SUMMIT
ENVIRONMENTAL CONSULTANTS INC.
A Member of the Associated Engineering Group of Companies

Report

SIMILKAMEEN VALLEY PLANNING SOCIETY

SIMILKAMEEN RIVER WATER MANAGEMENT PLAN: PART 1 - SCOPING STUDY

September 2011

Project: 2011-8048.000

SUMMIT
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A Member of the Associated Engineering Group of Companies

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Similkameen Valley Planning Society
c/o Regional District of Okanagan-Similkameen
101 Martin Street
Penticton, B.C.
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Attention: Mr. Brad Hope

Re: SIMILKAMEEN WATER PROJECT – PART 1 SCOPING REPORT

Summit Environmental Consultants Inc. is pleased to provide this **final report** of the first phase of the Similkameen Water Project.

The report provides an overview summary of existing information and water resource data availability for the Similkameen River watershed. Relative to its population, there is a solid information base for the water resources of the Similkameen River watershed. In addition, there are several on-going studies that will soon provide updated information on agricultural water demand, climate change, and the effects of climate change on river flow and water demand. Nevertheless, a number of remaining data gaps have been identified that could constrain water resource decision-making and land use planning. These gaps should be addressed while simultaneously moving forward and engaging the community with the water planning process.

We look forward to working with the SVPS on subsequent phases of the Similkameen Water Project. Please contact me if you have any questions or require additional information.

Yours truly,

Hugh Hamilton, Ph.D., P.Ag.
Senior Environmental Scientist

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Executive Summary

In 2010, the Similkameen Valley Planning Society (SVPS) completed a Strategy for a Sustainable Similkameen Valley, 2011-2020. One of the aims of the Strategy is to "improve water management significantly and integrate management into Valley-specific climate change". As a first step toward this goal, SVPS commissioned an initial assessment of the information base that will be needed to develop a water management plan for the Similkameen Valley, including recommendations for any new technical studies to address data gaps that could constrain the planning process. This report present the results of that assessment, referred to as Part 1.

Relative to its population, there is a solid information base for the water resources of the Similkameen River watershed, although a number of important data gaps remain. The river's status as an international river is the major reason that there are above-average levels of hydrometric and water quality monitoring on the Canadian side of the border. In addition, various American agencies have studied the Similkameen River because it is a tributary to the Columbia River, one of the most managed rivers in North America, and because its values to Americans are similar to those held by Canadians. To summarize the available information:

- There is good streamflow monitoring coverage by the Water Survey of Canada (WSC) - four active mainstem stations and active stations on all major tributaries.
- There is better than average water quality data coverage, including two Canada-BC long-term monitoring sites.
- There are four Environment Canada climate stations operating, plus good data records from several discontinued sites. There are also six snow survey sites.
- There are six groundwater observation wells.
- Groundwater protection plans have been initiated or completed for Keremeos, Princeton, and Olalla.
- There are a number of relatively recent summary reports on aspects of aquatic resources in the Similkameen Valley, including a report led by DFO summarizing that status of fisheries resources in the watershed, and a recent (2009) detailed feasibility for a proposed dam at Shanker's Bend, that includes hydrologic analyses relevant to the whole watershed.

Information that will be available soon (in 2011 or early 2012) includes:

- Agriculture Canada and Environment Canada are developing a 1,000 m grid climate model to estimate current and future climate conditions in the watershed.
- BC Ministry of Agriculture is developing an agricultural irrigation demand model.
- Pacific Climate Impact Consortium is developing a hydrology model to assess effects of climate change on streamflow.

Despite the availability of water information, there are a number of recommended technical studies that should be completed to support water planning. These are:

- An inventory and assessment of actual water use – both surface water and groundwater, that will determine what portion of the licensed volume is used;
- A surface water – groundwater interaction study;
- An initial In-stream Flow Needs (IFN) assessment that will determine whether a more detailed IFN study would be beneficial;
- A summary of existing groundwater quality data plus groundwater sampling at selected sites to fill in spatial and temporal gaps; and
- An overview assessment of water storage opportunities to prioritize areas for more detailed study.

In addition, we recommend that a water database be developed to provide easy access to existing reports and data, and that series of clearly written summary reports be prepared to facilitate public education and discussion about the direction of water planning.

Beyond the solid information base, there are other factors supporting the ability to move ahead efficiently with a water planning initiative. These include an already -established community planning structure in SVPS and on-going partnerships with government agencies and researchers.

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List of Abbreviations

AGWMN	Ambient Ground Water Monitoring Network
B.C.	British Columbia
BCEAA	British Columbia Environmental Assessment Act
BMP	Best Management Practice
CABIN	Canadian Aquatic Bio-monitoring Network
DFO	Fisheries & Oceans
EC	Environment Canada
EDQA	Environmental Data Quality Assurance
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMS	Environmental Management System (a database)
FHID	Fairview Heights Irrigation District
GCM	General Circulation Model
IDZ	Initial dilution zone
IFN	In-stream Flow Needs
IPP	Independent Power Project
LSIB	Lower Similkameen Indian Band
MAL	Ministry of Agriculture and Lands (now Ministry of Agriculture)
MMER	Metal Mining Effluent Regulation (*Fisheries Act*)
MOE	Ministry of Environment
MOFLNR	Ministry of Forests, Lands & Natural Resources Operations (also MOF, MOFR)
MSR	Municipal Sewage Regulation
NPS	Non-point source (pollution)
NWUMP	Nicola Water Use Management Plan
OWN	Observation Well Network
OWNI	Observation Well Network Information database
OWSDP	Okanagan Water Supply & Demand Project
PDO	Pacific Decadal Oscillation
QA/QC	Quality Assurance/Quality Control
RDOS	Regional District of Okanagan Similkameen
SID	Similkameen Improvement District
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USIB	Upper Similkameen Indian Band
USGS	United States Geologic Survey
WQG	Water Quality Guidelines
WQO	Water Quality Objectives
WSC	Water Survey of Canada

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Similkameen River is a tributary of the Okanogan River, joining it just south of the Canada-United States border at Oroville, Washington (Figure 1-1 and Map 1 - attached). The watershed is part of the traditional territory of the Sylix (Okanagan) Nation. Most of the Similkameen River watershed is located within Canada, although both a portion of the headwaters and the lower watershed are in the U.S. The watershed area upstream of the border covers 9,190 square kilometres (Water Survey of Canada 2010), of which 7,600 km^2 are in Canada. The hydrologic regime is typical of the British Columbia Interior in that it is dominated by snowmelt processes, and there is a very large variation between the annual peak flows and low flows. The maximum flows typically occur in June and the low flows typically occur in September (Water Survey of Canada 2010). The lower elevation portions of the watershed include the warmest and driest biogeoclimatic zones in B.C., and there is significant demand for water from mid-July through to mid-October when the flows are naturally low.

In 2010, the Similkameen Valley Planning Society (SVPS) completed the development of a Strategy for a Sustainable Similkameen Valley, 2011-2020 ("the Strategy"), which is detailed in a report by Glorioso, Moss and Associates (2010). SVPS is a not-for-profit society comprised of seven governing bodies from the watershed: the municipalities of Keremeos and Princeton, Areas B, G, and H of the Regional District of Okanagan-Similkameen (RDOS), the Lower Similkameen Indian Band, and the Upper Similkameen Indian Band. The Strategy to date was developed in two phases that included extensive community engagement. Phase 3, the actual implementation, began in 2010. Strategic Aim 2 of the Strategy is to "Sustain and rehabilitate the Valley's environmental and natural resources health", which includes Strategic Means #7:

Improve water management significantly and integrate management into Valley-specific climate change:

- ***7.1** – Complete inventory of Valley water quality and quantity*
- ***7.2** – Formulate a Water Management Action Plan (including assessment and action for water impoundment and strengthening of international coordination)*

In March 2011 SVPS retained Summit Environmental Consultants Inc. to carry out the first part of a water planning study for the Similkameen River watershed, which will lay the groundwork for Strategic Means 7. The current assignment is referred to as **Part 1** throughout the rest of this document, which is the Part 1 report.

1.2 GOALS OF PART 1

The goals of this Part 1 report were specified in the request for qualifications (RFQ) that was issued by the SVPS in February 2011 to initiate the project. They are to:

- identify potential future water usage related to quantity and quality, and

- identify the components, the technical information, and all other aspects that will be required by local elected governments to enable them to begin preparing both short and long range planning strategies as related to the entirety of the water resources in the Similkameen River watershed.

The purpose of the current project (Part 1) is to address these goals and develop a set of recommendations to local and community governments as to how to develop a science-based water management planning strategy for long term use, development and protection of the water resources of the Similkameen River watershed. The tasks that were completed to address these goals were as follows:

- A project initiation meeting;
- Assembly and review of background information and development of a watershed description;
- Inventory of existing streamflow, climate, aquifer, groundwater well, and groundwater data in the Similkameen River watershed, and identification of any spatial or temporal gaps in the data records;
- Summary of previous watershed-scale studies on the water resources of the Similkameen River;
- Review and summary of watershed technical studies and watershed plans completed elsewhere in British Columbia and in other locations with relevance to the Similkameen.
- Identification of any physical, biological, social, or economic information needs that currently constrain decision-making on water resources;
- Development of recommendations for technical studies to address those needs;
- Development of recommendations for a public consultation process to guide any technical and socio-community studies;
- Preparation of a draft report, and presentation of the key findings to a meeting of the SVPS on June 29 2011; and
- Preparation of this final report, addressing the comments received from SVPS.

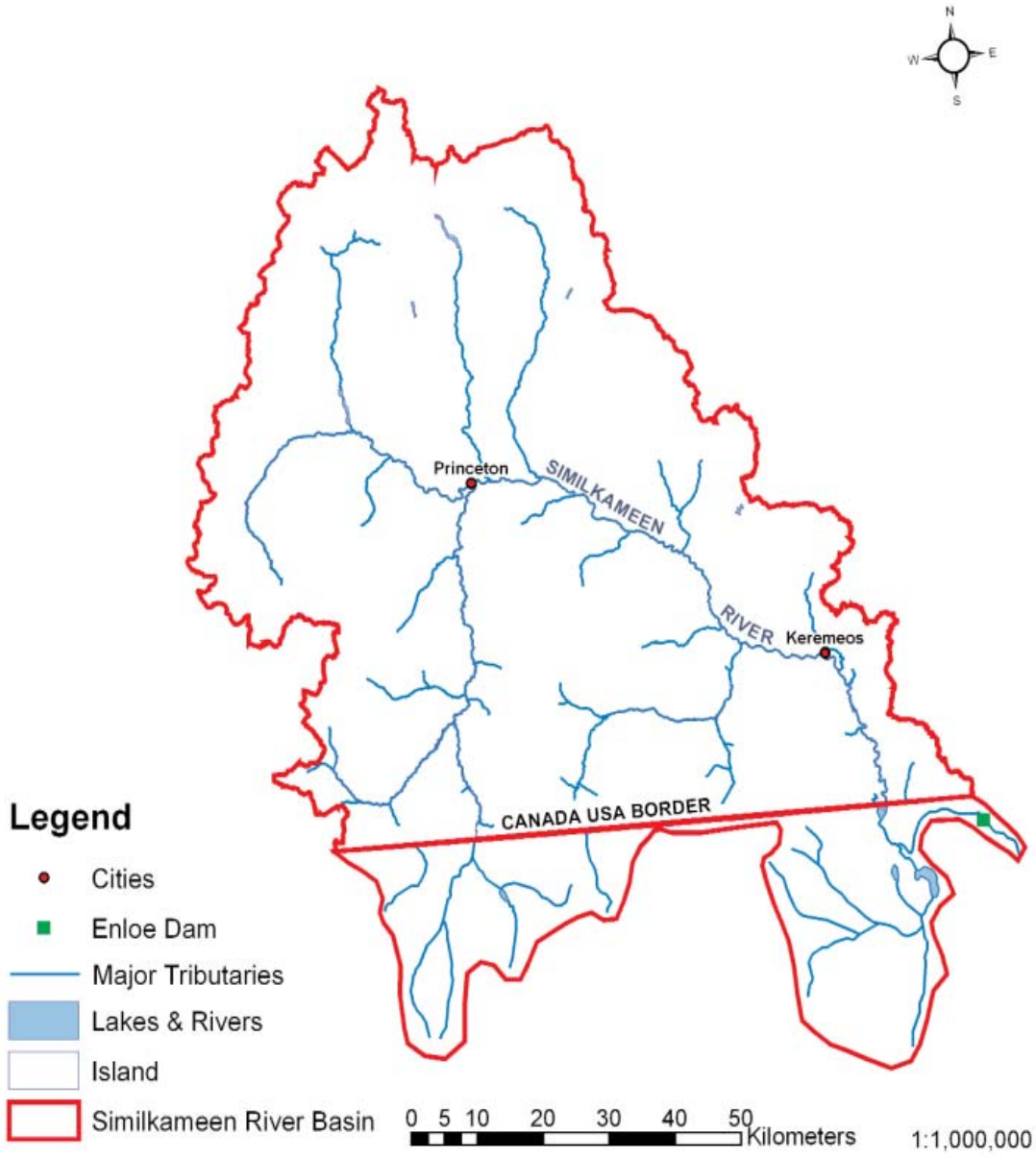


Figure 1-1
The Similkameen River watershed.

Source: DFO et al. (2005).

2 METHODS AND CONTEXT

2.1 PROJECT INITIATION MEETING

The Part 1 project began with a meeting held on March 25, 2011 at the Village of Keremeos municipal hall. The meeting was chaired by the Chair of SVPS, Mr. Brad Hope, and was attended by representatives of most of the local governments within SVPS.

Following the business portion of the meeting, approximately 25 Similkameen Valley residents attended the remainder of the meeting. The opportunity to attend the meeting was publicized through a press release and articles in the local newspapers. Mr. Hope provided a background on the SVPS water planning process and the Part 1 study. Hugh Hamilton, representing the Summit consulting team, outlined the scope of Part 1. The community members then asked questions and provided information on water issues of concern, historical and on-going studies, information gaps, and jurisdictional issues. Some of the major issues that were brought forth[1] were:

- Water planning may be limited by lack of information on groundwater use. A significant number of surface water licence holders do not use surface water for irrigation, but rather use groundwater. However, some of this groundwater source in the valley bottom is likely directly connected to surface water.
- Related to this is a lack of information on actual water use by surface water licence holders. Without actual use data, decisions on future allocation will be made assuming the licensed volumes are used.
- Water quality degradation (surface water and groundwater).
- Effects of climate change.
- Effects of increased demand on water supply if the population grows.
- Adequacy of water supply to support new business.
- Implications of minimum in-stream flow needs (IFN) requirements for fish on water users if IFN minimums were implemented.
- Water needs and water management decisions in the United States may take precedence over Canadian needs.
- Implications of any renegotiation of the Columbia River Treaty.
- Implications of revisions to the B.C. *Water Act.*
- Potential hydro-power development on the Similkameen River in the United States, and concern that hydro-power will be considered a “higher value” use than agriculture.
- The potential value of creating storage in the upper Similkameen River watershed to supplement flows in summer and fall.
- The need for improved water conservation.

[1] Several of these points were contributed by Mr. Roger Mayer in a letter to SVPS and provided at the meeting.

In addition, a number of attendees emphasized the importance of a public consultation and communication component to water management planning.

2.2 INFORMATION ASSEMBLY AND REVIEW

The databases and sources of information that were searched are:

- B.C. Ministry of Environment Cross-Linked Information Resources (CLIR) database. This includes the Ecological Reports Catalogue (EcoCAT), the Ministry of Forests library, the Environmental Protection Information Resources e-Library (EIRS EP); the Biodiversity / Environmental Information Resources e-Library (EIRS BD) and two species-at-risk databases.
- B.C. Ministry of Forest Hydrology on-line library in Kamloops;
- B.C. Ministry of Agriculture information on-line library;
- A general Internet search using key words including combinations of words and phrases including Similkameen, the names of major tributaries, water, hydrology, groundwater, climate change, irrigation, fish, fish habitat, hydro-power, and others; and
- Summit's in-house library.

2.3 TELEPHONE AND E-MAIL CONTACTS

The search of library and Internet sources was supplemented by telephone and e-mail discussions with provincial and federal government staff members and university researchers. This was primarily aimed at identifying on-going research or planning initiatives and determining when the results will be available.

2.4 REGULATORY CONTEXT

2.4.1 B.C. *Water Act*

Water management in British Columbia is guided by the *Water Act*. It encompasses water allocation (licensing), changes or transfers of water licenses, construction in and adjacent to water bodies, water management and planning, and drought management. There are three regulations under the *Water Act*: the Water Regulation, the Groundwater Protection Regulation, and the Dam Safety Regulation. In addition to the Water Act, there are more than a dozen other provincial and federal acts that are relevant to water management. The key ones with respect to water planning in the Similkameen Valley include:

- B.C. - the *Environmental Management Act, Forest and Range Practices Act, Fish Protection Act, Local Government Act*, and *Drinking Water Protection Act*;
- Canada – *International Boundary Waters Act, Fisheries Act,* and *Navigable Water Protection Act.*

Since 2004 Section 4 of the B.C. *Water Act* enables the creation of water management plans. Specifically, Section 62 (1) states:

62 (1) The minister may, by order, designate an area for the purpose of developing a water management plan if the minister considers that a plan will assist in addressing or preventing

(a) conflicts between water users,

(b) conflicts between water users and in-stream flow requirements, or

(c) risks to water quality.

According to Nowlan and Bakker (2007), Water Management Plans are intended for areas of the province where the Minister of Environment believes that such a plan would assist in preventing or dealing with water management conflicts or serious risks to water quality. The key attribute of Section 4 plans is that they can be made legally enforceable. Plans must be approved by Provincial Cabinet. As SVPS and the community moves forward with its water management planning strategy, it can consider the advantages and disadvantages of eventually making it legally binding under Section 4 of the *Water Act.*

2.4.2 Columbia River Treaty

The Columbia River Treaty between Canada and the United States was ratified in 1964. As a tributary to the Columbia River system, the Similkameen River is covered by the Treaty. It has been interpreted by some that the treaty requires Canada to supply certain minimum flows where the river crosses the border. The Treaty is currently being re-negotiated for 2014 since the original treaty was for 60 years (i.e. to 2024) and both countries must give 10 years notice before changing the treaty.

3 WATERSHED OVERVIEW DESCRIPTION

3.1 LOCATION AND ADMINISTRATIVE JURISDICTIONS

The Similkameen River watershed is located in the Southern Interior of B.C., between the Coast Range Mountains and the Okanagan valley (Map 1). The watershed is included in the Okanagan-Similkameen Regional District. Highway 3 passes through the watershed from northwest to southeast, and Highway 5A goes north-south through the western part. The Similkameen River joins the Okanogon River south of the outlet of Osoyoos Lake near Oroville in the U.S.A. There are no dams on the Similkameen River in B.C., however the Enloe Dam was previously operated in Washington State and applications have been filed for its reactivation for electricity production.

As noted in the introduction to this report, the Similkameen River watershed includes lands under the jurisdiction of the Village of Keremeos, the Town of Princeton, Areas B, G, and H of the RDOS, the Lower Similkameen Indian Band (LSIB), and the Upper Similkameen Indian Band (USIB). In addition, there are six irrigation and improvement districts that operate under the authority of the B.C. *Local Government Act*. They are:

- Cawston Irrigation District (CID)
- Fairview Heights Irrigation District (FHID)
- Keremeos Irrigation District (KID)
- Similkameen Improvement District (SID);
- Hedley Improvement District (HID); and
- Allison Lake Improvement District (ALID).

3.2 GEOLOGY, PHYSIOGRAPHY AND SOILS

The Similkameen watershed is underlain by bedrock from several geologic ages (Ministry of Energy Mines and Petroleum Resources 2005), and consists of:

- Older metamorphic rocks: argillite, chert and greenstone;
- Sedimentary rocks: sandstone, conglomerate and siltstone;
- Igneous rocks which intrude the earlier bedrock: granodiorite, quartz diorite, quartz monzonite, syenite and porphyries; and
- Younger extrusive igneous rocks: andesite, dacite, basalt and rhyolite.

These bedrock types are generally resistant to water erosion, form uplands and mountain ranges, and where strongly fractured, may contain bedrock aquifers. The major valleys are generally located along the major fault traces. The region's bedrock hosts copper, lode and placer gold, other metal deposits, and coal deposits, which have been developed over several decades. The Copper Mountain area south of Princeton, the Hedley gold mining district, and coal deposits in the Princeton and Tulameen areas were previously

operated but have not been active since about 1992 or before. Some of these mining operations were close to the Similkameen and Tulameen Rivers. The former Similco open pit copper mine and concentrator facility south of Princeton has been re-opened as the Copper Mountain mine in 2011.

The Similkameen River watershed is included in the Thompson Plateau physiographic area (Holland 1976). The Thompson Plateau is a gently undulating upland of low relief, with some hills of more resistant bedrock. This upland is a very old erosion surface cut into by the major rivers. The Similkameen headwaters are in the Hozameen Range of the Cascade Mountains, in Manning Provincial Park, southwest of Princeton. The Okanagan Range of the Cascade Mountains is located along the U.S.A. border. The landscape consists of wide, flat-floored valleys, and rugged mountain ranges and plateau areas with dry land vegetation and forest. The highest elevation land has steep, bare rock with some alpine vegetation. The tributaries flow in narrow, steep valleys over the plateau surface and down to the main stem rivers.

The watershed was glaciated with later ice stagnation and melting about 10,000 years before present, leaving glacially-shaped bedrock features, glacial till and meltwater channels and deposits (Holland 1976). The modern agricultural and forest soils have been formed in these glacial till deposits overlying bedrock, in colluvial deposits below steep slopes, in glaciofluvial sands and gravels deposited by the meltwater streams, and in modern fluvial deposits beside rivers (Wittneben 1986). Most soils developed under a grassland-forest vegetation type, and dry climatic conditions. Chernozemic soils are found in grassland areas with organic matter accumulation. Brunisolic soils occur on well drained deposits with forest cover. Luvisolic soils developed in surface deposits with some clay. Gleysolic soils developed in areas with poor drainage, where the soil is often saturated. Regosolic soils are developed on new deposits on river floodplains, such as the Similkameen River, and steeply sloped locations.

3.3 HYDROLOGY

The Similkameen River is about 196 km long, with headwaters in Manning Park. The watershed includes about 7,600 km^2 in B.C. The river flows north to Princeton, southeast through Keremeos, and across the border just south of Cawston into Washington State. The Tulameen River is the largest tributary. Other notable tributaries include Pasayten River, Ashnola River, Allison Creek, Wolfe Creek, Hedley Creek, Keremeos Creek, Hayes Creek and Otter Creek. The watershed is located mainly in the Southern Thompson Plateau hydrologic zone, with the western headwaters in the Eastern South Coast Mountains hydrologic zone (Obedkoff 1998; 2003 – Figure S-2 Hydrologic Zones). Normal annual runoff is in the order of 200 to 1,000 mm per year in the wetter western parts of the watershed, with runoff of less than 100 mm to 200 mm in the drier eastern section.

Figure 3-1 shows the annual average daily discharge at four locations on the Similkameen River and Figure 3-2 compares the annual unit hydrographs in several tributaries (note: a unit hydrograph shows the flow per unit area – here per square kilometre). Figure 3-2 illustrates how the Tulameen River, located in the headwaters, contributes more flow per unit area than Hedley Creek and the Ashnola River, located further

east. Autumn rainfall is also shown to be a more important contributor to flow in the Tulameen than the other two tributaries.

The tributary and mainstem streams in the Similkameen watershed are supplied mainly by snowmelt. Annual peak flows commonly occur during May to July during snowmelt, with discharge at Similkameen River at Hedley ranging from typically less than 15 m^3/s during winter to more than 275 m^3/s during the spring snowmelt period. The Similkameen River has an average base flow (flow from groundwater discharge) which ranges from 2 m^3/s near the east boundary of Manning Park, to 6 m^3/s above the Tulameen River confluence, to 10.5 m^3/s near Hedley, and 11 m^3/s at Cawston, just north of the border. From July through April, after the high snowmelt-generated flows have subsided (Figure 3-1), water flow is generally low on average – this period includes the peak irrigation months, and the peak fish spawning periods (Glorioso *et al.* 2010).

The overall watershed hydrologic regime has been classified by Rodenhuis *et al.* (2009) as Nival/Hybrid, meaning that higher flows and generated by both snowmelt and rainfall combined with snowmelt. Normal climatic variation, shifts in the major North Pacific Ocean currents (Pacific Decadal Oscillation), and El Niño/La Niña effects are also responsible for significant variability in stream flows from year to year.

Figure 3-1
Average daily discharge: Similkameen River at four locations

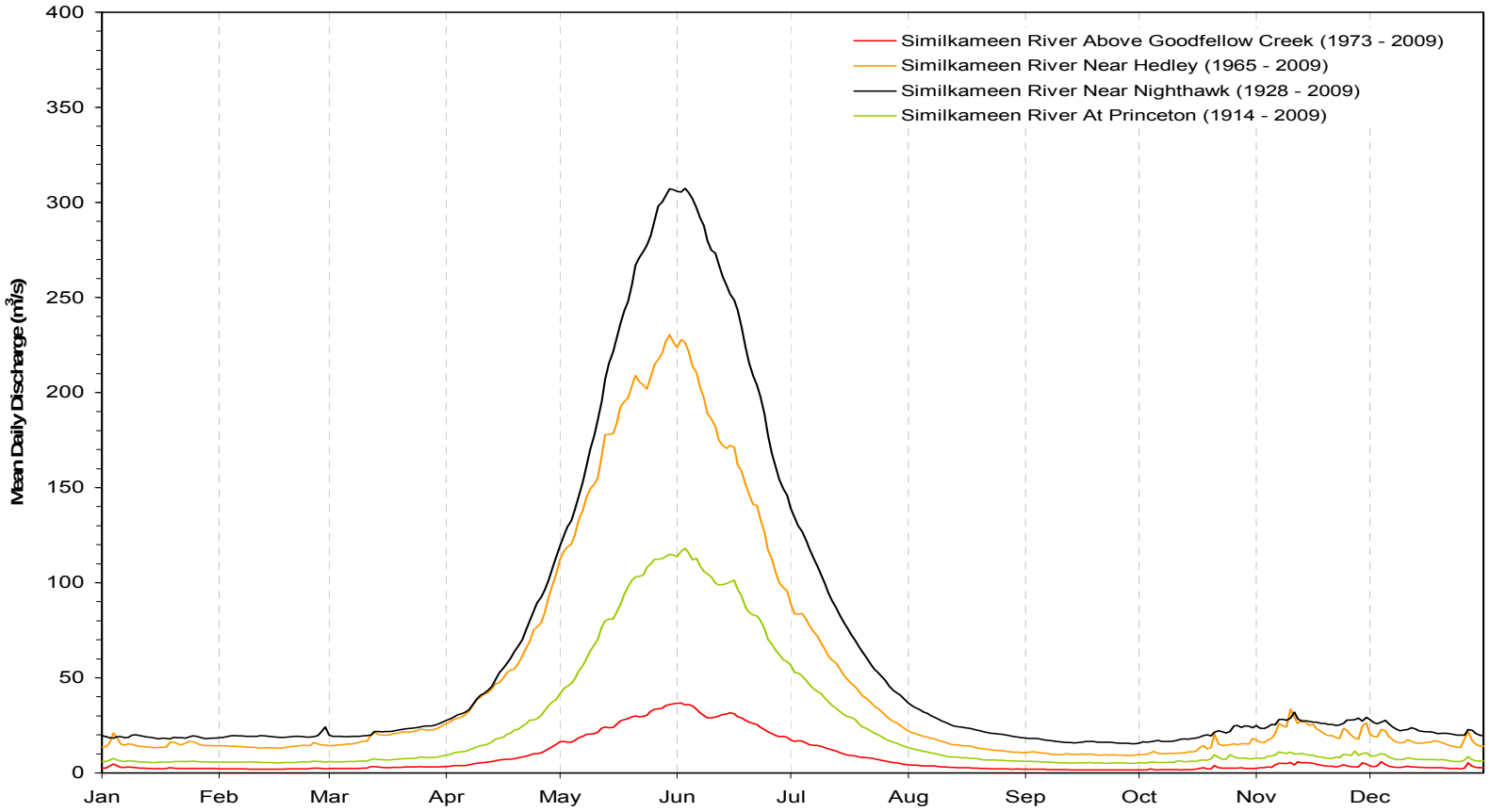
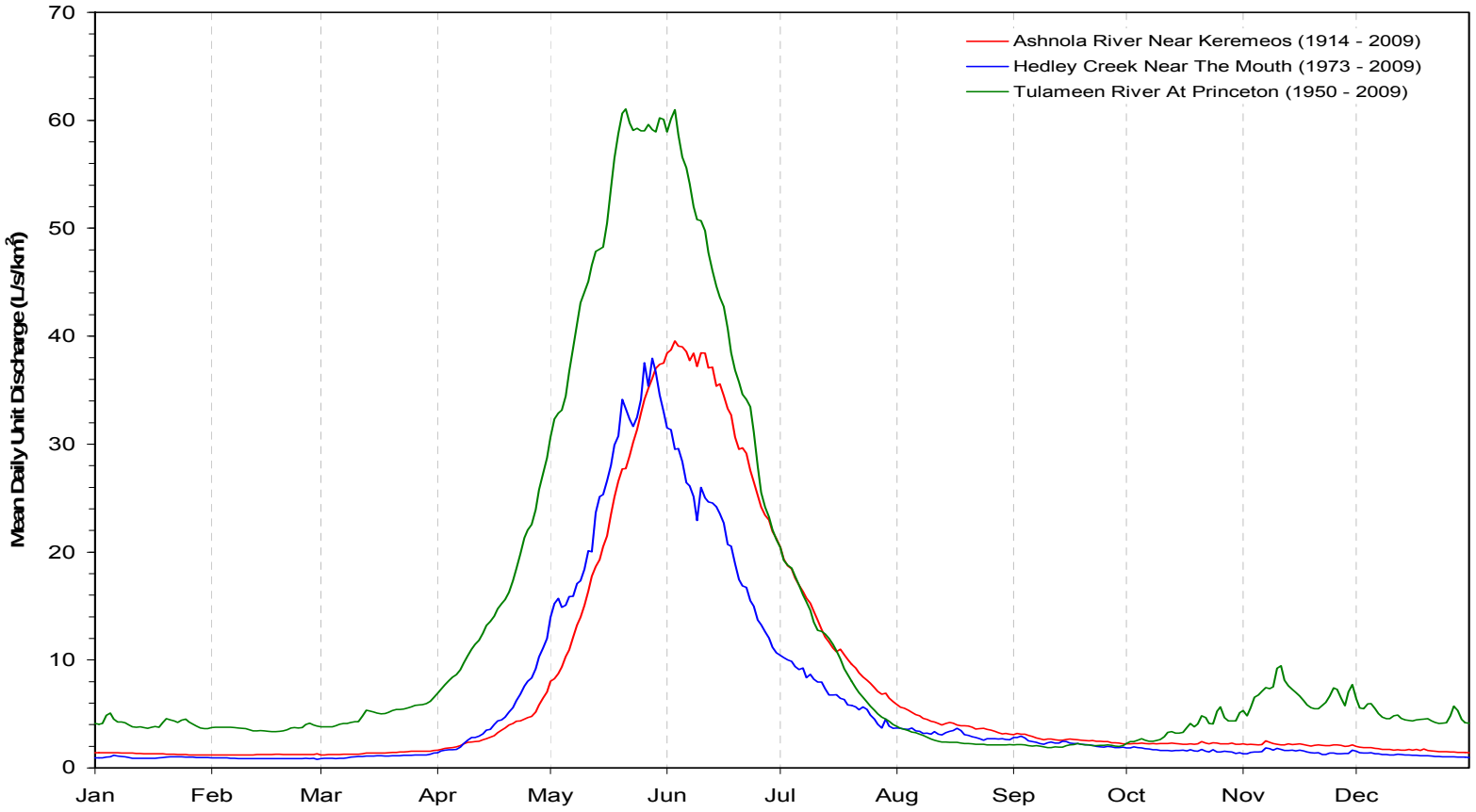


Figure 3-2
Average daily unit discharge (flow per unit area) in Tulameen River, Hedley Creek and Ashnola River



3.4 CLIMATE AND CLIMATE CHANGE

3.4.1 Climate Normals and General Climate Change Projections

Environment Canada currently operates four climate stations within the Similkameen watershed and publishes the data (at Keremeos, Hedley, Princeton, and Similkameen Mines). Data are also available for about 8-10 other stations have been operated for some period of time, but most are close to one of the existing sites. To illustrate how the climate becomes cooler and moister moving upstream, Table 3-1 provides selected climate normal data for the climate stations at Keremeos (435 m elevation), Princeton (701 m), and Similkameen mines (940 m).

Several other agencies collect climate data. The Ministry of Transportation (MOT) operates a weather station at Allison Pass in Manning Park at 1,340 m elevation, collecting precipitation, temperature, and wind speed data. The Farmwest.com web site maintains weather stations at Cawston and Keremeos to serve the agricultural community (www.farmwest.com – under "Okanagan South"). The Farmwest web site provides current and historical temperature, degree-days, corn heat units, evapotranspiration, and soil moisture data as well as weather forecasts. Seasonal weather stations are operated by the B.C. Wildfire Management Branch to track fire related weather and drying characteristics. These stations are located in various places, but the data are only available by request.

There are currently six snow survey stations in the watershed. These are discussed below in Section 4.1.

The University of Victoria's Pacific Climate Impacts Consortium 'Plan2Adapt' tool provides outputs for the Okanagan-Similkameen and other regions in B.C. (website address: (http://plan2adapt.ca/plan2adapt.php). Table 3-2 list the median and ranges of values expected for the 2020s, 2050s and 2080s as compared to the baseline period of 1961-90 for the South Okanagan-Similkameen. These values are derived from a 15 General Circulation Model (GCM) ensemble, under two of the most likely CO_2 emission scenarios.

The model shows the mean annual temperature increasing by about 1°C by the 2020s, about 2°C by the 2050s, and 3°C by the 2080s. There is a small increase in average annual precipitation but this is biased by more snow in the winter. Less rainfall in projected in summer; about 9% less in the 2020s up to 16% less in the 2080s. In response to the projected increased temperatures and lower summer rainfall, both residential and agricultural water demand will likely increase in the future.

Table 3-1
Climate normal (1971-2000) summary: Selected Similkameen Watershed sites

Station name	Keremeos 2	Princeton Airport	Similkameen Mine
Elevation above sea level	435 m	701 m	940 m
January daily Average temperature (°C)	-2.2	-6.2	-6.1
July daily Average temperature (°C)	20.9	17.7	16.9
Days with max. temperature >20°C	134.1	106.5	86
Annual average precipitation (mm)	323.1	356.3	453.7
Annual average rainfall (mm)	256.3	239.2	284.6
Annual average snowfall (mm water equivalent)	66.8	146.8	169.1
Extreme daily rainfall (mm)	45.8	121.9	31
Extreme daily snowfall (mm water equivalent)	36.8	57.2	43
Average snow depth in January (cm)	8	27	n/a
Days with precipitation ≥5 mm	19.8	21.8	29.6
Days with precipitation ≥10 mm	5.8	7.5	10.2

n/a – not available

Table 3-2
Climate Change Projections for the South Okanagan-Similkameen Region

Climate Variable	Time of Year	Projected Change (from 1961-90 baseline)					
		2020s		2050s		2080s	
		Median	Range	Median	Range	Median	Range
Mean Temp. (ºC)	Annual	+1.1ºC	+0.6ºC to +1.4ºC	+1.9ºC	+1.2ºC to +2.7ºC	+3.0ºC	+1.7ºC to +4.4ºC
Precip.	Annual Summer Winter	+4% -9% +2%	-1% to +7% -15% to +10% -3% to +10%	+6% -14% +6%	-2% to +10% -31% to 0% -2% to +15%	+8% -16% +10%	+1% to +17% -38% to -4% +3% to +24%
Snow Depth*	Winter Spring	-6% -33%	-16% to 0% -58% to -4%	-14% -57%	-25% to -3% -73% to -20%	-22% -78%	-41% to -9% -88% to -24%
GDD*	Annual	+175	+89 to +275	+379	+217 to +547	+571	+380 to +972
HDD*	Annual	-379	-521 to -234	-680	-961 to -422	-1056	-1560 to -609
FFD*	Annual	+15	+8 to +20	+26	+14 to +37	+39	+23 to +62

Source: University of Victoria's PCIC Plan2Adapt Tool.

Notes:
GDD: Growing Degree Days (given in degree days)
HDD: Heating Degree Days (given in degree days)
FFD: Frost-Free Days
*These values are derived from temperature and precipitation.

3.4.2 Climate Variation and Streamflow

During El Niño years, substantially less streamflow tends to occur from May to August in snowmelt-dominated basins such as the Similkameen River. Warm Pacific Decadal Oscillation phases, such as the one that occurred from 1977 to 1998, advance the spring or summer freshet, lower peak flows, and cause drier summer periods for many streams in British Columbia (Zhang et al. 2000).

The Pacific Decadal Oscillation (PDO) is a pattern of Pacific climate variations over a time scale of 20 to 30 years. The PDO is detected as warmer than average or cooler than average surface waters in the Pacific Ocean north of 20° N. The variations in ocean water temperatures then influence ocean evaporation and the amount of precipitation in B.C. as weather systems generated in the Pacific move east. A PDO "cool" regime dominated from 1890-1924 and from 1947-1976, and a "warm" regime prevailed from 1925-1946 and from 1977 through at least the mid-1990s

(Figure 2) (Mantua et al. 1997). Precipitation and temperature extremes are exacerbated during years in which PDO and ENSO are in the same phase.

3.4.3 Similkameen River: Likely future hydrologic changes under climate change

A warming climate has implications for stream flow and other hydrologic processes. The University of Washington's Climate Impacts Group[2] provides information for four sites on the Similkameen (i.e. at Oroville; at Princeton; near Hedley; and near Nighthawk) and six sites on the Okanagan River (i.e. in B.C. at Okanagan Falls, Penticton, and near Oliver; and in Washington State at Malott; near Oroville; and near Tonasket). The work is reported in Hamlet et al. (2010), which includes graphical and tabular output for the following four parameters: total streamflow (dam^3), peak flows (m^3/s), low flows (m^3/s), and snow water equivalent (mm). These outputs are derived from a 10 GCM model ensemble, under the two likely emission scenarios for the periods centering on the 2020s, 2040s and 2080s. They are compared to the baseline period of 1970-1999. The following points summarize the general trends for each variable for the Similkameen River:

Streamflow:
Late fall, winter and early spring flows are forecast to be greater; while late spring, summer and early fall flows will be smaller
Shift in hydrograph to earlier in the year
Total flows for the year increase

Daily Peak Flows:
Similkameen River near Nighthawk - average peak flows decrease under both scenarios, except under A1B where they are predicted to increase by the 2080s
The range of daily peak flow projections is considerable [i.e. ranges from less to greater than simulated baseline flows (1970-1999)]

Low Flows:
Late summer/early fall low flows decrease, winter low flows increase

Snow Water Equivalent (SWE):
Average SWE predicted to decrease in all periods under both scenarios

There is some evidence that climate effects are already present. Based on analysis of the Similkameen River over a 37-year time frame (1959–2006), Pike *et al.* (2011) reported that the Similkameen River had experienced increased winter and spring flows and decreased summer flow during this period.

[2] Website address: http://www.hydro.washington.edu/2860/products/sites/)

3.5 ECOSYSTEMS

The Similkameen watershed is located in the rain shadow from the Coast and Cascade Mountains, and the western section is cooler and moister while the southeastern section is warmer and drier. The watershed is included in the Southern Interior Ecoprovince, with these biogeoclimatic zones present: Bunchgrass (BG), Ponderosa Pine (PP), Interior Douglas Fir (IDF) on the valley floors, and Montane Spruce (MS) and Englemann Spruce-Subalpine Fir (ESSF) at the higher elevations, and Alpine Tundra (AT) at the mountain peaks (Ministry of Forests and Range 2008).

While about one third of the cottonwood-dogwood floodplain vegetation area along various streams has been lost, as a whole, there are many riparian deciduous forests, areas of dense deciduous brush, and riparian meadows and wetlands (Glorioso *et al.* 2010). The higher elevation mountains and deep tributary valleys have sensitive sagebrush grasslands, steep and rugged slopes, old growth Ponderosa Pine and Interior Douglas Fir forests.

An inventory of sensitive ecosystems has been completed for the lower Similkameen and rural Princeton areas. The sensitive ecosystems that are generally unmodified and ecologically susceptible to disturbance, possess high wildlife values, and some ecosystems are rated as “at risk” according to provincial criteria. The sensitive ecosystems most affected by human development include: grasslands, low elevation forests, wetlands and riparian areas (Glorioso *et al.* 2010). Relative to other parts of Canada, a significant number of wildlife species with endangered, threatened or of “special concern” status are present in the Similkameen watershed. There are intact areas of wilderness which support such species as Grizzly and Black Bear, California Bighorn Sheep and Mountain Goat. The valley bottom riparian ecosystems stretch along extensive areas of low elevation valley and form corridors.

Since settlement, there has been a long history of ranching, commercial orchard and field crop production, and recently vineyard/winery and rural home developments (Rae 2005) with the attendant vegetation, species and stream changes.

The Similkameen River has not had much modification by dikes, dams, bank protection and channelization (compared to the Okanagan River, for example), and the river morphology is still primarily affected by natural flow and meander erosion action.

3.6 FISHERIES RESOURCES

The status of fish and fish habitat in the Similkameen River watershed was recently reviewed (Rae 2005). The Similkameen River and tributaries has about 500 km of fish-supporting habitat. There have been no comprehensive fish population and fish habitat inventory investigations completed.

Resident fish are present in the Similkameen watershed and anadromous fish only travel from the Pacific Ocean to the Enloe Dam location in Washington State. Seventeen fish species (Table 3-3) live in the

watershed streams and lakes. The Similkameen River system has low productivity due to few natural nutrients and cool water temperatures (Rae 2005). High stream and river discharge in spring, low discharge during summer and formation of anchor ice in winter restricts fish growth. The Rae (2005) report includes an overview fish habitat assessment, which indicates:

- The low stream discharge limits fish access to woody debris and bank cover, which are often accessible only during spring flooding.
- Good side channel habitat is available for spawning and rearing in the lower Similkameen River, from Hedley to the international border.
- Sections of the upper river had high quality rearing and overwintering habitat, but limited spawning habitat.
- Deep pool habitat downstream of Princeton is used by adult fish and for overwintering.
- Above Princeton, the river has a steeper gradient, which limits fish spawning and rearing habitat.

Since European settlement, agriculture, forest harvest, mining, urban and rural development have occurred in the watershed and beside watercourses (Rae 2005). Infrastructure development such as railway and highway construction and operation has also affected valley bottoms and streams, where stream flow patterns were changes, sediment inputs increased, and riparian vegetation was lost. Some dikes have been constructed for water control near railways and highways, and flood control near communities and developed land.

Riparian vegetation has been removed along many streams for agricultural and urban development, which would have provided shading of water, nutrients and bank stability. Few tributary streams had high quality pool habitat, and low stream discharge prevented fish movement over much of the year (Rae 2005). There are land use effects on the watershed streams, including urban and agricultural activities in the valley bottoms, and forest development impacts at higher elevations. Some tributary stream courses were affected by railway development, and livestock trampling has occurred along many streams. In 2002, some stream restoration was completed on two creeks (Rae 2005).

Water extraction from streams and rivers occurs mainly in the upper Similkameen watershed, with groundwater use more common in the lower valley (Rae 2005). Surface water sources were considered fully licensed by the mid 1980s, where fisheries and wildlife water needs were accommodated. Summer and autumn low stream flows limit fish habitat and survival, and fish migration. According to Rae (2005) river flow at the border must also accommodate the requirements to supply water license holders in Washington State. Information on in stream flow needs for fish is outlined in Section 4.6 below.

Table 3-3
Similkameen River Watershed Fish Species

Common Fish Name	Status
Bridgelip Sucker	Native
Largescale Sucker	Native
Leopard Dace	Native
Mountain Whitefish	Native
Northern Pikeminnow	Native
Rainbow Trout	Native, stocked in lakes
Slimy Sculpin	Native
Torrent Sculpin	Native
Black Bullhead	Introduced
Eastern Brook Trout	Introduced
Kokanee	Introduced
Lake Trout	Introduced
Westlope Cutthroat Trout	Introduced
Umatilla Dace	Red-listed
Chiselmouth	Native, Blue-listed
Mottled Sculpin	Native, Blue-listed
Mountain Sucker	Native, Blue-listed

First Nations traditionally fished resident species. Current recreational fishing is concentrated in the watershed lakes, with some river and stream fishing for rainbow trout (Rae 2005). Most of the lakes are less than a few square kilometres in area and have moderate productivity, with productivity declining with elevation. The presence and area of suitable spawning habitat are limiting conditions for natural fish production. Sixty eight lakes are stocked, mostly with rainbow trout.

3.7 LAND USE AND COMMUNITIES

3.7.1 Agriculture

Agriculture is a mainstay of the Similkameen Valley economy. According to the 2006 Agricultural Census of Canada, the total area of farms is about 55,300 ha (Statistics Canada 2006). Cattle ranching is the largest agricultural activity based on the area of crop land, with about 83% of the land in Areas B, G and H in alfalfa, alfalfa mixtures or hay. There were approximately 15,500 cows and calves in the valley in 2006. Fruit growing, including apples, cherries, grapes, and peaches, is the next most significant activity. Average farm sizes increases moving from east to west. The average is 82 ha in Area B, 143 ha in Area G, and 276 ha in Area H.

Virtually all cropland in the Similkameen Valley depends on irrigation. Table 3-4 shows the areas in Area B, G, and H that are irrigated for hay and pasture, field crops, fruits, and vegetables compared to all forms of agriculture and the entire RDOS. In Area B, hay/pasture and fruit have similar areas that are irrigated; while in Areas G and H about 80% of the irrigated land is hay and pasture.

3.7.2 Forestry

The commercial forest industry has been operating in Similkameen watershed since shortly after the time of European settlement. The current major forest licensees are:

Weyerhaeuser	Princeton, sawmill
B.C. Timber Sales	Log vendor to mills
Tolko Industries	Kelowna, sawmill and veneer plant
Gorman Brothers Lumber Ltd.	West Kelowna, sawmill

There are also many Tree Farm Licences, small licensees, Woodlot owners, First Nations operating forestry companies, and other types of forest licensees (Ministry of Forests, Lands and Natural Resource Operations, 2011). The area surrounding Princeton is included in the Cascades Forest District, with administrative centre in Merritt. This adjoins the Okanagan Shuswap Forest District which includes Keremeos and area, with the administrative centre in Vernon.

Table 3-4
Agricultural irrigation in 2005 – Areas B, G and H and all RDOS.

Crop	Statistic	Area B	Area G	Area H	Regional District Okanagan-Similkameen
Field Crops	farms reporting	13	10	8	103
	acres	242	154	355	1,511
	hectares	98	62	144	611
	% of all irrigation	8%	3%	19%	6%
Hay & Pasture	farms reporting	48	57	40	372
	acres	1,302	3,639	1,474	9,466
	hectares	527	1,473	597	3,831
	% of all irrigation	43%	78%	80%	40%
Vegetables	farms reporting	27	17	1	123
	acres	97	x	x	522
	hectares	39	x	x	211
	% of all irrigation	3%	x	x	2%
Fruits	farms reporting	84	73	2	947
	acres	1,340	792	x	11,692
	hectares	542	321	x	4,732
	% of all irrigation	45%	17%	x	50%
All Irrigation	farms reporting	134	125	45	1,343
	acres	2,995	4,650	1,834	23,474
	hectares	1,212	1,882	742	9,500
	% of all irrigation	100%	100%	100%	100%

x – Details suppressed for privacy reasons.
Source: Statistics Canada (2006).

Under the Forest Resource B.C. program between 1995 and 2001, several watershed assessments were completed in the tributaries to the Similkameen River, including: Pasayten River, Steven Creek, Wolfe Creek, and the Similkameen River, and many other smaller streams. These watershed assessments inventoried the amount and projected impact from: harvesting, forestry roads, roads near and crossing streams and other factors. The Equivalent Clearcut Areas (ECA) were generally low to moderate in the watersheds studied but the channels were of low sensitivity and the forestry roads were stable, so the overall impacts were judged low. A small number of landslides from roads affecting streams, and old mines affecting streams were noted.

Since 2001, there have been significant impacts on pine forests due to the Mountain Pine Beetle (MPB) infestation. In the western part of the Similkameen watershed, the forest has many pine-leading stands of mature age, such that MPB infestation rates were high, and many pine trees are now standing dead or fallen. There have been no specific hydrologic studies in the Similkameen watershed to determine the hydrologic impacts of the MPB infestation. The results from the Trout Creek Watershed risk assessment, immediately to the northeast (Grainger and Streamworks 2009) may be generally comparable to hydrologic conditions and risks expected in the Similkameen River. In general, the effects of MPB mortality and salvage harvest are predicted to:

- Advance of the timing of spring runoff;
- If most of the dead trees were salvaged, risk to fish habitat could be significant from increased peak flows; and
- Infrastructure such as flood protection works, roads, and trail, water intake structures or small bridges could also be affected by higher peak flows.

3.7.3 Range

The current range permit areas maps indicate that much of the Similkameen watershed, outside of private land, provincial parks and protected areas, and very steep or high elevation terrain, is under range permit for cattle. The range permits are managed by the Ministry of Forests, Lands and Natural Resource Operations, Cascades and Okanagan-Shuswap Districts. Range plans are required outlining seasonal cattle use of various grassland and forested land areas.

3.7.4 Mining

In the Similkameen watershed, in vicinity of Princeton and Hedley, most Crown land is under mining claim or licence tenure. Other local areas with mineral showings are also under mining claim tenure. Historically, the bedrock in the Similkameen watershed has been mined to produce the following commodities: copper, gold, silver, platinum, coal, sand and gravel, and industrial minerals (limestone, quarry rock and other products). As of late 2010, there were many exploration

programs being conducted in the Princeton and Hedley areas, mainly for copper, gold, silver, lead and zinc (Madu, 2010).

Operating Mines

The former Similco copper mine southwest of Princeton has been redeveloped as the Copper Mountain project and produces copper and trace amounts of gold and silver. Mining began in April 2011 and the processing plant began processing ore in June 2011 (Copper Mountain web site – www.cumtn.com). The expected mine life is 17 years. The existing tailings facility is being expanded. Discharge from the mine site is directed to the Similkameen River, authorized by a provincial government permit under the *Environmental Management Act* (Similco Mines Ltd.). The permit carried over from the previous operator and requires water quality monitoring.

Inactive Mines

One currently inactive coal mine is located near Coalmont, northwest of Princeton. At Hedley, the former Nickel Plate-Mascot Mine is inactive, but between 1904 and 1996 produced large amounts of gold, copper, silver and zinc. Arsenic used in the mill process created water quality effects that are still the subject of water quality monitoring programs (see Section 4.4 below).

3.7.5 Recreation and Conservation

The major Provincial Parks in the watershed are E. C. Manning Provincial Park (70.844 ha) and Cathedral Provincial Park and Protected Area (33,625 ha). Other protected areas in the watershed include Brent Mountain Protected Area, north of Keremeos (4,344 ha) Snowy Protected Area, east of and adjoining Cathedral Park (25,889 ha). Portions of the Cascades Recreational Area and the South Okanagan Grasslands Protected Area (south/east of Cawston) are also in the Similkameen watershed. Several other small provincial parks and protected at located at scenic and special areas, mainly along highways. Other conservation land includes Old Growth Management Areas, required by the Province as part of forest resource planning and development.

Most of the Crown land base outside of private land and the protected areas is included in the licensed Guide-Outfitter areas.

3.7.6 Communities and Population

Local communities include Princeton, Keremeos, Upper Similkameen Indian Band, Lower Similkameen Indian Band, Hedley, Coalmont, Tulameen, Cawston, Apex, Bankeir and Olalla. The inhabited LSIB and USIB reserves include Chuchuwayha 2, Ashnola 10, Alexis 9, Blind Creek 6, Lower Similkameen 2 and Chopaka 7 and 8. The 2006 census (Province of British Columbia 2011) indicated that about 9,200 people lived in the watershed, with about 5,600 living in the population centres of Princeton, Hedley, Keremeos, Cawston, and Olalla. Population increase has been at about 0.8 to 1% annually in the Okanagan-Similkameen Regional District, with higher rates of

increase in urban areas and First Nations communities (RDOS 2011). Glorioso, Moss and Associates (2010) estimated the Valley population at 9,800 with another 3,000 part-time residents.

3.8 FUTURE ECONOMIC DEVELOPMENT

The Strategy for a Sustainable Similkameen Valley's Strategic Aim 3 is to "Increase the Valley's sustainable economic activity". This includes increasing economic activity through "resource-conserving and sustainable products and services" and attracting in-migrants that can help achieve that goal (Glorioso, Moss and Associates 2010). If successful, this will see a gradual shift from traditional resource sector jobs (mining, forestry) to a knowledge-based "green" economy. Agriculture will remain a major economic driver, aided by innovation and adaptability to changing markets. In the next 10 years economic development may be enhanced by improvements to Highway 3, construction of a hydro-electrical power generation facility at Similkameen Falls, and new mining activity.

One of the key reasons for developing a Similkameen Valley water management plan is to ensure that water supply and water quality does not constrain economic develop and, on the other hand, that economic development is compatible with sustainable water resource use.

4 WATER RESOURCE DATA AVAILABILITY

4.1 CLIMATE DATA

As described above in Section 3.4.1, there are four active Environment Canada and one MOT climate stations in the watershed. However, the most easterly station is at Keremeos and the agricultural community has indicated that an Environment Canada station would be of value in the lower watershed (Note: Farmwest maintains a station at Cawston – see Section 4.3.1). Climate data has been collected at other locations in the past, however most of the available data is from lower elevation sites or sites along the Highway 3 corridor, and less is known about climate variation in the mid- to upper elevations. This is a common situation throughout B.C. To address this information deficit, the B.C. Ministry of Forests has developed an easy-to-use climate model (ClimateBC) that allows estimates of precipitation, temperature, and other climate variables to be estimated for any location by inputting the latitude, longitude, and elevation (Wang et al. 2005). The on-line version is at http://www.genetics.forestry.ubc.ca/cfcg/climate-models.html.

Agriculture Canada is currently developing a climate model for areas of Southern B.C. that will also allow estimates of temperature, precipitation, and evapotranspiration on a 1,000 m grid for a number of climate change scenarios (see Section 4.7.2).

The B.C. MOE River Forecast Centre operates one automatic snow pillow and six manual snow courses in the Similkameen watershed (Table 4-1). These stations are located on the eastern side of the Cascade Mountains, and the southernmost part of the Thompson Plateau. The records of snow accumulation and melt assist with modelling runoff and tracking peak flows, and assist with low flow prediction and management. The snow survey sites in Table 4-1 are arranged from west to east, and generally show the decrease in total snowpack at high elevation in the rain shadow area east of the Cascade Mountains. Valley bottom locations report much less snow during winter. As is typical for southern B.C., the range of snow accumulation is large, dependant on El Nino/La Nina climate patterns and storm tracks.

4.2 STREAMFLOW (HYDROMETRIC) DATA

Table 4-2 lists the active hydrometric stations operating in the Similkameen watershed along with all the previous stations where data are available but which no longer operate. Out of the 12 active stations, five are on the Similkameen River mainstem, two are on the Tulameen River, and there is one each on Ashnola River, Ewart Creek, Hedley Creek, Keremeos Creek, Pasayten Creek, and Siwash Creek (see Map 1 for locations). With the exception of Ewart Creek, the active stations have more than 35 years of data and four have more than 60 years of data.

Table 4-1
Similkameen watershed snow survey sites

Automatic Station	Elevation (m)	Years of Record	Range (mm snow water equivalent)
Blackwall Peak	1,934	36	About 400 - 1600
Manual Stations			
Blackwall Peak	1,934	3	330 – 1549
Harts Pass	1,980	7	533 – 1473
Hamilton Hill	1,477	52	83 – 851
Missezula Mountain	1,602	48	76 – 363
Lost Horse Mountain	1,988	49	0 – 577
Mount Kobau	1,817	46	105 – 602

The discontinued stations (Table 4-2) operated from as little as one year up to more than 80 years. The discontinued stations that have more that 20 years of data are indicated with a * symbol on Table 4-1. These are the stations that although discontinued, have enough data to support a number of hydrologic analyses. However, even sites with only a few years of data are useful for assessing variations in flow when compared to longer term records at other sites.

WSC operates a number of “real-time” hydrometric stations in B.C. where the water levels and flows can be viewed on the Internet (Table 4-2). Four are in the Similkameen watershed – the two Tulameen River stations and the Similkameen River stations at Princeton and Hedley. These stations allow users to see flow conditions up to only a few hours before one logged on to the web site. The real time stations are very useful for situations where water management decisions need to be made based on the river discharge. The web site is: http://www.wateroffice.ec.gc.ca/index_e.html.

The main goal of a hydrometric network is to support management of water and related resources and to provide the spatial distribution of natural streamflow for past, present, and future (i.e. climate change) conditions (Okanagan Hydrometric Network Working Group 2008). Within the Similkameen River watershed, the current (and discontinued) hydrometric network is generally well equipped to monitor (and summarize) the spatial variation of streamflow and water supply throughout the watershed and on the mainstem river.

Table 4-2
Active and discontinued hydrometric stations in the Similkameen watershed

Station Name	Station ID	Stream Order	Flow Type[1]	Status[2]	Period of Record
ACTIVE					
ASHNOLA RIVER NEAR KEREMEOS	08NL004	6	NA	AC	1914-Present
EWART CREEK NEAR CATHEDRAL PARK	08NL076	5	NA	AC	1998-Present
HEDLEY CREEK NEAR THE MOUTH	08NL050	5	NA	AC	1973-Present
KEREMEOS CREEK BELOW WILLIS INTAKE	08NL045	4	RG	AC	1971-Present
PASAYTEN RIVER ABOVE CALCITE CREEK	08NL069	5	NA	AC	1974-Present
SIMILKAMEEN RIVER ABOVE GOODFELLOW CREEK	08NL070	7	NA	AC	1973-Present
SIMILKAMEEN RIVER AT PRINCETON	08NL007	7	NA	AT-RT	1914-Present
SIMILKAMEEN RIVER NEAR HEDLEY	08NL038	7	NA	AT-RT	1965-Present
SIMILKAMEEN RIVER NEAR NIGHTHAWK	08NL022	7	RG	AC	1928-Present
SIWASH CREEK NEAR PRINCETON	08NL039	4	RG	AC	1967-Present
TULAMEEN RIVER AT PRINCETON	08NL024	5	NA	AT-RT	1950-Present
TULAMEEN RIVER BELOW VUICH CREEK	08NL071	5	NA	AT-RT	1974-Present
DISCONTINUED					
ALLISON CREEK ABOVE SUMMERS CREEK	08NL056	4	RG	DC	1973-1981
ALLISON CREEK AT OUTLET OF ALLISON LAKE	08NL057	4	RG	DC	1974-1981
ALLISON CREEK NEAR PRINCETON*	08NL012	4	RG	DC	1912-1983
ALLISON LAKE NEAR PRINCETON	08NL058	4	RG	DC	1973-1981
ASHNOLA RIVER ABOVE YOUNG CREEK	08NL072	6	NA	DC	1975-1979
ASHNOLA RIVER BELOW YOUNG CREEK	08NL049	6	NA	DC	1973-1975
ASP CREEK NEAR PRINCETON*	08NL015	3	NA	DC	1912-1969
CHAIN LAKE AT THE OUTLET	08NL052	4	RG	DC	1973-1986
DAVIS LAKE NEAR THALIA	08NL061	4	RG	DC	1973-1976
DILLARD CREEK NEAR THE MOUTH	08NL055	3	NA	DC	1973-1974
GRANITE CREEK AT THE MOUTH*	08NL021	4	NA	DC	1914-1979
HAYES CREEK BELOW SHINISH CREEK	08NL051	4	RG	DC	1973-1986
HAYES CREEK NEAR JURA	08NL018	4	RG	DC	1924-1927
HAYES CREEK NEAR PRINCETON	08NL020	4	NA	DC	1924-1949
HEDLEY CREEK NEAR HEDLEY	08NL009	5	NA	DC	1913-1916
ISSITZ LAKE NEAR PRINCETON	08NL042	4	NA	DC	1968-1981
KEREMEOS CREEK ABOVE MARSEL CREEK	08NL014	4	NA	DC	1912-1928
KEREMEOS CREEK AT MIDDLE BENCH ROAD	08NL044	4	RG	DC	1917-1977
KEREMEOS CREEK NEAR OLALLA	08NL010	4	RG	DC	1919-1971

[1] Flow Type: RG-Regulated, NA-Natural

[2] Station Status: DC-Discontinued, AC-Active, AC-RT-Active Real Time

Table 4-2 continued

Station Name	Station ID	Stream Order	Flow Type[1]	Status[2]	Period of Record
LIGHTNING LAKE NEAR MANNING PARK	08PA010	4	RG	DC	1973-1979
LITTLE MUDDY CREEK BELOW LIGHTNING LAKE	08NL074	4	RG	DC	1973-1977
LITTLE MUDDY CREEK NEAR MANNING PARK	08NL033	4	RG	DC	1960-1970
LORNE LAKE NEAR PRINCETON	08NL064	4	NA	DC	1973-1975
MISSEZULA LAKE NEAR PRINCETON	08NL046	4	RG	DC	1971-1982
NICKEL PLATE LAKE NEAR HEDLEY	08NL065	3	RG	DC	1975-1979
NICKEL PLATE RESERVOIR OUTFLOW	08NL068	3	RG	DC	1975-1976
OLALLA CREEK AT OLALLA	08NL011	3	NA	DC	1912-1921
OTTER CREEK AT TULAMEEN*	08NL023	5	RG	DC	1912-1985
OTTER CREEK BELOW SPEARING CREEK	08NL060	5	NA	DC	1973-1982
OTTER LAKE NEAR TULAMEEN	08NL059	5	RG	DC	1973-1985
RICHTER CREEK NEAR OSOYOOS	08NL040	3	NA	DC	1966-1977
SHINISH CREEK NEAR PRINCETON	08NL048	3	NA	DC	1973-1973
SIMILKAMEEN RIVER ABOVE MEMALOOSE CREEK	08NL075	7	NA	DC	1978-1986
SIMILKAMEEN RIVER BELOW CHUWANTEN CREEK	08NL062	7	NA	DC	1973-1975
SIMILKAMEEN RIVER NEAR KEREMEOS*	08NL006	7	NA	DC	1911-1932
SMITH CREEK NEAR HEDLEY*	08NL034	4	RG	DC	1946-1987
SOUKUP CREEK NEAR HEDLEY	08NL035	7	NA	DC	1964-1979
SUMMERS CREEK AT OUTLET OF MISSEZULA LAKE	08NL043	3	RG	DC	1970-1980
SUMMERS CREEK AT THE MOUTH*	08NL013	4	NA	DC	1912-1966
SUMMERS CREEK BELOW DILLARD CREEK	08NL054	4	RG	DC	1973-1981
SUMMERS CREEK NEAR PRINCETON	08NL019	4	NA	DC	1922-1927
SUMMERS CREEK NEAR THE MOUTH	08NL053	4	RG	DC	1973-1985
TREHEARNE CREEK NEAR PRINCETON	08NL037	4	NA	DC	1964-1979
TULAMEEN RIVER AT COALMONT*	08NL008	5	NA	DC	1914-1954
TULAMEEN RIVER NEAR PRINCETON	08NL005	5	NA	DC	1919-1920
TULAMEEN RIVER NEAR TULAMEEN	08NL067	5	NA	DC	1973-1979
WHIPSAW CREEK BELOW LAMONT CREEK*	08NL036	4	NA	DC	1964-1999
WOLFE CREEK AT OUTLET OF ISSITZ LAKE	08NL041	4	NA	DC	1968-1981
WOLFE CREEK NEAR PRINCETON*	08NL025	7	NA	DC	1912-1967
YELLOW LAKE NEAR KEREMEOS	08NL047	3	RG	DC	1973-1981
YOUNG CREEK NEAR THE MOUTH	08NL073	5	NA	DC	1974-1978

[1] Flow Type: RG-Regulated, NA-Natural

[2] Station Status: DC-Discontinued, AC-Active, AC-RT-Active Real Time

For any regionalization or naturalization investigations, the four active stations present on the mainstem river and the eight active stations present on major tributary creeks (within both hydrologic zones) should provide adequate natural and regulated streamflow information. However, for specific investigations (i.e. groundwater-surface water interaction, investigations and aquatic resource assessments) some additional monitoring at site specific locations may be necessary.

4.3 GROUNDWATER

4.3.1 Aquifer Mapping

The B.C. Ministry of Environment identifies and maps groundwater aquifers in the province. The goal of the aquifer classification system is "to inventory and prioritize aquifers for planning, management and protection of the Province's ground water resource" (MOE web site). To date, only two aquifers have been mapped (Map 2 and Table 4-3). Aquifer 259 is the deposit of sands and gravels in the main Similkameen River valley bottom extending from the US border to Princeton. It is rated as a Class IIA aquifer meaning that aquifer demand is moderate relative to productivity but that it is highly vulnerable to contamination from surface contamination. Aquifer 258 (Richter Pass) is much smaller in area and rated as a Class IIC aquifer, also with demand that is moderate relative to productivity but with low vulnerability.

It important to note that the current MOE aquifer mapping was based on priorities for management; and that other aquifers exist in the watershed beyond the two that are currently mapped. In addition, the physical characteristics of Aquifer 259 exhibit considerable spatial variation, based on the well records (see Section 4.3.3), and it could be sub-divided into a number of smaller management units based on physical properties and demand.

4.3.2 Ministry of Environment Monitoring Wells

The MOE groundwater program currently performs trend monitoring, largely related to groundwater levels and groundwater quality characterization in high priority water basins (e.g. with high levels of contaminants such as nitrate). The data are stored in the Observation Well Network (OWN) and Ambient Ground Water Monitoring Network (AGWMN) databases.

There are six MOE observation wells in the Similkameen watershed (Map 2). Three are in Keremeos, two are in Cawston and one is in Princeton. Table 4-3 lists the four wells with detailed well records available from the BC Water Resources Atlas, including well depths and date of installation. The other two wells, in Princeton and at Mount Kobau in Cawston, were installed in 1977 and 1980 respectively. The water level data and trend analyses are available for download from the MOE web site. The data were collected manually until 2007 when dataloggers were installed. Since then the data are collected hourly. Since 30 years of

data are available for all of the observation wells in the watershed, it is possible to compare trends in groundwater level against climate and river level trends.

Table 4-3
Aquifers in the Similkameen River watershed mapped by MOE

Aquifer Number	**259**	**258**
Descriptive Location	US Border to Princeton	Richter Pass
Aquifer Materials	Sand and Gravel	Sand and Gravel
Area (km^2)	119.8	7.6
Aquifer Classification	IIA	IIC
Demand	Moderate	Moderate
Productivity	High	Moderate
Vulnerability	High	Low
Aquifer Ranking Value	14	10
Adjoining Map sheet	Yes	No
Litho Stratigraphic Unit	Recent Fraser Glaciation	Recent Fraser Glaciation – Alluvial Fan deposits
Type of Water Use	Multiple	Multiple

Table 4-4
MOE Observation wells in the Similkameen Watershed

Observation Well no*.	203	75	76	77
Location	Cawston – 1943 Barcelo Road	Keremeos – 6th Ave. & 5th St.	Keremeos – 9th Ave. & 3rd St.	Keremeos – Morrison Road
Owner	Fairview Heights Irrigation District	Village of Keremeos	Keremeos Irrigation District	Village of Keremeos
Well Tag no.	33378	20533	22585	22625
Depth	199’	92’	74’	112’
Water static level	80’	11’	10’	76’
Elevation	1,368’	n/a	1,362’	1,409’
Year started	1977	1963	1963	1972
Completed in	Fine sand	Fine silty sand	Sand & gravel	Pea gravel

* There are 2 more observation wells – one in Princeton and one at Mt. Kobau near Cawston but well logs could not be located.

4.3.3 Well Records

Groundwater is the primary or secondary source of water for numerous homes, farms, ranches, and businesses in the Similkameen Valley. Until 2005, when a well was drilled it was not necessary to register that well with the Ministry of Environment or another government agency. However, well drilling contractors routinely did so and MOE maintains a database of well records that have been submitted. In 2005 the Groundwater Protection Regulation began to make it mandatory for new wells to be registered, so any wells drilled since then will be in the database.

A search was completed of the database in May 2011. The results indicated that there are 1,805 groundwater wells on record in the watershed. Table 4-5 summarizes the information on well depth and Table 4-6 summarizes well yields based on the drillers' records. Map 2 shows the locations of these wells.

About 40% of the registered wells are relatively shallow (less than 50 m deep), accounting for the "high vulnerability rating" of the valley aquifer. About a third of the wells are more than 100 m deep. A more detailed review of the well logs would determine what proportion of the wells are potentially "Groundwater under the Direct Influence of Surface Water" (GUDI) wells and what proportion are completed in deeper strata with an overlying confining layer. This has implications for the quality of water extracted and for potential effects of groundwater pumping on streamflow.

The capacity data in Table 4-6 is based on the initial tests completed by the well driller and therefore only an estimate of actual yield. About a quarter of the wells on record have no yield data. Those that do have yield data show wide variation.

4.3.4 Groundwater Protection Planning

The Village of Keremeos and the Keremeos Irrigation District have combined resources to develop a groundwater protection plan, which was prepared by Golder Associates (2008, 2009). Other communities that have either begun or completed groundwater protection plans include Olalla and Princeton[3]. Collectively, these plan areas include a significant portion of the valley population that obtains its drinking water from groundwater. The plans provide good information on potential sources of contamination and recommended steps to reduce risk.

[3] The plans and supporting documents are available on the EcoCat web site - http://www.env.gov.bc.ca/ecocat/

Table 4-5
Groundwater well depths in the Similkameen Watershed

Depth Range (m)	Count	%
<20	260	14%
20-40	421	23%
40-60	235	13%
60-80	167	9%
80-100	119	7%
100-200	302	16%
200-300	135	7%
300-400	87	6%
400-500	50	3%
>500	29	2%
Total	**1805**	**100%**

Table 4-6
Groundwater well yields in the Similkameen Watershed

Well Yield (US gallons/minute)	Count	%
unspecified	441	24%
<5	217	12%
5 to 10	145	8.0%
10 to 20	196	11%
20 to 40	327	18%
40 to 60	162	9.0%
60 to 100	133	7.4%
100 to 300	79	4.4%
300 to 500	48	2.7%
500 to 1000	33	1.8%
1000 to 1500	13	0.7%
1500 to 2000	3	0.2%
>2000	8	0.4%
Total	**1,805**	**100%**
Median (where yield is specified)	30.0	
Average (where yield is specified)	116	
10^{th} and 90th percentiles	3.0 - 200	

4.4 WATER QUALITY

4.4.1 Monitoring Locations

A search of the B.C. Environmental Monitoring System (EMS) database was completed to determine how much water quality data are in the public record. The search was completed for Similkameen River, Tulameen River, Ashnola River, Hedley Creek, and Keremeos Creek. The monitoring sites with data from 20 or more sampling dates are listed in Table 4-7 and shown on Map 1.

Included in the list of sites are two long-term water quality monitoring sites – one at Princeton (#BC08NL0001) and one at the Canada-US border (#BC08NL0005); that are part of the British Columbia-Canada Water Quality Monitoring Agreement. This is a network of about 45 sites throughout B.C. where data are collected frequently (i.e. every 2 weeks) in order to allow assessment of trends (changes over time) and detailed comparisons of the results to water quality guidelines and objectives (see Section 4.4.2). Large areas of B.C. such as the northeast have no long-term sites, so more is known about water quality trends in the Similkameen watershed than in many other areas of B.C. Table 4-8 shows the median, 90th percentile, and 10th percentile values for a selected number of water quality variables at these two Canada-B.C. sites. Discussion of water quality trends is provided in the next section.

The other water quality sites with relatively large data sets are located near the now closed Nickel Plate Mine (Hedley Creek), the Princeton wastewater lagoon, Keremeos wastewater treatment plant, and the Copper Mountain mine (all on the Similkameen River). These locations include at least one “upstream” and one “downstream” sampling site to monitor effects of specific discharges to those streams.

The Water Survey of Canada collected suspended sediment data in the Similkameen River at Hedley between 1988 and 1992. The maximum and minimum recorded values are:

Year	Maximum (mg/L)	Minimum (mg/L)
1988	63 on May 16	1 on Jul 27
1989	160 on Nov 11	2 on Jun 23
1990	376 on Nov 12	1 on Sep 12
1991	248 on May 24	2 on Oct 02
1992	13 on May 12	2 on Oct 05

The highest sediment concentrations are associated either with spring freshet or autumn rain events and the river runs visibly clear throughout most of the summer and winter seasons.

Table 4-7
Water quality sampling locations in EMS Database: Similkameen, Tulameen, Hedley, Keremeos, and Ashnola

EMS ID	**Site Name** (only sites with ≥20 sampling dates are shown)	Latitude (decimal degrees)	Longitude (decimal degrees)	Number of samples	first sampling date	latest sampling date
SIMILKAMEEN RIVER						
500073	SIMILKAMEEN R @ CHOPAKA RD BRIDGE*	49.08	119.71	3,445	12-Jan-72	16-Feb-11
500629	SIMILKAMEEN R @ PRINCETON HWY 3 BRIDGE*	49.46	120.50	2,779	01-Aug-66	16-Feb-11
500693	SIMILKAMEEN R D/S KEREMEOS STP	49.19	119.78	176	08-Feb-79	17-Jun-02
500725	SIMILKAMEEN R D/S PRINCETON LAGOON -PE1236	49.46	120.47	167	11-Jul-79	22-Sep-93
500692	SIMILKAMEEN R U/S KEREMEOS STP @ BRIDGE	49.20	119.84	132	08-Feb-79	25-May-00
500075	SIMILKAMEEN R @ SIMILKAMEEN FALLS U/S NEWMONT	49.19	120.56	130	10-Apr-72	29-Aug-07
500724	SIMILKAMEEN R U/S PRINCETON LAGOON -PE1236	49.46	120.48	129	11-Jul-79	17-Aug-93
E207463	SIMILKAMEEN R. D/S CANDORADO	49.34	120.07	107	10-May-88	04-Sep-07
E207461	SIMILKAMEEN R.U/S HEDLEY	49.36	120.10	90	10-May-88	17-Jun-02
E207462	SIMILKAMEEN R D/S HEDLEY C	49.35	120.08	71	10-May-88	23-May-02
500417	SIMILKAMEEN R U/S NEWMONT MINE (PE00261)	49.35	120.55	30	04-Jan-72	17-Feb-87
500418	SIMILKAMEEN R-PE00261 D/S NEWMONT WEST DAM	49.36	120.55	27	04-Jan-72	17-Feb-87
TULAMEEN RIVER						
E255413	TULAMEEN RIVER AT COALMONT	49.51	120.69	34	22-Apr-04	22-Feb-07
500083	TULAMEEN R NEAR MOUTH @ PRINCETON	49.46	120.51	22	25-May-00	29-Aug-07
ASHNOLA RIVER						
E208831	ASHNOLA R @ BRIDGE - KEREMEOS	49.22	119.98	27	19-Jun-90	23-May-02
HEDLEY CREEK						
E223873	HEDLEY CREEK UPSTREAM NICKEL PLATE DIFFUSER	49.36	120.07	5,004	24-Jul-86	31-Dec-10
E223874	HEDLEY CREEK 100M D/S NICKEL PLATE DIFFUSER	49.36	120.07	4,999	04-Nov-96	31-Dec-10
500032	HEDLEY C @ HWY 3 BRIDGE	49.36	120.07	137	10-Apr-72	22-Sep-93
E207464	HEDLEY C @ MOUTH OF SIMILKAMEEN R	49.35	120.08	68	10-May-88	28-Oct-98
KEREMEOS CREEK						
E221341	KEREMEOS CREEK @ OLD HWY-KEREMEOS	49.22	119.82	148	23-Nov-94	24-Aug-10
E243528	KEREMEOS CREEK U/S CLIFTONS RANCH	49.25	119.83	48	07-Mar-01	11-Jun-03
E243529	KEREMEOS CREEK D/S CLIFTONS RANCH	49.23	119.82	47	07-Mar-01	11-Jun-03

* Canada-B.C. monitoring sites

Table 4-8
Water quality statistical summary – Similkameen River at Princeton and near the International Border

Parameter	Units	B.C. Aquatic Life Guideline	Canadian Drinking Water Guideline	Similkameen River at Princeton (April 1984 – January 2011)		Similkameen River at International Border (Oct. 1979 – Jan. 2011)	
				Median (n)	10th & 90th percentile	Median (n)	10th & 90th percentile
pH	pH units	6.5 – 9.0	6.5 – 8.5	7.9 (543)	7.7 – 8.1	8.0 (616)	7.7 -8.1
Hardness, total	mg/L	ng	200*	69.1 (52)	29.7 – 81.5	81.0 (163)	38.0 – 99.3
Specific conductance	µS/cm	Ng	ng	148 (550)	70 - 194	172 (686)	85 – 211
Turbidity***	NTU	8	ng	0.83 (551)	0.26 – 7.1	0.71 (673)	0.25 – 7.0
TSS***	mg/L	25	ng	10 (219)	5 - 40	10 (90)	5 – 124
Dissolved Oxygen	mg/L	8	ng	11 (34)	9.3 – 12.7	9.8 (33)	8.2 – 11.8
Total P	mg/L	ng	ng	0.009 (369)	0.004 – 0.043	0.008 (479)	0.003 – 0.079
Total dissolved P	mg/L	ng	ng	0.004 (196)	0.002 – 0.010	0.003 (188)	0.002 – 0.010
Ammonia-N	mg/L	5.86 (pH 8, t 10°)	ng	<0.001 (5)	<0.001 - <0.005	0.005 (4)	<0.002 – 0.013
Nitrate + nitrite-N	mg/L	3.0	10	0.009 (198)	<0.002 – 0.064	0.018 (316)	0.003 – 0.078
Total aluminum	µg/L	100 (dissolved)	100**	61 (449)	13 - **742**	52 (442)	11 – **995**
Total arsenic	µg/L	5	10	0.4 (503)	0.3 – 0.6	1.3 (589)	0.7 – 2.5

Continued.

Parameter	Units	B.C. Aquatic Life Guideline	Canadian Drinking Water Guideline	Median (n)	10th & 90th percentile	Median (n)	10th & 90th percentile
Total cadmium	µg/L	0.03	5	0.100 (463)	<0.007 – 0.200	0.100 (480)	<0.010 – 1.00
Total copper****	µg/L	3.0	500	1.3 (459)	0.7 – 5.0	1.1 (479)	0.60 – 5.5
Total lead****	µg/L	5.5	10	0.20 (462)	0.065 – 1.0	0.20 (480)	0.04 – 1.0
Total iron	µg/L	1,000	≤300*	60.1 (526)	17.8 - **587**	73.2 (602)	21.9 – **1,079**
Total zinc****	µg/L	7.5	≤5,000*	0.62 (461)	0.20 – 2.89	0.71 (479)	0.20 – 4.0

n – Sample size; < indicates less than detection limit shown
ng – no guideline
*Aesthetic guideline. Other drinking water guidelines are health-based
** Operational guideline for water treatment plants only
*** Turbidity and TSS guidelines are increases above background. Values shown are for “clear flow” period.
**** Aquatic life guideline varies with hardness. Value is approximate based on site water hardness.
Bold – exceeds Drinking Water Guideline
Underlined – exceeds Aquatic Life Guideline

4.4.2 Water Quality Assessment Reports and Objectives

The British Columbia-Canada Water Quality Monitoring program periodically reviews the data that has been collected and prepares a water quality assessment. This was last done in 2002 based on the 1976-2000 data at the US Border (Phippen 2002a) and 1966-2000 at the Princeton site (Phippen 2002b). In these reports the results are compared to the Water Quality Objectives (WQO) that were set for the Similkameen River (Swain 1990 and MOE 1990) and to the B.C. generic water quality guidelines. MOE had set WQO for the Similkameen River because it is an international river and it is also used as a water source for domestic, irrigation, livestock watering, industry (e.g. mining) and recreation. In addition, the river supports fish and wildlife. The monitoring data sets include standard physical parameters, suspended sediment, nutrients, and total and dissolved metals. There is some data for pesticides on both side of the Canada-US border, but sampling has occurred less frequently than for the regular parameters.

The monitoring and reporting is carried out because there are a number of waste discharge sources potentially affecting the river, including:

- Old, small placer mines near the Tulameen River and Princeton
- Wastewater treatment plants at Allison Lake, Princeton and Keremeos.
- An industrial landfill near the Similkameen River near Princeton
- The Copper Mountain mine upstream of Princeton, with seepage from tailings impoundments.
- Numerous non-point sources including private septic systems and agricultural operations.

The key findings of the 2002 summary reports are:

- The water at both sites is moderately hard with relatively high calcium concentrations;
- Total metal concentrations in the river occasionally exceed the Water Quality Objectives, but this happens primarily when suspended sediment concentrations are high and most of the metals are bound up with sediment and not biologically available;
- Other parameters that exceeded water WQO on occasion include cyanide (rarely), fluoride, and turbidity (if used untreated for drinking water), and fecal coliform bacteria; and
- The water is warm in summer, exceeding fisheries and drinking water aesthetic guidelines in most years.

In addition to the assessment reports, Environment Canada periodically calculates a Water Quality Index value for all the Canada-BC sites. This was last done in 2007 using 2000-2004 data (Environment Canada et al. 2007). Overall water quality at both sites was rated as “good” (the possible ratings are poor, marginal, fair, good, and excellent); meaning “measurements rarely exceed water quality guidelines and, usually, by a narrow margin. Aquatic life is protected with only a minor degree of threat or impairment”. No significant trends were noted. Both sites were also rated as “good” when assessed previously in 2000.

American government agencies are also interested in Similkameen River water quality. To meet their obligations under the *Clean Water Act,* the Washington Department of Ecology and the federal Environmental Protection Agency assessed the loads of arsenic in the section of river that is south of the border (Washington DOE and EPA 2004). Arsenic had been identified as a potential concern because the concentrations in the river exceeded EPA water quality criteria and because arsenic was understood to be entering the river from old mining operations near Hedley. It was determined that the Similkameen River naturally exceeds the EPA arsenic criteria upstream of the areas disturbed by mining near Hedley, and therefore the natural conditions were set as the site-specific water quality criteria (concentration and Total Maximum Daily Load). Monitoring in the U.S. continues to try to see if arsenic loads and concentrations are changing over time.

4.5 WATER USE

4.5.1 Water Licence Summary

A total of 832 current licences (at 688 points-of-diversion) have been issued on streams, springs, and lakes within the entire Canadian portion of the Similkameen River watershed (all points-of-diversion are shown on Map 1). Licences have been issued for off-stream uses, including domestic, irrigation, waterworks, stock watering, enterprise, mining, and processing purposes, as well as for storage and conservation purposes. For most off-stream use licences (i.e. domestic, waterworks), the period of use is from January to December, while for the majority of irrigation licences, the period of use is from April to the end of September.

On the Similkameen River mainstem, 114 licences (115 points-of-diversion) have been issued for off-stream and storage purposes with approximately 74.5 million m^3 licensed for off-stream use and approximately 1.0 million m^3 licensed for storage. A summary of all water licences on the Similkameen River mainstem, organized by purpose, is provided in Table 4-9. The main water suppliers licensed for withdrawals from the Similkameen River, include SID, CID, KID, and FHID. In addition to water license information for the Similkameen River mainstem, water licences are also summarized for some selected tributaries (Allison Creek, Keremeos Creek, Tulameen River, and Hayes Creek) in Table 4-9. The complete list of licenses is in Appendix A.

Table 4-9
Water Licence Summary: Similkameen River and Selected Tributaries

Stream	Purpose	No. Water Licences[1]	Licensed Volume (original units)	Converted to m^3/day	Major licence holder(s)
Similkameen River	Domestic	22	25,000 gallons/day	113.7	Individuals
	Irrigation[2]	80	7,529.4 acre-feet	50,751.2	Individuals
	Irrigation – Local Authority[2]	10	17,772.9 acre-feet	119,795.9	SID, CID, KID, FHID
	Waterworks – Local Authority	2	6.097×10^9 gallons/yr	75,944.1	FHID, SID
	Waterworks - Other	1	50,000 gallons/day	227.3	HML Mining Inc.
	Mining – Processing ore	2	820,000 gallons/day	32,277.9	Similco Mines, 439813 BC Ltd.
	Mining - Hydraulic	2	1.9 ft^3/s	4,648.5	SID; an individual
	Storage - Power	1	300,000 acre-feet	1,013,827.4	Fortis BC
	Power - General	1	1,200 ft^3/s	2,938,888.8	Fortis BC
	Cooling	1	22,000 gallons/day	100.0	HML Mining Inc.
	Other	8	-	450.3	Various
	Total	**130**		**4,237,025.1**	

Notes: See last page of table.

Table 4-7 continued

Stream	Purpose	No. Water Licences[1]	Licensed Volume (original units)	Converted to m^3/day	Major licence holder(s)
Allison Creek	Domestic	24	16,500 gallons/day	75.0	Individuals
	Irrigation[2]	58	2027.5 acre-feet	13,665.9	Individuals & small business
	Irrigation – Local Authority[2]	4	96 acre-feet	647.1	SID
	Storage	1	25 acre-feet	85.5	ALID
	Enterprise	1	6,000 gallons/day	27.3	Princeton Castle Resort
	Conservation	1	0 TF	0	Ministry of Environment
	Total	**89**		**14,500.8**	
Keremeos Creek	Domestic	19	21,500 gallons/day	97.7	LSIB, KID, individuals
	Irrigation	17	840.1 acre-feet	5,662.9	LSIB, individuals & small business
	Irrigation – Local Authority	3	892.4 acre-feet	6,015.1	KID
	Waterworks – Local Authority	3	27.225,000 gallons/yr	180.9	Apex Mountain Resort
	Snow-making	1	11 acre-feet	37.7	Apex Mountain Resort
	Storage	7	40.6	137.2	Apex Mountain Resort; Individuals
	Ponds	1	2 ft^3/s	4,893.1	An individual
	Total	**51**		**17,024.6**	

Notes: See last page of table.

Table 4-7 continued

Stream	Purpose	No. Water Licences[1]	Licensed Volume (original units)	Converted to m^3/day	Major licence holder(s)
Tulameen River	Domestic	5	4, 500 gallons/day	20.5	Individuals, Town of Princeton
	Irrigation[2]	1	7.5 acre-feet	50.6	An individual
	Mining - Hydraulic	1	1.0 ft^3/s	2,446.6	An individual
	Waterworks – Local Authority	1	766,500,000 gallons/year	9,546.8	Town of Princeton
	Total	**8**		**12,064.5**	
Hayes Creek	Domestic	12	7,000 gallons/day	31.8	Individuals & small business
	Conservation	2	0 TF	0	Ministry of Environment
	Irrigation[2]	33	1,530.9	10318.9	Individuals & small business
	Irrigation – Local Authority[2]	1	3 acre-feet	20.2	SID
	Power - General	1	5 ft^3/s	12,232.9	An individual
	Storage	9	396 acre-feet	1,338.3	Individuals & small business
	Total	**58**		**23,942.1**	

Note:

1. Some water licences are licensed for two purposes (i.e. irrigation and domestic); therefore, the total number of licences (130) reported in Table 4-9 is greater than the total number of individual licences (114); and
2. For reporting purposes, the water licence period of use is assumed from April 1st to September 30th.

Table 4-10 summarizes the licensed quantities for the major water suppliers in the watershed. In order, the top five total allocation holders are SID, KID, LSIB, USIB, and the Town of Princeton.

Table 4-10
Water supplier licensed quantities – domestic, irrigation and waterworks.

Water Supplier	Purpose	Licensed Quantity (ML)
Lower Similkameen Indian Band	Domestic	55.6
	Irrigation	8661.6
Upper Similkameen Indian Band	Domestic	19.9
	Waterworks	1537.1
	Irrigation	3326.7
Allison Lake Irrigation District	Waterworks	74.7
Cawston Irrigation District	Irrigation	1480.2
Fairview Heights Irrigation District	Waterworks	44.8
	Irrigation	3219.4
Keremeos Irrigation District	Domestic	18.3
	Irrigation	15022.2
Missezula Lake Irrigation District	Waterworks	83.0
Okanagan - Similkameen Regional District	Domestic	0.8
	Irrigation	67.6
	Waterworks	50.6
Osprey Lake Irrigation District	Domestic	5.0
	Waterworks	99.6
Town of Princeton	Domestic	3.8
	Irrigation	47.1
	Waterworks	3484.6
Similkameen Irrigation District	Domestic	0.8
	Irrigation	15925.4
	Waterworks	27674.8

4.5.2 Actual Water Use

According to DFO et al. (2009), a comprehensive inventory of actual water use has not been completed. An inventory was reportedly completed by MOE in 1981 but that report (by R.G. Harris) has not been located (it is not listed in EcoCat or CLIS).

A number of older reports provide estimates, but it is likely that they are simply reporting licences. For example, Phippen (2002a, b) cites a 1985 MOE study and quotes “Consumptive water uses are

12,917 dam^3/year irrigation, 175 dam^3/year mining and 785 m^3/d drinking water in the Similkameen River" (estimates are also given for Tulameen River, Allison Creek; Hayes Creek, Wolfe Creek, Hedley Creek, Keremeos Creek, and Ashnola Creek).

This lack of information on actual water use will be a constraint on water management planning, and we recommend that an inventory be completed. The inventory should determine if water licence holders are using groundwater, either instead of their surface water allocation or in addition to it. Section 6.3.3 below expands on this recommendation.

4.6 FLOW NEEDS FOR FISH

Concerns have been expressed since the 1980s over the effects of summer and autumn low flows on fish. Although low flows and warm water temperatures natural limit fish production and survival, water withdrawals are considered to exacerbate this situation (DFO et al. 2005).

Detailed analyses of in-stream flow needs for fish have not been completed for the Similkameen River. Ptolemy (2009) completed a screening analysis of the Similkameen-Boundary region to identify and prioritize streams considered to be flow-sensitive for fish. Summer flows less than 20% of mean annual discharge was the criterion used to identify sensitivity. The results indicate that most streams in the Similkameen are considered flow-sensitive for fish, some naturally and some because of water withdrawals reducing the flow during the July-October period.

4.7 FLOODPLAIN MAPPING

MOE has developed floodplain maps for the Similkameen River in the Keremeos – Cawston area and in the area near Princeton[4]. For the former, the mapping begins about 3 km upstream of the confluence with the Ashnola River and extends to about 3 km downstream of Cawston. The Princeton maps include the Tulameen River as well as the Similkameen River in the developed areas of Princeton. The mapping coverage for the Similkameen then extends downstream to about 3 km past the Alison Creek confluence. At Tulameen there is floodplain mapping for the reach of the Tulameen River from about 6 km upstream to 8 km downstream of the community.

The floodplain maps show the area that can be expected to flood, on average, once every 200 years (MOE 2011). As noted on the MOE web site, "the 200-year flood can occur at any time in any given year; the indicated flood level may be exceeded; and portions of the floodplain can flood more frequently" (MOE 2011).

[4] On-line at http://www.env.gov.bc.ca/wsd/data_searches/fpm/reports/region3.html

4.8 PREVIOUS SIMILKAMEEN RIVER WATER RESOURCES STUDIES

The Similkameen River has been the subject of numerous technical and policy studies in the last century, especially since 1944 when the Canadian and U.S. governments asked the IJC to examine the feasibility of the system of dams and reservoirs that would eventually be constructed under the Columbia Basin Treaty. Appendix B contains the results of a search of MOE's CLIS information database, listing all reports that are somewhat related to water resources and aquatic ecosystems for the Similkameen Valley and adjacent areas. It is likely that this is not an exhaustive list, as a variety of other public and private organizations have studied some aspect of water in the Similkameen watershed.

As noted earlier, a document that has not been located in time for this report is a 1981 water demand study by R.G. Harris of Ministry of Environment. However, a new agricultural water demand study is being prepared by the B.C. Ministry of Agriculture for distribution in 2011. The process is described below in Section 4.9.1. The new estimates will supersede any previous estimates since they make use of recent climate data and modelling results, and of up-to-date agricultural land use mapping.

4.9 ON-GOING WATER SCIENCE & MANAGEMENT INITIATIVES

4.9.1 BC Ministry of Agriculture

The Ministry of Agriculture and Lands (MAL) is currently developing an Agricultural Water Demand Model for the Similkameen watershed. The procedure is the same as what was used to develop the agricultural component of the Okanagan Water Demand Model (OWDM) that estimates water demands for all indoor and outdoor purposes in the Okanagan Basin (Summit 2010).

The Agriculture (Irrigation) Water Demand Model (van der Gulik et al., 2010) is based on a Geographic Information System (GIS) database that contains cadastre information (showing the boundaries of land ownership), crop type, irrigation system type, soil texture and climatic data. This information was assembled from background information as well as high resolution orthophotos and GIS, and was ground-truthed in 2010. Land uses (including crop type and method of irrigation) are identified and water demands are estimated at the scale of individual land parcels and finer (i.e. polygons, as outlined in blue on Figure 4-1), therefore the model will provide estimates of water demand for individual crops on a parcel of land, or for entire sub-basins, local governments jurisdictions, or water supplier areas (e.g. irrigation districts) by summing the demands within those areas.

The irrigation demand model calculates the daily evapotranspiration demand for each parcel using a form of the Penman-Monteith equation. It also computes the existing soil moisture and the daily precipitation, and the irrigation requirement is the leftover demand that can't be met from these two sources. The climate dataset is the key dataset that drives the evapotranspiration calculations. In

the Okanagan project, a gridded dataset consisting of cells measuring 500 m by 500 m was created, and populated for the period 1961-2010 based on observations from many stations in and near the watershed. Future water demands were estimated based on climate change projections from a Canadian general circulation model (the GCM2 Model).

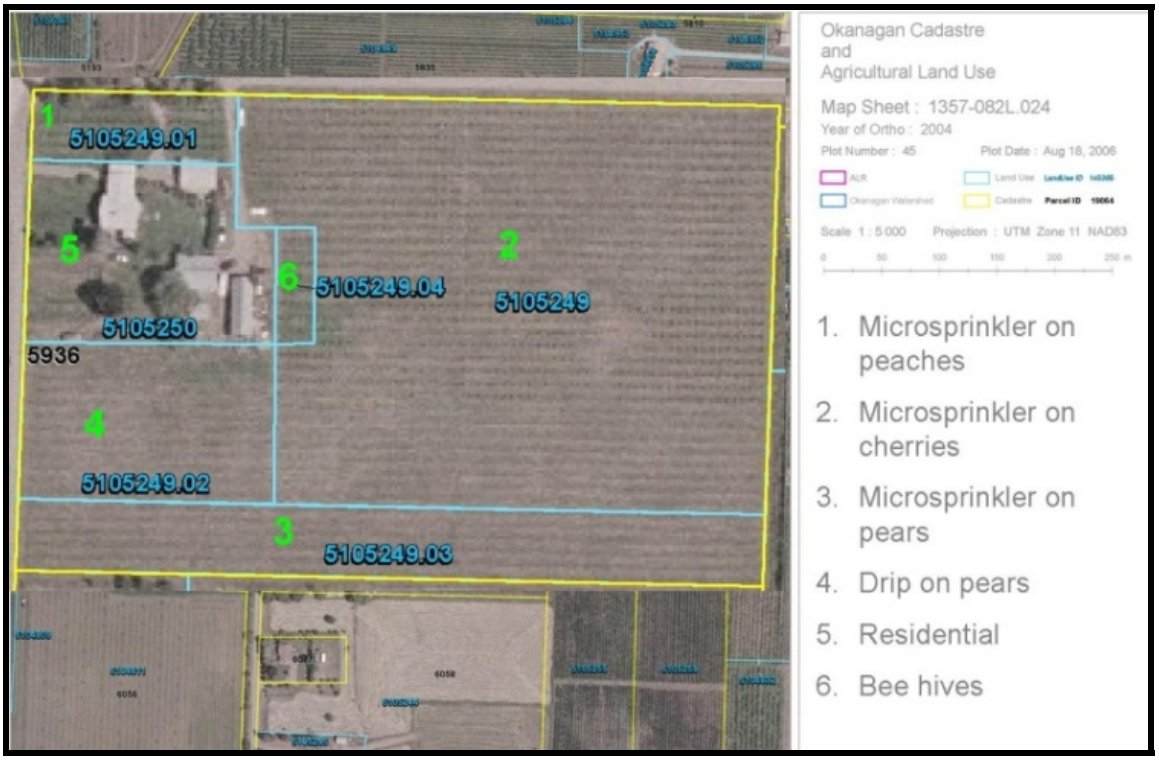


Figure 4-1
Example map sheet showing the resolution of the imagery used and the designated land use within a specific cadastre (i.e. property boundary).

Environment Canada is continually improving the climate datasets used to drive the model, and is currently developing a dataset covering southern B.C. that can be used for the Similkameen and other watersheds. It is understood that this new climate dataset is based on a grid size of 1,000 m by 1,000 m. Despite the larger size of the grid cells, EC expects the new datasets will provide a better representation of past and future climate compared with the datasets used in the Okanagan project. A detailed description of how the model calculates irrigation water demands is provided in Appendix I2 of the Okanagan Water Supply and Demand Project (Summit 2010).

It is important to note that the model calculates water demand based on climate, land use, soils, and the irrigation systems that are present. Calculated water use would equal actual use if all irrigators watered at optimal rates, leakage was predictable, and users did not over-water or under-water their crops. The model will be a great improvement over previous estimates, but an inventory of actual use is needed to test the model and extend the data beyond agriculture.

The Okanagan Water Demand Model linked water demands on the land to extractions from water sources (e.g. streams, lakes and aquifers) by mapping "water use areas" and identifying the source(s) of water supplying each of the delineated areas. This could also be done in the Similkameen.

4.9.2 Agriculture Canada

Agriculture Canada is developing a 1000 m grid climate model to estimate current and future climate conditions in the watershed, working closely with the provincial Ministry of Agriculture and Environment Canada. It is expected to be ready for users later in 2011.

4.9.3 International Joint Commission

Osoyoos Lake is an international water body, lying partly in B.C. and partly in Washington State. Management of the lake therefore falls under the jurisdiction of the International Joint Commission (IJC). The IJC has established a body known as the International Osoyoos Lake Board of Control (IOLBC), comprised of three individuals from Canada and three from the USA to manage the lake. Outflows from Osoyoos Lake are regulated by Zozel Dam, located about 4 km downstream of the lake outlet. The Similkameen River joins the Okanogan River downstream of Zozel Dam, yet it can influence outflows from the Dam and water levels on Osoyoos Lake when its flow is high enough, and it is therefore relevant to the management of the lake.

The lake is operated according to "Orders of Approval" developed by the IOLBC. The current orders expire in 2013 and will require renewal at that time. The IOLBC is presently completing eight studies to determine whether and to what extent the current orders should be changed before renewal occurs. These eight studies are described in Glenfir Resources (2006), and listed here:

- Study 1: An assessment of the most suitable water levels for Osoyoos Lake during drought years;
- Study 2: An evaluation of the criteria used to declare drought;
- Study 3: A review of the dates for switching between summer and winter operation;
- Study 4: An investigation of the effects, if any, of water regulation on water quality in Osoyoos Lake;
- Study 5: An investigation of methods for including ecosystem requirements in Orders of Approval;

- Study 6: An investigation of methods for including climate change information in Orders of Approval;
- Study 7: A demonstration of the factors that govern lake levels during floods; and,
- Study 8: An assessment of the methods used to monitor flow capacity in the Okanogan River.

At the present time, reports have been completed for all but Studies 2 and 3, which are expected to be complete by the end of 2011. Reports for completed studies are available on the IJC website (www.ijc.org).

4.9.4 First Nations

In 1997 the Ministry of Environment prepared reports summarizing the history of water rights and water allocations on the reserves of the Lower Similkameen Indian Band (MOE 1997a) and Upper Similkameen Indian Band (MOE 2007b).

Both communities have recently undertaken groundwater investigations as part of upgrades to the drinking water supply systems on their reserve lands.

4.9.5 University Research

The Pacific Climate Impacts Consortium (PCIC) at the University of Victoria carries out studies on the impacts of climate change and climate variability in the Pacific and Yukon region. The goal is provide government agencies and other stakeholders with the information needed to develop plans for reducing risks associated with climate variability and change (PCIC web site http://pacificclimate.org/). The hydrology group at PCIC has adapted the Variable infiltration Capacity (VIC) model for use in the Similkameen watershed, which will enable estimates of the hydrological effects of climate change in the watershed (Schnorbus, pers. comm. 2011). The model will be calibrated in 2011 and will likely be available in late 2011 or early 2012. This group recently published the results for a similar study on the Peace, Columbia, and Campbell Rivers (Schnorbus et al. 2011), and the products of the Similkameen study are expected to be similar.

Research by the University of Washington's Climate Impacts Group is looking at climate change effects on the Columbia River system, including the Similkameen River. This work was discussed earlier in Section 3.4.3.

4.9.6 Hydro-electrical Power Studies

There are proposals in the United States to both reactivate the Enloe Dam and to build a new dam about 1.6 km upstream at Shanker's Bend. The Shanker's Bend dam would also provide significant storage capacity. Detailed hydrological, environmental and climate studies have been prepared to assess the feasibility of these projects (Okanogan PUD No. 1 2009; 2011). These most recent studies build on studies that began in the 1920s when a dam with significant storage

was first proposed. Given their proximity to the Canadian border, the analyses for these sites provide valuable information that can be applied to our understanding of water resources in the Canadian Similkameen valley.

FortisBC holds power generation and storage licences on the Similkameen River at Similkameen Falls. It is understood d that FortisBC has begin feasibility studies on this project, but reports and data are not yet available.

4.9.7 Mining Studies

As noted earlier, the Copper Mountain mine re-started in April 2011, and operates on both the water licences and the waste discharge authorizations that existing from when it operated previously. Flow and water quality monitoring are required and regular reports must be prepared. The water quality monitoring at the mine needs to meet the requirements of the Metal Mining Effluent Regulations (MMER) of the federal *Fisheries Act*. It is expected that the first annual report for MMER would be submitted in March 2012.

4.10 DISCUSSION: HOW MUCH IS KNOWN ABOUT THE "STATE OF THE WATERSHED"?

Relative to its population, there is a solid information base for the water resources of the Similkameen River watershed, although a number of data gaps remain that could constrain decision making. The river's status as an international river is the major factor in why there are above-average levels of hydrometric and water quality monitoring on the Canadian side of the border. In addition, various American agencies have studied the Similkameen River because it is a tributary to the Columbia River, one of the most managed rives in North America, and because its values to Americans are similar to those held by Canadians.

To summarize the available information:

- There is good streamflow monitoring coverage by WSC - four active mainstem stations and active stations on all major tributaries.
- There is better than average water quality data coverage (i.e. 10+ sites with >60 sampling dates), including two Canada-BC long-term monitoring sites.
- There are six snow survey sites
- There are four Environment Canada climate stations operating, plus good data records from several discontinued sites
- There are six groundwater observation wells
- Groundwater protection plans have been initiated or completed for Keremeos, Princeton, and Olalla.
- DFO et al. (2009) has prepared a recent report summarizing that status of fisheries resources in the watershed, building on a detailed report by Rae (2009).

- Okanogan County has done a recent (2009) detailed feasibility study for a proposed dam at Shanker's Bend, that includes analyses relevant to the whole watershed.

Information that will be available soon (in 2011 or early 2012) includes:

- Agriculture Canada and Environment Canada are developing a 1000 m grid climate model to estimate current and future climate conditions in the watershed
- BC Ministry of Agriculture is developing an agricultural irrigation demand model
- PCIC is developing a hydrology model to assess effects of climate change on streamflow.

In addition to the information base, there are other factors supporting the ability to move ahead efficiently with a water planning initiative. These include:

- In SVPS there is already an established community planning structure and on-going partnerships with government agencies and researchers; and
- There are relatively few major water users, making it feasible to document current water use within a reasonable time frame.

5 WATERSHED TECHNICAL STUDIES ELSEWHERE

This section provides an overview of the technical components of watershed planning processes in other areas of B.C., Canada, and the U.S. that are relevant to the Similkameen Valley.

5.1 BRITISH COLUMBIA

5.1.1 Okanagan Basin Water Supply and Demand Project

In 2004 the Okanagan Basin Water Board and MOE initiated the Okanagan Water Supply and Demand Project (OWSDP). It had been 30 years since the previous watershed-wide water study had been completed, which was based on a range of population and land use projections. By 2000 the population of the Okanagan Basin had already exceeded the highest-growth projections of the 1974 study and new challenges such as climate change and effects of Mountain pine beetle had come along. This prompted the OWSDP, which will guide both water and land use planning going forward.

The OWSDP is being completed in Phases. Phases 1 and 2 are complete and Phase 3 (implementation) is underway. The Phase 1 study identified and evaluated the available information, made recommendations for filling gaps in the information base, and outlined a strategy for completing Phase 2 (Summit 2005). Phase 2 included a number of technical studies including:

- A Water Management and Use Study that included tabulation of existing water licences and, more importantly, assembly and summary of available records on actual water use in the Basin. These were obtained by visiting the water suppliers in the Okanagan as well as other sources.
- Calculation of a detailed water budget for the Basin.
- A groundwater study. Because groundwater is only minimally regulated, there was little information on water sources and water use compared to surface water. A conceptual model of groundwater storage and flow was developed, indicating that most groundwater activity takes place in 79 distinct shallow aquifers located mostly near the valley bottom.
- Estimates of lake evaporation using a number of models. Wide variation in the results indicated the need for direct measurement of lake evaporation.
- A surface water hydrology study that included estimated of the natural stream flows at more than 80 locations in the watershed. Most of the streams in the Okanagan have been managed through a combination of storage, diversion, and water extraction for a long time, requiring estimates of natural flow through a number of methods.
- In-stream Flow Needs (IFN) assessment to provide minimal and optimal protection for aquatic life.

- Development and calibration of three custom computer models for simulating water supply and demand: a water demand model, a hydrology model, and the Okanagan Basin Water Accounting Model.
- Use of the models to examine 15 potential water supply and demand scenarios involving various combinations of climate change, population growth, changes in land use (agriculture, forestry, and urban), and water conservation measures.

The results of these Phase 2 studies are summarized in Summit (2010) and copies of most reports are available on the OBWB's OWSDP web site (http://www.obwb.ca/wsd/).

The OWSDP was a collaboration of the two lead agencies, OBWB and MOE, and a group of other partners including the BC Ministry of Agriculture, the BC Ministry of Community, Sport and Cultural Development, Environment Canada, Agriculture and Agri-Food Canada (AAFC), Fisheries and Oceans Canada, and the Okanagan Nation Alliance. All of the technical studies were guided by a number of technical advisory and stakeholder/partner advisory committees; with the involvement of elected officials in both.

The project was funded by grants from MOE, the Canada-BC Water Supply Expansion Program (AAFC), the Gas Tax Fund, and Natural Resources Canada. The OBWB acted as financial administrator for the project and provided local matching funds. Local water suppliers contributed by providing data. The total project cost was about $2,300,000 and received an additional $900,000 of in-kind support from the partners (OBWB).

5.1.2 Nicola River

The Nicola River is a tributary of the Thompson River and important both for its fisheries resources (including Pacific salmon) and as a water source for human use. The Nicola watershed shares a number of characteristics with the Similkameen watershed including a semi-arid climate, similar hydrologic regime, a large role of ranching and other forms of agriculture on the economy, a relatively small urban population, and a strong interest in water management by its residents. Water resources planning in the Nicola River watershed is a very good example of an initiative that is driven by the citizens that live in the watershed.

Development of the Nicola Water Use Management Plan (NWUMP) began in 2004 in response to drought conditions in 2003 (Nicola WUMP Multi-Stakeholder Committee 2010). A Community Roundtable organized a workshop in 2004 to obtain community input into identification of key water issues and development of a planning process. The overall goal was to "ensure that the future water supply will be divided equitably among all water users balancing the community's social, economic, traditional and ecological values". This led to a four phase process: the first was plan initiation, the second was plan development (technical studies and assessments of water management options), and the third was community evaluation. Parts 1, 2 and 3 are complete and

the results are available in a report (Nicola WUMP Multi-Stakeholder Committee 2010) through the Nicola Watershed Community Round Table web site (http://www.nwcrt.org/).

The NWUMP planning process was run primarily by two committees: the Multi-Stakeholder Committee (MSC) and the Steering Committee (SC). The MSC was responsible for decision making during the plan's development and included representatives from all levels of government, First Nations, interest groups, and individuals. The SC provided organizational and technical support. Several sub-committees were formed to aid the MSC and the Nicola Watershed Community Round Table provided administrative and support services throughout the project. A number of technical studies were completed to provide the information needed to facilitate planning.

The NWUMP includes 37 recommendations ("policy instruments") for implementation within six categories: general (1); water quantity (24 recommendations), water quality (2), environment (4), learning (3), and management (4). The general recommendation is "Initiate and implement a Water Management Plan for the Nicola Watershed under Part 4 of the Water Act". In other words, give the plan enforceable authority under the *Water Act*. The heavy weighting of the recommendations towards water quantity is because there was understanding throughout the process that water shortages will occur and because of a strong interest in avoiding conflicts over those shortages (Nicola WUMP Multi-Stakeholder Committee 2010). Water quantity management will include both demand management and increased storage.

Plan implementation has begun but is scheduled to be implemented over 10 years (most within the first 4 years or by 2014). A number of related government initiatives are also underway, including extending the Ministry of Agriculture and Lands irrigation demand model to other sectors.

5.1.3 Kettle River

In 2010 the Regional District of Kootenay Boundary (RDKB) began to develop a watershed management plan for the Kettle River basin. Provincial and federal government agencies and other stakeholders will also participate in development of the plan, which will be completed in two phases. Phase 1 began in April 2011 and is a Technical Assessment intended to summarize existing information in a single "State of the Kettle River Watershed" document that will be completed by about February 2012. Phase 1 will lead into Phase 2, which will set planning goals, actions, and policy that can be implemented to maintain the health of the watershed in the long term. Guidance on Phase 1 is provided by a Technical Advisory Committee that includes the major water suppliers, MOE, MOFLNRO, MAL, the Sylix Nation, Interior Health Authority, DFO, and RDNO. A Stakeholders Advisory Committee with representative from community, environmental, agricultural, and fishing organizations also provides oversight.

Like the Similkameen River, the Kettle River is an international river that is a Columbia River tributary and which supports a strong ranching sector and several communities. It also is well used as a recreational fishery, and concerns over low flows and warm water temperatures has led the provincial government to begin studies on in-stream flow needs to maintain fish and fish habitat. Those studies are supported by consultations with the agricultural water users and the local governments with waterworks and irrigation licences.

5.1.4 Fraser Basin

The Fraser Basin Council is a non-governmental organization with a mandate to ensure that planning decisions in the Fraser River Basin will "protect and advance its social, economic, and environmental sustainability" (Fraser Basin Council web site www.fraserbasin.bc.ca). Although based on a watershed, water management is only one of the sustainability issues that the Council addresses. Most of the information relevant to water planning in the Similkameen Valley is accessed through the "Regional Programs" page on the web site. Examples include the Shuswap Lake Integrated Planning Process (SLIPP), workshops on hydrological effects of Mountain Pine Beetle, and the Hope to Mission Fraser River Management Plan (which emphasizes gravel removal and flood control).

5.1.5 Shuswap River

The Regional District of North Okanagan initiated a technical assessment of the Shuswap River watershed in April 2011. That project was just underway at the time that this report was prepared and no results are available. The terms of reference are similar to the current Kettle River watershed project but with a greater emphasis on water quality. This is because residents and stakeholders have recently expressed concerns about the potential water quality effects of proposed residential, recreational and industrial development in the watershed, which would add to effects from existing point (e.g. treated municipal wastewater) and non-point sources of water pollution.

When complete, the findings of the Shuswap River study will be relevant to the Similkameen River in a number of ways. Notably, the Shuswap River is regulated for hydro-power production, as B.C. Hydro maintains dams on at Shuswap Falls (Wilsey Dam, site of power generation) and at the outlet of Sugar Lake. Sugar Lake was a natural lake that was turned into a larger reservoir when the dam was constructed. The dam creates the storage for the downstream power generation facilities at the Wilsey dam, and is also used for flood control.

5.2 OTHER CANADIAN PROVINCES

5.2.1 Alberta

In Alberta the *Water for Life Strategy* led to creation of Watershed Planning and Advisory Councils (WPACs) that are specifically designated by Alberta Environment to assess the condition of their watershed and prepare plans to address watershed issues (Alberta Environment 2011). WPACs also complete stewardship activities in their watersheds and carry out public education. The councils are directed by watershed stakeholders, including government agencies, industry, First Nations, and conservation groups. Many feature active volunteer programs and aim to develop plans through consensus. Within Alberta there are currently eleven WPACS. Those in drier regions with similar issues to the Similkameen include:

- Battle River Watershed Alliance
- Bow River Basin Council
- Milk River Watershed Council Canada
- Oldman Watershed Council
- Red Deer River Watershed Alliance
- South East Alberta Watershed Alliance

The *Water for Life* Strategy requires each WPAC to prepare an Integrated Watershed Management Plan (IWMP). IWMPs establish watershed scale outcomes and develop recommendations for the consideration of decision makers. Like their equivalents in B.C., the IWMP in a watershed is typically preceded by a number of technical studies completed in partnership with government agencies. Readers may wish to go to the web site of the Milk River Watershed Council Canada as an example of a WPAC's planning process. It is of interest in part because it is a trans-boundary watershed, sharing an aquifer with the United States (see www.milkriverwatershedcouncil.ca).

5.2.2 Ontario

Ontario has a system of 36 Conservation Authorities (CA), which are community-based watershed management agencies organized according to watershed boundaries. There is a central web site that provides linkages to the individual Conservation Authorities (http://www.conservation-ontario.on.ca/). Many of the CAs have created watershed management plans customized to their particular management issues. Watershed management is defined as "a process of managing human activities within our watersheds in order to protect and rehabilitate land and water resources while recognizing the benefits of orderly growth and development." The web site includes a directory of the plans that have been completed, including how the budget was allocated.

With respect to water quality, the well-known Walkerton tragedy took place in Ontario in 2000, leading to an overhaul of that province's system of managing drinking water sources (Worte 2010). This included consolidation of water quality monitoring for both surface water and groundwater.

The Ontario Ministry of Environment directs the monitoring, establishes the methods, and manages the databases, but the Conservation Authorities conduct the monitoring and prepare "report cards" every two years.

5.3 United States

5.3.1 Washington State

Washington State is divided into 62 separate watersheds of about 1,000 to 3,000 mi^2. A multi-stage watershed planning process, funded by the state, was initiated in the 2000s, including:

- Phase 1 - Organizational Phase: Establishment of program structure, process and detailed work scope;
- Phase 2 – Assessment Phase: Watershed assessment;
- Phase 3 – Planning Phase: Plan development; and
- Phase 4 – Implementation Phase: Implementation plan development.

While this planning process is supposed to include a representative committee of the various stakeholders, residents, interest groups and various levels of government, in some cases it has become a contentious situation between farming groups, environmental groups and the different government agencies (USGS 2009).

Methow River and Okanogan River watershed groups, immediately south of the Similkameen, have engaged in the planning process. Methow group have published a Phase 2 Assessment, a Phase 3 Plans (Methow Basin Planning Unit 2005) and a Phase 4 Implementation Plan (Methow Watershed Council 2009). The Implementation Plan has not yet been approved by the Washington State Bureau of Ecology. As of mid-2011 the Okanogan group was working on the Phase 2 assessment report.

Methow River Watershed

A Phase 3 watershed plan was developed for Methow River watershed in Washington State (Methow Planning Unit, 2004), which is located south of the western part of the Similkameen watershed in B.C. The Methow watershed covers 1,805 mi^2 or about 4,679 $km^{2,}$ extending from the Cascade Mountains to the southeast. The Watershed Plan was to assess the current water supply and use and to develop strategies to increase water supplies to provide for future out-of-stream uses while satisfying minimum in-stream flows for fish (Methow Basin Planning Unit 2005). The report includes evaluations of land-use, jurisdictions, fish and fish habitat.

Similar to the Similkameen River watershed, the watershed can be characterized as a high desert located in the Cascade Mountain Range rain shadow. There is extensive irrigated agriculture, many

operating and disused irrigation canals, and much water use planning and allocation required to balance fish habitat requirements and agricultural water needs.

Storage of excess water from high snowmelt runoff has been used as the most effective way to increase water supplies for environmental and human use. In the Methow watershed, this has been accomplished by groundwater storage of river flow, where it soaks into the subsoil below unlined irrigation ditches.

The groundwater recharge supports fish and other wildlife; maintains riparian zones; slows surface water movement; stabilizes river water temperatures (cooler in the summer and warmer in the winter); and increases overall water quality by filtering groundwater through the surface glacial till (Methow 2005).

The watershed planning group recommended balancing water use for agriculture, industry and domestic needs with fish and habitat needs through implementation of land use ordinances. The Methow Basin Planning Unit had recommended formation of a publicly controlled Watershed Council to oversee the watershed plan, and implement and develop the Plan's recommendations. The recommendations included:

- Protect and enhance water management methods that benefit the Methow Basin
- Develop water storage
- Protect artificial recharge and existing unlined irrigation canals
- Enhance artificial recharge using unused unlined irrigation canals
- Preserve agricultural lands and uses.

This type of watershed planning and modification of the existing streams and flow regime has not been conducted to date in the Similkameen watershed but is similar to planning and activities by some Irrigation Districts in the Okanagan and other locations.

One of the background watershed assessment reports for the Methow Watershed Planning Unit project is a detailed fish distribution and status report (Andonaegui 2000). This report also investigated habitat limiting factors by sub-watershed. The report identified inventory and assessment data gaps for the watershed, which included information about fish and riparian habitat, barriers to fish migration, groundwater-surface water interaction, and groundwater inflow effects on water temperature.

Several of these are similar to known data gaps for the Similkameen watershed. The Methow fish status report suggested that mapping should be completed of stream reaches known to dewater, and the locations of water diversions and withdrawals. In addition, it recommends that the hydrologic effects of surface water application on groundwater levels should be investigated.

Okanogan River Watershed

While the Methow watershed south of the Similkameen study area had a Phase 3 watershed plan developed in stages and implemented by 2005, the Okanogan watershed east of Methow and south of the Okanagan valley in B.C. is still developing their Phase 4 draft watershed plan.

The Phase 2 Okanogan watershed assessment was collaboration between the Canadian Okanagan Basin Technical Working Group (Okanagan Nation Alliance, B.C. Ministry of Environment and the federal Department of Fisheries and Oceans) and the Okanogan Watershed group (Okanogan Watershed Planning Group 2004)

Washington State Watershed Planning

A review of the status of watershed planning in Washington State was provided in Washington State Department of Ecology (2006). Among the 62 watershed groups in Washington State preparing watershed plans, the top five categories of operating budget requests in response to local needs were:

- Water Quality – monitoring, improvement
- Habitat – restoration
- Ground Water/Surface Water – assessments, modeling, monitoring
- In-stream Flow – setting, monitoring, tracking, enforcing
- Stream Gauging – monitoring

5.3.2 Oregon State

In the State of Oregon, Watershed Councils have been developed during the 1990s and 2000s to inventory and rehabilitate watersheds and streams, mainly for fish access and habitat purposes. These programs are funded by the Oregon Watershed Enhancement Board, an agency of the State government (Oregon Watershed Enhancement Board 2010).

In Oregon, watershed councils are locally-led volunteer organizations including local community members. Watershed councils engage with landowners, First Nations groups, private businesses, conservation groups, universities, industry, and local, state, and federal agencies, to work at restoring and enhancing watershed resources. Support funding is available to Councils including the various community interest groups, and recognized by a local government body. The Councils utilize local knowledge, supporter initiative, group agreement, and collaborative actions, supported by state funding.

6 RECOMMENDATIONS: NEXT PHASES OF THE SIMILKAMEEN WATERSHED PROJECT

6.1 RECOMMENDED WATER PLANNING STRUCTURE AND COMMUNITY CONSULTATION

This report is Part 1 of a Water Planning Study that has been initiated by SVPS. The need for an assessment of current and future water resources in the Similkameen River watershed was identified during the development of the Strategy for a Sustainable Similkameen Valley, 2011-2020. There was general agreement that there is a need to improve water resource management in the watershed in order to achieve sustainability objectives, avoid conflicts over water, and adapt to climate change, which will have implications for both water supply and for water demand. Concerns over water were raised throughout development of the Strategy from the full spectrum of stakeholders, demonstrating the depth and breadth of public interest in water resources; including but not limited to water supply, water rights, water use and future demand, water quality (surface water and groundwater), fisheries, and aquatic and riparian ecosystems.

Given the strong interest in water management issues, it is clear that the Similkameen Valley community should play a major role in water planning, as it did in the Strategy. SVPS is well-positioned to coordinate water planning because it enables the involvement of the two First Nations communities along with the other local governments. In addition, it allows the momentum created by the sustainability strategy to continue.

The Nicola Community Roundtable is an example of a community-led water planning structure, and SVPS may wish to consult with that organization for advice and “lessons learned” on how to move forward with technical studies while keeping the community engaged. Similarly, SVPS should contact the coordinators of the nearby Kettle River and Okanagan Basin projects for advice on project structure and stakeholder engagement. The formal structure of the Similkameen process should be developed through community consultation, and the services of a professional meeting facilitator would be beneficial given the high degree of public interest. A communications strategy should also be developed (see Section 6.3.2 below).

Simultaneous to confirming the structure, objectives and long-term goals of the water planning process, a number of technical investigations should proceed as soon as feasible to address the information gaps identified in this report and thereby complete Strategic Means 7.1 of the Strategy (i.e. complete an inventory of Valley water quality and quantity). Sections 6.2 to 6.6 describe these recommended studies. As discussed in Section 4.9, the existing information base in the Similkameen River watershed is relatively comprehensive compared to other areas of B.C., and completion of the recommended technical studies is

unlikely to unduly delay water management planning. However, it is critical to first define the detailed goals of the water plan to ensure that the technical studies address the key management questions.

6.2 FORMATION OF ADVISORY COMMITTEES

We suggest the formation of a Stakeholder Advisory Committee (SAC) and a Technical Advisory Committee (TAC), both working under the direction of SVPS. Watershed planning studies in other locations have been guided by committees comprised of technical specialists and stakeholders; sometimes combined into a single committee and sometimes separately. In the context of a watershed planning process, a "stakeholder" may be defined as a person or organization that has a legitimate interest in the project, generally because the outcome may affect them (e.g. economically) or it may affect a value that is important to them (e.g. a healthy environment). As noted in Section 6.1, there is a high level of both public and stakeholder interest in water resources management issues in the Similkameen Valley, indicating that there will be value in establishing both a SAC and a TAC.

The SAC will provide input on the direction and technical scope of future studies to help ensure that they consider the needs of those potentially affected by future decisions based on the findings. Organization of a SAC should be linked to the public consultation process (see Section 6.4), such as by allowing several people who are not attached to a specific stakeholder group to be involved as "at-large" members.

The TAC also would provide guidance on project direction and scope, with greater emphasis on ensuring that the study is based on the best available science and that it does not duplicate work completed or being done by other organizations. TAC tasks would include developing terms of reference for technical studies, hiring and supervision of consultants, review of calculations and reports, advising on regulatory matters, and assisting with communication.

For the Similkameen, TAC membership could be drawn from B.C. MOE, B.C. MAL, Okanagan Nation Alliance Fisheries Department, Interior Health Authority, RDOS, Agriculture and Agri-Foods Canada, Environment Canada, PCIC, and SVPS. Some organizations will have both a technical and stakeholder interest in the project, and the TAC and SAC should be linked by having one or possibly more SAC members on the TAC. For example, an Irrigation District representative who is a rancher with a water licence is clearly a stakeholder, but their knowledge of irrigation practices would make them a valuable TAC member as well. For the current Kettle River study, the Chair of the SAC (an elected official) also sits on the TAC, providing a formal linkage between the two committees.

In addition to the seven SVPS members, SAC membership would include the Irrigation and Improvement Districts, mining firms, hydro-power water licence holders, agricultural commodity groups (e.g. Cattlemen's Association), fish and game clubs, environmental organizations, and independent citizens. Interested American stakeholders should be considered, either with full membership status or in an advisory capacity.

6.3 PART 2 TECHNICAL STUDIES

6.3.1 Develop an Information Database

This report provides an overview of the water resources information that is available for the Similkameen watershed or which will be available soon. It would be beneficial to compile the various reports and existing data sources into a single database that would be made available as a hard copy set of tables an in a searchable format that is posted on the Internet. This was done for the Okanagan Water Supply and Demand Project[5] and has proven to be a valuable and popular tool for technical specialists, stakeholders, and decision-makers.

The database would be set up in a commonly available format (e.g. MS-Access and MS-Excel) and include standard bibliographic information such as year published, title, author(s), physical location and/or on-line source (with a live link), and brief annotation. It could be accessed through the Sustainable Similkameen Project page on the RDOS web site[6], since the community is already familiar with that site as a source of information.

6.3.2 Prepare Water Resources Background Reports for the Community

With the creation of the Similkameen Watershed database, there is likely little to be gained by preparing a detailed technical summary document for several reasons:

- Through the database, technical specialists and government staff will have ready access to the existing studies;
- There are a number of recent or forthcoming reports that already provide technical overviews and summarize previous research (e.g. DFO et al. 2009; Okanogan County PUD No. 1 2009); and
- There are a sufficient number of on-going studies to potentially make a 2011 or 2012 summary report quickly outdated.

However, there appears to be a need for a series of shorter summary reports (e.g. “backgrounders”) that are accessible to the informed public and community stakeholders. These would be prepared by a small team including a communications specialist and technical specialists, with input from the technical and stakeholder advisory committees. They would not exceed about six to 10 pages in length, include illustrations, and provide references for more detailed information. They could be published in a series based on what is priority for supporting the community process, and to spread the cost out, if necessary.

[5] It is called the Okanagan Basin Water Resource Information Database. See http://www.obwb.ca/obwrid/
[6] http://www.rdos.bc.ca/index.php?id=659

The first report in the suggested series is one that builds on this Part 1 report to summarize the state of the information on water supply and demand, outlines the gaps, and recommends future studies. Suggested subsequent reports include:

- Water supply;
- Climate change and hydrological implications in the Similkameen Valley;
- Water quality;
- Water use (e.g. licensed vs. actual; surface water vs. groundwater) and future demands;
- Fish, riparian habitat, and in-stream flow needs.

6.3.3 Determine Actual Water Use

To understand water use in the Similkameen Valley, it is important to gain some knowledge of both the bulk water volumes extracted from surface and groundwater sources by water suppliers and others licensees; and of the end uses to which that water is put. The end uses include agricultural irrigation, domestic outdoor irrigation, golf courses, parks and open space, domestic indoor, industrial, commercial, and other uses.

Section 4.5.1 and Appendix A summarize the existing water licences in the watershed, which indicate the total volumes of surface water that are allocated for use on the Similkameen River and its tributaries. However, there are no recent estimates of how much of the allocated water is actually extracted for use on average and how much year-to-year variation there is.

The B.C. Ministry of Agriculture and Lands (MAL) will soon complete their irrigation demand model for the Similkameen River watershed (Section 4.8.1), which will provide a good estimate of agricultural irrigation needs, based on current land use and irrigation systems. However, this model will not have been thoroughly checked against water supplier or individual records of actual water use. It is possible to work with MAL to customize the output to match irrigation district, First Nation reserve, and municipal boundaries, which is beneficial for linking use to licenses.

Experience elsewhere shows that assembly of water extraction and end-user data will require researchers to meet with water suppliers and other major licensees in person because the records will range from rough estimates to hand-written records to quantitative flow measurements using automated systems and dataloggers. The general steps in completing a watershed-scale inventory of water use are:

- Work with the TAC and SAC to check the tabulation of water licences in Section 4.5.1 for completeness;
- When the list of licenses is complete, set priorities for detailed data collection, based on licensed allocation, and identify a list of priority water users for follow-up investigations. It is expected that a large proportion of actual water use is concentrated in a small proportion of

licensees, and obtaining accuracy in the use estimates of these large users is therefore more important than surveying individual licence holders;

- Determine which of the priority surface water licensees also utilize groundwater, and obtain the well logs and initial pump-test data for those wells;
- Develop a set of priority groundwater users to investigate as well (these users will not have licences);
- Consult with the priority water users and seek their permission to obtain their records;
- Visit each of the priority licensees and groundwater users, and obtain their records of bulk water withdrawals and of deliveries to customers for each year that records are available.
- For each priority supplier, compute rates of water use for each of several key categories of end user.
- Extend this analysis to the water suppliers not investigated - use estimates of water use from the priority suppliers, and from nearby areas such as the Okanagan (e.g. Summit 2010 and Summit 2004) where local data are not available.
- Integrate these analyses to compute actual water withdrawals and water use by end-user category for each major tributary and for the watershed as a whole. If possible this information should be presented on a monthly basis;
- Compare the results of this analysis with outputs of the irrigation water demand model.

The methods outlined above were followed in a study of the Trepanier area in the Okanagan (Summit 2004), and in the recently completed Phase 2 Okanagan Water Supply and Demand Project (Summit 2010). These studies could be used as guides for the investigation.

Finally, in the Okanagan, the OBWB has recently developed an online tool with the acronym SWURT (Streamlined Water Use Reporting Tool). This tool enables large water users to report their water use on a monthly basis to the provincial government. This provides current and accurate information that can be used to increase our knowledge of water use and assist in developing long-term management strategies, and it is also used to determine water licence fees for each supplier. The SVPS should consider taking advantage of this existing tool and using it for the Similkameen watershed.

6.3.4 Groundwater-Surface Water Interaction

As shown on Map 2, the known water wells in the watershed are heavily concentrated near the Similkameen River and other surface water bodies. Aquifer 259, as mapped by MOE, runs in a narrow band along the Similkameen River and is comprised of unconsolidated sediments deposited in post-glacial times. The concentration of wells in that aquifer, although considered to exert only moderate demand, has raised the question as to whether or not groundwater pumping reduces the flow in the Similkameen River either by intercepting groundwater recharge that would normally reach the river or by pulling river water into the aquifer. The existing MOE observation wells are

located within or near communities, so there are large sections of river without groundwater level data.

Before moving directly to installing additional observation wells, the existing hydrometric and groundwater data should be analyzed for evidence of groundwater withdrawal effects on streamflows. If the evidence points in this direction, then a groundwater study can be designed to assess surface water-groundwater interaction in more detail.

The initial assessment using existing data will include:

- Compiling the hydrometric data from several key locations along the river, and if necessary, standardizing the data to a common time period to eliminate variability due to the El Nino cycle and the Pacific Decadal Oscillation (PDO);
- Computing the runoff (i.e. discharge per unit area) at each of the key locations on a monthly basis, both for specific years and for an average year;
- Analyzing downstream changes in runoff along the river to identify any anomalies;
- Plotting the existing observation well groundwater level data against the WSC water level data from the nearest stations to see if there is any apparent linkage, and to determine the nature of the linkage (e.g. inflowing, out-flowing, or varying throughout the year);
- Investigating the possible use of shallow groundwater in any areas where runoff results seem anomalous; to confirm the potential for a groundwater withdrawal effect on surface water;
- Considering available water quality data (from the river and adjacent wells) to confirm the potential for a surface/groundwater linkage;
- Designing a site-specific study in cases where the data suggests the potential for a surface/groundwater interaction that could be significantly reducing surface flow.

6.3.5 Groundwater Quality

Compared to surface water quality, there is relatively little information on groundwater quality in the public domain. The available data should be acquired and summarized. MOE's Ambient Ground Water Monitoring Network (AGWMN) is a starting point (access is available through the Penticton office). In recent years a number of local communities have undertaken groundwater protection planning and will have compiled some groundwater quality data. In addition, the USIB and LSIB have been investigating additional groundwater sources for domestic use and would have completed potability testing. RDOS may also have potability data from groundwater assessments done to support applications for subdivision. The information review should be supplemented with a sampling program aimed at filling in spatial gaps and assessing any areas with previously identified contamination concerns.

6.3.6 In-stream Flow Needs

To date, only high-level assessments of flow needs to support fish populations have been completed. Since climate change projections indicate potentially lows streamflows in the summer and fall, an initial assessment of in-stream flow needs (IFN) appears warranted. The first step would be to apply the standard BC IFN method (Hatfield et al. 2003) recognizing that this gives conservative "minimums". These are referred to as "minimum-risk" flows (meaning that you can take out water and leave the "minimum" in the stream without much risk to fish. This provides a good first cut but is not precise enough for allocation decisions. However, it will identify areas of the river with potential for conflict between extractive needs and fish needs.

In any areas where there could be existing or future conflicts, a more site-specific study would be needed involving a field-based fish and fish habitat investigation to identify appropriate minimum in-stream flows for survival of fish and other key aquatic organisms. If possible and desired, SVPS could also compute "optimal flows". Estimation of optimums may not be particularly useful, however, because natural streamflows in the Similkameen River are nearly never optimal for fish.

6.3.7 Storage Opportunities

It is understood that a number of private companies and public agencies have examined options for creating and managing storage in the Canadian portion of the Similkameen River watershed[7]. Most recently, FortisBC has begun to assess the feasibility of a hydro-electric generation facility on the Similkameen River and holds a storage water licence for 300,000 acre-feet. There are several other storage licences in the watershed but they are comparatively small (Table 4-9 and Appendix A).

Although assessments of storage options and potential benefits for downstream water users may have been assessed in the past, an overview-level update would be of benefit since previous studies would not have been aware of current climate change forecasts and would not have considered recent legislation like the *Fish Protection Act*. The assessment would not need to address the FortisBC project since the proponent will be responsible for assess its implications for fish and all water users as part of an environmental impact assessment.

The general steps in an overview-level storage assessment would include:

- Review previous studies for proposed locations and evidence of supporting hydrologic analyses;
- Consult with watershed stakeholders to obtain their ideas on potential storage locations;

[7]The Shanker's Bend project in the US would create storage but only the high dam option would have potential to meet any water needs in Canada.

- Using GIS, map the previously proposed sites and identify other potential sites based on the catchment area and topographic suitability (i.e. where a dam could be built to take advantage of the natural terrain and create adequate storage).
- Do a preliminary hydrologic analysis for each one to confirm water availability to fill the storage;
- Complete field assessments to examine likely infrastructure needs (e.g. volumes of concrete for building dams, potential geotechnical and safety concerns, environmental constraints, and access)
- For the sites that show some potential, complete preliminary estimates of construction cost; and
- Rank the opportunities against the constraints and costs.

The results of this overview assessment would be used by the community and regulators to determine if more detailed assessments of the highest-ranked options are worth proceeding with.

6.4 LINKAGES TO PLANNING AND SUSTAINABLE DEVELOPMENT

The water project is an extension of the Sustainable Similkameen Project. There is a reasonable existing information base that provides a good foundation, but the recommended technical studies will move the SVPS closer to being able to plan for sustainability by providing the water resource information needed to make land use and economic development decisions and set policy. Decisions that depend on good water supply, water demand, water quality, and aquatic life information include:

- Proposals for agricultural diversification or expansion;
- Environmental assessments of proposed waste discharges, both industrial (e.g. mines) and municipal (e.g. Liquid Waste Management Planning);
- Environmental assessments of projects that would include groundwater extraction (e.g. food processing, wineries, breweries, or mining);
- Hydro-power proposals;
- Reviews of future land development applications such a residential sub-divisions, golf courses, and recreational vehicle parks; and
- Assessments of costs and benefits of creating water storage in the upper watershed.

Finally, it is important to note that completing the watershed-scale technical studies recommended by this report will better enable consideration of these types of proposed developments, but site-specific information will also likely be needed.

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A

Appendix A - WATER LICENSE DATA

	A	B	C	D	E	F	G	H	I	J
1	TPOD_TAG	STRM_NAME	STATUS	LICENCE_NO	LIC_STATUS	PURPOSE	QUANTITY	UNITS	LICENSEE	
2	PD76231	10 K Creek	L	C116419	CURRENT	DOMESTIC	500	GD	SUNELL LARRY S	
3	PD76231	10 K Creek	L	C116419	CURRENT	POWER-RESIDENTIAL	29000	GD	SUNELL LARRY S	
4	PD56527	Active Brook	L	F011073	CURRENT	DOMESTIC	300	GD	PRINCETON TOWN OF	
5	PD56527	Active Brook	L	F015444	CURRENT	IRRIGATION LOCAL AUTH	1	AF	PRINCETON TOWN OF	
6	PD56829	Allison Creek	L	C041360	CURRENT	CONSERV.-CONSTRUCT.WORKS	0	TF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
7	PD56509	Allison Creek	L	F064261	CURRENT	DOMESTIC	250	GD	JONES KENNETH W	
8	PD56510	Allison Creek	L	F015471	CURRENT	DOMESTIC	250	GD	ALLISON LINDA	
9	PD56631	Allison Creek	L	F017548	CURRENT	DOMESTIC	250	GD	WEYERHAEUSER CO LTD	
10	PD66083	Allison Creek	L	C104969	CURRENT	DOMESTIC	500	GD	MCALPINE DON & SHARON	
11	PD56505	Allison Creek	L	C035416	CURRENT	DOMESTIC	500	GD	KELLY FRANK D	
12	PD56939	Allison Creek	L	C059448	CURRENT	DOMESTIC	500	GD	POCHA RICHARD K	
13	PD56823	Allison Creek	L	C062157	CURRENT	DOMESTIC	500	GD	SCHULER NORMAN E	
14	PD56824	Allison Creek	L	C062158	CURRENT	DOMESTIC	500	GD	DAVIES WILLIAM G	
15	PD56586	Allison Creek	L	C060989	CURRENT	DOMESTIC	500	GD	THOMAS JAMES H	
16	PD56586	Allison Creek	L	C060990	CURRENT	DOMESTIC	500	GD	BROWN LAWRENCE & CAROLYN	
17	PD56586	Allison Creek	L	C060991	CURRENT	DOMESTIC	500	GD	GILLINGWATER LYNNETTE	
18	PD56586	Allison Creek	L	C062363	CURRENT	DOMESTIC	500	GD	ASHE THOMAS & LINDA	
19	PD56586	Allison Creek	L	C062364	CURRENT	DOMESTIC	500	GD	CHRISTIE DALE G & LINDA A	
20	PD56593	Allison Creek	L	C014375	CURRENT	DOMESTIC	500	GD	623819 BC LTD	
21	PD56566	Allison Creek	L	C062212	CURRENT	DOMESTIC	500	GD	THIESSEN PETER & GERALDINE A	
22	PD56569	Allison Creek	L	C031585	CURRENT	DOMESTIC	500	GD	CUDMORE MICHAEL	
23	PD56571	Allison Creek	L	C032070	CURRENT	DOMESTIC	500	GD	VINTHERS GERRY A & PATRICIA A	
24	PD56573	Allison Creek	L	C054707	CURRENT	DOMESTIC	500	GD	MUNRO DANEIL AND SANDRA J	
25	PD56583	Allison Creek	L	C031009	CURRENT	DOMESTIC	500	GD	GIBSON KENNETH D	
26	PD56575	Allison Creek	L	C039399	CURRENT	DOMESTIC	750	GD	HUNT PETER A	
27	PD56576	Allison Creek	L	C039399	CURRENT	DOMESTIC	750	GD	HUNT PETER A	
28	PD56626	Allison Creek	L	C038476	CURRENT	DOMESTIC	1000	GD	BRODERICK WILLIAM J	
29	PD56628	Allison Creek	L	C038477	CURRENT	ENTERPRISE	6000	GD	PRINCETON CASTLE RESORT LTD	
30	PD56629	Allison Creek	L	C038477	CURRENT	ENTERPRISE	6000	GD	PRINCETON CASTLE RESORT LTD	
31	PD56584	Allison Creek	L	C039032	CURRENT	IRRIGATION	0.25	AF	GIBSON KENNETH D	
32	PD56577	Allison Creek	L	C039038	CURRENT	IRRIGATION	0.25	AF	WEBSTER ALFRED	
33	PD56581	Allison Creek	L	C039032	CURRENT	IRRIGATION	0.25	AF	GIBSON KENNETH D	
34	PD56582	Allison Creek	L	C039034	CURRENT	IRRIGATION	0.25	AF	KRENN JOHN R	
35	PD56627	Allison Creek	L	C054710	CURRENT	IRRIGATION	0.375	AF	PRINCETON CASTLE RESORT LTD	
36	PD56627	Allison Creek	L	C054712	CURRENT	IRRIGATION	0.375	AF	LAVALLEY DAVID A & LYDIA J	
37	PD56590	Allison Creek	L	C049399	CURRENT	IRRIGATION	0.4	AF	HOWELL WILLIAM A & BERGERON KAY E	
38	PD56586	Allison Creek	L	C068990	CURRENT	IRRIGATION	0.5	AF	BROWN LAWRENCE & CAROLYN	
39	PD56587	Allison Creek	L	C068986	CURRENT	IRRIGATION	0.5	AF	ASHE THOMAS & LINDA	
40	PD56587	Allison Creek	L	C068987	CURRENT	IRRIGATION	0.5	AF	CHRISTIE DALE G & LINDA A	
41	PD56588	Allison Creek	L	C068988	CURRENT	IRRIGATION	0.5	AF	THOMAS JAMES H	
42	PD56588	Allison Creek	L	C068989	CURRENT	IRRIGATION	0.5	AF	GILLINGWATER LYNNETTE	
43	PD56570	Allison Creek	L	C039031	CURRENT	IRRIGATION	0.5	AF	CUDMORE MICHAEL	
44	PD56627	Allison Creek	L	C054709	CURRENT	IRRIGATION	0.75	AF	PRINCETON CASTLE RESORT LTD	
45	PD56573	Allison Creek	L	C055007	CURRENT	IRRIGATION	0.75	AF	MUNRO DANEIL AND SANDRA J	
46	PD56631	Allison Creek	L	F017549	CURRENT	IRRIGATION	1	AF	LAPIERRE JIMMY C & EDITH T	
47	PD56627	Allison Creek	L	C054708	CURRENT	IRRIGATION	1.25	AF	PRINCETON CASTLE RESORT LTD	
48	PD56627	Allison Creek	L	C054711	CURRENT	IRRIGATION	1.35	AF	ROBINSON CLIFFORD F & MARLENE S	
49	PD56508	Allison Creek	L	C064708	CURRENT	IRRIGATION	2.52	AF	LAWES TANYA E & ALAN J	
50	PD56572	Allison Creek	L	C055008	CURRENT	IRRIGATION	3.75	AF	VINTHERS GERRY A & PATRICIA A	
51	PD56579	Allison Creek	L	F055743	CURRENT	IRRIGATION	7.5	AF	KRUPNIK GLENN S	
52	PD56509	Allison Creek	L	F064261	CURRENT	IRRIGATION	9.66	AF	JONES KENNETH W	
53	PD56511	Allison Creek	L	C043779	CURRENT	IRRIGATION	10	AF	BULLINGTON BURKE G	
54	PD56593	Allison Creek	L	C014375	CURRENT	IRRIGATION	10	AF	623819 BC LTD	
55	PD56596	Allison Creek	L	F010054	CURRENT	IRRIGATION	11.25	AF	ARNIE WILLIS CONTRACTING LTD	
56	PD56511	Allison Creek	L	C043778	CURRENT	IRRIGATION	12	AF	BULLINGTON BURKE G	
57	PD56633	Allison Creek	L	C030879	CURRENT	IRRIGATION	12.5	AF	LAPIERRE JIMMY C & EDITH T	
58	PD56507	Allison Creek	L	C064709	CURRENT	IRRIGATION	13.18	AF	ADAMS JOHN M & SYLVIA A	
59	PD56575	Allison Creek	L	C039399	CURRENT	IRRIGATION	15	AF	HUNT PETER A	
60	PD56576	Allison Creek	L	C039399	CURRENT	IRRIGATION	15	AF	HUNT PETER A	
61	PD56627	Allison Creek	L	C054706	CURRENT	IRRIGATION	18.15	AF	WONG SAU KING E	
62	PD56510	Allison Creek	L	C027533	CURRENT	IRRIGATION	20	AF	ALLISON LINDA	
63	PD56589	Allison Creek	L	C062935	CURRENT	IRRIGATION	23.75	AF	BEY JOHN & RUBY	
64	PD56506	Allison Creek	L	C035739	CURRENT	IRRIGATION	44	AF	KELLY FRANK D	
65	PD56827	Allison Creek	L	C041898	CURRENT	IRRIGATION	45	AF	OUT OF THE BLUE RANCH LTD	
66	PD56915	Allison Creek	L	C039615	CURRENT	IRRIGATION	50	AF	WORTHINGTON THEODORE J & KATHLEEN E	
67	PD56597	Allison Creek	L	F008781	CURRENT	IRRIGATION	52.5	AF	COPPER CREEK RANCH LTD	
68	PD56733	Allison Creek	L	F014482	CURRENT	IRRIGATION	57.4	AF	BARTHOLSEN ASBJORN B & SYLVIA L	
69	PD56734	Allison Creek	L	F014482	CURRENT	IRRIGATION	57.4	AF	BARTHOLSEN ASBJORN B & SYLVIA L	
70	PD56913	Allison Creek	L	C113266	CURRENT	IRRIGATION	60	AF	SKINNER CYRIL V & MARY I	
71	PD56631	Allison Creek	L	C035738	CURRENT	IRRIGATION	68.5	AF	WEYERHAEUSER CO LTD	
72	PD56594	Allison Creek	L	F008239	CURRENT	IRRIGATION	75	AF	623819 BC LTD	
73	PD56580	Allison Creek	L	F008239	CURRENT	IRRIGATION	75	AF	623819 BC LTD	
74	PD56631	Allison Creek	L	F017548	CURRENT	IRRIGATION	75.9	AF	WEYERHAEUSER CO LTD	
75	PD56939	Allison Creek	L	C059449	CURRENT	IRRIGATION	78.4	AF	POCHA RICHARD K	
76	PD56510	Allison Creek	L	F015471	CURRENT	IRRIGATION	80	AF	ALLISON LINDA	
77	PD56591	Allison Creek	L	F109457	CURRENT	IRRIGATION	100	AF	RUSSELL-MATSUMOTO SUSAN A	
78	PD56625	Allison Creek	L	C038179	CURRENT	IRRIGATION	175	AF	COPPER CREEK RANCH LTD	
79	PD56589	Allison Creek	L	C064166	CURRENT	IRRIGATION	465	AF	BEY JOHN & RUBY	
80	PD56596	Allison Creek	L	C042021	CURRENT	IRRIGATION LOCAL AUTH	1.75	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
81	PD56512	Allison Creek	L	C042023	CURRENT	IRRIGATION LOCAL AUTH	6	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
82	PD56631	Allison Creek	L	F017527	CURRENT	IRRIGATION LOCAL AUTH	25.75	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
83	PD56512	Allison Creek	L	C042024	CURRENT	IRRIGATION LOCAL AUTH	62.5	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
84	PD56929	Allison Creek	L	C026765	CURRENT	STORAGE	25	AF	ALLISON LAKE IMPROVEMENT DISTRICT	
85	PD57006	Alvin Brook	L	C022789	CURRENT	DOMESTIC	500	GD	MURPHY DONALD L & WANETA	
86	PD56933	Anderson Creek	L	C026764	CURRENT	WATERWORKS LOCAL AUTH	10767500	GY	ALLISON LAKE IMPROVEMENT DISTRICT	
87	PD56836	Angstrom Spring	L	C121307	CURRENT	DOMESTIC	500	GD	DUNCALFE BRIAN S & HARRIET	
88	PD55528	Apex Spring	L	C047791	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
89	PD56273	Arcat Creek	L	C006696	CURRENT	IRRIGATION	72	AF	UPPER SIMILKAMEEN INDIAN BAND	
90	PD56840	Armstrong Creek	L	F016829	CURRENT	DOMESTIC	2000	GD	CLIFTON WILSON R & JUNE N	
91	PD56910	Armstrong Creek	L	C027495	CURRENT	IRRIGATION LOCAL AUTH	10.5	AF	KEREMEOS IRRIGATION DISTRICT	
92	PD56909	Armstrong Creek	L	F013165	CURRENT	IRRIGATION LOCAL AUTH	11.7	AF	KEREMEOS IRRIGATION DISTRICT	
93	PD72844	Arthur Creek	L	C111826	CURRENT	DOMESTIC	500	GD	THISTLE MOUNTAIN GUIDE CAMP INC.	
94	PD56866	Arthur Creek	L	C065106	CURRENT	IRRIGATION	1.4	AF	DRESEN GARY K & GAIL Y	
95	PD56865	Arthur Creek	L	C065107	CURRENT	IRRIGATION	29.6	AF	KRAMER FRANCES A	
96	PD56231	Ashnola River	L	C038031	CURRENT	DOMESTIC	500	GD	MATTHEWS RANDEL	
97	PD56232	Ashnola River	L	C038651	CURRENT	DOMESTIC	500	GD	KOCH BEATRICE ANN & HARRY JOE	
98	PD56363	Ashnola River	L	C007084	CURRENT	DOMESTIC	8000	GD	LOWER SIMILKAMEEN INDIAN BAND	
99	PD56230	Ashnola River	L	C068188	CURRENT	IRRIGATION	5.73	AF	SCHNEIDER WILMER P & NOREEN B	
100	PD56363	Ashnola River	L	C007084	CURRENT	IRRIGATION	447	AF	LOWER SIMILKAMEEN INDIAN BAND	
101	PD56359	Ashnola River	L	C006697	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
102	PD56360	Ashnola River	L	C006697	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
103	PD56361	Ashnola River	L	C006697	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
104	PD56363	Ashnola River	L	C006697	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
105	PD56362	Ashnola River	L	C053162	CURRENT	IRRIGATION LOCAL AUTH	10000	AF	KEREMEOS IRRIGATION DISTRICT	
106	PD75380	Ashnola River	L	C115410	CURRENT	POWER-RESIDENTIAL	4.6	CS	MATTHEWS RANDEL	
107	PD56786	Ashnola Spring	L	C047795	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
108	PD56516	Asp Creek	L	C047968	CURRENT	DOMESTIC	500	GD	BATES FRANK & MYRA	
109	PD56516	Asp Creek	L	C047969	CURRENT	DOMESTIC	500	GD	SCHMIDT WOLFGANG	
110	PD56469	Asp Creek	L	F049690	CURRENT	DOMESTIC	500	GD	ROCCAMATISI CARLO E & BARBARA A	
111	PD56469	Asp Creek	L	F049691	CURRENT	DOMESTIC	500	GD	CARLSON MICHAEL G & MONIQUE J	
112	PD56469	Asp Creek	L	F049692	CURRENT	DOMESTIC	500	GD	VAN DER GULIK MICHAEL A	
113	PD56469	Asp Creek	L	F049693	CURRENT	DOMESTIC	500	GD	HAKER THOMAS & SHIRLEY	
114	PD56517	Asp Creek	L	C038479	CURRENT	DOMESTIC	1000	GD	CARLSON KENNETH W	
115	PD56516	Asp Creek	L	C047968	CURRENT	IRRIGATION	2.5	AF	BATES FRANK & MYRA	
116	PD56516	Asp Creek	L	C047969	CURRENT	IRRIGATION	2.5	AF	SCHMIDT WOLFGANG	
117	PD56469	Asp Creek	L	F049690	CURRENT	IRRIGATION	2.5	AF	ROCCAMATISI CARLO E & BARBARA A	
118	PD56469	Asp Creek	L	F049691	CURRENT	IRRIGATION	2.5	AF	CARLSON MICHAEL G & MONIQUE J	
119	PD56469	Asp Creek	L	F049692	CURRENT	IRRIGATION	2.5	AF	VAN DER GULIK MICHAEL A	
120	PD56469	Asp Creek	L	F049693	CURRENT	IRRIGATION	2.5	AF	HAKER THOMAS & SHIRLEY	
121	PD56541	Asp Creek	L	F010057	CURRENT	IRRIGATION	9.5	AF	CURRIE EDITH M	
122	PD56541	Asp Creek	L	C028718	CURRENT	IRRIGATION	150	AF	CURRIE EDITH M	
123	PD56521	Asp Creek	L	C018922	CURRENT	IRRIGATION LOCAL AUTH	27.2	AF	PRINCETON TOWN OF	
124	PD57079	Aspen Brook	L	C070472	CURRENT	DOMESTIC	1000	GD	BRYANT LESLIE J & M E	
125	PD57079	Aspen Brook	L	C070473	CURRENT	STOCKWATERING	1000	GD	TRANSPORTATION & INFRASTRUCTURE MIN OF	
126	PD56466	Aspen Spring	L	C035172	CURRENT	DOMESTIC	1000	GD	RINES STANLEY A & KENNETH C	
127	PD56894	Barrington Creek	L	C027532	CURRENT	IRRIGATION	66	AF	BARRINGTON RANCH LTD	
128	PD56894	Barrington Creek	L	F008837	CURRENT	IRRIGATION	115.8	AF	BARRINGTON RANCH LTD	
129	PD56895	Barrington Creek	L	F008837	CURRENT	IRRIGATION	115.8	AF	BARRINGTON RANCH LTD	
130	PD56636	Basely Creek	L	C028371	CURRENT	IRRIGATION	25	AF	623819 BC LTD	
131	PD56636	Basely Creek	L	C028372	CURRENT	STORAGE	10	AF	623819 BC LTD	
132	PD53569	Bates Creek	L	C064229	CURRENT	CONSERV.-STORED WATER	130	AF	WILDLIFE BRANCH	
133	PD57034	Batstone Lake	L	C113437	CURRENT	CONSERV.-STORED WATER	90	AF	DUCKS UNLIMITED (CANADA)	
134	PD57030	Batstone Marsh	L	C064145	CURRENT	CONSERV.-STORED WATER	45	AF	DUCKS UNLIMITED (CANADA)	
135	PD57032	Batstone Pond	L	C113437	CURRENT	CONSERV.-STORED WATER	90	AF	DUCKS UNLIMITED (CANADA)	
136	PD56769	Beck Spring	L	C064233	CURRENT	DOMESTIC	500	GD	JENKINS HAROLD D & MAY M	
137	PD44396	Bell Creek	L	C041361	CURRENT	WATERWORKS LOCAL AUTH	10950000	GY	BONNEVIER WATER CO LTD	
138	PD56782	Berliner Spring	L	C047794	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
139	PD56787	Bernhardt Spring	L	C047792	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
140	PD56785	Bernini Spring	L	C047796	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
141	PD57025	Biely Creek	L	C066527	CURRENT	CONSERV.-STORED WATER	55	AF	WILDLIFE BRANCH	

	A	B	C	D	E	F	G	H	I	J
142	PD57025	Biely Creek	L	C066527	CURRENT	STORAGE	45	AF	WILDLIFE BRANCH	
143	PD56568	Birch Lake	L	C066266	CURRENT	DOMESTIC	500	GD	KOOPMANS JOHN I	
144	PD56990	Blind Creek	L	F009753	CURRENT	DOMESTIC	1000	GD	LOWER SIMILKAMEEN INDIAN BAND	
145	PD56990	Blind Creek	L	F009753	CURRENT	IRRIGATION	120	AF	LOWER SIMILKAMEEN INDIAN BAND	
146	PD44402	Bonnevier Creek	L	C107365	CURRENT	DOMESTIC	500	GD	MAN PAR HOLDINGS LTD	
147	PD72072	Bonnevier Creek	L	C111008	CURRENT	DOMESTIC	500	GD	BOUCHER DAVID & PRICE MELODEY	
148	PD44402	Bonnevier Creek	L	C107365	CURRENT	ENTERPRISE	1000	GD	MAN PAR HOLDINGS LTD	
149	PD44402	Bonnevier Creek	L	C111007	CURRENT	ENTERPRISE	5500	GD	PPMT ENTERPRISES LTD	
150	PD61678	Bonnevier Creek	L	C072229	CURRENT	IRRIGATION	6.2	AF	TOWER WILLIAM KRISTIAN ET AL	
151	PD56386	Boris Brook	L	C048442	CURRENT	DOMESTIC	500	GD	HAMILTON JAMES M	
152	PD56386	Boris Brook	L	C048757	CURRENT	DOMESTIC	500	GD	JOHNSTON SHELLY L	
153	PD56386	Boris Brook	L	C051460	CURRENT	DOMESTIC	500	GD	LYE WILLIAM R	
154	PD56406	Boundary Spring	L	C031674	CURRENT	DOMESTIC	2000	GD	SCHNEIDER CLARENCE D & SHARON L	
155	PD56338	Bradshaw Creek	L	C029404	CURRENT	DOMESTIC	500	GD	OTTIE CARL & CHARLENE	
156	PD56338	Bradshaw Creek	L	C042017	CURRENT	DOMESTIC	500	GD	OTTIE CARL & CHARLENE	
157	PD56340	Bradshaw Creek	L	C025862	CURRENT	DOMESTIC	1500	GD	PAT LAWRENCE CONTRACTING LTD	
158	PD56338	Bradshaw Creek	L	C042017	CURRENT	IRRIGATION	12	AF	OTTIE CARL & CHARLENE	
159	PD56338	Bradshaw Creek	L	F066366	CURRENT	IRRIGATION	17.4	AF	LAWRENCE PATRICK J & SHERRY L	
160	PD56340	Bradshaw Creek	L	C030877	CURRENT	IRRIGATION	30	AF	PAT LAWRENCE CONTRACTING LTD	
161	PD56340	Bradshaw Creek	L	C025861	CURRENT	IRRIGATION	45	AF	PAT LAWRENCE CONTRACTING LTD	
162	PD56338	Bradshaw Creek	L	F066365	CURRENT	IRRIGATION	48	AF	LAWRENCE PATRICK J & SHERRY L	
163	PD56491	Broglie Spring	L	F049020	CURRENT	DOMESTIC	500	GD	SCHRECKENBERG DONALD E & PENELOPE	
164	PD56456	Bromley Creek	L	C125080	CURRENT	DOMESTIC	500	GD	LOWRY FLORENCE R	
165	PD56454	Bromley Creek	L	C036712	CURRENT	DOMESTIC	750	GD	WOODALL MICHAEL K & CORISTINE SUSAN M	
166	PD56452	Bromley Creek	L	C029725	CURRENT	DOMESTIC	2000	GD	MAYNARD KIMBALL G & ANGELA J	
167	PD56453	Bromley Creek	L	C029725	CURRENT	DOMESTIC	2000	GD	MAYNARD KIMBALL G & ANGELA J	
168	PD56455	Bromley Creek	I	C037430	CURRENT	IRRIGATION	20.4	AF	WOODALL MICHAEL K & CORISTINE SUSAN M	
169	PD56439	Bromley Creek	L	C038480	CURRENT	IRRIGATION	30	AF	MAYNARD KIMBALL G & ANGELA J	
170	PD56450	Bromley Creek	L	C037429	CURRENT	IRRIGATION	102	AF	MAYNARD KIMBALL G & ANGELA J	
171	PD56451	Bromley Creek	L	C037429	CURRENT	IRRIGATION	102	AF	MAYNARD KIMBALL G & ANGELA J	
172	PD56463	Brothers Spring	L	C034256	CURRENT	IRRIGATION	75	AF	THOMAS KENNETH C & PAMELA P	
173	PD57081	Bryant Spring	L	C070472	CURRENT	DOMESTIC	1000	GD	BRYANT LESLIE J & M E	
174	PD57081	Bryant Spring	L	C070473	CURRENT	STOCKWATERING	1000	GD	TRANSPORTATION & INFRASTRUCTURE MIN OF	
175	PD56819	Bulfinch Spring	L	C049296	CURRENT	DOMESTIC	500	GD	THEAL MICHAEL W & BONNIE S	
176	PD56950	Bullock Creek	L	C106571	CURRENT	DOMESTIC	150	GD	SECORD BRIAN EDWARD	
177	PD56950	Bullock Creek	L	C072138	CURRENT	DOMESTIC	350	GD	ALDRICH SHELDON B & KIRANJOT K	
178	PD56950	Bullock Creek	L	C072139	CURRENT	DOMESTIC	350	GD	DOWDING KEITH R & IRENE G	
179	PD56950	Bullock Creek	L	C072140	CURRENT	DOMESTIC	350	GD	DOWDING KEITH R & IRENE G	
180	PD56950	Bullock Creek	L	C072141	CURRENT	DOMESTIC	350	GD	LLOYD STUART H & JENNIFER M	
181	PD56950	Bullock Creek	L	C072142	CURRENT	DOMESTIC	350	GD	LLOYD STUART H & JENNIFER M	
182	PD56950	Bullock Creek	L	C072143	CURRENT	DOMESTIC	350	GD	CLIFTON IVAN & LOUISE	
183	PD56950	Bullock Creek	L	C106572	CURRENT	DOMESTIC	350	GD	SECORD BRIAN EDWARD	
184	PD56953	Bullock Creek	L	F006743	CURRENT	DOMESTIC	500	GD	FALKENBERG HELEN M	
185	PD56950	Bullock Creek	L	F006743	CURRENT	DOMESTIC	500	GD	FALKENBERG HELEN M	
186	PD56950	Bullock Creek	L	C106571	CURRENT	IRRIGATION	9.78	AF	SECORD BRIAN EDWARD	
187	PD56950	Bullock Creek	L	C072137	CURRENT	IRRIGATION	11.15	AF	ALDRICH SHELDON B & KIRANJOT K	
188	PD56950	Bullock Creek	L	C072139	CURRENT	IRRIGATION	13.45	AF	DOWDING KEITH R & IRENE G	
189	PD56950	Bullock Creek	L	C072141	CURRENT	IRRIGATION	14.46	AF	LLOYD STUART H & JENNIFER M	
190	PD56950	Bullock Creek	L	C072138	CURRENT	IRRIGATION	14.53	AF	ALDRICH SHELDON B & KIRANJOT K	
191	PD56950	Bullock Creek	L	C072142	CURRENT	IRRIGATION	16.53	AF	LLOYD STUART H & JENNIFER M	
192	PD56950	Bullock Creek	L	C072140	CURRENT	IRRIGATION	18.53	AF	DOWDING KEITH R & IRENE G	
193	PD56950	Bullock Creek	L	C072143	CURRENT	IRRIGATION	19.53	AF	CLIFTON IVAN & LOUISE	
194	PD56950	Bullock Creek	L	C106572	CURRENT	IRRIGATION	21.03	AF	SECORD BRIAN EDWARD	
195	PD56953	Bullock Creek	L	F006743	CURRENT	IRRIGATION	85	AF	FALKENBERG HELEN M	
196	PD56950	Bullock Creek	L	F006743	CURRENT	IRRIGATION	85	AF	FALKENBERG HELEN M	
197	PD44413	Cable Creek	L	C027049	CURRENT	WATERWORKS (OTHER)	5000	GD	PROTECTED AREAS SECTION	
198	PD56320	Cahill Creek	L	C006679	CURRENT	IRRIGATION	930	AF	UPPER SIMILKAMEEN INDIAN BAND	
199	PD56321	Cahill Creek	L	C006679	CURRENT	IRRIGATION	930	AF	UPPER SIMILKAMEEN INDIAN BAND	
200	PD56322	Cahill Creek	L	C110101	CURRENT	MINING-PROCESSING ORE	27000	GD	HOMESTAKE CANADA INC	
201	PD56322	Cahill Creek	L	C110101	CURRENT	STORAGE	36	AF	HOMESTAKE CANADA INC	
202	PD56703	Cajan Spring	L	C059428	CURRENT	DOMESTIC	1000	GD	BROGDEN LESLIE W	
203	PD56396	Camp Rest Spring	L	C053438	CURRENT	DOMESTIC	3000	GD	FORESTS & RANGE MINISTRY OF	
204	PD56917	Campi Creek	L	C049927	CURRENT	DOMESTIC	500	GD	BELL GORDON JAMES	
205	PD56917	Campi Creek	L	C059120	CURRENT	DOMESTIC	500	GD	LINGENFELTER DOUGLAS H	
206	PD56773	Carter Spring	L	C061578	CURRENT	DOMESTIC	2000	GD	CARTER CHARLES W & MARGARET	
207	PD56468	Caruso Spring	L	C051439	CURRENT	DOMESTIC	500	GD	FORDE EDMUND R & BRENDA E	
208	PD56468	Caruso Spring	L	C051492	CURRENT	DOMESTIC	500	GD	HARGROVE CHARLES D & DONNA J	
209	PD56468	Caruso Spring	L	C051517	CURRENT	DOMESTIC	500	GD	BRAMA DANIEL M & SHAWN G	
210	PD56468	Caruso Spring	L	C051737	CURRENT	DOMESTIC	500	GD	FORDE EDMUND R & BRENDA E	
211	PD57108	Casilio Spring	L	C030883	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
212	PD56966	Cawston Creek	L	C033385	CURRENT	DOMESTIC	1000	GD	FORESTS & RANGE MINISTRY OF	
213	PD56980	Cawston Creek	L	C034583	CURRENT	DOMESTIC	1000	GD	MCCURDY DONALD B	
214	PD56981	Cawston Creek	L	C033385	CURRENT	DOMESTIC	1000	GD	FORESTS & RANGE MINISTRY OF	
215	PD56968	Cawston Creek	L	C033386	CURRENT	DOMESTIC	2000	GD	SPARKFORD ESTATES LTD	
216	PD56965	Cawston Creek	L	C053434	CURRENT	DOMESTIC	3000	GD	FORESTS & RANGE MINISTRY OF	
217	PD56982	Cawston Creek	L	F014362	CURRENT	IRRIGATION LOCAL AUTH	50	AF	FAIRVIEW HEIGHTS IRRIGATION DISTRICT	
218	PD64690	Cebriy Creek	L	C103366	CURRENT		0		GABOR SANDRA	
219	PD64690	Cebriy Creek	L	C103552	CURRENT	DOMESTIC	500	GD	GABOR SANDRA	
220	PD56908	Cebriy Creek	L	C103366	CURRENT	IRRIGATION	75	AF	GABOR SANDRA	
221	PD56908	Cebriy Creek	L	C103366	CURRENT	POWER-RESIDENTIAL	0.33	CS	GABOR SANDRA	
222	PD56908	Cebriy Creek	L	C103366	CURRENT	STORAGE	155	AF	GABOR SANDRA	
223	PD56833	Cedar Creek	L	C046982	CURRENT	DOMESTIC	500	GD	CARTER WILLIAM B ET AL	
224	PD56833	Cedar Creek	L	C058814	CURRENT	DOMESTIC	500	GD	CARTER WILLIAM B ET AL	
225	PD56833	Cedar Creek	L	C066298	CURRENT	DOMESTIC	500	GD	CARTER WILLIAM B ET AL	
226	PD56833	Cedar Creek	L	C109024	CURRENT	DOMESTIC	500	GD	THOMPSON JODI L & STEVEN J	
227	PD56833	Cedar Creek	L	F007140	CURRENT	DOMESTIC	500	GD	CARTER WILLIAM B ET AL	
228	PD56833	Cedar Creek	L	C058814	CURRENT	IRRIGATION	7.33	AF	CARTER WILLIAM B ET AL	
229	PD56833	Cedar Creek	L	C046982	CURRENT	IRRIGATION	23.66	AF	CARTER WILLIAM B ET AL	
230	PD56833	Cedar Creek	L	F007140	CURRENT	IRRIGATION	31.5	AF	CARTER WILLIAM B ET AL	
231	PD56833	Cedar Creek	L	C066298	CURRENT	IRRIGATION	64	AF	CARTER WILLIAM B ET AL	
232	PD56833	Cedar Creek	L	C049594	CURRENT	IRRIGATION	94	AF	CARTER WILLIAM B ET AL	
233	PD75809	Chain Lake	L	C115968	CURRENT	DOMESTIC	500	GD	D'ANGELO JEAN W	
234	PD75826	Chain Lake	L	C115967	CURRENT	DOMESTIC	500	GD	KAMLADE WALTER & JANE L	
235	PD56683	Chain Lake	L	C064243	CURRENT	DOMESTIC	500	GD	CRAWFORD JOHN W & BRENDA L	
236	PD56684	Chain Lake	L	F016454	CURRENT	DOMESTIC	500	GD	JOHNSON JANIS I	
237	PD56685	Chain Lake	L	F016463	CURRENT	DOMESTIC	500	GD	RAND MARY E & STEELE MARGARET B	
238	PD56686	Chain Lake	L	F016451	CURRENT	DOMESTIC	500	GD	SMITH MARGARET A	
239	PD56687	Chain Lake	L	F016462	CURRENT	DOMESTIC	500	GD	LLOYD ADAM J & HAZEL	
240	PD56689	Chain Lake	L	F016464	CURRENT	DOMESTIC	500	GD	DAVIES JUDITH A	
241	PD56688	Chain Lake	L	C056364	CURRENT	IRRIGATION	5.66	AF	JFD HOLDINGS LTD	
242	PD56778	Christian Creek	L	C070702	CURRENT		0		HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
243	PD56778	Christian Creek	L	C070703	CURRENT		0		ANTHONY JAMES MUDIE GEORGE	
244	PD56776	Christian Creek	L	C057730	CURRENT	DOMESTIC	500	GD	HILTON JAMES A	
245	PD56778	Christian Creek	L	C070706	CURRENT	IRRIGATION	11.67	AF	ANTHONY JAMES MUDIE GEORGE	
246	PD56778	Christian Creek	L	C070705	CURRENT	IRRIGATION	23.33	AF	HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
247	PD56772	Christian Creek	L	F006390	CURRENT	IRRIGATION	25	AF	DIXON RICHARD BRIAN & SANDRA LORRAINE	
248	PD56778	Christian Creek	L	C070704	CURRENT	IRRIGATION	33.25	AF	HILTON JESSE & JACQUELINE	
249	PD56774	Christian Creek	L	C023288	CURRENT	IRRIGATION	60	AF	DIXON RICHARD BRIAN & SANDRA LORRAINE	
250	PD56778	Christian Creek	L	C070704	CURRENT	STOCKWATERING	1000	GD	HILTON JESSE & JACQUELINE	
251	PD56778	Christian Creek	L	C070706	CURRENT	STORAGE	5	AF	ANTHONY JAMES MUDIE GEORGE	
252	PD56778	Christian Creek	L	C070705	CURRENT	STORAGE	10	AF	HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
253	PD56778	Christian Creek	L	C070704	CURRENT	STORAGE	33.25	AF	HILTON JESSE & JACQUELINE	
254	PD54375	Clerk Spring	L	C050762	CURRENT	DOMESTIC	500	GD	SCHNEIDER RONALD G & WILMER P	
255	PD56834	Clifford Brook	L	C052808	CURRENT	DOMESTIC	2000	GD	CARR NATHALIE A	
256	PD56834	Clifford Brook	L	C052808	CURRENT	IRRIGATION	45	AF	CARR NATHALIE A	
257	PD56881	Coghill Spring	L	C058317	CURRENT	DOMESTIC	1000	GD	KUPFERSCHMID DIETER H & LINDA H	
258	PD56364	Cold Creek	L	F004354	CURRENT	DOMESTIC	500	GD	KEREMEOS IRRIGATION DISTRICT	
259	PD56364	Cold Creek	L	F004354	CURRENT	IRRIGATION LOCAL AUTH	4	AF	KEREMEOS IRRIGATION DISTRICT	
260	PD57082	Connaly Creek	L	F005298	CURRENT	IRRIGATION	29	AF	BREWER IAN P	
261	PD57085	Cook Creek	L	F005187	CURRENT	IRRIGATION	120.5	AF	BREWER IAN P	
262	PD56389	Cowell Brook	L	C052696	CURRENT	DOMESTIC	1500	GD	WAGER GEBHARD C & WILLISON CYNTHIA L	
263	PD56388	Cowell Spring	L	C051516	CURRENT	DOMESTIC	500	GD	KUHN GEORGE H & TAYLOR HANNA J	
264	PD56388	Cowell Spring	L	C060389	CURRENT	DOMESTIC	500	GD	TWETER ALLAN R & ROSEMARY F	
265	PD56388	Cowell Spring	L	C062140	CURRENT	DOMESTIC	500	GD	VAN ALPHEN MARTIN J & LINDA M	
266	PD56543	Cowlick Spring	L	C062872	CURRENT	STOCKWATERING	1500	GD	FOREST DISTRICT - MERRITT	
267	PD56229	Crater Creek	L	C037747	CURRENT	DOMESTIC	500	GD	AGRICULTURE FISHERIES & FOOD MINISTRY OF	
268	PD56228	Crater Creek	L	C001678	CURRENT	IRRIGATION	25	AF	AGRICULTURE FISHERIES & FOOD MINISTRY OF	
269	PD56227	Crater Creek	L	C053275	CURRENT	STOCKWATERING	3000	GD	FORESTS & RANGE MINISTRY OF	
270	PD69742	Creighton Pond	L	C108395	CURRENT	LAND IMPROVE	1	AF	ELKHART LODGE LTD	
271	PD56768	Cromarty Spring	L	C060439	CURRENT	DOMESTIC	500	GD	GALOZO LEO I & MARGOT L	
272	PD56552	Currie Brook	L	C022816	CURRENT		0		CURRIE EDITH M	
273	PD56551	Currie Spring	L	C022816	CURRENT	IRRIGATION	70	AF	CURRIE EDITH M	
274	PD56437	Dalby Creek	L	C034411	CURRENT	DOMESTIC	1500	GD	MAYNARD KIMBALL G & ANGELA J	
275	PD56437	Dalby Creek	L	C034411	CURRENT	IRRIGATION	50	AF	MAYNARD KIMBALL G & ANGELA J	
276	PD56893	Daly Slough	L	C026617	CURRENT	IRRIGATION	87.5	AF	WABNEGGER KARL ET AL	
277	PD56892	Daly Slough	L	C029729	CURRENT	IRRIGATION	220	AF	MAYER ROGER M & DONNA M	
278	PD56489	D'Arcy Creek	L	C058945	CURRENT	DOMESTIC	500	GD	BAINES MICHAEL R & SARAH LEE	
279	PD56489	D'Arcy Creek	L	C059248	CURRENT	IRRIGATION	1.4	AF	BAINES MICHAEL R & SARAH LEE	
280	PD56489	D'Arcy Creek	L	C059249	CURRENT	IRRIGATION	3.6	AF	MACKAY JOHN L & JANE B	
281	PD56489	D'Arcy Creek	L	C059247	CURRENT	IRRIGATION	4.35	AF	DAREL DONALD J & THALIA J	
282	PD56500	D'Arcy Spring	L	C103380	CURRENT	STOCKWATERING	1000	GD	SWAIL NORMAN	

	A	B	C	D	E	F	G	H	I	J
283	PD56423	Dearing Spring	L	C027496	CURRENT	DOMESTIC	1000	GD	FILLPPELLI MARIA TERESA	
284	PD56623	Deer Valley Creek	L	C045925	CURRENT	DOMESTIC	500	GD	HUGHES MAUREEN S	
285	PD56623	Deer Valley Creek	L	C045926	CURRENT	DOMESTIC	2000	GD	ALLISON H DENNIS & JOAN	
286	PD56561	Dickson Creek	L	F004402	CURRENT	DOMESTIC	500	GD	HARDWICK DOUGLAS H	
287	PD56561	Dickson Creek	L	F006606	CURRENT	DOMESTIC	500	GD	MIDDLETON PETER W & JANET	
288	PD56561	Dickson Creek	L	F004402	CURRENT	IRRIGATION	6	AF	HARDWICK DOUGLAS H	
289	PD56735	Dillard Creek	L	C105175	CURRENT	DOMESTIC	500	GD	LITTKEMANN DIRK	
290	PD56735	Dillard Creek	L	C105176	CURRENT	DOMESTIC	500	GD	BROWN TREVOR JAMES	
291	PD56736	Dillard Creek	L	C022391	CURRENT	IRRIGATION	12.5	AF	SACKS DANIEL	
292	PD56784	Dividend Spring	L	C047793	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
293	PD56622	Dogie Brook	L	C033354	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
294	PD56898	Dry Creek	L	C066462	CURRENT	CONSERV.-CONSTRUCT.WORKS	0	TF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
295	PD56898	Dry Creek	L	C066462	CURRENT	CONSERV.-STORED WATER	80	AF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
296	PD56234	Dunlevy Creek	L	C058087	CURRENT	DOMESTIC	2000	GD	AGRICULTURE FISHERIES & FOOD MINISTRY OF	
297	PD56234	Dunlevy Creek	L	C058087	CURRENT	IRRIGATION	20	AF	AGRICULTURE FISHERIES & FOOD MINISTRY OF	
298	PD56999	Elliot Creek	L	F052217	CURRENT	DOMESTIC	500	GD	KOLLER LARRY & KATHLEEN R	
299	PD57000	Elliot Creek	L	C027912	CURRENT	DOMESTIC	1000	GD	KOLLER AARON M	
300	PD56999	Elliot Creek	L	F052217	CURRENT	IRRIGATION	16	AF	KOLLER LARRY & KATHLEEN R	
301	PD56711	Englund Creek	L	C038481	CURRENT	DOMESTIC	500	GD	FETTERLY MONTY R	
302	PD56711	Englund Creek	L	C112788	CURRENT	DOMESTIC	1000	GD	WONG MARK & BETTINA	
303	PD56864	Erris Creek	L	C022627	CURRENT	IRRIGATION	24	AF	HEISEY MERLIN M	
304	PD56549	Evans Spring	L	F039954	CURRENT	DOMESTIC	1000	GD	WOYCENKO STEVE & MILLICENT	
305	PD57003	Evernden Spring	L	C107672	CURRENT	IRRIGATION	150	AF	ELLIS ROBERT V	
306	PD57003	Evernden Spring	L	C107672	CURRENT	STOCKWATERING	1000	GD	ELLIS ROBERT V	
307	PD57004	Fielding Spring	L	C055454	CURRENT	DOMESTIC	500	GD	FIELDING RAY A & SONJA K	
308	PD57004	Fielding Spring	L	C055454	CURRENT	IRRIGATION	8	AF	FIELDING RAY A & SONJA K	
309	PD56444	Findlay Creek	L	C018654	CURRENT	DOMESTIC	1000	GD	HUFF LEROY M & JUANITA J	
310	PD56445	Findlay Creek	L	C018654	CURRENT	DOMESTIC	1000	GD	HUFF LEROY M & JUANITA J	
311	PD56457	Findlay Creek	L	F019420	CURRENT	IRRIGATION	40	AF	MAYNARD KIMBALL G & ANGELA J	
312	PD56441	Findlay Creek	L	C053963	CURRENT	IRRIGATION	47.5	AF	HUFF LEROY M & JUANITA J	
313	PD56442	Findlay Creek	L	C053963	CURRENT	IRRIGATION	47.5	AF	HUFF LEROY M & JUANITA J	
314	PD56443	Findlay Creek	L	C015689	CURRENT	IRRIGATION	75	AF	HUFF LEROY M & JUANITA J	
315	PD56863	Finnegan Creek	L	C110239	CURRENT	DOMESTIC	500	GD	SENGER RAY A & JANINE P	
316	PD56863	Finnegan Creek	L	C110240	CURRENT	DOMESTIC	500	GD	MOORE DARREN RICHARD AND JOO MEE LEE	
317	PD56863	Finnegan Creek	L	C110237	CURRENT	IRRIGATION	12.375	AF	SENGER RAY A & JANINE P	
318	PD56863	Finnegan Creek	L	C110238	CURRENT	IRRIGATION	12.375	AF	MOORE DARREN RICHARD AND JOO MEE LEE	
319	PD56862	Finnegan Creek	L	C068180	CURRENT	IRRIGATION	16.25	AF	LAMY GEORGE N	
320	PD56862	Finnegan Creek	L	F064163	CURRENT	IRRIGATION	37	AF	HEISEY MERLIN M	
321	PD56862	Finnegan Creek	L	C068179	CURRENT	IRRIGATION	108.75	AF	HEISEY MERLIN M	
322	PD56862	Finnegan Creek	L	C018608	CURRENT	IRRIGATION	150	AF	HEISEY MERLIN M	
323	PD56761	Ford Lake	L	C053025	CURRENT		0		PANOV PETER C & PLATTEEL MICHELLE M	
324	PD56761	Ford Lake	L	C053031	CURRENT		0		JOHNSON ROBERT	
325	PD56761	Ford Lake	L	C053033	CURRENT		0		PIEROBON VICKI A	
326	PD56767	Ford Lake	L	C064264	CURRENT		0		KELLNER THEODOR D & ANNE E	
327	PD56767	Ford Lake	L	C111220	CURRENT		0		RYMUS MICHAEL J	
328	PD56761	Ford Lake	L	C052287	CURRENT	DOMESTIC	1000	GD	PANOV PETER C & PLATTEEL MICHELLE M	
329	PD56761	Ford Lake	L	C052291	CURRENT	DOMESTIC	1000	GD	JOHNSON ROBERT	
330	PD56761	Ford Lake	L	C052292	CURRENT	DOMESTIC	1000	GD	PIEROBON VICKI A	
331	PD56767	Ford Lake	L	C053033	CURRENT	DOMESTIC	1000	GD	PIEROBON VICKI A	
332	PD56767	Ford Lake	L	C053033	CURRENT	IRRIGATION	2.54	AF	PIEROBON VICKI A	
333	PD56767	Ford Lake	L	C053026	CURRENT	STORAGE	3.88	AF	PANOV PETER C & PLATTEEL MICHELLE M	
334	PD56767	Ford Lake	L	C053032	CURRENT	STORAGE	3.88	AF	JOHNSON ROBERT	
335	PD56405	Frank Lake	L	C022651	CURRENT	IRRIGATION	100	AF	ELKINK RANCH LTD	
336	PD56397	Frank Spring	L	C019523	CURRENT	DOMESTIC	2000	GD	ELKINK RANCH LTD	
337	PD56274	Fraser Creek	L	C041893	CURRENT	DOMESTIC	1000	GD	0764711 BC LTD	1
338	PD56770	Freding Spring	L	C051006	CURRENT	DOMESTIC	1000	GD	SPENCER JULIE M	
339	PD56770	Freding Spring	L	C051743	CURRENT	STOCKWATERING	500	GD	FOREST DISTRICT - MERRITT	
340	PD56701	Galloway Spring	L	C054446	CURRENT	DOMESTIC	1000	GD	SIROKIA LES & DARLEEN	
341	PD56741	Galois Creek	L	C112414	CURRENT	DOMESTIC	500	GD	SHOPSHIRE WILLIAM J & ASTRID L	
342	PD79293	Galois Creek	L	C121085	CURRENT	DOMESTIC	500	GD	SACKS DANIEL	
343	PD56484	Garfield Spring	L	C055072	CURRENT	DOMESTIC	500	GD	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
344	PD56484	Garfield Spring	L	C055072	CURRENT	IRRIGATION	90	AF	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
345	PD56484	Garfield Spring	L	C055073	CURRENT	STORAGE	90	AF	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
346	PD56644	Gavon Spring	L	C066132	CURRENT	DOMESTIC	500	GD	GRIGG DOUGLAS A	
347	PD56644	Gavon Spring	L	C066134	CURRENT	DOMESTIC	500	GD	PAPUC ELENA O & GHEORGHE F	
348	PD56949	Gillanders Spring	L	F013211	CURRENT	IRRIGATION	1.88	AF	CLIFTON WENDELL J & PATRICIA L	
349	PD56428	Giraud Creek	L	C054905	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
350	PD57037	Gladstone Creek	L	F011074	CURRENT		0		PIKE MOUNTAIN RANCH LTD	
351	PD57039	Gladstone Creek	L	F011074	CURRENT		0		PIKE MOUNTAIN RANCH LTD	
352	PD57040	Gladstone Lake	L	F011074	CURRENT	IRRIGATION	42.5	AF	PIKE MOUNTAIN RANCH LTD	
353	PD57158	Glasgow Creek	L	C058086	CURRENT	DOMESTIC	2000	GD	FORESTS & RANGE MINISTRY OF	
354	PD56482	Godfrey Pond	L	C055072	CURRENT	DOMESTIC	500	GD	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
355	PD56483	Godfrey Pond	L	C055072	CURRENT	IRRIGATION	90	AF	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
356	PD56483	Godfrey Pond	L	C055073	CURRENT	STORAGE	90	AF	BOSOMWORTH NEIL JOHN & MYRNA CLARE	
357	PD56479	Goldberg Slough	L	C055074	CURRENT	DOMESTIC	500	GD	MANNING RONALD WAYNE & MELISSA MARIE	
358	PD56481	Goldberg Slough	L	C055074	CURRENT	DOMESTIC	500	GD	MANNING RONALD WAYNE & MELISSA MARIE	
359	PD56479	Goldberg Slough	L	C055074	CURRENT	IRRIGATION	30	AF	MANNING RONALD WAYNE & MELISSA MARIE	
360	PD56481	Goldberg Slough	L	C055074	CURRENT	IRRIGATION	30	AF	MANNING RONALD WAYNE & MELISSA MARIE	
361	PD56279	Graham Spring	L	F016352	CURRENT	IRRIGATION	4.5	AF	POPOFF ROBERT W	
362	PD56718	Granger Spring	L	F040227	CURRENT	DOMESTIC	500	GD	OWENS LEONARD WILLIAM	
363	PD56536	Granite Creek	L	F041694	CURRENT	DOMESTIC	1000	GD	RICE DANIEL L	
364	PD56536	Granite Creek	L	F041694	CURRENT	IRRIGATION	1.95	AF	RICE DANIEL L	
365	PD56867	Grant Creek	L	C064156	CURRENT	IRRIGATION	26	AF	DERKSEN JOHN B & JEANNINE S	
366	PD56681	Grasmith Brook	L	F047369	CURRENT	DOMESTIC	1000	GD	HRUSIK SCOTT S & CHRISTINE G	
367	PD56682	Grasmith Brook	L	F047369	CURRENT	DOMESTIC	1000	GD	HRUSIK SCOTT S & CHRISTINE G	
368	PD57049	Gulliford Creek	L	C064207	CURRENT	CONSERV.-STORED WATER	60	AF	WILDLIFE BRANCH	
369	PD57045	Gulliford Creek	L	F060810	CURRENT	IRRIGATION	30	AF	PIKE MOUNTAIN RANCH LTD	
370	PD57050	Gulliford Creek	L	F060811	CURRENT	STORAGE	30	AF	PIKE MOUNTAIN RANCH LTD	
371	PD56931	Hackett Creek	L	C044147	CURRENT	WATERWORKS LOCAL AUTH	5657500	GY	ALLISON LAKE IMPROVEMENT DISTRICT	
372	PD56619	Hardwick Creek	L	C034750	CURRENT	DOMESTIC	1000	GD	COPPER CREEK RANCH LTD	
373	PD56559	Hardwick Creek	L	F010055	CURRENT	IRRIGATION	19.6	AF	BEY JOHN & RUBY	
374	PD56560	Hardwick Creek	L	F010055	CURRENT	IRRIGATION	19.6	AF	BEY JOHN & RUBY	
375	PD56619	Hardwick Creek	L	C018371	CURRENT	IRRIGATION	75	AF	COPPER CREEK RANCH LTD	
376	PD56619	Hardwick Creek	L	C034750	CURRENT	IRRIGATION	175	AF	COPPER CREEK RANCH LTD	
377	PD56619	Hardwick Creek	L	C034751	CURRENT	STORAGE	60	AF	COPPER CREEK RANCH LTD	
378	PD56550	Harris Spring	L	F008973	CURRENT	IRRIGATION	1.5	AF	ATKINSON DAVID R & JAYMIE G	
379	PD56678	Harvey Creek	L	C044146	CURRENT	DOMESTIC	500	GD	KOKOLSKI GERALD P & COLLEEN M	
380	PD56678	Harvey Creek	L	C051950	CURRENT	DOMESTIC	500	GD	HESS SIMON P	
381	PD56678	Harvey Creek	L	C051951	CURRENT	DOMESTIC	500	GD	LUPIEN RAYMOND P & BONITA Y	
382	PD56678	Harvey Creek	L	F052126	CURRENT	DOMESTIC	500	GD	WATSON DENNIS C & DALLE M	
383	PD56678	Harvey Creek	L	C051950	CURRENT	IRRIGATION	8.35	AF	HESS SIMON P	
384	PD74626	Haselden Creek	L	C114310	CURRENT	DOMESTIC	500	GD	MCLAUGHLIN WILLIAM G	
385	PD74626	Haselden Creek	L	C114311	CURRENT	DOMESTIC	500	GD	LASTORIA PASQUALE	
386	PD74626	Haselden Creek	L	C114312	CURRENT	DOMESTIC	500	GD	PHILLIPS ALAN E & PATRICIA G	
387	PD74626	Haselden Creek	L	C114313	CURRENT	DOMESTIC	500	GD	J & L JANG HOLDINGS LTD	
388	PD74626	Haselden Creek	L	C114314	CURRENT	DOMESTIC	500	GD	FRASER ROB & CHARLANE	
389	PD74626	Haselden Creek	L	C114315	CURRENT	DOMESTIC	500	GD	SKORKA PAUL & DARCY	
390	PD74626	Haselden Creek	L	C114316	CURRENT	DOMESTIC	500	GD	PEACH JAMES	
391	PD56961	Hayes Creek	L	F064163	CURRENT		0		HEISEY MERLIN M	
392	PD56690	Hayes Creek	L	C116447	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
393	PD56700	Hayes Creek	L	C116447	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
394	PD56719	Hayes Creek	L	C033209	CURRENT	CONSERV.-CONSTRUCT.WORKS	0	TF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
395	PD56675	Hayes Creek	L	C033176	CURRENT	CONSERV.-CONSTRUCT.WORKS	0	TF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
396	PD56755	Hayes Creek	L	C057438	CURRENT	DOMESTIC	500	GD	SUKHDEO ROSHAN & FAUZEENA S A	
397	PD56757	Hayes Creek	L	C062863	CURRENT	DOMESTIC	500	GD	JONES KENNETH W & STANLEY H	
398	PD56852	Hayes Creek	L	C062156	CURRENT	DOMESTIC	500	GD	BLOOMFIELD GARY G	
399	PD56855	Hayes Creek	L	C058089	CURRENT	DOMESTIC	500	GD	TOWNSEND IAN D & FAYE L	
400	PD56841	Hayes Creek	L	C066405	CURRENT	DOMESTIC	500	GD	GREEN GRAHAM C & JUDITH F	
401	PD56847	Hayes Creek	L	F006313	CURRENT	DOMESTIC	500	GD	BROWN EDMOND L & ANNE R	
402	PD56647	Hayes Creek	L	F005268	CURRENT	DOMESTIC	500	GD	VERMILION FORKS LAND AND LIVESTOCK CO	
403	PD56648	Hayes Creek	L	C066136	CURRENT	DOMESTIC	500	GD	LE COMTE DENIS	
404	PD56851	Hayes Creek	L	C058088	CURRENT	DOMESTIC	1000	GD	LALONDE DIANE MARGUERITE MARIE	
405	PD56849	Hayes Creek	L	C046842	CURRENT	DOMESTIC	1000	GD	SAULNIER ALICE M	
406	PD56650	Hayes Creek	L	F004309	CURRENT	INCIDENTAL - DOMESTIC	500	GD	SIMILKAMEEN IMPROVEMENT DISTRICT	
407	PD56699	Hayes Creek	L	C056362	CURRENT	IRRIGATION	1.32	AF	RAND MARY E & STEELE MARGARET B	
408	PD56843	Hayes Creek	L	C065110	CURRENT	IRRIGATION	1.5	AF	STADNYK KAROL E & VIVIAN M	
409	PD56851	Hayes Creek	L	C058088	CURRENT	IRRIGATION	10	AF	LALONDE DIANE MARGUERITE MARIE	
410	PD56845	Hayes Creek	L	C062153	CURRENT	IRRIGATION	12	AF	DERKSEN JOHN B & JEANNINE S	
411	PD56744	Hayes Creek	L	C064510	CURRENT	IRRIGATION	12.2	AF	SPENCER JULIE M	
412	PD56747	Hayes Creek	L	C064510	CURRENT	IRRIGATION	12.2	AF	SPENCER JULIE M	
413	PD56752	Hayes Creek	L	C064510	CURRENT	IRRIGATION	12.2	AF	SPENCER JULIE M	
414	PD56847	Hayes Creek	L	F006313	CURRENT	IRRIGATION	15	AF	BROWN EDMOND L & ANNE R	
415	PD56961	Hayes Creek	L	C068180	CURRENT	IRRIGATION	16.25	AF	LAMY GEORGE N	
416	PD56753	Hayes Creek	L	F008797	CURRENT	IRRIGATION	17.5	AF	SPENCER JULIE M	
417	PD56648	Hayes Creek	L	C066136	CURRENT	IRRIGATION	17.5	AF	LE COMTE DENIS	
418	PD56651	Hayes Creek	L	C120168	CURRENT	IRRIGATION	18	AF	MCLACHLAN MADELINE J	
419	PD56757	Hayes Creek	L	C062863	CURRENT	IRRIGATION	22.5	AF	JONES KENNETH W & STANLEY H	
420	PD56699	Hayes Creek	L	C056360	CURRENT	IRRIGATION	23.35	AF	SMITH MARGARET A	
421	PD56706	Hayes Creek	L	C054573	CURRENT	IRRIGATION	25	AF	BROGDEN LESLIE W	
422	PD56838	Hayes Creek	L	C065105	CURRENT	IRRIGATION	29.6	AF	KRAMER FRANCES A	
423	PD56699	Hayes Creek	L	C056358	CURRENT	IRRIGATION	29.67	AF	SMITH MARGARET A	

	A	B	C	D	E	F	G	H	I	J
424	PD56758	Hayes Creek	L	F005189	CURRENT	IRRIGATION	31.5	AF	CROMARTY WILLIAM B	
425	PD56760	Hayes Creek	L	F005189	CURRENT	IRRIGATION	31.5	AF	CROMARTY WILLIAM B	
426	PD56847	Hayes Creek	L	F013539	CURRENT	IRRIGATION	32.2	AF	BROWN EDMOND L & ANNE R	
427	PD56762	Hayes Creek	L	F005188	CURRENT	IRRIGATION	36.5	AF	STRINGFELLOW DAVID S & CORINNE J	
428	PD56764	Hayes Creek	L	F005188	CURRENT	IRRIGATION	36.5	AF	STRINGFELLOW DAVID S & CORINNE J	
429	PD56722	Hayes Creek	L	F109779	CURRENT	IRRIGATION	40	AF	BOSCHER BERNARD	
430	PD56747	Hayes Creek	L	C103230	CURRENT	IRRIGATION	42.67	AF	SPENCER JULIE M	
431	PD56706	Hayes Creek	L	C062283	CURRENT	IRRIGATION	48	AF	BROGDEN LESLIE W	
432	PD56707	Hayes Creek	L	C062283	CURRENT	IRRIGATION	48	AF	BROGDEN LESLIE W	
433	PD56650	Hayes Creek	L	C107650	CURRENT	IRRIGATION	50	AF	RAE RAYMOND F & WINGATE SUSAN J	
434	PD56722	Hayes Creek	L	C109814	CURRENT	IRRIGATION	52	AF	BOSCHER BERNARD	
435	PD56838	Hayes Creek	L	C065108	CURRENT	IRRIGATION	62.4	AF	KRAMER FRANCES A	
436	PD56721	Hayes Creek	L	F109778	CURRENT	IRRIGATION	72	AF	BOSCHER BERNARD	
437	PD56722	Hayes Creek	L	F109778	CURRENT	IRRIGATION	72	AF	BOSCHER BERNARD	
438	PD73777	Hayes Creek	L	C113188	CURRENT	IRRIGATION	100	AF	DIXON RICHARD BRIAN & SANDRA LORRAINE	
439	PD56961	Hayes Creek	L	C068179	CURRENT	IRRIGATION	108.75	AF	HEISEY MERLIN M	
440	PD56647	Hayes Creek	L	F005268	CURRENT	IRRIGATION	142	AF	VERMILION FORKS LAND AND LIVESTOCK CO	
441	PD56650	Hayes Creek	L	F004309	CURRENT	IRRIGATION LOCAL AUTH	3	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
442	PD56690	Hayes Creek	L	C056363	CURRENT	STORAGE	1.32	AF	RAND MARY E & STEELE MARGARET B	
443	PD56690	Hayes Creek	L	C056365	CURRENT	STORAGE	5.66	AF	JFD HOLDINGS LTD	
444	PD56690	Hayes Creek	L	C056361	CURRENT	STORAGE	23.35	AF	SMITH MARGARET A	
445	PD56690	Hayes Creek	L	C056359	CURRENT	STORAGE	29.67	AF	SMITH MARGARET A	
446	PD56690	Hayes Creek	L	C062284	CURRENT	STORAGE	48	AF	BROGDEN LESLIE W	
447	PD56690	Hayes Creek	L	C109814	CURRENT	STORAGE	52	AF	BOSCHER BERNARD	
448	PD56721	Hayes Creek	L	F109778	CURRENT	STORAGE	72	AF	BOSCHER BERNARD	
449	PD56722	Hayes Creek	L	F109778	CURRENT	STORAGE	72	AF	BOSCHER BERNARD	
450	PD55529	Hayley Spring	L	C050043	CURRENT	STOCKWATERING	2000	GD	FORESTS & RANGE MINISTRY OF	
451	PD75591	Hedley Creek	L	C121083	CURRENT	WATERWORKS (OTHER)	926340	GD	UPPER SIMILKAMEEN INDIAN BAND	
452	PD56692	Helen Spring	L	F039617	CURRENT	DOMESTIC	100	GD	SZABADOS ZOLTAN R & JANINE L	
453	PD76652	Helen Spring	L	C115505	CURRENT	DOMESTIC	500	GD	FRENCH WALTER J	
454	PD56304	Henri Creek	L	C114102	CURRENT	DOMESTIC	500	GD	SETTLE JEAN	
455	PD56304	Henri Creek	L	F007839	CURRENT	IRRIGATION	20	AF	EWERT VICTOR E & MARY F	
456	PD67017	Hidden Spring	L	C105764	CURRENT	STOCKWATERING	1500	GD	CEDAR CREEK RANCH	
457	PD56476	Hitchins Spring	L	F006387	CURRENT	IRRIGATION LOCAL AUTH	10	AF	PRINCETON TOWN OF	
458	PD56408	Holmes Creek	L	C022729	CURRENT	DOMESTIC	1000	GD	VISSCHER WILLIAM & ROFFEL MICHAEL A	
459	PD56408	Holmes Creek	L	C022729	CURRENT	IRRIGATION	25	AF	VISSCHER WILLIAM & ROFFEL MICHAEL A	
460	PD56832	Hoover Creek	L	C031008	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
461	PD56808	Hudson Spring	L	C058314	CURRENT	DOMESTIC	1000	GD	SHALAGAN BARRIE S & DENISE A	
462	PD56808	Hudson Spring	L	C058314	CURRENT	IRRIGATION	9.5	AF	SHALAGAN BARRIE S & DENISE A	
463	PD56655	Hugh Spring	L	C032014	CURRENT	DOMESTIC	1000	GD	PRINCETON WOOD PRESERVERS LTD	
464	PD75592	Iltcoola Creek	L	C115648	CURRENT	IRRIGATION	24	AF	UPPER SIMILKAMEEN INDIAN BAND	
465	PD75592	Iltcoola Creek	L	C115648	CURRENT	STORAGE	8	AF	UPPER SIMILKAMEEN INDIAN BAND	
466	PD56542	Irwin Spring	L	C113117	CURRENT	DOMESTIC	500	GD	WASYLENCHUK DARCY Y & KATHERINE R	
467	PD56542	Irwin Spring	L	C113119	CURRENT	DOMESTIC	500	GD	SMITH STANLEY	
468	PD56493	Ivan Spring	L	C018652	CURRENT	DOMESTIC	1000	GD	MCKAY RICHARD W & ETAL	
469	PD53574	Jack Pine Lake	L	C054121	CURRENT	DOMESTIC	500	GD	PERCY EAMONN JAMES & MYRA EDITH	
470	PD53576	Jack Pine Lake	L	C054121	CURRENT	IRRIGATION	150	AF	PERCY EAMONN JAMES & MYRA EDITH	
471	PD53575	Jack Pine Lake	L	C054122	CURRENT	STORAGE	150	AF	PERCY EAMONN JAMES & MYRA EDITH	
472	PD56458	Jaf Brook	L	F005241	CURRENT	DOMESTIC	500	GD	TURNER FRANK AND JEAN ANN	
473	PD56459	Jaf Brook	L	F005241	CURRENT	DOMESTIC	500	GD	TURNER FRANK AND JEAN ANN	
474	PD56458	Jaf Brook	L	F005241	CURRENT	IRRIGATION	14.66	AF	TURNER FRANK AND JEAN ANN	
475	PD56459	Jaf Brook	L	F005241	CURRENT	IRRIGATION	14.66	AF	TURNER FRANK AND JEAN ANN	
476	PD56462	Jean Spring	L	C034317	CURRENT	DOMESTIC	1000	GD	WRIGHT TERRENCE P	
477	PD56367	Jim Creek	L	C006685	CURRENT	IRRIGATION	99	AF	LOWER SIMILKAMEEN INDIAN BAND	
478	PD56936	John Burns Creek	L	C062348	CURRENT	IRRIGATION	40.3	AF	POCHA RICHARD K	
479	PD56937	John Burns Lake	L	C062349	CURRENT	STORAGE	40.3	AF	POCHA RICHARD K	
480	PD56343	Johns Creek	L	C006686	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
481	PD56702	Johnson Spring	L	C059428	CURRENT	DOMESTIC	1000	GD	BROGDEN LESLIE W	
482	PD56874	Jon Paul Spring	L	F058925	CURRENT	DOMESTIC	500	GD	PEARSON DEBORAH J & CLERMONT JEAN P	
483	PD56874	Jon Paul Spring	L	F058926	CURRENT	DOMESTIC	500	GD	LINGREN JESS B	
484	PD56460	Joslin Spring	L	C015361	CURRENT	DOMESTIC	500	GD	LAPIERRE JIMMY C & EDITH T	
485	PD56460	Joslin Spring	L	C015361	CURRENT	IRRIGATION	4	AF	LAPIERRE JIMMY C & EDITH T	
486	PD56669	Joy Creek	L	C055745	CURRENT	DOMESTIC	500	GD	MCCONNELL IAN R & WENDY L	
487	PD56447	Juanita Spring	L	C060339	CURRENT	DOMESTIC	500	GD	HUFF LEROY M & JUANITA J	
488	PD56809	Juftin Spring	L	C058874	CURRENT	STOCKWATERING	1500	GD	FORESTS & RANGE MINISTRY OF	
489	PD56835	Julian Spring	L	C058875	CURRENT	STOCKWATERING	3000	GD	FORESTS & RANGE MINISTRY OF	
490	PD77115	Jura Spring	L	C117478	CURRENT	STOCKWATERING	1000	GD	CRIMMON BRENDA A ET AL	
491	PD56941	Kaiser Creek	L	C058876	CURRENT	DOMESTIC	1500	GD	FORESTS & RANGE MINISTRY OF	
492	PD56751	Keremeos Creek	L	C064264	CURRENT		0		KELLNER THEODOR D & ANNE E	
493	PD56850	Keremeos Creek	L	F015946	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
494	PD56844	Keremeos Creek	L	F015936	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
495	PD56844	Keremeos Creek	L	F015937	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
496	PD56846	Keremeos Creek	L	F112602	CURRENT		0		SIMILKAMEEN IMPROVEMENT DISTRICT	
497	PD56846	Keremeos Creek	L	F112603	CURRENT		0		SIMILKAMEEN IMPROVEMENT DISTRICT	
498	PD56846	Keremeos Creek	L	F112604	CURRENT		0		SIMILKAMEEN IMPROVEMENT DISTRICT	
499	PD56848	Keremeos Creek	L	F015945	CURRENT		0		OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
500	PD61173	Keremeos Creek	L	C111220	CURRENT		0		RYMUS MICHAEL J	
501	PD56934	Keremeos Creek	L	F016355	CURRENT	DOMESTIC	250	GD	CLIFTON WILSON R & JUNE N	
502	PD56935	Keremeos Creek	L	F016354	CURRENT	DOMESTIC	250	GD	LIDDICOAT WILLIAM A & MAY K	
503	PD56935	Keremeos Creek	L	F016355	CURRENT	DOMESTIC	250	GD	CLIFTON WILSON R & JUNE N	
504	PD56748	Keremeos Creek	L	C064265	CURRENT	DOMESTIC	500	GD	MARCELINO JOAQUIM G & IDALINA P	
505	PD56749	Keremeos Creek	L	C064267	CURRENT	DOMESTIC	500	GD	ROTH BERNARD G & CAROLYN J	
506	PD56750	Keremeos Creek	L	C064266	CURRENT	DOMESTIC	500	GD	KELLNER THEODOR D & ANNE E	
507	PD56751	Keremeos Creek	L	C064266	CURRENT	DOMESTIC	500	GD	KELLNER THEODOR D & ANNE E	
508	PD64447	Keremeos Creek	L	C070434	CURRENT	DOMESTIC	500	GD	702491 BC LTD	
509	PD61173	Keremeos Creek	L	C070418	CURRENT	DOMESTIC	500	GD	RYMUS MICHAEL J	
510	PD56745	Keremeos Creek	L	F009754	CURRENT	DOMESTIC	1000	GD	LOWER SIMILKAMEEN INDIAN BAND	
511	PD56756	Keremeos Creek	L	C053025	CURRENT	DOMESTIC	1000	GD	PANOV PETER C & PLATTEEL MICHELLE M	
512	PD56756	Keremeos Creek	L	C053031	CURRENT	DOMESTIC	1000	GD	JOHNSON ROBERT	
513	PD56756	Keremeos Creek	L	C053033	CURRENT	DOMESTIC	1000	GD	PIEROBON VICKI A	
514	PD56759	Keremeos Creek	L	C050038	CURRENT	DOMESTIC	1000	GD	CAREY FRANK A	
515	PD56907	Keremeos Creek	L	F006985	CURRENT	INCIDENTAL - DOMESTIC	500	GD	KEREMEOS IRRIGATION DISTRICT	
516	PD56905	Keremeos Creek	L	F007115	CURRENT	INCIDENTAL - DOMESTIC	5000	GD	KEREMEOS IRRIGATION DISTRICT	
517	PD56905	Keremeos Creek	L	F007116	CURRENT	INCIDENTAL - DOMESTIC	5000	GD	KEREMEOS IRRIGATION DISTRICT	
518	PD56756	Keremeos Creek	L	C053025	CURRENT	IRRIGATION	2.54	AF	PANOV PETER C & PLATTEEL MICHELLE M	
519	PD56756	Keremeos Creek	L	C053031	CURRENT	IRRIGATION	2.54	AF	JOHNSON ROBERT	
520	PD56756	Keremeos Creek	L	C053033	CURRENT	IRRIGATION	2.54	AF	PIEROBON VICKI A	
521	PD56756	Keremeos Creek	L	C064264	CURRENT	IRRIGATION	5	AF	KELLNER THEODOR D & ANNE E	
522	PD56756	Keremeos Creek	L	C111220	CURRENT	IRRIGATION	9	AF	RYMUS MICHAEL J	
523	PD56935	Keremeos Creek	L	F016354	CURRENT	IRRIGATION	11.4	AF	LIDDICOAT WILLIAM A & MAY K	
524	PD71956	Keremeos Creek	L	C110898	CURRENT	IRRIGATION	12	AF	LAWRENCE LINDA	
525	PD56932	Keremeos Creek	L	F016974	CURRENT	IRRIGATION	18	AF	FLYNN VINCENT J & AUDREY T	
526	PD56745	Keremeos Creek	L	F009754	CURRENT	IRRIGATION	23	AF	LOWER SIMILKAMEEN INDIAN BAND	
527	PD56934	Keremeos Creek	L	F016355	CURRENT	IRRIGATION	38	AF	CLIFTON WILSON R & JUNE N	
528	PD56935	Keremeos Creek	L	F016355	CURRENT	IRRIGATION	38	AF	CLIFTON WILSON R & JUNE N	
529	PD56930	Keremeos Creek	L	F012788	CURRENT	IRRIGATION	56	AF	CLIFTON BRADLEY R & WILSON W	
530	PD56928	Keremeos Creek	L	F016975	CURRENT	IRRIGATION	58	AF	CLIFTON WILSON R & JUNE N	
531	PD64447	Keremeos Creek	L	C070434	CURRENT	IRRIGATION	70	AF	702491 BC LTD	
532	PD56905	Keremeos Creek	L	F007115	CURRENT	IRRIGATION LOCAL AUTH	44.4	AF	KEREMEOS IRRIGATION DISTRICT	
533	PD56905	Keremeos Creek	L	F007116	CURRENT	IRRIGATION LOCAL AUTH	420	AF	KEREMEOS IRRIGATION DISTRICT	
534	PD56907	Keremeos Creek	L	F006985	CURRENT	IRRIGATION LOCAL AUTH	428	AF	KEREMEOS IRRIGATION DISTRICT	
535	PD56927	Keremeos Creek	L	C047165	CURRENT	PONDS	2	CS	CLIFTON BRADLEY R & WILSON W	
536	PD56756	Keremeos Creek	L	C053026	CURRENT	STORAGE	3.88	AF	PANOV PETER C & PLATTEEL MICHELLE M	
537	PD56756	Keremeos Creek	L	C053032	CURRENT	STORAGE	3.88	AF	JOHNSON ROBERT	
538	PD56756	Keremeos Creek	L	C053034	CURRENT	STORAGE	3.88	AF	PIEROBON VICKI A	
539	PD56756	Keremeos Creek	L	C064264	CURRENT	STORAGE	5	AF	KELLNER THEODOR D & ANNE E	
540	PD56756	Keremeos Creek	L	C111220	CURRENT	STORAGE	9	AF	RYMUS MICHAEL J	
541	PD56384	Keremeos Creek	L	C105901	CURRENT	WATERWORKS LOCAL AUTH	1825000	GY	APEX MOUNTAIN RESORT (1997) LTD	
542	PD56384	Keremeos Creek	L	C107046	CURRENT	WATERWORKS LOCAL AUTH	3650000	GY	APEX MOUNTAIN RESORT (1997) LTD	
543	PD56395	Keremeos Creek	L	C107046	CURRENT	WATERWORKS LOCAL AUTH	3650000	GY	APEX MOUNTAIN RESORT (1997) LTD	
544	PD56384	Keremeos Creek	L	C066239	CURRENT	WATERWORKS LOCAL AUTH	9050000	GY	APEX MOUNTAIN RESORT (1997) LTD	
545	PD56395	Keremeos Creek	L	C066239	CURRENT	WATERWORKS LOCAL AUTH	9050000	GY	APEX MOUNTAIN RESORT (1997) LTD	
546	PD56731	Ketchan Creek	L	F014482	CURRENT	IRRIGATION	57.4	AF	BARTHOLSEN ASBJORN B & SYLVIA L	
547	PD56732	Ketchan Creek	L	F014482	CURRENT	IRRIGATION	57.4	AF	BARTHOLSEN ASBJORN B & SYLVIA L	
548	PD56730	Ketchan Lake	L	C064150	CURRENT	CONSERV.-STORED WATER	165	AF	DUCKS UNLIMITED (CANADA)	
549	PD56485	Krutch Spring	L	C062479	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
550	PD56438	Lacosse Creek	L	C111666	CURRENT	IRRIGATION	148.5	AF	623819 BC LTD	
551	PD56438	Lacosse Creek	L	C111666	CURRENT	STORAGE	148.5	AF	623819 BC LTD	
552	PD56412	Lamont Creek	L	F010087	CURRENT	DOMESTIC	1000	GD	WHIPSAW LAND & CATTLE CO	
553	PD56411	Lamont Creek	L	C025389	CURRENT	IRRIGATION	80	AF	623819 BC LTD	
554	PD56411	Lamont Creek	L	C111658	CURRENT	IRRIGATION	99.2	AF	623819 BC LTD	
555	PD56412	Lamont Creek	L	F010087	CURRENT	STOCKWATERING	6000	GD	WHIPSAW LAND & CATTLE CO	
556	PD56411	Lamont Creek	L	C111660	CURRENT	STORAGE	39.6	AF	623819 BC LTD	
557	PD56652	Lawrence Creek	L	C062182	CURRENT	DOMESTIC	500	GD	KUBIN JIRI	
558	PD56663	Lee Creek	L	C016754	CURRENT	DOMESTIC	3000	GD	OSPREY LAKE WATERWORKS DISTRICT	
559	PD54559	Lee Creek	L	C048618	CURRENT	STORAGE	40	AF	OSPREY LAKE WATERWORKS DISTRICT	
560	PD56662	Lee Creek	L	C048617	CURRENT	WATERWORKS LOCAL AUTH	21900000	GY	OSPREY LAKE WATERWORKS DISTRICT	
561	PD56617	Leech Lake	L	C038797	CURRENT	DOMESTIC	500	GD	THOMPSON GEORGE S & MILDRED	
562	PD56617	Leech Lake	L	C038797	CURRENT	IRRIGATION	12.5	AF	THOMPSON GEORGE S & MILDRED	
563	PD56446	Leroy Spring	L	C060338	CURRENT	DOMESTIC	500	GD	HUFF LEROY M & JUANITA J	
564	PD56446	Leroy Spring	L	C060338	CURRENT	IRRIGATION	7.5	AF	HUFF LEROY M & JUANITA J	

	A	B	C	D	E	F	G	H	I	J
565	PD56697	Lewis Spring	L	C046174	CURRENT	DOMESTIC	500	GD	DYKSHOORN FRANK D & JANTINE H	
566	PD56670	Link Creek	L	C055351	CURRENT	DOMESTIC	500	GD	MCCONNELL IAN R & WENDY L	
567	PD56671	Link Creek	L	C055350	CURRENT	DOMESTIC	500	GD	WIERZIOCH ERWIN & INGEBORG	
568	PD56673	Link Lake	L	C066287	CURRENT	DOMESTIC	500	GD	DAVY DARCY L & AUBREY B	
569	PD56672	Link Lake	L	C066288	CURRENT	DOMESTIC	1000	GD	QUINTON STANLEY A	
570	PD44393	Little Muddy Creek	L	C027048	CURRENT	LAND IMPROVE	0	TF	PROTECTED AREAS SECTION	
571	PD56783	Loak Spring	L	C047790	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
572	PD57042	Loosmore Lake	L	F011074	CURRENT	IRRIGATION	42.5	AF	PIKE MOUNTAIN RANCH LTD	
573	PD57016	Luke Creek	L	C066284	CURRENT	IRRIGATION	60	AF	COQUIHALLA DEVELOPMENTS CORP	
574	PD56923	MacKenzie Creek	L	F021145	CURRENT	DOMESTIC	500	GD	HARRIS JAMES M & CHERYL E	
575	PD56695	Madeline Spring	L	C040146	CURRENT	DOMESTIC	500	GD	KOSICHIK LAURENZ & ROBERTSON LEE-ANN	
576	PD57028	Mak Sikkar Brook	L	C104155	CURRENT	DOMESTIC	500	GD	ELLIS ROBERT V	
577	PD57028	Mak Sikkar Brook	L	C108129	CURRENT	IRRIGATION	10	AF	SCHNEIDER CLARENCE D & SHARON L	
578	PD57028	Mak Sikkar Brook	L	F107812	CURRENT	IRRIGATION	11.55	AF	SCHNEIDER CLARENCE D & SHARON L	
579	PD57028	Mak Sikkar Brook	L	C108130	CURRENT	IRRIGATION	20	AF	ELLIS ROBERT V	
580	PD57027	Manery Creek	L	F070501	CURRENT	DOMESTIC	500	GD	SCHNEIDER CLARENCE D & SHARON L	
581	PD57027	Manery Creek	L	F070501	CURRENT	IRRIGATION	7.7	AF	SCHNEIDER CLARENCE D & SHARON L	
582	PD56996	Manning Creek	L	F007048	CURRENT	DOMESTIC	500	GD	MULLIN WILLIAM J & PATRICIA A	
583	PD56996	Manning Creek	L	F007048	CURRENT	IRRIGATION	21.5	AF	MULLIN WILLIAM J & PATRICIA A	
584	PD56947	Manuel Creek	L	F011709	CURRENT	DOMESTIC	1000	GD	BENGAG BALBIR S & JASVIR S	
585	PD56946	Manuel Creek	L	C057143	CURRENT	DOMESTIC	2000	GD	FORESTS & RANGE MINISTRY OF	
586	PD56947	Manuel Creek	L	F011709	CURRENT	IRRIGATION	16	AF	BENGAG BALBIR S & JASVIR S	
587	PD56947	Manuel Creek	L	C107589	CURRENT	STOCKWATERING	1000	GD	MASON WILLIAM T J & JUNE L	
588	PD57015	Mark Creek	L	C066283	CURRENT	IRRIGATION	60	AF	COQUIHALLA DEVELOPMENTS CORP	
589	PD56698	Marriott Spring	L	F039618	CURRENT	DOMESTIC	500	GD	BENTLEY BRIAN & FRAN	
590	PD56805	Marsel Creek	L	F066229	CURRENT	CONSERV.-STORED WATER	250	AF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
591	PD53562	Marshall Spring	L	C040330	CURRENT	DOMESTIC	500	GD	MARSHALL SPRINGS RESORT INC	
592	PD56323	Mascot Ditch	L	C066375	CURRENT	MINING-PROCESSING ORE	16350	GD	HOMESTAKE CANADA INC	
593	PD56323	Mascot Ditch	L	C066375	CURRENT	STORAGE	22	AF	HOMESTAKE CANADA INC	
594	PD56324	Mascot Pond	L	C110101	CURRENT		0		HOMESTAKE CANADA INC	
595	PD62020	Matthew Creek	L	C066505	CURRENT	IRRIGATION	60	AF	COQUIHALLA DEVELOPMENTS CORP	
596	PD56694	Mayer Spring	L	C025447	CURRENT	DOMESTIC	500	GD	MAYER JOSEPH C & PATRICIA R	
597	PD53571	McCullough Creek	L	C060476	CURRENT	CONSERV.-STORED WATER	100	AF	WILDLIFE BRANCH	
598	PD53570	McCullough Creek	L	C059543	CURRENT	CONSERV.-STORED WATER	390	AF	WILDLIFE BRANCH	
599	PD53573	McCullough Creek	L	C015236	CURRENT	IRRIGATION	90	AF	QUILCHENA CATTLE CO LTD	
600	PD53570	McCullough Creek	L	C015237	CURRENT	STORAGE	90	AF	QUILCHENA CATTLE CO LTD	
601	PD56646	McInroy Spring	L	C106919	CURRENT	DOMESTIC	500	GD	MCINROY KIRKLAND J & GLORIA J	
602	PD56646	McInroy Spring	L	C106919	CURRENT	IRRIGATION	7.5	AF	MCINROY KIRKLAND J & GLORIA J	
603	PD56779	McKay Creek	L	C125290	CURRENT	DOMESTIC	500	GD	AUSTEN WILLIAM C & SHAW JOHN A	
604	PD56781	McKay Creek	L	C063727	CURRENT	DOMESTIC	500	GD	ROTH BERNARD G & CAROLYN J	
605	PD56777	McKay Creek	L	C062214	CURRENT	STOCKWATERING	2000	GD	FOREST DISTRICT - PENTICTON	
606	PD56621	Miner Spring	L	C038648	CURRENT	DOMESTIC	1000	GD	FORESTS & RANGE MINISTRY OF	
607	PD72682	Missezula Lake	L	C116426	CURRENT	WATERWORKS LOCAL AUTH	18250000	GY	MISSEZULA LAKE WATERWORKS DISTRICT	
608	PD56882	Morden Spring	L	C062152	CURRENT	IRRIGATION	12	AF	DERKSEN JOHN B & JEANNINE S	
609	PD56882	Morden Spring	L	C062152	CURRENT	STOCKWATERING	500	GD	DERKSEN JOHN B & JEANNINE S	
610	PD77919	Murray Creek	L	C118388	CURRENT	DOMESTIC	500	GD	CONWAY-BROWN JOHN & PHYLLIS	
611	PD56925	Murray Creek	L	C026709	CURRENT	DOMESTIC	500	GD	MAXWELL JUDITH MAY	
612	PD56925	Murray Creek	L	C026710	CURRENT	DOMESTIC	500	GD	HARRIS NORMA L	
613	PD56926	Murray Creek	L	C053406	CURRENT	DOMESTIC	500	GD	SMYTH MARTIN G & LYNNE R	
614	PD56925	Murray Creek	L	C026708	CURRENT	DOMESTIC	1500	GD	REID TONY CHRISTOPHER & ALLISON MARGARET	
615	PD57013	Myren Creek	L	C032931	CURRENT	IRRIGATION	20	AF	COQUIHALLA DEVELOPMENTS CORP	
616	PD57013	Myren Creek	L	C032930	CURRENT	IRRIGATION	80	AF	COQUIHALLA DEVELOPMENTS CORP	
617	PD57009	Nahumcheen Brook	L	F009766	CURRENT	DOMESTIC	2000	GD	LOWER SIMILKAMEEN INDIAN BAND	
618	PD57009	Nahumcheen Brook	L	F009766	CURRENT	IRRIGATION	18	AF	LOWER SIMILKAMEEN INDIAN BAND	
619	PD57005	Nahumcheen Brook	L	C107672	CURRENT	IRRIGATION	150	AF	ELLIS ROBERT V	
620	PD57005	Nahumcheen Brook	L	C107672	CURRENT	STOCKWATERING	1000	GD	ELLIS ROBERT V	
621	PD56985	Narcisse Creek	L	C007109	CURRENT	DOMESTIC	2500	GD	LOWER SIMILKAMEEN INDIAN BAND	
622	PD56985	Narcisse Creek	L	C007109	CURRENT	IRRIGATION	150	AF	LOWER SIMILKAMEEN INDIAN BAND	
623	PD56538	Nichol Brook	L	C035173	CURRENT	DOMESTIC	500	GD	USHER ARNOLD A	
624	PD56537	Nichol Brook	L	C035170	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
625	PD56259	Nickel Plate Creek	L	C022915	CURRENT	POWER-COMMERCIAL	4.4	CS	SOCIAL SERVICES MINISTRY OF	
626	PD67850	Nickel Plate Lake	L	C109826	CURRENT	SNOW MAKING	67	AF	APEX MOUNTAIN RESORT (1997) LTD	
627	PD67850	Nickel Plate Lake	L	C109827	CURRENT	STORAGE	100	AF	APEX MOUNTAIN RESORT (1997) LTD	
628	PD56315	Nickel Plate Lake	L	C110317	CURRENT	STORAGE	3300	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
629	PD67850	Nickel Plate Lake	L	C106695	CURRENT	WATERWORKS LOCAL AUTH	8954000	GY	APEX MOUNTAIN RESORT (1997) LTD	
630	PD71463	Nickel Plate Mine Creek	L	C110101	CURRENT	MINING-PROCESSING ORE	27000	GD	HOMESTAKE CANADA INC	
631	PD71463	Nickel Plate Mine Creek	L	C110101	CURRENT	STORAGE	36	AF	HOMESTAKE CANADA INC	
632	PD54364	Niemeyer Creek	L	C061906	CURRENT	STOCKWATERING	2000	GD	FOREST DISTRICT - PENTICTON	
633	PD56775	Nightingale Spring	L	C059055	CURRENT	STOCKWATERING	2000	GD	FOREST DISTRICT - PENTICTON	
634	PD56276	Nissen Creek	L	F041692	CURRENT	DOMESTIC	1000	GD	CATON LEILAINIA L & GARY J	
635	PD56276	Nissen Creek	L	F041692	CURRENT	IRRIGATION	2.06	AF	CATON LEILAINIA L & GARY J	
636	PD56276	Nissen Creek	L	F041693	CURRENT	IRRIGATION	2.94	AF	TWIZELL DANIEL E	
637	PD57091	Nora Pond	L	C031387	CURRENT		0		PAROLIN JEAN E/G E	
638	PD57092	Nora Pond	L	C031387	CURRENT		0		PAROLIN JEAN E/G E	
639	PD57091	Nora Pond	L	C031388	CURRENT	STORAGE	75	AF	PAROLIN JEAN E/G E	
640	PD56478	Norman Slough	L	C055219	CURRENT	DOMESTIC	500	GD	MANNING RONALD WAYNE & MELISSA MARIE	
641	PD56477	Norman Slough	L	C055219	CURRENT	IRRIGATION	30	AF	MANNING RONALD WAYNE & MELISSA MARIE	
642	PD56242	North Bench Spring	L	C066135	CURRENT	DOMESTIC	500	GD	RAE RAYMOND F & WINGATE SUSAN J	
643	PD56820	Oelrich Creek	L	F005267	CURRENT	DOMESTIC	500	GD	OUT OF THE BLUE RANCH LTD	
644	PD56820	Oelrich Creek	L	F005267	CURRENT	IRRIGATION	52	AF	OUT OF THE BLUE RANCH LTD	
645	PD56821	Oelrich Creek	L	C016273	CURRENT	STORAGE	40	AF	OUT OF THE BLUE RANCH LTD	
646	PD56859	Olalla Creek	L	F018268	CURRENT	DOMESTIC	2000	GD	HAVLIK JOHN F	
647	PD56856	Olalla Creek	L	F015939	CURRENT	IRRIGATION LOCAL AUTH	0.4	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
648	PD56856	Olalla Creek	L	F015942	CURRENT	IRRIGATION LOCAL AUTH	0.4	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
649	PD56856	Olalla Creek	L	F015943	CURRENT	IRRIGATION LOCAL AUTH	0.4	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
650	PD56860	Olalla Creek	L	F015944	CURRENT	IRRIGATION LOCAL AUTH	0.4	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
651	PD56856	Olalla Creek	L	F015935	CURRENT	IRRIGATION LOCAL AUTH	0.6	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
652	PD56856	Olalla Creek	L	F015941	CURRENT	IRRIGATION LOCAL AUTH	0.6	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
653	PD56857	Olalla Creek	L	F015937	CURRENT	IRRIGATION LOCAL AUTH	0.6	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
654	PD56856	Olalla Creek	L	F015940	CURRENT	IRRIGATION LOCAL AUTH	0.8	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
655	PD56860	Olalla Creek	L	F015945	CURRENT	IRRIGATION LOCAL AUTH	1	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
656	PD56857	Olalla Creek	L	F015936	CURRENT	IRRIGATION LOCAL AUTH	1.2	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
657	PD56860	Olalla Creek	L	F015946	CURRENT	IRRIGATION LOCAL AUTH	1.2	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
658	PD56857	Olalla Creek	L	F009402	CURRENT	IRRIGATION LOCAL AUTH	12	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
659	PD56860	Olalla Creek	L	F009402	CURRENT	IRRIGATION LOCAL AUTH	12	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
660	PD56857	Olalla Creek	L	F112604	CURRENT	IRRIGATION LOCAL AUTH	13	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
661	PD56860	Olalla Creek	L	F112604	CURRENT	IRRIGATION LOCAL AUTH	13	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
662	PD56857	Olalla Creek	L	F112602	CURRENT	IRRIGATION LOCAL AUTH	18	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
663	PD56860	Olalla Creek	L	F112602	CURRENT	IRRIGATION LOCAL AUTH	18	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
664	PD56857	Olalla Creek	L	F112603	CURRENT	IRRIGATION LOCAL AUTH	28	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
665	PD56860	Olalla Creek	L	F112603	CURRENT	IRRIGATION LOCAL AUTH	28	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
666	PD56856	Olalla Creek	L	F015809	CURRENT	WATERWORKS LOCAL AUTH	182500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
667	PD56856	Olalla Creek	L	F017998	CURRENT	WATERWORKS LOCAL AUTH	182500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
668	PD56856	Olalla Creek	L	F018267	CURRENT	WATERWORKS LOCAL AUTH	182500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
669	PD56856	Olalla Creek	L	F018007	CURRENT	WATERWORKS LOCAL AUTH	547500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
670	PD56856	Olalla Creek	L	F017947	CURRENT	WATERWORKS LOCAL AUTH	912500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
671	PD56856	Olalla Creek	L	C033175	CURRENT	WATERWORKS LOCAL AUTH	4562500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
672	PD56856	Olalla Creek	L	C036968	CURRENT	WATERWORKS LOCAL AUTH	4562500	GY	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
673	PD56366	Old Tom Creek	L	F003834	CURRENT	DOMESTIC	500	GD	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
674	PD56366	Old Tom Creek	L	F009805	CURRENT	DOMESTIC	1000	GD	LOWER SIMILKAMEEN INDIAN BAND	
675	PD56366	Old Tom Creek	L	F003834	CURRENT	IRRIGATION	35.2	AF	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
676	PD56366	Old Tom Creek	L	F009805	CURRENT	IRRIGATION	405	AF	LOWER SIMILKAMEEN INDIAN BAND	
677	PD56921	Olwen Creek	L	C053276	CURRENT	DOMESTIC	500	GD	NORMAN GERAD J	
678	PD56693	Orsu Spring	L	C028134	CURRENT	DOMESTIC	500	GD	CYR ROBERT J & CATHERINE M	
679	PD56693	Orsu Spring	L	C044043	CURRENT	DOMESTIC	500	GD	ROSE FRANK S & ANNIE P	
680	PD56693	Orsu Spring	L	C066143	CURRENT	DOMESTIC	500	GD	PRENDERGAST ANDREW D & JACQUELINE S	
681	PD56696	Orville Spring	L	F039619	CURRENT	DOMESTIC	500	GD	CAUTY PIERRE & KAREN M	
682	PD56712	Osprey Lake	L	C057142	CURRENT	DOMESTIC	500	GD	RODVIK PATRICIA G	
683	PD56713	Osprey Lake	L	C056881	CURRENT	DOMESTIC	500	GD	SWEENEY JOANNICE A	
684	PD56713	Osprey Lake	L	C056882	CURRENT	DOMESTIC	500	GD	MILLER JACK A	
685	PD61981	Osprey Lake	L	C103227	CURRENT	DOMESTIC	500	GD	WALLIS SUSAN I	
686	PD56666	Osprey Lake	L	F055349	CURRENT	DOMESTIC	500	GD	KLATT KENNETH L & ANITA S	
687	PD56620	Osprey Spring	L	C057311	CURRENT	DOMESTIC	500	GD	WILLIS MONA	
688	PD57010	Otter Creek	L	C032930	CURRENT		0		COQUIHALLA DEVELOPMENTS CORP	
689	PD57012	Otter Creek	L	C032930	CURRENT		0		COQUIHALLA DEVELOPMENTS CORP	
690	PD57065	Otter Creek	L	C032931	CURRENT		0		COQUIHALLA DEVELOPMENTS CORP	
691	PD57073	Otter Creek	L	C022162	CURRENT		0		541136 B.C. LTD.	
692	PD74213	Otter Creek	L	C113915	CURRENT	CONSERV.-STORED WATER	70	AF	WILDLIFE BRANCH	
693	PD66678	Otter Creek	L	C105589	CURRENT	CONSERV.-STORED WATER	320	AF	WILDLIFE BRANCH	
694	PD57063	Otter Creek	L	C066285	CURRENT	IRRIGATION	40	AF	COQUIHALLA DEVELOPMENTS CORP	
695	PD57071	Otter Creek	L	C022162	CURRENT	IRRIGATION	60	AF	541136 B.C. LTD.	
696	PD57010	Otter Creek	L	C037819	CURRENT	IRRIGATION	120	AF	COQUIHALLA DEVELOPMENTS CORP	
697	PD57012	Otter Creek	L	C037819	CURRENT	IRRIGATION	120	AF	COQUIHALLA DEVELOPMENTS CORP	
698	PD57065	Otter Creek	L	C037819	CURRENT	IRRIGATION	120	AF	COQUIHALLA DEVELOPMENTS CORP	
699	PD57067	Otter Creek	L	C066286	CURRENT	IRRIGATION	160	AF	COQUIHALLA DEVELOPMENTS CORP	
700	PD57071	Otter Creek	L	C022163	CURRENT	STORAGE	60	AF	541136 B.C. LTD.	
701	PD57096	Otter Lake	L	C053510	CURRENT	DOMESTIC	500	GD	WITTAL BRUCE L & ELAINE Y	
702	PD56771	Palladio Spring	L	C061579	CURRENT	DOMESTIC	2000	GD	CARTER CHARLES W & MARGARET	
703	PD57086	Parolin Spring	L	C061215	CURRENT	DOMESTIC	500	GD	PAROLIN GERTRUDE E	
704	PD69404	Pasayten River	L	C108183	CURRENT	DOMESTIC	500	GD	PASAYTEN VALLEY PROPERTIES	
705	PD44405	Pasayten River	L	C062242	CURRENT	DOMESTIC	500	GD	RENWICK S	

	A	B	C	D	E	F	G	H	I	J
706	PD44406	Pasayten River	L	C066317	CURRENT	DOMESTIC	500	GD	BOYKO KENNETH J & MARION L	
707	PD44410	Pasayten River	L	C103231	CURRENT	DOMESTIC	500	GD	PASAYTEN VALLEY PROPERTIES LTD	
708	PD44411	Pasayten River	L	C066282	CURRENT	DOMESTIC	1000	GD	PASAYTEN VALLEY RECREATIONS LTD	
709	PD56355	Paul Creek	L	C007083	CURRENT	DOMESTIC	5000	GD	LOWER SIMILKAMEEN INDIAN BAND	
710	PD56356	Paul Creek	L	C007083	CURRENT	DOMESTIC	5000	GD	LOWER SIMILKAMEEN INDIAN BAND	
711	PD56355	Paul Creek	L	F009765	CURRENT	IRRIGATION	196.2	AF	LOWER SIMILKAMEEN INDIAN BAND	
712	PD56355	Paul Creek	L	C007083	CURRENT	IRRIGATION	274.8	AF	LOWER SIMILKAMEEN INDIAN BAND	
713	PD56356	Paul Creek	L	C007083	CURRENT	IRRIGATION	274.8	AF	LOWER SIMILKAMEEN INDIAN BAND	
714	PD57008	Perley Creek	L	C024297	CURRENT	DOMESTIC	300	GD	BOYDE JOHN A	
715	PD57008	Perley Creek	L	C066363	CURRENT	DOMESTIC	300	GD	REHLINGER PRISCILLA M	
716	PD53572	Portland Creek	L	C051362	CURRENT	DOMESTIC	1500	GD	DOUGLAS LAKE CATTLE CO LTD	
717	PD56475	Priest Spring	L	F047016	CURRENT	DOMESTIC	500	GD	CERNY SCOTT MIREK	
718	PD56235	Quiniscoe Creek	L	C062960	CURRENT	POWER-COMMERCIAL	1	CS	CATHEDRAL LAKES LODGE LTD	
719	PD76297	Quiniscoe Lake	L	C115326	CURRENT	ENTERPRISE	4000	GD	CATHEDRAL LAKES LODGE LTD	
720	PD75359	Quiniscoe Lake	L	C115326	CURRENT	ENTERPRISE	4000	GD	CATHEDRAL LAKES LODGE LTD	
721	PD56236	Quiniscoe Spring	L	C070248	CURRENT	DOMESTIC	500	GD	PROTECTED AREAS SECTION	
722	PD57103	Rabbitt Spring	L	C052389	CURRENT	DOMESTIC	2000	GD	GODDING GARNET T & BARBARA J	
723	PD57103	Rabbitt Spring	L	C052389	CURRENT	IRRIGATION	2.5	AF	GODDING GARNET T & BARBARA J	
724	PD56624	Rainbow Spring	L	F053403	CURRENT	DOMESTIC	500	GD	PRINCETON CASTLE RESORT LTD	
725	PD56624	Rainbow Spring	L	F053404	CURRENT	DOMESTIC	500	GD	PRINCETON CASTLE RESORT LTD	
726	PD56624	Rainbow Spring	L	F053904	CURRENT	DOMESTIC	500	GD	PRINCETON CASTLE RESORT LTD	
727	PD56624	Rainbow Spring	L	F053905	CURRENT	DOMESTIC	500	GD	ROBINSON CLIFFORD F & MARLENE S	
728	PD56358	Red Bridge Lake	L	C038160	CURRENT	CONSERV.-CONSTRUCT.WORKS	15	AF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
729	PD56613	Red Creek	L	C064509	CURRENT	DOMESTIC	250	GD	DIXON RICHARD BRIAN & SANDRA LORRAINE	
730	PD56613	Red Creek	L	C116081	CURRENT	IRRIGATION	6.25	AF	DICK DAVID I & BONNIE A	
731	PD56613	Red Creek	L	C116082	CURRENT	IRRIGATION	6.25	AF	LARSON ROY E & IDA	
732	PD56613	Red Creek	L	C064509	CURRENT	IRRIGATION	25	AF	DIXON RICHARD BRIAN & SANDRA LORRAINE	
733	PD56613	Red Creek	L	C103232	CURRENT	IRRIGATION	200	AF	LARSON ROY E & IDA	
734	PD56318	Redtop Gulch	L	C006679	CURRENT		0		UPPER SIMILKAMEEN INDIAN BAND	
735	PD56319	Redtop Gulch	L	C006679	CURRENT		0		UPPER SIMILKAMEEN INDIAN BAND	
736	PD56400	Richter Creek	L	F003833	CURRENT	DOMESTIC	500	GD	ELKINK RANCH LTD	
737	PD56400	Richter Creek	L	F003833	CURRENT	IRRIGATION	31.8	AF	ELKINK RANCH LTD	
738	PD56399	Richter Creek	L	C064157	CURRENT	STORAGE	150	AF	ELKINK RANCH LTD	
739	PD56402	Richter Lake	L	C066124	CURRENT		0		ELKINK RANCH LTD	
740	PD56402	Richter Lake	L	C112709	CURRENT	IRRIGATION	97	AF	ELKINK RANCH LTD	
741	PD57098	Riddell Creek	L	F014833	CURRENT	DOMESTIC	500	GD	WILKINSON WILLIAM R & COOK DENNIS	
742	PD56539	Roany Creek	L	C035050	CURRENT	DOMESTIC	1000	GD	RICE EDITH S	
743	PD56539	Roany Creek	L	C035050	CURRENT	IRRIGATION	10	AF	RICE EDITH S	
744	PD56540	Roany Creek	L	F013535	CURRENT	IRRIGATION	15.06	AF	RICE EDITH S	
745	PD56539	Roany Creek	L	C035049	CURRENT	STORAGE	5	AF	RICE EDITH S	
746	PD57029	Robert Creek	L	F014523	CURRENT		0		SELLARS LAUREN M	
747	PD57029	Robert Creek	L	F014524	CURRENT		0		RICHTER REGINA	
748	PD57029	Robert Creek	L	F014522	CURRENT	IRRIGATION	28.8	AF	SELLARS LAUREN M	
749	PD56440	Robie Creek	L	C015689	CURRENT	IRRIGATION	75	AF	HUFF LEROY M & JUANITA J	
750	PD64254	Robson Spring	L	C103343	CURRENT	STOCKWATERING	500	GD	ALLEN DONNA G	
751	PD73642	Saki Spring	L	C112963	CURRENT	DOMESTIC	500	GD	THOMAS KENNETH C & PAMELA P	
752	PD56806	Sandburg Spring	L	C058523	CURRENT	STOCKWATERING	1500	GD	FORESTS & RANGE MINISTRY OF	
753	PD44414	Sandstone Creek	L	C027050	CURRENT	WATERWORKS (OTHER)	10000	GD	PROTECTED AREAS SECTION	
754	PD54376	Schneider Spring	L	C049764	CURRENT	DOMESTIC	1000	GD	SCHNEIDER G GILBERT & FRANCES J	
755	PD57089	Schubert Creek	L	C029493	CURRENT	DOMESTIC	1000	GD	PAROLIN JEAN E/G E	
756	PD57090	Schubert Creek	L	C031387	CURRENT	IRRIGATION	200	AF	PAROLIN JEAN E/G E	
757	PD57090	Schubert Creek	L	C031388	CURRENT	STORAGE	75	AF	PAROLIN JEAN E/G E	
758	PD56387	Schuss Spring	L	C038652	CURRENT	DOMESTIC	500	GD	ANDERSON SUZANNE R	
759	PD56387	Schuss Spring	L	C038653	CURRENT	DOMESTIC	500	GD	HOPE KENNETH RICHARD	
760	PD56599	Sellers Spring	L	C057729	CURRENT	DOMESTIC	1000	GD	PRINCETON STOCK RANCH LTD	
761	PD56638	Shepherd Creek	L	C060443	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
762	PD56714	Shinish Creek	L	C055744	CURRENT	DOMESTIC	500	GD	LELAND NANCY P & CRAIG F	
763	PD56716	Shinish Creek	L	C056668	CURRENT	IRRIGATION	0.5	AF	DRAEGER WOLFGANG W MONIKA C & STEVEN W	
764	PD56715	Shinish Creek	L	C056669	CURRENT	IRRIGATION	0.56	AF	MAGEE JAMES & CARONELL R	
765	PD56705	Shinish Creek	L	C056672	CURRENT	IRRIGATION	0.58	AF	TURNER MARGARET M & TERRANCE J	
766	PD56705	Shinish Creek	L	C056671	CURRENT	IRRIGATION	0.62	AF	CAYLEY JANE W	
767	PD56714	Shinish Creek	L	C056670	CURRENT	IRRIGATION	0.62	AF	LELAND NANCY P & CRAIG F	
768	PD56717	Shinish Creek	L	C044532	CURRENT	IRRIGATION	9	AF	OWENS LEONARD WILLIAM	
769	PD56704	Shinish Creek	L	C116447	CURRENT	LAND IMPROVE	25	CS	OKANAGAN-SIMILKAMEEN REGIONAL DIST OF	
770	PD56495	Shisler Creek	L	C064299	CURRENT	DOMESTIC	500	GD	COYNE EDWARD T & LORNA M	
771	PD56495	Shisler Creek	L	C111783	CURRENT	IRRIGATION	25	AF	COYNE EDWARD T & LORNA M	
772	PD56494	Shisler Creek	L	C064241	CURRENT	STOCKWATERING	200	GD	COYNE EDWARD T & LORNA M	
773	PD56810	Shopshire Spring	L	C041264	CURRENT	DOMESTIC	1500	GD	SHOPSHIRE ALLAN H & WILLIAM L	
774	PD57146	Shoudy Creek	L	C007111	CURRENT	DOMESTIC	5000	GD	LOWER SIMILKAMEEN INDIAN BAND	
775	PD57147	Shoudy Creek	L	C007111	CURRENT	DOMESTIC	5000	GD	LOWER SIMILKAMEEN INDIAN BAND	
776	PD57146	Shoudy Creek	L	C007111	CURRENT	IRRIGATION	500	AF	LOWER SIMILKAMEEN INDIAN BAND	
777	PD57147	Shoudy Creek	L	C007111	CURRENT	IRRIGATION	500	AF	LOWER SIMILKAMEEN INDIAN BAND	
778	PD53577	Shrimpton Spring	L	C070144	CURRENT	DOMESTIC	500	GD	REMPEL KAREN Y	
779	PD56943	Shuttle Creek	L	C034749	CURRENT	DOMESTIC	2000	GD	FORESTS & RANGE MINISTRY OF	
780	PD56944	Shuttle Creek	L	C057953	CURRENT	IRRIGATION	5.21	AF	NITSCH JOSEPH & MARY-ANNE	
781	PD56944	Shuttle Creek	L	C109023	CURRENT	IRRIGATION	17	AF	NITSCH JOSEPH & MARY-ANNE	
782	PD56945	Shuttle Creek	L	C109023	CURRENT	IRRIGATION	17	AF	NITSCH JOSEPH & MARY-ANNE	
783	PD57093	Sidehill Spring	L	C066308	CURRENT	DOMESTIC	500	GD	TURNER JEFFREY M & SUSAN J	
784	PD56523	Silcox Spring	L	F007032	CURRENT	DOMESTIC	300	GD	HENRY JOHN	
785	PD56523	Silcox Spring	L	F008838	CURRENT	DOMESTIC	300	GD	PETERSEN GAEL G	
786	PD56524	Silcox Spring	L	F013685	CURRENT	DOMESTIC	300	GD	HENRY JOHN	
787	PD56524	Silcox Spring	L	F013684	CURRENT	IRRIGATION	0.4	AF	RORVIK JOHN R & ANGELA K	
788	PD54556	Simem Creek	L	C048925	CURRENT	DOMESTIC	500	GD	BROGDEN LESLIE W	
789	PD54554	Simem Creek	L	F010059	CURRENT	IRRIGATION	28	AF	GALBIATI EMERY A & LORETTA E	
790	PD56914	Similkameen River	L	C053162	CURRENT		0		KEREMEOS IRRIGATION DISTRICT	
791	PD56960	Similkameen River	L	C053162	CURRENT		0		KEREMEOS IRRIGATION DISTRICT	
792	PD57014	Similkameen River	L	C070484	CURRENT		0		HANSON GEORGE J	
793	PD56470	Similkameen River	L	C024237	CURRENT		0		HML MINING INC	
794	PD56365	Similkameen River	L	C053162	CURRENT		0		KEREMEOS IRRIGATION DISTRICT	
795	PD56368	Similkameen River	L	C007084	CURRENT		0		LOWER SIMILKAMEEN INDIAN BAND	
796	PD56641	Similkameen River	L	F005268	CURRENT		0		VERMILION FORKS LAND AND LIVESTOCK CO	
797	PD56471	Similkameen River	L	C024237	CURRENT	COOLING	22000	GD	HML MINING INC	
798	PD57156	Similkameen River	L	C028579	CURRENT	DOMESTIC	500	GD	HARPER AUDREY J	
799	PD64072	Similkameen River	L	F004176	CURRENT	DOMESTIC	500	GD	LEAKE KELVIN D & JAN A	
800	PD57023	Similkameen River	L	C030882	CURRENT	DOMESTIC	500	GD	MAKEPEACE CRISTINE A & WALTER C	
801	PD56658	Similkameen River	L	C051393	CURRENT	DOMESTIC	500	GD	ANGUS ROBERT M	
802	PD56659	Similkameen River	L	C041479	CURRENT	DOMESTIC	500	GD	MCINTOSH DONALD J & WRIGHT JANIS I	
803	PD56660	Similkameen River	L	C066220	CURRENT	DOMESTIC	500	GD	WIREN WAYNE W & DIANE J	
804	PD56261	Similkameen River	L	C114136	CURRENT	DOMESTIC	500	GD	SETTLE JEAN	
805	PD56262	Similkameen River	L	F004176	CURRENT	DOMESTIC	500	GD	LEAKE KELVIN D & JAN A	
806	PD56263	Similkameen River	L	C112126	CURRENT	DOMESTIC	500	GD	ESAU DANIEL P & SHIRLEY J	
807	PD56268	Similkameen River	L	C062814	CURRENT	DOMESTIC	500	GD	HOWARD JOHN & LOIS	
808	PD56269	Similkameen River	L	C062812	CURRENT	DOMESTIC	500	GD	DUNHAM RUTH	
809	PD56474	Similkameen River	L	C056212	CURRENT	DOMESTIC	1000	GD	KROHN PATRICK A L & LOUISE	
810	PD56661	Similkameen River	L	C031673	CURRENT	DOMESTIC	1000	GD	WANG CATHERINE C & WIREN BRENT G ET AL	
811	PD56371	Similkameen River	L	C030793	CURRENT	DOMESTIC	1000	GD	LEMIEUX MAUREEN O	
812	PD56263	Similkameen River	L	C112127	CURRENT	DOMESTIC	1000	GD	TAYLOR RODNEY C CALABRETTI MARTINO	
813	PD57153	Similkameen River	L	C031178	CURRENT	DOMESTIC	1500	GD	WAHLGREN JOHN H & ALICE C	
814	PD56260	Similkameen River	L	C035923	CURRENT	DOMESTIC	10000	GD	UPPER SIMILKAMEEN INDIAN BAND	
815	PD56270	Similkameen River	L	F066349	CURRENT	IRRIGATION	1	AF	GIBSON JACK D	
816	PD56266	Similkameen River	L	C025906	CURRENT	IRRIGATION	2.4	AF	SULLIVAN JOHN B & HANSEN VIVIAN A	
817	PD56265	Similkameen River	L	F020114	CURRENT	IRRIGATION	3.6	AF	STRICKER DOUGLAS M	
818	PD56474	Similkameen River	L	C056212	CURRENT	IRRIGATION	5	AF	KROHN PATRICK A L & LOUISE	
819	PD56496	Similkameen River	L	C026703	CURRENT	IRRIGATION	5	AF	LOEFFLER ALLAN A & JANET M	
820	PD56272	Similkameen River	L	F066347	CURRENT	IRRIGATION	6	AF	GLEDHILL MICHAEL A ET AL	
821	PD79703	Similkameen River	L	C121601	CURRENT	IRRIGATION	6.6	AF	FORD LANCE J & WINQUIST KARLA L	
822	PD79703	Similkameen River	L	C121644	CURRENT	IRRIGATION	7.4	AF	FORD LANCE J & WINQUIST KARLA L	
823	PD70658	Similkameen River	L	C109259	CURRENT	IRRIGATION	12	AF	WAHLGREN JOHN H & ALICE C	
824	PD56370	Similkameen River	L	C121600	CURRENT	IRRIGATION	12.3	AF	GRIFF TED	
825	PD56975	Similkameen River	L	C038472	CURRENT	IRRIGATION	12.5	AF	CARVER CAROL A	
826	PD56370	Similkameen River	L	C121643	CURRENT	IRRIGATION	13.6	AF	GRIFF TED	
827	PD72029	Similkameen River	L	C110964	CURRENT	IRRIGATION	15	AF	GIDDA SARWAN S & SUDARSHANA K	
828	PD68791	Similkameen River	L	C107601	CURRENT	IRRIGATION	15	AF	STRANART MARILYN E	
829	PD68792	Similkameen River	L	C107602	CURRENT	IRRIGATION	15	AF	RAMSAY IRENE	
830	PD56473	Similkameen River	L	C018916	CURRENT	IRRIGATION	16.25	AF	PIPPIN DANIEL CHARLES & KATHLEEN MONICA	
831	PD56372	Similkameen River	L	F019227	CURRENT	IRRIGATION	18	AF	EVERATT VERNON R & PATRICIA J	
832	PD56957	Similkameen River	L	C067515	CURRENT	IRRIGATION	20.54	AF	STEIN DAVID & LAURA	
833	PD56373	Similkameen River	L	C032016	CURRENT	IRRIGATION	21	AF	CASWELL BEVERLY A	
834	PD64072	Similkameen River	L	F004176	CURRENT	IRRIGATION	22	AF	LEAKE KELVIN D & JAN A	
835	PD56262	Similkameen River	L	F004176	CURRENT	IRRIGATION	22	AF	LEAKE KELVIN D & JAN A	
836	PD57154	Similkameen River	L	C109787	CURRENT	IRRIGATION	23.7	AF	PARASUK DARLENE	
837	PD56374	Similkameen River	L	C032017	CURRENT	IRRIGATION	24	AF	BUSH JOHN & MARY	
838	PD56988	Similkameen River	L	C107590	CURRENT	IRRIGATION	24.32	AF	TEBRINKE HENRY C	
839	PD56964	Similkameen River	L	C067511	CURRENT	IRRIGATION	26.89	AF	PASHAK ARTHUR J & HELEN L	
840	PD72029	Similkameen River	L	C110969	CURRENT	IRRIGATION	30	AF	GIDDA SARWAN S ET AL	
841	PD56372	Similkameen River	L	F019226	CURRENT	IRRIGATION	30	AF	EVERATT VERNON R & PATRICIA J	
842	PD56958	Similkameen River	L	C115085	CURRENT	IRRIGATION	33	AF	GALATA ELEMER	
843	PD83311	Similkameen River	L	C125424	CURRENT	IRRIGATION	35	AF	ERIKSEN CRAIG F	
844	PD56974	Similkameen River	L	C034258	CURRENT	IRRIGATION	40	AF	DHALIWAL GURMIL	
845	PD72029	Similkameen River	L	C110966	CURRENT	IRRIGATION	43.35	AF	GIDDA SARWAN S ET AL	
846	PD70660	Similkameen River	L	C109260	CURRENT	IRRIGATION	45	AF	BELL GORDON J	

	A	B	C	D	E	F	G	H	I	J
847	PD56886	Similkameen River	L	C028582	CURRENT	IRRIGATION	46	AF	BARRINGTON RANCH LTD	
848	PD56887	Similkameen River	L	C028582	CURRENT	IRRIGATION	46	AF	BARRINGTON RANCH LTD	
849	PD56472	Similkameen River	L	C015565	CURRENT	IRRIGATION	50	AF	WILLIS ARNIE & DIANNA	
850	PD70379	Similkameen River	L	C107603	CURRENT	IRRIGATION	57	AF	BELLAMY ALLAN F & PAULINE	
851	PD56347	Similkameen River	L	F011071	CURRENT	IRRIGATION	58.8	AF	LAWRENCE PATRICK J & SHERRY L	
852	PD57024	Similkameen River	L	C032069	CURRENT	IRRIGATION	60	AF	WINSER LARRY W	
853	PD56261	Similkameen River	L	C114136	CURRENT	IRRIGATION	60	AF	SETTLE JEAN	
854	PD57019	Similkameen River	L	C070484	CURRENT	IRRIGATION	68.25	AF	HANSON GEORGE J	
855	PD56888	Similkameen River	L	C015317	CURRENT	IRRIGATION	75	AF	WABNEGGER KARL & ISABELLE	
856	PD56889	Similkameen River	L	C026705	CURRENT	IRRIGATION	80	AF	MAYER ROGER M & DONNA M	
857	PD56890	Similkameen River	L	C026705	CURRENT	IRRIGATION	80	AF	MAYER ROGER M & DONNA M	
858	PD72225	Similkameen River	L	C028585	CURRENT	IRRIGATION	90	AF	SWINGING G RANCH LTD	
859	PD57155	Similkameen River	L	C018450	CURRENT	IRRIGATION	90	AF	VENABLES STEPHEN	
860	PD56883	Similkameen River	L	C028585	CURRENT	IRRIGATION	90	AF	SWINGING G RANCH LTD	
861	PD72224	Similkameen River	L	F014922	CURRENT	IRRIGATION	90.3	AF	SWINGING G RANCH LTD	
862	PD56977	Similkameen River	L	F020764	CURRENT	IRRIGATION	100	AF	MENNELL BRIAN E	
863	PD56643	Similkameen River	L	C029728	CURRENT	IRRIGATION	100	AF	NOPPE ELEANOR J	
864	PD57026	Similkameen River	L	C030266	CURRENT	IRRIGATION	103.2	AF	WINSER LARRY W	
865	PD56333	Similkameen River	L	F021072	CURRENT	IRRIGATION	114	AF	LAWRENCE PATRICK J & SHERRY L	
866	PD56334	Similkameen River	L	F021072	CURRENT	IRRIGATION	114	AF	LAWRENCE PATRICK J & SHERRY L	
867	PD56333	Similkameen River	L	F021073	CURRENT	IRRIGATION	120	AF	LAWRENCE PATRICK J & SHERRY L	
868	PD56334	Similkameen River	L	F021073	CURRENT	IRRIGATION	120	AF	LAWRENCE PATRICK J & SHERRY L	
869	PD56897	Similkameen River	L	C041894	CURRENT	IRRIGATION	120	AF	WABNEGGER KARL & ISABELLE	
870	PD56969	Similkameen River	L	C038474	CURRENT	IRRIGATION	120	AF	MCCURDY DONALD B	
871	PD56979	Similkameen River	L	F020763	CURRENT	IRRIGATION	120	AF	STEWART FARMS	
872	PD83312	Similkameen River	L	C125425	CURRENT	IRRIGATION	120	AF	MARIPOSA VINEYARD LTD	
873	PD56421	Similkameen River	L	C038649	CURRENT	IRRIGATION	150	AF	623819 BC LTD	
874	PD83310	Similkameen River	L	C125423	CURRENT	IRRIGATION	165	AF	MCFADYEN LEE M	
875	PD57020	Similkameen River	L	C110965	CURRENT	IRRIGATION	168	AF	GIDDA SARWAN S ET AL	
876	PD56970	Similkameen River	L	F020765	CURRENT	IRRIGATION	200	AF	DAWSON ORCHARDS LTD	
877	PD56978	Similkameen River	L	F020765	CURRENT	IRRIGATION	200	AF	DAWSON ORCHARDS LTD	
878	PD57023	Similkameen River	L	C030882	CURRENT	IRRIGATION	200	AF	MAKEPEACE CRISTINE A & WALTER C	
879	PD57149	Similkameen River	L	C043677	CURRENT	IRRIGATION	210	AF	HOL ROGER D	
880	PD57151	Similkameen River	L	F109022	CURRENT	IRRIGATION	228	AF	RIVER VALLEY ORCHARDS LTD	
881	PD57148	Similkameen River	L	C035571	CURRENT	IRRIGATION	300	AF	CAPPOS LINNEA CARLA	
882	PD56998	Similkameen River	L	C026618	CURRENT	IRRIGATION	400	AF	LOWER SIMILKAMEEN INDIAN BAND	
883	PD57011	Similkameen River	L	C026618	CURRENT	IRRIGATION	400	AF	LOWER SIMILKAMEEN INDIAN BAND	
884	PD56260	Similkameen River	L	C035923	CURRENT	IRRIGATION	429	AF	UPPER SIMILKAMEEN INDIAN BAND	
885	PD57018	Similkameen River	L	C070485	CURRENT	IRRIGATION	450	AF	SCHNEIDER CLARENCE D & SHARON L	
886	PD57019	Similkameen River	L	C070485	CURRENT	IRRIGATION	450	AF	SCHNEIDER CLARENCE D & SHARON L	
887	PD56317	Similkameen River	L	C011328	CURRENT	IRRIGATION	900	AF	UPPER SIMILKAMEEN INDIAN BAND	
888	PD56271	Similkameen River	L	F070287	CURRENT	IRRIGATION LOCAL AUTH	3	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
889	PD63980	Similkameen River	L	C071024	CURRENT	IRRIGATION LOCAL AUTH	13.15	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
890	PD63980	Similkameen River	L	C026879	CURRENT	IRRIGATION LOCAL AUTH	13.7	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
891	PD63980	Similkameen River	L	C031312	CURRENT	IRRIGATION LOCAL AUTH	642	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
892	PD63980	Similkameen River	L	C025443	CURRENT	IRRIGATION LOCAL AUTH	1000	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
893	PD56891	Similkameen River	L	C002063	CURRENT	IRRIGATION LOCAL AUTH	1200	AF	CAWSTON IRRIGATION DISTRICT	
894	PD56912	Similkameen River	L	C002063	CURRENT	IRRIGATION LOCAL AUTH	1200	AF	CAWSTON IRRIGATION DISTRICT	
895	PD56912	Similkameen River	L	C013533	CURRENT	IRRIGATION LOCAL AUTH	1260	AF	KEREMEOS IRRIGATION DISTRICT	
896	PD56989	Similkameen River	L	C020527	CURRENT	IRRIGATION LOCAL AUTH	2560	AF	FAIRVIEW HEIGHTS IRRIGATION DISTRICT	
897	PD63980	Similkameen River	L	C025445	CURRENT	IRRIGATION LOCAL AUTH	4343.807	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
898	PD63980	Similkameen River	L	C070758	CURRENT	IRRIGATION LOCAL AUTH	6737.2	AF	SIMILKAMEEN IMPROVEMENT DISTRICT	
899	PD56420	Similkameen River	L	C058998	CURRENT	MINING-HYDRAULIC	0.9	CS	KIRSHFELT ARNOLD H	
900	PD63980	Similkameen River	L	C070759	CURRENT	MINING-HYDRAULIC	1	CS	SIMILKAMEEN IMPROVEMENT DISTRICT	
901	PD56422	Similkameen River	L	C059533	CURRENT	MINING-PROCESSING ORE	8000000	GD	SIMILCO MINES LTD	
902	PD56642	Similkameen River	L	C035417	CURRENT	PROCESSING	12000	GD	PANKIW JOHN	
903	PD56471	Similkameen River	L	C024237	CURRENT	WATERWORKS (OTHER)	50000	GD	HML MINING INC	
904	PD56989	Similkameen River	L	C020527	CURRENT	WATERWORKS LOCAL AUTH	9855000	GY	FAIRVIEW HEIGHTS IRRIGATION DISTRICT	
905	PD63980	Similkameen River	L	C070758	CURRENT	WATERWORKS LOCAL AUTH	6087600000	GY	SIMILKAMEEN IMPROVEMENT DISTRICT	
906	PD56984	Sintlehahten Creek	L	C007110	CURRENT	DOMESTIC	3000	GD	LOWER SIMILKAMEEN INDIAN BAND	
907	PD56984	Sintlehahten Creek	L	C007110	CURRENT	IRRIGATION	522	AF	LOWER SIMILKAMEEN INDIAN BAND	
908	PD56876	Siwash Creek	L	C057139	CURRENT	DOMESTIC	500	GD	ERIKSEN LOUIS D & HEATHER A	
909	PD56877	Siwash Creek	L	F058316	CURRENT	DOMESTIC	500	GD	THIESSEN JAKOB & HELENE	
910	PD56879	Siwash Creek	L	C059646	CURRENT	DOMESTIC	500	GD	MILLER CATHERINE F & HARDER LARRY W	
911	PD75383	Siwash Creek	L	C115427	CURRENT	DOMESTIC	500	GD	WITTICH GARRY W	
912	PD75508	Siwash Creek	L	C115526	CURRENT	DOMESTIC	500	GD	SUMMERS ROBERT G & SUSAN M	
913	PD56725	Siwash Creek	L	C057439	CURRENT	DOMESTIC	1000	GD	SCHOUTEN MADELON A	
914	PD56728	Siwash Creek	L	C060330	CURRENT	DOMESTIC	1000	GD	FOFONOFF TIMOTHY J & BEVERLY A	
915	PD56878	Siwash Creek	L	C060340	CURRENT	DOMESTIC	1000	GD	MINOSKY LORRAINE S	
916	PD70842	Siwash Creek	L	C109626	CURRENT	IRRIGATION	1.4	AF	MILLER CATHERINE F & HARDER LARRY W	
917	PD56726	Siwash Creek	L	C064155	CURRENT	IRRIGATION	2.5	AF	THOMSON WALTER C & CHERYL L	
918	PD56725	Siwash Creek	L	C057439	CURRENT	IRRIGATION	6	AF	SCHOUTEN MADELON A	
919	PD70837	Siwash Creek	L	C110493	CURRENT	IRRIGATION	7.22	AF	WEAVELL JACK & HAZEL	
920	PD70836	Siwash Creek	L	C109623	CURRENT	IRRIGATION	7.44	AF	LINDVIK DWAINE A & BERTHA A	
921	PD70839	Siwash Creek	L	C110494	CURRENT	IRRIGATION	7.66	AF	THOMSON WALTER C & CHERYL L	
922	PD56710	Siwash Creek	L	C109627	CURRENT	IRRIGATION	14.68	AF	REMME LYSLIE J	
923	PD56726	Siwash Creek	L	C064155	CURRENT	STORAGE	1	AF	THOMSON WALTER C & CHERYL L	
924	PD56285	Smith Creek	L	C062813	CURRENT	DOMESTIC	500	GD	FARRER ROBERT J	
925	PD56281	Smith Creek	L	C125375	CURRENT	DOMESTIC	1000	GD	SWARTZ BRIAN K & JORDAN B & NATHAN T	
926	PD56285	Smith Creek	L	C070721	CURRENT	IRRIGATION	0.36	AF	FIEDLER WOLFGANG H & INGRID U	
927	PD56285	Smith Creek	L	C070719	CURRENT	IRRIGATION	1.12	AF	DUNHAM RUTH	
928	PD56285	Smith Creek	L	C070717	CURRENT	IRRIGATION	1.76	AF	HOWARD JOHN M & LOIS C	
929	PD56285	Smith Creek	L	C064757	CURRENT	IRRIGATION	3.57	AF	DUNHAM RUTH	
930	PD56285	Smith Creek	L	C064759	CURRENT	IRRIGATION	5.61	AF	HOWARD JOHN & LOIS	
931	PD56285	Smith Creek	L	C070718	CURRENT	IRRIGATION	8.9	AF	FARRER ROBERT J	
932	PD56281	Smith Creek	L	C125375	CURRENT	IRRIGATION	12.5	AF	SWARTZ BRIAN K & JORDAN B & NATHAN T	
933	PD56285	Smith Creek	L	C064758	CURRENT	IRRIGATION	28.32	AF	FARRER ROBERT J	
934	PD56723	Smith Spring	L	C061539	CURRENT	DOMESTIC	500	GD	HARROWER TIMOTHY R & PATRICIA A	
935	PD56922	Smyth Creek	L	C116425	CURRENT	POWER-RESIDENTIAL	0.15	CS	SMYTH MARTIN G & LYNNE R	
936	PD57160	Snehumption Creek	L	C006702	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
937	PD57161	Snehumption Creek	L	C006702	CURRENT	IRRIGATION	672	AF	LOWER SIMILKAMEEN INDIAN BAND	
938	PD57161	Snehumption Creek	L	C038178	CURRENT	IRRIGATION	828	AF	LOWER SIMILKAMEEN INDIAN BAND	
939	PD56544	Snowpatch Spring	L	C058723	CURRENT	DOMESTIC	500	GD	SIMPSON-HILL RONALD R	
940	PD56544	Snowpatch Spring	L	C058724	CURRENT	DOMESTIC	500	GD	VAN SLEUWEN WILLIAM M & TERRY L	
941	PD56544	Snowpatch Spring	L	C058725	CURRENT	DOMESTIC	500	GD	SMITH CORRIENE	
942	PD56544	Snowpatch Spring	L	C058726	CURRENT	DOMESTIC	500	GD	SMITH CORRIENE	
943	PD56544	Snowpatch Spring	L	C058728	CURRENT	DOMESTIC	500	GD	DIXON RODERICK ELIOT	
944	PD56544	Snowpatch Spring	L	C058729	CURRENT	DOMESTIC	500	GD	TURNER STANLEY G	
945	PD56544	Snowpatch Spring	L	C058730	CURRENT	DOMESTIC	500	GD	BOOKLESS SUSAN E	
946	PD56544	Snowpatch Spring	L	C123208	CURRENT	DOMESTIC	500	GD	PEDEN THOMAS C	
947	PD56544	Snowpatch Spring	L	C123209	CURRENT	DOMESTIC	1000	GD	BELLEFONTAINE AMANDA S & PHILIP J	
948	PD56544	Snowpatch Spring	L	C056017	CURRENT	STOCKWATERING	1000	GD	FORESTS & RANGE MINISTRY OF	
949	PD56766	South Trehearne Creek	L	C070702	CURRENT	IRRIGATION	16	AF	HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
950	PD56766	South Trehearne Creek	L	C070703	CURRENT	IRRIGATION	16	AF	ANTHONY JAMES MUDIE GEORGE	
951	PD56766	South Trehearne Creek	L	C070702	CURRENT	STOCKWATERING	400	GD	HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
952	PD56766	South Trehearne Creek	L	C070703	CURRENT	STOCKWATERING	400	GD	ANTHONY JAMES MUDIE GEORGE	
953	PD56766	South Trehearne Creek	L	C070702	CURRENT	STORAGE	16	AF	HEMBRIE MOUNTAIN WILDFLOWER RANCH INC	
954	PD56766	South Trehearne Creek	L	C070703	CURRENT	STORAGE	16	AF	ANTHONY JAMES MUDIE GEORGE	
955	PD56553	South Wilson Spring	L	F107172	CURRENT	DOMESTIC	500	GD	660196 BRITISH COLUMBIA LTD	
956	PD64002	South Wilson Spring	L	F107172	CURRENT	DOMESTIC	500	GD	660196 BRITISH COLUMBIA LTD	
957	PD57055	Spearing Creek	L	C037820	CURRENT	IRRIGATION	48	AF	COQUIHALLA DEVELOPMENTS CORP	
958	PD57057	Spearing Creek	L	C037820	CURRENT	IRRIGATION	48	AF	COQUIHALLA DEVELOPMENTS CORP	
959	PD56872	Spukunne Creek	L	C047645	CURRENT	DOMESTIC	1000	GD	DRAEGER WOLFGANG W MONIKA C & STEVEN W	
960	PD57099	Stanier Brook	L	C051573	CURRENT	DOMESTIC	500	GD	EGGERTSON TAVI D	
961	PD57100	Stanier Brook	L	C034506	CURRENT	DOMESTIC	500	GD	DODGE DONALD P & SHIRLEY M	
962	PD56233	Starvation Spring	L	C054046	CURRENT	STOCKWATERING	3000	GD	FORESTS & RANGE MINISTRY OF	
963	PD56298	Stemwinder Spring	L	C026485	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
964	PD56653	Steven Creek	L	F011072	CURRENT	DOMESTIC	500	GD	UPPER SIMILKAMEEN INDIAN BAND	
965	PD56653	Steven Creek	L	F011072	CURRENT	IRRIGATION	66	AF	UPPER SIMILKAMEEN INDIAN BAND	
966	PD56448	Stevenson Creek	L	C111666	CURRENT		0		623819 BC LTD	
967	PD56416	Stevenson Creek	L	C111666	CURRENT		0		623819 BC LTD	
968	PD56419	Stevenson Creek	L	C035169	CURRENT	DOMESTIC	500	GD	THOMAS ROBERT L	
969	PD56418	Stevenson Creek	L	C038936	CURRENT	FIRE PROTECTION	500	GD	MAYNARD KIMBALL G	
970	PD56415	Stevenson Creek	L	F007829	CURRENT	IRRIGATION	12	AF	623819 BC LTD	
971	PD56417	Stevenson Creek	L	C041896	CURRENT	IRRIGATION	40	AF	623819 BC LTD	
972	PD56417	Stevenson Creek	L	C017472	CURRENT	IRRIGATION	150	AF	623819 BC LTD	
973	PD56449	Stevenson Creek	L	C041897	CURRENT	STORAGE	40	AF	623819 BC LTD	
974	PD56448	Stevenson Creek	L	C020529	CURRENT	STORAGE	50	AF	623819 BC LTD	
975	PD56691	Stewart Spring	L	C059306	CURRENT	DOMESTIC	500	GD	LAWRENCE ERNEST E & MARILYN E	
976	PD56680	Suggitt Spring	L	F039616	CURRENT	DOMESTIC	100	GD	TYLER JOHN T & HEATHER A	
977	PD56899	Summers Creek	L	C107410	CURRENT		0		GABOR SANDRA	
978	PD56900	Summers Creek	L	C107410	CURRENT		0		GABOR SANDRA	
979	PD56901	Summers Creek	L	C107410	CURRENT		0		GABOR SANDRA	
980	PD56737	Summers Creek	L	C111483	CURRENT	CONSERV.-CONSTRUCT.WORKS	0	TF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
981	PD56737	Summers Creek	L	C111483	CURRENT	CONSERV.-STORED WATER	500	AF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
982	PD56812	Summers Creek	L	C053944	CURRENT	DOMESTIC	500	GD	PETERSEN JOERG	
983	PD56815	Summers Creek	L	C049595	CURRENT	DOMESTIC	500	GD	HOPE MELODYE L	
984	PD56815	Summers Creek	L	C050764	CURRENT	DOMESTIC	500	GD	SPRING WILLIAM R & MARY E	
985	PD56815	Summers Creek	L	C050766	CURRENT	DOMESTIC	500	GD	SPRING WILLIAM R & MARY E	
986	PD56562	Summers Creek	L	F004182	CURRENT	DOMESTIC	500	GD	BJK INVESTMENTS LTD	
987	PD56563	Summers Creek	L	C066177	CURRENT	DOMESTIC	500	GD	FRASER BARRIE T & BARBARA D	

	A	B	C	D	E	F	G	H	I	J
988	PD56902	Summers Creek	L	C060929	CURRENT	DOMESTIC	1000	GD	NIENIERZA GUNTER	
989	PD78757	Summers Creek	L	C120089	CURRENT	DOMESTIC	2500	GD	HORNELL JOSEPH M & SHARON L	
990	PD56742	Summers Creek	L	F006469	CURRENT	IRRIGATION	24.5	AF	SACKS DANIEL	
991	PD56743	Summers Creek	L	F006469	CURRENT	IRRIGATION	24.5	AF	SACKS DANIEL	
992	PD56814	Summers Creek	L	F059327	CURRENT	IRRIGATION	32	AF	HOLLAND RICHARD & LYNN	
993	PD56562	Summers Creek	L	F004182	CURRENT	IRRIGATION	53	AF	BJK INVESTMENTS LTD	
994	PD68191	Summers Creek	L	C107082	CURRENT	IRRIGATION	72.5	AF	GABOR SANDRA	
995	PD56737	Summers Creek	L	F006472	CURRENT	STORAGE	24.5	AF	SACKS DANIEL	
996	PD56737	Summers Creek	L	F059328	CURRENT	STORAGE	32	AF	HOLLAND RICHARD & LYNN	
997	PD56737	Summers Creek	L	C107410	CURRENT	STORAGE	72.5	AF	GABOR SANDRA	
998	PD56737	Summers Creek	L	C038180	CURRENT	STORAGE	175	AF	COPPER CREEK RANCH LTD	
999	PD56737	Summers Creek	L	C064167	CURRENT	STORAGE	186	AF	BEY JOHN & RUBY	
1000	PD56737	Summers Creek	L	C111484	CURRENT	STORAGE	500	AF	MISSEZULA LAKE WATERWORKS DISTRICT	
1001	PD71440	Sunset Creek	L	C110236	CURRENT		0		HOMESTAKE CANADA INC	
1002	PD56325	Sunset Creek	L	C110236	CURRENT	MINING-PROCESSING ORE	65000	GD	HOMESTAKE CANADA INC	
1003	PD57031	Susap Creek	L	F004087	CURRENT	DOMESTIC	500	GD	RICHTER REGINA	
1004	PD57033	Susap Creek	L	C006663	CURRENT	DOMESTIC	5000	GD	LOWER SIMILKAMEEN INDIAN BAND	
1005	PD57031	Susap Creek	L	F014524	CURRENT	IRRIGATION	19.7	AF	RICHTER REGINA	
1006	PD57031	Susap Creek	L	F014523	CURRENT	IRRIGATION	40.8	AF	SELLARS LAUREN M	
1007	PD57031	Susap Creek	L	F004087	CURRENT	IRRIGATION	43	AF	RICHTER REGINA	
1008	PD57033	Susap Creek	L	C006663	CURRENT	IRRIGATION	1023	AF	LOWER SIMILKAMEEN INDIAN BAND	
1009	PD57031	Susap Creek	L	F004087	CURRENT	STOCKWATERING	7500	GD	RICHTER REGINA	
1010	PD56501	Swail Spring	L	C103380	CURRENT	STOCKWATERING	1000	GD	SWAIL NORMAN	
1011	PD56616	Swan Lake	L	C062632	CURRENT	EXHIBITION GROUNDS	1500	GD	PRINCETON TOWN OF	
1012	PD56403	Swartz Creek	L	C066124	CURRENT		0		ELKINK RANCH LTD	
1013	PD73458	Swartz Creek	L	C112709	CURRENT		0		ELKINK RANCH LTD	
1014	PD56398	Swartz Creek	L	F062888	CURRENT	STOCKWATERING	1000	GD	ELKINK RANCH LTD	
1015	PD57053	Thalia Lake	L	C066307	CURRENT	DOMESTIC	500	GD	COQUIHALLA DEVELOPMENTS CORP	
1016	PD56547	Thomas Brook	L	F005182	CURRENT	DOMESTIC	500	GD	CURRIE EDITH M	
1017	PD56547	Thomas Brook	L	F059030	CURRENT	DOMESTIC	500	GD	KUNDERMAN KEVIN J ET COLLEEN J	
1018	PD56547	Thomas Brook	L	F059031	CURRENT	DOMESTIC	500	GD	BERNARD DARLAN R	
1019	PD56547	Thomas Brook	L	F059032	CURRENT	DOMESTIC	500	GD	HILL ART W	
1020	PD56547	Thomas Brook	L	F059033	CURRENT	DOMESTIC	500	GD	SMITH DAVID S & VERA L	
1021	PD56547	Thomas Brook	L	F059034	CURRENT	DOMESTIC	500	GD	REID DOUGLAS B & JENNIFER R	
1022	PD56547	Thomas Brook	L	F059035	CURRENT	DOMESTIC	500	GD	JUNEAU BERNARD E & DAWNA	
1023	PD56547	Thomas Brook	L	F059036	CURRENT	DOMESTIC	500	GD	ROCHE RONALD A & MARIE A T	
1024	PD56547	Thomas Brook	L	F059037	CURRENT	DOMESTIC	500	GD	ESSELINK KENNETH & JOANN	
1025	PD56548	Thomas Brook	L	F008782	CURRENT	DOMESTIC	1000	GD	CURRIE EDITH M	
1026	PD57017	Thynne Creek	L	C066413	CURRENT	DOMESTIC	1500	GD	WILSON BARRY J & SHARON D	
1027	PD57017	Thynne Creek	L	C068150	CURRENT	IRRIGATION	184.2	AF	WILSON BARRY J & SHARON D	
1028	PD57017	Thynne Creek	L	C068149	CURRENT	IRRIGATION	415.8	AF	MULLIN WILLIAM J & PATRICIA A	
1029	PD56880	Tomkins Spring	L	F058315	CURRENT	DOMESTIC	500	GD	FOX SARA B ET AL	
1030	PD57101	Tooby Spring	L	C030884	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
1031	PD54365	Toy Creek	L	C061907	CURRENT	STOCKWATERING	2000	GD	FOREST DISTRICT - PENTICTON	
1032	PD67020	Toy Creek	L	C105766	CURRENT	STOCKWATERING	2500	GD	CEDAR CREEK RANCH	
1033	PD67042	Toy Lake	L	C105794	CURRENT	DOMESTIC	1000	GD	PHILLIPS EVAN & AIMEE & SHARON	
1034	PD56414	Tracey Lake	L	C025389	CURRENT		0		623819 BC LTD	
1035	PD56414	Tracey Lake	L	C111658	CURRENT		0		623819 BC LTD	
1036	PD56414	Tracey Lake	L	C111660	CURRENT	STORAGE	39.6	AF	623819 BC LTD	
1037	PD56464	Tulameen River	L	C034256	CURRENT		0		THOMAS KENNETH C & PAMELA P	
1038	PD56529	Tulameen River	L	F019552	CURRENT	DOMESTIC	500	GD	HODGE JAMES M	
1039	PD56531	Tulameen River	L	F021042	CURRENT	DOMESTIC	500	GD	JACOBSON ERIC & DOROTHY M	
1040	PD66188	Tulameen River	L	C113863	CURRENT	DOMESTIC	500	GD	COERS OTTO W	
1041	PD56530	Tulameen River	L	F015345	CURRENT	DOMESTIC	2000	GD	PRINCETON TOWN OF	
1042	PD56531	Tulameen River	L	F021042	CURRENT	IRRIGATION	7.5	AF	JACOBSON ERIC & DOROTHY M	
1043	PD56513	Tulameen River	L	C018124	CURRENT	WATERWORKS LOCAL AUTH	766500000	GY	PRINCETON TOWN OF	
1044	PD56465	Tulameen River	L	C018124	CURRENT	WATERWORKS LOCAL AUTH	766500000	GY	PRINCETON TOWN OF	
1045	PD62037	Twelve Mile Creek	L	C115556	CURRENT	IRRIGATION	30	AF	TRAPHAN HELMUT ET AL	
1046	PD62037	Twelve Mile Creek	L	C115556	CURRENT	STOCKWATERING	500	GD	TRAPHAN HELMUT ET AL	
1047	PD56237	Upper Pole Bridge Creek	L	C054045	CURRENT	STOCKWATERING	3000	GD	FORESTS & RANGE MINISTRY OF	
1048	PD56238	Upper Pole Bridge Creek	L	C054045	CURRENT	STOCKWATERING	3000	GD	FORESTS & RANGE MINISTRY OF	
1049	PD56492	Valley Spring	L	C051738	CURRENT	DOMESTIC	500	GD	HALE DAVID & DIANNE	
1050	PD56492	Valley Spring	L	C051739	CURRENT	DOMESTIC	500	GD	PEHKONEN AARNO A & HELGA K	
1051	PD56817	Vera Brook	L	F058927	CURRENT	DOMESTIC	300	GD	HOLLAND RICHARD & LYNN	
1052	PD56817	Vera Brook	L	F058929	CURRENT	DOMESTIC	500	GD	HOLLAND RICHARD & LYNN	
1053	PD56817	Vera Brook	L	F058928	CURRENT	DOMESTIC	1000	GD	HOLLAND RICHARD & LYNN	
1054	PD56955	Vinson Creek	L	F008917	CURRENT	STORAGE	12.5	AF	SACKS DANIEL	
1055	PD56955	Vinson Creek	L	C111489	CURRENT	STORAGE	50	AF	FISH & WILDLIFE SCIENCE & ALLOCATION SEC	
1056	PD56896	Wabnegger Pond	L	C047074	CURRENT	DOMESTIC	1000	GD	WABNEGGER KARL & ISABELLE	
1057	PD56896	Wabnegger Pond	L	C047074	CURRENT	IRRIGATION	15	AF	WABNEGGER KARL & ISABELLE	
1058	PD56407	Walker Creek	L	C027716	CURRENT	DOMESTIC	1500	GD	FORESTS & RANGE MINISTRY OF	
1059	PD56807	Waspbite Spring	L	C038475	CURRENT	DOMESTIC	500	GD	WILLIAMS HAL C & SALLY-JO	
1060	PD56807	Waspbite Spring	L	C039144	CURRENT	STOCKWATERING	1500	GD	FORESTS & RANGE MINISTRY OF	
1061	PD56807	Waspbite Spring	L	C058524	CURRENT	STOCKWATERING	1500	GD	FORESTS & RANGE MINISTRY OF	
1062	PD56239	Webster Creek	L	C058318	CURRENT	DOMESTIC	500	GD	MANDZIAK ROMAN	
1063	PD56239	Webster Creek	L	F016859	CURRENT	DOMESTIC	500	GD	HANBURY RICHMOND L	
1064	PD56239	Webster Creek	L	F016859	CURRENT	IRRIGATION	1	AF	HANBURY RICHMOND L	
1065	PD56239	Webster Creek	L	C064218	CURRENT	IRRIGATION	3.5	AF	SCHNEIDER WILMER P & NOREEN B	
1066	PD56535	Welldo Creek	L	C039816	CURRENT	DOMESTIC	500	GD	SMART WILLIAM J	
1067	PD56534	Welldo Creek	L	C038181	CURRENT	STOCKWATERING	1000	GD	FOREST DISTRICT - MERRITT	
1068	PD57051	Wellman Creek	L	C070243	CURRENT	CONSERV.-STORED WATER	14	AF	WILDLIFE BRANCH	
1069	PD57051	Wellman Creek	L	C066506	CURRENT	STORAGE	20	AF	COQUIHALLA DEVELOPMENTS CORP	
1070	PD57007	Willcocks Creek	L	C025449	CURRENT	DOMESTIC	500	GD	FIELDING RAYMOND A & SONJA K	
1071	PD57007	Willcocks Creek	L	C048279	CURRENT	DOMESTIC	500	GD	ROEST JACK & BEVERLY	
1072	PD56246	Willis Creek	L	C013903	CURRENT	DOMESTIC	500	GD	YOUNG LIFE OF CANADA	
1073	PD56240	Willis Creek	L	C046377	CURRENT	DOMESTIC	1000	GD	YOUNG LIFE OF CANADA	
1074	PD56246	Willis Creek	L	C013903	CURRENT	IRRIGATION	80	AF	YOUNG LIFE OF CANADA	
1075	PD56240	Willis Creek	L	C046377	CURRENT	STOCKWATERING	5000	GD	YOUNG LIFE OF CANADA	
1076	PD56554	Wilson Spring	L	F057963	CURRENT	DOMESTIC	500	GD	GOSS PHIL S & JANET P	
1077	PD56554	Wilson Spring	L	F058125	CURRENT	DOMESTIC	500	GD	FRENCH WALTER J	
1078	PD56555	Wilson Spring	L	F057963	CURRENT	DOMESTIC	500	GD	GOSS PHIL S & JANET P	
1079	PD56556	Wilson Spring	L	F058125	CURRENT	DOMESTIC	500	GD	FRENCH WALTER J	
1080	PD56554	Wilson Spring	L	F057962	CURRENT	IRRIGATION	15	AF	GOSS PHIL S & JANET P	
1081	PD56555	Wilson Spring	L	F057962	CURRENT	IRRIGATION	15	AF	GOSS PHIL S & JANET P	
1082	PD64250	Winkler Creek	L	C103354	CURRENT	DOMESTIC	500	GD	SCHNEIDER DARRELL J & TAMARA S	
1083	PD64252	Winkler Creek	L	C103359	CURRENT	DOMESTIC	500	GD	WITTICH RODNEY K & KAREN T	
1084	PD56337	Winters Creek	L	F006001	CURRENT	DOMESTIC	500	GD	LAWRENCE GARY F & ANITA	
1085	PD56337	Winters Creek	L	F006001	CURRENT	IRRIGATION	8	AF	LAWRENCE GARY F & ANITA	
1086	PD56337	Winters Creek	L	C066144	CURRENT	IRRIGATION	72	AF	LAWRENCE GARY F & ANITA	
1087	PD56336	Winters Creek	L	C006679	CURRENT	IRRIGATION	930	AF	UPPER SIMILKAMEEN INDIAN BAND	
1088	PD56432	Wolfe Creek	L	F041190	CURRENT	DOMESTIC	1000	GD	TATLAYOKO LAKE RANCH LTD	
1089	PD56433	Wolfe Creek	L	F041190	CURRENT	DOMESTIC	1000	GD	TATLAYOKO LAKE RANCH LTD	
1090	PD56434	Wolfe Creek	L	F041190	CURRENT	DOMESTIC	1000	GD	TATLAYOKO LAKE RANCH LTD	
1091	PD56435	Wolfe Creek	L	F041190	CURRENT	DOMESTIC	1000	GD	TATLAYOKO LAKE RANCH LTD	
1092	PD56436	Wolfe Creek	L	F041190	CURRENT	DOMESTIC	1000	GD	TATLAYOKO LAKE RANCH LTD	
1093	PD56657	Wolfe Creek	L	C006683	CURRENT	DOMESTIC	1500	GD	UPPER SIMILKAMEEN INDIAN BAND	
1094	PD56429	Wolfe Creek	L	F013538	CURRENT	IRRIGATION	14.5	AF	TATLAYOKO LAKE RANCH LTD	
1095	PD56434	Wolfe Creek	L	F013562	CURRENT	IRRIGATION	16.2	AF	TATLAYOKO LAKE RANCH LTD	
1096	PD56430	Wolfe Creek	L	F013596	CURRENT	IRRIGATION	25	AF	TATLAYOKO LAKE RANCH LTD	
1097	PD56431	Wolfe Creek	L	F013596	CURRENT	IRRIGATION	25	AF	TATLAYOKO LAKE RANCH LTD	
1098	PD56432	Wolfe Creek	L	F041190	CURRENT	IRRIGATION	50	AF	TATLAYOKO LAKE RANCH LTD	
1099	PD56433	Wolfe Creek	L	F041190	CURRENT	IRRIGATION	50	AF	TATLAYOKO LAKE RANCH LTD	
1100	PD56434	Wolfe Creek	L	F041190	CURRENT	IRRIGATION	50	AF	TATLAYOKO LAKE RANCH LTD	
1101	PD56435	Wolfe Creek	L	F041190	CURRENT	IRRIGATION	50	AF	TATLAYOKO LAKE RANCH LTD	
1102	PD56436	Wolfe Creek	L	F041190	CURRENT	IRRIGATION	50	AF	TATLAYOKO LAKE RANCH LTD	
1103	PD56657	Wolfe Creek	L	C006683	CURRENT	IRRIGATION	276	AF	UPPER SIMILKAMEEN INDIAN BAND	
1104	PD76878	Wolfe Creek	L	C119900	CURRENT	LAND IMPROVE	3200	AF	YOUNG LIFE OF CANADA	
1105	PD56708	Wright Spring	L	C034584	CURRENT	DOMESTIC	500	GD	JFD HOLDINGS LTD	
1106	PD56708	Wright Spring	L	F015315	CURRENT	DOMESTIC	500	GD	JOHNSON JANIS I	
1107	PD56708	Wright Spring	L	F015317	CURRENT	DOMESTIC	500	GD	SMITH MARGARET A	
1108	PD56708	Wright Spring	L	F015318	CURRENT	DOMESTIC	500	GD	LLOYD ADAM J & HAZEL	
1109	PD56708	Wright Spring	L	F015319	CURRENT	DOMESTIC	500	GD	DAVIES JUDITH A	
1110	PD56708	Wright Spring	L	F015316	CURRENT	DOMESTIC	1000	GD	RAND MARY E & STEELE MARGARET B	
1111	PD78870	Yellowlake Creek	L	C120326	CURRENT	DOMESTIC	500	GD	WOOD SYLVIA	
1112	PD56803	Yellowlake Creek	L	C066448	CURRENT	IRRIGATION	1.13	AF	PHILLIPS EVAN & AIMEE & SHARON	
1113	PD56803	Yellowlake Creek	L	C066449	CURRENT	IRRIGATION	1.14	AF	DAWSON KIRBY W & KATHI D	
1114	PD78869	Yellowlake Creek	L	C120324	CURRENT	IRRIGATION	5.36	AF	BUKOWSKY PETER A & GAYLE R	
1115	PD78870	Yellowlake Creek	L	C120325	CURRENT	IRRIGATION	5.36	AF	OLDFIELD PETER K & CARIN	
1116	PD61505	Yellowlake Creek	L	C120323	CURRENT	IRRIGATION	5.36	AF	BURBIDGE JANET M	
1117	PD78870	Yellowlake Creek	L	C120326	CURRENT	IRRIGATION	6.6	AF	WOOD SYLVIA	
1118	PD56804	Yellowlake Creek	L	C116850	CURRENT	IRRIGATION	7	AF	PARUK NAYDA-LYNN WISHLOW	
1119	PD55534	Yellowlake Creek	L	F010929	CURRENT	IRRIGATION	40	AF	CLARKE NORMA ROSE	

B Appendix B - CLIS Information Database Aquatic Search Results

Title	Primary Author	Year Published	e-Library	Contributing Authors	Publisher Name	Identifiers	Abstract
1986 Attainment Report of Ambient Water Quality Objectives.	R.J. Rocchini	1987	EcoCat			11300	This report assesses the 1986 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. Provisional water quality objectives had been set in 18 basins up to February, 1987. The basins are in all the Environment Regions except Vancouver Island. In 1986, water quality data relevant to objectives were collected in 14 of the water basins and these data are evaluated in this report. Although the quantity of data was usually too small to check objectives completely, the evaluation gives a useful overview of the situation in 1986. Many of the objectives were met, or appeared to be met, with some exceptions in each of the regions. Characteristics of water quality which did not always meet objectives in 1986 included total phosphorus, fecal, coliforms, chlorophyll-a, dissolved oxygen, cyanide, and chlorophenols. Details of the particular status of each water basin are summarized in the report. Attainment of objectives in 1986 could only be partially verified because some characteristics were either not measured, or were not measures frequently enough to allow proper checking. Special funding
1987 Low Flows Southern Interior	R.J. Nyhof	1988	EcoCat			12957	The work carried out and described in this report was done by the Surveys Section and the Hydrology Section of the Water Management Branch with the cooperation of Water Survey of Canada and the Atmospheric Environment Service.
1996-97 Attainment Report of Ambient Water Quality Objectives.	Water Quality Branch, Water Management Division, Ministrry of Environment, Lands, and Parks	1999	EcoCat			11317	This report assesses the 1996-97 attainments of ambient water quality objectives set by the Mnistry of Environment, Lands ad Parks. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 1997, the Ministry of Environment, Lands and Parks had set water quality objectives in 46 bodies of water, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done in 1996 and 1997 to check the attainment of objectives in 15 basins (1996) and 14 basins (1997). Due to budgetary restraints, the program has been considerably as compared to previous years. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 81 percent of the time in 1996 and 77 percent of the time in 1997. The findings in 1996 and 1997 are slightly less than the 1995 figure (83%), and also less than previous years when attainment ranged from 94 percent in 1987 to 83 percent in 1995. The declining attainment is in
1998-99 Attainment Report of Ambient Water Quality Objectives	Burke Phippen	2001	EcoCat			11323	This report assesses the 1998-99 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 1999, the Ministry of environment, Lands and Parks had set water quality objectives in 48 bodies of water, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This reportpresents the results of monitoring done in 1998 and 1999 to check the attainment of objectives in 12 basins (1998) and 13 basins (1999). Due to budgetary restraints, the program has been considerably reduced as compared to previous years. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 95 percent of the time in 1998 and 91 percent of the time in 1999. The findings in 1998 and 1999 are significantly higher than the 1996 and 1997 figures (81% and 77% respectively), and similar to previous years when attainment ranged from 94 percent in 1987 to 83 percent in 1995. There was not 100 percent attainment
2000-01 Attainment Report of Ambient Water Quality Objectives.	Burke Phippen	2002	EcoCat			11324	This report assesses the 2000-01 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 2001, the Ministry of Water, Land and Air protection had set water quality objectives in 48 bodies of water, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done to check the attainment of objectives in 16 basins in 2000 and 15 basins in 2001. Due to budgetary restraints, the program has been considerably reduced as compared to previous years. This trend was reversed in 2002 and those data will be reported in a future report. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 82 percent of the time in 2000 and 89 percent of the time in 2001. The findings in 2000 and 2001 are slightly higher than the 1998 and 1999 figures (81% and 77%, respectively), and similar to previous years when attainment ranged from 94 percent in 1987 to 83 per
2000-02 - Tailed Frog - Merritt - Kamloops - MELP		2002	SIWE			2668	1) Determine the presence and distribution of Tailed Frogs within identified watersheds within the Merritt Forest District. 2) Identify and describe stream habitats used by Tailed Frog tadpoles. 3) Recommend candidate areas for Wildlife Habitat Area status. Specific objectives for the year 2001 were to: 1) Complete the inventory begun in 2000 to fully define the distribution of Tailed Frogs within the Merritt Forest District, 2)Assess baseline Tailed Frog populations in Cunningham Creek, where a clearcut will harvest a 2.3 km section along the stream with a 20-m reserve buffer zone, as well as the adjacent Chisholm Creek as a control site. 3) Make recommendations for establishment of Wildlife Habitat Areas for Tailed Frogs.
2002 Attainment Report of Ambient Water Quality Objectives.	Burke Phippen	2003	EcoCat			11325	This report assesses the 2002 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 2002, the Ministry of Water, Land and Air protection had set water quality objectives in 51 areas or basins and updated them in two, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done to check the attainment of objectives in 23 basins in 2002. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 89.2 percent of the time in 2002. The findings in 2002 are almost identical to the 2001 results (88.6%), and similar to previous years when attainment ranged from 95 percent in 1998 to 77 percent in 1997. There was not 100 percent attainment because objectives are set in areas where water quality problems may occur. Monitoring results therefore reflect the state of water quality in areas affected by human activity rather than in the Province as a wh
2003 Attainment Report of Ambient Water Quality Objectives.	Burke Phippen	2004	EcoCat			11330	This report assesses the 2003 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 2003, the Ministry of Environment (formerly the Ministry of Water, Land and Air Protection) had set water quality objectives in 51 areas or basins and updated them in two, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done to check the attainment of objectives in 23 basins in 2003. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 92.7 percent of the time in 2003. The findings in 2003 are slightly higher than the 2002 results (89.3%), and similar to previous years when attainment ranged from 95 percent in 1998 to 77 percent in 1997. There was not 100 percent attainment because objectives are set in areas where water quality problems may occur. Monitoring results therefore reflect the state of

2004 Attainment Report of Ambient Water Quality Objectives.	Burke Phippen	2005	EcoCat			11333	This report assesses the 2004 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 2004, the Ministry of Environment (formerly the Ministry of Water, Land and Air Protection) had set water quality objectives in 51 areas or basins and updated them in two, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done to check the attainment of objectives in 20 basins in 2004. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 90.8 percent of the time in 2004. The findings in 2004 are slightly lower than the 2003 results (92.7%), and similar to previous years when attainment ranged from 95 percent in 1998 to 77 percent in 1997. There was not 100 percent attainment because objectives are set in areas where water quality problems may occur. Monitoring results therefore reflect the state of
2005 Attainment Report of Ambient Water Quality Objectives.	Burke Phippen	2007	EcoCat			11336	This report assesses the 2005 attainments of ambient water quality objectives for fresh and marine surface waters of British Columbia. The setting of water quality objectives in priority basins in British Columbia began in 1982. By the end of 2005, the Ministry of Environment had set water quality objectives in 51 areas or basins and updated them in two, both fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done to check the attainment of objectives in 23 basins in 2005. The results are summarized in a series of tables. For all Ministry Regions the objectives were met 92.6 percent of the time in 2005. The findings in 2005 are slightly higher than the 2004 results (90.8%), and similar to previous years when attainment ranged from 95 percent in 1998 to 77 percent in 1997. There was not 100 percent attainment because objectives are set in areas where water quality problems may occur. Monitoring results therefore reflect the state of water quality in areas affected by human activity rather than in the Province as a whole. Variables for w
2006 - Tiger Salamander - South Okanagan - Penticton - MELP		2006	SIWE			4176	To confirm breeding ponds for planning of Wildlife Habitat Areas.
2007 - Spadefoot Toad - Thompson Region - Kamloops - MOE and BCCF		2007	SIWE			4318	The objectives of the inventory were to document the occurrence and distribution of A-SPIN in the Thompson Region and to document the occurrence of breeding ponds on Crown Land for purposes of applying conservation measures as prescribed under the Identified Wildlife Management Strategy (IWMS). This project is apart of a concerted effort to document species at risk within the Thompson Region, therefore, incidental detections of A-SPIN were also recorded.
An agricultural profile of Indian agriculture in the Okanagan - similkameen valleys /	Hunt, Larry.	1994	MoFR Library	British Columbia. Minsitry of Agriculture, Fisheries and Food., Western Indian Agricultural Corp.	Ministry of Agriculture, Fisheries and Food,	630.709711 AG 1993 MR 11	
Ashnola River Watershed, CAP and SSS	Wildstone Group		EcoCat			8332	The following report presents the findings of the Channel Assessment Procedure (CAP) and the Sediment Source Survey (SSS) for the Ashnola River watershed . The study area includes the Ashnola River and the western drainages from the US border north to the confluence with the Similkameen River (Figure 1) . The approximate area for the project is 39,000 ha. The purpose of the CAP is to identify disturbed channels if they exist, using a consistent and repeatable process. The process involves field checks to collect quantitative data at sites identified during the office review of air-photos. The information identifies variations in the channel as natural or harvest related and the need for future restoration strategies. The purpose of the SSS is to identify sediment source sites relating to existing roads, cutblocks, and natural sources including landslides, etc. The process involved the preliminary review of 1996 air photos to identify potential sediment sites, and the field review of existing roads landings and cutblocks. The Lower Similkameen Indian Band completed the CAP and SSS in partnership with
Assessment of Federal-Provincial Water Quality Data for the Flathead and Similkameen Rivers.	Shaw, R. D.	1994	MoFR Library	Taylor, Barry R., British Columbia. Ministry of Environment, Lands and Parks., Canada. Environment Canada., Canada-British Columbia Water Quality Monitoring Agreement.	Ministry of Environment,	0-77262-100-4 363.73942/S53 4/1994	
BC Conservation Corps project completion report : South Okanagan, Similkameen and Kettle Valley tiger salamander (Ambystoma tigrinum) inventory - 2006	Noble, Ryan.	2006	MoFR Library	Spendlow, Ian., British Columbia. Conservation Corps., British Columbia.	BC Ministry of Environment,		"The Tiger Salamander (Ambystoma tigrinum) is currently on the provincial Red List in British Columbia. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated the southern mountain population, in BC, as Endangered, and it remains on Schedule 1 of the federal species at risk registry. In the Southern Okanagan, Similkameen and Kettle River drainages where this population occurs, efforts are underway to effectively manage this species and the ecosystems on which it relies. Active searches were conducted along with a wetland trapping procedure during the 2006 Tiger Salamander breeding season. Trapping effort was focused mainly on Crown wetlands. Contact was made with selected private landowners to obtain access to ponds on private property; this provided an opportunity for BC Conservation Corps members to conduct stewardship, while involving landowners in the recovery efforts for Tiger Salamander and their associated habitat. Results were presented and will be submitted to the Conservation Data Center (CDC) and various agencies to assist in creating a recovery strategy for this species."
Bellevue Creek Habitat Restoration Project October 1999	Dave Henshaw	1999	EcoCat	Kelowna Fish and Game Club		21512	The Kelowna and District Fish and Game Club wishes to advise the Okanagan-Similkameen Boundary Fisheries Partnership of the successful completion of this project, designed to increase trout fry survivability. Thanks to the funding provided by the partnership, hundreds of volunteer hours donated by club members, and the generosity of local businesses, the City of Kelowna and the Ministry of Environment, Lands and Parks, we were able to construct 13 rock weirs in four working days in the first three kilometres of the creek in the citys Okanagan Mission area.
Biophysical Habitat Units of the South Okanagan Study Area	Lea, E.C., R.E. Maxwell and W.L. Harper of the Resources Inventory Branch, British Columbia Ministry of Environment, Lands and Parks	1998	EcoCat			1846	The South Okanagan Biophysical mapping project was undertaken by the BC Ministry of the Environment to classify the South Okanagan region according to its ability to support different rare, threatened and endangered species Each habitat unit represents an area that is relatively homogenous in terrain, soils, topography, bedrock geology, vegetation and animal use. Most units are further classified according to successional stage (for forested areas) or range condition (for shrub-grasslands). The area mapped includes the south Okanagan and Similkameen valleys and extends from Okanagan Mountain Provincial Park to the U.S. border and from Anarchist Mnt. to the Ashnola River. The study area covers portions of mapsheets 82E/3 and 82E/4 and includes the Northern Okanagan Basin (NOB), Northern Okanagan Highlands (NOH), Southern Okanagan Basin (SOB) and Southern Okanagan Highlands (SOH) Ecosections. Portions of the following BGC units are mapped: the Okanagan Very Dry Hot Bunchgrass variant (BGxh1), the Okanagan Very Dry Hot Ponderosa Pine variant (PPxh1), the Okanagan Very Dry Hot Interior Douglas-fir variant

Border Lake Snow Survey (Year 3 - 2009 Final Report) FIA Project # 4932005	Dobson Engineering Ltd.	2009	EcoCat			16030	The snow courses were established on April 5, 2007 between 1800 m and 1900 m elevation near the 50-km board on the Easygoing Forest Service Road in the Border Lake fire area. The fire burned in 2006 and is located southwest from Keremeos, BC near the US border. The goal of this project is to compare snow accumulation and melt rates at several stands that represent grey attack, red attack,green and a clear-cut. The results will help estimate how forest fires and the Mountain Pine Beetle infestations in other parts of the Okanagan /Similkameen may affect annual snowmelt and runoff patterns.
Boss Lake (00132SIML) 2000 Fisheries Assessment and Management Plan	Brian Jantz, Kevin Morris	2003	EcoCat			726	The southern Interior Plateau of British Columbia contains some 103,000 km2 of Columbia River Basin (Holland, 1976). A portion of this basin, consisting of 9,200 km2 is drained via the Similkameen River, which is composed of hundreds of small lakes and streams. Specific to this report, the area to the south of Merritt hosts numerous such small lakes, many of which are utilized for recreational angling and a large proportion supported by the provincial hatchery program.
Completion report installation and testing of a water supply well for the community of Olalla, BC	Livingston, E.	1998	EcoCat			7815	1998 completion report on construction and testing of water supply well at Olalla. Includes executive summary, well installation details, well performance and well capacity testing, site plan, pumping test data, well log, screen design, sieve analyses and water quality data, summary and conclusions, recommendations, site and well location plans, lithologs, drawdown plots, topography map; District of Okanagan-Similkameen and Pacific Hydrology Consultants Ltd., 38 pages, NTS Map 082E04
Conditional water licence and initial letter re: McRae Creek1986	Zackodnik, A.	1986	EcoCat	Smith, D.R.		21416	Responds A. Zackodnik: I have concluded that the withdrawal of water is not sufficient to adversely affect the fishery resource. Moreover, it is my understanding that the pipe will be suspended above the creek and therefore, will cause a minimal amount of disturbance to the creek bed. For these reasons, I am satisfied that issue of a licence to this applicant will not adversely affect the fisheries resource.
Conference on Similkameen River Princton, B.C. June 17, 1992	Ministry of the Environment	1992	EcoCat			11906	Conference held in Princeton BC on June 17, 1992. Paper contains presentations given at the conference.
Conservation Plan for the South Okanagan (in Proc. Conference Biology & Management of Species and Habitats at Risk) [408 KB]	Slater, Tom	1999	EIRS - BDP		MINISTRY OF ENVIRONMENT, LANDS AND PARKS	ISBN: n/a ISSN: n/a Report Number: n/a Other Report Numbers: University College of the Cariboo	My presentation focuses on the South Okanagan/Similkameen valleys, which contain 1 of Canada's more endangered ecosystems. I will outline a draft Conservation Plan being proposed for this area. This plan builds on the long history of conservation in the Okanagan/Similkameen valleys. Numerous programs and activities have, and continue to be, undertaken. The result has been the securing of significant pieces of habitat, successful stewardship projects, many useful studies, and an array of excellent publications.
Copper Mountain Mine 2010 Fish Population Study Fish Collection Permit PE10-65019	Klohn Crippen Berger Ltd.	2011	EcoCat			23071	Similco Mines Ltd. is now in the process of reopening the mine with construction expected to be complete by the end of April 2011, commissioning of equipment in May 2011, with full production to begin in June 2011. Once fully operational, the mine is expected to process approximately 35,000 tonnes of ore per day in a new concentrator, and tailings will be stored in the existing Tailings Management Facility (TMF). Baseline fisheries and aquatic studies have been conducted by Similco since 2007. More specifically, fisheries studies in both the Similkameen River and Wolfe Creek were conducted in October 2007, May 2008, October 2008, September 2009, and, most recently, in September 2010. The need for the 2010 Fisheries Population Study was identified following the BC Ministry of Environment (MOE) review of the 2007 to 2009 fisheries studies. This review determined that additional fish sampling, through in-stream diver surveys (in-stream snorkel surveys), should be conducted in the Similkameen River in 2010 to document fish populations and densities above and below the Copper Mountain Mine (i.e. including the Reference Area [SRRA] and the Far-Field A
Correspondence re: proposed Johnstone Creek Dam Proposal, 1992 - 1995	Zackodnik, A.D.	1995	EcoCat			21362	Fossen Air Ltd. of R.R. #1, Rock Creek, British Columbia VOH IVO is hereby authorized to divert and use water as follows: (a) The source of the water-supply is Johnstone Creek and the reservoir is Johnstone Lake. (b) The points of diversion and rediversion are located as shown on the attached plan. (c) The date from which this license shall have precedence is 26th June, 1991. (d) The purpose for which this license is issued is storage and irrigation. (e) The maximum quantity of water which may be diverted for storage purpose is 210 acre-feet per annum and for irrigation purpose is 80 acre-feet per annum. (f) The period of the year during which the water may be diverted to storage is 1st April to 15th June and for irrigation purpose is 1st April to 30th September. (g) The land upon which the water is to be used and to which this license is appurtenant is the South 1/2, Lot 228 and the South 1/2 of the North 1/2 of Lot 228 and Block C of Lot 229 all of Similkameen Division of Yale District of which 40 acres may be irrigated.
Correspondence re: the installation of spawning platforms in Stewart Creek.	Tucker, M.	1997	EcoCat			21331	Regarding the authorization to get Kokanee back into their traditional spawning pattern in Stewart Creek. Please be advised of the following specific assurances: We will comply with all federal, provincial and municipal enactments. The 8-10 spawning platforms will be installed on our deeded property purchased in August, 1961 as follows- SIMILKAMEEN Lot;6PL; 88-84-DL 7683. The spawning platforms will not pose a significant danger to life, property or the environment. Copies of all significant documents will be in the hands of and understood by all the crew while the spawning platforms are being installed. Could Mr. Smith come over and evaluate the flow of Steward Creek at a convenient time during the week of August 23, 1977? We would like to show him the new delta of pea gravel that has been developed at the mouth of the creek and also he could help us locate the specific spots up the creek for the location of the gravel platforms.
Creel Survey for Assessing Recreational Fishery on the Kettle River Associated with the Cascade Heritage Power Park Project	Jennifer A. Jeffrey	2000	EcoCat	IRC Integrated Resource Consultants Inc.		15413	A creel survey was conducted in the late 1980s on the Kettle River but it did not include our area of interest. Pat Slaney and Teresa Godin have agreed to send us a report from this previous survey and it will be incorporated into our analyses where it is beneficial. A creel survey of the Kettle River between Danville and Laurier is planned for the summer-fall 2000 to assess the current angling activity on this portion of the river. This survey will take the form of a roving creel survey with a stratified two-stage probability design similar to that used in the Similkameen River System in 1984. An access point survey is also planned for summer-fall 2000 to assess night-time fishing activity.

Crown Land Assessments in the South Okanagan	M.J. Sarell	2002	EcoCat	A. Haney; Ophiuchus Consulting; J. Hobbs		16373	In the South Okanagan, Crown lands have been an integral component of a habitat securement program by the Ministry of Water, Lands, and Air Protection, under the South Okanagan - Similkameen Conservation Program. Crown land securement is meant to compliment the securement efforts of non-govermnent agencies that are purchasing important habitats. Initial efforts to secure important habitats were initiated in 1990 but soon ceased when the South Okanagan Wildlife Management Area was established. A large assortment of Land Act Reserves remained on the books, consisting mostly of Map Reserves and extensive Notations of Interest. Some of the areas with these reserves later fell into the Protected Areas system and are now, or may be soon, Provincial Parks. The remainder of these lands were not pursued for securement until just recently.
Data Analyses: Long-term Water Quality Monitoring Report for Similkameen River at Princeton, 1966-2000.	Burke Phippen	2002	EcoCat			11294	This report provides water quality data analyses for Similkameen River at Princeton. There have been three long-term water quality monitoring stations on the Similkameen River: near the US Border, at Princeton, and at Hedley. This report focuses on the water quality at the site on the Similkameen River near Princeton. The Similkameen River water is used for irrigation, livestock watering, drinking, primary and secondarycontact recreation, and industrial use, and sustains aquatic life and wildlife. EMS site # E000000. Report also found at the following website: http://www.env.gov.bc.ca/
Data Analyses: Long-term Water Quality Monitoring Report for Similkameen River at the Internation Border, 1976-2000.	Burke Phippen	2002	EcoCat			11296	This report provides water quality data analyses for Similkameen River at the Internation Border. There have been three long-term water quality monitoring stations on the Similkameen River: near the US Border, at Princeton, and at Hedley. This report focuses on the water quality at the site on the Similkameen River near the US Border. The Similkameen River water is used for irrigation, livestock watering, drinking, primary and secondary-contact recreation, and industrial use, and sustains aquatic life and wildlife.EMS site # E0500073. Report also found at the following website: http://www.env.gov.bc.ca/
Davis Lake (00155SIML) 2000 Fisheries Assessment and Management Plan	Brian Jantz	2003	EcoCat	Kevin Morris		15086	Davis Lake is populated with rainbow trout (Oncorhynchus mykiss), redside shiners (Richardsonius balteatus) and dace (Rhinichthys Sp.). The lake has been considered as a candidate for rehabilitation to eradicate the shiners but to date this has not occurred. It is well understood that the shiner and dace population has caused a detrimental effect on rainbow trout growth rates through competition for available food resources. Davis Lake was originallystocked in 1940 and has received annual supplements of rainbow trout ever since. More recently, since 1980, numbers have varied between 5000 and 11,000 utilizing yearling sized rainbows. The fisheries management objective for Davis lake is categorized as a high use family fishery for medium sized trout (~30cm) with an average catch rate of ~2 fish/day. Numerous changes have been made to hatchery prescriptions in recent years such as an increase in the average size of stocked trout and a switch to Blackwater rainbow trout strain in an attempt to maximize the recreational return from Davis Lake. The purpose of this report is to assess the present harvest success, angler effort, fish size
Distribution and Abundance of Purple Loosestrife in the Okanagan Valley	K.A. Enns	1992	EcoCat	K.L. Grainger; Larkspur Biological Consultants		17889	The high resolution sites included Osoyoos Oxbows Fish and Wildlife Reserve, Vaseux Lake Migratory Bird Sanctuary, Swan Lake, Rawlings Lake, Okanagan River, Deadman Lake interpretive site (Oliver), Otter Lake (Armstrong), Maude-Roxby Marsh (Kelowna). Ginty's Pond (Cawston), Wetlands at N. end of Okanagan Lake, and Haynes Point (Osoyoos). Other sites that were field-checked and described included (but were not limited to) Scirpus-dominated marshes, ditches and lake shores throughout the Okanagan and Similkameen River drainages. All sites were mapped and their characteristics described. All places where loosestrife was observed were included in these observations. Of 194 direct observation plots, 70 had loosestrife colonies present. Infestations varied in severity from single plants to complete monocultural dominance for greater than 3.0 square meters. Permanent plots were established in 8 locations, illustrating the range of infestation levels from single plants to large colonies.
Draft Report on Okanagan Rivers and Streams	Ministry of the Environment	1985	EcoCat			12113	In the past, river and stream management in Region 8 has received lower priority than lake management. Limited information indicates some of our rivers contain depressed populations of small trout . (I.E.C. Beak Consultants Similkameen River Study 1983; Fisheries Research Section files) . River management literature suggests a properly prescribed management plan can improve fish production when a rivers trout population is in a depressed s t a t e . (Towards an Effective Management Strategy for Resident Salmonid Stream Fisheries in B C. - Rivers Management B.C. Fish and Wildlife Program).
Draft: Fish Data Summaries for the Similkameen River Watershed	IEC Beak	1983	EcoCat			19990	IEC Beak undertook fish collection activities on the Similkameen River Watershed in 1983. Data summaries are provided in this data submission.
Draft: Profile of a Candidate Sensitive Stream Under the Fish Protection Act Lower Okanagan River (below Vaseux Lake)	Ministry of the Environment	2000	EcoCat			21657	The Lower Okanagan River is a candidate for designation as a Sensitive Stream because: 1) It has important populations of sockeye salmon, kokanee, and rainbow trout, as well as historic populations of chinook and coho salmon and steelhead. The prospects for recovery are good for sockeye, but much more difficult for coho and chinook salmon and steel head. 2) The available water supply is inadequate in some years (more so in the tributaries than the Okanagan River main stem) to support both sustainable fish populations and existing off-stream uses. High flows at some times of year, and resultant channel scouring, are as much of a problem as low flows. Ensuring adequate, but not excessive, rates of flow has been the subject of disagreement between water and fisheries agencies for years. 3) A recovery plan could focus on promoting more efficient water use; restoring riparian vegetation and stabilizing streambanks on the tributaries, and where feasible, on the Okanagan River mainstem; removing some of the weirs in the channelized section of the river; improving instream spawning habitat in the Okanagan River and in at least
An Ecological Sudy Of California Bighorn Sheep (Ovis canadensis californiana (Douglas) In Southern British Columbia	Donald Blood	1961	EcoCat			21921	Thesis is about the decline in California Bighorn Sheep in the Similkameen Valley of southern British Columbia.
Ed James Lake - Correspondence Re : Private Land and Access	Butler,D.	1990	EcoCat	Smith,D.		20689	As presented by Dave Smith of the Fisheries Branch, it is the opinion of this Ministry that all portions of the bad of Ed James Lake contained within District Lot 3650, Similkameen Division of Yale District are private. This opinion was communicated to us by Mr. Pat Ringwood, who is the Deputy Surveyor-General for the Province. Mr. Ringwood's deliberations were based primarily on the original Crown Grant tracing (areas in red vs. areas in blue) and on Sections 52 and 53 of the Land Act. We do not see the need for further action or deliberation on our part at this time, however, I would be pleased to discuss this with you at your convenience.
An Evaluation of the Hatchery and Wild Rainbow Trout Fishery within the Similkameen River near Hedley, British Columbia	Columbia Environmental Consulting Ltd.	2002	EcoCat			13393	A comparison between snorkel surveys indicated a decline in the wild rainbow trout population from an average of 478 fish\km between 1989 and 1993 to 280 fish/km in 2000. The percentage of hatchery fish present in the current population has ncreased from 0% in September 1993 to 13% in September 2000. In addition, few juvenile rainbow trout (<l Ocm) were observed rearing in the mainstem river but were instead found in tributary streams.
Experimental Planting of Large Trout in the Similkameen River 1961	G.E. Stanton	1961	EcoCat			19572	Recently there have been reports that the river was subject to a very large fishing pressure. To investigate this problem, a creel census program was initiated, in conjuction with the experimental release of large trout. Stocking of rivers and creeks had not been done, as a matter of policy, basedd on experience that the return and success of such projects are very low. Previous experience indicated that hetchery reared trout appear to be unsuccessful in establishing a population in a river.

Feasibility of Using Groundwater For Irrigation Near Keremeos	Marr, B.E.	1963	EcoCat			4243	Comments from field investigations of geology, groundwater potential and existing wells in the Similkameen Valley, July 1963. Includes field investigation methods, summary of known well usage, feasibility of using wells to supply Keremeos Irrigation District, recommendations for further testing, theoretical drawdown and interference from production wells, Water Investigations Branch, Groundwater Section, 2 pages, NTS Map 082E04
Field Data - Scientific Collection Permit for Waters of the Similkameen Watershed	Aquatic Resources Limited	1995	EcoCat	Slaney, T.		9889	Contains field data from a project conducted in the Similkameen watershed. Fish sample site description forms and fish presence/absence forms. Sutter, Jim Kelly, Vuich, Lawless, Spearing, Frembd, Manning, Elliott, Otter, McCullough, Angstadt, Lockie, Thynne, Tulameen, Connaly, Cook, Asp, Copper, Granite, Allison, Hayes, Keromeos, Similkameen, Ashnola, Smith, Summers, Wolfe, McCaffrey waterbodies. Species: Northern Squawfish, peamouth chub, rainbow trout, largescale sucker, white sucker, kokanee, prickly sculpin, slimy sculpin, mountain whitefish, brook trout, torrent sculpin.
Final Report: Wolfe Creek Level 1 Watershed Assessment	Summit Environmental Consultants Ltd.	1996	EcoCat			8354	The primary objective of this project is to identify potential watershed impacts in the Wolfe Creek drainage due to forest harvest activities. Specific objectives are to: 1) Conduct a Level 1 Interior Watershed Assessment according to the procedures outlined in the Interior Watershed Assessment Procedure (IWAP) Guidebook (MELP/MOF, 1995); 2) Update existing forest road and cut-block information; 3) Confirm selected Level 1 IWAP information via field inspections; 4) Evaluate forestry impacts relative to other land use impacts within the watershed; 5)Prepare a report which includes 1:20,000 scale mapping; 7) Provide recommendations for further assessment if required. The results of the project will indicate the level of hydrologic impacts resulting form past forest harvesting activities in the watershed and will place the impacts in the context of other resource and/or recreational activities. This IWAP report will also provide direction for further, more detailed, assessments as required.
FINAL SPECIES ACCOUNT FOR SPECIES-HABITAT MODEL FOR WILLIAMSONS SAPSUCKER IN THE BOUNDARY	Gyug, L.	2009	EcoCat			16194	Species account includes information that includes: common/scientific names, species code, status, project area, habitat use, ecosystem attributes, habitat ratings, references.
First Nations water rights in British Columbia :a historical summary of the rights of the Lower Similkameen First Nation.	Jolly, Diana.	1997	MoFR Library	Abrams, Rachel., Rocha, Christina., Griffith, Miranda., Robinson, Gary W., British Columbia. Water Management Branch., British Columbia. Ministry of Environment, Lands and Parks.	Ministry of Environment, Lands and Parks, Water Management Branch,	0-77263-367-3 346.711/0432/ LOWERS/1997	
First Nations water rights in British Columbia :a historical summary of the rights of the Upper Similkameen First Nation.	Johnson, Kim.	1997	MoFR Library	Jolly, Diana., Abrams, Rachel., Griffith, Miranda., Robinson, Gary W., British Columbia. Water Management Branch., British Columbia. Ministry of Environment, Lands and Parks.	Ministry of Environment, Lands and Parks, Water Management Branch,	0-77263-366-5 346.711/0432/ UPPERS/1997	
Fish and Fish Habitat Operational Inventory, 1996	Wildstone Resources Ltd.	1997	EcoCat			52	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.
Fish Collection Permit PE08-48598 Fisheries Assessment for Similco Mines	J Jemmett & Associates	2008	EcoCat			17231	J Jemmett & Associates undertook a Fisheries Assessment of the Similkameen River and Wolfe Creek for Similco Mines in 2008.
Fish Collection Permit PE09-57700 Similkameen River and Wolfe Creek	Klohn Crippen Berger Ltd.	2009	EcoCat	John Jemmett		18942	Fisheries studies for the proposed re-openiing of the Copper Mtn Mine near Princeton. Fish were sampled in the Similkameen River and Wolfe Creek. Samples represent conditions before mining recommences for comparison after mining begins.
Fish Collection Permit Summary Report for fish sampling in Shingle and Shatford Creek Watershed	Bettina Sander	1998	EcoCat	Golder Associates Ltd.; Okanagan-Similkameen Environmental Protection Society		9810	A total of 24 sites were sampled in the Shingle and Shatford Creek watersheds. Rainbow trout were found at 20 of the 24 sites sampled within this watershed. Maps are included with this report showing all sites sampled.
Fish Distribution Diversity and Habitat Use in the Similkameen Watershed [2320 KB]	Rosenfeld, Jordan	1996	EIRS - BDP		MINISTRY OF ENVIRONMENT, LANDS AND PARKS	ISBN: n/a ISSN: n/a Report Number: FPR52 Other Report Numbers: n/a	To evaluate the potential impact of timber harvest on individual fish species and total fish species diversity, the degree of potential risk from logging needs to be evaluated for each species. The degree to which a species will be at risk from adverse effects of logging will be largely related to its habitat. Although the cumulative effects of poor logging practices may extend downstream to higher order reaches (Hartman and Scrivener 1990), species at greatest risk from the direct effects of logging are most likely to be either resident in small streams or species that are dependent on smaller streams (e.g., as spawning or rearing habitat) at some stage in their life history. This study has two objectives: (1) identify the habitats used by different fish species in the Similkameen watershed in order to identify which species occur in habitats that are most likely to be directly impacted by timber harvesting, and (2) identify habitat features that are correlated with high fish diversity within a watershed. Th

Fish Inventory and Stream Classification for the Wolfe-Belgie South Operating Area: Similkameen River Tributaries 1.0, 2.0, 3.0.	Glenn Smith	1998	EcoCat	Wildstone Resources Ltd.; MOF		9838	Preliminary reach breaks, identified in the office using 1:20,000 scale TRIM maps, were used to identify potential sample sites. Sample sites were selected based on access and where possible, sample sites were identified immediately upstream of a suspected fish barrier. Reach break locations were confirmed or modified after ground truthing. Sampling protocol involved electrofishing one site per reach to determine fish presence or absence. Electrofishing survey areas (m2) varied depending on sensitive life stages of fish (e.g. fry and spawners) encountered or the possibility of additional fish species within a stream reach. In the event that no fish were found, an entire reach or a minimum survey length of 500 m was undertaken (dependent on available habitat). Fish surveys in longer reaches were up to 1 kilometer in length. Fish inventory surveys were undertaken using a Smith-Root model15C POW Electrofisher with a 25 cm anode ring and 3 m rat tail cathode. Duty cycles varied between 24-60% with cycling periods of 60-100 Hz, depending upon fish size and
Fish Inventory and Stream Classification for the Wolfe-Belgie South Operating Area: Similkameen River Tributaries 5.0, 5.1, 5.2, 5.2A	Glenn Smith	1999	EcoCat	MOF; Wildstone Resources Ltd.		9836	Preliminary reach breaks, identified in the office using 1:20,000 scale TRIM maps, were used to identify potential sample sites. Sample sites were selected based on access and where possible, sample sites were identified immediately upstream of a suspected fish barrier. Reach break locations were confirmed or modified after ground truthing. Sampling protocol involved electrofishing one site per reach to determine fish presence or absence. Electrofishing survey areas (m2) varied depending on sensitive life stages of fish (e.g. fry and spawners) encountered or the possibility of additional fish species within a stream reach. In the event that no fish were found, an entire reach or a minimum survey length of 500 m plus an additional 500 m of prime habitat, 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 36-42% with cycling periods of 60 - 70 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 4C and conductivity was above
Fisheries Management on the Coquihalla River [851 KB]	Stenton, C. E.	1963	EIRS - BDP		DEPARTMENT OF RECREATION AND CONSERVATION	ISBN: n/a ISSN: n/a Report Number: 41 Other Report Numbers: FMR 41	This report discusses fisheries management options for the Coquihalla Steelhead fishery. Fisheries closures were used frequently, although not strategically, prior to this report's publication. Alternative management options are discussed, including the need for a more defined management plan.
Forest canopy changes from 1947 to 1996 in the Lower Similkameen, British Columbia	Gyug, Les W.	2002	MoFR Library		Okanagan Wildlife Consulting	634.909711 FIA 2002 MR 023	
Forest canopy changes from 1947 to 1996 in the Lower Similkameen, British Columbia	Gyug, Les W.	2002	MoFR Library	Terrestrial Ecosystem Restoration Program (TERP).	Okanagan Wildlife Consulting,	634.909711 FIA 2002 MR 023	Project Name: Grassland Restoration within the Similkameen River Area, #4-17 Project Proponent: Lower Similkameen Indian Band Key Words: grassland restoration, historic forest cover, restoration plan, grassland mapping This study examined the extent to which grasslands and open tree parklands have been invaded by conifers in the Lower Similkameen Indian Band Area of Interest. This was a first step toward developing a restoration plan to address the quantity and quality of grasslands, including the recovery of natural plant communities in the area of interest. The objectives for this phase of the project included: 1. determine the extent of native grasslands and open forests from old aerial photographs (1938 and 1947), 2. compare these to current forest and grassland conditions on 1996 aerial photographs and using estimates of forest canopy closure from forest cover mapping, 3. determine the location, type and extent of forest encroachment occurring in the area of interest, and 4. make recommendations for potential actions to mitigate the effects of forest encroachment. The aerial photo analysis found major changes in the tree canopy
Forest Renewal BC approvals in the Penticton, Salmon Arm, and Vernon forest districts from 1994/95 to 1996/97.	Forest Renewal BC.	1997	MoFR Library	Sunderman, Randy, Sunderman and Associates	Forest Renewal BC,	634.909711 FRBC 1997 MR 229	
Genetics and distribution of species-at-risk, fish collection permit PECB09-55763	Taylor, E	2011	EcoCat	University of British Columbia		23126	University of British Columbia Research, tissue sampling of fish in Similkameen River, Kettle River and tributaries.
Groundwater Investigation at Cawston -Cawston Irrigation District - Groundwater Program	Odsynsky, P.	1955	EcoCat			4224	Summary of 1951 investigations in Similkameen River Valley to determine characteristics of groundwater formations. Includes background, irrigation well inventory & data, plans of wells, sumps & piezometers, group hydrograph analysis, piezometer installation methods, pump test data, correlation of piezometric and irrigation well data, effects of precipitation, summary and recommendations, list of benchmarks, Dept of Lands, Forests, and Water Resources, 37 pages, NTS Map 082E04
Groundwater Provenance and Water Level Assessment Faulder, British Columbia	Golder Associates Ltd.	2008	EcoCat			16915	The report provides the results of a groundwater provenance and aquifer water level assessment for the Community of Faulder, BC. The work included sampling of water for isotope and age-dating analyses, measurement of water levels and the review of climate data and historical water levels in observation wells. The purpose of this investigation is to assess the declining water levels within the Faulder Community Well, such that a determination can be made regarding future water supply options for the Community of Faulder. The methodology for this assessment consisted of conducting the following tasks: 1) Review of available information including: i) water levels in the Community Swell, two private wells (Gibbs and Mearns) and selected MoE Observation wells in the area and in the Okanagan Basin to assess water level trends, ii) climate data from three climate stations to assess precipitation for the area, iii) existing groundwater chemical data for the Community and Gibbs Well, and iv) a previous report conducted by Gordon Wilson Associates Inc. for the north end of Meadow Valley (Gordon Wilson Associates Inc., 1990). 2)
Habitat Atlas for Wildlife at Risk in the South Okanagan (in Proc. Conference Biology & Management of Species and Habitats at Risk) [23 KB]	Ethier, T.	1999	EIRS - BDP	Holm, M.	MINISTRY OF ENVIRONMENT, LANDS AND PARKS	ISBN: n/a ISSN: n/a Report Number: n/a Other Report Numbers: University College of the Cariboo	In 1990, with increasing concern over the rapid loss and fragmentation of habitats in the South Okanagan, provincial and federal environment ministries, along with non-government agencies and foundations, established the South Okanagan Conservation Strategy (SOCS), a five-year program designed "to prioritize management activities for the conservation of natural habitat." The Wildlife Habitat Atlas for the South Okanagan is an initiative of SOCS, coordinated by the British Columbia Ministry of Environment Lands and Parks, Penticton office. The atlas, as well as a web-site, is designed to provide information on wildlife at risk and their habitats in the South Okanagan. In the past, information about wildlife was not easily available. This lack of information has often meant that land use decisions were implemented without consideration for the habitat requirements of wildlife species...

Habitat Atlas For Wildlife At Risk South Okanagan & Lower Similkameen	MOE	1998	EcoCat			21409	Partners in the strategy included B.C. Ministry of Environment, Lands, and Parks; B.C. Ministry of Forests; The Nature Trust of British Columbia; the Canadian Wildlife Service; the Royal British Columbia Museum; and the University of British Columbia. We gratefully acknowledge support and funding for producing the atlas from: Habitat Conservation Trust Fund, the Vancouver Foundation, The Nature Trust of British Columbia, the Okanagan Region Wildlife Heritage Fund Society, and the B.C. Ministry of Environment, Lands, and Parks. The biophysical maps which are the basis of this project were developed by a Ministry of Environment, Lands, and Parks scientific team led by Ted Lea, Bill Harper, Bob Maxwell, and Orville Dyer. Leanna Warman, Mike Sarell, Allison Haney, and Sue Robertson developed the habitat suitability models and maps for the species displayed in the Atlas. Mark Cudmore helped develop the tables for the habitat ratings in the species habitat models. We greatly appreciate the scientists who reviewed the logic of the
Handwritten Letter from Bud to Fisheries Branch discussing possibility of salmon in the Similkameen River	Bud ?	1983	EcoCat			19991	Handwritten letter from Bud ? discussing historical references to salmon above the Enloe dam in the past.
Hydro-ecological characterization of key watersheds in the Similkameen-Boundary Region for the purposes of describing landscape units containing flow-sensitive streams	Ronald A. Ptolemy	2009	EcoCat			16063	Use of reference flow states such as percentage long-term mean annual discharge (%LT mad) in concert with fish periodicity charts (bioperiods) is a scientifically robust and flexible method for assessing and managing environmental flows across large regions with appropriate ecoregion stratification, when lack of time and resources preclude evaluating individual streams or reaches. Percentage LT mad systematically translates understanding of the ecological ramifications of human-induced streamflow alterations from streams that have been studied to streams that have not, without requiring detailed site-specific information for each stream case. 1. By 2012, all land and water managers will know what makes a stream healthy, and therefore be able to help land and water users factor in new approaches to securing stream health and the full range of stream benefits. 2. Legislation will recognize water flow requirements for ecosystems and species. 3. Government will require all users to cut back their water use in times of drought or where stream health is threatened.
Hydrogeological Assessment Kitley lake Subdivision of Lot 1, Plan KAP49966, DL24545 Sec.19 Tp. 88 SDYD	Balfour, J.	1997	EcoCat	Stevens, L.		7891	1997 report on groundwater supply assessment for proposed subdivision on west shore of Kitley Lake, west of Okanagan Falls. Includes background, scope of work, site description, information on geology, site plans, pumping test data, well logs and water quality data, well drilling and testing program, conclusions and recommendations, water well location map, drawdown plot ; Regional District of Okanagan Similkameen and EBA Engineering Consultants Ltd., 30 pages, NTS Map 082E05
Hydrology Division Report Reverse Flows into Osoyoos Lake	C.H. Coulson	1972	EcoCat			15651	The study was carried out at the request of the Chief Engineer in order to determine the effect of high flows on the Similkameen River on the level of Osoyoos Lake.
An Inventory of Non-natural Barriers to Fish Passage in the Okanagan, Boundary and Similkameen - Phase 1 Overview Report	Doug Wahl: Snowy River Resources Ltd.	2000	EcoCat			13430	Site verification, prioritizing of the collated data and development of prescriptions will take place in Phase 2 of the project. This phase will also provide the opportunity to identify obstructions in watersheds where information is limited. Once a priority listing for known fish-passage obstructions has been established, a plan would be undertaken to removelretrofit the barriers (Phase 3). The long-term goal of the project is to increase the available habitat for fish populations within the study area by identifying and addressing non-natural barriers to fish passage. The retrofitting or removal of non-natural structures within a stream has immediate implications to fish populations and is relatively inexpensive compared to other restoration efforts which may cost $50,000/km of stream and take several years to become fully functional. This project will also raise an awareness of the importance of maintaining access within streams for the long-term benefit of fish populations and people.
Inventory Reports on Various Lakes in the Similkameen Drainage Including: Alaric, Boss, Cathedrals, Chain, Davis, Goose, Hook, Kump, Larry, Rampart, Siwash, Thalia - 1982 to 1985	Steve Matthews		EcoCat			2633	
Johnstone Creek and Lake 1994 letter and memo re: amendment to Conditional Water License 103346	Zackodnik, A.D.	1994	EcoCat			21363	To Fossen Air Ltd., of RR 1, Rock Creek, BC, V0H 1V0, a new conditional licence authorizing diversion into storage of 135 acre feet per annum from Johnstone Creek, with storage in Johnstone Lake; and the diversion and use of 80 acre feet per annum from Johnstone Creek, for irrigation purpose of 40 acres of south 1/2 of Lot 228 and south 1/2 of north 1/2 of Lot 228 and Block C of Lot 229, all Similkameen Division of Yale District; To the Ministry of Environment, Fisheries Program, in Penticton, BC, a new conditional licence authorizing the diversion, into storage of 7 5 acre feet per annum from Johnstone Creek, with storage in Johnstone Lake, and the release of water, for the conservation of fish habitat along Johnstone Creek; The authorized period of use: diversion into storage is between 1st April to 15th June; for irrigation is between 1st of April to 3 0th of September; and for conservation purpose is the whole year. Each licence will retain the original date of precedence of: 26th June 1991. Each Licence will contain the following provisions:

Johnstone Creek and Lake, 1994 Permit and Conditional Water Licence 107959	Zackodnik, A.D.	1994	EcoCat			21364	The Crown Land which is authorized to be occupied under this permit, for the dam site and the flooded area is a portion of Lot 2704, Similkameen Division of Yale District, the location of which is shown approximately on the plan attached to the said water licence. (b) The approximate dimensions of the Crown Land authorized to be occupied under this permit are: dam site: 1 acre (0.405 hectares) flooded area: 50 acres (20.35 hectares) (c) The permittee may cut and remove from the said Crown Land any timber necessary to permit construction and maintenance of the said works and clearing of the said lands which may be flooded. Prior to the cutting, destruction or flooding of any timber, the permittee shall apply for and obtain a licence to cut timber from the District Manager and the amount of stumpage, royalty and (or) compensation payable to the Crown in respect of trees, including merchantable or young growth, cut, removed, damaged, or destroyed by the permittee, shall be the sum or sums fixed by the Forest Service of the Province of British Columbia. This permit
Kingsvale to Oliver Reinforcement Pipeline (KORP) Project: Atlas of Fish and Fish Habitat Crossing Assessments along the Proposed Pipeline Alignment, Fish Collection Permit KA-PE10-65825	EDI Environmental Dynamics Inc.	2011	EcoCat			23176	Fish inventory of Coldwater, Similkameen, and Okanagan Rivers
Letter from file about the feasibility of introducting steelhead into the Similkameen River	Steve Matthews	1984	EcoCat			12023	Letter discussing feasibility of steelhead introductions into the Similkameen River
Letter: Laddering of Enloe Dam	I.J.M. Robertson	1982	EcoCat			19988	Our Branch has been eagerly awaiting a decision on the laddering of Enloe Dam, which would provide access for Steelhesd and Chinook Salmon into the Canadian portion of Similkameen River. In anticipation of the construction of a fishway, we have held up some of our own project work in case our plans would conflict with plans for anadromous species.
Letter: Possible Disease Issues with passing steelhead over the Enloe dam into the Similkameen River	Chris Bull	1984	EcoCat			19995	Letter from the Fisheries Branch to Mr. Bud Dewolfe discussing possible disease issues if steelhead are moved past the Enloe dam.
Letter: Similkameen River Boulder Groups	I.J.M. Robertson	1982	EcoCat			19989	In the fall of 1981, 60 boulder groups or 180 boulders were approved for placement in the Similkameen River. In February 1982, approximately 60 boulders were placed, the remainder were to be placed prior to the end of the year.
Literature Review of Riparian Habitat Requirements for Aquatic and Terrestrial Wildlife and its Application to Habitat Restoration Projects: A Case Example In the South Okanagan-Similkameen Valleys, British Columbia TECHNICAL REPORT SERIES NO. 379 Pacific and Yukon Region 2005 Canadian Wildlife Service	Andy M. Bezener	2005	EcoCat	Christine A. Bishop		16665	The objective of planned riparian fencing projects in the South Okanagan-Similkameen Conservation Program (SOSCP) area is to exclude livestock from lowland riparian areas to facilitate the rehabilitation and long-term conservation of degraded, native riparian communities. This literature search summary focuses specifically on: 1. Determining if there are established, science-based guidelines for critical and optimal riparian corridor widths, related to livestock exclusion projects, for the conservation of: a) Water Quality; b) Aquatic habitat for native fish (especially native salmonids) and aquatic invertebrates; and c) Terrestrial wildlife habitat and wildlife movement corridors (with particular focus on using Yellow-breasted Chat habitat requirements as an indicator of critical and optimal riparian corridor width in the SOSCP area). 2. Make recommendations on the use of avian focal species as part of habitat-based, scientific monitoring protocols designed to evaluate the efficacy of riparian fencing treatments. Known habitat requirements and associations are provided for seven priority
Lower Columbia River Sculpin and Dace Life History Assessment (Similkameen, Tulameen, Slocan, Kootenay, Columbia rivers and Otter Creek)	AMEC Earth and Environmental	2010	EcoCat	Lawrence C, and R Keeler; BC Hydro		19641	The goal of the project is to collect information on spawning habitats, timing of spawning, species abundance, assess the importance of suspected nursery areas at the confluence of tributaries and main rivers, and provide a qualitative assessment of the risks that the operation of HLK Dam may pose for federally listed species of sculpin and dace. YEAR1-2009 (permit CB/PE09-51451): Year one included a study of these species in the Similkameen drainage where abundances are known to be high and observations could be made in an unimpounded system. Study was transfered to the Columbia system in late 2009 where the project is currently ongoing. Sampling on Tulameen River 310-367800-62000; Otter Creek 310-367800-62000-35700; Similkameen River 310-367800; Allison Creek 310-367800-60900; Norns Creek 300-639200; Columbia River 300-; Beaver Creek 300-619500; Blueberry Creek 300-633000; Kootenay River 349-
Lower Similkameen River Watershed Overview Fisheries Habitat Assessment and Restoration Plan	Wildstone Engineering Ltd.	2001	EcoCat	Monashee Environmental		16581	The committee is made up of members from the local municipalities, Regional District of the South Okanagan-Similkameen, Upper Similkameen Indian Band, Lower Similkameen Indian Band, local fish and game clubs and local citizen and/or landowners that wish to participate. Fish sampling was conducted at a total of 11 sites that included four (4) Similkameen River mainstem sites and seven (7) tributaries. At each site location three stations were established containing the main habitat components of a riffle, glide and pool. All riffle and glide stations were enclosed using 1/4" mesh stop nets while pool stations were fished without enclosure nets. Each station was photographed; several physical parameters measured and cover components documented. An emphasis was placed on locating habitats suitable for juvenile salmonids but all species encountered were identified, counted, measured and notes taken on habitat utilization. Fish species composition and habitat utilization provides important clues to identify potential limiting factors to juvenile fish survival as well as confirming vital
Macrohabit Use and Predictive Models of Fish Distribution in the Blackwater Drainage [367 KB]	Porter, M.	1998	EIRS - BDP	Rosenfeld, J.; Parkinson, E.	MINISTRY OF FISHERIES, RESEARCH AND DEVELOPMENT SECTION	ISBN: n/a ISSN: n/a Report Number: 108 Other Report Numbers: FMR108	Proactive management plans are required to protect populations of sensitive fish species from the cumulative impacts of logging and other landuse practices. Development of these plans requires information on the distribution and habitat use of fish species within the province. We surveyed stream sites in a watershed with high species diversity (the Blackwater), and developed statistical models based on macrohabitat variables to describe and predict fish species distributions. Eighty six percent of the variation in species richness at stream sites in the Blackwater drainage was explained by drainage area, stream temperature, watershed gradient and distance to a lake. A similar, but much weaker, relationship with macrohabitat was observed for species richness in the Similkameen watershed. Correct classification rates of our logistic regression models based solely on map-based variables were generally high for most fish species found in the Blackwater (ranging from 73 to 90%), and showed only marginal improvements with inclusion of field-based information. The models correctly
Management of the Similkameen River Sports Fishery	Fisheries Branch	1977	EcoCat			19985	Fishability access and esthetic qualities of this river system are excellent, but with very low numbers of catchable salmonid fish there is very little attraction for anglers looking for Quality fishing. Populations of whitefish and suckers are good but utilization of this fishery is restricted only to a seasonal winter whitefish fishery.
Memo to File: Similkameen River Boulder Groups	D.L. Jones	1982	EcoCat			19987	In the fall of 1981, 60 boulder groups or 180 boulders were approved for placement in the Similkameen River . In February 1982, approximately 60 boulders were placed, the remainder were to be placed prior to the end of the year,

Memo: Large Scale Use of Groundwater, Similkameen Valley	Livingston, E.	1963	EcoCat			4244	Comments on current wells in existence and potential affects of increasing numbers of irrigation wells on low flow river levels in the Similkameen Valley, July, 1963. Includes summary of existing wells, local geology, well construction methods, yields and drawdown, Water Investigations Branch, Groundwater Section, 1 pages, NTS Map 082E04
Memo: Mountain Whitefish in the Similkameen River	Steve Matthews	1983	EcoCat			19992	In addition, catch per unit effort data has also been collected. This has involved sampling angler catches at various times during the fishery from early December to mid March. Gonads were inspected for all whitefish made available by the angler and information regarding number of hours fished and total catch was recorded.On one sampling date,scale samples were taken so that length at age comparisons could be made with available literature.
Memo: Salmon in Similkameen River	Steve Matthews	1985	EcoCat			20001	Oldtimers say no salmon historically in the Similkameen river
Memo: Similkameen River and Tulameen River Rainbow Trout Fry Stocking	Steve Matthews	1984	EcoCat			19999	On July 27 and August 9, 1984, a total of 660,000 excess Beaver Lake stock swim-up rainbow trout fry from Summerland Hatchery were released into the Similkameen River system. Of this total, 588,000 were planted in the Similkameen River and the remaining 72,000 in the Tulameen River. Fry were transported via 10 gallon capacity fry cans.
A MEMORANDUM: Similkameen Enlow Dam	C.Bull	1985	EcoCat			20298	I am not one who believes IPN virus is universal and has escaped detection in B.C. A great many fish from the major southern drainages in B.C. have been examined by Provincial and Federal authorities without finding IPN. IHN to my knowledge has been found in fishes in association with sockeye populations in those waters. We have not found IHN in kokanee where such populations have been long isolated from sockeye. I assume fish from the Simi1kameen River above Enlow have been subjected to virus examinations? This last question is important since if the fish are healthy above Enlow, I do not think we should take the risk of allowing possible IPN and IHN infected fish into the B.C. portion of the river. My attitude would change if IPN already exists in the B.C. portion of the river or if IPN was in adjacent drainages. C.Bull
Merritt TSA Inventory Audit	Resource Inventory Branch, Ministry of Forest		EcoCat			1978	The objective of the inventory audit in the Merritt TSA was to assess the overall accuracy of the current (1991 to 1995) Ministry of Forests inventory. The mature, immature, and non-forest components were tested. Audit results for the mature component of the inventory suggest that the inventory is statistically acceptable. Subsequent analysis of post-stratified data also shows a similar level of acceptability in the operable forested area. Audit results for the immature component suggest that the immature site index assignment may not be accurate. Further review of this component of the inventory is required. The audit assessment of the non-forest classification in this TSA found it to be within provincial standards.
Mixed planting using aboriginal medicinal and food species :a feasibility study	Hammersley, Bobbie	1997	MoFR Library	Peterson, Lawrence, Wardenburg, Jason, Botanical Dynamics, Lower Similkameen Indian Band (B.C.), Forest Renewal BC., Lower Similkameen Indian Band (B.C.) -- Ethnobotany	Botanical Dynamics,	634.909711 FRBC 1997 MR 66	The purpose of this project is to investigate the possibility of having forestry and utility companies that create disturbances in the Lower Similkameen Indian Band's (LSIB) traditional territory to include culturally important native species in their reforestation and restoration efforts. The plants could be provided to the companies by the LSIB once a greenhouse was constructed and band members were trained in greenhouse management and native plant propagation techniques. The report includes: (1) a literature review; (2) information from LSIB members and interviews with elders; (3) the results of interviews with utility and forest companies that are active in the area; (4) the results of field work regarding native plants and seed preparation and testing; and (5) a description of educational and economic opportunities.
Murphy (Bear) Lake Inventory 1982	Brain Jantz	1983	EcoCat			15529	To provide a basis for making some fishery management decisions a study was conducted at Murphy Lakes on October 6 and 7, 1982, by the staff of Region 8 , Fish and Wildlife Program, with assistance from members of t h e Otter Valley Fish and Game Club. The study objectives were to obtain rainbow trout age-growth information, assess any natural reproduction capabilities and determine a suitable management plan.
Murphy Lakes (1 and 2) Inventory 1982 Waterbody ID 00877SIML and 00885SIML	Brian Jantz	1983	EcoCat			21392	Concern has been expressed by members of the Otter Valley Fish and Game, Club that the average trout size i n Murphy Lakes is decreasing and the trout, appear to be undernourished (e.g. thinner). To provide a basis for making some fishery management decisions a study was conducted at Murphy Lakes on Octobef 6 and 7, 1982 by the staff of Region 8 Fish and Wildlife Program, with assistance from members of the Otter Valley Fish and Game Club. The objectives were to obtain rainbow trout age and growth information, assess any natural reproduction capabilities and determine a suitable management plan.
Okanagan Area - Cahill Creek and Its Tributaries Water Quality Assessment and Objectives	Swain, L.G.	1987	EcoCat			15333	Cahill Creek is a tributary to the Similkameen River, entering the Similkameen from the northeast, just downstream from Hedley. The issue here is the water quality, which could be affected by a proposed gold mine and mill complex through release of contaminants such as heavy metals, suspended solids, and cyasnide. Two tributaries join Cahill Creek in its upper reaches: Nickel Plate Mine Creek and Sunset Creek. Red Top Gulch Creek is a small tributary to the Similkameen, which parallels Cahill Creek to the west. A water quality assessment of Cahill Creek, these two tributaries, and Red Top Gulch Creek was undertaken to develop water quality objectives in areas of the system where designated water uses may be threatened. The gold mining project, Nickel Plate Gold Mine, is operated by Mascot Gold Mines Limited and will include a mill complext. It has been proposed for the upper reaches of Cahill Creek. If discharges occur, they potentially could enter Red Top Gulch Creek or Cahill Creek. This document recommends monitoring to check that water quality objectives are being achieved, based upon technical considerations.
Okanagan Area, Similkameen River Sub-basin Water Quality Assessment and Objectives Technical Appendix First Update [4872 KB]	Swain, L.G.	1990	EIRS - EPD		BC MINISTRY OF ENVIRONMENT	ISBN: n/a ISSN: n/a Report Number: n/a Other Report Numbers: n/a	The Ministry of Environment is preparing water quality assessments and objectives for priority waterbodies. This report provides an update of the water quality in the Similkameen River between Stemwinder Park and the International Boundary, and an analysis of water quality in Hedley Creek. The main purpose of this review was to develop new provisional water quality objectives for the Similkameen River between Princeton and the International Boundary and Hedley Creek due to considerable interest in several mining properties containing gold and silver downstream from Stemwinder Park. Objectives for the Similkameen River have existed since November 1985; however, many of the characteristics that could be impacted by metal mining operations were not considered for inclusion at that time. Objectives were approved in February 1987 for Cahill and Red Top Gulch Creek, tributaries to the Similkameen River just south of Hedley. A mine/mill complex has recently been constructed in the headwaters of these creeks. The dat
Okanagan Area: Similkameen River Sub-Basin - Water Quality Assessment and Objectives	Water Management Branch	1990	EcoCat			14186	The Similkameen River and the mouth of Hedley Creek are important rainbow trout habitat. Several other fish species, including whitefish, are also important to the Similkameen River. Most of the water contamination comes from diffuse agricultural sources, although these are treated municipal sewage discharges from Princeton and Keremeos. Mining developments are designed for "zero-discharge", but there is evidence of groundwater contamination from past mining operations. As a result, the contaminants of most concern in this update, which were not addressed in the previous assessment, are metals, metalloids, and cyanide compounds. Provisional water quality objectives have been set for nutrients, metals, solids, bacteriological indicators, cyanide compounds, dissolved oxygen and pH. Attainment of these objectives will protect aquatic life and irrigation supplies.

Okanagan Basin Studies: Problems, Plans, Actions	Dr. T G. Northcote	2008	EcoCat	The University of British Columbia		16061	During early deglaciation some eight thousand years ago, the Okanagan Basin contained much larger Lake Okanagan, ice-blocked near the south end of Vaseux Lake to an elevation of about 500m above present day and extending north to near the city of Armstrong. Furthermore another large ice-dammed lake on the middle Fraser River system near Spences Bridge at one period probably joined that of Lake Okanagan at its northern end, forming an even larger early post-glacial lake. Over the following centuries it periodically dropped in elevation forming a series of lowering lake shorelines (terraces) still evident today in some locations (Nasmith 1962). See also Vidrnanic and Ashley (1998) for Okanagan Lake paleolimnology. Obviously the Okanagan - Similkameen Basin of today had a complex history dating back several thousand years before sizeable human colonization. In recent decades, rapidly increasing populations in some parts of the Basin have resulted in many problems.
Okanagan Falls Irrigation District Groundwater Wells	Foweraker, J.C.	1974	EcoCat			4264	Response to questions on possibility of developing 500-750 US gpm groundwater source within Okanagan Falls Irrigation District, January 1974. Includes recommendations for further testing within fan deposits near Shuttleworth Creek, description of well record, local geology, and specific capacity estimate for test well #3, map of well locations and geological deposits of Similkameen area, Groundwater Division, Water Investigations Branch, 3 pages, NTS Map 082E05
Okanagan River Irrigation Intake Monitoring Project Final Report March 2000	Thomas Chapman	2000	EcoCat			11887	The project objectives include monitoring areas of important salmonid habitat within the Okanagan River trom Osoyoos Lake up to McIntyre Dam to ensure that screening requirements are met and to report any infractions to DFO and MELP for enforcement purposes. The Department of Fisheries and Oceans regulations for irrigation intakes include the maximum screen size is 3 -4 mm and that the intake be maintained in case of damage to the screen. In October 1999,the ONFC retained Thomas Chapman to facilitate and supervise a field crew from the Osoyoos Indian Band. Monitoring was completed by snorkel float and boat to identify compliant and non-compliant farm and commercial irrigation intakes and locate the intakes using GPS.
Osoyoos Lake discharges during high Similkameen River flows	R.Y. McNeil	1973	EcoCat			15650	The flow in the Similkameen River can, under certain circumstances, have a marked effect on the flow in the Okanagan River between the outlet from Osoyoos Lake and its junction with the Similkameen. This report describes a method for predicting the outflow from Osoyoos Lake under Similkameen backwater conditions which requires only knowledge of the Similkameen flow and the level of Osoyoos Lake.
Osoyoos Lake discharges during high Similkameen River flows : preliminary draft report /	McNeil, R. Y.	1973	MoFR Library		[s.n.],	551.48809711 M169 1973-10 (Oct.)	This report describes a method for predicting the outflow from Osoyoos Lake under Similkameen backwater conditions which requires only knowledge of the Similkameen flow and the level of Osoyoos Lake. The method is used to reconstruct the recorded levels in Osoyoos Lake and to show the effect on Osoyoos Lake levels of changing releases from Okanagan Lake during the critical flood period and the effect of reducing flows in the Similkameen.
Overview Assessment for the Similkameen above Whipsaw Sub-basin (#54)	Henderson Environmental Consulting Ltd.	1999	EcoCat			8450	This report presents the results of an overview hydrological assessment of the Similkameen above Whipsaw sub-basin, located south of Princeton. Weyerhaeuser Canada Ltd. (Merritt Division) initiated the study, partly in response to results of the Merritt Forest District IWAP completed in 1997, and partly to address concerns from the Ministry of Forests. Concerns included: peak flows, surface erosion and the impact of the five-year forest development plan. Fieldwork was carried out in September 1998.
Overview Assessment for the Smith Creek Watershed Sub-basins #103,105, 106	Henderson Environmental Consulting Ltd.	1999	EcoCat			8442	This report presents the results of an overview hydrologic assessment of the Smith Creek watershed located east of Princeton. Weyerhaeuser Canada Ltd. (Merritt Division) initiated the study, partly in response to the results of the 1997 Merritt Forest District IWAP, and partly to address concerns from the Ministry of Forests. Concerns included peak flows, surface erosion, riparian buffers, and the impact of the five-year forest development plan. Fieldwork was carried out in September and October 1998.
Overview Assessment for the Whistle Creek Watershed (ID # 179)	Henderson Environmental Consulting Ltd.	1999	EcoCat			8367	The Whistle Creek watershed, with an area of 108 km squared, is located 30 km east of Princeton. Elevations range from 540 m at the confluence with the Similkameen River to 2000 m along the southern watershed boundary. The H60 elevation line is located at 1440 m. A major tributary, Pettigrew Creek, drains approximately 60% of the total watershed area. The lower reaches of Whistle and Pettigrew Creeks are located in a canyon, with slope gradients of 50% to 70%. Gentle terrain can be found in the upper two thirds of the watershed with slope gradients generally less than 20%. A small part (26 ha) of the Churchwayha Indian Reservation no. 2C can be found along the Whistle Creek/ John's Creek boundary in the eastern edge of the watershed. Private property land, located near the mouth of Whistle Creek, totals to 1.2% of the watershed area. Forest harvesting, which dates back to the 1960's, and grazing and recreational uses were identified in the Whistle Creek watershed. Most of the stream channels in the Whistle Creek watershed are classified as fish bearing (S2 to S4 riparian classes) on Weyerhaeuser's 1:30,000
Overview Hydrologic Assessment of the Similkameen River Face Units #176	Henderson Environmental Consulting Ltd.	2000	EcoCat			8739	This report presents the results of an overview hydrologic assessment of the Similkameen River face units, located north of the Similkameen River from Princeton to Hedley within the Merritt Forest District. Henderson Environmental Consulting Ltd. conducted fieldwork October 1999. There has been a low amount of forest development in the face units and there is no development proposed over the 5-year period to 2003. The study area occupies dry southfacing slopes, without major hydrologic concerns. Many channels on the map were not located in the field and it is likely that much of the area drains sub-surface to the Similkameen River. The Litcoola Creek was stable with mossed rocks and stable banks. Both the litcoola and Arcat Creeks were dry at the highway at the time ofthe survey. One moderate sediment source was observed in the field, which can be mitigated by seeding the cutbank, installing a sump at the culvert inlet, assessing the crossdrain frequency and armouring the fillslope at the culvert outlet. There are no new proposed
Overview Hydrological Assessment for the Pasayten River # 56	Henderson Environmental Consulting Ltd.	2001	EcoCat			8490	This report presents the results of an overview hydrologic assessment of the Pasayten River watershed (#56), located approximately 35km south of Princeton within the Merritt Forest District. The purpose of the report is to assess the hydrologic impacts of historical and proposed forest harvesting. Pasayten River watershed is comprised of a number if discreet sub-basins plus a large residual area. Part of the watershed is located in the United States and is beyond the scope if this survey except the US portion in the Peeve Creek that is used to determine the ECA of Peeve Creek. This report presents field results of the Pasayten River from the POI at the confluence with the Similkameen River upstream to be Canada/ US border. The 1997 IWAP results for Pasayten River watershed indicated a high hazard for the surface erosion and peak flow impact categories; hazards at other impact categories were low.

Overview Hydrological Assessment of the Steven Creek Watershed	Henderson Environmental Consulting Ltd.	2000	EcoCat			8475	This report presents the results of an overview hydrologic assessment of the Steven Creek watershed, located approximately 15 km east of Princeton within the Merritt Forest District. Steven Creek is a forth order creek that flows directly into the Similkameen River. The 1997 IWAP results showed only one high hazard for surface erosion in the Steven Creek watershed . All other hazards were low in the watershed. Refer to Volume I of this project for details regarding methods, treatment of residual areas, organization of sub-basins, and approach difference between this assessment and the 1997 IWAP.
Predictive Models of Fish Species Distribution in the Blackwater Drainage, British Columbia (in Proc. Conference Biology & Management of Species and Habitats at Risk) [137 KB]	Porter, Marc S.	1999	EIRS - BDP	Rosenfeld, Jordan; Parkinson, Eric A.	MINISTRY OF ENVIRONMENT, LANDS AND PARKS; UNIVERSITY COLLEGE OF THE CARIBOO	ISBN: n/a ISSN: n/a Report Number: n/a Other Report Numbers: University College of the Cariboo	Management of fish biodiversity requires the ability to understand and predict expected species distributions. Models predicting species distributions can give insight into habitat requirements and expected probabilities of encountering species in unsampled areas, and help identify unique outlier populations and potential biodiversity hot spots. Previous research has shown that large-scale geomorphic variables can be linked to fish habitat use and used as predictors of fish species occurrence. Our goal was to determine whether reliable models of species distributions could be developed for freshwater fish in British Columbia, using large-scale macrohabitat data linkable to GIS (geographic information system) map coverages. We surveyed 48 streams in a representative watershed with high species diversity (the Blackwater) and developed statistical models based on macrohabitat variables to predict the distribution of 15 fish species found within the drainage...
Princeton and area strategic plan :forest sector community planning initiative	Crane Management Consultants Ltd.	1997	MoFR Library	Princeton and District Chamber of Commerce [B.C.], Forest Renewal BC.	Crane Management Consultants,	634.909711 FRBC 1997 MR 17	The purpose of this report is to help the communities of Princeton and Area H of he Okanagan-Similkameen Regional District adjust to future expected changes in the forest industry. The report includes an overview of the regional economy and the forest sector in the region; a forest sector economic development strategy; and an implementation plan. The report includes pre-feasibility assessments for the top priority areas. This includes: a business park; a forestry training centre; a centre for small wood study; the potential for forest sector recreation and the Kettle Valley Railway trail; trail development; custom-cut plant; pallets; and roundwood particularly for small diameter Lodgepole pine from the Merritt TSA. Each pre-feasibility assessment generally includes an overview of the opportunity, markets, availability of timber, capital and operating costs, potential revenues, employment impacts and keys to implementation.
Progress Report Test-Production Drilling Program Concerning Proposed Kitley Lake Subdivision	Livingston, E.	1991	EcoCat			7890	1991 report on groundwater test well drilling for proposed subdivision near Kitley Lake Valley, west of Okanagan Falls. Includes introduction, drilling and well construction, summary and conclusions, recommendations, site plan, well logs, well construction details, sieve analyses, pumping test data and water quality data and analysis, site maps, pumping test plots, litholog; District of Okanagan Similkameen and Pacific Hydrology Consultants, 34 pages, NTS Map 082E05
Reconnaissance (1:20,000) Fish and Fish Habitat Inventory of Tributaries to the Nicola and Similkameen Rivers and Okanagan Lake	Wildstone Resources Ltd.	1998	EcoCat			65	Wildstone Resources Ltd. was contracted by Gorman Brothers Lumber Ltd., to undertake Reconnaissance Level (1:20,000) Fish and Fish Habitat Inventories (FRIM) within in their operating area. A member of the Lower Similkameen Indian Band (LSIB) was hired and trained as a Resource Technician and assisted in field data collection. The Reconnaissance Fish and Fish Habitat Inventory is a stratified point sample survey design covering entire watersheds. A study area may include all lakes, stream reaches and connected wetlands within the watershed boundary, as defined from 1:20,000 scale maps and air photos.
Reconnaissance (1:20000) Fish and Fish Habitat Inventory of Hedley/McNulty and Cahill Creek Watersheds 2001	Columbia Environmental Consulting Ltd.	2001	EcoCat			40	Weyerhaeuser Company Limited. (Okanagan Unit) contracted Columbia Environmental Consulting Ltd. to undertake a Phase 4 to 6 Reconnaissance Level (1:20,000) Fish and Fish Habitat Inventory (streams only) within the Hedley Creek study area for the years 2000-2002. The initial Phase 1 to 3 was completed by ARC Environmental Ltd., 2000. The Hedley Creek watershed is located in the Southern Interior Region of British Columbia and flows through the community of Hedley west of Keremeos, BC and is part of the Penticton and Merritt Forest Districts. The Hedley Creek study area included Cahill Creek, Hedley Creek and Unnamed Tributaries to the Similkameen River located between these two watersheds. The majority of Crown land in the watershed is a forest license held by Weyerhaeuser Company Limited. During the 2000 field season 66 reaches were surveyed in McNulty, Broken and two unnamed sub-basins within the Hedley drainage. An additional 47 sites are proposed for Hedley Creek, Redtop Gulch and one unnamed residual tributary to the Similkameen River in the 2001 field season.
Recovery Strategy for Lyall's Mariposa Lily (Calochortus lyallii) in British Columbia [981 KB]	Southern Interior Rare Plants Recovery Implementation Group	2008	EIRS - BDP		MINISTRY OF ENVIRONMENT	ISBN: 978-0-7726-6070-1 ISSN: n/a Report Number: n/a Other Report Numbers: n/a	This recovery strategy addresses the recovery of Lyall's mariposa lily (Calochortus lyallii). In Canada, the species is found only in extreme south-central B.C. where it inhabits semi-arid, mid-elevation grasslands between the Okanagan Valley and Similkameen River (an area known as East Chopaka, mainly in what is now the South Okanagan Grasslands Protected Area). Over 90% of identified Lyall's mariposa lily habitat in Canada is currently regulated by the B.C. Park Act. Because of its highly localized distribution, potential threats from livestock grazing, and loss of habitat from forest encroachment (afforestation), the species was designated as Threatened by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2001. Currently, four factors pose potential ongoing threats to Lyall's mariposa lily. In approximate order of importance these are: encroachment by invasive alien plant species; livestock grazing; forest encroachment (secondary succession) and fire suppression; and, potentially, overcollecting by botanical enthusiasts.
Recovery Strategy for the Gopher Snake, deserticola Subspecies (Pituophis catenifer deserticola) in British Columbia [392 KB]	Southern Interior Reptile and Amphibian Recovery Team	2008	EIRS - BDP		MINISTRY OF ENVIRONMENT	ISBN: 978-0-7726-5936-1 ISSN: n/a Report Number: n/a Other Report Numbers: n/a	The Gopher Snake, deserticola subspecies is a relatively large snake with a tan background colour, dark blotches along the back and sides, a dark facial mask, and round pupils. It is harmless to humans and preys mainly on small mammals, including rodent pests. In Canada, the species occurs in the arid interior of British Columbia within the Okanagan, lower Similkameen, Kettle, Granby, Nicola, Thompson, and Fraser River valleys. The Gopher Snake, deserticola subspecies, was listed under the Species at Risk Act (SARA) in 2005 as Threatened. Gopher Snakes inhabit grasslands, shrub-steppe, deciduous and coniferous woodlands, and other open habitats below 1700 m elevation. Rock outcroppings, talus slopes, and rodent burrows provide important habitat for overwintering sites (hibernacula). Shrub-steppe and riparian areas are used for foraging. Sandy, south-facing slopes are important for egg laying. Each of these habitat components must be available in close proximity to support the species. The main identified threats to the species are habitat loss, degradation, and fragmentation resulting from land conversions associated with
Recovery Strategy for the Great Basin Spadefoot (Spea intermontana) in British Columbia [936 KB]	British Columbia Southern Interior Reptile and Amphibian Recovery Team	2008	EIRS - BDP		MINISTRY OF ENVIRONMENT	ISBN: 978-0-7726-5933-0 ISSN: n/a Report Number: n/a Other Report Numbers: n/a	The Great Basin Spadefoot (Spea intermontana) is small (4-6 cm), grey, brown, or greenish with dark spots (bumps), often with orange centres, a vertical pupil, and a sharp-edged dark ridge (spade) on the inner side of each hind foot, used for burrowing. The Great Basin Spadefoot lives in the Okanagan, Similkameen, Kettle-Granby, Fraser, Thompson and Nicola Valleys and the South Cariboo Region of British Columbia in low elevation shrub-steppe and open forest habitats. Spadefoots breed and lay eggs in wetlands during the spring. Tadpoles develop rapidly, metamorphose into juveniles, and migrate from the wetlands to nearby terrestrial habitats (within about 500 m of breeding sites). Juveniles and adults spend the remainder of the year on land, sometimes on the surface during rainy nights but generally buried underground in sandy or loamy soils, where they forage on invertebrates and estivate (become dormant) through the winter.

Report on a General Fish Inventory of Streams in the South Okanagan and Similkameen Watersheds, 1994	Ron Johnson	1994	EcoCat			2624	Streams surveyed in the South Okanagan Watershed: Bellevue, Bertram, Deeper, Ellis, Eneas, Fascieux, F & W Oxbow, Francis Brook, Hester, Hydraulic, Inkaneep, Joe Rich, Kelowna, KLO, Lebanon, McDougall, Mission, Okanagan, Oxbow 1, Oxbow 2, Oxbow 3, Park Rill, Peachland, Pearson, Penticton, Powers, Priest, Reed, Shatford, Shingle, Shuttleworth, Testalinden, Trout, Varty, Vaseux, Whelan and Wolfcub Waterbodies. Streams surveyed in the Similkameen Watershed: Allison, Ashnola, Barrington, Blakeburn, Blind, Bradshaw, Cahill, Cawston, Cedar, Champion, Copper, Coulthard, Easygoing, Ewart, Granite, Hayes, Hedley, Ikwadli, Johns, Keremeos, Larcan, Lawless, Manuel, McNulty, Newton, Olalla, Otter, Pasayten, Paul, Robert, Shoemaker, Shoudy, Shuttle, Smilkameen, Smith, Snehumption, South Keremeos, Summers, Susap, Tulameen, Twelve Mile, Whipsaw, Whistle, Willis, Winters, Wolfe and Young Waterbodies.
Report On Initial Phases in the Development of a Groundwater Protection Plan Town of Oliver	Golder Associates Ltd.	2005	EcoCat			16429	Golder Associates Ltd. is pleased to present the results of our investigation, which was conducted in order to initiate the process of developing a Groundwater Protection Plan for the Town of Oliver. The GWPP is being developed to allow for the protection of groundwater quality and sources. With the development for the GWPP, the Town of Oliver has complied with the requirements of the Interior Health Authority. Golder has undertaken the first three steps as outlined in the Well Protection Toolkit developed by the Groundwater management Section of the BC Ministry of water, Land and Air Protection, namely, Step #1 - forming a community planning team, and Step #2 - defining preliminary well protection areas and Step #3 - identify potential contaminants. Given the dependence of the Town of Oliver on groundwater as a source of water supply, and the risk of groundwater contamination from pressures related to agriculture land use and other sources, the implementation of a Groundwater protection Plan is important.
Report On Phase I Groundwater Protection Planning Keremeos, BC	Golder Associates Ltd.	2004	EcoCat			16570	This report presents the results of the following activities: 1) Review of existing data and reports; 2) Regional and time of travel zon Golder Associates Ltd. (Golder) has completed the initial phase of Groundwater Protection Planning (GWPP) for the Village of Keremeos (VOK) and the Keremeos Irrigation District (KID). The Similkameen Aquifer (Aquifer 259) is located along the river valley of the Similkameen River and has been characterized by Be Ministry of Water, Land and Air Protection (MWLAP) as unconfined and highly vulnerable to contamination. KID is the only water purveyor extracting groundwater from the Aquifer around the Village of Keremeos. They supply water for domestic and industrial use as well as for irrigation. VOK and KID are both concerned with the potential for contamination occurring in the Aquifer. This first stage of this GWPP is generally limited to the characterization of the aquifer and determination of the approximate capture zones of the existing water district wells in the Aquifer. The assessment was based on the review of information from reports on existing wells in the area and on climatic data, as well as a windshield survey through the
Report on Phase Three Groundwater Protection Planning Keremeos, BC	Golder Associates	2008	EcoCat			16462	The third phase of Groundwater Protection Planning (GWPP) for the Keremeos Irrigation District and the Village of Keremeos consisted of field calibrating the numerical model of the Similkameen aquifer within the Keremeos and the surrounding areas. This phase of the GWPP continues on from the work completed in Phase I and Phase II of the Keremeos GWPP. Phase I consisted of the formation of a technical Committee, the development of a conceptual model (characterization) of the local aquifer, and preliminary delineation of time of travel zones based on the simplified calculated fixed radius method. Phase II of the GWPP consisted of developing a numerical hydrogeological model to refine the time of travel (TOT) zones for the community well fields and conducting a preliminary inventory on a regional scale and within the TOT zones predicted by the model. A preliminary risk assessment was also conducted on the identified hazards to the community well fields. The numerical hydrological model developed in Phase II was calibrated using the conceptual model developed in Phase I and to hydrogeologic responses observed
Report On Preliminary Steps in the Development of a Groundwater Protection Plan Village of Olalla	Golder Associates Ltd.	2005	EcoCat			16815	Golder Associates Ltd. (Golder) has completed the initial phase of Groundwater Protection Planning (GWPP) for the Village of Olalla (Olalla). The work was completed under the direction of the Regional District of Okanagan Similkameen (RDOS). The aquifer in Olalla is located along the valley of Keremeos Creek and has not yet been characterized by the BC Ministry of Water, Land and Air Protection (MWLAP) under their province-wide Aquifer Classification Program. However, based on the review of well logs available for the area, the aquifer is considered to be an unconfined aquifer for the purposed of this GWPP. RDOS is the owner/ operator of the municipal water distribution system in Olalla and is the primary water purveyor extracting groundwater from the aquifer within Olalla. They supply water for domestic use. This first stage of this GWPP was generally limited to the characterization of the aquifer and determination of the approximate capture zones for the single community well which comprises the RDOS system. The assessment was based on the review of information from reports available for the area, climatic data, and
Scientific Collection Permit Summary Report Northwest Tulameen River Watershed	Golder Associates Limited	1997	EcoCat			14189	A copy of the fish collection permit and reporting requirements are attached. Golder Associates, in partnership with Goodings Environmental Inc. and the First Nations of the Okanagan Similkameen Environmental Protection Society (FNOSEPS) was retained to conduct this work. The study area boundary as defined by the Fish Collection Penmit included the following creeks: northern tributaries of the Tulameen River including Rabbit and Schubert creeks, Illal creek and tributaries, Britton creek and tributaries including Sootheran creek, Lawless creek and tributaries including Shwum, Holm, Pioneer and Upper Lawless creek, western tributaries of Otter Creek including Riddell and Perley creek, Lockie and Elliot creek and tributaries,Thynne creek and tributaries, Luke, Mark and Mathew creeks and tributaries, McPhail creek and tributaries, southern tributaries of Spearing creek.
Scientific Collection Permit Summary Report: Wolfe Creek and Willis Creek	Summit Environmental Consultants Limited	1998	EcoCat			14183	Sampling took place in the lower reaches of Wolfe Creek and in several reaches of Willis Creek. Wolfe Creek is a tributary to the Similkameen River, entering the Similkameen between Princeton and Keremeos. Willis Creek is a tributary to Wolfe Creek. Attached are two maps which show the general location of our sampling sites. Site reference numbers correspond to those listed on the attached spreadsheet summary of our results.
Scientific Fish Collection Permit SUPE04-5000 Dace collection in the Similkameen and Nooksack drainages	Royal BC Museum	2004	EcoCat			16463	The Royal BC Museum studied dace in the Similkameen and Nooksack drainages to compare specimens for assessment of osteology variation between species pairs. Bertrand Creek and the Similkameen River were sampled.

Sensitive Ecosystems Inventory (SEI) For the East Gate, Otter Lakes and Chain Lakes areas Regional District of Okanagan South (RDOS) (aka Princeton SEI)	Timberline Natural Resource Group Ltd.	2009	EcoCat			17976	The primary objective of the mapping is to provide baseline information to direct land use planning for parts of Electoral Area H by the RDOS. The products include sensitive ecosystem maps, interpretative maps (which identify some of the Federal Species at Risk that are known or presumed to use the ecosystems), a report identifying the methods, descriptions of the ecosystems, associated species at risk, results and conservation and management recommendations. BGC units mapped include IDFdk2, IDFxh1, IDFdk1, MSdm2, IDFxh1a, IDFdk2b, and MSmw1. The sensitive ecosystems mapped include Broadleaf and Coniferous Woodlands, Seasonally Flooded Fields, Grasslands, Mature Forest, Riparian, Sparsely Vegetated, and Wetlands. Approximately 25% of the total area mapped was classified as belonging to a sensitive ecosystem. Conservation measures suggested for these areas include careful planning, sensitive ecosystem buffers, avoiding direct impact by development, restoration of natural disturbance regimes, and reduction of wildfire threat.
Sensitive Ecosystems Inventory: South Okanagan Gap Areas, 2010	Iverson, Kristi	2010	EcoCat			20196	The Okanagan Valley is highly significant ecologically and continues to be threatened by urban growth. A Sensitive Ecosystems Inventory (SEI) can provide base-line information to help direct development decisions. This project provides Terrestrial Ecosystem Mapping (TEM) and a Sensitive Ecosystems Inventory (SEI) map suitable for strategic planning of areas identified by the Regional District of the Okanagan Similkameen that were not previously mapped as part of the South Okanagan SEI. The study area lies within the south Okanagan Valley of south-central British Columbia within the Okanagan Very Dry Hot Bunchgrass Variant (BGxh1), Okanagan Very Dry Hot Ponderosa Pine (PPxh1), the Okanagan Dry Cool Interior Douglas-fir (IDFdk1) and the Okanagan Very Dry Hot Interior Douglas-fir (IDFxh1) biogeoclimatic variants. It includes four components: Summerland North Electoral Area F, Trout Creek Corridor Electoral Area F, Yellow and Twin Lakes Area D, and Ripley Lake Area C. All components are adjacent to the existing SEI mapping for the South Okanagan - Similkameen. The study area includes private and publicly owned lands.
Similkameen - Okanagan (Ashnola River) Biophysical Classification for Wildlife Capability	Fuhr, B.	1985	EcoCat	B.C. Ministry of Environment		2297	The project area encompasses the mapsheet, 82O4. Like capability maps for forestry and agriculture, ungulate capability maps are based on landforms, surficial materials, soils, climate and vegetation that are considered to form ecologically significant units of land. For wildlife, biophysical base maps may be supplemented by animal censuses to gain an insight into ungulate distribution and abundance. The following wildlife species were included in the study: Black-tailed Deer (Odocoileus hemionus columbianus); Mule Deer (Odocoileus hemionus), White-tailed Deer (Odocoileus virginianus), Mountain Sheep (Ovis canadensis), Elk (Cervus elaphus), Caribou (Rangifer tarandus), Mountain Goat (Oreamnos americanus), and Moose (Alces alces). Project files available include ungulate capability maps showing biophysical units, as well as some anthropogenic structures.
Similkameen Fisheries Management Plans	Fisheries Management Program	1986	EcoCat			2688	Physical, biological and management information on various lakes in the Similkameen.
Similkameen River at Keremeos Floodplain Mapping	BC Water Surveys Unit and Canada-BC Floodplain Mapping Program	1995	EcoCat			1928	Designated Floodplain Mapsheets Design Brief Channel Survey data including: -Cross section and road profiles, -HEC2 GR data files, -Bridge Sketches, -Plans showing location of cross sections, -Coordinate files
Similkameen River at Princeton Floodplain Mapping	BC Water Surveys Unit and Canada-BC Floodplain Mapping Program	1995	EcoCat			1929	Designated Floodplain Mapsheets Design Brief Channel Survey data including: -Cross section and road profiles, -HEC2 GR data files, -Bridge Sketches, -Plans showing location of cross sections, -Coordinate files
Similkameen River fish stocking and angling	Bull,C.J.	1985	EcoCat			20144	The files show that a planting of catchable rainbow in Similkameen River produced only a minor flourish of angling which disappeared in about 2 weeks after planting. During the 2 successful weeks, fish were only caught close to the release site. Similar results (i.e. few hatchery fish harvested, success only in liberation, area and for a short time) occurred in Idaho according to Ned Horne of Idaho Fish and Game. I have just heard identical reports resulting from stocking of 75,000 catchable rainbow in Methow River (Ken Williams - personal communication). These experiences should be recorded in the operational plan, rivers section, along with any other data indicating similar or opposing views.
Similkameen River Okanagan Area, 1985 Report [9498 KB]	Swain, L.G.	1985	EIRS - EPD		BC MINISTRY OF ENVIRONMENT	ISBN: 0-7726-1608-6 ISSN: n/a Report Number: n/a Other Report Numbers: n/a	This report describes the water quality within the Similkameen sub-basin using data collected from about 1965 to December 1982. Development forecasts were based on a 1981 population within the unit of 8550, projected to increase by 100 per year for the next 25 years.
Similkameen River Whitefish Fishery	Bull,C.J.	1985	EcoCat			20143	On Sunday, March 17, I observed about 20 anglers fishing mountain whitefish at the Red Bridge immediately west of Keremeos. Catch success varied between 3 fish per hour and 8 fish per hour. Some anglers used worms but most used hellgrammites (stonefly nymphs) on single hooks one foot up from weight. Bait was cast and slowley retrieved in deep pools. The fishery had reportedly been good at the Red Bridge for about 10 days but was starting to tail off in terms of first size, then catch success. The fishing had been good earlier further down stream at Keremeos and, in past years, has been good upstream at Bromley Rock, following the declines at Red Bridge.
Similkameen strategic environmental plan.	British Columbia. Ministry of Environment and Parks	1986	MoFR Library		Ministry of Environment,	333.7097115 B862Sbbmof0i 1	
Similkameen Watershed Fisheries Information and Action Plan	Glenfir Resources Ltd	2000	EcoCat			13391	Recognizing the need for improved coordination, the Similkameen River Planning Committee proposed this project to Fisheries Renewal BC. Its objective is to review the fisheries work carried out on the Similkameen River, the Tularneen River and all the tributaries within the drainage basin

Soils of the Okanagan and Similkameen Valleys.	Wittneben, U.,1939-	1986	MoFR Library	British Columbia.	Ministry of Environment,	0-77188-503-2 631.47/71142/ W829/1985	
South Okanagan & Similkameen forestry related community economic development strategy :final report	Westcoast CED Consulting	1998	MoFR Library	South Okanagan & Similkameen Forest Sector Advisory Committee, Forest Renewal BC.	Westcoast CED Consulting,	634.909711 FRBC 1998 MR 53	This Forestry Related Community Economic Development Strategy for the South Okanagan & Similkameen region includes: (1) an introduction/general background section; (2) a regional base line economic analysis; (3) a Similkameen sub-region strategic plan; (4) a South Okanagan sub-region strategic plan; (5) opportunity profiles for 33 opportunities; and (6) pre-feasibility studies for 5 of these opportunities. The 33 opportunities are: salvage logging; coffin (casket) factory; wood supply credit systems; botanical uses of forest products; log sort yard; sensitive site logging; community forest; native plant nurseries; alternative disposal of wood waste; reforestation of a forest fire site; products from commercially thinned, stocking class 4 stands; hemp production; spray effluent for irrigation of reforestation sites and airport lands; brokerage company to assist wood crafters with product marketing; manufacturing round logs from dead and dry wood; veneer applications for the secondary industry; solid wood door factory; wood chair factory; refurbishing log homes; campsites in forest recreation and provincial park areas; desert interpretive centre; eco-touris
South Okanagan-Similkameen Weed Education and Coordination Program Final Status Report - 2004	Lisa K. Scott	2004	EcoCat			20405	The primary role of the coordinator in 2004 was to implement a region-wide Weed Education and Coordination Program on behalf of the SOS Weed Committee. Principal responsibilities to be completed during this period were divided into three broad categories: education and awareness; coordination and planning; and special projects. Section 2.0 provides more detailed information on highlights of the general public awareness, landowner contact and outreach program, and also provides a summary of the special projects and cooperative endeavors undertaken during 2004.
Sports Fisheries Management Report: Management Plan for the Similkameen River Sport Fishery	Fisheries Branch	1977	EcoCat			19986	However, the Branch has been reluctant to proceed on a stooking program of any nature, even though trout populations appear to be very low at this time, Suckers and mountain whitefish populations are good indicating fairly high productive levels. Rainbows sampled had fairly good growth; however, survival between age 1 and 3 was very low. This could be the result of heavy angling pressure and high harvest rates of young rainbow compared to the lesser sought species. Limiting factors such as spring floods, winter ice conditions and high summer temperatures may also account for the lower than expected native trout populations.
Stream Classification Project on a Similkameen River tributary and Whipsaw Creek and tributaries	Wildstone Resources Ltd.	1997	EcoCat			22234	Wildstone Resources Ltd. undertook a stream Classification project on Similkameen River tributary and Whipsaw Creek and tributaries for the Small Business Forest Enterprise Program within the Merritt Forest District in 1997.
Stream Classification Project on Belgie Creek and tributaries, Placer Creek and tributaries, and Similkameen River tributaries	Wildstone Resources Ltd.	1997	EcoCat			22232	Wildstone Resources Ltd. undertook a stream Classification project on Belgie Creek and tributaries, Placer Creek and tributaries, Similkameen River tributaries for the Small Business Forest Enterprise Program within the Merritt Forest District in 1997.
Stream Classification Project on Combination Creek, Wolfe Creek and unnamed tributaries to the Similkameen River	Wildstone Resources Ltd.	1997	EcoCat			22379	Wildstone Resources Ltd. undertook a stream Classification project on Combination Creek, Wolfe Creek and unnamed tributaries to the Similkameen River for the Small Business Forest Enterprise Program within the Merritt Forest District in 1997.
Sumallo River Stocking Evaluation: Progress 1989 [1045 KB]	Slaney, Pat A.	1989	EIRS - BDP	Godin, Theresa I.	BC MINISTRY OF ENVIRONMENT	ISBN: n/a ISSN: n/a Report Number: RD25 Other Report Numbers: FPR RD25	The introduction of a resident strain of yearling rainbow trout into the Sumallo River was evaluated during summer to fall, 1989. A fence was operated to assess migration and fish were enumerated in the stream by use of underwater counts supplemented with electrofishing. A small proportion (9 %) of the 7000 fish that were stocked, migrated from the Sumallo into the Skagit River. Significant numbers of wild rainbow, comprised of mainly juveniles, also migrated suggesting that the Sumallo is providing recruitment to Ross Reservoir. Underwater census of hatchery and wild trout was not useful as a population enumeration technique because most fish moved deep into cover in association with the cool (10 C) summer temperature regime. Sampling of stocked rainbow trout in the fall indicated that growth was meagre. Further stocking should be deferred until the 1989 cohort, as well as a returns from the 1988 stocking of Skagit migrant strain, are more intensively assessed in 1990.
Sustainable Forest Management Strategy (SFMS) Project :March 2005 /	Nicola Similkameen Innovative Forestry Society	2005	MoFR Library		Nicola Similkameen Innovative Forestry Society,	634.909711 FIA 2005 MR 219	The project goal was to develop a process that aided in the management of protecting and enhancing forest practices, along with voicing First Nation<U+2019>s community interests regarding natural resources. The Merritt Timber Supply Area (TSA) covers 1.16 million hectares in the southern interior of British Columbia. There are 12 landscape units within the Merritt TSA. The ratings tables for the 20 plant and wildlife species were used in conjunction with the Ecosystem-Based Resource Mapping Ratings Table Tool (ERM <U+2013> tool) to create an amalgamated functional spatial (shapefile) and aspatial (database) GIS layer. Each species included in this project had at least three associated shapefiles, a result of the three predictive models that had been used. A four-coloured rating scheme was developed that represented the ratings for each PEM polygon based on the respective model they were run through (suitability/ capability). Colours do not indicate a priority for management or an importance of the species; they only represent the suitability or capability of that site. The incorporation of the 20 species and multiple suitability/capability mod
Sustainable forest management strategy (SFMS) project March 2005 /	Nicola Similkameen Innovative Forestry Society	2005	MoFR Library		Nicola Similkameen Innovative Forestry Society,	634.909711 FIA 2005 MR 167	
Sustainable forest management strategy (SFMS) project March 2007 /	Nk<U+2019>losm Resource Management.	2007	MoFR Library	Tmixw Research Department., Nicola Tribal Association.	Nk<U+2019>losm Resource Management,	634.909711 FIA 2007 MR 170	The project goal was to further populate the Sustainable Forest Management Strategy (SFMS) with another 33 life requisites models of plants and wildlife from the Nicola Tribal Association; 9 life requisites submitted by Lower Nicola Indian Band and the remaining 8 life requisites were from the Upper Nicola Indian Band to aid in the management of protecting and enhancing forest practices, along with voicing First Nation<U+2019>s community interests regarding natural resources. The Merritt Timber Supply Area (TSA) covers 1.16 million hectares in the southern interior of British Columbia. There are 12 landscape units within the Merritt TSA. The ratings tables for the 50 plant and wildlife species were used in conjunction with the Ecosystem-Based Resource Mapping Ratings Table Tool (ERM <U+2013> tool) to create an amalgamated functional spatial (shapefile) and an aspatial (database) GIS layer. Each species included in this project had an associated shapefile, and an aspatial database. These models include ecological suitability and capability for plant vegetation and wildlife habitat. A four-coloured rating scheme was used that
An Updated Terrestrial Ecosystem Map (TEM) for the South Okanagan Valley (with Sensitive Ecosystems Inventory - SEI)	Iverson, K. and A. Haney	2006	EcoCat			7441	In 1991-1994 the south Okanagan and lower Similkameen Valleys were mapped using a biophysical habitat mapping approach on 1:15,000 aerial photographs taken in the mid 1980s (Lea et al. 1991; Harper et al. 1996). Since that time, a provincial ecosystem mapping standard has been adopted and the classification of ecosystems has been updated and revised. This report documents the methods and results from updating of the habitat status of the biophysical mapping in the South Okanagan and upgrading the entire map product to current Terrestrial Ecosystem Mapping (TEM) standards (Resources Inventory Committee 1998). We have updated to the current Biogeoclimatic Ecosystem Classification (BEC) site series classification, which is soon to be revised. The new site series classification, including site series numbers and codes, has not been finalized. We have updated the biogeoclimatic zone and subzone boundaries, (BGxh, ESSFxc, IDFdk, dm and xh, MSdm andxk, and PPxh) ecosection boundaries (North Okanagan Basin NOB, Northern Okanagan Highland NOH, Okanagan Range OKR, and South Okanagan Basin SOB, and ecosystem units, including where recent burns and new developments have occurred.

Water Quality Assessment and Objectives for Cahill Creek and its Tributaries.	L. G. Swain	1987	EcoCat			11203	This report assesses the water quality of Cahill creek an its tributaries. The report has two parts : an overview report and a technical report. Cahill Creek is a tributary to the Similkameen from the northeast, just downstream from Hedley. The issue here is the water quality which could be affected by a proposed gold mine and mill complex through release of contaminants such as heavy metals, suspended solids and cyanide. Two tributaries join Cahill Creek in its upper reaches, Nickel Plate Mine Creek and Sunset Creek. Red Top Gulch Creek is a small tributary to the Similkameen, which parallels Cahill Creek to the west. A water quality assessment of Cahill Creek, these two tributaries, and Red Top Gulch Creek was undertaken to develop water quality objectives in areas where designated water uses may be threatened. The gold mining project, Nickel Plate Gold Mine, is operated by Mascot Gold Mines Limited and will include a mill complex. It has been proposed for the upper reaches of Cahill Creek. If discharges occur, they potentially could enter Red Top Gulch or Cahill Creek. Attached : Technical report
Water Quality Assessment and Objectives for Keremeos Creek.	Vic Jenson, Brian Dean	2000	EcoCat			11224	This report assesses the water quality of Keremeos Creek and its main tributariessuch as South Keremeos Creek, Cedar Creek and Olalla Creek. The report has two parts : an overview report and a technical report. Although Keremeos Creek has been sampled historically near its confluence with the Similkameen River, much of the data presented in this report was gathered between November 1994 and July of 1997. Keremeos Creek and its tributaries are licenced for domestic and irrigation water supply. These creeks also provide fish rearing habitat and contain resident populations of trout and a variety of other fish species, but census information and access are limited. A ski resort in the headwaters of Keremeos Creek, as well as agriculture, forestry and road maintenance operations, all influence the water quality of these creeks to varying degrees. This document summarizes the BC Environment water quality data available for the watershed up to July 1997 and proposes water quality objectives for a number of parameters that may be affected by human activities noted above. These objectives are proposed to protect all water uses in Keremeos, South Keremeos, Cedar and Olalla creeks. FRBC funded monitoring since 1997 m
Water Quality Assessment and Objectives for Similkameen River.	L. G. Swain	1985	EcoCat			11256	This report assesses the water quality of Similkameen River. The report has two parts : an overview report and a technical report. The Similkameen River and some of its selected tributaries, were assessed by examining water quality data and effluent quality data collected from about 1965 to December 1982. The purpose was to develop water quality objectives in areas where designated water uses may be threatened. A detailed technical appendix was prepared and forms the basis for the conclusions presented in this report. The Similkameen River flows from Manning Park, northeasterly to Princeton and then southeasterly until it crosses the International Boundary just south from Cawston. Major population centers along its length from west to east include Princeton, Hedley, Keremeos and Cawston. Tributaries examined in this report were the Tulameen River which flows westerly and joins the Similkameen River at Princeton; Allison and Hayes Creeks which flow southerly and join the Similkameen just downstream from Princeton; Wolfe Creek which flows
Water Quality Assessment and Objectives for Simillkameen River.	L. G. Swain	1990	EcoCat			11257	This report assesses the water quality of Similkameen River. The report has two parts : an overview report and a technical report. Provisional water quality objectives were issued in 1985 for the Similkameen River and its major tributaries. Recent mining developments have prompted the present extension to this work and an update of provisional water quality objectives approved by the Ministry for this part of the sub-basin. The Similkameen River and the mouth of Hedley Creek are important rainbow trout habitat. Several other fish species, including whitefish are also important to the Similkameen River. Most of the water contamination comes from diffuse agricultural sources, although there are treated municipal sewage discharges from Princeton and Keremeos. Mining developments are designed for "zero-discharge", but there is evidence of ground water contamination from past mining operations. As a result, the contaminants of most concern in this update, which were not addressed in the previous assessment, are metals, metalloids and cyanide compounds.
Water Quality Status and Trend Report of 68 Selected British Columbia Waterbodies. (2000)	Environment Canada and BC Ministry of Environment, Lands and Parks	2000	EcoCat			11341	The document assesses water quality trends for 68 waterbodies across British Columbia. The Province have been collecting technical data on surface water quality and on the quality of groundwater in aquifers for many years through the Canada - B.C. Water Quality Monitoring Agreement . The purpose of this report is to inform the public on if water quality in the selected waterbody is improving, deteriorating or remaining about the same over the years. It is also released so that the public can make a decision on how to use water, and promotes action to correct water quality problems. The following waterbodies are assessed in this report: Fraser River, Salmon River, Eagle River, Thompson River, Kettle River, Okanagan River, Similkameen River, Liard River, Peace River, Nechako River, Stikine River, Iskut River, Bear River, Salmon River, Bonaparte River, Nicola River, Boundary Creek, Skeena River, Quinsam River, Tsolum River, Stocking Lake, St. Mary Lake, Maxwell Lake, Cusheon Lake, Shawnigan Lake, Lizard Lake, Spectacle Lake, Old Wolf Lake, Old Wolf Lake, Langford Lake, Glen Lake, Elk Lake, Quamichan Lake
Water Quality Status and Trend Report of Flathead River.	R. Shaw, B. R. Taylor	1994	EcoCat			11375	The document assesses the water quality trend of Flathead River. The goal is to inform the public on if water quality is improving, deteriorating or remaining about the same over the years. The monitoring program is intended to allow assessment of the present status of the waterbodies, and especially of any trends in the water quality of these sites. The report presents statistical and ecological analysis of the water quality data from Flathead and Similkameen River, as well as as of the sampling program from which the data were derived. The data analysis had two precise goals: Firstly for comparison of the data against any long-term trends and secondly to expose the sources such as hydrological, meteorological, ecological or anthropogenic data.
Water Quality Status and Trend Report of Similkameen River beetween 1984-1990.	R. Shaw, B. R. Taylor	1994	EcoCat			11374	The document assesses the water quality trend of Similkameen River. The goal is to inform the public on if water quality is improving, deteriorating or remaining about the same over the years. The monitoring program is intended to allow assessment of the present status of the waterbodies, and especially of any trends in the water quality of these sites. The report presents statistical and ecological analysis of the water quality data from Flathead and Similkameen River, as well as as of the sampling program from which the data were derived. The data analysis had two precise goals: Firstly for comparison of the data against any long-term trends and secondly to expose the sources such as hydrological, meteorological, ecological or anthropogenic data.
Water Quantity of lots 2 and 5 Lot A Plan 28000 DL2709, SDYD	Craig, D.	2002	EcoCat			7847	2002 report on results of pump testing well for subdivision east of Osoyoos. Includes pump test data, drawdown plots, water quality information and laboratory reports ; Regional District of Okanagan Similkameen and Hillside Engineering Services Ltd., 11 pages, NTS Map 082E03

Water Supply Evaluation - Proposed Subdivision of DL 1799. ODYD - Apex Mountain Area	Topp, L.C.	2001	EcoCat			7895	2001 report on groundwater supply assessment for proposed subdivision south of Apex Mountain northwest of Penticton. Includes introduction, background, site description, water supply evaluation, site plan, information on geology, well logs, pumping test and water quality data; Regional District of Okanagan Similkameen and Kala Groundwater Consulting Ltd., 49 pages, NTS Map 082E05
Water Supply Evaluation - Proposed Subdivision of Part of DL 973s SDYD - Kaleden BC	Topp, L.C.	2001	EcoCat			7894	2001 report on groundwater supply assessment for proposed subdivision west of Okanagan Falls. Includes introduction, site description, surficial and bedrock geology, existing water wells, wells logs and water quality data, water supply evaluation, site plan, geology map, BC geology legend report; Regional District of Okanagan Similkameen and Kala Groundwater Consulting Ltd., 18 pages, NTS Map 082E05
West Bench/Sage Mesa Area Geological Hazards Review	Klohn Leonoff Ltd.	1992	EcoCat			20201	The purpose of the study was to determine criteria for development, taking into account identified geological conditions and associated risks. This report describes the work carried out in the study, presents an interpretation of geological conditions, identifies geological hazards and evaluates the probability of the hazards. The report also includes a guide to administrative decisions, introduces bench marks for acceptable risk levels and suggests a matrix format for application of the study results to bylaw preparation.
Wolfe / Willis Atlas Watershed #142 Restoration Plan Years 2001-2004	Forsite Forest Management Consultants Ltd.	2001	EcoCat			18067	This Wolfe/Willis RP outlines all restoration activities planned for the watershed area for the years 2001-2003. A review of existing information, including previously completed assessments was conducted to establish restoration strategies and priorities for this area. Cost estimates and time scheduling has been included in this plan to aid in planning of the restoration activities. Cost estimates are low since past restoration activities have addressed a large portion of the priority sites or they are located on roads under permit. Costs may increase or decrease based on the results of the site assessments rescriptions. Where enough information was collected, a conservative estimate for proposed work sites was generated. The Wolfe/Willis area was designated as a target watershed due to its significant fisheries resources throughout both drainages as well as their direct connectivity to the Similkameen River. The fish habitat values are significant within the lower portion of the Wolfe Creek watershed which has resident rainbow trout and two-listed species (chiselmouth and mottled sculpin), and several other species. The rainbow trout are suspected to be present in all reaches of Willis Creek. As well as the high valued fish habitat