

Shuswap River Watershed Sustainability Plan

April, 2014

Prepared by the Regional District
of the North Okanagan



EXECUTIVE SUMMARY

The Shuswap River Watershed is highly regarded by community members that live within or access the Watershed for resources and recreation. Members of the community strongly believe that the Watershed should be protected and managed in a respectful, sustainable manner. The Shuswap River Watershed Sustainability Plan highlights the values, concerns and areas of interest of community members. The plan contains a set of five goals, nineteen objectives and one hundred and fourteen strategies that fall into the categories of Land Use and the Natural Environment; Recreation; Interagency Relations, Roles and Responsibilities; and Education & Awareness. These objectives and strategies have been developed to support the sustainable management of the Shuswap River Watershed and achieve the desired future vision for the area.



Vision Statement:

Working inclusively to sustain a healthy, resilient watershed where ecosystems are protected and restored and environmental and cultural values are respected ensuring that fish, wildlife, habitat and people thrive, today and into the future.

The importance of the Shuswap River to the region is significant. Ecologically, economically, socially and culturally it is a valued resource. It supports timber and agricultural resources, hydropower generation, traditional food and medicinal resources and a wide range of recreational opportunities. It is home to a diverse range of ecosystems and several provincially and federally listed threatened and endangered species. The Shuswap River Watershed has high biodiversity especially in areas where riparian ecosystems are still extensive and occur in close proximity to diverse upland habitats. With respect to fisheries the Shuswap River and Watershed in its entirety (including the Shuswap Lakes and other tributaries) is one of the most important salmon-producing systems in British Columbia. It provides habitat and spawning grounds for a wide variety of resident and anadromous (sea run) fish species.



The Shuswap River Watershed Sustainability Plan is a key resource for advocating local concerns and areas of interest in the Shuswap River Watershed. It provides a non-regulatory guidance document to make informed and integrated decisions regarding the Watershed. Implementation of the plan will require collaboration between the general public, local, provincial and federal agencies, First Nations and local stewardship groups.



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DEVELOPMENT OF THE SHUSWAP RIVER WATERSHED SUSTAINABILITY PLAN

Project Background

There has been a high level of community involvement in the Shuswap River Watershed Sustainability Planning process from the outset. The decision to develop the Shuswap River Watershed Sustainability Plan (SRWSP) came about due to multiple expressions of concern from community members that the current convergence of uses, values and pressures within the Watershed could potentially compromise the integrity of the entire river system. Residents in local communities throughout the Watershed were conscious of this situation and expressed their concerns to the Regional District of North Okanagan Board of Directors, the City of Enderby Council and Regional Planning Staff with regard to a range of issues along the Shuswap River. Although not a “crises” situation there was strong sentiment that the Watershed needed protection and certain problematic issues needed addressing to prevent further decline and create an improved management situation.

The environmental impacts of land uses within the Watershed, pressures from recreational activities and the complicated regulatory environment that exists with respect to management of the Watershed, were the main issues raised leading up to and during the planning process. Land uses can have significant impacts on various components of the Watershed including riparian areas, water quality and quantity and wildlife. The popularity of the Watershed as a year-round recreational resource places pressures on the natural environment and can lead to conflicts between users, both of which are likely to increase with more users. Land and water uses within the Watershed are managed by public agencies from all levels of government creating potential difficulties with coordination of activities and implementation of regulations. Additionally, this multi-jurisdictional framework creates confusion within the public as to who holds what information and how that information and resources can be accessed or called upon.

Community stewardship and interest groups have been present within the Watershed for a number of years demonstrating the significant level of grass-roots interest in Watershed health. Such groups hold valuable

knowledge, expertise and resources which are often underutilized in management decisions. Effective management of the Watershed recognizes the importance of stewardship groups and connects with them to integrate their value and local knowledge.

Purpose of the Shuswap River Watershed Sustainability Plan

As stated in the Term of Reference for the SRWSP the purpose is two-fold;

- 1) Create a common long-term vision for the management of the Shuswap River Watershed (which includes its tributaries) that all stakeholders and community members agree to and strive to achieve.
- 2) Create a comprehensive plan that will guide agencies and the community in decision making with regard to land and water planning within the Shuswap River Watershed.

During the Initial Stages of plan development a third component to the purpose evolved;

- 3) Develop a sense of responsibility within the community, for the Watershed.

Ultimately the SRWSP will be a key resource for advocating local concerns and areas of interest. It is a non-regulatory, guidance document to help decision making authorities, resource managers, water users, recreation users and residents make informed and integrated decisions regarding the Watershed.

Scope of the Plan

The development of the SRWSP was not directed by, or embedded in any legislation or set process. Instead it was directed by the concerns and aspirations of the community. The nature of watershed planning requires a flexible framework for managing water resources. As stated by the Fraser Basin Council (2011, 35) “Typically, watershed planning processes are generally iterative, adaptive, holistic, geographically defined, collaborative and participatory” in nature. They also note that “the watershed planning process works...by drawing on a series of collaborative, iterative steps to characterize existing conditions, identify and prioritize problems, define management objectives, develop protection or remediation strategies, and implement and adapt

selected actions when necessary” (Fraser Basin Council, 2011, 34).

The scope of the SRWSP included the development of a process which was to establish the current state of the Watershed, identify what issues and concerns exist; determine their scale, identify mechanisms to address them and monitor the effectiveness of the solutions and process.

As stated earlier, the content of the SRWSP has been directed primarily by the participants in the planning process and significantly by the community that lives within, and holds interest for the Watershed.

Shuswap River Watershed Profile

As discussed by the Fraser Basin Council (2011) a watershed is a region or area of land that drains into a

stream, river system or other body of water. They are dynamic, integrated systems, with actions in one part of a watershed often impacting other parts of the watershed; for example changes to land cover in upland regions can affect downstream hydrology; waste inputs from one community or activity can impact water quality further downstream; groundwater withdrawals can affect the flow of a nearby stream. Therefore, the various interacting components of a watershed – land, surface and ground water, air and organisms that exist within it – cannot be considered in isolation.

As described in the Technical Assessment carried out by *Golder Associates* (2012); the Watershed is located in the southern interior of British Columbia, originating from Joss Pass between Joss Mountain and Davis Peak in the Sawtooth Range of the Monashee Mountains.

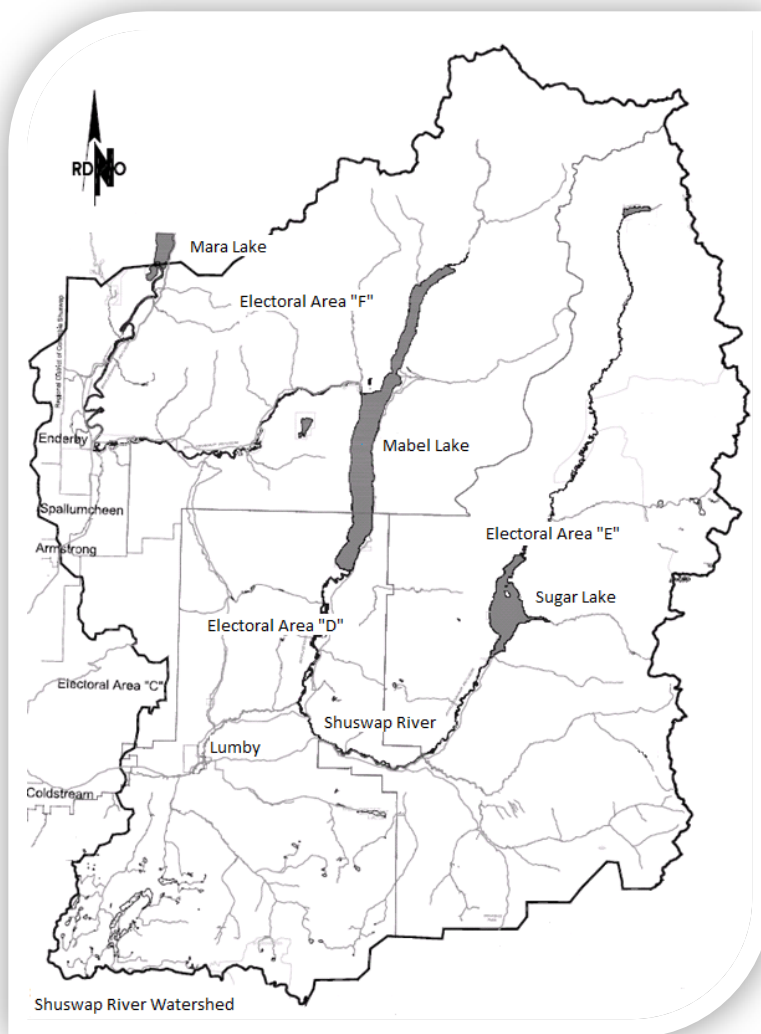


Figure1. Shuswap River Watershed Map

Along its approximately 150-kilometer westward course the Shuswap River traverses forested, mountainous terrain, two large lakes, Sugar and Mabel and fertile agricultural valleys before discharging into Mara Lake, which is a tributary lake of Shuswap Lake.

A number of communities and settlements are situated along its course including Cherryville, Kingfisher, Ashton Creek, Splatsin Indian Band Reserve Lands, the City of Enderby, Grindrod and Mara. The major tributary of Bessette Creek flows through the Village of Lumby, also linking this community to the river.

The Shuswap River is commonly divided into the following three main sub-watersheds:

- the Upper Shuswap River Watershed (114,750 ha), which starts at Joss Pass and flows south, discharging into Sugar Lake (key sub-drainages: Greenbush Creek, Spectrum Creek, Outlet Creek);
- the Middle Shuswap River Watershed (292,403 ha), which starts at the Sugar Lake outlet and flows south and then north again into Mabel Lake (key sub-drainages: Cherry Creek, Ferry Creek, Duteau Creek, Bessette Creek, Wap Creek); and,
- the Lower Shuswap River Watershed (112,963 ha), which starts at the Mabel Lake outlet and flows to the west towards Enderby, eventually flowing north and discharging into Mara Lake (key sub-drainages: Kingfisher Creek, Trinity Creek, Fortune Creek). (Golder, 2012).

The climate and ecosystems present in the Shuswap River Watershed are diverse. The climate ranges from the lower elevation valley bottoms which typically experience warm, dry summers and cool winters with low to moderate snowfall, through the lower elevation slopes and higher elevation valley bottoms that typically experience warm dry summers with cooler wet winters and abundant snowfall through to the higher elevation slopes that are considerably cooler and snowier. In addition to elevation, the climate is also influenced by the west to east location within the Watershed. The more westerly parts of the Watershed are affected by the rain-shadow effect of the westwardly mountain ranges, resulting in a dryer climate than in the east.

The ecosystems present within the Watershed are influenced by climate as well as landforms and aspect and are classified in the Biogeoclimate Ecosystem Classification (BEC) System. The Shuswap River

Watershed is located within five BEC zones. Valley bottoms at lower elevations are primarily located within the Interior Douglas-Fir (IDF) zone, while adjacent mountainous slopes are in the Interior Cedar Hemlock (ICH) zone and Montane Spruce (MS) zone, and upper mountainous peaks are in the Engelmann Spruce Subalpine Fir (ESSF) zone. At higher elevations, valley bottoms are primarily located in the ICH zone, adjacent mountainous slopes and peaks are in the ESSF zone, and the highest peaks are in the Interior Mountain-heather Alpine (IMA) zone.

Human Activities

Based on 2011 Census data the population of residents within the Shuswap River Watershed is 12,405. A number of towns and settlements exist within the Watershed including the incorporated communities of Lumby and Enderby and the unincorporated communities of Cherryville, Kingfisher, Ashton Creek, Grindrod, Mara and Splatsin Indian Band Reserve Lands.

Land uses within the Watershed are diverse and have a strong natural resource use element. Forestry activities are extensive and include crown land logging by large companies, individual woodlot managers and community forest license holders, and private land logging, the latter of which is particularly prevalent in the Middle and Lower Watersheds.

Ranching and farming activities dominate the fertile valley and bench areas of the Shuswap River Watershed, particularly south and west of Mabel Lake. These agricultural activities include beef, swine, and dairy production, as well as associated services such as meat packing and feed mills. In addition, active range tenures are held throughout the Shuswap River Watershed, particularly on crown lands west of the Upper Shuswap River and in both the Middle and Lower Shuswap River Watersheds.

Historically mining activities lead to early European settlement especially in the Cherry and Monashee Creek areas. Various mineral tenures are currently held, particularly west of the Upper Shuswap River in association with Tsuius Creek, Kingfisher Creek, and Harris Creek, as well as near Wap Creek, Monashee Creek, Cherry Creek, and Creighton Creek.

Recreation and tourism activities are also undertaken within the Watershed and have their own impact on the

land base and water bodies. Helicopter and cat ski outfits operate on Crown Lands, numerous hiking, ATV and snowmobile trails have been established and campsites are well utilized in provincial parks, recreation sites and at informal locations. Sugar Lake, Mabel Lake the Shuswap River and the many upland lakes within the Watershed are used extensively for recreation including boating, canoeing, kayaking, swimming and fishing.

Anecdotally community members feel that human pressures on the Watershed have increased over the last 15 to 20 years especially related to recreation. The permanent population has remained relatively stable over the last 15 years with only a 0.8% increase since 2006. However, these numbers do not reflect non-permanent residents which are likely to contribute significantly more to the population at certain times of the year. A study based on 2006 census data suggested that 25% of the residences in Electoral Area F (Rural Enderby) were second homes or vacation rental properties. The total populations of British Columbia and neighbouring Alberta have increased by 7% and 10.8% respectively since 2006 and this increase may be felt in communities throughout the Watershed that are popular recreation areas.

Stewardship Groups and Organizations

A strong stewardship ethic exists in the Shuswap River Watershed with Watershed health being considered extremely important to community members. As a result a number of groups and organizations have formed with a focus on various aspects of the Watershed. These groups include the Cherryville Water Stewards, The Middle Shuswap Wild Salmon Society, The Lower Shuswap Stewardship Society, The Kingfisher Interpretive Centre Society and The Shuswap River Ambassadors (Enderby and District Chamber of Commerce). The focus of these groups includes water quality, habitat restoration, fisheries and fish passage, education, recreation and advocacy. The White Valley Community Resource Centre has also been very active within the Watershed undertaking a significant number of riparian restoration projects on tributaries of the Shuswap River. The Shuswap Watershed in its entirety is the focus of other groups including the Shuswap Environmental Action Society and the Shuswap Water Action Team. These groups provide a wealth of knowledge and experience regarding the Shuswap River Watershed and have contributed significantly to the planning process.



Planning Framework

The SRWSP Framework was developed to ensure that the plan's goals, objectives and strategies are as effective as possible. In simple terms the planning task entails: defining the desired future conditions for the Shuswap River Watershed, identifying concerns and areas of interest; establishing strategies to address these issues and providing direction for action. The following Framework provides the tools that are used in the SRWSP to communicate desired outcomes and actions.

Guiding Principles- The guiding principles will set the tone for an integrated approach and common framework for the development of the Plan. They underpin the creation and implementation of the SRWSP.

Vision- Describes the future desired conditions for the plan area.

Goals- Speak to the desired outcome for each of the identified themes covered in the SRWSP and establish broad aims.

Objectives- Define end results that will achieve broader goals. They describe desired future conditions for identified sub-themes. Can be measurable, time specific, geographically specific or apply to the whole plan area.

Strategies- Describe how to achieve an objective. Can pertain to activities and how those activities are to be conducted.

Figure2. Planning Framework provides a visual on how each tool fits within the plan structure; this nested approach ensures that each strategy, objective and goal works towards achieving the overall vision for the Watershed while adhering to the guiding principles.

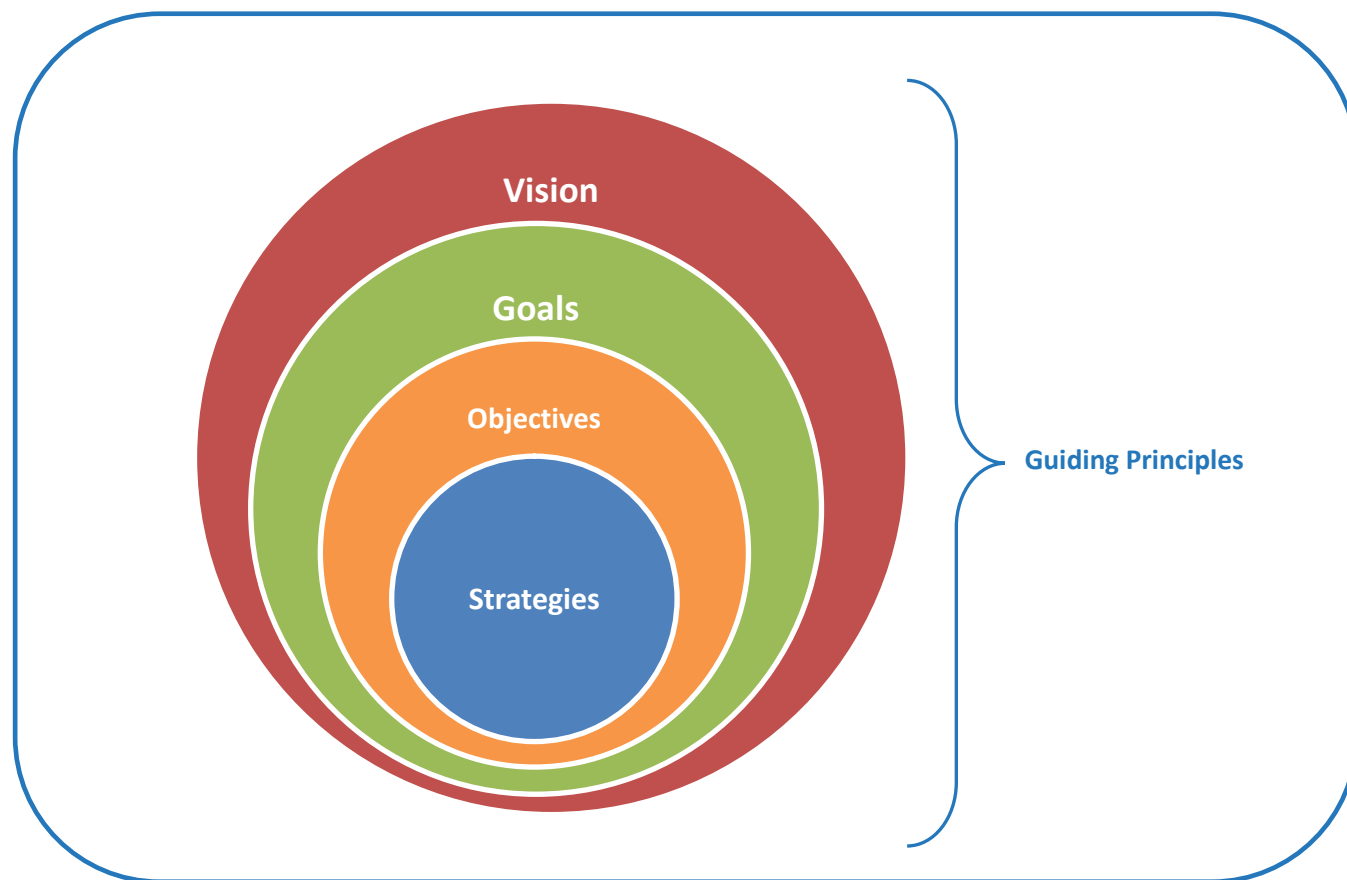


Figure2. Planning Framework

Guiding Principles

The following principles were developed to guide the SRWSP development process and the spirit of discussions.

Guiding Principles

- Employ an ecosystem approach which integrates the management of land, water, and living resources; promotes conservation and sustainable resource use in an equitable manner.
- Recognize that economic, social, environmental and cultural values need to be balanced to achieve a healthy watershed.
- Pursue integrated solutions to watershed management at an agency and community level.
- An inclusive consensus based process with respect for all concerns.
- Follow a positive approach to problem solving.
- Recommendations/decisions will be based on sound information.
- The Shuswap River Watershed Sustainability Plan is incremental, long-term, on-going and flexible in response to periodic review.

Plan Development Process

The process followed to develop the SRWSP involved two phases:

Phase I – Issue Identification

Phase II – Plan Development

A third phase, Implementation and Monitoring, will follow the endorsement of the plan.

There was significant community involvement in both Phases I and II of the planning process. The vision statement and the issues to be addressed within the plan were shaped by input from the community and the plan development was guided by three working groups populated by community members.

Phase I

Phase I of the process focused on developing a vision for the Watershed, identification of issues to be addressed during the planning process and determining the current condition of the Watershed. Visioning and issue identification was undertaken through stakeholder and

public engagement during a stakeholder workshop held in December 2010 and two public workshops held in June 2011. Twenty-seven organizations were represented at the December 2010 workshop including environmental groups, community associations, federal, provincial and local government and first nations. Over 76 people attended the June 2011 public workshops which were held in Ashton Creek, located in the northern part of the Watershed, and in Lumby, in the south. Surveys were also distributed at the public workshops and were available on-line.

Three key issue areas were identified in Phase I – Land Use and the Natural Environment, Recreation and Interagency Relations, Roles and Responsibilities, as depicted in Figure 3.

Another issue that emerged during the plan development process was climate change, with respect to both the likely impacts it will have on the Watershed including water flows, water quality and biodiversity, and activities contributing to climate change especially with regard to recreation.

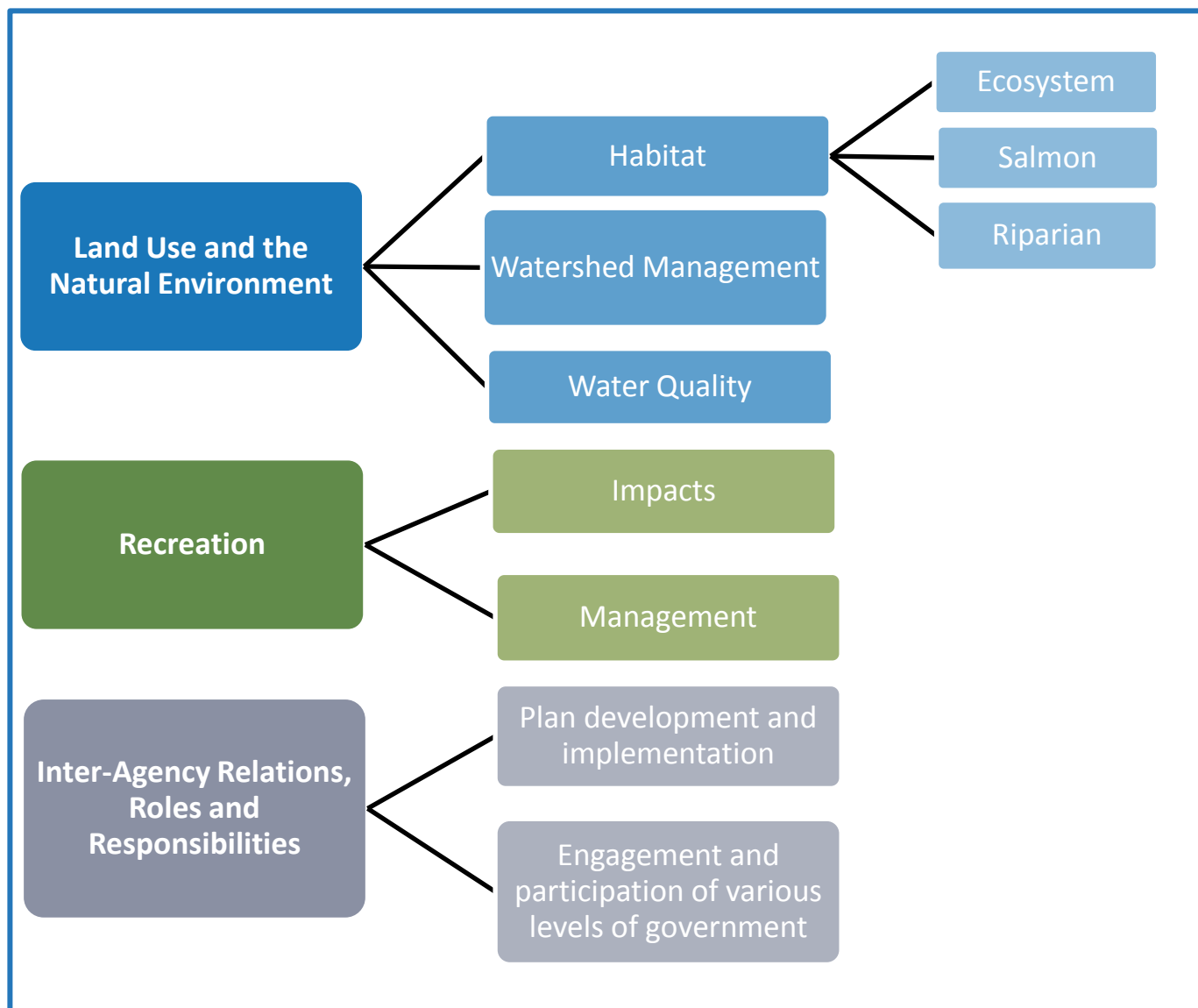


Figure 3. SRWSP Issue Themes as Emerged from the Stakeholder and Public Workshops

Technical Assessment of the Shuswap River Watershed Golder Associates

As a component of establishing the current condition of the Watershed, a technical assessment was commissioned to provide a detailed current watershed profile specifically focusing on water quality, water quantity and the condition of riparian areas. This assessment has been used to inform the plan development process, providing background information to the formation of goals, objectives and strategies and identifying information gaps. A significant amount of the watershed profile information included in the SRWSP is informed by the Technical Assessment.

Phase II

Phase II of the planning process was initiated with another public workshop held in November 2011 in Ashton Creek. This workshop focused on sharing experiences with presentations on the technical assessments, community group activities and the results of Phase I. The Vision statement was re-visited and volunteers were called for to populate the working groups to assist with Phase II.

Working Groups

Phase II of the planning process involved the development of goals, objectives and strategies to address the issues identified during Phase I and the formulation of a draft SRWSP. Three working groups were formed, populated

by 32 community members with representatives from throughout the Watershed with a wide variety of interests and backgrounds. The focus of the working groups were based upon the three key issue areas identified in Phase I. Through a consensus based process the working groups formulated goals for these three issue areas and developed recommendations for objectives and strategies that would work towards achieving the goals. Upon completion of this work two public information meetings were held in March of 2013 in Lumby and Enderby. The goal of these information meetings was to present the draft goals, objectives and strategies to the general public and “check in” and obtain feedback on what has been developed.

Technical Advisory Committee

A Technical Advisory Committee (TAC) was also formed in Phase II to provide input and guidance to the plan

development process. The TAC was comprised of representatives from federal government, various provincial ministries and authorities, member municipalities and first nations. The TAC was used as an information resource for the working groups and to review the recommendations they drafted.

Phase III

The objective in Phase III of the planning process is implementation, review and monitoring. This phase of the process will include;

- prioritization and implementation of the strategies
- sourcing funding
- periodic review of the plan



VISION AND GOALS FOR THE SHUSWAP RIVER WATERSHED

Vision Statement for the Shuswap River Watershed

The development of a vision statement for the SRWSP was initially discussed during a visioning exercise at the 2010 stakeholders' workshop. This draft statement was revised and reworded at various public engagement stages within the planning process. The vision statement describes the collective desired future state of the Shuswap River Watershed:

Vision Statement

Working inclusively to sustain a healthy, resilient watershed where ecosystems are protected and restored and environmental and cultural values are respected ensuring that fish, wildlife, habitat and people thrive, today and into the future.

The Shuswap River Watershed Sustainability Plan Goals

The goals formulated by the working groups to address the issues identified in Phase I of the planning process are as follows:

Goal 1: Water Quality & Quantity

- To preserve and protect the Shuswap River Watershed to ensure water quality and quantity that supports the ecosystems and communities that rely on it.

Goal 2: Ecosystems and Biodiversity

- To preserve, protect and restore ecosystems within the Watershed and enhance biodiversity.

Goal 3: Recreation

- That the Shuswap River Watershed is a model of safe and sustainable recreational practices, providing diverse recreational opportunities that respect and do not compromise, interfere with, pollute or devalue the ecosystems and communities that the Watershed supports.

Goal 4: Interagency Relations, Roles and Responsibilities

- Facilitate, simplify and promote collaboration and efficiencies among agencies and the community for sustainable watershed management

Goal 5: Education and Awareness

- To raise community awareness of the importance of the Shuswap River Watershed, the ecosystems it supports and the relationship between human activities and watershed health, such that we all take ownership of our actions.

OKANAGAN INDIAN BAND VALUES AND CONCERNS WITHIN THE SHUSWAP RIVER WATERSHED – PROVIDED BY OKANAGAN INDIAN BAND JANUARY 2014



History

The Okanagan Indian Band is the most northern community of the Okanagan Peoples. Spillamacheen Rapids/Shuswap River is within the Okanagan Indian Band's *Area of Responsibility* (map enclosed Appendix B), and is very important to the Okanagan Indian Band since the Spillamacheen/Shuswap River is the largest salmon bearing river in proximity to our community. For thousands of years our community has gathered food and settled in this region; fishing for Salmon at Spillamacheen Rapids/Shuswap Falls and following the game and fish into the middle and upper Shuswap River system. It is for this reason that the Okanagan Indian Band is participating in the development of the Shuswap River Watershed Sustainability Plan which is being facilitated by the North Okanagan Regional District.

It is important to provide clarity on the history of our people and the confusion about the names and terms used by people writing about the Okanagan Indian membership or their ancestors. Okanagan is the "Anglicized version of Suqnaqinx and refers to the Indigenous people of the Okanagan territory, it translates as —takes to the head or mind" (Cohen 2010: page xiv). Sqilxw is "[t]he Okanagan term for the Indigenous people also commonly called the Okanagan whose territory is located in the southern interior of BC and north central Washington, literally translates as the dream in a spiral. Syilx is also used

and refers to the peoples who speak Nsyilxcen, the Okanagan language" (Cohen 2010). The Okanagan Indian Band membership and their ancestors are known as Inkumupulux or Head of the Lake. Inkumupulux is both a name for the people and where we live. Additionally, Okanagan is the usual spelling within Canada and Okanogan is the typical spelling in the United States. The Okanagan/Okanogan people have territory within Canada

and the United States. Directly related to this discussion, Spillamacheen (with various spellings) was the previous name used for the now called Shuswap River. SpalEmtchin (Spallumcheen, Spillamacheen) means "flat rim or edge" (Ormsby 1929). Okanagan Elder Mrs. William Brent states that Spallumcheen is a well-known Indian place-name in the same class as Penticton and Osoyoos (Brent 1935). The following excerpt chronicles the approximate time that the Spillamacheen Rapids/River was re-named the Shuswap Falls/River.

A written account by Francis G. Claudet on his travels through the Middle Shuswap River watershed provides details on the landscape, natural resources and his interactions with Okanagan Peoples in the year 1867. Claudet was the Superintendent of the Assay Office at New Westminster and was sent to report on the mineral wealth at Cherry Creek. He describes his journey and specifically his encounter with the Spillamacheen rapids (Shuswap Falls) and notes:

"Arrived after going a circuitous path round the mountain, called camel at 1/4 past 2 at the bridge (which is very rotten) over the Spillamacheen rapids (Shuswap Falls) 20 miles from Houghtons —• Scenery very grand — We went over one by one as the bridge is very shaky & rotten —• Continued up the Spillamacheen (Shuswap) valley about 7 miles farther & bivouacked for the night —• Arrived here at about 1/2 past 5 p.m. the trail being up & down steep places & very broken with fallen timber — Mosquitoes troublesome — rigged up netting. Cooked supper — We are now on the bank of the Spillamacheen river, and on either side run the hills — There are some Indians here who have shot several bears. On the way we found heaps of huckleberries of which we eat a large quantity — We had nothing to eat all day except these until about 7 p.m. when we had squirrel shot by Dietz &

a grouse shot by Indian. There is a variety of pretty flowers in this section of the country, wild lupins, wild hollyhock & many of which I do not know the names — We brought some tea, bread & bacon from Houghton's with us — There are white birch, cottonwood, cedar & various species of fir” — (Okanagan Historical Society 12th Report by Margaret Ormsby p32-33).

The Okanagan Indian Band members’ ancestors history within the watershed is important to establish for the purpose of educating the mainstream public and improving their understanding of the Okanagan People’s perspective. “In our histories [chaptikwl] we are told the creator sent ‘Senklip’ (Coyote) to help our people survive on this land. Coyote’s travels are a record of the natural laws necessary for our Syilx people to survive and essential to our ability to carry on. We weren’t born with the instincts to know how to live in nature’s laws, instead we are given memory to remind us of what we could and couldn’t be doing. Understanding the living land and teaching our young generations how to become a ‘part of it’ is the only way we, the Syilx, have survived. Many of our stories are stored deep within our memories, while others have been documented in various ways. Every story is open to the interpretation of the learner and tells us something we need to know. As everything around us has evolved, the Syilx people have evolved but the things that have remained the same are the oral histories of what and how this place came to be for the Syilx people” (*Okanagan First People.ca, 2004-2008*). The Legend of Shuswap Falls provides insight into the value and importance of the Spillamacheen/Shuswap River to the Okanagan Peoples and is presented below in both the Okanagan and English Versions.

Methodology in Obtaining Community Values and Concerns

In order to gather feedback from community members the Okanagan Indian Band’s Territorial Stewardship Division hosted a community dinner at which community members completed the North Okanagan Regional District’s Shuswap River Watershed Sustainability Plan survey questionnaire which asked people to identify:

- Areas of interest and importance to you within the Shuswap River Watershed

- Areas of concern that you have within the Shuswap River Watershed
- What are the top three areas of interest and concern that you would like addressed in the initial stages of this planning process.
- What are your comments on the draft Vision Statement.

At the meeting, members were encouraged to voice their relationship, thoughts and observations with the watershed. At a project planning meeting the Okanagan Indian Band decided to use the already developed database from RDNO for the resultant data analysis. This involved categorizing comments that fell under the topics of water quality, habitat, watershed, process, education, vision and priorities. Upon completion of data syntheses and analyses the Territorial Stewardship Division hosted a community meeting and presentation of the findings, whereby the community verified the accuracy of the research.

Results/ Feedback

The Okanagan People overwhelmingly identified adequate plant and animal resources for both food and a healthy ecosystem as their priorities. Respondents mentioned *The Four Food Chiefs: Skmxist (Black Bear), Siya (Saskatoon Berry), Spitlem (Bitter Root), Ntyxtix (King Salmon)*. The Okanagan perspective of sustainability is outlined within *The Four Food Chiefs* which is a book authored by the Okanagan Tribal Council (now the Okanagan Nation Alliance). This book is the English version of the chaptikwl (Okanagan oral history) whereby the Okanagan People’s relationship with the plant and animal people are explained. As explained in the History section, the chaptikwl helps the people remember the responsibilities between the Okanagan People, the Plant People, Animal People and the land. Therefore, the central underlying concern is that the level of development must be balanced to ensure a healthy watershed. A synthesis of the people’s responses to the survey questionnaires follows.

Water Quality

Presently, the water quality needs to be monitored. Community members identified specific water quality concerns that include: pollution, Canadian development, logging, cattle, farming, residential use, toxic environmental contamination from waste, commercial

and recreational activities. These water quality concerns (pollutants) need to be measured for the purpose of identifying needed changes to improve water quality. As well, community membership questioned “who is monitoring the outflow within the watershed?”

Habitat

The community stated that, “areas within the watershed provide habitat that included sustenance [attributed] to the Four Food Chiefs.” The Four Food Chiefs holistically encapsulates the community identified habitat issues, namely, all natural resources, animals, fish, plants, trees, fish passage and fish habitat. As well, the community stated that they are concerned by development within sensitive areas.

Spawning/Salmon

Overwhelmingly, the communities’ biggest stated concern is fish passage past Wilsey Dam. The present stoppage of fish at the Wilsey Dam Hydroelectric Station needs to be remedied by a fish ladder. “This dam shortens the historical spawning habitat for all salmon species.” It was further stated that, the re-introduction of fish, through the health of spawning grounds relies upon the health of the watershed as is required for a healthy fish population for food sustenance of our community. Ultimately, the message is to “protect the fish” through clean water and unobstructed access to their habitat prior to development of Wilsey Dam and pollution.

Ecosystem

The community said that, a healthy ecosystem is vital to berry picking, fishing, and hunting. The message was, resource gathering for food purposes is not possible in a disrupted ecosystem with a depleting wildlife. More specifically, air pollution, water pollution, extinguishment of wildlife, water quality, water quantity and disruption of the ecosystem through the Wilsey Dam are the major concerns.

Riparian

The community members’ stated concerns about water permits, water diversion and development impacts on riparian areas. More specifically, logging practices and their long term impact due to sediment build-up, run-off of agricultural products into the river system and road construction contaminates.

Vision Statement

- should also include consultation requirements to local First Nation people
- vision is drafted by whom? Drafted together?
- wants to be contacted about this “plan”
- agree with draft vision statement for the plan
- agreed that the people come together to help protect these interests
- would at the end of this statement to include environmental and indigenous cultural values (maybe including a clause from the UN Declaration on the Rights of Indigenous Peoples)
- no mention of aquatic species/fish
- keeping our water resources in the valley
- environment and cultural values underlined in the draft statement
- agree these are the areas of my concerns in protection
- protection of hunting, fishing and plants
- mother earth is important, keep her safe. Protection of traditional hunting, fishing and plants.
- agree with draft vision statement
- vision statement add "for future generations"
- are the aquatic life considered in this statement; fish are similar to canary in the mines as fish need adequate water to survive
- agree with statement. Question re. aquatic species
- need to acknowledge First Nations and traditional values

From the Okanagan Indian Band point of view a holistic perspective of the watershed is important for sustainable management as set out by the Four Food Chiefs.

Watershed

Statements about the watershed included The United Nations Declaration on the Rights of Indigenous Peoples mandates knowledge of Indigenous peoples in the management of the watershed. People further stated that, Okanagan people have full meaningful authority over the watershed.

The people stated that, lakes, streams and in particular water sources need protection. From a holistic perspective this protection includes wildlife and fish. Also, watershed protection includes over allocation of water licences, over logging in forest lands, fertilization concerns and population impacts upon the watershed.

Process

The responses to the survey questionnaire stated the need for a holistic perspective of development or in other words the cumulative effect of all developments (development permits, water licences etc.,) within the watershed need to be taken into account in the Process of Watershed Management.

Precisely, survey questionnaire identified issues include, deficient environmental law in relation to the development of the Wilsey Dam, which did not and does not require a fish ladder, encroachment by development, overuse of water, commercial development, lack of water, development pollution and issuance of water permits within the watershed all of which has occurred without Okanagan Band input. And it was further stated that, the questionnaire survey is not to be taken as consultation of the Okanagan Indian Band. The community stated that, it is the responsibility of the Okanagan Indian Band to ensure that our future generations have unlimited and free access to clean, healthy water and resources through Okanagan Indian Band's inclusion in the development of regulations and permits, designed to protect the watershed.

Education

The community stated that they would like, "the acknowledgement of the watershed as part of the Okanagan territory, from time out of memory" included within the watershed education communications.

The Okanagan Indian Band acknowledges the responsibility as outlined by the Four Food Chiefs which requires that we collaborate with neighboring communities for the protection and health of the land and watersheds. The Okanagan Indian Band is pleased that the Regional District of the North Okanagan acknowledges our relationship to the land and watershed within their working area. We look forward to future collaborations with the Regional District of the North Okanagan.

Priorities

- Wilsey dam fish passage / fish passage at Spallumchseen Rapids (Shuswap falls)
- restoration of Native species of plants and Animals
- rehabilitation of streams and creeks within the watershed
- salmon passage
- ecosystem restoration
- stream/creek rehabilitation
- mitigation for fish loss
- habitat restoration
- berrying picking areas
- fishing areas
- hunting areas
- discussing our rights with government
- water and land access
- water useage due to population growth
- need more information on current water concerns in this area
- sustainability for the ecosystems
- water licensing
- food fisheries
- logging impact and our share of revenue
- protection, revitalization rehabilitation and education to promote the 3 concerns
- fish protection, water protection, including first nations
- it's all important, we just gotta keep her safe
- fish protection, water protection, include all first nations
- protection of hunting, fishing and plants
- It's all important, mother earth is important. Keep her safe
- It's all important. Mother earth is all that we have and must protect it
- Fish protection. Include all first nations in all aspects of talks. Water protection. Stop overlogging
- water, land protection, public access
- flint deposits, water
- protection of watershed, salmon, and natural resources
- working with various provincial ministries to ensure the area is protected
- working with the province to ensure the air is protected
- enough water for fish life cycle; foreign materials that enter the waters of Shuswap River; grey water associated with population growth, septic tanks as population grows
- fish passage; water quality/quantity; protection of hunting/gathering areas

THE LEGEND OF SHUSWAP FALLS

fwa?wix

qsapi? pti? la t'ik i? tmx^wwa2x^w ?wł sic lwti? i? snk^walsncut, kam i? siḡaḡt i? isq^wnq^want lan ?włxwł. ?wł yfstim t'i? qam ?wł t'i? pipat ?wł yft tmix^w xast i? sck^wlitclx, i? skmxist, st' iləa?, xflw^w, sənkliḡ, ?wł iyft i? tmix^w ?wł atc t'ux^wt'ux^w tix qa2? sqilx^wlx.

sənkliˈp ˈxast iː ˈsɛmwɪts naxʌmɪ lʌnkʷplswlʌʔxʷ klkʷwt ˈʂat tɪ swit, ʔwɪ lwt tʰ ʔkɪ nkʷel qʷlqʷilt ɪckən kəm nkʷɪ iɦɪn. hy-ʔwɪ taʔli nkʷpɪls ʔwɪ kʷulʰs iː spwstɛ axists mɪkʷlʰ iː stʰsaqʷ ʔwɪ ʂlɪts iː slaxlaxtɛ il nukʷspɪntk mʌl iɦnɪx mʌl npɪlsɪx.

ʔwɫ skʷulms ta qʷmqʷmt ta ɭ̌x̌tkʷ ʔwɫ ʔumaʔxʷs sixʷapmx skʷnt. ʔwɫ ixi? skʷulms ta silxʷaʔ ncixman talʔ x̌ɭwt axs čučuxan ʔwɫ kɫwxʷpntis ilʔ skʷant. ʔwɫ ixi? skʷulm ta qʷaqʷxʷlʰx sňcus iʔ talʔ x̌ɭut xi? ʔwɫ xʷaʔtikst tan titix ʔwɫ npusəs ilsixʷaʔ ncixman. ʔwɫ ixi? sənklip sklʰms ta ksnklmwɫans iʔ talʔ x̌ɭut ilʔ ɭ̌acins iʔ sixʷitkʷm xi? ʔwɫ a č̌č̌stc iʔ qʷaqʷxʷlʰx kʷnim ʔwɫ laʔtc p̌iqstislx, ʔwɫ ac maxtixʷ iʔ laʔɫ ǩwɫslax̌laɭts ʔw ɭ̌aɭaɭaʔslx iʔ sickn ʔwɫ iʔ siɫn.

xi? iʃat la wiʔstis wɫnpwtls, iʔ skʃaʔʃaqstc iʔ čəčqilaʔp tʔiʔ site sktʔiqʷktx. ixiʔ ʔwɫ icmististis kskwɫʔxaʔx an titix. ʔwɫ ixiʔ ʃlits iʔ slaʃlaʃtc cxʷyiuʔlx maʃ aliʃnlx. atc nixlmsclx lkʷut ʔwɫ kikaʔt way ʃpnaʔ sɫlɫʃlt. ats nixlʔ il wiwst, ʔwɫ iʃt sənklip iʔ slaʃlaʃtc cwt, “ʔha xiʔ sənklip ac ʃlcqilxʷ hy kʷsxʷuyix.”

sənkliˈp ac mistis swit iˈlks ɛxˈwiːx ɫa kəllxˈwntislx, tʰaʔli limt xiː sxlˈkmnɛtɕ kskˈwːn-nwːniːs iː supstɕ, ɫanixlms iː kiːʔɫanaɕ ɫa ɕam, an ɛːɕn ɫawham, ʔwɫ nixlms iː stˈilɕaː, ʔwɫ nixlms iː snanaː ʔwɫ iː ɕriːs ʔwɫ iːɕat aːɕmɪstɕ.

ʔwł iʔxixiʔ iʔyt sim ačł^wulʔ ʔwł k^wł ʔwł npi-ls sənklip iʔ cx^wuyse laʔcixiti ilʔ sickn. tʔli sqiy^m, siln sickn mws snk^wac iʔ spwlx swx^wap ac ʔax^w ilʔ sxl̥xaltʔwł ilʔ snk^w-atc. ʔwł iʔyt aiax^wtlx, ʔwł nlʔpws iʔ tx^wuyiʔtnslx. iʔiyʔyt tk^winksəsłx ʔax̥ʔap sənklip ʔwł iʔt x̥ast iʔ spwslx ilʔ swłws. iʔyt cutlx way k^włcxuʔ iʔ cəc̥qilaʔp lakłʔaiyʔakst. iʔayiyʔat al x^wuyiʔlx npilslx.

Soon they were all assembled and great was the astonishment and rejoicing when they behold the wonder Coyote had wrought and the provisions he had made for their entertainment. It was a busy time, what with the feasting and the sports which lasted a fortnight with camp-fires burning brightly by day and by night, until all were dead tired, and the time came to depart. Then all shook old Coyote by the hand with grateful hearts for his hospitality. They all promised to come again when next the fir trees were bursting out into bud. So all went home happy.

axaʔ ła cawt taʔli q̥sapiʔ. ʔwł tiʔapnaʔ sxl̥xalt iʔ cəc̥q̥ ilaʔp łaʔt kl̥saʔiʔsaqst iʔat sqptc, iʔ wswist kl̥six^wapmx ʔawaʔwix pwtiʔ atc ʔic̥n łaʔtc x̥litc iʔ slaʔlaʔtc, ʔwł al ʔax^w iʔ snplxtan.

Now all this happened a very long, long time ago. Now to this day when the firs are in bud each Spring, the hills around Shuswap Falls still re-echo the invitation call of Coyote and the answering call of Coyote's friends, and the camp-fire lights re-appear.

Iʔ paʔaʔpaʔt iʔ sqilx^wcwtlx tʔiʔ smamiʔ naʔm̥l̥ acmistilx tʔix̥ast.

Wise people say this is only fancy, but we know better. Such is the Legend Shuswap Falls as narrated by the old folks of the Okanagan tribe, and translated from the Okanagan dialect by Mrs. William Brent, Okanagan Historical Society 12th Report, 1948.

Written in English from the Okanagan language by: Maria Brent

Translated from English into the Okanagan language and orthography by: Andrew McGinnis 2013

THE SHUSWAP WATERSHED SUSTAINABILITY PLAN - SPLATSIN COMMENTS ON THE STATE OF WATERSHED – PROVIDED BY SPLATSIN APRIL 2014



Background

The Regional District of the North Okanagan commenced the development of the Shuswap River Watershed Sustainability Plan in late 2010. The rationale for the development of the sustainability plan is described in the draft Shuswap River Watershed Sustainability Plan:

“The decision to develop the Shuswap River Watershed Sustainability Plan (SRWSP) came about due to multiple expressions of concern from community members that the current convergence of uses, values and pressures within the Watershed could potentially compromise the integrity of the entire river system”

Through the process, Splatsin has been requested to provide its point of view on the Shuswap River Watershed Sustainability Plan. This report highlights:

- Splatsin’s connection to the watershed,
- Concerns the Splatsin community has in regards to the watershed,
- And recommendations moving forward.

The information highlighted in this report was obtained through Elder interviews, community meetings, and discussions with Chief and Council. The primary goal of these forums was to collect community feedback and identify key values, such as mouth of Mara Lake. The water is treated in a sacred manner to the Splatsin people and there is

the cultural importance of the Shuswap River to the Splatsin people.

This report does not confirm Splatsin’s position in regards to Secwepemc title and rights.

The Splatsin People and the Shuswap River Watershed

The meaning of the name Splatsin is best described by the Splatsin Tsm7aksaltn (learning centre) : *Splatsin (pronounced Sbla cheen), which is also written Spallumcheen means “prairie mouth” flat prairie lands along the Shuswap river that open to the mouth of the Spallumcheen Valley.*

Splatsin is the southernmost community in the Secwepemc Nation. Within the Secwepemc traditional territory Splatsin has a large area of caretaker responsibility. This area of responsibility is described as stretching from the Mica Creek area in the north all the way across the international border to Kettle Falls Washington USA in the south, and west past Monte Lake.

Before contact with Europeans, the Shuswap River was the main travel corridor for the Secwepemc people of the area. The river is also where main settlements were located. Archaeological evidence indicates at least 20 historic villages are located along the river and lakes from Sugar Lake to the

archaeological evidence of our spiritual practices in the form of pictographs (or rock art) along the lakes within the Shuswap watershed.

The Shuswap River is at the heart of our people and our community. It runs through the centre of our territory and is at the centre of our Splat sin way of life. As one community member stated:

“In the summer my family is in or around the river almost every day either swimming, fishing, or paddling.” He added: “The River is integral to my lifestyle. It is a resource for Splat sin community’s way of life because it provides food, recreation spots, spiritual connections, and reflects our long history in the area.”

A community member described the importance of the Shuswap River by referring to memories:

“The River has been a part of our life as long as I can remember. Our community is along the River and we use it for day to day life. Historically, it was where we would walk our horses to water. The river has given many things to our family. Fall brings the salmon. We had a camp along the river and I remember as a kid my grandparents on our way back would trade fish for potatoes. So, in a way, the river gave us currency. Summer was the best for us kids. We were a part of the river and never wanted to come home. As much joy the river brought it also brought grief to our family and community when people would drown in it.”

Comments on the Current Situation of the Watershed

The Secwepmec people take a holistic approach to life. The Shuswap river watershed is no exception. When the community was asked to provide comments on the state of the watershed remarks were provided across the spectrum. Below are the main concerns identified by the Splat sin community.

1. The overall Health of the Ecosystem

- a) Low water levels of the main stem and major tributaries are an ongoing concern of the community. Especially Bessette, Fortune, and Kingfisher creeks.
- b) Splat sin has observed a reduction in the quality of water as it relates to ecosystem functions for over 20 years now.
- c) The current state of rearing and spawning habitat in the main stem and major tributaries is a serious concern to Splat sin.

2. Access and traffic on the river

- a) Splat sin has over 20 fishing sites along the Shuswap River that have been utilized for thousands of years. Today, only a handful of these sites are accessible to the Splat sin community. This has forced our community members to fish only at public access sites. As such Splat sin members compete for access to the river and its resources.
- b) All of the public access points to the river are vulnerable to vandalism and illegal dumping.
- c) The increase in popularity in floating down the river has created problems with parking along public roads, pedestrian safety, and litter. Splat sin has several kilometres of river front land that is impacted by the vehicle and marine traffic associated with the river.

3. Timber harvesting within the watershed

- a) The Shuswap River watershed falls within the Okanagan Timber Supply area (TSA). The TSA is now dealing with the aftermath of the mountain pine beetle (MPB) epidemic. The majority of the impacts of the MPB occurred in the southern part of the TSA as the forests in the north have a higher mix of coniferous species. However, the majority of current and future timber harvesting will now be focused in the northern part of the TSA and in the Shuswap watershed. The increase in harvesting in the northern part of the TSA will create several impacts on the watershed. This includes, but is not limited to:
 - i. Increased run off (flooding potential) during freshet due to clear cuts.

- ii. Increased roads access in the backcountry due to forest road construction.
- iii. Habitat fragmentation due to road and cut block development.

4. Agriculture

- a) Splitsin community members have concerns with agricultural practices observed in many areas along the Shuswap River and the major tributaries. These concerns are associated with over watering and the use industrial chemicals such as fertilizers and pesticides.
- b) There is also a concern with riverbank erosion and loss of riparian vegetation associated with farmland adjacent to the river.

5. Archaeological (Heritage) resources

Heritage sites are protected under the BC Heritage Conservation Act. A heritage site is defined in the act as “whether designated or not, land, including land covered by water that has heritage value to British Columbia, a community or an aboriginal people”. There are over 50 registered heritage sites along the Shuswap River alone. These sites are all culturally important to the Splitsin people. Many of these registered (and unregistered) sites are within fee simple lands controlled by the regional district. Unfortunately, there has been very little if any enforcement of the BC Heritage act over the fee simple lands that have registered or unregistered sites or high archaeological potential. In particular, there is no enforcement during the development permit application process. Thus, there has been severe impacts to these valuable resources, and ultimately to Splitsin.

Conclusion / Recommendations

The Shuswap Watershed is integral to Secwepemc (Shuswap) culture. The current status of the watershed may be an indicator that its carrying capacity has been exceeded by intense resource extraction, development, and other industrial activities.

1. Further information needs to be gathered on the status of the water table in the watershed. Once there is adequate information on the status of water levels, there needs to be policy developed to manage water levels, and enforcement to ensure adherence. These initiatives need to be lead by the all levels of government (Federal, Provincial, and local), but also needs to include the affected first nation communities. The proposed New Water Sustainability Act needs to be tabled until there is a proper collaboration process established between all level of government and first nations.
2. An inventory of potential fisheries habitat enhancement areas along the Shuswap River and the main tributaries needs to occur. Further, a plan to conduct habitat enhancement within the watershed needs to be developed. This should be in conjunction with the Department of Fisheries and Oceans, Ministry of Environment, and first nations.
3. An inventory of all public lands (e.g. crown land, right-of-ways, and parks) adjacent to the river and major lakes should be completed. Then a management strategy needs to be developed regarding how the public lands are managed to ensure sustainable use of the waterways is achieved.
4. Speed limits for motorized pleasure crafts need to be established for the Shuswap River.
5. Given the importance of the Shuswap River to the Splitsin people, it is imperative that we are involved, at the onset, in natural resource management and decision making in the Shuswap River watershed.
6. Splitsin’s Title & Rights Natural Resource Department is also capable of developing and implementing long-term environmental restoration and monitoring programs. Depending on the scale of works, Splitsin would like to lead and/or partner with RDNO on such efforts.

Shuswap River Watershed Sustainability Plan Goals, Objectives and Strategies

Five goals were developed for the SRWSP and provide the setting for the 19 objectives and 114 strategies embedded in the plan. The goals reflect the sentiments of the contributions received from the wider community and cover the three themes raised during the Issue Identification phase of the planning process;

- Land Use and the Natural Environment
- Recreation
- Inter-Agency Relations, Roles and Responsibilities

The five goals are:

Goal 1: Water Quality & Quantity

To preserve and protect the Shuswap River Watershed to ensure water quality and quantity that supports the ecosystems and communities that rely on it

Goal 2: Ecosystems and Biodiversity

To preserve, protect and restore ecosystems within the Watershed and enhance biodiversity.

Goal 3: Recreation

That the Shuswap River Watershed is a model of safe and sustainable recreational practices, providing diverse recreational opportunities that respect and do not compromise, interfere with, pollute or devalue the ecosystems and communities that the watershed supports.

Goal 4: Interagency, Relations Roles, and Responsibilities

Facilitate, simplify and promote collaboration and efficiencies among agencies and the community for sustainable watershed management.

Goal 5: Education and Awareness

Raise community awareness of the importance of the Shuswap River Watershed, the ecosystems it supports and the relationship between human activities and watershed health, such that we all take ownership of our actions.



Land Use and the Natural Environment (Goal 1 and 2)

During the public consultation phase of this planning process it became clear that the protection and restoration of the natural environment within the Shuswap River Watershed was of paramount concern. The majority of the community concerns centered on the degradation of habitat, protection of overall watershed health and impacts to water quality. Both the community and the RDNO felt that the management of land and water must give priority to protecting the integrity of the natural environment. The Land Use and the Natural Environment Working Group was formed to examine human impacts on water quality & quantity and ecosystems & biodiversity.

In addition, Golder and Associates were commissioned to conduct a Technical Assessment on the Shuswap River Watershed providing a baseline on the current watershed profile. The Technical Assessment was a desktop evaluation of the Watershed, with a specific focus on water quality, water quantity and the current condition of riparian areas. Key results of the Technical Assessment provide context on the Watershed's current conditions and areas where more research is required. The context information in this chapter is primarily informed by the Technical Assessment (Golder 2012) unless alternative references are provided.

Goal 1 Water Quality and Quantity

Preserve and protect the Shuswap River Watershed to ensure water quality and quantity that supports the ecosystems and communities that rely on it.

There are a number of land uses and activities underway within the Watershed that directly impact water quality, water quantity and the natural environment. These activities include;

- Land use and urban/residential development
- Agriculture – both commercial and hobby farms, including range lands
- Forestry
- Industrial and commercial operations
- Recreation

Water Quality

Water quality in the Shuswap River and its tributaries featured significantly in the comments received during public consultation. Comments referred to the need to protect water quality in general as well as identifying particular activities and point sources of concern. These included pesticides, manure management, failure of septic systems, emergency dumping of sewage, pharmaceuticals and toxins, storm water run-off and human caused sedimentation due to the accelerated erosion of the river and tributary banks. Land use activities within the catchment including logging, agriculture and industrial businesses were also connected to water quality concerns.

The Technical Assessment undertook a high level review of existing water quality data based on information gathered from historical monitoring reports and other technical information e.g. on-going monitoring being undertaken by community groups and government agencies. The review focused largely on the following key water quality parameters:

- chloride and sodium (proxy for potential road salt impact)
- nutrients
- microbial parameters

The Technical Assessment identified that the overall water quality of the Shuswap River Watershed is considered “good”. However, water quality impacts have been observed for nutrients and microbial parameters, predominantly attributed to human activities such as waste management, septic disposal, agriculture and livestock. The Upper Shuswap River Watershed largely reflects nutrient and microbial impacts related to non-intensive livestock activities as well as increased turbidity associated with high-energy tributaries and freshet flows. Middle and Lower Shuswap River Watershed water quality data sets indicate an increasing impact to water resources from human activities, largely consisting of elevated nutrients which could be associated with waste management, septic disposal, agriculture and livestock.

As part of the Technical Assessment, a preliminary risk assessment was conducted for the Shuswap River Watershed. As a result, potential areas of concern were identified and mapped. These areas were largely related to intensive agriculture, waste management and

wastewater treatment, and industry, found within the Middle and Lower Shuswap River Watersheds.

of concerns discussed previously. Impacts of recreation are discussed in Goal 3.

The following Land Use and Natural Environment objectives and strategies address the first four key areas

Objective 1: Land Use Planning & Urban / Residential Development:

Local and Provincial Government lead by example in accounting for environmental protection within the Shuswap River Watershed in all land use decisions.

Strategies

1.1	Establish long term water quality testing throughout the Watershed and compare with provincial and federal water quality standards.
1.2	Harmonize watershed related bylaws and policies throughout the Shuswap River Watershed that address water quality and adopt the most appropriate standards.
1.3	Develop septic system regulations to address potential contamination of waterways from failing septic systems (e.g. Capital Regional District's Septic Bylaw 3479).
1.4	With community support, review OCPs and Development Permit Areas to address water protection (runoff, setbacks, stormwater management & water quantity and residential use of pesticides).
1.5	Incorporate water quality monitoring data into the Shuswap Watershed Council water quality central database and mapping to provide an overall picture of monitoring programs and water quality.
1.6	Identify, document and report sources of pollution (e.g. storm water runoff & sewage treatment discharge) and adopt higher management standards if necessary.
1.7	Work with local road maintenance crews and provincial contractors to encourage the use of alternatives to sodium chloride.
1.8	Liquid Waste Management Plans for Community Systems have procedural and mechanical systems to prevent water quality degradation.
1.9	<p>Support and promote the implementation of the North Okanagan Regional Growth Strategy & adherence to the Rural Protection Boundary. Specifically the following strategies work towards minimizing the impacts of development:</p> <p>UC-1.1 Areas designated as Growth Areas are to be fully serviced with community water and sewer systems and can accommodate a broad range of urban land uses at urban densities.</p> <p>UC-1.3 Consider the full cost of development, including water and sewer infrastructure, transportation, emergency response and civic services, to ensure that land use decisions are transparent, informed and fiscally responsible.</p>

Objective 2: Agricultural Management Practices:

Agricultural operations (*both commercial and hobby farms*) employ management practices that respect the importance of natural ecosystems to ensure the long term success of both.

Strategies

2.1	Through industry associations, farmers continue to educate other farmers re: best management practices, new technologies and identify educational opportunities.
2.2	Utilize existing programs such as Environmental Farm Plans and lobby to secure the long term funding of such programs.
2.3	Work with range managers to ensure appropriate levels of range land grazing including livestock density, grazing locations and elevations.
2.4	Work and collaborate with local agricultural associations to develop and implement education opportunities (e.g. Best Management Practices).
2.5	Identify funding opportunities to mitigate and reduce agricultural impacts on the natural environment (e.g. removing corrals, fencing sensitive sites and providing off-stream watering areas).
2.6	Investigate potential agricultural run-off input sources to the Shuswap River, its tributaries and groundwater. Work with exiting and new operators to reduce impacts.

Objective 3: Forestry Management Practices:

Forestry practices adhere to legislative requirements and reflect local community stewardship values.

Strategies

3.1	Increased local community consultation on the direction of planning for large scale forestry operations. <ul style="list-style-type: none">• Total allowable cut in the timber supply area• Percentage cut per license• Forest Stewardship Plans as they pertain to the 11 forest values outlined in the guidelines.• Shuswap River Watershed Advisory Board automatically notified of input opportunities on the forestry plans described above (monitoring/referral committee <i>See IRRR Obj.18</i>).
3.2	Ensure the reforestation of logged areas is carried out in accordance with approved forest stewardship plans and stocking standards.
3.3	Promote and encourage the reforestation of salvaged areas effected by fires and beetle kill.
3.4	Support research into the impact from the pine beetle and forest fires on the Watershed (increased turbidity, impacts to the hydrologic cycle).
3.5	Explore opportunities to increase the number of protected areas within the Watershed and quantify existing areas. (note, it has been identified that protection of the headwaters should receive specific attention in an effort to lessen the impacts of Climate Change on our source drinking water).

3.6	Work with MFLNRO to ensure regulations that prevent degradation of water quality due to forestry practices are being adhered to e.g. FIRPA, Water Act, and Environment Act. Where desired, work with communities to improve upon these regulations.
3.7	Identify what to report and document sources of forestry pollution and develop a local response mechanism, including enforcement.

Objective 4: Industrial and Commercial Operations:

Industrial and Commercial Activities* strive for exemplary stewardship within the ecosystems they operate.

* E.g. Automotive Services, Auto Wreckers, Lumber Mills, Contaminated Sites, Vacant Sites, Gas Stations, Mining, Railways, Intensive Agriculture, Slaughter Houses, Landfills, Marinas, Golf Courses; Fuel Caches; Commercial Tourism Operations (e.g. jet ski & jet boat rentals).

Strategies

4.1	Explore opportunities for periodic review of wastewater systems and septic maintenance schedules with relevant agencies.
4.2	Encourage adherence to industry rules and best management practices.
4.3	Ensure regional and/or provincial water quality protection measures are in place in the event of emergencies such as spills and that polluter's pay for remediation.
4.4	Identify sources of pollution and improve or develop a local response mechanism and enforcement (water quality testing program).
4.5	Regularly up-date the contaminated site registry.

Water Quantity

Surface Water

Water quantity was one of the three focus areas of the Technical Assessment. It was concluded that overall surface water use does not appear to be an issue relative to flow; however, summer use is up to 2.5 times higher than the annual use due to agricultural and domestic irrigation, and summer flows are much lower. As such, water use in late summer and early fall has the ability to significantly reduce in-stream flows, especially in some tributary streams of the Shuswap River Watershed such as Bessette and Duteau. Surface water availability is further compounded by a trend of lower summer flows over the last 30 years attributed to climate change.

Groundwater

Groundwater consumption data was also reviewed as part of the Technical Assessment. Groundwater extraction is

not licensed in British Columbia; therefore estimates of groundwater use were made using several methods which are outlined in the Technical Assessment. Based on the results of the groundwater consumption estimates, it was inferred that the potential groundwater use within the Upper Shuswap River was less than 1% of total groundwater flow. Groundwater use in the Middle Shuswap River was estimated to be approximately 3.5% of the total groundwater flow. This 3.5% accounts for the groundwater withdrawals from the Village of Lumby's three high capacity groundwater wells as well as private water wells. The groundwater use in the Lower Shuswap River was estimated to be as high as 44% of total groundwater flow. This 44% accounted for groundwater withdrawals from private wells and municipal water wells.

Results of the groundwater assessment identified that significant data gaps exist with regard to understanding groundwater flow characteristics and aquifer parameters,

which are both key in developing an understanding of groundwater quantities in the area. It has been noted that as additional information is made available, refinement and re-evaluation of the aquifers delineated

as part of the Technical Assessment should be conducted, with some focus placed on understanding potential groundwater leaving the Shuswap River Watershed through the Lumby and Armstrong areas.

Objective 5: Water Quantity:

Surface and groundwater quantity are managed in concert as “one water” to ensure all ecosystem and community requirements can be fulfilled.

Strategies

5.1	Promote water conservation through best management practices (e.g. irrigation efficiency and domestic use education programs such as live water smart).
5.2	Lobby and promote for a review of the regulations governing reclaimed water use and or the development of best management practices in residential developments to permit innovative conservation measures (e.g. grey water re-use (purple pipes) and composting toilets).
5.3	Potential impacts of Climate Change on water availability are considered in future water allocation decisions.
5.4	<p>Support and promote the implementation of the North Okanagan Regional Growth Strategies as it pertains to maintaining adequate water supplies including:</p> <p>WS-1.4 Encourage the province and relevant parties to develop a regional groundwater quality and quantity monitoring program and undertake enhanced aquifer and groundwater limited areas mapping to be used in planning and approval decisions.</p> <p>WS-2.2 Enact water conservation measures for existing and new developments.</p> <p>WS-2.5 Fully consider the economic, social, ecological and hydrological consequences of future inter- and intra-basin transfers during the evaluation of these types of projects.</p> <p>WS-2.8 The province and relevant authorities are encouraged to develop an integrated North Okanagan Supply and Demand Water Model for the Shuswap and Okanagan.</p> <p>WS-2.11The province is encouraged to review the regulations governing reclaimed water use in residential developments, with guidance from other jurisdictions that have legislated grey, reclaimed and / or reused water.</p>
5.5	As data becomes available, map aquifers to better understand groundwater flow characteristics and aquifer parameters within the Watershed.
5.6	Explore the opportunities to develop a data warehouse for groundwater information that is provided during the subdivision and or building permit stage (well drillers and hydrologists reports).
5.7	In the event of significant drought coordinate with the Province on the implementation of the BC Drought Management Plan and if appropriate establish a Local Drought Management team.

Goal 2: Ecosystems & Biodiversity

To preserve, protect and restore ecosystems within the Watershed and enhance biodiversity.

The Shuswap River is nestled within two main geographic features: the steeply sloped Monashee Mountains on the east side of the system and the less rugged Shuswap Highlands on the west side. As described in the Watershed Profile, there are five Biogeoclimatic Ecosystem Classification zones within the Watershed: the Interior Douglas-Fir, Interior Cedar Hemlock, Montane Spruce, Engelmann Spruce Subalpine Fir and Interior Mountain-heather Alpine zone. Sensitive ecosystems within the Watershed typically include the following habitats: wetlands, riparian forests, broadleaf woodlands, coniferous woodlands, old forests, grasslands, and sparsely vegetated ecosystems (rocky outcrops, talus slopes). Plant species of management concern within the Watershed include but are not limited to: Pink agoseris, Giant helleborine, Orange touch-me-not, Flat-topped broomrape, Tweddy's willow, Blunt-sepaled starwort, Porcupinegrass, Brown beak-rush, Mountain moonwort and the Crested wood fern (Golder, 2012).

The Watershed is home to a great diversity of species including the Lynx, American Black Bear, Mule Deer, White-Tailed Deer, Moose, Bobcat, Cougar, Coyote,

Grizzly Bear, Northern Rubber Boa, Common Garter Snake, Western Painted Turtle, Western Toad, Pacific Chorus Frog and Long-toed Salamander. The Watershed is part of the Southern Interior Ecoprovince which has the greatest diversity of birds in the interior of BC and the most breeding species in the province. The Watershed supports both anadromous (sea run) and freshwater fish. Anadromous species include: Chinook, Coho, Pink and Sockeye Salmon and freshwater fish including, kokanee, rainbow trout, bull trout, lake char, burbot and whitefish. The Chinook in the Shuswap River are stream-type, meaning they have a fresh-water residency time of one year before migrating to the ocean. This increases their sensitivity to fresh water habitat changes.

According to the BC Conservation Data Centre, there are 62 wildlife species of management concern within the Interior Douglas-fir, Interior Cedar-Hemlock and Engelmann Spruce-Subalpine Fir zones; this includes 17 red-listed and 45 blue-listed species (Golder, 2012). This high level of biodiversity is unique to the watershed and it must be recognized that these ecosystems are extremely fragile.

The following objectives and strategies work towards ensuring that all native aquatic and terrestrial species and their habitat are protected and restored and where possible, biodiversity increased.



Riparian Areas

The Technical Assessment notes that the presence of riparian ecosystems within the Watershed are of high value as they not only support species and ecological communities of management concern but they also support high biodiversity, they influence adjacent water quality, and they provide flood and erosion protection. The condition of riparian areas of the Shuswap River varies in level and source of impact between the upper, middle, and lower sections of this river. No detailed ecological studies such as sensitive habitat inventory and mapping or foreshore inventory and mapping have been completed for the Upper Shuswap River. Based on the Technical Assessment's orthophoto interpretation, approximately 11.5% or 11,520 m of Upper Shuswap River riparian area is disturbed. This disturbance is related almost exclusively to forestry operations, including both clear-cut areas and their associated access roads and bridge crossings.

The orthophoto interpretation in the Technical Assessment, indicates that approximately 28% or 32,387 m of the Middle Shuswap River riparian area is disturbed within 30m of the high water mark primarily associated with agriculture. Impacts to the riparian and instream areas as a result of these disturbances include loss of

spawning habitat through filled and diverted side channels and oxbows; reduced shading and nutrient input to the stream through riparian vegetation clearing and sedimentation; and general degradation where livestock have unrestricted access to the channel. The Middle Shuswap River has also been affected by the construction of hydroelectric dams, specifically Sugar Lake Dam at Brenda Falls near the outlet of Sugar Lake and Wilsey Dam which is located 31 km downstream at Shuswap Falls. The construction of both dams flooded upstream riparian habitats and created an impassable barrier for fish. The impacts to riparian areas in the Lower Shuswap River are primarily related to agriculture, rural development and urban areas. These human caused activities have resulted in the removal of much of the riparian habitat associated with the river, particularly downstream of Enderby. According to the recent Lower Shuswap River Inventory, Mapping and Aquatic Habitat Index (Hawes et al, 2011), only 41% of the left bank and 14% of the right bank (looking downstream) are considered to be in a natural state, and 30% of the length of the Lower Shuswap River is affected by a high level of impact and has poor riparian condition. Bank erosion and instability are common throughout the Lower Shuswap River as a result of riparian vegetation clearing and anthropogenic encroachment, and are likely exacerbated by increased recreational powerboat use in this section of the stream.



Objective 6:

Preserve and protect riparian areas of high value and restore disturbed areas.

Strategies

6.1	Prioritize high value riparian sites based on available information (e.g. SHIM & FIM inventory mapping work and Golder Shuswap River Technical Assessment) and identify potential funding sources for restoration.
6.2	Support the use of regulations to prevent land use practices that damage riparian ecosystems. E.g. Development Permit Areas & Riparian Areas Regulations on private land and FRPA on Crown Land.
6.3	Establish Streamside Protection and Enhancement Area (SPEA) widths in high foreshore development areas. Utilize local information, such as the Lower Shuswap River and Mabel Lake Inventory, Mapping and Aquatic Habitat Index, to establish SPEAs.
6.4	Work collaboratively to plan and carry out Riparian Restoration works (school groups and community organizations). Ensure that upland watershed zones, specifically the headwaters, are not forgotten in restoration efforts.
6.5	<p>Support and promote the implementation of the North Okanagan Regional Growth Strategy associated with Goal ENV-1 Protection of our Watersheds:</p> <p>ENV-1.1 Develop consistent, integrated environmental policy that will protect water ecosystem functions, our drinking water sources and conserve and enhance biodiversity and ecological services through the protection of ecological features and corridors, including floodplains, shorelines, stream and river systems, aquifers, wetlands and forested watersheds.</p>



Sensitive Ecosystems

A Sensitive Ecosystems Inventory (SEI) project was conducted on a portion of the Middle Shuswap River in 2011 which identified seven at risk wildlife species that represented a range of habitat needs:

- Western Toad
- Western Painted Turtle
- Northern Rubber Boa
- Western Skink
- Flammulated Owl
- Western Screech-Owl
- American Badger

Based on the field work and subsequent habitat mapping of the SEI study, it was noted that a relatively large amount of healthy riparian habitat exists within the Middle Shuswap River area, including mature to old

deciduous forest (suitable for Western Screech-owl). Considering the natural rarity of these ecosystems, and the high level of habitat loss in the Southern Interior, this study indicates that the mid-Shuswap area likely represents a crucial habitat reservoir for species dependant on this ecosystem type.

The Shuswap River Watershed also contains a section of the BC Interior Rainforest, the only global temperate, inland rainforest. This unique eco-system is created by plentiful snow melt during the early part of the growing season and a peak of rainfall during the middle of the growing season. These humid conditions enable the development of a unique vegetation community that is generally dominated by western red cedar and western hemlock and includes a peculiar combination of interior and coastal elements (Parks Canada, 2012; UNBC).

Objective 7:

Preserve and protect terrestrial species & restore their habitat.

Strategies

7.1	The Regional District and member municipalities, guided by their OCPs, will implement planning tools e.g. Development Permit Areas, to ensure impacts on ecosystems and species at risk are avoided and/or adequately mitigated. Tools can be informed by Sensitive Ecosystem Inventories, Regional Biodiversity Strategy, and Sensitive Habitat Inventory Mapping.
7.2	Support and promote the implementation of the North Okanagan Regional Growth Strategy, specifically: Goal ENV-2: Protect our Parks, Natural Areas and Open Spaces.
7.3	Support native species in the Watershed and protect them from threats such as invasive species, genetically modified organisms and changes to habitat composition.
7.4	Monitor the incremental fragmentation of habitat due to subdivision of lands and crown land activities.
7.5	Identify and map ecosystems that could be at risk within the Watershed- <i>compliments RGS Policy ENV-2.2</i>
7.6	Use inventory and mapping information to identify high value critical habitat areas that are at risk (e.g. Biodiversity Conservation Strategy, Sensitive Ecosystems Inventory).
7.7	Explore options for notification of mapping results identifying critical habitats on property titles as well as Streamside Protection and Enhancement Area widths (SPEA).
7.8	Re-visit inventory mapping on a regular basis to see change over time e.g. every 5 years.
7.9	Incorporate mapping results and outputs of the Biodiversity Conservation Strategy into agency policy formulation and decision making.

Salmon and Aquatic Life Habitat

The Shuswap Watershed is one of the most important salmon-producing systems in British Columbia and provides for a wide variety of residential and anadromous (sea run) fish species. Rapid growth and associated activities such as agriculture and rural development have resulted in the loss or degradation of aquatic and riparian habitats that are critical for fish and wildlife. These rich environments and the structural elements of riparian habitats are often not found in adjacent uplands; therefore, it is important to preserve, protect and restore the spawning habitat of salmon and other aquatic life.



Objective 8:

Preserve and protect habitat that supports all life stages of salmon and other aquatic life.

Strategies

8.1	Where appropriate, support other Watershed processes that have intent to preserve and protect aquatic habitat such as: the Wilsey Dam Fish Passage process and the prevention of aquatic invasive species (OBWB Don't Move a Mussel Program).
8.2	Ensure critical habitats such as spawning grounds and holding pools, as identified in inventories (SHIM, FIM) or local knowledge, are protected. This could include extension of Park boundaries where appropriate and local protection projects.
8.3	Focus on strategies and actions that will mitigate the impacts of climate change, such as protecting holding pools, protecting and restoring riparian coverage.
8.4	Carry out an inventory of springs and spring fed areas which are important habitat for Coho and other fish and can contribute to water temperature regulation, especially in the face of warming stream temperatures associated with climate change.
8.5	Continue to inventory Sensitive Ecosystems and Sensitive Habitats along the Mid and Upper Shuswap river- <i>also complements Objective 7.</i>
8.6	Re-visit inventory mapping on a regular basis to see change over time e.g. every 5 years. <i>complements Objective 7.</i>
8.7	Develop minimum in-stream thresholds or targets for all tributaries with moderate to high water use and moderate to high fisheries values (e.g. Fortune Creek, Trinity Creek, Ferry Creek).
8.8	Explore options for reducing the impact of boat wakes on aquatic life and riparian areas as referenced in Strategy 9.7. Options could be supported by research on the impact of boat wakes on the Shuswap River including wake size, erosion, impacts on riparian areas and spawning grounds etc.

Climate Change

The ecosystems that are found within the Shuswap River Watershed may face additional pressures from climate change. As described by the Columbia Basin Trust, species' response to climatic change will vary. "As the climate changes, some species will tolerate the new conditions, some may migrate north or upslope, and others may decline. New and unique combinations of species may occur" (Columbia Basin Trust, 2012:8).

Although there has not been a detailed climate change study undertaken on the Shuswap River Watershed, assessments in neighbouring watersheds and for British Columbia more generally, provide a picture of the likely impacts that will occur. Impacts will be driven by increases in average annual temperature and changes in precipitation patterns (timing and rain verses snow). As detailed in the Technical Assessment (Golder, 2012) and supported by assessments of the Columbia Basin (Columbia Basin Trust, 2012) and Okanagan Basin (Van der Gulik et al. 2010) impacts within the Shuswap River Watershed will include;

- increased atmospheric evaporative demand;
- altered vegetation composition affecting evaporation and interception;
- increased stream and lake temperatures;
- increased frequency/magnitude of storm events and disturbances;

- decreased snow accumulation and accelerated melt;
- accelerated melting of permafrost, lake ice, and river ice;
- glacier mass balance (advance/recession) adjustments; and,
- altered timing and magnitude of stream flow (peak flows, low flows).

How species adapt to climate change will depend on the level of impact on their habitats and the range of conditions they can tolerate. As mentioned above the Shuswap Watershed is an important salmon producing system and the impacts of climate change on Salmon need to be addressed. Increased water temperatures appear to be one of the main impacts of climate change that will affect salmon. Warmer water temperatures could lead to altered timing for physiological changes and migration, which could affect survival rates. For example warmer water can result in earlier emergence of fry with associated low survival rates if food sources are not yet available. With respect to migration, water temperature is a key indicator for salmon to move between habitats. Warmer temperatures may result in later migration with higher mortality due to salmon expelling energy seeking cold water refuge during migration. Salmon can adapt to increased water temperatures where there are supporting cold water refugia such as deep pools, shaded, undercut banks or enclosed canopy streams Crozier et al. (2008), Shearing (2012).



Goal 3: Recreation

That the Shuswap River Watershed is a model of safe and sustainable recreational practices, providing diverse recreational opportunities that respect and do not compromise, interfere with, pollute or devalue the ecosystems and communities that the watershed supports.

The Shuswap River Watershed offers a significant range of recreation opportunities and experiences and is utilized extensively all year round. Activities undertaken in the watershed include;

Biking	Hiking
Canoeing	Fishing
Boating	Rafting
Swimming	Kayaking
Motorcycling and ATVing	Trail Riding
Stand-up paddle boarding	Tubing
Hunting	Wildlife viewing
Snowmobiling	Camping
Downhill, cross-country and backcountry skiing	

These recreation opportunities contribute to resident's decisions to move to or remain in the area and are a major draw for visitors.

Recreation emerged as a strong theme within Phase I of the planning process with comments aligning with four key areas;

1. The impacts of recreational activities on the natural environment
2. Potential and existing conflicts between different recreation users and between users and local residents
3. Maintenance of access to recreation opportunities
4. Recreation structures

Comments received during the public consultation phase with respect to Recreation, generally focused on uses on and around the river itself. There were some references to the wider watershed, but the majority of comments centered on the river. The goals, objectives, and strategies outlined below address the entire watershed;

however in reflection of the comments received, there is an emphasis on activities associated with the river.

The fact that recreation was a strong theme within the comments from community members during Phase I of the planning process is likely a reflection of a number of factors. These may include an increased level of recreation within the watershed, increased size and changes in the type of recreation equipment being used and an increased level of awareness of the impacts recreational activities can have on the environment and other people. As use increases, recreation activities become more noticeable and any associated concerns can be intensified.

It is difficult to obtain statistics on overall numbers of recreational users within the Watershed due to people utilizing many different parts of the Watershed throughout the year and a lack of comprehensive surveys. However, there are some indicators of change in numbers. The Enderby and Lumby Visitor Centers reported that between 2003 and 2011 the numbers of visitors within the watershed have increased significantly. Enderby reported a 56% increase in visitors between 2003 and 2010 and the Lumby Visitors Centre has seen an increase of 116% between 2003 and 2011. These numbers do not account for local recreational users or those who do not access the visitor centers.

Observations from residents within the watershed would suggest that recreational use of the Shuswap River has increased in recent years especially in terms of the number of motorized boats and people "tubing" on the lower stretches of the river. On busy summer weekends there can be upwards of 800 non-motorized recreationists on the Lower Shuswap River on any one day (Verlaan, 2009; Shuswap River Ambassadors, 2012).

A comprehensive survey on the number of motorized boats on the Shuswap River has not been carried out to date, however, in 2012 a survey of the Kildonan boat launch site in Enderby recorded 300 motorized boats and personal water craft launching over the summer months. Additionally, in the summer of 2013 a boat traffic survey was undertaken as a part of a study on River Bank Erosion and Boat Wakes along the Lower Shuswap River (Laderoute & Bauer 2013). From May to August two automatically triggered cameras (PlotWatcher™ Pro) were deployed at Rosemond Lake Road, Mara and Salts Road, upstream of Grindrod. The cameras were programmed to

capture an image every three seconds from 5 am until 10 pm daily. In addition to obtaining a total boat count for each day, information on the time of passage, sailing direction, and type of watercraft (speedboat, pontoon, or Personal Water Craft) was obtained from the images. The tables below indicate the level of boating activity on the Lower Shuswap River in front of the two sites.

250 Rosemund Lake Rd, Mara, BC			127 Salts Rd, Enderby, BC		
Month	Boat Type	Total	Month	Boat Type	Total
May	SB	18	May	SB	11
	SD	14		SD	2
	P	5		P	6
June	SB	58	June	SB	43
	SD	37		SD	8
	P	25		P	4
July	SB	1141	July	SB	165
	SD	586		SD	97
	P	120		P	21
August	SB	565	August	SB	74
	SD	500		SD	213
	P	40		P	9
Total	SB	1782	Total	SB	293
	SD	1137		SD	320
	P	190		P	41

Increases in recreational users can intensify the impacts they cause on the natural environment and the potential for conflict between different users.

Impacts of Recreation on the Natural Environment.

The impacts of recreation on the natural environment were discussed primarily with respect to the use of vehicles within the entire watershed, including boats, personal water crafts, ATVs, 4x4s, snowmobiles and mountain bikes and the impacts they can have on alpine environments, riparian areas, wetlands, in-stream habitats and wildlife. Concern was expressed regarding motorized and non-motorized vehicles directly operating in and damaging sensitive areas such as alpine areas, wetlands and riparian areas or through associated impacts such as erosion of river banks caused by wave action from motor boat wakes or degradation of water

quality from sedimentation due to vehicle caused erosion and re-suspension of sediments.

The erosive effect that boat wakes may be having on riparian areas was also identified as a concern in both the Shuswap River Technical Assessment (Golder, 2012) and the Lower Shuswap Inventory and Mapping report (Hawes et al, 2011). The areas of primary concern are those banks and stretches of the river that have experienced a loss of riparian vegetation which exposes the bank substrates to the erosive forces of wave action.



Photo 1: Suspended sediments in water after the passing of a motorized boat, Lower Shuswap River.

Scientific studies have shown that motorboats can cause erosion of river banks, which can result in an increase in sedimentation and turbidity of water, destruction of riparian vegetation, damage floating nests and result in a loss of land (Asplund, 2000; Dorava, and Moore, 1997, Stelfox, 1995). The size of the river and condition of the river bank is a significant factor with smaller rivers, where boats are operating close to the shore, and rivers with loosely consolidated or un-vegetated banks, being the most susceptible to erosion (Asplund, 2000). Also of consequence is water level with high water, combined with wave action likely to result in more erosion as wake waves strike the steep upper banks and tree root zones which are easily eroded, causing soil to wash into the river and loss of riparian forest habitat (Huzzey and Baldwin, 2007:10). It has also been shown that vessel created waves, due to their greater amplitude, are more erosive than wind generated waves in river environments, especially where fetch lengths¹ are restricted (McConchie and Toleman, 2003). Anecdotal evidence of the damage

¹ **fetch length**, is the length of water over which a given [wind](http://www.encyclo.co.uk) has blown. [Encyclo.co.uk](http://www.encyclo.co.uk)

boat wakes are having on the banks of the Lower Shuswap River is extensive with many residents raising this as a concern with respect to both the impact on the natural environment and to their property.

In the summer of 2013, an initial study on River Bank Erosion and Boat Wakes along the Lower Shuswap River was carried out by researchers from the University of British Columbia Okanagan. “The primary objective of the project was to monitor and document the rate of bank erosion at a small sample of chronically eroding ‘hot spots’ that were identified by project personnel with input from local landowners and in consultation with the Regional District of the North Okanagan and Fisheries and Oceans Canada. A secondary objective was to monitor the extent of boat traffic with a view to assessing the potential impact of boat wakes on bank erosion” (Laderoute & Bauer 2013, Laderoute 2014). The findings of the study indicate that:

- The peak boating period on the Lower Shuswap River runs from July long weekend to mid-August.
 - Weekend days typically have the most intense boat traffic, although this can be weather dependent. The August long weekend is the busiest of the year on the Lower Shuswap River.
 - On many days, a large portion of boat traffic is attributable to only a few boats that pass through the same river reach multiple times, usually in the context of water skiing or wake boarding.
 - River reaches that are lower on the river and closer to amenities (e.g., cabins, boat launches, and docks) on Mara Lake are subject to greater boat traffic. River reaches farther upstream see less intense boat traffic
- and a greater proportion of Personal Water Crafts rather than speedboats, especially in August.
 - The limited data from the pin-erosion profile lines suggest that the most significant bank erosion occurs during the spring freshet. This is largely because the uppermost portions of the banks are inundated during the high-flow period, whereas at low flows (when boating is most active) only the lowermost portions of the bank are subject to hydrodynamic forces. The data set is not extensive enough to provide total confidence in this conclusion.
 - Some locations along the river experience less erosion than other areas, and typically this is due to: (a) thick vegetation cover; (b) very cohesive muddy bank materials with extensive root mats that provide resistance to erosion; (c) protective barriers such as mid-channel islands; (d) planform geometry of the river, specifically inside meander bends; and (e) areas that are not exposed to significant boat traffic or other disturbances that might intensify the hydrodynamic energy expended on the bank or otherwise weaken the bank materials (e.g., burrowing animals).
 - A single passage of a watercraft is less damaging than a sequence of passages. Nevertheless, the damage due to watercraft passages is cumulative, and therefore a long-term perspective on the importance of boat wakes must be adopted.
 - Speedboats generate the most turbidity and the largest wave heights, especially when there is a sequence of speedboats. This is especially true when the speedboats are used for water skiing and wake boarding because the speeds are slower and more water is displaced by the vessel hull, thereby yielding larger waves.

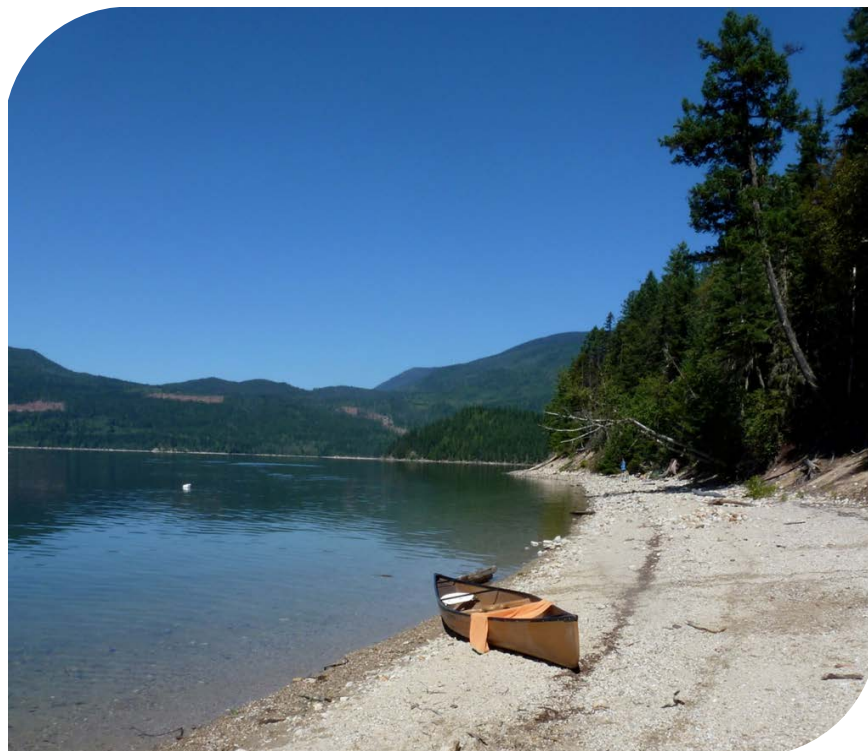


The study seems to indicate that boat wakes do indeed contribute to the erosion problem on the Lower Shuswap River, but the extent of their contribution remains difficult to quantify with any degree of certainty. Natural causes of erosion, in particular the strong currents associated with the spring freshet as well as the geotechnical loading on saturated banks during the early summer drawdown (associated with declining limb of the annual hydrograph) clearly dominate the erosive signal along many reaches of the river. The outside portions of meander bends or even reaches where the thalweg favours one side of the channel are particularly susceptible to long-term erosion by natural processes. Nevertheless, boat wakes may still play an important role by eroding the material that has been deposited on the gently sloping apron that is adjacent to the cut bank, including large slump blocks that recently calved off the bank into the water. In more extreme cases, boat-wake waves may undermine the bank leading to further instability and slumping (Laderoute & Bauer 2013). A further study is being undertaken in 2014 to quantify the rate of bank erosion during the spring freshet and to assess the near-bank flow mechanisms that are responsible for the erosion.

Additional areas of concern identified through public consultation included littering associated with river users (tubers, canoeists, boaters, fisherman) and campers, ATV

and snowmobilers (food containers, oil containers, broken machinery etc). Community members have taken it upon themselves to clean-up various locations on an ongoing basis and the Shuswap River Ambassadors collect litter at the various launch sites on the Lower Shuswap River throughout the summer months in conjunction with their river advocacy program.

The potential for recreational activities to directly impact wildlife and wildlife habitat was also addressed within the planning process. Wildlife is an integral component of the watershed and can be directly disturbed and threatened by recreational activities such as ATVing, 4x4s, snowmobiling, power boats, personal watercraft, mountain biking and hikers. This can include vegetation loss and compositional changes, soil compaction, erosion, muddiness, degraded water quality as well as disruption and displacement of wildlife. Of particular interest were salmon and aquatic species in general. Four species of Salmon are found within the watershed, Chinook, Coho, Pink and Sockeye along with various other fish species including kokanee, rainbow trout, bull trout, lake char, burbot and whitefish. Concern exists with respect to damage of aquatic habitats, for example damage to spawning beds from boating activities and also direct disturbance of salmon in holding pools and spawning grounds.



Objective 9:

Reduce the impacts of recreational use on the natural environment, specifically:

- Fish and fish habitat, especially salmon
- Wildlife, especially species and ecosystems at risk
- Water quality
- Private land

Intent:

The impact of various recreational activities on wildlife and key species such as Salmon and species at risk are minimized, water quality is not detrimentally affected by recreational activities and private land and structures are protected from physical damage.

Strategies

9.1	Promote responsible boating, including initiation of an education program to explain why regulation of boating is necessary for environmental, social and safety reasons.
9.2	Provide information sources to recreational users such as a “Users Code of Ethics” on the impacts their actions can have on wildlife, the natural environment and private land and encourage users to protect habitat.
9.3	Manage recreational, commercial and First Nations fisheries in a manner that allows more salmon to return to the Shuswap River so that spawning habitat is more fully utilized and the production of salmon is increased.
9.4	Initiate an education campaign on littering and back country waste management and its effects on the environment.
9.5	Support groups and agencies that discourage irresponsible behaviours and practices such as Riverwatch, Safe Communities and Wilderness Watch; and support the use of enforcement by agencies to address unlawful behaviours and practices.
9.6	Support and promote the implementation of the Okanagan – Shuswap Land and Resource Management Plan as it pertains to reducing the impacts of recreation on the natural environment (See Appendix A for specific policies objectives and strategies)
9.7	<p>For the purpose of reducing erosion of the river’s banks, protecting riparian areas and reducing disturbance to spawning salmon, nesting birds and other riparian/water-based wildlife engage the community to pursue all available regulatory options to establish boating regulations as follows;</p> <ul style="list-style-type: none"> • ²No wake zone and or speed restriction between Mara Lake and Trinity Valley Bridge (Baxter Bridge). • Non-motorised watercraft zone between Trinity Valley Bridge (Baxter Bridge) and Mabel Lake and from Mabel Lake to Shuswap Falls*. <p>* Enforcement activities, search and rescue and essential fish management operations exempt.</p> <p>Possible Options for establishing regulations in order of preference:</p> <ol style="list-style-type: none"> 1. Request regulation from Transport Canada after completing prerequisite community consultation. 2. Ministry of Environment zoning regulation. If necessary, work with the BC Ministry of Environment to strengthen their legislation so that they have the power to protect water-based environments within BC. 3. Request regulation from B.C. Parks within the Shuswap River Islands and Skookumchuk Rapids Provincial Parks.

² While in a “no wake” zone, boat operators are considered non-compliant if their waves do not sufficiently disperse prior to reaching the shoreline, docks or other boats.

9.8	Delineate trails for ATV's, motorbikes, mountain bikes and 4x4s on existing roads and trail networks and educate users as to why they must not disturb off- trail areas.
9.9	Engage existing recreation user groups (ATV, snowmobiles, Shuswap Trail Alliance) and dealerships to educate, self police and monitor users.
9.10	Register off-road vehicles through implementation of the Provincial Off-Road Vehicle Strategy as this allows better opportunities to report illegal activity. Utilize opportunities for education as a part of registration for the purpose of addressing impacts on wildlife, the physical environment and other recreation users.
9.11	Support education initiatives and the enforcement of the Environmental Management Act to eliminate grey water discharge in waterways.
9.12	Identify species at high risk of disturbance from recreational activities within the Watershed and identify possible recreation exclusion zones or protection areas.



Maintenance of access to recreation opportunities.

The importance of the Shuswap River Watershed for recreational activities was acknowledged within the planning process and emphasis was placed on the maintenance of opportunities for a diverse range of recreational uses. Strategies relate to both maintaining and improving existing features that support recreation and the creation of new infrastructure where appropriate.

One area of focus that emerged from the planning process was supporting a shift to more sustainable recreation opportunities. The focus was on developing more opportunities for non-motorized recreation with the desired outcomes of encouraging healthy life-styles, reducing noise and water pollution, reducing impacts on fish and wildlife, reducing risks to other recreationists, lessening stream-bank erosion and sedimentation, and reducing greenhouse gas emissions.

Objective 10:

Maintain and/or provide a diverse range of quality outdoor recreational opportunities for a range of user groups within the watershed.

Intent:

The opportunities for a diverse range of recreational activities within the watershed are maintained while reducing the potential for conflict between users through designation of some areas for specific uses, limiting access to some areas and developing more recreation infrastructure.

Strategies

10.1	<p>For the purpose of improving non-motorised recreational opportunities, engage the community to pursue all available regulatory options to establish boating regulations as follows;</p> <ul style="list-style-type: none">• No wake zone between Mara Lake and Trinity Valley Bridge (Baxter Bridge).• Non-motorised watercraft zone between Trinity Valley Bridge (Baxter Bridge) and Mabel Lake and from Mabel Lake to Shuswap Falls*. <p>* Enforcement activities, search and rescue and essential fish management operations exempt.</p> <p>Possible Options for establishing regulations in order of preference:</p> <ol style="list-style-type: none">1. Request regulation from Transport Canada after completing prerequisite community consultation.2. Ministry of Environment zoning regulation. If necessary, work with the BC Ministry of Environment to strengthen their legislation so that they have the power to protect water-based environments within BC.3. Request regulation from B.C. Parks within the Shuswap River Islands and Skookumchuk Rapids Provincial Parks.
10.2	Develop hiking trails to unique features, such as Isobel falls while avoiding sensitive terrain.
10.3	Recreational areas accommodate motorized and non-motorized users.

Recreational infrastructure

Recreational infrastructure such as moorage buoys, docks and boat ramps were also addressed during the planning process. Concerns associated with these structures centered around three areas, navigation issues, their visual impacts and associated impacts on the natural environment. The proliferation of moorage buoys in areas such as Mabel Lake, were identified as creating a navigation hazard due to the density of moored boats especially for non-motorized vessels such as canoes and kayaks, being visually unappealing and associated boat activity potentially impacting mussel beds and fish spawning grounds in the area through disturbance of the lake bed in shallow waters.

There were two areas of concern associated with docks; the number of unlicensed and abandoned docks / structures below the high water mark and, the current provincial and federal design requirements which are in place to protect environmental values along the river result in docks of a larger scale. The resulting structures are considered by some residents to be too large, out of character and inappropriate for a river environment.

The importance of maintenance of public recreation infrastructure such as boat ramps was also raised. Concern was expressed that when infrastructure was not well maintained, users would often use alternative, informal sites and cause wider damage to the natural environment.

Objective 11:

Preserve, protect and maintain the natural features as well as the recreational infrastructure that provides for a diverse range of recreational experiences.

Intent:

Ensure that recreational infrastructure is maintained in a manner that protects both the environment and access to recreational opportunities.

Strategies

11.1	Strive to establish and maintain quality use of existing trails by utilizing signage to communicate the impacts of traveling outside of the trail.
11.2	Educate waterfront landowners and the general public regarding the Riparian Areas Regulations and what is and is not allowed.
11.3	Ensure dock and buoy design and placement is appropriate for the local conditions and type of waterway through the following; <ul style="list-style-type: none">• Pursue water and foreshore zoning to control the placement and design of docks and buoys.• Engage with the Ministry of Forests, Lands and Natural Resource Operations to explore the potential to develop river specific dock design standards and opportunities for access through the riparian areas.
11.4	Maintain existing launch sites and ensure they are appropriate for the designated use of the waterway and well-marked to discourage people from launching adjacent to designated areas and/or at illegal launch sites.

Potential and existing conflicts between different recreation users and between users and local residents

Conflict between different recreational uses was identified as a concern specifically between motor boats and swimmers, tubers, canoeists and kayakers. There is concern that collisions between motorized and non-motorized users are imminent given the speed at which some boats are being driven and the number of other users on the river. There is also safety issues associated with individuals' behavior such as consumption of alcohol and lack of knowledge of hazards on the river especially associated with tubing.

Conflict between non-motorized and motorized recreational activities throughout the watershed including upland areas was also identified. It was recognized that where motorized activities exist there is the same desire for non-motorized recreational areas. It was identified that particular motorized and non-motorized activities do not always mesh well and an appetite exists for the creation of more non-motorized recreation opportunities and designated areas for non-motorized use only.

Conflict between recreational users and residents was also raised as a concern. Conflicts can be derived from indirect impacts on residents such as noise associated with motorized vehicles and direct impacts such as offensive language, trespass and disrespectful behaviours.

Existing Reporting and Enforcement Activities

The Shuswap River Watch was introduced in 2009 through the Safe Communities Program. Over the four years it has been in operation there have been 44 written reports made. The issues that were reported on include;

- motor boats operating too close to the shoreline
- motor boats in unsafe proximity to swimmers
- motor boats towing with no spotter
- large size, excessive speed and noise of motor boats
- wakes causing erosion of the river banks
- noise from partying boaters

Between 2007 and 2013 the Regional District of North Okanagan provided funding to the RCMP to cover extra boat patrols within the Regional District. The agreement included patrols on Okanagan Lake, Kalamalka Lake, Mabel Lake, Sugar Lake and the Shuswap River. Over the duration of this program patrols have primarily been carried out on Okanagan and Kalamalka Lakes with limited numbers of patrols on the Shuswap River, Mabel Lake and Sugar Lake. In 2012 a total of seven patrols were carried out on Mabel Lake and two patrols on the Shuswap River.



Objective 12:

Prevent or resolve conflicts between recreation users and

1. local residents
2. different recreation users and
3. other licensed resource users

Strategies

12.1	Increase education and enforcement on the river with respect to responsible boating and recreational practices through increased capacity, evaluation of priorities and coordination of enforcement activities.
12.2	Establish area-specific recreation zones for compatible uses.
12.3	<p>For the purpose of resolving the current conflict on the Lower and Middle Shuswap River between the motorised boating community and local residents, and non-motorised recreation users engage the community to pursue all available regulatory options to establish boating regulations as follows;</p> <ul style="list-style-type: none">• No wake zone between Mara Lake and Trinity Valley Bridge (Baxter Bridge).• Non-motorized watercraft zone between Trinity Valley Bridge (Baxter Bridge) and Mabel Lake and from Mabel Lake to Shuswap Falls*. <p>* Enforcement activities, search and rescue and essential fish management operations exempt.</p> <p>Possible Options for establishing regulations in order of preference:</p> <ol style="list-style-type: none">1. Request regulation from Transport Canada after completing prerequisite community consultation.2. Ministry of Environment zoning regulation. If necessary, work with the BC Ministry of Environment to strengthen their legislation so that they have the power to protect water-based environments within BC.3. Request regulation from B.C. Parks within the Shuswap River Islands and Skookumchuk Rapids Provincial Parks.
12.4	Increase public awareness and education on appropriate use of recreation areas through signage and brochures that define what responsible recreational use is.
12.5	Encourage the provincial government to review the trapping regulations specifically in regards to leg hold traps and the threats they pose when located in recreational areas.



Objective 13:

Facilitate and promote more non-motorized recreational opportunities.

Intent:

To achieve the benefits of reduced noise and water pollution, reduced impact on fish and wildlife, reduced risk to other recreationists, less stream-bank erosion and sedimentation, encouragement of healthier life-styles and a reduction in greenhouse gas emissions.

Strategies

13.1	Establish non-motorised recreation areas.
13.2	Promote different types of recreation such as mountain biking, snow shoeing, trail hiking, bird watching, stand up paddle boarding, kayak / canoe race events, orienteering, adventure and multi-sport races and ensure connectivity of uses.
13.3	<p>For the purpose of establishing a non-motorised, water-based recreation area on the Lower and Middle Shuswap River engage the community to pursue all available regulatory options to establish boating regulations as follows;</p> <ul style="list-style-type: none"> • No wake zone between Mara Lake and Trinity Valley Bridge (Baxter Bridge). • Non-motorised watercraft zone between Trinity Valley Bridge (Baxter Bridge) and Mabel Lake and from Mabel Lake to Shuswap Falls*. <p>* Enforcement activities, search and rescue and essential fish management operations exempt.</p> <p>Possible Options for establishing regulations in order of preference:</p> <ol style="list-style-type: none"> 1. Request regulation from Transport Canada after completing prerequisite community consultation. 2. Ministry of Environment zoning regulation. If necessary, work with the BC Ministry of Environment to strengthen their legislation so that they have the power to protect water-based environments within BC. 3. Request regulation from B.C. Parks within the Shuswap River Islands and Skookumchuk Rapids Provincial Parks.
13.4	Shift the focus and facilitation of recreational opportunities in the Shuswap River watershed to non motorised sports to aid in the reduction of greenhouse gases
13.5	Link non-motorised recreation opportunities to tourism.
13.6	Support and promote the implementation of the Okanagan – Shuswap Land and Resource Management Plan as it pertains to facilitating non-motorised recreation (See Appendix A for specific policies objectives and strategies).
13.7	Produce a map that has inserts for recreational uses and outline what activities or uses are encouraged in specific areas and which areas are off limits.
13.8	Develop an education package on how certain recreational activities produce GHG emissions and contribute to Climate Change; or include this information in the general education package.
13.9	Invest in hand launch sites; make them user friendly

Objective 14:

Ensure that recreational users are mindful of the archaeological, cultural and heritage resources within the Shuswap River watershed and that these features are preserved and protected.

Strategies

15.1	Work with Okanagan Indian Band and Splatshin to identify cultural and heritage resources such as species and sites of cultural and historical significance while recognizing the sensitivity of these sites and the potential need for confidentiality e.g. plants & animals.
15.2	Encourage and facilitate the recognition and preservation of cultural and heritage resources. This could include significant plant and animal species and sites of cultural and historical importance.

Objective 15:

Promote recreational activities to be undertaken in a manner that is safe for the recreationist as well as others.

Intent:

To prevent accidents during recreation activities both on and off the river including; accidents between different recreationists as well as individual accidents.

Strategies

15.1	Educate users on acceptable boating practices within the Shuswap River.
15.2	Develop and utilize existing education materials and programs regarding responsible recreation practices including safety around water, hunting practices and motorised vehicle use.
15.3	<p>For the purpose of increasing the safety of water-based recreation for users on the Lower and Middle Shuswap River in particular as it pertains to powered water craft on the faster moving waters above Trinity Valley Bridge (Baxter Bridge) and the heavily congested waters below, engage the community to pursue all available regulatory options to establish boating regulations as follows;</p> <ul style="list-style-type: none"> • No wake zone between Mara Lake and Trinity Valley Bridge (Baxter Bridge). • Non-motorised watercraft zone between Trinity Valley Bridge (Baxter Bridge) and Mabel Lake and from Mabel Lake to Shuswap Falls*. <p>* Enforcement activities, search and rescue and essential fish management operations exempt.</p> <p>Possible Options for establishing regulations in order of preference:</p> <ol style="list-style-type: none"> 1. Request regulation from Transport Canada after completing prerequisite community consultation. 2. Ministry of Environment zoning regulation. If necessary, work with the BC Ministry of Environment to strengthen their legislation so that they have the power to protect water-based environments within BC. 3. Request regulation from B.C. Parks within the Shuswap River Islands and Skookumchuk Rapids Provincial Parks.

Goal 4: Interagency Relations, Roles and Responsibilities

Facilitate, simplify and promote collaboration and efficiencies among agencies and the community for sustainable watershed management

The relationship between different agencies and their respective responsibilities with regard to management of the Shuswap River watershed was identified as an area of concern by the community in Phase I of the planning process. Participants expressed significant frustration at the perceived lack of coordination between government agencies and lack of understanding of each other's roles. This sentiment is emphasized by the absence of a lead agency or single authority with regard to management of the watershed. Community members want to know who

they should report concerns to and feel confident that their concerns will be followed up on and addressed.

During the planning process it was also raised that community members may miss opportunities to provide comment on proposed activities within the watershed, especially on Crown land, because they are not aware of the processes in place that allows for comment. The need for a mechanism to better allow for community engagement was identified.

Objectives and Strategies

The following objectives and strategies focus on providing mechanisms for the community to engage with the management of the Shuswap River Watershed and to address the need for a coordinated approach to Watershed management.

Objective 16:

To create and deliver a comprehensive community education program to advise residents and visitors of the following:

- a. Recurring infractions and problematic activities.
- b. Reporting and follow up mechanism for infractions.
- c. Sources of support for activities to improve the sustainability of the watershed (e.g. how to access assistance for riparian restoration / bank stabilization).

Intent

To ensure that community members can readily access information regarding watershed management.

Strategies

16.1

Information Brochures

- Develop a Flow Chart / Diagram or handouts outlining re-occurring infractions and who is to be contacted.
- Develop a coordinated, cohesive approach on initiatives and education materials which outline issues in the area and best management practices (documents and events should be branded e.g. "Partners for a Sustainable Shuswap River Watershed").

Objective 17

Deliver an appropriate and timely response to complaints and infractions.

Intent

To improve the compliance and enforcement response and accessibility to community concerns and ongoing issues.

Strategies

17.1	Develop an integrated response plan and secure sufficient financial resources to support compliance and enforcement services.
17.2	Develop a 'one window' integrated intake for complaints that will coordinate a response, collect the data, monitor response and provide follow up on the infraction / issue. <ul style="list-style-type: none">• Inquiries BC• RAPP
17.3	Explore funding of enforcement officers (RCMP, Conservation Officer, Bylaw Officer) who can be trained to enforce all acts. This service would be needed in peak season only (May long weekend to mid Sept). <ul style="list-style-type: none">• Activities will include looking at other models, meeting with all agencies, and exploring funding options for compliance & enforcement.
17.4	Develop a Watershed Watch program modeled on Block Watch to provide a network of community members to observe and report on violations.



Objective 18

Improve consultation and community input on watershed management through the creation of an independent permanent Shuswap River Watershed advisory body to:

- a. Oversee watershed health (cumulative impacts perspective),
- b. Identify and lobby for change to address ongoing issues,
- c. Act to create long term solutions (e.g. Enforcement and legislation changes),
- d. Tracking of unresolved issues & evaluate responses (short falls).

*If a Shuswap Watershed Board was established (similar to an Okanagan Basin Water Board) this advisory body would amalgamate with or link to it.

Intent:

This advisory body would be consulted by authorities and agencies on various activities in the Watershed, especially on Crown Land. This type of approach and referral process would be effective in providing more information and knowledge to the community about activities underway or proposed within the watershed. This monitoring/ advisory body would also represent ongoing community concerns.

Strategies

18.1	Ensure the Shuswap River Watershed Management Plan and advisory body maintain an adaptive approach to issues within the watershed especially in regards to emerging data and research on the effects climate change will have on the Watershed.
18.2	Develop Terms of Reference for watershed monitoring/advisory body which includes identifying a source of funding.
18.3	<p>Develop a referral mechanism in which the monitoring/advisory body is consulted on specific activities within the watershed.</p> <ul style="list-style-type: none">• Key topic areas/flag words/criteria's /locations should be developed that would prompt consultation. (eg. parks, industrial use, we need to determine the scope of what is to be referred, suggestion to flag issues that were identified by the group in Phase 1, Issues Identification).• Geographic interest areas could also be mapped as triggers.• The group should have a mechanism to identify and act on repetitive issues as they arise – adaptive role.
18.4	Identify gaps and overlaps in jurisdiction, legislation and response to watershed issues in an ongoing manner.
18.5	Meet with Provincial and Federal Politicians to engage them in the process. This would be an opportunity for them to hear about the status of the watershed and get their participation in pursuing solutions. (e.g. the MLA could follow up on issues related to provincial ministries).
18.6	Identify impacts from natural disasters (e.g. recent flooding and landslides) and learn from these events to develop response mechanisms to reduce the impacts of future such events.

Goal 5: Education and Awareness

Raise community awareness of the importance of the Shuswap River Watershed, the ecosystems it supports and the relationship between human activities and watershed health, such that we all take ownership of our actions

During Phase II of the planning process, plan development, it became apparent that in order to initiate significant changes within the Watershed their needs to be a cultural shift on how the watershed is viewed. There

needs to be a sense of responsibility among residents, business owners and tourists within the community for the Watershed. Out of this discussion it was identified that an education and awareness campaign would help to achieve this goal as well as work towards achieving the goals within each distinct area of interest, Land Use and the Natural Environment, Recreation and Interagency Relations Roles and Responsibilities.

The following objective and strategies work towards addressing the need for a cultural shift in thinking about the watershed.

Objective 19: Coordination & Collaboration:	
Enhance the level of community awareness of the value of the Shuswap River Watershed through the collaboration and coordination of educational programs and initiatives.	
Strategies	
19.1	Develop and implement a water quality education program.
19.2	Create and deliver a comprehensive community education program to advise residents and visitors of the following: <ol style="list-style-type: none"> Existing Regulations and laws pertaining to activities in the Watershed Government Agencies Roles & Responsibilities Reporting and follow up mechanisms for infractions Sources of support for activities to improve the sustainability of the Watershed (e.g.) how to access assistance for riparian stabilization
19.3	Septic system and domestic water supply education e.g. CSRD Septic Smart
19.4	Educate adjacent land owners and the public on high value fish spawning / habitat areas.
19.5	Develop an education strategy with realtors dealing with rural properties to inform buyers of: <ul style="list-style-type: none"> Livestock & Waterways Water Licenses Riparian Management' Living by Water Information Brochure "Thinking of buying a rural property" Also reach out to existing owners on best management practices
19.6	Identify & support existing education programs and community initiatives that celebrate the value of the Shuswap River Watershed through the arts and cultural events. E.g. Kingfisher Interpretive Centre.
19.7	Host an annual region wide event to celebrate, honour and acknowledge the importance of the Shuswap River.
19.8	Engage riverfront owner's to each do their part for river stewardship; everyone takes ownership for a healthy sustainable watershed. <ul style="list-style-type: none"> Utilize stewardship groups to distribute information Provide information regarding water stewardship with the "welcome Wagon" Build upon the River Watch reporting mechanism
19.9	Educate the public on reporting mechanisms for sightings of species at risk (BC Conservation Data Centre).

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APPENDIX A – LRMP POLICIES

Okanagan – Shuswap Land and Resource Management Plan

LRMP Policies that compliment Objective 9 and 10.

- Discourage winter recreational activities that could have a negative impact on the wildlife occupying an ungulate winter range.
- Promote public education and awareness on how to minimize impacts from recreational use on the land base.
- As necessary, develop guidelines to mitigate impacts of recreational use on sensitive areas.

LRMP Policies that compliment Objective 13.

- Place seasonal restrictions on motorized recreational use (vehicles, bikes, snowmobiles etc) to maintain the quality of experience for non-motorized users. (RMZ)
- Provide opportunities for summer non-motorized recreational activities (e.g. hiking, nature appreciation) (RMZ)
- Use a wide range of measures including appropriate mapping, signing, design and support for the efforts of organized user groups. (RMZ)
- To acknowledge and manage areas for intensive winter non-motorised recreation use, opportunities and experiences, providing for a quiet and safe space. (RMZ)

APPENDIX B – OKIB AREA OF RESPONSIBILITY

