

Siwtk^w (WATER) FOR ALL— OUR RESPONSIBILITY

**ENVIRONMENTAL FLOW NEEDS CONFERENCE 2018:
SCIENCE, POLICY & PRACTICE**

PROCEEDINGS & OUTCOMES

October 17-18, 2018 | Syilx Okanagan Nation Territory, Kelowna, B.C.

CONFERENCE HOSTS:



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ABBREVIATIONS

CWRA Canadian Water Resources Association
EFN Environmental Flow Need
FLNR Ministry of Forests, Lands,
Natural Resource Operations
and Rural Development
FWMT Fish Water Management Tool

OBWB Okanagan Basin Water Board
ONA Okanagan Nation Alliance
UNDRIP United Nations Declaration on
the Rights of Indigenous Peoples
WWF World Wildlife Fund
WSA Water Sustainability Act

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Message from the Conference Co-Chairs



Nelson Jatel,
Okanagan Basin
Water Board



Brian Guy,
Canadian Water
Resources Association

The **Siw[™] (Water) For All – Our Responsibility** conference was hosted by the Okanagan Basin Water Board and the Canadian Water Resources Association. We would like to thank these organizations and the many others that contributed to the success of the conference through participation on the Organizing Committee and as sponsors. Speakers, facilitators, and delegates all made important contributions as well. The conference program, which lists contributors, speakers and facilitators, is available at www.obwb.ca/efnconference. The conference agenda is attached to this document as **Appendix 1**.

The conference took place on the unceded and traditional territory of the Syilx people¹, the Indigenous peoples of the Okanagan. The Okanagan Nation Alliance and many Syilx individuals made significant contributions to the success of the conference.

The conference attracted about 250 delegates from a wide range of local, national, and international organizations engaged in water research and management; and succeeded in sharing knowledge and in inspiring action to overcome barriers and build stronger relationships among individuals and organizations. We hope that the conference will lead to improved collaboration and better information, science, policy, and practice related to the environmental flow needs of aquatic ecosystems. We are pleased to deliver on a key commitment made by the conference Organizing Committee by presenting this document that summarizes the conference and provides recommendations for further action.

Nelson Jatel

A handwritten signature in black ink, appearing to be 'N. Jatel'.

Brian Guy

A handwritten signature in blue ink, appearing to be 'Brian Guy'.

¹ Seven communities comprise the Syilx nation: Okanagan Indian Band, Westbank First Nation, Penticton Indian Band, Upper Nicola Indian Band, Osoyoos Indian Band, Upper Similkameen Indian Band, and Lower Similkameen Indian Band; and the nation also includes the Colville Confederated Tribes in Washington state. The territory of the Syilx nation covers approximately 69,000 square kilometres. The northern extent of the territory is near Mica Creek, north of modern day Revelstoke, B.C., and the eastern boundary is between Kaslo and Kootenay Lake. The southern boundary extends to the vicinity of Wilbur, Washington and the western border extends into the Nicola Valley.

1 Introduction and Purpose

This document describes the organization, content and outcomes of a water-focussed conference held on October 17 and 18, 2018 in Kelowna, B.C. The title of the conference was **“Siwłk” (Water) For All – Our Responsibility.** The title includes an nsyilxcen word for “water” (nsyilxcen is the language of the Syilx people of the Okanagan), reflecting and respecting that Syilx people made a substantial contribution to the conference, the fact that significant work reported on at the conference was done within Syilx territory, and that the conference itself was held on Syilx territory.

Chapter 1 describes the rationale, purpose, objectives, and the format adopted for the conference; and explains the inspiration for the format.

Chapter 2 provides a summary of the presentations, discussions, and other activities that took place at the conference.

Chapter 3 provides some concluding reflections from the two co-chairs, identifies some common themes that emerged from the individual conference sessions, and lists some recommendations.

CONFERENCE RATIONALE

Aquatic ecosystems face many threats, including climate change, habitat destruction, and water extractions for human needs (such as agriculture, industry, and municipal water use). An Environmental Flow Need (EFN) is the volume and timing of streamflow required for proper functioning of an aquatic ecosystem. In locations where significant demand or competition for water exists, such as the Okanagan region of B.C., water users, scientists, policy-makers, planners, and regulators understand the importance of focussing on EFNs. Various approaches for determining EFNs have been developed in North America and around the world, but to date no single approach has provided a universal solution to managing this complex issue, as local climate and geography can affect which method is most appropriate for a given region.

In 2016, the Water Sustainability Act (WSA) took effect in B.C. The WSA increased protection for aquatic ecosystems and created a need to determine EFNs for waterbodies potentially affected by surface or groundwater extractions. This requirement creates opportunities and challenges for water managers, and a need for better EFN science and collaborative dialogue among all water users to reconcile potentially competing interests.

In 2015, anticipating the new WSA, recognizing that the EFN knowledge base was limited in the Okanagan, and observing that factors such as climate change, population growth, and land use change were exerting increasing pressure on Okanagan water, the Okanagan Basin Water Board (OBWB), the Okanagan Nation Alliance (ONA), along with the provincial and federal governments initiated a project to determine the EFNs of Okanagan streams. The objective of the project is to derive credible, defensible recommendations on the streamflows needed to maintain healthy Okanagan freshwater ecosystems.

Phase 1 of the project (completed in 2016) evaluated many potential approaches to determining EFNs, and two were identified as a best fit for the Okanagan: a desktop approach for rapid evaluation of EFNs, and a field-based approach for more site-specific or comprehensive evaluations. With the support of several other organizations, the ONA took the scientific lead in applying those methods to Okanagan streams. This expression of leadership continued a long history of leadership by the ONA and the Syilx people in protecting and restoring aquatic environments in the Okanagan.

The intent of the conference was to showcase this Okanagan EFN work as the cornerstone of a conference on EFNs that embraced a broader geographic scope, and considered EFN policy, practice, and governance as well as the science of EFNs.

CONFERENCE PURPOSE AND OBJECTIVES

The conference brought together researchers, fisheries and water managers, policy-makers, planners, regulators, Indigenous community members, students, and other individuals from a range of organizations, and representing a wide diversity of cultural, professional, and geographic backgrounds to discuss the state of knowledge of EFN-setting in B.C. and elsewhere, to showcase recent EFN work in the Okanagan and elsewhere, to address challenges in implementing the WSA, and to develop recommendations to improve the process of EFN-setting, policy-making, and regulation.

In addition, the conference connected Indigenous and other experts in open dialogue in a way that recognized and respected the complex scientific, social, cultural, environmental, governance, and economic interests that impact EFNs; with the goal of improved EFN decision-making.

Specific objectives were to:

- Highlight several aspects of the EFN issue: information needs, scientific approaches to determining EFNs, pressures on aquatic ecosystems, aquatic ecosystem management approaches, communication and social engagement, and policy and governance approaches to EFN management;
- Share relevant examples from the Okanagan, other areas of Canada, and around the world;
- Create opportunities for expressing differing viewpoints by inviting speakers from a wide range of backgrounds;
- Challenge participants to be aware of and think about their perspectives;
- Expose participants to Syilx perspectives, expertise and processes;
- Establish and strengthen connections between individuals and between organizations;
- Inspire and motivate action towards protection and restoration of freshwater ecosystems; and
- Generate recommendations for governments for improved EFN practices and policies.



CONFERENCE FORMAT: OVERVIEW AND INSPIRATION

The conference organizers created a balance between experts delivering presentations and devoting time for delegates to discuss issues raised by presenters to promote the sharing of diverse perspectives. To these ends, the organizers adopted a format informed by a traditional Syilx (Okanagan) decision-making framework.

Speakers were selected by the organizers to represent a diversity of topics, experience, and opinion. They were organized thematically into small panels, and each panelist spoke for only 6 or 7 minutes. These presentations were followed by guided small group discussions and selected reporting out to the larger group. Finally, each panelist provided a summary comment.

The format was inspired by the Syilx governance framework, ***Enowkinwixw***, which encourages individuals to consider issues from each of four perspectives:

- Tradition/Conventions (associated with Black Bear [***Skemxist***], Chief of all creatures on the land);
- Innovation/Vision (associated with Saskatoon Berry [***Siya***], Chief of all things growing on the land);
- Relationships/Connections (associated with Bitterroot [***Spitlem***], Chief of all things under the ground); and
- Action/Goal-Orientated (associated with King Salmon [***Ntyxtix***], Chief of all creatures living in water).



This Syilx governance framework was selected to provide a useful vehicle for achieving the conference objectives.

To gain familiarity with these differing perspectives, during each session conference delegates were encouraged to associate their thoughts and recommendations with one or more of these Four Food Chief perspectives.

Facilitator **Aaron Derickson** explained that ***Enowkinwixw*** is an ancient tradition that is resident in the oral literature of the Syilx people, specifically in the story of “How Food Was Given.” In the story, upon learning that humans were soon to arrive, the Four Food Chiefs of all creation (Black Bear, Saskatoon Berry, Bitterroot, and King Salmon) deliberated on the conundrum of how to equip these people-to-be to survive. The deliberation ultimately ended with Chief Black Bear laying down his life. The principles and themes represented in each Food Chief, the process of arriving at a conclusion, and the way in which the other Food Chiefs addressed Chief Black Bear’s gift of life, are all elements of ***Enowkinwixw***. The transliteration of the Syilx word ***Enowkinwixw*** refers to the reciprocal gentle dropping of thoughts, like water, into everyone’s minds to address the issue at the centre of discussion. The EFN conference applied aspects of the traditional format to: (1) support, enable, and engage participants in the complex EFN dialogue, (2) expose conference delegates to an ancient, effective, and well-proven Syilx ceremony, and (3) position the central issue of the conference in a praxis that reflected and respected everyone’s voice.

2 Proceedings

This chapter provides a summary of the presentations and discussions that took place during the conference. Most of the presentations are available at www.obwb.ca/efnconference. Longer background presentations from each panelist (that provide additional depth and complexity to the topics) are also available on the website.

CONFERENCE OVERVIEW

The conference was chaired by **Nelson Jatel** of the OBWB and **Brian Guy** of the Canadian Water Resources Association (CWRA). A team of three experienced facilitators—**Kelly Terbasket** (a member of the Lower Similkameen Indian Band), **Aaron Derickson** (a member of Westbank First Nation), and **Kathy Porter** (Chair of the Collaborative Global Initiative)—managed the conference.

The conference was organized into six sessions, each with a specific theme:

- Session 1: Focus on Local
- Session 2: Current EFN Stressors
- Session 3: Natural Resources and Ecosystems
- Session 4: Interaction and Complexity
- Session 5: Human Dimensions
- Session 6: Policy and Governance

Each session began with a set of four or five short (6-7 minutes) presentations by expert panelists on topics relevant to the session theme. Delegates at each table then spent 15 minutes discussing the topics, guided by specific questions posed by the facilitation team. The discussion questions were designed to encourage delegates to become aware not only of the knowledge and insights gained, but also of how they think about the issues. Through listening to experts and through dialogue, the goal was to identify new ways to consider information, science, policy, and practice related to aquatic ecosystems. The facilitators encouraged the expression of differing perspectives, and the dynamic tension that emerged from open discussion. The hope was that this managed process would help foster a collective understanding, and shape a more cohesive, shared approach to EFN management. Facilitators frequently encouraged participants to record **p?ax** moments that had occurred to them during the discussions. The nsyilxcen word **p?ax** means to spark so as to cause to light, as in striking a match, and refers to a flash of insight or “ah-ha” moment, and to become mind-aware.

Each table of conference delegates appointed a note-taker to capture their discussion. Tables reported their key discussion points to the entire group while other conference-appointed recorders documented the main points reported by the tables. Finally, to conclude each session, the panelists reconvened, and each provided a summary comment on the session, guided by specific questions provided in advance of the conference.

In addition, four blank posters were mounted on a wall inside the conference room—one associated with each of the Four Food Chiefs—and delegates were encouraged to record their individual thoughts on sticky notes provided at each table, and to affix them to the most appropriate of the Four Food Chief posters.

Delegates thereby gained familiarity with the diversity of perspectives offered by the Four Food Chiefs, but in keeping with the oral traditions of the Syilx people, no permanent record of these thoughts was kept.

The first and last sessions (Sessions 1 and 6) were held with all delegates together in the main conference room. To limit the number of participants in each session, the main conference room was divided into two smaller rooms for Sessions 2 and 3. These two sessions were operated concurrently twice, once in each of the smaller rooms. In this manner, all delegates experienced both sessions in a smaller group. The same process was followed for Sessions 4 and 5.

In addition to the six sessions, a media panel was presented on October 17. Three experienced journalists described some of the principles that drive the media business and provided advice on connecting with the public about environmental topics, such as EFNs, through the media.

The conference featured several posters and exhibitors from academic, professional, and local organizations. A list of poster presentations is attached to this document as **Appendix 2**. Abstracts of all posters are available at www.obwb.ca/efnconference/resources/. Awards were given to the following academic and industry posters:



AUTHOR	TITLE
David Reid	Channel morphology, variability of aquatic habitat, and implications for flow allocations in coastal streams
Stefan Gronsdahl	Effects of forestry on late summer low flows and fish habitat in headwater catchments of the Pacific Northwest
Krysta Giles-Hansen	The effects of forest disturbance and climate change on hydrology in the Deadman River watershed: implications for environmental flow needs
Richard McCleary and Kim DeRose	Achieving late summer flow targets during drought in the Nicola River watershed through a combination of reservoir releases and curtailment of surface water and groundwater withdrawals
Andrew Harwood and Susan Johnson	Listen to the river: Lessons from a global review of environmental flow success stories

The conference included a presentation by **Stewart Phillip, Grand Chief of the Okanagan Nation and President of the Union of B.C. Indian Chiefs**, a banquet presentation by **Robert Sandford of the United Nations University Institute for Water, Environment, and Health**, and group activities managed by the facilitation team. At the conclusion of the conference, Robert provided a summary of the conference, including the key points made by speakers and delegates.

PRE-CONFERENCE RECEPTION

Conference volunteers, facilitators, sponsors, and presenters were invited to a pre-conference reception on October 16. This gathering provided an opportunity to introduce and discuss the unique nature of the conference, including the Four Food Chiefs story that inspired the conference format. During the reception, **Krystal Lezard**, a member of Westbank First Nation, officially welcomed everyone to the Syilx territory with a song and challenged participants to bravely address water issues.



OPENING CEREMONY

Conference co-chair **Nelson Jatel** called the conference to order and acknowledged that the conference was being held on unceded Syilx Territory. A moving opening song performed by **Amber Kruger Cardenas** and welcome speeches followed.

Conference co-chair **Brian Guy** introduced **Kelly Terbasket** who asked attendees to participate in a group exercise. She demonstrated with movements and sounds that we could be like water and be moved together.

Grand Chief Stewart Phillip then explained how he earned his Indigenous name (*ʔaʔsiwł*), which translates to “loon” and explained its associations. The Grand Chief explained the historic importance of inter-dependence and offered that this is a good time in history to re-invigorate that inter-dependence in the face of real and very serious common threats like climate change. He urged the attendees not to sit on their gifts at this conference. “Water is a vehicle for re-establishing a common vision and closing the gap between our communities. It is time we turned the page on a bad period in our history together. We are in the midst of an emergency, and we must now work together. People of the Earth are coming together because of the challenges we are facing. When there’s a crisis, we come together.”

The Mayor of the City of Kelowna, **Colin Basran**, underscored the importance of water to Kelowna and to the surrounding region, with a special focus on the effects of climate change and urbanization. He stated that the City’s role is to work as an advocate to other levels of government for local needs, and to be a well-informed partner to those working to develop strategies and plans for water management over the long term. As changes in climate continue, the need to conserve water will increase. The City plans to create a robust water system that will provide more options to share water sources, protect infrastructure, and conserve supply when water levels are low. “Working together is essential to properly manage our water resource so that the environment and agriculture and domestic water supplies are protected and sustainable. But this all depends on what happens in our watershed... and that’s why this conference is important. Bringing together representatives of First Nations, academia, fisheries and policy makers is the best way to share research and identify priorities for the years ahead. The more work we do now, the better prepared we will be in the future for climate and urbanization challenges.”



Brian Guy then explained the global threats to freshwater systems brought about by climate change and population growth. Drought, fire, and floods are getting worse. Over the 18-year period from January 1, 2000 to December 31, 2017, the world has seen 17 of the hottest 18 years on record. This conference is intended to lead to better knowledge, practices, and policy. He then outlined the unique structure of the conference. He introduced the three facilitators, who then invited us to think like water.

Aaron Derickson introduced us to the oral traditions of the Sylx people related to the story of the Four Food Chiefs. The value of this story, he noted, resides in how it informs decision-making processes and governance practices in Sylx culture. Aaron and Kelly demonstrated how our collective thoughts and observations at this conference could be captured under the representative categories established by the Four Food Chiefs.

In a demonstration of using both traditional and the most contemporary means of coming to terms with common water challenges, Aaron then offered instructions for tweeting out messages about the proceedings of this conference as they occurred.

Kelly Terbasket told her story about growing up in a world of injustice with respect to water rights. Her story underscored the importance of reconciling the wrongs of the past and how this conference could be a means of healing, not just of aquatic systems, but also of relationships. She then led an introductory activity in which delegates were invited to introduce themselves and speak briefly with someone who they did not know.

The ONA distributed gifts of smoked and canned salmon to all participants.

SESSION ONE: FOCUS ON LOCAL

This session introduced the concept of managing for change, given the realities of increased weather variability and demand for water, exploring a range of locally and globally relevant perspectives. Local Indigenous and non-Indigenous leaders are committed to advancing the use of effective tools that span the spectrum of local and traditional knowledge, science, law, institutional capacity, and public involvement to protect, maintain, and restore shared waters.

Panel Presentations

EFN IN THE OKANAGAN CONTEXT

BRIAN GUY

National Practice Leader, Environmental Science, Senior Geoscientist, Associated Environmental Consultants Inc. (retired)

Brian Guy described the project that was the original inspiration for the conference: the Okanagan EFN project, in which EFNs of 19 Okanagan streams are being determined. The project has included development and application of two customized Okanagan EFN-setting methods – a desktop method and a field-intensive method. A key element of the project is its collaborative nature, with many organizations contributing, and with the ONA providing strong scientific leadership. The outcomes will provide important information for water allocation decision-making and management during times of drought.

“Determining EFN flow regimes is an inclusive and collaborative process.”

Brian Guy

TAKING RESPONSIBILITY FOR SIWŁK^w (WATER)

TESSA TERBASKET

Project Coordinator and Researcher, ONA

Tessa Terbasket told a story about taking responsibility for water. The story was a reminder of a time when all could drink directly and freely from Okanagan Lake and when fish were plentiful. First Nation foods have sustained Indigenous peoples for thousands of years, but the ecosystems that provide food are now significantly disturbed. Wetlands have been filled in and water quality has become degraded over a span of only a few decades. Some key fish species are now considered legally “at risk.” Tessa drew our attention to the Syilx Water Declaration ([Appendix 3](#)) that outlines inherent rights and responsibilities of the Syilx Nation related to water. That powerful declaration is in fact a water ethic in that it describes the natural laws and water knowledge that should define our relationship with water. Tessa urged all to stand by that declaration in our common interest and love of where we live.

“We have lost our connection to the water we drink. Syilx people think about water as a lifeform and a family member.”

Tessa Terbasket

RANCHING AND EFNS

LEE HESKETH

Farmland Riparian Interface Stewardship Program

Lee Hesketh offered a ranching perspective on the importance of environmental flows. Lee made the point that ranchers have a long history in the Okanagan and have a strong connection to the land. He stated that most ranchers understand that a water licence provides access to water if it's available, but is not a right. He reminded us that the business of growing food implies a need for water, but that ranchers have an obligation to use water efficiently. Quoting Waylon Jennings and referring to ranchers and Indigenous peoples: "We are not wrong, we are just different." Lee concluded that it's possible to balance economic and environmental sustainability. He pointed to several examples of sustainable ranching practices, such as methods of keeping cattle away from watercourses and modern forms of nutrient management, in use at his ranch.

MERRITT EFN WORK AND NICOLA PILOT PROJECT

RICHARD MCCLEARY AND PATRICK FARMER

Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR)

Richard McCleary and Patrick Farmer talked about challenges associated with meeting EFNs and how these challenges are being met in the Nicola pilot project (a government to government partnership that recognizes Aboriginal rights and title). It is important, they said, to look, listen and to talk to First Nations and to one another; and that collaboration among First Nations, the Province, and agricultural water users is a good approach to maintaining agricultural production while keeping more water in the streams. They discussed the value of experience-based learning, communication, and collaboration.

IMPACTS AND PRESSURES WITHIN THE WATERSHED

ROD MACLEAN

Utility Planning Manager of the City of Kelowna

Rod MacLean outlined why Lake Okanagan is so precious and how it shapes local lives and identity. He stated that the challenge in any community is to always balance needs. With all the negative impacts, there are opportunities to meet these challenges that include traditional and local wisdom to protect EFNs. It is not just hard engineering that matters now but working with nature. He explained that the new Kelowna Integrated Water Plan is seeking to achieve improved resilience and better water quality for all its residents. The City's approach to Area Based Management identifies the value of upstream storage in protecting EFNs, providing flood protection and assuring supply and the need for proactive and improved policies informed by shared values and knowledge, to better protect and manage water.

"Good decision-making is proactive, based on scientific and traditional knowledge, and reflects on shared values."

Rod MacLean

Table Dialogue

Delegates were asked to consider the question: *What flash of insight, 'p?ax', or 'ah ha' moment occurred to you that could build enduring collaborative partnerships?*

Key comments reported by delegates:

- Stop building in vulnerable places. We have to move infrastructure out of such places and places that will be vulnerable in the future.
- We operate in our own bubbles. We can't go on as we have in the past, isolated from one another. Circumstances are such that we have no choice but to collaborate and cooperate. To adapt we have to be willing to be thrown into a room with others with whom we don't normally collaborate in an ongoing way.
- We need to be proactive – we need get ahead of the emergency.
- Long-term perspectives are important.
- Make sure all players are at the table.
- Find ways to reconcile First Nations traditional knowledge with science.
- If we don't start somewhere we may never go anywhere – learn as you go and adaptively manage.
- Involve First Nations people in managing data.
- Appreciate the range of high-quality knowledge that comes from collaboration and different types of knowledge gathering.
- Bring water into relationship like a family member.

Panel Summaries

Each panelist presented a short response to the question: *What insights have you personally gained from working collaboratively?*

Richard McCleary: We are trying to shift from a reactive approach into a more proactive approach to drought as we learn year-to-year, doing hard work after the drought. In an emergency, we make a lot of progress, but that's only the start.

Patrick Farmer: It's difficult to manage something over a long-term when your snapshot is so short. Most people don't live in one place that long.

Tessa Terbasket: Despite our differences, there are synergies where we can come together and collaborate.

Brian Guy: We are more similar than different, which provides hope for the future. Collaboration takes longer but the results are better.

Lee Hesketh: It's about stewardship of the land. When we purchase properties, we think we have rights, but we have responsibilities, not rights.

Rod MacLean: Other communities have similar challenges to the City of Kelowna concerning water. The real issue for the City is developing good policy and acting promptly and responsibly. Our leaders need to talk to each other and provide wise direction.

SESSION TWO: CURRENT EFN STRESSORS

This session provided an overview of climate, land use, and population stressors that have led to a need to determine environmental flows in the Okanagan Basin; and described the key stages of the Okanagan EFN project—a region-specific and collaborative approach to EFN-setting. Examples of the application of EFNs under the WSA were also presented in this session.

Panel Presentations

COLLECTING AND MANAGING EFN DATA

NATASHA NEUMANN

Research Hydrologist, FLNR

Natasha Neumann talked about planning for EFN data collection in the Okanagan. EFNs are protected under the WSA and are used to inform water licensing decisions and to limit access to water during droughts, and so may be challenged in the courts. Therefore, the data used to define EFN levels need to be robust and defensible. Obtaining high quality hydrometric and biological data requires planning and persistence, and benefits from a team-based approach. Having a team member who is an expert in hydrometric data is one thing, but the data and therefore the EFN levels are stronger when there is collaboration among fisheries biologists, IT support, policy makers, hydrologists, and others. In addition, field data collection and management practices need to be thoughtfully designed, transparent and based on best practices in order to build trust between partner organizations as well as with the public. Aquatic habitat conservation and protection measures must be informed by high quality data.

“Make a (data) plan and then make it happen.”

Natasha Neumann



STREAMFLOW NATURALIZATION TO SUPPORT THE IDENTIFICATION OF ENVIRONMENTAL FLOW NEEDS IN OKANAGAN STREAMS

DREW LEJBAK

Hydrologist, Associated Environmental Consultants Inc.

Drew Lejbak showed why streamflow datasets are critical for EFN-setting and described the complexity of untangling the human influence on streams to approximate historical flow regimes that aquatic ecosystems are adapted to. There are many assumptions and estimations that go into hydrographs to support EFN-setting, including assumptions about water use. We need to capture natural variability in these streamflow datasets, even though there is not a lot of long-term data available. There are many methods and techniques for developing estimates of naturalized flows. Collaborative and transparent development of methods is needed so that practitioners from various organizations develop streamflow datasets consistently, and the results can be widely accepted. A consistent approach will increase confidence in EFNs. The goal is to have a consistent streamflow setting approach across the Okanagan Basin.

OKANAGAN APPROACH: TENNANT AND WEIGHTED USABLE WIDTH

KARILYN ALEX

Fisheries Biologist, ONA

Karilyn Alex described the “Okanagan Tennant” method and the “Okanagan Weighted Usable Width” approaches developed in 2016 in the Okanagan to establish EFNs. She then described where the ONA is in the process of establishing EFNs for Okanagan streams, using salmonids as key indicator species. Each stream has customized EFN values established using one or both methods. The goal is to determine EFNs on a weekly basis and to calculate how much water can be used for other purposes at different times of the year.

APPLICATION OF EFN IN DECISION-MAKING IN B.C.

MIKE EPP

Water Authorizations Specialist, FLNR

Mike Epp explained how EFNs are considered in licensing decisions. EFNs must be considered at all times, except for applications that are exempt, as outlined in the regulations. Licence requirements vary depending on the situation; and supply and demand for water is accounted for. The Ministry looks at the application, then considers all the data, and makes a decision. Provincial decision-makers must use all available information to evaluate licence applications. If surplus water is available, a licence may be granted. A licence application may be granted, rejected, or partially approved. As an option, seasonal licences can be issued and/or restrictions can be applied during low flow periods as a component of the licence. The requested rate of withdrawal can be reduced. One option to support the licence is off-stream storage to capture overflow in high flow times. Subsequently, the Ministry can audit whether the actual water use fits what is allocated for the stream.

“Licensing decisions are discretionary under new water regulations, and regulators must consider all available information before decisions are made.”

Mike Epp

DEVELOPMENT AND APPLICATION OF EFNS BY A LARGE WATER SYSTEM

KEIKO PARKER

Regional District of North Okanagan

Keiko Parker described EFNs in the context of operating a large-scale water utility. She explained that under the new WSA, the utility now manages for two peak flows: spring freshet for fisheries and summer use peaks for agricultural irrigation. Historically, the utility only managed for peak flows for the irrigation season. The goal of the new fisheries targets is to more closely mimic the natural flows—gradually increase and decrease flows around freshet—and create instream fisheries flows that balance the risks associated with drawing down the reservoir too much and with not having enough water for consumption. In 2018, the utility was able to more accurately gradually ramp up for freshet and ramp down to reach targeted fisheries flow values. However, operational constraints exist. Utilities must invest in data collection and staff training to understand targets.

Table Dialogue

Delegates were asked to consider the questions: *Is there a specific insight that could contribute to decision processes in which you are engaged? Are there new opportunities that could be acted upon?*

Key comments reported by delegates:

- Lack of information is challenging. Long-term monitoring and the projections of monitoring data forward in time are important.
- How do you create EFNs with limited data? How do you decide to cut off water users in a drought using this limited data?
- A simplified mechanism for employing volunteers and citizen science to help with monitoring would be valuable.
- Indigenous peoples are a huge resource in that they know what the stream flows were prior to contemporary circumstances.
- Have a plan and ensure that the responsible people stick to it.
- There's a gap between science and traditional knowledge. We need a mechanism in place so there isn't a disconnect. Get local perspective.
- Watershed management councils really help in creating effective decision-making and should be done broadly throughout B.C.
- Consider innovations and technologies from around the world, such as recharging aquifers during high flows to increase storage.
- Elect politicians that run on platforms focused on sustainability and water.
- Obtain more government support and funding. Many organizations are underfunded and understaffed.

- For hydrology data, watch for flow differences in data and standards and regulations for data collection.
- Science is often used to validate traditional knowledge, but maybe it should be used to bolster it.
- We need flexible water licensing that changes depending on the flow.

Panel Summaries

Each panelist presented a short response to the question: *How might the insights from others contribute to your thinking on the EFN work you are doing?*

Natasha Neumann: Seize new opportunities, trust in things to happen, and walk through doorways and engage with new partners as they arrive.

Karilyn Alex: It's hard to indigenize a process that First Nations didn't create. There needs to be reconciliation with Indigenous peoples who have rights and titles to water. Water becomes a power play; if it was in the Nation's hands it would be more respected and looked after. First Nations know what the flows were like before colonization. First Nations were not involved in development of the WSA; the Bands and Nations need to have a role in decision making.

Drew Lejbak: It's relatively easy to come up with desktop streamflow numbers but when you engage with people who really know the watershed you also really get to know the watershed. Communicating with landowners is a huge benefit to the work we are doing.

Mike Epp: The opportunities under the WSA are exciting, such as conducting beneficial use audits, licensing groundwater, considering EFNs, and developing water sustainability plans. The new legislation gives a water manager the opportunity to innovate. This is just the beginning of seeing some of the improvements we can make with the WSA.

Keiko Parker: There are a lot of other considerations to take into account when managing our utility, and we need to think more about effects downstream. We need collaboration between fisheries and the water utility. We are innovative in that no other water utility manages for fishery flows.

SESSION THREE: NATURAL RESOURCES AND ECOSYSTEMS

This session recognized the importance of environmental flows and their link to freshwater ecosystem services. Environmental flows help mitigate some of the negative impacts of climate change, and address gaps in water resources management, which is critical for maintaining healthy freshwater ecosystems. Environmental flows can serve as an important link between environmental conservation and poverty alleviation, while highlighting the values of ecosystem services – and the environmental flows that sustain them for human well-being.



Panel Presentations

HISTORY AND STATUS OF OKANAGAN FISHERIES, SALMON REINTRODUCTION, AND ECOSYSTEM VALUATION

RICHARD BUSSANICH

Biologist, ONA

Richard Bussanich began by noting that the return of the Okanagan sockeye salmon is a sign of the return of the Syilx people. There was a pivotal point in the 1990s that led to the Syilx salmon recovery and restoration program. It took a people and a community and their voice to be heard and come together. From the inception of the program in 2003-2004, the sockeye salmon population has been steadily growing, but more time is needed for the fish to resettle—we can't harvest as fast as the fish are coming back. He said that the fisheries value is important, but there is a larger ecosystem value being re-established as well.

"Salmon is a keystone species upon which culture and biodiversity depend."

Richard Bussanich

FISH WATER MANAGEMENT TOOL FOR DECISION SUPPORT

SHAUN REIMER

Section Head – Public Safety and Protection, Okanagan Shuswap District, FLNR

DAWN MACHIN

Biologist, ONA

Early 20th century flooding in the Okanagan led to channelization and dam construction, which has had a negative impact on fish. Historically, management of Okanagan mainstem lakes and Okanagan River flows had been optimized primarily for flood control and ensuring a sufficient water supply for irrigation and other uses. Shawn Reimer and Dawn Machin introduced the Fish Water Management Tool (FWMT) that adds fisheries information to the management process. Use of the FWMT has contributed to much higher returns of spawning sockeye salmon since 2008. Shaun and Dawn explained that the tool is continually being refined and improved. They said that it proves we can work together, but to do so we need to listen, keep an open mind and heart, and stay connected to our water and our land. They noted that collaboration is challenging and time consuming, but the outcomes are worth the effort.

"The FWMT is a result of the push for collaboration and creation of an inter-agency technical group."

Dawn Machin

UNDERSTANDING RIVERS THROUGH THE LENS OF ECOHYDROLOGY

MARK LORANG

Chief Science Officer, Freshwater Map

Mark Lorang outlined the principles of ecohydrology. He introduced and explained the Shifting Habitat Mosaic Hypothesis. This hypothesis is based on the idea that ecosystem health is dependent on constant change in habitats within the river channel and the floodplain. Rivers need to flood, which is hard to reconcile with human desires to control floods. Ecologists learn about connections, complexities, and feedback loops through observing ecosystems without human impact. Mark noted that we need to think of a landscape as a lifeform and learn to balance human needs with the needs of our rivers.



FISHERIES CLIMATE ADAPTATION

KIM HYATT

Research Scientist, Fisheries and Oceans Canada, Pacific Biological Station

Kim Hyatt talked about climate change, EFNs, fish and fisheries. Climate change matters because even a small amount of warming can have impacts on each stage in the life of a fish. The current rate of warming is unprecedented in the evolutionary history of fish species alive today. In addition to quantity of flow and habitat, thermal regimes will determine what can live in our rivers now and in the future. Kim noted that a mere 1.5°C temperature increase in June and July of 2015 resulted in 97% fish mortality in the Columbia River system. At the end of the current century, water temperatures will routinely be 1.5°C warmer than today. We need to adapt to climate variation and change now, for ourselves, and we also need to manage water temperatures to support the species that support us. If we engage in interdisciplinary collaboration and intercultural dialogue, we can address solutions and find ways to both mitigate and adapt to climate change.

"If you don't articulate the problem, you can't search for a solution. Leadership comes from the bottom. You are the bottom. You have to lead. When people lead, politicians follow."

Kim Hyatt

B.C. AGRICULTURE AND EFNS

ANDREW PETERSEN

Water Management Specialist, B.C. Ministry of Agriculture

Andrew Petersen talked about irrigation needs for agriculture in the southern interior of B.C. He began by explaining the concept of enriching soil moisture. We've learned that water storage in soil depends on soil texture, soil type, and root depth. Andrew illustrated recent improvements in irrigation application efficiency, which has improved over time, from flood irrigation (about 50% efficient) to sprinklers (about 70% efficient) and more recently, drip irrigation (about 90% efficient). Farmers are being educated on how to use water more efficiently, since using too much water is not necessarily good for crops and is wasteful. Further improvement in efficiency will help, but it will be important to work together to avoid conflict among economic sectors over water use.

Table Dialogue

Delegates were asked to consider the question: *Is there a specific insight or any upcoming opportunities that could contribute to water use and water management?*

Key comments reported by delegates:

- We need to appreciate the complexity of these matters.
- We don't think of water temperature in urban runoff and stormwater management.
- We need to think about groundwater connections in the context of water temperature.
- We have to think about making crops more diverse and appropriate to climate and supporting small producers.
- Education on water conservation is more critical than ever. We need to change our mindset about having an abundant water source. We need to keep up with improving knowledge and rapidly changing circumstances.
- We need more than a mechanistic view of our waters.
- Humanity is re-engineering the surface of the planet. We need to do that by design not by default.
- We need to think of a river as a lifeform; and think of a floodplain similarly.
- We need to focus funding on all of these matters.
- Current policy doesn't represent the dynamic nature of streams.
- Should we use pricing to discourage high consumption of water?
- We need to change from reaction mode to preventative mode.
- Explore other methods, such as using more grey water in houses like in the United Kingdom.

Panel Summaries

Each panelist presented a short response to the question: *What key insights can you offer when integrating different perspectives on water management in a shared ecosystem?*

Richard Bussanich: The ONA has been working for almost 20 years to build data-rich systems and revitalize new ways of governance in the region. We need to develop systematic conservation planning.

Dawn Machin: We need to improve our communication between agencies and with the public. The river needs to grow and change, and so does our relationship—we need to build our relationship and to do that we need commitment from government, users, and local people. All should commit to dialogue and working together.

Shaun Reimer: We need to think more about the human component. I hope that our FWMT project has planted a seed, and many people here will think about that and find solutions to other problems.

Mark Lorang: Rivers must flood. It's what drives the shifting habitat mosaic and drives biodiversity. Our current policy is driven by not allowing floods. How do you have an ecosystem that functions without a flood? Think of the river and the floodplain as dynamic lifeforms—this calls for changing attitudes and more than a mechanistic view of ecosystems.

Kim Hyatt: You can re-engineer by design or by default. We are not smart enough to re-engineer by design, but through collaboration we can start working towards it. Humankind re engineered the Earth; we can continue by default or switch to a wise design. We need to find novel solutions, and these will be embedded in interdisciplinary and intercultural collaboration.

Andrew Petersen: We will need to expand agricultural production, which will come with more water needs. We will need 10% more water by 2050 to produce the amount of food we do now, using our current irrigation systems. We need to be as efficient as possible and not waste water. Where will the food for a larger population come from if we don't expand agriculture?

"Habitats are interconnected and characterized by complex feedback processes. If you focus on only one species, you will miss a bigger picture."

Mark Lorang

COMMUNICATING EFNS MEDIA PANEL

Corinne Jackson, Communications Director of the OBWB, opened the media panel discussion, noting the need for more dialogue between story makers and story tellers. Those working on EFNs and other water, environmental, and climate-related issues have interesting and important stories to tell but sometimes have a difficult time reaching those who can help tell these stories and get them out to the public. She reminded attendees that this work does affect the public.

The panel shared practical tips on how to make our work meaningful to the public and reach journalists to help get the word out.



Panel Presentations

TERESA MARSHALL

Journalist, co-founder of Columbia River Watershed Storytelling Project

Teresa Marshall laid out questions we need to consider in telling our stories. We need to motivate action and find innovative ways to tell stories.

JOHN MCDONALD

Journalist, iNFOnews.ca

John McDonald talked about his experience in reporting on water issues. He said that overcoming indifference is a challenge. He urged us to avoid jargon in our discussions with media. He advised using simple, consistent language. John also noted, however, that people have a fundamental fascination for water – to reach them, all you have to do is remind them of that fascination.

BARRY GERDING

Senior Regional Reporter, Black Press

Barry Gerding advised that we should not wait for the media to call us. We should call them. He pointed out that there are dozens of stories that could come out of this conference. Barry suggested the importance of bringing a human element to the water issue, to relate stories that address issues from the viewpoint of those affected or pushing for change on behalf of themselves or organizations they represent. Those values and emotions, expressed at a grassroots level, create a relevancy to people in the community we are trying to reach, and will create a better connection and lead the public to take a greater interest.



DAY ONE CLOSING REMARKS

Final Plenary

In the final plenary, **Aaron Derickson** again named the Four Food Chiefs and described positive tensions among their perspectives. He noted that acknowledging these diverse perspectives can lead to better decisions.

Grand Chief Stewart Phillip explained that everything we have been talking about is about future generations, and that it is essential that this dialogue continues. He noted that we have to shift from agreements to outcomes. We have an obligation to each other, to our land, and to future generations. He observed that



“Our discussions are often constrained by the tyranny of the status quo.”

Grand Chief Stewart Phillip



“when you’re getting flak from all sides, you’re over the target” and on the doorstep of succeeding. He advised the attendees not to skirt the issues; rather, put them in the middle of the table. The Grand Chief highlighted the Syilx Water Declaration ([Appendix 3](#)) as a possible basis for a forward-looking strategic plan. The WSA sets out principles and outlines regulations, he said, but the legislation needs to go further.

In a final activity, conference participants were encouraged to use the hashtags #EFN2018 and #WaterForAll to communicate on Twitter and to create their own hashtags relevant to the theme of the conference. Some of the hashtags put forward were:

- | | | |
|---------------------|------------------------|---------------------------------|
| #floodplaineviction | #onlyresilienttogether | #heartsandmindstogetherforwater |
| #unitythroughwater | #waterfirst | #makewatergreatagain |
| #h2outreach | #waterforlife | #keeponspawning |
| #ourwaterourhome | #listenfortheripples | #lifeneedswater |

GALA DINNER KEYNOTE SPEAKER

LEARNING FROM THE BURNING: THE CASE FOR A RESTORATION IMPERATIVE

ROBERT SANDFORD

EPCOR Chair in Water and Climate Security, United Nations University Institute for Water, Environment and Health

Robert Sandford delivered a compelling keynote speech at the gala dinner on October 17. Robert began by emphasizing the climate change effects that are most pronounced at present, which are related in some way to water. He noted that water reacts with nearly every element in the physical world. Change a few parameters that pertain to water, and the world becomes very different. Some parameters—temperature for example—have more influence than others. If the global temperature changes, an entire new geometry is created around that change.

He touched on the profound effects of human activities on the global hydrologic cycle, the most significant relating to how much more water a warming atmosphere can hold. Because of warmer atmospheric temperatures, atmospheric rivers are carrying more water and causing record flooding. More water vapour in the atmosphere is making storms more powerful, heatwaves more intense, and drought more persistent. More persistent weather patterns result in the intensification of events in which duration is an important factor such as droughts, flooding, heatwaves, and cold spells. Human impacts on the climate system have also made flooding, wildfires, heatwaves, and heavy rainfall more likely.

He went on to talk about the changing behaviour of the jet stream that appears to be directly linked to the extent of sea ice in the Arctic and the continuously warming temperatures that are leading to the loss of Arctic sea ice. A slower and wavier jet stream is causing conditions that exacerbate the wildfire threat—wildfires are intensifying and persisting longer. Based on carbon dioxide increases alone, scientists predict a whopping 75% to 120% increase in the amount of area burned each year by the end of the current century. Wildfires are happening more often around the world and have come to be as costly to our society as hurricanes and tornadoes.

Robert said there's no better time than after the summer of 2018 to talk about liability with respect to climate disruption, for during that summer we began to see what inaction is going to continue to cost us, not just economically but in terms of human duress and suffering, if the climate threat is not addressed. In B.C., the rapid melt of near-record snowpacks caused record flooding and exceptionally early and high flows in rivers. Wildfires spread across five provinces and two territories, breaking all records for smoky days in major cities like Calgary and affecting air quality worldwide. At the same time, other parts of the world were fighting deadly floods and wildfires.

He told the audience that there are a number of immediate lessons that stand out in terms of wildfire from the summer of 2018. We need to halt watershed degradation, protect and restore full watershed function, and reverse century-old forest management practices that focused on wildfire suppression resulting in changes in forest dynamics that have led to huge fuel build-up and greater risk of catastrophic fires. He referred to climate warming as a permanently lit match held over *not just the forests* but the entire geography of the Northern Hemisphere, if not the whole globe. The match is lit, and the only way to extinguish it is to restore balance to Earth system function.

Robert spoke about a **Restoration Imperative** in which we can remake our society. Such an imperative would demand that we restore memory of who we are and where we came from; restore local identity and humanity's sense of place; restore truth; restore responsibility to human dignity, economic morality, equity and rule of law; and in so doing restore common purpose and a vision for the future of humanity and the planet. But most urgently, such an imperative must become an immediately effective vehicle for not just the protection but for the rapid restoration of critical natural system function so that we can restore balance in the world and step back from the climate crisis.

He said, "we live in one of the last places in the world where it is still possible to transcend the climate debate in time to create a better world. Canada is one of the places in the world that has enough remaining natural capital to protect and restore its way back to true sustainability. If all of Canada focused on natural capital, as some provinces have already begun to do, we could restore our rivers, lakes, and forests. We can reverse our effects on phosphorous and nitrogen cycles. In so doing, we can stabilize the climate. We may even help stabilize the world. We cannot restore lost biodiversity, but we can halt its decline and consciously direct evolution toward a richer future. We can make where we live and the world better."

He advised that "we can make sustainable attainable if we work together. Restore. Restore. Restore. Make restoration and rehabilitation part of your leadership imperative."

DAY TWO OPENING REMARKS

Co-chairs **Brian Guy** and **Nelson Jatel** opened proceedings on the morning of the second day of the conference. The Syilx Water Declaration (**Appendix 3**) was read aloud, both in nsyilxcen and in English. Once again it was noted that this is a profoundly important declaration – an inspiring new/old water ethic for a nation. An exercise followed during which we were invited to explore the meaning of the Water Declaration in the context of our own stories.



"We must make peace with self-regulating Earth system function, reconcile the injustices of the past, and make peace with one another. We must restore those functions before we can begin to restore our shattered world order. We can do that through a Restoration Imperative."

Robert Sandford

SESSION FOUR: INTERACTION AND COMPLEXITY

This session emphasized the importance of considering the connectivity between surface water and groundwater when making decisions about water allocation and use. This consideration was largely left out from past decisions in B.C., which had consequences for both water users and ecosystems. Knowledge gaps substantially limit the sustainability of surface water and groundwater use, resulting in uncertainties, widespread cumulative impacts, and conflicts. Resolving these issues requires more research and robust methods to understand the connectivity and regulate water use timing and quantities. Presenters also provided an understanding of the complexities of aquatic environments based on what they had learned from natural resource management.

Panel Presentations

GROUNDWATER-EFN INTERFACE

CRAIG NICHOL

Geologist and Hydrogeologist, UBC Okanagan

Craig Nichol talked about groundwater contributions to EFNs. He started off with a visualization exercise that illustrated the need to recognize the complexity and importance of keeping the topic—groundwater—in mind even though we can't see it. It's much easier to understand surface water because it's visible. Groundwater is invisible, old, slow, and hard to get to know, but contributes tremendously to the complexity of water management. It is the water that flows in the stream when there is no precipitation and flow is low. When we talk about EFNs, we must always remember that groundwater is the base flow, the long-term storage that comes into the channel, and all groundwater extraction leads to surface water depletion, somewhere, at some time.

"Close your eyes, wiggle your toes, and take a deep breath. Then open your eyes, take a look at the person across the table, and take another deep breath. How many of you are still wiggling your toes under the table? Just like wiggling toes under the table, there's water under your feet. It's hard to get a handle on what we can't see under the table."

Craig Nichol

EFFECTS OF THE TIMING OF GROUNDWATER USE

DAVID THOMSON

Regional Hydrogeologist, FLNR

David Thomson talked about hydraulic connection and EFNs and outlined the tools that are used to model these connections. New legislation elevated expectations in the management of groundwater, and in considering the effects of groundwater use on adjacent surface water. The WSA has moved people out of their comfort zone. In the old days, we could get by with just a pumping test. With the WSA, you need to obtain more information and validate it. But validation is not always a straightforward exercise. Science is not absolute or exact knowledge – to understand surface/groundwater connectivity, effects must be observed in a longer term and greater scale.

FORESTS AND WATER

RITA WINKLER

Forest Hydrologist, FLNR

Rita Winkler invited us to think about forests and water. Observations of forests in watersheds have led to questions of how trees and water interact and how we are going to manage forests going forward in a changing climate. Long-term and site-specific forest hydrology studies have allowed us to better understand how forests influence the water cycle, and how forest disturbance—through fire, clearcut logging, or salvage logging—influences streamflows and the timing of flows, and how the disturbance effects change over time. Forest disturbance can have an additive or an offsetting effect when compared with the influences of climate change. We now understand how forest management operations can progress while minimizing hydrologic effects. We need to consider how forests influence water supply in the face of climate change and human demand.



INCORPORATING EFNS IN WATER MANAGEMENT

SUZAN LAPP

Hydrologist, B.C. Oil and Gas Commission

Suzan Lapp described the role of the B.C. Oil and Gas Commission and its water management responsibilities as they relate to the Province's EFN policy. The Commission manages water over a vast area, but limited information makes decision-making a challenge. She outlined decision-making questions, licence considerations and conditions, water use reporting, and the need to build relationships with First Nations. EFNs can be addressed in licences in various ways, e.g. by limiting withdrawals to certain times of the year and by requiring monitoring.

"Oil and gas licences are subject to EFN assessment through a professional reliance model. Consultation with First Nations is required, and licences might not be granted unless approved by First Nations."

Suzan Lapp

MANAGING RUN-OF-RIVER HYDROELECTRIC PROJECTS

MATT KENNEDY

VP Environment, Innergex Renewable Energy Inc.

Matt Kennedy talked about 21 run-of-river hydroelectric projects in coastal B.C. in which his company is engaged, within the context of licence conditions. Run-of-river involves the temporary diversion of surface water from a steep section of a stream to a turbine and generator to generate electricity. All water is returned to the stream after the diversion reach. The water licence states how much water needs to remain in the diversion reach to support EFNs. Several years of monitoring at these hydroelectric projects has demonstrated an unexpected result – that there are more fish in the diversion reaches now than there were before the projects were built. This finding is likely due to lower flow making it easier for fish to survive in these generally steep and inhospitable diversion reaches. The fish have more time to grow and get established before high flows return with fall rainstorm events.

Table Dialogue

Delegates were asked to consider the question: *Is there a specific insight that might evolve your thinking on water management, recognizing diverse perspectives?*

Key comments reported by delegates:

- What we have defined as natural flows are not always what is best.
- Compliance monitoring after the fact can end up as a race to the bottom.
- We have to make decisions based on the information we have; but we have to constantly update and improve information so we can make better decisions.
- We need to break out of our habits and usual way of thinking, so that out of sight is not out of mind.
- Data drives decisions but we need action in the absence of data. This takes us back to what Grand Chief Stewart Phillip said: We need to break down the silos and discuss good ways governance is occurring.
- Do we have all the answers for what we need for water management? What are we going to know 10 years from now that would impact how we do things now? How can we be more predictive?
- We need to recognize the value of water storage. It may be a way to adapt to climate change.
- We need more education about the interaction between surface water and groundwater.
- How can a landowner afford to do monitoring? Is there a cost-sharing opportunity out there?
- Look further afield. How do impacts in the oceans affect us here?

Panel Summaries

Each panelist presented a short response to the question: *What key insights can you offer when differing world views and values are applied in a shared ecosystem?*

Craig Nichol: Research takes time, so we need to be patient. I was surprised to learn from Matt that less water may actually be better in some circumstances.

David Thomson: We need to better integrate settler and Indigenous knowledge.

Rita Winkler: We need to think about better ways to use old data and how to obtain new data.

Suzan Lapp: We take for granted the relationships we build in the community. When we leave the community, we sometimes forget. We can become so siloed that we forget to come up for air. It used to be all about the data. It's important to build relationships with people and the land.

Matt Kennedy: Innovation fundamentally changed the way I think about things. We need to be in the river to know what's going on.

"Keep your waders on."
Matt Kennedy

SESSION FIVE: HUMAN DIMENSIONS

This session explored some of the broader applications of environmental flows when integrating social values, science, and Indigenous knowledge. Presenters highlighted local Indigenous success stories and made connections between the common threads of international successes in EFN implementation that could guide sustainable decision-making around freshwater resources.

Panel Presentations

POTENTIAL APPLICATIONS OF EFN APPROACHES

DAVID TICKNER

Chief Freshwater Adviser, World Wildlife Fund (WWF) United Kingdom

“Listen to the river. Proper narrative will integrate simple targeted science presented in lay language. We need to keep our eye on the prize. Don’t disappear down the scientific rabbit hole.”

David Tickner

David Tickner teleconferenced in from England to discuss his experience in the implementation of EFNs. He offered several insights from his international experience. David noted there are “hot moments” that can trigger EFN implementation. These triggers include drought, water supply shortages, environmental damage, and impacts on health, all of which are relevant in the Okanagan. He talked about enabling factors that guide implementation. The most important enabler of EFN implementation is the presence of champions, which he referred to as “hot people,” who are influential in the cause and act as a main catalyst for implementation.

CARRIER-SEKANI SURFACE WATER MANAGEMENT CASE STUDY

CHIEF LARRY NOOSKI

Nadleh Whut’en First Nation

Chief Larry Nooski and Michelle Tung talked about surface water management in the 500,000-hectare Dene traditional territory in central B.C. This year’s severe fire season had a profound impact on a vast area of the territory, making parts of it uninhabitable. In addition, a key food gathering area was burned, so community members now have to go further afield to gather food. Chief Nooski stated that there is a disconnect between prevailing water management and traditional needs. He put forward the Water Declaration of the Yinka Dene ‘Uza’hné, to guide economic development.



“The industry was very stuck in their old ways and didn’t want to concede, but once they really looked at the water policy and what the suggestions were, the implementations and integrations weren’t as difficult as they thought. Finding shared values is a starting point for implementing change.”

Chief Larry Nooski

MICHELLE TUNG

Environment Programs Director, Upper Fraser Fisheries Conservation Alliance

Michelle Tung talked about how to translate such declarations into meaningful ongoing practice. She cited the preventable Mount Polley Mine tailings disaster as an example of an absence of meaningful water protection. The challenge is to integrate Indigenous values into water regulation. The health of water is central to Indigenous rights and title. The Water Declaration of the Yinka Dene 'Uza'hné is provided in their short presentation available at www.obwb.ca/efnconference/resources/.



EFNS AND WATER GOVERNANCE: MANAGING SUSTAINABLE WATER USES

CLAUDIA PAHL-WOSTL

Professor for Resources Management, Institute for Environmental Systems Research in Osnabrück, Germany

Claudia Pahl-Wostl talked about EFNs in the context of negotiating and managing sustainable water use. Claudia described common governance failures with respect to water management, such as lack of coordination, lack of implementation of governance arrangements, and disregard of the human dimensions. She outlined how to move to a more progressive governance framework. She then described the bottleneck in societal processes that prevents reform. She defined water security in the context of people, environment, and economy and described how to best define what is acceptable. Claudia put forward ways to enhance governance capacity. These elements included the integration of Indigenous knowledge and understanding of the human-environment relationship into new societal and legal norms supported by science.

“Governance failures include lack of coordination, lack of implementation of governance arrangements, and too much focus on science, which ignores human dimension.”

Claudia Pahl-Wostl

Table Dialogue

Delegates were asked to consider the question: *Is there a specific insight that might evolve your thinking on the integration of social values with Indigenous and settler ways of knowing in making decisions related to EFNs, recognizing diverse perspectives?*

Key comments reported by delegates:

- Indigenous views are more socially connected and ingrained in culture than western views, so policy is founded in a stronger set of values.
- Learn from First Nations how to develop water policies.
- Respect First Nation protocol when visiting communities.
- Use art and creative pursuits to build bridges.
- Don't get lost in the science; keep it simple and move forward.
- We need to build trust and relationships to move forward.
- Triggers for policy tend to be reactive. Perhaps we could include more Indigenous values to make policy more proactive.
- Legislation drives what people study, but perhaps the public and local residents should inform the target of the study.
- How to connect with water - there should be a sense of personal ownership and responsibility.
- Regulators and decision makers should have meetings on First Nations lands.
- Although water is included in protection mechanisms, it is not the main focus like it is in Indigenous culture.
- When you have a large statement that overarches an objective, when you apply it in small policies sometimes you end up not accomplishing the thing you originally set out to do.
- Language is important, as demonstrated in the Water Declaration. There are many words for water in local languages. Non-locals should learn those words.
- Water has lost personal ownership, as it just comes from the tap. This is a problem of an entitled society that doesn't understand responsibilities.
- Trust is important. We tend to stay behind our own firewalls and have difficulty engaging. Decisions are made without including everybody. Communities are different in histories, religions, and social patterns. Recognize local differences in dealing with communities. There are different action speeds. Not everyone works at the same speed.

Panel Summaries

Each panelist presented a short response to the question: *What key insights and opportunities can you offer when integrating different ways of knowing into EFN management and governance?*

David Tickner: Using storytelling and art is a good idea. We need groups to agree with high level principles to minimize adversity and anchor discussions. Setting objectives means bringing people together across different groups and deciding what we want out of the river. The action steps are more achievable when more groups are involved.

"Science should be on tap, not on top."
David Tickner

Claudia Pahl-Wostl: More participatory assessment is needed to develop good governance, build emotional understanding, draw lessons from work to support use of new diagnostic frameworks, and build a learning community to lift up place-based experiences. We need innovation to create trust and get away from entrenched positions. It would be good to share the way Canada is doing this with the rest of the world.

Michelle Tung: We may have different perspectives on water, but what we want for water is not that different. Policy is a tool towards reconciliation and a constructive process for talking about reconciliation. We used a declaration of Indigenous rights and title to implement the water policy. The mining company New Gold adopted the standard of the water policy and now integrates it into practices. Innovative objectives are being implemented. The process can be agonizing and not as straightforward as the story sounds, but you see the benefits of a collaborative process.

Chief Larry Nooski: The process of working with industry has been difficult, but they now look at the water policy and reference it when new projects come up. He stated that although he is Chief for one community, he looks more regionally now. Success stories are out there; let's build on those. We need to stop this cowboys and Indians game and start working together, because when communities work together, more can be accomplished.

SESSION SIX: POLICY

This session considered the needs and priorities for implementation of a robust environmental flows law and policy regime in B.C.; with a focus on the integration of Syilx governance traditions with the Water Sustainability Act as a model for how Indigenous people and settlers can better work together. The session considered linking local knowledge, science, decision-making, and best practices from elsewhere.

Panel Presentations

WATER LAW AND POLICY IN B.C.

DEBORAH CURRAN

Associate Professor, Faculty of Law and School of Environmental Studies,
University of Victoria, and Environmental Law Centre

Deborah Curran stated that we are in a different place than we were in 2014 when the WSA was introduced in the legislature (it came into force in 2016). There are three key changes since then, the first being explicit recognition of Indigenous law in Canada. The second is the ratification of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). A key element of UNDRIP is acknowledgement of "free, prior and informed consent." The final big change is the fact that EFNs are now recognized as Indigenous rights. Deborah then discussed how EFNs can be placed into the context of free, prior and informed consent, which sets a higher standard than consultation and accommodation. The time has come to establish parallel jurisdiction, and government-to-government agreements can constitute a first step.

IMPLICATIONS OF OKANAGAN EFN-SETTING WORK FOR POLICY IN B.C.

DEANA MACHIN

Strategic Development Manager, First Nations Fisheries Council

Deana Machin noted a number of Indigenous water rights, including rights for social and cultural purposes, rights attached to the right to fish, rights for transportation, and others. First Nation rights are not frozen in time but evolve and change as the community develops. First Nations have a powerful connection to water, land and resources and have been managing water resources sustainably for thousands of years. Adaptive management has been practiced by First Nations for generations, but their approaches have been largely compromised due to insufficient collaboration by other levels of government, and lack of essential information. Defining EFNs is critical for fish, food, medicine, and community development. Deana emphasized the importance of involving First Nations from the beginning, working on relationship building, and recognizing the need to be adaptive.

REGULATORY OPPORTUNITIES UNDER WSA

TED WHITE

Director, Water Management and Comptroller of Water Rights, FLNR

Ted White talked about EFNs in the context of new and evolving provincial legislation. The new WSA was developed in response to a lack of EFNs, a lack of groundwater information, and a lack of flexibility in governance. He said the province still has work to do, as they are still building policy around the WSA. He has seen enhanced collaboration and positive changes in the way we are working together. Although there is some discomfort in the policy process and some challenges for bureaucrats, he is encouraged that we can advance these efforts together.

"EFNs allow us to improve dialogue and consider all disciplines, with a goal to improve legislation."

Ted White

EFNS IN B.C.

ROSIE SIMMS

Researcher and Project Manager, POLIS Water Sustainability Project

Rosie Simms discussed B.C.'s progress in implementing a law, policy and governance regime for EFNs, and what is needed to advance this work going forward. She identified several updates since the 2016 POLIS-WWF Forum on EFNs in B.C. Most significantly, the WSA is now in effect. However, several gaps and issues persist in WSA implementation, including the failure to acknowledge Indigenous rights; and a lack of transparency around what decision-makers must consider with respect to EFNs. The presentation highlighted key actions to help address these gaps: implementing an EFN regulation to support the existing policy and using the full range of WSA tools to provide a "web of protection" for environmental flows.

"The WSA is like a house under construction. It has a good foundation, but it's a little drafty."

Rosie Simms



Table Dialogue

Delegates were asked to consider the question: *Is there a specific insight that could contribute to your thinking on EFN policy within and across various jurisdictions, recognizing diverse perspectives?*

Key comments reported by delegates:

- If we are to get ahead of these problems, we have to control growth. You can have all the best practices in place and the highest ideals, but they can easily be trumped and overshadowed by population pressures and attendant material demands.
- Offstream water storage is critical to implementing EFNs.
- We need to break down barriers that stand in the way of brilliant young minds expressing themselves, and keep up with them when they express themselves even if we are not equipped to do so. The older generation is being left behind.
- Transparency in decision-making is important.
- Will there be regulations around EFNs?
- We need to develop a common framework, drawing on all management plans for water quantity and quality. Include all First Nations, stakeholders, and the Province, as a starting point. This would prompt identification of and discussions around the differences where eventual solutions would be found.
- EFN policy is very broad. It provides guidance and flexibility.

- Communicate what tools are available under the WSA. Stakeholders won't make use of tools if they don't know they exist or understand how they work.
- Will communities be able to restrict growth based on the WSA, because watersheds have reached their limits to provide water sustainably?
- People need to understand how decisions around water are made in order to contribute to and accept (or not) decisions, and understand how traditional knowledge has been factored in.
- First Nations should have flexibility to build their own plan and not wait for government to catch up.

Panel Summaries

Each panelist presented a short response to the question: *What are the next steps or actions you think are required for the implementation of an appropriate EFN policy across jurisdictions?*

Deborah Curran: Action and moving forward are not necessarily innovation. We need to agree on a nuanced process.

Deana Machin: First Nation people are connected to the land and are here to stay. We need time to build relationships. If we don't take the time to build relationships, we won't be able to weather the storms. Localized water decision-making binds people locally and bonds communities. We need innovation because the next 50 years won't be like the last 50 years.

Ted White: When we come together, we can understand values and can move ahead. If we don't understand each other, we can't move ahead.

Rosie Simms: The issues around EFNs in B.C. are increasingly urgent: let's get started putting things in place now. We need to avoid paralysis by analysis.

CONFERENCE WRAP-UP

The conference concluded with a Syilx perspective from **Kelly Terbasket**, a final message from **Robert Sandford**, a closing gratitude from **Pauline Terbasket**, and a wrap-up by the conference co-chairs **Brian Guy** and **Nelson Jatel**.

Closing Activity: Reflections from Syilx Tradition by Kelly Terbasket

In a final powerful exercise, **Kelly Terbasket** brought all in attendance into personal touch with their inter-generational path to the future. She introduced the Syilx concept of *wáy p cyfap*, which refers to the strengths we want to bring forward from past generations and the strengths we want to foster for future generations. As part of the exercise, she asked everyone to stand and extend one arm behind and the other out in front. She said that the hand extended behind represents the knowledge of our ancestors, parents, and teachers and the hand extended in front is the knowledge of the people in the future. We

are the bridge between the past and future. She asked everyone to reflect on what gift each person—as the bridge—brings as a link between past and future generations. She said we have infinite choices here and now. How best can we be the bridge between the past and tomorrow? What within us inspires hope; what is our personal motivation; our responsibility? What three messages will we take from this conference to guide our future actions?



Conference Summary by Robert Sandford

Robert Sandford's final personal observations on the conference were put forward with the hope that they might guide further dialogue and next steps. He noted that this was one of the most important and timely conferences he had ever attended. The content of this conference was dense and rich, and as a consequence it will take time for all who attended to fully process. The value of this conference resides in large measure in the fact that almost everyone needed to affect change was present.

He offered a comparison of our current situation to the critical care concept in medicine. Human and planetary health are linked; without the latter, the former becomes a moving target. Perhaps what we face should be characterized as critical care for the planet. When a patient comes into hospital and needs critical care, the first thing doctors do is address the most immediately dangerous symptom. In the planet's case, it is running a dangerously high temperature. Doctors will do whatever they can to lower the temperature as soon as possible so that the patient doesn't go into distress and die. Once the temperature has been lowered, doctors can begin to treat the infection that caused the high temperature.

"I urge you to not walk out of this room and return to the status quo. Do not wait a year to get together again. Transformation is not only possible but inevitable, here, now. The paradigm shift – the transformation you seek – is within your grasp. Grasp it now and hang on to it for seven generations and beyond. Let the Four Food Chiefs guide you. If you cross the bridge you are building together you can change your world; all you have to do is want to."

Robert Sandford

Due to the near constant emergency, we need to be proactive now. It is not wrong to be frightened. As **Kim Hyatt** said, “we need to translate our fear into action so that our grandchildren don’t need to be afraid.” That said, we can’t lose our sense of humour or our sense of perspective. It is going to be important to recognize that restoration in the truest sense may no longer be possible. All we can do in many circumstances is rehabilitate what we have left.

He urged the delegates not to rely solely on technology fixes. We need a paradigm shift. We need to diversify who is at the table if we wish to have more innovative solutions. We need to break down firewalls that prevent us from working together. To address the threats we face, we need inter-disciplinary, inter-cultural and inter-generational collaboration. That collaboration happened at this conference. That said, we don’t have time to solve problems one at a time. We have to solve manifold problems simultaneously. Managing environmental flow needs is a solution that addresses many problems simultaneously.

The intent of this conference is the gathering of voices. The climate message has to be that there is hope but we must stop talking and start acting together. If nothing else, this conference affirms that water is a powerful vehicle for reconciliation.

People at this conference are at the leading edge in dealing with hydro-climatic change. Together, the people at this conference have the collective knowledge, the intergenerational experience as well as the deep and abiding sense of place to turn these problems around. This conference revealed a groundswell of understanding of the urgency of acting and the importance of coming together to reflect on water.

Closing Remarks by Co-Chairs Brian Guy and Nelson Jatel

Conference co-chairs **Nelson Jatel** and **Brian Guy** closed the conference by providing some final thoughts and reflections. Nelson made four observations, one for each of the Four Food Chiefs:

- 1. Innovation/Vision (Saskatoon Berry)** – This conference affords us an opportunity to learn from new Okanagan EFN science and research and to learn from each other to support the translation of knowledge into good decision-making.
- 2. Tradition/Conventions (Black Bear)** – This conference enables both traditional knowledge and science to support solutions to complex EFN social-ecological challenges.
- 3. Relationships/Connections (Bitterroot)** – This conference provides a template for future events bringing professionals and community members together to share, communicate, and synthesize knowledge and human resources.
- 4. Action/Goal-Oriented (King Salmon)** – Each of us as conference participants has a personal responsibility to take the energy and knowledge gained at this conference and apply our skills and networks to implement environmental flows in our home streams and actively work towards long-term ecosystem resilience.

“Good relationships must be based on trust, and trust must be earned. To earn trust, one must first be trustworthy. If we can be trustworthy, we can make some real changes.”

Brian Guy

Brian followed with seven observations, one for each future generation we had been invited to consider over the two-day conference:

1. To the best of our knowledge, the format adopted for the conference, although based on a historic and successful Indigenous process, has not previously been used to inform an academic knowledge-sharing conference. However, delegates were highly engaged in the activities and the format was successful.
2. Indigenous people have a very powerful and unbreakable connection to the water and land—this has been made clear by multiple Indigenous speakers at the conference.
3. There is real value in *Syilx* ways, in listening respectfully to other perspectives and considering issues from different angles. This is particularly timely and important in this age of rising populism around the world, and fear of those who are different from us, or of those with different ideas.
4. It's clear that the better path to achieving something great lies in acknowledging history, combined with good data, good science, goodwill, trust-building, respect, collaboration, and cooperation.
5. I hope that we've succeeded in helping you think about science and complexity, and that you feel empowered to form stronger relationships that will ultimately lead to better policy and better practices.
6. We all, but especially the young people here, must be leaders and champions in creating the changes needed.
7. I've asked myself this question, and I'll ask you all now – what legacy do you want to leave behind? Good relationships are the foundation for moving forward. Good relationships must be based on trust, and trust must be earned. To earn trust, one must first be trustworthy, and if we can be trustworthy, we can make some real changes.

Closing Gratitude by Pauline Terbasket, ONA Executive Director

Pauline Terbasket was invited to provide some final comments. She commented on the importance of coming together to reflect on water. "Listening is sometimes uncomfortable, but keep listening." She asked attendees to reflect on what brought them here and asked if their basket had been filled, suggesting that a filled basket will drive action. "We have a tsunami coming. If you take reconciliation to heart... recognition of the theft of our water and impact on our families, we need to understand that history if we are going to get anywhere. Our traditional and ecological knowledge that helped us survive the tsunami of colonization is all the more important to survive the tsunami that's coming."



3 The Path Forward

Determining and implementing EFNs has been a source of conflict, particularly in regions where significant demand or competition for water exists. The conference provided an opportunity for presenters and delegates from a wide range of backgrounds to express their viewpoints on EFN development and implementation. The format, informed by a Syilx decision-making process, directly encouraged each participant to focus on differing perspectives, to consider what knowledge and insights they gained, and to consider the process of how they think about the issues. Through presentations and dialogue, we discovered that there can be new ways to consider the science, policy, and practice of how we relate to water, to our mutual benefit.

The final chapter of this document provides some post-conference reflections from the conference co-chairs, lists some key themes that emerged from the dialogue, and highlights several recommendations for action. Results of a follow-up survey are summarized in [Appendix 4](#).

Reflections from the Conference Co-Chairs

Some post-conference observations of the co-chairs are listed here:

- The conference was structured around the topic of EFNs, but it evolved over the two days to become more about building bridges between people and between organizations.
- Based on this observation, and observations of high levels of engagement and enthusiasm for the subject matter, it is clear that the original goals and objectives for the conference were met.
- We wanted to create opportunities to air differing perspectives, but as the event progressed it became clear that there was much more commonality than conflict in the room.
- Keeping presenters to 6 or 7 minutes worked very well. The talks were rich in content and focussed only on key messages, which were clearly conveyed.
- There was very high value in having experienced facilitators manage the event and in including Indigenous facilitators.
- The Indigenous people at the conference, particularly the Syilx people, demonstrated their strength, resilience, and capabilities—as well as their unbreakable connection to the land and water—and this inspired many participants.

“EFNs are a way of improving our dialogue with the goal of improving legislation. We are gradually changing the way we have to work together. We now need to cross the bridge we are building together.”

Ted White



- The delegates included many individuals closer to the beginning than the end of their careers, which is a hopeful sign, since solving the significant challenges that lie ahead will require long term commitments.
- The final group activity led by **Kelly Terbasket** induced strong emotional responses in some people, and many delegates left the conference feeling inspired to pursue principled paths and constructive action.
- Many attendees realized that water can be an important agent of reconciliation with Indigenous peoples.

Themes

Several themes emerged from the presentations and discussions:

- There was strong consensus on the need and desire for bridge-building and trust-building between organizations and between people to improve prevailing management approaches.
- Improved collaboration will lead to better information, science, legislation, policy, and practices.
- Good data and science are essential to setting credible EFNs, but trust-based human relationships are likely more important in achieving successful aquatic ecosystem management.
- The ***Enowkinwixw*** framework, resident in the Four Food Chiefs creation story, was clearly effective in helping participants to consider differing perspectives, and perhaps this or other Indigenous processes could be effective in other similar meeting environments.
- Several speakers stressed the notion of thinking about water as a lifeform, which will help us to learn to balance human needs with the needs of our rivers.
- Climate change is already affecting aquatic ecosystems, and the impacts will become more pronounced in future.
- Restoration of damaged ecosystem function is critical for preserving the stability of Earth's socio ecological systems.
- Indigenous peoples have a very strong connection to the land and water, and take a long-term view when considering decisions related to water.
- The ONA is a leading scientific, management, and governance organization.
- The legal landscape for Indigenous peoples in Canada is changing. Cultural flows should be viewed as an important element of environmental flows, and water can be an important agent of reconciliation.
- The B.C. Water Sustainability Act, although in effect for nearly three years, is still a "work-in-progress." Regulations are still being developed, and more and better information on EFNs is needed in nearly every region of the province.



- There is real value in Indigenous and long-term local memory. Indigenous water declarations can be a foundation for rehabilitation of damaged ecosystems and damaged relationships, and for re-entrenching responsibility for water.
- Conference activities and outcomes satisfied many of the principles embodied in the United Nations Sustainable Development Goals.²

Recommendations

Conference deliberations suggest the following recommendations:

- Recognizing that the EFN conference exposed participants to the initial steps of the **Enowkinwixw** process, representatives of each sector present at the conference should engage in a full-fledged **Enowkinwixw**, so that more concrete agreements for action can be reached.

"If you want to go fast, go alone, but if you want to go far, go together."

Brian Guy

Quoting an African proverb in describing the benefits of collaboration.

² http://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf

- The Province of B.C. should continue to develop regulations and policy in support of the WSA, while recognizing its obligations that flow from UNDRIP.
- All levels of government in Canada should consider opportunities and actions to promote reconciliation with Indigenous peoples, recognizing that protection and restoration of water are likely shared interests.
- Okanagan local governments should consider the recommendation of **Grand Chief Stewart Phillip** made during the conference to adopt the Syilx Water Declaration and to collaborate with the Syilx people on an Okanagan-wide water plan.
- The Province of B.C. should build on efforts started in the Okanagan to move beyond scientific EFN-setting studies towards enabling conversations on what's needed to effectively implement EFNs.
- All organizations and individuals with responsibility for water should leverage the shared momentum generated at the conference to work proactively to break free of silos and strengthen relationships for the benefit of improved ecosystem and human health.
- Local, provincial, national, and international organizations planning to host similar events could potentially learn from the experience of this conference, including choosing a format inspired by an Indigenous process, using Indigenous facilitators, and encouraging the expression of conflicting opinions.
- The conference could provide a case study for international agencies taking a global perspective on the scientific and human elements of aquatic ecosystem management and governance.

"We need to return to a time when Indigenous and non-Indigenous people were friends and neighbours, to combine our expertise, and recognize the full value of relationship-building that leads to meaningful action."

Grand Chief Stewart Phillip



Appendix 1

Conference Agenda

Day 1 WEDNESDAY, OCTOBER 17, 7:00 AM TO 9:00 PM

7:00–8:00 Continental breakfast and networking - Showing of *Our Salmon Our People*

7:00–9:00 Registration

8:00 Welcome and opening ceremony

9:00 Introduction: Conference purpose and objectives

9:15 Approach – Integration of Syilx Tradition and Dialogue Process

- Four Food Chief story
- Dialogue process
- Goals and group agreements
- Food Chief selection

9:40 **SESSION 1: FOCUS ON LOCAL (BALLROOM)**

Brian Guy, EFN in the Okanagan context

Tessa Terbasket, Taking Responsibility for siwłk^w (water)

Lee Hesketh, Ranching and EFNs

Rich McCleary and Patrick Farmer, Merrit EFN work and Nicola pilot project

Rod MacLean, Impacts and pressures within the watershed

10:15 Table dialogue

10:30 Plenary session

10:40 Panel summary

10:45 **BIO-BREAK AND NETWORKING**

CONCURRENT SESSIONS

11:15 **SESSION 2: CURRENT EFN STRESSORS**

Ballroom, **Salon A**

Natasha Neumann, Managing EFN data

Drew Lejbak, Naturalized flows from EFN

Karilyn Alex, Okanagan approach: Tennant and Weighted Usable Width

Mike Epp, Application of EFN in decision-making in B.C.

Keiko Parker, Development and Application of EFNs by a large water system

11:45 Table dialogue

12:00 Plenary session

12:15 Panel summary

12:30 **LUNCH BREAK**

CONCURRENT SESSIONS

1:30 **SESSION 3: NATURAL RESOURCES AND ECOSYSTEMS**

Ballroom, **Salon A**

Richard Bussanich, History and status of Okanagan fisheries and salmon reintroduction and ecosystem valuation

Shaun Reimer, Dawn Machin, Fish/Water Management Tool for decision support

Mark Lorang, Understanding Rivers through the lens of Ecohydrology

Kim Hyatt, Fisheries climate adaptation

Andrew Petersen, B.C. Agriculture and EFNs

2:00 Table dialogue

2:15 Plenary session

2:30 Panel summary

2:45 **BIO-BREAK AND NETWORKING**

3:15 Reflections from Syilx tradition

3:45 Communicating EFNs media panel (Facilitator – Corinne Jackson; Panelists – Teresa Marshall, Emilee Gilpin, Barry Gerding)

4:15 Closing remarks: co-chairs Nelson Jatel and Brian Guy

4:30 Networking and poster session (Vineyard 1-4)

6:00 Gala Dinner (Ballroom)

Keynote Speaker – Robert Sandford, EPCOR Chair, Water Security: The restoration imperative

SESSION 3: NATURAL RESOURCES AND ECOSYSTEMS

Ballroom, **Salon B**

Richard Bussanich, History and status of Okanagan fisheries and salmon reintroduction and ecosystem valuation

Shaun Reimer, Dawn Machin, Fish/Water Management Tool for decision support

Mark Lorang, Understanding Rivers through the lens of Ecohydrology

Kim Hyatt, Fisheries climate adaptation

Andrew Petersen, B.C. Agriculture and EFNs

11:45 Table dialogue

12:00 Plenary session

12:15 Panel summary

12:30 **LUNCH BREAK**

CONCURRENT SESSIONS

1:30 **SESSION 2: CURRENT EFN STRESSORS**

Ballroom, **Salon B**

Natasha Neumann, Managing EFN data

Drew Lejbak, Naturalized flows from EFN

Karilyn Alex, Okanagan approach: Tennant and Weighted Usable Width

Mike Epp, Application of EFN in decision-making in B.C.

Keiko Parker, Development and Application of EFNs by a large water system

2:00 Table dialogue

2:15 Plenary session

2:30 Panel summary

Day 2 THURSDAY, OCTOBER 18, 7:00 AM TO 4:00 PM

7:00–8:00 Continental breakfast and networking - Showing of *A River Film*

7:00–9:00 Registration

8:30 Invocation - Water protector / Elder

8:40 Introduction to Day 2 - Review of agenda and activities

CONCURRENT SESSIONS

9:00	SESSION 4: INTERACTION AND COMPLEXITY Ballroom, Salon A Craig Nichol , Groundwater-EFN interface David Thomson , Effects of the timing of groundwater use Rita Winkler , Forests and water Suzan Lapp , Incorporating EFNs in water management Matt Kennedy , Managing run-of-river hydroelectric projects	SESSION 5: HUMAN DIMENSIONS Ballroom, Salon B David Tickner , Potential applications of EFN approaches Michelle Tung , Carrier-Sekani surface water management case study Bev Ketlo , Carrier-Sekani surface water management case study Claudia Pahl-Wostl , EFNs and water governance: managing sustainable water uses
9:30	Table dialogue	Table dialogue
9:45	Plenary session	Plenary session
10:00	Panel summary	Panel summary
10:15	BIO-BREAK AND NETWORKING	
	CONCURRENT SESSIONS	
10:45	SESSION 5: HUMAN DIMENSIONS Ballroom, Salon A David Tickner , Potential applications of EFN approaches Michelle Tung , Carrier-Sekani surface water management case study Bev Ketlo , Carrier-Sekani surface water management case study Claudia Pahl-Wostl , EFNs and water governance: managing sustainable water uses	SESSION 4: INTERACTION AND COMPLEXITY Ballroom, Salon B Craig Nichol , Groundwater-EFN interface David Thomson , Effects of the timing of groundwater use Rita Winkler , Forests and water Suzan Lapp , Incorporating EFNs in water management Matt Kennedy , Managing run-of-river hydroelectric projects
11:15	Table dialogue	Table dialogue
11:30	Plenary session	Plenary session
11:45	Panel summary	Panel summary
12:00	LUNCH BREAK	
1:00	SESSION 6: POLICY (BALLROOM) Deborah Curran , Water law and policy in B.C. Deana Machin , Implications of Okanagan EFN-setting work for policy in B.C. Ted White , Regulatory opportunities under WSA Rosie Simms , EFNs in B.C.	
1:30	Table dialogue	Table dialogue
1:45	Plenary session	Plenary session
2:00	Panel summary	Panel summary
2:15	BIO-BREAK AND NETWORKING	
2:45	Closing activity: Reflections from Syilx Tradition – 7 generations	
3:45	Rapporteur: Robert Sandford, UN EPCOR Chair, Water Security	
4:05	Closing remarks: co-chairs Nelson Jatel and Brian Guy	
4:10	Closing gratitude by Syilx Elder	

Facilitation Team: **Kelly Terbasket**
Kathy Porter
Aaron Noel Derickson

Appendix 2

Poster Presentations

AUTHOR	TITLE	NO.
Berthot, L.	Environmental flow determination in southern Quebec (Canada): actual and future hydrologic and climatic context	1
Bewley, D.	Implementing an Instream Flow Assessment in the Crowsnest Pass	2
Blackstock, M.	Blue Ecology: A Water First Approach	3
Friberg, R.	Strengthening Community Resilience to Landscape-Level Change in Ecosystem Services	4
Giles-Hansen, N.	The effects of forest disturbance and climate change on hydrology in the Deadman River Watershed: implications for environmental flow needs	5
Gronsdahl, S., Moore, D., Eaton, B., Rosenfeld, J.	Effects of forestry on late summer low flows and fish habitat in headwater catchments of the Pacific Northwest	6
Hager, J.	Optimization of urban stormwater management strategy to support environmental flow needs	7
Harwood, A., Johnson S.	Listen to the River: Lessons from a global review of environmental flow success stories	8
Hirshfield, F.	Examining the environmental flow needs of the Tod creek watershed: opportunities and barriers	9
Ishaq, S., Sadiq, R., Farooq, S., Hewage, K.	A Critical Review of Stormwater Regulations and Guidelines: Making a Case for Promoting LID Alternatives in Canada	10
MacDuff, A.	A Strategic Assessment of Potential Temperature Sensitive Streams (TSS) in the Thompson Okanagan Region	11
McCleary, R., DeRose, K.	Achieving late summer flow targets during drought in the Nicola River watershed through a combination of reservoir releases and curtailment of surface water and groundwater withdrawals	12
McRae, T., Bauer, B.	Escaping the heat: Stream temperature as a critical environmental flow need in the B.C. Interior	13
Porto, L.	Environmental Flow Needs (EFN) for SARA-listed Shorthead Sculpin in Norns Creek, Castlegar, B.C.	14
Reid, D.	Channel morphology, variability of aquatic habitat, and implications for flow allocations in coastal streams	15
Taylor, N.	Incorporating Environmental Flow Considerations into Watershed Planning for Streams of the Toronto Region	16

Appendix 3

SYILX NATION SIWŁK^w DECLARATION

The Chiefs of the Okanagan Nation Alliance are dedicated to upholding our inherent rights and responsibilities to care for *siwłk^w*. They signed the Syilx Nation *siwłk^w* Declaration in 2014 as a reflection of the collective voices of the Syilx People. The Declaration is a living document that affirms the commitment that we must safeguard *siwłk^w* for everyone in the Okanagan and throughout the territory for perpetuity.

ił siwłk^w



ił siwłk^w sx^włx^waltət.

WATER IS OUR RELATION.

*ił ı yśayśát stim siwłk^w
ił ılmix^wmtət.*

**WATER BONDS US TO OUR
ANCESTRY, OUR DESCENDENTS
AND OUR LAND.**

*k^wu yśayśát ił k^wu sqilx^w
kscpúta?stm áhi? ılmix^wmtət
ił siwłk^w.*

**WATER MUST BE TREATED WITH
REVERENCE AND RESPECT.**

*áhi? ił nx^włx^włtañtət lut
kstanímúsmítm, áhi?
kscxtıstim yśayśát ił ıstim.*

**OUR RELATIONSHIP WITH WATER
IS NOT TAKEN LIGHTLY, WE
ARE RESPONSIBLE TO ENSURE
THAT OUR RELATION CAN
CONTINUE TO MAINTAIN THE
HEALTH AND RESILIENCY OF
OUR LAND AND ANIMALS.**

*İł siwłk^w nx^włx^włtañs
ił tmx^wúla?x^w uł yśayśát ił ıstim*

**WATER IS THE LIFEBLOOD OF
OUR LAND AND OUR ANIMALS
AND WE AS SYILX PEOPLE**

*kscsux^wstm ił siwłk^w ıa?ıá? knaqs
ck^wisk^wsts yśat ał cx^włx^walt.*

**RECOGNIZE WATER AS A
SACRED ENTITY AND RELATIVE
THAT CONNECTS ALL LIFE.**

*ił siwłk^w yśat tałkın kł kscx^włx^walts
ił tmx^wúla?x^w uł kł tmix^w.*

**WATER COMES IN MANY
FORMS AND ALL ARE NEEDED
FOR THE HEALTH OF LAND
AND FOR THE ANIMALS.**

*mıpnúntm ił sıa?ıá? ił
siwłk^w kł yśayśát ił ıstim.*

**WATER IS OUR MOST
SACRED MEDICINE, WATER
NOURISHES, REPLENISHES,
CLEANSES AND HEALS.**

*ıa ck^wuımstm ił siwłk^w
kscha?stım uł kscxtıstim.*

**ANY USE OF WATER SHOULD
BE AN ACT OF REVERENCE
AND A COMMITMENT TO
OUR RESPONSIBILITIES.**

*yśayśát ił sx^włx^waltət, śapná? uł cm
ı spñkin, áhi? k^wu s?uk^wna?qınx.*

**OF ALL LIFE. NOW AND TO
COME, AS SYILX PEOPLE.**

*ił siwłk^w cx^wuy tı tmx^wúla?x^w tı
wıst uł lut kscwsñcuts tı ıstim.*

**WATER COMES FROM THE SKY AND
THE HIGHEST PLACE YET IT NEVER
WILLFULLY RISES ABOVE ANYTHING.**

*ił tayx^wút mi ctıyap, naımł tı
yśat tı ıstim, misk^wock^wáct.*

**IT WILL ALWAYS TAKE THE
LOWEST PATH IN ITS HUMILITY.
YET OF ALL THE ELEMENTS, IT
IS THE MOST POWERFUL.**

*k^wu scúnma?stm ił siwłk^w
k^wu k^wock^wact uł qñqamıt.*

**OUR SACRED WATER TEACHES US
THAT WE HAVE GREAT STRENGTH
TO TRANSFORM THE HIGHEST
MOUNTAIN WHILE BEING
GENTLE, SOFT AND FLEXIBLE.**

*iwá ıa tqeqıp ksksxñmıxa?x itı?
kłpux^w, tqıltkms, km młx^wuıms.*

**WATER WILL ALWAYS FIND A
WAY AROUND OBSTRUCTIONS,
UNDER, OVER AND THROUGH.**

*k^wu kscúnma?stm
kscck^wılnustm xi?mıx ıstim.*

**IT TEACHES US ANYTHING
IS POSSIBLE.**

*ıa ctıyap ił siwłk^w lut ıstim ıa
ctılx^wsts uł k^wu kscıfla?x itı?*

**WATER MOVEMENTS, PATHWAYS
RESILIENCY AND POWER TEACH
US WHO WE ARE AND WHO
WE CAN BE AS PEOPLE.**

Excerpt, Okanagan Water Declaration, July 31, 2014

Appendix 4

Feedback from EFN 2018 Conference Follow-up Survey

Survey Methodology: Conference participants (152) were sent an email with a hyperlink to an online survey (*SurveyMonkey*) about the conference, followed by two reminder emails. Participants were given approximately three weeks to complete the survey.

Background: A diverse group of presenters (Figure 1) spoke. The conference participants (Figure 2) also had diverse backgrounds.

FIGURE 1. SPEAKER PARTICIPATION

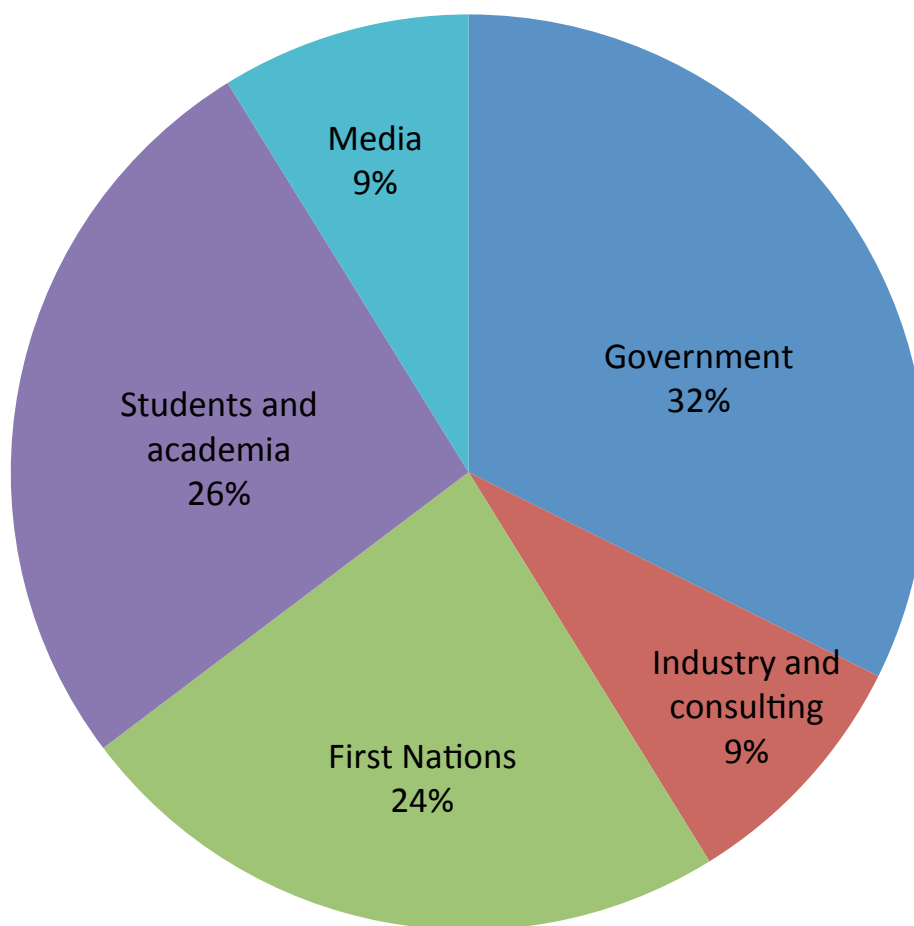
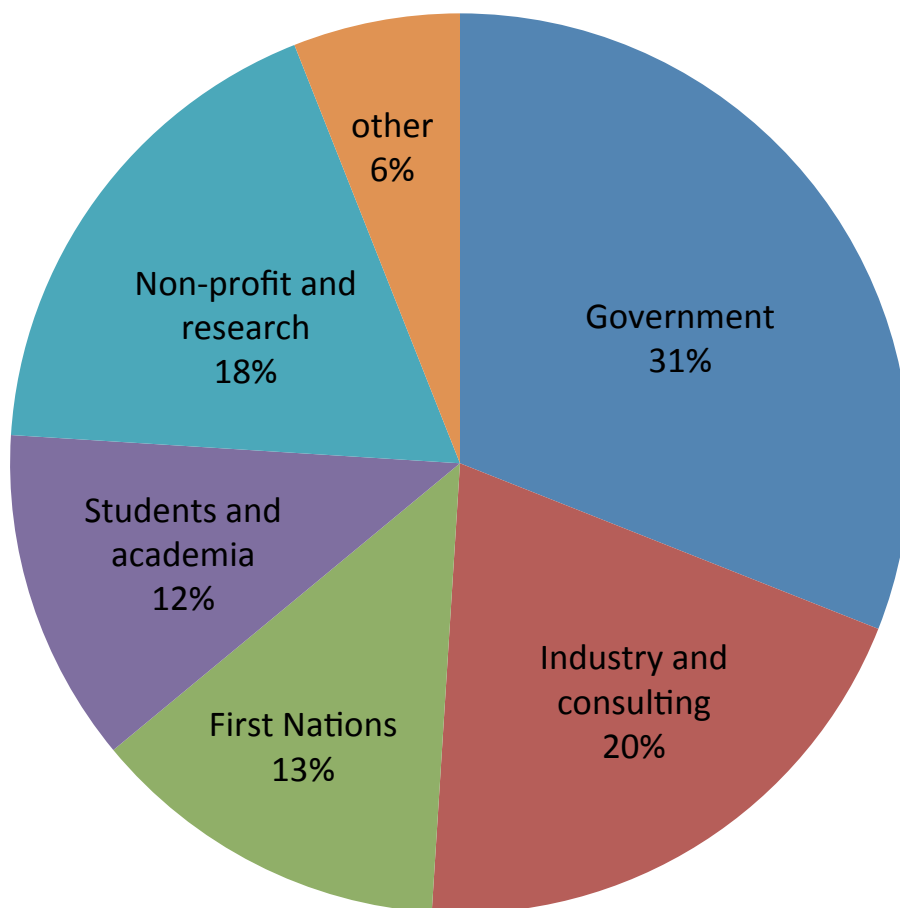


FIGURE 2. CONFERENCE PARTICIPANT AFFILIATION



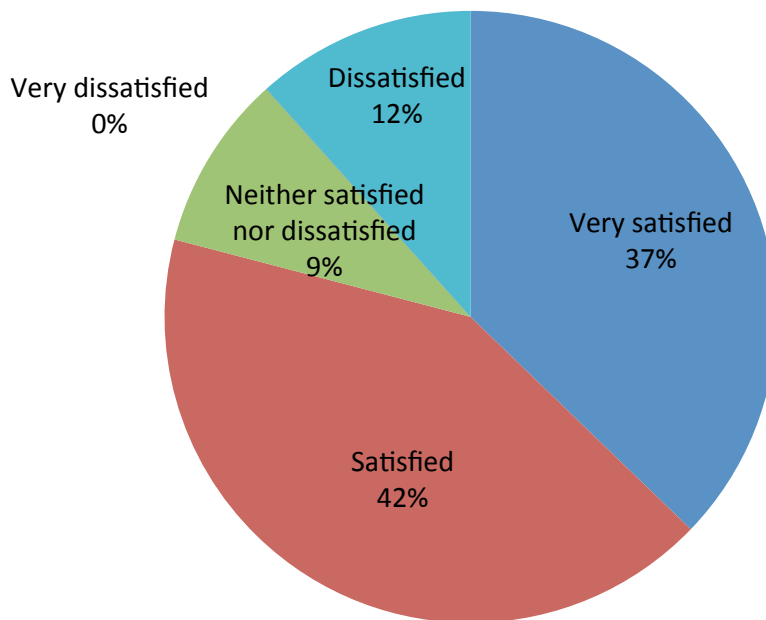
Key Findings:

A total of 44 surveys were completed (28.9% response rate) by conference participants (excluding speakers). Approximately 75% of respondents were *satisfied* or *very satisfied* with the quality of panel presentations, 82% were *satisfied* or *very satisfied* with the quality of the facilitators, and 84% felt the length of the conference was *about right*.

The conference provided a different format from other academic or policy conferences, with shorter presentations and table dialogues to support participant engagement. Approximately 79% of the survey respondents were *satisfied* or *very satisfied* with the conference format (Figure 3).

FIGURE 3. CONFERENCE FORMAT

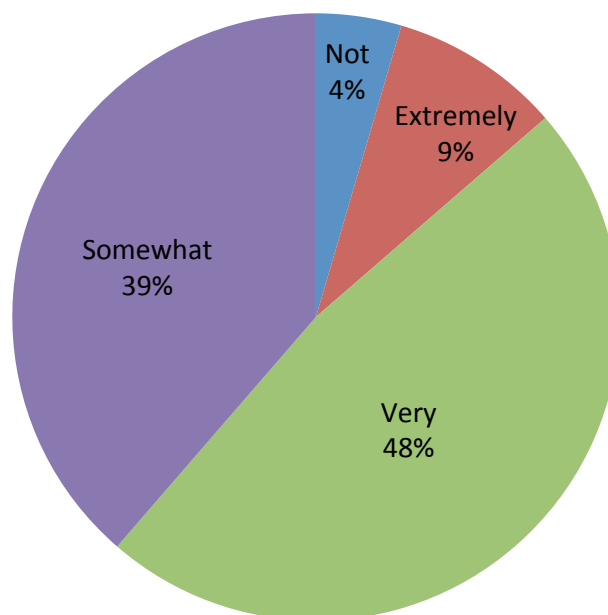
Answer distribution (n=44) to the question: Did the conference format (panel, table dialogue, report out summary, etc.) meet your expectations?



The majority (95%) of survey respondents found the online pre-conference information valuable (Figure 4).

FIGURE 4. PRIOR TO THE EVENT, VALUE OF INFORMATION PROVIDED

Answer distribution (n=44) to the question: Prior to the event, was the information provided about the conference valuable?



**Conference Aspects
Appreciated by Participants:**

- High level of organization
- Interactive nature and unique Indigenous format
- Diversity of speakers and participants
- Quality of panel presentations and facilitation

**Conference Aspects in
Need of Improvement:**

- Lack of technical content attributed to relatively short presentation time limited participants' opportunity to gain better insight on technical, ecological and legal issues surrounding EFNs.
- Engaging in Q&A sessions with panel speakers would have enabled less informed participants to contribute to table discussions in a more meaningful way.

**Select Quotes from
Survey Responses:**

"To be honest, it highlighted how our system is upside down. I attribute this realization to the First Nations speakers. They helped me see the backwardness of having an approach that puts the environment last."

"Viewing the river solely as a water resource to be managed rather than a sacred spiritual entity is short-sighted. Solutions to ethical, equitable and sustainable human use of rivers will only be achieved if all stakeholders embrace an open and respectful view of each other's stakes in rivers and the role rivers play in our lives and the cultures that define our communities and our society."

"As a First Nation person, I was very happy to have the Syilx people present their relationship with water to the broader audience."

"It gave me new way of looking at how I process information and relate to others."

"It perhaps broadened perspectives on who is at the table in these types of discussions. That everyone is coming with a perspective on their own, which is both a help and hindrance."

"It can be a very useful framework for helping to understand different perspectives, and collectively creating desired outcomes (by combining the right people and ideas to move through different moments of change)."

Written Feedback:

In addition to asking for responses to categorical questions, the following are some conference participant written responses to open-ended survey questions:

How did the conference influence your role(s) and responsibilities with regards to Environmental Flow Needs and water?**RESPONSES**

It didn't.

It has inspired me to think about what steps I can take to make improvements using my role, and to encourage my staff to do the same.

It is a timely workshop and fits in well with UNDRIP and forms part of a body of information contributing to the overall facilitation of water allocation.

Made me more aware of our role as engineering.

Provided valuable ideas regarding how to address the intersection between EFN and Aboriginal Rights.

I will have to discuss about my research with stakeholders and decision makers.

It provided some very good opportunities for connecting with other people I wouldn't have had normally and hopefully change will occur.

I left feeling that collaboration among varying levels of governance and social, economic, and environmental policy is absolutely necessary. We need to start working together. In my role, I feel that this can be strengthened.

Viewing the river solely as a water resource to be managed rather than a sacred spiritual entity is short sighted. Solutions to ethical, equitable and sustainable human use of rivers will only be achieved if all stake holders embrace an open and respectful view of how each other view rivers and the role that rivers play in our lives and the cultures that define our communities and our society.

Not sure.

I'm already very involved.

I didn't take that much away in regard to EFNs—most was about indigenous knowledge. Not really what I was expecting of the conference based on the description / speaker bios.

Little.

Was great to tell my story and reflect on others' positions and experiences.

The diversity of delegates provided an outstanding opportunity for networking with individuals and groups who I do not regularly encounter in my work.

Not sure that it did a whole ton...

Remains to be seen. Lots of good discussion, but very little "how to proceed, or next steps".

We'll see.

As a First Nations person, I was happy to have the Syilx people present their relationship with water to the broader audience.

Reconfirmed just how challenging climate change and management to meet EFNs is likely to be.

It helped to inform my understanding of EFN needs in the Okanagan, the relationships between various stakeholder groups and perspectives, and the ways in which the new Water Sustainability Act is being implemented.

I am slightly better informed than I was.

Very cool.

What topics and ideas would you like to see incorporated in future conferences?

RESPONSES

EFN determination techniques, policy/regulations and enforcement

An example of a water sustainability plan / water objectives or similar land use plan that has been successful in improving water management.

I may not go to another one. Not enough solutions too much complaining.

Not sure.

More focus on quality of water to compliment the discussion of quantity of water.

How to communicate and maintain the links between stakeholders and decision makers?

More on the ground examples of what is working or not working.

More case-studies of what's working elsewhere for water protection across the globe.

Make speaking to the group optional, you don't need to force it on people.

More about TEK and integration with local people, less expert lecture, definitely more information about CO river treaty.

More science and facts about fish survival in the ocean and streams.

More actual technical details of methods for determining EFN.

Nothing specific comes to mind. Enjoyed the scope and focus of the event and thought it worthwhile to repeat.

More discussion about action and innovation. There has been enough analysis and discussion about the problems.

As above!

Hmmm, need to think about that!

Work needs to be done to develop the protocols moving forward.

Expanding the dialogue on EFNs beyond water quality to also focus on processes and outcomes that shape water quality. Expanding flow from site level to landscape level considerations.

Inviting some people not actually involved in water to the conference. Find some way to reduce the effect of self-selection by participants as all being EFN engaged folks.

How to work reconciliation into building better futures together, particularly in dealing with climate challenges and uncertainty.

n/a

Amazing.

What did you learn through the application of the four food chiefs' governance framework?

RESPONSES

Different perspectives for a topic.

This was great insight into an Indigenous perspective on problem solving.

This is kind of a rip off of a Jungian psychology / Myers briggs 4 preferences and 16 combined personality types. A chief from the Ktunaxa once told me the tortoise and the hair story being part of their culture. OK maybe I embrace ambiguity. It's possible that an evolutionary human preference could be recognized by more than one culture at a time.

A great way to focus ideas and put them into action areas.

New perspectives on dialogue and decision-making.

Was a useful way of organizing our ideas.

It's a complete way of thinking.

That should not restrict ourselves to a category selection based on only one culture.

The idea of balancing different views and opinions in decision-making. Thinking long-term (seven generations) instead of short-term.

Not sure I walked away with an understanding of governance framework of the four food chiefs? To me it is an origin story not a governance framework.

Novelty.

Nothing.

It was interesting but I felt it didn't add to learning about EFNs.

All of it.

I liked the theme actually. Kind of novel and relevant. Learned a thing or two... :)

It is an effective system for mediating discussion around difficult issues while minimizing opportunities for conflict.

The need for balance—between “innovation” and “tried and tested”; between “process” and “outcomes”.

There is way more to EFNs than just hard facts, numbers.

I appreciated that there is decision and acceptance process involved with the four food chiefs. I had an opportunity to read the book provided to the speakers. It is unfortunate that more of these stories and perspectives are not permitted to be shared.

It gave me new way of looking at how I process information and relate to others.

Still wrestling with this.

I understand the concept and its importance to first nations, but apart from it being an introspective psychology experiment, I didn't take away much from this application. Again, I believe a better use of time would have been to focus on the actual issues at hand with more time for the presenters and the ability to ask questions to them.

It perhaps broadened perspectives on who is at the table in these types of discussions. That everyone is coming with a perspective on their own, which is both a help and hindrance.

That it can be a very useful framework for helping to understand different perspectives, and collectively creating desired outcomes (by combining the right people and ideas to move through different moments of change at the pace required).

Is there anything else you would like to share about the event?

RESPONSES

Relationship building was integral to this conference. Food and venue was great. UN speaker at dinner gala event was very good, but was very doomsday and preaching to the already converted crowd.

Thank you for a well organized event. I really enjoyed it.

It was informative and useful as broader context and networking activity but for 3/4 of the province not located on Vancouver Island, lower mainland or Thompson Okanagan its kind of a step backward.

No.

Thank you for the good organization and the implication of everyone.

No.

Well done to the entire team that organized and participated in bringing this event together. It was a really great experience, and at times very emotional. But I think we need those emotional moments and need to have these difficult conversations to move forward together. Thanks again. Looking forward to the follow-up and future summary report.

As mentioned, would have been much more enjoyable without the cordless microphone and the facilitators making people feel "very uncomfortable". The information presented by each table, via microphone, will go nowhere. Putting people on the spot to speak to the group was not time well spent.

I would like to see another event that focuses on the CO river treaty and one that incorporates all First Nation indigenous people/tribes from both Canada and the US. And one that includes more farmers that use the water and representatives of the Hispanic and other cultural communities that now have moved into the basin to harvest that Ag product. So may be a more food system view of EFN. Nothing better for finding common ground than gathering around a table to share a meal. Perhaps start the day without breakfast, no lunch and end with a feast around tables with a mix of a speaker or two, just a thought.

Would've like to have seen less topics but spend more time on actual EFN.

Future, please lengthen the amount of time for people to present. It was great to gather so many people together but there were big differences in backgrounds so more time would have been beneficial to allow audience to learn from presenters more.

Not in particular other than saying well done with the event. Would come again for sure in future.

As a gesture of reconciliation and a legacy of the EFN2018 meeting, expertise of delegates could be drawn upon to restore flow to the stream on the Terbasket property. It could also be used as a research study into restoration of stream habitat in the Okanagan and opportunity to engage with the Sylix community about Traditional Ecological Knowledge.

There was a heavy emphasis on First Nations values in the conference. While comforting, adapting to policies and practice is the real challenge. In my mind this needs to be done sooner than later, which means that all players need to push each other to come to the table and get something established. I think the willingness is there.

I thought that they young lady who read out the Water Declaration in nsyilxcen was amazing as was the young lady that sang and drummed at the opening of the conference.

Just congratulations to the organizers and participants all around for a job well done.

The event was very Okanagan and reconciliation focused. In speaking to another participant from a different part of Canada after, they were surprised by the degree of focus on the how of reconciliation, rather than the science of EFNs, and sounded as though they would have preferred a more scientific focus—though they appreciated the event overall.

About the Okanagan Basin Water Board

The Okanagan Basin Water Board (OBWB) was instituted in 1970 as a collaboration of the three Okanagan regional districts to provide leadership on water issues spanning the valley.

Advised by an innovative cross-disciplinary Water Stewardship Council (WSC), the Board delivers programs and activities to promote coordinated water management throughout the basin.

For more information about OBWB and WSC, please contact:

Okanagan Basin Water Board

1450 KLO Road
Kelowna B.C. V1W 3Z4

Phone: 250.469.6270

Fax: 250.762.7011

Website: www.obwb.ca



About the Canadian Water Resources Association

The Canadian Water Resources Association (CWRA) is a national non-profit organization committed to raising awareness of the value of water and to promoting responsible and effective water resource management. CWRA membership consists of individuals and organizations including water users, water resource professionals, scientists, engineers, academics, students and young professionals.

For information about CWRA membership, please contact:

CWRA Membership Office

176 Gloucester Street, Suite 320
Ottawa, Ontario K2P 0A6

Phone: 613.237.9363

Fax: 613.594.5190

Email: membership@cwra.org

Website: www.cwra.org



“The Water Sustainability Act is flexible and offers an opportunity for collaboration and re-framing relationships between water users and water. Flexibility though comes with the lack of clear rules that can be a challenging obstacle for bureaucrats to overcome.”

**TED WHITE, Director of Water Management and Comptroller of Water Rights,
Ministry of Forests, Lands, Natural Resource Operations and Rural Development**

“It’s our responsibility to protect and sustain our water.

DAWN MACHIN, Biologist, Okanagan Nation Alliance

“Water management should be treated as a family matter. It is a good thing that representatives of our extended family are all in the room.”

**ROBERT SANDFORD, EPCOR Chair in Water and Climate Security,
United Nations University Institute for Water, Environment and Health**

“We should all be afraid and turn that fear into action, so that our grandchildren don’t need to be afraid.”

KIM HYATT, Research Scientist, Fisheries and Oceans Canada, Pacific Biological Station




“Whiskey is for drinking, but water shouldn’t have to be for fighting over.”


**LEE HESKETH, Farmland Riparian Interface Stewardship Program
(Lee’s revision of a well-known quote about whiskey and water)**

“We are in this together in every sense of the word. Now is a wonderful opportunity to reach out and go back to that place we enjoyed such a long time ago when we were truly and genuinely friends and neighbours. If we can bring all the knowledge here together with the traditional and ecological knowledge of the Syilx people, we’re going to prevail.”

GRAND CHIEF STEWART PHILLIP

FOLLOW US AND JOIN THE CONVERSATION: #EFN2018 and #WaterForAll

    YouTube at Okanagan WaterWise

 at Okanagan Basin Water Board

