



# Towards a Healthy Nechako: Nechako Watershed Strategy – Version 1

Prepared by the Fraser Basin Council for the Nechako Watershed  
Roundtable – October 31, 2016



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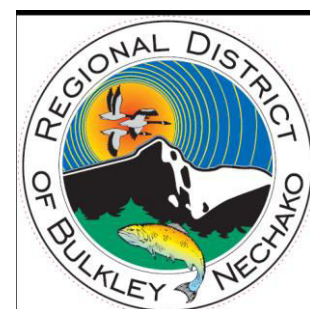
Cover Photo by Jennifer Vigano

## ACKNOWLEDGEMENTS

The Nechako Watershed Strategy was prepared by the Fraser Basin Council on behalf of the Nechako Watershed Roundtable. The FBC staff team of researchers and writers were Theresa Fresco and Steve Litke.

This work would not be possible without the generous contributions and in-kind support from our funding partners. A big thank you to the Real Estate Foundation of BC, the Omineca Beetle Action Coalition, the Ministry of Forests, Lands and Natural Resource Operations, Fraser-Fort George Regional District, Bulkley-Nechako Regional District, Fraser Basin Council and the University of Northern BC.

Another big thank you to the members of the Nechako Watershed Roundtable and Core Committee, the Technical Advisory Committee and community members across the watershed for sharing your knowledge, expertise and time to make this project a reality.



## EXECUTIVE SUMMARY

The health of the Nechako watershed is critical to the long-term social, economic, environmental and cultural well being of all its residents. Yet, this system faces a number of significant challenges. The changing climate has contributed to the mountain pine beetle epidemic and other adverse impacts; the iconic Nechako White Sturgeon have become an endangered species; creeks and streams throughout the watershed have degraded; and the diversion of water out of the Nechako River system continues to impact many aspects of watershed health. Many projects and initiatives are underway to address these issues; however, there is a need for improved coordination and more effective sharing of knowledge and other resources. The Nechako Watershed Roundtable (NWR) was established in 2015 to address this need for collaboration and to develop a strategy to further advance the vision of a healthy Nechako.

This report represents the first version of the Nechako Watershed Strategy. It builds on the findings of a Nechako Watershed Health Report and online atlas – completed in 2015<sup>1</sup> - which compiled and analyzed available information to characterize the state of the watershed. The Strategy process added to these findings by engaging communities and technical advisors to discuss the issues and concerns they were observing and to propose actions to address those concerns.

The Nechako watershed is located in the northwest portion of the Fraser River Basin. It includes the eastern portion of the Regional District of Bulkley-Nechako and the western portion of the Regional District of Fraser-Fort George. Prince George is the largest city in the region, with about 71,000 residents. Other municipalities include Vanderhoof, Burns Lake, Fraser Lake and Fort St. James. The region includes the communities and traditional territories of many First Nations including (in alphabetical order) the Carrier-Sekani Tribal Council (and its member First Nations including Burns Lake, Nadleh Whut'en, Nak'azdli, Saik'uz, Stelat'en, Takla Lake, Tl'azt'en and Wet'suwet'en,) as well as Cheslatta Carrier Nation, Lake Babine Nation, Lheidli-T'enneh, Nee-Tahi-Buhn Indian Band, Skin Tyee Band and Yekooche First Nation<sup>2</sup>.

One of the major challenges to advancing the health of the Nechako watershed is limited coordination between government agencies, First Nations and local governments, industry, environmental organizations and academic institutions – each responsible for various aspects of water planning, management, stewardship or research. Building on past collaboration in the region, the NWR is a group of representatives from a diversity of organizations, local governments, First Nations, private sector and federal and provincial agencies with a shared concern and commitment to protect and improve the health of the Nechako watershed.

[Section 2](#) of this report outlines the overall purpose of the Strategy, including the vision and goals of the Strategy and the principles of the NWR. The Strategy aims to identify priority issues and actions needed to advance watershed health, highlight activities and

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<sup>1</sup> Fraser Basin Council. (2015). Nechako Watershed Health Report. Accessed online Feb. 2016. [http://www.fraserbasin.bc.ca/Library/Water\\_BCWF/Nechako-Mar31-2015\\_FINAL.pdf](http://www.fraserbasin.bc.ca/Library/Water_BCWF/Nechako-Mar31-2015_FINAL.pdf)

<sup>2</sup> Province of BC. (2016). First Nations A-Z Listing. <http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/first-nations-a-z-listing> [Accessed Feb. 2016]

initiatives already underway, support enhanced coordination of current activities and propose further actions to address the issues and concerns raised by communities and stakeholders. This Strategy has four goals:

1. To communicate issues and concerns in the Nechako watershed;
2. To highlight current projects, plans and strategies being undertaken in the watershed;
3. To propose actions to address issues and concerns; and,
4. To inspire commitments by various organizations to implement proposed actions.

[Section 3](#) of the Strategy summarizes priority issues and concerns in the watershed. These were identified by a series of research projects, input received from community and stakeholder meetings across the watershed and input from technical experts and researchers. Priority issues and concerns have been organized within eight categories:

1. Water Quantity
2. Water Quality
3. Fish and Wildlife
4. Ecosystems
5. Resource Development and Use
6. Current Water Management Approaches
7. Data Gaps
8. Public Engagement and Education

[Section 4](#) of the Strategy focuses on the current context of watershed planning, management and stewardship within the Nechako watershed. This context includes emerging agreements and initiatives; current projects underway; as well as existing plans, strategies and decision processes. Examples of the current context include new agreements with First Nations, a wide range of stewardship and restoration projects, and a multitude of plans and decisions that are the responsibility of many different jurisdictions and organizations.

[Section 5](#) represents the key content of the Strategy and focuses on proposed actions to protect and improve the health of the Nechako watershed. To address numerous water and watershed issues and concerns, technical advisors, watershed practitioners, community groups, and concerned citizens have proposed several actions. Although specific commitments, resources, lead organizations and timelines have not yet been established, this section provides examples of potential partners. This does not intend to be prescriptive but to illustrate how existing jurisdictions and interests could align with many of the proposed actions. The Nechako Watershed Roundtable and many potential partners are well positioned to implement the Strategy.

The key actions proposed include three distinct types including:

1. Strengthen Education, Engagement, and Capacity of Decision-Makers, Stakeholders and the Public;
2. Strengthen Data, Information and Knowledge; and,
3. Strengthen Planning, Stewardship and Beneficial Management Practices

Specific actions are defined to address the following water and watershed issues:

- Water Quality and Quantity
- Lakes and Wetlands

- Invasive Species
- Multiple Water and Watershed Issues (e.g. water, fish and wildlife, habitat, overall watershed health, community and stakeholder capacity, planning and governance, etc.)

[Section 6](#) summarizes next steps for the long-term vision and implementation of the Strategy. The next phase of the Strategy process will focus on implementation. The NWR and many potential partners will explore opportunities to identify where there is interest in aligning efforts and resources to collaborate on specific proposed actions. Through this dialogue, priorities will be identified and commitments will be confirmed to implement priority actions to advance the health of the Nechako watershed.

## 1.0 INTRODUCTION

The health of the Nechako watershed is critical to the long-term social, economic, environmental and cultural well-being of all its residents. Yet, this system faces a number of significant challenges. Our changing climate has resulted in impacts such as the mountain pine beetle epidemic and associated salvage logging, the iconic Nechako White Sturgeon have become an endangered species, creeks and streams throughout the watershed have degraded and the diversion of water out of the Nechako River system continues to impact its overall health. At the same time, these challenges have given rise to a multitude of different projects and initiatives by government agencies, First Nations, stewardship and other non-profit organizations, private sector partners and academic researchers. These activities are critical to improve the health of the Nechako watershed however, there is a need to ensure efforts, capacities and assets are better coordinated, knowledge is shared and limited resources are pooled together more effectively. After its launch in October 2015, an early priority of the Nechako Watershed Roundtable was to develop a strategy to address this need for coordination and to further advance the Roundtable's vision of a healthy Nechako.

This report represents the first phase of the Nechako Watershed Strategy. It builds on the findings of the Nechako Watershed Health Report completed in 2015<sup>3</sup> which analyzed data and information for 20 primary indicators that characterized the state of the watershed. The Strategy process further grounded these findings by engaging communities to discuss the issues and concerns they were experiencing and to propose actions to address those concerns. It also identifies projects that are currently underway in the watershed as well as agreements, plans and objectives that create the context for decision-making related to activities on the water and land base. This information provides a good foundation to better understand the work needed to better the health of the Nechako watershed and how efforts and resources can be better aligned.

Given that watershed systems are dynamic in nature, this Strategy will continue to be a living document to be reviewed and adapted as new information becomes available and actions are completed.

### 1.1 The Nechako Watershed<sup>4</sup>

The Nechako River Watershed is located in the northwest portion of the Fraser River Basin. The region includes the communities and traditional territories of several First Nations including (in alphabetical order) the Carrier-Sekani Tribal Council (and its member First Nations including Burns Lake, Nadleh Whut'en, Nak'azdli, Saik'uz, Stelat'en, Takla Lake, Tl'azt'en and Wet'suwet'en,) as well as Cheslatta Carrier Nation, Lake Babine Nation, Lheidli-T'enneh, Nee-Tahi-Buhn Indian Band, Skin Tyee Band and

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<sup>3</sup> Fraser Basin Council. (2015). Nechako Watershed Health Report. Accessed online Feb. 2016.

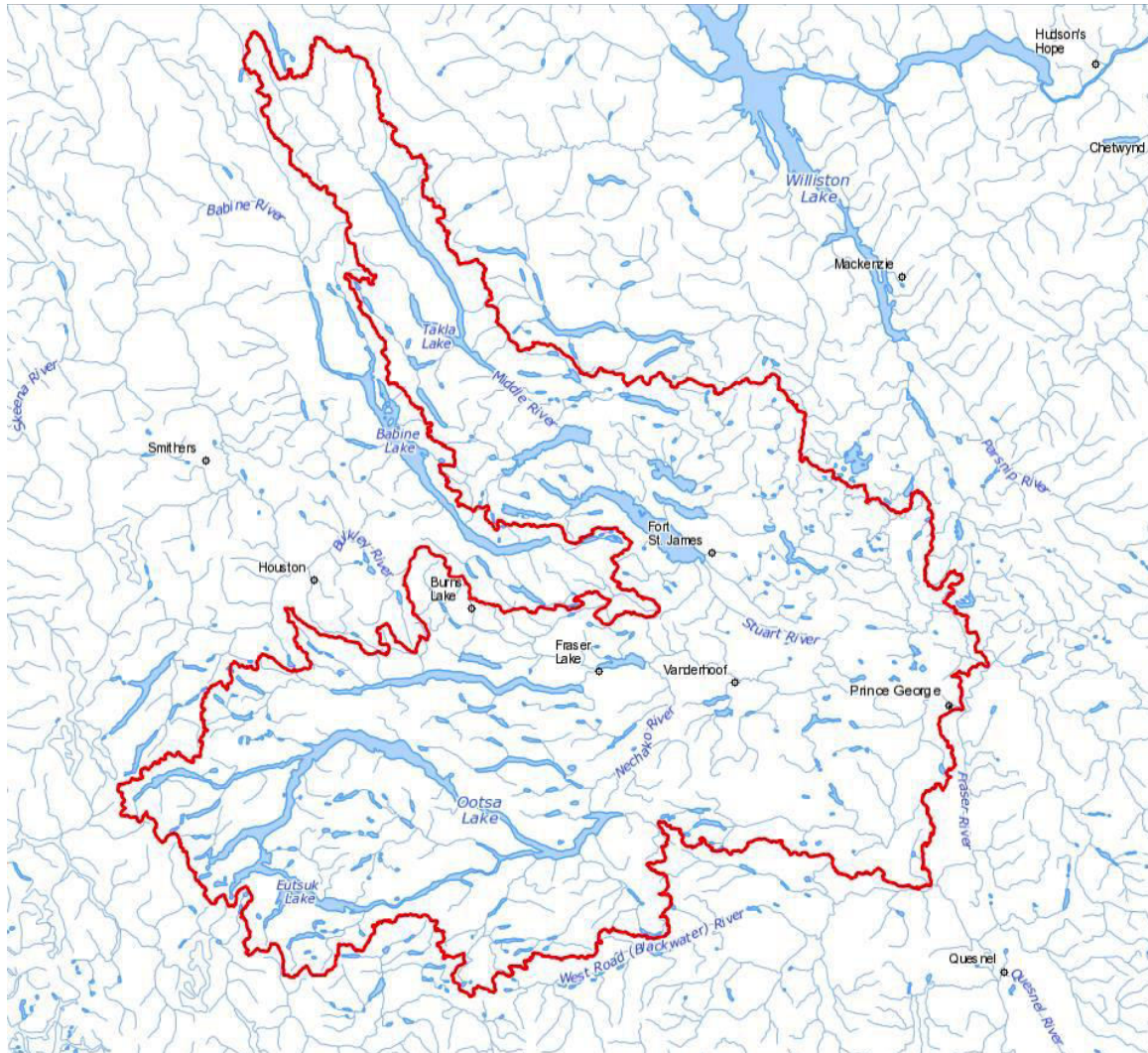
[http://www.fraserbasin.bc.ca/Library/Water\\_BCWF/Nechako-Mar31-2015\\_FINAL.pdf](http://www.fraserbasin.bc.ca/Library/Water_BCWF/Nechako-Mar31-2015_FINAL.pdf)

<sup>4</sup> *Ibid.*

Yekooche First Nation<sup>5</sup>. Traditional Aboriginal languages in the region include Dekelh, Sekani and Wet'suwet'en.

The Nechako watershed includes the eastern portion of the Bulkley-Nechako Regional District and the western portion of the Fraser-Fort George Regional District. Prince George is the regional centre and the largest city, with about 71,000 residents. Other municipalities include Vanderhoof, Burns Lake, Fraser Lake and Fort St. James.

The Nechako watershed includes all sub-watersheds up until the confluence of the Nechako River and the Fraser River.



**Figure 1:** Map showing location of the Nechako Watershed within the Upper Fraser Region of British Columbia.<sup>6</sup>

<sup>5</sup> Province of BC. (2016). First Nations A-Z Listing. <http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/first-nations-a-z-listing> [Accessed Feb. 2016]

<sup>6</sup> Community Mapping Network. (2015). 'Nechako Watershed Health Atlas.' <http://cmnmaps.ca/NECHAKO/>



## 1.2 The Importance of Water to the Nechako region<sup>7</sup>

The Nechako River is an important waterway in the North-Central BC. The river forms the second largest tributary of the Fraser River and provides valuable habitat for salmon, white sturgeon and trout fish species. It is also central to the lives of First Nations and non-First Nations communities in the region. People who live in the Nechako watershed enjoy easy access to the outdoors and a diverse range of recreational activities including: hunting, fishing, boating and snowshoeing. The primary economic drivers in the region are related to natural resource extraction. The watershed has undergone many changes over the last 100 years. An abundance of hydroelectric, agricultural, forestry and mining activities have changed, and continue to change, the landscape. Most notably the Kenney Dam – constructed by Alcan (now Rio Tinto) in the 1950s to power an aluminum smelter in Kitimat – has permanently changed the hydrological and ecological nature of the basin.

In addition, the mountain pine beetle epidemic has significantly impacted the Nechako watershed and other regions of northern and central BC, and has ultimately killed up to three quarters of the mature pine trees in the watershed.

## 1.3 Why do we need a Nechako Watershed Strategy?

One of the major challenges to advancing the health of the Nechako watershed is the lack of coordination between government agencies, First Nations, industry, environmental organizations and academic institutions responsible for some form of water management or research. Several organizations have worked and continue to work on a diversity of projects related to advancing watershed sustainability in the Nechako watershed. A Strategy can better coordinate these activities, pool resources more effectively and create opportunities for decision-makers and the public to become more aware and engaged with the current status and desired futures for the watershed.

## 1.4 The Nechako Watershed Roundtable: An Inspiration for a Nechako Watershed Strategy

Building on the legacy of collaboration in the region, the NWR is a group of representatives from a diversity of organizations, local governments, First Nations, private sector and federal and provincial agencies with a shared commitment and concern to protect and improve the health of the Nechako watershed.

Concerned organizations and individuals began meeting as the Nechako Watershed Alliance in 2012 to share information and knowledge, explore common interests and brainstorm about actions needed to advance watershed health. The group chose to adopt a Roundtable governance structure in the spring of 2015 and its official launch and inaugural meeting took place on October 21 and 22, 2015. Guided by a Core

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<sup>7</sup> Pickets *et al.* (2014). Changing Landscapes, Changing Lives: Exploring climate change impacts in the Nechako Watershed, and implications to natural resource development. Accessed online Feb. 2016. [http://web.unbc.ca/~sderj/datafiles/ChangingLandscapes\\_FINALDRAFTforPUBLICATION.pdf](http://web.unbc.ca/~sderj/datafiles/ChangingLandscapes_FINALDRAFTforPUBLICATION.pdf)

Committee which advances its operations, the Roundtable aims to direct and advise on water stewardship activities in the Nechako watershed. Groups that have participated in the formation of the Roundtable include:

- Carrier-Sekani Tribal Council
- Cheslatta Carrier Nation
- City of Prince George
- District of Vanderhoof
- Fisheries and Oceans Canada
- Fraser Basin Council
- Fraser-Fort George Regional District
- Integrated Watershed Research Group, University of Northern BC
- Ministry of Environment
- Ministry of Forests, Lands and Natural Resource Operations
- Nechako Environment and Water Stewardship Society
- Northern Health
- Regional District of Bulkley-Nechako

The membership of the NWR has been expanding since its official launch in 2015 to include an even greater diversity of groups and is open to include all organizations and sectors in the region.

One of the major projects completed by the Fraser Basin Council in partnership with the Nechako Watershed Roundtable in 2015 was a Nechako Watershed Health Report<sup>8</sup> and online Atlas<sup>9</sup>. The Report presents and analyzes data for about 20 primary indicators organized into five thematic areas:

- Water Quality and Quantity
- Fish and Wildlife
- Ecosystems
- Resource Development
- Resource Conservation

Building on this baseline information and the collective assets, capacities and knowledge of members of the Roundtable, the Nechako Watershed Strategy will further identify issues and concerns in the watershed and identify actions that can be taken to address these issues.

To help initiate the development of the Nechako Watershed Strategy, the Roundtable and Fraser Basin Council have helped to convene a Technical Advisory Committee tasked with providing technical expertise and guidance for the successful completion of the Strategy. This group has a diverse team of experts including representatives from:

- Fraser Basin Council
- Integrated Water Research Group, University of Northern BC
- Cumulative Impacts Research Consortium, University of Northern BC
- City of Prince George
- Ministry of Forests, Lands and Natural Resource Operations
- Ministry of Environment

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<sup>8</sup> [http://www.fraserbasin.bc.ca/Library/Water\\_BCWF/Nechako-Mar31-2015\\_FINAL.pdf](http://www.fraserbasin.bc.ca/Library/Water_BCWF/Nechako-Mar31-2015_FINAL.pdf)

<sup>9</sup> [http://www.cmnbc.ca/atlas\\_gallery/nechako-watershed-health-atlas](http://www.cmnbc.ca/atlas_gallery/nechako-watershed-health-atlas)

- District of Vanderhoof
- Freshwater Fisheries Society
- Rio Tinto
- Northern Health
- Bulkley-Nechako Regional District
- Nechako Valley Sporting Association
- Northwest Invasive Plant Council
- BC Timber Sales
- Nak'azdli Whut'en
- College of New Caledonia
- Concerned citizens



Nechako Watershed Roundtable Meeting and Launch of the Draft Nechako Watershed Strategy, October 13, 2016 at University of Northern BC. (Photo Credit: Peter James, UNBC)

## 2.0 WHAT THE STRATEGY AIMS TO ACHIEVE

The Strategy will identify priority issues and actions needed to advance watershed health, highlight activities and initiatives already underway, better coordinate current activities and propose actions to address the issues and concerns raised. By highlighting this information in its first phase, the Strategy also aims to provide information and context to groups in the watershed and specifically to decision-makers in order to better address values and enable more effective use of resources.

### 2.1 Strategy Vision

*For the Nechako watershed to be healthy for generations to come.*  
(Vision of the Nechako Watershed Roundtable)

### 2.2 Guiding Principles

In the development of the Strategy, the guiding principles of the Nechako Watershed Roundtable were followed. These guiding principles were used throughout the process and are meant to be utilized during the implementation of the actions proposed.

- *Mutual Dependence* – Land, water, air and all living organisms including humans are integral parts of the ecosystem. Therefore, biodiversity must be conserved.
- *Accountability* – Each of us is responsible for the social, economic and environmental consequences of our decisions and accountable for our actions.
- *Equity* – All communities and regions must have equal opportunities to provide for the social, economic and environmental needs of residents.
- *Integration* – Consideration of social, economic and environmental costs and benefits must be an integral part of all decision-making.
- *Adaptive Approaches* – Plans and activities must be adaptable and able to respond to external pressures and changing social values.
- *Coordinated and Cooperative Efforts* – Coordinated and cooperative efforts are needed among all government and non- government interests.
- *Open and Informed Decision-Making* – Open decision-making depends on the best available information.
- *Exercising Caution* – Caution must be exercised when shaping decisions to avoid making irreversible mistakes.
- *Managing Uncertainty* – A lack of certainty should not prevent decisive actions for sustainability.
- *Recognition* – There must be recognition of existing rights, agreements and obligations in all decision-making.
- *Aboriginal Rights and Title* – We recognize that Aboriginal nations within the Nechako Basin assert Aboriginal rights and title. These rights and title, now being defined, must be acknowledged and reconciled in a just and fair manner.
- *Transition Takes Time* – Sustainability is a journey that requires constant feedback, learning and adjustment. In the short- term, the elements of sustainability may not always be in balance.

## 2.3 Goals

This Strategy is a living document with four goals:

- To communicate issues and concerns in the Nechako watershed;
- To highlight current projects, plans and strategies being undertaken in the watershed;
- To propose actions to address issues and concerns; and,
- To inspire commitments by various organizations to implement proposed actions.



Steve Litke, Chair of the NWR Core Committee, provides an overview of issues and concerns in the watershed at a Nechako Watershed Roundtable meeting. (Photo credit: Tiffany Bonnett, FBC)

### 3.0 ISSUES AND CONCERNS IN THE NECHAKO WATERSHED

Priority issues and concerns in the Nechako watershed were identified by a series of research projects, input received from community and stakeholder meetings across the watershed and input from technical experts and researchers.

Key research inputs include:

- The Nechako Watershed Health Report (2015) and online Atlas (2015)
- 'Who's Doing What in the Nechako' Report (2015)
- Nechako Watershed Roundtable Launch and Business Meeting Report (2015)
- Advancing Watershed Health of the Nechako River Basin Survey (2015)

Community and one-on-one meetings to date include:

- Prince George – *Nechako Watershed Roundtable Inaugural Business Meeting* - October 22<sup>nd</sup>, 2015
- Vanderhoof – *Who's Doing What in the Nechako Watershed Meeting* – September 16<sup>th</sup>, 2015
- Fraser Lake Community Meeting – May 9<sup>th</sup>, 2016
- Fort St. James Community Meeting – May 10<sup>th</sup>, 2016
- Burns Lake Community Meeting – May 11<sup>th</sup>, 2016
- Nechako Watershed Roundtable Meeting – Update on the Nechako Watershed Strategy – June 23<sup>rd</sup>, 2016
- First Nations communities and organizations:
  - Upper Fraser Fisheries Conservation Alliance – March 24<sup>th</sup>, 2016
  - Saik'uz First Nation – April 14<sup>th</sup>, 2016
  - Yekooche First Nation – July 22<sup>nd</sup>, 2016

Priority issues and concerns identified fell within 8 categories:

9. Water Quantity
10. Water Quality
11. Fish and Wildlife
12. Ecosystems
13. Resource Development and Use
14. Current Water Management Approaches
15. Data Gaps
16. Public Engagement and Education

The following section provides a summary of these issues and concerns as well as more localized, community specific issues identified within each category.

#### 3.1 Water Quantity

- **Water Quantity and Flow** – The impoundment of water in the Nechako Reservoir and the resultant diversion and spillway releases have altered the hydrology of the Nechako River system since 1952, when the Kenney Dam was completed.

- **Environmental Flows** – Volume and timing of flows are important factors in the maintenance of water temperatures, the survival of species and overall watershed health.
- **Freshwater Temperature** – The Summer Temperature Management Program has only been partially successful. In the summer of 2013, mean daily water temperatures greater than 20°C were observed on twenty-two days out of the thirty-day control period. The impact of climate change on freshwater temperature in the Nechako is of particular concern.
- **Mountain Pine Beetle Impacts** - The Mountain Pine Beetle (MPB) outbreak and associated salvage logging have resulted in dead trees and significant forest clearing for timber salvage. The loss of the forest has led to hydrologic changes to surface flow, as the forested ecosystem is no longer present to absorb and filter precipitation, resulting in increased peak-flows during rainfall or snow-melt events, soil erosion and sediment deposition into streams and watercourses, as well as increased water temperatures due to loss of trees that provide shade in riparian areas.<sup>10 11</sup>
- **Understanding the interrelationship of groundwater to surface water** – Further investigation is needed to better understand how much water (mean annual discharge, average annual low flow) in the various Nechako tributaries originated as groundwater, what parts of the ecosystem are dependent on groundwater for survival and how human activities are affecting recharge and discharge?

### ***Community Specific Issues:***

#### *Fraser Lake*

- Water levels have been steadily decreasing in Fraser Lake over the last few years
- Temperatures in Fraser Lake and Fort St. James watersheds are rising

#### *Burns Lake*

- The Burns Lake water table is low

## **3.2 Water Quality**

- **Water Quality and Forestry** – In an assessment completed by the Ministry of Forests, Lands and Natural Resource Operations, nearly 1/3 of the 381 sites assessed for fine sediment impacts were classified as having a moderate impact. An additional 10.7% of sites were considered to have high impact to water quality.

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<sup>10</sup> Wong, C. 2008,. Environmental Impacts of Mountain Pine Beetle in the Southern Interior. Prepared on behalf of Provincial Beetle Response Project. BC Ministry of Environment. Accessed online, March 2015: <http://www.sibacs.com/wp-content/uploads/2009/02/environmental-impacts-reportfinal.pdf>

<sup>11</sup> For more information on the hydrologic impacts of Mountain Pine Beetle visit: [https://www.for.gov.bc.ca/hfp/mountain\\_pine\\_beetle/stewardship/hydrology/](https://www.for.gov.bc.ca/hfp/mountain_pine_beetle/stewardship/hydrology/)

- **Water Quality and Drinking Water** - Drinking water quality is extremely important. Members of Takla Lake First Nation (and other First Nations) use water in lakes, rivers and streams throughout the traditional territory for drinking water.
- **Siltation movement in Cheslatta River** - On average, 80,000 cubic meters of soil is dislodged from the river banks, transported downstream and deposited into Cheslatta Lake. In 2015, an engineer estimated 250,000 cubic meters of silt was deposited into Cheslatta Lake during the second highest flows ever in 2015. This happens, at various levels, each year during the July-August Summer Temperature Management Program discharges and has major impacts on the lake ecosystem.

### *Community Specific Issues:*

#### *Fraser Lake*

- Septic/sewage issues in First Nations communities are having impacts on water quality
- Septic systems for lakeshore properties need to be assessed in Stuart Lake, Fraser Lake and Burns Lake
- Fraser Lake is meeting its standards for water quality but wants to do more

#### *Burns Lake*

- Burns Lake has increased its turbidity over the last 30 years and has a higher algal content than previous years
- Mercury may be increasing in the lake as a result of dead trees
- Nutrient runoff into Burns Lake is a concern (e.g. fertilizer and manure) as farm distribution increases
- Salt runoff during winter periods

### **3.3 Fish and Wildlife**

- **Species at Risk** – 12 red-listed and 64 blue-listed plant and animal species live within the Nechako watershed and immediate surrounding areas.
- **Sturgeon** – The Nechako River White Sturgeon population has been estimated to include about 600 adults over the age of 45 years. However, there are very few juveniles, likely due to a lack of successful spawning or the young not surviving to adulthood. These challenges may be related to the combination of low water levels, high temperatures, sedimentation, impacts to fish habitat, stream connectivity, barriers to fish passage, impacts of a changing climate and agricultural run-off.
- **Salmon Escapement** – Based on the data received, the primary salmon species inhabiting the Nechako River watershed include Sockeye (Early Stuart, Early Summer, and Summer) and Chinook salmon. Many communities raised concerns related to the decline in salmon returning to spawn and in many cases, the disappearance of salmon species in local creeks, streams and lakes. The



impacts and destruction of fish habitat was noted as one of the causes of this decline.

- **Mountain Caribou** – The Takla and Tweedsmuir caribou populations are active in the Nechako watershed. In 2000, the Takla caribou population was approximately 100 animals. In 2004, a revised assessment increased the estimated population number to 122, although the current and long-term population trend is unknown. In 2002, the Tweedsmuir herd encompassed approximately 300 animals and the current and long-term population trend is decreasing for this herd.
- **Moose** – The decline of the moose population in the Nechako watershed has been slow and gradual but persistent over the past two decades. Predation by bears and wolves as well as overharvesting have been associated with this decline. Environmental changes have impacted forage quality and availability resulting in reduced fecundity and recruitment. Calf survival rates have been low during severe weather events such as snow depths above 90 cm. Ticks, parasites and pathogens are other proposed mechanisms for the population decline. All of these factors can be complex, interconnected and appear to cumulatively contribute to the size and density of moose population in the Nechako watershed.

### ***Community Specific Issues:***

#### *Fort St James and Yekooche First Nation*

- Health of fish in Stuart Lake and Babine Lake are of concern
  - Yekooche First Nation members are finding discoloration in fish
  - Fish populations (e.g. salmon, char, trout) are declining
  - Lack of a fish hatchery in Fort St. James

#### *Takla Lake First Nation*

- Increase in fish lice in summer 2015 in Takla Lake

#### *Nak'azdli First Nation*

- Salmon productivity in decline
  - Restocking less productive creeks with fish can be one approach to restoration
- Impacts of forestry on stream and creek health are impacting fish

#### *Burns Lake*

- In Burns Lake, fish are impacted by erosion and flooding
- There is concern in Burns Lake about loss of habitat and declining moose populations in the region

### 3.4 Ecosystems

- **Change in Forest Cover** - The Mountain Pine Beetle (MPB) outbreak and associated salvage logging have resulted in dead trees and significant forest clearing for timber salvage. The largest wildfires in BC in 2014 and 2010 occurred in the Nechako watershed. The impact of the Spruce Beetle in 2016 is still being assessed.
- **Forestry Impacts on Riparian Zones** – According to a study conducted by the Ministry of Forests, Lands and Natural Resource Operations, 233 stream reaches were assessed and about half are properly functioning or functioning with limited impacts, while 38.1% are classified as properly functioning with impacts and 9.4% are deemed to be not properly functioning.
- **Stand-Level Biodiversity** - In an assessment of forestry cut blocks between 2006-2013, 31% were found to have less than 3.5% treed retention across the cutblock area, which is considered to be of very high (negative) impact to biodiversity values at the stand level. Nearly 50% of the 239 cutblocks sampled were considered to have a moderate impact (7%-20% treed retention) while 15% of sampled cut blocks had retained more than 20% of the large trees, which is considered a low or very low impact to biodiversity values.
- **Climate Change** – Future access to water in the Nechako watershed will be altered in a changing climate. This will impact all issue categories. Projected changes in climate between 2010-2050 will include increases in average temperature, reduction in snowpack and increases in precipitation in all seasons especially during the winter months<sup>12</sup>.
- **Aquatic and riparian invasive species** – The Northwest Invasive Plant Council is currently targeting 73 invasive plants for management<sup>13</sup>. The Ministry of Forests, Lands and Natural Resource Operations has completed a survey of Aquatic Invasive Species for watercourses in the Nechako watershed.

#### ***Community Specific Issues:***

- There's a presence of weeds in Fraser Lake with no known cause.
- Invasive species transfer between lakes in the Nechako

### 3.5 Resource Development and Use

- **Water Licenses** - In the Nechako watershed, approximately 33 billion cubic meters of water have been allocated for withdrawal each year, across 1032 licenses. 70% of these licenses are for agriculture and domestic purposes (< 0.2% of the total allocated water). 'Storage for Power' and 'Power Generation,' have only 3 water licenses, but account for 87% of the allocated water. The Rio-Tinto Alcan license accounts for 65 million cubic meters per day, or 71.7% of the total volume allocated through water licenses in the Nechako.

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<sup>12</sup> Matthews, C. et al. (2015). 'Climate Change and Resource Development Scenarios for the Nechako Watershed: Workshop Report May 2015.' University of Northern BC.

<sup>13</sup> Northwest Invasive Plant Council. (2015). 'NWIPC 2015 Target Plant List.' [http://nwipc.org/documents/private/NWIPC\\_Target\\_IPs\\_List\\_2015\\_FINAL.pdf](http://nwipc.org/documents/private/NWIPC_Target_IPs_List_2015_FINAL.pdf)

- **Power Generation** – In order for water to flow to power intakes under low reservoir conditions, Rio Tinto Alcan has proposed a channel 3.3 km long to be dredged through Tahtsa Narrows. The ecosystem impact of this proposal needs to be addressed.
- **Resource Roads and Stream Crossings** – Human activities, in particular resource roads can generate fine sediment as soils become exposed and can be eroded and washed into water courses as a result of precipitation and subsequent overland flow. While data specific to resource roads in the Nechako watershed are not currently available, across BC paved and unpaved road length increased by 82% between 1988 and 2005.
- **Forestry** – There have been significant changes in forest cover in the Nechako watershed over the past 10-15 years. The Mountain Pine Beetle outbreak and associated salvage logging have resulted in dead trees and significant forest clearing. In addition to MPB and forest harvesting other factors contributing to changes in forest cover include wildfires, and other forest pests and diseases.
- **Agriculture Chemical Use** – Overall in the Nechako watershed, commercial fertilizers are applied to almost 32,000 hectares, with herbicides being used on less than 6000 hectares and insecticides being used on only 11 hectares.
- **Mining** – Data from the BC Mineral Inventory database show that there are 2 formerly active metal mines (Huckleberry and Endako Mines) in the Nechako watershed; 9 metal mines are identified as being under development; and 1 metal mine (Blackwater) is currently proposed on the Southern boundary of the watershed. There are no coal mining activities identified. According to the BC Historic Mines Atlas, there are at least 13 historic mine sites in the Nechako watershed that are no longer in production, this includes Pinchi Lake Mercury Mine and the Necoslie River Limestone quarry.

***Community Specific Issues:***

- Pipeline crossings (e.g. Kinder Morgan proposed pipeline) are a concern for Fort St. James and Burns Lake residents
- Cumulative impacts of increasing resource development

***Fort St. James***

- Recreational impacts on water in Fort St. James
- Fracking activities are a concerns in Fort St. James

***Burns Lake***

- The impacts of changes in land use patterns in Burns Lake are a concern

***Fraser Lake***

- Better monitoring of the Endako Mine permitted tailings discharges are needed especially in the Stellako River

### 3.6 Current water management approaches

- **Lack of integrated planning** – There currently aren't any integrated planning process that consider upstream and downstream impacts of activities, cumulative impacts of past and present development or the impacts of a changing climate in the Nechako watershed.
  - **The development of a Water Use Plan** by the dominant user of the Nechako water for industrial and power generation (and the subsequent review of water licences) will go long way towards developing a water management process and infrastructure improvements to address legacy issues, satisfy the requirements of all interested and affected parties, enhancing fish habitat and improving the environmental health of the Nechako basin.
- **Collaboration and communications between different interests** – Given the diversity of stakeholders involved in the use, management and stewardship of the Nechako watershed, there is a need for an entity to facilitate communication between them, foster collaboration and mediate conflict.
- **Lack of government oversight**
  - Loss of enforcement regulations that protect watersheds
  - Not enough capacity to 'manage' creeks throughout the whole watershed

### 3.7 Data Gaps

- **Data gaps**– There are many gaps in data and studies related to the health of the Nechako. These include:
  - Integrated assessment of biophysical values (e.g. flow, sediment, etc)
  - Hydrological studies, flow balance and water availability
  - Land coverage change studies
  - Baseline groundwater data and observation of groundwater wells
  - Mapping of private wells in the watershed
  - GIS maps
  - Data necessary to enable management of all the above downstream values.
- **Traditional Ecological Knowledge (TEK)** – TEK is a cumulative body of First Nations cultural knowledge, practice, and belief evolving by adaptive processes and handed down through generations by cultural transmission. It concerns the relationship of living beings (including human) with one another and with their environment. TEK knowledge is a compliment to both scientific data and information and citizen science and should be used to inform policies and practices wherever possible.

- **Data fragmentation** – There is a need for a centralized hub of data and information for organizations and the general public.
  - This is currently being addressed by UNBC and their development of an online Water Portal for the Nechako watershed.

### 3.8 Public Engagement and Education

- **Public Awareness** – More awareness of the importance of the Nechako watershed and the issues impacting its health are needed among the general public.

#### ***Community Specific Issues:***

- Data sharing between sectors, organizations and industries are of concern

### 3.9 Priority Ranking of Issues and Concerns in the Nechako Watershed

Between February 15<sup>th</sup>, 2016 and March 15<sup>th</sup>, 2016, Fraser Basin Council conducted a survey asking respondents to identify and rank issues and concerns and potential actions and tools to address those concerns in the Nechako watershed. The survey was sent out to approximately 160 government agencies, First Nations and non-profit organizations representatives and concerned citizens throughout the watershed (with an encouragement to forward to other groups) and yielded 43 respondents.

The following represents the prioritization of issues and concerns in the Nechako watershed as indicated by respondents. This provides good insight into the priorities of the various interests but would need further investigation into feasibility (i.e. funding, committed partners for implementation, etc.).

- |   |   |
|---|---|
| 1. Water Quality                                      | 10. Water Licences                            |
| 2. Current Water Management and Governance Approaches | 11. Communication Between Different Interests |
| 3. Watershed Planning                                 | 12. Peak Flows                                |
| 4. Species at Risk                                    | 13. Change in Forest Cover                    |
| 5. Industrial, Municipal and/or Agricultural Use      | 14. Critical Fish                             |
| 6. Critical Low Flows                                 | 15. Data Gaps                                 |
| 7. Fish Habitat                                       | 16. Public Engagement and Education           |
| 8. Climate Change                                     |   |
| 9. Freshwater Temperature                             |   |

## 4.0 WHO'S DOING WHAT IN THE NECHAKO?

To effectively formulate actions and potential solutions for the issues and concerns raised in Section 3, the dynamic context of projects, initiatives and other activities in the watershed must be considered. The following section provides a snapshot of emerging agreements, negotiations and initiatives (Section 4.1), current projects underway (Section 4.2) and existing plans, strategies and decision-making processes (Section 4.3).

### 4.1 Agreements and Emerging Initiatives

A number of agreements and initiatives emerging over the last few years have become an important part of the context in the Nechako watershed and its management. Many of these initiatives arose following the Tsilhqot'in decision in 2014 which further affirmed the territorial nature of Aboriginal title and reinforced the Crown's duty to consult with First Nations regarding resource development processes<sup>14</sup>. Other initiatives arose following major events such as the mountain pine beetle epidemic and flooding events in 2015. The following list represents a snapshot of these agreements, initiatives and ongoing processes.

#### **Carrier Sekani First Nations and Province of British Columbia – Collaboration & Social Cultural Initiatives Agreements**

After four years of negotiations related to the potential impacts of increasing pipeline and other natural resource development projects in their Territories, the Carrier Sekani First Nations<sup>15</sup> (CSFNs) reached an agreement with the Province of BC on April 2<sup>nd</sup>, 2015. This agreement related to environmental and cultural stewardship, natural resource development and a new government-to-government relationship between the Parties. These are reflected in two Agreements – the Collaboration Agreement (CA) which aims to:

*[E]stablish a framework to: (a) facilitate ongoing reconciliation of Crown and Aboriginal titles and rights in the Territories; (b) negotiate government-to-government agreements in relation to natural resource development and environmental stewardship in the Territories; (c) create new government-to-government relationship based on collaboration and agreement to achieve [the goals in this Agreement.]<sup>16</sup>*

and the Environmental and Socio Cultural Initiatives Agreement (ESCIA), which aims to,

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<sup>14</sup> Mandell Pinder LLP. (2014). "Tsilhqot'in Nation v. British Columbia., 2014 SCC 44, Case Summary." First Nations in BC Knowledge Network. <http://fnbc.info/news/mandell-pinder-case-summary-tsilhqot-in-decision>

<sup>15</sup> Members First Nations include Nadleh Whut'en, Nak'azdli, Stelat'en, Saik'uz, Takla Lake, Tl'azt'en, T'sil Kaz Koh (Burns Lake) and the Wet'suwet'en.

<sup>16</sup> British Columbia & Carrier Sekani First Nations. (2015). *Collaboration Agreement*. <http://www.carriersekani.ca/images/docs/Collaboration/The%20Agreements.pdf>

*[A]ddress the Parties' intent to: (a) collaborate in innovative ways on issues of mutual interest related to environmental stewardship and socio-cultural matters; (b) address environmental issues in the Territories related to the Natural Gas Pipelines; (c) manage, rehabilitate, and restore fish and wildlife populations and ecosystems in the Territories; (d) ensure that effective measures are put into place to mitigate environmental and socio-cultural impacts in relation to the construction and operation of each Natural Gas Pipeline; and (e) promote and enhance social and cultural well-being and opportunities for CSFN.<sup>17</sup>*

The Agreements also establish four collaborative working groups to meet their objectives. These include a Leadership Table, Collaborative Working Group, Stewardship Working Group and Socio-Cultural Working Group (see diagram below).

- **Leadership Table<sup>18</sup>:** Chiefs and relevant Ministers including the Deputy Premier will meet periodically to oversee the implementation of the agreements as well as develop a framework that will facilitate reconciliation of Crown and Aboriginal title and rights in the territories.
- **Collaboration Working Group:** Members from each CSFN and senior representatives from BC will meet to implement the government to government framework to negotiate agreements pertaining to forestry, mining, water and environmental stewardship.
  - **Major Projects Table (sub-group):** As a result of the efforts of this sub-group, the CSFNs and the Province have agreed to implement a collaborative decision-making framework for major projects in the territories, including developing consensus recommendations for the design and implementation of environmental assessments for major projects.
- **Stewardship Working Group (SWG):** A SWG will be established, comprised of CSFNs, representatives from relevant BC ministries (Forests, Lands and Natural Resource Operations; Environmental Assessment Office) to provide a forum to address environmental matters pertaining to the natural gas pipeline projects. The working group will:
  - Meet immediately to ensure that CSFNs concerns and interests are incorporated into OGC permits and conditions required by EA certificates
  - Develop a Compliance Monitoring Program including establishing monitor training programs
  - Develop a Pipeline and Environmental Monitoring program, including emergency planning and response
  - Develop a Compliance Management Plan to ensure EAO and OGC conditions are met throughout the life of the project
- **Socio-cultural Working Group (SCWG):** This working group will include members of each CSFN and representatives from relevant BC ministries including Ministry of Aboriginal Relations and Reconciliation (MARR). The Province pledges funding for the group to meet to develop terms of reference and a strategy to implement:
  - A Languages Program

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<sup>17</sup> British Columbia & Carrier Sekani First Nations. (2015). *Environmental and Socio-Cultural Initiatives Agreement*. (p.11) <http://www.carriersekani.ca/images/docs/Collaboration/The%20Agreements.pdf>

<sup>18</sup> Carrier-Sekani Tribal Council. (2015). 'Implementation Update.' *Collaboration Agreements Update, Newsletter #3*. December 2015. <http://www.carriersekani.ca/images/docs/Collaboration/Newsletters/15.12.01%20Implementation%20Update%20No.%203%20FINAL%20standard.pdf>

- An Education Pilot Program for 18-25 year olds over 3 years
- A Skills Training Program over 3 years for all community members of all ages and interests
- The SCWG will be formed by April 30, 2015 and will meet quarterly or as needed. Within 120 days of signing, the SCWG will establish a list of shovel-ready projects associated with natural gas pipeline socio-cultural impacts and seek funding for implementation.

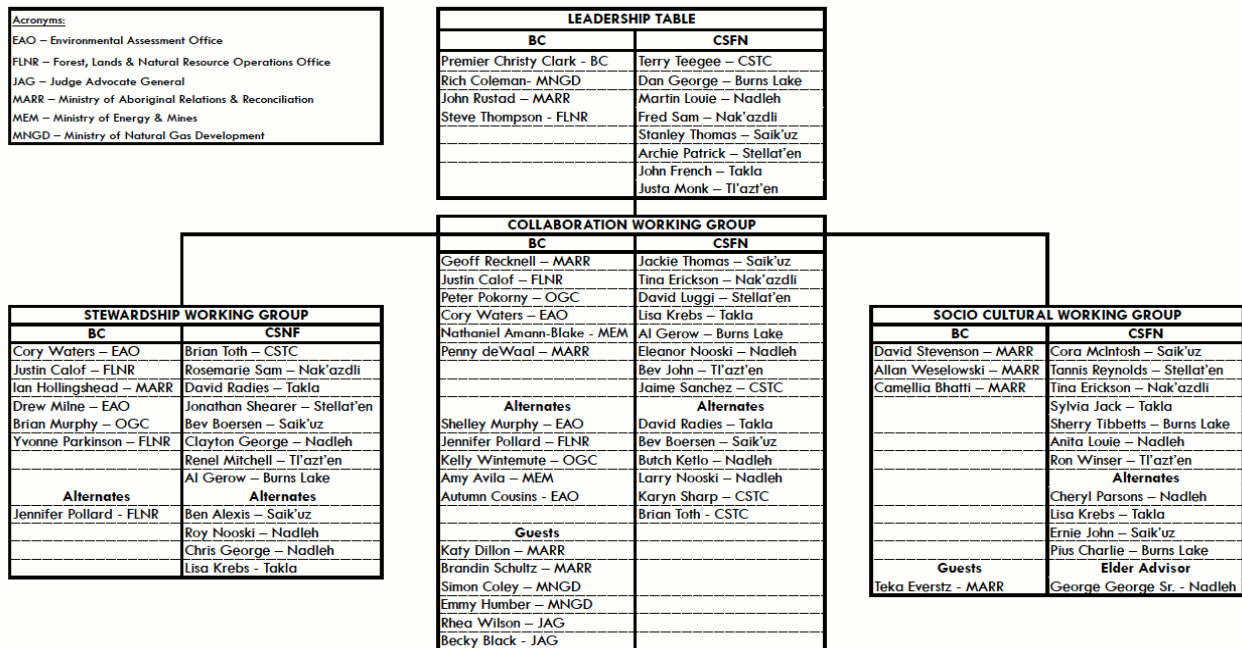


Figure 2: CSFN-BC Working Group Chart<sup>19</sup>

Funding for the implementation of the Agreements include \$1.35 million to support the CSFNs and Carrier Sekani Tribal Council’s participation in (a) title reconciliation discussions; (b) negotiation of government-to-government agreements; (c) the Stewardship Working Group created under the Environmental and Socio-Cultural Initiatives Agreement and (d) the Collaboration Working Group.

Additional funding of up to \$3 million for the development of a cumulative effects assessment, monitoring and management framework will be provided if funding from the LNG Environmental Stewardship Initiative is not sufficient for its completion (see below).

### LNG Environmental Stewardship Initiative

The Liquefied Natural Gas (LNG) Environmental Stewardship Initiative (ESI), launched in May 2014, is a collaborative initiative between the Province of BC, First Nations and the LNG Sector that seeks to create opportunities for developing new environmental

<sup>19</sup> Carrier Sekani Tribal Council. (2015). CSFN-BC Agreement Working Group Chart. <http://www.carriersekani.ca/images/docs/Collaboration/Working%20Group%20Org%20Chart.gif>



stewardship projects associated with LNG development. According to the Province, '[t]he goals of the LNG ESI are to develop a new, collaborative approach to establishing environmental legacies related to LNG development and generating high quality, accessible and trusted environmental information'<sup>20</sup>. The scope of the LNG ESI include four key areas:

- Ecosystem assessment and monitoring
- Ecosystem restoration and enhancement
- Ecosystem research and knowledge exchange
- Stewardship education and training

Four Regional Stewardship Forums have been established in Skeena, Omineca, the Northeast and North Coast to identify and develop projects according to priorities in each area. A fifth working group, the Governance Working Group, is responsible for developing the LNG ESI governance principles, decision-making and a long-term operating structure.

First Nations participants for the Omineca Regional Stewardship Forum include:

- Carrier Sekani Tribal Council members
  - T'sil Kaz Koh (Burns Lake)
  - Nadleh Whut'en
  - Nak'azdli
  - Saik'uz
  - Stelat'en
  - Takla Lake
  - Tl'azt'en
- McLeod Lake Indian Band
- Tsay Keh Dene
- Yekooche First Nation

The Carrier Sekani First Nations participating on the LNG ESI are also members of the Stewardship Working Group related to the CSFN – BC Agreements (see above). One of the immediate priorities of the Omineca Regional Stewardship Forum is to develop a cumulative impacts/effects assessment project for the Omineca region that encompasses Carrier Sekani First Nation-focused environmental and cultural values. This work is intended to meet the commitment stated in Section 15 of the Environmental Socio Cultural Initiatives Agreement to support the completion of a Carrier Sekani First Nations cumulative effects study<sup>21</sup>.

Funding for the LNG ESI includes a budget of \$30 million over 3 years for the various regional projects across BC<sup>22</sup>.

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<sup>20</sup> Province of BC. (2015). Liquefied Natural Gas Environmental Stewardship Initiative. <http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/liquefied-natural-gas-environmental-stewardship-initiative>

<sup>21</sup> British Columbia & Carrier Sekani First Nations. (2015). *Environmental and Socio-Cultural Initiatives Agreement*. (p.19) <http://www.carriersekani.ca/images/docs/Collaboration/The%20Agreements.pdf>

<sup>22</sup> Province of BC. (2015). 'News Release, Ministry of Aboriginal Relations and Reconciliation.' July 29<sup>th</sup>, 2015. [https://archive.news.gov.bc.ca/releases/news\\_releases\\_2013-2017/2015ARR0032-001206.pdf](https://archive.news.gov.bc.ca/releases/news_releases_2013-2017/2015ARR0032-001206.pdf)

## Yinka Dene 'Uza'hne Surface Water Management Policy & Guide to Surface Water Quality Standards

The *Yinka Dene 'Uza'hne Surface Water Management Policy*<sup>23</sup> was formally launched on March 30<sup>th</sup>, 2016 as one of the first Aboriginal water laws in British Columbia<sup>24</sup>. The Policy focuses on ensuring that water resources, and the natural resources that depend on aquatic and riparian habitats are protected and conserved for future generations. This is captured in its objective that states 'Surface waters within our Territories should remain substantially unaltered in terms of water quality and flow.' To meet this objective, the Policy describes a water classification system that divides Territorial waters into three categories based on their cultural and ecological importance, including High Cultural or Ecological Significance (Class I Waters), Sensitive Waters (Class II Waters) and Typical Waters (Class III Waters). Each water class triggers specific water management goals and specific water quality standards further explained in the *Yinka Dene 'Uza'hne Guide to Surface Water Quality Standards*<sup>25</sup>.

In addition, the Policy sets out guidelines for a 'water management technical process' which potential water users or project proponents within the Nadleh Whut'en and Stelat'en territories are required to follow. These 11 steps are to be completed in consultation with environmental staff and are intended to be generally consistent with existing federal and provincial water management approaches. Furthermore, the Policy is intended to support the implementation of collaborative planning and management between Nadleh Whut'en, Stelat'en and the Crown in relation to environmental and cultural stewardship and to natural resource development in their Territories. To this end, the Carrier Sekani Tribal Council has proposed collaborative implementation of the Water Policy as a pilot for other aboriginal water policies in BC<sup>26</sup>.

### Saik'uz First Nation Stewardship Plan: 2015-2020

The *Saik'uz Stewardship Plan: 2015-2020*, finalized on March 31, 2015, sets out priorities and goals for protecting and improving the land and its resources as well as actions and strategies needed to achieve them. The Plan aims to guide the actions of Saik'uz leaders, members and First Nation and non-First Nations partners. The Plan is

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<sup>23</sup> Nadleh Whut'en & Stelat'en. (2016). *Yinka Dene 'Uza'hne Surface Water Management Policy*. [http://www.carriersekani.ca/images/docs/Yinka%20Dene%20'Uzah'ne%20Surface%20Water%20Management%20Policy%20\(March%2018%202016\)%20\(00303183xC6E53\).pdf](http://www.carriersekani.ca/images/docs/Yinka%20Dene%20'Uzah'ne%20Surface%20Water%20Management%20Policy%20(March%2018%202016)%20(00303183xC6E53).pdf)

<sup>24</sup> Vancouver Sun. (2016). 'Nadleh Whut'en and Stelat'en hereditary leaders proclaim B.C.'s first aboriginal water laws.' 30 March 2016.

<http://www.vancouversun.com/business/energy/nadleh+whut+stellat+hereditary+leaders+proclaim+first/11819121/story.html>

<sup>25</sup> Nadleh Whut'en & Stelat'en. (2016). *Yinka Dene 'Uza'hne Guide to Surface Water Quality Standards*. [http://www.carriersekani.ca/images/docs/Yinka%20Dene%20'Uzah'ne%20Guide%20to%20Surface%20Water%20Quality%20Standards%20\(March%2018%202016\)%20\(00303157xC6E53\).pdf](http://www.carriersekani.ca/images/docs/Yinka%20Dene%20'Uzah'ne%20Guide%20to%20Surface%20Water%20Quality%20Standards%20(March%2018%202016)%20(00303157xC6E53).pdf)

<sup>26</sup> Carrier-Sekani Tribal Council. (2016). *Discussion Paper: Opportunities for Collaborative Water Management*. [http://www.carriersekani.ca/images/docs/Discussion%20Paper%20\(March%202016\)%20\(00303629xC6E53\).pdf](http://www.carriersekani.ca/images/docs/Discussion%20Paper%20(March%202016)%20(00303629xC6E53).pdf)

organized into short (2015-2016), medium (2017-2018) and long-term strategies (2019+).

Community meetings to develop the plan were based on recent work by the Carrier Sekani Tribal Council which identifies key critical resources required to meaningfully practice and exercise Aboriginal rights and title<sup>27</sup>. These findings were presented to the community to help create a starting point for member to define stewardship priorities, goals and actions. The planning process was held between January and March 2015 and led by the Saik'uz Lands and Resources Department and The Castlemain Group funded by Natural Resources Canada.

The key five year priorities were identified as follows:

**1. Expand, build and revitalize systems of governance/cultural practices for improved environmental stewardship**

- a. Short Term Goals (2015-2016)
  - To develop our systems of governance and cultural practices for improved environmental stewardship
  - To update the Saik'uz First Nation Consultation & Accommodation Policy
  - To support cultural practices through the building of structures
  - To revitalize cultural practices around resource use
- b. Medium Term Goals (2017-2018)
  - To develop traditional food and medicine programming for enhancing learning and food security
- c. Long Term Goals (2019+)
  - Keyoh holders to assert occupation throughout the territory

**2. Research current conditions and establish baselines**

- a. Short-Term Goals (2015-2016)
  - To conduct contaminants research on plans, water, soil, fish and animals in the territory to establish baselines and allow for the monitoring of contaminants over time
  - To establish a water quality and quantity baseline in Saik'uz territory for 2015
  - To establish a cumulative effects baseline for Saik'uz territory
  - To develop partnerships for improved watershed governance, information sharing and capacity building
- b. Medium Term Goals (2017-2018)
  - To continue to develop partnerships for improved watershed governance

**3. Protect and restore our lands and resources for future generations**

- a. Short Term Goals (2015-2016)

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<sup>27</sup> The Firelight Group. (2014). 'Appendix B: Cumulative Effects on the Aboriginal Rights and Interests of Carrier Sekani Tribal Council First Nations. A Preliminary Re-Assessment of the Coastal GasLink Project.' Prepared for the Carrier Sekani Tribal Council. P. iv.  
[http://www.carriersekani.ca/images/docs/cstc/Appendix%20B%20%20FL-CSTC-309\\_CEA\\_extended\\_summary\\_Oct3\\_2014\\_final.pdf](http://www.carriersekani.ca/images/docs/cstc/Appendix%20B%20%20FL-CSTC-309_CEA_extended_summary_Oct3_2014_final.pdf)

- To define restoration activities/sites and apply for funding to support protection and restoration work
  - To work with external partners to support protection and restoration within Saik'uz territory
  - To build community capacity for protecting and restoring lands
  - b. Medium Term Goals (2017-2018)
    - To develop strategies to sustain moose populations in Saiku'z territory
  - c. Long Term Goals (2019+)
    - To build community capacity in emergency management forest fire prevention, detection and suppression services
- 4. Manage access within the territory**
- a. Short Term Goals (2015-2016)
    - To plan for the decommissioning of industry/commercial roads
    - To manage non-community member access to our natural resources (berry picking, hunting)
    - To set up a system to ensure our members are safe on the lands
  - b. Medium Term Goals (2017-2018)
    - To ensure access to special cultural sites for members
    - To revitalize current and past transportation routes
  - c. Long Terms Goals (2019+)
    - To begin decommissioning roads
- 5. Develop Saik'uz-led environmental monitoring in the territory**
- a. Short Term Goals (2015-2016)
    - To start developing community capacity for environmental monitoring
  - b. Medium Term Goals (2017-2018)
    - To start developing a system for Saik'uz driven environmental monitoring and protection
  - c. Long Term Goals (2019+)
    - To implement Saik'uz driven environmental monitoring system
- 6. Build communication, awareness and engagement around topics and issues related to lands and resources**
- a. Short Term Goals (2015-2016)
    - To develop communications capacity at Saik'uz First Nation to enable effective engagement, information sharing and dialogue around issues related to lands and resources
    - To engage the community and communicate about lands and resources topics with members in a culturally and age-appropriate way
    - To communicate our stewardship priorities and goals with proponents, municipal, provincial, federal government, potential partners, the general public and other First Nations

## **Lheidli T'enneh First Nation Environmental Management Framework and Treaty Process**

Having established their Land Code and Individual Transfer Agreement in 2000 (as per the *First Nations Land Management Act*), the Lheidli T'enneh First Nation have taken over the management and control of their reserve lands out of the purview of the Indian Act. Since then, they have also developed a Land Use Plan (2005)<sup>28</sup> and Environmental Management Framework (2007)<sup>29</sup>. In 2006, they began negotiations under the BC Treaty Process which resulted in the development of a Final Agreement in 2007 but was not accepted by community vote. The community is scheduled to vote again on a revised Final Agreement in 2016<sup>30</sup>.

## **Cheslatta Reconciliation and Settlement Framework**

On September 12, 2016, the Cheslatta Carrier Nation signed a *Framework for Negotiation of the Reconciliation and Settlement Agreement* with the Province of BC. The \$2.3 million framework agreement lays out a process for negotiation on a series of topics including:

- The development of a land package which may include Crown grants for fee simple land; resource use tenures; land designations, such as ecological reserves and old growth management areas and funding to support the purchase of private land;
- Discussion and development of collaborative management arrangements for protected areas, as identified under the *Protected Areas of British Columbia Act*, S.B.C. 2000, c.17; and,
- Establishing a relationship with Rio Tinto to facilitate collaboration on Nechako reservoir management.<sup>31</sup>

## **Potential Water Use Planning Process for the Nechako River**

In BC, the Nechako may be the only dammed river system without a Water Use Plan. There are currently 23 Water Use Plans that have been developed and implemented for BC Hydro facilities as well as 1 for Metro Vancouver's facilities. Water Use Plans are technical, legally enforceable documents that outline incremental changes at water control facilities to achieve multiple objectives. They are not the same as Water Management Plans (under the Water Act) or Water Sustainability Plans (under the Water Sustainability Act). The goal of a Water Use Planning process is to 'achieve consensus on a set of operating rules for each facility that satisfies the full range of

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<sup>28</sup> Lheidli T'enneh. (2005). 'Reserve Land Use Plan.'

[http://www.lheidli.ca/Documents/LT\\_LandUsePlan.pdf](http://www.lheidli.ca/Documents/LT_LandUsePlan.pdf)

<sup>29</sup> Lheidli T'enneh. (2016). 'Lands'. Lheidli T'enneh website.

<http://www.lheidli.ca/Lands/index.php#emf>

<sup>30</sup> Lheidli T'enneh. (2016). 'Treaty'. Lheidli T'enneh website. <http://www.lheidli.ca/Treaty/index.php>

<sup>31</sup> Province of BC. (2016). 'Framework for Negotiation of the Reconciliation and Settlement Agreement.' Province of BC website. [http://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/agreements/cheslatta\\_framework\\_public\\_version\\_20160805.pdf](http://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/agreements/cheslatta_framework_public_version_20160805.pdf)

water use interests at stake, while respecting legislative and other boundaries.’<sup>32</sup> Benefits of a Water Use Plan include a ‘better balance among competing interests, greater certainty for the licensee and regulators, broader understanding by all participants, flexibility to meet future challenges, new working relationships and social licence.’<sup>33</sup>

In August 2016, the District of Vanderhoof publicly announced that the Water Comptroller of BC is exploring the feasibility of a water use planning process for the Nechako River.

### **Saik’uz First Nation and Stelat’en First Nation v. Rio Tinto Alcan Inc.**

In September 2011, Saik’uz and Stelat’en First Nations filed an action in the BC Supreme Court claiming that Rio Tinto Alcan’s (now Rio Tinto) operation of the Kenney Dam has harmed the Nechako River and their fisheries ‘through the diverting of water, changing water flows and temperature, eroding the banks, and generally interfering with the ecological system and that these actions constituted private nuisance, public nuisance, and a breach of their riparian rights.’<sup>34</sup> This claim was grounded in their Aboriginal title and rights which included the area around the Nechako River, the river itself and the river-bed. Both First Nations communities have their reserve on the banks of the Nechako River. Rio Tinto’s initial argument was that Aboriginal title and rights were not proven in this case and were only asserted. Although the BC Supreme Court judge sided with Rio Tinto, Saik’uz and Stelat’en appealed and won in a unanimous decision that ruled it was wrong to decide that First Nations could only bring claims where Aboriginal title and rights were proven in Court or acknowledged by the Crown.<sup>35</sup> Based on this precedent, First Nations can now pursue injunctions and lawsuits for damages, and can rely on their Aboriginal title and rights to do so. It recognizes that First Nations have existing legal rights that must be acknowledged and respected.

Saik’uz and Stelat’en First Nations will now proceed to the BC Supreme Court to advance their claims. If they are successful in showing that Rio Tinto’s operations have adversely affected their title and rights, they are ‘asking the Court to order RTA to stop or change its operations, and/or for damages for the harms they have suffered.’<sup>36</sup>

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<sup>32</sup> Province of BC. (1998). ‘Water Use Plan Guidelines.’ P.6.  
[http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-planning/water\\_use\\_plan\\_guidelines.pdf](http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-planning/water_use_plan_guidelines.pdf)

<sup>33</sup> BC Ministry of Forests, Lands and Natural Resource Operations. (2016). ‘Water Use Planning.’ Powerpoint presentation. Presented at Vanderhoof public meeting, August 16, 2016.

<sup>34</sup> Mandell Pinder LLP. (2015). ‘Saik’uz First Nation and Stelat’en First Nation v. Rio Tinto Alcan Inc., 2015 BCCA 154- Case Summary.’ <http://www.mandellpinder.com/2015-bcca-154-case-summary/>

<sup>35</sup> *Ibid.*

<sup>36</sup> *Ibid*

## 4.2 Current Projects in the Nechako Watershed

There are a range of different projects being led by various groups in the Nechako watershed. These projects include stewardship initiatives, research, monitoring, fish and wildlife habitat restoration, education and outreach and campaigns. The following table collates the best available information received on projects in 2015 and 2016.

Organization	Project Name	Location	Type of Stewardship Initiative or Activity	Time-frame	Contact Person
Carrier Sekani Tribal Council	Nechako White Sturgeon Spawn Monitoring	Nechako River by Vanderhoof	Partnership with the Nechako White Sturgeon Recovery Initiative (NWSRI) Technical Working Group. Acoustic tagging and egg mats are used to figure out when, where Sturgeon spawn. What substrate and conditions are ideal for spawning. Another project on geomorphology complements this work.	2015-2016	Christina Cisielski, Fisheries Manager Carrier-Sekani Tribal Council <a href="mailto:Christina@cstc.bc.ca">Christina@cstc.bc.ca</a> 250-562-6279 ext: 238
	Nechako White Sturgeon Juvenile recruitment and indexing	Nechako River	Set lines for capture to determine what habitats are going to and the numbers of wild and hatchery fish.	2015-2016	Christina Cisielski, Fisheries Manager Carrier-Sekani Tribal Council <a href="mailto:Christina@cstc.bc.ca">Christina@cstc.bc.ca</a> 250-562-6279 ext: 238
	Outreach and engagement with First Nations FSC fishers about sturgeon	CSTC communities	Educating fishers on the importance of the release of sturgeon. Distributing boat kits to unravel sturgeon getting caught in nets. Encouraging First Nations to take some information when sturgeon are caught (e.g. measurements, photos, etc.)	2015-2016	Christina Cisielski, Fisheries Manager Carrier-Sekani Tribal Council <a href="mailto:Christina@cstc.bc.ca">Christina@cstc.bc.ca</a> 250-562-6279 ext: 238

	Early and Summer Sockeye Management and Salmon Counts	Takla Lake, Driftwood River, Nechako River, Fraser River	Partnership with Upper Fraser Fisheries Conservation Alliance (CSTC is a member). New project fall 2015. Three workshops held by end of fiscal to come up with a plan for several runs that spawn in the Upper Fraser and "Upper upper Fraser" areas. Part of funding from Major Projects West for Fish Habitat Restoration Initiative (FHRI). CSTC is also performing Sockeye and Chinook salmon counts for the Stuart, Stellako, Nechako, Nadina and Endako rivers.	2015-present	Michelle Tung Upper Fraser Fisheries Conservation Alliance <a href="mailto:Michelle.Tung@upperfraser.ca">Michelle.Tung@upperfraser.ca</a> and Christina Cisielski, Fisheries Manager Carrier-Sekani Tribal Council <a href="mailto:Christina@cstc.bc.ca">Christina@cstc.bc.ca</a> 250-562-6279 ext: 238
	Small stream restoration	Nahounli, Stoney, Chilako and others	New project fall 2015. Several streams identified. More to come. Funding for 5 years, yearly renewal. Includes monitoring.	2015-2020	Michelle Tung Upper Fraser Fisheries Conservation Alliance <a href="mailto:Michelle.Tung@upperfraser.ca">Michelle.Tung@upperfraser.ca</a>  Brenda Gouglas Councillor, Fort St. James <a href="mailto:bgouglas@fortstjames.ca">bgouglas@fortstjames.ca</a>
<b>Cheslatta Carrier Nation</b>	Cheslatta Restoration Project	Cheslatta Carrier Nation – Burns Lake	Ongoing activity to assess the environment of the Nechako system and make recommendations for relief in the system. Several levels of work in relation to the rehabilitation of the land and people including habitat assessment on multiple creeks, population studies for Char and Umam, shoreline reconnaissance and restoration activities.	1991 - present	Mike Robertson, Senior Policy Advisor Cheslatta Carrier Nation ph <a href="tel:2506943334">250 694-3334</a> <a href="mailto:mrobertson@cheslatta.com">mrobertson@cheslatta.com</a>



	Kenney Dam Release Facility	Kenney Dam	Proposal submitted May 2012. Water license application submitted September 2013.	2012-present	Mike Robertson, Senior Policy Advisor Cheslatta Carrier Nation ph <a href="tel:2506943334">250 694-3334</a> <a href="mailto:mrobertson@cheslatta.com">mrobertson@cheslatta.com</a>
	Human remains reconnaissance and reburials	Cheslatta Lake	Flooding of Cheslatta Lake system occurs annually causing human remains to wash up on the shores due to flooding of the Cheslatta Carrier Nation cemetery.	Ongoing	Mike Robertson, Senior Policy Advisor Cheslatta Carrier Nation ph <a href="tel:2506943334">250 694-3334</a> <a href="mailto:mrobertson@cheslatta.com">mrobertson@cheslatta.com</a>
	Watershed Tours	Nechako Reservoir and Cheslatta System	These tours can be hosted by the Cheslatta Carrier Nation upon request.	Ongoing	Mike Robertson, Senior Policy Advisor Cheslatta Carrier Nation ph <a href="tel:2506943334">250 694-3334</a> <a href="mailto:mrobertson@cheslatta.com">mrobertson@cheslatta.com</a>
<b>City of Prince George</b>	McMillan Creek Restoration	Prince George	Stream bank stabilization and rehabilitation to address culvert erosion issues. Water quality monitoring and fish population studies have also been conducted along with education and outreach.	2000 - present	Gina Layte-Liston City of Prince George 250-614-7824 <a href="http://princegeorge.ca/environment/rivers/streamslakes/Pages/Default.aspx">http://princegeorge.ca/environment/rivers/streamslakes/Pages/Default.aspx</a>
<b>College of New Caledonia</b>	Small streams riparian retention	Bear Creek	Work is not in the Nechako Watershed but intent is to improve small stream riparian and water protection during harvesting operations, including road crossings. Monitoring and evaluating reserve size and road crossing techniques. Partnership with Dunkley Lumber. Start Oct 2014 - finish undetermined	2014-ongoing	Andrea Erwin 250-562-2131 ext 5362

<b>Ducks Unlimited</b>	Wetland Protection and Restoration	Nechako watershed	Over 25 wetland and protection and restoration projects across the Nechako watershed.	Ongoing	Brad Arner, Manager of Conservation Programs Ducks Unlimited <a href="mailto:b_arnier@ducks.ca">b_arnier@ducks.ca</a> 250-374-8307
	Water control projects	Various locations			Brad Arner, Manager of Conservation Programs Ducks Unlimited <a href="mailto:b_arnier@ducks.ca">b_arnier@ducks.ca</a> 250-374-8307
<b>Enviro Vikes</b>	Blue Dot Campaign	Nechako Valley Secondary School	Raise awareness about environmental issues globally and in the Nechako watershed. Had Vanderhoof approve a Municipal Declaration of Environmental Rights stating that residents have the right to a healthy environment.	2014-present	
<b>Fraser Basin Council</b>	Chilako River Monitoring and Restoration	Chilako River	Collaborative project across Chilako Watershed to monitor environmental conditions, develop a riparian restoration plan and conduct community outreach / education	2012-present	Terry Robert, Senior Regional Manager Fraser Basin Council <a href="mailto:trobort@fraserbasin.bc.ca">trobort@fraserbasin.bc.ca</a> 250-612-0252
	Nechako Watershed Roundtable / Nechako Watershed Strategy	Nechako watershed	FBC is the secretariat and administrative support for the Nechako Watershed Roundtable is a collaborative entity with a mission to ensure the Nechako watershed is healthy for generation to come. The Roundtable aims to direct and advise decision-makers on water stewardship activities in the Nechako watershed through its work on the Nechako Watershed Health Report,	2012-present	Theresa Fresco, Regional Assistant Manager Fraser Basin Council (Upper Fraser Office) <a href="mailto:tfresco@fraserbasin.bc.ca">tfresco@fraserbasin.bc.ca</a> 250-612-0252

			online Atlas and the Nechako Watershed Strategy.		
<b>Ministry of Forests, Lands and Natural Resource Operations (MFLNRO)</b>	Sediment research and habitat designation	Vanderhoof reach of the Nechako River	<p><b>Gravel placement project</b> – Two of the assessed sites were at the gravel pads place in the river in 2011.</p> <p><b>Gravel sampling</b> – Prescore sampling of substrate and analysis of historical deposition of gravel. Turbidity sensor installed on the middle pier of Burrard Avenue bridge. Analysis of suspended sediment and its relation to bedload.</p> <p><b>Habitat Designation</b> – Proposing restrictions on industrial development on certain parcels of land through habitat designations under the Forest and Range Practices Act. Working on designating certain watersheds such as Stuart/Takla area due to the importance of fisheries.</p>	2011-present	Zsolt Sary Landbase Stewardship, Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:Zsolt.Sary@gov.bc.ca">Zsolt.Sary@gov.bc.ca</a> 250-614-7454
	Nechako Bull Trout Distribution Evaluations	Upper Fraser and Nechako River	5 year project to explore the source, distribution and relative abundance of Nechako River overwintering bull trout.	2011-2016	Ray Pillopow Fish and Wildlife Section Head Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) <a href="mailto:Ray.Pillipow@gov.bc.ca">Ray.Pillipow@gov.bc.ca</a> 250-614-7494
	Watershed Health Project	Omineca Region	Development of a Watershed Health Assessment for the Omineca region that would assess and report on the ecological condition of its watersheds. This assessment will	2015-present	John Rex Hydrologist, Omineca and the Northeast Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:John.Rex@gov.bc.ca">John.Rex@gov.bc.ca</a>

			provide a baseline estimate of watershed function and the opportunity to prediction future conditions using foreseeable development as well as climate change scenarios.		250 561-3464
Flow and Lake Level Monitoring	Chilako watershed, Stoney Creek, Nechako Plateau	Inflow and outflow monitoring on Murray, Chilako and Stoney Creeks. Weather station and hydrometric monitoring station to be installed in the Chilako watershed. Lake level monitoring stations in Tachick and Nulki Lakes. Data collected bi-weekly by volunteers.	2015-present	Chelton van Geloven Source Water Protection Hydrologist, Dam Safety Officer, Resource Management, Northern Area Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:chelton.vangeloven@gov.bc.ca">chelton.vangeloven@gov.bc.ca</a> 250-561-3445	
Private well sampling survey	Vanderhoof, rural	Private well sampling being undertaken to assess groundwater health.	2014-present	Jun Yin Regional Hydrogeologist, Water Authorizations Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:Jun.Yin@gov.bc.ca">Jun.Yin@gov.bc.ca</a> 250-693-3015	
Stoney Creek surface water-groundwater interaction study	Stoney Creeek	Three year research project. UNBC participation with Dr.Jianbing Li and Ph.D student Mary Liang The project is mainly to look at the surface water groundwater interactions in the Stoney Creek watershed and to develop a model to address the water budget.	2016-present	Jun Yin Regional Hydrogeologist, Water Authorizations Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:Jun.Yin@gov.bc.ca">Jun.Yin@gov.bc.ca</a> 250-693-3015	

	Water assessments	Tachik Lake, Sowchea Bay	Water level monitoring. ECA		Phil Kraupschof, Ministry of Forests, Lands and Natural Resource Operations John Rex Hydrologist, Omineca and the Northeast Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:John.Rex@gov.bc.ca">John.Rex@gov.bc.ca</a> 250 561-3464
	Forest and Range Evaluation Program (FREP) Monitoring	Omineca Region	Further work on Omineca FREP Monitoring <a href="https://www.for.gov.bc.ca/hfp/frep/rsm/">https://www.for.gov.bc.ca/hfp/frep/rsm/</a>		John Rex Hydrologist, Omineca and the Northeast Ministry of Forests, Lands and Natural Resource Operations <a href="mailto:John.Rex@gov.bc.ca">John.Rex@gov.bc.ca</a> 250 561-3464
<b>Nadsilnich Lake Community Organization</b>	Water monitoring program	Nadsilnich Lake	A 5 year study of water clarity, oxygen, temp. and phosphorus content in our lake. Supported by MOE, BC Lakes carried out by community members to supplement a previous 5year study completed by MOE.	Ongoing	Nan Kendy, President <a href="mailto:nan@explornet.ca">nan@explornet.ca</a> 250-964-4120
<b>Nechako Environment and Stewardship Society (NEWSS)</b>	Murray Creek Restoration Project	Murray Creek, Larsen Road historic stream restoration	Rehabilitation work to improve water quality, fish and wildlife habitat, and access for salmon spawning and juvenile habitat	2009 – present (ongoing)	<a href="http://newsociety.org/Watersheds/Murray_Creek.html">http://newsociety.org/Watersheds/Murray_Creek.html</a>  Wayne Salewski, President <a href="mailto:contact@newsociety.org">contact@newsociety.org</a> 250-567-0844
	Stoney Creek Restoration Project	Multiple locations on Stoney Creek	Stream bank and shoreline stabilization, culvert removal and replacement, habitat restoration and enhancement activities to improve stream function and water quality	2014 - ongoing	Wayne Salewski, President <a href="mailto:contact@newsociety.org">contact@newsociety.org</a> 250-567-0844

	Knight Creek Restoration Project	Knight Creek, Nechako Valley Agricultural Belt	Riparian restoration project mostly on agricultural land	2015-2019	Wayne Salewski, President <a href="mailto:contact@newsociety.org">contact@newsociety.org</a> 250-567-0844
	Redmond Wetland	Vanderhoof	36 ha wetland enhancement and education project including walking trails and viewing platforms	2015	Vanderhoof Fish & Game Club <a href="mailto:vanderhooffishandgameclub@gmail.com">vanderhooffishandgameclub@gmail.com</a>  Wayne Salewski <a href="mailto:contact@newsociety.org">contact@newsociety.org</a> 250-567-0844
	Spawning Habitat Manipulation Gravel Placement Project	Nechako River, Vanderhoof	Experimental restoration project to track and monitor sturgeon egg to larvae development in the wild.	2011 - present	Nechako White Sturgeon Recovery Initiative <a href="mailto:info@nechakowhitesturgeon.org">info@nechakowhitesturgeon.org</a> <a href="http://www.nechakowhitesturgeon.org">http://www.nechakowhitesturgeon.org</a>
	Nechako White Sturgeon Broodstock Capture	35km of Nechako River	Project to capture 12 pairs of breeding adult Sturgeon to allow for production, raising, and annual release of up to 12,000 juvenile sturgeon into the Nechako River.	2006 – 2009 (pilot) 2014 – present	Nechako White Sturgeon Recovery Initiative <a href="mailto:info@nechakowhitesturgeon.org">info@nechakowhitesturgeon.org</a>
	Juvenile Index Program	45km of Nechako River	Juvenile sturgeon capture and release program to provide an estimate of the number of young sturgeon in the Nechako watershed	2004 - present	Nechako White Sturgeon Recovery Initiative <a href="mailto:info@nechakowhitesturgeon.org">info@nechakowhitesturgeon.org</a>
	Adult Spawn Monitoring	Nechako River, Vanderhoof	Monitoring of sturgeon migration from over-wintering sites to track their movements towards the spawning grounds located in the	2004-present	Nechako White Sturgeon Recovery Initiative <a href="mailto:info@nechakowhitesturgeon.org">info@nechakowhitesturgeon.org</a>

			Vanderhoof area. Data used to determine key sturgeon habitat areas and aid in recruitment failure analysis.		
<b>Nechako White Sturgeon Recovery Initiative Community Working Group</b>	Nechako White Sturgeon Recovery Initiative (NWSRI)	Vanderhoof, Nechako Watershed	The NWSRI has several Outreach and Harm Reduction Programs including Healthy Watershed for Sturgeon curriculum for grades 4-7, Emergency Release Boat Kit & Video, First Nations Assemblies, Signs and Brochures SOS events & Rivers Day School releases (1000 students tag, release, and track sturgeon)		Lana Cianiello Nechako White Sturgeon Recovery Initiative <a href="mailto:info@nechakowhitesturgeon.org">info@nechakowhitesturgeon.org</a> 250-567-6673 / 250-923-8881
<b>Northwest Invasive Plant Council</b>	Invasive plant management	Multiple locations / focus areas in watershed	Actively managing invasive plants that include inventory, treatment, and education and awareness.	Ongoing	Penni Adams 778-349-6848 <a href="mailto:manager@nwipc.org">manager@nwipc.org</a>
<b>Prince George Naturalists Club</b>	Hudson Bay Slough project	Hudson Bay Slough	A project to enhance the Wetland as a natural setting while creating a showcase environment for northern fish, plant & animal life through an interpretive trail with numerous learning opportunities and features	2012-present	Prince George Naturalists Club Clive Keen: 250-963-9520 <a href="mailto:pgnaturalists@hotmail.ca">pgnaturalists@hotmail.ca</a> <a href="https://hbwetland.wordpress.com/">https://hbwetland.wordpress.com/</a>
<b>Recycling and Environmental Action Planning Society (REAPS)</b>	Hudson Bay Slough and Shane Lake Health Assessment and Education	Shane Lake, Hudson Bay Slough	Annual school program to monitor and assess the health quality of habitat of the Hudson Bay Slough and Shane Lake, including weekly measurement of water temperature, dissolved oxygen, pH, nitrates, phosphates, potassium, calcium and magnesium	2011 – present	Terri Claymont, Executive Director Recycling and Environmental Action Planning Society (REAPS) 250-561-7327 <a href="http://www.reaps.org">http://www.reaps.org</a>

	Stream to Sea Program	Vanderhoof, Prince George	This project begins in the classroom with students raising Chinook salmon for release. Once mature, the students are taken on a field trip to release the salmon into local streams. Approximately 500 fry are released in Vanderhoof and around 900 released in Prince George.	2007 – present	Terri Claymont, Executive Director Recycling and Environmental Action Planning Society (REAPS) 250-561-7327 <a href="http://www.reaps.org">http://www.reaps.org</a>
	Salmonids in the Classroom	Fraser-Fort George and Bulkley-Nechako Regional Districts	Education and awareness of salmon habitat with DFO.	2015-2016	Terri Claymont, Executive Director Recycling and Environmental Action Planning Society (REAPS) 250-561-7327 <a href="http://www.reaps.org">http://www.reaps.org</a>
<b>Society for Ecosystem Restoration in North Central British Columbia (SERN BC)</b>	Shallow water wetland enhancement	North of the Agricultural belt, Kec and clear creeks	Stimulate aspen growth to provide structural building material for beaver. benefits to waterfowl, sediment capture, stream temps, hydrological amelioration, etc.		John De Gagne, SERN BC <a href="mailto:john.degagne@gov.bc.ca">john.degagne@gov.bc.ca</a> 250 567-6316 <a href="http://sernbc.ca/">http://sernbc.ca/</a>
<b>Takla Lake First Nation</b>	Takla Stream Monitoring Project	North Takla Lake	Monitoring stream flow, conductivity, temperature via data loggers.	2014-2020'	Keith West Takla Lake First Nation <a href="mailto:oandm@taklafn.ca">oandm@taklafn.ca</a>
<b>University of Northern BC</b>	Integrated Water Research Group (IWRG)	Nechako watershed, various areas	Nechako Watershed research project to examine: i) water security and climate change, (ii) fine sediment sources and dynamics, and (iii) tools for integration in watershed management and governance	2012-2017	Barry Booth, R.P. Bio. Research Manager, Integrated Watershed Research Group, University of Northern British Columbia <a href="mailto:Barry.Booth@unbc.ca">Barry.Booth@unbc.ca</a> 250-960-5433



	Cumulative Impacts Research Consortium (CIRC)	Northern BC	The Cumulative Impacts Research Consortium (CIRC) brings together diverse perspectives from across northern BC to research the cumulative impacts of natural resource development. CIRC seeks to inclusively integrate environmental, community, and health perspectives into a broad and holistic understanding of resource development across northern BC by addressing the near and long-term impacts on communities and their regional environments.	2015-present	Chris Buse, CIRC Project Lead <a href="mailto:chris.buse@unbc.ca">chris.buse@unbc.ca</a> 778-349-4242
	Engaging Youth in Watershed Planning/Governance	Nechako Watershed case study with expected applicability in other watersheds	Partnership with York University. Masters thesis research End date: August 2016	2014-2016	Sarah Bale, York Masters Student 905-376-3208
<b>Upper Fraser Fisheries Conservation Alliance (UFFCA)</b>	Fish Habitat Restoration Initiatives (FHRI) Projects: <sup>37</sup>				Key Contact for all projects: Michelle Tung Upper Fraser Fisheries Conservation Alliance <a href="mailto:Michelle.Tung@upperfraser.ca">Michelle.Tung@upperfraser.ca</a>

<sup>37</sup> DFO's Fisheries Habitat Restoration initiative (FHRI) funding is focused on fisheries habitat restoration in First Nations communities located in BC's 'energy corridor' including Central Interior First Nations. UFFCA in partnership with First Nations communities are helping to advance projects that provide the basis with which aquatic impacts can be better understood and their adverse effects on Central Interior First Nations interests can begin to be addressed.

	Riparian restoration in the Chilako watershed	Chilako River	In partnership with the Ministry of Forests, Lands and Natural Resource Operations, UFFCA implemented a pilot project for restoration of the riparian vegetation on a section of the Chilako River.	2016	
	Endako River Weir	Endako River	Feasibility and design for a weir at the outlet of Burns Lake to enhance quality and quantity of spawning habitat in the Endako River	2016	
	Nithi River Weir Operations and Management Plan and Habitat Restoration	Nithi River	Evaluation of existing weir and development of an operations plan.	2016	
	Regional Beaver Management Plan	Upper Fraser/ Nechako watersheds	Design a regional plan that provides guidance to all management activities planned by the Upper Fraser/Nechako First Nations with the objective to reverse observed impacts to fisheries habitat.	2016	
	Early Stuart and Early Summer Sockeye Stewardship	Stuart, Bowron and Nadina Rivers	Development of stewardship plans for stocks, as year 1 of a multi-year project to address factors that contribute to the poor status of these stocks.	2016	

	Stuart River Chinook Enumeration Feasibility Study	Stuart River	Assessment and identification of sonar sites and potential habitat restoration opportunities in the Stuart Watershed.	2016	
	Nechako White Sturgeon; Supporting Recovery	Nechako watershed	Address key gaps in the implementation of the Nechako White Sturgeon recovery efforts, within the existing framework of recovery actions.	2016	
	Water Quality and Quantity Monitoring	Various locations	Water monitoring plan development and implementation for target small stream.	2016	
	Traditional knowledge to aid Nechako White Sturgeon recovery initiatives	Tl'azt'en Nation, Nak'azdli Whut'en, Saik'uz First Nation communities	Acquiring traditional knowledge to help with Nechako White Sturgeon recovery strategies.	2015-2016	
<b>Upper Nechako Wilderness Council &amp; Dennis and June Wood</b>	Proposal for relocation of New Gold's transmission line	110km southwest of Vanderhoof	The purpose of these efforts is to persuade New Gold to relocate the transmission line to a route that has fewer environmental impacts. Denis and June have been working on this personally and also with the Upper Nechako Wilderness Council of which we are members. We have also been aligning with Jackie Thomas, the economic development officer for the Sai K'uz First Nation	Ongoing	June and Dennis Wood <a href="mailto:info@nechako-retreat.ca">info@nechako-retreat.ca</a> 604-484-9185

<b>Village of Burns Lake</b>	Water Conservation Plan	Village of Burns Lake	Better water conservation efforts in the Village of Burns Lake	Ongoing	Sheryl Worthing, Chief Administrative Officer Village of Burns Lake <a href="mailto:sworthing@burnslake.ca">sworthing@burnslake.ca</a>
<b>Yekooche First Nation</b>	Restoration of Nanka Creek	Nanka Creek	To restore Nanka Creek for fish.	Ongoing	Dean Joseph Yekooche First Nation <a href="mailto:dean@yekooche.com">dean@yekooche.com</a>



Theresa Fresco provides an update on the Nechako Watershed Roundtable at the Launch of the Draft Nechako Watershed Strategy. (Photo credit: Peter James, UNBC)

### 4.3 Existing Plans, Strategies and Decision Processes

In addition to understanding the current and emerging agreements, initiatives and projects in the watershed, existing plans, strategies and decision processes also need to be considered. This section of the Strategy aims to clarify diverse jurisdictions and interests across the Nechako region. It will also help to identify opportunities for alignment of effort as well as potential partners to collaborate on different actions to advance the health of the Nechako watershed. The following table was developed primarily from feedback provided by the Technical Advisory Committee as well as participants that attended a Public Open House hosted by the Nechako Watershed Roundtable on June 23, 2016<sup>38</sup>. Gaps were also identified by advisors and participants specifically in the areas of information, management and funding (see Appendix C).

Issue	Existing Plans, Strategies & Decision Processes
<b>1. Water Quality</b>	<p><i>Provincial</i></p> <ul style="list-style-type: none"> <li>• Omineca Watershed Assessment (BC Ministry of Forests, Lands and Natural Resource Operations – FLNRO)</li> <li>• Waste Discharge Authorizations (BC Ministry of Environment)</li> </ul> <p><i>Multiple Organizations</i></p> <ul style="list-style-type: none"> <li>• Well water testing (e.g. Northern Health, municipal, FLNRO)</li> </ul> <p><i>Municipal</i></p> <ul style="list-style-type: none"> <li>• Municipal Stormwater Bylaw</li> <li>• Groundwater Protection Development Permits               <ul style="list-style-type: none"> <li>○ To protect well heads and aquifers (City of Prince George)</li> </ul> </li> <li>• Waste discharge permits (sanitary sewer and city lagoons) (City of Prince George)</li> <li>• Riparian Protection Development Permits (City of Prince George)               <ul style="list-style-type: none"> <li>○ 15 m for low density residential</li> <li>○ 30m for lcl development</li> <li>○ 30m for Fraser and Nechako Rivers</li> <li>○ 50m in areas of low trees and erosion</li> </ul> </li> <li>• Asset Management Plans</li> </ul>

<sup>38</sup> Fraser Basin Council. (2016). 'Nechako Watershed Roundtable Meeting: An Update on the Nechako Watershed Strategy Report.' University of Northern BC.

	<ul style="list-style-type: none"> <li>○ Prepared by local governments, particularly municipalities. Involves sewage treatment plants, stormwater infrastructure, and other assets.</li> <li>● Official Community Plans for municipalities and regional districts. <ul style="list-style-type: none"> <li>○ These can include targets and actions related to groundwater, streams and other water resources.</li> </ul> </li> <li>● Watershed Drainage Plans (City of Prince George) <ul style="list-style-type: none"> <li>○ Identify areas of high risk, sediment management and erosion potential. Plans for McMillan, East Prince George and University Heights.</li> </ul> </li> </ul>
<b>2. Water Quantity</b>	<p><i>Federal, Provincial &amp; Industry</i></p> <ul style="list-style-type: none"> <li>● Nechako 1987 and 1997 Agreements</li> <li>● Nechako Fisheries Conservation Program <ul style="list-style-type: none"> <li>○ The Nechako Fisheries Conservation Program was established to monitor flow and temperature in the Nechako River at Finmoore since 1988</li> </ul> </li> </ul> <p><i>Provincial</i></p> <ul style="list-style-type: none"> <li>● Water Licenses and Approvals (FLNRO)</li> <li>● Water Use Plans <ul style="list-style-type: none"> <li>○ These have been developed for most hydro-electric dams and reservoirs across BC to inform the operation of those facilities to adjust water flows in order to achieve multiple objectives including environmental, community, recreational, cultural, and other values in addition to hydro-electric generation. A Water Use Plan has been proposed for the Rio Tinto reservoir in the Nechako watershed.</li> </ul> </li> <li>● BC Oil and Gas Commission Water Tools <ul style="list-style-type: none"> <li>○ GIS based hydrology decision-support tools (BCOGC &amp; MLFNRO)</li> <li>○ Omenica Water Tool (OWT) - <a href="http://www.bcwatertool.ca/owt/#6/56.208/-125.885">http://www.bcwatertool.ca/owt/#6/56.208/-125.885</a></li> </ul> </li> </ul> <p><i>First Nations</i></p> <ul style="list-style-type: none"> <li>● Water quantity project and stream gauges. (Upper Fraser Fisheries Conservation Alliance)</li> <li>● Carrier Sekani First Nation and the Environmental Stewardship Initiative – looking at cumulative effects on aquatic resources</li> </ul>

	<p><i>Non-Profit / Civil Society</i></p> <ul style="list-style-type: none"> <li>• Former Nechako Watershed Council drafted flow regimes for above, average and low precipitation years.</li> <li>• Water Conservation Plan (City of Prince George) – use all feasible water use efficiency tools to reduce residential water consumption. Released summer 2016.</li> </ul>
<b>3. Fish</b>	<p><i>Federal</i></p> <ul style="list-style-type: none"> <li>• Wild Salmon Policy (DFO)</li> <li>• Species at Risk Act (Environment Canada)</li> <li>• Changes to the Fisheries Act (habitat management) (DFO)</li> <li>• Changes to the Navigable Waters Act (DFO)</li> </ul> <p><i>Provincial</i></p> <ul style="list-style-type: none"> <li>• Environmental Protection Group – for stream crossing improvements (Ministry of Transportation and Infrastructure)</li> </ul> <p><i>Non-Profit / Civil Society</i></p> <ul style="list-style-type: none"> <li>• Fraser Lake Important Bird Area Conservation Plan (2001) - <a href="http://www.ibacanada.ca/documents/conservationplans/bcfraserlake.pdf">http://www.ibacanada.ca/documents/conservationplans/bcfraserlake.pdf</a></li> </ul>
<b>4. Wildlife</b>	<p><i>Provincial</i></p> <ul style="list-style-type: none"> <li>• Species at Risk Recovery Plans</li> </ul> <p><i>First Nations</i></p> <ul style="list-style-type: none"> <li>• Carrier-Sekani First Nations and Environmental Stewardship Initiative for cumulative effects on moose</li> </ul>
<b>5. Ecosystems / Biodiversity</b>	<p><i>Provincial</i></p> <ul style="list-style-type: none"> <li>• Land Use Designations – e.g. Fish Sensitive Watersheds (FSW), Wildlife Habitat Areas (WHAs), etc.</li> <li>• Land and Resource Management Plans (LRMPs) for Crown Lands within the Fort St. James, Vanderhoof, and Prince George LRMP planning areas. LRMPs were developed in the 1990s and early 2000s and were intended to consider all resource values and require public participation, interagency coordination and consensus building in land and resource management decisions.</li> </ul>

	<p><i>First Nations</i></p> <ul style="list-style-type: none"> <li>• Carrier-Sekani First Nations and the Environmental Stewardship Initiative for cumulative effects for forest biodiversity</li> <li>• Saik'uz Stewardship Plan</li> </ul> <p><i>Non-Profit / Civil Society</i></p> <ul style="list-style-type: none"> <li>• Engage with Northwest Invasive Plant Council (NWIPC) and Cariboo Chilcotin Coast Invasive Plant Committee (CCCIPC) for regional specific data. Recently worked on aquatic species in the Robson Valley.</li> </ul>
<p><b>6. Resource Development and Use / Land Use</b></p>	<p><i>Provincial / Natural Resource Sectors</i></p> <p><u>Forestry</u></p> <ul style="list-style-type: none"> <li>• Forest Stewardship Plans (FSPs) (Forest Licences)</li> <li>• Sustainable Forest Management Plans, including targets and indicators (Forest Licences)</li> <li>• Prince George Timber Supply Area (TSA) and Current Timber Supply Review (TSR) (FLNRO) <ul style="list-style-type: none"> <li>○ Social and economic process/assessment</li> </ul> </li> <li>• Cutting Permit process (Forest Licences and FLNRO)</li> <li>• Forest Certification Plans (Forest Licences)</li> <li>• Pest Management Plans (Forest Licences)</li> <li>• Integrated Silviculture Strategies <ul style="list-style-type: none"> <li>○ Mackenzie and Stuart-Nechako Resource Districts</li> </ul> </li> <li>• Innovative Forest Practices Agreements (IFPA)</li> </ul> <p>Inter-jurisdictional Support Orders</p> <p><u>Other</u></p> <ul style="list-style-type: none"> <li>• Environmental Assessment Process</li> <li>• Mining Permits and Mining Site Monitoring</li> <li>• Environmental Farm Plans</li> <li>• Provincial Parks and Protected Areas</li> <li>• Land and Resource Management Plans (LRMPs) for Crown Lands within the Fort St. James, Vanderhoof, and Prince George LRMP planning areas.</li> </ul>



	<p><i>Municipal</i></p> <ul style="list-style-type: none"> <li>• Official Community Plans</li> <li>• Subdivision applications and referral process – parkland dedication requirements, stormwater drainage requirements (City of Prince George)</li> <li>• Agricultural Area Plans – local governments</li> <li>• Vanderhoof Access Management Plans</li> <li>• Riparian Area Regulations – City of Prince George and other municipalities</li> </ul> <p><i>First Nations</i></p> <ul style="list-style-type: none"> <li>• Saik’uz Stewardship Plan</li> <li>• Save the Fraser Declaration</li> </ul> <p><i>Non-Profit / Civil Society</i></p> <ul style="list-style-type: none"> <li>• Climate information hub for farmers. Includes data on evapotranspiration (ET) for irrigation scheduling, corn heat units (CHU), growing degree days, T-Sum, temperature monitor and weather forecast. Data is derived from series of monitoring stations in the Nechako. <a href="http://farmwest.com/">http://farmwest.com/</a> (click climate/adaptation).</li> </ul>
<p><b>7. Community Health and Well-Being</b></p>	<p><i>Federal, Provincial and First Nations Governments</i></p> <ul style="list-style-type: none"> <li>• First Nations rights and title – case law</li> <li>• Truth and Reconciliation Commission Recommendations</li> <li>• Government to government relationships</li> </ul> <p><i>Local Governments</i></p> <ul style="list-style-type: none"> <li>• Official Community Plans</li> </ul> <p><i>First Nations</i></p> <ul style="list-style-type: none"> <li>• Comprehensive Community Plans</li> </ul>

## 5.0 PROPOSED ACTIONS TO ADVANCE A HEALTHY NECHAKO WATERSHED

To address numerous water and watershed issues and concerns citizens, community groups, technical experts and watershed practitioners have proposed several actions. These were raised at various meetings of the Nechako Watershed Roundtable, Technical Advisory Committee and within various communities of the watershed. Although this section includes examples of potential partners, it does not intend to be prescriptive but to illustrate how existing jurisdictions and interests (who are well positioned to advance these actions) could align with many of the proposed actions. Specific commitments, resources, lead organizations and timelines have not yet been established.

<b>Water and Watershed Issues</b>	<b>Strengthen Education, Engagement, and Capacity of Decision-Makers, Stakeholders and the Public</b>	<b>Strengthen Data, Information and Knowledge</b>	<b>Strengthen Planning, Stewardship and Beneficial Management Practices</b>
<b>Water Quality and Quantity</b>	<ul style="list-style-type: none"> <li>• Implement education and outreach program on:               <ul style="list-style-type: none"> <li>• Municipal storm water (e.g. municipalities)</li> <li>• Agricultural nutrient management (e.g. BC Ministry of Agriculture, agriculture sector)</li> </ul> </li> <li>• Explore opportunities for training and technical support for citizen science initiatives (e.g. UBC; UNBC-IWRG)</li> <li>• Promote the importance of restoring a natural flow regime in the Nechako River</li> </ul>	<ul style="list-style-type: none"> <li>• Implement citizen science to fill data gaps on water quality and quantity (e.g. educational institutions, stewardship groups, First Nations)</li> <li>• Develop a centralized database for data collected by students, faculty and stewardship groups (e.g. UNBC-IWRG Water Portal)</li> <li>• Map groundwater resources to inform decisions to conserve water quantity and protect water quality (e.g. MoE, FLNRO, local governments, Geoscience BC)</li> </ul>	<ul style="list-style-type: none"> <li>• Implement beneficial management practices to:               <ul style="list-style-type: none"> <li>• Improve storm water quality</li> <li>• Reduce nutrient loads entering waterways</li> <li>• Reduce stream bank erosion</li> <li>• Reduce sediment transport from forestry activities and resource roads</li> <li>• Reduce potential for pollution entering waterways</li> </ul>               (e.g. multiple jurisdictions and stakeholders)             </li> <li>• Explore and implement opportunities to restore a natural flow regime in the Nechako River</li> </ul>

	among decision-makers (e.g. NWR)	<ul style="list-style-type: none"> <li>• Map sites / potential sources of hazardous materials which could enter waterways (e.g. MoE)</li> </ul>	(e.g. MoE, Rio Tinto, First Nations, local government, and multiple stakeholders)
<b>Lakes and Wetlands</b>	<ul style="list-style-type: none"> <li>• Raise awareness and support community groups and residents to be stewards of lakes and wetlands (e.g. NWR, local governments, stewardship groups, First Nations)</li> <li>• Develop and distribute educational resources on beneficial practices for developments and properties adjacent to lakes and wetlands (e.g. NWR, local governments, stewardship groups)</li> </ul>	<ul style="list-style-type: none"> <li>• Develop an inventory and database on wetlands in the Nechako (e.g. BC Wildlife Federation)</li> <li>• Undertake lake shore inventories to identify ecosystem values and pressures (e.g. local governments, First Nations, stewardship groups)</li> </ul>	<ul style="list-style-type: none"> <li>• Develop lake management plans / strategies to address challenges and improve ecosystem health in specific lakes (e.g. Bednesti, Fraser, Burns Lakes) (e.g. collaborative processes involving multiple jurisdictions and stakeholders)</li> <li>• Implement beneficial management practices regarding wetland conservation and stewardship (e.g. local government, stewardship groups, private landowners)</li> </ul>
<b>Invasive Species</b>	<ul style="list-style-type: none"> <li>• Implement training and education initiatives related to identification and management of invasive species (e.g. Northwest Invasive Plant Council)</li> <li>• Promote examples of effective invasive species management (e.g. Burns Lake)</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake Aquatic Invasive Species (AIS) surveys for sub-watersheds in the Nechako. For example there is observed invasive weed growth in Fraser Lake and Cunningham Lake (e.g. Northwest Invasive Plant Council, local governments, stewardship groups)</li> </ul>	<ul style="list-style-type: none"> <li>• Implement beneficial management practices regarding control of invasive species (e.g. local government, stewardship groups, private landowners, farmers, boaters)</li> </ul>

<p><b>Multiple Water and Watershed Issues</b></p>	<ul style="list-style-type: none"> <li>• Build public knowledge and awareness of issues and concerns in the Nechako watershed through education and outreach initiatives (e.g. social media, media, watershed talk series, etc.) (e.g. NWR)</li> <li>• Strengthen working relationships and capacity to collaborate among all interests (e.g. NWR)</li> <li>• Engage schools and school districts to share approaches, resources and lessons learned re: engaging school-age youth in water and watershed issues (e.g. NWR, School Districts 91, 57, Cedar Christian School)</li> <li>• Develop information resources to educate natural resource licence holders from multiple sectors about beneficial management practices (e.g. licensees, industry associations, others)</li> </ul>	<ul style="list-style-type: none"> <li>• Finalize the Omineca Watershed Assessment (e.g. FLNRO)</li> <li>• Review and refine assessment / gap analysis of what data and information exists re: water quality, quantity and other watershed issues (e.g. NWR, UNBC-IWRG, SFU–Pacific Water Research Institute)</li> <li>• Map sections of streams and riparian areas that are “not properly functioning” (e.g. building on MRVA dataset) (e.g. FLNRO)</li> <li>• Promote use of, and enhance functionality of the Water Portal to improve access to data and information. (e.g. UNBC – IWRG, NWR)</li> </ul>	<ul style="list-style-type: none"> <li>• Apply the results of the Omineca Watershed Assessment to inform resource management decisions (e.g. FLNRO)</li> <li>• Review available information to identify and implement priority restoration projects including stream banks and riparian areas, spawning and rearing habitats, and other ecosystem features (e.g. NWR, FLNRO, DFO)</li> <li>• Explore and implement planning opportunities at different scales including the Nechako watershed, tributary watersheds, landscape level, water use, etc. (e.g. collaborative processes involving multiple jurisdictions and stakeholders)</li> <li>• Establish long term funding mechanisms to support the NWR and Strategy implementation (e.g. NWR, Sustainable Funding for Watershed Governance Initiative, governments, private sector, NEEF, Ducks Unlimited, etc.)</li> </ul>
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			<ul style="list-style-type: none"><li>• Implement beneficial management practices (e.g. individual licensees, industry associations, and others)</li><li>• Explore and implement opportunities for planning and stewardship through existing initiatives such as BC Cumulative Effects Framework, Water Sustainability Act, Wild Salmon Policy, etc. (e.g. FLNRO, MoE, DFO, and others)</li></ul>
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## 6.0 Next Steps for the Nechako Watershed Strategy

The vision of the Nechako Watershed Roundtable (NWR) is to support all orders of government (Local, First Nations, Provincial and Federal), as well as civil society and the private sector to advance healthy watersheds and communities throughout the Nechako region. The NWR aims to foster connections and facilitate collaboration among those that share common interests and goals regarding watershed health and sustainability.

- What proposed actions do you and your organization want to advance?
- How do the actions proposed in this Strategy align with your interests, capacities, responsibilities and jurisdictions?
- How does your business, First Nation, school district, local government, regulatory agency, community group, or family want to help out?

This first phase of the Nechako Watershed Strategy provides a foundation for more informed decision-making and collaborative action to protect and improve the health of the Nechako watershed and the communities that depend upon it. The Strategy provides a snapshot of the diversity of issues and concerns in the watershed; the multitude of existing projects, initiatives, plans and decision processes across the region; and key actions proposed to address several issues and concerns.

The next phase of the Strategy process will focus on implementation. Opportunities will be explored by the Nechako Watershed Roundtable and numerous potential partners to identify where there is interest in aligning efforts and resources to collaborate on proposed actions. Through this dialogue with partners, priorities will be identified and commitments will be confirmed to implement priority actions to advance the health of the Nechako watershed.

There is no simple step-by-step solution when it comes to the long-term health of watersheds and communities. There is no single “silver bullet” that will address all of the challenges observed within the Nechako watershed. The variety of pressures on the watershed and the array of jurisdictions and decision processes suggest that a multi-pronged and adaptive approach is needed..

Version 1 of this Strategy is not the destination. The terrain will change over time. New opportunities and new challenges will emerge along the way. Therefore, we will need to continually monitor, develop new information, respond to emerging issues, work within evolving legislation and policy, and adapt to a changing climate.

In this light it is the goal of the Roundtable to be able to update the Strategy to adapt to changing circumstances – both challenges and opportunities – as we walk through this path of watershed health and community sustainability together. We welcome your engagement in this process.

## APPENDIX A: PUBLICATION LINKS

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<http://www.mandellpinder.com/2015-bcca-154-case-summary/>

Nadleh Whut'en & Stelat'en. (2016). *Yinka Dene 'Uza'hne Guide to Surface Water Quality Standards*.

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Nadleh Whut'en & Stelat'en. (2016). *Yinka Dene 'Uza'hne Surface Water Management Policy*.

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[http://www.carriersekani.ca/images/docs/cstc/Appendix%20B%20%20FL-CSTC-309\\_CEA\\_extended\\_summary\\_Oct3\\_2014\\_final.pdf](http://www.carriersekani.ca/images/docs/cstc/Appendix%20B%20%20FL-CSTC-309_CEA_extended_summary_Oct3_2014_final.pdf)



## APPENDIX B: PRIORITY ACTIONS<sup>39</sup> TO ADVANCE WATERSHED HEALTH IN THE NECHAKO WATERSHED

1. Better access to funding to undertake watershed work
2. Cumulative effects assessment
3. Improve stream regulations for industry, municipalities, and agriculture
4. Legislative changes to ensure planning at a landscape level
5. Engagement and communication between different watershed interests
6. Coordinated watershed planning and stakeholder engagement by industry/resource users
7. Development of Water Use Objectives
8. Address data gaps and undertake studies
9. Use of watershed planning tools
10. More public engagement and education

### Other Tools marked 'Extremely Helpful'

- Legislated protection of critical wetland and riparian habitat and well as Best Management Practices for industry.
- Publish a "State of the Nechako Watershed" that illustrates pre and post flood database and the current dysfunction of the upper Nechako River and highlighting some of issues and solutions that the Cheslatta Carrier Nation is trying to implement.
- With respect to above answers - 'blind' engagement does not advance the sustainable watershed agenda and may harm progress through burnout and under representation disguised as public engagement and consultation
- Government agreement to insist that BC Hydro and Rio Tinto Alcan develop a Water Use Plan. This plan and its resulting legislated changes to operating rules by these major water users will be fundamental to the success of improving the health of the Nechako watershed

### No Ranking

- legislative changes to protect objectives. Forest Industry is under planning at the expense of the environment but doing it legally

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<sup>39</sup> These priority actions were taken from the results of the *Advancing Watershed Health in the Nechako River Basin Survey*, distributed on February 15<sup>th</sup>, 2016 to various government, First Nations and stewardship groups throughout the Nechako watershed. The survey was closed on March 15<sup>th</sup>, 2016.

## APPENDIX C: IDENTIFIED GAPS IN INFORMATION, MANAGEMENT AND FUNDING

In addition to the feedback provided on existing plans, strategies and decision processes (Section 4.3), technical advisors and participants of the June Roundtable public open house also identified gaps in several areas.<sup>40</sup>

Issue	Identified Gaps
<b>Water Quality</b>	<ul style="list-style-type: none"> <li>• Funding for stormwater management projects, restoration activities and other related work</li> <li>• Information about, and management of, riparian health (improve monitoring coverage across the watershed)</li> <li>• Managing nutrient inputs and algae in lakes</li> <li>• Greater education and awareness for shoreline property owners needed in northern BC</li> <li>• See also “Other” below</li> </ul>
<b>Water Quantity</b>	<ul style="list-style-type: none"> <li>• Information about, and implementation of, climate change adaptation strategies</li> <li>• Assessment of environmental flows (i.e. ensuring stream flows to maintain ecological functions)</li> <li>• Information about snow pack dynamics and relationships between upstream and downstream flows including flood and low flow conditions</li> <li>• See also “Other” below</li> </ul>
<b>Fish, Wildlife, Ecosystems and Biodiversity</b>	<ul style="list-style-type: none"> <li>• Enhanced monitoring and reporting on impacts to fish populations and habitat</li> <li>• Enhanced monitoring and reporting on impacts to wildlife populations and habitat</li> <li>• Improved management to mitigate impacts on fish, wildlife and habitat</li> <li>• Management of invasive species in lakes</li> </ul>

<sup>40</sup> Fraser Basin Council. (2016). ‘Nechako Watershed Roundtable Meeting: An Update on the Nechako Watershed Strategy Report.’ University of Northern BC.

	<ul style="list-style-type: none"> <li>• Accounting for climate change impacts on fish, wildlife, ecosystem health and biodiversity</li> <li>• See also “Other” below</li> </ul>
<p><b>Resource Development and Use / Land Use</b></p>	<ul style="list-style-type: none"> <li>• Enhanced regulation of development activities on private land (e.g. erosion and sediment control, drainage, tree clearing)</li> <li>• Enhanced Forest Stewardship Plans – to better address adverse impacts of forestry operations</li> <li>• Enhanced stewardship of agricultural lands, including government-led stewardship goals</li> <li>• Information about, and management of climate change impacts on natural resources and projected future availability of natural resources resulting from a changing climate</li> <li>• Information about, and management of acid rock drainage and impacts from resource roads</li> <li>• Information about, and management of cattle and impacts from cattle grazing</li> <li>• Information about, and management of impacts associated with agricultural production</li> <li>• Information about, and management of community development including paved areas and other diverse land uses</li> <li>• Information about, and management of impacts associated with transportation of people, goods, and services (e.g. roads, rail lines, pipelines)</li> <li>• Information about, and management of impacts associated with natural gas development including hydraulic fracturing?</li> <li>• See also “Other” below</li> </ul>
<p><b>Community Health and Well-Being</b></p>	<ul style="list-style-type: none"> <li>• Public awareness and stewardship of resources (sense of never ending supply, lack of needing to conserve) <ul style="list-style-type: none"> <li>○ Crisis and illusion of abundance</li> </ul> </li> <li>• Outreach funding – care and maintenance of existing projects, learning, earning and education credit, agriculture youth green jobs initiative (funding source)</li> </ul>

	<ul style="list-style-type: none"> <li>• High speed internet service to rural areas (regional economic development and community well-being)</li> <li>• See also “Other” below</li> </ul>
<b>8. Other</b>	<ul style="list-style-type: none"> <li>• Information about historical benchmarks, critical data gaps, and ongoing trends for all indicator categories of watershed health</li> <li>• Information about air quality and airsheds including micro-climate interactions with watersheds climate change vulnerabilities</li> <li>• Information about the values associated with the Nechako watershed from the headwaters to the mouth at the Fraser River</li> <li>• Enhance capacity for outreach, liaison, and coordination among stakeholders to advance stewardship and restoration efforts</li> <li>• Implementation of government’s stated goals and objectives with feedback loops to inform decision-making processes</li> <li>• Building capacity among decision-makers to improve decision-making to advance watershed health</li> <li>• Enhanced political influence to support, accelerate and magnify positive change for watershed health</li> <li>• Enhanced coordination among multiple jurisdictions (i.e. First Nations, local, provincial, federal)</li> <li>• Support the roles of First Nations organizations (e.g. Leadership Council, First Nations Fisheries Council, Union of BC Indian Chiefs, First Nations Summit, Assembly of First Nations, etc.)</li> <li>• Strengthen enforcement of environmental protection activities to protect, enhance and sustain the resources, including the communities that depend on these resources</li> <li>• Support economic development and diversification strategies for future generations within the context of watershed health</li> <li>• Support food security and energy security for future generations within the context of watershed health</li> <li>• Clarify understanding of the diversity of jurisdictions</li> </ul>

	<p>within the Nechako watershed and enhance the staff and financial capacity of these jurisdictions to support watershed health</p> <ul style="list-style-type: none"><li>• Provide input/recommendations to policy and legislative / regulatory decisions</li></ul>
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