Bay | 100% | stream water | 364.0 |
| 387 | Harrison Bay (NW of Kilby) | 60% | stream marsh | 2.1 |
| | | 40% | gravel bar | |
| 388 | Harrison Bay (incl. part of DL 6662) | 100% | stream water | 3.3 |
| 389 | Harrison River, south shore | 100% | stream marsh | *4.4 |
| 392 | Chehalis River delta | 34% | active delta marsh | *434.1 |
| | | 33% | stream water | |
| | | 33% | gravel bar (early succession) | |
| 393 | Harrison River, east bank | 90% | stream water | 121.4 |
| | | 10% | stream marsh | |
| 395 | Chehalis Indian Reserve No. 6 | 100% | stream marsh | 0.9 |
| 396 | Morris and Weaver Creeks | 50% | stream water | *219.7 |
| | | 50% | stream marsh | |

* Only a portion of these sites is included in the Harrison-Chehalis WMA.

DEFINITIONS OF WETLAND CLASSIFICATIONS

Marsh: a mineral wetland or peatland that is periodically inundated by standing or slowly moving water; the waters are rich in nutrients; the substratum usually consists of mineral material, although occasionally it consists of well-decomposed peat; characterized by clumps of emergent sedges, grasses, rushes, and reeds, bordering grassy meadows and peripheral bands of shrubs or trees; submerged and floating aquatic plants flourish where open water areas occur.

Active delta marsh: a marsh occupying lowlands on deltas, usually with drainage connections to active river channels; subject to inundation at least once during a season; a high rate of sedimentation may occur in many parts of the marsh.

Stream marsh: a marsh occupying shorelines, bars, streambeds, or islands in continuously flowing water courses; subject to prolonged annual flooding and often covered by thick layers of sediment.

2.6 Land Capability

The Canada Land Inventory (CLI) provides overview-level resource ratings of B.C.'s landscapes. The CLI rated the suitability of this area for waterfowl, and outdoor recreation.

CLI Waterfowl Rating:

The CLI designates the area as 3M for Waterfowl. This designation is given to land which has importance as migration habitat, but has limitations for waterfowl production.

CLI Outdoor Recreation Rating:

The CLI designation for the shorelines upstream from Harrison Bay (3 wao) indicates a moderately high capability for outdoor recreational activities associated with wetland wildlife, angling, and upland wildlife. Harrison Bay shorelines are classed 4pn, indicating moderate interest due to cultural landscapes and potential for family outdoor recreation.

Other Ratings:

Benn *et al* (1977), in a natural-areas inventory done for the GVRD, rated the area as Very High (class 1) for the presence of its wildlife aquatic biota (primarily salmon and trout). This area is described as "one of the most interesting natural areas in the Lower Mainland."

3.0 HISTORICAL AND PRESENT RESOURCE VALUES AND LAND USE

Resource values of the Harrison-Chehalis Wildlife Management Area include wildlife, fisheries and heritage resources. Land use includes recreation and some commercial activity.

3.1 Wildlife

The riverine habitats of the Harrison-Chehalis WMA support many wildlife species, either as permanent residents or migrants. Appendix B lists the vertebrates (except fish) which are likely to occur in the WMA.

3.1.1 Fish

The fish species using the Harrison and Chehalis Rivers, and Morris-Weaver Creek include all Pacific salmon (sockeye, coho, pink, chum and chinook), steelhead and rainbow trout, cutthroat trout, bull/Dolly Varden char, white sturgeon and Rocky Mountain whitefish (Maurer 1989). Salmon escapements frequently exceed half a million fish. The two most common salmon species are pink and chum salmon which represent approximately 55% and 35% of the run respectively (Appendix 3). The lower Harrison and Chehalis Rivers are among the most productive chinook salmon spawning areas in North America. There is a spawning channel on Weaver Creek, a tributary to Morris Creek, and a hatchery on the Chehalis River. The WMA is

also an important juvenile salmonid rearing area for out-migrants from the Harrison-Lillooet system.

3.1.2 Herptiles

The riverine nature of the WMA is not conducive to extensive use by amphibians, which generally require fish-free ponds and lakes for breeding. Some use is possible if isolated ponds are associated with the upper parts of the Chehalis River delta.

Two species of garter snakes likely occur at the river edge or enter the quieter waters; otherwise, no reptiles are expected.

3.1.3 Birds

Because the WMA is comprised mainly of wetland habitats, most bird use is by aquatic and shoreline species. Other species use grass and shrub habitats occurring between high and low water.

3.1.3.1 Aquatic and Shoreline Birds

Small numbers of nonbreeding loons and grebes use the WMA, but the most numerous aquatic species are waterfowl. One noteworthy species, the Trumpeter Swan, feeds in small, nearby areas and roosts on the Harrison-Chehalis delta. There is one record of 237 swans on the delta. Benn *et al.* (1977) mentions the occurrence of moderate numbers of wintering waterfowl, which are most abundant when adjacent areas are frozen. Maurer (1989) suggests wintering waterfowl may peak at about 1000 birds. During the fall and winter salmon spawning period, mallard, lesser scaup, common goldeneye, canvasback, and other duck species occur here, sometimes feeding on the decaying fish carcasses (Cramond 1967). The most common species are diving ducks and mergansers. This was once one of the few nonmarine wintering locations of canvasbacks on the south coast.

Although Canada geese were once relocated to this area during FWHP/CWS programs designed to relieve urban areas of problems with flightless geese during the moult in June, no future releases will occur in the WMA.

Great blue herons feed year round in the shallows of Harrison Bay and the Chehalis delta. During the breeding season, the WMA is particularly important to a colony of herons nesting on private property on the northwest shore of the bay. This colony, one of the largest non coastal colonies in the Fraser Valley, varies in size between 40 and 85 nests, and has been used for more than 50 years (Gebauer 1995).

Small numbers of shorebirds also use the WMA's exposed shorelines and gravel bars. Gulls are abundant during the salmon spawning season. Other aquatic species include belted kingfishers and American dippers.

3.1.3.2 Birds of Prey

Bald eagles are the most numerous raptor species in the Harrison-Chehalis WMA; peaks of up to 775 birds occurred during February surveys (1986-1988) (Farr *et al.* 1988). Most eagles are present between November and March, when they feed on spawning salmon. Other raptor species recorded close to Harrison Bay include northern harriers, which may use some shoreline habitats plus adjacent uplands, and Cooper's hawks. Cooper's hawks, and other raptors listed in Appendix B, are forest birds but may feed along the edges of the WMA or in shrubby parts of the Chehalis delta. Ospreys probably occur.

3.1.3.3 Other Birds

The vegetated shorelines and gravel bars, and forests of the TNT property provide habitat for other bird species. Some passerines occurring in the management area include crows, robins, and song sparrows, and during the breeding season, willow flycatchers and a variety of warblers; other possible species are listed in Appendix B. Aerial-feeding swallows, and possibly swifts, would be the most common non aquatic bird species.

3.1.4 Mammals

Mammals expected to be common are black-tailed deer, black bears, coyotes, raccoons, muskrats, beavers, mink, weasels, and river otters. Small numbers of harbour seals follow spawning salmon up the Fraser River to the Harrison River. Other mammals expected to occur are listed in Appendix B.

3.2 Fisheries

The WMA is part of the larger Fraser River and tributaries fishing territory used historically by the Stolo Nation for food and ceremonial purposes. In addition, the traditional territory is also included in a set net fishery under the *Pilot Sales Agreement* (1992-1999) as part of DFO's *Aboriginal Fisheries' Strategy* (John Pennier, Scowlitz Band; Joe Seymour, Lakahahmen Band).

The WMA area is also included in broader fisheries' management initiatives of multi agency programs such as the *B.C. Aboriginal Fisheries Strategy* and *Fraser River Watershed Fisheries Strategy* (Joe Seymour, Lakahahmen Band). The presence of the WMA should help to strengthen fish management initiatives on the Harrison River.

3.3 Water

Most of the water flowing through this area originates from the glacier-fed Lillooet River which flows into Harrison Lake and thence into the lower Harrison River. Numerous tributary streams contribute to the flow. Many licenses exist for the removal of water from tributary creeks

flowing into the lower Harrison River and the FVRD has applied to remove water for domestic purposes. The existing licenses have no significant influence on flows in the river or on its fish and wildlife habitat.

3.4 Recreation

Surveys or statistics on recreational use of the Harrison-Chehalis WMA do not exist. Statistics do exist for the recreational use of the Kilby heritage site and museum and Kilby Provincial Park which borders on the river. Park use (day use area, camping, swimming, boat launch, parking) varied between 25,000 and 54,000 between 1984 and 1986 (Maurer 1989). An unknown percentage of this use included river activities. Wildlife viewing, walking (including dog walking), fishing, hunting, and canoeing are currently the principal recreational pursuits in the Harrison-Chehalis WMA.

3.5 Heritage Sites

The Archaeology Branch has records of both First Nations and early European settlement sites in the Harrison River area. Within the WMA boundaries, three First Nations sites (Borden Numbers DhR1-24, 28, and 29) are located below the high water line on the northeast side of Harrison Bay. Materials found at these sites include a shell midden, human remains, burial mounds and cultural materials.

3.6 Mining

One active mineral lease occurs within the WMA, as follows:

| <u>File No.</u> | <u>Claim Name</u> | <u>Owner Name</u> | <u>Renewal Date*</u> |
|-----------------|-------------------|-------------------|----------------------|
| 353951 | MB 2 | MCCLAREN, MURRAY | 1998/02/18 |

*from Mining Recorder's records as of April 1997.

A "no staking mineral and placer reserve" (O.I.C. 1310, 7 July 1987) covers The Nature Trust property, the western part of the UREP reserve, adjacent crown land, and some private property in L.S. 4 Sec. 2 TP 4 R 30 (References 8-10 on Figure 2B).

3.7 Crown Reserves

Two map reserves occur within the Harrison-Chehalis WMA boundaries..

3.7.1 Parks U.R.E.P. Reserve

A Section 11 Map Reserve (Land Act) for the Use, Recreation and Enjoyment of the Public (U.R.E.P.) was established at the mouth of the Chehalis River (Figure 2B) in 1959 in the name of the Parks Branch. This area's tenure will be strengthened by inclusion in the WMA, thereby assuring its continued availability for conservation and public enjoyment.

3.7.2 D.F.O Section 12 Map Reserve

A Section 12 Map Reserve (Land Act) was established in favour of the Department of Fisheries and Oceans in 1992 over approximately 20 ha of the northeast portion of the WMA (Figure 2B, map reference 15; Appendix A). The purpose is for the "channel to be regraded to ensure adequate fisheries flows at all Harrison River water stages." In a letter to Land Administration dated 23 October 1997, DFO relinquished their Sec. 12 in favour of including the area in MBLP's Sec. 17 application.

3.8 Land/Water Use Jurisdictions

This section addresses land and water use jurisdictions within, and in proximity to, the Harrison-Chehalis WMA. This section is subdivided into five subsections according to broad categories:

- Navigable waters,
- Environment and heritage,
- Municipal infrastructure,
- Private Lands
- Leased lands

3.8.1 Navigable Waters

The Canadian Coast Guard (Department of Fisheries and Oceans) is mandated to enforce the Federal Navigable Waters Protection Act (NWPA). The NWPA is a federal government statute designed to protect the public right and safety of navigation by prohibiting the building or replacement of any work in navigable waters not approved by the Minister of the Department of Fisheries and Oceans.

If a proposed project has the potential to interact with or affect navigation, then an application must be submitted to the Canadian Coast Guard for approval under the NWPA. The type of application and level of detail required will be determined by the nature, scale, and potential impact of the proposed structures.

Fish and Wildlife Habitat Protection (FWHP), which is responsible for administering the WMA, has no authority to interfere with, or impose regulations on, the public right to navigation in waters defined as navigable under the NWPA.

3.8.2 Environment and Heritage

Several federal and provincial government agencies administer the fish, wildlife, water and recreational resources of the Fraser and Sumas Rivers and their adjacent floodplains.

3.8.2.1 Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) is responsible for administering the Federal Fisheries Act, which provides protection of fish habitat and of water quality for fish and fish habitats. In the Harrison-Chehalis WMA, DFO has jurisdiction, as it relates to fish habitat, over any land/water use proposals for the Fraser River and its tributaries.

Designation of Harrison-Chehalis as a Wildlife Management Area does not preclude DFO's responsibility for administration of the Fisheries Act regarding the management of fish habitat and the protection of water quality for fish and fish habitat. Nor does a WMA hinder DFO's freedom to manage fish habitat within the map reserve area. All works, including works and regulations carried out under the Harrison-Chehalis Wildlife Management Plan, will be subject to review by DFO and must be in accordance with existing DFO fish habitat management policy and legislation.

3.8.2.2 Environment Canada

The Canadian Wildlife Service administers the federal Migratory Birds Convention Act and the federal Canada Wildlife Act. They address wildlife matters that are the responsibility of the federal government. These include protection and management of migratory birds and their habitats, nationally significant and endangered species, and other wildlife issues of national and international importance.

The Environmental Protection Service (EPS) of Environment Canada administers the federal Canadian Environmental Assessment Act and Section 36 of the federal Fisheries Act. It also regulates environmental contaminants under the federal Canadian Environmental Protection Act.

3.8.2.3 Ministry of Environment, Lands, and Parks

The Ministry of Environment, Lands and Parks addresses matters related to fish, wildlife, land, water, and recreation that are the responsibility of the provincial government.

Land and Water Management--Land Administration

Under the provincial Land Act and the provincial Ministry of Lands, Parks, and Housing Act, L&W Land Administration is responsible for the issuance of leases, licenses, and statutory rights-of-way in the Harrison-Chehalis WMA and administers the Section 11 UREP reserve (map reference 10). Land Administration would issue the Land Act Section 17 Special Use Designation that would transfer unencumbered provincial crown lands within the WMA to Fish, Wildlife, and Habitat Protection to create a Wildlife Management Area.

Land and Water Management--Water Administration

Water Administration of L&W administers provincial dykes through the Dyking Commission, and administers the Water Act which deals with issues such as water licensing and authorization to construct and maintain water management works on crown lands. Water Administration also administers the Fish Protection Act in conjunction with FWHP.

Fish, Wildlife, and Habitat Protection--Environmental Protection

Environmental Protection division administers waste disposal and pollution issues. It issues permits under the provincial Waste Management Act which requires registration and approval of the discharge of waste to the environment, including the use of pesticides.

Fish, Wildlife, and Habitat Protection--Fish and Wildlife Administration

Under the Provincial Wildlife Act, Fish, Wildlife, and Habitat Protection has authority to act on matters affecting resident or migratory wildlife within provincial boundaries. FWHP has been delegated authority to enforce the federal Fisheries Act as it pertains to resident fish, anadromous trout, and char. Protection of fish, wildlife and their habitats is a key component of their mandate. Fish, Wildlife, and Habitat Protection would be the managers of the Harrison-Chehalis WMA. They also administer the provincial Fish Protection Act in conjunction with Water Administration.

B.C. Parks

The B.C. Parks of the Ministry of Environment, Lands, and Parks, administers the provincial Parks Act and the Ecological Reserves Act. It is responsible for the creation and administration of provincial parks and recreational sites, Ecological Reserves, and Environmental Land Use Areas.

3.8.2.4 Heritage

The protection and conservation of the province's heritage resources is shared by the Archaeology Branch, Heritage Branch, and the Royal B.C. Museum of the Ministry of Small Business, Tourism and Culture. The Heritage Branch is responsible for managing historic buildings and sites owned, developed and operated by the province. The Royal B.C. Museum is responsible for research and interpreting the province's human history to the public.

The Archaeology Branch is responsible for administering the provincial Heritage Conservation Act as it relates to the protection and conservation of archaeological sites in British Columbia. The Act protects all sites showing evidence of past human use dating before the year 1846, and other sites such as burial places, rock art, and heritage wrecks, whether specifically designated as provincial heritage sites or not. These sites may not be altered without a permit, pursuant to

Section 12 and/or 14 of the Heritage Conservation Act. The Archaeology Branch recommends notification for any development/enhancement projects, thus enabling them to provide guidance to proponents so that potential impacts on archaeological resources, whether previously recorded or unrecorded, are appropriately managed and any necessary permits are issued.

3.8.3 Municipalities and Regional District

The Harrison-Chehalis WMA falls within the jurisdiction of two local governments: the Fraser Valley Regional District, and the District of Kent.

3.8.3.1 Fraser Valley Regional District

The Fraser Valley Regional District manages the infrastructure of municipal services within the unorganized portions of the district, including those parts of the Harrison-Chehalis WMA on the north and west banks of the Harrison River. It also administers all regional parks, including regional parks falling within organized areas.

3.8.3.2 District of Kent

The District of Kent manages the infrastructure of municipal services within, and in proximity to, those parts of the WMA lying south and east of the Harrison River. This includes the municipal dyke south of the WMA and municipal land bordering the WMA southeast of the Loughheed Highway bridge across the Harrison River.

3.8.4 Private Lands

Existing and future riparian rights and rights to lawfully accreted lands, as defined by the Provincial Land Title Act are not prejudiced by WMA designation. Legal descriptions for, and ownership of, private lands encompassed by and adjacent to the WMA are presented in Appendix A.

A 194 ha parcel in the Chehalis River delta is owned by the Nature Trust of B.C. (TNT). Since 1981, it has been leased for a 99-year period to Fisheries and Oceans Canada (DFO). Both TNT and DFO have agreed to the inclusion of the parcel in the WMA.

3.8.5 Leased lands

Several active water lot leases for log handling and storage occur in the Harrison River. If in the future such leases are voluntarily abandoned by the lessees, and remain vacant, FWHP may apply for tenure. Granting of such tenure would be at the discretion of Land Administration and would be subject to their normal application review process.

Three lots on the lower Harrison River and Harrison Bay (Figure 2A reference 24, 38, and 39) are excluded from the WMA.

4.0 MANAGEMENT PLAN

The following management plan considers the reasons for establishing a WMA and addresses any resource conflicts, then outlines management policies.

4.1 Conservation of Fish and Wildlife Resources

The Harrison-Chehalis WMA is an area of river channel and active floodplain delta, most of which is currently under Provincial Crown ownership. The abundance and diversity of fish and wildlife using these habitats is very high, providing a unique opportunity to protect an important resource.

In recognition of these values, the Nature Trust, federal Department of Fisheries and Oceans, and Provincial Parks Branch all own land or hold reserves in the area. The WMA serves to unite these areas and other adjacent crown-owned habitats into a contiguous block.

4.2 Management Principles

The following management principles are to guide activities taking place within the Harrison-Chehalis Wildlife Management Area:

- a. unless stated otherwise, the term "wildlife" is to be used in the broadest sense to include birds, mammals, fish, herptiles, invertebrates, microorganisms, plants, and their habitats;
- b. management prescriptions are to be cost effective;
- c. management prescriptions will be reviewed with regard to their impact on agricultural, residential, and industrial lands in the proximity of the WMA;
- d. management prescriptions are to emphasize natural features and processes;
- e. any vegetation plantings are to utilize only native species or locally adapted species deemed to be beneficial to fish and wildlife;
- f. management prescriptions are to benefit native or locally adapted species;
- g. species having a negative or undesirable impact on management objectives may be controlled (e.g., purple loosestrife);
- h. user amenities and facilities, if any, will be minimal, low-impact, low maintenance, and compatible with management objectives;
- i. the public is to have an opportunity to provide input into broad management decisions; and
- j. resolution of conflicting public recreational uses is to include a public consultation process.

4.3 Management Goal

"To conserve the ecological integrity of riverine habitats of the Harrison and Chehalis Rivers"

The Harrison-Chehalis Wildlife Management Area encompasses floodplain shoreline and marsh at the mouths of two tributaries entering the Harrison River, and riverine gravel bars, mud flats and other substrates important to fish.

4.4 Management Objectives

The establishment of the Harrison-Chehalis Wildlife Management Area is consistent with regional and provincial wildlife management objectives.

4.4.1 Harrison-Chehalis WMA Management Objectives

- a. Maintain riverine wildlife through protection of habitat and, where required and possible, through restoration of natural processes, and habitat enhancement.

The conversion of voluntarily abandoned and vacant waterlot leases to WMA tenure and cleanup of the bottom substrates by MELP should be investigated and pursued where necessary and feasible. Maintenance of adequate water depths in the DFO map reserve area will be a priority.

- b. Provide opportunities for the use and enjoyment of wildlife and natural features where this is consistent with the management goal and first objective.

These include, for example, fishing, hunting, and wildlife viewing and interpretation. These activities should be restricted to appropriate locations and be compatible with the overall goal and objectives for maintenance of wildlife populations and habitat. Cooperation with other agencies and non-government organizations is critical to achieving this objective.

- c. Promote awareness education, research and enhancement activities.
- d. Control human activities in the Wildlife Management Area to ensure they are compatible with the overall management goal.

The Harrison-Chehalis WMA contains wildlife resources which are more sensitive to disturbance during the winter months. If visitors attracted to the WMA by spawning salmon or wintering eagles began to impact these resources, control measures could be necessary. Currently, a higher level of visitor use occurs during the summer when it is less likely to have a large impact on wildlife except, perhaps, for herons.

- e. Monitor public uses within the WMA to ensure the overall management goal and management objectives are fulfilled.
- f. Ensure that the public is consulted regarding broad management decisions pertaining to the use of the WMA by the public.

4.4.2 Regional Objectives

Given the high biological values and public interest associated with wetlands, a major regional wildlife management objective for the south coast is to create wildlife management areas on wetlands, particularly of the lower Fraser system. In decreasing order of priority, the habitats of greatest interest are as follows:

- 1) all Fraser River estuarine habitats;
- 2) other estuarine habitats identified as threatened;
- 3) riverine marshlands along the Fraser, Pitt and Harrison Rivers;
- 4) riparian forest;
- 5) major interior wetlands;
- 6) lesser valuable wetlands; and
- 7) privately owned forest lands.

The Harrison-Chehalis WMA encompasses an important riverine marsh habitat of the lower Fraser Valley; therefore, protecting it is a high priority.

4.4.3 Provincial Wildlife Management Objectives (Fish, Wildlife, and Habitat Protection 1991)

- 1) maintain and enhance wildlife and their habitats, and thus ensure an abundant, diverse and self-sustaining wildlife resource throughout British Columbia
- 2) maintain, enhance and promote opportunities to appreciate, study and view wildlife in their habitats
- 3) maintain, enhance and promote recreational opportunities to hunt game species in their habitats
- 4) facilitate commercial uses of wildlife
- 5) protect people and their property from intolerable levels of danger, damage or harassment by wildlife

Aspects of the first three objectives are fulfilled by the Harrison-Chehalis WMA.

4.5 Potential Land/Resource Use Conflict Resolution

Industrial, agricultural, and residential interests coexist in and/or adjacent to the WMA. While these activities may affect fish and wildlife habitat, their prior existence and future right to practice are recognized in this plan. Such uses will be governed by legislation current at any time.

Public recreational uses within the WMA are deemed to be appropriate where they are not in conflict with any laws or statutes or with the goals and objectives of the plan. In the future, however, conflicts *between* recreational user groups may develop or become apparent.

4.5.1 Agricultural Industries

No wildlife management activities are proposed which have the potential to impact agricultural land. Any future proposals which could impact agriculture will be developed only in consultation with the Ministry of Agriculture, Fisheries, and Food and local farmers.

4.5.2 Non Agricultural Industries

The major industrial uses are log storage and handling. This is a historical use of the area and the few remaining leases are critical to the non agricultural industries. To their present extent, these do not appear to have a significant impact on the major ecological features of the WMA. The uses permitted under the conditions of the existing water lot leases are not prejudiced by inclusion within the WMA.

A private golf course adjacent to the WMA should not affect fish and wildlife in the WMA as long as it conforms to its setback requirements and to government standards regarding the use of pesticides and fertilizers.

4.5.3 BC TEL Transmission Lines

BC TEL has a statutory right-of-way (#AA200618) through the WMA across the Harrison River downstream from the Lougheed Highway Bridge. B.C. Tel requires continuing access for inspection, maintenance, repairs, addition of cable, cable or pole replacement/removal, etc. There will be no impact to BC TEL's operations as a result of the WMA.

Any impacts on the WMA associated with possible future BC TEL activities within the statutory right-of-way would be of a temporary nature; grades and substrates, if disturbed would be restored upon completion of cable repair/installation and/or pole and pile replacement to restore the functional capacity of the affected area for fish and wildlife. Any works proposed by BC TEL within the statutory right-of-way and within the Wildlife Management Area would be subject to existing environmental review and approval processes by the appropriate authorities.

Accordingly, existing and new rights-of-way are land uses compatible with the WMA and do not conflict with the objectives of the management plan.

4.5.4 Public Use

Public use of the WMA will be in keeping with the WMA goal and objectives. Activities in contravention of the provincial Wildlife Act or federal Fisheries Act will not be permitted.

Public use regulations (PURs) may be developed for activities which may not cause a direct or obvious disturbance to wildlife or habitat, and are not currently covered by provincial or federal statute. If public use regulations are required, they will be implemented through a consultative process. The process would include a problem analysis and development of a range of options, where applicable. Consultation may involve the FVRD and/or Kent, as appropriate, and any affected private interests or public user groups. The final management decision concerning PURs rests with Fish, Wildlife, and Habitat Protection.

Maurer (1989) identified the hunting and viewing uses to be in potential conflict. Subject to safety and conservation priorities, FWHP will seek to fulfil its mandates to permit both viewing and hunting opportunities within the WMA. Where the need is identified, studies may be done to assess the effects of all recreational activities on wildlife and their habitats.

4.5.5 Land Claims

The designation of the Harrison-Chehalis area as a WMA is not intended to influence or interfere with the outcome of any land claim negotiations which the Chehalis, Scowlitz, or other First Nations may pursue with the provincial government. Neither will it impact upon aboriginal title to the land, nor upon traditional aboriginal uses and practices in the Harrison-Chehalis area. Wildlife Management Area status does, however, reflect the government's belief that the best use for the area encompassing Harrison Bay, the Chehalis River delta, and the Morris Creek delta is as a naturally functioning ecosystem to support internationally significant fish and wildlife resources.

4.5.6 Leased Lands

If in the future such leases are voluntarily abandoned by the lessees, and remain vacant, FWHP may apply for tenure. Granting of such tenure would be at the discretion of Land Administration and would be subject to their normal application review process.

4.5.7 Dykes Bordering the WMA

Any dykes which may border on the WMA will continue to be maintained by the appropriate authorities and their integrity will not be compromised by the presence of the WMA.

Maintenance issues that arise in areas of common jurisdiction will be inspected by the Deputy Inspector of Dykes, the local governing authority, and MELP and a mutually agreeable decision reached.

4.6 Management Prescriptions or Policies

Management of the WMA is concerned with several topics: habitat and wildlife resources; visitor use and wildlife viewing; other on-site resource uses and associated activities; and research.

4.6.1 Habitat Enhancement

The main objective for this area is preservation. However, two potential habitat enhancement opportunities have been identified at this time. The first concerns the possibility of log debris cleanup, which may be beneficial (Maurer, 1989), although it is first necessary to assess the extent and nature of impacts of the log debris in Harrison Bay.

Secondly, a high flow channel¹ (Figure 2B, Map Ref. 15) of the Harrison River, comprising approximately 10 ha, has been identified as requiring periodic regrading to ensure adequate flows for fisheries purposes at all stages of the river. Any habitat restoration or enhancement works at the 20 ha site and/or the 194 ha parcel leased by DFO from TNT will proceed upon mutual agreement between Fish, Wildlife, and Habitat Protection and DFO.

Other enhancement options may be considered as the need or opportunity arises. Any enhancement proposal would be implemented only after careful consideration of its impact, if any, on agricultural, residential, and industrial lands and activities in, or in proximity to, the WMA.

4.6.2 Viewing and Public Access

The establishment of the Harrison-Chehalis WMA may give FWHP the option to pursue some of the wildlife viewing opportunities recommended in the "Harrison River Wildlife Viewing Development Plan" (Maurer 1989).

The only public access to the WMA is via the boat launch at Kilby Provincial Park. Access is sometimes gained by canoeists via the extension of School Road north of the dyke although a barrier to vehicle passage occurs on School Road at the dyke.

¹ Formerly under Section 12 map reserve #2400499, this area was transferred to the WMA as per DFO's letter of 23 October 1997.

Viewing of the bay is possible from the dyke on the south side of the Harrison River, east and west of the Lougheed Highway crossing, but several private properties occur between the shoreline and the dyke. The dyke, which is leased to adjacent land owners, is in the jurisdiction of the District of Kent and does not form part of the WMA. Currently, public use of the dykes is not viewed favourably by the lessees. Approval of any future application for recreational dyke use lies entirely within the District of Kent's jurisdiction; however, any such use may be a breach of the lease agreements.

4.6.3 Mining

To protect the WMA from future gravel or mineral extractions, MELP will seek to extend the existing placer and staking reserve on the Chehalis delta to include the whole WMA.

4.6.4 Research and Monitoring

Opportunities exist for education and research related to riverine habitats and wildlife. To date, no such studies have been conducted here. Apart from salmon and bald eagles, no wildlife species have been inventory in the WMA. Basic wildlife and habitat inventories need to be undertaken and periodically updated.

5.0 LEGAL ARRANGEMENTS

The management of the Harrison-Chehalis WMA is shared jointly with other agencies, as follows:

- all proposed activities and developments which could impact on fish habitat must be reviewed and approved by the federal Department of Fisheries and Oceans (DFO);
- the Canada-British Columbia Wildlife Agreement (1989) makes provision for both Environment Canada and MELP to be informed of, and to provide input into, all habitat management projects under the jurisdiction of the other party;
- water lot leases in the WMA will continue to be administered by Land Administration;
- mineral claims supersede land title rights, but any proposed future mining activity on existing claims within the WMA would require review and approval by DFO.
- MELP will include in the WMA land TNT has leased to DFO.

6.0 PROVISIONS FOR REVIEW

The management plan will be reviewed and amended as required every five years, or at the discretion of the Regional Director of Environment, or based on considerations deemed to be important to both Environment and Lands as defined in the protocol agreement between them.

7.0 SUMMARY

The Harrison-Chehalis Wildlife Management Area encompasses approximately 1,200 ha of crown riverine areas plus 194 ha owned by TNT. Habitats include water and bottom substrates such as mud, sand and gravel. Encumbrances on this area consist of about 11 ha contained mostly in district water lots with leases for log handling and storage. Another 50 ha of government reserves are incorporated into the WMA.

The Harrison-Chehalis WMA encompasses significant areas of riverine habitat important to migrating and spawning salmonids, rearing sturgeon, breeding and wintering great blue herons, wintering swans, wintering bald eagles and other wildlife. Fisheries and Oceans Canada has several interests in the area, including a Section 12 map reserve on the Harrison River, conservation activities on private property in Harrison Bay, the leasing of the Nature Trust property on the Chehalis delta, and the establishment of hatcheries on two of the tributaries entering the WMA. The wildlife use of the site is largely dependent on its fish resources.

Recreational activities practised at the Harrison-Chehalis WMA include nature study, angling and hunting. The recreational values are recognized by the existence of a UREP Parks reserve on the Chehalis estuary and by the presence of the adjacent Kilby Provincial Park.

The purpose of this plan is to conserve the ecological integrity of the Harrison-Chehalis complex. The plan would afford FWHP of the Ministry of Environment, Lands, and Parks, the opportunity to manage proactively the fish and wildlife resources sustained within the Harrison-Chehalis Wildlife Management Area.

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Appendix A. Legal Descriptions and Land Tenure for the Harrison-Chehalis WMA and Adjacent Properties.

| Map Code Fig. 2 | Legal Description | Owner | Agency | Purpose | Area (ha) | Part of WMA |
|-----------------|--|--|---------------------|---|-----------|-------------|
| 1 | DL 542 Gp 1 Except: part shown on Hwy P1 67884, WND | Pretty Estates Ltd. Fort Langley | private | golf course | | |
| 2 | Lot LMP 6921, LMP 23880, LMP 69458 | Crown Provincial | Land Administration | covenant plan: everything east of natural boundary on P1 69456 returned to crown. | | |
| 3 | Lot 4 S 35 TP 3 R 30 W6M NWD P1 69456 | 505088 B.C. Ltd. Surrey, B.C. | private | | | |
| 4 | L 3 Sec 35 Tp 3 R 30 W6M NWD P1 69456 | Twin Lion Developments Ltd. White Rock | private | | | |
| 5 | Strata P1 LMS 648, Sec 35 Tp 3 R 30 W6M NWD P1 85959 | Twin Lion Developments Ltd. White Rock | private | Strata title development (condominiums) | | |
| 6 | S ½ Fr LS 4 Sec 2 Tp 4 R 30 W6M as shown on the plan of the SE ¼ of said Tp dated at Ottawa 29th Nov, 1909 NWD | Katherine Martin West Vancouver | private | | | |
| 7 | S ½ Fr LS 3 Sec 2 Tp 4 R 30 W6M as shown on the plan of the SE ¼ of said Tp dated at Ottawa 29 Nov, 1909 NWD | | private | | | |
| 8 | N 1/2 Fr LS 4 Sec 2 Tp 4 R 30 S6M as shown on plan of the SE ¼ of said Tp Dated at Ottawa 29th Nov, 1909 NWD | | private | | | |

| Map Code Fig. 2 | Legal Description | Owner | Agency | Purpose | Area (ha) | Part of WMA |
|-----------------|---|---|--|---|-----------|-------------|
| 9 | L 1 Sec 2 & 11 Tp 4 r 30 W6M NWD PI 59745 | The Nature Trust | Dep. of Fisheries and Oceans | lease for conservation (99 year lease beginning 1981) | | Y |
| 10 | Sec. 11 UREP/Rec Reserve (OIC) | Crown Provincial | Land Administration | Use Recreation and Enjoyment of the Public File 0224938 | 29.54 ha | Y |
| 11 | I.R. 5 | Gov. of Canada | Chehalis Band | Residential | | |
| 12 | Notation of interest: All unalienated and unencumbered crown land bordering Harrison River and Harrison Bay. | Crown Provincial | B.C. Parks | Park research reserve File 0326381 | | |
| 13 | Fr LS 12 Sec 8 Tp 4 R 29 W6M NWD | AJV Holdings Ltd. Abbotsford, B.C. | private | | | |
| 14 | I.R. 6 | Gov. of Canada | Chehalis Band | | | |
| 15 | Sec. 12 FWLD Map Reserve relinquished in favour of this Sec 17 | Crown Provincial | Federal Department of Fisheries and Oceans | Channel maintenance for fish use | 20 ha | Y |
| 16 | All that portion of the N ½ Sec 36 lying to the E of the left bank of the Harrison River Tp 3 R 30 W6M NWD | Ross-Shayne Investment Corp. Maple Ridge, B.C. | private | | | |
| 17 | Frac W ½ LS 6 Sec 36 Tp 3 R 30 W6M WND | David J. Huntley Burnaby, B.C. | private | | | |
| 18 | Frac LS 5 Sec 36 Tp 3 R 30 W6M NWD | | private | | | |

| Map Code Fig. 2 | Legal Description | Owner | Agency | Purpose | Area (ha) | Part of WMA |
|-----------------|--|--|--|--------------------------------|-----------|-------------|
| 19 | Frac W 1/2 LS 3 Sec 36 Tp 3 R 30 W6M WND | John F. Henwood Jacqueline Henwood Burnaby, B.C. | private | | | |
| 20 | Frac LS 4 Sec 36 Tp 3 R 30 W6M NWD | Harrison Bay Dairy Farm Ltd. Chilliwack | private | | | |
| 21 | Part LS 13 Sec 25 Tp 3 R 30 W6M lying S of the left bank of the Harrison River NWD | Trass Nursery Ltd Langley | private | | | |
| 22 | That portion of LS 16 of Sec 26 which lies to the E of the right bank of the Bateson Slough and to the S of the left bank of the Harrison R. Tp 3 R 30 W6M NWD | Harrison Bay Dairy Farms Ltd. Chilliwack | private | | | |
| 23 | Pcl E (SK53043F) Sec 26 Tp 3 R 30 W6M Except: parts of Legal Subdivisions shown on Statutory R/W Pl 13840 NWD | Crown Provincial | Rivtow Marine Lim'td | Log handling and storage lease | 2.052 ha | |
| 24 | L 6601 Gp 1 | Rivtow Straits Lim'td Vancouver | private | | | |
| 25 | Pcl "C" (Ref Pl 14219) of the Fr W1/2 and of the Fr NE1/4 Sec 26 Tp 3 R 30 W6M NWD | Corporation of the District of Kent | Corporation of the District of Kent | | | |
| 26 | Pcl A (Ref Pl 6639) of Pcl G NW 1/4 Sec 36 Tp 3 R 30 W6M NWD | Ross-Shayne Investment Corp. Maple Ridge | private | | | |
| 27 | Pcl 1 (Ref Pl 12969) Fr NW1/4 Sec 26 Tp 3 R 30 W6M NWD | | | | | |

| Map Code Fig. 2 | Legal Description | Owner | Agency | Purpose | Area (ha) | Part of WMA |
|-----------------|--|---|---|--------------------------------|-----------|-------------|
| 28 | L 1 Sec 26 & 27 Tp 3 R 30 W6M NWD P1 22952 | Canadian Forest Products Ltd Vancouver | private | | | |
| 29 | L 6971 Gp 1 | Crown Provincial | Canadian Forest Products | Log handling and storage lease | 4.573 ha | Y |
| 30 | L 2 of Sec 26 & 27 Tp 3 R 30 W6M NWD P1 22952 and L 3 Sec 22 Tp 3 R 30 W6M NWD P1 22952 | Crown Provincial | Parks Branch | Provincial Park | | |
| 31 | Portion of the NW 1/4 of Sec 22 Tp 3 R 30 W6M lying to the S of the S shore of Harrison Bay and Harrison River except: part statutory right-of-way Plan 2815 NWD | Steven L. Kerfoot Keith C. Kerfoot Abbotsford, B.C. | private | | | |
| 32 | Plan 2815 and Plan 2866 | C.P. Railway Vancouver, B.C. | private | Rail road | | |
| 33 | LR. 3 (Squawkum Cr.) | Gov. of Canada | Scowlitz Band | Residential | | |
| 34 | Lougheed Hwy R/W | Crown Provincial | Min of Transp & Highways | Highway 7 | | |
| 35 | L 6662 Gp 1 | Crown Provincial | Canadian Forest Products Vancouver, B.C. | Log handling and storage lease | 4.25 ha | Y |

| Map Code Fig 2 | Legal Description | Owner | Agency | Purpose | Area (ha) | Part of WMA |
|----------------|---|---|--|--------------------------------|-----------|-------------|
| 36 | That portion of the NE 1/4 Sec 27 Tp 3 R 30 W6M lying N of the Harrison River except: Firstly: Pcl C (Ref Pl 3605) Secondly: Pt on Hwy Pl 24394 Thirdly: Pt in Pl LMP 14861, NWD | Pretty Estates Ltd. Fort Langley, B.C. | private | | | |
| 37 | Lot 1 Sec 27 tp 3 R 30 W6M NWD Pl 19385 | Canadian Forest Products Ltd., Vancouver, B.C. | private | | | |
| 38 | Blks A L 6151 Gp 1 | Crown Provincial | Canadian Forest Products Ltd. Vancouver, B.C. | Log storage and handling lease | 15.36 | |
| 39 | L 4890 Gp 1 | | | Log storage and handling lease | 3.118 | |
| 40 | L 6297 Gp 1 Stat. RW Pl 74875 | Crown Provincial | B.C. Tel Vancouver, B.C. | Statutory Right-of-way | 0.26 | Y |
| 41 | L 3 Sec 27 Tp 3 R 30 W6M NWD Pl 19385 | Vera O. Pretty Harrison Mills, B.C. | private | | | |
| 42 | That portion of the NW 1/4 Sec 26 Tp 3 R 30 W6M lying N of Harrison River except: part shown red on Pl 24394 (road), WND | Pretty Estates Ltd. Fort Langley, B.C. | private | | | |
| 43 | DL 6447 | Crown Provincial | Land Administration | Vacant | | Y |
| 44 | DL 451 | Crown Provincial | Land Administration | Vacant | | Y |
| 45 | DL 6335 | Crown Provincial | Land Administration | Vacant | | Y |
| 46 | Pcl 'H' (Pl with fee deposited 54300F) Sec 26 Tp 3 R 30 W6M Except: Pt on Pl 13840, NWD | Lorne M. Hansen Joanna M. Hansen Harrison Mills, B.C. | Private | | | |

HARRISON-CHEHALIS WILDLIFE MANAGEMENT AREA

MANAGEMENT PLAN

Appendix B. Vertebrates of the Harrison-Chehalis Wildlife Management Area.

LEGEND

Species occurrence

- ✓ expected to occur annually (migratory birds) or to be resident
- c confirmed¹--has been recorded but either not expected annually (migratory birds) or present status unknown
- ✓c expected to occur annually (migratory birds) or to be resident, and confirmed¹
- p possible--evidence inconclusive or reported but unconfirmed or investigation required, therefore status uncertain

Unlisted species are not expected, although the occasional occurrence of other species is likely.

* The Harrison-Chehalis WMA is within species breeding range (migratory birds)

[] Indicates aerial foraging only

B Blue listed (if applicable for the subspecies and region)

R Red listed (if applicable for the subspecies and region)

¹ Observations from Benn et al. (1977), Mauer (1979), TNT files (undated), K. Summers

| SPECIES | Occurrence | | Occurrence |
|--|------------|---|------------|
| <u>CLASS AMPHIBIA: Amphibians</u> | | | |
| <u>ORDER CAUDATA: Salamanders</u> | | | |
| Rough-skinned Newt (<i>Taricha granulosa</i>) | p | | |
| Northwestern Salamander (<i>Ambystoma gracile</i>) | p | | |
| Long-toed Salamander (<i>A. macrodactylum</i>) | p | | |
| <u>ORDER ANURA: Frogs and Toads</u> | | | |
| Western Toad. (<i>Bufo boreas</i>) | ✓ | | |
| Pacific Treefrog (<i>Hyla regilla</i>) | ✓c | | |
| Red-legged Frog (<i>Rana aurora</i>) | ✓ | | |
| <u>ORDER SQUAMATA: Lizards and Snakes</u> | | | |
| Western Garter Snake (<i>Thamnophis elegans</i>) | ✓ | | |
| Common Garter Snake (<i>Thamnophis sirtalis</i>) | ✓ | | |
| <u>CLASS AVES: Birds</u> | | | |
| <u>ORDER GAVIIFORMES: Loons</u> | | | |
| <u>FAMILY GAVIIDAE: Loons</u> | | | |
| Common Loon (<i>Gavia immer</i>) | ✓c | | |
| <u>ORDER PODICIPEDIFORMES: Grebes</u> | | | |
| <u>FAMILY PODICIPEDIDAE: Grebes</u> | | | |
| Pied-billed Grebe (<i>Podilymbus podiceps</i>) | ✓c | | |
| Red-necked Grebe (<i>Podiceps grisegena</i>) | ✓c | | |
| Western Grebe (<i>Aechmophorus occidentalis</i>) | ✓c | | |
| | | <u>ORDER CICONIIFORMES: Bitterns, Herons, Egrets, Ibises and Storks</u> | |
| | | <u>FAMILY ARDEIDAE: Bitterns, Herons and Egrets</u> | |
| | | Great Blue Heron (<i>Ardea herodias</i>) | ✓c |
| | | <u>ORDER ANSERIFORMES: Swans, Geese and Ducks</u> | |
| | | <u>FAMILY ANATIDAE: Swans, Geese and Ducks</u> | |
| | | Trumpeter Swan (<i>Cygnus buccinator</i>) | ✓c |
| | | Canada Goose (<i>Branta canadensis</i>) | ✓c |
| | | Wood Duck (<i>Aix sponsa</i>) | ✓c |
| | | Green-winged Teal (<i>Anas crecca</i>) | ✓c |
| | | Mallard (<i>Anas platyrhynchos</i>) | ✓c |
| | | Northern Pintail (<i>Anas acuta</i>) | ✓c |
| | | Blue-winged Teal (<i>Anas discors</i>) | ✓c |
| | | Cinnamon Teal (<i>Anas cyanoptera</i>) | ✓ |
| | | Northern Shoveler (<i>Anas clypeata</i>) | ✓ |
| | | American Wigeon (<i>Anas americana</i>) | ✓c |
| | | Canvasback (<i>Aythya vallisneria</i>) | ✓c |
| | | Ring-necked Duck (<i>Aythya collaris</i>) | ✓ |
| | | Greater Scaup (<i>Aythya marila</i>) | ✓c |
| | | Lesser Scaup (<i>Aythya affinis</i>) | ✓c |

| SPECIES | Occurrence | |
|--|------------|--|
| Common Goldeneye (<i>Bucephala clangula</i>) | ✓ | ORDER APODIFORMES: Swifts and Hummingbirds FAMILY APODIDAE: Swifts Black Swift (<i>Cypseloides niger</i>) ✓ Vaux's Swift (<i>Chaetura vauxi</i>) ✓ |
| Barrow's Goldeneye (<i>Bucephala islandica</i>) | ✓ | |
| Bufflehead (<i>Bucephala albeola</i>) | ✓ | |
| Hooded Merganser (<i>Lophodytes cucullatus</i>) | ✓ | |
| Common Merganser (<i>Mergus merganser</i>) | ✓ | |
| Red-breasted Merganser (<i>Mergus serrator</i>) | ✓ | |
| ORDER FALCONIFORMES: Diurnal Birds of Prey | | |
| FAMILY ACCIPITRIDAE: Osprey, Eagles and Hawks | | |
| Osprey (<i>Pandion hallaetus</i>) | ✓ | |
| Bald Eagle (<i>Haliaeetus leucocephalus</i>) | ✓ | |
| Northern Harrier (<i>Circus cyaneus</i>) | ✓ | ORDER CORACIIFORMES: Kingfisher FAMILY ALCEDINIDAE: Kingfishers Belted Kingfisher (<i>Ceryle alcyon</i>) ✓ |
| Sharp-shinned Hawk (<i>Accipiter striatus</i>) | ✓ | |
| Cooper's Hawk (<i>Accipiter cooperii</i>) | ✓ | |
| Northern Goshawk (<i>Accipiter gentilis</i>) | ✓ | |
| FAMILY FALCONIDAE: Falcons | | |
| Merlin (<i>Falco columbianus</i>) | ✓ | |
| ORDER GRUIFORMES: Cranes, Rails and Allies | | |
| FAMILY RALLIDAE: Rails, Gallinules and Coots | | |
| American Coot (<i>Fulcia americana</i>) | ✓ | |
| ORDER CHARADRIIFORMES: Shorebirds, Gulls, Auks and Allies | | |
| FAMILY CHARADRIIDAE: Plovers | | |
| Killdeer (<i>Charadrius vociferus</i>) | ✓ | |
| FAMILY SCOLOPACIDAE: Sandpipers, Phalaropes and Allies | | |
| Greater Yellowlegs (<i>Tringa melanoleuca</i>) | ✓ | |
| Lesser Yellowlegs (<i>Tringa flavipes</i>) | ✓ | |
| Solitary Sandpiper (<i>Tringa solitaria</i>) | ✓ | |
| Spotted Sandpiper (<i>Actitis macularia</i>) | ✓ | |
| Semipalmated Sandpiper (<i>Calidris pusilla</i>) | ✓ | |
| Western Sandpiper (<i>Calidris mauri</i>) | ✓ | |
| Least Sandpiper (<i>Calidris minutilla</i>) | ✓ | FAMILY HIRUNDINIDAE: Swallows Tree Swallow (<i>Tachycineta bicolor</i>) ✓ Violet-green Swallow (<i>T. thalassina</i>) ✓ Northern Rough-winged Swallow (<i>Stelgidopteryx serripennis</i>) ✓ Bank Swallow (<i>Riparia riparia</i>) ✓ Cliff Swallow (<i>Hirundo pyrrhonota</i>) ✓ Barn Swallow (<i>Hirundo rustica</i>) ✓ |
| Pectoral Sandpiper (<i>Calidris melanotos</i>) | ✓ | |
| Short-billed Dowitcher (<i>Limnodromus griseus</i>) | ✓ | |
| Long-billed Dowitcher (<i>Limnodromus scolopaceus</i>) | ✓ | |
| Common Snipe (<i>Gallinago gallinago</i>) | ✓ | |
| FAMILY LARIDAE: Jaegers, Skua, Gulls and Terns | | |
| Bonaparte's Gull (<i>Larus philadelphia</i>) | ✓ | |
| Mew Gull (<i>Larus canus</i>) | ✓ | |
| Ring-billed Gull (<i>Larus delawarensis</i>) | ✓ | |
| Herring Gull (<i>Larus argentatus</i>) | ✓ | |
| Glaucous-winged Gull (<i>Larus glaucescens</i>) | ✓ | |
| | | FAMILY CORVIDAE: Jays, Magpies and Crows Steller's Jay (<i>Cyanocitta cristata</i>) ✓ Northwestern Crow (<i>Corvus caurinus</i>) ✓ Common Raven (<i>Corvus corax</i>) ✓ |
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| | | FAMILY PARIDAE: Titmice Black-capped Chickadee (<i>Poecile atricapillus</i>) ✓ Chestnut-backed Chickadee (<i>Poecile rufescens</i>) ✓ |
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| | | FAMILY AEGITHALIDAE: Bushtits Bushtit (<i>Psaltriparus minimus</i>) ✓ |
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| | | FAMILY SITTIDAE: Nuthatches Red-breasted nuthatch (<i>Sitta canadensis</i>) ✓ |
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| | | FAMILY TROGLODYTIDAE: Wrens Bewick's Wren (<i>Thryomanes bewickii</i>) ✓ Marsh Wren (<i>Cistothorus palustris</i>) ✓ |
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| | | FAMILY CINCLIDAE: Dippers American Dipper (<i>Cinclus mexicanus</i>) ✓ |
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| | | FAMILY MUSCICAPIDAE: Kinglets, Bluebirds, Thrushes and Allies Swainson's Thrush (<i>Catharus ustulatus</i>) ✓ American Robin (<i>Turdus migratorius</i>) ✓ Varied Thrush (<i>Ixoreus naevius</i>) ✓ |
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| SPECIES | Occurrence | | |
|--|----------------------------|--|--|
| FAMILY MOTACILLIDAE: Wagtails and Pipits American Pipit (<i>Anthus rubescens</i>) | ✓ | | |
| FAMILY BOMBYCILLIDAE: Waxwings Cedar Waxwing (<i>Bombycilla cedrorum</i>) | ✓ | | |
| FAMILY STURNIDAE: Starlings European Starling (<i>Sturnus vulgaris</i>) Crested Myna (<i>Acridotheres cristatellus</i>) | ✓ ✓ ✓ | | |
| FAMILY EMBERIZIDAE: Wood-Warblers, Sparrows, Blackbirds and Allies Orange-crowned Warbler (<i>Vermivora celata</i>) Yellow Warbler (<i>Dendroica petechia</i>) Yellow-rumped Warbler (<i>Dendroica coronata</i>) Common Yellowthroat (<i>Geothlypis trichas</i>) | ✓ ✓ ✓ ✓ ✓ | | |
| Spotted Towhee (<i>Pipilo maculatus</i>) Fox Sparrow (<i>Passerella iliaca</i>) Song Sparrow (<i>Melospiza melodia</i>) White-crowned Sparrow (<i>Z. leucophrys</i>) Dark-eyed Junco (<i>Junco hyemalis</i>) | ✓ ✓ ✓ ✓ ✓ | | |
| Red-winged Blackbird (<i>Agelaius phoeniceus</i>) Brewer's Blackbird (<i>Euphagus cyanocephalus</i>) Brown-headed Cowbird (<i>Molothrus ater</i>) | ✓ ✓ ✓ | | |
| FAMILY FRINGILLIDAE: Finches Purple Finch (<i>Carpodacus purpureus</i>) Pine Siskin (<i>Carduelis pinus</i>) American Goldfinch (<i>Carduelis tristis</i>) | ✓ ✓ ✓ | | |
| CLASS MAMMALIA: Mammals | | | |
| ORDER INSECTIVORA: Insectivores | | | |
| FAMILY SORICIDAE: Shrews Pacific Water Shrew (<i>Sorex bendirii</i>) Common Shrew (<i>Sorex cinereus</i>) Dusky Shrew (<i>Sorex monticolus</i>) Vagrant Shrew (<i>Sorex vagrans</i>) | ✓ ✓ ✓ ✓ | | |
| ORDER CHIROPTERA: Bats | | | |
| FAMILY VESPERTILIONIDAE: Vesperilionid Bats [Big Brown Bat (<i>Eptesicus fuscus</i>) [Silver-haired Bat (<i>Lasiurus noctivangans</i>) [California Myotis (<i>Myotis californicus</i>) [Little Brown Myotis (<i>Myotis lucifugus</i>) [Long-legged Myotis (<i>Myotis volans</i>) [Yuma Myotis (<i>Myotis yumanensis</i>) | ✓ ✓ ✓ ✓ ✓ ✓ | | |
| ORDER RODENTIA: Rodents | | | |
| FAMILY LEPORIDAE: Hares, Rabbits Snowshoe Hare (<i>Lepus americanus</i>) Eastern Cottontail (<i>Sylvilagus floridanus</i>) | ✓ p | | |
| FAMILY ARVICOLIDAE: Voles and Lemmings Southern Red-backed Vole (<i>Clethrionomys gapperi</i>) Long-tailed Vole (<i>Microtus longicaudus</i>) Muskrat (<i>Ondatra zibethicus</i>) | ✓ ✓ ✓ | | |
| FAMILY CASTORIDAE: Beavers Beaver (<i>Castor canadensis</i>) | ✓ | | |
| FAMILY CRICETIDAE: Cricetids Bushy-tailed Woodrat (<i>Neotoma cinerea</i>) Deer Mouse (<i>Peromyscus maniculatus</i>) | ✓ ✓ | | |
| FAMILY SCIURIDAE: Squirrels Northern Flying Squirrel (<i>Glaucomys sabrinus</i>) Yellow-pine Chipmunk (<i>Tamias amoenus</i>) Douglas' Squirrel (<i>Tamiasciurus douglasii</i>) | ✓ ✓ ✓ | | |
| FAMILY ZAPODIDAE: Jumping Mice Pacific Jumping Mouse (<i>Zapus trinotatus</i>) | ✓ | | |
| ORDER CARNIVORA: Carnivores | | | |
| FAMILY CANIDAE: Canids Coyote (<i>Canis latrans</i>) | ✓ | | |
| FAMILY FELIDAE: Cats Cougar (<i>Felis concolor</i>) Bobcat (<i>Lynx rufus</i>) | ✓ ✓ | | |
| FAMILY MUSTELIDAE: Mustelids River Otter (<i>Lontra canadensis</i>) Striped Skunk (<i>Mephitis mephitis</i>) Ermine (<i>Mustela erminea</i>) Long-tailed Weasel (<i>Mustela frenata</i>) Mink (<i>Mustela vison</i>) | ✓ ✓ ✓ ✓ ✓ | | |
| FAMILY PROCYONIDAE: Procyonids Raccoon (<i>Procyon lotor</i>) | ✓ | | |
| FAMILY PHOCIDAE: Hair Seals Harbor Seal (<i>Phoca vitulina</i>) | ✓ | | |
| FAMILY URSIDAE: Bears Black Bear (<i>Ursus americanus</i>) | ✓ | | |
| FAMILY CERVIDAE: Cervids Mule Deer (<i>Odocoileus hemionus</i>) | ✓ | | |

Appendix C. Harrison River Fish Species, escapement and life history timing.

Escapement, 1976 to 1985 (from DFO 1989 IN Maurer 1989)

| Species | Mean | Maximum |
|-----------------|---------|---------|
| Sockeye Salmon* | 10,091 | 45,706 |
| Coho Salmon | 1,544 | 2,500 |
| Pink Salmon | 259,039 | 438,022 |
| Chum Salmon | 148,430 | 295,000 |
| Chinook Salmon | 18,550 | 50,000 |

* Latin names in next table.

Life History Timing (From DFO 1989 and Caverhill 1989 IN Maurer 1989)

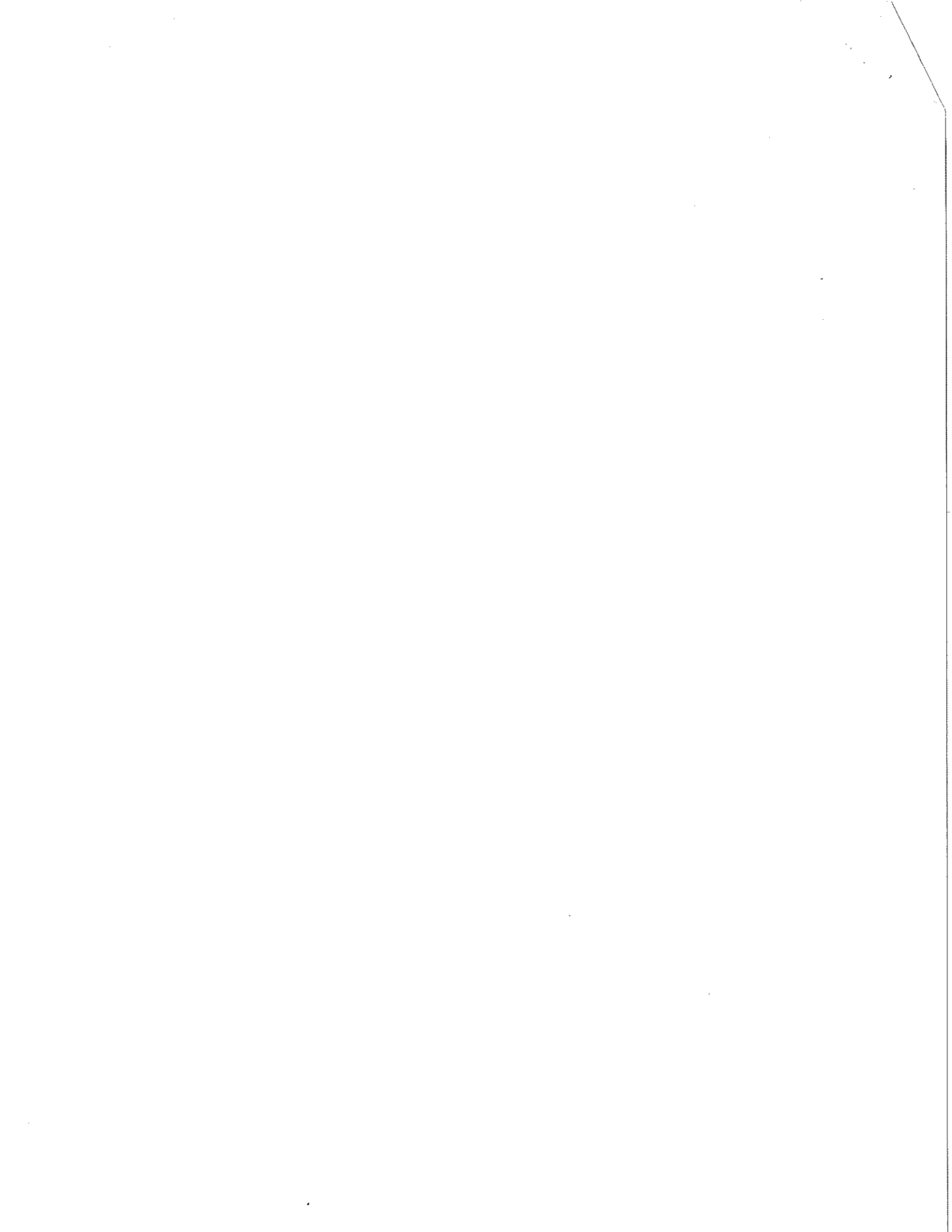
| Species | Activity | J | F | M | A | M | J | J | A | S | O | N | D |
|---|-----------|---|---|---|---|---|---|---|---|---|---|---|---|
| Sockeye Salmon <i>Oncorhynchus nerka</i> | Migrating | | | | | | | | | | ■ | | |
| | Spawning | | | | | | | | | | | ■ | ■ |
| Coho Salmon <i>O. kisutch</i> | Migrating | | | | | | | | | | | ■ | |
| | Spawning | ■ | | | | | | | | | | ■ | ■ |
| Pink Salmon <i>O. gorbuscha</i> | Migrating | | | | | | | | | | ■ | | |
| | Spawning | | | | | | | | | | | ■ | ■ |
| Chum Salmon <i>O. keta</i> | Migrating | | | | | | | | | | | ■ | |
| | Spawning | ■ | | | | | | | | | | ■ | ■ |
| Chinook Salmon <i>O. tshawytscha</i> | Migrating | | | | | | | | | | | ■ | |
| | Spawning | | | | | | | | | | | ■ | ■ |
| Steelhead* summer J-A winter M-J | Migrating | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | |
| | Spawning | | | | | | | | | | | | |
| Cutthroat Trout <i>Salmo clarki</i> | Migrating | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Spawning | | | | | | | | | | | | |
| Bull/Dolly Varden Char ** | Migrating | | | | | | | | | ■ | ■ | ■ | ■ |
| | Spawning | | | | | | | | | | | | |

* *Salmo gairdneri*

** *Salvelinus confluentus/malma*

Appendix D. Acronyms

| | |
|------|---|
| CLI | Canada Land Inventory |
| CWS | Canadian Wildlife Service |
| DFO | Fisheries and Oceans Canada |
| FWHP | Fish, Wildlife, and Habitat Management (branch of MELP) |
| FVRD | Fraser Valley Regional District |
| GVRD | Greater Vancouver Regional District |
| MELP | Ministry of Environment, Lands, and Parks |
| NWPA | Navigable Waters Protection Act |
| OIC | Order-in-Council |
| TNT | The Nature Trust of B.C. |
| UREP | Use, Recreation, and Enjoyment of the Public |
| WMA | Wildlife Management Area |





SCHEDULE "A"

Ministry of
Environment,
Lands and Parks

Environment and Lands
Lower Mainland Region

MEMORANDUM

To: Alec Drysdale, Land Officer
B.C. Assets and Land Corporation

Date: August 5, 1999


File: 39580-20/FWH-SERP;
HACH;MAGI & PVWL99

Re: Addendum re "Future Land Uses within the Wildlife Management Area"

This will confirm our earlier discussion that the attached addendum will be included with the body of the final management plan for each of the following proposed Wildlife Management Areas:

- Serpentine
- Pemberton Valley Wetlands
- Harrison-Chehalis
- McGillvary Slough

If you have any further questions concerning this matter please do not hesitate to contact me at 582-5223.


Tony Barnard, RPBio.
Wildlife Biologist
Land Management

Attachment

TB/

cc: Karen Wipond, Assistant Habitat Planner, Wildlife Branch, Victoria

The following text is to be added as an amendment to the four Wildlife Management Area Management Plans (McGillivray Slough, Harrison/Chehalis, Pemberton Valley and Serpentine River):

Future Land Uses within the Wildlife Management Area

The Wildlife Management Area (WMA) designation gives priority to wildlife but does not necessarily exclude other future land uses. The Crown land within the WMA may be managed for integrated resource use, provided that the management goal and objectives of the current WMA Management Plan are adhered to.

The WMA designation confers certain powers under the *Wildlife Act* to the Minister of Environment, Lands and Parks and to the Regional Manager of Fish, Wildlife and Habitat Protection (FWHP), but it does not imply complete jurisdiction. Other provincial and federal Acts, such as the *Land Act* and the *Navigable Waters Protection Act* will also apply and may affect future activities within the WMA.

Land use rights existing within the WMA at the time of its establishment will continue, in accordance with Section 4(3) of the *Wildlife Act*. For example, rights granted under the *Land Act* for rights of way, licenses, and Section 16 map reserves will still be in effect. The BC Assets and Land Corporation (BCAL) will continue to administer these instruments. Existing tenures and reserves within the WMA may be replaced by BCAL without a referral to FWHP, provided that there is no change in use of the land and FWHP has not expressed any concerns with continuation of the specific land use.

New proposals for use of Crown land within the WMA will require the consent of the Regional Manager of FWHP. A proposal for use of Crown land within the WMA that would normally be considered under the *Land Act* will follow the standard application process to BCAL. BCAL will then refer the application to the Regional Manager of FWHP for review and response. FWHP will consider whether the proposed land use is consistent with the goal and objectives of the WMA Management Plan and respond in a timely manner. The consent of the Regional Manager will not be unreasonably withheld if the proposal is in the overall public interest and potential impacts on habitat values are consistent with the goal and objectives of the WMA Management Plan.¹ Substantive amendments to the WMA Management Plan can only be undertaken in consultation with BCAL and other relevant agencies and stakeholders.

FWHP may enter into agreements and authorize activities within a WMA for the purposes of fish and wildlife habitat management

The following will be added to McGillivray Slough WMA Plan:

¹ If disagreements arise regarding consistency with the WMA Management plan, the general dispute resolution procedure outlined in the Crown Land for Environmental Management protocol agreement will be followed.

The McGillivray Slough WMA Management Plan and its objectives will be subject to the implemented recommendations of the Fraser River Flood Control Study undertaken by the District of Chilliwack and partners (in progress at the time this plan was written).

