Fish and Fish Habitat Operational Inventory, 1996

Final report including appendices 1-3

prepared for
Gorman Brothers Lumber Ltd.
Westbank, BC

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1.0 INTRODUCTION

Wildstone Resources Ltd. was contracted by Gorman Brothers Lumber Ltd. in partnership with the Lower Similkameen Indian Band (LSIB) to undertake Operational Fish and Fish Habitat Inventories. The data collected will be used to provide watershed level fish distribution and fish habitat characteristics and to guide resource management decisions within the study area. In order to meet the requirements of the Forest Practices Code (FPC) information was gathered to recommend stream classification for reaches surveyed.

Funding for the operational stream inventory work was provided by the Resource Inventory Program of Forest Renewal British Columbia (FRBC). Two members of the LSIB were hired and trained as resource technicians and assisted in field work, data compilation and mapping.

Operational inventory focused on six major watershed areas: Ashnola River tributaries; Nicola River tributaries; Okanagan Lake tributaries; Shingle Creek and tributaries; Similkameen River tributaries and Trout Creek tributaries. A total of 58 streams were surveyed during the months of August through October 1996, and stream classifications were recommended for all reaches within these streams including major tributaries. Preliminary stream classifications were recommended for dry stream reaches or reaches where no fish were found and no barriers to fish access could be located.

The results of fish inventory data collected is contained in Section 3.0 of this report and is presented by watershed area and stream name (alphabetically) in tabular form. Fish and fish habitat data for each site surveyed is contained within the stream and fish card database. Hardcopies of each of these are contained within each of the 6 appendices which are organized by watershed, alphabetically by stream name.

1.1 Study Area

Watersheds within the study area are located within the Penticton Forest District, Kamloops Forest Region, with the exception of Shinish Creek which is in the Merritt Forest District. These watersheds are within the Ministry of Environment, Lands and Parks Southern Interior Region (Kamloops Regional Office and Penticton Sub-Regional Office) and includes Management Units # 8-3, 8-7, 8-8, 8-11, and 3-12. A map illustrating the 1:20,000 TRIM coverage of all streams inventoried within the Gorman Brothers Lumber Ltd. operating areas is contained in Figure 1.

The operational areas of Gorman Brothers Lumber Ltd. are within the Southern Interior Ecoprovince. The climate is semi-arid, due to the rainshadow caused by the Coastal and Cascade Mountain ranges. Some of the warmest temperatures in the Southern Interior occur in this region which slows tree growth and often prevents conifer succession on well drained southern exposed sites.

Resource and land use within the study watersheds is dominated by forestry and agriculture. Other land uses such as recreation and residential development are also found throughout most of the study watersheds. Historically, mining was a prevalent resource activity that attracted much of the early settlement in the region. Presently, two mines exist near the study watersheds: Brenda Mines (Pennask - Upper Nicola

watershed), and Nickel Plate Mine (Similkameen River) both of which are in reclamation phase. Forest harvesting is limited largely to the intermediate and higher elevations and these areas are also used for livestock summer range. With the exception of the higher elevation range use, agricultural activities are found largely in lower elevation floodplains and river/lake terraces where tree fruits, forage, and specialty crops dominate.

The high demands put on the limited water resources by both agricultural and residential development has resulted in issues developing regarding water quality and quantity throughout the region. Increasingly, fish habitat is being reduced or degraded in order to provide water for agriculture and residential purposes. Examples of the importance of water resources for agriculture and domestic use is illustrated in the number of community watersheds within the study area which includes: all Trout Creek tributaries, Shingle Creek and tributaries, Naramata Creek, Chute Creek, and Trepanier and Jack Creeks.

1.1.1 Ashnola River tributaries

The Ashnola River watershed is characterized by dome shaped mountains that are deeply incised by the Ashnola River and its larger tributary streams. Three distinct physiographic sections can be identified within the watershed which includes the river valley bottoms (which are relatively narrow); the valley walls (which are relatively steep 20 to 60%) and the upper plateau (lower gradient uplands with numerous small lakes and wetlands). The Ashnola River is bordered on the south and east by Cathedral Park, a Class A Provincial Park. Park utilization is both day-use and extended camping trips. The four study streams within the Ashnola watershed enter from the west. Dominant land uses within the watersheds are forestry, recreation, and agriculture/range.

Fisheries resources within the Ashnola River watershed are dominated by rainbow trout (*Oncorhynchus mykiss*) and introduced westslope cutthroat trout (*O. clarki lewisi*) as the primary sport fish for management purposes. Fisheries management emphasis is focused on the Cathedral Lakes within the provincial park. Other fish species known to inhabit the Ashnola watershed include: mountain whitefish (*Prosopium williamsoni*), redsided shiner (*Richardsonius balteatus*), largescale sucker (*Catostomus macrocheilus*), prickly sculpin (*Cottus asper*), bridgelip sucker (*Catostomus columbianus*), longnose dace (*Rhinichthys cataractae*), northern mountain sucker (*Catostomus platyrhynchus*), and northern squawfish (*Ptychocheilus oregonensis*). Other species of fish, particularly the minnows, suckers and sculpins families, may be also be found in the Ashnola watershed.

Access to the Ashnola watersheds is found by crossing the red bridge over the Similkameen River approximately 4 kilometers west of Keremeos and continuing southwest on the Ashnola FSR. Access to Red Bridge Creek is found after crossing the bridge over the Ashnola River turning northwest off the Ashnola FSR onto Crater Mountain FSR. McBride, Duruisseau, and Easygoing Creeks are the last three major tributaries entering the Ashnola River from the west. The Ashnola FSR crosses both McBride and Duruisseau Creeks, however, the road becomes a trail prior to crossing Easygoing Creek. The upper reaches of Duruisseau and Easygoing Creeks are accessed via the Easygoing Main logging road that exits to the west approximately 400 meters past the Duruisseau Creek bridge crossing. Upper reaches of McBride Creek are accessed via an old logging road approximately 200 meters prior to crossing the McBride Creek bridge.

1.1.2 Nicola River tributaries

The Upper Nicola River tributaries are located on the Plateau region of the Southern Thompson Upland near the headwaters of the Nicola River. This portion of the Nicola River watershed is characterized by low gradient streams and numerous wetlands and small lakes. As a result of the topography watershed boundaries are poorly defined and basins are characteristically dominated by a high proportion of valley flats with meandering streams. Dominant land uses include forestry, recreation and agriculture/range.

Fisheries resources within the upper Nicola River watershed are dominated by rainbow trout as the primary sport fish for management purposes. The numerous lakes within the upper Nicola/Pennask watersheds is the focus of much of the fisheries management effort. The Pennask Creek rainbow trout stock is the primary source of brood stock at the BC Environment Summerland Fish Hatchery for their fish stocking programs. Other fish species known to inhabit the upper Nicola River watershed include: mountain whitefish, northern squawfish and longnose dace. Other species of fish, particularly the minnow, suckers and sculpins families, may be also be found in the upper Nicola River watershed. The lower Nicola watershed is known to support 4 species of anadromous salmon (*Oncorhynchus sp*.) excluding chum (*O. keta*) and sockeye (*O. nerka*). The system is also known to support populations of bull trout (*Salvelinus confluentus*) but these all appear to be absent from the upper reaches of the Nicola watershed.

Access to the upper Nicola River watershed is via Hwy. 97C (Coquihalla connector) and turning onto the Bear FSR prior to reaching the Pennask summit. Nicola tributary 1 is accessed by turning southeast off the Bear FSR at 16 km. onto the Fumerton Road for approximately 2 kilometers. Access to tributaries 1.1, 1.1a, and 1.1b is via the Bear FSR to 18 km. turn west onto Hatheume Road. The inlet stream to Rat Lake is accessed via Hatheume Road onto Rock Lake Road continue for approximately 5 kilometers until the road crosses the inlet stream (culvert crossing).

1.1.3 Okanagan Lake tributaries

These streams are all tributaries to the Okanagan Lake and flow from the Okanagan Highlands and Southern Thompson Upland into the Okanagan Basin. Watersheds typically flow from low gradient highlands and have a steep gradient section as streams descend into the basin. The lower reach prior to entering Okanagan Lake is generally lower gradient and often provides fish spawning habitat. All streams enter Okanagan Lake in the southern portion, south of Kelowna. Dominate land uses are residential development, forestry, agriculture/range and recreation.

Fisheries resources of Okanagan Lake and tributaries consists of two primary species of sport fish : kokanee (*Oncorhynchus nerka*) and rainbow trout (*O. mykiss*) The lower reaches of most Okanagan Lake tributaries have traditionally supported spawning populations of kokanee. Many of the lower reaches provide the only spawning habitat accessible to fish including rainbow trout and introduced eastern brook trout (*Salvelinus fontinalis*). Other introduced fish species in the Okanagan watershed include: largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieui*) and yellow perch (*Perca flavescens*). Degradation and dewatering of these lower reach habitats has occurred as a result of residential development, flood prevention and high demands for domestic water use. The high number of community watersheds is an indication of the high value and demand for water resources within the Okanagan Basin. Other fish species

known to occupy Okanagan Lake and its tributaries include: largescale sucker, mountain whitefish, longnose dace, prickly sculpin and peamouth (*Mylocheilus caurinus*).

Access to Arawana, Naramata, Chute, Bellevue and Gillard Creeks is via the Naramata Road along the east side of Okanagan Lake. This road crosses Arawana and Naramata Creeks and access to the upper reaches is via the Arawana Rd. The Chute Creek watershed is crossed by the Naramata Road and the upper reaches accessed via the Ellnor Road. The Ellnor Road continues northeast and access to the upper reaches of Chute Creek can be achieved on this road and the Big Meadow Rd. The Ellnor Road crosses both Gillard and Bellevue Creeks in the upper reaches and lower reaches can be accessed via the Gillard Road which also connects to Okanagan Mission. Trepanier Creek can be accessed via the Trepanier Creek Road and Jack Creek via the Glenrosa Road out of Westbank.

1.1.4 Shingle Creek and tributaries

Shingle Creek flows southeastward from the Southern Thompson Upland into the Okanagan River between Okanagan and Skaha Lakes. Two additional tributaries, June and Skualow Creeks, were also inventoried as part of the operational fish and fish habitat inventory. Watersheds are characterized by relatively gentle sloping mountains and extensive grassland/bunchgrass areas. Dominant land uses in the watershed are agriculture/range and forestry.

Fisheries resources within the Shingle Creek watershed consists of primarily of two sport fish species: kokanee and rainbow trout. The kokanee spawning habitat is found in Reach 1 between the confluence with the Okanagan River and the dam (domestic water intake) located approximately 2 kilometers upstream. Rainbow trout also utilize this spawning habitat and likely can migrate above the dam to access additional habitats. Eastern brook trout have been introduced into the Okanagan Basin and are likely found within the Shingle Creek watershed. Other fish species known to inhabit the Shingle Creek watershed include: largescale sucker, mountain whitefish, longnose dace, prickly sculpin and peamouth.

Access to Shingle, June and Skualow Creeks is via the Green Mountain Road west of Penticton. At the first major junction, turn north onto the Shingle Creek Road over the Shatford Creek Bridge. At the end of the Shingle Creek Road, a gate maintained by the Ministry of Forests (MOF) controls access to the lower reaches of Skualow and June Creeks which can be accessed by consulting MOF, Gorman Bros. Lumber Ltd. or the local rancher. The upper reaches of both Skualow and Shingle Creeks can be accessed by continuing on the logging road that turns north after crossing Riddle Creek.

1.1.5 Similkameen River tributaries

Similkameen River tributary watersheds are characteristically steep gradient streams that flow from the Okanagan Range down steep sided mountains with relatively short low gradient reaches once streams reach the valley floodplain. As streams rise from the valley floodplain, often a steep gradient canyon section is encountered which limits upstream fish movement. Dominant land uses in the watersheds include: agriculture/range, forestry and recreation.

Fisheries Resources of the Similkameen River tributaries consists primarily of rainbow trout) and introduced eastern brook trout. Westslope cutthroat trout have also been introduced in some high elevation lakes within the drainage (i.e. Cathedral Lakes) and may establish natural spawning populations. Brown trout (*Salmo trutta*) are known to have been introduced to the Similkameen River watershed but appear to have not established above the dam on the Similkameen River in Washington State. Other fish species known to inhabit the Similkameen River watershed include: mountain whitefish, redsided shiner, largescale sucker, prickly sculpin, bridgelip sucker, longnose dace, northern mountain sucker, and northern squawfish.

Access is via Hwy. 3 and 3A southwest of Penticton. Cedar and Loak Creeks are found off Hwy 3A approximately 7 kilometers southwest of Yellow Lake with the highway crossing Cedar Creek. Access can be obtained through the Cedar Creek Ranch up to the first reach of Loak Creek where and old bridge has been washed out or removed. Access to Bradshaw and Shoemaker Creeks are via Hwy. 3 approximately 15 kilometers west of Keremeos with the highway crossing both streams. Snehumption and Susap Creeks were both accessed by helicopter as no road access has yet been developed.

1.1.6 Trout Creek tributaries

Trout Creek drains an area northwest of Summerland and has numerous tributaries that were the focus of the operational inventory. The watershed drains an area of the Southern Thompson Upland. Flowing southwest from it origins at Headwaters Lake, Trout Creek then bends south and southeast as it drops into the Okanagan Basin. Water from Trout Creek supplies the town of Summerland and its adjacent agricultural area. Dominant land uses in the watershed include: agriculture/range, forestry and recreation.

The fisheries resources of the Trout Creek watershed are dominated by rainbow trout and kokanee as the primary sport fish species. Eastern brook trout are also present and have been introduced throughout the Okanagan drainage. Much of the kokanee spawning habitat is severely degraded as a result of channel straightening and bank stabilization (rip-rap) works undertaken to protect private lands in the lower reach adjacent to Okanagan Lake. Kokanee can access upstream from Okanagan Lake approximately 2 kilometers until the encounter the Trout Creek canyon and a 2.5 meter falls which prevents upstream kokanee migration. Only a few spawning pairs of kokanee are known to utilize this habitat each year. Numerous lakes within the watershed are stocked annually and many other sustain natural spawning populations of rainbow trout. Other fish species known to inhabit Trout Creek and its tributaries include: largescale sucker, mountain whitefish, longnose dace, prickly sculpin and peamouth.

Access to the various Trout Creek tributaries is via the Trout Creek and the McNulty FSR which both head west of Summerland on either side of Trout Creek. Tributaries are accessed via logging roads off of these main roads and are generally named after the drainage in which they access (i.e. Kathleen Road, Lost Chain Road).

Figure 1: Fish and fish habitat inventory study area, Gorman Brothers Lumber Ltd. operating area

2.0 METHODS

2.1 Planning

A priority list of streams requiring fisheries inventory information was established by Gorman Brothers Lumber Ltd. using the 1996/97 Forest Development Plan (FDP) and reviewed by the Fisheries Inventory Specialist, Southern Interior Region. Existing fisheries information for the priority list of streams was collected through several sources including:

- Fisheries inventory reports held at BC Environment, Okanagan Sub-Region;
- Fisheries Information Summary System (FISS) hard copy maps (1: 50,000 NTS); and
- Fisheries inventory data collected by various consultants.

Following the review of all existing fisheries information, preliminary reach designations were determined using topographic and forest cover maps (1:50,000 and 1:30,000 scale) and air photos. Reach breaks were determined using known fish barriers, channel confinement, stream bed or stream bank materials, stream gradient, watershed pattern and existing reach breaks found on FISS mapping.

2.2 Inventory Methods

Preliminary reach breaks, identified in the office using 1:50,000 scale NTS maps, were used to identify potential sample sites. One sample site was selected in each stream reach with the location of the sample site varying depending on access. Reach break locations were confirmed or modified after ground truthing. Where possible, sample sites were identified immediately upstream of a suspected fish barrier.

The sampling procedure used to obtain fish inventory data involved electrofishing a 100 m^2 of stream per sample site. In the event that no fish were found, an entire reach or a minimum survey length of 1 kilometer was undertaken. Fish inventory surveys were undertaken using a Smith-Root model 15C POW Electrofisher with a 25 cm anode ring and 3 m rat tail cathode. Duty cycles varied between 15-48 % with cycling periods of 60 - 90 Hz, depending upon fish size and species expected to be found within the sample site. Electrofishing was only undertaken provided the water temperatures were greater than 4^0C and conductivity was above 30 *u*S/cm.

Fish were identified by species and species identification codes used within this report are consistent with the Stream Survey Field Guide (DFO/MOE, 1989). Fish species, as defined by the FPC, were counted and nose-fork lengths were taken. Those fish species, not defined for management purposes under the Forest Practices Code, were counted and a size range was recorded.

Fish samples were taken from a random selection of streams within each watershed area. An effort was made to collect a minimum of 30 samples (scales, fork lengths and weights) for each species from each watershed area. Age analysis was completed by Okanagan Aging Co. It should be noted that sampling for

age/growth analysis was generally conducted separately from inventory although they were often taken from previously inventoried sites. This was done because scales ordered to determine fish weights were not available at project initiation. It should also be noted that Fish Cards contain sampled fish with the corresponding age/length/weight information while fish summary information in the Stream Cards indicate fish lengths encountered during 100 m^2 inventory surveys. Any regionally important, threatened or endangered fish species encountered during stream surveys were recorded. A fish habitat assessment was made at each survey site using the MOE/DFO Stream Survey Field Guide. The stream survey data is based on a 100 m^2 to 1000 m length of stream.

Fish densities were made note of in the comments section of the *Summary of fisheries inventory and stream classification* tables within this report. Rankings were based on a single pass 100 m^2 electrofishing survey (no stop nets) and scaled relative to the range of densities encountered during the survey's (0 to 34 fish / 100 m^2). Comments on fish density were generally limited to cases of relatively high or low densities. The ranking scale used is defined below:

- 1 to 8 fish/100 m^2 = Low
- 9 to 19 fish/100 m^2 = Moderate
- 20 to 30 fish/100 m^2 = High
- > 30 fish/100 m^2 = Very high

2.2.1 Tributary numbering

Unnamed tributary streams that were surveyed were numbered from 1 to xx, generally starting in the lowest reach working up the watershed to the headwaters. When tributaries of unnamed tributaries were surveyed these streams became 1a, b, c or if stream order dictated 1.1a, b, c. All surveyed streams were given watershed codes and the numbering conventions were for mapping/identification purposes only.

2.3 Stream Classification

For the purposes of meeting FPC requirements, preliminary or confirmed stream classifications were recommended for all stream reaches surveyed. Criteria used to establish stream classifications, including channel width and fish presence or absence, were obtained from the *Operational Planning Regulations*, *Riparian Management Area* and *Fish-stream Identification Guidebooks*. Consistent with the definition of a fish-stream referred to in the *Fish-stream Identification Guidebook*, stream reaches with an average stream gradient of >20% were classified as non fish-streams unless, upper reaches are known or suspected of being fish bearing.

Reach breaks were defined and stream channel widths were measured within each reach. Those reaches which meet the definition of a stream were electrofished to determine fish presence or absence as outlined in the *Fish-Stream Identification Guidebook*. Water flows which do not fit the definition of a "stream" (either they do not have continuous defined channels or an alluvial sediment bed) were not classified and noted as "not a stream as defined under the FPC".

The *Fish-stream Identification Guidebook* requires at least one reconnaissance level sampling survey, 500-1200 m in length, to adequately determine that no fish inhabit the reach. Therefore, where no fish were captured within the stream survey length, the reach is given a stream classification of S5 or S6 provided that fish barriers have been identified downstream of the survey location. If the stream reach has been determined as a non fish-stream, consistent with the *Fish-stream Identification Guidebook*, the classification will appear as an S5 or S6 and the supporting data will be provided.

2.3.1 Preliminary Classification

Further inventory work is recommended where no fish were captured within the reach and where either:

1. no barriers to fish were identified; or
2. there is a possibility that fish may inhabit the stream reach during other seasons of the year.

In these cases, a preliminary stream classification is given and is indicated by brackets [e.g. (S3)]. Where the average stream gradient is less than 20% and there are no known barriers to fish movement from a fish-stream, fish presence is assumed. Assumed fish presence is indicated under 'Fish present" in the summary of fish inventory and stream classification tables. In cases where a stream reach was not surveyed due, for example, to access limitations, a preliminary stream classification may be assigned. This classification is based on information found in an adjacent reach or an alternative source such as stream gradient obtained from 1:20,000 TRIM maps. In situations where a preliminary stream classification has been assigned, the classification designates the more protective stream classification, where one or more possible classes may be suitable for the stream, but cannot be verified unless field checked. Preliminary classifications should only be used for providing an overview of fish presence or absence on Forest Development Plan maps.

2.3.2 Community watersheds

Stream classification is also dependent on whether or not the stream lies entirely or partially within a Community Watershed. All streams within a Community Watershed receive the same classification as fish-streams (S1 to S4). Community Watershed status of priority streams was determined from Community Watershed maps produced by BC Environment, Water Management Branch.

2.4 Wildlife Observations

Wildlife encountered during stream surveys were noted and specific information relating to each survey site can be found in the comments section of the *Summary of fisheries inventory and stream classification* tables within this report.

3.0 RESULTS

The streams surveyed are organized into groups by major watershed. Major watersheds are defined as at least third order streams and were identified as Ashnola River tributaries, Nicola River tributaries,

Okanagan Lake tributaries, Shingle Creek and tributaries, Similkameen River tributaries, and Trout Creek tributaries.

Each stream surveyed within a major watershed has been described within two tables. The first table, *stream referencing*, describes the stream name, watershed name, watershed code, stream location by map number, UTM coordinates and access. The second table, *summary of fisheries inventory and stream classification*, describes the results of fisheries inventory and the stream class characteristics. The symbols used to report information within the stream tables are shown in Table 1.

Table 1: Symbology legend for *stream referencing* and *summary of fisheries inventory and stream classification* tables.

Symbol	Description	Symbol	Description
RB	Rainbow trout	LNC	Long nose dace
RB*	Spawning rainbow trout	CAS	Prickly sculpin
EB	Eastern brook trout	CC	Sculpin
BT	Bull trout	MW	Mountain whitefish
KO	Kokanee	NF	No fish
2WD/FT	Two wheel drive and foot access	FSR	Forest service road
CW	Community Watershed	Helicopter	Helicopter access
NS	Not sampled/surveyed	unknown	No available information
NC	Not classified		

Appendices 1, 2 and 3 are contained at the back of this report. Appendix 4 comprises the maps showing fish inventory data collected and are submitted seperately. Appendices 5 through 12 are contained in separate volumes (refer to List of Appendices contained in the Table of Contents).

3.1 Ashnola River tributaries

3.1.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Duruisseau Creek	Ashnola River	310-3678-376-649	No	694466E 5436847N	92H01	92H.008 92H.009	2WD/FT	16/09/96
Duruisseau Creek tributary 1	Ashnola River	310-3678-376-649-247	No	692077E 5438556N	92H01	92H.008 92H.009	2WD/FT	16/09/96
Easygoing Creek	Ashnola River	310-3678-376-676	No	694153E 5435189N	92H01	92H.008 92H.009	2WD/FT	09-10/96
Easygoing Creek tributary 1	Ashnola River	310-3678-376-676-176	No	692840E 5434677N	92H01	92H.008 92H.009	2WD/FT	30/07/96
Easygoing Creek tributary 6	Ashnola River	310-3678-376-676-470	No	690541E 54348769N	92H01	92H.008 92H.009	2WD/FT	10/09/96
Easygoing Creek tributary 7	Ashnola River	310-3678-376-676-507	No	690541E 5435025N	92H01	92H.008 92H.009	2WD/FT	10/09/96
Easygoing Creek tributary 8	Ashnola River	310-3678-376-676-507-149	No	689890E 5435702N	92H01	92H.008 92H.009	2WD/FT	10/09/96
McBride Creek	Ashnola River	310-3678-376-547	No	696261E 5442534N	92H01	92H.019	2WD/FT	16/10/96
Red Bridge Creek	Ashnola River	310-3678-376-066	No	718528E 5452865N	92H01 82E04	92H.020	4WD/FT	05/10/96
Red Bridge Creek tributary 1	Ashnola River	310-3678-376-066-120	No	717795E 5453467N	92H01 82E04	92H.020	4WD/FT	05/10/96

3.1.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Duruisseau Creek	1	1	8.2	RB	5	S2	The exact barrier to upstream fish migration was not located but is assumed to be within the first steep gradient canyon above the confluence with the Ashnola River. It is estimated that fish can access approx. 750 m of habitat in Reach 1.
	2	2	7.2	NF	6	S5	The upstream fish barrier within the first canyon is the break between Reach 1 and 2. A 1 kilometer survey above this canyon resulted in no fish being captured.
	3	3	5	NF	15	S5	A 12 m chute/canyon (approx. 80 m in length) is located at the upstream extent of Reach 2 and is the reach break between Reach 2 and 3.
Duruisseau Creek tributary 1	NS	1	NS	NF	NS	(S5)	Based on the 1 km of fish habitat surveyed in Reach 2 and 3 of Duruisseau Creek, this tributary is a non-fish stream. Channel measurements are required to confirm the stream classification.
Easygoing Creek	1	1	4.1	RB	5	S3	Good fish habitat, with some pockets of spawning sized gravels. Adequate cover and shade vegetation.
	2	2	4.4	RB	2	S3	Limited pool and LWD cover, largely boulder and cutbank cover.
	NS	3	NS	RB	NS	(S3)	FISS data indicates rainbow trout in Trapper Lake therefore Reach 3, below the lake, is an assumed fish-stream. Channel width and gradient measurements are required to confirm stream classification.

3.1.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Easygoing Creek tributary 1	NS	1	NS	Assumed	NS (TRIM)	S4	Reach 1 is an assumed fish-stream as no barriers to fish access from Easygoing Creek were identified.
	NS	2	NS	Assumed	>20 (TRIM)	(S6)	A gradient break (>20%) in Reach 2, approx. 300 m upstream from the confluence, likely prevents upstream fish access. Channel measurements and fish presence/absence require confirmation.
	1	3	0.9	NF	2	S6	A 1 km survey in Reach 3 resulted in no fish being captured.
Easygoing Creek tributary 6	1	1	2.5	RB	8	S3	Cover limited largely to over channel vegetation. Poorly drained marshy area with underground flows in several areas. Rainbow trout can access this tributary from main stem.
Easygoing Creek tributary 7	NS	1	NS	RB	NS	(S3)	FISS data shows that rainbow trout are present in the (unnamed) headwater lake. Channel measurements are required to confirm stream classification.
Easygoing Creek tributary 8	NS	1	NS	RB	NS	(S3)	FISS data shows that rainbow trout are present in the (unnamed) headwater lakes. Channel measurements are required to confirm stream classification.
Easygoing Creek tributary 9	1	1	1.7	RB	5	S3	Stream drains a wetland area and likely provides rearing/refuge area for juvenile fish.

3.1.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
McBride Creek	1	1	5.1	RB	3	S2	Good fish habitat. Cover consists largely of over channel vegetation and boulders. Limited pool habitat.
	2	2	4.9	NF	9	(S3)	No fish were captured in 100 m^2 of habitat. The road crossing had no culvert and part of the stream flows are accessing the road grade and flowing down it. Re-survey required to confirm fish absence and locate barriers.
Red Bridge Creek	1	1	3.8	RB	31	S3	Red Bridge Creek is headed by Red Bridge Lake which is known to support rainbow trout. Limited habitat is available in Reach 1 due to the steep gradient. Cover consists largely of boulders. Some spawning sized gravels at confluence with Ashnola River.
	2	2	3.3	RB	15	S3	Large amount of cover available. Below road crossing, the gradient approaches 30%.
	3	3	NS	RB	2	(S3)	Rainbow trout observed at the outlet of Red Bridge Lake. Channel measurements are required for stream classification. Small (0.5 m) low water weir located at outlet.
	4	4	3.2	RB	3	S3	Approximately 40 m upstream from lake, the stream develops a mud bottom and drains a large wetland marsh. A channel was present but may disappear further into wetland. Recommend a late spring/early summer survey to determine if fish can access above the large wetland area during higher flows.
	NS	5	NS	(NF)	>20% (TRIM)	(S6)	Not surveyed due to limited access. Fish absence is assumed due to gradient barrier. Headwaters lake (unnamed) is likely too high of elevation to support fish.
Red Bridge Creek tributary 1	NS	1	NS	Assumed	NS	(S3)	The tributary was not surveyed due to limited access. Assumed fish stream. Requires follow-up survey.

3.2 Nicola River tributaries

3.2.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Inlet to Rat Lake	Nicola River	120-2466-864-614	No	282900E 5543647N	92H16	92I.010	2WD/FT	26/07/96
Nicola River tributary 1	Nicola River	N/A (updating)	No	284963E 5540620N	92H16	92H.100	2WD/FT	26/07/96
Nicola River tributary 1.1	Nicola River	N/A (updating)	No	284380E 5540435N	92H16	92H.100	2WD/FT	26/07/96
Nicola River tributary 1.2	Nicola River	N/A (updating)	No	284375E 5536090N	92H16	92H.100	2WD/FT	26/07/96

3.2.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Inlet to Rat Lake	1	1	1.0	Assumed	2	S4	FISS data shows that Rat Lake supports a rainbow trout population. However, no fish were captured during a 900 m survey of the inlet stream. At the time of the survey, low flows may have limited fish access. Assumed fish presence as no barriers to fish passage were found.
Nicola River tributary 1	1	1	NS	RB	NS	(S3)	Rainbow trout captured at confluence with Nicola River tributary 1.2. Stream flows through numerous wetland areas. Channel measurements are required to confirm stream classification.
Nicola River tributary 1.1	1	1	NS	RB	NS	(S3)	Fish access is confirmed approx. 7.2 kms upstream from the confluence with Nicola River tributary 1 near the Bear FSR/Fumerton FSR junction. Tributary 1.1 is an assumed fish-stream above this point further fish inventory and stream measurements are required to confirm stream classification.
Nicola River tributary 1.1a	1	N/A	N/A	N/A	NA	NC	This is not a stream as defined under the FPC.
Nicola River tributary 1.1b	1	1	NS	RB	2	(S3)	Poor fish habitat with very little cover. Evidence of streambank erosion and riparian damage from livestock. Bed material and streambanks consist mainly of fine grained silts and pea gravels. Stream drains a wetland complex and upstream fish access will likely vary with water levels. Channel measurements are required to confirm stream classification.
Nicola River tributary 1.2	1	1	2.9	RB	1	S3	Fish can access approx. 200 m of habitat upstream from the confluence with Nicola tributary 1. Above this, a 1 and 2 m falls is the break between Reaches 1 and 2.
	2	2	2.9	NF	1	S6	The fish barriers, a 1 and 2 m falls, is located approx. 200 m upstream from the confluence with tributary 1. No fish were found above the 2 meter rock falls.

3.3 Okanagan Lake tributaries

3.3.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Arawana Creek	Okanagan Lake	310-6578	No	311549E 5495341N	82E11 82E12	82E.053	2WD/FT	16/09/96
Bellevue Creek	Okanagan Lake	310-7894	No	317878E 5522778N	82E11 82E14	82E.073 82E.083	2WD/FT	12/09/96
Chute Creek	Okanagan Lake	310-6820	Yes	308814E 5501938N	82E11 82E12	82E.062, 063, 073	2WD/FT	18/09/96
Gillard Creek	Okanagan Lake	310-7894-385	No	323919E 5516775N	82E11 82E14	82E.073	2WD/FT	12/09/96
Jack Creek	Okanagan Lake	310-7422-184	Yes	301914E 5521649N	82E13 82E14	82E.082	2WD/FT	08-09/96
Jack Creek tributary 2	Okanagan Lake	310-7422-184-554	Yes	303165E 5526685N	82E13 82E14	82E.082	2WD/FT	08-09/96
Jack Creek tributary 2.1	Okanagan Lake	310-7422-184-554-021	Yes	303249E 5526685N	82E13 82E14	82E.082	2WD/FT	08-09/96
Naramata Creek	Okanagan Lake	310-6607	Yes	311170E 5496161N	82E11 82E12	82E.053 82E.063	2WD/FT	16/09/96
Nuttall Creek	Okanagan Lake	310-6820-855	Yes	322695E 5506040N	82E11	82E.063	2WD/FT	18/09/96
Ratnip Creek	Okanagan Lake	310-6820-493	Yes	317443E 5507136N	82E11	82E.073	2WD/FT	19/09/96
Ratnip Creek tributary 1	Okanagan Lake	310-6820-493-118	Yes	317721E 5508934N	82E11	82E.073	2WD/FT	19/09/96
Trepanier Creek	Okanagan Lake	310-7422	Yes	305545E 5516572N	82E13 82E14	82E.072,081,082, 091	2WD/FT	28/08/96

3.3.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)

Arawana Creek	1	1	1.4	Assumed	10	S4	Reach 1 had very low flows at the time of the survey and had been dry for most of the summer. Although 866 m of stream was surveyed and no fish were captured, assumed fish-stream as no barriers or obstructions to fish access from Okanagan Lake were identified.
	2	2	NS	NF	NS	S6	A 4.0 m culvert drop at the Naramata Rd. crossing prevents fish access to this reach and is the break between Reach 1 and 2. At the time of the survey, the stream was dry above this culvert.
Bellevue Creek	NS	1	NS	RB, CAS	NS	(S2)	FISS data shows that rainbow trout and prickly sculpin are found in this reach. Fish from Okanagan Lake can access approx. 3.9 kms. of habitat above Okanagan Lake. Channel measurements are required to confirm stream classification.
	1	2	7.5	NF	7	S5	FISS data shows that a falls approx. 3.9 kms. upstream from Okanagan Lake. This falls is the break between Reach 1 and 2. A 1 km survey above the falls found no fish.
	NS	3	NS	NF	NS	(S5)	Above a known fish barrier. Channel measurements are required to confirm stream classification.
	NS	4	NS	NF	NS	(S5)	Above a known fish barrier. Channel measurements are required to confirm stream classification.

3.3.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Chute Creek	1	1	5.4	RB, EB	28	S2	Chute Creek is headed by Chute Lake which is known to support rainbow trout (FISS). Fish have access upstream from Okanagan Lake approx. 175 meters where several 1 to 2.5 m barriers and steep gradient is encountered. Eastern brook trout are restricted to the first 175 m of stream.
	2	2	5.7	RB	6	S2	Excellent fish habitat with both cover and riparian shade vegetation.
	3	3	6.1	RB	3	S2	Excellent fish habitat with high percentage of boulder and pool cover.
	4	4	5.4	RB	6	S2	Excellent fish habitat with high percentage of boulder and pool cover. Western spotted frog *(Rana pretiosa)* observed during survey.
	5	5	4.1	RB	4	S3	Excellent fish habitat with high percentage of boulder and pool cover. High numbers of fry captured which suggests this area contains spawning habitat and juvenile rearing habitat.
	6	6	2.4	NF	11	S3	Excellent fish habitat but no fish were captured during a 1 km survey. FISS data shows that in 1995 Big Meadow Lake experienced a 5.7 m drawdown by the Naramata Irrigation District and insufficient water levels remained for fish survival (MOE, 1995 Lake Plans-Okanagan watershed). Lake may be stocked in the future which may change the fish bearing status of this stream.

3.3.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Gillard Creek	NS	1	NS	NF	NS	(S5)	Gillard Creek is tributary to Reach 2 of Bellevue Creek which is a non fish-stream. Channel measurements required for stream classification.
	NS	2	NS	NF	NS	(S5)	Gillard Creek is tributary to Reach 2 of Bellevue Creek which is a non fish-reach. Channel measurements and gradient are required to confirm stream classification.
Jack Creek	1	1	3.6	RB	3	S3	Excellent fish habitat with riparian shade vegetation and a high percentage of boulder and pool cover.
	2	2	4.1	RB	11	S3	Excellent fish habitat with riparian shade vegetation and high percentage of boulder and pool cover.
	3	3	2.4	RB	6	S3	Rainbow trout were captured below the 3.5 m chute that is the break between Reach 3 and 4.
	4	4	NS	NF	NS	(S3)	No fish were captured after a 1 km survey above the 3.5 m chute. This chute is a barrier to fish access upstream. Several newts and/or salamanders (species unknown) encountered during the survey.
Jack Creek tributary 1	NS	1	NS	NF	< 20% (TRIM)	(S3)	The steep gradient near the confluence with Jack Creek likely prevents fish access.
Jack Creek tributary 2	1	1	3.6	RB	8	S3	Excellent fish habitat. High densities of rainbow trout (24 in $100m^2$) were captured.
	2	2	2.7	RB	8	S3	Excellent fish habitat with high percentage of boulder and pool cover.
	3	3	1.9	Assumed	1	S3	Stream has intermittent underground flows. Low flows at time of survey. Spring survey during higher flows required to confirm fish presence/absence.

3.3.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Jack Creek tributary 2.1	1	1	3.2	Assumed	<20 (TRIM)	S3	Fish presence assumed based on gradient <20% and fish presence in Reach 1 of tributary 2. Re-survey required to confirm fish presence.
	NS	2	NS	(NF)	>20 (TRIM)	(S3)	Fish absence assumed based on gradient (>20%) obtained from 1:20,000 TRIM. Channel measurements and gradient are required to confirm stream classification.
Jack Creek tributary 2.2	1	1	NS	Assumed	<20 (TRIM)	(S3)	Dry at confluence with tributary 2. Fish presence assumed based on gradient (<20% TRIM). Re-survey required to confirm stream classification and fish presence.
Naramata Creek	NS	1	NS	RB, KO*	NS	(S2)	FISS data indicates kokanee (spawning) and rainbow trout in Reach 1.
	1	2	NS	RB	NS (TRIM)	(S2)	Rainbow trout captured throughout this relatively high gradient reach. Four rainbow trout were captured above a 4 m culvert drop (possibly transplanted). Upstream fish access is prevented by a 3.5 m dam which is the break between Reach 2 and 3.
	2	3	5.9	NF	26	S2	A large canyon for 200 meters is located upstream of the 3.5 m dam and no fish were captured during the survey. A 5 meter falls was located at the top of the canyon.
Nuttall Creek	1	1	1.4	NF	1	S4	No fish were found during a 1 km survey. BC Environment reports that Nuttall Lake experienced winter fish kill during the winter of 1994/95 (FISS file #34020-20-02).
Ratnip Creek	NS	1	NS	RB*	NS	(S3)	FISS data reports rainbow trout spawning in this reach.
	1	2	3.7	RB*	4	S3	Rainbow trout present. FISS data reports rainbow trout spawning in this reach below Ratnip Lake.

3.3.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Ratnip Creek tributary 1	NS	1	NS	Assumed	NS	(S3)	Fish presence is assumed in Reach 1 which contains a small non classified lake. Upstream of the lake, the stream is channelized for approx. 300 m. then becomes undefined. Channel measurements required to confirm stream classification.
	1	2	NS	NF	<20 (TRIM)	(NC)	No defined channel approx. 300 meters above small lake. Above this point the wet area is a non-classified wetland as determined from 1:20,000 TRIM maps. Estimated wetland size is 0.4 hectares. Recommend measurements (ha.) from air photos.
Ratnip Creek tributary 2	1	1	1.3	Assumed	<20 (TRIM)	S4	Stream was dry at time of survey. Fish presence assumed since this tributary may provide refuge/rearing habitat for short time periods.
Ratnip Creek tributary 3	1	1	1.8	Assumed	NS (TRIM)	S3	Stream was dry at time of survey. Fish presence assumed since this tributary may provide refuge/rearing habitat for short time periods.
Ratnip Creek tributary 4	NS	1	NS	RB*	NS	NC	FISS data shows rainbow trout spawning in this tributary above Ratnip Lake. Recommend wetland classification for the numerous marshy areas throughout this tributary. Channel measurements required.

3.3.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Trepanier Creek	NS	1	>5-20 m	RB, KO*	NS	S2	FISS data reports kokanee (spawning) and rainbow trout in this reach. Kokanee have access to approx. 1 km of habitat. Above this, a 3 m falls prevents upstream migration.
	NS	2	>5-20 m	Assumed	NS	S2	No survey undertaken. Fish presence assumed based on known upstream fish presence.
	NS	3	>5-20 m	Assumed	NS	S2	No survey undertaken. Fish presence assumed based on known rainbow trout presence in Jack Creek.
	NS	4	>5-20 m	Assumed	NS	S2	No survey undertaken. Fish presence assumed based on known upstream presence.
	1	5	9.0	RB	2	S2	Good fish habitat but limited pool cover. Moderate rainbow trout densities found throughout the reach.
	NS	6	NS	Assumed	<20 (TRIM)	(S2)	No survey undertaken. Fish presence assumed based on gradient calculated from TRIM maps (<20%) and no known fish barriers. Requires re-survey to confirm stream classification and fish presence.
	NS	7	NS	Assumed	<20 (TRIM)	(S2)	No survey undertaken due to no access. Fish presence assumed based on gradient calculated from 1:20,000 TRIM maps (<20%) and no known fish barriers. Requires re-survey to confirm classification and fish presence.

3.4 Shingle Creek and tributaries

3.4.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
June Creek	Shingle Creek	310-6160-712	Yes	296524E 5487565N	82E05 82E12	82E.051, 82E.041	2WD/FT	27/08/96
Shingle Creek	Shingle Creek	310-6160	Yes	311865E 5483830N	82E05 82E12	82E.042, 82E.051, 82E.052	2WD/FT	30/08/96
Skualow Creek	Shingle Creek	310-6160-728	Yes	296053E 5487573N	82E05 82E12	82E.051	2WD/FT	30/08/96

3.4.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
June Creek	1	1	4.2	Assumed	10	S3	Stream was dry at the time of survey except for 15 m from the confluence that had a few pools. No barriers to fish were observed upstream for 200 m. Suggest spring survey to confirm fish presence and channel width.
	NS	2	NS	Assumed	NS	(S3)	A gradient break is the break between Reach 1 and 2. Requires spring survey to confirm fish presence and channel width.
Shingle Creek	NS	1	NS	RB, KO*	NS	S2	FISS data reports rainbow trout and kokanee (spawning) in this reach therefore, no survey was undertaken.
	1	2	6.9	RB	2	S2	High densities of rainbow trout (24 in 100 m^2 of habitat surveyed). Stream banks consist of highly erodeable sand and silts that are actively eroding.
	2	3	5.8	RB	5	S2	Very high rainbow trout densities (34 in 100 m^2). Excellent habitat with high levels of diverse cover and shade.
	3, 4	4	4.4	RB	12	S3	High densities of rainbow trout (24 in 100 m^2 of habitat surveyed). Excellent fish habitat with good spawning size gravels.
	5, 6	5	4.2	RB	6	S3	High rainbow trout densities (30 in 100 m^2 of habitat surveyed). Heavy livestock use throughout the reach with evidence of stream bank erosion and damage to riparian vegetation. Numerous western spotted frogs *(Rana pretiosa)* were sighted during the survey.
	7	6	3.5	NF	10	S3	A steep gradient section (18-23%) with several debris jams (1 to 2 m high) prevents upstream fish utilization. Remainder of reach has lower gradient with excellent fish habitat but no fish captured in 1 km of habitat. Reach maintains a S3 riparian classification based on the Community Watershed status.

3.4.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Skualow Creek	1	1	4.4	RB	12	S3	Excellent fish habitat with high fish densities (22 in 100 m^2). High percentage of pool and boulder cover. Limited spawning gravels.
	2, 3	2	4.2	RB	19	S3	Step pool habitat with limited spawning sized gravels. A relatively steep gradient reach (18-25%) with significantly lower fish densities than Reach 1 (8 in 100 m^2). 700 m of the upper portion of Reach 2 was surveyed with no fish found. However, there were no barrier identified from the lower portion of Reach 2.
	4	3	4.1	NF	25	S3	Steep gradient step-pool habitat with sections of 35%. Large amounts of LWD which form numerous 1 to 2 m debris jams. Bed material is largely boulders. No fish were found following a 300 m survey.

3.5 Similkameen River tributaries

3.5.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Bradshaw Creek	Similkameen River	310-3678-418	No	715747E 5464287N	82E04 82E05	92H.030 82E.021	2WD/FT	04/09/96
Cedar Creek	Similkameen River	310-3678-299-468	No	294882E 5463528N	82E05	82E.021,82E.031	2WD/FT	04/09/96
Coulthard Creek	Similkameen River	310-3678-251-286	No	297005E 5441702N	82E04 82E05	82E.001 82E.002	Helicopter	06/09/96
Loak Creek	Similkameen River	310-3678-299-468-361	No	293304E 5465299N	82E05	82E.031	2WD/FT	04/09/96
Robert Creek	Similkameen River	310-3678-241	No	300940E 5440341N	82E04 82E05	82E.001 82E.002	Helicopter	06/09/96
Shinish Creek	Similkameen River	310-3678-574-760	No	695870E 5505300N	92H09	92H.069 92H.070	2WD/FT	20/09/96
Shinish Creek tributary 1	Similkameen River	310-3678-574-760-518	No	702168E 5504232N	92H09	92H.069 92H.070	2WD/FT	20/09/96
Shoemaker Creek	Similkameen River	310-3678-394	No	717408E 5459406N	82E04 82E05	82E.021 92H.030	2WD/FT	04/09/96
Shoudy Creek	Similkameen River	310-3678-213	No	301808E 5436387N	82E04 82E05	82E.001 82E.002	Helicopter	06/09/96
Snehumption Creek	Similkameen River	310-3678-194	No	302678E 5433366N	82E04 82E05	82E.001 82E.002	Helicopter	06/09/96
Susap Creek	Similkameen River	310-3678-251	No	300083E 5442138N	82E04 82E05	82E.001,002, 011, 012	Helicopter	06/09/96

3.5.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Bradshaw Creek	1	1	6.0	Assumed	10	S2	No fish captured during survey as stream channel was dry. Reach 1 may provide refuge/rearing area during spring freshet. Wooden irrigation intake structure was destroyed during spring freshet. Two mule deer sighted near confluence with the Similkameen River.
	2	2	5.8	NF	19	S5	A 2 m high culvert drop at the Hwy. 3A road crossing prevents fish access to this reach.
Cedar Creek	1	1	5.9	RB, EB	6	S2	Good fish habitat but limited cover. Irrigation intake dam is a minor obstacle to upstream fish movement. Intake flume is screened to prevent fish mortality.
	2	2	5.3	RB, EB	13	S2	Several obstructions within Reach 2. A single eastern brook trout was captured above a 4 m chute. No other fish captured above this site.
	3	3	5.4	NF	25	S5	A 5 m high chute prevents fish access to this reach. A 1 km survey above the 5 m chute found no fish. Encountered two western yellow bellied racers *(Coluber constrictor mormon)* on southern exposed rocky slopes above stream.
Coulthard Creek	NS	1	NS	NF	NS	(S5)	FISS data shows a no fish survey in Reach 1. Several large fish barriers were identified in Coulthard Creek is tributary to Reach 2 of Susap Creek which is a non fish-reach. Channel measurements are required to confirm stream classification.

3.5.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Loak Creek	1	1	3.9	NF	33	S5	Loak Creek is a tributary to Reach 3 of Cedar Creek. The confluence of Loak Creek is above a known fish barrier on Cedar Creek. A 1 km survey within Reach 3 of Cedar Creek and Reach 1 of Loak Creek resulted in no fish being captured. An old bridge crossing in Reach 1 of Loak Creek has been partially removed but support timbers are still in place. This structure is a potential sediment source due to failing approaches.
Robert Creek	NS	1	NS	Assumed	NS	(S2)	FISS data shows fish presence in this reach which is accessible to fish from the Similkameen River. Channel measurements are required to confirm stream classification.
	NS	2	NS	NF	NS	(S5)	A steep gradient canyon exists at the beginning of this reach which likely prevents upstream fish access. This reach is inaccessible from helicopter and barriers were difficult to locate from the air. Requires a re-survey to determine the stream classification and fish absence. Access will be difficult.
	NS	3	NS	NF	NS	(S5)	FISS data shows that no fish present in this reach. Channel measurements required.
Shinish Creek	1	1	5.0	RB	5	S3	Step pool habitat with very little spawning sized gravels. Cover consists largely of boulders and pools. LOD cover is limited.
	2	2	4.9	RB	4	S3	Limited cover habitat. Cover consists mainly of boulders and pools. Site is within an old harvested area.
	3	3	3.5	RB	5	S3	Limited cover but increasing amount of LOD cover. Adequate riparian shade vegetation. Fish presence assumed into headwaters where access may be limited by low flows during certain times of year.

3.5.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Shinish Creek tributary 1	1	1	3.2	RB	4	S3	Rainbow trout were captured although conductivity was low (20 uS/cm). Low conductivity throughout Shinish Creek (41-20 uS/cm) may account for the low fish densities (3 - 6 fish/100 m^2), by lowering electrofishing efficiency.
Shinish Creek tributary 2	1	N/A	N/A	N/A	N/A	NC	Not a stream as defined under the FPC.
Shinish Creek tributary 3	1	N/A	N/A	N/A	N/A	NC	Not a stream as defined under the FPC.
Shinish Creek tributary 4	1	N/A	N/A	N/A	N/A	NC	Not a stream as defined under the FPC.
Shoemaker Creek	1	1	4.0	Assumed	10	S3	Stream was dry at the time of survey. Defined channel with fish access to Similkameen River during higher flows. Likely used as juvenile refuge/rearing area during the spring freshet.
	2	2	3.9	NF	22	S5	Fish cannot access this reach due to a 1.5 m culvert barrier at the Hwy. 3A road crossing.
Shoudy Creek	NS	1	NS	RB	NS	(S2)	FISS data reports fish presence in this reach which is accessible from the Similkameen River. Channel measurements and gradient are required for stream classification.
	NS	2	NS	NF	NS	(S5)	Fish barriers in steep canyon above Reach 1. Re-survey required to confirm stream classification.
Snehumption Creek	NS	1	NS	RB, CRH	NS	(S2)	FISS data shows fish presence in this reach which is accessible from the Similkameen River. Channel measurements and gradient required to confirm classification.
	NS	2	NS	NF	NS	(S5)	During an overview helicopter flight, several barriers were observed in Reach 2 (3 to 12 m in height) which prevents upstream fish access.
	1	3	5.4	NF	11	S5	A 1 km survey was completed and no fish were found.

3.5.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Susap Creek	NS	1	NS	RB, LNC, MW	NS	(S2)	FISS data reports fish presence in this reach which is accessible from the Similkameen River. Channel measurements and gradient required to confirm classification.
	NS	2	NS	NF	NS	(S5)	During an overview helicopter survey, several barriers were observed in Reach 2 (1 to 10 m in height) which prevents upstream fish access.
	1	3	6.1	NF	16	S5	A 1 km survey was completed and no fish were captured.

3.6 Trout Creek tributaries

3.6.1 Stream referencing

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Bull Creek	Trout Creek	310-6509-341	Yes	291831E 5500997N	82E12	82E.051,82E.061	2WD/FT	25/09/96
Bull Creek tributary 2	Trout Creek	310-6509-341-498	Yes	286676E 5498480N	82E12	82E.051,82E.061	2WD/FT	25/09/96
Bull Creek tributary 3	Trout Creek	310-6509-341-801	Yes	283951E 5496650N	82E12	82E.051,82E.061	2WD/FT	25/09/96
Camp Creek	Trout Creek	310-6509-539	Yes	715647E 5510122N	92H09 92H16	92H.080	2WD/FT	05/09/96
Camp Creek tributary 1	Trout Creek	310-6509-539-496	Yes	715000E 5512944N	92H09 92H16	92H.080	2WD/FT	05/09/96
Camp Creek tributary 2	Trout Creek	310-6509-539-632	Yes	715318E 5513623N	92H09 92H16	92H.080	2WD/FT	05/09/96
Chapman Creek	Trout Creek	310-6509-539-784	Yes	715935E 5514307N	92H09 92H16	92H.080	2WD/FT	05/09/96
Darke Creek	Trout Creek	310-6509-235	Yes	299320E 5498898N	82E12	82E.061,062,071	2WD/FT	27/08/96
Fenton Creek	Trout Creek	310-6509-404	Yes	288978E 5504075N	82E12	82E.061,82E.071	2WD/FT	30/08/96
Isintok Creek	Trout Creek	310-6509-326	Yes	292911E 5500312N	82E12	82E.051,82E.061	2WD/FT	10/09/96
Isintok Creek tributary 1	Trout Creek	310-6509-326-406	Yes	289150E 5494845N	82E12	82E.051,82E.061	2WD/FT	10/09/96
Isintok Creek tributary 2	Trout Creek	310-6509-326-806	Yes	283938E 5491045N	82E12	82E.051,82E.061	2WD/FT	10/09/96
Kathleen Creek	Trout Creek	310-6509-706	Yes	705638E 5513541N	92H09	92H.080	2WD/FT	09/09/96

3.6.1 Stream referencing (con't)

Stream name	Watershed name	Watershed code	CW	UTM at outlet	NTS map	TRIM map	Access	Date of inventory
Kirton Creek	Trout Creek	310-6509-428	Yes	287386E 5504535N	82E12	82E.061,82E.071	2WD/FT	30/08/96
Lost Chain Creek	Trout Creek	310-6509-461	Yes	285960E 5506059N	82E12 92H09	82E.061,92H.070	2WD/FT Helicopter	08-09/96
Lost Chain tributary 1	Trout Creek	310-6509-461-280	Yes	283993E 5404719N	82E12 92H09	82E.061,92H.070	2WD/FT Helicopter	08-09/96
Rowley Creek	Trout Creek	310-6509-547	Yes	714075E 5511060N	82E12 92H09	92H.070,92H.080	2WD/FT Helicopter	24/09/96

3.6.2 Summary of fisheries inventory and stream classification

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Bull Creek	1	1	5.3	RB	8	S2	Excellent fish habitat with both cover and shade.
	2	2	4.0	RB	5	S3	Excellent fish habitat with both cover and shade.
	3	3	2.0	RB	3	S3	Excellent fish habitat with both cover and shade.
Bull Creek tributary 1	N/A	N/A	N/A	N/A	N/A	NC	This is not a stream as defined under the FPC.
Bull Creek tributary 2	NS	1	NS	(RB)	NS (TRIM)	(S3)	This stream is tributary to Bull Creek which is a fish-stream. Reach 1 is an assumed fish-stream due to a gradient <20% (TRIM). A 3.2 m falls is the break between Reach 1 and 2.
	1	2	2.1	NF	NS	S3	The 3.2 m falls, below the road crossing, prevents upstream fish access. A 1 km survey above these falls resulted in no fish being captured.
Bull Creek tributary 3	1	1	1.9	RB	16	S3	Excellent boulder and pool habitat but steep gradient reach. No fish barriers identified but no fish were captured above the 0.55 m culvert drop at the road crossing. Assumed fish presence during higher flows. The break between Reaches 1 and 2 is located 400 m upstream of the culvert crossing.
	NS	2	NS	Assumed	<20 (TRIM)	(S3)	Fish presence is assumed based on rainbow trout presence in Reach 1, an average gradient <20% (TRIM) and the absence of fish barriers. Extremely low flows above the Reach 1 break likely prevents fish utilization. Fish survey and channel measurement are required to confirm stream classification.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Camp Creek	1	1	4.4	RB, EB	2	S3	Excellent fish habitat with high percentage of LOD and over hanging vegetation cover.
	2	2	3.4	RB	1	S3	Excellent fish habitat with high percentage of cutbank and over channel vegetation cover.
	3	3	1.5	RB, EB	1	S3	Marshy wetland area with channelized stream running through it. Channel becomes intermittent series of small ponds and drainage channels.
	4	4	2.1	Assumed	3	S3	No fish were found after a 226 m survey although fish presence is assumed due to the absence of barriers from Reach 3. Numerous seepage channels with intermittent flows. Suggest possible wetland classification and a spring survey. No barriers to fish were located.
Camp Creek tributary 1	1	1	1.3	NF	33	S4	A 42% gradient at confluence with Camp Creek prevents fish access and utilization.
Camp Creek tributary 2	1	1	3.7	RB, EB	5	S3	Fish can access 160 m of habitat in Reach 1 until the stream forks and becomes inaccessible due to a 1.2 m fish barrier. This barrier is the break between Reaches 1 and 2.
	2	2	3.1	NF	15	S3	A 1 km survey above the 1.2 m fish barrier resulted in no fish being found.
Camp Creek tributary 2a	1	1	2.8	NF	14	S3	A 0.8 m falls located 20 m upstream from the confluence with tributary 2 prevents fish access in this Reach 2. A 1000 m electrofishing survey above this barrier resulted in no fish being captured.
	2	2	2.8	NF	14	S3	A 1 km survey above this barrier resulted in no fish being captured.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Chapman Creek	1	1	3.4	RB	6	S3	Rainbow trout were captured in Reach 1. Large amounts of LOD in channel. Low fish densities (3 rainbow trout in 100 m^2 of habitat surveyed).
	NS	2	NS	RB	NS	S3	FISS data reports rainbow trout in Chapman Lake and rainbow trout spawning in Reach 2, below Chapman Lake. Channel measurements required to confirm stream classification.
	NS	3	NS	(RB)	NS (TRIM)	(S3)	Inlet stream to Chapman Lake was not surveyed but is assumed to be a fish-stream due to low stream gradient. Re-survey is required to confirm fish presence and stream classification.
Darke Creek	NS	1	NS	RB, LNC	NS	(S3)	Darke Creek is headed by Munro and Darke Lakes which are known to support rainbow trout (FISS). FISS data also reports fish presence in Reach 1. Channel measurements and gradient are required to confirm stream classification.
	1	2	3.7	EB	1	S3	Good fish habitat with abundance of spawning sized gravels.
	2	3	2.7	RB, EB	11	S3	Stream was dry upstream of Darke Lake for 100 m then a small amount of flow was present. Rainbow trout and eastern brook trout fry were captured. Largely boulder cover available.
	3	4	1.3	RB	2	S4	FISS data reports rainbow trout in Munro Lake.
Darke Creek tributary 1	NS	1	1.3	Assumed	14	S4	No fish were found during a 376 m survey however, no barriers to fish access from Reach 4 of Darke Creek (fish-stream) were located. Fish utilization likely occurs during higher flows. Suggest late spring/early summer survey to confirm fish presence.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Fenton Creek	1	1	NS	NF	49	(S3)	Extremely steep gradient for first 500 m prevents fish access or utilization. Channel measurements required to confirm stream classification.
	2	2	2.7	NF	4	S3	No fish were found during a 565 m survey. Gradient barrier in Reach 1 prevents fish access to this reach.
Isintok Creek	1	1	4.7	RB	10	S3	Poor fish habitat with limited cover and low fish densities (4 in 100m^2 of habitat surveyed). Largely riffle/run with few pools.
	2	2	5.3	RB	5	S2	Good fish habitat with both shade and cover.
	3	3	4.7	RB	6	S3	Good fish habitat with both shade and cover.
	4	4	1.5	RB	1	S3	Low gradient reach with large amount of cutbank cover.
Isintok Creek tributary 1	NS	1	1.1	NF	>40 (TRIM)	S4	Gradient at confluence with Isintok Creek is >40% (TRIM) which likely prevents fish access.
	NS	2	NS	NF	NS	(S4)	A low gradient reach that was dry at the time of survey. Channel measurements are required for stream classification.
Isintok Creek tributary 2	1	1	1.9	RB	11	S3	Good fish habitat with a large amount of LOD cover.
	2	2	1.4	Assumed	<20 (TRIM)	S4	Fish presence assumed based on the absence of barriers from Reach 1 and gradient (<20%) calculated from 1:20,000 TRIM. Requires re-survey to confirm fish access.
	NS	3	NS	(NF)	>20 (TRIM)	(S4)	Fish absence assumed based on gradient calculated from 1:20,000 TRIM (>20%). Channel measurements required to confirm stream classification.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Kathleen Creek	1	1	2.3	RB	2	S3	Reach 1 of Kathleen Creek is headed by Kathleen Lake (no FISS data). Good fish habitat with high percentage of spawning sized gravel in Reach 1. Moderate densities of juvenile rainbow trout (11 in 100 m^2 + 5 not captured).
	2	2	1.9	RB	6	S3	Reach 2 is the inlet to Kathleen Lake. All rainbow trout captured were juveniles. Low flows above lake. Reach 2 above Kathleen Lake is a channelized wetland with a stream channel flowing through it.
	3	N/A	N/A	N/A	N/A	NC	Not a stream as defined under the FPC.
Kathleen Creek tributary 1	NS	1	1.8	(RB)	NS	S3	Dry at time of survey but no fish barriers were found from the confluence with Reach 1 of Kathleen Creek.
Kathleen Creek tributary 2	NS	1	1.0	(RB)	NS	S4	Dry at time of survey but no fish barriers were found from the confluence with Reach 1 of Kathleen Creek.
Kathleen Creek tributary 3	1	N/A	N/A	N/A	N/A	NC	Not a stream as defined under the FPC.
Kathleen Creek tributary 4	NS	1	1.5	(RB)	NS	S3	Dry at time of survey but no fish barriers were found from the confluence with Reach 2 of Kathleen Creek.
Kirton Creek	1	1	2.0	Assumed	8	S3	Assumed fish stream that was dry at the time of the survey. No fish barriers were located that prevent fish access from Trout Creek.
	NS	2	NS	NF	27 (TRIM)	S3	Steep gradient reach that likely prevents upstream fish utilization from Reach 1. Re-survey required during spring to confirm fish absence, stream classification and locate fish barriers.
	2	3	2.3	NF	5	S3	Gradient barrier in Reach 2 likely prevents fish access to this reach.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Lost Chain Creek	1	1	5.6	RB, EB	10	S2	Good fish habitat. Cover consists largely of boulders and over channel vegetation.
	2	2	6.7	RB	18	S2	Step pool habitat with steep gradient. Largely boulder cover and low fish densities (3 in 100 m^2 of habitat surveyed). Low fish densities may be related to the low conductivity (41-32 uS/cm) found throughout stream, which can lower electrofishing efficiency.
	3	3	3.9	RB	11	S3	Lower gradient reach with cover consisting of boulder pools. Some spawning sized gravels. A 1.2 m log jam may be an obstruction to fish movement during low flows. A 1.5 m falls and 2.5 m log jam, approx. 75 m upstream of the confluence with tributary 1, appears to prevent upstream fish access at low flows. Follow-up survey is required to confirm fish presence/absence above these potential barriers.
	4	4	1.5	Assumed	2	S3	Fish presence is assumed despite no fish being found in a 1 km survey. An overview helicopter survey resulted in no obvious fish barriers being located in Reach 3 or 4. A re-survey is required to confirm fish presence/absence upstream of the suspected fish barriers in the lower portion of Reach 3. Fish presence/absence is not available for a series of 5 small lakes and wetland area at the headwaters of Lost Chain Creek. A lake survey and/or wetland classification is recommended.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Lost Chain Creek tributary 1	1	1	4.1	RB	8	S3	This tributary has higher flows than Lost Chain Creek. Spawning sized gravel present. Low fish densities (3 in 100 m^2) may be related to the low conductivity (32 uS/cm) which can lower electrofishing efficiency.
	2	2	2.6	Assumed	3	S3	Reach was flown by helicopter and no fish barriers were observed. Stream observations were difficult due to heavy tree canopy. Re-survey is required to confirm fish presence.
Lost Chain Creek tributary 1a	NS	1	NS	Assumed	NS	(S3)	Lower approx. 500 m is an assumed fish stream as fish may be present during higher flows. Likely provides rearing/refuge habitat during high flows. Re-survey required to confirm fish access and stream classification.
	1	N/A	N/A	N/A	N/A	N/A	Not a stream as defined under the FPC.
Lost Chain Creek tributary 1b	NS	1	NS	Assumed	NS	(S3)	This tributary was not surveyed due to a lack of access. Helicopter pilot could not find a safe landing site. Re-survey required once access is available to determine fish presence/absence and channel width.
Rowley Creek	1	1	2.8	RB, EB	3	S3	Good fish habitat with diverse cover types. Low fish densities (8 in 100 m^2). Spawning sized gravels present.
	2	2	NS	RB	NS	(S3)	Rainbow trout present. Recommend a follow-up survey to identify the precise upstream extent of fish utilization and channel widths.
	3	3	3.1	NF	14	S3	A 1 km survey resulted in no fish being captured. A potential barrier to fish passage was located and is the break between Reaches 2 and 3.

3.6.2 Summary of fisheries inventory and stream classification (con't)

Stream name	Site no.	Reach no.	Avg. channel width (m)	Fish present	Avg. reach gradient (%)	Stream class	Comments (existing information, obstructions, barriers)
Rowley Creek tributary 1	NS	1	1.4	Assumed	<20 (TRIM)	S4	This stream is a low gradient reach that was dry at time of survey. No barriers to fish access were identified so fish utilization is assumed during higher flows.
	NS	2	NS	NF	>20 (TRIM)	(S4)	Steep gradient reach that drains a plateau wetland area. Gradient calculated from 1:20,000 TRIM is greater than 20% and is assumed a non fish-stream. Gradient measurement requires ground truthing to confirm non fish-stream status.

4.0 RECOMMENDATIONS

Additional stream inventory is recommended on all stream reaches where a preliminary stream classification was assigned. Due to the number of streams and the numerous tributaries in the study area, not all reaches could be given final stream classifications. Additional work can be divided into five stream survey types:

1. **M** = measurements of stream channel width and/or gradient are required to recommend final stream classification.

2. **D** = stream channel was dry at the time of the survey and requires follow-up survey during late spring/early summer to determine fish utilization when stream is flowing.

3. **B** = identification of fish barriers is required to confirm fish presence/absence.

4. **L** = a lake survey is recommended to determine fish presence/absence in a stream reach containing a lake. This will confirm fish presence/absence for the adjacent stream reaches.

5. **W** = a wetland classification is recommended for a specific area within the reach.

The following list summarizes the stream reaches that require follow-up survey work by watershed. The above codes are used to determine the type of survey work required. This should help in determining priority reaches for follow-up surveys and the appropriate time of year for the work. The summary table contained in Appendix 1 (at back of this report) also contains a column with the above re-survey codes.

1. Ashnola River tributaries

    - Duruisseau Creek tributary. 1 (M)
    - Easygoing Creek, Reach 3 (M)
    - Easygoing Creek tributary 7, 8 (M)
    - Easygoing Creek tributary 9 (W)

    - McBride Creek, Reach 2 (B)
    - Red Bridge Creek, Reach 3 (M)
    - Red Bridge Creek, Reach 5 (M, B, W)
    - Red Bridge Creek tributary 1 (M, B)

2. Nicola River tributaries

    - Nicola River tributary 1 (M)
    - Nicola River tributary 1.1 (M)

- Nicola River tributary 1.1b (M)

3. Okanagan Lake tributaries

    - Bellevue Creek, Reach 1, 3, 4 (M)
    - Gillard Creek, Reach 1, 2 (M)
    - Jack Creek Reach 3 (M)
    - Jack Creek tributary 1 (M, B)
    - Jack Creek tributary 2, Reach 3 (B)
    - Jack Creek tributary 2.1, Reach 1 (B)
    - Jack Creek tributary 2.2, Reach 1 (M, B)
    - Naramata Creek, Reach 3 (M)
    - Ratnip Creek tributary 1, Reach 1 (M)
    - Ratnip Creek tributary 2, 3 (D)
    - Ratnip Creek tributary 4 (W)

4. Shingle Creek and tributaries

    - June Creek (D, B)

5. Similkameen River tributaries

    - Bradshaw Creek, Reach 1 (D)
    - Coulthard Creek, Reach 1, 2 (M)
    - Robert Creek, Reach 1, 2, 3 (M, B)
    - Shoemaker Creek, Reach 1 (D)
    - Snehumption Creek, Reach 1, 2 (M)
    - Susap Creek, Reach 1, 2 (M)

6. Trout Creek tributaries

    - Bull Creek tributary 2, Reach 1, 2 (M)
    - Bull Creek tributary 3, Reach 2 (M, B)
    - Camp Creek, Reach 4 (B, W)
    - Chapman Creek, Reach 2, 3 (M, B)
    - Darke Creek, Reach 1 (M)
    - Isintok Creek tributary 2, Reach 2, 3 (M,B)
    - Kathleen Creek, Reach 2 (W)
    - Kathleen Creek tributary 1, 2, 4 (D)
    - Kirton Creek, Reach 1 (D)
    - Kirton Creek, Reach 2 (M,B)
    - Lost Chain Creek, Reach 3 (B)
    - Lost Chain Creek, Reach 4 (L/W)
    - Lost Chain Creek tributary 1, Reach 2, 3 (M, B)
    - Lost Chain Creek tributary 1a, 1b (M, B)
    - Rowley Creek, Reach 2 (M, B)
    - Rowley Creek tributary 1 (D, B)

5.0 REFERENCES

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Appendix 1a: Summary table of stream classification by reach (Ashnola River tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Duruisseau	96/09/16	1	8.2	5	No	RB	S2	WSR '96	
		2	7.2	6		NF	S5	WSR '96	
		3	5	15		NF	S5	WSR '96	
Duruisseau tributary 1	96/09/16	1	NS	NS	No	NF	(S5)	WSR '96	M
Easygoing	96/10/15	1	4.1	5	No	RB	S3	WSR '96	
		2	4.4	2		RB	S3	WSR '96	
		3	NS	NS		RB	(S3)	WSR/FISS	M
Easygoing tributary 1	96/07/30	1	NS	NS	No	RB	(S4)	WSR '96	M
		2	NS	NS		(NF)	(S6)	WSR '96	M, B
		3	0.9	2		NF	S6	WSR '96	
Easygoing tributary 6	96/09/10	1	2.5	8	No	RB	S3	WSR '96	
Easygoing tributary 7	96/09/10	1	NS	NS	No	RB	(S3)	WSR/FISS	M
Easygoing tributary 8	96/09/10	1	NS	NS	No	RB	(S3)	WSR/FISS	M
Easygoing tributary 9	96/09/16	1	1.7	5	No	RB	S3	WSR '96	W
McBride	96/09/16	1	5.1	3	No	RB	S2	WSR '96	
		2	4.9	9		NF	(S3)	WSR '96	B
Red Bridge	96/09/05	1	3.8	31	No	RB	S3	WSR '96	
		2	3.3	15		RB	S3	WSR '96	
		3	NS	2		RB	(S3)	WSR '96	M
		4	3.2	3		RB	S3	WSR '96	
		5	NS	NS		(RB)	(S3)	WSR '96	M, B, W
Red Bridge tributary 1	96/09/05	1	NS	NS	No	(RB)	(S3)	WSR '96	M, B

Appendix 1b: Summary table of stream classification by reach (Nicola River tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Inlet to Rat Lake	96/07/26	1	1.0	2	No	(RB)	S4	WSR '96	
Nicola tributary 1	96/07/26	1	NS	NS	No	RB	(S3)	WSR '96	M
Nicola tributary 1.1	96/07/26	1	NS	NS	No	RB	(S3)	WSR '96	M
Nicola tributary 1.1a	96/07/26	1	NS	NS	No	NF	No stream	WSR '96	
Nicola tributary 1.1b	96/07/26	1	NS	2	No	RB	(S3)	WSR '96	M
Nicola tributary 1.2	96/07/26	1	2.9	1	No	RB	S3	WSR '96	
		2	2.9	1		NF	S6	WSR '96	

Appendix 1c: Summary table of stream classification by reach (Okanagan Lake tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Arawana	96/09/16	1	1.4	10	No	(RB)	S4	WSR '96	
		2	NS	NS		NF	S6	WSR '96	
Bellevue	96/09/12	1	NS	NS	No	RB, CAS	(S2)	WSR/FISS	M
		2	7.5	7		NF	S5	WSR '96	
		3	NS	NS		NF	(S5)	WSR '96	M
		4	NS	NS		NF	(S5)	WSR '96	M
Chute	96/09/18	1	5.4	28	Yes	RB, EB	S2	WSR '96	
		2	5.7	6		RB	S2	WSR '96	
		3	6.1	3		RB	S2	WSR '96	
		4	5.4	6		RB	S2	WSR '96	
		5	4.1	4		RB	S3	WSR '96	
		6	2.4	11		NF	S3	WSR '96	
Gillard	96/09/12	1	NS	NS	No	NF	(S5)	WSR '96	M
		2	NS	NS		NF	(S5)	WSR '96	M
Jack	96/08/28	1	3.6	3	Yes	RB	S3	WSR '96	
	96/09/25	2	4.1	11		RB	S3	WSR '96	
	96/08/28	3	NS	NS		RB	(S3)	WSR '96	M
	96/08/28	4	2.4	6		NF	S3	WSR '96	
Jack tributary 1		1	NS	NS	Yes	NF	(S3)	WSR '96	M, B
Jack tributary 2	96/08/28	1	3.6	8	Yes	RB	S3	WSR '96	
		2	2.7	8		RB	S3	WSR '96	
		3	1.9	1		(RB)	(S3)	WSR '96	B
Jack tributary 2.1	96/09/25	1	3.2	NS	Yes	(RB)	S3	WSR '96	B
		2	NS	NS		(NF)	(S3)	WSR '96	
Jack tributary 2.2	96/09/25	1	NS	NS	Yes	(NF)	(S3)	WSR '96	M, B
Naramata	96/09/16	1	NS	NS	Yes	RB, KO*	S2	WSR/FISS	
		2	5.9	26		RB	S2	WSR '96	
		3	NS	NS		NF	(S2)	WSR '96	M
Nuttall	96/09/18	1	1.4	1	Yes	NF	S4	WSR '96	
Ratnip	96/09/19	1	NS	NS	Yes	RB*	S3	WSR/FISS	
		2	3.7	4		RB*	S3	WSR/FISS	
Ratnip tributary 1	96/09/19	1	NS	NS	Yes	(RB)	(S3)	WSR '96	M
		2				unknown	wetland	WSR '96	
Ratnip tributary 2	96/09/19	1	1.3	NS	Yes	(RB)	(S4)	WSR '96	D
Ratnip tributary 3	96/09/19	1	1.8	NS	Yes	(RB)	(S3)	WSR '96	D
Ratnip tributary 4	96/09/19	1	NS	NS	Yes	RB*	(S3)	WSR/FISS	W
Trepanier	96/08/28	1	NS	NS	Yes	RB, KO*	S2	WSR/FISS	
		2	NS	NS		(RB)	S2	WSR '96	
		3	NS	NS		(RB)	S2	WSR '96	
		4	NS	NS		(RB)	S2	WSR '96	
		5	9.0	2		RB	S2	WSR '96	
		6	NS	NS		(RB)	(S2)	WSR '96	M, B
		7	NS	NS		(RB)	(S2)	WSR '96	M, B

Appendix 1d: Summary table of stream classification by reach (Shingle Creek and tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
June	96/08/28	1	4.2	10	Yes	(RB)	S3	WSR '96	D, B
Shingle	96/08/30	1	NS	NS	Yes	RB, KO*	S2	WSR/FISS	
		2	6.9	2		RB	S2	WSR '96	
		3	5.8	5		RB	S2	WSR '96	
		4	4.4	12		RB	S3	WSR '96	
		5	4.2	6		RB	S3	WSR '96	
		6	3.5	10		NF	S3	WSR '96	
Skualow	96/08/30	1	4.4	12	Yes	RB	S3	WSR '96	
		2	4.2	19		RB	S3	WSR '96	
		3	4.1	25		NF	S3	WSR '96	

Appendix 1e: Summary table of stream classification by reach (Similkameen River tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Bradshaw	96/09/04	1	6.0	10	No	(RB)	S2	WSR '96	D
		2	5.8	19		NF	S5	WSR '96	
Cedar	96/09/04	1	5.9	6	No	RB, EB	S2	WSR '96	
		2	5.3	13		RB, EB	S2	WSR '96	
		3	5.4	30		NF	S5	WSR '96	
Coulthard		1	NS	NS	No	NF	(S5)	WSR/FISS	M
Loak	96/09/04	1	3.9	NS	No	NF	S5	WSR '96	
Robert	96/09/06	1	NS	NS	No	(RB)	(S2)	WSR '96	M
		2	NS	NS		NF	(S5)	WSR '96	M, B
		3	NS	NS		NF	(S5)	WSR/FISS	M
Shinish	96/09/20	1	5.0	5	No	RB	S3	WSR '96	
		2	4.9	4		RB	S3	WSR '96	
		3	3.5	5		RB	S3	WSR '96	
Shinish tributary 1	96/09/20	1	3.2	4	No	RB	S3	WSR '96	
Shinish tributary 2	96/09/20	1	NS	NS	No	NF	No stream	WSR '96	
Shinish tributary 3	96/09/20	1	NS	NS	No	NF	No stream	WSR '96	
Shinish tributary 4	96/09/20	1	NS	NS	No	NF	No stream	WSR '96	
Shoemaker	96/09/04	1	4.0	10	No	(RB)	S3	WSR '96	D
		2	3.9	22		NF	S5	WSR '96	
Shoudy	96/09/06	1	NS	NS	No	(RB)	(S2)	WSR '96	M, B
		2	NS	NS		NF	(S5)	WSR '96	M, B
Snehumption	96/09/06	1	NS	NS	No	RB, CRH	(S2)	WSR '96	M
		2	NS	NS		NF	(S5)	WSR '96	M, B
		3	5.4	11		NF	S5	WSR '96	
Susap	96/09/06	1	NS	NS	No	RB, LNC, MW	(S2)	WSR/FISS	M
		2	NS	NS		NF	(S5)	WSR '96	M, B
		3	6.1	16		NF	S5	WSR '96	

Appendix 1f: Summary table of stream classification by reach (Trout Creek tributaries)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Bull	96/09/25	1	5.3	8	Yes	RB	S2	WSR '96	
		2	4.0	5		RB	S3	WSR '96	
		3	2.0	3		RB	S3	WSR '96	
Bull tributary 1	96/09/25	1	NS	NS	Yes	NF	No stream	WSR '96	
Bull tributary 2	96/09/25	1	NS	NS	Yes	assumed	(S3)	WSR '96	M
		2	2.1	NS		NF	S3	WSR '96	
Bull tributary 3	96/09/25	1	1.9	16	Yes	RB	S3	WSR '96	
		2	NS	NS		(RB)	(S3)	WSR '96	M, B
Camp	96/09/05	1	4.4	2	Yes	RB, EB	S3	WSR '96	
		2	3.4	1		RB, EB	S3	WSR '96	
		3	1.5	1		RB, EB	S3	WSR '96	
		4	2.1	3		(RB)	S3	WSR '96	B, W
Camp tributary 1	96/09/05	1	1.3	33	Yes	NF	S4	WSR '96	
Camp tributary 2	96/09/05	1	3.7	5	Yes	RB, EB	S3	WSR '96	
		2	3.1	15		NF	S3	WSR '96	
Camp tributary 2a	96/09/05	1	2.8	13	Yes	NF	S3	WSR '96	
Chapman	96/09/05	1	3.4	6	Yes	RB	S3	WSR '96	
		2	NS	NS		(RB)	(S3)	WSR/FISS	M
		3	NS	NS		(RB)	(S3)	WSR/FISS	M, B
Darke	96/08/27	1	NS	NS	Yes	RB, LNC	(S3)	WSR/FISS	M
		2	3.7	1		EB	S3	WSR '96	
		3	2.7	11		RB, EB	S3	WSR '96	
		4	1.3	2		RB	S4	WSR/FISS	
Darke tributary 1	96/08/27	1	1.3	14	Yes	(RB)	S4	WSR '96	
Fenton	96/08/30	1	NS	49	Yes	NF	(S3)	WSR '96	M
		2	2.7	4		NF	S3	WSR '96	
Isintok	96/09/10	1	4.7	10	Yes	RB	S3	WSR '96	
		2	5.3	5		RB	S2	WSR '96	
		3	4.7	6		RB	S3	WSR '96	
		4	1.5	1		RB	S3	WSR '96	
Isintok tributary 1	96/09/10	1	1.1	>40%	Yes	NF	S4	WSR '96	
		2	NS	NS		NF	S4	WSR '96	
Isintok tributary 2	96/09/10	1	1.9	11	Yes	RB	S3	WSR '96	
		2	1.4	NS		(RB)	S4	WSR '96	B
		3	NS	NS		NF	(S4)	WSR '96	M, B
Kathleen	96/09/09	1	2.3	2	Yes	RB	S3	WSR '96	
		2	1.9	6		RB	S3	WSR '96	W
		3	NS	NS		NF	No stream	WSR '96	
Kathleen tributary 1	96/09/09	1	1.8	NS	Yes	(RB)	S3	WSR '96	D
Kathleen tributary 2	96/09/09	1	1.0	NS	Yes	(RB)	S4	WSR '96	D
Kathleen tributary 3	96/09/09	1	NS	NS	Yes	NF	No stream	WSR '96	
Kathleen tributary 4	96/09/09	1	1.5	NS	Yes	(RB)	S3	WSR '96	D
Kirton	96/08/30	1	2.0	8	Yes	(RB)	S3	WSR '96	D
		2	NS	26		NF	(S3)	WSR '96	M, B
		3	2.3	5		NF	S3	WSR '96	

Appendix 1f: Summary table of stream classification by reach (Trout Creek tributaries con't)

Stream Name	Date yymmdd	Stream Reach	Channel Width (m)	Stream Gradient (%)	CW	Fish Species Present	Stream Class	Reference Source	Survey Type Required
Lost Chain	96/08/30	1	5.6	10	Yes	RB, EB	S2	WSR '96	
	96/09/04	2	6.7	18		RB	S2	WSR '96	
	96/09/09	3	3.9	11		RB	S3	WSR '96	B
	96/09/24	4	1.5	2		(RB)	S3	WSR '96	L, W
Lost Chain tributary 1	96/09/04	1	4.1	8	Yes	RB	S3	WSR '96	
	96/09/09	2	NS	NS		(RB)	(S3)	WSR '96	M
	96/09/10	3	2.6	3		(RB)	S3	WSR '96	B
Lost Chain tributary 1a	96/09/10	1	NS	NS	Yes	(RB)	(S3)	WSR '96	M, B
		2	NS	18		NF		WSR '96	
Lost Chain tributary 1b	96/09/10	1	NS	NS	Yes	(RB)	(S3)	WSR '96	M, B
Rowley	96/09/03	1	2.8	3	Yes	RB, EB	S3	WSR '96	
	96/09/24	2	NS	NS		RB	(S3)	WSR '96	M, B
	96/09/24	3	3.1	14		NF	S3	WSR '96	
Rowley tributary 1		1	1.4	NS	Yes	(RB)	S4	WSR '96	D, B
		2	NS	NS		NF	(S4)	WSR '96	B

Appendix 2a: Bellevue Creek stream flow summary data

Watershed code: 310-7894
Source: Water Survey of Canada Station No. 08NM035 (near Okanagan Mission)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1920	January						
	February						
	March						
	April						
	May		1.52				
	June		2.02				
	July		0.458				
	August						
	September						
	October						
	November						
	December						
1921	January						
	February						
	March						
	April						
	May		2.72		7.08 (May 20)		
	June		2.44				
	July		0.240				
	August						
	September						
	October						
	November						
	December						
1950	January						
	February						
	March						
	April						
	May				5.78 (May 15)		
	June		2.54				
	July		0.180				
	August		0.082				
	September		0.033				
	October						
	November						
	December						

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1951	January						
	February						
	March						
	April						
	May		3.64		7.59 (May 11)		
	June		0.779				
	July		0.154				
	August		0.009				
	September		0.013				
	October						
	November						
	December						
1952	January						
	February						
	March						
	April		1.54		4.59 (Apr. 27)		
	May		2.86				
	June		1.08				
	July		0.321				
	August		0.034				
	September		0.018				
	October						
	November						
	December						
1953	January						
	February						
	March						
	April		0.225				
	May		1.85		3.51 (May 06)		
	June		1.38				
	July		0.299				
	August		0.036				
	September		0.032				
	October						
	November						
	December						
1954	January						
	February						
	March						
	April		0.174				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1954	May		2.06		3.74 (May 16)		
	June		1.27				
	July		0.336				
	August		0.110				
	September		0.140				
	October						
	November						
	December						
1955	January						
	February						
	March						
	April						
	May		1.96				
	June		2.17		3.43 (June 5)		
	July		0.551				
	August		0.019				
	September		0.054				
	October						
	November						
	December						
1956	January						
	February						
	March						
	April						
	May		2.78		5.64 (May 20)		
	June		1.14				
	July		0.151				
	August		0.121				
	September		0.032				
	October						
	November						
	December						
1957	January						
	February						
	March						
	April						
	May		3.07		4.84 (May 22)		
	June		0.388				
	July		0.073				
	August		0.037				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1957	September		0.018				
	October						
	November						
	December						
1968	January						
	February						
	March		0.039				
	April		0.069				
	May		2.30				
	June		3.56		8.69 (June 8)		11.4 (June 8)
	July		0.807				
	August		0.061				
	September		0.138				
	October		0.146				
	November		0.131				
	December						
1969	January		0.050	0.505			
	February		0.043				
	March		0.038				
	April		1.23				
	May		3.71		6.65 (May 10)		8.07 (May 10)
	June		0.570				
	July		0.132				
	August		0.010			.003 (Aug. 28)	
	September		0.021				
	October		0.043				
	November		0.047				
	December		0.018				
1970	January		0.019	0.192			
	February		0.026				
	March		0.030				
	April		0.034				
	May		1.37		3.48 (May 22)		4.33 (May 25)
	June		0.692				
	July		0.051				
	August		0.006			.002 (Aug. 27)	
	September		0.009				
	October		0.018				
	November		0.017				
	December		0.013				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1971	January		0.008	0.414			
	February		0.022				
	March		0.023				
	April		0.063				
	May		2.82		9.49 (May 13)		
	June		1.57				
	July		0.261				
	August		0.012			.003 (Aug. 29)	
	September		0.013				
	October		0.016				
	November		0.019				
	December		0.015				
1972	January		0.013	0.667			
	February		0.018				
	March		0.050				
	April		0.193				
	May		4.71		11.2 (May 31)		
	June		2.63				
	July		0.214				
	August		0.021				
	September		0.022			.006 (Sept. 5)	
	October		0.041				
	November		0.036				
	December		0.013				
1973	January		0.014	0.184			
	February		0.013				
	March		0.020				
	April		0.069				
	May		1.41		4.19 (May 17)		6.34 (May 16)
	June		0.479				
	July		0.054				
	August		0.002			.001(Aug. 9)	
	September		0.008				
	October		0.051				
	November		0.039				
	December		0.032				
1974	January		0.025	0.556			
	February		0.029				
	March		0.038				
	April		0.324				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
	May		2.73		6.88 (May 25)		
	June		3.12				7.82 (June 4)
	July		0.308				
	August		0.037				
	September		0.008			.004 (Sept. 26)	
	October		0.011				
	November		0.016				
	December		0.012				
1975	January		0.009	0.270			
	February		0.008				
	March		0.014				
	April		0.032				
	May		0.985				
	June		1.95		4.70 (June 2)		5.35 (June 2)
	July		0.127				
	August		0.024			.005 (Aug. 14)	
	September		0.016				
	October		0.018				
	November		0.029				
	December		0.032				
1976	January		0.009	0.270			
	February		0.008			0.014 (Feb. 5)	
	March		0.014				
	April		0.032				
	May		0.985				
	June		1.95		5.86 (June 16)		6.23 (June 16)
	July		0.127				
	August		0.024				
	September		0.016				
	October		0.018				
	November		0.029				
	December		0.032				
1977	January		0.020	0.171			
	February		0.021				
	March		0.026				
	April		0.312				
	May		1.08		2.94 (May 3)		4.25 (May 2)
	June		0.498				
	July		0.038				
	August		0.005			.001 (Aug. 13)	

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
	September		0.010				
	October		0.015				
	November		0.017				
	December		0.011				
1978	January		0.012	0.171			
	February		0.019				
	March		0.040				
	April		0.206				
	May		1.91				
	June		1.88		4.70 (June 5)		5.58 (June 4)
	July		0.140				
	August		0.020			.003 (Aug. 9)	
	September		0.172				
	October		0.076				
	November		0.054				
	December		0.036				
1979	January		0.015	0.189			
	February		0.016				
	March		0.025				
	April		0.074				
	May		1.56		3.21 (May 24)		5.18 (May 23)
	June		0.395				
	July		0.090				
	August		0.013			.001 (Aug. 14)	
	September		0.024				
	October		0.016				
	November		0.013				
	December		0.009				
1980	January		0.011	0.327		0.010 Jan. 26)	
	February		0.012				
	March		0.016				
	April		0.541				
	May		1.83		3.65 (May 6)		4.53 (May 6)
	June		1.08				
	July		0.190				
	August		0.024				
	September		0.075				
	October		0.042				
	November		0.052				
	December		0.043				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1981	January		0.042	0.531			
	February		0.035				
	March		0.045				
	April		0.244				
	May		2.71		7.31 (May 25)		12.7 (May 25)
	June		1.61				
	July		1.10				
	August		0.134				
	September		0.037			.010 (Sept. 18)	
	October		0.123				
	November		0.159				
	December		0.082				
1982	January		0.047	0.519			
	February		0.046				
	March		0.041			.033 (Mar. 22)	
	April		0.085				
	May		2.08		4.39 (May 25)		
	June		1.99				
	July		1.41				5.05 (July 5)
	August		0.093				
	September		080				
	October		0.152				
	November		0.099				
	December		0.062				
1983	January		0.045	0.547			
	February		0.049				
	March		0.128				
	April		0.746				
	May		3.07		5.07 (May 30)		5.85 (May 30)
	June		1.39				
	July		0.726				
	August		0.134				
	September		0.055				
	October		0.037			.023 (Oct. 16)	
	November		0.115				
	December		0.042				
1984	January		0.053	0.515			
	February		0.042				
	March		0.062				
	April		0.235				

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1984	May		1.58				
	June		3.49		7.19 (June 7)		8.87 (June 7)
	July		0.577				
	August		0.059				
	September		0.030				
	October		0.035			.013 (Oct. 8)	
	November		0.028				
	December		0.016				
1985	January		0.013	0.223			
	February		0.013				
	March		0.015				
	April		0.112				
	May		1.47		3.22 (May 22)		3.91 (May 21)
	June		0.639				
	July		0.021			.001 (July 29)	
	August		0.010				
	September		0.068				
	October		0.166				
	November		0.097				
	December		0.038				
1986	January		0.030				
	February		0.037				
	March		0.127				
	April		0.543				
	May		1.98		5.30 (May 29)		7.09 (May 26)
	June		1.19				
	July						
	August						
	September						
	October						
	November						
	December						

Appendix 2b: Bull Creek stream flow summary data

Watershed code: 310-6509-341

Source: Water Survey of Canada Station No. 08NM133 (near Crump)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Daily mean discharges (m^3/s)	Daily maximum flows(m^3/s)	Daily minimum flows(m^3/s)	Maximum instantaneous flows(m^3/s)
1965	January						
	February						
	March						
	April						
	May	29			0.900		0.951
	June		0.445				
	July		0.097				
	August		0.060				
	September		0.035				
	October		0.034				
	November	23	0.035			.097	
	December		0.027				
1966	January		0.020	0.047			
	February		0.018				
	March	9	0.017			0.008	
	April		0.058				
	May	8	0.191		0.354		
	June		0.89				
	July		0.085				
	August		0.022				
	September		0.012				
	October		0.022				
	November	23	0.016				
	December		0.014				
1967	January						
	February						
	March						
	April						
	May						
	June		0.445				
	July		0.097				
	August		0.060				
	September	19	0.035			0.006	
	October		0.034				
	November		0.035				
	December		0.027				
Year	**Month**	**Day**	**Monthly mean discharges**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous**

			(m^3/s)				flows(m^3/s)
1968	January		0.012				
	February	9	0.011			0.010	
	March						
1968	April		0.034				
	May		0.485				
	June	8	0.561		1.45		2.14
	July		0.132				
	August		0.035				
	September		0.023				
	October		0.021				
	November		0.019				
	December						
1969	January		0.018	0.080			
	February		0.024				
	March		0.026				
	April		0.050				
	May	14	0.502		0.818		0.909
	June		0.182				
	July		0.059				
	August	25	0.009			0.005	
	September		0.014				
	October		0.026				
	November		0.027				
	December		0.015				
1970	January		0.015	0.039			
	February		0.015				
	March		0.015				
	April		0.022				
	May	26	0.151		0.345		0.399
	June		0.149				
	July		0.032				
	August	23	0.006			0.001	
	September		0.012				
	October		0.018				
	November		0.018				
	December		0.010				
1971	January	1	0.010	0.160		0.010	
	February		0.010				
	March		0.012				
	April		0.040				
	May		0.882				
	June	3	0.127		1.92		2.77
Year	**Month**	**Day**	**Monthly mean discharges (m^3/s)**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous flows(m^3/s)**

	July		0.022				
1971	August		0.015				
	September		0.015				
	October		0.024				
	November		0.021				
	December		0.019				
1972	January		0.020	0.371			
	February		0.021				
	March		0.047				
	April		0.093				
	May	31	1.86		4.36		5.38
	June		1.86				
	July		0.323				
	August		0.084				
	September		0.039				
	October		0.034				
	November		0.037				
	December	11	0.020			0.017	
1973	January		0.019	0.049			
	February		0.018				
	March		0.016				
	April		0.030				
	May	17	0.245		0.643		0.547
	June		0.146				
	July		0.039				
	August	15	0.009			0.007	
	September		0.010				
	October		0.021				
	November		0.016				
	December		0.016				
1974	January	5	0.018	0.275		0.012	
	February		0.019				
	March		0.023				
	April		0.175				
	May		1.00				
	June	14	1.61		3.03		3.34
	July		0.291				
	August		0.071				
	September		0.022				
	October		0.022				
	November		0.023				
	December	11	0.023			0.017	
Year	**Month**	**Day**	**Monthly mean discharges (m^3/s)**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous flows(m^3/s)**
1975	January		0.021	0.114			

	February		0.021				
	March		0.022				
	April		0.028				
	May	31	0.399				
	June		0.642		1.47		1.53
	July		0.110				
	August		0.037				
	September		0.023				
	October		0.021				
	November		0.019				
	December	2	0.020			0.010	
1976	January		0.018	0.163			
	February		0.0231				
	March	3	0.017			0.013	
	April		0.039				
	May	27	0.736		1.18		1.53
	June		0.606				
	July		0.172				
	August		0.157				
	September		0.071				
	October		0.044				
	November		0.038				
	December		0.031				
1977	January		0.025	0.371			
	February		0.025				
	March		0.025				
	April	26	0.065		0.221		0.241
	May		0.155				
	June		0.110				
	July		0.040				
	August	19	0.012			0.005	
	September		0.011				
	October		0.016				
	November		0.016				
	December		0.020				
1978	January	2	0.020	0.371		0.014	
	February		0.020				
	March		0.025				
	April		0.077				
	May		0.598				
	June	5	0.728		1.86		2.16
Year	**Month**	**Day**	**Monthly mean discharges (m^3/s)**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous flows(m^3/s)**
1978	July		0.148				
	August		0.037				

	September		0.056				
	October		0.034				
	November		0.030				
	December		0.027				
1979	January		0.018	0.068			
	February		0.017				
	March		0.019				
	April		0.038				
	May	23	0.378		0.582		0.651
	June		0.169				
	July		0.062				
	August	12	0. 022			0.011	
	September		0.025				
	October		0.020				
	November		0.016				
	December		0.022				
1980	January	8	0.024	0.175		0.018	
	February		0.034				
	March		0.027				
	April		0.133				
	May	12	0.850		1.24		1.70
	June		0.588				
	July		0.250				
	August		0. 067				
	September		0.053				
	October		0.031				
	November		0.031				
	December		0.025				
1981	January		0.024	0.159			
	February	8	0.020			0.019	
	March		0.023				
	April		0.071				
	May	25	0.695		1.86		2.22
	June		0.558				
	July		0.251				
1981	August		0. 091				
	September		0.047				
	October		0.051				
	November		0.041				
	December		0.029				
Year	**Month**	**Day**	**Monthly mean discharges (m^3/s)**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous flows(m^3/s)**
1982	January		0.027	0.173			
	February		0.028				
	March	6	0.024			0.020	

	April		0.039				
	May		0.473				
	June	3, 28	0.722		1.33		1.91
	July		0.425				
	August		0.116				
	September		0.078				
	October		0.057				
	November		0.042				
	December		0.039				
1983	January		0.027	0.173			
	February		0.028				
	March		0.024				
	April		0.039				
	May	25,24	0.473		0.0883		0.0934
	June		0.722				
	July		0.425				
	August		0.116				
	September		0.078				
	October		0.057				
	November		0.042				
	December	3	0.039			0.020	
1984	January		0.042	0.133			
	February		0.034				
	March		0.041				
	April		0.098				
	May		0.369				
	June	7	0.664		1.12		1.37
	July		0.163				
	August		0.076				
	September		0.033				
	October	18	0.037			0.015	
	November		0.027				
	December		0.019				
1985	January		0.019	0.099			
	February	20	0.014			0.013	
	March		0.015				
	April		0.134				
	May	29	0.504		0.850		1.02
	June		0.264				
	July		0.051				
	August		0.019				
Year	**Month**	**Day**	**Monthly mean discharges (m^3/s)**	**Daily mean discharges (m^3/s)**	**Daily maximum flows(m^3/s)**	**Daily minimum flows(m^3/s)**	**Maximum instantaneous flows(m^3/s)**
	September		0.037				
	October		0.047				

	November		0.044				
	December		0.030				
1986	January		0.029				
	February		0.029				
	March		0.045				
	April		0.180				
	May	26	0.863		2.05		2.40
	June		0.500				
	July		0.163				
	August						
	September						
	October	18					
	November						
	December						

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 2c: Camp Creek stream flow summary data

Watershed code: 310-6509-539

Source: Water Survey of Canada Station No. 08NM134 (near Thirsk)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1965	January						
	February						
	March						
	April						
	May						
	June						
	July		0.104				
	August		0.074				
	September		0.056				
	October		0.047				
	November		0.048				
	December		0.042				
1966	January		0.037	0.080			
	February		0.033				
	March	17	0.019			0.011	
	April		0.100				
	May	7	0.408		0.818		0.920
	June		0.145				
	July		0.069				
	August		0.035				
	September		0.023				
	October		0.028				
	November		0.030				
	December		0.028				
1967	January	1	0.031	0.136		0.028	
	February		0.032				
	March		0.034				
	April		0.058				
	May	7	0.534				
	June		0.590		1.39		1.52
	July		0. 123				
	August		0.059				
	September		0.045				
	October		0.046				
	November		0.046				
	December		0.035				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1968	January		0.042				
	February		0.046				
	March	17	0.090				
	April		0.113				
	May	20	0.623		1.32		1.47
	June		0.458				
	July		0.138				
	August		0.072				
	September		0.056				
	October		0.052				
	November						
	December						
1969	January	1	0.046	0.139		0.040	
	February		0.046				
	March		0.052				
	April		0.186				
	May	12	0.753		1.33		1.37
	June		0.204				
	July		0.095				
	August		0.054				
	September		0.052				
	October		0.057				
	November		0.059				
	December		0.048				
1970	January		0.038	0.076			
	February		0.037				
	March		0.039				
	April		0.055				
	May	26	0.342		0.691		0.756
	June		0.195				
	July		0.045				
	August	27	0.027			0.021	
	September		0.030				
	October		0.036				
	November		0.037				
	December		0.027				
1971	January		0.033	0.179			
	February	5	0.031			0.028	
	March		0.034				
	April		0.097				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1971	May	13	0.930		1.72		2.07
	June		0.615				
	July		0.162				
	August		0.053				
	September		0.046				
	October		0.049				
	November		0.046				
	December		0.043				
1972	January		0.042	0.353			
	February		0.040				
	March	2	0.063			0.037	
	April		1.36				
	May	30,29	1.72		3.43		3.96
	June		1.51				
	July		0.301				
	August		0.123				
	September		0.090				
	October		0.083				
	November		0.069				
	December		0.062				
1973	January		0.054	0.077			
	February		0.051				
	March		0.049				
	April		0.078				
	May	16	0.325		0.680		0.776
	June		0.142				
	July		0.053				
	August	8	0.032			0.019	
	September		0.035				
	October		0.039				
	November		0.033				
	December		0.031				
1974	January	5	0.036	0.232		0.024	
	February		0.038				
	March		0.045				
	April		0.170				
	May		0.786				
	June	12	0.108		1.81		2.05
	July		0.238				
	August		0.112				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1974	September		0.095				
	October		0.061				
	November		0.061				
	December		0.056				
1975	January		0.052	0.170			
	February		0.054				
	March		0.056				
	April		0.077				
	May		0.678				
	June	2,1	0.683		1.67		1.79
	July		0.155				
	August		0.077				
	September		0.061				
	October		0.050				
	November		0.044				
	December	15	0.044			0.028	
1976	January		0.042	0.168			
	February		0.044				
	March	2	0.045			0.023	
	April		0.084				
	May	10,9	0.830		1.36		1.49
	June		0.397				
	July		0.138				
	August		0.131				
	September		0.095				
	October		0.093				
	November		0.057				
	December		0.052				
1977	January		0.046	0.069			
	February		0.042				
	March		0.046				
	April		0.105				
	May	3	0.248		0.328		0.362
	June		0.136				
	July		0.049				
	August		0.028				
	September	12	0.028			0.022	
	October		0.029				
	November		0.031				
	December		0.034				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1978	January	29	0.029	0.171		0.026	
	February		0.032				
	March		0.090				
	April		0.216				
	May	21	0.689		1.41		1.55
	June		0.546				
	July		0.130				
	August		0.070				
	September		0.076				
	October		0.060				
	November		0.054				
	December		0.049				
1979	January		0.041	0.110			
	February		0.042				
	March		0.049				
	April		0.172				
	May	4	0.503		0.915		0.932
	June		0.165				
	July		0.076				
	August		0.041				
	September		0.037				
	October		0.036				
	November		0.027				
	December	25	0.017			0.014	
1980	January	7	0.015	0.110		0.013	
	February		0.022				
	March		0.024				
	April		0.202				
	May	6	0.505		0.901		0.980
	June		0.230				
	July		0.120				
	August		0.053				
	September		0.041				
	October		0.036				
	November		0.037				
	December		0.035				
1981	January		0.043	0.143			
	February	9	0.042			0.031	
	March		0.051				
	April		0.129				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1981	May	21,25	0.602		1.19		1.48
	June		0.338				
	July		0.217				
	August		0.100				
	September		0.049				
	October		0.047				
	November		0.045				
	December		0.042				
1982	January		0.045	0.183			
	February		0.054				
	March	6	0.044			0.038	
	April		0.099				
	May	25	0.776		1.45		1.53
	June		0.531				
	July		0.288				
	August		0.110				
	September		0.071				
	October		0.051				
	November		0.055				
	December		0.054				
1983	January		0.053	0.185			
	February		0.053				
	March		0.083				
	April		0.320				
	May	24	0.868		1.51		2.01
	June		0.297				
	July		0.163				
	August		0.088				
	September		0.079				
	October		0.067				
	November		0.076				
	December	3	0.067			0.041	
1984	January		0.090	0.207			
	February		0.076				
	March		0.121				
	April		0.303				
	May		0.496				
	June	14	0.906		1.58		1.80
	July		0.172				
	August		0.087				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1984	September		0.064				
	October		0.063				
	November		0.061				
	December	19	0.055			0.049	
1985	January		0.053	0.115			
	February		0.043				
	March		0.042				
	April		0.191				
	May	20	0.611		1.58		1.92
	June		0.189				
	July		0.050				
	August		0.031			0.027	
	September		0.039				
	October		0.042				
	November		0.044				
	December		0.041				
1986	January		0.036	0.149			
	February	22	0.035			0.031	
	March		0.067				
	April		0.274				
	May	29,28	0.662		2.02		2.59
	June		0.361				
	July		0.103				
	August		0.051				
	September		0.049				
	October		0.049				
	November		0.050				
	December		0.049				
1987	January		0.044	0.104			
	February		0.042				
	March		0.054				
	April		0.270				
	May	1	0.538		1.67		2.14
	June		0.104				
	July		0.049				
	August		0.030				
	September		0.026				
	October	8	0.025			0.021	
	November		0.028				
	December		0.029				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1988	January		0.027	0.068			
	February		0.026				
	March		0.031				
	April	17	0.175				0.795
	May	13	0.237		0.552		
	June		0.117				
	July		0.060				
	August		0.031				
	September	18	0.023			0.018	
	October		0.027				
	November		0.029				
	December		0.030				

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 2d: Chute Creek stream flow summary data

Watershed code: 310-6820

Source: Water Survey of Canada Station No. 08NM007 (near Naramata)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1920	January						
	February						
	March						
	April						
	May	12	1.45		2.58		
	June		0.690				
	July	12	0.060			0.017	
	August		0.026				
	September		0.034				
	October						
	November						
	December						
1921	January						
	February						
	March						
	April						
	May	16	2.52		7.36		
	June		1.02				
	July	22	0.126			0.014	
	August		0.032				
	September		0.034				
	October						
	November						
	December						
1922	January						
	February						
	March						
	April						
	May		2.42				
	June		0.668				
	July						
	August						
	September						
	October						
	November						
	December						

Appendix 2e: Darke Creek stream flow summary data

Watershed code: 310-6509-235

Source: Water Survey of Canada Station No. 08NM025 (at Meadow Valley)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1921	January						
	February						
	March						
	April						
	May	25	0.274		0.878		
	June		0.198				
	July		0.073				
	August						
	September						
	October						
	November						
	December						

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 2f: Jack Creek stream flow summary data

Watershed code: 310-6509-235

Source: Water Survey of Canada Station No. 08NM013 (at Mouth)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1919	January						
	February						
	March						
	April						
	May						
	June						
	July	12	0.019			0.003	
	August		0.003				
	September		0.003				
	October						
	November						
	December						

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 2g: Shingle Creek stream flow summary data

Watershed code: 310-6160

Source: Water Survey of Canada Station No. 08NM150 (at Mouth)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1969	January						
	February						
	March						
	April						
	May						
	June						
	July	28	0.114			0.0	
	August		0.004				
	September		0.029				
	October		0.070				
	November		0.125				
	December		0.075				
1970	January		0.064	0.149			
	February		0.108				
	March		0.113				
	April		0.079				
	May	26	0.569		2.83		
	June		0.844				
	July	5	0.002			0.0	
	August		0.0				
	September		0.0				
	October		0.0				
	November		0.006				
	December		0.006				
1971	January	2	0.019	0.528		0.0	
	February		0.048				
	March		0.042				
	April		0.025				
	May	13	2.36		6.48		
	June		3.27				
	July		0.360				
	August		0.0				
	September		0.0				
	October		0.040				
	November		0.089				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1971	December		0.078				
1972	January	2	0.127	0.528		0.0	
	February		0.196				
	March		0.303				
	April		0.438				
	May	31	5.68		15.9		
	June						
	July						
	August						
	September						
	October						
	November						
	December						
1977	January						
	February						
	March						
	April						
	May						
	June						
	July						
	August						
	September						
	October						
	November		0.050				
	December		0.051				
1978	January		0.040	0.638			
	February		0.063				
	March		0.161				
	April		0.296				
	May		1.54				
	June	5	3.96		11.0		
	July	25	0.557			0.0	
	August		0.012				
	September		0.389				
	October		0.248				
	November		0.252				
	December		0.158				
1979	January		0.133	0.225			
	February		0.140				
	March		0.181				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1979	April		0.166				
	May	24	1.28		4.08		
	June		0.399				
	July	4	0.022			0.0	
	August		0.001				
	September		0.041				
	October		0.074				
	November		0.128				
	December		0.121				
1980	January		0.101				
	February		0.109				
	March		0.134				
	April		0.404				
	May	6	3.99		7.15		
	June		2.00				
	July	30	0.389			0.0	
	August		0				
	September		0.045				
	October						
	November						
	December						

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 2h: Trepanier Creek stream flow summary data

Watershed code: 310-7422

Source: Water Survey of Canada Station No. 08NM155 (at Mouth)*

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1969	January						
	February						
	March						
	April						
	May						
	June						
	July		0.389				
	August		0.074				
	September	10	0.092			0.006	
	October		0.136				
	November		0.139				
	December		0.122				
1970	January		0.052	0.439			
	February		0.102				
	March		0.216				
	April		0.307				
	May	22	2.92		6.29		
	June		1.25				
	July		0.087				
	August	6	0.003			0.0	
	September		0.049				
	October		0.100				
	November		0.132				
	December		0.013				
1971	January	28	0.012	1.35		0.0	
	February		0.064				
	March		0.093				
	April		0.700				
	May	13	10.3		31.4		
	June		3.71				
	July		0.641				
	August		0.089				
	September		0.064				
	October		0.087				
	November		0.116				
	December		0.143				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1972	January	22	0.063	1.91		0.040	
	February		0.066				
	March		0.366				
	April		1.25				
	May	14	12.1		21.4		
	June		6.71				
	July		1.18				
	August		0.313				
	September		0.219				
	October		0.203				
	November		0.204				
	December		0.175				
1973	January		0.101	0.379			
	February		0.139				
	March		0.162				
	April		0.275				
	May	17	2.57		5.58		
	June		1.06				
	July		0.161				
	August	4	0.001			0.0	
	September		0.0				
	October		0.001				
	November		0.027				
	December		0.028				
1974	January	1	0.067	2.28		0.003	
	February		0.133				
	March		0.266				
	April		3.59				
	May	1	12.0		15.7		
	June		8.26				
	July		1.85				
	August		0.400				
	September		0.180				
	October		0.170				
	November		0.178				
	December		0.147				
1975	January		0.111	1.68			
	February		0.143				
	March	16	0.173			0.068	
	April		0.905				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1975	May		8.74				
	June	2	7.71		15.7		
	July		1.01				
	August		0.242				
	September		0.156				
	October		0.201				
	November		0.373				
	December		0.305				
1976	January		0.274	1.31			
	February		0.221				
	March		0.228				
	April		1.21				
	May	10	7.75		15.3		
	June		3.47				
	July		0.658				
	August		0.741				
	September		0.388				
	October		0.242				
	November		0.287				
	December	31	0.192			0.142	
1977	January		0.137	0.405			
	February		0.137				
	March		0.177				
	April		1.19				
	May	3	2.40		5.32		
	June		0.455				
	July		0.097				
	August	2	0.003			0.0	
	September		0.016				
	October		0.055				
	November		0.091				
	December		0.079				
1978	January	31	0.083	1.08		0.037	
	February		0.078				
	March		0.155				
	April		1.51				
	May	21	6.58		11.0		
	June		3.11				
	July		0.433				
	August		0.135				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1978	September		0.265				
	October		0.183				
	November		0.181				
	December		0.162				
1979	January		0.103	0.504			
	February		0.160				
	March		0.240				
	April		0.393				
	May	5	3.82		5.22		
	June		0.742				
	July		0.155				
	August	6	0.016			0.0	
	September		0.037				
	October		0.067				
	November		0.126				
	December		0.132				
1980	January		0.111	0.647			
	February		0.084				
	March		0.130				
	April		1.62				
	May	6	4.09		9.14		
	June		0.950				
	July		0.314				
	August	28	0.040			0.013	
	September		0.071				
	October		0.077				
	November		0.182				
	December		0.063				
1981	January		0.104	0.758			
	February	9	0.150			0.020	
	March		0.218				
	April		0.725				
	May	21	4.71		7.52		
	June		1.61				
	July		0.571				
	August		0.169				
	September		0.093				
	October		0.205				
	November		0.349				
	December		0.136				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1983	January						
	February						
	March		0.470				
	April		2.17				
	May	24,23	7.29		9.73		10.4
	June		2.66				
	July		1.03				
	August		0.452				
	September		0.463				
	October		0.429				
	November		0.501				
	December		0.350				
1984	January		0.324	1.11			
	February		0.310				
	March		0.470				
	April		1.26				
	May	30	4.07		9.28		9.81
	June		4.68				
	July		0.922				
	August		0.355				
	September		0.245				
	October		0.246				
	November		0.251				
	December		0.165			0.134	
1985	January		0.189	0.663			
	February		0.196				
	March		0.185				
	April		0.626				
	May	24,19	4.14		7.98		8.59
	June		1.44				
	July		0.274				
	August		0.174				
	September		0.182				
	October		0.194				
	November	13	0.155			0.113	
	December		0.159				
1986	January		0.145	0.723			
	February	12	0.136			0.107	
	March		0.239				
	April		0.662				

Year	Month	Day	Monthly mean discharges (m^3/s)	Annual mean discharge (m^3/s)	Daily maximum flows (m^3/s)	Daily minimum flows (m^3/s)	Maximum instantaneous flows (m^3/s)
1986	May	27	3.75		9.15		10.0
	June		2.09				
	July		0.559				
	August		0.243				
	September		0.206				
	October		0.219				
	November		0.194				
	December		0.190				
1987	January		0.138	0.673			
	February		0.160				
	March		0.326				
	April		1.78				
	May	1	4.01		9.52		10.8
	June		0.777				
	July		0.264				
	August		0.132				
	September		0.099				
	October		0.105				
	November		0.114				
	December	13	0.126			0.042	
1988	January		0.127	0.423			
	February		0.121				
	March		0.135				
	April		1.10				
	May	13	1.93		4.48		4.93
	June		0.717				
	July		0.244				
	August		0.141				
	September	6	0.128			0.107	
	October		0.135				
	November		0.155				
	December		0.142				

* Historical Streamflow Summary British Columbia, Environment Canada 1988

Appendix 3: Water quality summary table