Wetlands of the Fraser Lowland, 1989: An Inventory

Peggy Ward

Kathleen Moore
GIS Applications

Ron Kistritz
Environmental Consultant

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ABSTRACT

The remaining wetlands of the Fraser Lowland provide vital habitat for large numbers of fish and wildlife. This report identifies 398 wetland units and answers the following questions: Where are the remaining wetlands? What size are they? What wetland classes do they represent? What state are they in? The wetland units were classified according to the Canadian Wetland Classification System. The inventory shows that there are 41,906 hectares of wetland left in the study area, representing 13.6% of the total area. Nearly two-thirds (64.4%) of the total wetland area is accounted for by the 'shallow water' wetland class, most of which is comprised of large tidal flats at the mouth of the Fraser River and in Boundary Bay. The other third includes 14.6% marsh, 7.5% gravel bar, 5.7% fen, 4.5% bog and 3.4% swamp. About 72% of the wetland area in the Fraser Lowland was given the highest of a three-level rating system, ie. 'undisturbed'. Excluding the tidal flat category ('shallow water' wetland class), 60% of the remaining wetland area has the highest rating. The maps and wetland measurements were generated by the SPANS Geographic Information System (GIS) as a pilot application of this technology; the use of the methodology is discussed. The inventory data is also provided as a dBase III file on a computer diskette.

RÉSUMÉ

Dans les basses terres du Fraser, ce qui reste de terres humides constitue un habitat essentiel à la survie d'un très grand nombre de poissons et d'animaux sauvages. Ce rapport fait état de 398 terres humides et apporte la réponse aux questions suivantes: où se trouvent les terres humides qui existent encore? Quelle est leur superficie? De quels types de terres humides s'agit-il? Dans quel état sont-elles? Les terres humides inventoriées ont été classées suivant le système de classification des terres humides du Canada. D'après l'inventaire, la superficie des terres humides est de 41 906 hectares dans la région étudiée, ce qui représente presque 13.6% de la superficie totale. Près des deux tiers (64,4%) des terres humides appartiennent à la catégorie des terres humides «peu profondes»; il s'agit principalement des grandes battures situées à l'embouchure du fleuve Fraser et dans la baie Boundary. Le dernier tiers se compose de marais (14,6 %), de barres de gravier (7,5 %), de tourbières minérotrophes (5,7 %), de tourbières oligotrophes (4,5 %) et de marécages (3,4 %). Environ 73 % de la superficie des terres humides situées dans les basses terres du Fraser ont été classées «non perturbées», la classe la plus élevée d'une classification à trois niveaux. A l'exception de la catégorie des battures (terres humides de la classe des «eaux peu profondes»), 60 % des autres terres humides ont été classées dans la catégorie la plus élevée. On traite également des cartes et des mesures obtenues sur les terres humides au moyen du système d'information géographique (SIG) SPANS ainsi que de la méthodologie utilisée. Les données de l'inventaire sont présentées sur disquette dans un fichier DBASE 3.

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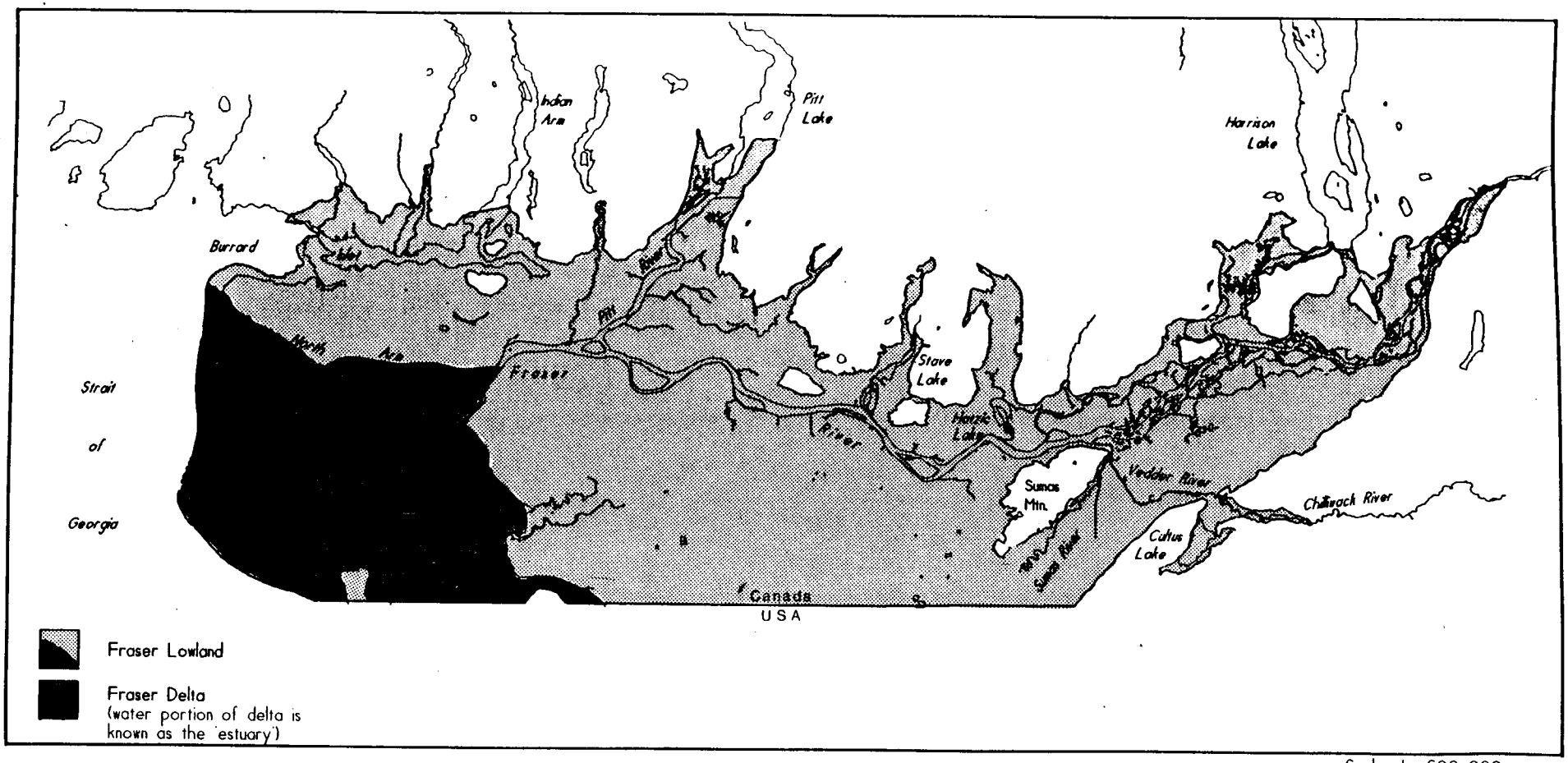


Fig. 1 Fraser Lowland

WETLANDS OF THE FRASER LOWLAND, 1989
An Inventory

INTRODUCTION

Extensive wetlands existed throughout the Fraser Lowland for thousands of years, providing valuable habitat for large numbers of fish and wildlife. The area remains an internationally important stopover for hundreds of thousands of migratory birds on the Pacific Flyway, while the Fraser River itself is the largest single salmon-producing stream in the world.

However, since European settlement began about 150 years ago, thousands of hectares of these vital wetlands have been destroyed, due to large-scale dyking, draining and filling for urban and agricultural development. Over half of the population of British Columbia currently lives here, and the area's attractive climate, landscape and economy is expected to continue to attract large numbers of people. In fact, the Lower Mainland has one of the fastest growth rates in the country, resulting in many conflicting demands for the use of the remaining wetlands.

The remaining pockets of valuable wetland identified in this inventory must be recognized and protected if they are to continue to support the valuable fish and wildlife resources of the region.

This report presents a regional picture of wetlands against which an individual wetland may be measured. If site-specific assessments are required, detailed surveys must be undertaken. Specifically, the report answers the following questions:

Where are the remaining wetlands in the Fraser Lowland?
What size are they?
What wetland classes do they represent?
What state are they in?

STUDY AREA

The Fraser Lowland is located in the southwestern corner of mainland British Columbia and northwestern Washington State. It is triangular shaped, with its apex near Hope in the east, where the river exits from the Coast Mountain Range, and its base in the Strait of Georgia to the west (Fig.1). The base of the triangle extends from Burrard Inlet in the north to Bellingham Bay in the south. The Fraser River flows through this area of gently rolling upland and extensive floodplain, and at its mouth forms the largest delta (678 sq. km.) on the Pacific coast of Canada.

This report deals only with the Canadian portion of the Fraser Lowland; it measures 3092 square kilometres and accounts for approximately two-thirds of the total lowland area. The study area corresponds to the Fraser Lowland Ecosection, a subdivision of the Lower Mainland Ecoregion as identified by Demarchi (1988). It is also defined as that area below 150 meters in elevation, which is considered to be roughly the area of maximum marine overlap before the land rebounded after the last glaciation. The seaward boundary for this study is 10 meters below the lowest normal tide level.

METHODS

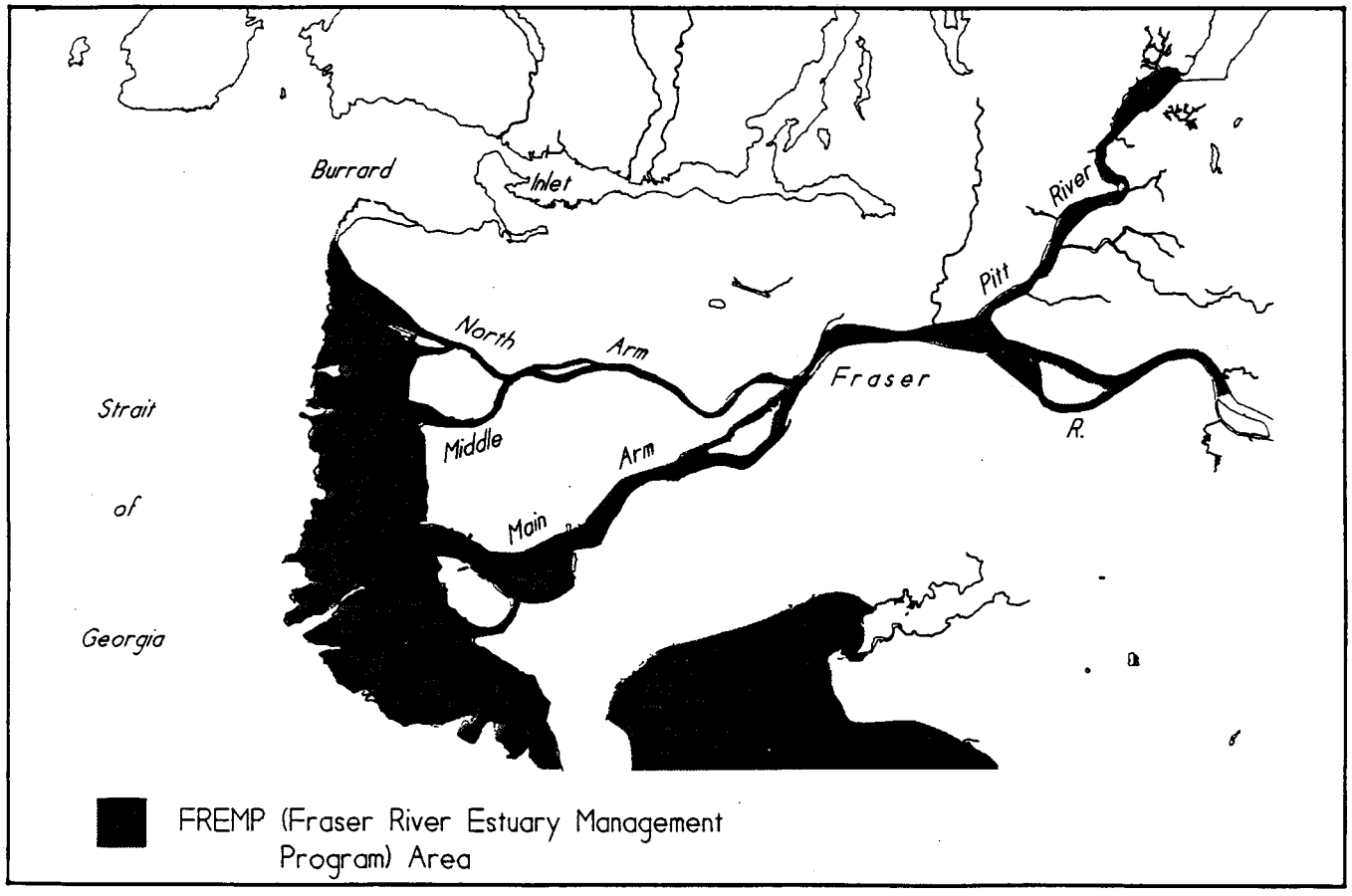
Wetland Identification

Initially a bibliographic search was conducted to locate wetlands in the Fraser Lowland and preliminary maps, at 1:50 000, were prepared. Analysis at this stage indicated that more detailed information was necessary. Since separate detailed habitat inventories of the Fraser River Estuary Management Program (FREMP)[1] area were under way (see Fig. 2), it was decided to conduct a complementary inventory outside the FREMP area. The results of this CWS inventory and the FREMP inventories have been amalgamated in a dBase IV database file for the purpose of this report; this file was converted to dBase III for distribution purposes and is provided on the diskette at the back of the report. Altogether 398 wetland units are described.

Air photo interpretation was used to identify wetlands for the CWS inventory. For most of the area, large scale (1:12 000) colour air photos, taken at low water in September 1986, were available. Areas not covered by these photos include Burrard Inlet, the Central Fraser Valley uplands, and the outer tidal flats. For Burrard Inlet, black and white 1987 photos at 1:10 000 were used. Coverage of the remaining upland areas was not as detailed and a number of different scales of photos were used ranging from 1:15 000 to 1:40 000; these were taken

[1] FREMP is a coordinating body comprising the various agencies which share control over the Fraser River Estuary. It was created in 1985 through federal - provincial agreement 'to provide the means for accommodating a growing population and economy, while maintaining the quality and productivity of the Fraser Estuary's natural environment' (FREMP 1986). FREMP's Habitat Management Goal is 'to maintain and where feasible increase the productivity of fish and wildlife habitat' (FREMP 1986). To this end, habitat inventories within the FREMP area were conducted during the late 1980's (FREMP 1990a, 1990b).

Fig. 2 FREMP Area



during 1983 and 1984. Specific air photo sources are cited in the data report for each wetland unit. Since complete large scale air photo coverage of the outer tidal flats was not available, the outer edge of the flats was determined to be chart datum (lowest normal tide level) from the Canadian Hydrographic Chart No. 3463 (1988).

Wetlands, one-half a hectare or greater, were outlined on these air photos and were then field checked during the summer of 1989. Each wetland site was visited to verify these wetland boundaries, to classify each wetland unit, and to estimate the proportion of different vegetation types and the degree of disturbance. Many of the wetland units are large and complex in vegetational structure and access was difficult. Thus, the classifications are provisional since they are based primarily on air photo interpretation and field spot-checking. It is important to note, therefore, that detailed vegetation surveys will still be required for site-specific evaluations.

In order to include eelgrass beds in the inventory, colour infrared aerial photography was flown specifically for this project. It was taken in late June 1990 at the time of lowest low water for that summer. This photography did not cover Semiahmoo Bay or the area south of the Tsawwassen ferry jetty. For those areas, the 1:12 000 colour air photos from 1986 were available. Photo mosaics were made and the eelgrass beds were then outlined. Due to time constraints, the resulting maps were not verified by field inspection; however, field checking is essential if the exact extent of these important eelgrass beds is to be determined. Areas of particular concern are the discontinuous beds at the seaward edge of the flats in Boundary Bay and off Ocean Park. Field checking of this air photo interpretation is expected to be done in 1992.

GIS and the Wetlands Inventory

The CWS wetlands inventory was developed using a Geographic Information System (GIS)[2] as a pilot application of this technology. This decision was due primarily to the increasing use of GISs in resource management. The linking of the database file with the digital wetland unit maps in the GIS allows numerous combinations of query and analysis. When combined with other resource databases, the resulting information can exceed what traditional paper maps provide. These potential benefits warranted the significant effort expended in extracting information from air photos and processing it to its final format in the GIS.

All of the maps in this report were generated by the PC-based GIS software called SPANS. The digital wetland units are displayed on base maps digitized[3] by CWS from the 1:50 000 National Topographic System (NTS) mylar maps; this was done under agreement with Energy, Mines and Resources Canada.

In order to have both the CWS and FREMP inventories available on the GIS, it was decided that the FREMP-inventoried wetlands would also be digitized, but for display purposes only; the measurements of the FREMP-inventoried wetlands were already available (FREMP 1990a, 1990b). Due to the disparity in scales at which the two inventories were conducted, the 1:2500 FREMP inventory maps were manually converted to 1:25 000 prior to digitizing, a scale more closely approximating the CWS work. Since this scale is ten times more generalized than the original, small pocket marshes were combined into larger units. Where wetland units from both inventories overlap, the FREMP wetland was incorporated within the larger CWS unit. There are only seven such units and the size of the FREMP wetland is specified in the notes of that wetland unit.

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[2] A GIS is a computer-based system that combines database management and computer mapping to produce, organize and analyze spatial information.

[3] Digitizing is a process whereby information on paper maps is converted into digital form and stored on computer.

Wetland Measurement

The verified boundaries of each wetland unit were transferred manually from air photo mosaics to mylar sheets at the same scale. Each unit was digitized and georeferenced to a digital base map in the GIS in order to obtain accurate measurements. Where wetland units were too narrow to show as polygons on the air photos, ie. narrow streams or sloughs, linear measurements were taken using Generic CADD (Computer Assisted Design and Drafting) and a digitizing tablet and then multiplied by an estimated width.

These measurements were then entered into the amalgamated CWS-FREMP inventory database. As mentioned above, the measurements of the FREMP-inventoried wetlands were taken directly from those inventories (FREMP 1990a, 1990b).

Wetland Classification

The Canadian Wetland Classification System (CWCS) (National Wetlands Working Group 1987) was used for this inventory. It was developed by the National Wetlands Working Group of the Canada Committee on Ecological Land Classification. The system is 'provisional' in that it has not yet been fully applied and tested throughout Canada.

The CWCS contains three hierarchical levels: *class*, *form* and *vegetation type*. Five wetland *classes* are recognized on the basis of the overall genetic origin of wetland ecosystems; they are **bog, fen, marsh, swamp,** and **shallow water.** Seventy wetland *forms* are differentiated on the basis of surface morphology, surface pattern, water type, and morphology of underlying mineral soil. Wetland *vegetation types* are classified according to vegetation physiognomy. For a description of the various CWCS categories found in this study area, please refer to Appendix E.

There was some difficulty in applying this national system to the Fraser Lowland Ecosection. There are few such large and complex riverine systems in Canada encompassing large tributaries. It was found that many of the wetland units could fit more than one of the CWCS's 'form' categories depending on whether the unit was compared to the whole ecosystem or to a smaller system within the larger one. Other features could not be accommodated within the classification system at all. Gravel bars and floodplain forests, in particular, were difficult to classify even though they are significant and prominent features of this wetland ecosystem.

Gravel bars were added as a separate wetland 'class' for the purpose of this inventory. They function as wetlands due to periodic inundation, seasonal high water tables and adaptive vegetation. They are distinct from other wetlands in that there are generally no well developed soil horizons. Also, these wetlands are subjected to the force of the Fraser River peak discharge each year, and are therefore often transitory in nature. Instability and change is pronounced in these wetlands until the bed profile rises above the level of annual river flooding. They are also geographically distinct from other classes of wetland occurring only at the eastern end of the

Fraser Lowland. Because gravel bar wetlands undergo rapid successional change, three successional categories (early, mid and late) were used to describe these systems.

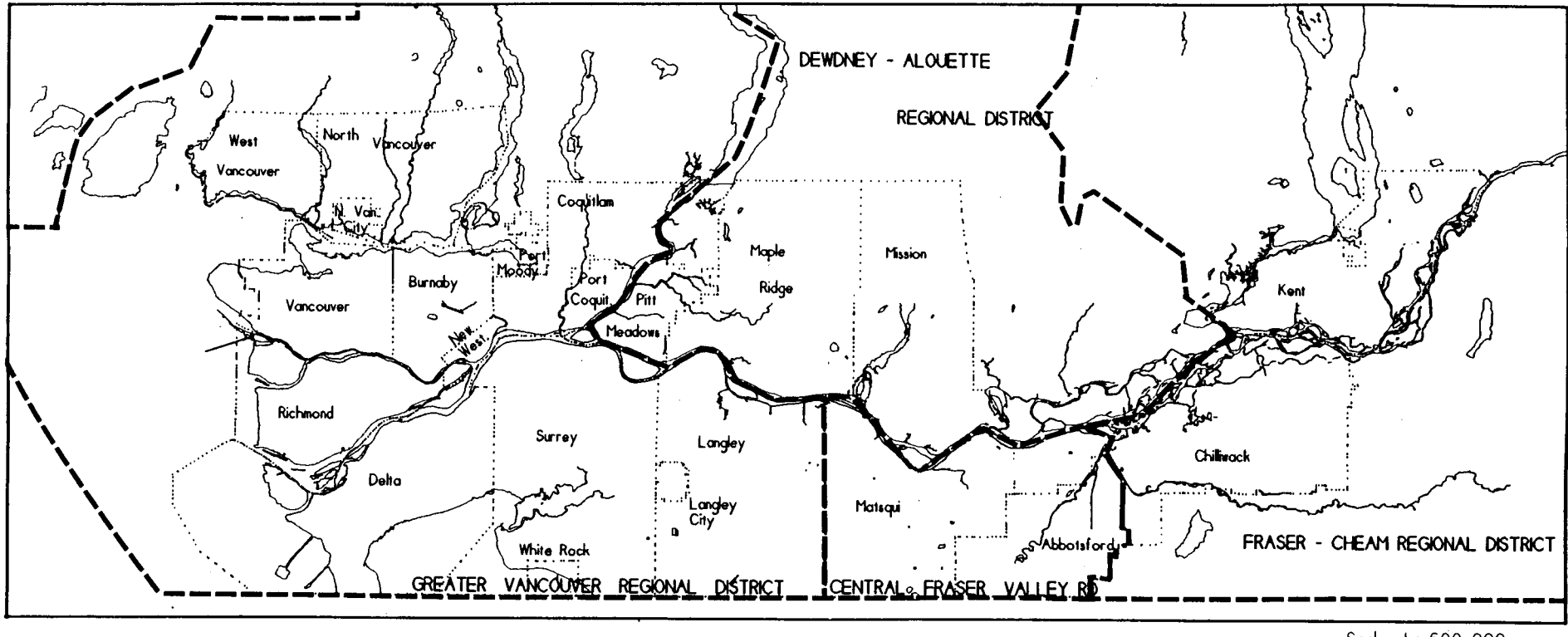
Floodplain forests, on the other hand, were 'forced' into the existing system by classifying them as 'floodplain swamps' for lack of a more appropriate classification. 'Swamp' was considered to be an inappropriate category because these floodplain forests do not support standing water for most of the growing season. These predominantly cottonwood forests are also an integral part of this wetland ecosystem; they have developed on the undyked shorelines and islands in the floodplain and are hydrologically linked to river flows.

It should be noted that cottonwood forests which grow on the Fraser River gravel bars upstream of Sumas River are not separated out as floodplain swamps but rather are dealt with as part of the gravel bar unit.

Wetland Evaluation

Each wetland was evaluated during field inspection on the basis of its level of disturbance. A three level rating system was used to indicate the relative amount of apparent human disturbance on the wetland from agriculture, roads, dyking, ditching, filling etc. A value of '1' represents an undisturbed site; a value of '2' indicates a moderate amount of human disturbance, such as adjacent agricultural activities or road crossings, or small pockets of fill or former clearing; a value of '3' represents sites with a relatively large amount of disturbance, such as the actual removal, or filling in, of some of the wetland vegetation or sites where adjacent development has altered the wetland hydrology.

Wetlands in the FREMP area were evaluated for the purpose of this report during 1991, in the same way as the rest of the study area, ie. on the basis of the amount of human disturbance. Note that this is a different rating system from the one that FREMP developed for its own purposes. FREMP generated a three-level system of Development Guidelines from its habitat inventories (FREMP 1990a, 1990b).

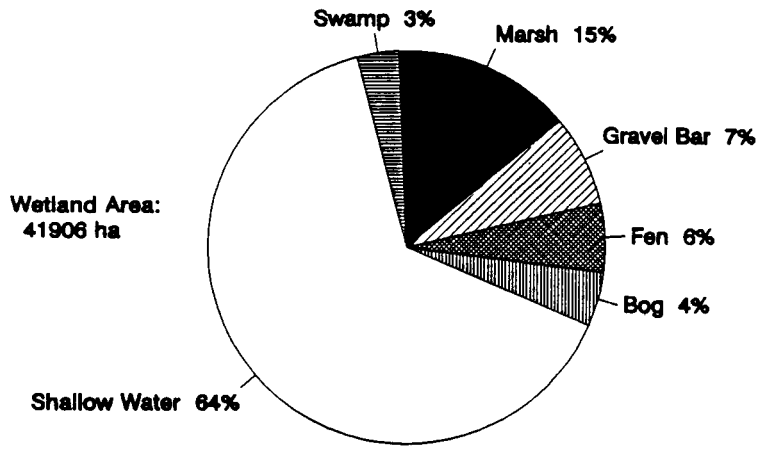


Scale 1 : 600 000

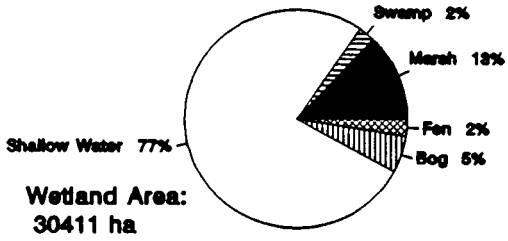
0 20 km

Fig. 3 Municipal and Regional District Boundaries

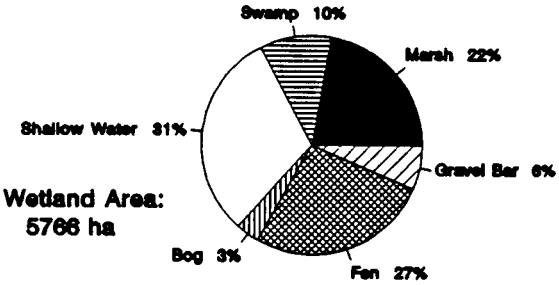
Fig 4. Proportion of Wetland Classes by Regional District



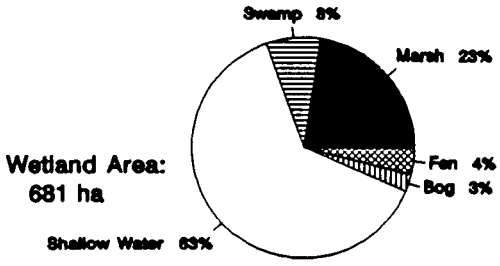
Fraser Lowland



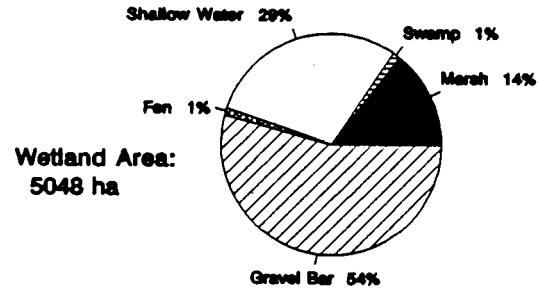
Greater Vancouver
Regional District



Dewdney-Alouette
Regional District



Central Fraser Valley
Regional District



Fraser-Cheam
Regional District

RESULTS AND DISCUSSION

There are 41,906 ha of wetland in the Fraser Lowland, representing 13.6% of the total area. Figure 4 shows that nearly two-thirds (64.4%) of this area belongs to the 'shallow water' category of wetland; it includes the large expanses of tidal flat along the Fraser River Delta Front (Sturgeon and Roberts banks) and in Boundary Bay. The remaining third is divided as follows: 14.6% marsh, 7.5% gravel bar, 5.7% fen, 4.5% bog, and 3.4% swamp. Nearly 72% of all the Fraser Lowland wetlands were rated as 'undisturbed', 22% as 'moderately disturbed' and 6% as 'highly disturbed'.

The FREMP area (see Fig. 2) includes 25,213 ha or 60% of all wetlands in the Fraser Lowland. This represents 52% of the marsh area, 80% of the shallow water wetlands, 6% of the area of fen and 18% of the swamp area.

See Appendix A for the area of each wetland class by municipality and rating. Appendix B provides a summary of the above figures for each regional district. Appendix C summarizes the area of wetland for each municipality by rating. Appendix D lists all the wetland units for each wetland class in descending order of size.

Marsh

There are 6111.7 hectares (ha) of marsh located along the shorelines of the estuary and the many rivers, streams, sloughs and ponds throughout the study area. Figure 5 shows that three-quarters of these remaining marshes are relatively undisturbed, ie. they have a rating of '1'. An additional 24% is only moderately disturbed ('2') and only 2% is rated with '3'.

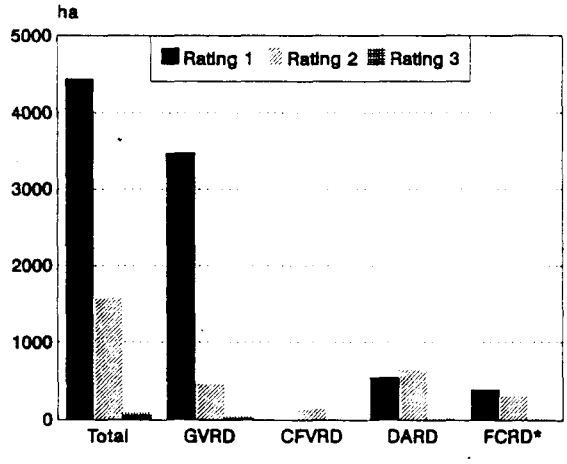


Figure 5. Marsh Ratings

Figure 6 shows that 46% (2814 ha) of all Fraser Lowland marshes are in the Fraser River Delta with the largest concentration (about 40% of the total) occurring on the delta front between Point Grey and Tsawwassen and extending upstream into the Main Arm of the Fraser River to Ladner Marsh. The second largest concentration (22% of the total) occurs in the Pitt River Valley. Other concentrations are located in the Hatzic Lake, Nicomen Island and Slough area (8%) and in the Harrison River Valley (5%).

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* GVRD - Greater Vancouver Regional District; CFVRD - Central Fraser Valley Regional District; DARD - Dewdney Alouette Regional District; FCRD - Fraser Cheam Regional District.

Fig.6 AREA (HA) OF WETLAND CLASS BY GEOGRAPHIC REGION

GEOGRAPHIC REGION	BOG	FEN	MARSH	GRAVEL	SHALLOW WATER	SWAMP	TOTAL
Agassiz/Seabird Island	**0.0**	**0.0**	**93.4**	**0.0**	**144.1**	**0.0**	**237.5**
Burrard Inlet	**0.0**	**0.0**	**18.3**	**18.1**	**482.1**	**8.1**	**526.6**
Burrard Peninsula	**11.3**	**0.0**	**44.2**	**0.0**	**73.8**	**2.4**	**131.7**
Burnaby Lake and Still Creek	5.5	0.0	38.7	0.0	66.4	0.0	110.6
Camosun Bog	0.3	0.0	0.0	0.0	0.0	2.4	2.7
Deer Lake	5.5	0.0	5.5	0.0	7.4	0.0	18.4
Central Fraser Valley uplands	**17.4**	**92.1**	**56.0**	**0.0**	**186.0**	**173.2**	**524.7**
Chilliwack Sloughs	**0.0**	**0.0**	**128.3**	**6.8**	**376.6**	**0.0**	**511.7**
Fort Langley to Wades Creek	**28.7**	**33.2**	**320.1**	**0.0**	**223.3**	**288.6**	**893.9**
Fraser River Delta	**1567.4**	**28.3**	**2813.9**	**0.0**	**21581.0**	**164.8**	**26155.4**
Boundary Bay	0.0	0.0	214.0	0.0	6487.4	0.0	6701.4
Burns Bog	1496.7	0.0	0.0	0.0	166.3	0.0	1663.0
Delta front (Sturgeon and Roberts Banks)	0.0	0.0	1729.3	0.0	14438.9	0.0	16168.2
Main Arm (Steveston to Annacis Island)	22.9	28.3	747.4	0.0	381.6	108.4	1288.6
North and Middle Arms	0.0	0.0	123.2	0.0	106.8	56.4	286.4
Richmond Nature Park	47.8	0.0	0.0	0.0	0.0	0.0	47.8
Fraser River, Sumas to Laidlaw	**0.0**	**0.0**	**77.9**	**2790.5**	**408.1**	**0.0**	**3276.5**
Harrison River Valley	**0.0**	**11.2**	**322.3**	**190.8**	**767.4**	**0.0**	**1291.7**
Hatzic/Nicomen	**0.0**	**0.0**	**518.0**	**9.9**	**535.1**	**247.1**	**1310.1**
New Westminster to Douglas Island	**6.9**	**159.6**	**39.3**	**0.0**	**99.0**	**90.4**	**395.2**
Pitt River Valley	**196.3**	**1691.5**	**1325.0**	**0.0**	**1186.4**	**13.2**	**4412.4**
Port Moody	**0.0**	**0.0**	**6.6**	**0.0**	**105.0**	**0.0**	**111.6**
Serpentine-Nicomekl Lowland	**0.0**	**132.9**	**68.5**	**0.0**	**285.0**	**0.0**	**486.4**
Sumas	**0.0**	**45.3**	**157.1**	**0.0**	**302.9**	**0.0**	**505.3**
Surrey Bend to Kanaka Creek	**54.5**	**177.3**	**80.0**	**0.0**	**58.0**	**396.6**	**766.4**
Vedder	**0.0**	**0.0**	**42.8**	**106.6**	**167.2**	**52.7**	**369.3**
Total Study Area	1882.5	2371.4	6111.7	3122.7	26981.0	1437.1	41906.4

Salt marsh ('coastal' marsh in this classification system) includes such plants as saltwort, saltgrass and arrowgrass. It accounts for only 4% (235 ha) of the marshes in the whole study area and just over 8% of the marshes in the estuary. Except for some very small pockets in Burrard Inlet and Port Moody, salt marsh can only be found between the two jetties on Roberts Bank and in Boundary Bay.

Brackish marsh ('estuarine' marsh) represents about 42% (2575 ha) of all marshes in the study area and 92% of the marshes in the estuary. Characterized by sedge and bulrush such Carex lyngbei and Scirpus americanus, they grow where salt and freshwater mix. They are found all along the delta front, north of the coalport jetty, and extend into the river as far upstream as Annacis Island in the Main Arm and to New Westminster in the North Arm. In Mud Bay estuarine marsh grows at the mouths of the Serpentine and Nicomekl rivers; similarly, it can be found at the mouth of the Campbell River in Semiahmoo Bay.

Freshwater marsh grows throughout the rest of the study area and accounts for 54% (3301 ha) of all the marshes in the study area. It is characterized by cattail, freshwater bulrush and sedge. Tidal freshwater marshes extend from the estuary up to Pitt Lake and upstream in the Fraser River to just east of Fort Langley; they represent 12% (410 ha) of the total area of freshwater marsh.

Shallow Water

Shallow water is the largest wetland class in the Fraser Lowland. This is due to the extensive tidal flats on the delta front and in Boundary Bay which account for 76% (20,926 ha) of all wetlands in this class (Fig.5). The rest occurs along river banks and in shallow sloughs, streams and ponds throughout the study area. Most of the wetland area in this category is rated '1'(undisturbed) (Fig.7), due to the rating of the tidal flats mentioned above; however, the majority of the wetland units in this class are rated with '2'.

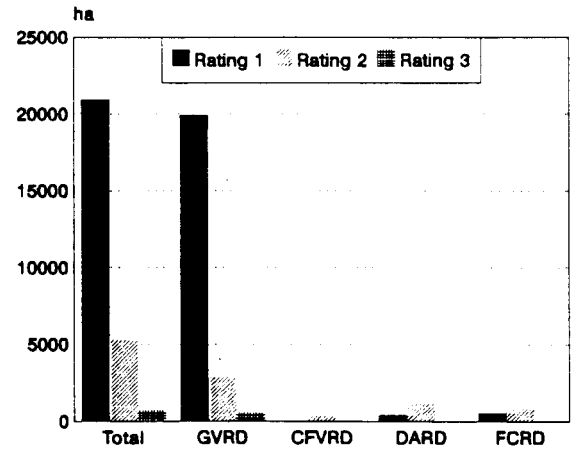


Figure 7. Shallow Water Ratings

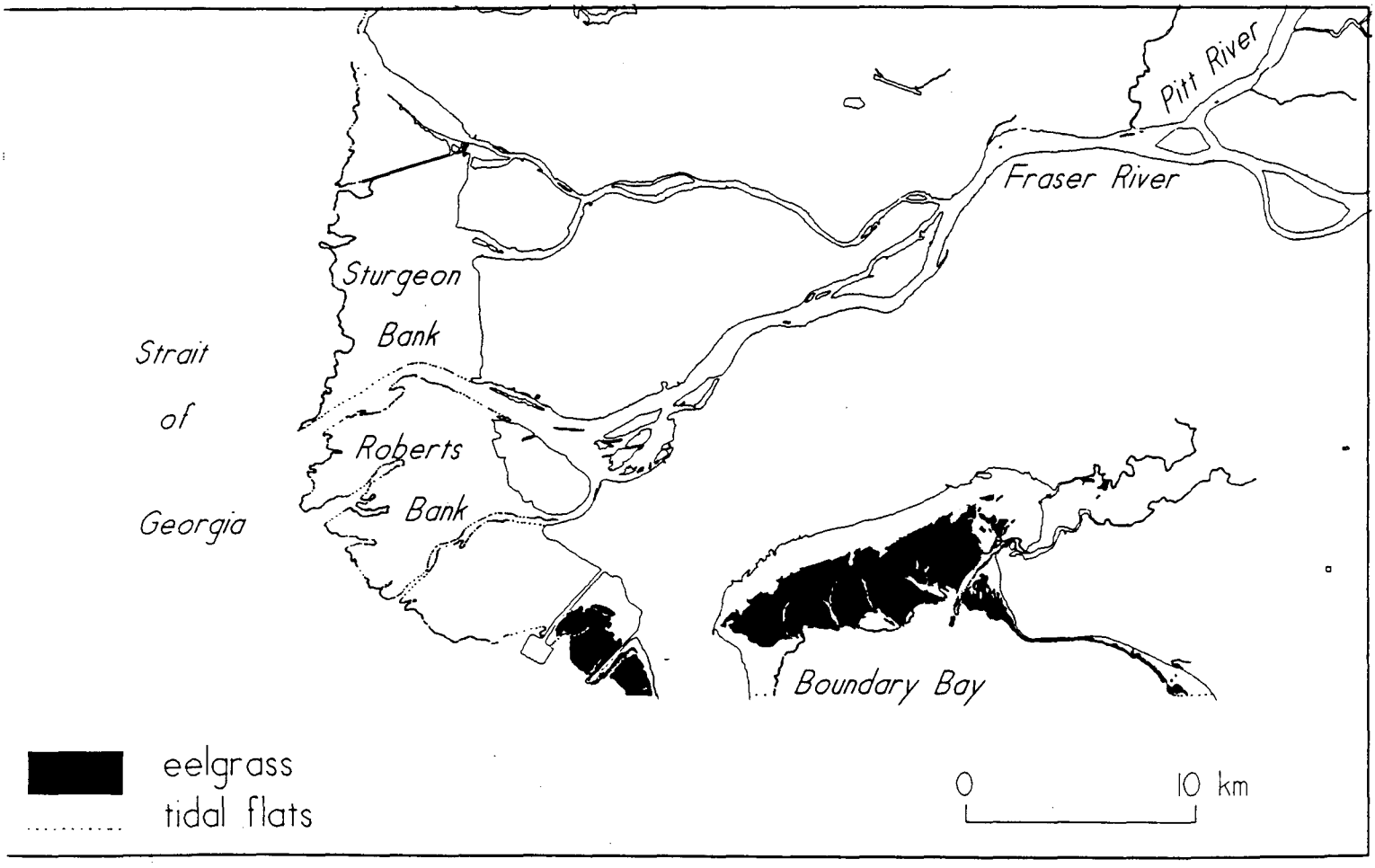
Shallow water areas often support floating and submerged aquatic plants, for example, eelgrass. Tidal flats also support populations of benthic algae, especially diatoms. It should be noted that although marshes grow on the upper portion of these tidal flats and are biophysically linked to them, they have been measured and classified separately in this inventory.

Eelgrass

Eelgrass grows on intertidal mud and sand flats in relatively protected areas and in saline waters with little suspended sediment. These conditions are found on Roberts Bank south of the coalport jetty and in Boundary and Semiahmoo bays (Fig.8). Two species of eelgrass grow here, Zostera marina and the smaller introduced species Zostera japonica. Z. japonica grows in the mid and upper intertidal zone, while Z. marina grows in the lower intertidal zone down to about 1 m below lowest low water. Eelgrass beds tend to be much more dynamic in seasonal abundance and distribution than other coastal wetland vegetation such as salt marshes.

At least 4018 ha of eelgrass grow in the Fraser Estuary. This includes only the beds of continuous cover; it does not include the patchy areas of eelgrass which grow in tidal pools off of Centennial Beach, Crescent Beach and White Rock and in some places at the lower edge of the tidal flats; these small areas were too difficult to measure. On Roberts Bank eelgrass covers about 516 ha of tidal flat between the two jetties and another 228 ha south of the ferry jetty. In Boundary, Mud and Semiahmoo bays, at least 3274 ha of tidal flat are covered with eelgrass.

Fig. 8. Distribution of Eelgrass in the Fraser Estuary



Swamp

Most (86%) of the swamps inventoried fall into the 'floodplain swamp' category; these are mostly floodplain forests (see Wetland Classification for further discussion). In the FREMP Habitat Inventory, these are the 'riparian treed' areas. Fig. 9 shows that most swamps are moderately disturbed ('2' rating).

The largest stands of 'floodplain swamp' occur in Surrey Bend and on Matsqui and Strawberry islands, accounting for over 60% of the total area of swamp in the Fraser Lowland (see Appendix D).

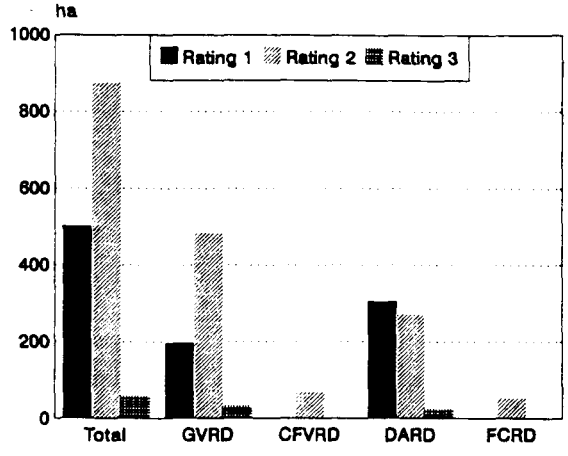


Figure 9. Swamp Ratings

Stream swamps account for 13% of all swamps and occur on the banks of tributaries throughout the area.

Bog

Burns Bog is by far the largest bog remaining in the Fraser Lowland, accounting for 80% of the total area of bog (Fig. 6). The only other relatively large area of bog occurs in the Pitt Polder accounting for just over 10% of the total. The remaining bogs are scattered throughout the study area, and include Burnaby and Deer lakes, the Richmond Nature Park, Derby Reach, Glen Valley and Judson and Laxton lakes in Matsqui (Appendix D).

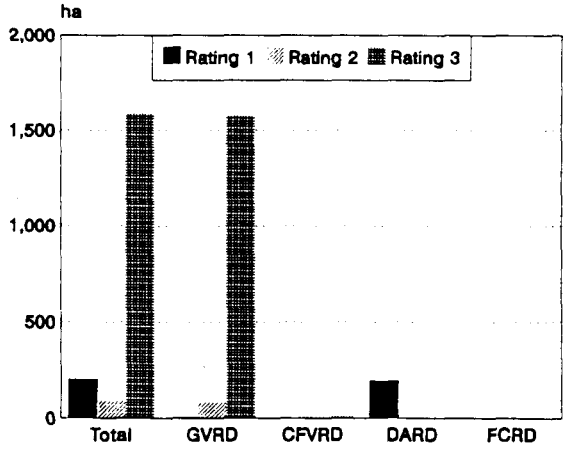


Figure 10. Bog Ratings

Figure 10 shows that most of the area of bog is rated '3' ie. disturbed - this relates specifically to Burns Bog. The other bog areas are either undisturbed ('1') or are only moderately disturbed ('2').

Fen

By far the largest area of fen is found in the Pitt River Valley, representing 71% of the total area of fen in the Fraser Lowland (Fig. 6). Surrey Bend and Douglas Island account for an additional 13% of the total fen area (Appendix D). Figure 11 shows that most fen areas are undisturbed.

Hardhack-dominated fens presented special difficulties for access during field checking; therefore, some wetlands classified as fens may also contain bogs. Subsequent detailed vegetation surveys show that Surrey Bend is such an area.

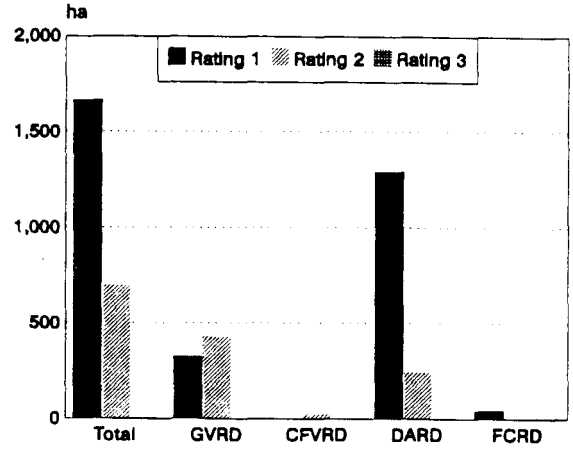


Figure 11. Fen Ratings

Gravel Bar

This category was created specifically for the purpose of this project; gravel bars are not accommodated within the CWCS (see Wetland Classification for further discussion). Vegetation includes Black Cottonwood at all stages of succession as well as Willow and Alder. The level of succession (early, mid or late) specified in the data report pertains to the stage of vegetation succession of the entire gravel bar, even though it may contain vegetation at all three levels of succession.

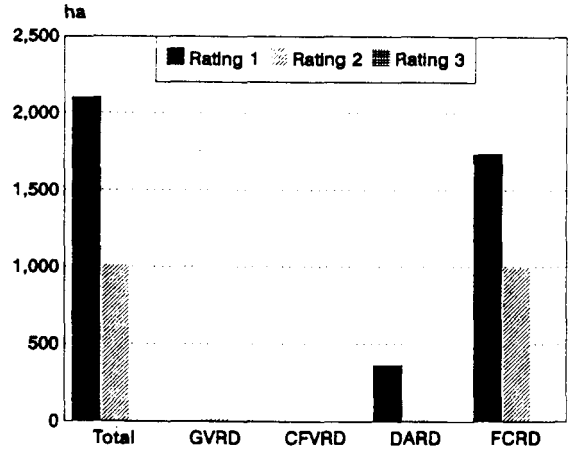


Figure 12. Gravel Bar Ratings

Gravel bars are located in the main Fraser River channel between Laidlaw (at the extreme eastern end of the study area) and the mouth of the Sumas River. The apparent registration problems of these wetland units demonstrates that these formations change radically from time to time due to the peak discharge or freshet of the Fraser River. The base map detail for this area was taken from 1976 air photos; this wetland inventory used 1986 air photos, by which time many of the gravel bars had changed substantially.

The majority of gravel bars are relatively undisturbed as seen in Figure 12. Bars of late succession account for 44% of the total; mid succession accounts for 39%; early succession bars are 12% of the total. Roughly 5% of all gravel bars occur as a portion of other large wetland units such as the Chehalis River delta and Capilano River mouth.

GIS Application

Every effort was made, while producing the maps in this report, to ensure the registration of thematic information to the base map in the GIS. The georeferencing methods used resulted in good registration in most cases. In some instances, they were less successful due to the meticulous precision demanded by computers and the cartographic licence used in traditional mapping as seen in the National Topographic System maps. For example, cultural features sometimes incorrectly appear to cut through a wetland unit. In traditional mapping, some exaggeration of cultural features is required when they are located near natural features; a road may closely parallel a shoreline on the ground, but in order to maintain the separation on a map it may be necessary to represent that road shifted from its actual position. The digital NTS base maps reflect this representational position, whereas the wetland units derived from air photos reflect the true position.

It is expected that as standardized digital databases become more readily available, problems such as these will become less pronounced. This should aid in the recognition and promotion of GIS as another valuable tool in resource management.

RECOMMENDATIONS

Although this inventory is an important step in understanding the distribution and abundance of wetlands in this region, it is only the first step. Further work needs to be done on wetland evaluation. The rating system used in this report was based on personal judgement about visible human disturbance, observed during field inspections. If priorities need to be applied to specific wetlands for acquisition or protection purposes, then a more detailed evaluation system should be devised which would include other measures of wetland health and importance.

As an adjunct to this evaluation system, it would be important to know how much of the wetland area is protected or under some form of land-use control and how much is unprotected. Due to the complexity of this matter, it was not possible to collect enough of this information in time for this report. Therefore, a separate study should be done to analyze the land status pertaining to wetlands in the Fraser Lowland.

Because of the important contribution eelgrass makes to the productivity of the estuary, further studies should be undertaken to determine the exact extent of the beds and the density of cover. An interagency group with various resource interests in the Boundary Bay, delta foreshore area has just been formed; an in-depth eelgrass study will be part of their effort.

The use of geographic information systems in future studies should be considered a good investment of time and resources. The GIS database created for this wetlands inventory has laid a sound foundation upon which future studies can build and expand. A standardized approach

using GIS would result in the more timely and meaningful delivery of information critical to effective resource management.

Finally, there is also a need for improved public awareness about wetlands in the Fraser Lowland. Since this report is aimed at resource managers and interested environmental groups, an additional information package for landowners of wetland sites as well as the general public should be considered.

APPENDIX A - WETLAND CLASS SIZE (HA) BY MUNICIPALITY AND RATING

MUNICIPALITY	Rating	Marsh	Shallow Water	Swamp	Bog	Fen	Gravel Bar	Total
Central Fraser Valley Regional District		**154.1**	**429.9**	**53.4**	**17.4**	**26.6**		**681.4**
Abbotsford District		**74.1**	**248.9**					**323.0**
	2	71.0	211.7					282.7
	3	3.1	37.2					40.3
CFVRD Ea A		**1.3**	**25.8**			**26.6**		**53.7**
	2	1.3	25.8			26.6		53.7
Matsqui District		**78.7**	**155.2**	**53.4**	**17.4**			**304.7**
	1	3.0	0.3					3.3
	2	73.2	120.0	53.4	6.8			253.4
	3	2.5	34.9		10.6			48.0
Dewdney-Alouette Regional District		**1284.1**	**1773.1**	**602.3**	**196.3**	**1535.7**	**374.2**	**5765.7**
DARD Ea A		**418.1**	**493.4**		**196.3**	**1177.6**		**2285.4**
	1	392.8	438.3		196.3	1177.6		2205.0
	2	25.3	55.1					80.4
DARD Ea B/C/D/E		**489.9**	**929.5**	**247.1**		**4.4**	**374.2**	**2045.1**
	1	123.0	50.9			4.4	364.1	542.4
	2	350.2	849.5	247.1			10.1	1456.9
	3	16.7	29.1					45.8
Maple Ridge District		**58.7**	**61.7**	**41.2**		**144.3**		**305.9**
	1	47.3	13.0	37.7				98.0
	2	11.3	47.4	3.5		144.3		206.5
	3	0.1	1.3					1.4
Mission District		**244.0**	**125.8**	**282.4**				**652.2**
	1	31.1	15.5	263.9				310.5
	2	206.2	107.9					314.1
	3	6.7	2.4	18.5				27.6
Pitt Meadows District		**73.4**	**162.7**	**31.6**		**209.4**		**477.1**
	1	20.1	22.5	3.9		111.5		158.0
	2	53.3	138.8	20.2		97.9		310.2
	3		1.4	7.5				8.9

Fraser-Cheam Regional District		**732.0**	**1481.5**	**52.7**		**52.1**	**2730.0**	**5048.3**
Chilliwack District		**251.9**	**663.6**	**52.4**		**45.3**	**1015.7**	**2028.9**
	1	79.5	59.4			45.3	470.6	654.8
	2	156.5	549.9	52.4			545.1	1303.9
	3	15.9	54.3					70.2
FCRD Ea C/D/E/F		**320.1**	**398.5**	**0.3**			**748.0**	**1466.9**
	1	293.3	276.6				358.4	928.3
	2	26.8	121.9	0.3			389.6	538.6
Harrison Hot Springs Village		**5.9**	**24.6**			**6.8**		**37.3**
	2	5.9	23.8					29.7
	3		0.8			6.8		7.6
Kent District		**154.1**	**394.8**				**966.3**	**1515.2**
	1	29.8	233.3				911.4	1174.5
	2	123.9	160.6				54.9	339.4
	3	0.4	0.9					1.3
Greater Vancouver Regional District		**3941.5**	**23296.6**	**728.7**	**1668.8**	**757.0**	**18.1**	**30410.7**
Burnaby District		**45.0**	**85.0**	**31.4**	**11.0**			**172.4**
	1	0.2	2.2					2.4
	2	38.8	69.2	12.7	5.5			126.2
	3	6.0	13.6	18.7	5.5			43.8
Coquitlam District		**306.1**	**118.4**	**27.5**	**2.3**	**169.4**		**623.7**
	1	290.7	106.8	23.9	2.3	169.4		593.1
	2	14.4	6.2					20.6
	3	1.0	5.4	3.6				10.0
Delta District		**1459.3**	**13751.4**	**69.2**	**1496.7**	**28.3**		**16804.9**
	1	1327.5	12570.8	53.1		28.3		13979.7
	2	130.1	998.1	14.3				1142.5
	3	1.7	182.5	1.8	1496.7			1682.7
GVRD Ea A/B		**925.3**	**4905.5**	**49.7**	**0.3**	**132.0**		**6012.8**
	1	902.2	4361.8	39.3		132.0		5435.3
	2	5.7	287.2	10.4	0.3			303.6
	3	17.4	256.5					273.9
Langley City		**0.7**	**4.5**					**5.2**
	2	0.7	4.5					5.2
Langley District		**97.8**	**158.4**	**142.0**	**83.2**	**111.8**		**593.2**
	1	14.6	2.0			6.6		23.2
	2	83.2	156.4	142.0	28.7	105.2		515.5
	3				54.5			54.5

New Westminster City		**3.6**	**28.3**	**12.8**				**44.7**
	1	1.0	2.5	12.2				15.7
	2		15.8	0.6				16.4
	3	2.6	10.0					12.6
North Vancouver City		**1.9**	**4.1**					**6.0**
	3	1.9	4.1					6.0
North Vancouver District		**5.9**	**96.0**				**5.8**	**107.7**
	2	5.9	91.4				2.7	100.0
	3		4.6				3.1	7.7
Port Coquitlam City		**40.7**	**48.2**	**27.8**	**4.6**	**18.4**		**139.7**
	1	23.0	20.5	27.8	4.6	18.4		94.3
	2	17.7	27.7					45.4
Port Moody City		**6.3**	**100.0**					**106.3**
	2	2.8	85.0					87.8
	3	3.5	15.0					18.5
Richmond City		**832.3**	**2156.5**	**50.7**	**70.7**			**3110.2**
	1	800.3	2083.4	40.5				2924.2
	2	19.8	37.5	5.0	47.8			110.1
	3	12.2	35.6	5.2	22.9			75.9
Surrey District		**128.3**	**1539.6**	**308.2**		**297.1**		**2273.2**
	1	19.9	677.8					697.7
	2	107.4	839.3	304.6		297.1		1548.4
	3	1.0	22.5	3.6				27.1
Vancouver City		**82.4**	**181.8**	**1.3**				**265.5**
	1	75.1	72.9					148.0
	2	4.8	86.1	0.6				91.5
	3	2.5	22.8	0.7				26.0
West Vancouver District		**5.9**	**14.9**	**8.1**			**12.3**	**41.2**
	2	5.9	14.9	8.1			12.3	41.2
White Rock City			**104.0**					**104.0**
	2		104.0					104.0
Total Study Area		**6111.7**	**26981.1**	**1437.1**	**1882.5**	**2371.4**	**3122.3**	**41906.1**
	1	4474.4	21010.5	502.3	203.2	1693.5	2104.5	**29988.4**
	2	1542.1	5235.7	875.2	89.1	671.1	1014.7	**9427.9**
	3	95.2	734.9	59.6	1590.2	6.8	3.1	**2489.8**

APPENDIX B - REGIONAL DISTRICT SUMMARY OF WETLAND CLASS SIZE (HA) BY RATING

		CLASS						
	RATING	Marsh	Shallow Water	Swamp	Bog	Fen	Gravel Bar	Total
Central Fraser Valley Regional District		**154.1**	**429.9**	**53.4**	**17.4**	**26.6**	**0.0**	**681.4**
	1	3.0	0.3	0.0	0.0	0.0	0.0	3.3
	2	145.5	357.5	53.4	6.8	26.6	0.0	589.8
	3	5.6	72.1	0.0	10.6	0.0	0.0	88.3
Dewdney-Alouette Regional District		**1284.1**	**1773.1**	**602.3**	**196.3**	**1535.7**	**374.2**	**5765.7**
	1	614.3	540.2	305.5	196.3	1293.5	364.1	3313.9
	2	646.3	1198.7	270.8	0.0	242.2	10.1	2368.1
	3	23.5	34.2	26.0	0.0	0.0	0.0	83.7
Fraser-Cheam Regional District		**732.0**	**1481.5**	**52.7**	**0.0**	**52.1**	**2730.0**	**5048.3**
	1	402.6	569.3	0.0	0.0	45.3	1740.4	2757.6
	2	313.1	856.2	52.7	0.0	0.0	989.6	2211.6
	3	16.3	56.0	0.0	0.0	6.8	0.0	79.1
Greater Vancouver Regional District		**3941.5**	**23296.6**	**713.6**	**1668.8**	**757.0**	**18.1**	**30410.7**
	1	3454.5	19900.7	196.8	6.9	354.7	0.0	23913.6
	2	437.2	2823.3	498.3	82.3	402.3	15.0	4258.4
	3	49.8	572.6	33.6	1579.6	0.0	3.1	2238.7
Total Study Area		**6111.7**	**26981.1**	**1437.1**	**1882.5**	**2371.4**	**3122.3**	**41906.1**
	1	4474.4	21010.5	502.3	203.2	1693.5	2104.5	29988.4
	2	1542.1	5235.7	875.2	89.1	671.1	1014.7	9427.9
	3	95.2	734.9	59.6	1590.2	6.8	3.1	2489.8

APPENDIX C - WETLAND AREA (HA) BY RATING AND MUNICIPALITY

MUNICIPALITY	RATINGS 1 AREA	1 NO	2 AREA	2 NO	3 AREA	3 NO	TOTAL AREA	TOTAL NO
Central Fraser Valley Regional District	**3.3**	**1**	**589.7**	**18**	**88.3**	**4**	**681.3**	**23**
Abbotsford District			282.7	5	40.3	2	323.0	7
CFVRD Ea A			53.7	2			53.7	2
Matsqui District	3.3	1	253.3	11	48.0	2	304.6	14
Dewdney-Alouette Regional District	**3314.0**	**35**	**2367.7**	**47**	**83.7**	**8**	**5765.4**	**90**
DARD Ea A	2205.0	4	80.4	3			2285.4	7
DARD Ea B/C/D/E	542.4	24	1456.6	28	45.8	4	2044.8	56
Maple Ridge District	98.0	2	206.5	3	1.4	1	305.9	6
Mission District	310.5	1	314.1	5	27.6	2	652.2	8
Pitt Meadows District	158.1	4	310.1	8	8.9	1	477.1	13
Fraser-Cheam Regional District	**2757.3**	**76**	**2211.1**	**42**	**79.1**	**6**	**5047.5**	**124**
Chilliwack District	654.8	26	1303.8	12	70.2	4	2028.8	42
FCRD Ea C/D/E/F	928.0	19	538.5	12			1466.5	31
Harrison Hot Springs Village			29.7	1	7.6	1	37.3	2
Kent District	1174.5	31	339.1	17	1.3	1	1514.9	49
Greater Vancouver Regional District	**23913.3**	**51**	**4259.7**	**81**	**2238.4**	**44**	**30411.4**	**176**
Burnaby District	2.4	1	126.3	3	43.8	6	172.5	10
Coquitlam District	593.1	9	20.6	1	9.9	3	623.6	13
Delta District	13979.6	16	1143.6	11	1682.7	6	16805.9[3]	33
GVRD Ea A/B	5435.3	6	303.6	6	273.9	1	6012.8	13
Langley City			5.2	2			5.2	2
Langley District	23.2	3	515.4	21	54.5	2	593.1	26
New Westminster City	15.6	1	16.4	1	12.5	5	44.5	7
North Vancouver City					5.9	2	5.9	2
North Vancouver District			100.0	2	7.7	1	107.7	3
Port Coquitlam City	94.5	2	45.4	2			139.9	4
Port Moody City			87.8	2	18.6	1	106.4	3
Richmond City	2923.9	11	110.2	8	75.8	8	3109.9	27
Surrey District	697.7	1	1548.4	15	27.0	6	2273.1	22
Vancouver City	148.0	1	91.5	3	26.1	3	265.6	7
West Vancouver District			41.3	3			41.3	3
White Rock City			104.0	1			104.0	1
TOTALS	29987.9	163[1]	9428.2	188	2489.5	62	41905.6	413[2]

[1] Nearly half (80) of these wetland units are gravel bars; they account for 11 % of wetland area with a '1' rating.

[2] Fifteen wetland units straddle municipal boundaries; the total number of wetland units is 398.

[3] Foreshore tidal flats and Burns Bog account for this large number.

APPENDIX D - LOCATION AND SIZE (ha) OF WETLAND UNITS BY WETLAND CLASS

WETLAND UNIT NO.	LOCATION	BOG
100	Burns Bog	1496.7
135	Pitt Polder	196.3
49	Richmond Nature Park	47.8
154	Derby Reach Regional Park	30.7
189	Glen Valley	28.7
153	Fort Langley, northwest of	23.8
84	Lulu Island southeast	22.9
208	Laxton Lake	10.6
108	Coquitlam River, lower reach	6.9
209	Judson Lake	6.8
19	Deer Lake	5.5
18	Burnaby Lake and Still Creek	5.5
35	Camosun Bog, UBC Endowment Land	0.3
		1882.5

WETLAND UNIT NO.	LOCATION	FEN
135	Pitt Polder	1177.6
125	North Alouette River, adjacent	213.3
113	Surrey Bend	177.3
132	Addington Point Marsh	160.2
111	Douglas Island	132.0
171	Nicomekl River, north bank	112.0
124	Cod Island	111.5
178	Campbell River, upper reach	92.1
286	Sumas River mouth	45.3
149	Katzie Slough upper reaches	28.9
67	Alaksen National Wildlife Area	28.3
108	Coquitlam River, lower reach	27.6
216	Wades Creek	26.6
177	Nicomekl River, headwaters	13.1
168	Serpentine Wildlife Management	7.8
398	Miami Creek area	6.8
184	West Creek	6.6
384	Lake Errock	4.4
		2371.4

WETLAND UNIT NO.	LOCATION	MARSH
22	Westham Island foreshore	746.2
139	Widgeon Creek Valley	576.6
21	Lulu Island foreshore	479.7
75	South Arm Marshes	448.5
135	Pitt Polder	294.4
23	Brunswick Point	197.7
212	Hatzic Lake	166.0
142	Pitt Lake delta	163.5
27	Boundary Bay	150.5
392	Chehalis River delta	147.6
20	Sea and Iona Islands foreshore	126.3
221	Norrish Creek delta	117.0
74	Ladner Marsh	115.2
396	Morris and Weaver Creeks	109.9
220	Nicomen Slough	96.0
24	Roberts Bank interjetty area	83.1
287	McGillivray Creek Wildlife Sanc	79.5
34	Musqueam Marsh	75.1
193	Stave Lake, southeast	72.3
168	Serpentine Wildlife Management	54.4
192	Stave Lake, northwest	52.2
156	Kanaka Creek	47.1
133	Addington Marsh foreshore	47.0
280	Lakemount Marsh	44.5
254	Chilliwack and Atchelitz Creeks	43.4
43	Swishwash Island	41.8
178	Campbell River, upper reach	39.5
196	Silverdale Creek	39.2
18	Burnaby Lake and Still Creek	38.7
123	Alouette and North Alouette Riv	34.7
108	Coquitlam River, lower reach	34.5
332	Cheam Lake, Popkum	34.4
190	Crescent Island	34.2
38	McDonald Slough	31.3
198	Matsqui Island	31.1
138	Pitt Polder foreshore north	30.1
26	Centennial Beach	28.8
67	Alaksen National Wildlife Area	28.3
308	Camp and Gravel Sloughs	27.2
131	Minnekhada Regional Park	26.3
252	Hope Slough	25.9
113	Surrey Bend	25.3
219	Strawberry Island	24.3
128	Chatham Flats, Pitt River	24.2
356	Maria Slough, middle reach	21.1
290	Vedder Canal Marsh	21.0
271	Wilson Slough	20.5
28	Mud Bay	19.9
391	Bateson and Duncan Sloughs	19.8
327	Cheam and Agassiz sloughs	19.8
129	Pitt River, Alouette River to Sn	19.6
202	Matsqui Slough	18.4
137	Pitt Polder foreshore south	17.8
32	Musqueam Flats	17.4
61	Steveston Island	17.2
357	Maria Slough, middle reach	16.1
213	Chilqua Slough	15.2
289	Vedder Canal	14.8
122	Pitt River, RR bridge to Alouete	14.8
31	Campbell River mouth	14.8
126	DeBoville Slough	14.4
159	McMillan Island, near Fort Lang	14.3
134	Sturgeon Slough	14.3
44	Middle Arm south shore	14.0

64	Harlock and Albion Islands	13.7
65	Westham Island east	13.3
349	Fraser River, east of Herrling	13.2
284	Lonzo Creek	12.4
315	Mountain Slough	12.3
393	Harrison River, east bank	12.1
240	Queens Island Slough	11.9
121	Pitt River, RR bridge to De Bovl	11.5
239	Zaitscullachan Slough	11.2
85	Tilbury Island central	11.2
385	Harrison Bay, western shore	11.1
233	Nicomen Slough side channel	10.9
119	Pitt River mouth east	10.7
229	Nicomen Island central	9.9
179	Aldergrove, south of	9.9
358	Maria Slough, upper reach	9.2
82	Tilbury Island west	8.6
222	Mud Slough, Nicomen Island	8.5
83	Tilbury Slough	8.5
200	McLennan Creek/Gifford Slough	8.3
158	McMillan Island (at ferry termi	8.3
89	Don and Lion Islands	8.3
72	Canoe Pass northeast	8.2
285	Sumas River, upper reaches	8.0
42	Sea Island south	7.6
381	Johnsons Slough	7.4
66	Canoe Pass north shore	7.4
79	Deas Island east	7.1
76	Gilmour Island	7.0
197	Mandale Slough	6.6
297	Nelson and Bell sloughs	6.4
279	Sumas River	6.4
205	Page Lake	6.4
167	Serpentine River, lower reach	6.3
185	Palmateer Creek	6.2
130	Pitt River, Sheridan Hill fores	6.2
117	Pitt River mouth west	6.2
397	Miami Creek	5.9
11	Maplewood Flats	5.9
95	Purfleet Point, Annacis Island	5.8
78	Deas Island west	5.8
231	Nicomen Island south central	5.7
292	Yarrow	5.6
36	Iona Island north	5.6
19	Deer Lake	5.5
383	Harrison River mouth	5.0
371	Peters Indian Reserve	5.0
141	Pitt Lake south shore	4.8
353	Maria Slough, Seabird Island	4.6
146	Mann Point, Barnston Island	4.6
46	Bridgepoint to No. 8 Road	4.6
348	Fraser River, east of Maria Slo	4.5
203	Matsqui Slough, northern tribut	4.5
389	Harrison River south shore	4.4
166	Nicomekl River, lower reach	4.4
96	Annacis Island north	4.4
227	Nicomen Island north central	4.3
40	Sea Island north	4.3
224	Nicomen Island north central	4.2
41	Sea Island southeast	4.2
333	Fraser River south shore, Popku	3.8
251	Shefford Slough	3.8
183	Aldergrove	3.8
163	Salmon River, Fort Langley	3.8
68	Robertson and London Sloughs	3.8
355	Maria Slough tributary	3.6
211	Neilson Regional Park	3.6
3	Beaver Lake, Stanley Park	3.6
16	Port Moody, Pacific Coast Termi	3.5
90	Sunbury	3.3
63	Gilbert Beach	3.3
120	Katzie Slough	3.2
88	Annacis Channel north shore	3.2
87	Gravesend Reach	3.2
6	First Narrows, north shore	3.2
354	Maria Slough, middle reach	3.1
195	Hanna Creek	3.0
261	Nicomen Island slough	2.9
186	Fraser River south shore	2.9
140	Grant Narrows north shore	2.9
17	Port Moody foreshore	2.8
382	Harrison River mouth	2.7
223	Nicomen Slough, north shore	2.7
5	Capilano River mouth	2.7
234	Nicomen Slough, north of	2.6
182	CFB Aldergrove	2.6
33	North Arm Jetty	2.6
210	Hatzic Slough System	2.5
204	Clayburn Creek	2.5
230	Nicomen Island central	2.4
94	Annacis Channel north shore	2.4
330	Ferry Island slough	2.3
237	Quaamitch Slough	2.3
288	Millar/McGillivray Sloughs	2.2
111	Douglas Island	2.2
326	Fraser River, west of Agassiz B	2.1
228	Nicomen Island central	2.1
56	Tree Island area	2.1
243	Fraser River north bank	2.0
214	Chilqua Slough, north of	1.9
86	Tilbury Island east	1.9
352	Maria Slough, west bank	1.8
281	Sumas Lake Canal	1.8
62	Cannery Row, Steveston	1.8
7	McKay Creek mouth	1.8
232	Nicomen Island north central	1.7
390	Bateson and Duncan Slough area	1.6
344	Fraser River, east of Popkum	1.6
241	Queens Island	1.6
188	Nathan Slough	1.6
187	Nathan Canal	1.6
47	Mitchell Island	1.6
238	Yaalstrik Island Slough	1.4
387	Harrison Bay	1.3
314	Formerly part of Mountain Sloug	1.3
282	Sumas River (old scar)	1.3
235	Nicomen Slough north bank	1.3
127	Pitt River, De Boville Slough tn	1.3
201	Fraser River, south shore	1.2
81	Deas Slough south shore	1.2
48	Arthur Laing Bridge to Boundary	1.2
37	Southlands	1.2

25	Tsawwassen Beach	1.2
226	Nicomen Island north central	1.1
215	Hatzic Lake, southeast of	1.1
170	Nicomekl River, middle reach	1.1
116	Pitt Meadows Fraser foreshore	1.1
360	Fraser River, north of Herrling	1.0
283	Sumas River, former tributary	1.0
225	Nicomen Island north central	1.0
152	Derby Reach west	1.0
58	Poplar Island	1.0
395	Chehalis Indian River No.6	0.9
295	Sweltzer Creek	0.9
2	Lost Lagoon, Stanley Park	0.9
177	Nicomekl River, headwaters	0.8
80	Green Slough	0.8
69	Tamboline Slough, Westham Island	0.8
253	Coco-oppelo Slough north end	0.7
236	Nicomen Slough north bank	0.7
173	Nicomekl River, middle reach	0.7
93	Fraser Surrey Docks	0.7
60	Garry Point	0.7
54	No. 8 Road to CN Bridge	0.7
45	Middle Arm southeast shore	0.7
39	Marpole	0.7
176	Nicomekl River, upper reach	0.6
162	Fort Langley, southwest of	0.6
107	Queens Reach north shore	0.6
92	North Delta foreshore	0.6
71	Canoe Pass south shore	0.6
291	Lewis Slough	0.5
118	Pitt River mouth flats	0.5
109	Tree Island	0.5
97	Annacis Island south	0.5
329	Ferry Island slough, south shor	0.4
328	Agassiz slough, southeast of	0.4
161	Fort Langley, nw of 88th. Avenu	0.4
105	Fraser Mills	0.4
296	Sardis Park	0.3
157	Derby Reach Regional Park, sout	0.3
55	Burnaby Big Bend foreshore	0.3
298	Harrison River mouth	0.2
206	Pond northwest of Clearbrook	0.2
191	Stave Lake, sw of	0.2
165	Trinity Western University	0.2
114	Fraser Glen House	0.2
101	Brownsville	0.2
98	Annacis Island northeast	0.2
91	City Reach	0.2
73	Port Guichon	0.2
70	Westham Island slough	0.2
13	Barnett Marine Park	0.2
351	Maria Slough, adjacent to	0.1
307	Windermere Island	0.1
194	Chester Creek mouth	0.1
175	Nicomekl River, upper reach	0.1
174	Nicomekl River, middle reach	0.1
150	Derby Reach west	0.1
148	Bishops Reach	0.1
145	Barnston Island north	0.1
144	Barnston Island south	0.1
106	Queens Reach south shore	0.1
103	Sapperton Flats	0.1
59	Queensborough	0.1
57	New Westminster border to RR Br	0.1
50	East of Boundary Road	0.1
14	Port Moody, south shore	0.1
12	Burrard Inlet east, south shore	0.1
8	Mosquito Creek mouth	0.1
77		
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		6111.7

WETLAND UNIT NO.	LOCATION	GRAVEL
245	Fraser River, at Harrison R.	433.6
359	Fraser River, east of Seabird I	166.8
313	Fraser River, near Mountain Slo	158.4
350	Fraser River, nw of Herrling I.	151.6
392	Chehalis River delta	143.3
312	Greyell Slough/Island	117.7
293	Vedder River	104.7
277	Fraser R., near Nicomen Island	94.2
367	Fraser River, near Seabird Isla	93.9
336	Fraser River, east of Agassiz B	90.6
259	Fraser River, near Chilliwack C	84.7
370	Fraser River, near Peters IR	80.1
347	Fraser River, Maria Slough mout	79.8
337	Herrling Island	77.9
257	Fraser River, near Chilliwack C	76.3
247	Fraser River, near Queens Islan	68.4
375	Fraser River, west of Laidlaw	63.3
341	Fraser River, Maria Slough mout	60.0
316	Fraser River, near Mountain Slo	58.6
331	Fraser River at Agassiz Bridge	54.9
394	Chehalis River, lower reach	46.7
310	Fraser River, near Mountain Slo	46.6
306	Fraser River, near Nelson Sloug	38.2
263	Yaalstrick Island	37.1
378	Fraser River, west of Laidlaw	37.0
267	Yaalstrick Island west	35.5
369	Peters Indian Reserve	32.5
372	Fraser River, near Laidlaw	31.1
273	Fraser River, near Yaalstrick I	27.9
325	Fraser River, west of Agassiz B	26.8
319	Fraser River, near Greyell Slou	26.2
300	Fraser River, Harrison R. mouth	26.0
246	Fraser River, near Queens Islan	24.6
317	Fraser River, near Greyell Slou	23.8
321	Fraser River, near Cheam Slough	21.2
339	Fraser River, west of Maria Slo	18.2
258	Fraser River, Chilliwack Ck. mo	16.7
335	Fraser River, east of Agassiz B	15.3
368	Fraser River, near Peters IR	14.8
346	Fraser River, south of Herrling	14.5
248	Fraser River, near Queens Islan	14.2
373	Fraser River, southwest of Laid	13.4

304	Fraser River, near Nelson Sloug	12.3
5	Capilano River mouth	12.3
260	Fraser River, near Yaalstrick I	12.2
322	Fraser River, west of Agassiz B	10.9
305	Fraser River, near Nelson Sloug	10.2
278	Fraser R., near Nicomen Island	10.1
262	Yaalstrick Island	10.1
365	Fraser River, north of Herrling	9.2
324	Fraser River, west of Agassiz B	8.9
318	Fraser River, near Greyell Slou	8.6
266	Fraser R., near Chilliwack Moun	7.3
342	Fraser River, east of Herrling	7.0
271	Wilson Slough	6.8
377	Fraser River, west of Laidlaw	6.5
276	Fraser R., near Chilliwack Moun	6.0
250	Fraser River, near Chilliwack C	6.0
244	Fraser River, west of Harrison	5.7
309	Fraser River, near Mountain Slo	5.5
323	Fraser River, near Cheam Slough	5.4
256	Fraser River, Nicomen Island ea	5.2
366	Fraser River, north of Herrling	5.1
374	Fraser River, southwest of Laid	5.0
311	Fraser River, near Greyell Slou	5.0
343	Fraser River, se of Herrling I.	4.9
218	Fraser River, near Hatzic River	4.7
320	Fraser River, near Cheam Slough	4.5
242	Queens Island south shore	4.4
340	Fraser River, west of Maria Slo	4.2
299	Fraser River, Harrison R. mouth	4.1
268	Fraser R., near Chilliwack Moun	3.5
379	Johnsons Slough mouth	3.3
10	Seymour River, lower reach	3.1
301	Fraser River, near Nelson Sloug	3.0
338	Fraser River, west of Maria Slo	2.8
9	Lynn Creek mouth	2.7
362	Fraser River, north of Herrling	2.5
345	Fraser River, east of Popkum	2.4
249	Fraser River, near Chilliwack	2.3
376	Fraser River, west of Laidlaw	2.2
361	Fraser River, north of Herrling	2.2
295	Sweltzer Creek	1.9
269	Fraser R., near Chilliwack Moun	1.9
302	Fraser River, near Nelson Sloug	1.6
275	Fraser R., near Chilliwack Moun	1.5
272	Fraser River, near Yaalstrick I	1.5
363	Fraser River, north of Herrling	1.3
334	Fraser River, east of Agassiz B	1.3
380	Johnsons Slough mouth	1.2
264	Fraser River, near Yaalstrick I	1.0
387	Harrison Bay	0.8
303	Fraser River, near Nelson Sloug	0.8
255	Fraser River, Nicomen Island ea	0.8
265	Fraser R., near Chilliwack Moun	0.5
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		3122.7

WETLAND UNIT NO.	LOCATION	SHALLOW WATER
27	Boundary Bay	5161.6
22	Westham Island foreshore	4311.8
21	Lulu Island foreshore	3473.6
23	Brunswick Point	2630.2
20	Sea and Iona Islands foreshore	2436.7
24	Roberts Bank interjetty area	953.9
28	Mud Bay	677.8
142	Pitt Lake delta	381.6
386	Harrison Bay	364.0
1	Spanish Banks	345.7
29	Crescent Beach	327.4
30	Semiahmoo Bay/Ocean Park	318.0
25	Tsawwassen Beach	296.8
135	Pitt Polder	294.4
220	Nicomen Slough	288.0
32	Musqueam Flats	256.5
100	Burns Bog	166.3
139	Widgeon Creek Valley	144.1
392	Chehalis River delta	143.3
123	Alouette and North Alouette Riv	138.6
279	Sumas River	122.0
396	Morris and Weaver Creeks	109.9
393	Harrison River, east bank	109.3
293	Vedder River	104.7
252	Hope Slough	103.4
254	Chilliwack and Atchelitz Creeks	101.2
75	South Arm Marshes	89.9
11	Maplewood Flats	88.7
166	Nicomekl River, lower reach	83.7
17	Port Moody foreshore	83.6
192	Stave Lake, northwest	78.4
34	Musqueam Marsh	72.9
285	Sumas River, upper reaches	72.4
212	Hatzic Lake	71.2
18	Burnaby Lake and Still Creek	66.4
181	Pepin Creek	65.7
308	Camp and Gravel Sloughs	63.4
297	Nelson and Bell sloughs	57.7
167	Serpentine River, lower reach	56.6
67	Alaksen National Wildlife Area	56.6
178	Campbell River, upper reach	52.6
337	Herrling Island	52.0
245	Fraser River, at Harrison R.	48.2
169	Serpentine River, middle reach	47.0
289	Vedder Canal	44.4
172	Serpentine River, upper reach	39.9
350	Fraser River, nw of Herrling I.	37.9
315	Mountain Slough	37.0
163	Salmon River, Fort Langley	34.5
281	Sumas Lake Canal	34.3
251	Shefford Slough	34.2
134	Sturgeon Slough	33.5
103	Sapperton Flats	32.6
357	Maria Slough, middle reach	29.9

327	Cheam and Agassiz sloughs	29.6
120	Katzie Slough	28.8
313	Fraser River, near Mountain Slo	27.9
108	Coquitlam River, lower reach	27.6
239	Zaitscullachan Slough	26.0
208	Laxton Lake	24.7
219	Strawberry Island	24.3
280	Lakemount Marsh	24.0
397	Miami Creek	23.8
367	Fraser River, near Seabird Isla	23.5
277	Fraser R., near Nicomen Island	23.5
121	Pitt River, RR bridge to De Bovl	23.3
213	Chilqua Slough	22.9
381	Johnsons Slough	22.2
82	Tilbury Island west	21.8
170	Nicomekl River, middle reach	21.4
356	Maria Slough, middle reach	21.1
237	Quaamitch Slough	20.4
43	Swishwash Island	19.8
288	Millar/McGillivray Sloughs	19.4
207	Mill Lake, Clearbrook	19.4
141	Pitt Lake south shore	19.0
66	Canoe Pass north shore	18.6
359	Fraser River, east of Seabird I	18.5
202	Matsqui Slough	18.4
240	Queens Island Slough	17.9
131	Minnekhada Regional Park	17.5
2	Lost Lagoon, Stanley Park	17.5
358	Maria Slough, upper reach	17.1
137	Pitt Polder foreshore south	15.7
198	Matsqui Island	15.5
168	Serpentine Wildlife Management	15.5
61	Steveston Island	15.1
16	Port Moody, Pacific Coast Termi	15.0
129	Pitt River, Alouette River to Sn	14.3
95	Purfleet Point, Annacis Island	13.7
96	Annacis Island north	13.3
349	Fraser River, east of Herrling	13.2
312	Greyell Slough/Island	13.1
238	Yaalstrik Island Slough	12.9
173	Nicomekl River, middle reach	12.9
74	Ladner Marsh	12.4
5	Capilano River mouth	12.3
64	Harlock and Albion Islands	11.6
128	Chatham Flats, Pitt River	11.1
36	Iona Island north	11.1
87	Gravesend Reach	10.8
86	Tilbury Island east	10.8
138	Pitt Polder foreshore north	10.3
204	Clayburn Creek	10.2
210	Hatzic Slough System	9.8
152	Derby Reach west	9.8
89	Don and Lion Islands	9.8
85	Tilbury Island central	9.5
283	Sumas River, former tributary	9.4
259	Fraser River, near Chilliwack C	9.4
156	Kanaka Creek	9.4
133	Addington Marsh foreshore	9.1
330	Ferry Island slough	9.0
347	Fraser River, Maria Slough mout	8.9
287	McGillivray Creek Wildlife Sanc	8.8
65	Westham Island east	8.8
190	Crescent Island	8.6
46	Bridgepoint to No. 8 Road	8.6
257	Fraser River, near Chilliwack C	8.5
132	Addington Point Marsh	8.4
284	Lonzo Creek	8.3
200	McLennan Creek/Gifford Slough	8.3
47	Mitchell Island	8.2
193	Stave Lake, southeast	8.0
44	Middle Arm south shore	7.7
247	Fraser River, near Queens Islan	7.6
69	Tamboline Slough, Westham Islan	7.5
19	Deer Lake	7.4
294	Barrett Creek	7.2
101	Brownsville	7.0
68	Robertson and London Sloughs	7.0
40	Sea Island north	7.0
63	Gilbert Beach	6.9
271	Wilson Slough	6.8
209	Judson Lake	6.8
306	Fraser River, near Nelson Sloug	6.7
88	Annacis Channel north shore	6.7
300	Fraser River, Harrison R. mouth	6.5
111	Douglas Island	6.5
42	Sea Island south	6.5
33	North Arm Jetty	6.5
144	Barnston Island south	6.4
187	Nathan Canal	6.3
221	Norrish Creek delta	6.2
126	DeBoville Slough	6.2
331	Fraser River at Agassiz Bridge	6.1
253	Coco-oppelo Slough north end	6.1
246	Fraser River, near Queens Islan	6.1
236	Nicomen Slough north bank	6.1
145	Barnston Island north	6.1
124	Cod Island	5.9
92	North Delta foreshore	5.9
158	McMillan Island (at ferry termi	5.6
56	Tree Island area	5.6
38	McDonald Slough	5.4
314	Formerly part of Mountain Sloug	5.3
119	Pitt River mouth east	5.3
394	Chehalis River, lower reach	5.2
310	Fraser River, near Mountain Slo	5.2
90	Sunbury	5.2
179	Aldergrove, south of	5.0
106	Queens Reach south shore	5.0
391	Bateson and Duncan Sloughs	4.9
273	Fraser River, near Yaalstrick I	4.9
336	Fraser River, east of Agassiz B	4.8
291	Lewis Slough	4.8
55	Burnaby Big Bend foreshore	4.8
188	Nathan Slough	4.7
79	Deas Island east	4.7
339	Fraser River, west of Maria Slo	4.6
122	Pitt River, RR bridge to Alouete	4.6
10	Seymour River, lower reach	4.6
97	Annacis Island south	4.5
93	Fraser Surrey Docks	4.5
196	Silverdale Creek	4.4
148	Bishops Reach	4.4

117	Pitt River mouth west	4.4
107	Queens Reach north shore	4.4
48	Arthur Laing Bridge to Boundary	4.4
227	Nicomen Island north central	4.3
155	Derby Reach east	4.3
146	Mann Point, Barnston Island	4.3
94	Annacis Channel north shore	4.3
370	Fraser River, near Peters IR	4.2
182	CFB Aldergrove	4.0
332	Cheam Lake, Popkum	3.8
292	Yarrow	3.8
234	Nicomen Slough, north of	3.8
183	Aldergrove	3.8
91	City Reach	3.7
233	Nicomen Slough side channel	3.6
191	Stave Lake, sw of	3.6
3	Beaver Lake, Stanley Park	3.6
372	Fraser River, near Laidlaw	3.5
388	Harrison Bay	3.3
140	Grant Narrows north shore	3.2
109	Tree Island	3.2
77	Woodward Landing	3.2
62	Cannery Row, Steveston	3.2
316	Fraser River, near Mountain Slo	3.1
165	Trinity Western University	3.1
143	Parsons Channel	3.1
296	Sardis Park	3.0
54	No. 8 Road to CN Bridge	3.0
282	Sumas River (old scar)	2.9
261	Nicomen Island slough	2.9
217	Fraser River, north shore	2.8
205	Page Lake	2.8
14	Port Moody, south shore	2.8
382	Harrison River mouth	2.7
81	Deas Slough south shore	2.7
41	Sea Island southeast	2.7
9	Lynn Creek mouth	2.7
130	Pitt River, Sheridan Hill fores	2.6
31	Campbell River mouth	2.6
6	First Narrows, north shore	2.6
177	Nicomekl River, headwaters	2.5
83	Tilbury Slough	2.5
59	Queensborough	2.5
58	Poplar Island	2.5
321	Fraser River, near Cheam Slough	2.4
176	Nicomekl River, upper reach	2.4
127	Pitt River, De Boville Slough tn	2.4
290	Vedder Canal Marsh	2.3
116	Pitt Meadows Fraser foreshore	2.3
78	Deas Island west	2.3
8	Mosquito Creek mouth	2.3
151	Derby Reach east	2.2
13	Barnett Marine Park	2.2
371	Peters Indian Reserve	2.1
326	Fraser River, west of Agassiz B	2.1
222	Mud Slough, Nicomen Island	2.1
180	Bertrand Creek	2.1
175	Nicomekl River, upper reach	2.1
110	Essondale Islets	2.1
102	Sapperton	2.1
72	Canoe Pass northeast	2.1
112	Port Mann	2.0
70	Westham Island slough	2.0
378	Fraser River, west of Laidlaw	1.9
206	Pond northwest of Clearbrook	1.9
203	Matsqui Slough, northern tribut	1.9
298	Harrison River mouth	1.8
37	Southlands	1.8
7	McKay Creek mouth	1.8
335	Fraser River, east of Agassiz B	1.7
343	Fraser River, se of Herrling I.	1.6
241	Queens Island	1.6
39	Marpole	1.6
45	Middle Arm southeast shore	1.5
309	Fraser River, near Mountain Slo	1.4
304	Fraser River, near Nelson Sloug	1.4
286	Sumas River mouth	1.4
225	Nicomen Island north central	1.4
216	Wades Creek	1.4
157	Derby Reach Regional Park, sout	1.4
147	Pitt Meadows Airport foreshore	1.4
104	Sapperton Dyke	1.4
15	Port Moody, Reed Point	1.4
197	Mandale Slough	1.3
162	Fort Langley, southwest of	1.3
150	Derby Reach west	1.3
201	Fraser River, south shore	1.2
118	Pitt River mouth flats	1.2
353	Maria Slough, Seabird Island	1.1
348	Fraser River, east of Maria Slo	1.1
232	Nicomen Island north central	1.1
215	Hatzic Lake, southeast of	1.1
194	Chester Creek mouth	1.1
115	Pitt Meadows Fraser foreshore	1.1
80	Green Slough	1.1
73	Port Guichon	1.1
50	East of Boundary Road	1.1
360	Fraser River, north of Herrling	1.0
351	Maria Slough, adjacent to	1.0
324	Fraser River, west of Agassiz B	1.0
174	Nicomekl River, middle reach	1.0
98	Annacis Island northeast	1.0
57	New Westminster border to RR Br	1.0
355	Maria Slough tributary	0.9
328	Agassiz slough, southeast of	0.9
235	Nicomen Slough north bank	0.9
136	McIntyre Creek	0.9
60	Garry Point	0.9
398	Miami Creek area	0.8
307	Windermere Island	0.8
301	Fraser River, near Nelson Sloug	0.8
161	Fort Langley, nw of 88th. Avenu	0.8
226	Nicomen Island north central	0.7
223	Nicomen Slough, north shore	0.7
311	Fraser River, near Greyell Slou	0.6
164	Glover and Rawlinson Creeks	0.6
365	Fraser River, north of Herrling	0.5
299	Fraser River, Harrison R. mouth	0.5
278	Fraser R., near Nicomen Island	0.5
262	Yaalstrick Island	0.5
242	Queens Island south shore	0.5
229	Nicomen Island central	0.5

228	Nicomen Island central	0.5
224	Nicomen Island north central	0.5
114	Fraser Glen House	0.5
105	Fraser Mills	0.5
329	Ferry Island slough, south shor	0.4
302	Fraser River, near Nelson Sloug	0.4
211	Neilson Regional Park	0.4
71	Canoe Pass south shore	0.4
362	Fraser River, north of Herrling	0.3
256	Fraser River, Nicomen Island ea	0.3
195	Hanna Creek	0.3
185	Palmateer Creek	0.3
184	West Creek	0.3
159	McMillan Island, near Fort Lang	0.3
12	Burrard Inlet east, south shore	0.3
384	Lake Errock	0.2
352	Maria Slough, west bank	0.2
340	Fraser River, west of Maria Slo	0.2
272	Fraser River, near Yaalstrick I	0.2
269	Fraser R., near Chilliwack Moun	0.2
214	Chilqua Slough, north of	0.2
303	Fraser River, near Nelson Sloug	0.1
199	Creek mouth, west of McLennan C	0.1
99	New Westminster waterfront	0.1
		=======
		26981.0

WETLAND UNIT NO.	LOCATION	SWAMP
113	Surrey Bend	304.0
198	Matsqui Island	263.9
219	Strawberry Island	194.6
178	Campbell River, upper reach	78.9
181	Pepin Creek	65.7
217	Fraser River, north shore	52.5
293	Vedder River	52.4
108	Coquitlam River, lower reach	41.4
111	Douglas Island	38.0
156	Kanaka Creek	37.7
75	South Arm Marshes	28.5
74	Ladner Marsh	21.3
180	Bertrand Creek	18.7
197	Mandale Slough	18.5
79	Deas Island east	17.3
51	Fraser River Foreshore Park	12.7
58	Poplar Island	12.2
55	Burnaby Big Bend foreshore	10.0
179	Aldergrove, south of	9.9
152	Derby Reach west	9.6
4	Ambleside	8.1
136	McIntyre Creek	7.7
116	Pitt Meadows Fraser foreshore	7.7
147	Pitt Meadows Airport foreshore	7.5
148	Bishops Reach	7.0
89	Don and Lion Islands	6.6
155	Derby Reach east	6.4
78	Deas Island west	5.8
145	Barnston Island north	5.7
80	Green Slough	5.6
119	Pitt River mouth east	5.5
46	Bridgepoint to No. 8 Road	5.0
96	Annacis Island north	4.5
95	Purfleet Point, Annacis Island	4.1
53	Fraser River Foreshore Park	4.1
115	Pitt Meadows Fraser foreshore	3.9
85	Tilbury Island central	3.7
151	Derby Reach east	3.5
52	Fraser River Foreshore Park	3.5
160	Salmon River, near mouth of	3.4
86	Tilbury Island east	3.4
61	Steveston Island	2.9
199	Creek mouth, west of McLennan C	2.8
93	Fraser Surrey Docks	2.8
109	Tree Island	2.4
35	Camosun Bog, UBC Endowment Land	2.4
144	Barnston Island south	2.3
41	Sea Island southeast	2.2
107	Queens Reach north shore	2.1
97	Annacis Island south	1.8
146	Mann Point, Barnston Island	1.3
104	Sapperton Dyke	1.2
103	Sapperton Flats	1.2
88	Annacis Channel north shore	1.2
56	Tree Island area	1.2
105	Fraser Mills	1.1
83	Tilbury Slough	1.1
50	East of Boundary Road	1.1
38	McDonald Slough	0.9
40	Sea Island north	0.7
81	Deas Slough south shore	0.6
37	Southlands	0.6
48	Arthur Laing Bridge to Boundary	0.5
43	Swishwash Island	0.5
54	No. 8 Road to CN Bridge	0.4
42	Sea Island south	0.4
39	Marpole	0.4
295	Sweltzer Creek	0.3
110	Essondale Islets	0.2
		=======
		1437.1

APPENDIX E THE CANADIAN WETLAND CLASSIFICATION SYSTEM[4]

(as it pertains to this inventory)

WETLAND - land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity which are adapted to a wet environment.

Five classes of wetland are recognized: bog, fen, marsh, swamp and shallow open water. Each of these classes is further subdivided into 'forms'. A description of each class and form found in this study area is given below.

BOG - A peatland, generally with the water table at or near the surface, which may be raised or level with the surrounding terrain, is virtually unaffected by the nutrient-rich groundwaters from the surrounding mineral soils and is thus generally acid and low in nutrients. The dominant materials are weakly to moderately decomposed *Sphagnum* and woody peat, underlain at times by sedge peat. The soils are mainly Fibrisols, Mesisols, and Organic Cryosols (permafrost soils). Bogs may be treed or treeless, and they are usually covered with *Sphagnum* spp. and ericaceous shrubs.

Basin Bog - A bog situated in a basin that has an essentially closed drainage, receiving water from precipitation and from runoff from the immediate surroundings. The surface of the bog is flat, but the peat is generally deepest at the centre.

Domed Bog - A large (usually more than 500 m in diameter) bog with a convex surface, rising several meters above the surrounding terrain. The centre is usually draining in all directions. Small crescentic pools often form around the highest point. If the highest point is in the centre, the pools form a concentric pattern, or eccentric if the pattern is off-centre. Peat development is usually in excess of 3 m.

Flat Bog - A bog having a flat, featureless surface. It occurs in broad, poorly defined depressions. The depth of peat is generally uniform.

Shore Bog - A non-floating bog forming at the shore of a pond or lake. The bog surface is

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[4] National Wetlands Working Group. Ecological Land Classification Series No. 21.

elevated at least 0.5 m above the level of the lake and its rooting zone is not affected by lake water. The bog often encroaches over the lake as shown by underlying lacustrine peat sediments.

FEN - A peatland with the water table usually at or just above the surface. The waters are mainly nutrient-rich and minerotrophic from mineral soils. The dominant materials are moderately to well decomposed sedge and/or brown moss peat of variable thickness. The soils are mainly Mesisols, Humisols, and Organic Cryosols. The vegetation consists predominantly of sedges, grasses, reeds, and brown mosses with some shrubs and, at times, a sparse tree layer.

Shore Fen - A fen with an anchored surface mat that forms the shore of a pond or lake. The rooting zone is affected by the water of the lake at both normal and flood levels.

Stream Fen - A fen located in the main channel or along the banks of permanent or semi-permanent streams. This fen is affected by the water of the stream at normal and flood stages.

MARSH - A mineral wetland or a peatland that is periodically inundated by standing or slowly moving water. Surface water levels may fluctuate seasonally, with declining levels exposing drawdown zones of matted vegetation or mud flats. The waters are rich in nutrients, varying from fresh to highly saline. The substratum usually consists of mineral material, although occasionally it consists of well-decomposed peat. The soils are predominantly Gleysols, with some Humisols and Mesisols. Marshes characteristically show zonal or mosaic surface patters composed of pools or channels interspersed with clumps of emergent sedges, grasses, rushes, and reeds, bordering grassy meadows and peripheral bands of shrubs or trees. Submerged and floating aquatics flourish where open water areas occur.

Active Delta Marsh - A marsh occupying lowlands on deltas, usually with drainage connections to active river channels. The marsh is subject to inundation at least once during a season, followed by a slow drawdown of the water levels. A high rate of sedimentation may occur in many parts of the marsh.

Coastal Marsh - A marsh influenced by brackish or saline waters of tidal marine origin. It occurs on marine terraces, flats, embayment, or lagoons.

High Marsh - located above mean high-water levels and is inundated only by flood tides.

Low Marsh - located below mean high-water levels and is inundated daily.

Estuarine Marsh - A marsh influenced by waters of varying salinity and of tidal marine origin. It occurs in river estuaries or in connected bays.

High Marsh - located above mean high-water levels and is inundated only at highest tides and/or storm surges.

Low Marsh - located below mean high-water levels and is frequently inundated.

Floodplain Marsh - A marsh occurring on fluvial floodplains adjacent to river channels. The marsh is subject to annual flooding and sedimentation for various lengths of time, with possibly some water impounded on the marsh following flooding.

Seepage Track Marsh - A marsh occupying spring or water discharge sites on or at the base of slopes. This marsh features saturated, quaking ground, flowages or drainage tracks, and occasional open pools where drainage is impeded.

Shallow Basin Marsh - A marsh occurring in a uniformly shallow depression or swale, having a gradual gradient from the edge of the deepest portion. The marsh edge may be poorly defined due to rapidly receding water levels.

Shore Marsh - A marsh occupying the contact zone between high and low water marks bordering semi-permanent or permanent lakes. The marsh is usually found along protected shorelines, in lagoons behind barrier beaches, on islands, or in embayments. The marsh is subject to flooding by rises in lake levels, wave winds, or surface runoff.

Stream Marsh - A marsh occupying shorelines, bars, streambeds, or islands in continuously flowing water courses. The marsh is subject to prolonged annual flooding and is often covered by thick layers of sediment.

Terminal Basin Marsh - A marsh occurring in a topographically low catch basin situated at the terminal end of internal drainage systems receiving a variable water supply from surface runoff, channel wetlands, streams, or groundwater. The marsh has no overflow or drainage outlets and most water loss is due to evaporation.

Tidal Freshwater Marsh - A marsh located upstream from estuarine and coastal marshes. The marsh is characterized by almost freshwater conditions, plant and animal communities dominated by freshwater species, and daily, lunar tidal fluctuations.

SWAMP - A mineral wetland or a peatland with standing water or water gently flowing through pools or channels. The water table is usually at or near the surface. There is pronounced internal water movement from the margin or other mineral sources; hence the waters are rich in nutrients. If peat is present, it is mainly well-decomposed wood, underlain at times by sedge peat. The associated soils are Mesisols, Humisols, and Gleysols. The vegetation is characterized by a dense cover of deciduous or coniferous trees or shrubs, herbs, and some mosses.

Basin Swamp - A swamp developed in a topographically defined basin where the water is derived locally but may be augmented by drainage from other parts of the watershed. Accumulation of well-decomposed peat is shallow (less than 0.5 m) at the edge and may reach 2 m at the centre.

Floodplain swamp - A swamp occurring in a valley which may be inundated by a seasonally flooding river. Slow drawdown after flooding preserves a high water table for most of the growing season. Shallow peat development may be encountered.

Stream swamp - A swamp occurring along the banks of permanent or semi-permanent streams. The high water table is maintained by the level of water in the stream. The swamp is seasonally inundated, with subsequent sediment deposition.

SHALLOW WATER - Characteristic of intermittently or permanently flooded or seasonally stable water regimes, feature open expanses of standing or flowing water which are variously called ponds, pools, shallow lakes, oxbows, reaches, channels, or impoundments. Shallow water is distinguished from deep water by mid-summer water depths of less than 2 m, and from other wetlands by summer open water zones occupying 75% or more of the wetland surface area.

Large open water areas (greater than 8 ha), located within wetland complexes, should be classified separately as shallow water units, despite the area or extent of bordering vegetation zones. Periodic flooding may increase water depths, but during droughts, low flows, drainage, or intertidal periods, drawdown flats may be exposed.

Shallow water is distinguished from uplands and bordering wetland complexes by water-eroded shorelines, or by the landward margins of mud flats, floating mats, emergents, or shrubs. In the open water zone, living vegetation, if present, is confined to submerged and floating aquatic plant forms.

Delta Water - Shallow ponds occurring on deltas that have been impounded by the shifting of river channels and the deposition of sediments. Periodic flooding in the delta usually inundates the delta water body.

Estuarine Water - Estuarine channels or bays periodically inundated by water of varying salinity. The water is less than 2 m deep.

Kettle Water - Predominantly shallow ponds with deep central portions, occupying basins with moderately sloping sides. The water sources are surface runoff from the local catchment area and seepage inflow. Drainage is limited to subsurface seepage, or overflow during flooding.

Non-tidal Water - Brackish water bodies mainly in pools and ponds located above the mean high-tide zone. The water is less than 2 m deep.

Oxbow Water - Shallow pond or lakes in old, abandoned channels or rivers impounded behind natural levees on river floodplains. Periodic flooding by the river usually inundates the oxbow water body.

Shallow Basin Water - Shallow ponds located in gently sloping depressions, receiving water from the catchment area. The basin edges are usually poorly defined. Surplus water is drained by open outlets or by seepage.

Shore Water - Shallow water confined to the upper littoral or near-shore zone of permanent open water bodies. Shore water may occupy large portions of shallow bays or shoals, merging with deep water zones.

Stream Water - Inland, shallow, fresh to saline flowing water which flows continuously and is confined to a main water course. Seasonal periods of flood stages may occur.

Terminal Basin Water - Shallow ponds in topographically defined basins where incoming water is supplied by drainage of the upper catchment area, as well as from the immediate surroundings. Outlet channels are lacking.

Tidal Water - Coastal lagoons or bays influenced by tidal action and salt water of marine origin. The normal mean tide-water level is less than 2 m deep.

VEGETATION TYPES - The terms used to describe wetland types are based on the general physiognomy of the vegetation cover, rather than on species descriptions. The physiognomic terms, when used in conjunction with wetland forms, constitute the wetland types.

Coniferous Treed - This wetland type is dominated by needleleaf species in the tree layer (more than 5 m tall). The most common species are *Picea mariana* and *Larix laricina* which grow on organic soils and represent a characteristic type in the boreal forest regions. *Thuja occidentalis* is the most common species found in the nutrient-rich southern wetlands in eastern Canada, and *Pinus contorta, Thuja plicata,* and *Chamaecyparis nootkatensis* occur on the Pacific coast wetlands.

Hardwood Treed - This wetland type is dominated by broadleaf species in the tree layer (more than 5 m tall). The most common species are *Acer* spp., *Fraxinus nigra, Ulmus americana, Betula* spp., and *Populus balsamifera.* Wetlands of this type generally occur in mineral soils or on highly decomposed organic soils.

Tall Shrub - This wetland type includes both tall shrubs (more than 1.5 m) and medium shrubs (0.5-1.5 m). The species include true shrubs and stunted trees.

Low Shrub - This wetland type includes both low shrubs (0.1-0.5 m) and ground shrubs (less than 0.1 m).

Mixed Shrub - This wetland type includes tall shrubs (more than 1.5 m), medium shrubs (0.5-1.5 m), and low shrubs (0.1-0.5 m).

Forb - This wetland type is dominated by forb species (non-grassy herbs).

Grass - This wetland type is dominated by low, tall, or mixed grass species.

Reed - This wetland type is dominated by reed species (*Phragmites*).

Tall Rush - This wetland type is dominated by *Scirpus* spp. and *Typha* spp.

Low Rush - This wetland type is dominated by *Juncus* spp. and *Triglochin* spp.

Sedge - This wetland type is dominated by sedge (*Carex* spp. and *Eriophorum* spp.) vegetation.

Moss - This wetland type is dominated by moss species. The most common mosses are *Sphagnum*, feather-mosses (*Pleurozium* spp. *Hylocomium* spp., and *Ptilium* spp.) and brown mosses (*Drepanocladus* spp., *Scorpidium* spp., and *Tomenthypnum* spp.).

Floating Aquatic - This wetland type is dominated by plants with leaves floating on the surface of the water.

Submerged Aquatic - This wetland type is dominated by plants with leaves found mainly below the surface of the water.

Non-vegetated - This wetland type has a vegetation cover that occupies less than 5% of the surface.

WETLANDS INVENTORY

USER NOTES

Identification Number

Each wetland unit has a specific number and can be located on the sub-region maps located throughout the report (see MAPS below). The (F) following some identification numbers indicates that the unit was identified by one of the FREMP Habitat Inventories (FREMP 1990a, 1990b). The 1:127 500 index map in the pocket at the back of the report shows the location of these 29 sub-region maps.

Habitat Rating

The rating of each wetland unit was based on its level of disturbance, as determined by field inspection. Level '1' indicates an undisturbed area; '2' a moderate amount of disturbance; and '3' a substantial amount of disturbance. See Wetland Evaluation for further description.

Size

Sizes are given to the nearest tenth of a hectare; any computed sizes of less than .05 ha will show as 0.0 in the database. Some sizes do not add up due to rounding. For the main CWS inventory, the area of each wetland class within the unit was estimated as a percentage of the total unit. These sizes were computed after the whole unit had been digitized, georeferenced to the digital base map, and measured. Similarly, vegetation types were estimated as a percentage of the total. On the other hand, the FREMP-inventoried wetlands (those units with identification numbers followed by F) provide actual measurements of each wetland type; thus, there are no percentages in those units.

Wetland Classification

The 'class' and 'form' levels of the CWCS are combined; for example: tidal freshwater marsh; stream fen; estuarine water (when the class and form of the 'shallow water' class are combined the word 'shallow' is omitted). Note that the third level of classification - 'vegetation type' - is not given for the FREMP area.

Eelgrass Beds - they are not dealt with as separate wetland units in this inventory but rather as one vegetation type within an individual wetland unit, such as Boundary Bay. Their measurement is given as a percentage of the total unit and appears under 'sub-aquatic' vegetation type. More specific measurements are given in the Results and Discussion section of this report and in the Notes of the relevant wetland unit.

Municipality

In the case of a wetland unit straddling municipal boundaries, the area of that unit in each municipality is given in brackets after its name. Except for units 103, 108, 142, 212, this ratio may be applied, if necessary, to the individual types of wetland within the unit, because there is a relatively even distribution of wetland types throughout the unit. In units 20 and 21, the distribution is specified in the NOTES.

Survey Date

This is the date of the field survey. Field work for the CWS inventory was carried out mainly during the summer of 1989, with occasional additional inspections during 1990 and 1991. For the FREMP wetlands the field work was carried out during the summer of 1988 for the Fraser River Harbour and in the summer of 1990 for the North Fraser Harbour.

Air Photos

This specifies the identification number of each applicable air photo.

Notes

The notes contain information on habitat values, wildlife use, clarifications of status and any other relevant information.

MAPS

Index Map

The 1:127 500 index map is contained in a pocket at the back of this report. It shows the location of the 29 sub-region maps and the wetland units. However, the scale of the index map does not allow each wetland unit to be identified by number. They are identified by number on the sub-region maps only.

Sub-region Maps

Each wetland unit has been mapped and numbered on 29 separate maps, most of them at the scale of approximately 1:50 000. They are located throughout the report as close as possible to the corresponding wetland unit data:

MAP 1 Burrard Inlet West (No. 1 - 8) 40
MAP 2 Burrard Inlet East (No. 9 - 12) 44
MAP 3 Port Moody (No. 13 - 17) 47
MAP 4 Burnaby and Deer Lakes (No. 18 - 19) 50
MAP 5 Sturgeon Bank (No. 20 - 21) 52
MAP 6 Roberts Bank (No. 22 - 25) 54
MAP 7 Boundary Bay (No. 26 - 31) 57
MAP 8 North Arm West and Middle Arm (No. 32 - 45) 62
MAP 9 North Arm Central (No. 46 - 49) 67
MAP 10 North Arm East (No. 50 - 59) 69
MAP 11 Steveston to Ladner Marsh (No. 60 - 77) 73
MAP 12 Deas Island to Annacis Island (No. 78 - 100) 81
MAP 13 New Westminster to Surrey Bend (No. 101 - 116) 90
MAP 14 Lower Pitt River Valley (No. 117 - 127) 96
MAP 15 Upper Pitt River Valley (No. 128 - 142) 101
MAP 16 Barnston Island to Fort Langley (No. 143 - 165) 108
MAP 17 Serpentine - Nicomekl Lowland (No. 166 - 177) 117
MAP 18 Campbell River Valley (No. 178) 122
MAP 19 Central Fraser Valley Uplands (No. 179 - 183) 124
MAP 20 Glen Valley / Stave River (No. 184 - 195) 127
MAP 21 Matsqui / Mission (No. 196 - 209) 132
MAP 22 Hatzic / Nicomen West (No. 210 - 232) 138
MAP 23 Nicomen East / Chilliwack West (No. 233 - 278) 148
MAP 24 Sumas River Valley (No. 279 - 285) 165
MAP 25 Vedder River Valley (No. 286 - 296) 169
MAP 26 Windermere / Mountain Slough (No. 297 - 322) 175
MAP 27 Aggasiz / Popkum (No. 323 - 346) 185
MAP 28 Sea Bird Island (No. 347 - 381) 194
MAP 29 Harrison River Valley (No. 382 - 398) 207

MAP LEGEND

Fraser Lowland - the landward boundary of the study area is the 150 m contour as shown on the 1:125 000 B.C. Land Status maps 92G/SE,/SW and 92H/SW; the seaward boundary is the -10 m hydrographic contour, ie. 10 m below chart datum (lowest normal tide level) on the 1:80 000 Canadian Hydrographic Chart No. 3463 (1988).

Tidal flats - the outer limit of the tidal flats on Sturgeon and Roberts banks and in Boundary, Mud and Semiahmoo bays is chart datum on the 1:80 000 Canadian Hydrographic Chart No. 3463 (1988).

The tidal flat boundaries in Burrard Inlet East were determined from air photo interpretation.

The tidal flat boundaries shown in the river were transferred manually from the 1:2500 FREMP maps to 1:25 000 NTS maps and then digitized for display only.

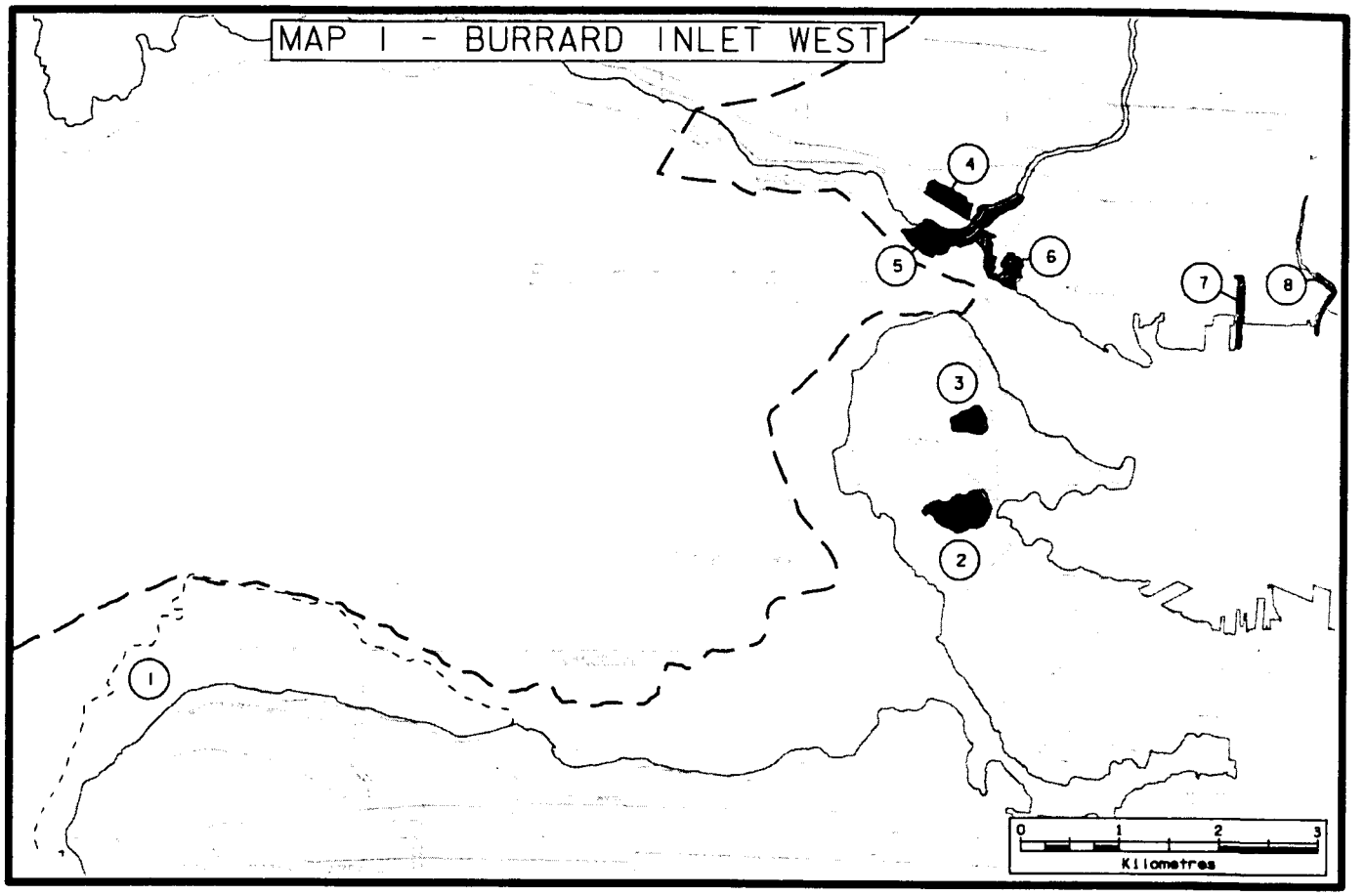
Shoreline and streams - these were digitized by CWS from 1:50 000 NTS mylar maps -92G/2,/3,/6,/7 (1989) and 92G/1, 92H/4,/5 (1980) under agreement with Energy, Mines and Resources Canada.

Municipal boundaries - municipal boundaries were digitized from the same 1:50 000 NTS maps mentioned above. For regional district boundaries, see Figure 3 which is based on the publication by the Ministry of Municipal Affairs, Recreation and Culture, 1989.

Wetland - includes both CWS and FREMP-inventoried wetlands. The CWS wetlands were identified by air photo interpretation and subsequent field checking. The FREMP wetlands were identified by separate habitat inventories (FREMP 1990a, 1990b).

Eelgrass beds - determined by interpretation of 1:30 000 colour infrared air photos taken in June 1990 at low water and of 1:12 000 colour air photos taken in 1986 at low water.

Wetland identification number - this number corresponds to the specific wetland units described in the following data report and identified on the appropriate sub-region map.



1 Spanish Banks 1

Habitat Rating 2

Wetland classification
100% tidal water

Size (ha)
345.7

Vegetation type
100% non-vegetated

Municipality GVRD Ea A (265.0 ha);
Vancouver City (80.7 ha)
Land Status Crown Provincial
Port Jurisdiction Vancouver
Survey Date
Air photos

Notes Fish stocks from both the Fraser River and Burrard Inlet use this area. (S. McFarlane, pers. commun.)

2 Lost Lagoon, Stanley Park **2**

Habitat Rating 3

Wetland classification	**Size (ha)**
95% non-tidal water	17.5
5% shore marsh	0.9
	18.4

Vegetation type

95% non-vegetated	2% tall rush
1% hardwood trees	1% forb
1% coniferous trees	

Municipality Vancouver City
Land Status Crown Federal
Survey Date 10/29/89
Air photos SRS3599-138

Notes Lost Lagoon, at the entrance to Stanley Park, used to be a tidal area before the Stanley Park Causeway separated it from Coal Harbour. The brackish water is believed to be fed by subsurface runoff and from small surface streams and saltwater seepage at high tides. Fish populations are quite low due to poor water circulation and brackish water (City of Vancouver 1985).

The area provides good waterfowl habitat and has attracted a large resident Canada Goose population. Coots and Mallards, as well as a number of rare species are seen here; it is a particularly good place in winter to see scaups, Wood Ducks and goldeneyes in close proximity (J.-P. Savard, pers. commun.).

The title to these lands is held by the Department of National Defence. The reason for this dates back to 1859 when the Royal Engineers set the area aside for military purposes; the land was transferred from Britain to Canada in 1880. In 1888, the City of Vancouver established Stanley Park here and in 1908 leased the property for 99 years.

==========

3 Beaver Lake, Stanley Park **3**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% non-tidal water	3.6
50% shore marsh	3.6
	7.2

Vegetation type

20% floating aquatic	20% submerged aquatic
20% forb	10% hardwood trees
10% tall shrub	10% non-vegetated
5% coniferous trees	5% sedge

Municipality Vancouver City
Land Status Crown Federal
Survey Date 10/29/89
Air photos SRS3599-083

Notes This is the only freshwater lake in the park. Generally less than 1.5 m deep, it is gradually filling with sediments and aquatic plants are taking

over. This will eventually eliminate the lake. (City of Vancouver 1985)

Carp are the main fish in the lake. There have been salmon and trout in the past but few, if any, Cutthroat Trout are believed to reside there now. A number of waterbirds use this lake. Common residents include Mallards and Wood Ducks while Canada Geese and Pied-billed Grebes are seen more sporadically (Hatfield 1984).

==========

4 Ambleside **4**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain swamp	8.1

Vegetation type

75% coniferous trees	15% hardwood trees
10% tall shrub	

Municipality West Vancouver District
Land Status Indian Reserve
Survey Date 05/22/91
Air photos SRS3599-078

Notes The natural drainage of this remnant floodplain forest has been affected by the railroad tracks to the south and by the regulation of the adjacent Capilano River flow by the upstream dam. It is the only wetland of its kind in West Vancouver.

==========

5 Capilano River mouth **5**

Habitat Rating 2

Wetland classification	**Size (ha)**
45% stream water	12.3
45% gravel bar - early succession	12.3
10% stream marsh	2.7
	27.4

Vegetation type

80% non-vegetated	10% mixed shrub
8% sedge	1% grass
1% forb	

Municipality West Vancouver District
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-078

Notes This wetland provides good habitat for fish and waterfowl. Spotted Sandpipers, Black Turnstones and Killdeer are also seen here (K. Bell, pers. commun.). The unit is dyked on both sides and surrounded by a trailer park, roads and the Park Royal Shopping Center.

==========

6 First Narrows, north shore **6**

Habitat Rating 2

Wetland classification	**Size (ha)**
55% estuarine low marsh	3.2
45% tidal water	2.6

	5.8

Vegetation type

50% non-vegetated	20% grass
20% sedge	10% forb

Municipality West Vancouver District
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-077

Notes This remnant saltmarsh is the most productive area at the mouth of the Capilano River. Birds seen here include goldeneyes, mergansers, scaups and shorebirds. Adjacent to the site are railroad yards, docks and some landfill.

==========

7 McKay Creek mouth **7**

Habitat Rating 3

Wetland classification	**Size (ha)**
50% stream water	1.8
50% stream marsh	1.8

	3.5

Vegetation type

50% non-vegetated	20% grass
20% low rush	5% forb
5% tall shrub	

Municipality North Vancouver City
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-074

Notes These mudflats are the remnants of the Mosquito Creek Estuary. Coho, Cutthroat and Steelhead smolts are found in the creek. Various waterbirds and shorebirds are seen near the mouth. It is surrounded by industry.

==========

8 Mosquito Creek mouth **8**

Habitat Rating 3

Wetland classification	**Size (ha)**
95% stream water	2.3
5% stream marsh	0.1

	2.4

Vegetation type

95% non-vegetated	2% grass
2% forb	1% sedge

Municipality North Vancouver City
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-074

Notes Dyked. Surrounded by roads, marina, and the railroad.

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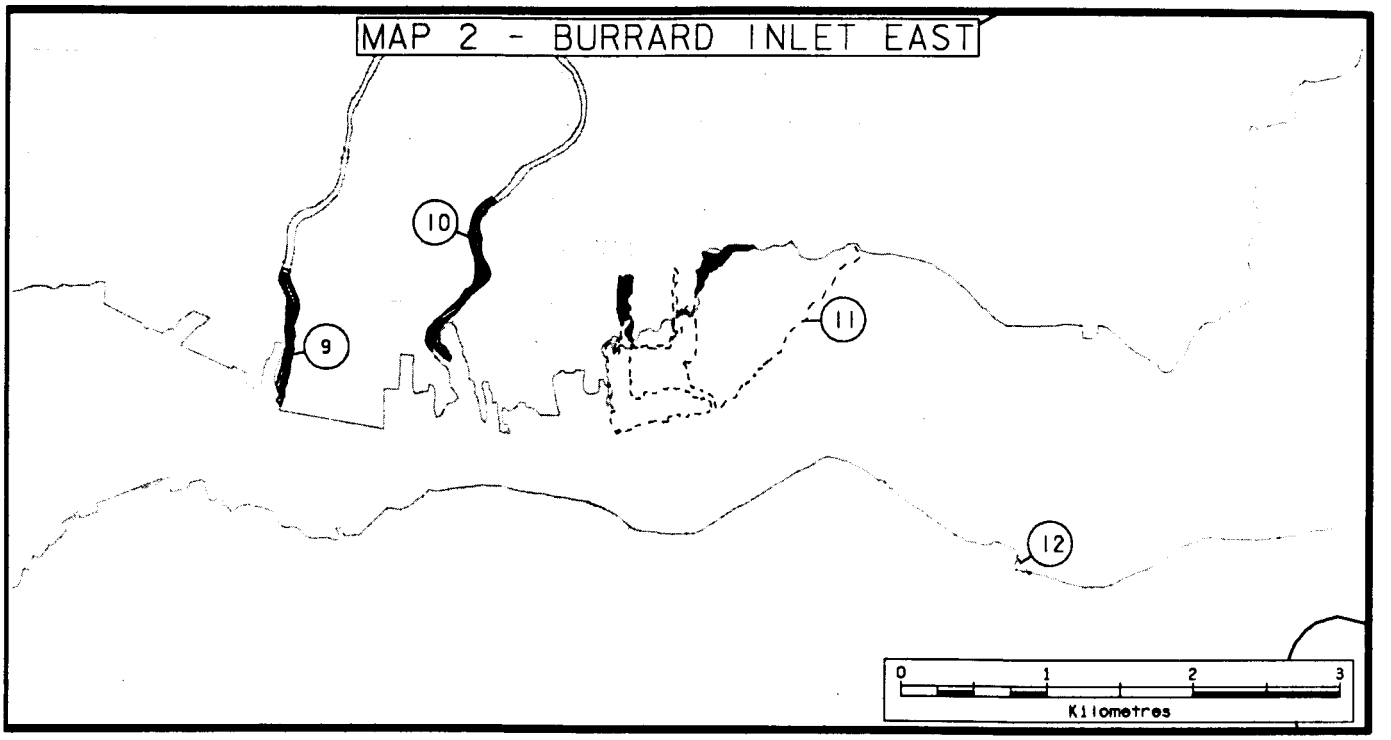


9 Lynn Creek mouth **9**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% stream water	2.7
50% gravel bar	2.7
- early succession	

	5.4

Vegetation type
95% non-vegetated 5% submerged aquatic

Municipality North Vancouver District
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-092

Notes Dyked. Railroad and road crossings. Surrounded by industry and commerce.

==========

10 Seymour River, lower reach **10**

Habitat Rating 3

Wetland classification	**Size (ha)**
60% stream water	4.6
40% gravel bar	3.1
- early succession	

	7.7

Vegetation type
100% non-vegetated

Municipality North Vancouver District
Land Status
Survey Date 10/29/89
Air photos SRS3599-092

Notes Roads, railway, dykes, industry.

==========

11 Maplewood Flats **11**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine low marsh	5.9
tidal water	88.7

	94.6

Vegetation type

90% non-vegetated	5% grass
2% submerged aquatic	2% forb
1% tall shrub	

Municipality North Vancouver District
Land Status
Port Jurisdiction Vancouver
Survey Date 10/29/89
Air photos SRS3599-095

Notes This is the largest remaining wetland in Burrard Inlet. It is all that is left of a once-sizable estuary at the mouths of the Seymour River, Lynn Creek and several smaller creeks.

It sustains a large number and variety of birds: 185 species have been recorded, including many rare birds and nearly 20 species which have not been recorded anywhere else on the North Shore (Western Canada Wilderness Committee 1988). It is also the site of at least one breeding pair of Osprey - rare breeders in the Lower Mainland (R. McKelvey, pers. commun.). It is a vital staging and feeding area for thousands of migratory waterfowl and other waterbirds. In addition, the flats are one of the most important rearing grounds for salmon and trout species in Burrard Inlet.

The area is used extensively by a wide cross-section of the community. In the late 1980's there was controversy regarding the Port of Vancouver's plans to develop an adjacent upland property. Public pressure resulted in the whole area being designated 'Conservation' in the Official Community Plan of April 1990.

==========

12 Burrard Inlet east, south shore **12**

Habitat Rating 3

Wetland classification	**Size (ha)**
80% tidal water	0.3
20% coastal low marsh	0.1

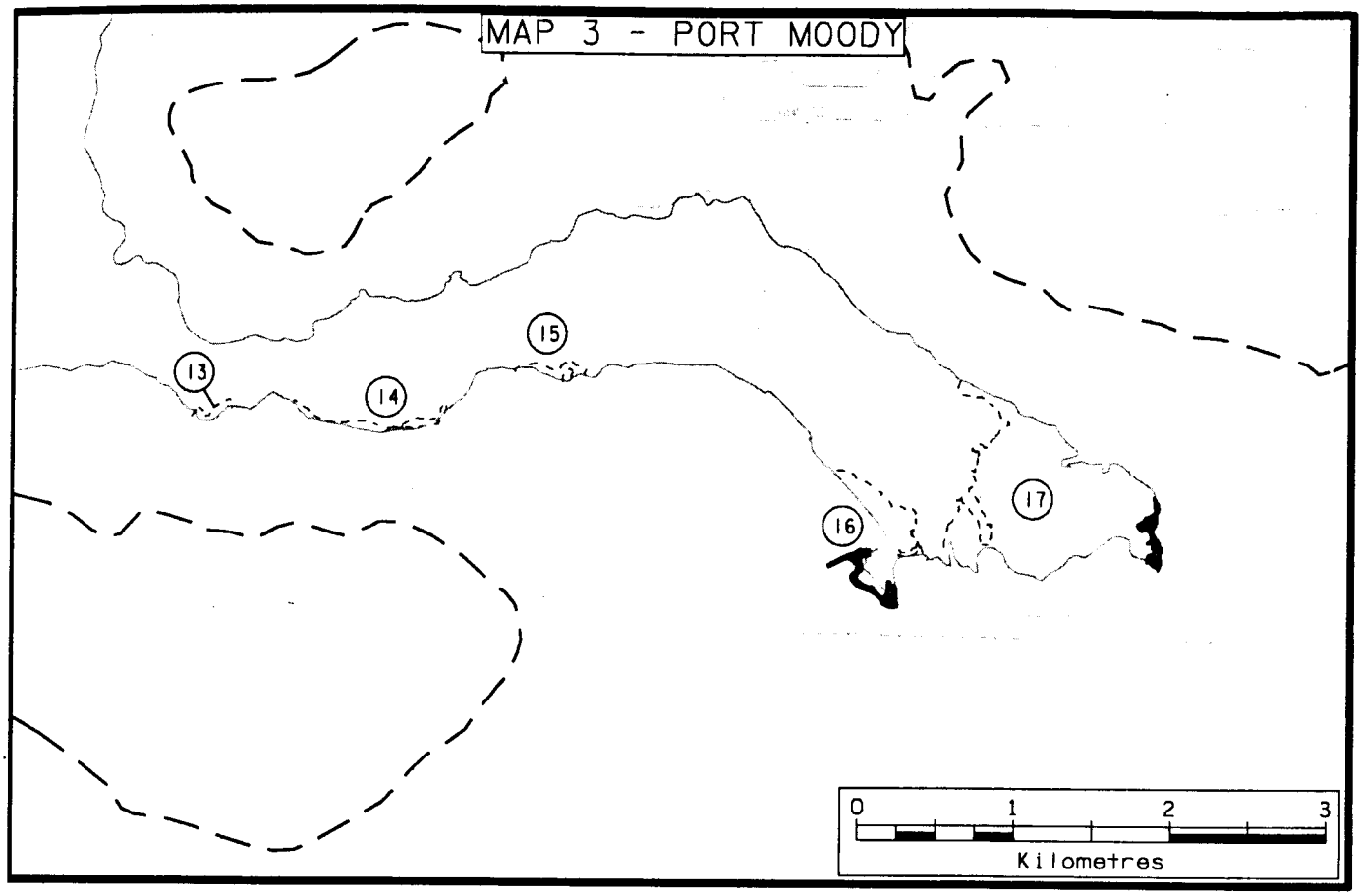
	0.4

Vegetation type
80% non-vegetated
10% sedge
10% grass

Municipality Burnaby District
Land Status
Port Jurisdiction Vancouver
Survey Date 09/09/89
Air photos SRS3599-123

Notes Logbooms grounding - beached vessel.

==========



13 Barnet Marine Park 13

Habitat Rating 1

Wetland classification	**Size (ha)**
90% tidal water	2.2
10% coastal low marsh	0.2

	2.4

Vegetation type
90% non-vegetated
5% sedge
5% grass

Municipality Burnaby District
Land Status Municipal
Survey Date 09/09/89
Air photos SRS3599-119

Notes Gravel cobble beach with upper fringe marsh. Backshore thickly vegetated with alder.

==========

14 Port Moody, south shore **14**

Habitat Rating 2

Wetland classification	**Size (ha)**
97% tidal water	2.8
3% coastal low marsh	0.1

	2.9

Vegetation type

97% non-vegetated	1% grass
1% sedge	1% forb

Municipality Burnaby District
Land Status
Port Jurisdiction Vancouver
Survey Date 09/09/89
Air photos SRS3599-117

Notes Gravel cobble beach with small patches of salt marsh vegetation. Railroad along upper backshore and petroleum facility on east end.

==========

15 Port Moody, near Reed Point **15**

Habitat Rating 2

Wetland classification	**Size (ha)**
97% tidal water	1.4
3% coastal low marsh	0.0

	1.4

Vegetation type

94% non-vegetated	3% sedge
2% grass	1% low rush

Municipality Port Moody City
Land Status
Port Jurisdiction Vancouver
Survey Date 09/09/89
Air photos SRS3599-117

Notes Fringe marsh (Carex lyngbyei) near mean high water with steep sloped gravel-cobble beach (Conlin 1984).

==========

16 Port Moody, Pacific Coast Terminals **16**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine low marsh	3.5
tidal water	15.0

	18.6

Vegetation type

50% non-vegetated	30% submerged aquatic
9% forb	8% low rush
2% sedge	1% grass

Municipality Port Moody City
Land Status
Port Jurisdiction Vancouver
Survey Date 09/09/89
Air photos SRS3599-114

Notes Although small, this wetland is productive and consequently frequented by birds as well as salmonid fish. Surrounded by industry.

==========

17 Port Moody foreshore **17**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine low marsh	2.8
tidal water	83.6
	86.4

Vegetation type
97% non-vegetated
1% forb
2% sedge

Municipality Port Moody City
Land Status
Port Jurisdiction Vancouver
Survey Date 09/09/89
Air photos SRS3599-112

Notes There is freshwater to brackish marsh south of Noons Creek mouth. There is little evidence of eelgrass or other marine submerged vegetation on the mudflat. The intertidal area is very important to wintering birds. There used to be heavy use of the foreshore by Band-tailed Pigeons seeking salt (R. McKelvey, pers. commun.).

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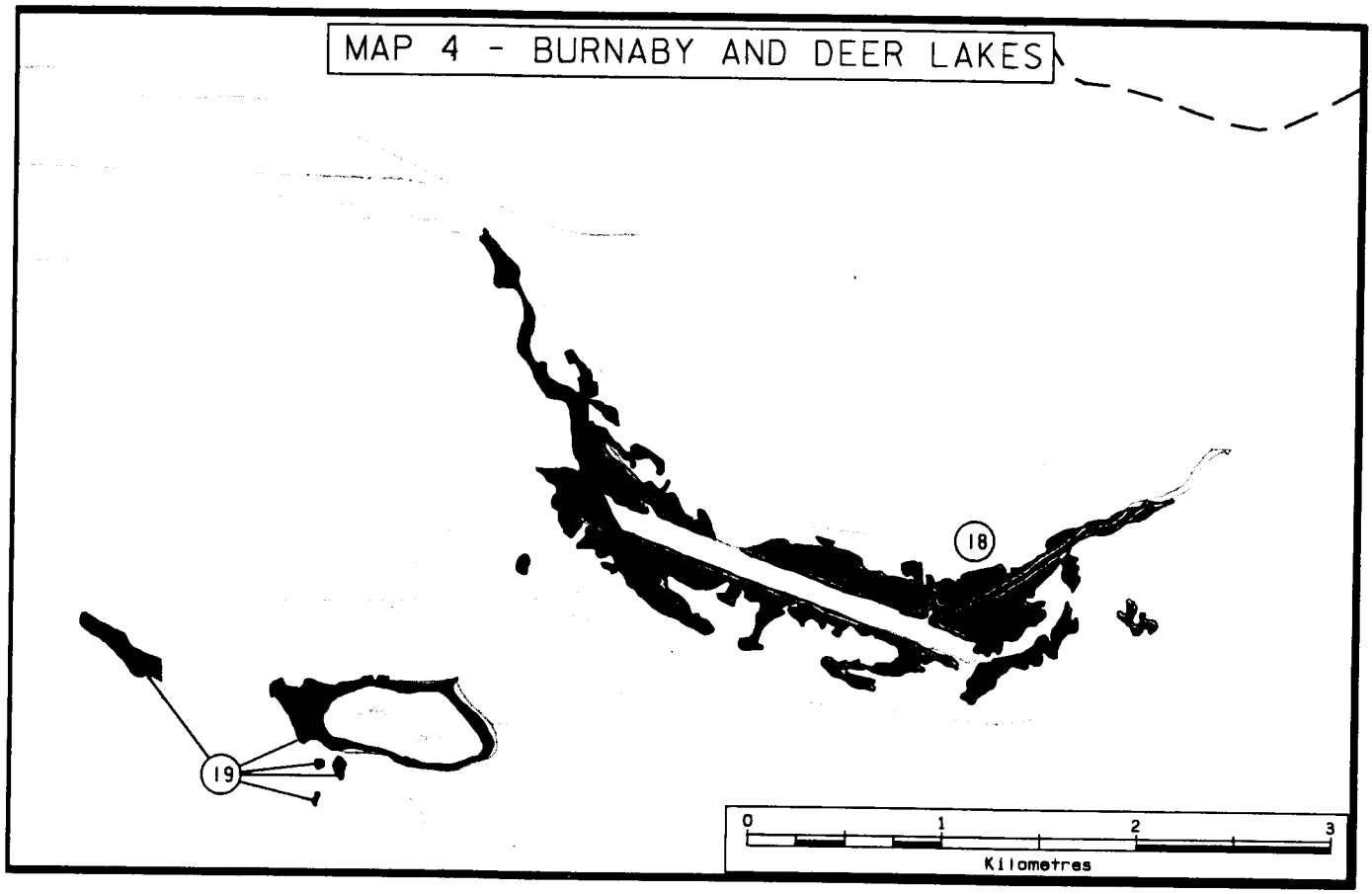

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18 Burnaby Lake and Still Creek 18

Habitat Rating 2

Wetland classification

60% shallow basin water
35% shallow basin marsh
5% shore bog

Size (ha)
66.4
38.7
5.5
110.7

Vegetation type

50% floating aquatic
10% tall shrub
5% hardwood trees
5% grass
2% forb
10% submerged aquatic
10% sedge
5% low shrub
3% reed

Municipality Burnaby District
Land Status GVRD
Survey Date 03/14/90
Air photos

Notes The above inventory is based on the airphoto in G.Porter *et al.*(1985). This wetland unit is contained within Burnaby Lake Regional Park, a 300 ha nature park. The two-kilometer long rowing course in the center of the lake was dredged for the 1973 Canada Summer Games and is still used for recreational rowing. The lake level is artificially changed throughout the year to meet the needs of both wildlife and recreational rowers. The lake, however, is gradually filling in. The park's natural vegetation still supports many species of fish and wildlife (Porter, G. *et al.* 1985).

==========

19 Deer Lake **19**

Habitat Rating 3

Wetland classification	**Size (ha)**
40% shallow basin water	7.4
30% shallow basin marsh	5.5
30% shore bog	5.5
	18.4

Vegetation type

20% floating aquatic	20% submerged aquatic
15% sedge	15% mixed shrub
10% grass	10% tall rush
5% forb	5% low rush

Municipality Burnaby District
Land Status Municipal
Survey Date 03/14/90
Air photos

Notes The above data is based on the Deer Lake Inventory Report (1988). All of this wetland unit is contained within Deer Lake Municipal Park. Most of the lake itself is too deep (about 4 m on average) to be considered a wetland, although wetlands occur on its periphery and on the low lands to the west of the lake. There is a proposal to reconstruct 5 ha of marsh habitat at the western end of the lake to improve the water quality (Burnaby Parks and Recreation Department, pers. commun.).

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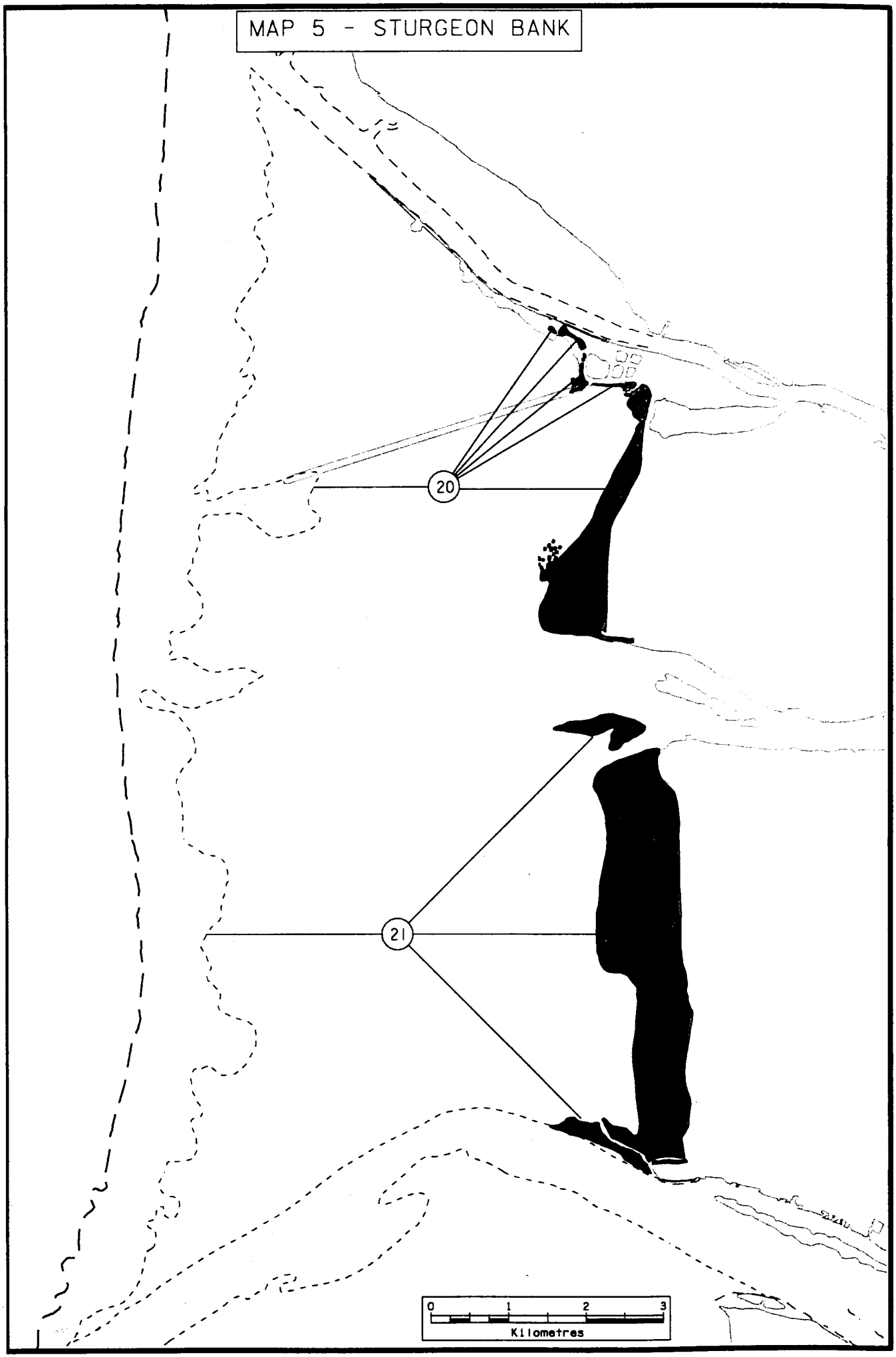
MAP 5 - STURGEON BANK
20
21
0
1
2
3
Kilometres

20[F] Sea and Iona Islands foreshore west **20[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	126.3
estuarine water	2436.7
	2563.0

Municipality GVRD Ea A/B (2013.0 ha);
Richmond City (550.0 ha)
Land Status Crown Provincial, Crown Federal, GVRD
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC535.080/.082/.127/.133

Notes This unit contains a large area of productive brackish marsh and provides food and shelter for migratory and resident birds and fish. These marshes are all located within Richmond City boundaries. The western portion of Iona Island is the site of a new regional park.

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21[F] Lulu Island foreshore west **21[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	479.7
estuarine water	3473.6
	3953.3

Municipality Richmond City (1592.5 ha);
GVRD Ea B (2360.8 ha)
Land Status Crown Federal, Crown Provincial, Private
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC534.214-.218; 535.133

Notes This unit contains one of the largest and most productive brackish marshes in the estuary, providing food and shelter for thousands of migratory and resident birds and fish.

Although the tidal flats are located within the boundaries of both Richmond and the unincorporated Electoral Area B of the GVRD, the marshes are located wholly in Richmond. About 100 ha of high intertidal marsh outside of the dykes is still privately owned. The federal and provincial governments recently acquired 130 ha of similar marshland along the southern portion of the dyke. This area is to be managed jointly by Environment Canada and the BC Ministry of the Environment as a "Cooperative Wildlife Area". The provincial Order-in-Council Reserve for fish and wildlife purposes applies to all of Sturgeon Bank.

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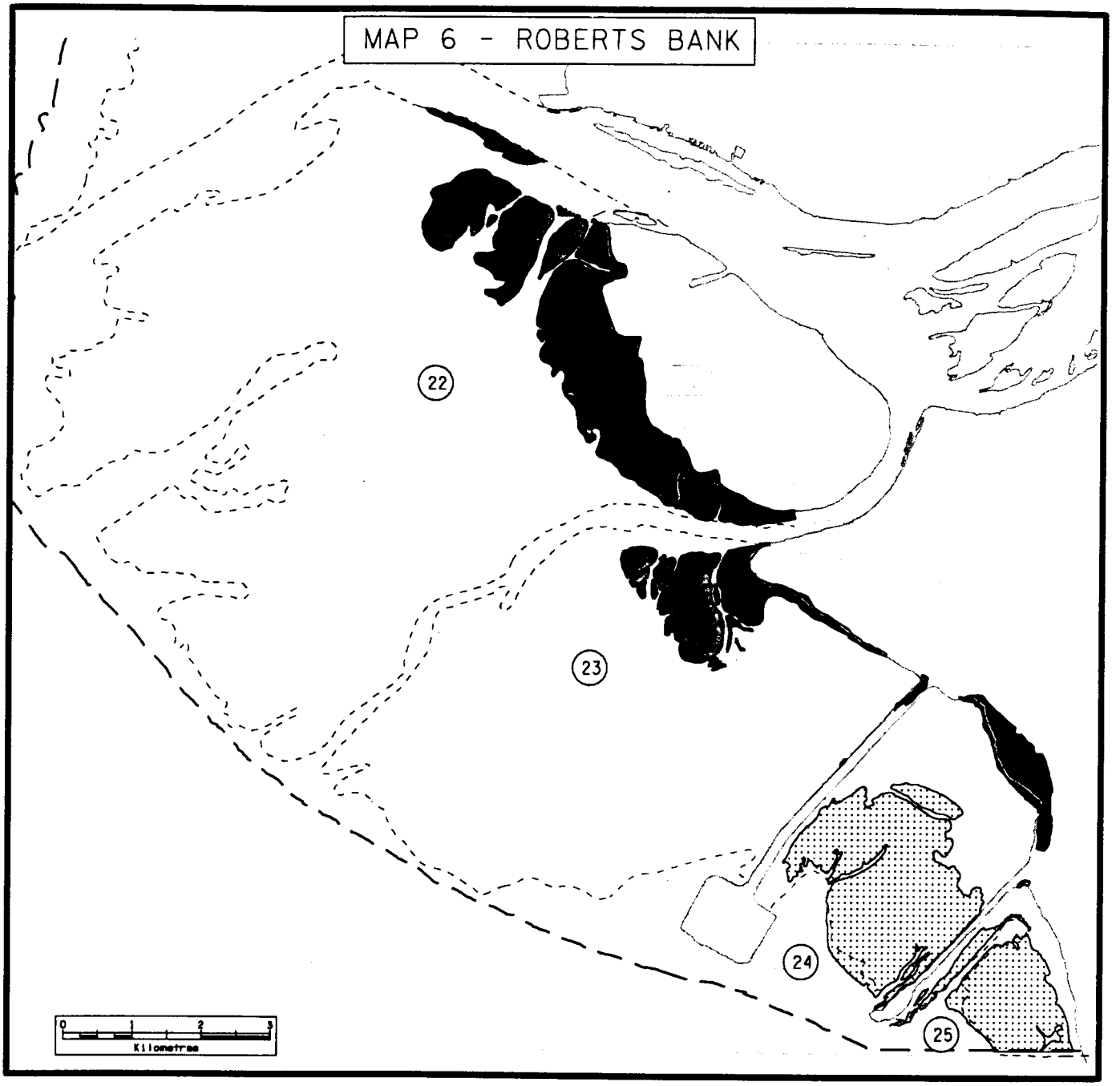
MAP 6 - ROBERTS BANK
22
23
24
25
0
1
2
3
Kilometres

22[F] Westham Island foreshore west 22[F]

Habitat Rating 1

Wetland classification	Size (ha)
estuarine marsh	746.2
estuarine water	4311.8
	5058.0

Municipality Delta District
Land Status Crown Provincial, Crown Federal
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC534.220; 535.004/.048-.056/.212

Notes The extensive brackish marshes and tidal flats in this unit provide excellent habitat for thousands of migratory and resident birds and fish. Together with the adjacent Westham Island this area has the greatest diversity of birds species in the whole Lower Mainland; over 230 species have been seen. In a recent study, nearly one-quarter of all the birds counted on Roberts and Sturgeon banks occurred in this area (Butler and Cannings 1989). The study also showed that it was the single most used area for loons, Snow Geese and Trumpeter Swans.

Most of the foreshore is owned by the Provincial Crown except for small areas adjacent to Reifel Island which are federally owned. The northern part of the wetland unit is covered by a federal Order-in-Council designating it as a Migratory Bird Sanctuary. The Alaksen National Wildlife Area extends out on to part of this foreshore too and the whole area is managed by the Canadian Wildlife Service. Together, the George C. Reifel Migratory Bird Sanctuary and the Alaksen National Wildlife Area are designated as a Ramsar site, ie. a "Wetland of International Significance". The rest of the foreshore comes under the normal Roberts Bank Order-in-Council Reserve for fish and wildlife purposes.

==========

23[F] Brunswick Point foreshore 23[F]

Habitat Rating 1

Wetland classification	Size (ha)
estuarine marsh	197.7
estuarine water	2630.2
	2827.8

Municipality Delta District
Land Status Crown Provincial
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC535.048

Notes The brackish marshes and tidal flats of Brunswick Point have been accreting since the turn of the century, but especially since the 1948 flood. A recent study showed that the heaviest overall bird use on Roberts and Sturgeon banks occurred here, about 30% of the total (Butler and Cannings 1989). The greatest numbers occur during fall shorebird migration although a good cross-section of all species is seen. The adjacent farmlands are owned by the Provincial Crown as backup land for Roberts Bank Coalport. The intertidal area is within the Roberts Bank Order-in-Council Reserve for fish and wildlife purposes.

==========

24[F] Roberts Bank interjetty area **24[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
coastal marsh	83.1
tidal water	953.9
	1037.0

Municipality Delta District
Land Status Crown Provincial, Indian Reserve
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC535.022/.024/.043/.045

Notes This unit contains an important habitat complex of saltmarsh, tidal flat and dense eelgrass. This inventory shows that eelgrass covers 516 ha of this wetland unit; according to Sean Boyd (pers. commun.) it is the most productive area of eelgrass in the entire estuary. The large saltmarsh at the upper edge of the tidal flats accounts for about 35% of all such marsh in the estuary. A breakwater was built at the seaward edge of this marsh in 1985. It included culverts and a large opening to ensure the continued circulation of tidal waters. The marsh remains an important habitat area, although there is some residual impact from the flood control breakwater. The Tsawwassen Indian Band has title to the saltmarsh.

Large concentrations of loons, grebes, Brant, diving ducks and other waterfowl and shorebirds can be seen from either of the two jetties bordering this unit. This unit is rated as a '2' because of the coal port activities and because of the loss of eelgrass in both the coalport turning basin and next to the ferry causeway due to the ferry terminal expansion.

==========

25[F] Tsawwassen Beach foreshore **25[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
coastal marsh	1.2
tidal water	296.8
	298.0

Municipality Delta District
Land Status Crown Provincial
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC535.040/.042

Notes Three-quarters of this unit is covered with 228 ha of eelgrass. These extensive eelgrass beds and tidal flats provide good habitat for waterfowl, shorebirds, Brant, cormorants, gulls, loons and herons, especially during spring and fall migrations.

There has been an Order-in-Council Reserve for fish and wildlife purposes on Roberts Bank since 1961. At present there is a proposal to expand the ferry terminal out onto the tidal flats at the extreme southwestern end of the jetty. Approximately one-half a hectare of eelgrass is expected to be affected.

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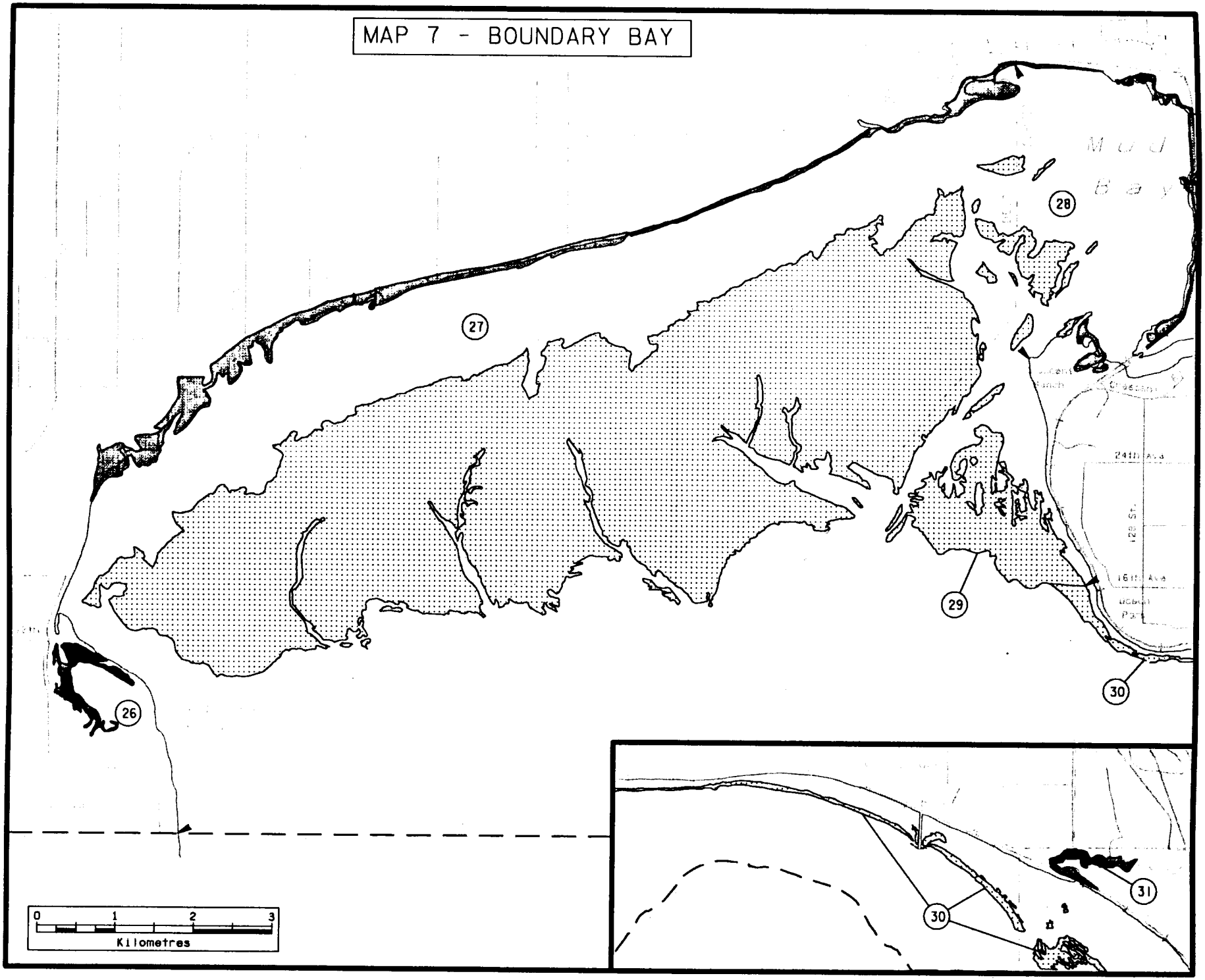

MAP 7 - BOUNDARY BAY
26
27
28
29
30
31
0 1 2 3
Kilometres

26 Centennial Beach backshore 26

Habitat Rating 2

Wetland classification	**Size (ha)**
100% shallow basin marsh	28.8

Vegetation type

50% grass	15% tall rush
10% low rush	10% tall shrub
5% hardwood trees	5% sedge
5% forb	

Municipality Delta District
Land Status GVRD, Private
Survey Date 03/20/90
Air photos

Notes The above data is based on the vegetation map prepared for GVRD by Sigma Resource Consultants Ltd. (1985). Prior to dyking in 1959, this was an extensive tidal marsh and mud flat. A few remnant saltmarsh species still exist, although the dominant habitat now is savanna. In addition to the large number of birds in the foreshore areas, this backshore area supports many raptors such as Short-eared Owls, Common Barn-Owls, Great Horned Owls, Red-tailed Hawks, Rough-legged Hawks, Sharp-shinned Hawks and Northern Harriers.

This unit is located within GVRD's proposed Boundary Bay Regional Park. Part of the unit is owned by the GVRD and part of it is private. Park development has been held up by the controversy over the sale of the private 'Spetifore' lands. Park development proposals include the enhancement of wildlife habitat.

==========

27[F] Boundary Bay 27[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
coastal marsh	150.5
tidal water	5161.6

	5312.1

Municipality Delta District
Land Status Crown Provincial, Crown Federal, Private
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC533.33/.35/.43/.45/.49/.51;535.75/.77

Notes The habitat value of Boundary and Mud bays lies in their extensive tidal flats, eelgrass beds, shallow warm waters and fringe marshes. In contrast to other foreshore areas of the estuary, they also have large areas of open farmland immediately behind their dyked perimeters. It is now recognized that these farmlands are an important adjunct to the ever dwindling supply of natural wildlife habitat (Retfalvi 1989).

The 2936 ha of measured eelgrass covers about 55% of the intertidal area. Additional areas of eelgrass occur in patches along the outer edge of the flats, however, these were too difficult to measure and are therefore not included in the total area of eelgrass. Mud and Boundary bays are the most intensively used migratory bird areas on the foreshore of the Fraser estuary. Results from a recent study on bird use of the Fraser foreshore

showed that about two-thirds of the 1.5 million birds counted were seen in this area (Butler and Cannings 1989). They included loons, Brant, American Wigeon, Northern Pintails, Green-winged Teals, Surf and White-winged scoters, Short-eared Owls, and Black-bellied Plovers.

The intertidal area is mostly owned by the Provincial Government and has "map reserve" status for fish and wildlife purposes. In addition, twenty-three hectares of high saltmarsh outside the dyke fronting Boundary Bay Airport are owned by the federal government. These lands are to be managed as a National Wildlife Area by the Canadian Wildlife Service. Grauer Beach, an area similar to the above, just west of 72nd Street, was purchased by the Pacific Estuary Conservation Program and is now owned by The Nature Trust. It is leased to the BC Ministry of Environment, Lands and Parks for wildlife and fish habitat purposes. An additional two parcels of adjacent similar land were transferred to BC Ministry of Environment, Lands and Parks for management also. Altogether, these lands comprise nearly half of the Boundary Bay shoreline where marsh grows (Retfalvi 1989).

==========

28[F] **Mud Bay** **28[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine low marsh	19.9
estuarine water	677.8

	697.7

Municipality Surrey District
Land Status Crown Provincial, Municipal
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC534.182/.184; 533.053/.055/.138/.1

Notes Mud Bay is an integral part of Boundary Bay with the same high habitat values (see Unit 27). It is the second most heavily used migratory bird area in the Fraser Estuary, especially during southward shorebird migration in July and August (Butler and Cannings 1989). Northern Pintails, Mallards and Dunlin are seen throughout the estuary, however, they occur in their largest concentrations here; on the other hand, Common Mergansers are seen mainly in the southern part of Mud Bay.

Eelgrass covers about 59 ha of these tidal flats, attracting large numbers of birds and a variety of fish such as salmon, trout and herring as well as crab.

Mud Bay has "map reserve" status for fish and wildlife management, under the B.C. Lands Act. There is also a 58.7 ha portion, known as Lot 495, which was acquired jointly by the province, the Nature Trust and the Nature Conservancy in 1974 and is managed by the Ministry of Environment, Lands and Parks. It is located in the southeastern part of the bay, just north of the Nicomekl River mouth. It was to form part of an eventual reserve that would include all upland situated outside the dyke (Retfalvi 1989). The marsh at Blackie Spit is part of a municipal park.

The very high habitat values of this area and adjacent Boundary Bay warrant international recognition under a Ramsar site designation. To date, the necessary provincial endorsement of this has not been given.

==========

29[F] Crescent Beach foreshore **29[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal water	**327.4**

Municipality Surrey District
Land Status Crown Provincial
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC534.176/.210/.211

Notes This unit is an integral part of Boundary Bay. For habitat values of the entire area see Unit No. 27. About 205 ha of eelgrass grow on the triangular-shaped tidal flats southwest of Crescent Beach; eelgrass in the small tidal pools close to shore has not been measured.

==========

30[F] Semiahmoo Bay/Ocean Park foreshore **30[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal water	**318.0**

Municipality White Rock City (104.0 ha);
Surrey District (214.0 ha)
Land Status Crown Provincial
Port Jurisdiction Vancouver
Survey Date summer 88
Air photos BCC534.148/.150/.155/.175-.178

Notes This unit is an integral part of Boundary Bay also (see Unit No. 27 for habitat values). The unit comprises the sandy foreshore fronting White Rock and the rocky foreshore fronting Ocean Park. About 74 ha of eelgrass grow in a continuous strip along the outer edge of the tidal flats throughout the unit and in the tidal pools nearer the shore.

The area attracts migrating waterfowl such as Brant, diving ducks, grebes and loons. The number of birds attracted to the rocky Ocean Park shoreline is low compared to the rest of the estuary, however, it is important to a few specific species. For example, in a recent study, over 85% of all Harlequin Ducks in the estuary were found here (Butler and Cannings 1989). Similarly, Brandt's and Pelagic cormorants were seen mostly here. The rating of '2' reflects the area's heavy recreational use.

==========

31 Campbell River mouth **31**

Habitat Rating 2

Wetland classification	**Size (ha)**
85% estuarine high marsh	14.8
15% estuarine water	2.6
	17.4

Vegetation type

20% sedge	20% low rush
15% grass	15% forb
15% submerged aquatic	5% hardwood trees
5% tall rush	5% tall shrub

Municipality Surrey District
Land Status Indian Reserve
Survey Date 07/18/89
Air photos BCC534.145

Notes This area is quite undisturbed except for the adjacent park and road just off the floodplain and the footbridge crossing river. The unit includes 6.93 ha of FREMP marshes.

32[F] Musqueam Flats **32[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	17.4
estuarine water	256.5
	273.9

Municipality GVRD Ea A
Land Status Crown Provincial
Port Jurisdiction North Fraser
Survey Date summer 90
Air photos

Notes The rating of '3' for this unit reflects extensive impacts from log boom storage throughout the area.

33[F] North Arm Jetty **33[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	2.6
estuarine water	6.5
	9.1

Municipality GVRD Ea A
Land Status Crown Provincial
Port Jurisdiction North Fraser
Survey Date summer 90
Air photos

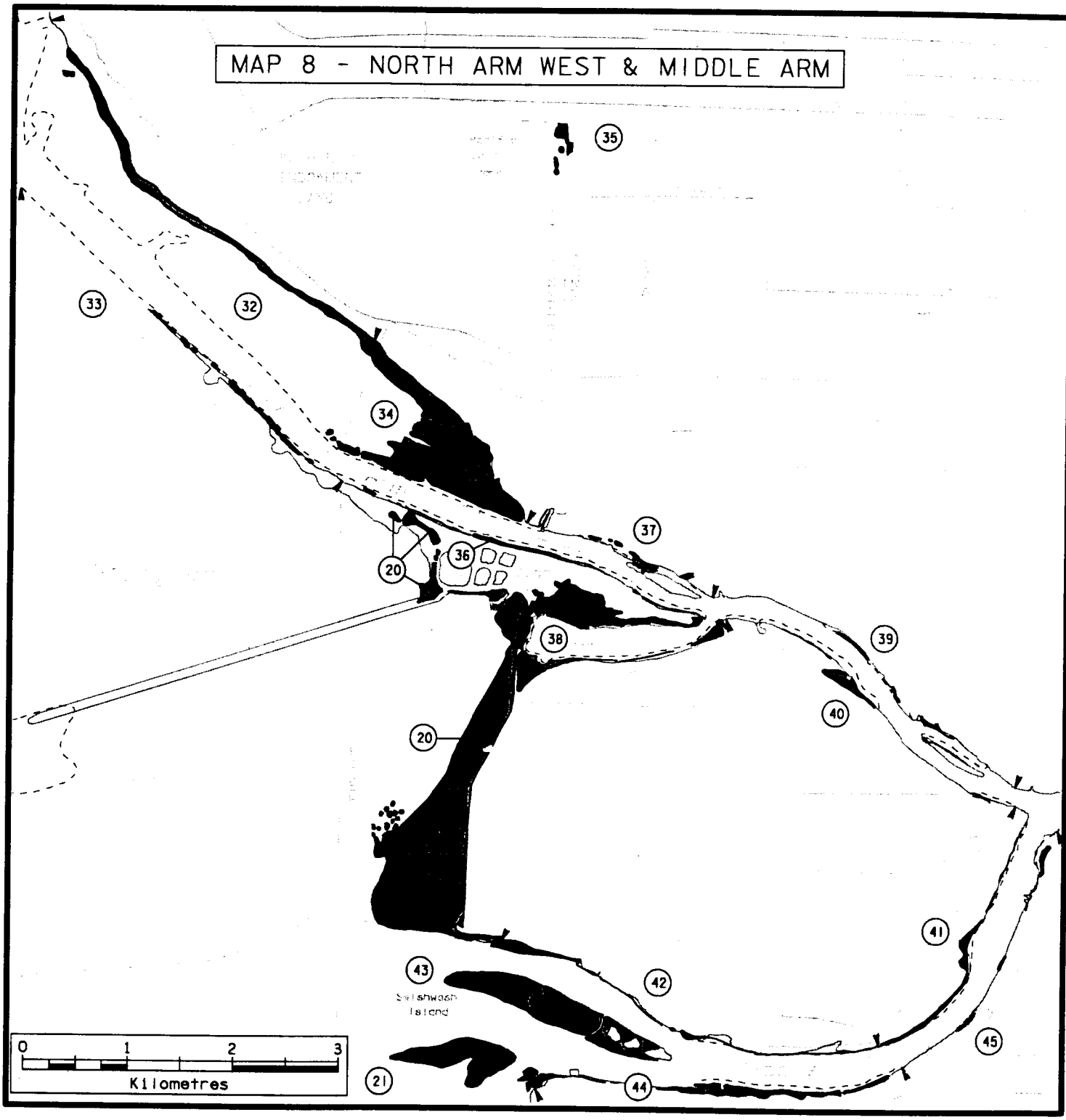
Notes Booming along north shore of jetty.

34[F] Musqueam Marsh **34[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	75.1
estuarine water	72.9
	148.0

Municipality Vancouver City
Land Status Musqueam Indian Reserve
Port Jurisdiction North Fraser
Survey Date summer 90
Air photos


MAP 8 - NORTH ARM WEST & MIDDLE ARM
35
33
32
34
37
36
20
38
39
40
20
41
43
42
Sealshwash Island
45
21
44
0
1
2
3
Kilometres

35 Camosun Bog, UBC Endowment Lands **35**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% basin swamp	2.4
10% basin bog	0.3

	2.7

Vegetation type

30% hardwood trees	30% coniferous trees
20% low shrub	5% low rush
5% tall shrub	5% forb
5% grass	

Municipality GVRD Ea A
Land Status GVRD
Survey Date 03/16/90
Air photos

Notes The above data was determined from the mapped vegetation unit nos. 14, 15, 18, 19, 20) in Thompson, G.A.(1985). Surrounding urban development over the past 60 years has damaged this delicate ecosystem. There is, however, a bog restoration plan in effect which will remove non-bog plants, regulate the water level, and remove the large shading hemlock trees from the bog's periphery (GVRD News May-June 1990). Camosun Bog is located within GVRD's Pacific Spirit Regional Park.

==========

36[F] Iona Island foreshore north **36[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	5.6
estuarine water	11.1

	16.7

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Eastern part of the island is privately owned.

==========

37[F] Southlands **37[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	1.2
estuarine water	1.8
floodplain swamp	0.6

	3.6

Municipality Vancouver City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

==========

38[F] McDonald Slough and periphery **38[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
esturine marsh	31.3
estuarine water	5.4
floodplain swamp	0.9
	37.5

Municipality Richmond City
Land Status Crown Provincial, Indian Reserve, Private
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Eastern end of Iona Island is privately owned. Slough is Provincial Crown land. Portion of the marsh is located on the Indian Reserve.

==========

39[F] Marpole **39[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.7
estuarine water	1.6
floodplain swamp	0.4
	2.7

Municipality Vancouver City (1.6 ha);
Richmond City (1.1 ha)
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes There is high public use and industrial activity in this area.

==========

40[F] Sea Island north **40[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	4.3
estuarine water	7.0
floodplain swamp	0.7
	12.0

Municipality Richmond City
Land Status Crown Provincial, Municipal
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Includes McDonald Beach Municipal Park. The rating of '1' applies mainly to the east end of Wood Island.

41[F] Sea Island southeast **41[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	4.2
estuarine water	2.7
floodplain swamp	2.2

	9.1

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

42[F] Sea Island south **42[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	7.6
estuarine water	6.5
floodplain swamp	0.4

	14.6

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes The high rating applies mainly to the west end of the unit.

43[F] Swishwash Island **43[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	41.8
estuarine water	19.8
floodplain swamp	0.5

	62.1

Municipality Richmond City
Land Status Private, Crown Provincial
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Swishwash Island is privately owned. It is still in a natural state with habitat values similar to Sturgeon Bank. Intertidal area is owned by the Provincial Crown.

==========

44[F] Middle Arm south shore **44[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	14.0
estuarine water	7.7
	21.6

Municipality Richmond City
Land Status Crown Provincial, Municipal
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Includes Dover Beach Municipal Park.

==========

45[F] Middle Arm southeast shore **45[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	0.7
estuarine water	1.5
	2.3

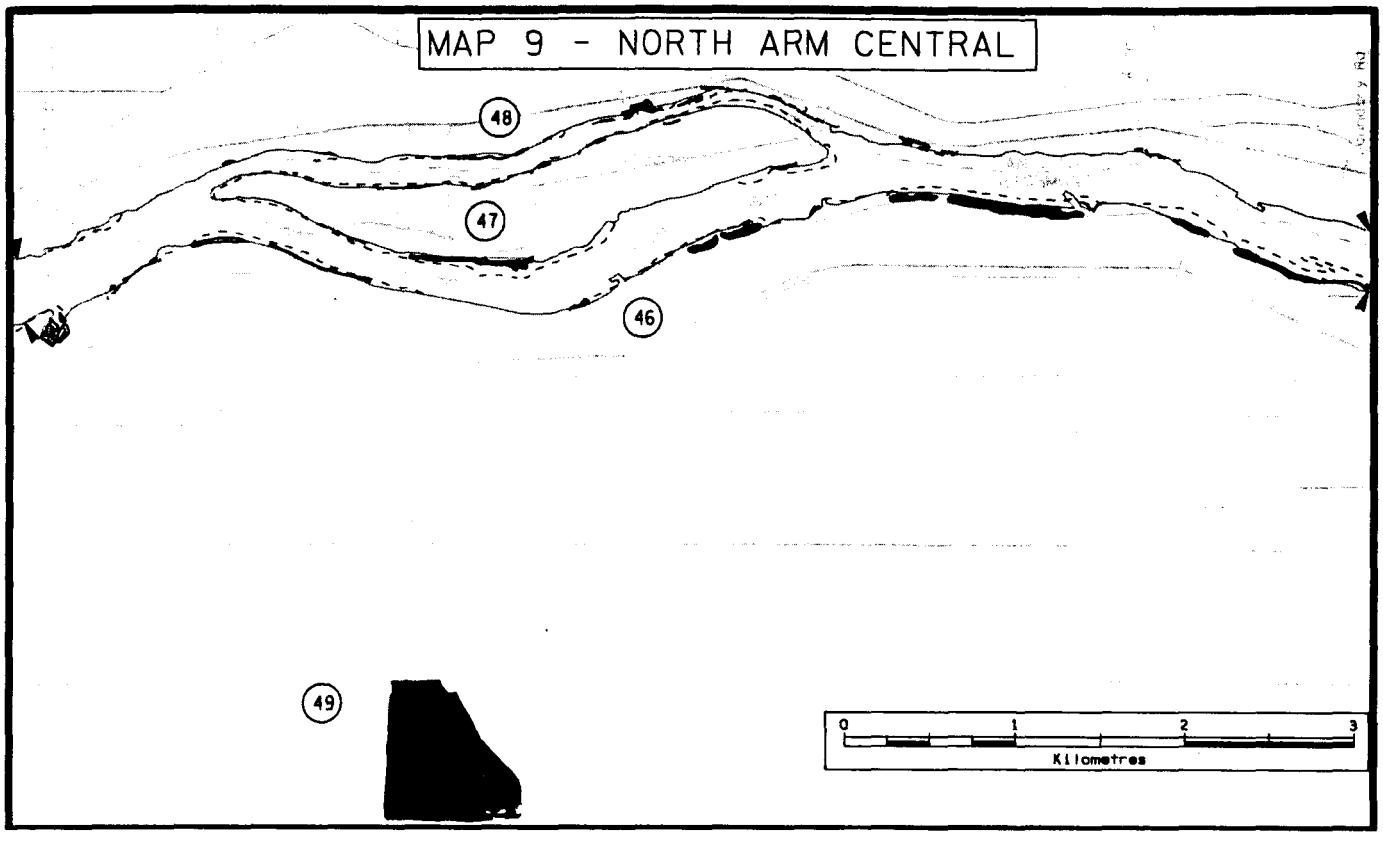
Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

==========

46[F] Bridgepoint to No. 8 Road **46[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	4.6
estuarine water	8.6
floodplain swamp	5.0
	18.2



Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Marsh at Bridgepoint Marina protected by North Fraser Harbour (G. Colquhoun, pers. commun.). Log booms and public access along here.

==========

47[F] Mitchell Island **47[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	1.6
estuarine water	8.2

	9.8

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Industrial activities along here.

==========

48[F] Arthur Laing Bridge to Boundary Road **48[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	1.2
estuarine water	4.4
floodplain swamp	0.5

	6.1

Municipality Vancouver City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Industrial activities along here.

==========

49 Richmond Nature Park **49**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% flat bog	**47.8**

Vegetation type

50% mixed shrub	30% coniferous trees
10% hardwood trees	5% low rush
5% forb	

Municipality Richmond City
Land Status Municipal
Survey Date 08/27/89
Air photos BCC535.161

Notes Disturbance factors considered when rating this unit include trails through the park and surrounding freeway and roads. Some land has been lost due to construction of new Highway 99 entrance, new species have been introduced from seed in construction sand and hydrology has changed (drying up).

==========

50[F] East of Boundary Road **50[F]**

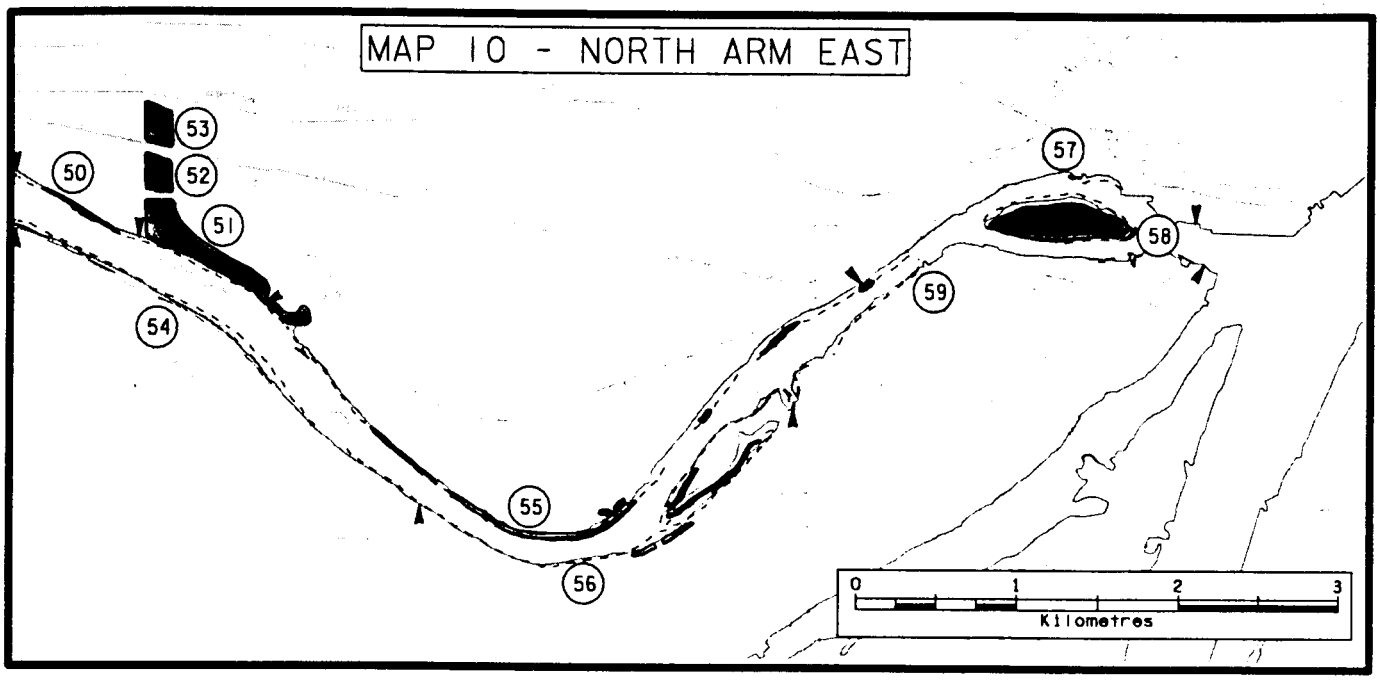
Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.1
estuarine water	1.1
floodplain swamp	1.1

	2.3

Municipality Burnaby District
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

==========



51 Fraser River Foreshore Park **51**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream swamp	**12.7**

Vegetation type

40% hardwood trees	25% tall shrub
15% forb	10% grass
5% sedge	5% non-vegetated

Municipality Burnaby District
Land Status Municipal
Port Jurisdiction North Fraser (along shoreline)
Survey Date 04/11/91
Air photos

Notes This unit contains 1.49 ha of FREMP wetlands along the shoreline - .49 ha of marsh and 1.0 ha of shallow water (unvegetated tidal flat).

==========

52 Fraser River Foreshore Park **52**

Habitat Rating 3

Wetland classification	**Size (ha)**
100% stream swamp	3.5

Vegetation type

60% tall shrub	30% hardwood trees
5% grass	5% forb

Municipality Burnaby District
Land Status Municipal
Survey Date 04/11/91
Air photos

Notes The hydrology of this area appears to be quite disrupted. A wide, newly constructed road has cut it off from the streamside swamp to the south - a culvert provides the only connection. The area is completely surrounded by development.

==========

53 Fraser River Foreshore Park **53**

Habitat Rating 3

Wetland classification	**Size (ha)**
100% stream swamp	4.1

Vegetation type

80% tall shrub	10% hardwood trees
5% grass	5% forb

Municipality Burnaby District
Land Status Municipal
Survey Date 04/11/91
Air photos

Notes The hydrology of this area appears to be quite disrupted; it has been cut off from the other two wetlands to the south by the railway tracks. The vegetation is almost totally dominated by Spirea.

==========

54[F] No. 8 Road to CN Bridge **54[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	0.7
estuarine water	3.0
floodplain swamp	0.4

	4.1

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

==========

55[F] Burnaby Big Bend foreshore **55[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.3
estuarine water	4.8
floodplain swamp	10.0
	15.1

Municipality Burnaby District
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

Notes Industrial activities along here.

==========

56[F] Tree Island area **56[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	2.1
estuarine water	5.6
floodplain swamp	1.2
	8.9

Municipality Richmond City
Land Status
Port Jurisdiction North Fraser
Survey Date 07/31/90
Air photos

==========

57[F] New Westminster border to RR Bridge **57[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.1
estuarine water	1.0
	1.1

Municipality New Westminster City
Land Status
Port Jurisdiction Fraser River
Survey Date 10/15/90
Air photos

Notes Industrial development along shoreline.

==========

58[F] Poplar Island **58[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	1.0
estuarine water	2.5
floodplain swamp	12.2
	15.6

Municipality New Westminster City
Land Status Private, Crown Federal
Port Jurisdiction Fraser River
Survey Date 10/15/90
Air photos

Notes This island is one of the few remaining areas of undyked floodplain in the lower Fraser River. It is an excellent example of natural floodplain forest with large Black Cottonwood trees (a type of poplar, hence the name).

==========

59[F] Queensborough **59[F]**

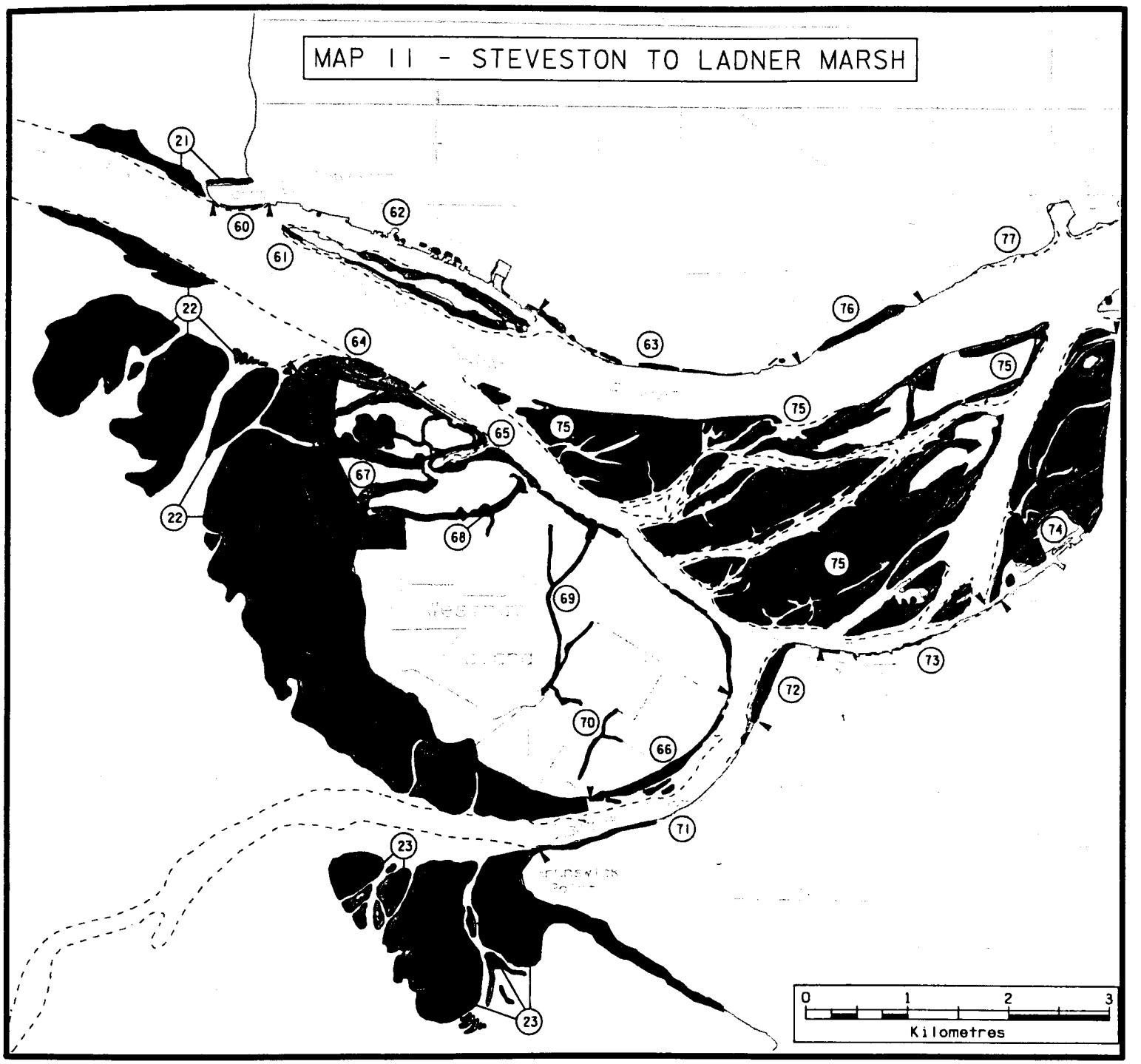
Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.1
estuarine water	2.5
	2.5

Municipality New Westminster City
Land Status
Port Jurisdiction Fraser River
Survey Date 10/15/90
Air photos

Notes Industrial development along the shoreline.

==========


MAP 11 - STEVESTON TO LADNER MARSH
21
60
61
62
22
64
63
76
77
75
65
67
68
69
70
66
72
73
74
71
23
0
1
2
3
Kilometres

60[F] Garry Point **60[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.7
estuarine water	0.9

	1.6

Municipality Richmond City
Land Status Municipal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.006

Notes Heavy recreational use of this municipal park.

==========

61[F] Steveston Island **61[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	17.2
estuarine water	15.1
floodplain swamp	2.9

	35.1

Municipality Richmond City
Land Status Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.006/.061

Notes Originally a small sandbar, the area has long been used for dredge spoil storage and has developed into a 2 1/2 km long island. Over 100 plant species grow here now, primarily at the eastern end of the island which has not been used for spoil storage for some time. It has become a valuable outdoor education area demonstrating the natural process of "plant succession". Species include sand dune and marsh plants, herbs, shrubs and floodplain forest.

The island is leased by Public Works Canada.

==========

62[F] Cannery Row, Steveston **62[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	1.8
estuarine water	3.2

	5.0

Municipality Richmond City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.006/.061

Notes The Britannia Cannery site has been acquired by Richmond City to develop

an historic park. Plans include restoring the boat building facility. The site includes an area of marsh which will remain intact (A. Jamieson, pers. commun.). Industrial and commercial development all along the shoreline.

63[F] Gilbert Beach **63[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	3.3
estuarine water	6.9
	10.2

Municipality Richmond City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.063/.174

Notes Adjacent to a municipal park.

64[F] Harlock and Albion Islands **64[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	13.7
estuarine water	11.6
	25.3

Municipality Delta District
Land Status Crown Provincial, Crown Federal, Private
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.006

Notes Albion Island (the western island) is Federal Crown land, part of the Alaksen National Wildlife Area which is managed by the Canadian Wildlife Service. The adjacent Harlock Island was purchased recently by the Pacific Estuary Conservation Program and is leased to CWS for management. Some of the adjacent marshes and tidal flats in this unit are owned by the Provincial Crown.

65[F] Westham Island foreshore east **65[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	13.3
estuarine water	8.8
	22.1

Municipality Delta District
Land Status Crown Provincial, Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.016/.063/.212

Notes An intertidal area at the mouth of Ewen Slough is owned by the Federal Crown and is part of the Alaksen National Wildlife Area.

==========

66[F] Canoe Pass north shore **66[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	7.4
estuarine water	18.6
	26.1

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.020

==========

67 Alaksen National Wildlife Area **67**

Habitat Rating 1

Wetland classification	**Size (ha)**
50% estuarine water	56.6
25% estuarine marsh	28.3
25% stream fen	28.3
	113.2

Vegetation type

30% floating aquatic	10% grass
10% tall shrub	10% submerged aquatic
10% forb	10% non-vegetated
10% tall rush	5% low rush
5% hardwood trees	

Municipality Delta District
Land Status Crown Federal, Crown Provincial
Survey Date 08/23/89
Air photos BCC535.016

Notes This is a major wintering, staging and feeding area for many thousands of migratory waterfowl. Altogether, over 230 species of birds have been seen here. The wetlands are undisturbed except for the dykes.

Alaksen National Wildlife Area, managed by the Canadian Wildlife Service, was designated as a Ramsar site in 1982, ie. a "Wetland of International Significance" pursuant to the Ramsar Convention of 1971. It is the only land so designated in British Columbia. Part of this NWA is leased to the British Columbia Waterfowl Society, a non-profit organization, which operates the public area known as the 'Reifel Refuge.' It is one of the most popular birdwatching areas in the Lower Mainland. Although mostly Federal Crown land, there is a small portion of Provincial Crown land at the western end of Robertson Slough.

==========

68 Robertson and London Sloughs **68**

Habitat Rating 1

Wetland classification	**Size (ha)**
65% estuarine water	7.0
35% estuarine marsh	3.8
	10.8

Vegetation type

30% submerged aquatic	25% non-vegetated
10% floating aquatic	10% sedge
10% tall rush	5% forb
5% grass	5% low rush

Municipality Delta District
Land Status Crown Provincial
Survey Date 08/23/89
Air photos BCC535.016

Notes This unit is located within the Alaksen National Wildlife Area, and is part of the designated Ramsar site (see No.67). It is also undisturbed except for the dykes.

==========

69 Tamboline Slough, Westham Island **69**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	7.5
10% floodplain marsh	0.8
	8.3

Vegetation type

50% submerged aquatic	40% non-vegetated
5% tall rush	3% forb
2% grass	

Municipality Delta District
Land Status
Survey Date 08/23/89
Air photos BCC535.018

Notes Surrounded by agriculture; dissected by roads.

==========

70 Westham Island slough **70**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	2.0
10% floodplain marsh	0.2
	2.2

Vegetation type

50% submerged aquatic	40% non-vegetated
5% tall rush	3% forb
2% grass	

Municipality Delta District
Land Status
Survey Date 09/29/89
Air photos BCC535.019

Notes Surrounded by agriculture; dissected by roads.

71[F] **Canoe Pass south shore** 71[F]

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	0.6
estuarine water	0.4

	1.0

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.020

72[F] **Canoe Pass northeast** 72[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	8.2
estuarine water	2.1

	10.4

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.212

73[F] **Port Guichon** 73[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.2
estuarine water	1.1

	1.4

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.212; 533.003

Notes Industry and housing along the shoreline.

74[F] Ladner Marsh **74[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	115.2
estuarine water	12.4
floodplain swamp	21.3
	148.9

Municipality Delta District
Land Status Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535/.208/.210/.212; 533.005

Notes This area of prime wildlife habitat is part of the South Arm Marshes Wildlife Management Area, managed by the B.C. Ministry of Environment, Lands and Parks. The area was jointly purchased by the federal and provincial governments in 1977.

==========

75[F] South Arm Marshes **75[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	448.5
estuarine water	89.9
floodplain swamp	28.5
	566.9

Municipality Richmond City
Land Status Crown Provincial, Crown Federal, Private
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.062-.066/.209-.212; 533.002/.003

Notes This is a large area of prime wildlife habitat for birds and fish. It has extensive estuarine marshes and shallow sloughs as well as pockets of floodplain forest throughout the eastern portion.

This area and adjacent Ladner Marsh were recently designated as the South Arm Marshes Wildlife Management Area, managed by the B.C. Ministry of Environment, Lands and Parks. The Nature Trust of B.C. holds title to Rose and Kirkland Islands in the northeastern part of the unit and leases them to the Province; Gunn and Williamson islands are the only islands in this complex which remain in private ownership; the rest of the area is Provincial Crown land.

==========

76[F] Gilmour Island **76[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	7.0

Municipality Richmond City
Land Status Private
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.176

==========

77[F] **Woodward Landing** 77[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.0
estuarine water	3.2

	3.2

Municipality Richmond City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.206/.208

==========

78[F] **Deas Island west** 78[F]

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	5.8
estuarine water	2.3
floodplain swamp	5.8

	15.0

Municipality Delta District
Land Status Crown Provincial, GVRD
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.206/.208

Notes Island is owned by GVRD and is a regional park.

==========

79[F] **Deas Island east** 79[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	7.1
estuarine water	4.7
floodplain swamp	17.3

	29.0

Municipality Delta District
Land Status Crown Provincial, GVRD
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.206/.208

Notes Island is owned by GVRD and operated as Deas Island Regional Park.

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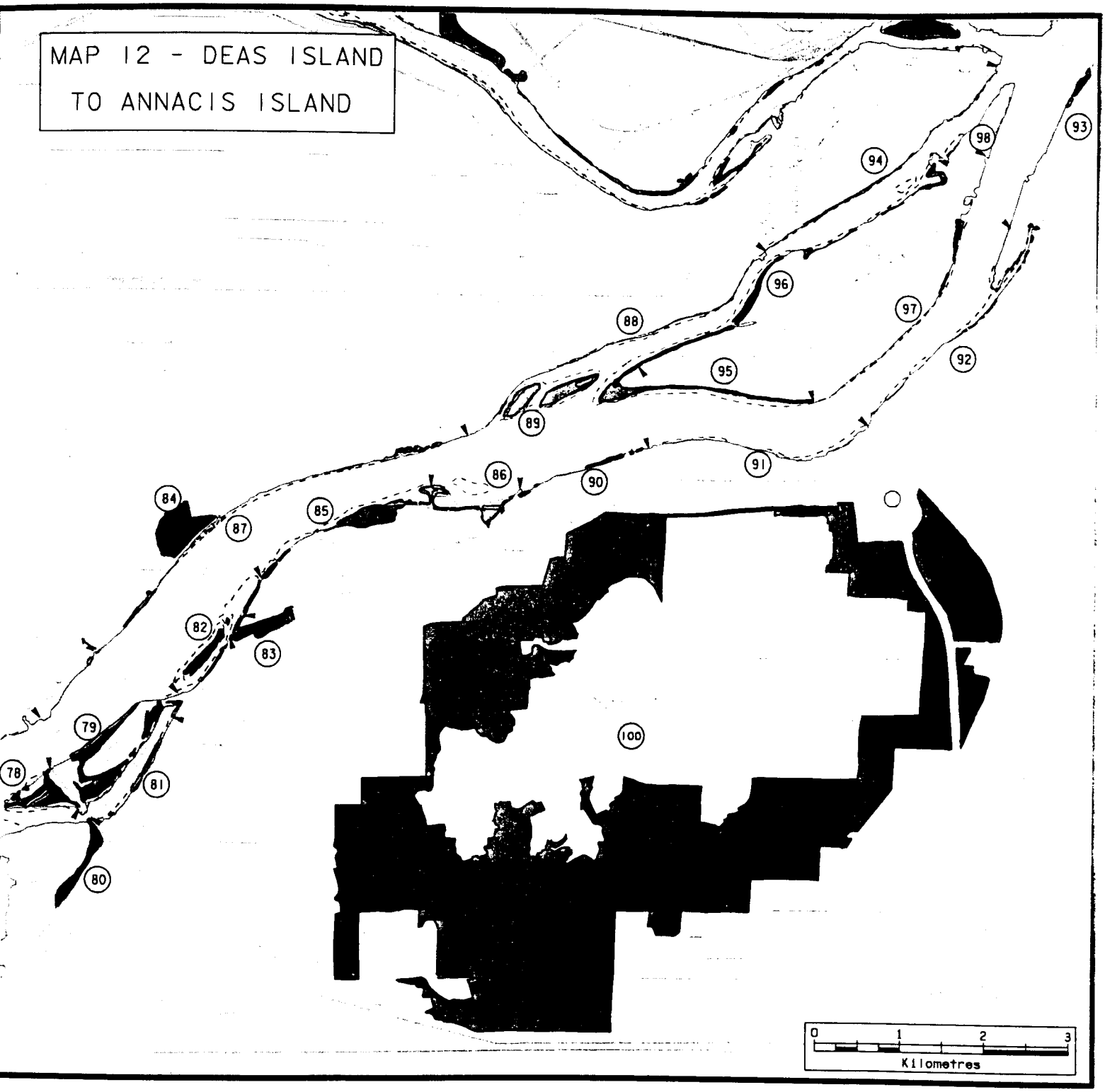

MAP 12 - DEAS ISLAND
TO ANNACIS ISLAND
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
100
0
1
2
3
Kilometres

80[F] Green Slough **80[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	0.8
estuarine water	1.1
floodplain swamp	5.6

	7.5

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.208

==========

81[F] Deas Slough south shore **81[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	1.2
estuarine water	2.7
floodplain swamp	0.6

	4.4

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.208

==========

82[F] Tilbury Island foreshore west **82[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	8.6
estuarine water	21.8

	30.4

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.181/.206

==========

83[F] Tilbury Slough **83[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	8.5
estuarine water	2.5
floodplain swamp	1.1

	12.1

Municipality Delta District
Land Status Crown Federal, Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.206/.181; A26511.217/.218

Notes The bed of the slough is Provincial Crown property; the land between the bed and the dyke is Federal Crown property and is administered by the Fisheries and Oceans Canada.

==========

84 Lulu Island southeast **84**

Habitat Rating 3

Wetland classification	**Size (ha)**
100% flat bog	22.9

Vegetation type

40% low shrub	30% tall shrub
10% forb	8% hardwood trees
5% sedge	5% coniferous trees
2% low rush	

Municipality Richmond City
Land Status Fraser River Harbour Commission
Survey Date 08/27/89
Air photos BCC535.181

Notes Surrounded by roads, landfill, some trees within site have been cut.

==========

85[F] Tilbury Island foreshore central **85[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	11.2
estuarine water	9.5
floodplain swamp	3.7

	24.3

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.181/.202

86[F] **Tilbury Island foreshore east** 86[F]

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	1.9
estuarine water	10.8
floodplain swamp	3.4
	16.1

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.202

87[F] **Gravesend Reach foreshore** 87[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	3.2
estuarine water	10.8
	14.0

Municipality Richmond City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.181/.202/.206

88[F] **Annacis Channel north shore** 88[F]

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	3.2
estuarine water	6.7
floodplain swamp	1.2
	11.1

Municipality Richmond City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.107/.194/.196/.198/.200

89[F] Don and Lion Islands **89[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	8.3
estuarine water	9.8
floodplain swamp	6.6
	24.6

Municipality Richmond City
Land Status Private, Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.200

Notes These two islands, together with the marshes, shallows and backwaters of Annacis Channel, are a very important habitat complex (Retfalvi 1989). The islands are privately owned and the foreshore is owned by the Federal Crown.

==========

90[F] Sunbury **90[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	3.3
estuarine water	5.2
	8.6

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.200

Notes Floats and boathouses along this portion of shoreline.

==========

91[F] City Reach **91[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.2
estuarine water	3.7
	3.9

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC533.017/.018; 535.199

Notes Floats, boathouses and sawmill along this shoreline.

==========

92[F] **North Delta foreshore** 92[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.6
estuarine water	5.9

	6.5

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.019/.194

Notes Floats and boathouses along this shoreline.

==========

93[F] **Fraser Surrey Docks** 93[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.7
stream water	4.5
floodplain swamp	2.8

	8.0

Municipality Surrey District
Land Status Fraser River Harbour Commission
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.105/.194

Notes Industry and port development along this shoreline. In early settlement times this was a farming area (R. McKelvey, pers. commun.).

==========

94[F] **Annacis Channel north shore** 94[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	2.4
estuarine water	4.3

	6.7

Municipality New Westminster City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.194/.196

Notes Floats, ramps and floating homes along this shoreline.

==========

95[F] Purfleet Point, Annacis Island **95[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
estuarine marsh	5.8
estuarine water	13.7
floodplain swamp	4.1
	23.6

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.200

==========

96[F] Annacis Island north **96[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
estuarine marsh	4.4
estuarine water	13.3
floodplain swamp	4.5
	22.2

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.194/.196/.198

==========

97[F] Annacis Island south **97[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.5
estuarine water	4.5
floodplain swamp	1.8
	6.8

Municipality Delta District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.196/.198

Notes Industry.
==========

98[F] Annacis Island northeast 98[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
estuarine marsh	0.2
estuarine water	1.0

	1.1

Municipality Delta District
Land Status Fraser River Harbour Commission
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC535.107/.194

Notes Industry.

==========

99[F] New Westminster waterfront 99[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
stream water	0.1

Municipality New Westminster City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.060; 535.105

Notes Housing.

==========

100 Burns Bog 100

Habitat Rating 3

Wetland classification	**Size (ha)**
90% domed bog	1496.7
10% shallow basin water	166.3

	1663.0

Vegetation type

25% moss	25% non-vegetated
20% coniferous trees	10% low shrub
5% hardwood trees	5% sedge
4% grass	3% forb
3% low rush	

Municipality Delta District
Land Status Municipal, GVRD, Private
Survey Date 10/31/89
Air photos BC84013.123/.125/.142/.144/.145

Notes According to scientists and naturalists, Burns Bog is an "exceptional ecological treasure" with unique biophysical qualities not found anywhere else in the world. It is also the last major bog on the west coast of North America. Despite profound disturbance over the past four decades, "the bog is not yet dead or fatally wounded" (Hebda 1991). However, in order to continue to maintain the system, the bog's present hydrology must be conserved.

The bog is valued for several reasons. First of all, its sheer size implies a significant role in the ecology of the Fraser Lowland. Many bird and mammal species live here including Sandhill Cranes, eagles, Mule Deer, Black Bears and Red Foxes. The bog also has become a refuge for several 'ice age' plants, such as the Cloudberry, Bog Rosemary and Crowberry - species which are common only in northern boreal and tundra areas (Taylor 1990). In addition to the unusual plants and animals the bog harbours, it functions as a much needed carbon sink close to a large urban area, ie. bog plants scrub carbon dioxide from the atmosphere and convert this greenhouse gas to plant matter. Thus Burns Bog is a natural defense against global warming. It should be noted that the reverse is also true - disrupting or burying the peat leads to the release of already scrubbed carbon dioxide and methane gas, thus actually contributing to global warming (Hebda 1991).

About half of the original extent of the bog remains in a relatively natural state. The other half has been used for various purposes including peat extraction, solid waste landfill, extensive ditching and draining, conversion to agriculture, filling for industrial property and highways, and private use by a gun club.

Except for a 16 ha municipal nature park, the bog is zoned 'industrial' and most of it is privately owned. Recent development proposals include housing and port uses and a racecourse; these have met with much public opposition. Conservation groups would like to see Burns Bog designated as an ecological reserve (Scott 1990).

==========

101[F] Brownsville **101[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.2
stream water	7.0

	7.2

Municipality Surrey District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.058/.059/.076

Notes Bridge piers and ramps.

==========

102[F] Sapperton **102[F]**

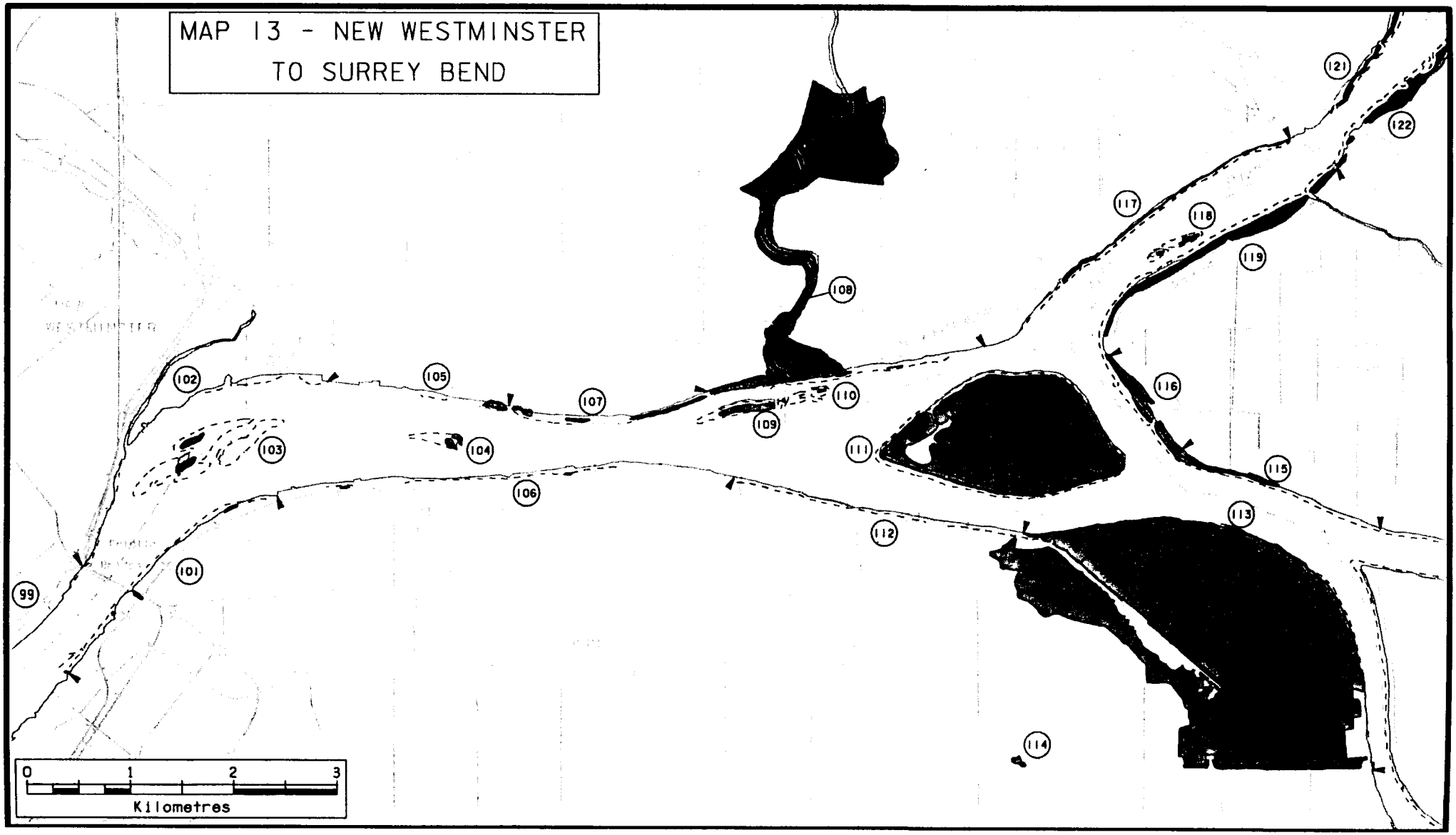
Habitat Rating 3

Wetland classification	**Size (ha)**
stream water	**2.1**

Municipality New Westminster City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.075/.077

Notes Industry.

==========


MAP 13 - NEW WESTMINSTER
TO SURREY BEND
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Kilometres

103[F] Sapperton Flats **103[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	32.6
floodplain swamp	1.2
	33.8

Municipality New Westminster City (16.4 ha);
Surrey District (17.4 ha)
Land Status Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.076/.078

Notes Log booms on flats.

==========

104[F] Sapperton Dyke **104[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
stream water	1.4
floodplain swamp	1.2
	2.6

Municipality Surrey District (1.7 ha);
Coquitlam District (0.9 ha)
Land Status Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.078

Notes Former debris burn site.

==========

105[F] Fraser Mills **105[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.4
stream water	0.5
floodplain swamp	1.1
	2.0

Municipality Coquitlam District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.078

==========

106[F] Queens Reach south shore **106[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	5.0

	5.0

Municipality Surrey District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.078/.080

==========

107[F] Queens Reach north shore **107[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.6
stream water	4.4
floodplain swamp	2.1

	7.0

Municipality Coquitlam District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.080

==========

108 Coquitlam River lower reach **108**

Habitat Rating 1

Wetland classification	**Size (ha)**
30% floodplain swamp	41.4
25% stream marsh	34.5
20% stream water	27.6
20% stream fen	27.6
5% flat bog	6.9

	138.1

Vegetation type

15% hardwood trees	10% grass
10% submerged aquatic	10% sedge
10% mixed shrub	10% forb
10% low rush	10% tall rush
5% non-vegetated	5% coniferous trees
5% floating aquatic	

Municipality Port Coquitlam City (92.2 ha);
Coquitlam District (45.9 ha)
Land Status Crown Provincial, Indian Reserve
Port Jurisdiction Fraser River (at river mouth)
Survey Date 09/25/89
Air photos BCC534.127; 539.091

Notes There is a proposed Wildlife Management Area on 12 ha of Crown land at the mouth of the river (T. Burgess, pers. commun.).

This unit includes 7.17 ha of FREMP wetlands at its mouth: West Bank (Coquitlam) - .58 ha tidal freshwater marsh, 1.11 ha stream water (tidal flat); East Bank (Port Coquitlam) - 2.85 ha tidal freshwater marsh, 2.63 ha stream water (tidal flat).

==========

109[F] Tree Island **109[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.5
stream water	3.2
floodplain swamp	2.4

	6.2

Municipality Coquitlam District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.082

==========

110[F] Essondale Islets **110[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
stream water	2.1
floodplain swamp	0.2

	2.3

Municipality Port Coquitlam City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.082

==========

111[F] Douglas Island **111[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
stream fen	132.0
tidal freshwater marsh	2.2
stream water	6.5
floodplain swamp	38.0

	178.7

Municipality GVRD Ea B
Land Status Private
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.084

Notes The island is privately owned. The owners and Ducks Unlimited are currently enhancing the floodplain habitat for waterfowl production (Retfalvi 1989).

112[F] **Port Mann** 112[F]

Habitat Rating 3

Wetland classification	**Size (ha)**
stream water	2.0

Municipality Surrey District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.080/.082/.084

Notes The rating of '3' reflects the proximity of the CNR.

113 **Surrey Bend** 113

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain swamp	304.0
35% stream fen	177.3
5% tidal freshwater marsh	25.3
	506.7

Vegetation type

45% hardwood trees	30% tall shrub
10% grass	5% sedge
5% forb	3% low rush
2% non-vegetated	

Municipality Surrey District
Land Status Private
Port Jurisdiction Fraser River (along shoreline)
Survey Date 07/18/89
Air photos BCC534.047/.049

Notes All of Surrey Bend has been included in this inventory; no attempt was made to exclude small pockets of non-wetland. The unit also includes 14.52 ha of FREMP wetlands along the shoreline: 3.77 ha of tidal freshwater marsh and 10.75 ha of stream water (tidal flats).

This is one of the largest undyked areas of floodplain on the Fraser River. It remains more or less in its natural state despite strong development pressures. It is excellent wildlife habitat. Animal life abounds with about 100 species of birds and over two dozen mammal species. Cutthroat Trout and Dolly Varden use the creek and the marshes are prime habitat for Coho and Chinook salmon. It is also an important outdoor recreation area. Undulating topography produces a complex of habitat types ranging from moist to wet floodplain forest (swamp), fens, creeks, ponds. Railroad and ditches cut through this unit.

In compensation for wildlife habitat destroyed here by CN's recent development of its intermodal yard, CN agreed to make funds available for acquiring similar habitat for conservation purposes. However, Surrey Bend is still subject to strong development pressures.

114 Fraser Glen House **114**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% shallow basin water	0.5
30% shallow basin marsh	0.2

	0.7

Vegetation type

30% non-vegetated	20% submerged aquatic
20% floating aquatic	15% tall rush
5% hardwood trees	5% tall shrub
2% low rush	2% forb
1% grass	

Municipality Surrey District
Land Status
Survey Date 07/18/89
Air photos BCC539.010

Notes Bordered by freeway and residential development.

==========

115[F] Pitt Meadows Fraser foreshore **115[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.0
stream water	1.1
floodplain swamp	3.9

	5.0

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.087

==========

116[F] Pitt Meadows Fraser foreshore **116[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	1.1
stream water	2.3
floodplain swamp	7.7

	11.0

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.086

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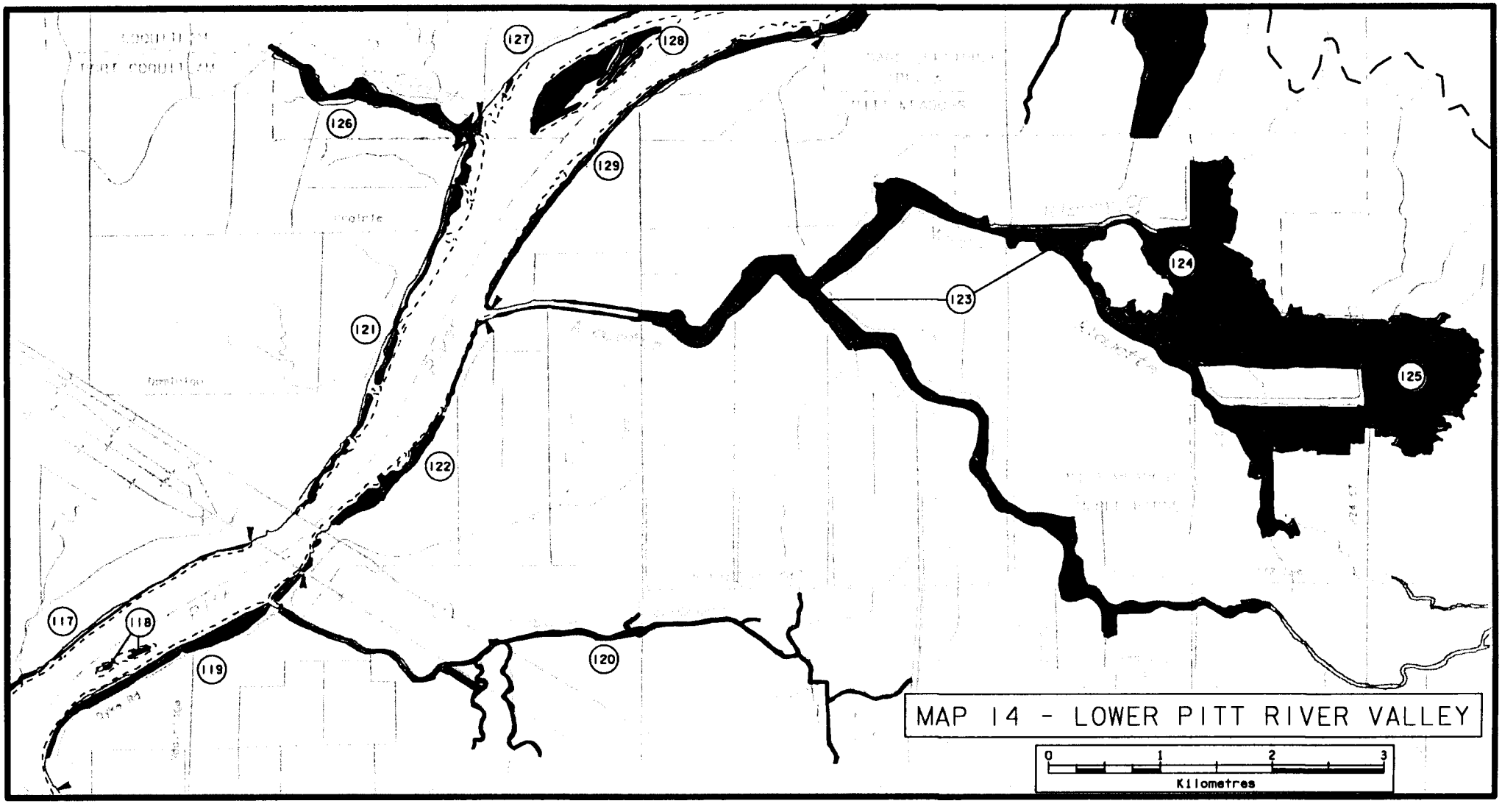
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120
MAP 14 - LOWER PITT RIVER VALLEY
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3
Kilometres

117[F] Pitt River mouth west **117[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	6.2
stream water	4.4
	10.6

Municipality Port Coquitlam City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.123/.124

==========

118[F] Chatham Flats **118[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.5
stream water	1.2
	1.8

Municipality Pitt Meadows District
Land Status Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.123

==========

119[F] Pitt River mouth east **119[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	10.7
stream water	5.3
floodplain swamp	5.5
	21.5

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.123

==========

120 Katzie Slough **120**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% stream water	28.8
10% stream marsh	3.2
	32.0

Vegetation type

80% non-vegetated	10% floating aquatic
3% grass	3% tall rush
2% tall shrub	2% forb

Municipality Pitt Meadows District
Land Status
Survey Date 09/21/89
Air photos BCC534.118/.120/.122

Notes Surrounded by agriculture.

121[F] Pitt River, RR bridge to De Boville Slough **121[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	11.5
stream water	23.3
	34.8

Municipality Port Coquitlam City
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.085/.102

122[F] Pitt River, RR bridge to Alouette River **122[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	14.8
stream water	4.6
	19.4

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.085

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123 Alouette and North Alouette Rivers **123**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream water	138.6
20% stream marsh	34.7
	173.3

Vegetation type

60% non-vegetated	20% submerged aquatic
10% grass	2% tall rush
2% forb	2% tall shrub
2% low rush	1% hardwood trees
1% sedge	

Municipality Pitt Meadows District (116.8 ha);
Maple Ridge District (56.5 ha)
Land Status Crown Provincial, Private
Survey Date 10/03/89
Air photos BCC539.103/.105/.078/.079/.107; 534.114

Notes Disturbance factors used in rating include a road crossing, some rip-rapped dykes, agriculture.

Navigable waters of the river are Crown owned. River bed upstream of Blaney Creek confluence is privately owned. Adjacent lands are both privately and Crown owned with various reserves on them.

==========

124 Cod Island **124**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% stream fen	111.5
5% stream water	5.9
	117.4

Vegetation type

50% grass	20% low rush
10% tall rush	5% sedge
5% tall shrub	5% forb
2% submerged aquatic	2% non-vegetated
1% floating aquatic	

Municipality Pitt Meadows District
Land Status Private
Survey Date 10/03/89
Air photos BCC539.108

Notes Area between Blaney Creek and the North Alouette River is known as Cod Island. These wetlands provide good habitat for wintering and migrating waterfowl. However, the most important feature of the island is its importance to a remnant population of Sandhill Cranes, a bird of regional concern. Local naturalist groups are very involved in censusing, rearing and habitat management for this crane population (Fry 1982).

==========

125 North Alouette River, adjacent to **125**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream fen	213.3

Vegetation type

40% grass	20% low rush
15% sedge	10% forb
10% tall rush	5% tall shrub

Municipality Pitt Meadows District (69.0 ha);
Maple Ridge District (144.3 ha)
Land Status Private
Survey Date 10/03/89
Air photos BCC539.077/.110

Notes Large section of area being converted to cultivation (possibly cranberry farm). Ditching and dyking.

126 DeBoville Slough **126**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% tidal freshwater marsh	14.4
30% stream water	6.2
	20.6

Vegetation type

40% grass	15% non-vegetated
15% sedge	10% submerged aquatic
10% forb	5% mixed shrub
5% floating aquatic	

Municipality Coquitlam District
Land Status Private, Crown Provincial
Port Jurisdiction Fraser River
Survey Date 09/25/89
Air photos BCC539.130/.132

Notes This area is good habitat for birds (waterfowl, herons and shorebirds) and fish - fishing for Cutthroat Trout and Coho best during fall.

The slough is flanked by dykes and there is a marina at its mouth. The western half of the slough is privately owned; the eastern end is Crown owned but leased to the Pitt River Boat Club.

127[F] Pitt River, De Boville Slough to Addington Marsh **127[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	1.3
stream water	2.4
	3.7

Municipality Coquitlam District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.130


MAP 15 - UPPER PITT RIVER VALLEY
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140
141
142
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134
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0
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3
Kilometres

128[F] Goose Bar, Pitt River 128[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	24.2
stream water	11.1
	35.3

Municipality Coquitlam District
Land Status Crown Federal
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.130

==========

129[F] Pitt River, Alouette River to Sheridan Hill 129[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	19.6
stream water	14.3
	33.9

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.102/.127/.129

==========

130[F] Pitt River, Sheridan Hill foreshore 130[F]

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	6.2
stream water	2.6
	8.8

Municipality DARD Ea A
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.127

Notes There is a barge loading facility in this unit.

==========

131 Minnekhada Regional Park 131

Habitat Rating 1

Wetland classification	**Size (ha)**
60% shallow basin marsh	26.3
40% shallow basin water	17.5
	43.8

Vegetation type

25% grass	20% non-vegetated
20% floating aquatic	20% sedge
10% mixed shrub	5% low rush

Municipality Coquitlam District
Land Status GVRD
Survey Date 09/25/89
Air photos BCC539.145

Notes There have been numerous man-induced fluctuations in water levels in this marsh since it was cut off from the Pitt River by dyking in the 1890's. Since the establishment of the regional park in the early 1980's, however, modifications to the dyke and outlet dam were undertaken to enhance the marsh environment (Castagner and Gardiner 1983).

This is excellent bird habitat; sixteen species of waterfowl have been recorded including swans, Ring-necked Ducks, Green-winged Teals, Mallards, Buffleheads, Wood Ducks and Hooded Mergansers (Castagner and Gardiner 1983).

In addition to the water control structures at the outlet there is a system of trails and interpretive signs.

==========

132 Addington Point Marsh **132**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% stream fen	160.2
5% oxbow water	8.4
	168.6

Vegetation type

30% grass	30% tall shrub
20% forb	10% sedge
5% hardwood trees	3% non-vegetated
2% floating aquatic	

Municipality Coquitlam District
Land Status Nature Trust
Survey Date 09/25/89
Air photos BCC539.128/.147

Notes This area is important for migrating waterfowl and other wildlife species. Bought by the Nature Trust of B.C. in 1978, it was formally designated as part of the Pitt-Addington Wildlife Management Area in 1987 and is managed by the B.C. Ministry of Environment, Lands and Parks.

==========

133[F] Addington Marsh foreshore **133[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	47.0
stream water	9.1
	56.1

Municipality Coquitlam District
Land Status Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.127/.129/.146

Notes Part of the Pitt-Addington Wildlife Management Area.

==========

134 Sturgeon Slough **134**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% oxbow water	33.5
30% floodplain marsh	14.3

	47.8

Vegetation type

60% non-vegetated	25% grass
5% submerged aquatic	5% low shrub
5% floating aquatic	

Municipality DARD Ea A
Land Status
Survey Date 10/03/89
Air photos BCC539.124/.149

Notes Road crossing, agriculture, residential housing.

==========

135 Pitt Polder **135**

Habitat Rating 1

Wetland classification	**Size (ha)**
60% shore fen	1177.6
15% shore water	294.4
15% shore marsh	294.4
10% shore bog	196.3

	1962.7

Vegetation type

45% tall shrub	10% grass
10% low rush	10% non-vegetated
7% sedge	5% tall rush
3% floating aquatic	3% hardwood trees
2% forb	2% coniferous trees
2% submerged aquatic	1% low shrub

Municipality DARD Ea A
Land Status Crown Provincial, Private
Survey Date 10/03/89
Air photos BCC539.124/147-51/165-69/180-84/194-98

Notes This is an excellent birdwatching area. Migratory waterfowl and shorebirds abound. Sandhill cranes nest here. Several species of raptors and the greatest variety of songbirds in the entire Lower Mainland, are seen here.

The northern three-quarters (1457 ha) of this unit is included in the Pitt-Addington Wildlife Management Area, established in 1987. An

additional 250 ha bordering the southeastern corner of the WMA is also of interest to the Ministry of Environment, Lands and Parks; this area is privately owned.

The area is dissected by dykes and drainage canals and some of the better drained areas are under cultivation for waterfowl. There is public access to hunters and naturalists.

==========

136 McIntyre Creek **136**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% stream swamp	7.7
10% stream water	0.9

	8.6

Vegetation type

35% grass	20% hardwood trees
20% tall shrub	10% forb
7% non-vegetated	5% sedge
2% floating aquatic	1% submerged aquatic

Municipality Coquitlam District
Land Status Crown Provincial, Private
Port Jurisdiction Fraser River (at creek mouth)
Survey Date 09/25/89
Air photos BCC539.145/.146

Notes Road to private residences - bridge across creek.

This unit includes 5.13 ha of FREMP wetlands at the creek mouth: 3.33 ha stream water (tidal flats) 1.8 ha tidal freshwater marsh

==========

137[F] Pitt Polder foreshore south **137[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	17.8
stream water	15.7

	33.5

Municipality DARD Ea A
Land Status Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.147/.169/.180

Notes Northern part of unit is part of the Pitt-Addington Wildlife Management Area.

==========

138[F] Pitt Polder foreshore north 138[F]

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	30.1
stream water	10.3
	40.4

Municipality DARD Ea A
Land Status Crown Provincial
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.180/.197

Notes Included in the Pitt-Addington Wildlife Management Area.

==========

139 Widgeon Creek Valley 139

Habitat Rating 1

Wetland classification	**Size (ha)**
80% tidal freshwater marsh	576.6
20% stream water	144.1
	720.7

Vegetation type

20% grass	20% forb
20% mixed shrub	15% submerged aquatic
10% tall rush	5% non-vegetated
5% hardwood trees	5% low rush

Municipality Coquitlam District (224.9 ha);
GVRD Ea B (495.8 ha)
Land Status Crown Federal, GVRD, Private
Port Jurisdiction Fraser River (at creek mouth)
Survey Date 03/14/90
Air photos A27008-60; BCC539.198

Notes This is the largest tidal freshwater marsh in the Lower Mainland. Together with the Pitt-Addington Wildlife Management Area, it forms a very important habitat complex. The whole area is very important for waterfowl, shorebirds, songbirds and raptors, for numerous mammals and for both resident and migratory fish. Diving ducks uncommon in the Lower Mainland, such as Redheads and Ring-necked Ducks, can be seen at the creek mouth.

Navigable waterways are owned by the Federal Crown. Recent (1992) purchases by the GVRD and the Nature Trust of B.C. have allowed for the establishment of the Widgeon Marsh Regional Park Reserve which includes roughly three-quarters of this wetland unit. To the north of this reserve is the Widgeon Valley National Wildlife Area which is managed by the Canadian Wildlife Service on property leased from the Nature Trust of B.C.; the Nature Trust purchased this property in 1973. The only wetlands in the valley which are still in private ownership are two small parcels adjacent to the NWA to the north.

==========

140[F] Grant Narrows north shore **140[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	2.9
stream water	3.2

	6.1

Municipality GVRD Ea B
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.197

Notes The rating of '2' reflects the presence of cottages and docks.

==========

141 Pitt Lake south shore **141**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream water	19.0
20% tidal freshwater marsh	4.8

	23.8

Vegetation type

Municipality DARD Ea A
Land Status Crown Provincial
Survey Date 07/31/88
Air photos BCC539.196

Notes This unit is part of the Pitt-Addington Wildlife Management Area. The western 7.4 ha of this unit comes under FREMP jurisdiction; it contains 5.1 ha of tidal freshwater marsh and 2.3 ha of stream water.

==========

142 Pitt Lake Delta **142**

Habitat Rating 1

Wetland classification	**Size (ha)**
70% delta water	381.6
30% tidal freshwater marsh	163.5

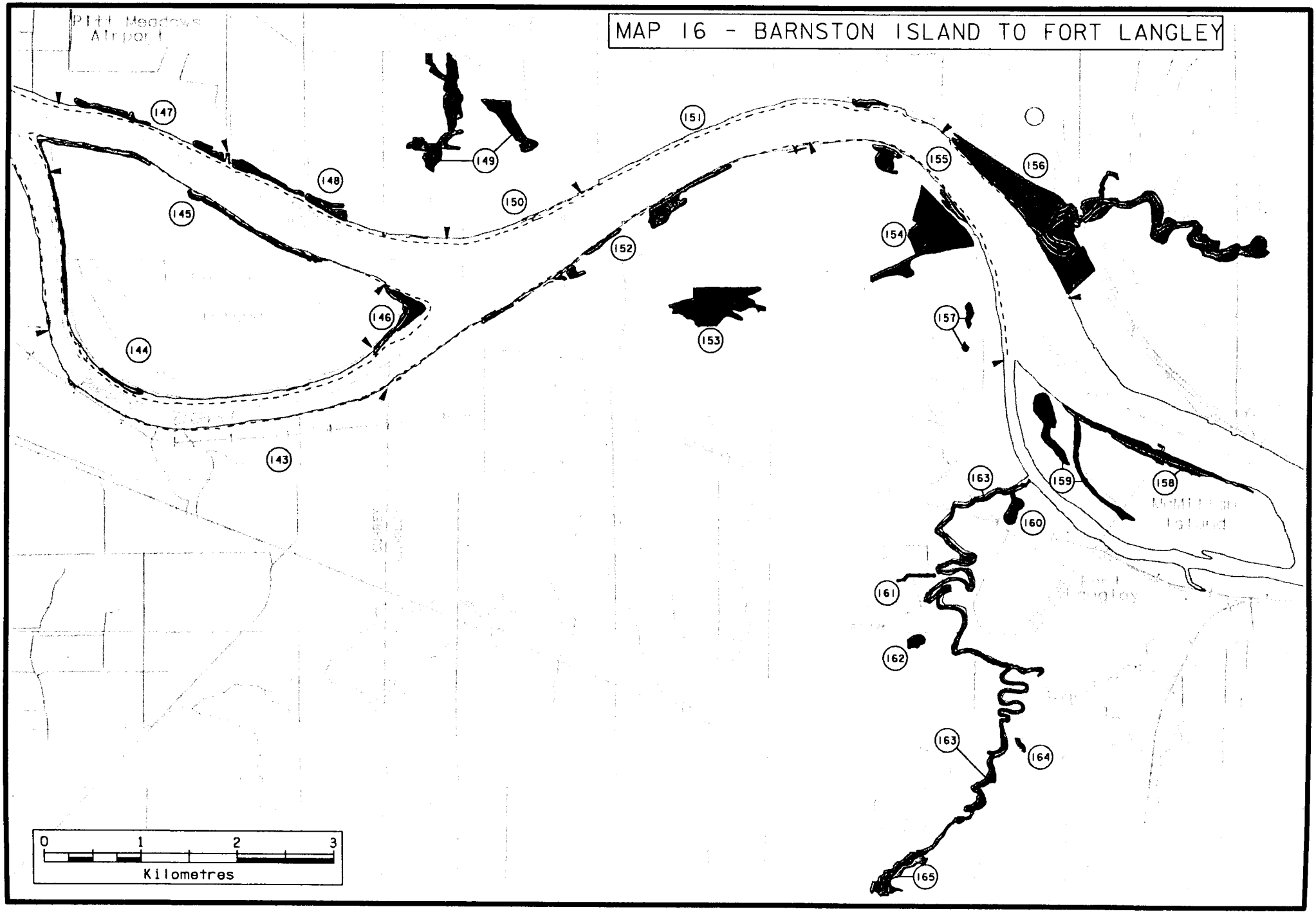
	545.1

Vegetation type

40% non-vegetated	30% submerged aquatic
15% low rush	15% tall rush

Municipality GVRD Ea B (376.8 ha);
DARD Ea A (168.4 ha)
Land Status Crown Provincial
Survey Date 03/14/90
Air photos A27008-60; BCC539.194/.196

Notes This unique "reverse delta" has formed by sedimentation from the Fraser River freshet. The delta attracts fall staging waterfowl. The area is part of the Pitt-Addington Wildlife Management Area.


MAP 16 - BARNSTON ISLAND TO FORT LANGLEY
Pitt Meadows Airport
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
144
145
146
143
0
1
2
3
Kilometres

143[F] Parsons Channel **143[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.0
stream water	3.1

	3.1

Municipality Surrey District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.004/.006

Notes Within this unit there are sawmills, a boat launch and ferry.

==========

144[F] Barnston Island south **144[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	6.4
floodplain swamp	2.3

	8.8

Municipality GVRD Ea B
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.047; 539.004/.006

==========

145[F] Barnston Island north **145[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	6.1
floodplain swamp	5.7

	11.9

Municipality GVRD Ea B
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.044/.046

==========

146[F] Mann Point, Barnston Island **146[F]**

Habitat Rating 1

Wetland classification	**Size (ha)**
tidal freshwater marsh	4.6
stream water	4.3
floodplain swamp	1.3
	10.2

Municipality GVRD Ea B
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC539.003

==========

147[F] Pitt Meadows Airport foreshore **147[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.0
stream water	1.4
floodplain swamp	7.5
	8.9

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.088/.089

Notes There is a seaplane ramp in this unit.

==========

148[F] Bishops Reach **148[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	4.4
floodplain swamp	7.0
	11.5

Municipality Pitt Meadows District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.043/.045

==========

149 Katzie Slough upper reaches **149**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream fen	28.9

Vegetation type

40% grass	30% low rush
10% forb	8% tall shrub
6% hardwood trees	6% tall rush

Municipality Pitt Meadows District
Land Status
Survey Date 09/21/89
Air photos BCC534.092

Notes Highway and railway crossings. Housing development on west side and industrial park on east side. Large diversity of emergent wetland species. Indications of succession due to drainage.

==========

150[F] Derby Reach northwest **150[F]**

Habitat Rating 3

Wetland classification	**Size (ha)**
tidal freshwater marsh	0.1
stream water	1.3

	1.4

Municipality Maple Ridge District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.042

Notes There are docks, floats and housing along this shoreline.

==========

151[F] Derby Reach northeast **151[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
stream water	2.2
floodplain swamp	3.5

	5.7

Municipality Maple Ridge District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.094/.096

Notes There is a sawmill in this unit.

==========

152[F] Derby Reach southwest **152[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
tidal freshwater marsh	1.0
stream water	9.8
floodplain swamp	9.6

	20.4

Municipality Langley District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.039/.041/.042

==========

153 Fort Langley, northwest of **153**

Habitat Rating 3

Wetland classification	**Size (ha)**
100% flat bog	23.8

Vegetation type
35% grass 35% forb
30% hardwood trees

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC534.040

==========

154 Derby Reach Regional Park **154**

Habitat Rating 3

Wetland classification	**Size (ha)**
100% flat bog	30.7

Vegetation type
35% grass 35% forb
30% hardwood trees

Municipality Langley District
Land Status GVRD
Survey Date 07/11/89
Air photos BCC534.038

Notes Wetlands are contained within the park boundaries. Surrounding areas under cultivation for cranberries. Active clearing taking place to establish new fields.

==========

155[F] Derby Reach southeast **155[F]**

Habitat Rating 2

Wetland classification	**Size (ha)**
stream water	4.3
floodplain swamp	6.4
	10.7

Municipality Langley District
Land Status
Port Jurisdiction Fraser River
Survey Date 07/31/88
Air photos BCC534.038

==========

156 Kanaka Creek **156**

Habitat Rating 1

Wetland classification	**Size (ha)**
50% stream marsh	47.1
40% floodplain swamp	37.7
10% stream water	9.4
	94.2

Vegetation type

40% grass	40% hardwood trees
10% non-vegetated	4% tall shrub
3% tall rush	3% forb

Municipality Maple Ridge District
Land Status GVRD, Private
Port Jurisdiction Fraser River (at creek mouth)
Survey Date 09/21/89
Air photos BCC534.034/.036

Notes Kanaka Creek Regional Park encompasses this relatively undisturbed wetland unit.

The unit contains 1.77 ha of FREMP wetlands at the mouth of the creek: .5 ha of tidal freshwater marsh and 1.27 ha of stream water (tidal flat).

==========

157 Derby Reach Regional Park, south of **157**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% shallow basin water	1.4
20% shallow basin marsh	0.3
	1.7

Vegetation type

40% submerged aquatic	35% floating aquatic
12% forb	5% non-vegetated
3% hardwood trees	3% low rush
2% grass	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC534.038

Notes There is a diverse community of submerged aquatic vegetation here. The area is undisturbed except for a road at the west margin.

==========

158 McMillan Island (at ferry terminal) **158**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% tidal freshwater marsh	8.3
40% stream water	5.6
	13.9

Vegetation type

40% non-vegetated	35% grass
20% tall shrub	5% hardwood trees

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC538.209

Notes Relatively undisturbed except for ferry terminal and dolphins.

==========

159 McMillan Island (near Fort Langley) **159**

Habitat Rating 1

Wetland classification	**Size (ha)**
98% floodplain marsh	14.3
2% oxbow water	0.3

	14.6

Vegetation type

45% grass	30% sedge
10% tall shrub	10% low rush
3% hardwood trees	1% submerged aquatic
1% floating aquatic	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC538.209

==========

160 Salmon River, near mouth of **160**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain swamp	3.4

Vegetation type

75% hardwood trees	10% tall shrub
4% low rush	4% sedge
4% grass	3% forb

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.039

Notes Adjacent sawmill - hogfuel road on southern end.

==========

161 Fort Langley, north of 88th. Avenue **161**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% oxbow water	0.8
30% floodplain marsh	0.4

	1.2

Vegetation type

70% non-vegetated	10% grass
10% tall rush	3% forb
3% tall shrub	2% sedge
2% hardwood trees	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.039

Notes Agricultural land.

---

162 Fort Langley, southwest of **162**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% oxbow water	1.3
30% floodplain marsh	0.6

	1.9

Vegetation type

40% non-vegetated	20% floating aquatic
10% grass	10% tall rush
10% submerged aquatic	3% forb
3% tall shrub	2% sedge
2% hardwood trees	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.039

Notes Adjacent sheep pasture; 88th. Avenue parallels one side, marsh on other side of road in process of being filled in.

---

163 Salmon River, Fort Langley **163**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% stream water	34.5
10% floodplain marsh	3.8

	38.3

Vegetation type

50% non-vegetated	40% submerged aquatic
5% tall shrub	3% grass
2% hardwood trees	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.039/.069; 533.094

Notes Agriculture, roads, residences.

---

164 Glover and Rawlinson Creeks **164**

Habitat Rating 2

Wetland classification	**Size (ha)**
97% terminal basin water	0.6
3% terminal basin marsh	0.0

	0.6

Vegetation type

50% floating aquatic	47% submerged aquatic
1% grass	1% tall rush
1% forb	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.069

Notes Road dams outlet from pond. One residence and grazing at margins.

==========

165 Trinity Western University **165**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% shallow basin water	3.1
5% shallow basin marsh	0.2

	3.3

Vegetation type

90% submerged aquatic	5% floating aquatic
3% tall rush	1% tall shrub
1% grass	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC533.094

Notes Dyke along one side, water level control structure. Close to campus. Great Blue Herons, Canada and domestic geese.

==========

166 Nicomekl River, lower reach **166**

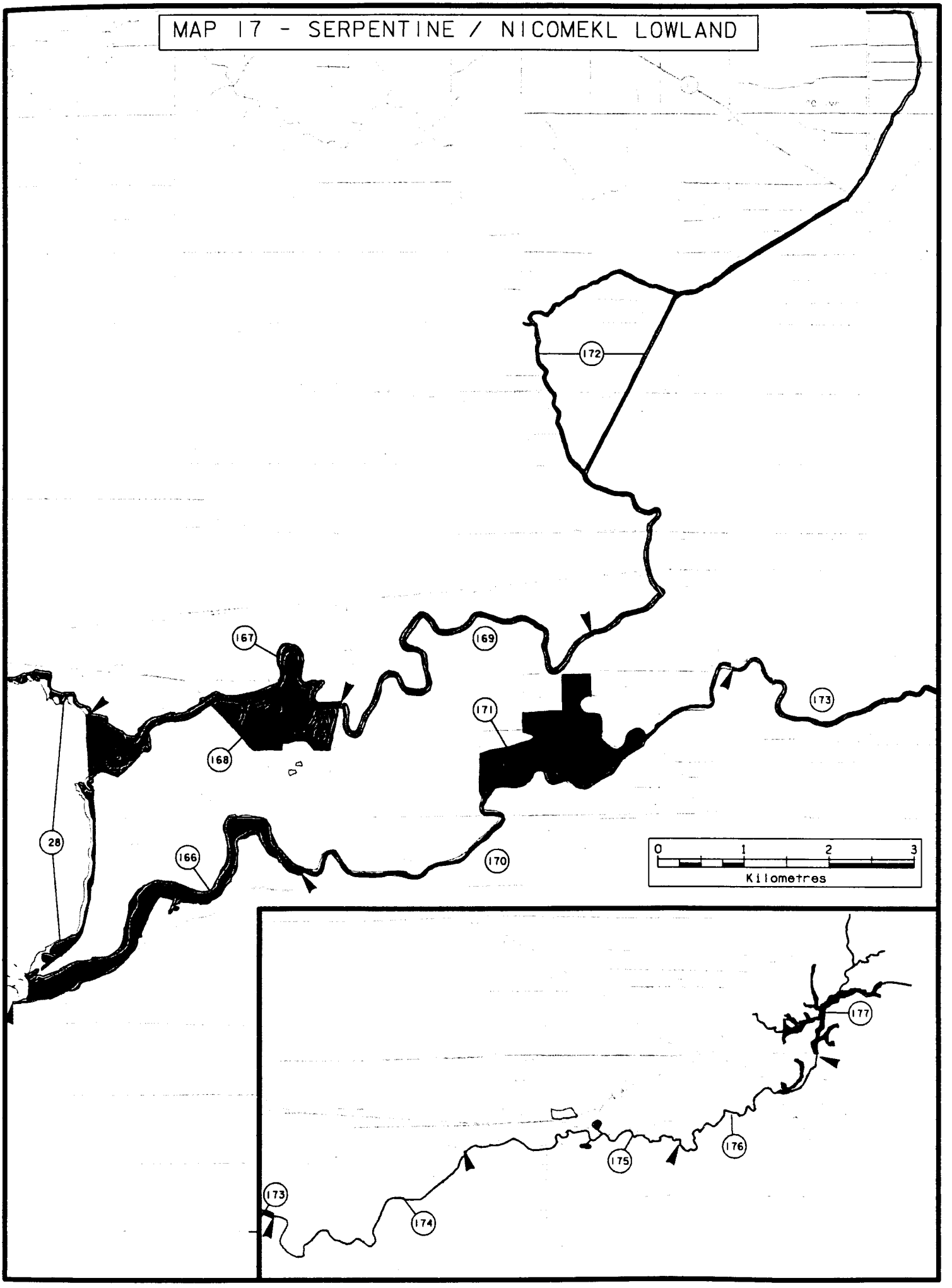
Habitat Rating 2

Wetland classification	**Size (ha)**
95% estuarine water	83.7
5% estuarine low marsh	4.4

	88.1

Vegetation type

95% non-vegetated	3% forb
2% sedge	


MAP 17 - SERPENTINE / NICOMEKL LOWLAND
172
167
169
171
173
168
28
166
170
0
1
2
3
Kilometres
177
176
175
173
174

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC534.184/.186

Notes Sport fishing here for Coho, Sea-run Cutthroat Trout, Dolly Varden and Steelhead. Dykes, floodgates, residential buildings, agriculture. Small portion of the north bank at the river mouth is part of the Serpentine-Nicomekl Greenbelt lands which are managed by the Agricultural Land Commission.

==========

167 Serpentine River, lower reach **167**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% estuarine water	56.6
10% estuarine low marsh	6.3
	62.9

Vegetation type

90% non-vegetated	5% sedge
5% forb	

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.136/.138

Notes Sport fishing here for Coho, Sea-run Cutthroat Trout, Dolly Varden and Steelhead. Dykes, agriculture, roads. This unit flows through the Serpentine-Nicomekl Greenbelt lands (managed by the Agricultural Land Commission) and is adjacent to the Serpentine Wildlife Management Area.

==========

168 Serpentine Wildlife Management Area **168**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% terminal basin marsh	46.6
20% non-tidal water	15.5
10% estuarine low marsh	7.8
10% stream fen	7.8
	77.7

Vegetation type

20% non-vegetated	18% grass
18% sedge	18% forb
18% tall shrub	5% hardwood trees
3% low rush	

Municipality Surrey District
Land Status Crown Provincial
Survey Date 07/26/89
Air photos BCC533.136

Notes Good wintering habitat for migratory birds and valuable backup lands for Boundary Bay wildlife. Managed by Ministry of Environment, Lands and Parks as a Wildlife Management Area (locally known as the Serpentine Fen). Water levels are carefully managed; different sections are separated by dykes.

==========

169 Serpentine River, middle reach **169**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream water	47.0

Vegetation type
100% non-vegetated

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.162/.164

Notes Dyked pasture land.

==========

170 Nicomekl River, middle reach **170**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% stream water	21.4
5% stream marsh	1.1
	22.5

Vegetation type
95% non-vegetated 5% grass

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.132/.134; 534.188

Notes Agriculture - market gardening, road crossing.

==========

171 Nicomekl River, north bank **171**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream fen	112.0

Vegetation type
70% grass 25% tall shrub
5% hardwood trees

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.133

Notes Secondary succession, surrounding market farming.

==========

172 Serpentine River, upper reach **172**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream water	39.9

Vegetation type
100% non-vegetated

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.066/.105/.192/.194

Notes Completely channelized - dykes on both sides. Agriculture. Roads.

---

173 Nicomekl River, middle reach **173**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% stream water	12.9
5% stream marsh	0.7
	13.6

Vegetation type
95% non-vegetated 5% grass

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.130

Notes Agriculture, pastureland, road crossings, turbid water.

---

174 Nicomekl River, middle reach **174**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% stream water	1.0
5% stream marsh	0.1
	1.1

Vegetation type
75% non-vegetated 20% submerged aquatic
3% grass 2% tall shrub

Municipality Surrey District
Land Status
Survey Date 07/26/89
Air photos BCC533.128/.172

Notes Agriculture. Pasture land. Roads.

---

175 Nicomekl River, upper reach **175**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% stream water	2.1
5% stream marsh	0.1
	2.2

Vegetation type

60% submerged aquatic	33% non-vegetated
3% low rush	2% tall shrub
2% grass	

Municipality Langley City
Land Status
Survey Date 07/26/89
Air photos BCC533.172

Notes Residential development, roads.

==========

176 Nicomekl River, upper reach **176**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream water	2.4
20% stream marsh	0.6

	3.0

Vegetation type

75% submerged aquatic	17% tall rush
5% non-vegetated	3% grass

Municipality Langley City
Land Status
Survey Date 07/26/89
Air photos BCC533.174

Notes Road crossings, residential developments, golf course.

==========

177 Nicomekl River, headwaters **177**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream fen	13.1
15% stream water	2.5
5% stream marsh	0.8

	16.4

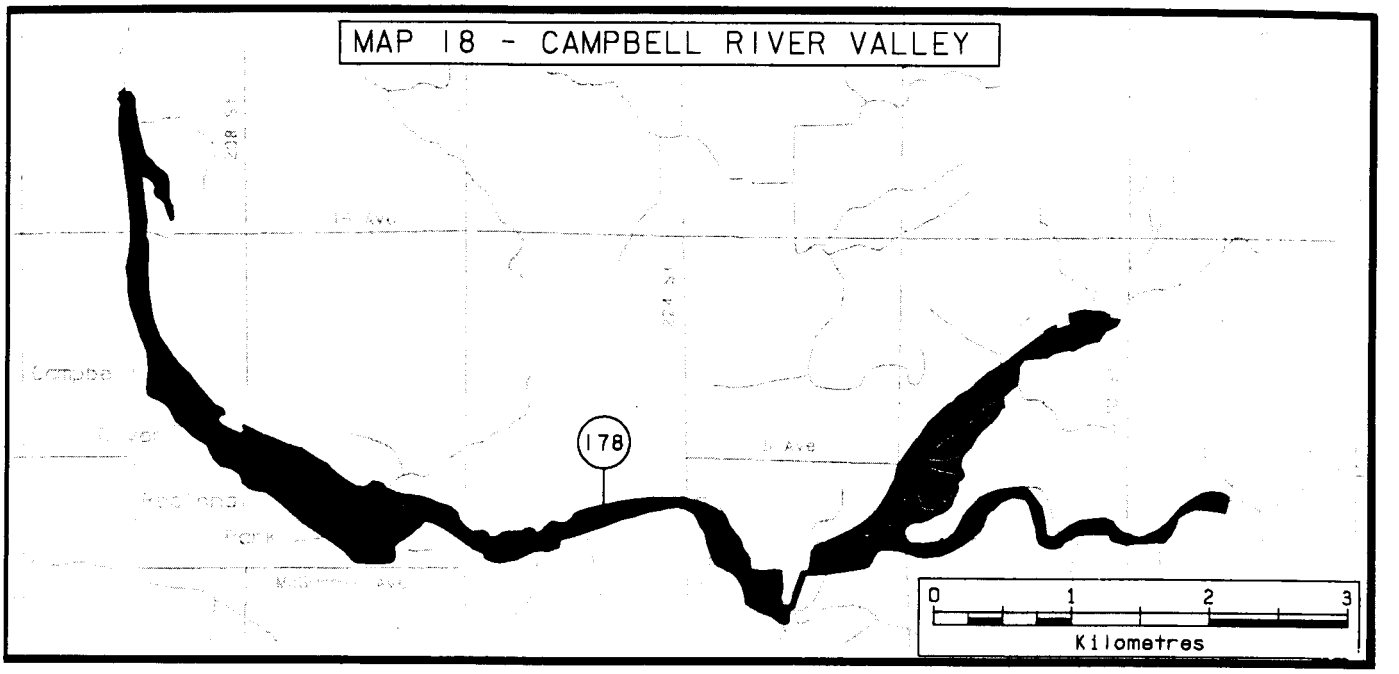
Vegetation type

50% grass	13% submerged aquatic
10% tall shrub	10% forb
5% low rush	5% tall rush
3% sedge	2% hardwood trees
2% non-vegetated	

Municipality Langley District
Land Status
Survey Date 07/26/89
Air photos BCC533.174/.181

Notes Road crossings, residential housing, use by dabbling ducks evident.

==========



178 Campbell River, upper reach **178**

Habitat Rating 2

Wetland classification	**Size (ha)**
35% stream fen	92.1
30% stream swamp	78.9
20% stream water	52.6
15% stream marsh	39.5
	263.0

Vegetation type

30% tall shrub	15% hardwood trees
15% sedge	10% tall rush
7% submerged aquatic	7% floating aquatic
6% non-vegetated	5% forb
5% grass	

Municipality Langley District
Land Status GVRD, Private
Survey Date 07/18/89
Air photos BC 84013.024/.026/.045

Notes Small lakes at eastern end are surrounded with private housing. Campbell River Regional Park encompasses the western half of these wetlands and has an extensive trail system. Types of disturbance include the Langley Speedway and road crossings.

179 Aldergrove, south of **179**

Habitat Rating 2

Wetland classification	**Size (ha)**
40% basin swamp	9.9
40% shallow basin marsh	9.9
20% shallow basin water	5.0
	24.8

Vegetation type

30% hardwood trees	20% sedge
10% submerged aquatic	10% tall shrub
7% grass	7% forb
6% tall rush	5% non-vegetated
5% floating aquatic	

Municipality Langley District
Land Status
Survey Date 07/18/89
Air photos BC 84013.028/.030

Notes Road crossing. The marsh section is dominated by grasses and sedges.

180 Bertrand Creek **180**

Habitat Rating 2

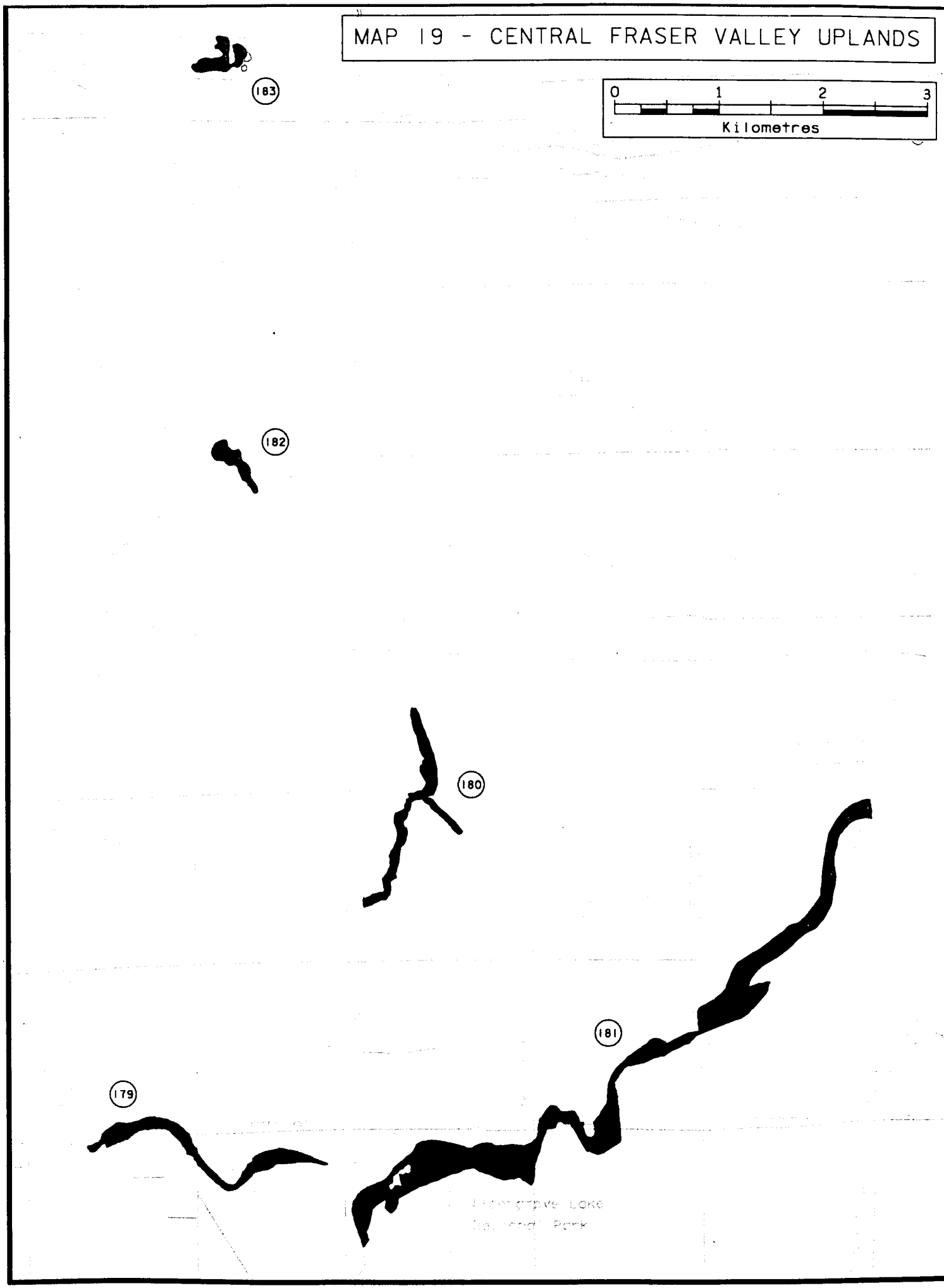
Wetland classification	**Size (ha)**
90% stream swamp	18.7
10% stream water	2.1
	20.8

Vegetation type

40% hardwood trees	25% tall shrub
7% tall rush	6% grass
6% forb	6% sedge
5% submerged aquatic	5% non-vegetated

Municipality Langley District
Land Status
Survey Date 07/18/89
Air photos BC 84013.038

Notes Road crossings, residential land.


MAP 19 - CENTRAL FRASER VALLEY UPLANDS
0
1
2
3
Kilometres
183
182
180
181
179

181 Pepin Creek **181**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% floodplain swamp	65.7
50% stream water	65.7
	131.4

Vegetation type

20% floating aquatic	20% hardwood trees
20% submerged aquatic	10% tall shrub
10% non-vegetated	10% coniferous trees
5% forb	5% tall rush

Municipality Matsqui District (101.2 ha);
Langley District (30.2 ha)
Land Status Crown Provincial, GVRD, Private
Survey Date 06/13/89
Air photos BC 84013.031

Notes This wetland does not fit into any classes of the Canadian Wetland Classification System. It is really a floodplain forest. It is crossed by roads, culverts and is bordered by gravel pits and agricultural land. The western half of this unit is in Aldergrove Lake Regional Park.

==========

182 CFB Aldergrove **182**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% shallow basin water	4.0
40% shallow basin marsh	2.6
	6.6

Vegetation type

30% submerged aquatic	20% grass
20% floating aquatic	15% tall rush
5% hardwood trees	5% forb
5% tall shrub	

Municipality Langley District
Land Status Crown Federal
Survey Date 08/29/89
Air photos BC 84013.096

Notes The unit is bordered by a Canadian Forces Base Aldergrove fence. Water from the base is pumped in here. The Base Commander is trying to connect to the municipal drainage system, so may adversely affect this unit.

==========

183 Aldergrove, north of **183**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% shallow basin water	3.8
50% shallow basin marsh	3.8
	7.6

Vegetation type

30% submerged aquatic	10% hardwood trees
10% tall shrub	10% grass
10% floating aquatic	10% non-vegetated
10% low rush	5% forb
5% sedge	

Municipality Langley District
Land Status
Survey Date 08/29/89
Air photos BC 84013.104

Notes Nearby residences, roads.

==========

184 West Creek **184**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% stream fen	6.6
5% stream water	0.3

	6.9

Vegetation type

65% grass	15% tall shrub
8% hardwood trees	7% forb
5% non-vegetated	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.044

==========

185 Palmateer Creek **185**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% floodplain marsh	6.2
5% stream water	0.3

	6.5

Vegetation type

70% grass	10% mixed shrub
10% forb	5% hardwood trees
2% floating aquatic	2% submerged aquatic
1% non-vegetated	

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.044

Notes Residential-Agricultural.

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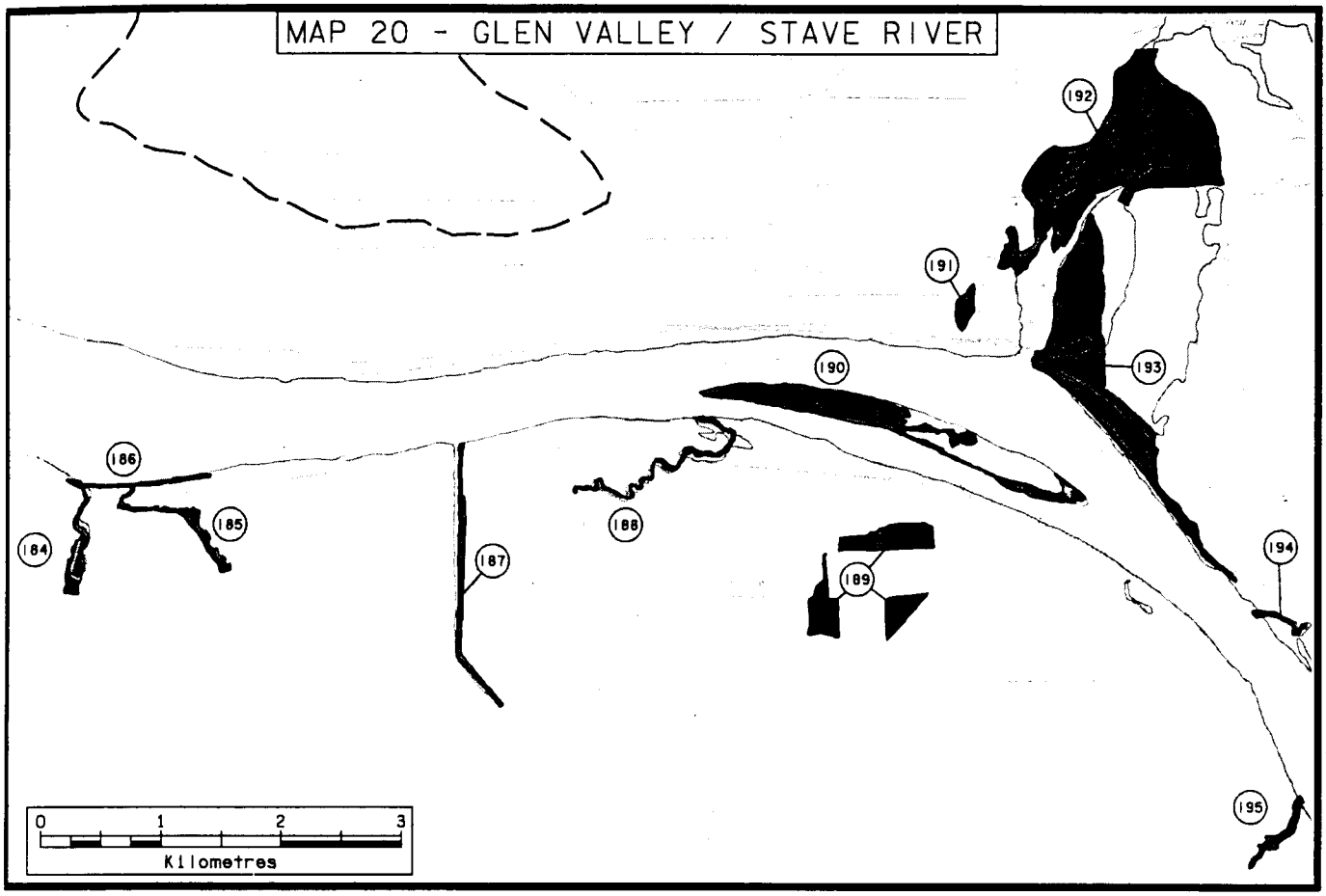


186 **Fraser River south shore** 186

Habitat Rating 2

Wetland classification
100% tidal freshwater marsh

Size (ha)
2.9

Vegetation type
80% grass
6% tall shrub
3% non-vegetated
6% hardwood trees
5% forb

Municipality Langley District
Land Status
Survey Date 07/11/89
Air photos BCC539.044

Notes Adjacent marina.

187 Nathan Canal **187**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream water	6.3
20% floodplain marsh	1.6

	7.9

Vegetation type

80% non-vegetated	18% grass
2% forb	

Municipality Langley District
Land Status Private
Survey Date 07/11/89
Air photos BCC539.046/.061

Notes New dyke along east border, pastureland on either side, road crossing.

==========

188 Nathan Slough **188**

Habitat Rating 2

Wetland classification	**Size (ha)**
75% stream water	4.7
25% floodplain marsh	1.6

	6.3

Vegetation type

35% submerged aquatic	30% floating aquatic
20% grass	10% non-vegetated
3% hardwood trees	2% forb

Municipality Langley District
Land Status Private
Survey Date 07/11/89
Air photos BCC539.048

Notes Agricultural land use, road crossings. Outlet is open to Fraser River.

==========

189 Glen Valley **189**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% flat bog	28.7

Vegetation type

15% coniferous trees	15% mixed shrub
14% hardwood trees	14% forb
14% moss	14% low rush
14% sedge	

Municipality Langley District
Land Status
Survey Date 10/01/89
Air photos BCC539.058

Notes Cranberry farm on former parts of the bog.

==========

190 Crescent Island **190**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream marsh	34.2
20% stream water	8.6
	42.8

Vegetation type

50% grass	15% non-vegetated
10% sedge	10% low rush
8% mixed shrub	5% hardwood trees
2% coniferous trees	

Municipality Matsqui District
Land Status Private, Crown Provincial
Survey Date 09/10/89
Air photos BCC 539.048/.050

==========

191 Stave River mouth, west of **191**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% oxbow water	3.6
5% floodplain marsh	0.2
	3.8

Vegetation type

45% submerged aquatic	40% floating aquatic
10% non-vegetated	1% sedge
1% mixed shrub	1% forb
1% tall rush	1% low rush

Municipality Maple Ridge District
Land Status
Survey Date 06/23/89
Air photos BCC534.015

Notes Pond with good growth of aquatic plants- Nuphas. Good access from Lougheed Highway. Potential for outdoor education.

==========

192 Stave River, lower reach **192**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% shallow basin water	78.4
40% floodplain marsh	52.2
	130.6

Vegetation type

50% non-vegetated	25% grass
10% submerged aquatic	5% sedge
4% hardwood trees	3% forb
3% tall shrub	

Municipality Mission District
Land Status
Survey Date 09/10/89
Air photos BCC534.015/A27109-27

==========

193 Stave River mouth, east bank **193**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% floodplain marsh	72.3
10% shallow basin water	8.0
	80.3

Vegetation type

60% grass	10% sedge
10% tall shrub	7% non-vegetated
5% forb	5% hardwood trees
3% submerged aquatic	

Municipality Mission District
Land Status Indian Reserve, Private
Survey Date 09/10/89
Air photos BCC534.013/.015

Notes Lougheed Highway and private dykes form artificial cut-offs from the Fraser River. Residential housing and recreational use.

==========

194 Chester Creek mouth **194**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% oxbow water	1.1
10% floodplain marsh	0.1
	1.2

Vegetation type

90% non-vegetated	3% grass
3% tall shrub	2% hardwood trees
1% sedge	1% forb

Municipality Mission District
Land Status
Survey Date 06/23/89
Air photos BCC534.011

Notes Sawmill chip pile, railroad, agriculture. Creek cut off by railway and highway, pumping stations, sawmill, fill, agriculture.

==========

195 Hanna Creek **195**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% floodplain marsh	3.0
10% stream water	0.3
	3.3

Vegetation type

77% grass	15% tall shrub
5% hardwood trees	3% forb

Municipality Matsqui District
Land Status Private
Survey Date 09/10/89
Air photos BCC534.023

Notes Isolated valley.

---

196 Silverdale Creek **196**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% floodplain marsh	39.2
10% stream water	4.4
	43.6

Vegetation type

70% grass	20% tall shrub
7% non-vegetated	2% submerged aquatic
1% floating aquatic	

Municipality Mission District
Land Status Private
Survey Date 06/15/89
Air photos BCC536.046

Notes This unit provides habitat for a wide variety of wildlife such as waterfowl, herons, raptors, deer, River Otters, kingfishers and songbirds - particularly in the fall. It is also an important Cutthroat Trout stream with spawning and rearing habitat (Fry 1982). The area is still undeveloped, despite several development proposals over the last few years. The Ministry of Environment, Lands and Parks recently placed a restrictive covenant on about 10 ha of the environmentally sensitive area (R.Ross, pers. commun.).

---

197 Mandale Slough **197**

Habitat Rating 3

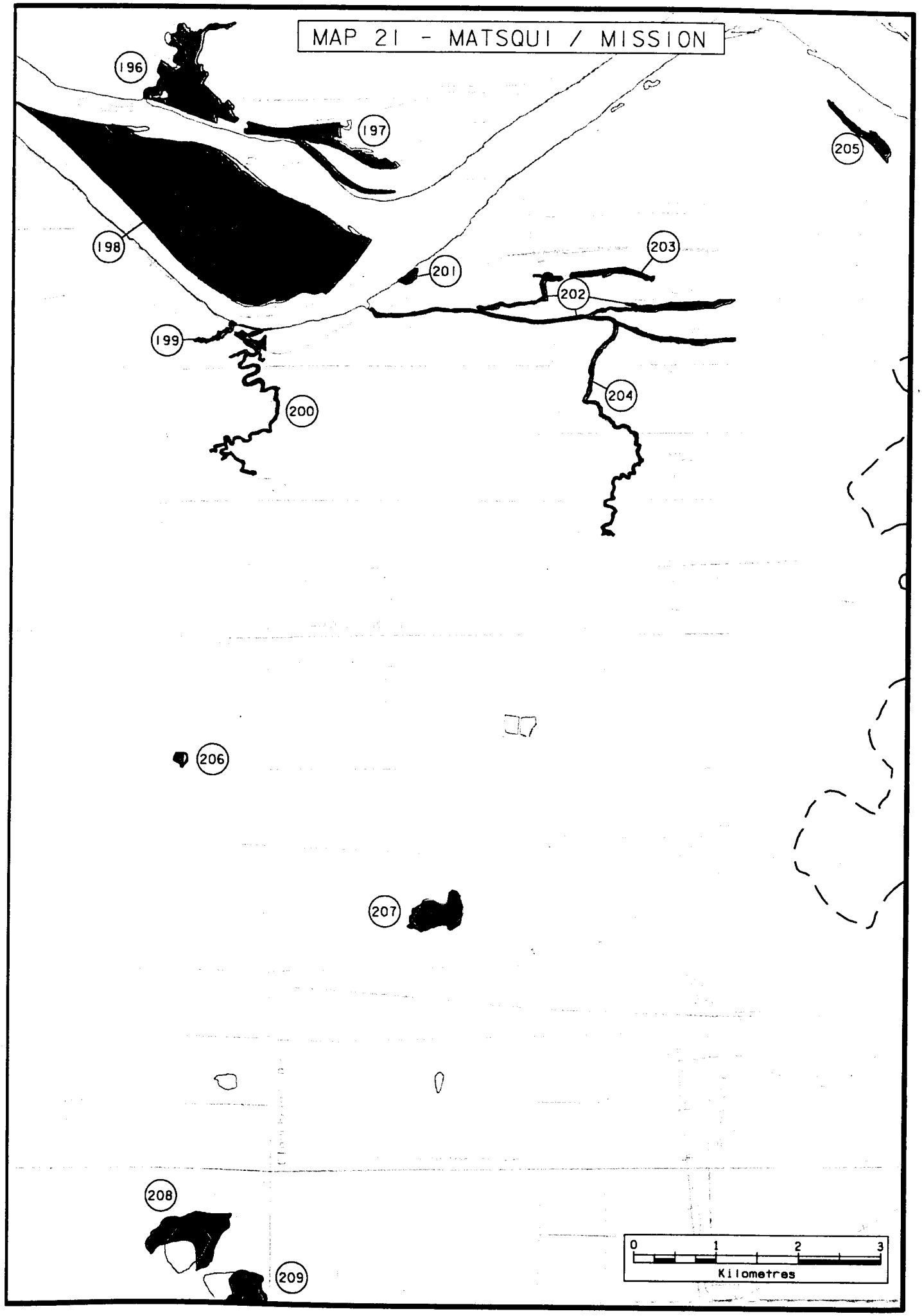
Wetland classification	**Size (ha)**
70% floodplain swamp	18.5
25% floodplain marsh	6.6
5% oxbow water	1.3
	26.4

Vegetation type

60% hardwood trees	20% grass
10% tall shrub	5% forb
3% submerged aquatic	2% non-vegetated

Municipality Mission District
Land Status
Survey Date 06/15/89
Air photos BCC536.003

Notes Landfill has already destroyed 2/3 of the site (sand and hog fuel). The remaining area has been designated as an environmentally sensitive area in Mission's Official Community Plan (R. Ross, pers. commun.).


MAP 21 - MATSQUI / MISSION
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Kilometres

198 Matsqui Island **198**

Habitat Rating 1

Wetland classification	**Size (ha)**
85% floodplain swamp	263.9
10% floodplain marsh	31.1
5% stream water	15.5
	310.5

Vegetation type

60% hardwood trees	20% mixed shrub
12% grass	5% forb
3% sedge	

Municipality Mission District
Land Status Indian Reserve
Survey Date 09/10/89
Air photos BCC536.001/.003/.044

==========

199 Creek mouth, west of McLennan Ck. **199**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% floodplain swamp	2.8
5% stream water	0.1
	2.9

Vegetation type

30% mixed shrub	30% hardwood trees
15% grass	10% sedge
10% forb	3% submerged aquatic
2% non-vegetated	

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BCC534.029

Notes Adjacent shingle mill, railroad, road.

==========

200 McLennan Creek/Gifford Slough **200**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	8.3
50% floodplain marsh	8.3
	16.6

Vegetation type

30% grass	20% non-vegetated
20% submerged aquatic	10% floating aquatic
8% mixed shrub	7% hardwood trees
5% forb	

Municipality Matsqui District
Land Status Indian Reserve, at mouth
Survey Date 06/23/89
Air photos BCC534.029/.031

Notes Crossed by roads. Agricultural and residential land use.

==========

201 Fraser River, near Matsqui Island **201**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	1.2
50% floodplain marsh	1.2

	2.3

Vegetation type

30% grass	30% submerged aquatic
20% non-vegetated	10% hardwood trees
10% tall shrub	

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BCC536.041

Notes Dyke, some clearing of the marsh land.

==========

202 Matsqui Slough / Page Creek **202**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	18.4
50% floodplain marsh	18.4

	36.8

Vegetation type

20% grass	20% floating aquatic
20% tall rush	20% submerged aquatic
10% non-vegetated	5% forb
5% mixed shrub	

Municipality Matsqui District
Land Status Private
Survey Date 06/23/89
Air photos BCC536.037/.039/.041

Notes Crossed by dykes, roads. Agricultural land.

==========

203 Matsqui Slough tributary **203**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% floodplain marsh	4.5
30% oxbow water	1.9

	6.4

Vegetation type

40% grass	20% submerged aquatic
10% tall rush	10% forb
10% mixed shrub	5% non-vegetated
5% floating aquatic	

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BCC536.039

Notes Dissected by roads, culverts, agriculture.

==========

204 Clayburn Creek **204**

Habitat Rating 3

Wetland classification	**Size (ha)**
80% oxbow water	10.2
20% floodplain marsh	2.5
	12.7

Vegetation type

40% submerged aquatic	30% non-vegetated
10% grass	10% floating aquatic
5% mixed shrub	5% forb

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BCC534.001; BCC536.039

Notes Crossed by roads, culvert. Agricultural and residential land border unit.

==========

205 Page Lake **205**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% floodplain marsh	6.4
30% oxbow water	2.8
	9.2

Vegetation type

50% grass	20% tall rush
10% non-vegetated	10% floating aquatic
10% submerged aquatic	

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BCC536.009

Notes Excellent waterfowl and shorebird habitat (Benn and McLean). Waterfowl migration stop (CN Engineering 1985). Surrounded by agricultural land.

==========

206 Pond northwest of Clearbrook 206

Habitat Rating 2

Wetland classification	**Size (ha)**
90% shallow basin water	1.9
10% shallow basin marsh	0.2

	2.1

Vegetation type

60% non-vegetated	20% submerged aquatic
10% floating aquatic	4% tall rush
2% mixed shrub	2% forb
2% grass	

Municipality Matsqui District
Land Status
Survey Date 06/23/89
Air photos BC 83010.148

Notes Surrounded by residential land.

==========

207 Mill Lake, Clearbrook 207

Habitat Rating 2

Wetland classification	**Size (ha)**
100% shallow basin water	19.4

Vegetation type

70% non-vegetated	20% floating aquatic
10% submerged aquatic	

Municipality Matsqui District
Land Status Private
Survey Date 06/23/89
Air photos BC 83013.092

Notes Community park (Centennial Park) on one side, residential on the other side. Shoreline completely developed. Canada Geese, Mallards.

==========

208 Laxton Lake 208

Habitat Rating 3

Wetland classification	**Size (ha)**
70% kettle water	24.7
30% basin bog	10.6

	35.3

Vegetation type

70% non-vegetated	13% mixed shrub
12% moss	5% hardwood trees

Municipality Matsqui District
Land Status Private
Survey Date 06/13/89
Air photos BC 83014.168

Notes One-third of lake bog has been filled recently for development purposes. Before development began, this lake and Judson Lake (No. 209) approximated the natural conditions in the Fraser Lowland before settlement in the mid 1880's. They provide excellent habitat for waterfowl, shorebirds and passerines and are mainly used during migration. There is some nesting (Benn and McLean 1977).

==========

209 Judson Lake **209**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% kettle water	6.8
50% basin bog	6.8

	13.6

Vegetation type

50% non-vegetated	20% mixed shrub
20% moss	10% hardwood trees

Municipality Matsqui District
Land Status
Survey Date 06/13/89
Air photos BC 33014.168

Notes Surrounded by agriculture (see No.208 also). Lake extends across international boundary.

==========

210 Hatzic Slough System **210**

Habitat Rating 3

Wetland classification	**Size (ha)**
80% stream water	9.8
20% floodplain marsh	2.5

	12.3

Vegetation type

40% non-vegetated	20% submerged aquatic
20% floating aquatic	5% grass
3% tall rush	3% forb
3% mixed shrub	3% low rush
3% sedge	

Municipality DARD Ea E
Land Status
Survey Date 06/15/89
Air photos A27109-31

Notes Pasture land, residences, fences, road crossings. The wetlands are less disturbed in the upper reaches where there is also more aquatic vegetation.

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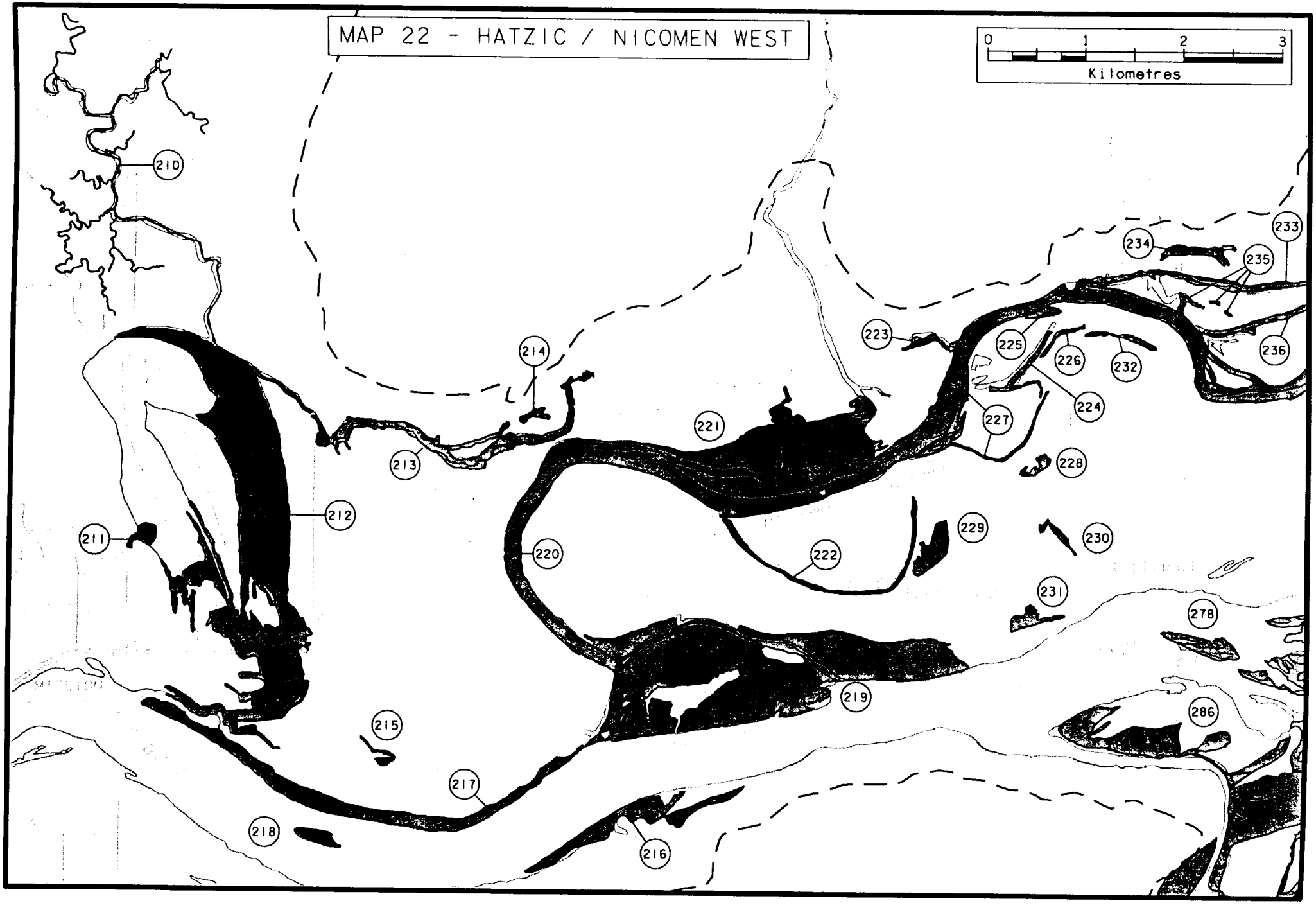
MAP 22 - HATZIC / NICOMEN WEST
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211 Neilson Regional Park **211**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% active delta marsh	3.6
10% delta water	0.4

	4.0

Vegetation type

40% grass	10% sedge
10% tall shrub	10% forb
10% non-vegetated	10% hardwood trees
10% tall rush	

Municipality Mission District
Land Status DARD
Survey Date 06/15/89
Air photos BCC536.054

Notes High public use because of park. Salmon enhancement project in Draper Creek.

==========

212 Hatzic Lake **212**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% floodplain marsh	166.0
30% shallow basin water	71.2

	237.2

Vegetation type

30% grass	30% non-vegetated
20% tall rush	5% low rush
5% tall shrub	5% forb
5% hardwood trees	

Municipality DARD Ea B/E (181.6 ha);
Mission District (55.6 ha)
Land Status Crown Provincial, Private
Survey Date 09/10/89
Air photos BCC536.054

Notes Heavy recreational use, cottages, docks, piers, boat ramps. There is extensive use by wintering waterfowl of the Hatzic Lake and Slough system.

==========

213 Chilqua Slough **213**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% stream water	22.9
40% floodplain marsh	15.2

	38.1

Vegetation type

30% submerged aquatic	20% grass
20% floating aquatic	10% non-vegetated
10% mixed shrub	5% forb
5% hardwood trees	

Municipality DARD Ea B
Land Status Private
Survey Date 06/15/89
Air photos BCC536.056/.058

Notes Cut by roads, surrounded by agriculture.

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214 Chilqua Slough, north of **214**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% floodplain marsh	1.9
10% oxbow water	0.2

	2.1

Vegetation type

60% tall rush	10% hardwood trees
10% grass	10% mixed shrub
8% floating aquatic	2% submerged aquatic

Municipality DARD Ea B
Land Status
Survey Date 06/15/89
Air photos BCC536.058

Notes Residence and farmland border unit.

---

215 Hatzic Lake, southeast of **215**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	1.1
50% floodplain marsh	1.1

	2.1

Vegetation type

30% floating aquatic	20% submerged aquatic
18% low rush	17% tall rush
10% forb	3% sedge
2% grass	

Municipality DARD Ea B
Land Status
Survey Date 06/15/89
Air photos BCC536.011

Notes Grazing cattle and dissected by roads.

---

216 Wades Creek **216**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% stream fen	26.6
5% stream water	1.4

	28.0

Vegetation type

40% grass	40% hardwood trees
10% tall shrub	5% forb
5% non-vegetated	

Municipality CFVRD Ea A
Land Status Crown Provincial, Private
Survey Date 09/09/89
Air photos BCC536.030

Notes Excellent waterfowl and shorebird habitat (Benn and McLean 1977). Public access noticeable from gravel pit operation. Barge loading facility for gravel. Crown owned along shoreline.

==========

217 Fraser River, north shore **217**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% floodplain swamp	52.5
5% stream water	2.8
	55.3

Vegetation type

70% hardwood trees	10% grass
10% tall shrub	5% forb
5% non-vegetated	

Municipality DARD Ea B
Land Status Private
Survey Date 06/15/89
Air photos BCC536.007/.009/.011

Notes Cattle grazing. Flanked by dyke at back. Parts of foreshore are rip-rapped.

==========

218 Fraser River, near Hatzic River **218**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	4.7
- early succession	

Vegetation type
100% non-vegetated

Municipality DARD Ea B
Land Status
Survey Date 05/31/89
Air photos BCC536.011

==========

219 Strawberry Island area **219**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% floodplain swamp	194.6
10% oxbow water	24.3
10% floodplain marsh	24.3

	243.2

Vegetation type

50% tall shrub	30% hardwood trees
5% low rush	5% sedge
5% forb	5% grass

Municipality DARD Ea C
Land Status Crown Provincial, Private
Survey Date 09/10/89
Air photos BCC536.013/015/017

Notes Strawberry Island's marshes, sheltered sloughs, cottonwood stands, open meadows and riverside beaches provide habitat for a wide variety of wildlife: Black-tailed Deer, many small rodents, a variety of upland birds and raptors such as Northern Goshawks, kestrels, Bald Eagles, Osprey, Great Horned Owls, Northern Harriers, and overwintering waterfowl (the most common being the American Wigeon).

In the past the island was used mainly for access to the gravel reserve to the east. Since the early 1970's, however, the area has been of interest to many private groups and government agencies who have wanted to establish some form of nature reserve and/or park. To date, funds have not been found for such a purchase. DARD's Parks Plan identifies the Crown land at the eastern end of the island as a potential park site.

Disturbance factors include public trails and an access road in addition to the logging operations of Scott Paper's cottonwood plantation. There are also two small U.R.E.P. Reserves in this unit, managed by the Ministry of Lands, Parks, and Housing.

==========

220 Nicomen Slough **220**

Habitat Rating 2

Wetland classification	**Size (ha)**
75% stream water	288.0
25% floodplain marsh	96.0

	384.0

Vegetation type

40% non-vegetated	25% submerged aquatic
10% floating aquatic	5% tall shrub
5% grass	4% tall rush
3% forb	3% sedge
3% hardwood trees	2% coniferous trees

Municipality DARD Ea B/C/D
Land Status Crown Provincial
Survey Date 06/08/89
Air photos BCC536.13/21/58-69/102; BCC537.75/77

Notes The Nicomen Island Region, with its sloughs, farmland and floodplain forest, is well known for its overwintering populations of Trumpeter and Whistling swans, eagles and other waterfowl.

The slough is stagnant. The only freshwater inflow is from Norrish Creek; the other sloughs from the south have been blocked off. There have been proposals to open up the sloughs to the south to enhance the quality of Nicomen Slough (A. Pattison, pers. commun.).

==========

221 Norrish Creek delta **221**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% active delta marsh	117.0
5% delta water	6.2
	123.2

Vegetation type

50% grass	20% hardwood trees
15% tall shrub	10% forb
5% non-vegetated	

Municipality DARD Ea B
Land Status Private
Survey Date 06/15/89
Air photos BCC536.060

Notes This is excellent wildlife habitat, especially for Bald Eagles, Trumpeter Swans, waterfowl, shorebirds, Great Blue Herons, songbirds, trout and salmon (T. Burgess, pers. commun.). It is relatively undisturbed except for the dyke along northern perimeter.

==========

222 Mud Slough, Nicomen Island **222**

Habitat Rating 3

Wetland classification	**Size (ha)**
80% floodplain marsh	8.5
20% oxbow water	2.1
	10.6

Vegetation type

30% hardwood trees	30% mixed shrub
20% non-vegetated	10% grass
10% low rush	

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.015/.017

Notes Filled in with numerous crossings. Heavy use by cattle - largely disturbed.

==========

223 Nicomen Slough, north shore 223

Habitat Rating 1

Wetland classification	**Size (ha)**
80% floodplain marsh	2.7
20% oxbow water	0.7

	3.4

Vegetation type

60% grass	10% submerged aquatic
10% tall shrub	5% non-vegetated
5% forb	5% floating aquatic
3% sedge	2% hardwood trees

Municipality DARD Ea B
Land Status
Survey Date 06/15/89
Air photos BCC536.062

Notes Relatively undisturbed except for railway crossing.

==========

224 Nicomen Island north central 224

Habitat Rating 2

Wetland classification	**Size (ha)**
90% floodplain marsh	4.2
10% oxbow water	0.5

	4.7

Vegetation type

70% grass	20% tall shrub
5% submerged aquatic	5% floating aquatic

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.062

Notes Surrounded by agriculture.

==========

225 Nicomen Island north central 225

Habitat Rating 2

Wetland classification	**Size (ha)**
60% oxbow water	1.4
40% floodplain marsh	1.0

	2.4

Vegetation type

40% submerged aquatic	25% grass
15% non-vegetated	10% tall shrub
5% hardwood trees	5% floating aquatic

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.062

Notes Surrounded by dyke road.

---

226 Nicomen Island north central **226**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	1.1
40% oxbow water	0.7

	1.8

Vegetation type

60% grass	25% non-vegetated
10% submerged aquatic	5% floating aquatic

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.064

Notes Agricultural fields adjacent.

---

227 Nicomen Island north central **227**

Habitat Rating 3

Wetland classification	**Size (ha)**
50% oxbow water	4.3
50% floodplain marsh	4.3

	8.6

Vegetation type

40% grass	25% non-vegetated
13% submerged aquatic	12% floating aquatic
5% low shrub	5% forb

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.062

Notes Dissected by dykes, highway, garbage dump. Pumping station.

---

228 Nicomen Island central **228**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% floodplain marsh	2.1
20% oxbow water	0.5

	2.6

Vegetation type

65% grass	10% non-vegetated
10% mixed shrub	5% hardwood trees
5% submerged aquatic	5% floating aquatic

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.062

Notes Surrounded by agriculture.

---

229 Nicomen Island central **229**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% floodplain marsh	9.9
5% oxbow water	0.5
	10.4

Vegetation type

50% tall shrub	15% grass
15% tall rush	10% low rush
5% sedge	3% floating aquatic
2% submerged aquatic	

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.017

Notes Agriculture surrounding site.

---

230 Nicomen Island central **230**

Habitat Rating 2

Wetland classification	**Size (ha)**
98% shallow basin marsh	2.4
2% shallow basin water	0.0
	2.4

Vegetation type

26% grass	24% low rush
24% tall rush	24% forb
2% submerged aquatic	

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.017

Notes Surrounded by agriculture - dairy farm.

---

231 Nicomen Island south central **231**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain marsh	5.7

Vegetation type

50% tall shrub	15% grass
15% tall rush	10% low rush
5% hardwood trees	5% sedge

Municipality DARD Ea C
Land Status Papekwatchin Indian Reserve No.4
Survey Date 06/08/89
Air photos BCC536.017

Notes Road along boundary. Trail cuts through unit.

==========

232 Nicomen Island north central **232**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	1.7
40% oxbow water	1.1

	2.8

Vegetation type

60% grass	15% floating aquatic
15% submerged aquatic	10% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.064

Notes Surrounded by agriculture, cattle.

==========

233 Nicomen Slough side channel **233**

Habitat Rating 2

Wetland classification	**Size (ha)**
75% floodplain marsh	10.9
25% oxbow water	3.6

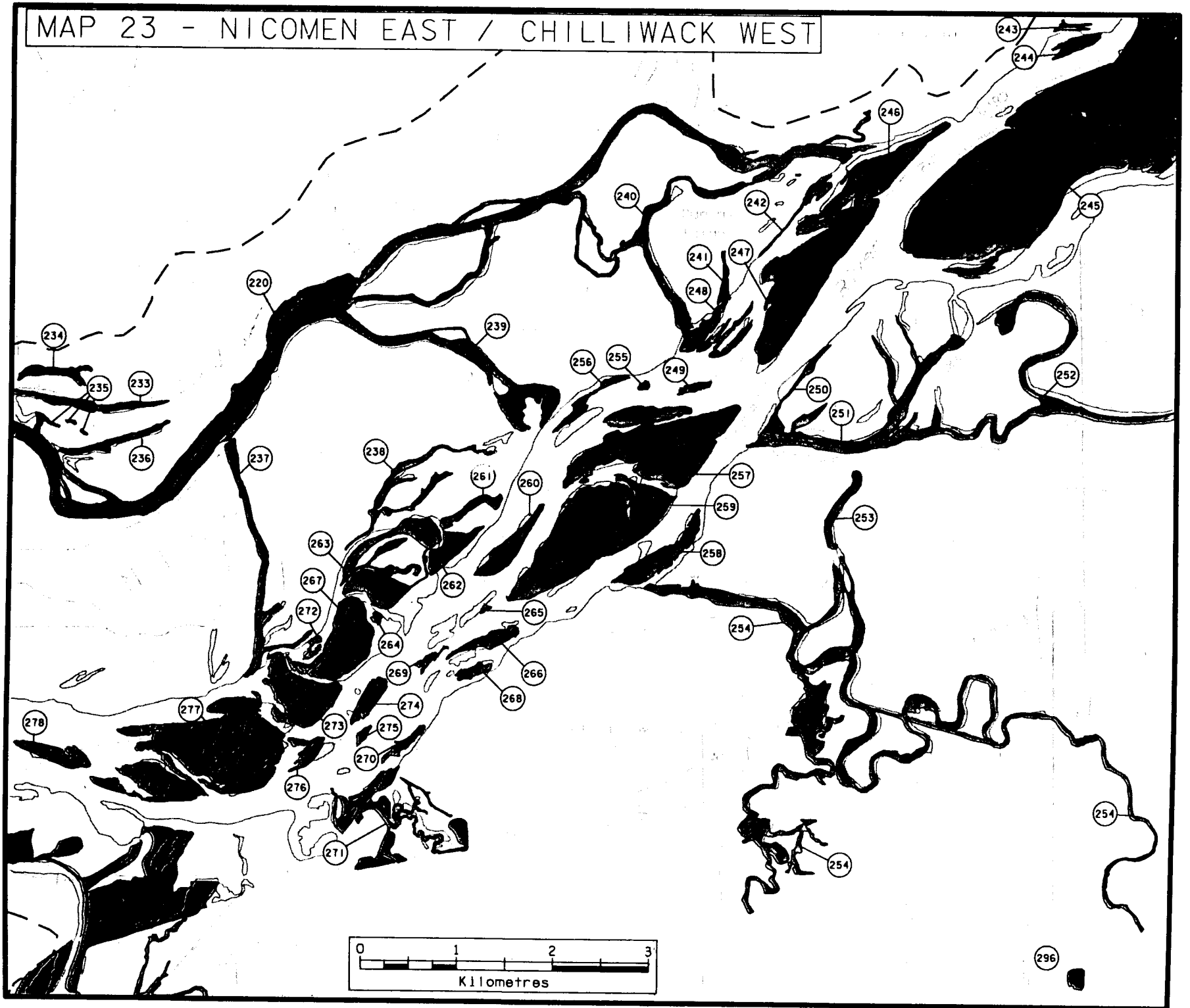
	14.5

Vegetation type

30% grass	20% hardwood trees
15% submerged aquatic	15% forb
10% low rush	5% non-vegetated
5% floating aquatic	

Municipality DARD Ea C
Land Status
Survey Date 06/15/89
Air photos BCC536.064/.066

Notes Adjacent to railway and pasture land.


MAP 23 - NICOMEN EAST / CHILLIWACK WEST
243
244
246
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242
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277
274
278
273
275
270
276
271
254
296
0
1
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Kilometres

234 Nicomen Slough, north of **234**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% oxbow water	3.8
40% floodplain marsh	2.6

	6.4

Vegetation type

30% floating aquatic	30% submerged aquatic
25% grass	15% forb

Municipality DARD Ea C
Land Status
Survey Date 06/15/89
Air photos BCC536.064

Notes Pastureland along one side, fencing

==========

235 Nicomen Slough north bank **235**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	1.3
40% oxbow water	0.9

	2.2

Vegetation type

20% floating aquatic	20% low rush
20% submerged aquatic	10% hardwood trees
10% grass	10% forb
10% sedge	

Municipality DARD Ea C
Land Status Private
Survey Date 06/15/89
Air photos BCC536.064

Notes Surrounded by pastureland, crossings for farm vehicles.

==========

236 Nicomen Slough north bank **236**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	6.1
10% floodplain marsh	0.7

	6.8

Vegetation type

40% submerged aquatic	40% non-vegetated
10% floating aquatic	7% grass
3% mixed shrub	

Municipality DARD Ea C
Land Status Private
Survey Date 06/15/89
Air photos BCC536.064

Notes Surrounded by agricultural land, pasture land, crossings for farm vehicles.

==========

237 Quaamitch Slough **237**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	20.4
10% floodplain marsh	2.3

	22.7

Vegetation type

40% non-vegetated	35% submerged aquatic
15% floating aquatic	5% grass
3% tall shrub	2% hardwood trees

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC536.021

Notes Dykes, roads, agriculture.

==========

238 Yaalstrik Island Slough **238**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% oxbow water	12.9
10% floodplain marsh	1.4

	14.3

Vegetation type

85% non-vegetated	10% grass
3% floating aquatic	2% submerged aquatic

Municipality DARD Ea C
Land Status Crown Provincial
Survey Date 06/08/89
Air photos BCC537.081

Notes Highly disturbed by agriculture. Grazing cattle down to water line. Former river bed (Ministry of Crown Lands 1988).

==========

239 Zaitscullachan Slough **239**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% oxbow water	26.0
30% floodplain marsh	11.2

	37.2

Vegetation type

40% non-vegetated	20% grass
20% submerged aquatic	10% floating aquatic
5% tall shrub	5% hardwood trees

Municipality DARD Ea C
Land Status Crown Provincial, Indian Reserve, Private
Survey Date 06/08/89
Air photos BCC537.079

Notes Agriculture and dyking.

---

240 Queens Island Slough **240**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% oxbow water	17.9
40% floodplain marsh	11.9
	29.8

Vegetation type

30% non-vegetated	25% submerged aquatic
10% hardwood trees	10% grass
10% mixed shrub	10% sedge
5% floating aquatic	

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC537.077

Notes Dyke road crosses lower end, agriculture along east shore.

---

241 Queens Island **241**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	1.6
50% floodplain marsh	1.6
	3.1

Vegetation type

25% non-vegetated	20% submerged aquatic
20% hardwood trees	20% mixed shrub
5% floating aquatic	3% grass
3% tall rush	2% low rush
2% sedge	

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC537.077

Notes Relatively undisturbed except for some trampling by cattle.

---

242 Queens Island south shore **242**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	4.4
- mid succession	
10% stream water	0.5

	4.9

Vegetation type

40% non-vegetated	25% forb
20% grass	5% sedge
5% mixed shrub	5% hardwood trees

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC 537.075

==========

243 Fraser River north bank **243**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% stream marsh	2.0

Vegetation type

30% hardwood trees	30% tall shrub
30% low shrub	10% grass

Municipality DARD Ea D
Land Status
Survey Date 05/31/89
Air photos BCC537.151

==========

244 Fraser River, west of Harrison R. **244**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	5.7
- early succession	

Vegetation type
100% non-vegetated

Municipality DARD Ea D
Land Status
Survey Date 05/31/89
Air photos BCC537.151

==========

245 Fraser River, at Harrison R. mouth **245**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% gravel bar - late succession	433.6
10% stream water	48.2
	481.8

Vegetation type
60% non-vegetated
10% grass
10% mixed shrub
10% hardwood trees
10% forb

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.147/.149/.151/.166/.168

Notes Building and perhaps some grazing on island, but for the most part it is undisturbed.

==========

246 Fraser River, near Queens Island **246**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar - mid succession	24.6
20% stream water	6.1
	30.7

Vegetation type
50% non-vegetated
20% mixed shrub
5% grass
20% forb
5% hardwood trees

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.147/.149

==========

247 Fraser River, near Queens Island **247**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	68.4
10% stream water	7.6
	76.0

Vegetation type
70% non-vegetated
10% mixed shrub
5% grass
10% forb
5% hardwood trees

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.145/.147

==========

248 Fraser River, near Queens Island **248**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	14.2
- mid succession	

Vegetation type

60% non-vegetated	20% hardwood trees
20% tall shrub	

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.077

==========

249 Fraser River, near Chilliwack **249**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	2.3
- early succession	

Vegetation type

100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.145

==========

250 Fraser River, near Chilliwack Creek **250**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	6.0
- mid succession	

Vegetation type

60% non-vegetated	20% grass
10% hardwood trees	10% mixed shrub

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC537.145

==========

251 Shefford Slough **251**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% stream water	34.2
10% floodplain marsh	3.8
	38.0

Vegetation type

90% non-vegetated	4% grass
2% tall shrub	2% forb
2% hardwood trees	

Municipality Chilliwack District
Land Status Crown Provincial, Private
Survey Date 06/06/89
Air photos BC 83008.105/.263

Notes Waterfowl habitat; fish rearing, migration and resting area (J. Teskey, pers. commun.). Slough mostly Crown owned except for a small private lot crossing the mid portion of the slough (Chilliwack 1988). Disturbance includes pasture land and fill for crossings.

==========

252 Hope Slough **252**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% oxbow water	103.4
20% floodplain marsh	25.9
	129.3

Vegetation type

50% non-vegetated	15% submerged aquatic
15% floating aquatic	5% hardwood trees
5% tall shrub	5% forb
5% grass	

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 06/06/89
Air photos BC 83008.256/.258/.260/.262/.263

Notes Stable channel, groundwater and runoff fed. Waterfowl habitat. Chum, Coho, Cutthroat Trout; sport fishing and canoeing (J. Teskey, pers. commun.). Agricultural and residential disturbance, dissected by roads.

==========

253 Coco-oppelo Slough north end **253**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% oxbow water	6.1
10% floodplain marsh	0.7
	6.8

Vegetation type
90% non-vegetated
3% hardwood trees
7% tall shrub

Municipality Chilliwack District
Land Status
Survey Date 06/06/89
Air photos BC 83008.105

Notes A new gravel mining operation has destroyed the north terminus of the slough. South section near bridge is better.

==========

254 Chilliwack and Atchelitz Creeks **254**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% stream water	101.2
30% floodplain marsh	43.4
	144.5

Vegetation type
40% non-vegetated
15% grass
5% hardwood trees
30% submerged aquatic
10% tall shrub

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 06/06/89
Air photos BC 83008.105/.106/.74/.77

Notes Several roads, culverts. Agricultural and residential disturbance.

==========

255 Fraser River, Nicomen Island east **255**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	**0.8**

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.145

==========

256 Fraser River, Nicomen Island east **256**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar - early succession	5.2
5% stream water	0.3
	5.5

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.143

==========

257 Fraser River, near Chilliwack Creek **257**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	76.3
10% stream water	8.5
	84.8

Vegetation type

70% non-vegetated	10% hardwood trees
10% forb	7% mixed shrub
3% grass	

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.143/.145

==========

258 Fraser River, Chilliwack Creek mouth **258**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	16.7

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.143

==========

259 Fraser River, near Chilliwack Creek **259**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - late succession	84.7
10% stream water	9.4
	94.1

Vegetation type

40% non-vegetated	20% hardwood trees
15% mixed shrub	10% coniferous trees
10% forb	5% grass

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC537.141/.143

Notes Ecological Reserve, 75.7 ha. cottonwood forest, established 1977.

---

260 Fraser River, near Yaalstrick Island **260**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	**12.2**

Vegetation type

100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.141

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261 Nicomen Island slough **261**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	2.9
50% floodplain marsh	2.9

	5.7

Vegetation type

30% non-vegetated	20% submerged aquatic
20% hardwood trees	20% mixed shrub
5% grass	5% sedge

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC537.081

Notes Dyked at both ends.

---

262 Yaalstrick Island **262**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% gravel bar - mid succession	10.1
5% stream water	0.5

	10.6

Vegetation type
45% non-vegetated
12% forb
3% grass
2% sedge
30% mixed shrub
5% hardwood trees
3% low rush

Municipality DARD Ea C
Land Status
Survey Date 06/08/89
Air photos BCC 537.081

==========

263 Yaalstrick Island **263**

Habitat Rating 1

Wetland classification **Size (ha)**
100% gravel bar 37.1
- mid succession

Vegetation type
60% tall shrub
10% hardwood trees
25% non-vegetated
5% grass

Municipality DARD Ea C
Land Status Indian Reserve
Survey Date 06/08/89
Air photos BCC537.081

Notes Important for eagles and waterfowl (T. Burgess, pers. commun.).

==========

264 Fraser River, near Yaalstrick Island **264**

Habitat Rating 1

Wetland classification **Size (ha)**
100% gravel bar 1.0
- early succession

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.083

==========

265 Fraser R., near Chilliwack Mountain **265**

Habitat Rating 1

Wetland classification **Size (ha)**
100% gravel bar 0.5
- early succession

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.141

==========

266 Fraser R., near Chilliwack Mountain **266**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	7.3
- early succession	

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.141

==========

267 Yaalstrick Island west **267**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	35.5
- late succession	

Vegetation type

35% hardwood trees	20% mixed shrub
15% non-vegetated	15% forb
10% tall shrub	5% grass

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.083

==========

268 Fraser R., near Chilliwack Mountain **268**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	3.5
- early succession	

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.141

==========

269 Fraser R., near Chilliwack Mountain **269**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - early succession	1.9
10% stream water	0.2
	2.1

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.141

==========

270 Fraser R., near Chilliwack Mountain **270**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	3.7

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.139

==========

271 Wilson Slough **271**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	20.5
20% stream water	6.8
20% gravel bar - early succession	6.8
	34.1

Vegetation type

25% hardwood trees	20% grass
20% non-vegetated	15% tall shrub
10% forb	7% submerged aquatic
3% floating aquatic	

Municipality Chilliwack District
Land Status Indian Reserve, Crown Provincial, Private
Survey Date 06/06/89
Air photos BCC537.139

Notes Year round waterfowl use. Adjacent to sawmill (dry land sort), agricultural land.

272 **Fraser River, near Yaalstrick I.** 272

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	1.5
- early succession	
10% stream water	0.2
	1.7

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.083

273 **Fraser River, near Yaalstrick I.** 273

Habitat Rating 1

Wetland classification	**Size (ha)**
85% gravel bar	27.9
- early succession	
15% stream water	4.9
	32.8

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.083

274 **Fraser R., near Chilliwack Mountain** 274

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	7.9
- early succession	

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.139

275 Fraser R., near Chilliwack Mountain **275**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	1.5

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.139

==========

276 Fraser R., near Chilliwack Mountain **276**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	6.0

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.139

==========

277 Fraser R., near Nicomen Island **277**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar - mid succession	94.2
20% stream water	23.5
	117.7

Vegetation type
95% non-vegetated
2% forb
3% mixed shrub

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC537.085

==========

278 Fraser R., near Nicomen Island 278

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar	10.1
- early succession	
5% stream water	0.5
	10.6

Vegetation type
100% non-vegetated

Municipality DARD Ea C
Land Status
Survey Date 05/31/89
Air photos BCC536.022

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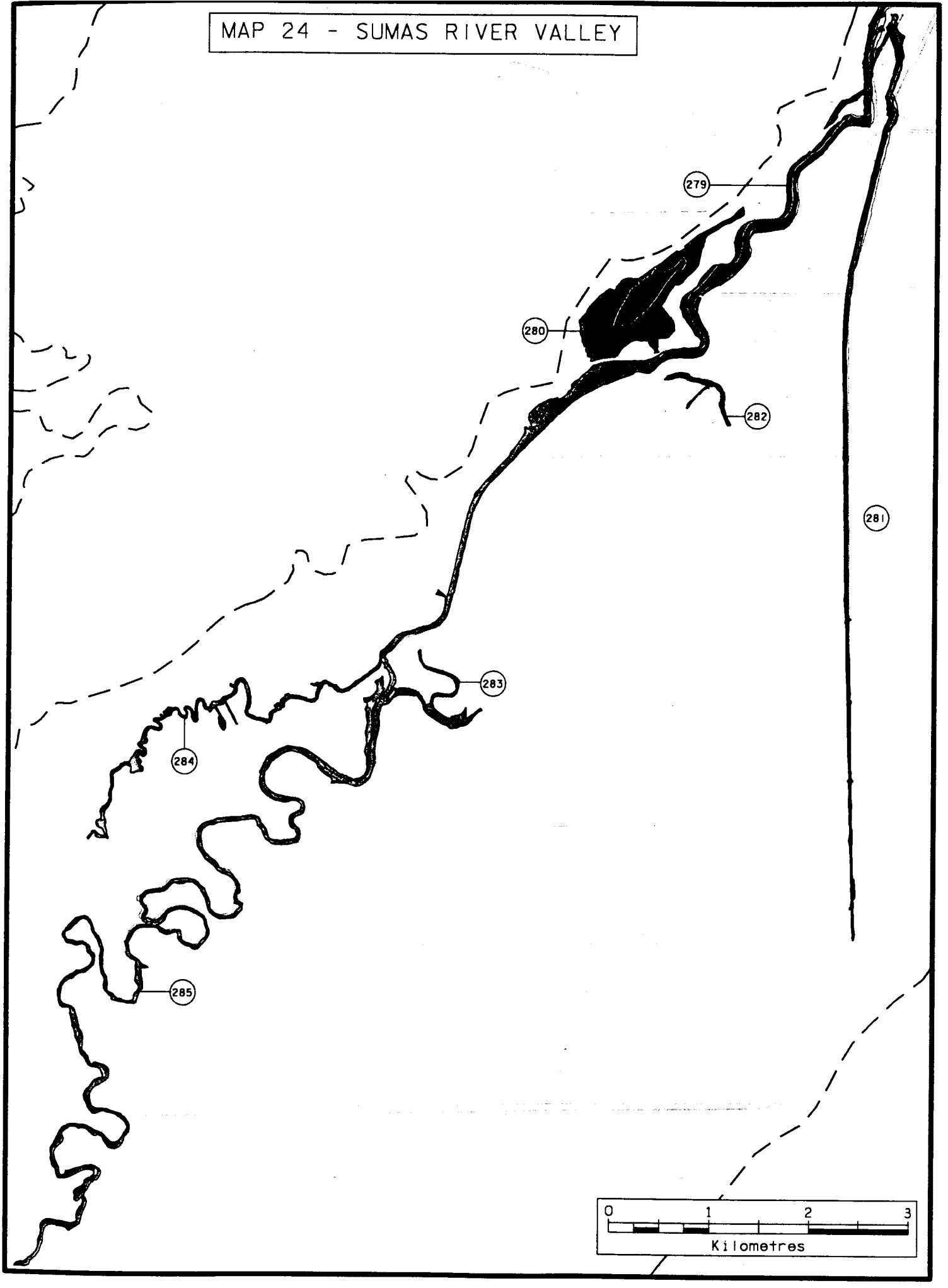

MAP 24 - SUMAS RIVER VALLEY
279
280
282
281
283
284
285
0
1
2
3
Kilometres

279 Sumas River lower reach **279**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% oxbow water	122.0
5% floodplain marsh	6.4
	128.4

Vegetation type

80% non-vegetated	10% submerged aquatic
5% floating aquatic	3% grass
2% mixed shrub	

Municipality Abbotsford District (102.7 ha); CFVRD Ea A (25.7 ha)
Land Status Crown Provincial, Private
Survey Date 06/13/89
Air photos BCC537.087/.127/.129/.131/.133

Notes Important for raptors and waterfowl including swans (J. Teskey, pers. commun.). Dykes and agricultural land border the unit. The river bed is Crown owned and the land is privately owned.

==========

280 Lakemount Marsh **280**

Habitat Rating 2

Wetland classification	**Size (ha)**
65% floodplain marsh	44.5
35% oxbow water	24.0
	68.5

Vegetation type

40% tall rush	15% submerged aquatic
15% floating aquatic	10% tall shrub
5% hardwood trees	5% forb
5% non-vegetated	5% grass

Municipality Abbotsford District
Land Status Private
Survey Date 06/13/89
Air photos BCC537.129/.131

Notes Primarily important to waterfowl, but also supports songbirds, shorebirds, raptors and mammals (Benn and McLean 1977). Wintering swans (T. Burgess, pers. commun.).

Pristine environment except for: boat basin dredging; some landfill; geometric grid of dredged channels for ducks. The area is used and owned by a gun club. Ducks Unlimited has improved it with water control and nesting islands (T. Burgess, pers. commun.).

==========

281 Sumas Lake Canal **281**

Habitat Rating 3

Wetland classification	**Size (ha)**
95% oxbow water	34.3
5% floodplain marsh	1.8

	36.1

Vegetation type

90% non-vegetated	5% grass
3% submerged aquatic	2% floating aquatic

Municipality Abbotsford District
Land Status
Survey Date 06/13/89
Air photos BCC537.131/.133; BCC538.012

Notes Artificial canal. Completely channelized by dykes.

==========

282 Sumas River (old scar) **282**

Habitat Rating 3

Wetland classification	**Size (ha)**
70% oxbow water	2.9
30% floodplain marsh	1.3

	4.2

Vegetation type

35% floating aquatic	35% submerged aquatic
10% hardwood trees	10% grass
10% tall rush	

Municipality Abbotsford District
Land Status
Survey Date 06/13/89
Air photos BCC537.129

Notes Heavily disturbed by agriculture, roads, freeway, dykes.

==========

283 Sumas River, former tributary **283**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	9.4
10% floodplain marsh	1.0

	10.4

Vegetation type

60% submerged aquatic	20% non-vegetated
10% floating aquatic	4% grass
4% mixed shrub	2% forb

Municipality Abbotsford District
Land Status
Survey Date 06/13/89
Air photos BCC537.125/.127

Notes Cut by roads and culverts. Surrounded by agricultural land.

284 Lonzo Creek **284**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	12.4
40% stream water	8.3
	20.7

Vegetation type

30% grass	30% submerged aquatic
30% mixed shrub	10% floating aquatic

Municipality Abbotsford District
Land Status
Survey Date 06/13/89
Air photos BCC537.102/.104/.125

Notes Road, culvert crossing, agricultural land.

285 Sumas River, upper reaches **285**

Habitat Rating 2

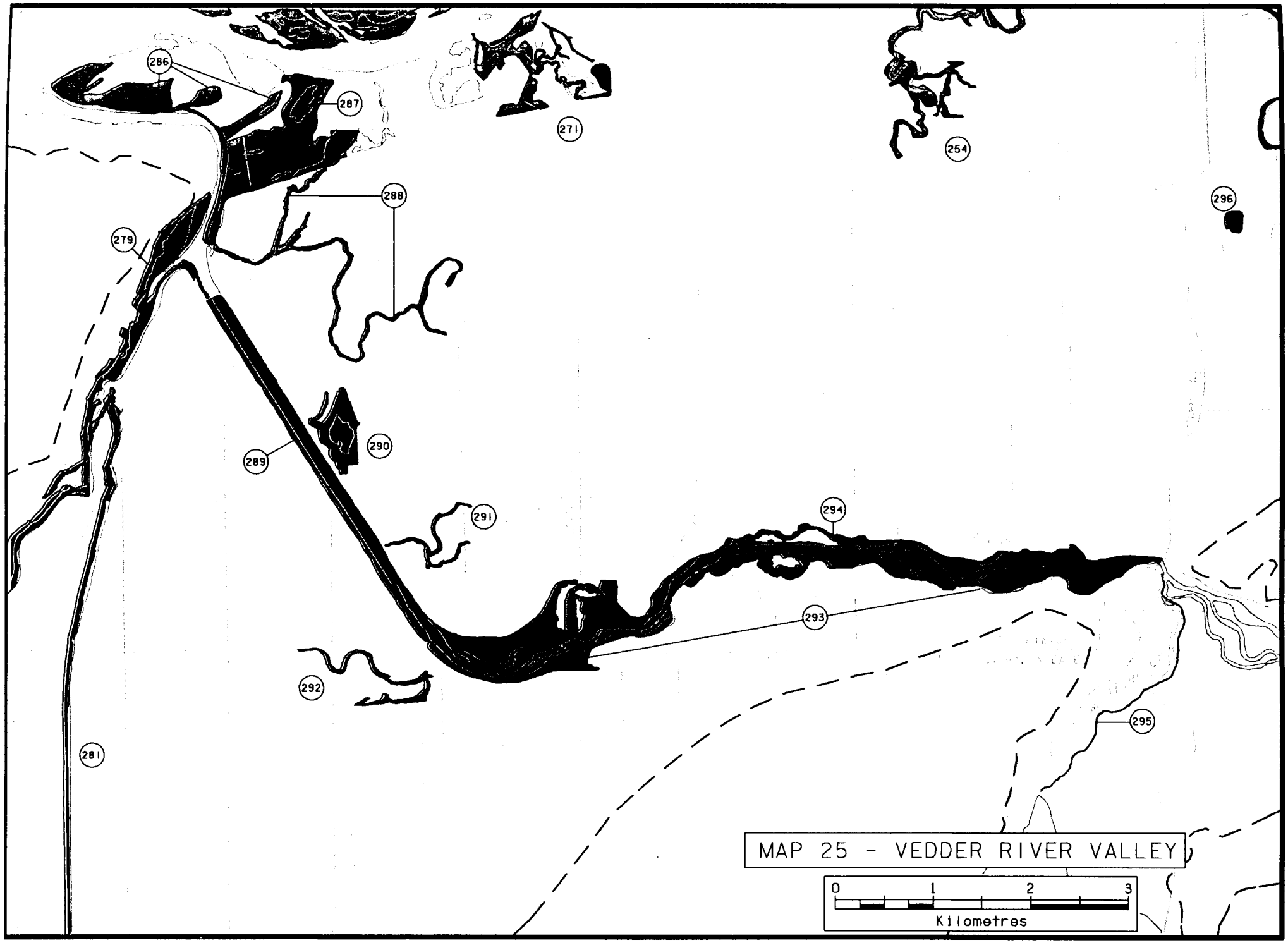
Wetland classification	**Size (ha)**
90% stream water	72.4
10% stream marsh	8.0
	80.4

Vegetation type

70% submerged aquatic	10% floating aquatic
10% non-vegetated	5% grass
5% mixed shrub	

Municipality Abbotsford District
Land Status
Survey Date 06/13/89
Air photos BCC537.119/.121/.123/.125/.127

Notes Agricultural land, roads, dykes, culverts.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MAP 25 - VEDDER RIVER VALLEY
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Kilometres

286 Sumas River mouth **286**

Habitat Rating 1

Wetland classification	**Size (ha)**
97% stream fen	45.3
3% stream water	1.4
	46.7

Vegetation type

80% grass	15% mixed shrub
5% hardwood trees	

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 09/10/89
Air photos BCC536.024

Notes The first game reserve in B.C. was established here in the mid thirties - the McGillivray Creek Game Reserve. Together with Unit No. 287 it is one of the few remaining areas of undyked floodplain in the Fraser Lowland.

The recent controversy over the management of the area was sparked by a proposal to develop a sports track on the property. Various interests include: DND, who have had a lease on the property since WW II and have used it for bridging exercises; Ministry of Crown Lands (a U.R.E.P.(Use, Recreation, Enjoyment of the Public Reserve) exists over the entire area); and the Ministry of Environment, Lands and Parks who would like to establish a Wildlife Management Area here. This has not been resolved.

==========

287 McGillivray Creek Wildlife Sanctuary **287**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% floodplain marsh	79.5
10% oxbow water	8.8
	88.3

Vegetation type

30% tall shrub	30% hardwood trees
20% grass	10% forb
5% floating aquatic	5% submerged aquatic

Municipality Chilliwack District
Land Status Crown Provincial, Nature Trust
Survey Date 06/06/89
Air photos BCC537.087/.137; BCC536.023

Notes This is one of the few last areas of undyked floodplain in the Fraser Lowland. Signpost calls this McGillivray Creek Wildlife Sanctuary. This unit is part of the area under controversy over who has management rights (see No. 286) and thus is also part of the proposed Wildlife Management Area. Nature Trust bought 17.3 ha in the southeastern part of this unit in 1985; that area is managed by the Ministry of Environment, Lands and Parks.

==========

288 Millar/McGillivray Sloughs **288**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	19.4
10% floodplain marsh	2.2

	21.6

Vegetation type

70% submerged aquatic	20% floating aquatic
3% forb	2% tall shrub
2% grass	2% tall rush
1% sedge	

Municipality Chilliwack District
Land Status
Survey Date 06/13/89
Air photos BCC537.135/.137/.183

Notes Disturbance includes golf course, road crossings, culverts, agriculture.

==========

289 Vedder Canal **289**

Habitat Rating 3

Wetland classification	**Size (ha)**
75% stream water	44.4
25% stream marsh	14.8

	59.2

Vegetation type

70% non-vegetated	10% grass
10% mixed shrub	3% forb
3% submerged aquatic	2% sedge
2% floating aquatic	

Municipality Chilliwack District
Land Status Crown Provincial, Private
Survey Date 06/13/89
Air photos BCC537.135/.185; BCC538.005

Notes This is an artificial waterway flanked by dykes and completely channelized. However, it is used by diving ducks. The river bed is Crown owned and the land held privately.

==========

290 Vedder Canal Marsh **290**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% floodplain marsh	21.0
10% oxbow water	2.3

	23.3

Vegetation type

30% tall rush	20% low rush
20% forb	10% mixed shrub
6% grass	5% submerged aquatic
5% floating aquatic	4% sedge

Municipality Chilliwack District
Land Status Private
Survey Date 06/13/89
Air photos BCC537.183

Notes Important bird habitat. Used by a private hunting club (Benn and McLean 1977). Relatively undisturbed except for farmland and Vedder Canal dyke flanking sides.

==========

291 Lewis Slough **291**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	4.8
10% floodplain marsh	0.5

	5.3

Vegetation type

70% submerged aquatic	10% floating aquatic
10% non-vegetated	3% grass
3% forb	2% tall rush
2% mixed shrub	

Municipality Chilliwack District
Land Status
Survey Date 06/13/89
Air photos BCC537.183/.185

Notes The area is surrounded by agriculture and cut by roads, culverts. Channel sides have been cleared in places.

==========

292 Yarrow **292**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% floodplain marsh	5.6
40% oxbow water	3.8

	9.4

Vegetation type

20% submerged aquatic	20% floating aquatic
15% tall shrub	15% forb
10% hardwood trees	10% tall rush
10% sedge	

Municipality Chilliwack District
Land Status
Survey Date 06/13/89
Air photos BCC538.007

Notes This unit meanders either side of No. 3 Road. Dissected by roads, culverts, fill, housing.

293 Vedder River **293**

Habitat Rating 2

Wetland classification	**Size (ha)**
40% stream water	104.7
40% gravel bar - early succession	104.7
20% stream swamp	52.4
	261.8

Vegetation type
80% non-vegetated 10% hardwood trees
10% tall shrub

Municipality Chilliwack District
Land Status Crown Provincial, Municipal
Survey Date 03/14/90
Air photos BCC538.005/.048/.071/.073

Notes This unit encompasses the Vedder River Management Area (VRMA) which is the area between the setback dykes. It is owned by the Province and Chilliwack District. It is controlled by a federal/provincial committee - its prime purpose is to reduce flood damage in the Vedder floodplain and Sumas Prairie and to facilitate recreation and resource development, ie. fish spawning and rearing capability and protection of a Great Blue Heron nesting area. Agricultural leases within VRMA allowed on a yearly basis.

The area supports substantial wildlife populations: Wood Ducks, waterfowl, geese, deer, eagles, herons (contains one of the largest heron rookeries in BC, about 40-50 nests). The Salwein Creek/wet bridging area in the western part of the unit is the best Cutthroat Trout stream on the lower reaches of the Vedder River and a good Coho producer; Steelhead and Coho are reared in the bridging pond. Also there are natural enhancement opportunities for Steelhead and Cutthroat Trout - in the tributaries only because of the freshet in the main channel (Vedder River Management Area Plan 1983).

294 Barrett Creek **294**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% stream water	7.2

Vegetation type
90% non-vegetated 10% submerged aquatic

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 06/13/89
Air photos BCC538.048

Notes Important fish habitat - Chum, Coho and Cutthroat use the system. Road crossing is the only disturbing feature. Flows mostly through farmland. Included in the Vedder River Management Area (see No. 256)

295 Sweltzer Creek **295**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% gravel bar	1.9
- early succession	
30% stream marsh	0.9
10% stream swamp	0.3

	3.1

Vegetation type

60% non-vegetated	15% tall rush
10% hardwood trees	5% grass
5% mixed shrub	5% forb

Municipality FCRD Ea E
Land Status Crown Provincial
Survey Date 03/14/90
Air photos A27109-79

==========

296 Sardis Park **296**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% shallow basin water	3.0
10% shore marsh	0.3

	3.3

Vegetation type

90% non-vegetated	3% tall rush
3% hardwood trees	2% tall shrub
2% grass	

Municipality Chilliwack District
Land Status
Survey Date 06/06/89
Air photos BC 83008.075

Notes Community Park - gravel walkways.

==========

297 Nelson and Bell sloughs **297**

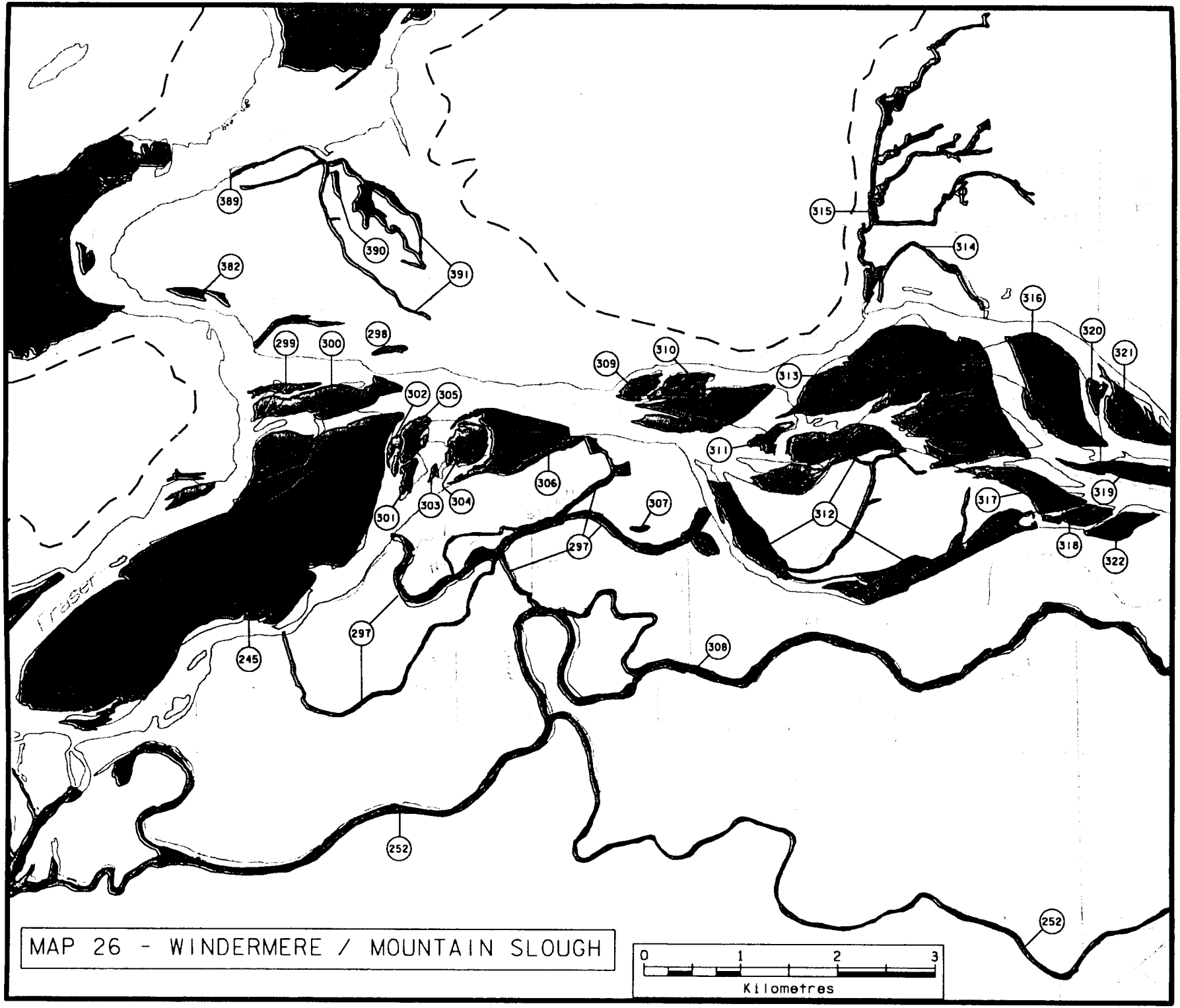
Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	57.7
10% floodplain marsh	6.4

	64.1

Vegetation type

70% non-vegetated	20% submerged aquatic
6% grass	2% hardwood trees
2% tall shrub	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Fraser
MAP 26 - WINDERMERE / MOUNTAIN SLOUGH
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Kilometres

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 06/06/89
Air photos BC 536.153/.155/.180/.182

Notes Waterfowl habitat. This is an old cutoff channel; work has been done to recreate the channel (J. Teskey, pers. commun.). Roads, culverts, and residential building along slough; fill dumped in slough at Kitchen Road.

==========

298 Harrison River mouth **298**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	1.8
10% floodplain marsh	0.2

	2.0

Vegetation type

80% non-vegetated	5% submerged aquatic
5% floating aquatic	4% grass
3% tall shrub	3% low shrub

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.153

Notes Some disturbance by cattle and agriculture.

==========

299 Fraser River, Harrison R. mouth **299**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	4.1
- early succession	
10% stream water	0.5

	4.6

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.151

==========

300 Fraser River, Harrison R. mouth **300**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar	26.0
- mid succession	
20% stream water	6.5

	32.5

Vegetation type
85% non-vegetated 10% mixed shrub -
3% grass 2% forb

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.151

==========

301 Fraser River, near Nelson Slough **301**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar	3.0
- early succession	
20% stream water	0.8

	3.8

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

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302 Fraser River, near Nelson Slough **302**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar	1.6
- early succession	
20% stream water	0.4

	2.0

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

==========

303 Fraser River, near Nelson Slough **303**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	0.8
- early succession	
10% stream water	0.1

	0.9

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

==========

304 Fraser River, near Nelson Slough **304**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	12.3
- mid succession	
10% stream water	1.4
	13.7

Vegetation type
90% non-vegetated 8% mixed shrub
2% forb

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

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305 Fraser River, near Nelson Slough **305**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	10.2
- early succession	

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

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306 Fraser River, near Nelson Slough **306**

Habitat Rating 1

Wetland classification	**Size (ha)**
85% gravel bar	38.2
- mid succession	
15% stream water	6.7
	44.9

Vegetation type
80% non-vegetated 10% tall shrub
3% hardwood trees 3% grass
2% low shrub 2% forb

Municipality Chilliwack District
Land Status
Survey Date 05/31/89
Air photos BCC537.166

==========

307 Windermere Island **307**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% oxbow water	0.8
10% floodplain marsh	0.1

	0.9

Vegetation type

80% non-vegetated	8% grass
5% floating aquatic	5% submerged aquatic
1% tall shrub	1% hardwood trees

Municipality Chilliwack District
Land Status
Survey Date 06/06/89
Air photos BCC536.155

Notes Some use by cattle

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308 Camp and Gravel Sloughs **308**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% stream water	63.4
30% floodplain marsh	27.2

	90.6

Vegetation type

50% submerged aquatic	15% non-vegetated
8% grass	6% tall rush
5% hardwood trees	5% tall shrub
5% floating aquatic	3% forb
3% sedge	

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 06/06/89
Air photos BC 83008.256/.258/.260

Notes Good fisheries and wildlife habitat.

The eastern end of the slough has been connected to the Fraser with an intake valve. Unfortunately the valve is too high for some river levels, thus draining the slough and exposing the slough mudflats from time to time. Property owners along the slough unhappy with situation (J. Teskey, pers. commun.).

Wetted portion of sloughs are Crown owned. In addition, lands on the south side of the slough between Rose Island and Chapman Road are Crown land from the road to the slough; this is because the slough was wider when the grants were made (Chilliwack 1988). There are two small UREP reserves in

the unit.

There are road and culvert crossings and some agricultural and residential disturbance.

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309 Fraser River, near Mountain Slough **309**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar - mid succession	5.5
20% stream water	1.4
	6.9

Vegetation type
80% non-vegetated
10% forb
10% low shrub

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.155

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310 Fraser River, near Mountain Slough **310**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	46.6
10% stream water	5.2
	51.8

Vegetation type
60% non-vegetated
20% forb
9% mixed shrub
8% hardwood trees
3% grass

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.155

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311 Fraser River, near Greyell Slough **311**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - early succession	5.0
10% stream water	0.6
	5.6

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.155

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312 Greyell Slough/Island **312**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	117.7
- late succession	
10% stream water	13.1
	130.8

Vegetation type

70% non-vegetated	20% mixed shrub
5% forb	3% hardwood trees
2% grass	

Municipality Chilliwack District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC536.155/.157/.159

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313 Fraser River, near Mountain Slough **313**

Habitat Rating 1

Wetland classification	**Size (ha)**
85% gravel bar	158.4
- mid succession	
15% stream water	27.9
	186.3

Vegetation type

60% non-vegetated	15% hardwood trees
15% mixed shrub	10% forb

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.157/.191

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314 Formerly part of Mountain Slough **314**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% oxbow water	5.3
20% floodplain marsh	1.3
	6.6

Vegetation type

70% non-vegetated	15% grass
10% submerged aquatic	3% hardwood trees
2% tall shrub	

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC536.191

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315 Mountain Slough **315**

Habitat Rating 2

Wetland classification	**Size (ha)**
75% stream water	37.0
25% floodplain marsh	12.3

	49.3

Vegetation type

40% floating aquatic	20% submerged aquatic
15% non-vegetated	9% grass
8% hardwood trees	8% tall shrub

Municipality Kent District
Land Status Private
Survey Date 05/31/89
Air photos BC 83017.181

Notes Diving ducks and swans (Benn and McLean 1977). Sport fishing for Searun Cutthroat Trout, Coho and Chum salmon (J. Teskey, pers. commun.).

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316 Fraser River, near Mountain Slough **316**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar - mid succession	58.6
5% stream water	3.1

	61.7

Vegetation type

40% hardwood trees	25% mixed shrub
20% non-vegetated	10% forb
5% grass	

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC536.191/.158

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317 Fraser River, near Greyell Slough **317**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	23.8

Vegetation type

60% non-vegetated	15% forb
10% hardwood trees	10% mixed shrub
5% grass	

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.158

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318 Fraser River, near Greyell Slough **318**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	8.6

Vegetation type

50% non-vegetated	20% mixed shrub
15% forb	10% grass
5% hardwood trees	

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.159

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319 Fraser River, near Greyell Slough **319**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	26.2

Vegetation type

50% non-vegetated	20% mixed shrub
15% grass	15% forb

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.159

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320 Fraser River, near Cheam Slough **320**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	4.5
- early succession	

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.159

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321 Fraser River, near Cheam Slough **321**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	21.2
- mid succession	
10% stream water	2.4
	23.6

Vegetation type

50% non-vegetated	30% forb
20% mixed shrub	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.159

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322 Fraser River, west of Agassiz Br. **322**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	10.9
- late succession	

Vegetation type

40% non-vegetated	30% hardwood trees
10% forb	10% mixed shrub
5% grass	5% coniferous trees

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.159

Notes Accreted to south shore.
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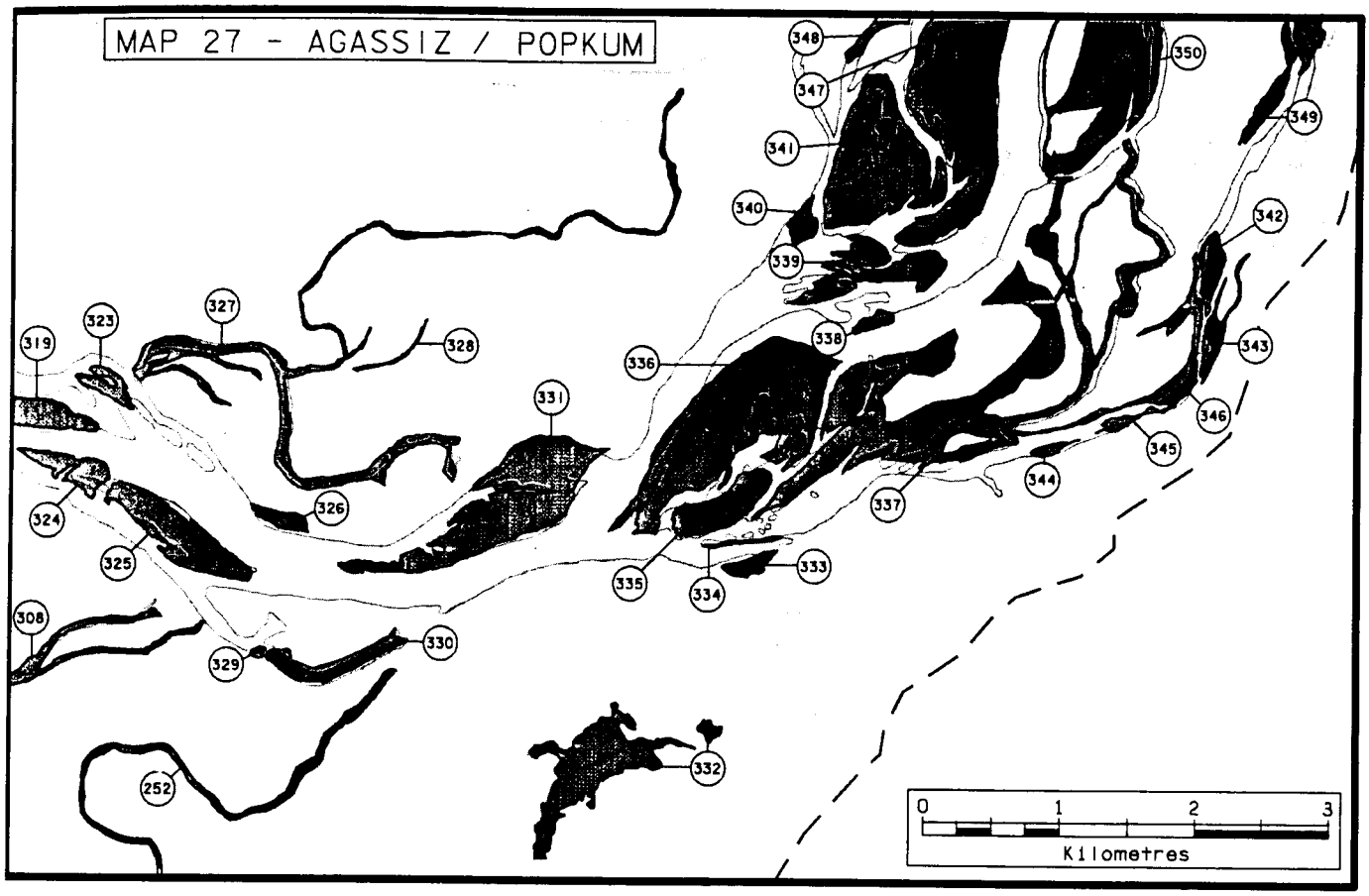

323 **Fraser River, near Cheam Slough** 323

Habitat Rating 1

Wetland classification
100% gravel bar
- early succession

Size (ha)
5.4

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.161

==========

324 Fraser River, west of Agassiz Br. **324**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	8.9
- early succession	
10% stream water	1.0

	9.9

Vegetation type
100% non-vegetated

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.161

==========

325 Fraser River, west of Agassiz Br. **325**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	26.8
- mid succession	

Vegetation type

70% non-vegetated	10% hardwood trees
10% mixed shrub	10% forb

Municipality Chilliwack District
Land Status
Survey Date 05/30/89
Air photos BCC536.161

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326 Fraser River, west of Agassiz Br. **326**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	2.1
50% floodplain marsh	2.1

	4.1

Vegetation type

40% non-vegetated	35% grass
15% tall shrub	10% submerged aquatic

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC536.161

Notes Several trees cut down. Barbed-wire fencing crosses site.

==========

327 Cheam and Agassiz sloughs **327**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% oxbow water	29.6
40% floodplain marsh	19.8
	49.4

Vegetation type

30% non-vegetated	20% grass
20% floating aquatic	10% tall shrub
10% hardwood trees	10% submerged aquatic

Municipality Kent District
Land Status Crown Provincial, Private
Survey Date 05/31/89
Air photos BCC536.161/.163/.195/.197

Notes Quite pristine in lower reaches, but greater disturbance in upper reaches by roads, fencing, agriculture. Stagnant water - groundwater fed. Waterfowl habitat; beaver, herons, muskrat (J. Teskey, pers. commun.). Slough mostly Crown owned except for the upper reaches of Agassiz Slough where it is private.

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328 Agassiz Slough, southeast of **328**

Habitat Rating 3

Wetland classification	**Size (ha)**
70% oxbow water	0.9
30% floodplain marsh	0.4
	1.3

Vegetation type

70% floating aquatic	10% grass
10% hardwood trees	10% tall shrub

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC536.163

Notes Dissected by road, culverts and fill.

==========

329 Ferry Island Slough, south shore **329**

Habitat Rating 1

Wetland classification	**Size (ha)**
50% oxbow water	0.4
50% floodplain marsh	0.4
	0.7

Vegetation type

40% grass	25% non-vegetated
25% submerged aquatic	10% low shrub

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.172

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330 Ferry Island Slough **330**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% oxbow water	9.0
20% floodplain marsh	2.3

	11.3

Vegetation type

60% non-vegetated	20% grass
20% submerged aquatic	

Municipality FCRD Ea D
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC536.172

Notes Red-tailed Hawk nests (J. Teskey, pers. commun.). Most of Ferry Island consists of bottomland forest; it is a Class 'C' Provincial Park. The southern shore of the slough is Indian Reserve land.

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331 Fraser River at Agassiz Bridge **331**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% gravel bar - late succession	54.9
10% stream water	6.1

	61.0

Vegetation type

70% non-vegetated	18% hardwood trees
8% mixed shrub	2% grass
2% forb	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC536.163

Notes Transmission towers on island. Area around the towers has been cleared.

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332 Cheam Lake, Popkum **332**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% seepage track marsh	34.4
10% shallow basin water	3.8

	38.2

Vegetation type
70% grass 15% tall shrub
10% non-vegetated 5% hardwood trees

Municipality FCRD Ea D
Land Status Crown Provincial, F-CRD
Survey Date 06/06/89
Air photos BCC536.169

Notes A substantial flow of water is evident in the small creeks flowing through the marsh. This is an important waterfowl migration stop.

Until recently, the Provincial Crown had leased the lake bed for marl (lime product) extraction. Now that the lease has expired the lake will be restored and the Cheam Lake Wetlands Regional Park developed. The park was established in 1990, the first Regional Park in the Fraser-Cheam Regional District (H. Sloan, pers. commun.). The periphery lands are owned by the regional district.

==========

333 Fraser River south shore, Popkum **333**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain marsh	3.8

Vegetation type
80% hardwood trees 20% grass

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.018

Notes Signs of disturbance by cattle.

==========

334 Fraser River, east of Agassiz Br. **334**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	1.3

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.018

==========

335 Fraser River, east of Agassiz Br. **335**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	15.3
10% stream water	1.7
	17.0

Vegetation type

40% non-vegetated	30% mixed shrub
15% grass	10% hardwood trees
5% forb	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.018

==========

336 Fraser River, east of Agassiz Br. **336**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar - mid succession	90.6
5% stream water	4.8
	95.4

Vegetation type

65% non-vegetated	10% grass
10% mixed shrub	10% forb
5% hardwood trees	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.018

==========

337 Herrling Island area **337**

Habitat Rating 2

Wetland classification	**Size (ha)**
60% gravel bar - late succession	77.9
40% stream water	52.0
	129.9

Vegetation type

60% non-vegetated	15% hardwood trees
15% mixed shrub	5% grass
5% forb	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.201/.203; 537.016/.018

Notes Major Chum spawning sloughs; migrating and wintering Bald Eagles; wintering waterfowl and some nesting in sloughs; eagles, Osprey and herons. Sport fishing and duck and goose hunting in fall (T. Burgess, pers. commun.). There is a tree farm on part of the island.

==========

338 Fraser River, south of Maria Slough **338**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	2.8
- early succession	

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.018

==========

339 Fraser River, south of Maria Slough **339**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar	18.2
- early succession	
20% stream water	4.6
	22.8

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.016

==========

340 Fraser River, south of Maria Slough **340**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar	4.2
- early succession	
5% stream water	0.2
	4.4

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.016

==========

341 Fraser River, Maria Slough mouth **341**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	60.0
- mid succession	

Vegetation type

50% non-vegetated	20% mixed shrub
15% forb	10% hardwood trees
5% grass	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.016

==========

342 Fraser River, east of Herrling I. **342**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	7.0
- mid succession	

Vegetation type

50% non-vegetated	30% forb
10% grass	10% mixed shrub

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.203

==========

343 Fraser River, east of Herrling I. **343**

Habitat Rating 1

Wetland classification	**Size (ha)**
75% gravel bar	4.9
- early succession	
25% stream water	1.6

	6.5

Vegetation type

80% non-vegetated	20% mixed shrub

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.203

==========

344 Fraser River, south of Herrling I. **344**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream marsh	1.6

Vegetation type
100% grass

Municipality FCRD Ea D
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.018

Notes Nearby dwelling and gravel road

==========

345 Fraser River, south of Herrling I. **345**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	2.4

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.203

==========

346 Herrling Island **346**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% gravel bar - early succession	14.5

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.203

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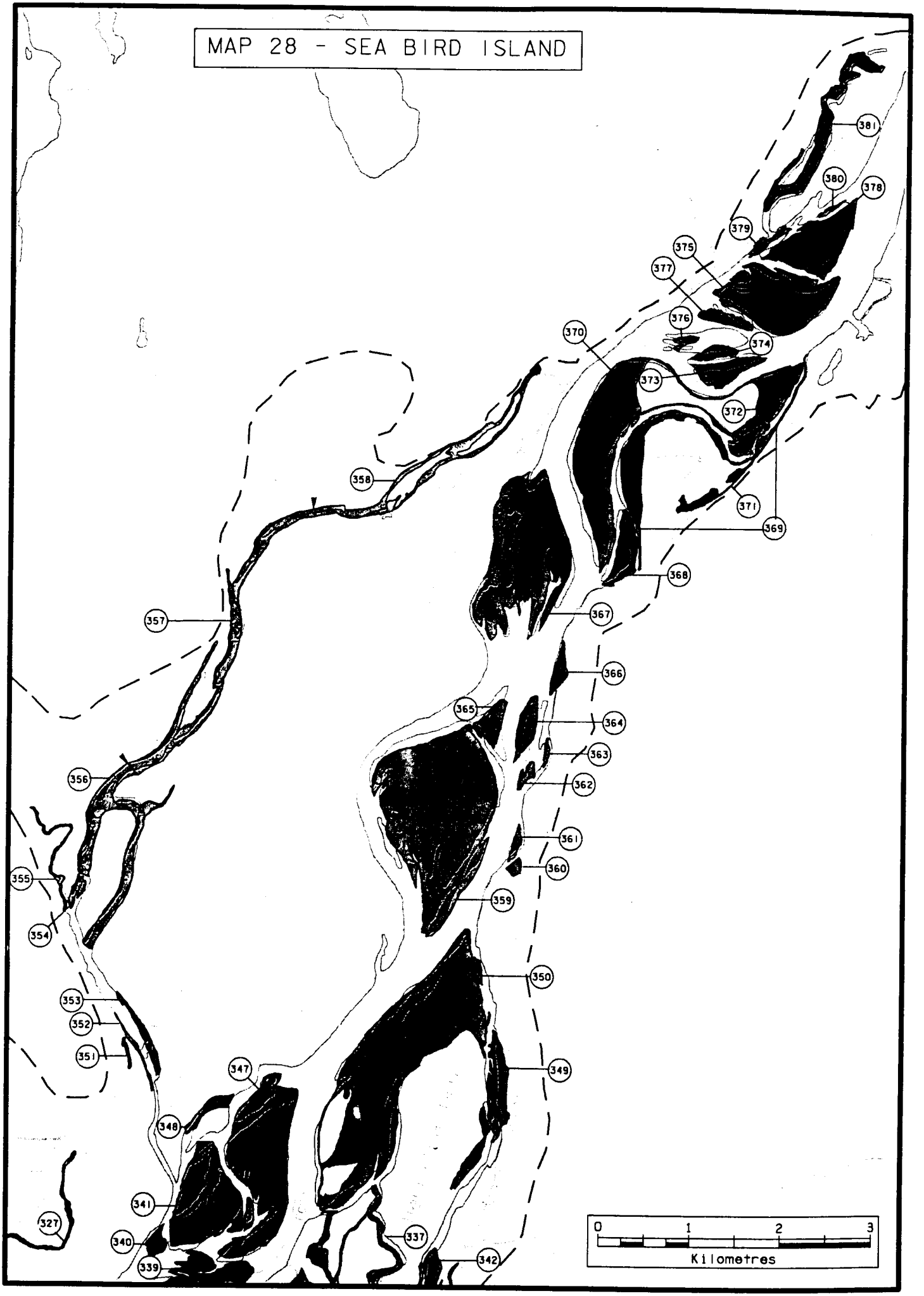
MAP 28 - SEA BIRD ISLAND
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Kilometres

347 Fraser River, Maria Slough mouth **347**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	79.8
10% stream water	8.9
	88.7

Vegetation type

50% non-vegetated	20% forb
15% mixed shrub	10% grass
5% hardwood trees	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.014/.016

==========

348 Fraser River, east of Maria Slough **348**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% stream marsh	4.5
20% stream water	1.1
	5.6

Vegetation type

70% low shrub	20% non-vegetated
10% grass	

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.037

Notes Adjacent to Seabird Island Indian Reserve

==========

349 Herrling Island east **349**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% stream water	13.2
50% floodplain marsh	13.2
	26.3

Vegetation type

50% non-vegetated	25% mixed shrub
10% forb	10% hardwood trees
5% sedge	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC536.206

Notes Some trails through willow stand.

---

350 Herrling Island **350**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% gravel bar	151.6
- late succession	
20% stream water	37.9
	189.5

Vegetation type
40% non-vegetated
20% mixed shrub
10% forb
20% grass
10% hardwood trees

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.012/.014/.016

Notes Some roads and tracks on island.

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351 Maria Slough, adjacent to **351**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% oxbow water	1.0
10% floodplain marsh	0.1
	1.1

Vegetation type
90% non-vegetated
5% grass
5% hardwood trees

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.037

Notes Beside Lougheed Highway and C.P.R. line.

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352 Maria Slough, west bank **352**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% floodplain marsh	1.8
10% stream water	0.2
	2.0

Vegetation type
90% grass 8% non-vegetated
2% submerged aquatic

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.037

==========

353 Maria Slough, Sea Bird Island **353**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% floodplain marsh	4.6
20% stream water	1.1

	5.7

Vegetation type
80% grass 18% non-vegetated
2% submerged aquatic

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.037

Notes Lougheed Highway bridge over Maria Slough. Dyke and storm drain.

==========

354 Maria Slough, lower reach **354**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% floodplain marsh	3.1

Vegetation type
100% grass

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.050

Notes See Unit No. 356.

==========

355 Maria Slough tributary **355**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% floodplain marsh	3.6
20% stream water	0.9

	4.5

Vegetation type
70% grass 10% non-vegetated
10% tall shrub 10% submerged aquatic

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.050

Notes Adjacent road.

==========

356 Maria Slough, lower reach **356**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% stream water	21.1
50% floodplain marsh	21.1

	42.1

Vegetation type

30% non-vegetated	25% grass
25% tall shrub	20% submerged aquatic

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/30/89
Air photos BCC537.037/.050/.052

Notes Maria Slough provides important habitat for birds, fish and mammals: Coho, Chum, Searun Cutthroat Trout; heron rookery nearby; flooded agricultural lands on nearby Sea Bird Island used by waterfowl, eagles and swans in winter (T. Burgess, pers. commun.). Road crossings have cut through sloughs.

==========

357 Maria Slough, middle reach **357**

Habitat Rating 2

Wetland classification	**Size (ha)**
65% stream water	29.9
35% floodplain marsh	16.1

	46.0

Vegetation type

30% non-vegetated	25% grass
25% tall shrub	20% submerged aquatic

Municipality Kent District
Land Status Indian Reserve, Crown Provincial, Private
Survey Date 05/30/89
Air photos BCC537.052/.054/.056

Notes Road crossings have cut up slough. See Unit No. 356.

==========

358 Maria Slough, upper reach **358**

Habitat Rating 2

Wetland classification	**Size (ha)**
65% stream water	17.1
35% floodplain marsh	9.2

	26.3

Vegetation type

30% non-vegetated	25% grass
25% tall shrub	20% submerged aquatic

Municipality Kent District
Land Status Crown Provincial, Indian Reserve
Survey Date 05/30/89
Air photos BCC537.056/.058

Notes See Unit No. 356.

==========

359 Fraser River, east of Sea Bird Island **359**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - late succession	166.8
10% stream water	18.5
	185.3

Vegetation type

40% non-vegetated	30% mixed shrub
15% hardwood trees	10% forb
5% grass	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.010/.012/.032

==========

360 Fraser River, north of Herrling I. **360**

Habitat Rating 1

Wetland classification	**Size (ha)**
50% oxbow water	1.0
50% floodplain marsh	1.0
	2.0

Vegetation type

50% non-vegetated	30% grass
20% hardwood trees	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.010

Notes Berm forms barrier between Fraser River and this unit.

==========

361 Fraser River, north of Herrling I. **361**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	2.2

Vegetation type
70% mixed shrub 30% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.012

==========

362 Fraser River, north of Herrling I. **362**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar	2.5
- early succession	
10% stream water	0.3

	2.8

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.010

==========

363 Fraser River, north of Herrling I. **363**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	1.3
- early succession	

Vegetation type
100% non-vegetated

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.010

==========

364 Fraser River, north of Herrling I. **364**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	9.8
- mid succession	

Vegetation type
90% non-vegetated 10% grass

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.010

==========

365 Fraser River, north of Herrling I. **365**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% gravel bar - early succession	9.2
5% stream water	0.5
	9.7

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.010

==========

366 Fraser River, north of Herrling I. **366**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	5.1

Vegetation type

50% non-vegetated	25% hardwood trees
15% tall shrub	10% low shrub

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.010

==========

367 Fraser River, near Sea Bird Island **367**

Habitat Rating 1

Wetland classification	**Size (ha)**
80% gravel bar - late succession	93.9
20% stream water	23.5
	117.4

Vegetation type

65% non-vegetated	10% hardwood trees
10% grass	10% mixed shrub
5% coniferous trees	

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.030

==========

368 Fraser River, near Peters IR **368**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	14.8
- mid succession	

Vegetation type

70% non-vegetated	15% mixed shrub
5% hardwood trees	5% grass
5% forb	

Municipality FCRD Ea D
Land Status
Survey Date 05/30/89
Air photos BCC537.006

==========

369 Peters Indian Reserve **369**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% gravel bar	32.5
- mid succession	

Vegetation type

90% non-vegetated	5% grass
3% forb	2% hardwood trees

Municipality FCRD Ea C
Land Status Peters Indian Reserve, Crown Provincial
Survey Date 05/30/89
Air photos BCC537.004/.028

Notes Adjacent agricultural land, gravel road.

==========

370 Fraser River, near Peters IR **370**

Habitat Rating 2

Wetland classification	**Size (ha)**
95% gravel bar	80.1
- late succession	
5% stream water	4.2

	84.3

Vegetation type

70% non-vegetated	10% hardwood trees
10% grass	5% forb
5% mixed shrub	

Municipality FCRD Ea C
Land Status
Survey Date 05/30/89
Air photos BCC537.006/.028

Notes Adjacent agricultural land.

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371 Peters Indian Reserve No.1 **371**

Habitat Rating 2

Wetland classification	**Size (ha)**
70% floodplain marsh	5.0
30% oxbow water	2.1
	7.1

Vegetation type

60% grass	20% floating aquatic
5% tall shrub	5% non-vegetated
5% submerged aquatic	5% hardwood trees

Municipality FCRD Ea C
Land Status Peters Indian Reserve No.1
Survey Date 05/30/89
Air photos BCC537.006

Notes Very productive waterfowl habitat (J. Teskey, pers. commun.). Adjacent to CNR Railway and Highway No.1.

---

372 Fraser River, near Laidlaw **372**

Habitat Rating 2

Wetland classification	**Size (ha)**
90% gravel bar - late succession	31.1
10% stream water	3.5
	34.6

Vegetation type

70% non-vegetated	15% hardwood trees
8% mixed shrub	7% forb

Municipality FCRD Ea C
Land Status
Survey Date 05/30/89
Air photos BCC537.004/.028

Notes Adjacent agricultural land.

---

373 Fraser River, southwest of Laidlaw **373**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	13.4

Vegetation type
85% non-vegetated
5% low shrub
10% forb

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.004

==========

374 Fraser River, southwest of Laidlaw **374**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	5.0

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.004

==========

375 Fraser River, west of Laidlaw **375**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - mid succession	63.3

Vegetation type
60% non-vegetated
10% tall shrub
5% coniferous trees
10% grass
10% low shrub
5% hardwood trees

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.026

==========

376 Fraser River, west of Laidlaw **376**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	2.2

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.026

==========

377 Fraser River, west of Laidlaw **377**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	6.5
- early succession	

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.026

==========

378 Fraser River, west of Laidlaw **378**

Habitat Rating 1

Wetland classification	**Size (ha)**	
95% gravel bar	37.0	
- late succession		
5% stream water	1.9	

	38.9	

Vegetation type

40% non-vegetated	40% hardwood trees
10% tall shrub	10% grass

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.024

==========

379 Johnsons Slough mouth **379**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar	3.3
- early succession	

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.024

==========

380 Johnsons Slough mouth **380**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% gravel bar - early succession	1.2

Vegetation type
100% non-vegetated

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.024

==========

381 Johnsons Slough **381**

Habitat Rating 1

Wetland classification	**Size (ha)**
75% stream water	22.2
25% floodplain marsh	7.4

	29.6

Vegetation type
45% non-vegetated
25% grass
30% submerged aquatic

Municipality Kent District
Land Status
Survey Date 05/30/89
Air photos BCC537.024

Notes Marginal area consists of bottomland forest.

==========

382 Harrison River mouth **382**

Habitat Rating 2

Wetland classification	**Size (ha)**
50% oxbow water	2.7
50% floodplain marsh	2.7

	5.3

Vegetation type
45% grass
10% submerged aquatic
5% tall shrub
35% non-vegetated
5% floating aquatic

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.153

Notes Relatively undisturbed except for dyke blocking off entrance of slough to Harrison River.

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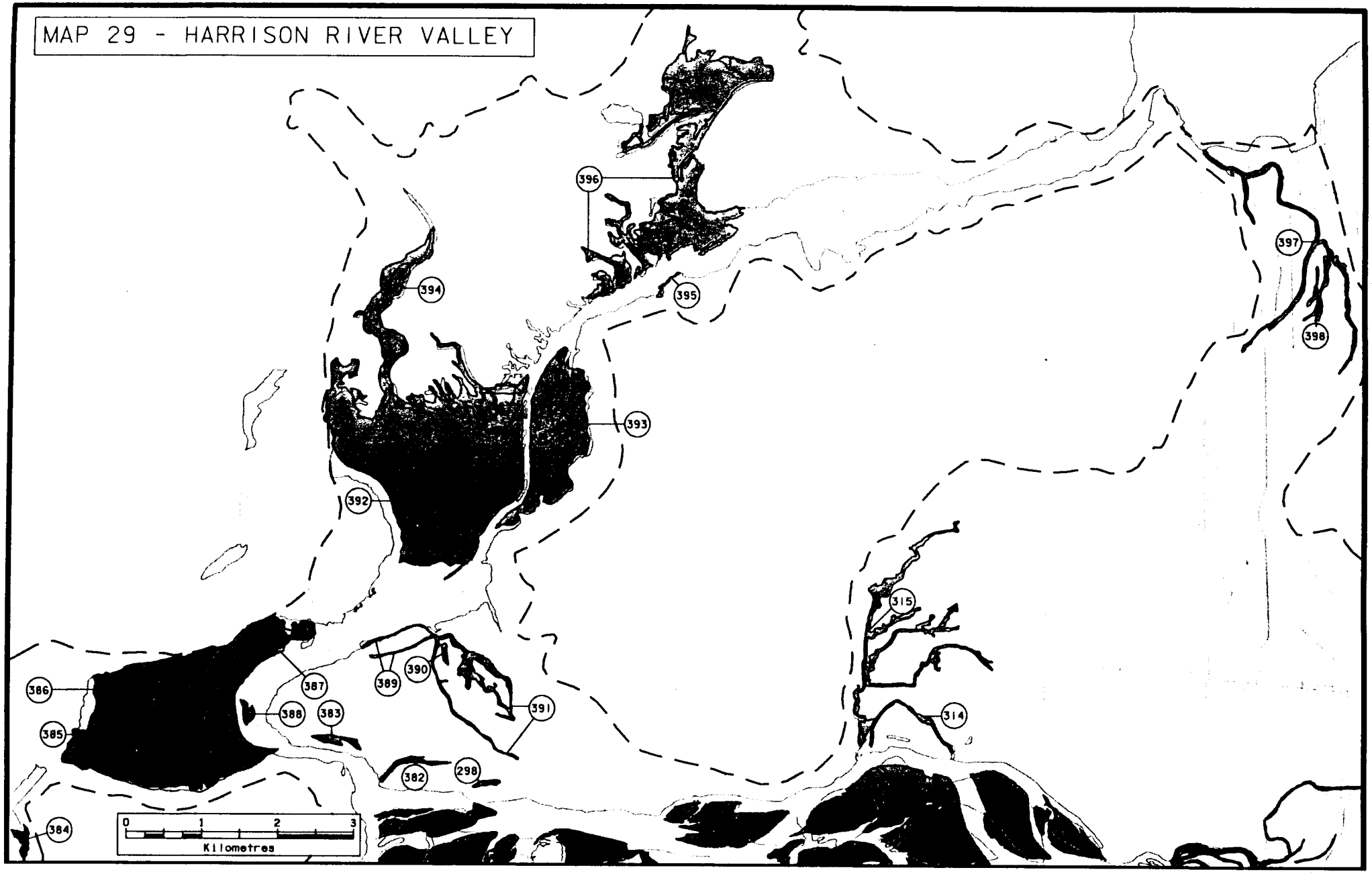
MAP 29 - HARRISON RIVER VALLEY
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Kilometres

383 Harrison River mouth **383**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain marsh	5.0

Vegetation type

40% tall rush	20% grass
20% low shrub	10% hardwood trees
10% reed	

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.069

Notes Some disturbance by cattle.

==========

384 Lake Errock **384**

Habitat Rating 1

Wetland classification	**Size (ha)**
95% shore fen	4.4
5% shallow basin water	0.2

	4.6

Vegetation type

25% mixed shrub	20% sedge
10% hardwood trees	10% grass
10% forb	10% coniferous trees
10% moss	2% submerged aquatic
2% floating aquatic	1% non-vegetated

Municipality DARD Ea D
Land Status
Survey Date 06/08/89
Air photos BCC536.106

Notes Stream flowing through centre of fen with beaver dam at outlet. Good juvenile fish habitat.

==========

385 Harrison Bay, western shore **385**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream marsh	11.1

Vegetation type

80% grass	10% tall shrub
10% low shrub	

Municipality DARD Ea D
Land Status Indian Reserve
Survey Date 05/31/89
Air photos BCC536.108

Notes North end of the west shore of Harrison Bay has some housing development and is relatively disturbed.

386 Harrison Bay **386**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream water	364.0

Vegetation type
100% non-vegetated

Municipality DARD Ea D
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC536.108; 537.070

Notes Booming grounds near river channel and recreation area for water sports. Harrison Bay area heavily used by wintering waterfowl including swans.

387 Harrison Bay **387**

Habitat Rating 1

Wetland classification	**Size (ha)**
60% stream marsh	1.3
40% gravel bar - mid succession	0.8

	2.1

Vegetation type
60% grass 40% non-vegetated

Municipality DARD Ea D
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC537.069

Notes See No. 386

388 Harrison Bay **388**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream water	3.3

Vegetation type
100% non-vegetated

Municipality DARD Ea D
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC537.070

Notes See No. 386.

389 Harrison River south shore **389**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% stream marsh	4.4

Vegetation type

95% grass	5% hardwood trees

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.069

Notes Log booms.

==========

390 Bateson and Duncan Slough area **390**

Habitat Rating 2

Wetland classification	**Size (ha)**
100% floodplain marsh	1.6

Vegetation type

70% low shrub	20% grass
10% tall shrub	

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.153

Notes Unit is surrounded by agriculture.

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391 Bateson and Duncan Sloughs **391**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% floodplain marsh	19.8
20% oxbow water	4.9
	24.7

Vegetation type

40% grass	20% hardwood trees
20% tall shrub	10% non-vegetated
5% submerged aquatic	5% floating aquatic

Municipality Kent District
Land Status
Survey Date 05/31/89
Air photos BCC537.153

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392 Chehalis River delta **392**

Habitat Rating 1

Wetland classification	**Size (ha)**
34% active delta marsh	147.6
33% stream water	143.3
33% gravel bar - early succession	143.3
	434.1

Vegetation type

66% non-vegetated	25% grass
6% low shrub	3% hardwood trees

Municipality FCRD Ea F
Land Status Crown Provincial, Nature Trust
Survey Date 05/31/89
Air photos BCC536.112/.114; 537.065/.067

Notes Northwestern portion of unit included in the Chehalis River Conservancy(CRC). The CRC property was purchased in 1978 by the Nature Trust and is now managed by Fisheries and Oceans Canada.

This is the largest area of natural marsh in the eastern part of the Fraser Lowland. Excellent fish and wildlife habitat: waterfowl, shorebirds, songbirds; excellent area for raptors - good eagle wintering because of abundant food, Osprey and eagle nesting; excellent spawning habitat for Chum and Coho, and excellent rearing habitat in nearby lakes (J. Teskey, pers. commun.).

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393 Harrison River, east bank **393**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% stream water	109.3
10% stream marsh	12.1
	121.4

Vegetation type

90% non-vegetated	4% grass
4% mixed shrub	2% hardwood trees

Municipality Kent District
Land Status Crown Provincial
Survey Date 05/31/89
Air photos BCC537.065

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394 Chehalis River, lower reach **394**

Habitat Rating 1

Wetland classification	**Size (ha)**
90% gravel bar - mid succession	46.7
10% stream water	5.2
	51.9

Vegetation type
90% non-vegetated
5% low shrub
5% grass

Municipality FCRD Ea F
Land Status
Survey Date 05/31/89
Air photos BCC536.114

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395 Chehalis Indian Reserve No.6 **395**

Habitat Rating 1

Wetland classification	**Size (ha)**
100% stream marsh	0.9

Vegetation type
100% grass

Municipality Kent District
Land Status Chehalis Indian Reserve No.6
Survey Date 05/31/89
Air photos BCC536.121

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396 Morris and Weaver Creeks **396**

Habitat Rating 1

Wetland classification	**Size (ha)**
50% stream water	109.9
50% stream marsh	109.9
	219.7

Vegetation type
45% non-vegetated
5% tall shrub
5% hardwood trees
40% grass
5% submerged aquatic

Municipality FCRD Ea F
Land Status Chehalis IR No.5, Crown Federal, Crown Provincial
Survey Date 05/31/89
Air photos BCC536.118/.144;A27109.145

Notes This is excellent spawning and rearing habitat for Sockeye and Chum salmon (S. McFarlane, pers. commun.).

The area south of hydro line is Chehalis Indian Reserve 5. The Weaver Creek area north of this belongs to the Federal Government and includes a reserve for the International Pacific Salmon Fisheries Commission. The lake and creek bed belong to the Provincial Crown. There is also a "notation of interest" by B.C. Forests and Lands on this northern portion.

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397 Miami Creek **397**

Habitat Rating 2

Wetland classification	**Size (ha)**
80% stream water	23.8
20% stream marsh	5.9
	29.7

Vegetation type

50% non-vegetated	20% submerged aquatic
15% grass	10% floating aquatic
5% hardwood trees	

Municipality Harrison Hot Springs Village
Land Status Crown Provincial, also see notes
Survey Date 05/31/89
Air photos BC 83007.013

Notes Fish and wildlife include waterfowl, herons, Cutthroat Trout, Coho, muskrat and River Otters (J. Teskey, pers. commun.).

Small portion of creek bed at mouth of creek is Crown owned. However, opinions vary on whether the rest of creek bed is Crown or privately owned. Adjacent land privately owned. Three small reserves on upper reach: UREP; Lands; Forests (Ministy of Crown Lands 1988).

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398 Miami Creek area **398**

Habitat Rating 3

Wetland classification	**Size (ha)**
90% stream fen	6.8
10% oxbow water	0.8
	7.6

Vegetation type

75% low shrub	15% tall shrub
4% non-vegetated	3% floating aquatic
3% submerged aquatic	

Municipality Harrison Hot Springs Village
Land Status
Survey Date 05/31/89
Air photos BC 83007.013

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BIBLIOGRAPHY

Benn, D.R. and A. McLean. 1977. Lower Mainland Areas Inventory. Nature Conservancy of Canada. Vancouver, B.C.

Butler, R.W. and R.J Cannings. 1989. Distribution of birds in the intertidal portion of the Fraser River delta, British Columbia. Technical Report No 93. Canadian Wildlife Service, Pacific and Yukon Region, B.C.

Castagner, L. and M. Gardiner. 1983. Minnekhada Regional Park. GVRD Parks Department.

Chilliwack District Municipality. Zoning maps. 1988.

City of Vancouver. Board of Parks and Recreation. 1985. Stanley Park Master Plan. Draft report by MacLaren Plansearch.

CN Engineering. 1985. CN Resource Planning Folio and Sensitivity Mapping: Yale Subdivision. maps 1:25 000

Conlin, Kevin. 1984 Marsh and Kelp Beds, Burrard Inlet. draft maps. Fisheries and Oceans Canada, New Westminster.

Demarchi, Dennis A. 1988. Ecoregions of British Columbia. Map, 1:2,000,000. Wildlife Branch, B.C. Ministry of Environment, Victoria, B. C.

Deer Lake Inventory Report. 1988. Draft report. Corporation of Burnaby, Parks and Recreation Department.

Fraser River Estuary Management Program. 1986. Newsletter, March 1986. New Westminster, B.C.

Fraser River Estuary Management Program. 1990a. Habitat Inventory and Classification of Fraser River Main Arm, Pitt River, Sturgeon Bank, Roberts Bank and Boundary Bay. Maps at 1:2500 and 1:10,000 and User's Guide for the Map Sheets. Prepared by R.U. Kistritz Consultants Ltd., Richmond, B.C.

Fraser River Estuary Management Program. 1990b. Habitat Inventory and Classification of Fraser River North and Middle Arms (North Fraser Harbour). Maps at 1:2500 and User's Guide for the Map Sheets. Prepared by G. L. Williams and Associates Ltd., Coquitlam, B.C.

Fry, Kathleen. 1982. Habitat Conservation Fund, Acquisition Proposal. Fish and Wildlife Branch, Ministry of the Environment, Surrey, B.C.

Hatfield Consultants Ltd. 1984. Beaver Lake-Creek Enhancement Study. Prepared for Parks and Recreation Board, City of Vancouver and Salmonid Enhancement Program, Fisheries and Oceans Canada, New Westminster.

Hebda, Richard. 1991. Burns Bog; Vegetation and Future. Discovery 20(1):13-16.

Ministry of Crown Lands, Surveyor General Branch, Program Services Section. 1988.

Ministry of Municipal Affairs, Recreation and Culture, 1989. Statistics Relating to Regional and Municipal Governments in British Columbia 1989. Victoria, B. C.

National Wetlands Working Group, Canada Committee on Ecological Land Classification. 1987. The Canadian Wetland Classification System. Ecological Land Classification Series No. 21. Provisional Edition. Ottawa: Canadian Wildlife Service, Environment Canada.

Porter, G., A. Schwarz, H.Sutherland and V.Vukelich.1985. Burnaby Lake Regional Park; biophysical inventory. Prepared for GVRD and Douglas College.

Retfalvi, Laszlo. 1989. Conservation of Migratory Bird Habitat in the Lower Mainland of B.C.; a preliminary overview. Draft report. Canadian Wildlife Service, Pacific and Yukon Region, B.C.

Scott, Olivia. 1990. Bogged down in beauty. The Province, August 24, 1990.

Sigma Resource Consultants. Ltd. 1985. Boundary Bay Regional Park: Engineering and Environmental Design Study. Phase Two Report. Prepared for GVRD. SRCL S3486.

Taylor, Terry. 1990. Burns Bog; Refuge for Ice Age Plants. Discovery 19(4):120-121.

Thompson, G.A. 1985 Vegetation Classification of the UBC Endowment Lands. Tech. Paper #4, Joint GVRD/UBC Tech. Committee of the Endowment Lands.

Vedder River Management Area Plan. 1983. Unpublished report. Ministry of Environment, Victoria.

Western Canada Wilderness Committee. 1988. Maplewood Flats: Reasons for protection and enhancement. Unpublished report.