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SKAGIT RIVER ANGLER QUALITY,

ACCESS & CAPACITY STUDY

Prepared for

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Summary

The Ministry of Environment (MOE) is developing an integrated fish and wildlife management plan for the BC Skagit River watershed. To support this planning initiative, an estimate of angler social carrying capacity was required. Scott Resource Services (SRS) in association with Taara Environmental (Taara) was retained by the MOE to conduct an inventory of angler access, assess the quantity and quality of fishable water at access locations, and estimate angler carrying capacity for the Canadian Skagit and Sumallo Rivers.

The study area included the Sumallo River mainstem from Sunshine Valley Resort downstream to the Skagit River confluence and the Skagit River mainstem from the Sumallo River confluence downstream to Ross Reservoir. The study area was divided into the following five sections.

Lower Skagit River

Section 1: Lower Skagit River from Ross Lake Campground upstream to and including "Vantage Point" fishing site (accessed from the Silver/Skagit Road)

Section 2: Lower Skagit River from upstream of "Vantage Point" fishing site upstream to Silvertipped Creek trailhead at the north end of Silvertip Campground (accessed from the Silver/Skagit Road)

Upper Skagit River

Section 3: Upper Skagit River from Silvertipped Creek trailhead north to the Cottonwoods Ecological Reserve Boundary (accessed from Silvertip Campground)

Section 4: Upper Skagit River from the Skagit and Sumallo Rivers' confluence south to the Cottonwoods Ecological Reserve Boundary (accessed from the trailhead in Sumallo Grove Day Use Area)

Sumallo River

Section 5: Sumallo River from Sunshine Valley Resort to the Sumallo and Skagit Rivers' confluence (accessed off Highway 3)

At the lower Skagit River, there were 11 commonly used access locations. Of these, 5 were located in Section 1 and 6 were located in Section 2. Of the 20.4 linear kms of the lower Skagit River, 36% of the water was considered high (20%; 4,141 m) or medium (15%; 3,096 m) quality for fishing. Overall, the proportions of high and medium quality fishing water per linear distance of river were similar in Sections 1 and 2.

It was estimated that 70 anglers would saturate all the fishable water in the lower Skagit River. Excluding the river mouth accessed from Ross Lake Campground (estimated to support 12 anglers), this would mean that there could be approximately 30 different anglers fishing in each of Sections 1 and 2 on a busy day at the peak of the season. It is suspected that at this angler use level, a substantial number of anglers would perceive the number of encounters with other anglers to impact the quality of their fishing experience.

Applying the estimated maximum daily angler capacity at each of the access locations and extrapolating over the period of the fishery was judged to be a less than optimum method of developing a management objective for angler use because angler use varies substantially between weekdays and holidays, monthly and seasonally. The maximum capacity at peak season would over estimate a realistic objective for high quality angler use over the season. Therefore, previous angler survey use levels and angler perceptions on crowding was considered in development of estimates of objectives for seasonal angler use. The recommended objective for angler days at the lower Skagit was roughly based on 80% of the estimated angler effort in 1994 when more than 1 in 5 anglers felt there were "too many" other anglers. The recommended objective for angler use at the lower Skagit River was 3000 angler days (1500 in each of Sections 1 and 2). This translates to 1.2 anglers per kilometer and was still slightly higher than target densities in draft management plans for other high profile fisheries (Elk 1.03; Horsefly 0.5; upper Dean 1.0).

At the lower Skagit River sections, angler effort levels may already be at carrying capacity. In the absence of recent sport fishing survey data it is impossible to comment on the current use level other than by anecdotic observations. Without current information on angler use levels and opinions on the quality of the angling experience, it may be inappropriate to take any management action that would promote increased angler use. As shown in the sport fishing surveys, a number of anglers (1990:20%; 1992:16%; 1994:22%; 2002:12%) already perceive there to be "too many" other anglers. Any increased use from that observed in previous surveys (particularly 1994) could result in a reduction in angling experience quality due to the number of encounters with other anglers.

In both Sections 3 and 4 of the upper Skagit River, there was a finite amount of high quality fishable water accessed from a single location. Either of the upper Skagit areas could be compared to a single access location at the lower Skagit. Overall, in both areas combined, about 30% (3,316 linear m) of the water was rated to be high quality fishable water and none of the water was rated as medium. The estimated percentage of fishable water compared to total river length was similar in both Sections 3 and 4 (about 30%). The estimated maximum daily angler capacity in the upper Skagit River was 6 and 10 for Sections 3 and 4, respectively. In recommending an objective for angler use at the upper Skagit, the increased sensitivity of upper Skagit anglers toward crowding was taken into consideration. The recommended objective for seasonal angler use was 300 and 700 angler days (total 1000) for Sections 3 and 4, respectively. Proposed angler densities computed to 0.5 and 1.0 anglers per km respectively, for Sections 3 and 4 of the upper Skagit River, and approximated the range of targets for angler use on other "special waters" in the province.

The Sumallo River is currently fished well below maximum angler carrying capacity and there is ample access to the river from numerous locations. The recommended objective for seasonal angler use was 1200 angler days. This computed to a density of 4.95 anglers per km for the Sumallo River, much higher than the other angler use targets reported above.

The Sumallo River fishery could likely tolerate increased use without anglers perceiving the fishery to be too crowded, since most of the trips are for short duration coincidental to commuting through the region. If the nature of the fishery changed and there was an increase in

resident anglers specifically targeting the Sumallo River, the suggested target may need to be reconsidered.

Recommendations

1. The Sumallo, upper Skagit and lower Skagit Rivers' area uniquely different fisheries, with very different angler use levels and angler characteristics. As part of the integrated management planning their uniqueness should be recognized and different management goals and objectives should established for each of the respective areas. The fisheries management plans should build on the management plan completed by Neuman (1988), and also include Ross Reservoir.

2. The angler survey by the Lewynsky (1986) design should be conducted to obtain current information on angler use levels, characteristics and opinions prior to increasing or modifying access in the lower Skagit sections. It is recommended that the angler survey be conducted for two years in a row to benchmark use levels, since angler effort levels and temporal patterns can vary annually due to changes in early season water levels and fishing conditions. After a benchmark is re-established, the angler survey should be conducted every 3 to 5 years to monitor angler use, catch, success, fish size in the catch and angler satisfaction, as recommended by Neuman (1988).

3. While the rainbow trout stock is thought to be relatively abundant, assessments should be conducted to confirm the status of the stock (abundance and fish size at age), compared to historical data. If snorkel survey stock assessments were to be resumed, they should be conducted for five consecutive years to capture a full lifecycle of the Skagit River rainbow trout. As noted by Burrows and Neuman (1995), even at a reduced intensity (fewer sections) the survey could produce useful information.

4. If modifications to access are proposed, the potential environmental impact of the proposed parking areas and trail locations should be assessed. If access is modified, angler use patterns and angler attitudes should be monitored to confirm sound management decisions were made.

Table of Contents

List of Tables

List of Figures

List of Appendices

Acknowledgements

Funding for this study was provided by the Skagit Environmental Endowment Fund.

Jim Scott was project manager and supervised the field surveys. Ryan Anaka (SRS) assisted Mr. Scott with the field work, data analysis and report preparation. Colin Spence (SRS) also assisted with report preparation.

Ryan Durand (Taara) developed the GIS base map, summarized and added the attribute data and produced the final maps for the study. Rob Knight (Ministry of Environment) assisted Mr. Durand with the mapping component of the project.

Ryan Heitz (Michael & Young Fly Shop), Gary Eldrige (Riverside Fly and Tackle) and Patrick Ehnes (SRS) assisted with locating and rating the fishing water.

Duane Jesson (Ministry of Environment) was contract manager and provided overall direction for the study. Duane Jesson and Tom Blackbird (BC Parks) reviewed an earlier draft of the report and provided helpful suggestions.

1.0 Introduction

The Skagit River is a high priority for fisheries management in the Lower Mainland Region. There are many attributes that contribute to its high value. The watershed is easily accessible from Greater Vancouver yet is relatively uncrowded. The majority of the watershed is located in protected parkland and offers high wildlife and aesthetic values. Fishing for wild rainbow trout, especially by fly fishing is considered very good. According to anglers interviewed during the 2002 Skagit angler survey the overall angling experience was considered to be high quality (Scott et al. 2003). The main objective for fisheries management is to maintain and enhance the quality experience, while maximizing and diversifying client use.

The Ministry of Environment (MOE) is developing an integrated fish and wildlife management plan for the BC Skagit River watershed. To support this planning initiative, an estimate of angler social carrying capacity was required. In order to determine the number of anglers that the fishery can support while maintaining the high quality fishing experience, an inventory of all current angler access, the amount of fishable water available from each access and the estimated number of anglers that each access location can support without detracting from the current perception of quality fishing experience was needed.

1.1 Objectives

1. Review existing data related to fish supply and demand.
2. Document and rate current angler access for the Canadian Skagit and Sumallo Rivers.
3. Estimate the amount and rate the quality of fishable water in the Canadian Skagit and Sumallo Rivers.
4. Estimate maximum angler capacity, by river section, during the recreational fishery opening.
5. Make recommendations to improve existing access; construct new access; including issues related to downstream drift fishing by boat.

1.2 Study Area and Access Description

The study area included the Sumallo River mainstem from Sunshine Valley Resort downstream to the Skagit River confluence and the Skagit River mainstem from the Sumallo River confluence downstream to Ross Reservoir. The study area was divided into the following five sections (Figure 1).

Lower Skagit River

Section 1: Lower Skagit River from Ross Lake Campground upstream to and including "Vantage Point" fishing site (accessed from the Silver/Skagit Road)

Section 2: Lower Skagit River from upstream of "Vantage Point" fishing site upstream to Silvertipped Creek trailhead at the north end of Silvertip Campground (accessed from the Silver/Skagit Road)

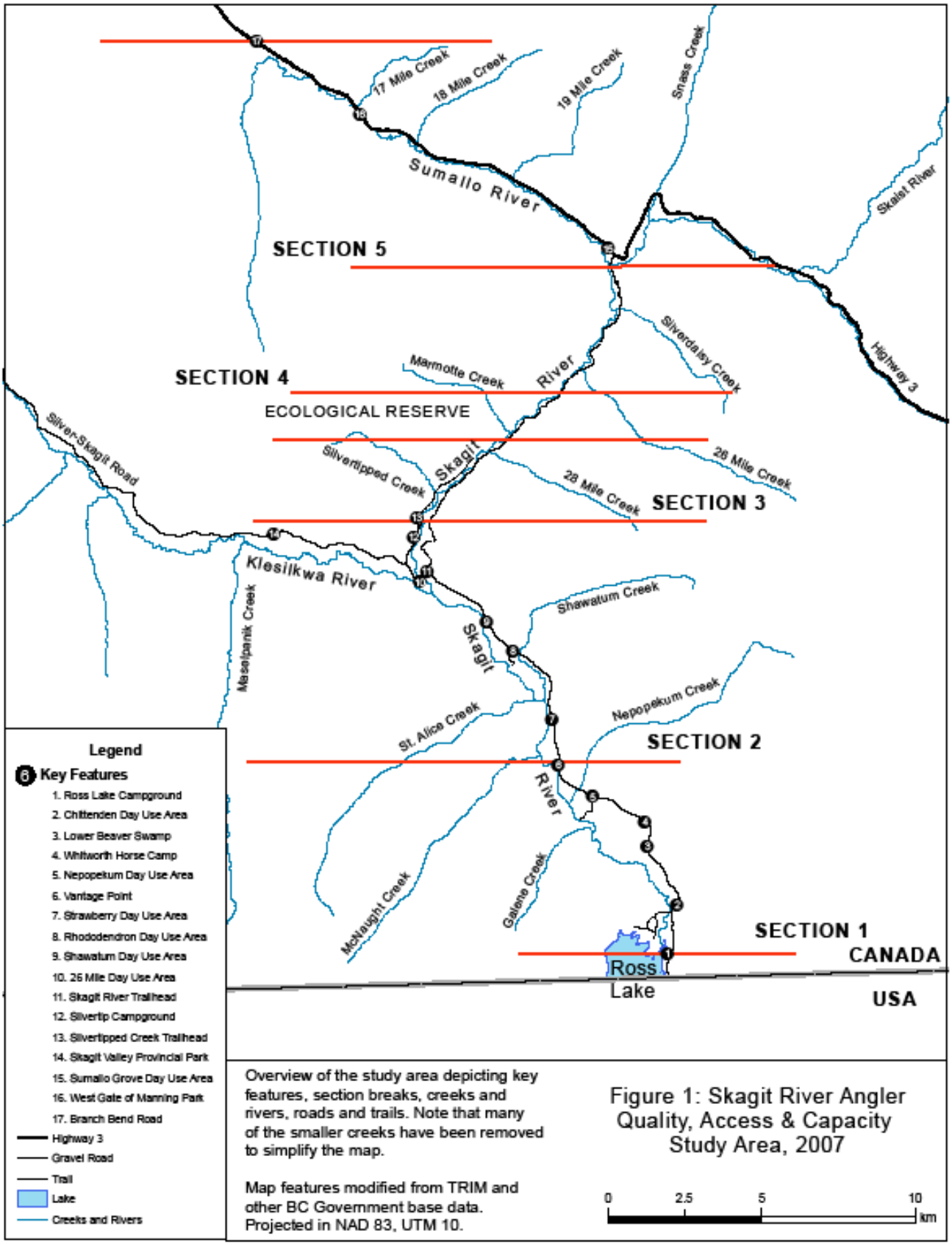

Figure 1: Skagit River Angler Quality, Access & Capacity Study Area, 2007

Upper Skagit River

Section 3[1]: Upper Skagit River from Silvertipped Creek trailhead north to the Cottonwoods Ecological Reserve Boundary (accessed from Silvertip Campground)

Section 4: Upper Skagit River from the Skagit and Sumallo Rivers' confluence south to the Cottonwoods Ecological Reserve Boundary (accessed from the trailhead in Sumallo Grove Day Use Area)

Sumallo River

Section 5: Sumallo River from Sunshine Valley Resort to the Sumallo and Skagit Rivers' confluence (accessed off Highway 3)

The **lower Skagit River** is accessible by road from Highway 1. The turnoff for the Silver/Skagit Road is approximately 3 km west of Hope. From the turnoff, it is 37 km to the Skagit Valley Provincial Park Boundary. The Silver/Skagit Road parallels the Skagit River from 26 Mile Bridge to Ross Reservoir (Figure 1). The Skagit River can be accessed from multiple locations. The river can be accessed from Silvertip or Ross Lake Campgrounds and there are 6 day use parking areas (26 Mile, Shawatum, Rhododendron, Strawberry, Nepopekum and Chittenden) that provide day access for anglers. In addition, there are a couple of locations where the river comes close to the road and anglers park on the side of the road. Anglers can be widely distributed throughout the lower Skagit area. Anglers also use boats to drift sections of the lower Skagit River.

There is no road access along the **upper Skagit River**. There is a 14.5 km trail along the east side of the Skagit River from Sumallo Grove Day Use Area south to the Skagit River Trailhead near 26 Mile Bridge on the Silver/Skagit Road (Figure 1). The upper Skagit River can be accessed by hiking south from the Sumallo Grove Day Use Area off Highway 3 (Section 4) or by hiking north from Silvertip Campground or the Skagit River Trail (Section 3). Anglers hiking south from the Sumallo Grove Day Use Area will generally fish the 5.7 kilometer section to the northern boundary of the Cottonwoods Ecological Reserve (Section 4) and anglers hiking north from Silvertip Campground will generally fish the 5.2 kilometer section to the southern boundary of the Cottonwoods Ecological Reserve (Section 3). Fishing is prohibited within the Ecological Reserve. Anglers fishing the upper Skagit enjoy a relatively uncrowded fishing experience due to the moderately difficult and limited access.

The **Sumallo River** is accessed from Highway 3. Angler use is largely transient and characterized by shorter fishing trips and low awareness of the fishery and special regulations. There have been infrequent reports of anglers floating sections of the Sumallo River by boat.

Footnote: Section 3 of the upper Skagit River was included as part of Section 2 (lower Skagit River) in the 1986, 1990, 1992, 1994 and 2002 angler surveys.

1.3 Background

Ross Reservoir and the Canadian Skagit River, located approximately 40 km southeast of Hope, B.C., (Figure 1) support popular recreational fisheries for rainbow trout (*Oncorhynchus mykiss*) and to lesser extent Dolly Varden char (*Salvelinus malma*), bull trout (*S. confluentus*), brook trout (*S. fontinalis*) and cutthroat trout (*O. clarki*). Studies (Griffith and Greiner 1983; Griffith 1984) strongly suggest that the sport fishery in the Skagit River in Canada is largely supported by a migratory stock of rainbow trout. The fish enter the Skagit River from Ross Reservoir during the spring spawning period, then return to Ross Reservoir (primarily located in the United States) at variable rates throughout the summer and early fall (Scott and Peterson 1986; Scott and Neuman, in prep.). Additionally, the migratory rainbow trout stock spawning in the Skagit River contributes substantially to the Ross Reservoir fishery. Earlier investigations indicated that almost half of the rainbow trout fry production in the Ross Reservoir watershed came from the Skagit River (Seattle City Light 1974).

In 1985, the MOE and the Washington State Department of Wildlife (WDW; responsible for sport fishery management of the American portion of Ross Reservoir) began joint studies of the sport fisheries and fish stocks in this important international drainage. The information collected was used to develop joint management plans for the river and reservoir (Neuman 1988). The management plan for the Skagit River identified the need to regularly monitor the fishery to evaluate management strategies, respond to increasing use, and detect the effects of reservoir harvest on the river fishery. Also in 1985, restrictive regulations (minimum size 30cm; single barbless hook and bait ban) were added to the 2 fish per day, 4 fish possession limit that was introduced in 1982.

Studies in the late 1980's indicated that the reservoir was overfished and, as a consequence, fish stocks in the river were depressed (Johnston 1989). In 1990, further restrictive angling regulations were introduced on both the Canadian and American portions of the reservoir to reduce harvest and restore stocks. These regulations drastically reduced angler catch and harvest in the reservoir. As well, beginning with the 1992 season, a total catch and release angling regulation was implemented on the Skagit River to further reduce harvest.

Also in 1990, BC Parks restricted camping on gravel bars and in 1992 formally established the six day use parking areas (Chittenden, Nepopekum Strawberry, Rhododendron, Shawatum and 26 Mile). Access to the many side roads that led to the lower Skagit River was decommissioned. These changes in access and angling regulations led to an increase in the quality of the fishing experience.

1.4 Fish Supply

Historically, the number and distribution of rainbow trout >20cm in length in the Skagit was generally low, particularly in the Sumallo River. In the early 1980's approximately 1800 catchable size fish were in the river during late summer (Neuman 1988). However, in 1986 and 1987 numbers increased to 5,500 fish (Neuman 1988). It was suspected that the increase in fish abundance was a result of the more restrictive regulations implemented in 1985.

The BC Fisheries Branch conducted snorkel surveys of the rainbow trout population in the Skagit every year from 1982 to 1994 (Burrows and Neuman 1995). These authors reported rainbow trout abundance indices increase from upstream to downstream in the Skagit mainstem,

and all size classes (except 40cm+) showed large (2.7 to 4.9 times depending on size class) increases in abundance since the 1992 regulation change to catch and release angling. The snorkel survey was again conducted in 1998, four years later (Harper and Scott 1998). The 1998 abundance indices for catchable (30-40cm) and sub-catchable (20-30cm) fish was still well above average but substantially reduced from 1994. These data (and catchrates from a 1994 angler survey; Scott et. al. 1995) suggest that 1994 had an unusually large supply of fish.

In 1994, the management goal for angler success of one fish per hour (Neuman 1988) was achieved in the lower Skagit River during the peak months of the fishery (July through September; Scott et. al. 1995). In 2002, the management goal of one fish per hour was only exceeded in Section 2 of the lower Skagit River in September (Scott et. al. 2003).

Unfortunately, the snorkel survey has not been continued and the current status of the rainbow trout stock is unknown. However, anecdotal reports from anglers suggest rainbow trout are still relatively abundant in the Skagit River.

1.5 Angler Demand and Capacity

Surveys of the Canadian Skagit River sport fishery have been conducted in 1985, 1986, 1990, 1992, 1994 and 2002 (Scott and Peterson 1986; Scott and Lewynsky 1987; Scott et. al. 1991; Scott and Staley 1993; Scott et. al. 1995; Scott et. al. 2003). The 1985 overview survey provided rough estimates of effort and catch and defined angler use patterns. This information was used to develop a statistical design for more rigorous sampling to increase the precision and accuracy of parameter estimates (Lewynsky 1986). The 1986, 1990, 1992, 1994 and 2002 surveys were all conducted using the Lewynsky (1986) balanced sampling design.

From July 1 to October 31, 2002, total angler effort was estimated at 16,422 hours (Table 1). Overall, angler use in 2002 was substantially lower than the 1994 season (27,967 hours). At the lower Skagit River, effort was lower than 1994 and 1992, but higher than effort in 1986 or 1990. At the upper Skagit River, 2002 effort decreased by 54% from 1994, but was similar to 1986, 1990 and 1992. Angler effort in 2002 at the Sumallo River decreased by 20% over 1994.

Angler use (all areas) in the 1994 season increased 43% from 1992. At the lower Skagit River effort was up by more than 30% from 1992 and more than double the effort from 1986 or 1990. At the upper Skagit River, 1994 effort increased by 93% from 1992 and almost triple the effort from 1990. As in 1992, angler effort and the number of interviews obtained at the Sumallo River in 1994 were low and should be regarded with caution, although 1994 effort was up substantially over previous years.

Of particular relevance, in 1994 a higher percentage of anglers (22%) perceived there to be “too many” other anglers compared to 1990 (20%), 1992 (16%) or 2002 (12%). In addition, a lower percentage anglers (62%) in 1994 assessed the use level to be “just right” compared to the other surveys (1990; 71%, 1992; 75%, and 2002; 83%). While these data lack statistical significance (i.e. no confidence intervals), the general trend may indicate that in1994 the level of angler effort was high enough to begin to impact the quality of the fishing experience. It is suspected the angler use level observed in 1994 may be an approximation of the maximum angler capacity, before the perception of quality angling experience would begin to seriously decline due to crowding.

Table 1. Comparison of 1986, 1990, 1992, 1994 and 2002 effort statistics for the Skagit River trout fishery.

	1986[1]	1990	1992	1994	2002	%Change[2]
Total Angler Effort						
All Areas	12,704 (3266)[3]	12,271 (2849)	19,554 (3850)	27,967 (6385)	16,442 (3486)	-41%
Lower Skagit	8,922 (2,302)	8,971 (2,079)	15,082 (2,823)	19,795 (3,931)	11,987 (2,327)	-39%
Section 1	4,416 (1,088)	4,351 (987)	6,893 (1,264)	10,045 (1,802)	5,310 (1,054)	-47%
Section 2	4,506 (1,214)	4,646 (1,093)	8,189 (1,664)	9,750 (2,156)	6,676 (1,109)	-32%
Upper Skagit	2,987 (762)	2,173 (505)	3,166 (776)	6,124 (1,650)	2,798 (513)	-54%
Sumallo	795 (202)	1,101 (265)	1,306 (251)	2,048 (804)	1,637 (646)	-20%

[1] 1986 estimates are adjusted to coincide with the July 1 to October 31 survey period of 1990, 1992, 1994, and 2002.

[2] Percentage change in angler hours between 1994 and 2002.

[3] Days in parenthesis

The estimated angler effort in 2002 (3486 angler days; Scott et. al. 2003) approximated the management goal of 3600 angler days (Neuman 1988). With the increase in effort in 1994 (6336 angler days; Scott et. al. 1995), the management goal of 3,600 angler days was significantly exceeded.

Unfortunately, since 2002 no data has been collected on angler effort, characteristics or attitudes for the Skagit or Sumallo Rivers' fisheries.

2.0 Methods

2.1 Angler Access

Angler access was inventoried by vehicle and on foot. All locations were documented using a Garmin 60CSx Global Positioning System (GPS). Accuracy was generally less than 8 metres.

In Sections 1 and 2 of the lower Skagit River (Ross Lake to Silvertipped Creek log jam; Figure 1) all current and historical access locations were documented by driving to formal day use areas or known angler access locations. From the vehicle accessible locations, all trails were walked and mapped by GPS to the river to document trail location and walking distance. All distances presented in the Access Inventory (Appendix 1) for Sections 1 and 2 of the lower Skagit area were taken from the Skagit Valley Provincial Park boundary (0.0 km).

In Section 3 of the upper Skagit River (Figure 1), the trail on the west side of river from Silvertipped Creek Trailhead north to near 28 Mile Creek was mapped, as well as popular fishing sites. The Skagit River Trail on the east side of the river was also mapped from the Cottonwoods Ecological Reserve boundary south to the Skagit River Trailhead on the Silver/Skagit Road, near 26 Mile Bridge. All distances presented in the Access Inventory (Appendix 1) were taken from Silvertipped Creek trailhead at the north end of Silvertip Campground (0.0 km).

In Section 4 of the upper Skagit River (Figure 1), the trail on the east side of the river was mapped from the Skagit River Trailhead south to 28 Mile Creek. The location of all trails heading off the main Skagit River trail to the river were mapped. Even though mapping was completed south through the Cottonwoods Ecological Reserve to 28 Mile Creek, the Ecological Reserve boundary was designated as the downstream limit of Section 4 since fishing is prohibited in the Ecological Reserve. All distances presented in the Access Inventory (Appendix 1) were taken from Skagit River trailhead at the east end of Sumallo Grove Day Use Area (0.0 km).

Access locations for the Sumallo River were documented by driving along Highway 3 and stopping where access was available. Waypoints were recorded using the GPS. All distances were recorded from Branch Bend Road (0.0) at Sunshine Valley Resort.

Access to rivers was subjectively rated as easy, moderate or difficult, based on terrain characteristics and the distance from parking areas.

2.2 Angling Water Quantity and Quality

Angling water quantity and quality was estimated by having knowledgeable anglers[1] identify fishing sites on approximately 1:5,000 aerial photographs. The anglers were asked to consider the amount of water that would be available during the late summer (September) low flow period. It was felt that this would be the river stage when fishable water would be at a minimum and the potential for a crowded experience would be at a maximum. It is acknowledged that fish will move out of the "holes" at certain times of day (i.e. dusk) and can be caught in shallow habitats. However, for the purpose of this assessment, fishing locations were confined to the major known holding waters. Fishable water was rated as high, medium and low based on the following criteria (Table 2).

Table 2. Rating criteria for Skagit and Sumallo River fishing sites, 2007.

High	High potential for success; low potential for crowding; away from the road
Medium	High potential for success; moderate potential for crowding; within the influence of the road.
Low	Low potential for success; everything else (it is assumed that you can fish anywhere, however, your chances of success are diminished).

The linear distance of fishable water by each category was calculated by computer for each river section. Summary Maps of each section showing the rating of fishable water are included in Appendix 2. Aerial images used to assess quality of angling sites were submitted to MOE under separate cover (available for review from Regional Fisheries Branch, MOE).

2.3 Angler Capacity

Angler capacity was estimated for each access location based on the amount of fishable water associated with each access location, the typical characteristics of anglers using respective access locations (from angler surveys) and previous observations of use levels when anglers commented that they felt crowded or their expected number of encounters with other anglers was exceeded. In particular, data from the 1994 angler survey (highest angler effort of any of the 5 angler surveys) were used as a benchmark to gauge the use level when the quality of the fishing experience began to decline due to crowding.

Footnote: 1. Anglers who assisted with locating and rating the fishing water were: Ryan Heitz (Michael & Young Fly Shop); Gary Eldrige (Riverside Fly and Tackle); Patrick Ehnes and Jim Scott.

2.4 Digital Data Management and Mapping

ESRI ArcMap 9.2 was used for map creation and analysis of mapped features. Base data were obtained from the Integrated Land Management's Land and Resource Data Warehouse (LRDW) and from Rob Knight, BC Ministry of Environment. Base data included:

- TRIM – contours, roads, water, etc;
- orthocorrected air photos – 1 m black and white from 1995 to 2003;
- TIN rasters; and
- miscellaneous LRDW shapefiles of watercourses, parks and protected areas, roads, etc.

All base data were projected in NAD 83, UTM 10 and used as background files for field data presentation and analysis. Field data were imported into the GIS directly from GPS points and heads up digitized from hard copy maps. Due to limitations in the air photo coverage TIN rasters were used for many maps to provide a full backdrop.

Several mapped features were analyzed using basic GIS functions. Analysis primarily included the calculation of linear distances between objects of interest (i.e. distance for access instructions) and of features such as high, medium and low quality fishing areas.

3.0 Results

3.1 Angler Access, Fishable Water Quantity and Quality, and Angler Capacity

3.1.1 Lower Skagit River

The inventory of angler access for the lower Skagit River is presented in Appendix 1. There were 11 commonly used access locations in the lower Skagit River sections (Table 3; Figure 1). Of these, 5 were located in Section 1 and 6 were located in Section 2.

Of the 20.4 linear kms of the lower Skagit River, 36% of the water was considered high (20%; 4,141 m) or medium (15%; 3,096 m) quality for fishing. Overall, the proportions of high and medium quality fishing water per linear distance of river were similar in Sections 1 and 2 (Table 3).

The estimated angler maximum daily capacity is the estimated highest number of anglers that could fish the Skagit on the busiest weekend day during the late summer low flow period, where the majority of anglers would still consider their experience to be high quality. It was estimated that 70 anglers would saturate all the fishable water in the lower Skagit River. Excluding the river mouth accessed from Ross Lake Campground (estimated to support 12 anglers), this would mean that there could be approximately 30 different anglers fishing in each of Sections 1 and 2 at the peak of the season. It is suspected that at this angler use level, a substantial number of anglers would perceive the number of encounters with other anglers to impact the quality of their fishing experience. A target carrying capacity for management planning to ensure a quality experience is maintained would be reduced from the estimated maximum daily capacity.

Table 3. Fishable water quantity, quality and maximum daily angler capacity in Sections 1 and 2 of the lower Skagit River, 2007.

Section/Location	Fishable Water Quality (m)[1]			Estimated Angler Maximum Capacity
	High	Medium	Low	
Section 2				
Silvertip Campground	---	309	---	4
26 Mile Day Use	306	647	---	6
Shawatum Day Use	488	451	---	4
Rhododendron Day Use	933	---	---	6
Roadside	104	118	---	2
Strawberry Day Use	294	171	---	6
Section 2 Total	**2125(19.3)**	**1696(15.4)**	**11000**	**28**
Section 1				
Vantage Point	349	199	---	6
Nepopekum Day Use	1403	---	---	12
Chittenden Day Use	192	589	---	6
Chittenden Bridge	72	87	---	6
Ross Lake Campground	---	525	---	12
Section 1 Total	**2016(21.4)**	**1400(14.9)**	**9400**	**42**
Lower Skagit Total	**4141(20.3)**	**3096(15.2)**	**20400**	**70**

Footnote: Quality rating percentage of total linear river length is in parenthesis.

3.1.2 Upper Skagit River

The inventory of access for the upper Skagit River is presented in Appendix 1. In both Sections 3 and 4 of the upper Skagit River, there was a finite amount of high quality fishable water accessed from a single location. Either of the upper Skagit areas could be compared to a single access location at the lower Skagit. Overall, in both areas combined, about 30% (3,316 linear m) of the water was rated to be high quality fishable water and none of the water was rated as medium (Table 4). The estimated percentage of fishable water compared to total river length was similar in both Sections 3 and 4 (about 30%; Table 4). In both the upper Skagit areas, the estimated percentage of fishable water to total river length was slightly reduced from the lower Skagit areas (35.7% lower Skagit versus 30.4% upper Skagit; Tables 3 and 4).

The estimated maximum daily angler capacity in the upper Skagit River was 6 and 10 for Sections 3 and 4, respectively.

Table 4. Fishable water quantity, quality and maximum daily angler capacity in Sections 3 and 4 of the upper Skagit River, 2007.

Section/Location	Fishable Water Quality (m)[1]			Estimated Angler Maximum Capacity
	High	Medium	Total	
Section 3	1613 (31.0)	n/a	5200	6
Section 4	1703 (29.9)	n/a	5700	10
Upper Skagit Total	**3316 (30.4)**	**n/a**	**10900**	**16**

Footnote: Quality rating percentage of total linear river length is in parenthesis.

3.1.3 Sumallo River

The inventory of access for the Sumallo River is presented in Appendix 1. There were fourteen locations along Highway 3 (including Sumallo Grove Day Use Area) that afford access to the Sumallo River for fishing (Table 5). During late summer there was a limited amount of medium quality fishable water in the Sumallo River. There were infrequent pools separated by long shallow runs. Less than 10% of the linear river length was rated to be medium quality fishable water. The fishable water was rated as medium quality because of the close proximity to the highway.

The estimated maximum daily angler capacity is high at 32 anglers. This high estimate is because anglers generally fish the Sumallo for very short periods of time (angler turn over is high) and anglers generally don't wander far from their vehicles. Therefore, the perception of crowding is less likely to occur.

Table 5. Fishable water quantity, quality and maximum daily angler capacity in the Sumallo River, 2007.

Section/Location	Fishable Water Quality (m)[1]			Estimated Angler Maximum Capacity
	High	Medium	Total	
2.1 – 2.4 km	---	90	---	2
3.6 km	---	200	---	2
4.2 – 5.0 km	---	114	---	2
6.0 – 6.2 km	---	200	---	2
6.5 - 6.7 km	---	158	---	2
7.8 – 8.2 km	---	113	---	2
8.6 km	---	132	---	2
9.4 – 9.9 km	---	119	---	2
10.4km	---	131	---	2
10.8 – 11.6 km	---	101	---	4
12.2 – 12.4 km	---	104	---	2
12.8 – 13.6 km	---	94	---	2
14.3 km	---	86	---	2
Sumallo Grove	---	110	---	4
Sumallo Total	---	**1752(8.8)**	**20000**	**32**

Footnote: Quality rating percentage of total linear river length is in parenthesis.

3.2 Seasonal Estimate of Angler Carrying Capacity

Applying the estimated maximum angler capacity at each of the access locations and extrapolating over the period of the fishery may not be the optimum method of developing a management objective for angler use. Angler use varies substantially between weekdays and holidays, monthly and seasonally, and the maximum capacity at peak season would over estimate a realistic objective for high quality angler use over the season. Therefore, previous angler survey use levels and angler perceptions on crowding were considered in development of the following estimates of objectives for seasonal angler use (Table 6). The recommended objective for angler days at the lower Skagit was roughly based on 80% of the estimated angler effort 1994 when more than 1 in 5 anglers felt there were "too many" other anglers. The increased sensitivity of upper Skagit anglers toward crowding was taken into consideration, as was the transient nature of the Sumallo River fishery.

Table 6. Recommended objective for seasonal angler use, 2007.

	Section	Recommended Angler Days	1994 Estimated Angler Effort (Days)[1]
Lower Skagit	1	1500	1802
	2	1500	2156
Lower Skagit Total		**3000**	**3931**
Upper Skagit	3	300	n/a[2]
	4	700	1650
Upper Skagit Total		**1000**	**1650**
Sumallo	5	1200	804
Sumallo/Skagit Total		**5200**	**6385**

Footnotes: 1. From Scott et. al. 1995. At this angler use level 22 % of anglers opined that there were "too many" other anglers.

2. In 1994, Section 3 of the upper Skagit River was included as part of Section 2 of the lower Skagit River.

4.0 Discussion

Agencies involved in the management of the Skagit and Sumallo Rivers' fisheries are very fortunate that over the past two and half decades there has been a substantial amount of work conducted to assess fish stock trends and characteristics, as well as angler use levels, attitudes and perceptions. The previous five comprehensive angler surveys, albeit somewhat dated, have provided a benchmark of the angler effort level that would be appropriate to maintain a quality angling experience. Anglers have provided opinions on their perception of the quality of their fishing experience at various seasonal use levels. The approach to conducting this study that was requested in the request for proposal provided useful data with respect to documenting angler access, measuring the quantity and rating the quality of fishable water, and estimating maximum angler capacity at peak use times. Insights from previous angler surveys of the Skagit and Sumallo Rivers' fisheries augmented and complimented the data collected in this study.

Neuman (1988) recommended that total angler use for the Skagit and Sumallo Rivers remain unchanged at approximately 3600 angler days per year, but suggested that if fish supply increased a 50% increase in angler effort could be accommodated without a major decline in the

quality of the angling experience due to overcrowding. Coincidentally, the recommended objective from this study falls near the upper limit of the Neuman (1988) estimate. This suggests that the current estimate of 5200 angler days is in the right magnitude.

4.1 Lower Skagit River

At the lower Skagit River sections, angler effort levels may already be at carrying capacity. In the absence of recent sport fishing survey data it is impossible to comment on the current use level other than by anecdotic observations. It was noted that on two busy Sundays in late August, there were multiple cars in all day use areas and during mid day there were 8 vehicles parked at Nepopekum Day Use Area. If there was an average of 1.5 anglers per vehicle, that would suggest that this fishing location was being used at close to estimated daily maximum capacity.

For comparative analysis, anglers per km was calculated using the method applied in the Status Report – East Kootenay Angling Management Plan (Kootenay Angling Management Plan Committee 2003) where: Density = estimated angler days divided by surveyed days divided by length of surveyed section.

The recommended objective for angler use at the lower Skagit River of 3,000 angler days worked out to 1.2 anglers per km (using the entire 20.4 km length, not just the 7.3 km of fishable water rated as high and medium quality). The computed angler density was slightly higher than target angler densities in draft management plans for the Elk (1.03), Horsefly (0.5) or upper Dean Rivers (1.0; Kootenay Angling Management Plan Committee 2003).

The estimated maximum daily angler capacity of 70 anglers in the lower Skagit (calculated by summing the maximum angler capacity at each access location) computes to 3.2 anglers per km (excluding the estimated capacity of 12 in the river mouth). This is very high compared to the estimated angler capacity of other special water fisheries in BC, and suggests this method of calculating angler capacity to develop objectives for seasonal angler use is not very useful. On a day when angler effort is close to maximum, an increased percentage of anglers would likely perceive that the fishery is too crowded compared to lower use days. If the maximum daily angler capacity was sustained through a greater portion of the season, the percentage of anglers that perceive the fishery to be too crowded over the season would likely be substantially increased. During the angler surveys, more than 50 individual anglers have been interviewed in one day, demonstrating that occasionally the lower Skagit River has been subjected to this intense level of fishing pressure.

Without current information on angler use levels and opinions on the quality of the angling experience, it may be inappropriate to take any management action that would promote increased angler use. As shown in the sport fishing surveys, a number of anglers (1990:20%; 1992:16%; 1994:22%; 2002:12%) already perceive there to be “too many” other anglers. Any increased use from that observed in previous surveys (particularly 1994) could result in a reduction in angling experience quality due to the number of encounters with other anglers.

There are two opportunities to potentially redistribute anglers by development of additional access in areas of the river that are infrequently accessed through the existing day use areas. The first opportunity would be to establish a walk in day use area between Nepopekum and

Chittenden Day use Areas. Historically, there were three additional access opportunities in this stretch of river (Whitworth Ranch; lower Beaver Swamp and 56 km "walk in"). Whitworth Ranch has been established as a horse camp and would likely not be suitable due to potential user conflicts and 56 km "walk in" is still reasonable close to Chittenden Day Use Area. However, the decommissioned "Lower Beaver Access" trail is about mid way between Nepopekum and Chittenden Day Use Areas (Figure 1). Therefore, an access at this location would be unlikely to contribute to crowding. If a day use area was established on the Silver/Skagit Road at "Lower Beaver Access" there would be an approximately 0.7 km walk to the river and there are good fishing opportunities in this location.

The second location where there is limited access to the river is between Shawatum Day Use Area and the mouth of the Klesilkwa River. A day use area and trail to the river could be developed somewhere in this area to help distribute angler use, although fishable water is limited in this section of river. There are no known historic roads or trails in this area.

It is unclear if anglers boating sections of the river are causing conflict since there is no recent information available to reference, and assessing boating use has not been a specific focus of previous angler surveys. There is increased boating during early season when the water levels are higher, so boater use may not impact wading anglers during the late summer low flow period when fishable water is most limited and the potential for crowding highest.

4.2 Upper Skagit River

Because anglers go to more trouble to access the upper Skagit to enjoy the uncrowded conditions, these anglers expect to encounter fewer other anglers than at the lower Skagit areas and a lower number of encounters with other anglers will result in exceeded expectations and potential dissatisfaction due to crowding. The upper Skagit River is also a high use spawning area for bull trout. Objectives for angler use in the upper Skagit should be modest in the interest of conservation of endangered bull trout.

Applying the method of calculating anglers per km from the East Kootenay Angling Management Plan, densities computed to 0.5 and 1.0 anglers per km respectively, for Sections 3 and 4 of the upper Skagit River. These estimates approximate the range of targets for angler use on other "special waters" in the province.

There are limited opportunities to improve or modify access in the upper Skagit areas. The access to Section 4 of the upper Skagit River is a well maintained hiking trail, and no improvements are required. The side trails from the main hiking trail to the river are unmaintained, but are sufficient to provide easy access to the river. Given the low estimated angler capacity for this area, improvements to the side trails are unwarranted.

The access to Section 3 of upper Skagit River via the trail from the north end of Silvertip Campground is not as well maintained as the main Skagit Valley trail. The trail on the west side of the river has been washed out at Silvertipped Creek and most anglers walk up the river from this location. A remnant trail does run up the west side of the river upstream of Silvertipped Creek for approximately 2.7 kms. However, given the low estimated maximum angler capacity for Section 3, any improvements to facilitate easier access are discouraged.

4.3 Sumallo River

The Sumallo River is currently fished well below maximum angler carrying capacity and there is ample access to the river from numerous locations. Applying the method of calculating anglers per km in East Kootenay Angling Management Plan, the density computed to 4.95 anglers per km for the Sumallo River, much higher than the other angler use targets cited above.

The Sumallo River fishery could likely tolerate increased use without anglers perceiving the fishery to be too crowded, since most of the trips are for short duration coincidental to commuting through the region. If the nature of the fishery changed and there was an increase in resident anglers specifically targeting the Sumallo River, the target suggested in Table 6 may need to be reconsidered.

5.0 Recommendations

1. The Sumallo, upper Skagit and lower Skagit Rivers' area uniquely different fisheries, with very different angler use levels and angler characteristics. As part of the integrated management planning their uniqueness should be recognized and different management goals and objectives should established for each of the respective areas. The fisheries management plans should build on the management plan completed by Neuman (1988), and should also include Ross Reservoir.

2. The angler survey using the Lewynsky (1986) design should be conducted to obtain current information on angler use levels, characteristics and opinions prior to increasing or modifying access in the lower Skagit sections. It is recommended that the angler survey be conducted for two years in a row to benchmark use levels, since angler effort levels and temporal patterns can vary annually due to changes in early season water levels and fishing conditions. After a benchmark is re-established, the angler survey should be conducted every 3 to 5 years to monitor angler use, catch, success, fish size in the catch and angler satisfaction, as recommended by Neuman (1988).

3. While the rainbow trout stock is thought to be relatively abundant, assessments should be conducted to confirm the status of the stock (abundance and fish size at age), compared to historical data. If snorkel survey stock assessments were to be resumed, they should be conducted for five consecutive years to capture a full lifecycle of the Skagit River rainbow trout. As noted by Burrows and Neuman (1995), even at a reduced intensity (fewer sections) the survey could produce useful information.

4. If modifications to access are proposed, the potential environmental impact of the proposed parking areas and trail locations should be assessed. If access is modified, angler use patterns and angler attitudes should be monitored to confirm that sound management decisions were made.

6.0 Literature Cited

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Appendix 1

Skagit and Sumallo Rivers Access Inventory

Section 1: Lower Skagit River (Accessed from Silver Skagit Road)

Section 2: Lower Skagit River (Accessed from Silver Skagit Road)

Section 3: Upper Skagit River (Accessed from Silvertip Campground)

Section 4: Upper Skagit River (Accessed from Sumallo Grove Day Use Area)

Section 5: Sumallo River (Sunshine Valley Resort to Sumallo/Skagit Confluence)

Section 1
Vantage Point South to Ross Lake Campground

Skagit Valley Provincial Park Boundary

UTM: **628902E 5443707N**
Latitude/Longitude: **49° 7' 58"N, 121° 13' 59"W**

Date of Survey: August 13, 2007
Survey Crew: Jim Scott, Ryan Anaka

Notes:

1. All distances are taken commencing from this point; Skagit Valley Provincial Park Boundary (0.0 km)

2. U/S indicates upstream; D/S indicates downstream

Vantage Point

Location:

Distance: **14.4 km**
UTM: **638162E 5436154N**
Latitude/Longitude: **49° 3’ 45”N, 121° 6’ 36”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 2km D/S 1.5km**
Quality of Fishable Water: **Medium/High**
Quality of Fishing Experience: **U/S Medium; D/S High**
Estimated Maximum Angler Capacity: **U/S 4 D/S 2**

D/S view from Vantage Point Access

U/S view from Vantage Point Access

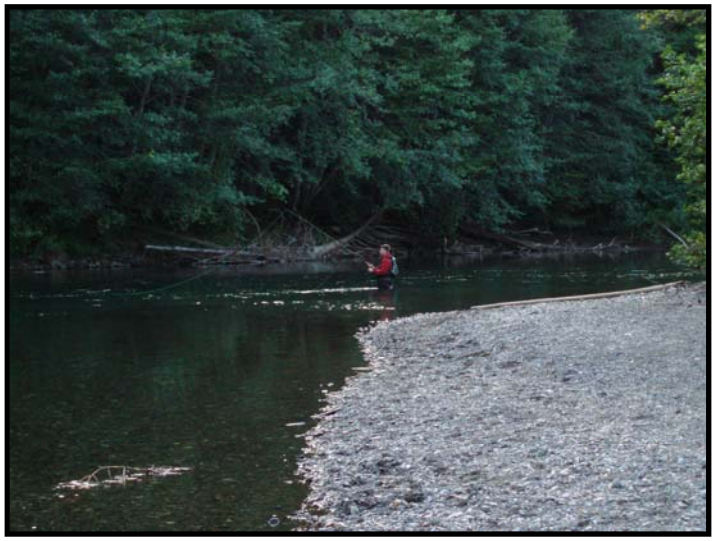
Comments: Quality of fishing experience is rated medium due to easy access which leads to increased number of anglers at sites near the road. A high quality fishing experience can be achieved by walking downstream to “Osprey” hole. The Vantage Point is a popular location to launch and pull out boats from the Skagit River.

Nepopekum Day Use Area

Location:

Distance: **16 km**
UTM: **639251E 5435137N**
Latitude/Longitude: **49° 3’ 12”N, 121° 5’ 38”W**

Access Type: **Road/Trail**
Access Difficulty: **Moderate; 1.1 km hike to river**
Typical Angler Distribution: **U/S 1km D/S 3km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **U/S 6 D/S 6**



Comments: Highest angler effort along the Lower Skagit River is at this location.

Chittenden Day Use Area

Location:

Distance: **21.1 km**
UTM: **642005E 5431661N**
Latitude/Longitude: **49° 1’ 17”N, 121° 3’ 27”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 4km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **U/S High D/S Medium**
Estimated Maximum Angler Capacity: **U/S 5 D/S 1**

Comments: Downstream fishing quality and experience rated medium due to proximity of Chittenden Bridge access and possibility of encountering other anglers.

Chittenden Bridge

(Footbridge to Chittenden Meadow)

Location:

Distance: **21.4 km**
UTM: **641818E 5431406N**
Latitude/Longitude: **49° 01’ 09”N, 121° 3’ 37”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 0.5km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 3* D/S 4**

Comments: Upstream fishing locations are also accessed from Chittenden Day Use Area.
*Typical angler distribution and estimated angler capacity shared with that of Chittenden Day Use Area. Anglers use this location to pull out boats after drifting the Lower Skagit River.

Ross Lake Campground

(BC Provincial Campground)

Location:

Distance: **22.8 km**
UTM: **641686E 5430049N**
Latitude/Longitude: **49° 0’ 25”N, 121° 3’ 45”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S in Lake**; float tube fishing in this area.
Quality of Fishable Water: **High**
Quality of Fishing Experience: **Medium;** due to high density of anglers.
Estimated Maximum Angler Capacity: **12;** in river

Comments: Fishing locations accessible from this area are controlled by the level of water in Ross Lake Reservoir. Fishing from a pontoon boat or float tube is often more successful than wading in this location.

Section 2
Silvertipped Creek Trailhead South to Vantage Point

Skagit Valley Provincial Park Boundary

UTM: **628902E 5443707N**
Latitude/Longitude: **49° 7' 58"N, 121° 13' 59"W**

Date of Survey: August 14, 2007
Survey Crew: Jim Scott, Ryan Anaka

Notes:

1. All distances are taken commencing from this point; Skagit Valley Provincial Park Boundary (0.0 km)

2. U/S indicates upstream; D/S indicates downstream

Silvertip Campground

Location:

Distance: **4.7 km**
UTM: **633721E 5444058N**
Latitude/Longitude: **49° 8’ 5”N, 121° 10’ 0”W**

Access Type: **Trail from Campground**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 2km**
Quality of Fishable Water: **Moderate**
Quality of Fishing Experience: **Moderate**
Estimated Maximum Angler Capacity: **4**

Comments: River is easily accessed from the campground.

Skagit River Trailhead

Location:

Distance: **6.0 km**
UTM: **633829E 5442389N**
Latitude/Longitude: **49° 7’ 11”N, 121° 9’ 57”W**

Access Type: **Road/Trail**
Access Difficulty: **Difficult;** significant hike (3.4 km) to Upper Skagit
Typical Angler Distribution: **Somewhere in Upper Skagit**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 anglers (3 parties)**

Comments: Upper Skagit (Section 3) is more easily accessed from Silvertipped Creek Trailhead at north end of Silvertip Campground. This trail is more heavily used by hikers.

26 Mile Day Use Area

Location:

Distance: **5.7 km**
UTM: **633668E 5442186N**
Latitude/Longitude: **49° 7’ 4”N, 121° 10’ 5”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1.5km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **Moderate**
Estimated Maximum Angler Capacity: **U/S 4 D/S 2**

Comments: High potential for encounters with other anglers due to proximity of the road and Silvertip Campground. This site is used to launch boats to drift the Lower Skagit River.

Shawatum Day Use Area

Location:

Distance: **8.7 km**
UTM: **635805E 5440823N**
Latitude/Longitude: **49° 6’ 18”N, 121° 8’ 21”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1.5km D/S 1.5km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **U/S 2 D/S 2**

Comments: Access to the river is directly across the Silver/Skagit Road.

Rhododendron Day Use Area

Location:

Distance: **9.9 km**
UTM: **636654E 5439887N**
Latitude/Longitude: **49° 5’ 47”N, 121° 7’ 40”W**

Access Type: **Road/Trail**
Access Difficulty: **Moderate; 0.5 km** hike to the river
Typical Angler Distribution: **U/S 1.5km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **U/S 3 D/S 3**

Comments:

Roadside

Location:

Distance: **12.3 km**
UTM: **637824E 5438133N**
Latitude/Longitude: **49° 4’ 50”N, 121° 6’ 45”W**

Access Type: **Roadside/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **Moderate**
Estimated Maximum Angler Capacity: **2**

Comments: Poor parking along the edge of the road.

Strawberry Bar Day Use Area

Location:

Distance: **14.4 km**
UTM: **637938E 5437671N**
Latitude/Longitude: **49° 4’ 35”N, 121° 6’ 40”W**

Access Type: **Road/Trail**
Access Difficulty: **Easy;** 0.5 km walk to the river
Typical Angler Distribution: **U/S 2km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **U/S 4 D/S 2**

Comments: Angler capacity is limited due to Vantage Point access downstream and Roadside site access upstream.

Section 3
Silvertipped Creek Trailhead North to Ecological Reserve Boundary

Silvertipped Creek Trailhead

UTM: **633553E 5444222N**
Latitude/Longitude: **49° 8’ 11”N, 121° 10’ 8”W**

Date of Survey: August 21, 2007
Survey Crew: Jim Scott, Ryan Anaka

Notes:

1. All distances are taken commencing from this point; Silvertipped Creek Trailhead (0.0 km)

2. U/S indicates upstream; D/S indicates downstream

Section 3 Fishing Locations

Overview:

Section 3 is easily accessible from Silvertipped Creek Trailhead, located in Silvertip Campground. Numerous fishing locations are located within this section. Section 3 can also be accessed by the Skagit River Trail at the trailhead located just north east of 26 mile Bridge, as well as the Sumallo Grove day use area. Access to Section 3 from the Sumallo Grove Day use area is impractical though, as the walk in to the north end of is section is more than 9 km. Access from the south end of the Skagit River Trail, is also inefficient as the walk in is far longer than from Silvertipped Creek Trailhead. Below are the documented fishing locations. Due to the close proximity of the fishing locations, Estimated Angler Capacity may overlap. Locations are presented moving upstream from Silvertipped Creek Trailhead. Location distances are measured from entrance of Silvertipped Creek Trailhead.

Angler capacity: 6

Silvertipped Creek Trailhead

Location:

Distance: **6 km**, from entrance to Skagit Valley Provincial Park
UTM: **633552E 5444222N**
Latitude/Longitude: **49° 8’ 10”N, 121° 10’ 8”W**

Access Type: **Trail**
Access Difficulty: **Moderate**
Typical Angler Distribution: **N/A**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Trailhead is accessed from Silvertip Campground. Trailhead is located at north end of the campground loop road. There is parking for 2-3 vehicles. Numerous fishing holes are accessible from this location including Silvertipped Creek Logjam, and 28 Mile Creek. Approximately 8 high quality fishing locations are located within this section, from Silvertip Campground to the southern boundary of the Ecological Reserve.

Silvertipped Creek Logjam (Access 1)

Location:

Distance: **1.1 km**
UTM: **634452E 5445028N**
Latitude/Longitude: **49° 08’ 36”N, 121° 9’ 23”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 3km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Skagit River Trail begins following east bank, approximately 500m downstream. To access the trail, anglers can wade across the Skagit to the east bank. Anglers can travel to upstream locations using this trail or by walking in the river, depending on water conditions. The rougher trail (Silvertipped Campground trail) continues north along the west bank.

Access 2

Location:

Distance: **1.5 km**
UTM: **634793E 5445321N**
Latitude/Longitude: **49° 08’ 45”N, 121° 9’ 6”W**

Access Type: **Trail**
Access Difficulty: **Moderate**
Typical Angler Distribution: **U/S 3km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered moderate due to distance from Silvertipped Creek Trailhead, and condition of trail.

Access 3

Location:

Distance: **1.6 km**
UTM: **634873E 5445339N**
Latitude/Longitude: **49° 08’ 45”N, 121° 9’ 2”W**

Access Type: **Trail**
Access Difficulty: **Moderate**
Typical Angler Distribution: **U/S 2km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered moderate due to distance from Silvertipped Creek Trailhead.

Access 4

Location:

Distance: **1.8 km**
UTM: **634968E 5445418N**
Latitude/Longitude: **49° 08’ 48”N, 121° 7’ 45”W**

Access Type: **Trail**
Access Difficulty: **Moderate**
Typical Angler Distribution: **U/S 3km D/S 3km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered moderate due to distance from Silvertipped Creek Trailhead.

Access 5

Location:

Distance: **2.5 km**
UTM: **635447E 5445969N**
Latitude/Longitude: **49° 09’ 05”N, 121° 8’ 32”W**

Access Type: **Trail**
Access Difficulty: **Difficult***
Typical Angler Distribution: **U/S 3km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: *Access is considered difficult as fishing location is located 2.5 km from Silvertipped Creek Trailhead.

Access 6

Location:

Distance: **2.6 km**
UTM: **635447E 5446313N**
Latitude/Longitude: **49° 09’ 05”N, 121° 8’ 32”W**

Access Type: **Trail**
Access Difficulty: **Difficult***
Typical Angler Distribution: **U/S 1km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered difficult as fishing location is located 2.9 km from Silvertipped Creek Trailhead.

28 Mile Creek (Access 7)

Location:

Distance: **3.2 km**
UTM: **635945E 5446411N**
Latitude/Longitude: **49° 09’ 19”N, 121° 8’ 07”W**

Access Type: **Trail**
Access Difficulty: **Difficult***
Typical Angler Distribution: **U/S 0.5km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered difficult as fishing location is located 3.2 km from Silvertipped Creek Trailhead.

Access 8

Location:

Distance: **3.9 km**
UTM: **636464E 5446805N**
Latitude/Longitude: **49° 09’ 32”N, 121° 7’ 41”W**

Access Type: **Trail**
Access Difficulty: **Difficult***
Typical Angler Distribution: **U/S 0.5km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **6 for entire section**

Comments: Access is considered difficult as fishing location is located 3.9 km from Silvertipped Creek Trailhead.

Section 4
Sumallo/Skagit Confluence South to Ecological Reserve Boundary

Upper Skagit River Trailhead

UTM: **639832E 5452501N**
Latitude/Longitude: **49° 12' 34"N, 121° 4' 48"W**

Date of Survey: August 20, 2007
Survey Crew: Jim Scott, Ryan Anaka

Notes:

1. All distances are taken commencing from this point; Upper Skagit River Trailhead (0.0 km)

2. U/S indicates upstream; D/S indicates downstream

Section 4 Fishing Locations

Overview:

Section 4 is easily accessible from Sumallo Grove Day Use Area. Numerous fishing locations are located within this section. Section 4 can also be accessed by the Skagit River Trail at the trailhead located just north east of 26 mile Bridge. Access to Section 4 from the south Skagit River Trailhead area is impractical though, as the walk in to the southern border of this section is approximately 8.4 km. Below are the documented fishing locations. Due to the close proximity of the fishing locations, estimated Angler Capacity may overlap. Locations and distances are presented moving downstream from the trailhead in Sumallo Grove parking lot.

Angler Capacity: 10

Confluence of Skagit River and Sumallo River

Location:

Distance: **500 m** from Sumallo Grove day use area parking lot
UTM: **639962E 5452049N**
Latitude/Longitude: **49° 12’ 19”N, 121° 04’ 42”W**

Access Type: **Groomed Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 0.5km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments: Beginning of the upper Skagit River trail.

Trail to River (Access 2)

Location:
Distance: **750 m**
UTM: **640058E 5451782N**
Latitude/Longitude: **49° 12’ 10”N, 121° 04’ 38”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Trail to River (Access 3)

Location:
Distance: **1 km**
UTM: **640122E 5451565N**
Latitude/Longitude: **49° 12’ 03”N, 121° 04’ 35”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Silver Daisy Creek (Access 4)

Location:

Distance: **1.6 km**
UTM: **640150E 5451043N**
Latitude/Longitude: **49° 11’ 46”N, 121° 04’ 34”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 2km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Access 5

Location:

Distance: **1.7 km**
UTM: **640100E 5450937N**
Latitude/Longitude: **49° 11’ 42”N, 121° 04’ 37”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 2km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Access 6

Location:

Distance: **2.6 km**
UTM: **639575E 5450196N**
Latitude/Longitude: **49° 11’ 19”N, 121° 05’ 04”W**

Access Type: **Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Access 7

Location:

Distance: **3.4 km**
UTM: **639107E 5449514N**
Latitude/Longitude: **49° 10’ 57”N, 121° 05’ 27”W**

Access Type: **Trail**
Access Difficulty: **Moderate**
Typical Angler Distribution: **U/S 2km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Delacy Camp (Access 8)

Location:

Distance: **3.9 km**
UTM: **639183E 5449214N**
Latitude/Longitude: **49° 10’ 47”N, 121° 05’ 24”W**

Access Type: **Trail**
Access Difficulty: **Difficult**
Typical Angler Distribution: **U/S 2km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

26 Mile Creek (Access 9)

Location:

Distance: **4.2 km**
UTM: **638993E 5448997N**
Latitude/Longitude: **49° 10’ 40”N, 121° 05’ 34”W**

Access Type: **Trail**
Access Difficulty: **Difficult**
Typical Angler Distribution: **U/S 2km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Access 10

Location:

Distance: **4.6 km**
UTM: **638585E 5448878N**
Latitude/Longitude: **49° 10’ 37”N, 121° 05’ 54”W**

Access Type: **Trail**
Access Difficulty: **Difficult**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments:

Access 11

Location:

Distance: **5.8 km**
UTM: **638338E 5448557N**
Latitude/Longitude: **49° 10’ 27”N, 121° 06’ 07”W**

Access Type: **Trail**
Access Difficulty: **Difficult**
Typical Angler Distribution: **U/S 0km D/S 2km**
Quality of Fishable Water: **High**
Quality of Fishing Experience: **High**
Estimated Maximum Angler Capacity: **10 for entire section**

Comments: Fishing location is 0.7 kilometres downstream of the Skagit River Cottonwoods Ecological Reserve. Angling is not permitted within reserve, sign (above) demarking reserve boundary is located on Skagit River Trail.

Section 5
Branch Bend Road to Sumallo/Skagit Confluence

Branch Bend Road

UTM: **628390E 5459643N**
Latitude/Longitude: **49° 16’ 34”N, 121° 14’ 05”W**

Date of Survey: September 16, 2007
Survey Crew: Jim Scott, Ryan Anaka

Notes:

1. All distances are taken commencing from this point; Branch Bend Road (0.0 km) at Sunshine Valley Resort

2. U/S indicates upstream; D/S indicates downstream

Location:

Distance: **2.1 km to 2.4 km**
UTM: **630360E 5458297N**
Latitude/Longitude: **49 ^{o} 15’ 49”N, 121 ^{o} 12’ 30”W**

Access Type: **Roadside**
Accessibility Rating: **Easy**
Typical Angler Distribution: **U/S <1km D/S <1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 2 D/S 2**

Comments: Beginning of long run along road (~300 m). Very little fishable water at this level. River walking is easy.

Location:

Distance: **3.6 km**
UTM: **631391E 5457791N**
Latitude/Longitude: **49 ^{o} 15’ 32”N, 121 ^{o} 11’ 39”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S <1km D/S <1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: Above GPS coordinates are for the access point.

Location:

Distance: **4.2 km to 5.0 km**
UTM: **631720E 5457358N**
Latitude/Longitude: **49 ^{o} 15’ 17”N, 121 ^{o} 11’ 23”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S <1km D/S <1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 2 D/S 2**

Comments: River is adjacent to Highway 3 for 800m.

Location:

Distance: **6.0 km to 6.2 km**
UTM: **633207E 5456694N**
Latitude/Longitude: **49 ^{o} 14’ 55”N, 121 ^{o} 10’ 11”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: River follows the road from 6.0 km to 6.2 km. At 6.2 km, river begins to pull away from the road. Parking is available at 6.2 km.

Location:

Distance: **6.5 km to 7.8 km**
UTM: **633791E 5456199N**
Latitude/Longitude: **49 ^{o} 14’ 38”N, 121 ^{o} 09’ 42”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 2 D/S 2**

Comments: River follows along the road for 1.3 km.

Location:

Distance: **8.2 km**
UTM: **635108E 5455765N**
Latitude/Longitude: **49 ^{o} 14’ 23”N, 121 ^{o} 08’ 38”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: River follows along road. Large parking area.

Location:

Distance: **8.6 km**
UTM: **635510E 5455724N**
Latitude/Longitude: **49 ^{o} 14’ 21”N, 121 ^{o} 08’ 18”W**

Access Type: **Roadside/Trail**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: Access to river is through an old backwater area. Accessible only at low and medium water levels. Limited parking available.

19 Mile Creek

Location:

Distance: **9.4 km to 9.9 km**
UTM: **636666E 5455238N**
Latitude/Longitude: **49 ^{o} 14' 05"N, 121 ^{o} 07' 21"W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Medium/High**
Quality of Fishing Experience: **Low**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: Reasonable access from 9.4 to 9.9 km. There is a paved pull-out for parking.

Location:

Distance: **10.4 km to 11.6 km**
UTM: **636926E 5455078N**
Latitude/Longitude: **49 ^{o} 13’ 59”N, 121 ^{o} 07’ 09”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 2 U/S 2**

Comments: River returns to follow along the road. Good parking from 10.8 km to 11.6 km. Large parking area at 11.6 km.

Location:

Distance: **12.2 km to 12.4 km**
UTM: **637888E 5454469N**
Latitude/Longitude: **49 ^{o} 13’ 39”N, 121 ^{o} 06’ 22”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: Ample parking along road.

Location:

Distance: **12.8 km to 13.6 km**
UTM: **638370E 5454109N**
Latitude/Longitude: **49 ^{o} 13’ 27”N, 121 ^{o} 05’ 59”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Medium**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: River following along road. Moderate parking area on road shoulder. Good parking also available at 13.1 km.

Location:

Distance: **14.3 km to 14.6 km**
UTM: **639556E 5453216N**
Latitude/Longitude: **49 ^{o} 12’ 57”N, 121 ^{o} 05’ 01”W**

Access Type: **Roadside**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S 1km D/S 1km**
Quality of Fishable Water: **Low**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 1 D/S 1**

Comments: River returns to following along road at 14.3 km. Turn-off to Sumallo Grove Day Use area at 14.6 km

Sumallo Grove

Location:

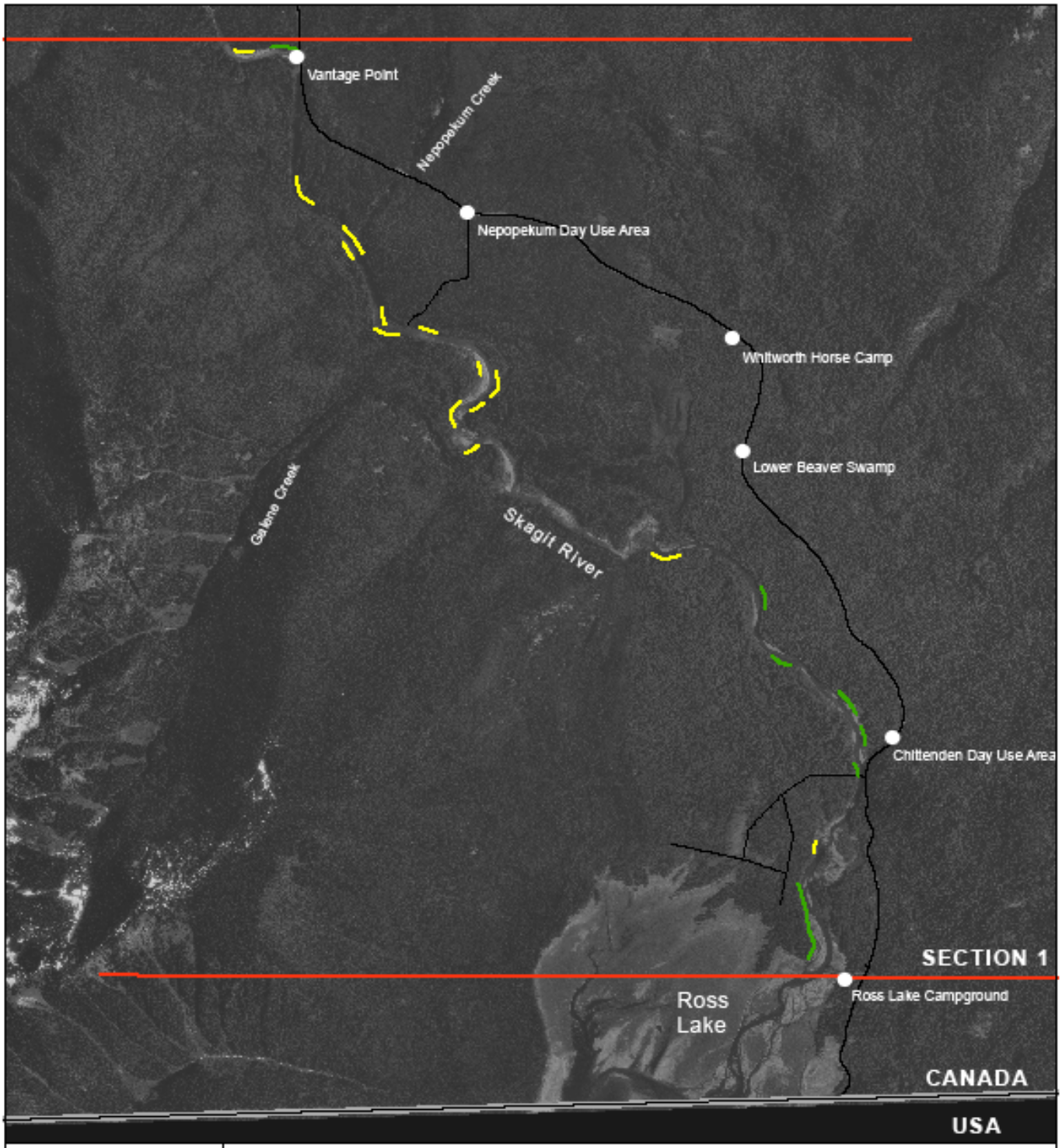
Distance: **15.2 km**
UTM: **639808E 5452496N**
Latitude/Longitude: **49 ^{o} 12’ 33”N, 121 ^{o} 04’ 50”W**

Access Type: **Trail from Day Use Area Parking Lot**
Access Difficulty: **Easy**
Typical Angler Distribution: **U/S <1km D/S <1km**
Quality of Fishable Water: **Medium**
Quality of Fishing Experience: **Medium**
Estimated Maximum Angler Capacity: **U/S 2 D/S 2**

Comments: Sumallo Grove fishing site.

Appendix 2

Fishing Water Quality Rating and Access Locations, Skagit River Angler Quality, Access & Capacity Study, 2007



Legend

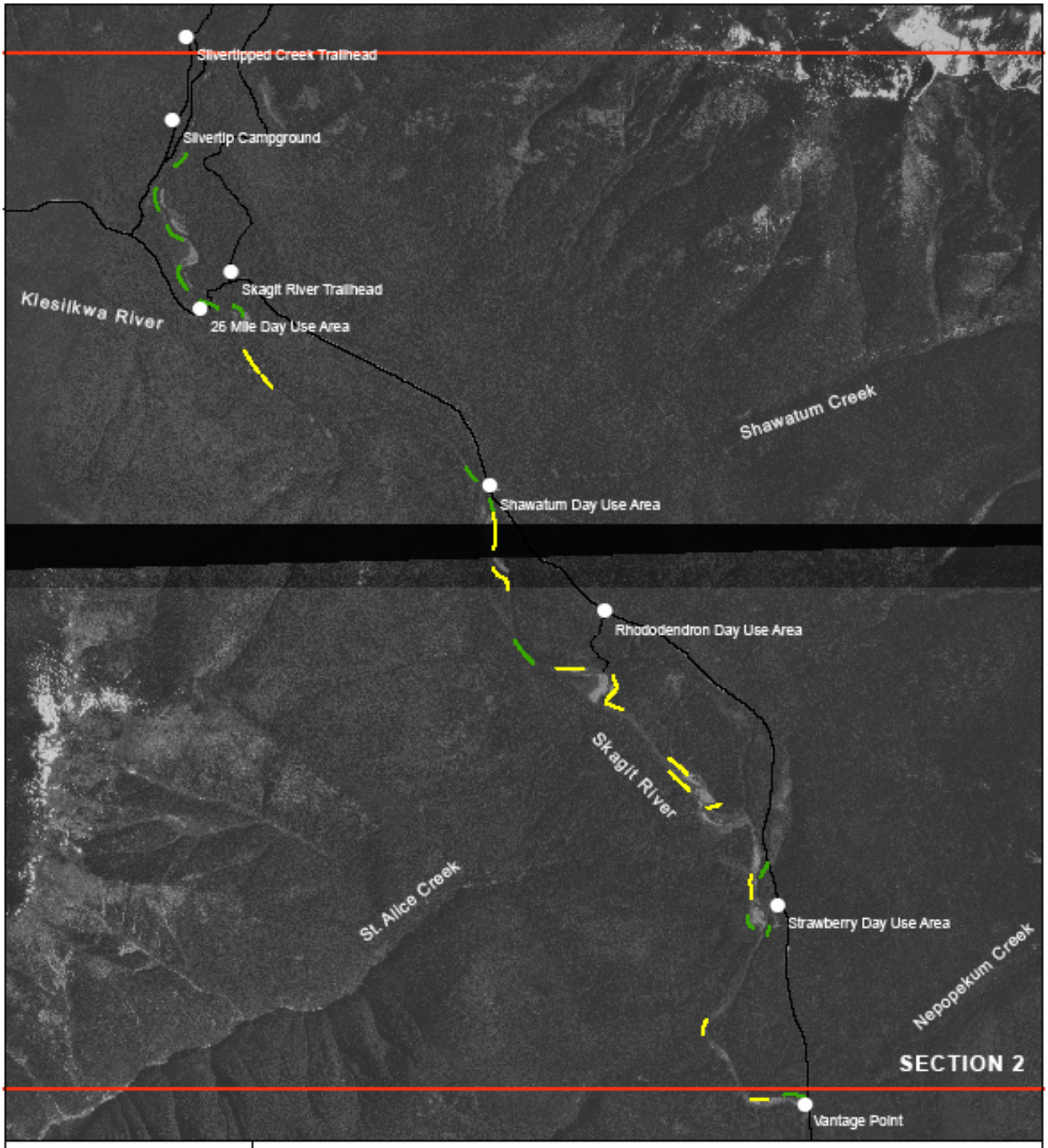
- High Quality Fishing
- Medium Quality Fishing
- Section Breaks
- International Border
- Gravel Road
- Trail

Quality ratings of Section One. The green and yellow lines along the Skagit River indicate areas with high or medium ratings. All other areas are considered to have a low rating.

Map features modified from TRIM and other BC Government base data. Projected in NAD 83, UTM 10.

Appendix 2 Fishing water quality rating and access locations for Section 1, lower Skagit River, 2007

0 0.5 1 2 km



Legend

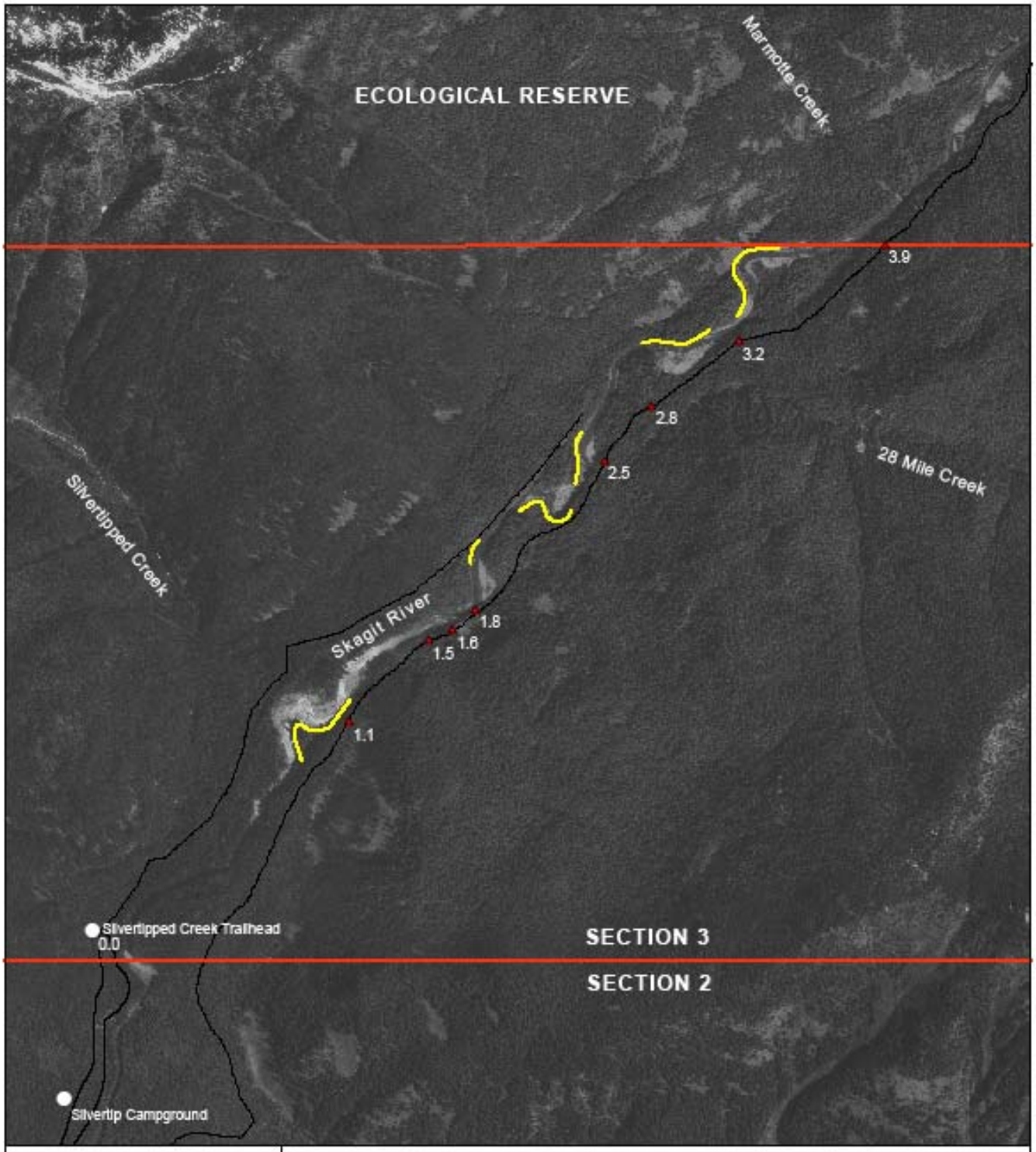
- Gravel Road
- Trail
- High Quality Fishing
- Medium Quality Fishing
- Section Breaks

Quality ratings of Section Two. The green and yellow lines along the Skagit River indicate areas with high or medium ratings. All other areas are considered to have a low rating.

Map features modified from TRIM and other BC Government base data. Projected in NAD 83, UTM 10.

Appendix 2 Fishing water quality rating and access locations for Section 2, lower Skagit River, 2007

0 0.5 1 2 km



Legend

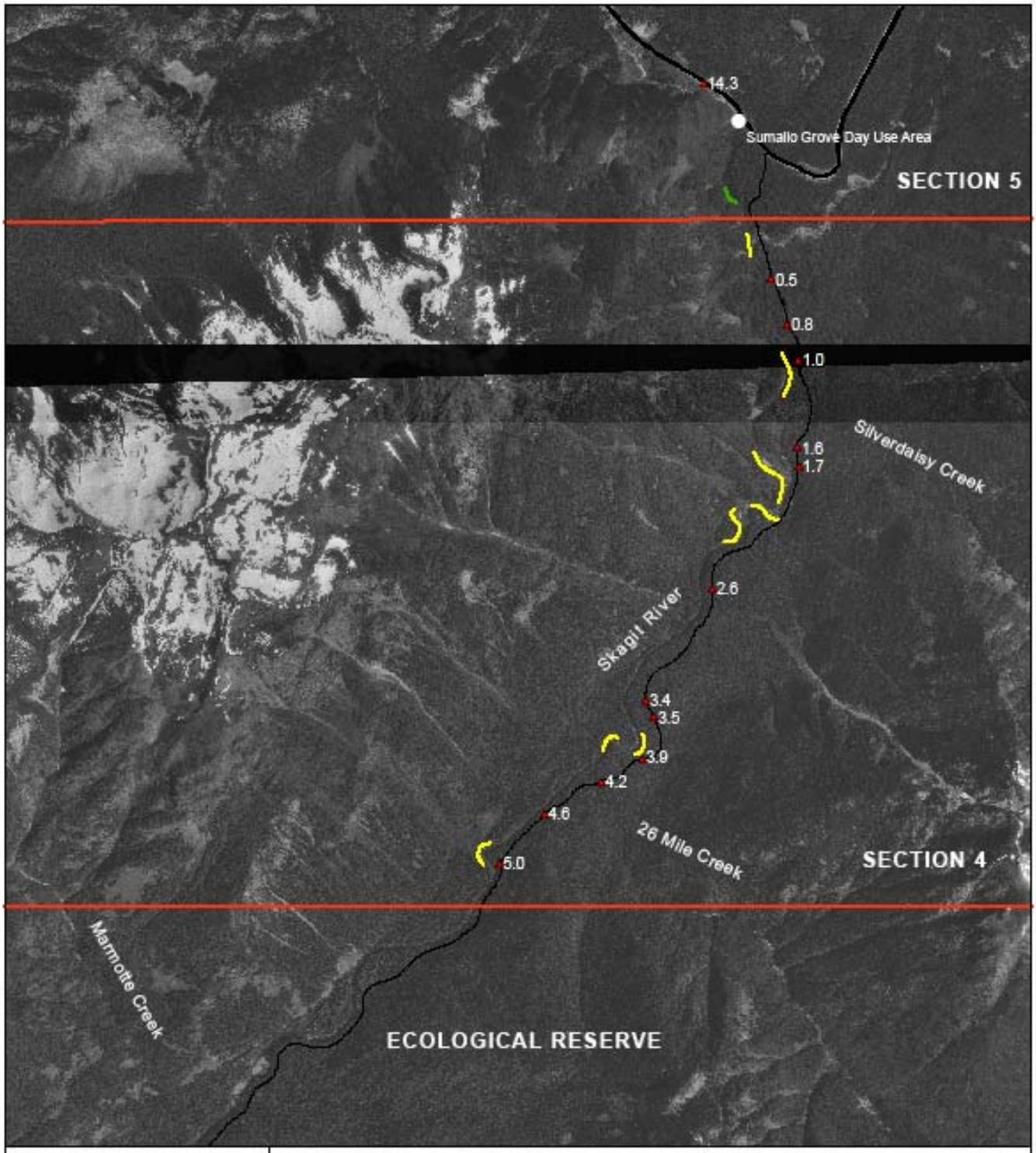
- Access Points & Distances (km)
- High Quality Fishing
- Medium Quality Fishing
- Section Breaks
- Gravel Road
- Trail

Quality ratings of Section Three. The green and yellow lines along the Skagit River indicate areas with high or medium ratings. All other areas are considered to have a low rating.

Map features modified from TRIM and other BC Government base data. Projected in NAD 83, UTM 10.

Appendix 2 Fishing water quality rating and access locations for Section 3, upper Skagit River, 2007

0 250 500 1,000 Meters



Legend

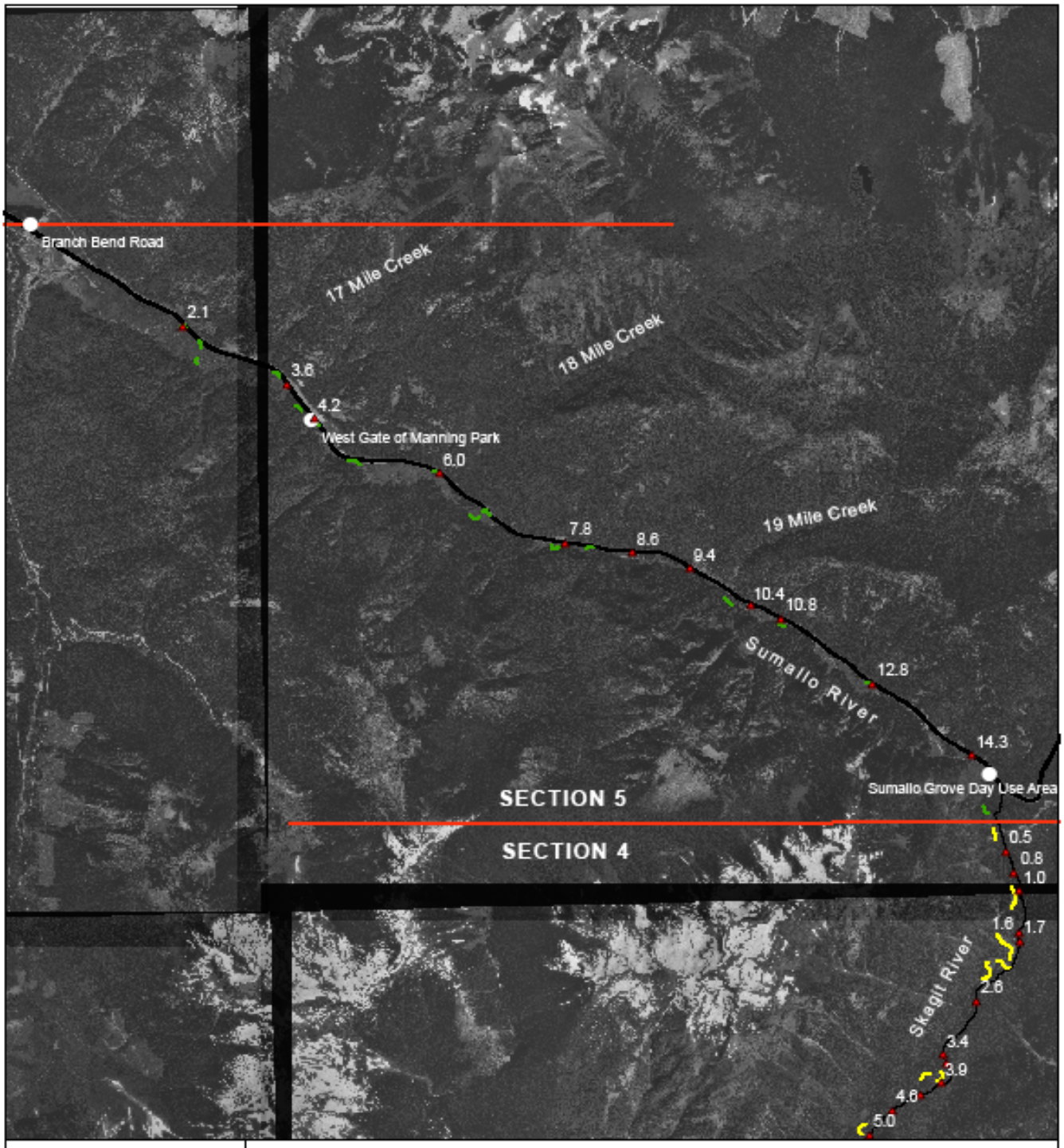
- Access Points & Distances (km)
- High Quality Fishing
- Medium Quality Fishing
- Section Breaks
- Highway 3
- Trail

Quality ratings of Section Four. The green and yellow lines along the Skagit River indicate areas with high or medium ratings. All other areas are considered to have a low rating.

Map features modified from TRIM and other BC Government base data. Projected in NAD 83, UTM 10.

Appendix 2 Fishing water quality rating and access locations for Section 4, upper Skagit River, 2007

0 0.5 1 2 km



Legend

- Access Points & Distances (km)
- High Quality Fishing
- Medium Quality Fishing
- Section Breaks
- Highway 3
- Gravel Road
- Trail

Quality ratings of Section Five. The yellow and green lines along the Sumallo River indicate areas with high or medium ratings. All other areas are considered to have a low rating.

Map features modified from TRIM and other BC Government base data. Projected in NAD 83, UTM 10.

Appendix 2 Fishing water quality rating and access locations for Section 5, Sumallo River, 2007.

0 0.5 1 2 3 km