Syilx (Okanagan) Water Planning Methodology

VERSION ONE
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Table of Contents

GLOSSARY

captikʷɬ are the sacred texts, stories, oral traditions, and creation stories that hold Syilx (Okanagan) natural laws.

covenance is the meaning of coming together to make an agreement on responsibilities.

enoʷkinʷixʷ is a *Syilx* process of decision making to solve issues, ideas through dialogue and always ensuring coexistence with the tmixʷ. It is knowledge that fills participants' heads like drops of water; decision making through consensus building.

Nsyilxcɔn is the language of the *Syilx* (Okanagan) people.

tmixʷ is central to understanding all aspects of the *Syilx* environmental ethic. It translates as everything in nature or the life force (Armstrong 148) – the land, water, insects, people, animals, plants and medicines.

tmxʷulaxʷ underneath all of the *timixʷ* is *tmxʷulaxʷ*, the core spirit from which all of creation arises and which unites everything. *tmxʷulaxʷ* is nsyilxcen for "the land". The territory of the *Syilx* (Okanagan) People is a diverse and beautiful landscape of deserts and lakes, alpine forests and endangered grasslands.

siwɬkʷ the word for the way a human drinks water and the way an animal drinks water.

***Syilx*-led** refers to water projects that are initiated by community or projects that are based on collaboration

Suxʷtxtem is the closest definition the *Syilx* have to "stewardship. It means sustaining the diversity of species and their habitats in perpetuity for the well-being of future generations (UNB)

***Syilx* Nested Dialogue Model** considers they layers of inter-relationships within community, beginning with the Individual, the family, the community and the *timixʷ* (Armstrong, 5)

Watershed (*Syilx* perspective of sub-watershed) When *Syilx* think of a watershed, there is no separation from connected creeks, streams, rivers, lakes, wetlands, aquifers, headwaters and snowpack. If one is impacted they all feel a ripple of effect, so when managing a watershed focus and deep consideration needs to be given to the whole system.

Knowledge Holder a *Syilx* individual who holds a body of knowledge within their family or community. An *acmiscut* of the *tmxʷulaxʷ* requires ecological knowledge in combination with practice.

TEK (*Syilx* Knowledge) knowledge gathered since time immemorial by the *Syilx* about the *timixʷ* and the *tmxʷulaxʷ* (the land, water, animals, community, plants) and the relationships between all things.

1.0 PURPOSE OF THIS REPORT

The 2014 *Siwłkʷ* Declaration describes *Syilx* Peoples' sacred relationship with *siwłkʷ*, water, and duties and responsibilities for stewarding watersheds. The Declaration also points to the increasing over-allocation, abuse, and pollution of *siwłkʷ* within *Syilx* Territory; and the failures of existing management and governance processes driven by external governments to protect *siwłkʷ*.[1]

The Okanagan Nation Alliance (ONA) is exploring opportunities to develop and lead new governance approaches that are based on *Syilx* ecological knowledge (e.g., in the Upper Arrow Lakes). In other watersheds/regions, there are opportunities to enhance already-established processes and partnerships through integrating *Syilx* ecological knowledge into the process: (e.g., Kettle River Management Plan process, environmental flow needs).

In this report, governance refers to decision-making processes through which knowledge and interests are articulated, decisions are made and implemented, and decision-makers are held to account for the development and management of watershed resources. Governance involves *who* decides who may use or alter water resources, and *for what* purposes; *what* standards must be met during that use to protect ecological, economic, social, and/or cultural values; *how* that decision process is undertaken; and, *how* decision-making approaches are aligned with ecological boundaries, and integrate land and water decision-making.[2]

Box 1
What does 'traditional knowledge' or 'traditional ecological knowledge' mean in *Syilx* (Okanagan) culture?

It is the intergenerational history and oral record of the *Syilx* (Okanagan) people, the collective laws, teachings, governance structures and principles that, together, define and inform *Syilx* (Okanagan) title, rights and responsibilities to the land and their culture, passed on through direct contact with the environment.

The purpose of this report is to provide a methodology for applying *Syilx* (Okanagan) ecological knowledge (see Box 1) in both existing watershed planning processes, and new, *Syilx*-led watershed planning processes. The methodology was developed through a review of literature and case studies, from the existing Centre for Indigenous Environmental Resources (CIER), POLIS, Enowkin Center, and Okanagan Nation knowledge keepers. The methodology involves a four-stage process.

This report is organized into three main sections:

- Section 2.0 summarizes four themes in the literature about how traditional ecological knowledge (TEK) is understood, and its critical role in watershed governance; and practical tools to bridge western and traditional knowledge systems.
- Section 3.0 summarizes five case studies of Indigenous-led water or watershed governance/planning from British Columbia (B.C.), and offers a brief synthesis of cross-cutting themes and insights from the case studies. These case studies are intended to illustrate some of the varied governance approaches and options available.
- Section 4.0 provides the methodology for applying *Syilx* (Okanagan) ecological knowledge in taking responsibility for water.

2.0 CROSS-CUTTING THEMES IN THE LITERATURE

2.1 THEME #1. TEK IS MULTI-DIMENSIONAL AND UNIQUE

There are many different definitions and understandings of 'traditional ecological knowledge' (TEK) (also called "traditional knowledge" or "Indigenous knowledge"). First Nations communities hold the right and authority to define what TEK means and encompasses in their context.[3] Although TEK is unique in every community, it is commonly understood to be developed over generations as a multi-dimensional concept with numerous interconnected components; including roles and responsibilities, and conceptualizations of law and governance.[4] Houde (2007) provides a summary of the different dimensions, or "faces", of TEK, which are held together by "cosmology" (i.e., worldviews and spiritual beliefs).[5] This summary is helpful because it identifies the different and interconnected aspects of TEK, and points to some of the challenges and opportunities for meaningful involvement of TEK in decision-making.

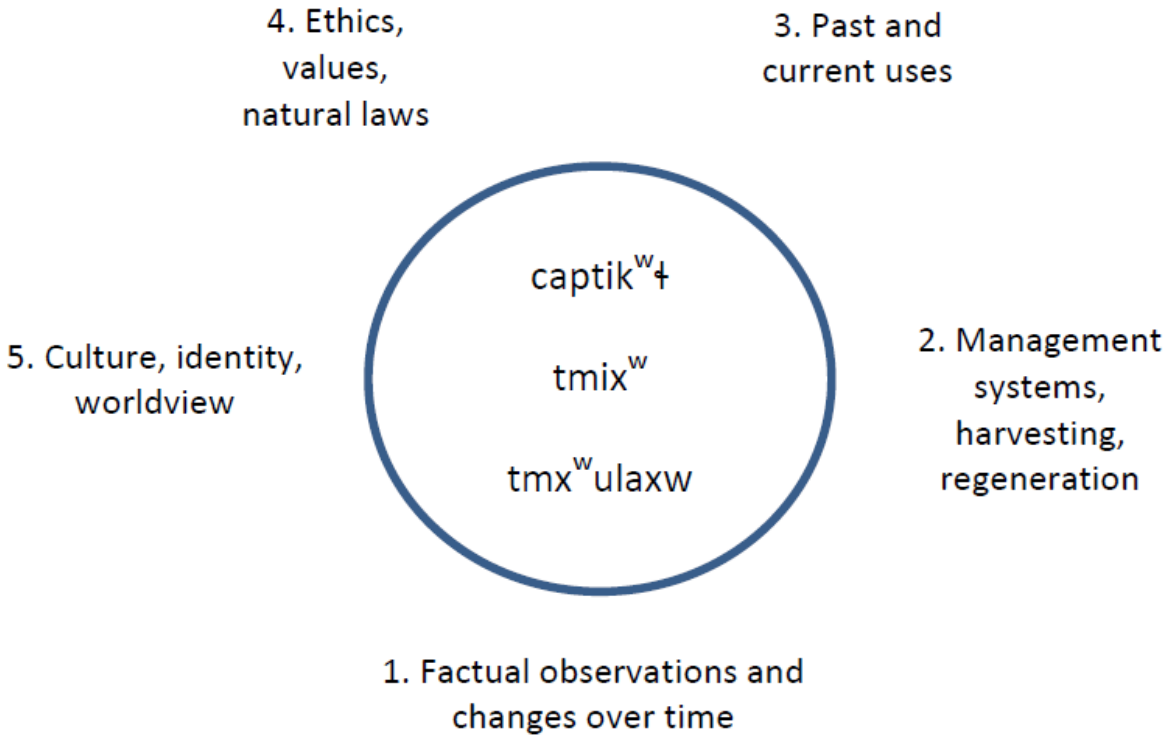


Figure 1: Faces of TEK
(adapted from Houde 2007 and Enowkin Centre).

TABLE 1: Faces of TEK ***(Table Adapted from Houde 2007 and Enowkin Centre).*

Face	Key Components	Challenges	Opportunities
captikʷɬ tmixʷ tmxʷulaxw	- *captikʷɬ* are sacred texts of the Okanagan people. They are stories and oral traditions which tell of the importance of each part of creation. The *captikʷɬ* are the creation stories that hold the laws and transform them to apply them to ourselves.[6] - The Okanagan word which most closely translates to "ecology" is *"tmixʷ". Tmixʷ* includes everything alive – the land, water, insects, people, animals, plants, medicines. [7] - Underneath all of the *tmixʷ* is *"tmxʷul'aʔ* xʷ" which is the core spirit from which all of creation arises and which unites everything. It is the Okanagan word for the land. Okanagan laws all lead back to the core spirit shared by all living things *"tmxʷul'aʔ* xʷ" (the land or ecosystem).[8]	Acceptance of a paradigm outside of western concepts of reality	- New understanding of the connectedness of all living things - Individual responsibility to all species, ecosystem functions, and natural law
Factual observations and changes over time	- Observations and descriptions of land; water; ecosystems dynamics and changes; wildlife/fish patterns, populations and behaviours - based on concrete knowledge of the physical systems of specific locations and is resident in community oral-information reflecting cumulative data sets regarding habitat types, succession models, populations, quantities, threats, declines and increases of specific locations. - Naming of places - Understanding of interconnections -based on knowledge of nature's information utilized by traditional *Syilx* land users such as harvesters, hunters, medicine gatherers, elders and local area *Syilx* residents such as families living in proximity to the area and *Syilx* ranchers who graze in the areas.	- Issues of protection of community knowledge and unwillingness to share - Knowledge who to contact, as the knowledge does not rest with only one person. Knowledge is often held with specific families. - knowledge/information sharing protocols in place and agreed to - abuse and misuse of information - 150 years of colonialism and associated loss of knowledge and practice - difficulty in capturing oral traditions – often nuances in body language (the way the stories are shared) is lost in written records - data storage	- Enhance scientific knowledge - Added information (e.g., criteria and indicators) for monitoring of environmental changes - Increases preparedness for social or ecological surprises - deeper understanding of ecosystem function and place-based circumstances - 10,000 or more years of experience (equivalent to western data set and time period)
Management Systems, Harvesting, Regeneration	- Methods for conservation and sustainable resource use - Methods for adapting to change - Appropriate and effective technologies - holistic assessment procedure required of any site, taking into consideration historical impacts on the area to be assessed within a four season approach. The four seasons use, occupation, protocols and harvesting practices and knowledge applications are related to nature's activities on the land, such as growth cycles, migration,	- Resistance to changing centralized management practices - Inflexible legal framework - lack of recognition of indigenous title and rights, including First Nations role as land managers	- Locally-based management - New approaches to decision-making and governance that are more sustainable and ecologically robust - ability to detect/observe changes on the land more quickly

Face	Key Components	Challenges	Opportunities
	calving or nesting requirements and can be correlated to decisions to be made regarding the interactions between humans and the natural environment ranging from conservation and protection to developmental plans. - Land-use knowledge, patterns and practices which have been in place for thousands of years and are required both in accessing resources as well as in preserving the sustainability of an ecosystem to continue to regenerate itself at its optimum.		
Past & Current Uses	- Harvest levels, cultural history, occupancy - Provides a clear historical and contemporary overview of *Syilx* use and values of tmx^{w}ulaxw - Location of cultural and historical sites, medicinal plants, hunting areas - based on concrete knowledge of the physical systems of specific locations and is resident in community oral-information reflecting cumulative data sets regarding habitat types, succession models, populations, quantities, threats, declines and increases of specific locations.	- Mistrust and misunderstanding between Indigenous and non-Indigenous of world views - Challenges for TEK holders in working with bureaucrats in existing systems - often disregarded as uneconomical	- Community resilience - allows for sustainable development and triple bottom line as environmental protection is viewed as necessary for sustainable economic development
Ethics, Values, Natural Laws	- Attitudes to adopt to management - Attitudes to adopt to collaboration	- Acceptance of Indigenous societies as vibrant and multifaceted - Reconciliation of multiple ways of being	- Rich cultural diversity - Ensures ongoing resilience in communities and restorative benefits
Culture, Identity, Worldview	- Life on the land, spiritual relationship to the environment - Language, identity, cultural survival, beliefs - A traditional form of knowledge gathering within the principles and protocols related to habitat types, species, populations and the *Syilx* values reflected in the enowkinwixw process as a four part nested system of documentation for TEK, inclusive of: a) individuals b) families c) communities d) the tmx^{w}ulaxw. - Understanding about how things work - Incorporates the protocol pillars of the Four Food Chiefs in their requirements for sustainable land use and resource gathering toward 100% regeneration.	- Acceptance of Indigenous societies as vibrant and multifaceted - Reconciliation of multiple ways of being - Mistrust and misunderstanding between Indigenous and non-Indigenous of world views - Challenges for TEK holders in working with bureaucrats in existing systems	- Rich cultural diversity - Ensures ongoing resilience in communities and restorative benefits - Community resilience

2.2 THEME #2. TENDENCY FOR NARROW INTERPRETATION OF TEK

Although TEK is increasingly recognized internationally, nationally, and in B.C. as having an essential role in equitable governance,[9] there remains considerable misunderstanding in non-Indigenous institutions about what TEK means and how it can be meaningfully involved in decision-making processes.[10] Western knowledge systems tend to emphasize sharing and testing of knowledge; often through adversarial processes in which knowledge is accepted only if it cannot be proven false. Research methods often aim to "explain and predict" results, while common sense – and spirituality – is rejected.[11]

Non-indigenous scientists, managers, decision-makers, and stakeholders typically understand only the *first three faces of TEK,* because information that constitutes a "baseline" (such as information about fish or wildlife populations) or "current uses" (such as information about location of temporary hunting camps or medicinal plants) can more obviously and easily complement Western science, and be integrated into management.

Of course, inclusion of baseline observations of patterns held by Indigenous knowledge holders, and knowledge about current and past land uses and practices, are indeed extremely important and valuable in better understanding a proposed project and/or on-going environmental impact and change in ecosystem dynamics.[12] Including TEK can also enhance community support for a project.[13] In spite of some benefits and opportunities of this approach to 'using' TEK, this narrow application often fails to guide decision-making in a way that is truly compatible with a Nation's values. This application is not representative of the depth of First Nations cultural, ecological, management knowledge.[14] McGregor (2006) argues that TEK is inseparable from Indigenous rights and title, and TEK cannot be separated from the people who hold it:

> "*TEK, ultimately, is related to the entrenchment of Indigenous rights. Indigenous knowledge cannot be separated meaningfully from the people who hold it. This means that, in order to protect TEK, the people themselves and their ways of life must be protected."*[15]

In light of concerns that existing and past co-management approaches often fail to give real voice and respect to traditional knowledge and Indigenous rights, there is growing interest in Indigenous communities, as well as legal, academic, policy circles, to co-create alternative approaches to governance, such as co-governance or collaborative approaches; or government-to-government agreements and protocols. This theme is explored below.

2.3 THEME #3. DEVELOPING NEW GOVERNANCE APPROACHES ROOTED IN TEK

Indigenous-led, or collaborative, co-created approaches to watershed governance offer opportunity for all 'faces' of traditional knowledge to shape the terms, structures, and processes of governance. If parties are willing to come together and fundamentally change their respective approaches to working together; and agree to share resources, authority, and responsibilities, co-governance may be an avenue to assert and advance Indigenous rights to water. Collaboratively developing watershed plans, or co-managing water projects, can be a basis for sharing authority in decision-making. Achieving real change and improvement in ecological and cultural outcomes requires that watershed plans can be *enforced* and implemented.[16]

Watershed governance is an emerging field in B.C. (and in Canada and the world broadly); this brief discussion does not do justice to the extensive research, ideas, examples, and analysis that exists. Particularly, research has explored the requisites for Indigenous-led and/or collaborative approaches to governance.[17] Consistently emphasized factors include:

- First Nations have the capacity and resources to articulate their own community water vision, water issues, core governance needs, and desired path forward (i.e., develop internal readiness); as a starting point for collaboration rooted in traditional knowledge.[18]
- Non-indigenous stakeholders and governments must build capacity to learn how to work respectfully with First Nations and understand Indigenous conceptualizations of governance. Any cultural education, training, or capacity building should be at the expense of the non-Indigenous party: training should not create an undue burden for the First Nation community or TEK knowledge holder. [19]
- Developing new ways of working together can take time and be costly.
- Effort must be taken to ensure existing bureaucratic structures are not simply recreated.[20]
- No "road-map" or existing model can be replicated from one region to another; all co-governance arrangements will be unique – it is therefore an emergent, experimental approach that depends on bold local leadership and commitment.[21]

An additional, critical requisite for new governance approaches is an enabling legal framework, such as through provincial legislation (e.g., new planning and governance mechanisms, and legal tools for protecting environmental flows[22] and integrating land-and-water decision-making under B.C.'s recent *Water Sustainability Act* [23]); or stemming from legal action driven by a First Nation (e.g., see Gitanyow case study below).

2.4 THEME #4. TOOLS TO BRIDGE TEK AND WESTERN SCIENCE

Establishing Protocols to Ensure Community Control of TEK

TEK holders and communities retain inherent rights to their knowledge, and control over its collection, interpretation and implementation. It is up to the community to decide what knowledge should be shared, with who, how, and when; and what knowledge is privileged and private. Traditional knowledge has been, and continues to be, expropriated, misused, and/or misinterpreted by people and agencies outside of the Indigenous communities. Developing rules, or protocols, for research or processes that involve TEK is one way to ensure control of knowledge remains with the Nation in watershed planning/decision-making or monitoring processes. Protocols enable knowledge holders to identify culturally appropriate uses of information, and ways to avoid exploitation of the information by outside organizations. [24]

A TEK protocol does not need to give a step-by-step method or 'spell out' engagement but can include the appropriate channels people both inside and outside of a First Nation must go through (e.g. when and how to talk to and work with the Elders' council, Chief and Council, Lands department, etc.) to obtain permission to work with the Nation, work with knowledge holders and TEK, etc.[25] Protocols can include or take the form of:

- Research agreements or contracts to articulate how TEK will be used in a project or process;
- Copyright and confidentiality provisions;
- MOU between a community and researchers, or collaborators;
- Physical control over raw materials and original data files;
- Ethics guidelines or "ethics review:" a system to approve research based on its stated objective and methodology; and
- Community statement on its TEK.

The Assembly of First Nations offers a sample draft statement (available online) that may be used or adapted by a First Nation considering possible agreements or collaborations between knowledge-providing communities and outside organizations. The AFN draft statement is based on the principles of ownership, control, access, and possession; informed consent; partnership; integrity; disclosure; equity and benefit sharing; and, empowerment.[26]

Community-based Water Monitoring

Community-based water monitoring and state of watershed reports are both tools with potential to diplomatically bridge traditional and western knowledge systems, and offer opportunities for relationship-building and collaboration. The opportunities, benefits, and challenges of these tools are overviewed in turn below, along with a discussion of how protocol can be developed to ensure culturally appropriate uses of TEK.

Numerous First Nations in B.C. and Canada are leading community-based water monitoring (CBWM) programs in response to concerns about environmental stresses, such as downstream impacts from energy development and resource extraction.[27] (See Box 2 below for a short case study of the Fort Nelson First Nation's Shared Data and CBWM program). A CBWM program can generate information that enhances understanding of the watershed; and can compliment (or help verify) other sources of information and monitoring. Community monitoring programs do not have to be water-specific, and can also include monitoring of wild foods, wildlife, navigation, etc. Developing a program may involve the following steps:

- Establishing a baseline of historic conditions and changes (informed by TEK);
- Identifying a series of TEK indicators[1] to monitor environmental changes over time: a process which may involve a series of interviews with active land users and Elders to discuss fish, animal and water health; then validating TEK indicators with Elders;
- Transferring the knowledge associated with those indicators to community monitors or 'Guardians';[28]
- Working with partners to develop methods and parameters for monitoring the TEK indicators (e.g., choosing water quality measures and metals to study). Access to specialists and experts, equipment, and training are usually required to ensure data is useable and consistent. Since many monitoring programs must be multi-year to provide rich information, resources must be sustained in the long-term;

Box 2 – Fort Nelson First Nation: Shared Data and CBWM

Oil and gas development in north-eastern B.C. has led to extensive impacts to Fort Nelson First Nation's (FNFN) traditional territory. The relationship between FNFN and industry and government has been characterized by mistrust – including mistrust of the data that is being used to inform decision-making about hydraulic fracturing developments.[i] One recent solution created by FNFN and industry partners is to address issues of bias and mistrust of information by agreeing to share data. Instead of relying on industry or industry-hired consultants to conduct research and monitoring, FNFN designs monitoring programs: FNFN values and TEK informs where, what, and when to monitor. FNFN carries out the monitoring and data analysis with their trained field technicians (or hires an environmental service company to do so on their behalf). Industry has paid for the monitoring costs and stations.[ii] Additionally, FNFN collects proprietary data about the Liard River Basin, and intends to maintain and expand water monitoring capacity.[iii] Sharing data, and building a working relationship with industry, has increased FNFN's adeptness and understanding of Western land management practices, and strengthened capacity and skills to better communicate TEK.[iv]

[i] Breiddal, R. (2015). When consultation becomes a checkbox, what's the fracking point?: Colonial constraints on social learning processes in Northeast BC and the Fort Nelson First Nation's New Approach to resource governance. Master's Thesis, Department of Geography, University of Victoria.
[ii] Ibid.
[iii] Fort Nelson First Nation Lands Department (2016). Liard and Horn River Basin Water Monitoring. Website page: http://lands.fnnation.ca/project/liard-horn-river-basin-water-monitoring
[iv] Lowe, L. (2016). Panel Presentation: "Data Storage and Analysis: How do we verify, analyze, and share given the variety and scale of initiatives (First Nations, grassroots, and big data)?" At the Building Bridges: Citizens, Science, and Policy Workshop, Banff, AB, Nov. 1-4, 2016.

[1] Indicators are measurements or factors that are observed in a consistent way that show change within an ecosystem (e.g. levels of dissolved oxygen in water, soil erosion, populations). Certain animal species or plant species are used as 'indicator species', in that the health of their population size can provide information about the health of the ecosystem as a whole. To be effective, indicators should be comparable across time and space, meaning that it should be possible to compare the information gathered with similar historic and future studies, as well as with other watersheds. – CIER Guidebook #3

- Training community monitors to gather and record the data; and
- Communicating the information to decision-makers, partners and community members.

CBWM projects can serve as a way of increasing awareness among community members about western methods, and help community members gain an analytical understanding of western science methods. Building individual and community environmental technical capacity may be a primary goal of a CBWM program. CBWM can also allow partners to diplomatically find synergies between Western and Indigenous knowledge systems (i.e., through choosing what, when, and where to monitor based on indicators informed by TEK). In a number of communities, innovative technologies (such as apps for hand-held devices; or on-line data visualizations)[2] are used to collect and/or share CBWM.[29] CBWM programs are most effective when they have clear, realistic goals and intentions at the outset, and are linked to decision-making processes. Technical challenges (e.g., in analyzing, sharing, communicating data) and difficulties sustaining annual program costs are common for CBWM programs.[30]

State of Watershed Reports

State of Watershed reports can play a multi-purpose role in watershed planning and governance and are another tool for bridging TEK and western science.[31] The purpose of watershed reports is, first, to characterize (describe) the watershed's physical, biological, social, cultural qualities. Information sources would include western science and TEK. Mapping tools can be used in State of Watershed reports to integrate knowledge systems. For example, overlaying inventories of ecological values, archaeological sites and traditional Indigenous values with contemporary Indigenous cultural values (e.g., spiritual and medicinal plant collections sites). Protocols and technical approaches can be developed to enable mapping but conceal precise site locations (discussed further below).[32]

Second, watershed reports can provide an *assessment* of the condition, or health, of the watershed; and the major threats and challenges. The assessment will compare new information to data gathered previously, guidelines, or data from other watersheds; often using a series of indicators, which can be identified by TEK knowledge holders.[3] Linking challenges with causes sets out possible solutions, actions, and decisions.

Effectiveness criteria[33] to consider in developing a watershed report include:

- Focus on issues of concern to decision-makers/stakeholders;
- Careful attention to the process of developing the report, in order to build support and relationships;
- Consistent, spatially-specific, timely data and information;
- Consistent measures and indicators between successive watershed reports;
- Clear goals, objectives, targets, benchmarks;
- Clear messages that are compelling to target audiences; and
- Effective articulation and illustration of 'cause and effect' – i.e., connect challenges in the watershed to the reason why the challenge is present. (E.g., stresses to fish populations are caused by low flows in the summer – low flows are due, in part, to upstream water withdrawals and diversions).

Watershed reports can play a role in planning and advocacy, evaluation of management actions (by providing benchmarks and targets), and can guide decision-making agencies, and dialogue with/between

[2] For example, see the Pacific Salmon Foundation 'Skeena Salmon Explorer' program and the Mackenzie DataStream Program.

[3] The CIER Watershed Planning Guidebook "Knowing Your Watershed: All Our Relations" (No.3) includes a sample table of contents for a State of the Watershed report and a comprehensive list of the types of information that can be included.

agencies. The collaboration required in developing a comprehensive report (i.e., working with TEK knowledge holders and community members, and compiling Western and TEK information, sharing results with communities) can facilitate 'co-learning' between different knowledge holders from different cultures.

3.0 CASE STUDIES OF INDIGENOUS-LED OR CO-GOVERNANCE INITIATIVES

This section provides five case studies of Indigenous-led or co-governance approaches founded in TEK. These cases illustrate how First Nations in B.C. are at the forefront of leading new watershed decision-making approaches. The cases provide a brief, overview look at legal and policy options to assert authority over water, ranging from water- or land-use plans, strategies, policies, legal approaches, co-governance boards, and government-to-government agreement.

In these examples, First Nations articulate a vision of sustainability and governance, and accompanying principles for decision-making; and clarify goals, thresholds, and standards for watershed management. The water initiatives are founded in cultural teachings, laws, beliefs, values. Language is emphasized and included: translations are provided through a 'definitions' page, or alternatively, sections (or the entirety) of the document can be provided in multiple languages.[34]

A common goal across the cases summarized here is to support and guide the Nation's engagement with other governments, and stakeholders. While these cases provide important insights and lessons, there is no "one path forward" or clear set of answers on how to develop an effective, meaningful co-governance arrangement and develop shared decision-making. There is an ongoing need for critical evaluation of how the terms and structures of collaborative decision-making process are shaped, and if and how they privilege TEK.[35] Much of the work (and accompanying insights/lessons learned) that is happening in these regions is not necessarily well-documented or easily (publicly) accessible. More learning about these case studies may be possible through seeking opportunities for peer-to-peer discussions.

3.1 #1: CHAMPAGNE AND AISHIHIK FIRST NATIONS' WATER STRATEGY

The Champagne and Aishihik First Nations' (CAFN) traditional territory spans 41,000 km^2 of the south-western border of British Columbia and Yukon Territory. Although CAFN's traditional territory is impacted by human activities (e.g., hydroelectric development), much of the territory remains pristine. To ensure water is protected for future generations, the CAFN government and citizens made water a strategic priority and developed a water strategy. The strategy intends to articulate and enact CAFN water laws, set terms of reference for current and future development, and facilitate cultural revitalization processes, including "re-learning" cultural protocols and responsibilities for the lands and waters.[4]

The CAFN Water Strategy includes a Vision, Purpose, and Overview of water in CAFN territory (e.g., describes water bodies and how water flows through the territory), and articulates five important reasons why a water strategy is needed. In summary:

1. *Finalizing a CAFN water strategy is part of the broader CAFN Strategic Plan*
2. *Water is important:* The strategy will aim to incorporate cultural water values and beliefs into the way the CAFN government conducts its operations, and its dealings with responsible government agencies. (Page 5 of the Strategy)

[4] See CAFN Water Strategy: http://cafn.ca/wp-content/uploads/2015/04/Final_CAFN_Water_Strategy.pdf

3. *Water Management is identified under the CAFN Final Agreement:* The Strategy aims to develop a framework and method for monitoring and reviewing how well the provisions are being implemented by the responsible Parties and whether or not the overall objective of the chapter is being achieved. (Page 5)
4. *Water management is complex:* "The Strategy will assist CAFN in engaging with other jurisdictions and parties strategically and efficiently to ensure protection of CAFN rights and unique interests (e.g., cultural and traditional values). The Strategy will include looking at how well current policies and regulatory tools are being implemented, and what gaps exist that need to be addressed." (Page 6 of the Strategy)
5. *Our climate is changing*: The Strategy aims to increase community resilience.

The Strategy sets out how citizens can provide input through its implementation: workshops, e-surveys, an in-person display at the CAFN General Assembly, presentation to Chief & Council, periodic reviews communicated through a Water Strategy status report (2-3 years), and the CAFN Annual Report. The Strategy also articulates seven goals and accompanying action items. These goals are summarized in Table 2 below. (For the full, detailed goals and action items, visit the CAFN Water Strategy document).

TABLE 2: Overview summary of Goals and Example Action Items from CAFN Water Strategy

Goals	Example Action item:
#1. Protect Water for Human Health and Well-being	Ensure regular water quality testing is conducted for community and residential drinking water systems.
#2. Protect Water for the Health of Fish and Wildlife	Conduct Watershed Assessments.
#3. Our ability to travel through and across our waters is protected	Develop a mapped inventory of waterways (lakes, rivers, creeks) that have exhibited significant change to their water flow and water levels over the past several years and identify the potential causes.
#4. Protect Water for Traditional and Cultural Uses	Step One: Create a map based inventory of creeks, rivers, streams, lake, springs and other water bodies that are viewed as culturally significant and/or are used or once used for traditional purposes. Step Two: Identify risks to water sources, lakes, streams, rivers, and specific water-based locations that are traditionally and culturally significant.
#5. Strengthen CAFN governance of water	CAFN will engage with other Governments and key stakeholders to advance the purposes of this Water Strategy.
#6. Adapt and plan for climate change impacts	Ensure climate change factors are considered in land and water management issues.
#7. CAFN Government and citizens are informed and engaged	CAFN Government will provide regular updates to citizens on the implementation of the CAFN water strategy.

3.2 #2: COWICHAN WATERSHED BOARD: EVOLVING WATERSHED CO-GOVERNANCE

The Cowichan watershed covers approximately 1,000 square kilometres on the eastern slopes of southern Vancouver Island. Climate change is exacerbating summer droughts and winter storms, which are increasingly becoming the norm. The watershed has changed dramatically in the past 150 years due to forestry, urbanization, and other land uses. Habitat degradation, and alarmingly low-flows in the Cowichan in summer months, pose significant threats to salmon runs; and shellfish beds in the estuary are polluted. (Salmon have been trucked upstream on numerous occasions). Population and water demands continue to rise in the region.

In response to the summer drought of 2003, local organizations (including industry), Cowichan Tribes, and local, provincial, and federal governments recognized a more formal and proactive approach to

watershed management was needed. They commissioned the Cowichan Basin Water Management Plan ('the Plan'). The Plan was completed in 2007 and includes six goals, seven targets, 23 objectives, and 89 actions concerning water conservation, water supply management, water quality, habitat and biodiversity, flood management, governance, and communications. The targets clearly articulate the issue and the desired end outcome. For example: "shellfish in the Cowichan Bay must be harvested for human consumption by 2020"; "Cowichan River summer flows need to be 7cm or higher."

Creation of the Cowichan Watershed Board to Drive Progress

Although the Plan was award-winning and comprehensive, two years later, little action had been taken: a leadership "vacuum" was stalling progress. The Cowichan Watershed Board ('the Board') was established in 2010 to take on the role of supporting collaborative local decision-making at the regional/watershed scale. The structure of the Board is as follows:

- The Board operates on a consensus basis.
- The Cowichan Valley Regional District (CVRD) and Cowichan Tribes are full partners and jointly lead the Board: the chair of the CVRD, and Chief of Cowichan Tribes, serve as co-chairs.
- All other Board members are either elected officials, or appointed by elected officials.
- Cowichan Tribes and CVRD both name elected members to the Board.
- Provincial and federal governments can nominate members, who must be jointly approved by the Cowichan Tribes Council and the CVRD.
- A Technical Advisory Committee and the Special Advisors support the Board. (Special Advisors are individuals from a diversity of backgrounds who provide expertise to the Board when needed).

A co-governance structure has been essential to the Board building legitimacy and credibility in the community. The Board continues to pay attention to relationship-building, recognizing that relationships and trust are fragile and must be carefully nurtured. Taking small, demonstrable steps to listening and learning from each other (e.g., holding meetings in different locations and places, not just the CVRD board room) has been important to allow for conversations about other important cultural and ecological issues.

Advisory role in watershed governance

The Cowichan Watershed Board is an advisory entity, meaning they:

- Make recommendations formally and informally: including letters or requests sent to decision-makers or government staff or notifications sent to the local government, Cowichan Tribes, or provincial government.
- Actively work with, and encourage, regulatory agencies to base their water management decisions on Board recommendations.
- Communicate through Board members who belong to key agencies, such as the federal Department of Fisheries and Oceans.
- Actively build a relationship and communication with the Province around the *Water Sustainability Act*; exploring how new legal tools – including environmental flows, delegated decision-making, and water sustainability plans – might apply in the Cowichan.

3.3 #3 GITANYOW STRATEGIC LAND USE PLANNING

The Gitanyow Huwilp *lax'yip* (territories) encompass approximately 6,300 square kilometres in the middle-Nass and upper Skeena Watersheds (Kitwanga and Kispiox Rivers). Decades of clear-cut logging (and related impacts such as road development) has serious detrimental impacts to Gitanyow Huwilp lax'yip. The Gitanyow pursued legal action: court cases primarily dealing with forestry consultation and the lack of a landscape-level land-use plan for the territory. The British Columbia Supreme Court confirmed in 2008 that "large areas of habitats required to support plants, birds, fish, animals that Gitanyow Huwilp members traditionally used for sustenance and cultural purposes have been lost to Gitanyow use", and Gitanyow law and culture have been undermined.[36]

Gitanyow Strategic Land Use Planning and Government-to-Government Agreements originated from negotiations following successful legal action. The Gitanyow sought the development of a land use plan in its territories, founded on Gitanyow laws, that provided high-level strategic direction for resource management.[37]

Development of the Land Use Plan

Clogg et al. (2016) summarize the process of developing the Land Use Plan in accordance with Gitanyow law:

> A planning team consisting of Hereditary Chiefs and technical experts worked for close to a decade to develop the Gitanyow Lax'yip Land Use Plan. The plan reflects the outcome of a deliberative process in which authoritative decision-makers within Gitanyow's legal order and governance structure applied legal principles flowing from their traditional narratives (Adawaak and antamahlaswx) to develop an overall strategic plan for the Lax'yip of the Huwilp. In this manner the resulting plan both gives effect to and forms part of Gitanyow law.
>
> The cornerstone of the Gitanyow Lax'yip Land Use Plan is an interconnected network of conservation areas that will be maintained predominantly in natural condition (i.e., conditions similar to those under exclusive Gitanyow management prior to European colonization). These include both new and existing protected areas (e.g., Provincial parks and conservancy areas encompassing critical salmon spawning grounds), where industrial resource extraction is prohibited, and legally designates management zones with detailed management objectives; including (for example) water management units, grizzly bear specified areas, Gitanyow cultural sites. (page 238-239).

Among other designations, the land use plan establishes ecosystem networks; water management units; and, protection for critical salmon habitat. Certain areas are now off-limits to logging. Ecosystem networks provide connectivity for ecosystems and protect ancient village sites and other important sites within the territory. There are objectives and management targets for the different zones related to water; however, the land use plan does not have a central focus on hydrology and water quality.[38]

Government-to-Government Agreement

The Gitanyow Huwilp Recognition and Reconciliation Agreement, which includes the Gitanyow Lax'yip Land Use Plan, was concluded in 2012. It commits the Province of B.C. and the Gitanyow Hereditary Chiefs to collaborative implementation of the Plan. For this purpose, it also establishes:

- A consensus-seeking technical Joint Resources Council;
- A political Joint Resources Governance Forum (50% Gitanyow, 50% provincial representatives); and,
- Dispute resolution mechanisms.[39]

3.4 #4: STÓ:LŌ HERITAGE POLICY MANUAL AND S'ÓLH TÉMÉXW USE PLAN*

What Stó:lō people know as S'ólh Téméxw ("our land; our world") encompasses the Lower Fraser River watershed and extends to south-central Vancouver Island. As the "People of the River," Stó:lō identity is closely linked to qó ("water"). The Stó:lo- recognize that water is alive and defines the relationships between people and place. The Halq'eméylem phrase: "te íkw'élò. Xólhmet te mexw'stám it kwelát" means "This is our land. We have to take care of everything that belongs to us." This understanding of stewardship guides Stó:lō decision-making and governance – but the notion of stewardship is often over-looked by other levels of government, and non-Indigenous communities.

Impacts to Stó:lō territory

Major shifts in hydrology, land use, and management have unfolded in Stó:lō territory since colonization, particularly the draining of Sumas Lake since 1924 and diversion of the Chilliwack River. Draining Sumas Lake deteriorated the health of Stó:lō People in that community, since the lake was central to their well- being. A Sumas Elder once stated that "when they drained the lake, they drained the heart out of our people." In response to pervasive cultural stress and land- use conflicts centred around water, the Stó:lō created a Heritage Policy Manual to set out the terms of their cultural needs for water quality and use.

Key Sections & Aspects of the Heritage Policy Manual and S'ólh Téméxw Use Plan[40]

The first section of the Policy Manual includes:

- A forward sets out that the policy is a living document and subject to reconsideration and revision.
- A preamble sets essential facts about the Stó:lō people, land, culture, heritage, language, and responsibilities.
- Halq'eméylem language is used extensively in the policy with English definitions provided.
- The policy includes a vision, and it purpose, primarily: "protect, preserve, manage Stó:lō heritage in all its forms in a manner consistent with Stó:lō values, beliefs, and traditions." Another important purpose of the Manual is to guide Stó:lō cooperation with other organizations – both Stó:lō and non- Stó:lō." (See page 4 of the Manual for the full purpose of the policy).

The second section of the Manual sets out five interconnected guiding principles on the respectful treatment of Stó:lō heritage, which are applied through the manual. Each teaching and principle is described. The description is followed with a policy statement. For example:

> *"Ewe chexw qelqelit te mekw' stam loy qw' esli hokwex yexw lamexw ku:t (don't ruin, waste, destroy everything; just take what you need)."* This teaching is briefly explained, and then followed with the policy statement:
>
> "Resource and land use must be planned such that they conflict as little as possible with Stó:lō heritage interests. Mitigation and/or compensation is required where impacts to Stó:lō heritage are unavoidable or otherwise occur. Conflicts with and impacts to Stó:lō heritage must be justified as well as minimized." (page 6)

The Manual also includes definitions and a list of terms, recognized sites, objects, activities, and knowledge, and traditional activities and/or sites. Traditional activities and/or sites include those from past and present. Examples include: religious, ritual, spiritual, ceremonial activities; food collection (fishing, hunting); resource extraction (timber harvesting; mineral/gravel extraction); resource management (e.g., berry patch/prairie burning, tree/ 'forest resource' planting and maintenance). (See page 11 of the Manual for the complete list).

The Manual explains a system for 'ranking' the significance of cultural value, from high to low (emphasizing that in all cases, Stó:lō heritage must be treated with deserving respect); and sets out a Framework for Management Measures and Options of Stó:lō heritage sites.

The manual fills a regional policy gap, as there is no counterpart policy in the Lower Mainland. This policy and its counterpart, S'ólh Téméxw Use Plan, are applied as primary screening tools for hundreds of development applications the Stó:lō receive each year. Most important is that the manual is built from the cultural foundation of Stó:lō People, and is being put into action as a way for the Stó:lō to manage water, watersheds, land, resources, culture, and heritage as interconnected with their territory.

3.5 #5: *YINKA DENE 'UZA' HNE*: SURFACE WATER MANAGEMENT POLICY

The Yinka Dene or Dakelh people have been known by the name Carrier, and each Yinka Dene First Nation is a member of the Carrier Sekani Tribal Council. The territories of the Yinka Dene are located in the central interior of B.C. Historic cumulative effects of multiple industries and human activities, coupled with increasing pressure from resource extraction industries and climate change, have the potential to irreversibly impact water sources across Yinka Dene traditional territory.

In response, the Yinka Dene recently developed the 'Uza'hné Surface Water Management Policy to guide water management in the traditional territories of the Carrier Sekani First Nations. The 'Uza'hné Surface Water Management Policy can have applications within land-use planning, environmental assessment, environmental regulatory framework, and natural resource damage assessment.[41] The policy has three key components:

1) Narrative water management objectives: "*Waters within the Traditional Territories of the Carrier Sekani First Nations should remain substantially unaltered in terms of water quality and flow."*
2) Water classification system, which ranks waters as:
    a. Class I – Waters of High Cultural or Ecological Significance
    b. Class II – Sensitive Waters
    c. Class III – Typical Waters
3) Water quality standards: Narrative statements or numerical concentrations that establish the conditions necessary to protect water and it's uses.

4.0 METHODOLOGY FOR APPLYING *SYILX* (OKANAGAN) ECOLOGICAL KNOWLEDGE TO WATER PLANNING

Summary
This section provides a methodology for applying *Syilx* (Okanagan) knowledge in both existing, established water-planning processes (e.g., Kettle River Management Plan).

The *Syilx* (Okanagan) sovereign, unceded right to self-governance and self-determination are affirmed within *Syilx* (Okanagan) Laws and customs as dictated through their captikʷɬ (see Appendix 1 for background). Self-determination includes the right to control their institutions, territories, social order and cultures without external interference or domination. The *Syilx* (Okanagan) Nation is a sovereign Nation and they have governed their lands under *Syilx* (Okanagan) Laws, customs and *Syilx* (Okanagan) institutions since the beginning of time. When we were created, a covenant was made that we, as *Syilx* (Okanagan) People, were required to act as caretakers of their lands and in return they would be looked after, their captikʷɬ teach them these values, that is there stɬtałt, Aboriginal Title and Rights. The Chiefs, leaders and all *Syilx* (Okanagan) peoples have a responsibility to their homelands (see Appendix 2 for a map of the territory). This obligation cannot be given away; it is the foundation of who they are as a Tribal People, and of their continued existence on this land.

The core premise of the methodology is that a strong foundation of *Syilx* (Okanagan) knowledge (e.g., *Syilx* (Okanagan) Water Declaration, nsyilxcen (see Appendix 3 for key nsyilxcen words important to water)) is the starting point for shaping watershed planning processes that align with *Syilx* (Okanagan) water laws, principles and practices. The foundation of *Syilx* (Okanagan) water knowledge can be imagined as threads that are interwoven amongst activities, tools, processes, solutions, partnerships, and dialogue with external governments and stakeholders.

The methodology involves four stages with specific actions.

- Stage 1 seek out local *Syilx* (Okanagan) water leaders and knowledge keepers to form a water planning team.
- Stage 2 and 3 focus on gathering information and producing a watershed/sub-watershed *Syilx* (Okanagan) Vision and associated laws, practices, interactions, and responsibilities.
- Stage 4 focuses on applying the Vision to ensure interactions with the water are consistent with responsibilities to that water.

4.1 Stage One: Weaving the Threads

In this stage, watershed planners approach *Syilx* (Okanagan) water leaders and knowledge keepers in the community to define which watershed is most important to them to focus on and why. This is meant to "spark the fire of responsibility" through an enoʷkinʷixʷ (refer to Appendix 4). The goal is to seek

collaboration using the four vital voices of community. The basic approach is based on the recognition that in any circle of Peoples there are different perspectives as a result of their particular sensitivities, expertise and concerns and that this is necessary. These different perspectives can be interwoven together to create the fabric of the plan. It is based on the idea that each time we gather, we, by our nature become the parts and can do our best work together through knowing each part is important in what it has to offer. The process is meant to bring all voices of a group to the discussion (ONA, Decision-making Protocol, 2014).

Action One: Gather Water Leaders and Knowledge Holders

A Knowledge Holders group can provide ongoing oversight and input into the process of gathering community knowledge. If there is an existing group, consider how/whether they could also advise water planning initiatives. To continue the ongoing mentoring and training, youth should be invited to participate and learn with this group. A Knowledge Holders group's role(s) and functions may include:

- Dialoguing together to share a strong 'living' vision for water security;
- Acting in an advisory role to staff (of the watershed planning team and/or other departments/teams), and/or Chief and Council;
- Providing guidance on collection methods and questions;
- Providing guidance on how *Syilx* (Okanagan) knowledge could be incorporated into existing studies; and
- Providing knowledge of and recommend different areas especially in regards to the needs of the land and water.

Action Two: Identifying the Water Body/Build a Common Purpose

Water bodies can be selected for water responsibility plans for various reasons. For example, the watershed may be pristine or over-allocated or require protection or on-reserve or off-reserve. Or perhaps a watershed organization wants to develop a watershed plan to help coordinate future land use planning efforts to protect sensitive environmental areas in the community. It is important to identify why knowledge keepers selected a particular water body. These reasons will set the foundation for developing the vision and actions or responsibilities for caring for the water body.

Action Three: Identify if Any Other Relevant Stakeholders Need to be Involved

It is essential that all stakeholders are identified, included and may benefit, not just those who volunteer to participate. Key stakeholders also include those who can contribute resources and assistance to the watershed planning effort and those who are working on similar programs.

Success depends on involving a good mix of people and organizations. Key skill sets include: technical, education, learning, communication, and policy. It is also important to know the capacities and strengths of the water planning team.

4.2 Stage Two: Breathing Life into the Vision

In this stage, the goal is to gather knowledge to build the Vision Statement that codifies our responsibilities to the water. Knowledge is gathered from existing resources, meetings and conversations with communities and knowledge holders. The following are key areas to explore in research, meetings and conversations:

- Cultural water and watershed captikʷɬ, principles, practices, ceremonies, activities, and place-names;
- Defining principles for taking responsibility for water, and taking care of water;
- Water and watershed observations, concerns, threats, possible solutions;
- Connection between water, land, and all living things;
- Responsibilities and reciprocity;
- Desired outcomes (vision and goals);
- Watershed priorities and objectives (desired actions);
- Clarifying how/what knowledge can be shared and when/how it should be protected; and
- Defining characteristics of a positive collaborative relationship (i.e., how do we work and learn with other knowledge-holders, decision-makers, watershed-users?).

Action One (Preparatory): Compile and Assess Existing Resources

A preparatory step is to gather and assess information contained within previous studies, research, and ONA or community initiatives. Land and water responsibilities must include questions within the context of people's responsibility to *tmixʷ*. In reviewing documents, consider whether there are answers to the TEK questions in Appendix 5. Existing documents may contain valuable information; including knowledge from those who may have passed on. Community-members will feel that their contributions are meaningful if they know previous work they have already participated in is being built on.

The process of TEK must consider the various layers of inter-relationships within community, beginning with the individual, the family, the community, and the *tmixʷ*. Assessing existing documents from this perspective may give insight into additional TEK questions that can be asked in community meetings or discussions. Examples of documents or research include:

1. Individual
   - Harvest sites
     - Berry patches
     - Roots
     - Grasses
     - Trapping sites
     - Egg collection
     - Lichens/moss
     - Fungi
     - Insects
   - Spiritual uses
     - Places of puberty training
     - Offering sites
     - Training/Teaching sites
2. Family
   - Hunting
     - Habitat (i.e. winter/summer range)
     - Kill/process Zones (major)
     - Kill/process Zones (minor)
     - Training sites/places
     - Trapping areas/lines
   - Fishing
     - Catches
     - Kill/process (sites)
     - Story sites
     - Aquatic places (major)
     - Human impacts to fish (dams/diversions)

  - Places for spiritual/emotional health and healing
  - Places with no noise
  - Traditional fishing sites
- Medicinal
  - Inventories of at risk sites
  - Plants
  - Roots/Tubers
  - Sacred medicinal beds

3. Community
   - Use and Occupancy studies
   - Traditional plant/animal use guides or studies
   - *Syilx* Water Declaration (2014)
   - Tenures – forestry, mining, trapping, range
   - Fisheries protection, management, recovery assessments
   - Land use, e.g. recreation
   - Cultural (placenames, sacred sites, trails, archeology sites, Remote Access to Archaeology Data)
   - Historical sites/trails
   - Archaeological sites
   - Pictographs
   - Burial grounds
   - Captikwl sites
   - Coyote landmarks
   - Trails and paths (historic and contemporary)
   - ONA member band reserves and areas of interest
   - Known conservation areas
   - Historic mine sites
   - Restoration projects reports
   - Results from community-based water or ecological monitoring
   - Workshop reports involving Elders/and or resource users
     - Community vision or planning
4. tmix^{w}
   - Water – hydrology, septic fields, dams, waterfalls, floodplain (50, 100 year), wells, aquifers, water levels, springs, glacier headwaters
   - Groundwater and water licenses
   - Colonial history of water in territory
   - Wildlife and Species at Risk (SARA) range/distribution
   - Beaver
   - Ungulate winter range
   - Calving areas
   - Fish habitat
   - Soils
   - Biodiversity
   - Plants and habitat
   - Animal corridors and trails
   - Change in forest/vegetation by species type
   - Change in snowpacks over time
   - Change in precipitation over time
   - Change in temperature over time

Action Two: Gather Community Knowledge

Community knowledge is gathered through ceremonies, interviews, stories, workshops, surveys, family meetings, tabletop mapping exercises, on-the-land camps, watershed tours, and interactions with the land and water.

Facilitated workshops may be useful to get a broad scan of information, and allow as many members as possible to participate and talk collectively about issues. As a follow-up, consider small workshops geared specifically towards women, Elders, harvesters, youth, etc. - which may be helpful to focus on the specific knowledge that each group holds. The format can be flexible to adjust to each of the eight community's governance structures and information sharing systems. Guiding questions and facilitated

exercises are helpful to provide structure and ensure all important knowledge areas are addressed (an initial list of possible TEK water questions is included in Appendix 5).[42]

In gathering *Syilx* (Okanagan) knowledge, explain to community members the goals of the process, and how their knowledge is intended to support the watershed planning process - what are the priorities that are most important in the watershed of focus, and for the whole Nation/Territory? Creating an image that expresses the process and the major areas of work (i.e., the different but complimenting Vision for the water initiatives in different regions) can be a helpful way to demonstrate the relationships among areas of work, and how staff and the *Syilx* (Okanagan) knowledge keepers are developing the watershed plan/initiative.[43]

The *Syilx* (Okanagan) process is an enquiry based approach to ensure the right questions are being asked within each quadrant (Armstrong). Discussion points for Gathering Community Knowledge: What are the specific water and land needs?

- Sharing captikʷɬ through the generations
- Respect
- Ceremonies and support for the people who do ceremonies
- Protection
- Cooperation and collaboration with governments, industry, public,
- Restoration
- Protection for sacred places (i.e. including no-go zones, selective logging. Look at new and innovative ways to protect our mountains. Snowpack parks)
- Awareness and understanding (i.e. from captikʷɬ)

Action Three: Enoʷkinʷixʷ

Dr. Jeannette Armstrong outlines the enowkinwixw model for decision-making related to land/water use, which considers principles and knowledge within the *captikwɬ* "How Food Was Given," also known as the Four Foods story. In this story, it asks a central question from the four quadrants perspective. Collective input guides building a broader perspective and decision making throughout the process with respect to *Syilx* (Okanagan) land/water use and governance. Principles include a commitment to balance, reciprocity, sustainability, ongoing use, ecological integrity, inclusivity, collective contributions, rights/responsibility, respect, and inter-relatedness.

The knowledge of the *Syilx* (Okanagan) process was further developed by Dr. Jeanette Armstrong's research, which can be captured in four phases of progression through the process of enquiry. Having the most opposite point of view to be included is required to bring balance of the collective. This process requires the facilitators to be trained specifically for the integrity of the process to be maintained. Ideally the most effective outcomes are achieved in a 4-day uninterrupted and focused sessions.
The Syilx process is an enquiry-based approach to ensure the right questions are being asked. In the Four Quadrants of Community Model the questions asked are:

1. What are the Traditional and Past Historical land/water uses?

2. What is the Future Vision for the Land in 25-50-100 Years from now?

3. What are the impacts of current land/water-use actions on the land?

4. What makes people feel emotionally connected and at home in their identity on the Land/Water?

Action Four: Tangible and Intangible Values

Elders and Knowledge keepers hold in high regard values that are associated with traditional activities and practice that are not easily associated with locations, mapped or easily quantifiable.

Action Five: Uncovering missing information

Through action one to four, you may realize that more information is required and you will need to develop an approach for re-gaining this understanding. People may want or need more information before they can say what their responsibilities are to the watershed. Ensure that *Syilx* (Okanagan) academics and knowledge keepers conduct field operations.

4.3 Stage Three: Transformation

> *Our sacred siwłkʷ water teaches us that we have great strength to transform even the tallest mountain while being gentle, soft, and flexible.* - Okanagan Nation Water Declaration, 2014

"Our sacred siwłkʷ connects and sustains all life. We as the Syilx people have a duty and responsibility to ensure siwłkʷ can maintain all of its relationships, known and unknown, by showing due respect and humility. When we were created, a covenant was made that we, as Syilx People, were required to act as caretakers of our lands and in return we would be looked after, our captikʷɬ teach us these values, this is our stłtałt, Aboriginal Title and Rights" (Okanagan Nation Water Declaration, 2014).

The goal of this stage is to use information gathered to build on the 'living' Vision Statement for the water body. The Vision Statement enables community members or staff leading/participating in a watershed planning processes to articulate the values of the watershed – it forms the core of the water responsibility plan. *Syilx* (Okanagan) peoples "assert that siwłkʷ has the right to be recognized as a familial entity, a relation, and a being with a spirit who provides life for all living things. Siwłkʷ must be treated with honour, respect and reciprocity. We care for, protect and honour our relationship and bond with siwłkʷ through our *Syilx* (Okanagan) Laws, customs, traditions and practices. siwłkʷ is not a resource or a commodity (Okanagan Nation Water Declaration, 2014).

The Vision Statement(s) may act as a reminder that any use of water should be an act of covenance and a commitment to our responsibilities. The Vision Statement embodies the fact that water movements, pathways, resiliency and power teach us who we are and who we can be as people. It will always take the lowest path in its humility. Yet of all the elements, it is the most powerful. *Syilx* (Okanagan) Peoples must be at the forefront of all *siwłkʷ* planning, siwłkʷ protection and siwłkʷ operational processes including allocation and generation. We stand united and will apply and implement our knowledge, *Syilx* (Okanagan) laws, customs and self-determination to preserve, conserve and protect life's most sacred gift – siwłkʷ.

The Vision Statement also serves as an evaluation indicator that can be used to 'test' whether a watershed stewardship plan reflects *Syilx* (Okanagan) responsibilities.

This methodology was developed to be applied at a watershed/sub-watershed/regional or community scale (e.g., Kettle Basin, Upper Arrow watershed). Taken together with the *Syilx* (Okanagan) Water Declaration, the Vision provides guidance for interactions with water and land for each sub-watershed. Water centric planning has been a long standing concept that *Syilx* (Okanagan) people continue to practice as a fundamental guiding principle. Water is recognized as an entity to be protected and shapes the norms of *Syilx* (Okanagan) people. A place-based stewardship approach has been utilized for many thousands of years to ensure that those with the most knowledge and understanding of siwłkʷ within a specific region of the Territory are responsible for ensuring that proper measures of respect are carried forward. The *Syilx* (Okanagan) people envision a sustainable territorial land, culture, and ways of life in perpetuity. By managing our land responsibly, we aspire to entrust our future generations to a healthy land base.

Action One: Review Information, Develop Vision Statement, Principles and Practices

From careful review and synthesis of documents and information gathered from community members, synthesize common themes, trends, and areas of alignment (and difference) arising from the questions asked during review of documents, or conversations with knowledge holders.
Based on the information gathered, develop the Vision Statement, Principles and Practices based on *Syilx* (Okanagan) knowledge for each watershed. Clearly identify ways to adaptively manage new knowledge and new decision rules to assess the success of the watershed management plan at meeting *Syilx* (Okanagan) responsibilities.

Action Two: Confirm Vision
Share a draft of the Vision Statement, Principles and Practices with the Knowledge Holders group, and the Natural Resources Council, and seek feedback: is the capture accurate? Is anything missing? Does this ring true with peoples' responsibilities? Remind people of the purpose of the document and the bigger picture of how it supports water governance. Revise as needed.

4.4 Stage Four: Enacting Our Responsibilities

The Vision Statement, Principles, and Practices can be applied in an existing watershed management plan or through developing a *Syilx*-led new watershed management plan. An initial precursor action is to determine capacity (human, financial, technical), and Nation-wide priorities to determine where and how, and the extent, to participate in an existing watershed management planning process or lead a new watershed management planning process.

Action Step One: Identify (Internally):

- Where there are *shared* interests and alignment in priorities and values between the Vision Statement, Principles, and Practices and the existing initiative(s); or areas of *misalignment.*
- Identify areas where process, knowledge, or activities would be enhanced with *Syilx* (Okanagan) knowledge:
    - For example, if a process is exploring *implementation* of an existing plan (e.g., Kettle), the Vision Statement, Principles, and Practices may direct priority-setting, or help determine what kinds of projects to undertake, where, when, how. Or, the Vision Statement, Principles, and Practices provide guidance around protecting specific types of locations, habitat, and species.
    - Is existing knowledge of the watershed limited – can understanding of the social, ecological, cultural characteristics of the watershed be enhanced with inclusion of *Syilx* knowledge?

- Identify best standards for community involvement by identifying the questions from community.
- Work with knowledge keepers group to seek ways to blend *Syilx* knowledge with western scientific perspectives in the watershed plans.
- Identify, frame, and document roles, responsibilities and intellectual obligations.

Action Step Two: Communicate Vision Statement, Principles, and Practices: to collaborators; explaining its purpose and *Syilx* (Okanagan) inherent rights as water managers and protectors.

Action Step Three: Collaboratively discuss and identify:

- How *Syilx* (Okanagan) knowledge should be represented in the process.
- Issues of authority/jurisdiction and rules/process that are problematic and contributing to the problems in the watershed.
- Avenues and solutions to address the issue (what is needed).
- Whether specific technical integration tools are needed to enhance existing knowledge of the watershed (e.g., a mapping/inventory, 'state of watershed' report, a monitoring or restoration initiative); and whether protocols are needed to protect *Syilx* intellectual property. All components of fieldwork must be conducted with *Syilx* knowledge keepers.
- How the decision-making/collaborative process should unfold going forward to align with governance principles/approach in *Syilx* Vision Statement, Principles, and Practices, and how to formalize the approach (e.g., MOUs, agreement, co-create a Terms of Reference, etc.)
- External collaborators to be requested to agree to and sign the Okanagan Nation Water Declaration.

Action Step Four: Evaluation using the Vision Statement, Principles, and Practices:

In any process, the Vision Statement, Principles, and Practices can be continually used as an evaluation tool to assess if *Syilx* (Okanagan) responsibilities are being met and to track environmental, social and economic values.

5.0 CONCLUSION

Literature review and case studies in this report illustrate how TEK provides a foundation for First Nations' engagement in, and leadership of, water governance processes. First Nations' leadership and innovation – including the leadership of *Syilx* Peoples – will continue to re-define the legal and governance landscape for water in B.C.

The purpose of this report is to provide a methodology for applying *Syilx* knowledge in both existing, established watershed governance and management processes, and new, *Syilx*-led governance processes. The three-stage methodology proposed here is intended to be adaptable to different watershed/regional initiatives and decision-making processes, while creating the groundwork for a broader *Syilx* Nation water rights.

This is the first version of this document. The methodology will be re-fined as it is applied to each watershed.

Appendix 1: Okanagan Nation Alliance Governance and Structure

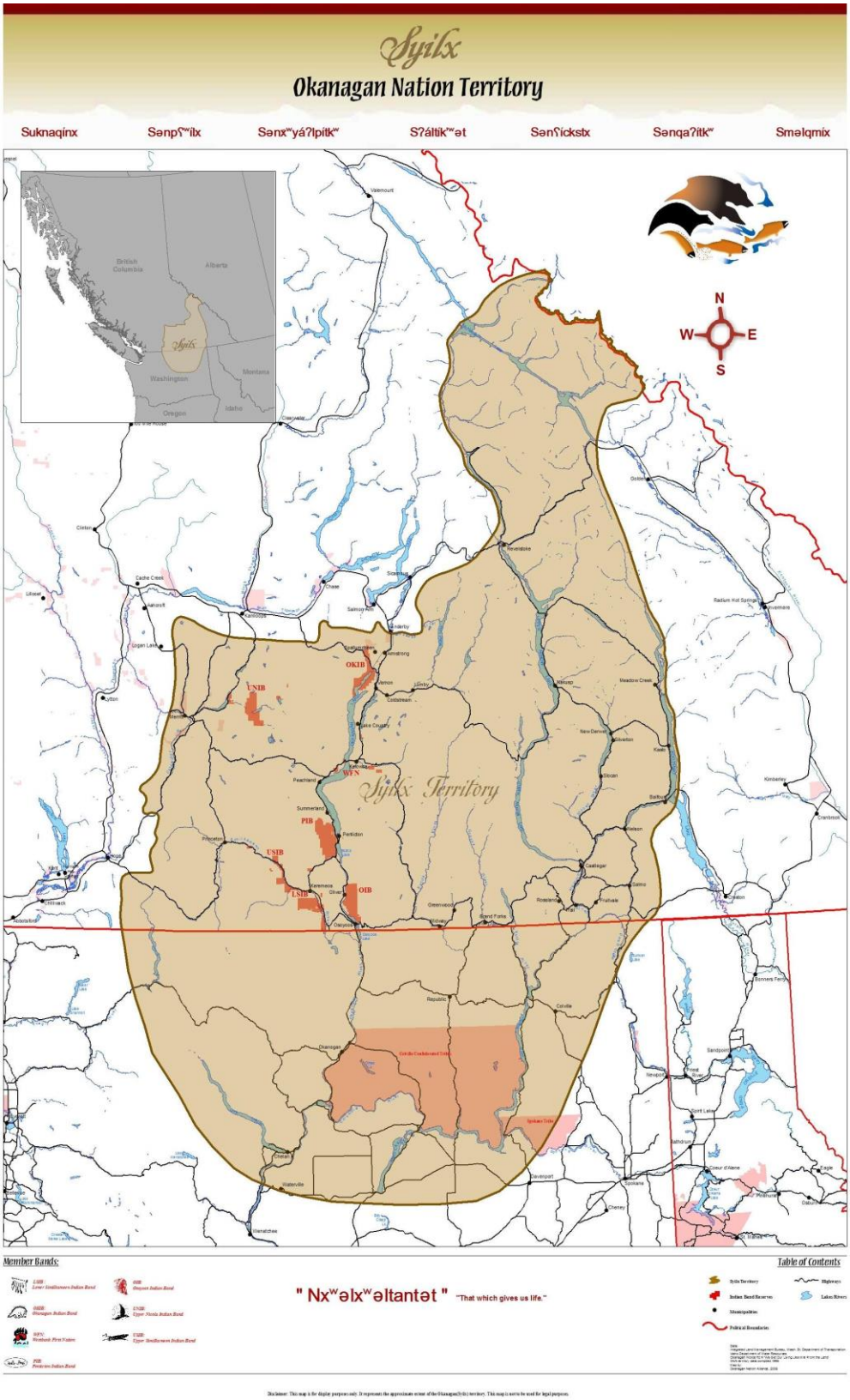
Syilx Okanagan territory spans over 69,000 square kilometres with its northern boundaries located near Mica Creek, BC (north of Revelstoke, BC). Its eastern boundaries reach to Kootenay Lake, the western boundaries reaching into the Nicola Valley and its southern boundaries reaching to Brewster, Washington (Appendix 2). The *Syilx* Okanagan people have inhabited their territory since time immemorial and continue to inhabit, use and steward their lands and resources, as is their right and responsibility, as laid out in the *Okanagan Nation Declaration* (Appendix 6).

The ONA Chiefs' Executive Council (CEC) collectively represents the Title and Rights holders of the *Syilx* Okanagan Nation. The CEC is comprised of the Chiefs of the eight (8) *Syilx* Okanagan communities: Osoyoos Indian Band, Lower Similkameen Indian Band, Okanagan Indian Band, Penticton Indian Band, Upper Nicola Band, Upper Similkameen Indian Band, Westbank First Nation, and the Colville Confederated Tribes located in Washington State.

The Okanagan Nation Alliance (ONA) mandate is to work collectively to advance and assert Okanagan Nation Title and Rights over the *Syilx* Okanagan Nation Territory. The strategic priorities of the ONA are:

- Protection, preservation and enhancement of the peoples, lands and resources of the member bands of the Okanagan Nation;
- Promotion, enhancement and preservation of the Okanagan Native history, language and culture;
- Promotion and creation of a public awareness of the Okanagan Nation Alliance concerns, position and accomplishments in the areas of political, social, economic and cultural development;
- Protection, enhancement and preservation of the environment, fish and wildlife resources located within the traditional territories of the Okanagan Nation.

APPENDIX 2: SYILX OKANAGAN NATION TERRITORY



APPENDIX 3: NSYILXCEN TERMS RELATED TO WATERSHEDS

acmiscut	Truth keeper	mi is an absolute, unquestionable fact
sxʷt'xt'am	caretaker	sxʷ the person that does
siwłkʷ	water	belongs to animals we rely on siwst łqwitkw use tongue or lap kʷ means the word is about water
sisw'łkʷ	spring water	
cxaʔtxnitkʷtəl tqlqaltkn	headwaters	waters from the mountain tops
kłk'ʷsk'ʷstam	mountain swamp	
nʕaxʷʕaxʷt	valley swamp	
ntʕamkʷ	pond water	
ncəcwr'kʷ	algae water	
t'ik'ət	flood	
awsnmulx	carry water (dip water)	mulx – dip net
t'wcin	Skaha Lake lac du chien – Dog Lake	sqaxaʔ – dog
kłwsxnitkʷ	Okanagan Lake	wisxən – long
kłlil'xʷ	Spotted Lake	
qʷayqʷayatkʷ	Green Lake	
kʷusxnaqs kwsxnaqs	longest point into the lake	wisxən – long
qʷnmałqa	Kalamalka Lake	iridescent green / Mallard Duck
sw'aw'	dry up	
nsəsw'ul'aʔxʷ	dry creek	
nsw'ul'qʔxʷ	become dry	
sw'iws	Osoyoos	the hill/mountain that is exposed during low water
ilikʷlxqn	mountain sheep	
tkałəmqn	Mount Boucherie	mountain by itself qin – top of head
nyuq	creek below mountain sheep boulder (story of rock at WFN)	
akłc'ixʷc'xʷ	Brent Mountain	akł place of c'ixʷc'xʷ charcoal, embers
c'ixʷcxʷ	osprey	
mamxʷcən	swallow (bird)	
stunx	beaver	
c'r'tups	pine marten	
sʕanixʷ	muskrat	
tawnixʷpəlpalwiciyaʔ	true butterfly	unixʷ – true
captikʷł	creation story	
captikʷəl	is the story	
cəpcaptikʷəł	Stories (pl.)	
k'ic'aʔ	beaver dam	
npnitkʷ	food sticks in water (of beaver)	

mulx	cottonwood	
___ itkʷ	water	
___iɬp	bush/tree	
tmxʷulʼaʔxʷ	earth	
qʷayqʷayatkʷ	Green Lake	
nxʷulaʔxʷ	Land goes dry	
smaʔulaʔxʷ	Stories of the land	Smimay – historical stories ulaʔxʷ – refers to land

APPENDIX 4: ENOWKINWIXW PROCESS AND GUIDELINES

Once a core group of people have been engaged, the process begins by agreement of all parties to respect the following principles:

1. Each person in the circle has an opportunity to speak.
2. Please do not interrupt a person speaking.
3. Please listen to the person speaking.
4. Please do not debate, disagree with or put-down anyone's views.
5. Please stay on the topic being discussed.
6. Please be brief to allow others the opportunity to give their views.
7. Please do not repeat points already made.
8. Please do not use profane, sexist or racist language.
9. Please turn off cell phones until breaks.
10. Please try not to leave the circle until scheduled breaks.

Collective input based on the Four Quadrants perspective:

Within the first quadrant good traditions in terms of past land-use is to be considered. How can quality of life be measured in relation to *syilx* traditional uses and the role of Traditional Ecological Knowledge and healthy use of the land within our principles as caretakers? What are the traditional values, principles and practices that need to be maintained through the way lands are utilized at all four levels of individual, family, community, and *tmix*^{w} practice?

Within the second quadrant, any innovations or new things in terms of land-use are to be considered, so those yet to be have a healthy and sustainable environment. This quadrant considers the responsibility to those future generations of *syilx* and *tmix*^{w}. While the modern ways of doing things are not of themselves negative, it is how they are implemented, and balanced within *syilx* principles and methods that need to be considered, and maintained. Through mainstream Canadian society's perspective, the established standards of living in prosperity and development can be looked at within the *syilx* relationship with *tmix*^{w} so that human existence is in balance with this living place in harmony within the larger ecological system.

Within the third quadrant, any current land-uses and practices by individuals, families, the whole community and by different species which have different impacts is considered. An examination of those practices that can/should be continued or changed depending on how their effects can be understood in relation to impacts on all levels is considered. What are the practices and or actions which will need to be considered to maintain/protect or which new practices should be implemented in land/water-use (what and why)? What are the foundational *syilx* principles that need to be put into practice and how shall that be accomplished at each level?

The fourth quadrant examines the inter-dependent aspects of people with the land, in terms of land/water-use related to identities, as specific family groups and as *syilx* individuals. This quadrant identifies the needs of *syilx*, in terms of how people intersect willingly with *syilx* principles as caretakers and considers the evolution of land and resource use in everyday terms. What collective and collaborative ways need to be sustained as land-use which keeps members strong and unified as *syilx*, as members, and as Extended Family Units.

APPENDIX 5: *SYILX* KNOWLEDGE WATER QUESTIONS FOR COMMUNITY ENGAGEMENT

These questions can be conducted in interviews and as facilitated workshop discussion points.

Questions about process for collaboration, governance, stewardship	Questions about watershed uses, concerns, priorities, observations
• How do your people value and think of water? • Has the meaning of water changed today? If so, how? • Could you talk a little about ceremonies and water? • In your community/family, what are the norms, values, customs *to make decisions about* how to use and treat water and the watershed? • In your community/family, what are the norms, values, customs *to take care of* (manage/steward) water and the watershed? • Do you want to be involved in water-related issues and activities, such as planning and management activities? If yes, how do you like to be involved in water-related issues and activities? (e.g., community events, being out on the land, being part of a working committee). • What would be the best way for watershed stakeholders and governments to learn about *Syilx* culture, and *Syilx* water knowledge, concerns, priorities? • What would you want watershed bodies and governments to learn about *Syilx* people and our relationship to water? • What does it look like to collaborate in decision-making with watershed stakeholders and decision-makers: What does a respectful working relationship look like? • How and when should traditional knowledge be shared, or protected? • What does water teach us/ what lessons do we learn from water? • What are the lessons we can learn from beaver for water?	• What are your top concerns regarding water in and around your community/home watershed? • Are there any areas around [your community/watershed] where water resources (i.e., lakes, rivers and streams) should be protected? If yes, please where is this water body located, and why is it important to you? • Do you feel there is a top priority for taking care of water in [community/sub-watershed/territory/region]? • What actions are needed to improve your access and use of healthy waters, and your home watershed? • How are waters and ecosystems changing? • What are your top 3 primary water uses? (e.g., water for agricultural purposes, recreational, cultural, drinking). • How would you rate the quality of lakes, rivers, and streams located in and around your [community/home watershed]? • Do you have access to water in your community for use inside your home (i.e., drinking, household cleaning, clothes washing, bathing)? • Do you have access to water in your community (i.e., rivers, streams, lakes) for use outside your home (e.g., ceremonial, fishing, boating)? • Are you aware of anything that is affecting the water quality in and around [community/home watershed] (e.g., pesticides, heavy metals, bacteria)? If yes, please indicate where and what you think the problem might be.

ENDNOTES

[1] Syilx Nation *Siwłkw* Declaration (2014). Syilx Nation.
[2] Definitions of water governance vary: Lautze et al. (2011) discuss water governance as it relates to integrated water resource management; Brandes et al. (2014) provide a definition and a blueprint for water governance in B.C.; Krievens et al. (2015) discuss governance as it relates to resilience.
[3] McGregor, D. (2006).
[4] Chiefs of Ontario (2010).
[5] Houde, N. (2007).
[6] Armstrong, Jeannette. 2007. Minister of Forests v. Chief Dan Wilson: Affidavit of Jeannette Armstrong, April 25, 2007.
[7] Armstrong, Jeannette. 2007. Minister of Forests v. Chief Dan Wilson: Affidavit of Jeannette Armstrong, April 25, 2007.
[8] Armstrong, Jeannette. 2007. Minister of Forests v. Chief Dan Wilson: Affidavit of Jeannette Armstrong, April 25, 2007.
[9] E.g., Government of the Northwest Territories (2011); United Nations Inter-Agency Support Group on Indigenous Peoples' issues, (2014); Walker et al. (2013); Hufana, L. (2014)
[10] Houde, N. (2007); Nadasy, P. (2003).
[11] Assembly of First Nations (n.d.)
[12] E.g., IISD (2001); Polfus, J.L. et al. (2014).
[13] INAC (2009); Noble, B. and Birk, J. (2011).
[14] Nadasy, P. (2003); McGregor, D.(2006); Simms, R. et al. (2016)
[15] McGregor, D. (2006).
[16] Von der Porten, S., et al. (2013); Brandes, O.M. et al. (2014); Brandes, O.M., et al. (2015); Phare Law Corporation and North Raven (2016); Simms, R. et al. (2016);
[17] Wilson, P. (2013); Brandes, O.M., et al. (2014); Fraser Basin Council (2015); FNFC-CIER (2016).
[18] The First Nations Fisheries Council partnered with the Centre for Indigenous Environmental Resources to conduct a systematic review of Indigenous-led watershed initiatives and co-governance arrangements in B.C. (2016).The report will become available online: http://www.yourcier.org/blog/indigenous-watershed-initiatives-and-co-governance-arrangements-a-british-columbia-systematic-review
[19] Howitt et al. (2013); Simms, R. et al. (2016).
[20] Simms, R., et al (2016).
[21] Spencer et al. (2016); Brandes, O.M., and Morris, T. (2016)
[22] West Coast Environmental Law (2016).
[23] Brandes, O.M., et al. (2015); Fraser Basin Council, (2015); CIER & FNFC (2016)
[24] AFN (n.d.); Chiefs of Ontario (2007); Government of NWT (2010); CIER (2011, a).
[25] CIER (2011, a).
[26] Assembly of First Nations. (n.d.)
[27] E.g., CBWM was included in the 2003 federal First Nations Water Management Strategy, which increased First Nations' access to community water monitoring training/tools to 596 communities (INAC, 2007). Despite the achievement of the program in building capacity for monitoring, the sampling activities have not necessarily led to improvements in actual water quality in most communities (Reed et al. 2013). First Nations' communities are also leading Biomonitoring initiatives (e.g., Wuttke et al. for the AFN, 2013); and their own water monitoring programs, e.g., see the case studies in Our Living Waters (2016), or the Guardian Watchmen Network.
[28] CIER (2011, b).
[29] Our Living Waters (2016).
[30] Conrad, C., and Hilchey, K.G., (2011); Living Lakes Canada (2016); Our Living Waters (2016).
[31] Veale, B. (2010).
[32] Overduin, N. (2017, forthcoming).
[33] Barbara Veale's study includes a comprehensive analysis of the effectiveness criteria for watershed report. This list is a summary adapted from her research.

[34] For example, a watershed planning document from New Brunswick's Bras d'ors 'Spirit of the Lakes Speaks' Plan document translates the executive summaries in four language of the peoples of the region (Mik'maq, Acadian, Gaelic, English).
[35] Simms, R. et al. (2016).
[36] Clogg, J. et al. (2016).
[37] Clogg, J. et al. (2016).
[38] First Nations Fisheries Council. (2015).
[39] Clogg et al. (2016).
[40] Stó:lō Nation (2003). Stó:lō Heritage Policy Manual.
[41] Yinka Dene (2016). Uza'hné Surface Water Management Policy. Available online: http://www.carriersekani.ca/images/docs/Yinka%20Dene%20%27Uzah%27ne%20Surface%20Water%20Management%20Policy%20(March%2018%202016)%20(00303183xC6E53).pdf
[42] CIER (2011, b, c).
[43] CIER (2011, b, c).