COMMUNITY ENGAGEMENT IN WATERSHED GOVERNANCE:

Case Studies and Insights from the Upper Columbia River Basin

June 1, 2018

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OPENING REMARKS

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A Note on the Research and Review Process

This report was jointly produced by the POLIS Water Sustainability Project with Columbia Basin Trust and Living Lakes Canada. Background for this research report and the identification of the case studies were informed by the 2013 Think Like a Watershed Symposium, hosted in Fairmont Hot Springs by the Columbia Basin Watershed Network and Living Lakes Canada.[1–3] This report was also informed by discussions with elected officials and staff from governments (provincial, local and Ktunaxa Nation) and watershed groups, as well as through a review of background reports, documents, memos and academic research. This research began in the Summer of 2015 and the report was finalized in the Spring of 2018. The information in the case studies reflects activities occuring primarily between 2015-2017. Each of the case study groups described continues to play an ongoing role, and is implementing additional new initiatives, not all of which are described here. Websites are included for readers to learn more about these groups' current activities. The interpretation and analysis in this report are that of the project team alone, and do not necessarily reflect views of specific individuals or organizations.

Contributions from the Following Reviewers are Gratefully Acknowledged:

- British Columbia Ministry of Environment and Climate Change Strategy
- British Columbia Ministry of Energy, Mines and Petroleum Resources
- Lake Windermere Ambassadors (Megan Peloso, Coordinator, and Taoya Schaefer, Director)
- Living Lakes Canada (Heather Leschied)
- Ktunaxa Nation Council (Nicole Kapell, Environment and Archaeological Stewardship Manager)
- POLIS Water Sustainability Project, Centre for Global Studies, University of Victoria (Jon O'Riordan, Strategic Water Policy Advisor, and Rosie Simms, Project Manager and Researcher)
- Water, Innovation and Global Governance Lab, Centre for Global Studies, University of Victoria (Michele-Lee Moore, Associate Professor, Department of Geography)
- Elk River Alliance (Lee-Ann Walker, Executive Director)
- Mountain Labyrinths Inc. (Cindy Pearce, Principal)

About Columbia Basin Trust[4]

Columbia Basin Trust supports the ideas and efforts of the people in the Columbia Basin. We take our lead from residents and communities. Whatever the situation calls for, we adapt our role: from providing resources, to bringing people together, to leading an entire initiative. The Trust is here to offer experience and support to all Basin residents. While our range of services, programs, initiatives and financial investments is extensive, our purpose is straightforward: we exist and act for the social, economic and environmental well-being of the Basin—now and for generations to come.

About the POLIS Water Sustainability Project[5]

The POLIS Water Sustainability Project is an initiative of the POLIS Project on Ecological Governance at the Centre for Global Studies, University of Victoria. Our work is based on a strong foundation of rigorous applied research that explores water and watershed law, policy and governance with a focus on solutions, best practices and opportunities for reform. We are a nimble "think and do tank" that collaborates with a wide network of decision-makers, influencers, academics, experts and on-the-ground organizations to advance innovative governance approaches with an explicit focus on ecological function and healthy watersheds, conservation, community-driven collaboration, stewardship and respect for Indigenous rights and knowledge. We develop and help advance practical legal and institutional changes that embody the principles of sustainability, ecological governance and social and ecological resilience as the foundation for a comprehensive legal and policy framework.

About Living Lakes Canada[6]

Living Lakes Canada works towards the long-term protection of Canada's lakes, rivers, wetlands and watersheds. They do this by connecting science with action to foster citizen-based water stewardship. Living Lakes Canada delivers programs focused on four core areas: watershed awareness and education; citizen science and community stewardship; watershed restoration, and; innovative policy approaches for governance, management, and planning. Living Lakes Canada aims to help Canadians understand the intimate connections between water quantity, water quality, land-use, climate change, biodiversity, and healthy human communities by promoting a solid water stewardship ethic.

INTRODUCTION

Living Lakes Canada, Columbia Basin Trust and the POLIS Water Sustainability Project undertook this report with the intent of offering residents of the Upper Columbia River Basin a useful resource for understanding how community-based groups engage in watershed governance. The hope is that the following case studies, and the information about new legal tools available for watershed protection, can equip a wide range of people to engage in informed dialogue about opportunities and solutions for addressing pressing freshwater issues.

This report explores four main themes:

1. The meaning and best practices of watershed governance, and its relevance in British Columbia (BC) and the Upper Columbia River Basin (the Basin).[i]
2. New opportunities for watershed protection available in the Basin (and beyond), as a result of BC's new *Water Sustainability Act* (WSA).
3. How four community and partnership-based water groups in the Basin seek to advance watershed health goals in their respective watersheds.
4. How these groups contribute to watershed governance and what lessons they might offer others in the Basin and more broadly in other regions in BC.

Part I introduces research and concepts around watershed governance, and current water trends and context in BC, specifically the Basin. Legal tools and opportunities available for watershed protection in the WSA are briefly summarized.

Part II showcases four case studies[ii] of community- and partnership-based watershed groups: East Kootenay Integrated Lake Management Partnership, Lake Windermere Ambassadors, Kootenay Lake Partnership and Elk River Alliance. The case studies describe each group's:

- local watershed geography
- origins and organizational history and structure
- activities that contribute to watershed governance, between 2015-2017.

Part III synthesizes cross-cutting themes from the case studies, offering three insights from the watershed groups' common experiences and their positive contributions to water governance, as well as challenges they are facing that may prevent groups from engaging more effectively in the future.

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[i] The geographic scope of this paper is the region served by Columbia Basin Trust. It primarily consists of all watersheds in British Columbia that flow into the Columbia River in Canada (nearly 80,000 square kilometres). See a map here: ourtrust.org/map.

[ii] Aside from the community-based initiatives described in this report in detail, there are many other water stewardship organizations and non-profit environmental organizations undertaking conservation and water stewardship activities in the Basin.

Watershed Governance Concepts and Best Practices

British Columbians value the health and sustainability of fresh water, and strong public support exists for freshwater protection. Recent public opinion research indicates 93 per cent of British Columbians agree fresh water is our "most precious resource"—but only 21 per cent feel confident that BC's fresh water will be in good condition 20 years from now.[7,8]

Recent drought, flood and extreme weather events illustrate how climate change affects water conditions, ecosystems, communities and livelihoods.[9] Incidents of water quality contamination point to the vulnerability of this most important resource.[9] Watershed governance plays a critical role in addressing these challenges.

Governance is concerned with the process of decision making and accountability—distinct from on-the-ground operational *management* activities—and deals with who has the power to make decisions and their jurisdiction to do so, and can involve formal and informal influences on decisions.[10–12] *Watershed governance* relates to this concept of decision making specifically in the context of water and watersheds. It involves the political, organizational and administrative processes through which interests are articulated, and decisions are made and implemented, that affect the management of watersheds. Robust "good" governance reduces conflicts and enhances the ability to provide for watershed protection to ensure healthy functioning ecosystems, resilient communities and a strong economy.[13]

Watershed governance fundamentally comprises:[10]

- who decides who may use, access or alter water or watershed resources, and for what purposes
- how watershed-related values are identified and described, and by whom
- what standards must be met to protect ecological, economic, social and/or cultural values
- how the decision process is undertaken and how decision-makers are held accountable
- how water-based decisions align with ecological boundaries and integrate related land and water in decision making.

A range of formal and informal avenues exist for non-governmental organizations (such as community-based water groups) to participate in aspects of decision-making processes. On the more informal end of the spectrum, governance-related activities may include: watershed visioning, planning, oversight of implementation and management activities (such as information gathering and specific monitoring programs), engagement with affected interests and rights holders, and ongoing evaluation and learning.[10] On the formal end, watershed governance could include more formalized roles in decision making, developing localized standards and thresholds and promoting compliance and enforcement across the various authorities.

Six guiding principles of watershed governance are identified here.[iii] These principles are synthesized from a comprehensive national and global review related to sustainable watershed management and governance[10] and include:

1. water for nature
2. whole-systems approaches
3. transparency and engagement of affected parties

[iii] In addition to these identified principles, the research by Brandes, et al. identifies nine "winning conditions" necessary to advance watershed governance in British Columbia—review and discussion of these nine winning conditions is beyond the scope of this report.

4. subsidiarity (i.e. local resolution for local issues) and clear roles for decision making between levels of government
5. sustainable financing and capacity
6. accountability and independent oversight.

Additionally, widespread recognition exists that for watershed governance to be robust and meaningful, especially in Canada and BC, it is essential that First Nations are engaged and Indigenous rights and interests are recognized and respected.[iv] Although it is beyond the scope of this report to delve into this aspect of the broader watershed governance topic, it is critical context for any discussion about water decision making in BC and elsewhere in Canada.[14–16]

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iv In a 2015 survey with over 500 respondents representing all levels of government, Indigenous peoples, academia, watershed boards, non-governmental organizations and industry and industry practitioners, 77 per cent of respondents indicated they strongly agreed or agreed that co-governance with Indigenous governments in local watershed entities is a winning condition for effective watershed governance.[7]

PART I: CURRENT GOVERNANCE CONTEXT AND NEW LEGAL OPPORTUNITIES FOR WATERSHED PROTECTION

Recent Watershed Governance Trends in British Columbia

As BC faces new water realities and demands, the link between sustainability and watershed governance is gaining attention. A number of recent changes in BC's legal and governance landscape include the following:

- BC recently modernized its water legislation. The new WSA strengthens rules to protect fresh water, as well as enables alternative approaches to more local forms of watershed governance.[17]
- A number of BC First Nations have articulated water law and policy declarations, setting new precedents and context for watershed decision making.[18,19]
- Various court decisions confirm that Indigenous rights and title must be taken into account and First Nations must have an explicit role in resource decision making in their traditional territories.[20]
- Across BC, dozens of community-based water stewardship groups, local governments and collaborative watershed boards are engaging in watershed stewardship, monitoring and planning.[21] Community-based and collaborative groups can play important roles in governance through their unique abilities to promote "whole of watershed" thinking, convene multiple interests, inform planning, pool resources and engage with community and government across scales.[10]

Recent Water Trends in the Basin

In the Upper Columbia River Basin, many residents are passionate about the health of their local watersheds. Some are directly engaged in water stewardship: over 50 community-based stewardship groups exist in the Basin.[22,23] These groups undertake a range of activities, including conservation and planning initiatives, citizen science, watershed education programs and ecosystem research and restoration projects.

In various parts of the Basin, communities have experienced water restrictions,[24,25] angling closures due to warm temperatures and low flows,[26] water quality degradation,[27,28] fish abundance decline[26,29,30] and damage to sensitive ecological habitats and cultural values in riparian and shoreline areas. Climate change will continue to present new water challenges and increase uncertainty for decision-makers. Climate change projections and possible implications for the Basin include warmer temperatures, rapidly retreating glaciers, decreasing snowpack at lower elevations and shifts in the timing and amount of precipitation and runoff. Hydrologic changes may lead to more frequent and extreme droughts, floods and large-scale forest fires, which increasingly affect Basin communities.[31]

Many residents and decision-makers in the Basin (and beyond) are aware of the urgency, the potential implications of a changing hydrology and the complexity of responding to watershed issues affected by climate change impacts. Many share an interest in strengthening water stewardship for the benefit of communities and ecosystems.[1,32] This report provides information about new opportunities for watershed protection under the WSA, and the various ways in which community-based watershed groups in the Basin are supporting conservation and stewardship and contributing to watershed governance.

Governments, Interests and Agreements Shaping Watershed Governance in the Basin

The legal landscape for water governance in BC is complex and multi-jurisdictional. Responsibilities for water are spread across various authorities and numerous agencies within all levels of government, including federal, provincial, Indigenous and local government. Water licence holders, non-governmental organizations, business and industry are also engaged in—and affected by— various aspects of water management and governance. Appendix A outlines some of the water and watershed roles and responsibilities of these various levels of government (Indigenous, federal, provincial and local) and details some of the related activities of improvement districts and small water systems, and water licensees. Appendix B touches on the role of the Columbia River Treaty (CRT) in the context of watershed governance in the Basin and the broader international Columbia River system. However, the CRT and its ongoing process of renewal and potential renegotiation is not the focus of this report.

New Legal Opportunities for Freshwater Protection and Management Through British Columbia's *Water Sustainability Act*

To provide some background on the changing legal landscape—and the potential implications for governance—this section provides a brief introduction of the possible water protection and stewardship opportunities related to the new WSA.

BC's WSA came into force in February 2016, replacing the previous *Water Act*, which was first enacted in 1909. The new legislation constitutes a major update of the previous legislation with a clear intention to modernize the water management and governance regime and to explicitly better protect BC's fresh water, including updating the water allocation and planning system. Due to the size and complexity of this legislation, the provincial government is taking a phased approach to implementation.[33]

It is important to note that many BC First Nations have expressed concerns about the WSA and its development process. This report does not review these concerns in detail, however, further discussion and perspective is available in a number of resources.[v]

Despite varying points of view about the WSA, the legislation offers potential new approaches to water management, protection and governance. Some of the key changes are outlined below.

Groundwater Licensing and Protection[34,35]

For the first time, all non-domestic groundwater users are now required to hold a licence and pay fees and rentals. There is a three-year transition period (March 2016 to 2019) for existing groundwater users to apply for an authorization to divert, use and store groundwater. Domestic wells are exempt from the requirement to hold an authorization. However, in certain situations (particularly in areas of persistent scarcity or conflict), an area-based regulation can be developed that can require homeowners to obtain authorizations.

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[v] For more information about First Nations concerns around the *Water Sustainability Act*, see submissions and legal analysis developed by the BC Assembly of First Nations and the First Nations Summit, [15, 16] as well as research from the University of British Columbia[14] and POLIS.[37]

The provincial government recommends that all existing groundwater uses—particularly domestic groundwater uses—are inventoried in a registry so they can be accounted for and protected in future decisions. Government agencies are actively working to increase their understanding of groundwater resources in the province to support effective decision making and implementation of the WSA.

Environmental and Critical Flow Considerations[36]

The WSA currently requires that decision-makers consider the environmental flow needs for any new authorizations. Environmental flow needs of a stream are defined by the Province of BC in the legislation as "the volume and timing of water flow required for proper functioning of the aquatic ecosystem."[vi] An exception to this requirement is made for existing groundwater uses prior to March 2016 as these uses are currently being brought into the water allocation system; however, the provincial decision-maker has the discretion to consider environmental flow needs in these decisions. A provincial environmental flow needs policy has been developed to guide the review of applications, with a more detailed regulation being considered.

Another important aspect of the new regime includes provisions that deal with critical environmental flow levels. In areas where a significant water shortage is declared, critical environmental low-flow levels are determined and refer to the bare-minimum level of water at which aquatic species can survive without the threat of irreversible harm.

The WSA continues the "First in Time, First in Right" (FITFIR) system, which is designed to resolve water use in times of scarcity or when there is not enough water to meet allocated demand, allowing senior licence holders first access to water. The WSA modifies this FITFIR system to allow water for critical environmental flows and water for households to be used first during times of scarcity, before other licensees are allowed access. The WSA also brings forward the ability to place temporary restrictions on individual licence holders to protect threatened fish populations.

Measuring and Reporting[vii]

A recurring challenge in BC is a lack of information about the amount and method of water use by licensees.[9] The WSA introduces various new possibilities for water users to measure and report water use. It is important to note that the WSA does not require mandatory water meters in households. Currently, any applicants for a water licence or water licence holders can be required to develop site plans or undertake a range of studies or assessments. Water users are legally required to use water beneficially, which includes using water efficiently. Licence and use approval holders are also generally required to pay application fees and annual water rentals. As aspects of the WSA are implemented, it is also expected that licence holders will increasingly be required to measure and report water use and use water efficiently, as well as be encouraged to participate in planning and water stewardship activities.

[vi] The internationally recognized *Brisbane Declaration* takes a broader approach in defining environmental flows and focuses on both the quantity and quality of water flows required to sustain freshwater ecosystems.

[vii] For a more in-depth discussion of how monitoring and reporting will work in the *Water Sustainability Act,* see pages 4–28 in (37)

Water Objectives[viii]

The WSA creates new provincial authority to establish water objectives that set criteria or thresholds for water quality, quantity and aquatic ecosystem health. Decision-makers across other departments in the provincial government or in local government may be required to consider these objectives when planning and making land, water and resource use decisions.

Planning and Governance[ix]

Three important planning and related governance functions are enabled in the WSA:

1. Development of water sustainability plans to address conflicts and/or risks to water users or between water users and environmental flow needs.
2. Creation of advisory boards to provide decision-makers with advice on different aspects of the WSA, including establishing water objectives, methods for determining environmental flow needs or critical flow thresholds, and standards and best practices for water diversion and use.
3. Delegation of some aspects of decision making to individuals or entities outside of government, which may offer opportunities for locally based collaborative decision making.

Ultimately, how these planning and governance functions are implemented will be determined over time by the provincial government in partnership with First Nations and key watershed users, including local governments.[37]

Summary

In light of these legal and management changes and the increased potential avenues for community participation in water-related decision making as the WSA is implemented over time, a real opportunity exists for better local engagement and the ability to advance watershed governance in the Columbia River Basin and elsewhere.

As a starting point it is useful to better understand how individuals and organizations are already collaborating and working together to address watershed issues in the Basin. The following four case studies from the Basin, where community-based collaborative efforts are under way, offer some insights into what is working and where some future opportunities may exist. The information in the case studies is not comprehensive, rather, offers a "snapshot in time" of activities primarily between 2015-2017. These regional initiatives all predate the WSA, having existed anywhere from seven to over 10 years, and may be influenced by the recent introduction of the new Act.

[viii] To manage fresh and marine water quality in specific water bodies, water quality objectives may be developed to protect water uses in that watershed. Attainment monitoring is used to determine if water quality objectives are being met. Review reports from regions, including the Kootenay/Boundary region at (38)
ix Provisions in the WSA around planning and governance stem from (39). In addition to the WSA, a number of other initiatives use plans to protect aquatic ecosystems when developing communities and allocating water for use in agriculture, industry and energy production. For further information see (40) and further sources detailed at (41)

PART II: CASE STUDIES

Many projects, programs and community-based organizations in the Basin are focused on different aspects of watershed governance. These organizations are primarily involved in "informal" modes of governance (influencing decisions as opposed to having any direct decision-making authority) and areas of activity generally focus on water stewardship, ecological health, water conservation and water monitoring and research. The following case studies specifically explore how four community- and partnership-based watershed groups seek to advance watershed health goals in their respective areas of the Basin. All of the community-based watershed groups described in this report share an interest in water stewardship and preserving watershed health for the benefit of ecosystems, communities and future generations. While the specific issues and concerns vary in each sub-watershed, some of the most common areas of focus between 2015-2017 include:

- identifying ecologically sensitive areas, such as those along shorelines (see text box on next page), and potential threats or risks to those areas, and developing and promoting solutions that protect cultural and ecological values
- tracking the status of water quality and potential threats to water quality and fish populations
- investigating solutions to climate change impacts (e.g. dealing with drought or addressing the increasing frequency of extreme flood events)
- implementing education and outreach to communities about watershed health and developing best practices around steward watershed values.

Each case includes a summary of the local watershed geography and each organization's origins, history and structure, and identifies the organization's primary activities that contribute to watershed governance. This information is summarized in an "At a Glance" table in each case study.

A Focus on Ensuring Healthy Shorelines

Shorelines are the interface between water and land, attracting and supporting high biodiversity and providing particularly important habitat (e.g. nesting and spawning grounds) for fish, birds and other wildlife. Shorelines also provide a critical ecosystem for rare and endangered plants. Healthy shorelines can better withstand effects from erosion, flooding and wave action, thus minimizing property damage. Shoreline developments (e.g. marinas, docks, boathouses, land accretions and human-made beaches) have the potential to cause damage to sensitive shoreline areas. Deterioration in shoreline conditions can also impact cultural and archeological sites, including those of Indigenous peoples. In some cases, limited information is available about the location of ecologically and culturally significant sites on shorelines. For a number of watershed groups, shorelines are an important focus area; this is due to their observations that residential and commercial development has intensified around some lakes and waterfronts, in some cases posing threats to sensitive shoreline values.

Fisheries and Oceans Canada developed a methodology for Sensitive Habitat Inventory Mapping (SHIM) that is used by some watershed groups, such as the East Kootenay Integrated Lake Management Partnership (EKILMP) and Kootenay Lake Partnership (KLP). The approach involves mapping and classifying ecological values and disturbance in the foreshore. A classification system of four colour-coded zones attaches a rating to each part of the shoreline. For example, red zones exist where there are "very high or high existing ecological values that overlap with key habitat areas" and are delineated as conservation areas essential for long-term maintenance of fish and/or wildlife values. At the other end of the spectrum, grey zones indicate lower ecological values, for example where development has been concentrated and/or where fish and wildlife habitat has been disturbed. The classification system gives an indication of the level of development that may be compatible with protecting ecological values in each zone. Information gathered for SHIM can contribute to the creation of shoreline management guidance documents (see the EKILMP case study), lake management plans (see the Lake Windermere case study) and other local policy and planning initiatives.

1. East Kootenay Integrated Lake Management Partnership

East Kootenay Overview

- The East Kootenay region includes the Purcell and Rocky mountains, with the Rocky Mountain Trench between them. This creates the headwaters of the Columbia River, which flows northward through the Columbia Valley.
- Numerous lakes and water bodies of all sizes provide important habitat for aquatic and terrestrial species: lake shorelines are particularly important zones that provide rich habitat.
- The East Kootenay region is popular as a destination for visitors and second-home owners, particularly from out of province.
- In 2011, the total population of the Regional District of East Kootenay (RDEK) was 56,655.[42] Approximately 30 per cent of the population of the RDEK reside in rural or unincorporated areas, and 70 per cent reside within incorporated communities.[43]

Origins of the East Kootenay Integrated Lake Management Partnership

The East Kootenay Integrated Lake Management Partnership (EKILMP) initiative began in 2006 when Fisheries and Oceans Canada invited all levels of government, including Indigenous, and community interest groups to discuss their common concerns, issues and joint responsibilities around water governance. A main driver and shared concern among participants was that increasing housing development and recreation in and around various lakes could damage sensitive shorelines and aquatic habitats. The parties agreed to work together to address issues and concerns in an integrated way to better protect the lakes and their beneficial uses for fish, wildlife, drinking water, heritage, recreation and aesthetic values. The EKILMP was created from these initial discussions.

At a Glance… The East Kootenay Integrated Lake Management Partnership

Vision	"Through partnership, information sharing and optimizing available resources, the East Kootenay Integrated Lake Management Partnership wishes to develop integrated, collaborative approaches to lake management in order to address current and future activities in the watershed in ways that sustain the ecological health and social and economic values of lakes in the East Kootenay."[44]
Mandate	"Maintain the integrity of lake ecosystems for fish, wildlife, drinking water, heritage, recreation and aesthetic values."[44]
Primary Activities	Primary activities include developing science-based, coordinated management guidelines for land and water uses associated with East Kootenay lakes; thus far, the East Kootenay Integrated Lake Management Partnership has completed projects for nine lakes.[x]
Organizational Structure	A partnership-based coalition of agencies, local governments, First Nations organizations and non-governmental organizations with joint responsibilities to protect lake ecosystems. Collaboration is guided by a terms of reference with no legal status, although certain partner agencies do have statutory decision-making authority. Partners include: **First Nations:** Canadian Columbia River Inter-Tribal Fisheries Commission, Ktunaxa Lands and Resources Department of the Ktunaxa Nation Council **Federal government:** Fisheries and Oceans Canada **Provincial government:** Ministry of Forests, Lands, Natural Resource Operations and Rural Development; Interior Health Authority **Regional government:** Regional District of East Kootenay **Municipalities:** Village of Canal Flats, District of Invermere **Community organizations:** Wasa Lake Land Improvement District, Moyie Community Association, Rosen Lake Ratepayers Association, Jimsmith Lake Community Association, St. Mary Valley Rural Residents Association, Lake Koocanusa Community Council, Lake Windermere Ambassadors **Environmental groups:** Living Lakes Canada
Staff	Part-time coordinator on a contract basis.
Funding Sources	Project-based funding from the Columbia Basin Fish & Wildlife Compensation Fund, Columbia Basin Trust, Real Estate Foundation of British Columbia and partner contributions; in-kind contributions of time and expertise from participating partners.
Website	ekilmp.com

East Kootenay Integrated Lake Management Partnership Activities That Contribute to Watershed Governance

Sensitive Habitat Inventory Mapping

The EKILMP used Fisheries and Oceans Canada's methodology for Sensitive Habitat Inventory Mapping (SHIM) in lakes in the East Kootenay (see text box on page 14 for more detail on this approach). This data served as a foundation to develop and implement guidelines for shoreline

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[x] Windermere, Columbia, Wasa, Moyie, Monroe, Tie, Rosen, St. Mary's and Jimsmith. View at: ekilmp.com.

development that help protect fish and wildlife values and conserve ecosystems and species of conservation concern.

Shoreline management guidelines support agencies (most notably FrontCounter BC; the Ministry of Forests, Lands, Natural Resource Operations and Rural Development; and the RDEK) that make decisions about development proposals. The guideline documents are also a tool to provide information to stakeholders, development proponents, agencies and other decision-makers when land use or other activities are proposed that could alter shorelines, thereby impacting fish and/or wildlife habitat or other values. The guidelines do not outline a regulatory permit planning process or prescribe rules around shoreline zoning. Rather, the guidelines contribute to the development of legal mechanisms and rules, such as lake management plans or zoning bylaws, that can address matters such as development and conservation opportunities and trade-offs.

For example, EKILMP information was used to inform the Lake Windermere Management Plan (LWMP) and Wasa Lake Official Community Plan. In 2015, the EKILMP initiated a SHIM project for the Canadian portion of Koocanusa Reservoir. This data will be used as part of the shoreline management guidelines for Koocanusa Reservoir, as well as to help inform the recreation management planning process.[45]

Establishing a Collaborative, Science-based Model Adaptable to Other Watersheds and Regions

The EKILMP established an approach for various watershed interests to effectively work together. This approach has inspired other groups in the Basin to use similar collaborative approaches focused on issues of lake and watershed health. For example, SHIM was also used by the Kootenay Lake Partnership (KLP) and on Lake Windermere. The approach has also been used by Living Lakes Canada as a model for the South Basin of Lake Winnipeg and Lac la Biche, Alberta.

Attention to Compliance

In the early years of the EKILMP, partners adopted a method, based on Fisheries and Oceans Canada design, to examine compliance with shoreline management guidelines in order to monitor the effectiveness of the guidelines. In short, the method involves revisiting lakes and assessing the rate of change of shoreline modifications, reviewing the degree to which land use authorizations are compatible with the guidelines and determining if illegal activities have occurred. Looking ahead, the EKILMP plans to renew its focus on compliance monitoring.

East Kootenay Integrated Lake Management Partnership Role in Watershed Governance: Summary

The EKILMP engages in, and supports, watershed governance in the East Kootenay by:

- convening a broad-based collaborative group that shares information and works together on watershed projects
- filling information gaps about ecological health by mapping and classifying ecological values in lake foreshore areas
- providing shoreline management guidance documents, which help inform decisions about development authorizations
- using shoreline guidance documents to inform and be incorporated into other planning processes, such as the 2011 LWMP,[46] the Wasa and Area Official Community Plan[47] and the Lake Koocanusa Recreation Strategy[45]
- developing and implementing monitoring and compliance plans for lakes that have shoreline management guidelines to ensure they are effective.

2. Lake Windermere Ambassadors

Columbia Headwaters and Lake Windermere Overview

- These are located within the East Kootenay area, in the Rocky Mountain Trench.
- Columbia Lake, the Columbia Wetlands and Lake Windermere form the headwaters of the Columbia River.
- Lake Windermere is a shallow, 17-kilometre-long water body (actually a large widening of the Columbia River) with an average depth of 4.5 metres, which provides important habitat for 16 fish species and hundreds of migratory birds.
- The northward flow of the Columbia River beyond these lakes creates the internationally recognized, biologically diverse Columbia River Wetlands.
- This portion of the Columbia River and upstream to Kinbasket Reservoir are the only parts of the Columbia River not affected by dams.
- Lake Windermere is the primary source for both irrigation and drinking water for surrounding residents and industries.
- The permanent population between Spillimacheen and Canal Flats is estimated to be 10,000, while the local chamber of commerce estimates the region provides services to between 30,000 and 40,000 visitors over summer.[48]
- It is estimated that tens of thousands of visitors come to the area annually for recreation and tourism offerings; swimming, golfing, boating, hot springs, fishing, ice fishing, ice skating and cross-country skiing are among some of the popular activities and Lake Windermere is one of the biggest draws.[48]

Origins of the Lake Windermere Ambassadors and Lake Windermere Management Plan

In 2005, concerns about the ecological health of Lake Windermere motivated a regional environmental non-profit organization, Wildsight, to find ways to help protect watershed health. These concerns were particularly the collapse of the lake's burbot fishery[29] and increasing intensification of housing development and water recreation that posed a threat to sensitive shoreline ecosystems. Initially Wildsight conducted a lake-use survey with residents and second-homeowners to determine whether residents had concerns about lake health. The survey results indicated widespread public concern about the lake: respondents expressed a need for information on maintaining septic systems and concerns about boat traffic congestion, aquatic plant growth, shoreline and upland development, water conservation and water quality.[49] Similarly, when the RDEK led public consultation to inform the Lake Windermere Official Community Plan, the process revealed that preserving the lake's health was a significant issue of public concern.[50] Yet, no one organization was explicitly mandated to consider the numerous interacting contributors to lake health and collect relevant whole-system information to support decisions about land-use planning, development and recreation, and overall lake management.

In response to these concerns, Wildsight convened lakeshore residents and partner organizations to form the Lake Windermere Project.[49] First Nations, partners from all levels of government, community organizations, stewardship groups and research organizations supported the project, which conducted water quality monitoring in accordance with provincial and federal water monitoring protocols at 16 sites on the lake (and lake tributaries) between 2005 and 2010. The water quality data contributed to updating the high-level provincial water quality objectives for the lake (initially written in 1985).[49] Analysis of this data catalyzed a desire for a longer-term water monitoring program. The Lake Windermere Project also worked with the EKILMP (see Case Study 1) to develop shoreline management guidelines for fish and wildlife habitats for Lake Windermere.

The shoreline management guidelines and water quality data informed the development of the LWMP, a planning process to address lake-related issues following the adoption of the Lake Windermere Official Community Plan.[51] The LWMP planning process was initiated by the RDEK in partnership with the District of Invermere, and included meetings with an advisory group, public meetings and consultation with the Ɂakisq'nuk First Nation.[46] The development of the LWMP was also a pre-condition for lifting a provincial moratorium on new applications for Crown land tenures (i.e. development proposals) on the Lake Windermere foreshore, including any new docks and marinas.[xi]

The LWMP states that "there are concerns that human-caused impacts on the lake may exceed its ecological carrying capacity and degrade drinking water quality"[46] and notes major concerns about the lake (such as habitat loss, water quality deterioration, motorized uses affecting human enjoyment and the environment, and lack of public access to the lake). The LWMP establishes goals, principles and recommendations. Implementation of the LWMP is the responsibility of the RDEK and District of Invermere, with support from all other agencies that have roles in lake management.

The Lake Windermere Project laid the foundation for the Lake Windermere Ambassadors. The Ambassadors formed in 2010 as an independent society to carry out the work and mandate established by the Lake Windermere Project. The Ambassadors continue to be active and lead a number of water initiatives (described below). The Ambassadors also support implementation of the LWMP through their role as a Lake Management Committee (discussed below).

[xi] In 2011, the provincial government established a two-year *Land Act* map reserve, which is essentially a moratorium on new applications for Crown land tenures. The moratorium was a response to the expressed concerns of residents and elected officials that development and population growth were overwhelming the lake's capacity to protect traditional uses, fish and wildlife habitat and recreational and water quality values. The development restriction intended to assist new planning processes that were underway by creating time to start building consensus on how to manage regional development. [52]

At a Glance… The Lake Windermere Ambassadors

Vision	"An ecologically healthy Lake Windermere with balanced management approaches that support recreation and traditional uses, high fish and wildlife values, and economic prosperity in the region."[53]
Mandate	"The protection of Lake Windermere,"[54] accomplished through the Lake Windermere Ambassadors. As a "collaboration of representatives of community sectors, the Lake Windermere Ambassadors will serve as a resource for future projects benefiting the health of Lake Windermere."[54]
Primary Activities	Primary activities include water quality monitoring, stewardship programs, restoration projects, community outreach and education programs, convening governance dialogues and acting as the Lake Management Committee for the Lake Windermere Management Plan. Events include Lake Windermere Ambassadors Watershed Tours held in 2013 and 2015, and accompanying watershed governance discussions.[55]
Organizational Structure	A non-profit society with charitable status. A volunteer Board of Directors aims to represent a broad cross-section of lake interests in the community, including local business, water stewardship, ecological conservation and restoration, water-based recreational activities, upland and foreshore-based recreational activities, full-time and seasonal residents, commercial and marina boating operations and youth. The Ambassadors Board includes representatives and advisors from the Regional District of East Kootenay (Area F Director), District of Invermere elected council and ʔakisq'nuk First Nation.
Staff	1 part-time coordinator, 1 summer student.
Funding Sources	Project-based funding from a variety of sources (including Columbia Basin Trust and the Real Estate Foundation of British Columbia); operational support from the District of Invermere and Regional District of East Kootenay.
Website	lakeambassadors.ca

Lake Windermere Ambassadors Activities That Contribute to Watershed Governance

Water Quality Monitoring

The Ambassadors continue to operate a water quality monitoring program with a dedicated team of volunteer citizen scientists, following recommendations set out by the Province's Ministry of Environment and Climate Change Strategy. Water monitoring results are reported through a weekly newspaper column[56] and annually through a public report[57], and shared through public events. The Ambassadors' monitoring program has expanded to include bacteria testing at local public beaches and annual aquatic plant surveys.

Formal Advisory Role in Lake Management

The LWMP established a Lake Management Committee, which was first appointed to the Lake Windermere Ambassadors in 2011 on a five-year term basis. This agreement was renewed for another five years until 2020. The committee "provides comments to local government on applications for alterations to the foreshore,"[58] thus giving input to government decisions (a key aspect of watershed governance) about whether foreshore development will or will not be permitted at certain locations. The committee also supports community education about the LWMP.[59]

The Ambassadors are working with local governments to evaluate the progress and effectiveness of the LWMP in achieving its goals to date, and discuss strategic priorities and actions for their current term to support the LWMP's implementation.

Ongoing Community Outreach and Education

The LWMP also mandates the committee to continue engaging and educating residents of and visitors to the Invermere and Lake Windermere areas about the watershed. Examples of some of these activities include:

- educational outreach programs, including a green boating guide, watershed-friendly tips for golf courses, school-partnership projects, watershed tours, various lake-focused events, partnering with invasive species expert groups, demonstrating boat washing and mussel inspections, and other public presentations
- monthly watershed educational media articles and weekly "Pulse Check" columns providing public accessibility to water quality information about Lake Windermere
- restoration and maintenance projects (e.g. shoreline restoration or clean-ups).

Lake Windermere Ambassadors Role in Watershed Governance: Summary

The primary ways the Lake Windermere Ambassadors engage in governance are through:

- contributing to the development of shoreline management guidelines incorporated into the LWMP
- formally advising local decision-makers by providing comments on development referrals
- leading citizen-science water monitoring projects and sharing information with decision-makers, including industry partners
- engaging citizens through education and water stewardship projects.

3. Kootenay Lake Partnership

Kootenay Lake Overview

- Kootenay Lake is one of the largest freshwater lakes in BC: over 104-kilometres long from north to south, with a maximum depth of 150 metres and over 400 km of shoreline.
- Kootenay Lake is fed from the south by the Kootenay River, which originates in the Rocky Mountains, flows through Koocanusa Reservoir and Libby Dam in the U.S. and then turns back north into Canada near Creston. It is fed from the north by Duncan River, which is regulated by Duncan Dam. Inflows are partially regulated by Duncan and Libby dams and outflows are restricted at the lake outflow at Grohman Narrows and partially regulated at downstream Corra Linn Dam.
- The lake is known for record-size rainbow and bull trout and smaller land-locked kokanee sockeye salmon. Lake shoreline is critical to fish habitat: the kokanee, which is a popular recreational fish and an important food source for trout, spawn in the lake's many tributaries and in the shallow shoals of cobble substrate found around the lake. Kootenay Lake kokanee populations have experienced unprecedented decline since 2012.[60]
- Approximately 20,000 people reside within 2.5 km of the lakeshore; the city of Nelson is the largest urban centre. Some communities, such as Balfour, use the lake as a source of drinking water.[60,61]

- Kootenay Lake is a basis for a flourishing tourism sector, with many recreation offerings, including sport fishing, boating and water sports.

Origins of the Kootenay Lake Partnership

In January 2010, Fisheries and Oceans Canada staff (with offices in the region at that time) convened First Nations, local governments and other interests in Nelson to discuss the intensification of residential/urban and tourism development around Kootenay Lake. Common concerns and joint responsibilities were discussed, leading to agreement on the desire for a partnership initiative. The KLP was then developed, in part, to avoid a moratorium on further development in foreshore areas.

At a Glance… The Kootenay Lake Partnership

Vision	"The Kootenay Lake Partnership envisions a healthy lake with balanced land and water uses that sustain environmental, community, recreational, Aboriginal, cultural, traditional and aesthetic values."[62]
Mandate	At the time of research, the Kootenay Lake Partnership's mandate was "to develop an integrated approach to lake management planning."[62]
Primary Activities	Primary activities include shoreline mapping, archeological assessments and development of a shoreline guidance document.[63]
Organizational Structure	A partnership coalition with a terms of reference; no legal status although certain partner agencies do have statutory decision-making authority. Partners include: **First Nations:** Ktunaxa Nation Council; Yaqan Nukiy, a community within the Ktunaxa Nation, is a separate signatory. **Federal government:** Fisheries and Oceans Canada (has not actively participated since the local office closed in 2013, but is still occasionally available as a resource, for example to review documents) **Provincial government:** Ministry of Forests, Lands, Natural Resource Operations and Rural Development; Ministry of Transportation and Infrastructure **Regional government:** Regional District of Central Kootenay **Municipalities:** City of Nelson, Village of Kaslo **Other:** Friends of Kootenay Lake Stewardship Society (participates as an observer)
Staff	Part-time coordinator on a contract basis with Regional District of Central Kootenay.
Funding Sources	Seed funding from the participating agencies, which is used to leverage partner funding to acquire additional operational and project-based funding through various supporters; project funding from the Columbia Basin Fish & Wildlife Compensation Program, Real Estate Foundation of British Columbia, Columbia Basin Trust, Teck and FortisBC.
Website	kootenaylakepartnership.com

Kootenay Lake Partnership Activities That Contribute to Watershed Governance

Increasing Understanding of Lake Health and Pressures

- **Foreshore Inventory and Mapping of Ecological Values**[64]
  Following the template set out through the EKILMP and Lake Windermere Project, in 2012 the KLP conducted a foreshore inventory and mapped ecological values around Kootenay Lake. (See text box on page 14 for overview of SHIM)

- **Defining Geodetic Lake Level**
  The KLP also encouraged the provincial government to define the shoreline: because the high-water mark on Kootenay Lake fluctuates seasonally, it was often unclear where the "foreshore" existed and where provincial, federal and local jurisdiction applied.

- **Archaeological Overview Assessment**
  The Ktunaxa Nation Council commissioned an Archaeological Overview Assessment in 2014 to inventory and confirm the location of Indigenous archaeological sites and features. A complementary study documented contemporary Indigenous cultural values and uses (e.g. environmental features, important cultural places, lake access areas, important plant harvesting sites and camp sites). Many of these sites are sensitive, so the KLP agreed on protocols developed by the Ktunaxa Nation Council to enable mapping but conceal precise site locations.

- **Shoreline Guidance Document**[65]
  The KLP is currently developing a shoreline guidance document similar to those created for the East Kootenay lakes and Lake Windermere. This guidance document will be uniquely robust because it will incorporate the archeological and cultural values assessments, along with ecological values and historical development impacts.

Developing a Government-to-Government Organizational Structure

The KLP was explicitly designed to function as a government-to-government forum that prioritizes community concerns, including a significant focus on those of the Ktunaxa Nation. The distinct leadership role of the Ktunaxa, including Yaqan Nukiy, in the KLP's governance structure makes it different from groups like the Lake Windermere Ambassadors or the EKILMP, where a broad range of interests are involved in addition to First Nations and other governments. The partnership has been effective to date because municipal and regional governments, the Ktunaxa Nation Council and the Yaqan Nukiy community have built trust with one another and the KLP process through regularly demonstrating their commitments to implement actions within their respective areas of jurisdiction and expertise and share resources and expertise.

Strong Local Government Champion

The RDCK is a primary funder of the operational costs of the KLP. The main RDCK representative to the KLP is a senior manager with responsibility for a diverse number of related files, including planning, bylaw enforcement and sustainability services. This individual is recognized by others as a champion of the process because:

- the representative's seniority is symbolic of the RDCK's commitment to the process
- the individual is actively working to incorporate results of the KLPs inventory work into RDCK policies and zoning rules.

The RDCK and other partners recognize that the KLP's work complements their own mandates, such as the RDCK SustainABLE Central Kootenay planning program.[66]

Outreach and Community Engagement: Creating the Friends of Kootenay Lake Stewardship Society

The KLP recognized the importance of community involvement in shoreline management; without participation and endorsement from property owners and lake users in lake management planning, new guidelines for lake activities might be perceived as unacceptable. In 2012, in collaboration with two environmental organizations—Wildsight and the West Kootenay EcoSociety—and with financial support from the Real Estate Foundation of BC, the KLP helped create a lake stewardship group, Friends of Kootenay Lake Stewardship Society (FOKLSS)[67], to provide a forum for community involvement in lake management and health. Although the governance structure of the KLP means that the FOKLSS does not participate in the KLP's internal decision-making processes, the KLP is a supporter and partner in FOKLSS projects and the two groups communicate regularly.

Kootenay Lake Partnership Role in Watershed Governance: Summary

The primary ways the KLP engages in governance are through:

- providing information to fill knowledge gaps about ecological, cultural and archeological values along the shoreline of Kootenay Lake through a partnership-based approach
- offering a forum for the Ktunaxa Nation to collaborate with other levels of government
- supporting integration of new information into local planning and management processes (e.g. municipal bylaws, zoning and policy)
- supporting a clarified and streamlined process for assessing lakeside development applications (which benefits developers, property owners, local governments, the Province and the Ktunaxa Nation)
- supporting the work of a community outreach organization, the FOKLSS, to conduct stewardship activities and research.

4. Elk River Alliance

Elk River Watershed Overview

- The Elk River watershed is 4,450 square kilometres, with headwaters in Elk Lakes Provincial Park near the Continental Divide (Alberta/BC border).
- The Elk River is a tributary to the Kootenay River. At the mouth, it drains into Koocanusa Reservoir, a 144-km reservoir created by damming of the Kootenay River at Libby, Montana.
- Bull trout and Westslope cutthroat trout occur in the Elk River; these species are recognized as being of "Special Concern" in BC and under the federal *Species at Risk Act.*[68]
- There are substantial coal deposits within the watershed, and metallurgical mountaintop coal mining has a long history in the region. Mining activities have caused a range of complex water quality issues in the region, which are actively monitored and addressed by regulators and industry and remain an ongoing concern.[69]
- Coal operations are a primary source of employment in the region; the industry (primarily the company Teck Resources Ltd.) also provides significant tax revenue to local and senior governments, as well as funding for local community organizations and events.
- The region supports a flourishing tourism economy.

- The watershed is home to a population of roughly 14,000 people, most of whom live in Fernie, Sparwood and Elkford, which have an estimated combined population of nearly 11,000. The region has a steady gradual growth rate.[68]

Origins of the Elk River Alliance

The Elk River Alliance (ERA) formed in 2010 as an initiative of the Elk Valley branch of Wildsight, a regional non-profit environmental organization. The ERA became an independent non-profit society in 2013 and in 2017 applied for charitable status. Its four key goals are to:[70]

1. increase watershed literacy
2. engage community participation in water decision making
3. prioritize and conduct watershed stewardship action
4. promote safe and sustainable recreational use of the Elk River.

At a Glance… The Elk River Alliance

Vision	"A place where well-managed human activities result in healthy ecosystems and a robust economy."[70]
Mandate	"The Elk River Alliance is a community-based water group that aims to connect people to the Elk River, ensuring it is drinkable, fishable and swimmable for future generations."[70]
Primary Activities	Primary activities include community-based water monitoring, stewardship programs, restoration projects, solutions-oriented research, community outreach and education programs, convening community watershed dialogue and promoting safe recreational use of the river.
Organizational Structure	A non-profit society. A volunteer Board of Directors represents a broad cross-section of community interests. Current directors represent community stewardship interests, local businesses (including fly-fishing and rafting), industry (Teck), education, youth and anglers.
Staff	Contractors, including a half-time executive director, two part-time program coordinators and an intern/summer student, when funding is available.
Funding Sources	Funding from Columbia Basin Trust, the Columbia Basin Fish & Wildlife Compensation Program, Fisheries and Oceans Canada, business donations (e.g. from Teck and the Fernie Brewing Company), program fees, fee-for-service contracts and fundraising events.
Website	elkriveralliance.ca

Elk River Alliance Activities That Contribute to Watershed Governance

Providing Information, Research and Solutions to Address Watershed Issues

The ERA produces research documents with the goal of informing sustainable water decision making in the watershed. The group's research and initiatives are based on community priorities and inputs, such as concerns expressed after the 2013 flood. Community members are engaged in workshops throughout the research process to provide input alongside the provincial government, local government and industry decision-makers. Examples include the following:

- The 2014 Elk River Watershed Valley Bottom Assessment: Report to Residents on River Health rates the health of valley-bottom ecosystems in municipal and rural areas.[68] Through assessing the current land cover of the Elk River valley bottom from Elkford to Elko, the study identifies the current fish and wildlife habitat available, including the extent of natural and disturbed areas. The ERA collaborated with a number of partners to produce the document, including Teck, the RDEK, BC Parks and the Nature Trust of BC. The information from this study is intended to provide baseline data describing current conditions and to be a tool for decision-makers in land use planning (e.g. to help maintain or improve conditions into the future).

- The Elk River Flood Strategy[71] compiles existing flood chronology, reports, hydrologic and climate change modelling and watersheds studies focusing on:

  1. how the local watershed functions within the larger environment
  2. current and forecasted stream flow and flooding in the Elk Valley
  3. effects of flooding on community, fish and wildlife
  4. effective measures available to help mitigate against future flood risk.

- Development of the flood strategy involved extensive public education and outreach throughout the watershed to provide information about flooding and seek public input on suggested flood mitigation strategies (e.g. through a Solutions Symposium on Flooding held in Fernie in 2016).[72] The report is intended to benefit community members and local governments interested in options to mitigate against future floods.[71] At the time of research, a local Elk River Flood Committee was being developed with representatives from the provincial and local governments, industry and community members, to explore options for implementing the recommendations from the flood strategy.

Collaborating With Partners to Leverage Funding and Expertise

The ERA aims to align its work with other planning processes, such as the Elk Valley Cumulative Effects Management Framework[xii] and local government official community plan processes. The ERA leverages funding and in-kind support from multiple sources and, through coordinating the pooling of resources, does valuable work that likely could not have been completed by any one organization on its own. The ERA completes fee-for-service projects like the Flood Mitigation Options for Priority Sites with the RDEK Area A as part of the Elk River Flood Strategy.[74]

The ERA has positive working relationships with the coal mining industry in the watershed and partners with Teck in various projects on Teck's land, like the Alexander Creek streamside restoration. The ERA is also a founding member of Teck's Community of Interest panel and represents the environmental sector. Receiving funding, in-kind data like LiDAR and orthophotos, and expertise from Teck has helped the ERA build knowledge, expertise, community relationships and science-based programs, and develop collaborative solutions for watershed challenges. Teck's local manager of environmental compliance sits on the ERA Board.

[xii] The purpose of the valley-wide initiative the Elk Valley Cumulative Effects Management Framework is to develop an approach to understand cumulative effects from various industries operating in the watershed.[73]

Providing a Community "Water Voice" in Decision-making and Engagement Processes

Through its growth in knowledge, expertise and partnerships, the ERA has increased its capacity to participate in and contribute to municipal and regional governance processes, including the Elk Valley Water Quality Plan process[xiii] and Provincial Cumulative Effects Management Framework initiative.[76] In these processes, the ERA aims to act as a "community water voice" and provide a watershed-wide perspective to decision processes.

Elk River Alliance Role in Watershed Governance: Summary

The primary ways the ERA engages in watershed governance are through:

- providing watershed knowledge and perspectives through participation in watershed planning and management initiatives, as well as local planning and policy processes
- developing solutions-oriented research reports (e.g. the Valley Bottom Assessment, Elk River Flood Strategy and Silver Springs Stewardship) designed to meet community needs and interests
- leading citizen-science water monitoring projects and sharing information with decision-makers, including industry partners
- working to engage citizens in water issues through education, engagement and water stewardship action projects.

[xiii] The Elk Valley Water Quality Plan was the result of an order from the provincial Minister of Environment in 2013. The plan was required to address immediate, medium-term and long-term remediation of water quality effects from past activities and prevent future contamination. Plan development involved extensive community consultation and engagement.[75]

PART III: FOUR CROSS-CUTTING GOVERNANCE INSIGHTS AND CONCLUSIONS

These case studies, coupled with an understanding of how watershed governance is evolving and changing across BC, provides insights about the potential for and opportunities associated with community engagement in the Basin to promote stewardship, conservation and healthy functioning watersheds.[7,77] Taking a more comprehensive and integrated approach to watershed management and governance offers opportunities to develop solutions to complex issues especially when multiple interests, perspectives and decision-makers collaborate and share information, resources and responsibilities.

In all four of the case studies explored in this report, groups tend to strive for broad representation to establish and convey a credible "community water voice" in an effort to build local legitimacy. Consequently, the membership and organizational structure of each group attempts to reflect varied social, ecological, political and economic interests of the communities in those local watersheds. A challenge often faced by these local initiatives is achieving inclusive, legitimate representation from a broad range of interests. For example, some groups reflect that when a specific local organization or interest is unable to participate (or not interested in participating), or when involving organizations with divergent objectives or points of view—for example, in some cases, industry and environmental advocacy focused organizations—it can raise questions as to whether the group can maintain an inclusive community-based perspective. In some cases, this results in a tension related to the ability to maintain objectivity and credibility.

Four cross-cutting insights from this research are outlined below. These insights reinforce some basic conclusions about what conditions can help advance watershed governance in the Basin and more generally in BC.[10]

1. Community-based Watershed Groups Generate Local Benefits That Enhance Watershed Governance

These case studies reveal the range of achievements and the local benefits provided by these groups including:

- engaging a broad spectrum of interests in specific watersheds to facilitate dialogue, joint learning and collaboration on decisions related to shoreline development and broader watershed stewardship actions
- collecting and synthesizing data and information (often using provincial and federal protocols), to increase understanding about the local watershed that might not otherwise occur
- supporting ecological conservation of lakeshores by developing shoreline information and development guidance documents (to support decision-makers)
- informing local stewardship priorities and initiatives
- supporting dialogue and promoting integrated watershed decision making between levels of government and various local watershed interests
- engaging community to better understand and care for their local waters (e.g. through citizen science and education initiatives)
- supporting decision-makers to better incorporate Indigenous, community and ecosystem knowledge and objectives into plans and approvals
- providing integration and a "whole of watershed" perspective in decision-making processes.

2. Community-based Watershed Groups Provide Critical Information to Inform Watershed Decision Making

The recent research report Water Monitoring and Climate Change in the Upper Columbia Basin[31,78] underscores the importance of good data in understanding how to address the interactions between climate change, water supply and demand, and land use at the community level. The report provides a summary of the current status of water monitoring by all agencies and organizations in the Basin (including community-based groups) and identifies opportunities to enhance knowledge of the Basin's water resources.

The case studies in this report reinforce how watershed monitoring and knowledge generation initiatives can provide a practical starting point for local governments and community organizations wishing to deepen their engagement in water governance and establish collaborative partnerships.

3. Community-based Watershed Groups Are More Effective When They Include Representatives From Various Levels of Government, Including Indigenous Governments

When the groups included representation from various levels of government, including explicit attention to engagement with Indigenous governments, it enhanced their abilities to effectively support and steward a broad range of watershed values. These kinds of working relationships enhance the groups' ability to:

- be organizationally stable and find resources
- build legitimacy and be champions and leaders of watershed initiatives
- develop credible information and be effective knowledge-holders
- support effective decision-making processes.

Local governments are involved as partners in all the case studies explored in this report, and in the KLP example, local government played a lead role in helping resource the initiative and implement actions. The insight from these Basin examples are consistent with the experience of other community-based water groups across BC, which demonstrate that those initiated through broad community-wide collaboration and involving a range of organizations and decision-making agencies on an ongoing basis tend to have greater organizational sustainability and steadier access to a diverse range of funding and other supports.[10,77,79,80]

4. Navigating the Complex Governance System Can Be Challenging for Watershed Groups

The governance of water and watersheds is complex, with a range of formal and informal processes and players involved in planning and decision making. Many of the case study groups indicated the challenge in trying to understand roles and responsibilities and which levels of government and agencies have authority to make decisions, and how those decisions interact to ultimately affect local watershed health. Specific common concerns include questions about who is responsible for each decision, through what mechanism or process, and when and what accountability mechanisms are in place. This lack of clarity contributes to the fear voiced by some groups that they are missing opportunities to effectively engage in supporting good governance and raise concerns related to local watersheds.

In conclusion, the case studies explored in this report demonstrate that community-based watershed groups are well situated to help develop locally appropriate solutions and provide important information to decision-makers concerning the status of local water and watersheds. Information provision and convening capacities are important foundations to effective watershed governance. They offer potentially important areas to build on for future opportunities in more formalized advisory roles, shared authority and even delegated decision making that might arise from the implementation of the new WSA, other legislation or various planning and decision-making processes as the new emerging water and land use management regime takes hold in BC.

APPENDIX A: JURISDICTIONAL ROLES AND RESPONSIBILITIES FOR WATER IN THE CANADIAN COLUMBIA BASIN

Watersheds and ecosystems are nested, overlapping and complex, and not surprisingly so are the human systems created to manage them sustainably and for the benefit of the broader public interest. The legal landscape for water and watersheds in Canada is complex, with nested and overlapping jurisdictions and authorities.

Formal responsibility for managing water is shared between federal, provincial, territorial, Indigenous and local governments, although not all governments operate in all spheres or locations. This shared responsibility often requires cooperation and collaboration among many parties and interests. Numerous agencies within all levels of government are actively involved in a wide range of management, operations and governance activities related to water. Water licence holders, non-governmental organizations, business and industry are also often involved and may carry out specific duties and requirements.

This graphic provides a simplified overview of the range of roles and responsibilities for water across all levels of government in the Columbia Basin context. It also introduces some of the roles for other key stakeholders and interests such as licensees, improvement districts and small water systems.

Governments	
Indigenous	**Federal**
Indigenous governments hold rights and responsibilities related to water and engage in and shape water governance in various ways, including: - managing reserve lands - collaboratively managing traditional territories (where willing partners exist) through joint planning and decision-making processes - exerting their own inherent (Indigenous law) jurisdiction and authority in their reserves and titled lands and waters: for example by declaring water policies, laws and strategies - having nation-to-nation relationships and agreements with Canadian (Crown) governments and collaborating with other non-Indigenous entities. Section 35(1) of the *Constitution Act 1982*,[81] recognizes and affirms existing Aboriginal and treaty rights. Supreme Court rulings, starting with *Calder* (1973)[82] and more recent decisions like *Delgamuukw* (1997)[83], *Haida* (2004)[84] and *Tsilhqot'in* (2014),[20] provide further clarity by emphasizing that s. 35—and the Honour of the Crown—creates a duty for the Crown to consult	Under the *Constitution Act, 1867*,[81] federal jurisdiction that affects fresh water includes fisheries, navigable waters, management of trans-boundary waters and international shared waters. The federal government is also constitutionally responsible under Canadian law for managing water on Indigenous reserve lands and waters—in partnership with Indigenous government—and on federal lands such as national parks and facilities. The federal government supports science and research as it relates to aquatic and fish habitat and drinking water, with Health Canada publishing the Guidelines for Canadian Drinking Water Quality. The federal government is also responsible for trans-boundary governance and therefore has an important role in the Columbia River Treaty (see Appendix B).

and accommodate potential or established Aboriginal or treaty rights where a proposed activity could adversely impact those rights. The pre-existence of First Nations, and the recognition of their rights under s. 35, work with the *Constitution Act, 1867,* to support a nation-to-nation approach to governance.

Reinforcing this collaborative approach is the May 2016 announcement by Canada for support of the *United Nations Declaration on the Rights of Indigenous People*, which emphasizes the need for free prior and informed consent of Indigenous peoples.[85]

Provincial/Territorial	Local
Under the *Constitution Act, 1867,*[81] provinces and territories hold the bulk of the responsibility for natural resources, including freshwater management and protection (including safe drinking water and source water protection), water allocation and licensing, regulating discharges into water bodies and management of Crown lands. These responsibilities do not extend to Indigenous reserve or titled lands.	Local governments include municipalities and regional districts. Many decisions related to water resources are made by local governments primarily through their provincially delegated responsibilities related to drinking water source and supply management.
Provincial legislation covers critical areas such as land use and forestry operations, surface and groundwater protection and public health. In BC, numerous provincial ministries hold authority related to fresh water[86] including the Ministry of Environment and Climate Change Strategy; the Ministry of Forests, Lands, Natural Resource Operations and Rural Development; Ministry of Health; the Ministry of Energy, Mines and Petroleum Resources.	Local governments often have an explicit role through water utilities management, land-use zoning and development, zoning of flood plains and subdivision approvals. The Basin includes the entire area of two regional districts as well as portions of three others.[xiv]
The *Water Sustainability Act*[17] came into force in February 2016 and extends water licensing to include non-domestic groundwater users and emphasizes sustainable water management through attention to environmental flow needs protection and opportunities for better water planning.[87] Water use (allocations) is authorized through water licences and approvals by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development. Regional offices are located in Cranbrook and Nelson, with	***Improvement Districts and Small Water Systems*** Improvement districts are incorporated public bodies designed to provide local services such as water and fire protection to residents within a specified boundary. They share some of the characteristics of local government, such as their method of incorporation, representation by locally elected officials and the powers to borrow, charge and regulate the services they provide. However, they do not have the same powers as municipalities to deal with broad community issues such as land use planning.[88] The most common service offered by improvement districts is drinking water supply.

[xiv] The Regional District of Central Kootenay and Regional District of East Kootenay are entirely within the Columbia Basin. Portions of the Columbia-Shuswap, Kootenay Boundary and Fraser-Fort George Regional Districts are located in the Basin.

District offices in larger communities within the Basin.	The *Drinking Water Protection Regulation*[89] defines a small water system as "a water supply system that serves up to 500 individuals during any 24-hour period." Numerous improvement districts and unincorporated small water systems that supply water for communities exist in the Basin, creating local approaches for managing water and delivering drinking water.

Water Licences and Approvals

Water licences and approvals (use approvals and change approvals) allow for the diversion, use or storage of surface water or groundwater, or allow changes to be made in and about a stream. Water licences and use approvals are issued for specific water use purposes, including agriculture, commerce, domestic household requirements (surface water only), habitat conservation, industry, natural resources development, power production, water storage and water supply, and natural gas and oil development.[87]

APPENDIX B: THE COLUMBIA RIVER TREATY

The Columbia River Treaty (CRT)[90] is a crucial element of broader water governance in the Basin, and in the entire international Columbia River Basin. The CRT is primarily concerned with hydropower and flood control and does not explicitly provide a mechanism for addressing more local watershed issues and decision-making processes, and is therefore not the focus of this report. However, given its water governance role in the Basin, we provide a brief overview.

The CRT was ratified in 1964 by Canada and the United States to coordinate flood control and optimize hydroelectric energy production on both sides of the border. Under the terms of the CRT, BC Hydro built and operates Mica, Hugh Keenleyside and Duncan dams and the resulting reservoirs. The CRT also authorized the construction of Libby Dam on the Kootenay River in Montana, which flooded 68 kilometres into BC, forming Koocanusa Reservoir. In 1963, the CRT Canada-BC Agreement transferred most of the responsibilities, obligations and benefits of the CRT to the Province.

Flooding the reservoirs in the late 1960s changed regional watershed conditions by inundating valuable low-elevation terrestrial and aquatic ecosystems and eliminating long sections of free-flowing rivers. In addition, reservoir water levels fluctuate significantly over the year to meet flood management and power generation requirements (e.g. up to 50 metres in elevation in Kinbasket Reservoir upstream of Mica Dam). These fluctuations affect the health and function of regional watersheds and lead to broader economic and social impacts.[91]

In November 2011, the Province initiated a multi-year intensive Columbia River Treaty Review process to evaluate future decision options, including possible continuation, amendment or termination of the treaty. The Ministry of Energy, Mines and Petroleum Resources led this review in collaboration with other provincial and federal agencies, First Nations and local governments. At the end of the review, the provincial government concluded that the CRT should be continued but should seek improvements within its existing framework. The decision includes 14 principles to guide BC in any discussions on the future of the CRT with Canada and the United States.[92]

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