

Kinuseo Sipi / Murray River

Watershed Vision and Values

Overview to Support Water Quality Objective Development

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Final

Table of Contents

Disclaimer and Limitations.....	4
1 Introduction	5
Water Values and Steering Committee Work.....	5
Designated Uses and Parameters of Concern	6
Water - The Sacred Relationship	7
Culture - the Seen and Unseen	8
Treaty Rights and the Central Role of Water	10
2 Vision and Values Context	11
Indigenous Worldview and Laws	12
Describing Values – Healthy Water as a Component of Treaty Rights	14
Understanding Indigenous Perspectives about Water Quality	15
3 Vision Statement.....	17
Water Values Emerging from Vision Statement	17
Mapping Values Statements to BC Water Quality Guidelines or Other Areas	20
Overlap and Unaddressed Values.....	21
Drinking Water Perspectives.....	22
Recreation and Aesthetic Perspectives.....	22
4 Advancing Addressed and Unaddressed Values.....	24
Peaceful Enjoyment of Treaty Rights.....	25
Trusted Safe Common Water	26
Trusted Safe Drinking Water	27
Trusted Water for Ceremonial Purposes	27
Trusted, Healthy Water that Supports the Treaty Right to Fish for Subsistence and Cultural Needs....	27
5 Protecting First Nations Water Values through Water Quality Objectives	29
Examples of Additional Indicators to Protect Indigenous Water Values and Uses	29
First Nation Water Values – Example WQOs	31

Descriptive Terms – Measurement.....	37
6 Next Steps – Overlapping and Unaddressed Values.....	38
Plan to Address Watershed or Landscape-level First Nation Water Values.....	39
7 Closing.....	41
References	42
Appendix A – Murray River map.....	44
Appendix B – Pathways for Incorporating Cultural and Spiritual Values into Water Quality Planning.....	45
Appendix D - First Nation Water Values and Indicators	46
Table D-1: Indicators and Overlap for the Value Trusted Safe Common Water	47
Table D-2: Indicators and Overlap for the Value Trusted Safe Drinking Water.....	48
Table D-3: Indicators and Overlap for the Value Trusted Water for Ceremonial Purposes	50
Table D-4: Indicators and Overlap for Value Trusted, Healthy Water that Supports the Treaty Right to Fish for Subsistence and Cultural Needs.....	51

List of Figures

Figure 1 The Sacred Relationship cover photo	8
Figure 2 The Cultural Iceberg	9
Figure 3 Hierarchy and Harmony	10
Figure 4 Fundamental Poles of Treaty Rights	11
Figure 5 Tse'Khene Hunting Shelter Frame.....	12
Figure 6 Indigenous Spiral of Life Interconnected by Indigenous Law	13
Figure 7 Indigenous Spiral of Life Interconnected by Indigenous Law	14
Figure 8 Mapping Valued Components of Healthy Water	15
Figure 10 Making Connections between Vision, Values and Measuring Good Health	20
Figure 11 Overlap and Unaddressed Values	21
Figure 12 Proposed pathways for incorporating cultural and spiritual values into water quality planning (Australia and New Zealand, 2018).....	45

Disclaimer and Limitations

This summary report and all content is not intended to be used, applied or interpreted in whole or in part without the consent and input from representatives of the participating First Nations. This document is an overview of a complex topic and is not considered complete nor exhaustive and does not limit the participating First Nations from further clarifying, describing, or including cultural values in any work related to water.

Identifying and mapping the interconnected pathways of all Indigenous water values, including spiritual, cultural, chemical, biological, and physical would require a multi-year project involving extensive elder, leadership and community input. The visuals and heuristics provided in this summary document are meant to serve as a high-level overview of the kinds of values that are important to these First Nations and sometimes absent in a typical western approach to watershed planning, management and protection.

1 Introduction

Indigenous communities around the world have identified water as a sacred and central part of Indigenous life, worldview, and values. Indigenous peoples have called for water to be protected with personhood. Typically, western water use values omit the sacred nature of water and the living relationships Indigenous peoples' have with water.

For many decades, First Nations have been expressing the fundamental cultural importance of water and water governance in the self-determination and governance of First Nations: "Water is an important subject to be considered in rebuilding First Nations governance", where, "...at the outset, the most important point for our Nations is, who 'owns' the water, and who has the right to determine access to water for all the possible uses." (BC Assembly of First Nations 2010)

While this document focusses on the Kinuseo sipi / Murray River in northern British Columbia, Canada, the Values and Indicators identified and described in this report have some transferability to all water and watersheds. Kinuseo sipi / Murray River flows into the Pine River and on to the Peace River in northern BC (Appendix A). The watershed has been impacted by activities including coal mining, forestry, agriculture, recreation and other activities. The Murray River Aquatic Cumulative Effects Assessment Framework (MRACEAF) Steering Committee has been working on water quality data compilation and assessment with the aim of developing Water Quality Objectives for the Murray River since about 2015. Representatives from McLeod Lake Indian Band, Saulteau First Nations and West Moberly First Nations (the participating Treaty 8 First Nations) have variously been observers and active participants on the MRACEAF Steering Committee and process over the last five years.

The participating Treaty 8 First Nations have embarked on a process of identifying Indigenous water values in the Kinuseo sipi / Murray River watershed. While some of the values included in this summary report may not be considered to fall in the purview of water quality objectives (WQOs) and the water quality branch of the provincial government, these values together comprise the key, core values the First Nations hold for water in the Kinuseo sipi / Murray River.

The processes used to create this document have included community input over the years and much diligent work and significant effort by the participating First Nations. These efforts are documented in the body of the work that follows.

Water Values and Steering Committee Work

The Steering Committee has a Terms of Reference that outlines the guiding principles in its work, including the unique interpretation of these principles as they relate to Treaty 8:

- swimmable, fishable and drinkable water that produces consumable aquatic resources

- ecological integrity
- no net loss and improvement of aquatic values identified in the Murray River Watershed (values as identified by the Steering Committee)
- application of the precautionary principle in a conservative manner to protect the watershed ensuring the lack of information does not inhibit decisions or the protection of the watershed
- application of the precautionary principle to decision-making to protect Treaty 8 rights including Treaty 8 uses of water

This principle in the Terms of Reference, and the unique interpretation by Treaty 8 First Nations of the work, required input from the participating Treaty 8 Nations in the development of designated uses or values to protect.

Designated Uses and Parameters of Concern

The BC provincial government states that “Water is one of BC’s most important natural resources and must be managed appropriately to protect both human and ecosystem health.” This statement guides the identification of Designated Uses that are then protected by identifying and screening for parameters of concern. Designated Uses in BC focus on protecting human health and ecosystem health. As described by BC on their website, “WQOs are numbers or statements representing low-risk conditions to provide protection for a specific waterbody and its associated water values and uses. These include:

- Drinking water sources;
- Aquatic life and its habitat;
- Wildlife and its habitat;
- Agriculture (livestock watering and irrigation);
- Recreational use and aesthetics; and
- Traditional, cultural and social uses.”¹

This last item in the list above, referring to “traditional, cultural and social uses”, is an important addition found on the BC Water Quality website. However, this value and use does not appear to be included in current Guideline or Objective documents. To date, we are not aware of Guidelines or Objectives that have been set and published in BC, that include a water value or use that is specifically traditional or cultural. Water Quality Objectives have been developed for Burrard Inlet that identify at a high level the water values expressed by the Tsleil-Waututh Nation and how TWN is using water chemistry science to meet or address those high level values. For example, the water quality objectives (WQOs) suggest that if

¹ <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-objectives>

water is protected for drinking water uses, aquatic life and recreational purposes, that at a high level the TWN objective of being able to drink the water and harvest aquatic resources will be met.

The typical construct of water use and protection presents challenges for including and protecting water values and uses that relate to the value of water health in and of itself, and also of meeting some water quality indicators that protect Indigenous water uses such as the exercise of Treaty rights and peaceful enjoyment. While many Indigenous water values are offered some protection using currently available frameworks for bio-physical water quality guidelines and objectives, and associated bio-physical testing, this construct leaves many Indigenous water values not fully protected.

The water quality development guidelines from Australia and New Zealand provide a helpful step-wise pathway for the development of guidelines that support the protection of Indigenous water values that can be protected by water quality guidelines and objectives (Appendix B). While the diagram was developed for an Australian and New Zealand context, the principles of identifying which water quality components can be supported by water quality guidelines is similar to the approach taken in this Murray River process.

Key steps in pathways described in the Australian guidelines that are similar to the steps taking in this work:

- identification of cultural and spiritual values of water
- identifying the water quality components of those values (e.g., those elements of a value that could be measured and protected through bio-physical water quality guidelines that exist or could be developed)²
- identifying components of values that are not addressed through bio-physical water-quality guidelines and require support and protection via means such as watershed management or other land management tools.

What follows is a summary of the process that representatives from McLeod Lake Indian Band, Saulteau First Nations and West Moberly First Nations worked through to develop a Vision Statement and Values for water in the Kinuseo sipi / Murray River watershed, and a summary of the values identified.

Water - The Sacred Relationship

Water is a core and essential element of Indigenous culture around the world. While descriptions and understanding of the relationship between Indigenous peoples and water vary in detail from region to region, the substantive concept of the fundamental importance of a relationship with water is common.

² Interestingly, the documentation of the application of the 2018 Australian and New Zealand guidelines do not include any water quality or non-water quality Indicator and objective development outside of those that already exist (e.g., Drinking Water Quality Guidelines).

The following paragraph from Danika Billie Littlechild, clearly describes this sacred relationship in Cree culture. She explains that the Cree word for water is Nipiy, which means “I am the Life”.

Our Plains Cree Elder Kisikaw Kiseyin states in the etymological reference to our term for water ("Nipiy"), "Ni" derives from the term "Niyah" which means "I Am", and "Piy" derives from the term "Pimatisowin" which means "The Life", which reads as "I Am The Life"(Littlechild, 2000)

First Nations have also clearly expressed that water and water governance are central to cultural, spiritual, and socioeconomic wellness in First Nation individuals and communities.

Descriptions of water as a powerful medicine and sacred resource, as the lifeblood of the land, and as a relative that must be respected and cared for, are echoed by Indigenous communities and organizations, and scholars. Not only is water itself critically important, so too is its governance... (Harris, 2016).

We recommend that readers view the video “The Sacred Relationship” developed by the Native Counselling Services of Alberta to provide more context for the relationship and central importance of water in Indigenous life.



Figure 1 The Sacred Relationship cover photo

* Photo credit: <https://www.sacredrelationship.ca/documentary/>

Culture - the Seen and Unseen

A fundamental aspect of culture is the worldview from which culture emerges. Indigenous peoples hold a worldview where humans have a sacred relationship with the land and exist within the environment. Understanding the important relationship with water requires some understanding of the worldview from which this value emerges. The following figures are provided as representations of culture and worldview

THE CULTURAL ICEBERG

10% - what we see
SURFACE CULTURE

Food
Flags Festivals
Fashion Holidays Music
Performances Dances Games
Arts & Crafts Literature Language

90% - what we don't see
DEEP CULTURE

Communications Styles and Rules:
Facial Expressions Gestures Eye Contact
Personal Space Touching Body Language
Conversational Patterns in Different Social Situations
Handling and Displaying of Emotion
Tone of Voice

Notions of:
Courtesy and Manners
Friendship Leadership
Cleanliness Modesty
Beauty

Concepts of:
Self Time Past and Future
Fairness and Justice
Roles related to Age, Sex, Class, Family, etc.

Attitudes toward:
Elders Adolescents Dependents
Rule Expectations Work Authority
Cooperation vs. Competition
Relationships with Animals Age
Sin Death

Approaches to:
Religion Courtship Marriage
Raising Children Decision-Making
Problem Solving

Credit: Multicultural Council of Saskatchewan

In an Indigenous world, water is alive. Water has a spirit. Water holds memories. And given that Indigenous peoples have a relationship **with** water, Indigenous peoples manage their relationship with water rather than managing the water itself (Figure 3). This relationship is guided by Indigenous laws (*wâhkôhtowin*, in Cree).

Water Values, Page 9

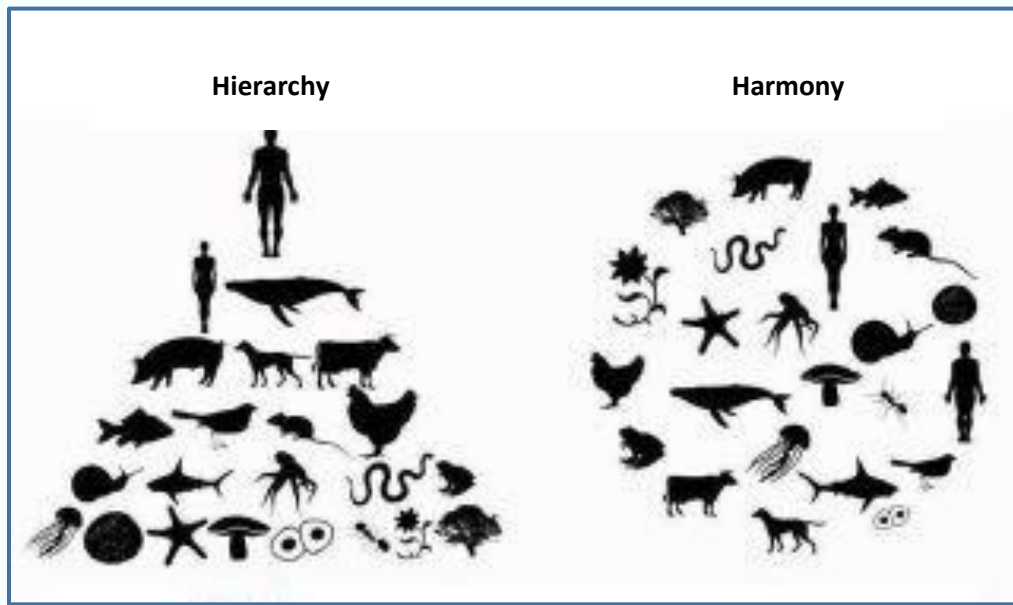


Figure 3 Hierarchy and Harmony

(from Ehrnström-Fuentes, 2016; original source unknown)

Treaty Rights and the Central Role of Water

Treaty Rights are far more complex than simply the right to hunt, fish, trap and gather or harvest, as they are often described in a reductive form by western scientists and resource users. Canadian common law states that Treaty rights should not be interpreted narrowly but should consider the perspective of the Aboriginal peoples who signed the agreements.

One of the foundational components of Treaty 8 is the right for Indigenous peoples to maintain an Indigenous Mode of Life or Way of Living. And as described in previous sections, access to safe, trusted water is central to maintaining this way of life.

Impacts on the Indigenous Mode of Life in general, and water specifically, by resource development, community development, recreation, and other aspects of western society are numerous. The western conception of quality and the things that impact quality must be expanded in order for the Steering Committee to meaningfully fulfill the commitment to include the consideration of Treaty rights in the development of water quality objectives.

The following section outlines the worldview and values that underpin the participating First Nations' contributions to watershed management and the development of water quality objectives.

2 Vision and Values Context

For many years, the participating First Nations have been making efforts to describe their worldview, values and Treaty rights from an Indigenous perspective but in ways that are understandable from a western worldview perspective. The following diagrams and figures are provided to illustrate the complexity of Indigenous values and Treaty rights, and the foundation on which they are held. These diagrams were largely developed as part of the Treaty 8 First Nations' Cumulative Effects Framework project that began in 2015 and is ongoing and developing.

In the process of describing Treaty rights more fully, beyond the “hunting, fishing, trapping” reductive understanding, we needed to describe the most fundamental commitments included in Treaty 8.

The Poles of Treaty Rights were selected to depict the interconnection of the foundational elements of Treaty rights and Indigenous cultures. Each of the poles are essential to holding up, or sustaining, Treaty rights.

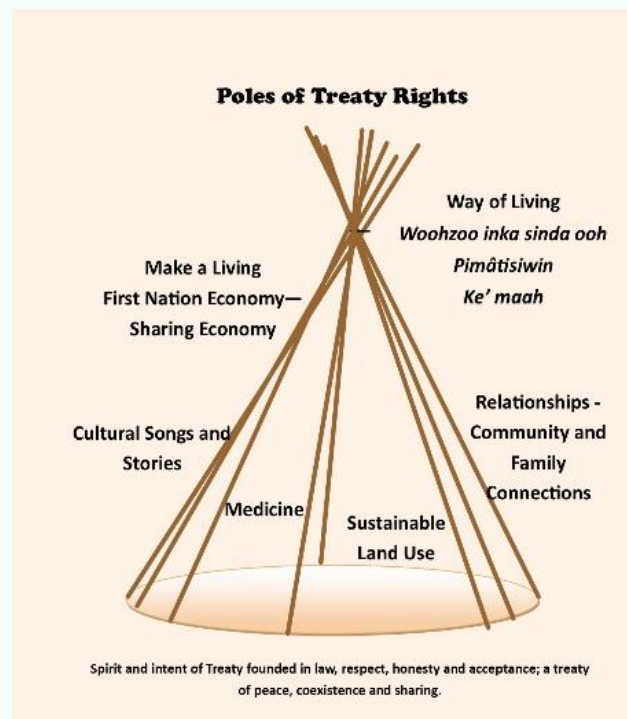


Figure 4 Fundamental Poles of Treaty Rights

We recognize that the tipi is typically a temporary home constructed by Cree and other Indigenous peoples in the prairie areas of North America. McLeod Lake Indian Band has also been working on reframing these Poles of Treaty Rights in a culturally meaningful representation of the temporary hunting shelter in Tse'Khene culture. The poles, or branches, of the shelter house are similar to the poles of the tipi – they are all essential for the structure of the house to be sustaining and resilient.



Figure 5 Tse'Khene Hunting Shelter Frame from McLeod Lake Indian Band ³

Indigenous Worldview and Laws

The connections in all of nature and life is a fundamental understanding for Indigenous cultures around the world. The cultural spiral (see figure below) has been used as a depiction of the interconnectedness of all human relationships, and the connections between the individual and all living things including the cosmos.

Wahkohtowin, Indigenous teachings, and/or Indigenous laws are represented by the spaces in-between each level of the spiral; they provide a structure that keeps the spiral healthy. This interconnection by

³ Photo credit: Nathan Prince, McLeod Lake Indian Band. A note for readers, this temporary hunting shelter frame is not a sweat lodge and photos of sweat lodges are not permitted.

Indigenous Laws is represented by the high-lighted yellow in the figure.

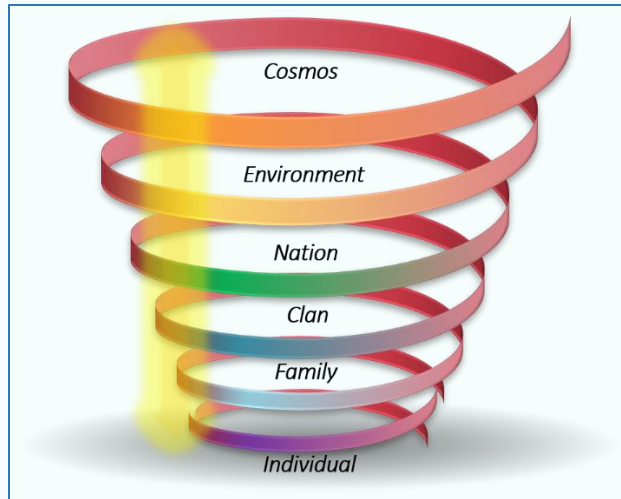


Figure 6 Indigenous Spiral of Life Interconnected by Indigenous Law

In many Indigenous cultures, these teachings and laws guiding relationships are based upon the principles such as:

- **kindness**, compassion, caring
- **sharing**; generosity of spirit
- **humility**; humbleness
- **honesty**; speaking the truth
- **harmony**; living together in harmony
- **respect**
- **self-determination**

These principles form the foundation of knowledge and wisdom, underpin Indigenous laws that govern the use and stewardship of water. These principles, if followed, would allow Indigenous peoples to “live the good life” (mino pimâtisiwin⁴). The set of principles, known as Wahkohtowin in Cree, are the basis of what can be called Natural Law.

Combining these concepts, the participating First Nations view the spiral of interconnected relationships and Indigenous Laws as the foundation that support Treaty rights.

In the work conducted for the First Nation Cumulative Effects project, the fundamental Poles of Treaty

⁴ Pimâtisiwin in Cree, Ke'maah in the Dene language of the Dunne Za, and Woohzoo inka sinda ooh in Tse'Khene.

Rights were each described as having Essential Components, which in turn can help identify key values. The diagram in Figure 7 shows the Essential Components of Pimâtisiwin (Way of Living) and miyo-

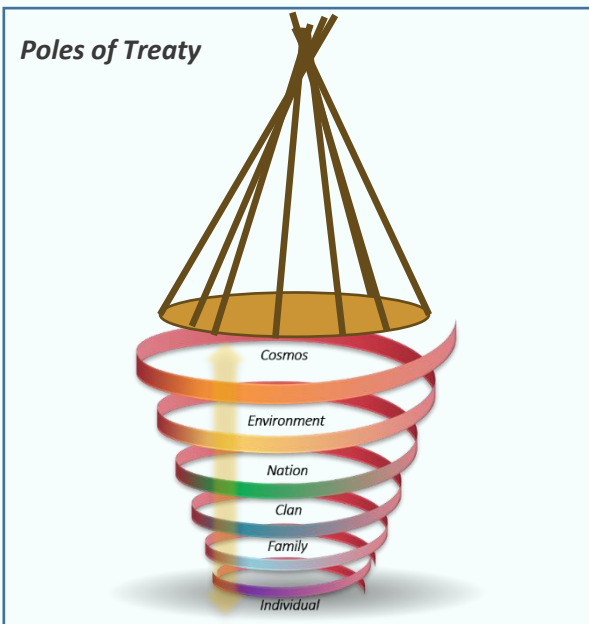


Figure 7 Indigenous Spiral of Life Interconnected by Indigenous Law

pimâtisiwin (good life, or good behaviour). In the context of this water quality work, Healthy Water is an Essential Component supporting the Treaty 8 way of life (*Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'khene).

Describing Values – Healthy Water as a Component of Treaty Rights

Treaty 8 First Nations emphasize the sacred and central value of water in cultural practice and cultural identity. The following figures are representations or heuristics to explain that First Nations live in a different value world than non-Indigenous people. Indigenous peoples live in a different house; with a constructed reality that is framed differently from a typical western view of the world.

The participating First Nations conducted an exploratory exercise of developing a diagram that displays elements of Healthy Water. This conversation and the stories that lead to the elements in the diagram are not able to be fully portrayed in a two dimensional figure. This figure is shared for illustrative purposes.

The participating First Nations then conducted a whiteboard exercise to identify some key values related to water. This exercise was used to help shape and give clarity to the Vision and Values for the Murray River.

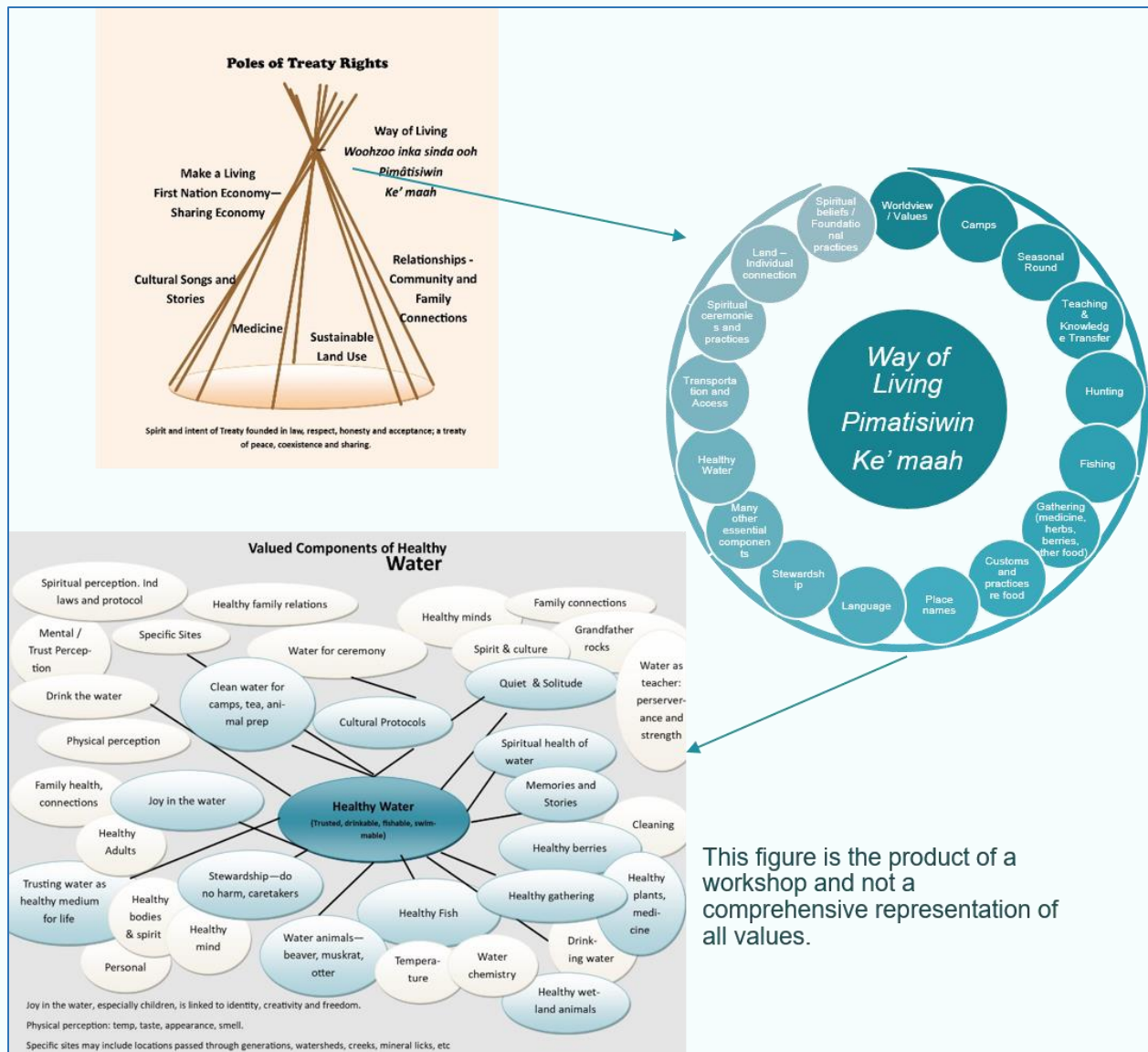


Figure 8 Mapping Valued Components of Healthy Water

Understanding Indigenous Perspectives about Water Quality

The development of bio-physical water quality objectives from a western science perspective is a relatively straightforward exercise. Certain use values are identified, and the water chemistry or biology required to protect those uses is established. In this sense, Quality from a western science perspective is focused on:

- Testing based on western standards
- Restricted in location

Quality in relation to “healthy” water from an Indigenous perspective is more complex and includes personal, relational, spiritual and cultural aspects including:

- Complex interplay of values and indicators
- Indigenous laws and cultural protocols respected related to the water
- Personal perspective of clean water
- Trusted water sources

The participating First Nations worked hard to explain their broader conception of quality and water quality to the Steering Committee in order for the western conception of water quality and the Indigenous conception of healthy water to be reconciled. The participating First Nations described their vision for healthy water in the Kinuseo sipi / Murray River watershed as one way of sharing this understanding of water quality.

3 Vision Statement

As described in the Introduction, the identification of and mapping of interconnection pathways of all First Nation water values, including spiritual, cultural, chemical, biological, physical and otherwise would be a multi-year project involving extensive elder, leadership and community input. Given the timing and requirements of the Steering Committee's work on water quality objectives, we needed to find a way to start identifying core cultural values related to water that could be refined and improved over time.

Following a freeform values mapping exercise, our working group decided to develop a broad vision for the Kinuseo sipi / Murray River watershed – a vision which could guide the direction and identification values, indicators and measures for healthy water.

Participating Treaty 8 First Nations – Vision for Water and the Kinuseo sipi / Murray River watershed

In our worldview, water is a sacred and life giving being.

Our peoples agreed to share use of these waters with others provided that in their use they protect and respect the water, those beings that rely upon the water, and our sacred relationships with these things which we call all our relations.

Our vision includes non-indigenous people living and working in the watershed being aware of and respecting the sacred and central value of water in cultural practice and identity to Treaty 8 First Nations.

Our vision is that the Kinuseo sipi / Murray River watershed is thriving and resilient because we share codes of conduct which reflect Indigenous laws. The watershed is at peace and healthy and supports our Pimâtisiwin (a healthy Indigenous way of life).

The Murray River Waterscape and Landscape supports the unobstructed, peaceful enjoyment and exercise of Treaty rights. Treaty rights are supported by water that is respected, trusted, drinkable, common water for social purposes, and water that provides a sustainable fish and hunting harvest for generations to come.

Water Values Emerging from Vision Statement

The vision statement was then reviewed to identify specific uses and values of water and the Kinuseo sipi / Murray River watershed. These water values include:

1. Thriving water and watershed – positive growth and improvement, recovery in some cases.
2. Resilient water and watershed (clean, safe, healthy water that remains healthy through various changes, impacts and cumulative effects).

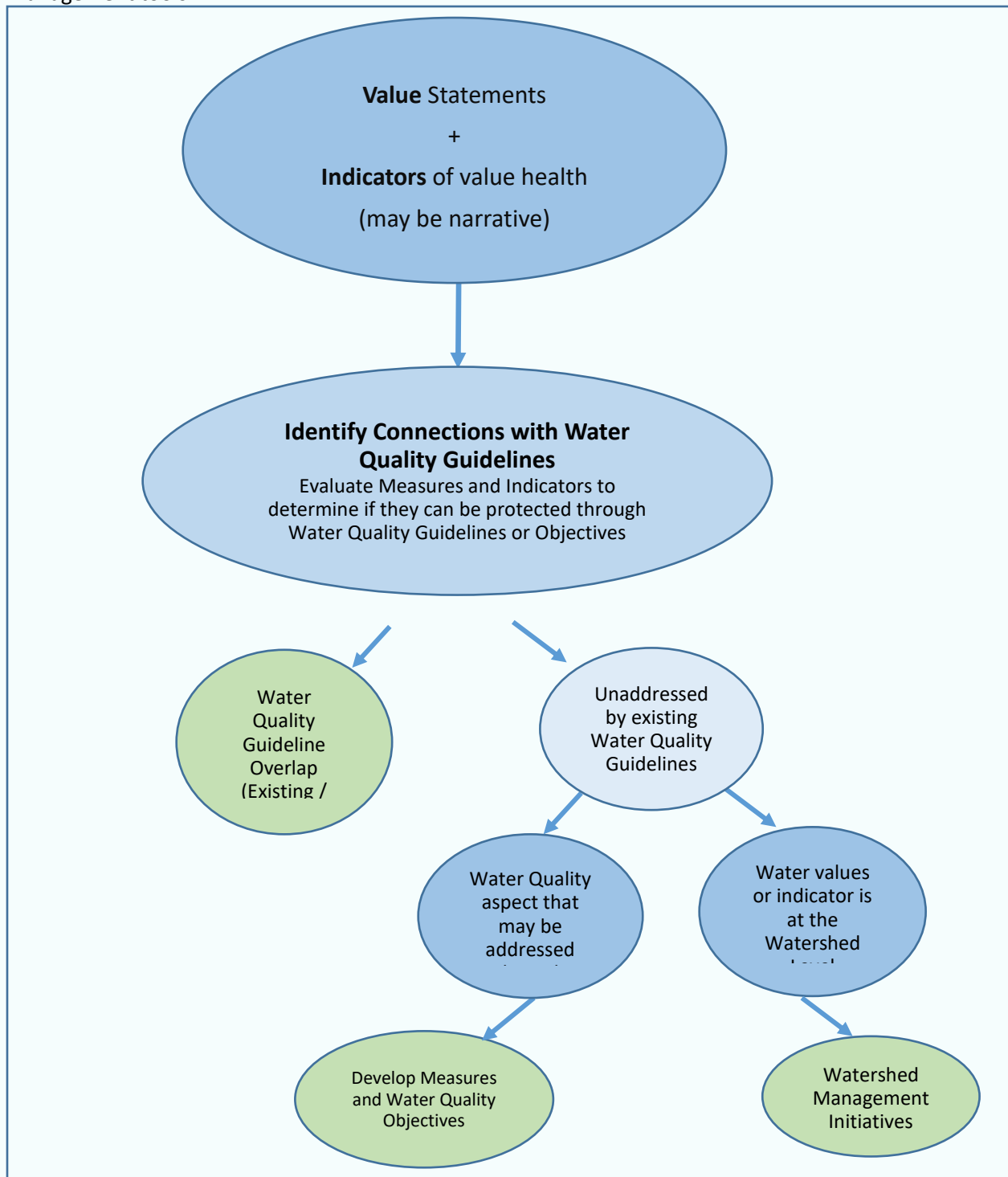
- As the Murray has in the past, the ability and room to overcome challenges.
3. Shared codes of conduct are developed and applied which reflect Indigenous laws.
 - Respecting spiritual areas and spiritual waters, how areas are used or not used, avoiding creating unnatural conditions or additions, (“polluting” the earth is like polluting ourselves), recognizing our dependence on water and not being domineering / controlling, acting as caretakers.
 4. Water and the watershed is at peace and healthy.
 5. Water and the watershed supports *pimâtisiwin*⁵ (a healthy Indigenous way of life, the good life).
 - Unobstructed, peaceful enjoyment and exercise of Treaty rights.
 6. Water is respected.
 - Respecting the sacred nature of water as a relation, water has an energy, and that water holds stories, water holds memories, water is life giving.
 7. Trusted, healthy water for spiritual or ceremonial purposes.
 8. Trusted, drinkable, water (based on community knowledge / community member use and trust)
 9. Trusted, safe, “common water (immersing & physical contact, washing fish and berries, bathing, play).
 10. Trusted, healthy water that supports the Treaty right to fish for subsistence and cultural needs.
 11. Trusted water that supports the Treaty right to hunt subsistence and cultural needs and provides a hunting harvest for generations to come.
 12. Trusted source of plants and medicine that supports the Treaty right to harvest (includes water bodies and riparian areas).
 13. Sustaining healthy ecosystem including animals and fish (not necessarily for harvest).
 14. Reconciliation: Non-indigenous people living and working in the watershed being aware of and respecting the sacred and central value of water in cultural practice and identity to Treaty 8 First Nations.

The Nations recognize that some of these water Values relate to aspects of water quality or watershed management that are outside the current scope of work of the bio-physical water quality objectives being developed by Steering Committee. For completeness, the full set of water Values have been included

⁵ *Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'Khene.

above.

The Figure below shows the step-wise process worked through to progress from a Vision for the Kinuseo sippi / Murray River watershed, through to understanding which aspects of that Vision could be addressed through Water Quality Objectives and which would need to be addressed through other watershed management tools.



Mapping Values Statements to BC Water Quality Guidelines or Other Areas

Once the Vision and First Nation Water Values had been developed, our working group needed to connect the Indigenous perspective with the work being conducted by the Steering Committee to develop water quality objectives. We made connections between the Vision and Values and potential aspects of the watershed that would indicate a value was healthy (Indicators) and how that aspect of the watershed could be measured (measures).

Each Value has multiple Indicators of good health. Each indicator of good health will typically have at least one measure to track good health.

Once Measures are identified, goals or bounds will need to be set for those measures (Objectives, Management Recommendations, other mechanisms for protection) to ensure that the Value is being protected. Objectives can explain what we want to accomplish for a specific Value, and also how we will judge conditions.

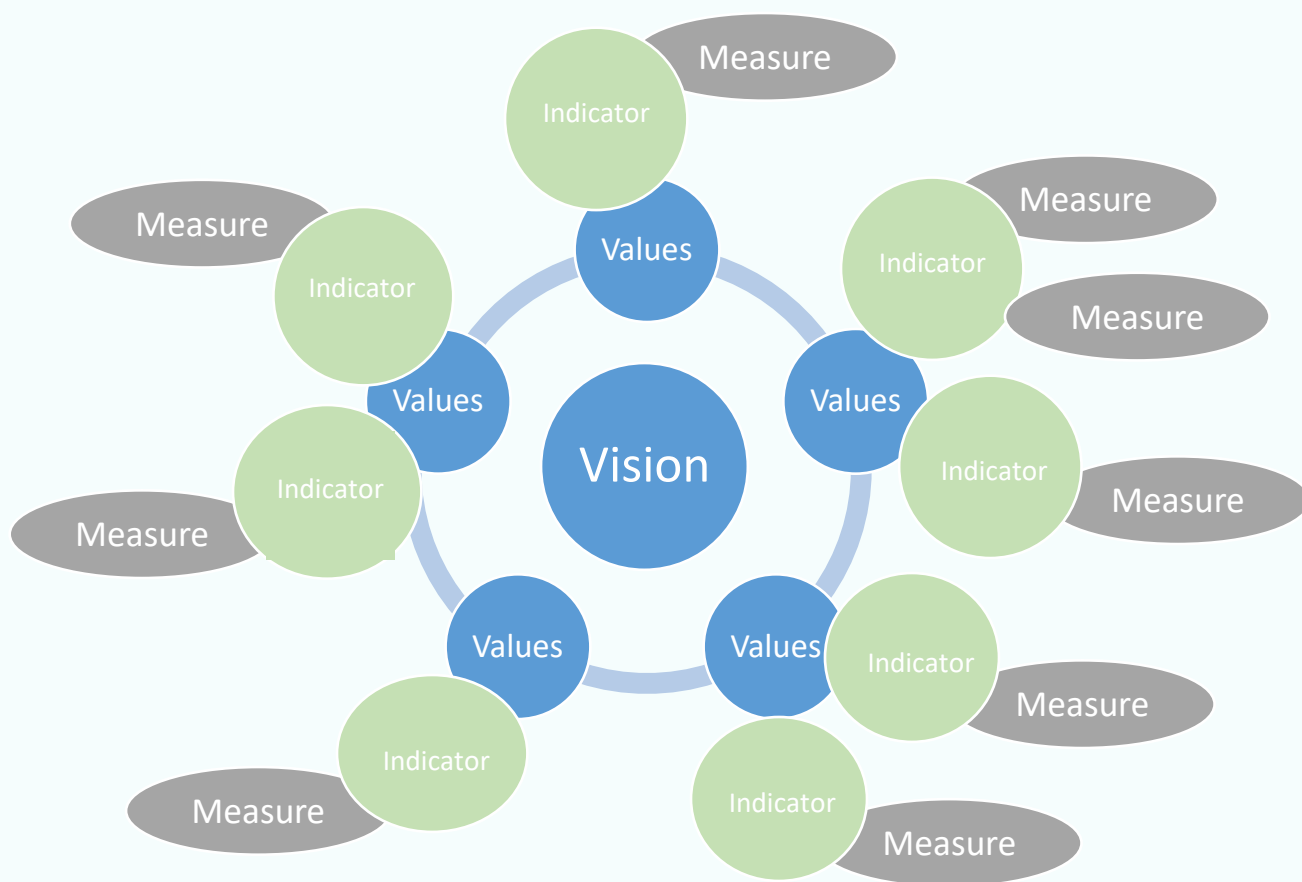


Figure 9 Making Connections between Vision, Values and Measuring Good Health

Overlap and Unaddressed Values

It is clear that many of the water Values identified in this work do not fall under the BC Water Quality Guidelines and the water quality objective development process. Values and Indicators identified were evaluated to determine if either:

- a. A Water Quality Guideline exists that could apply to a Value + Indicator + Measure identified (e.g., fish health);
- b. A Water Quality Guideline does not exist, but the Value and Indicator may fall under the purview of bio-physical water quality and a Water Quality Objective could be developed.
- c. The Value + Indicator + Measure would likely need to be protected or enhanced through other watershed management tools or other Ministries and management mechanisms.

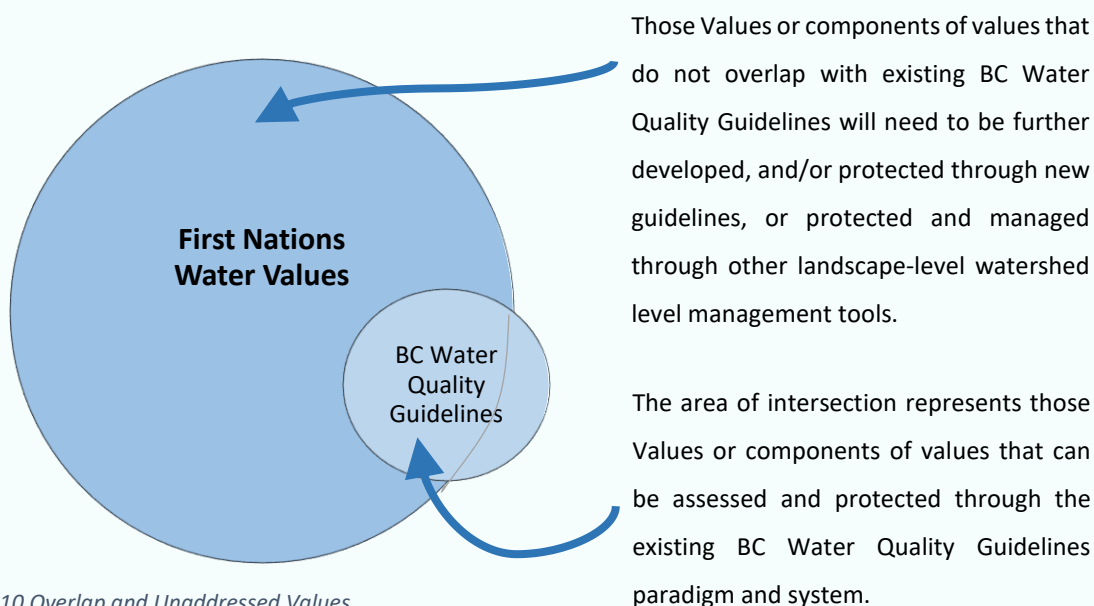


Figure 10 Overlap and Unaddressed Values

In addition to the Water Values identified by the participating First Nations herein that have some overlapping characteristics with western water quality designated uses, it is important to remember that even what seems like an obvious overlap is not directly transferable and translatable to an Indigenous context due to a difference in perspective and worldview.

Two examples are included below:

- raw drinking water, public water supply, and food processing
- recreation and aesthetics

Drinking Water Perspectives

In the context of Treaty rights and Indigenous use, drinking water is not solely an “end of pipe” public water supply and water chemistry concern.

Indigenous peoples’ access and drink water throughout the territory and rely on water to be trusted for drinking to support the exercise of Treaty rights. Individuals will consider many aspects of the experiential indicators to determine whether water is safe and healthy to drink. For instance, the proximity to, and evidence of industry and other disturbances can affect the perception that water is trusted and safe to drink.

Recreation and Aesthetic Perspectives

The participating First Nations believe that water quality guidelines or water quality objectives could be developed to protect Indigenous aesthetic values by expanding the BC provincial conception of recreation and aesthetic value. The western conception of aesthetics, which many readers will be inherently familiar, often considers the “beauty” of an object or a place based on visual, auditory or other sensory experiences.

However, Indigenous aesthetic values are often concerned with the spiritual, social and historic “associations of a place and with the species that live there. An emotional response is primarily generated out of these associations” (ICOMOS-IFLA 2017). Leuthold's definition of indigenous aesthetics describe aesthetics that are not limited to geography, and can include spiritual place reflecting indigenous values and worldviews. Webb describes “the taproot of Indigenous aesthetics is the stories, songs, ceremonies, and spiritual connections which link individuals, their families, and their ancestors to these lands. It is an expression of a sense of ‘place’ which grows out of their spiritual connectedness to ‘all our relations’ (Webb, 2020 unpublished).

Other forums have incorporated a broader concept of aesthetics into plans by using primitiveness or naturalness as a measure of the protection of landscapes. For example, in the Babine River Watershed Recreation, Opportunity Spectrum Analysis (deGroot, 2011) a “Recreation Opportunities Spectrum” was developed that considered “the landscape to determine what types of recreational experiences are being provided in terms of remoteness, naturalness and expected social experience” (deGroot, 2011). The categories mapped in the Babine Watershed (Primitive, Semi-primitive non-motorized, Semi-primitive motorized, Roaded natural and Roaded modified) may be useful indicators for the aesthetic values protected and conserved in a particular area, similar to the aesthetic values of importance to the participating First Nations in relation to the Kinuseo sipi / Murray River landscape.

The US Department of the Interior developed a “Water and Land Recreation Opportunity Spectrum Users’ Handbook—Second Edition” (2011) to provide guidance to practitioners in categorizing areas along a

spectrum from primitive, semi-primitive through to rural and urban experiences. Again, this document does not consider Indigenous aesthetic values specifically, but demonstrates the kind of framework whereby a broader conception of aesthetic value could be described, assessed, managed and protected.

In another aesthetics focused project, a project conducted for Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) aimed to identify and document the attributes related to the aesthetic values of the Great Barrier Reef World Heritage Area property. The report noted that aesthetic values of landscapes are typically limited to visual aspects and described in terms of scenic beauty. They developed a frame of reference for aesthetic values was developed that “reflects and responds to the nature of this place – its scale, dynamism, settings, layering of cultural and natural values and the ways people experience the place...” (Johnston et al, 2013).

A deeper exploration of the roots and historical development of aesthetics shaped by various philosophers and worldviews can be found in “The Aesthetic Value of Landscapes, Background and Assessment Guide” (IFLA ICOMOS, 2017).

An Indigenous aesthetic includes values that are not limited to visual scenic beauty and includes the experience of the land and place. A similar reframing of aesthetic value has the potential to enable the inclusion of Indigenous aesthetic values within landscape and watershed planning, protection and management. Given the provincial commitment to Reconciliation, an approach is needed which expands Euro-Canadian concepts such as "recreation and aesthetics" to acknowledge the relevance of an "indigenous aesthetic" filter for inclusion of Indigenous water values as a proper component of BC Water Quality Guidelines and water quality management.

4 Advancing Addressed and Unaddressed Values

The following terms are used in the tables of values and represent the following:

- Value – the valued component or aspect of water in Kinuseo sipi / Tse'gon'ga choo / Murray River.
- Indicator – Key information or the ways in which community members, land users and treaty lands managers know that a particular Water Value is protected, supported and or trusted. Examples might include visual appearance or the visual presence of nearby industrial activity.
- Measure – How can this Indicator actually be measured – By water chemistry testing? By visual observations? By community interviews? By land user accounts?
- Objective – How the Measure will be judged to be protective or sufficiently supportive of the Value.

Indicators of value health are identified as being potentially “Addressed” by existing water quality guidelines or objectives, or “Unaddressed” which means more work is required to identify appropriate ways of measuring the indicator and judging whether the indicator is healthy and supporting the Value.

The water values identified have been nominally sorted into either those Water Values that may be able to be protected with WQOs ("Overlap") or those Water Values that can be protected with WQOs that need to be developed and/or need to be protected through other watershed management mechanisms ("Unaddressed").

1. Thriving – *Unaddressed*
2. Resilient – *Unaddressed*
3. Shared codes of conduct – *Unaddressed*
4. Water is at peace and healthy – *Unaddressed*
5. Water supports Pimâtisiwin⁶ and peaceful enjoyment & exercise of Treaty rights. *Unaddressed*
6. Water is respected. *Unaddressed*
7. Trusted, drinkable, water *"Overlap" and Unaddressed*
8. Trusted safe “common” water *"Overlap" and Unaddressed*
9. Trusted healthy water for spiritual or ceremonial purposes *"Overlap" and Unaddressed*
10. Trusted water that provides a sustainable fish harvest. *"Overlap" and Unaddressed*
11. Trusted water that supports a hunting harvest for generations to come. *"Overlap" and*

⁶ Pimâtisiwin in Cree, Ke'maah in the Dene language of the Dunne Za, and Woohzoo inka sinda ooh in Tse'Khene.

Unaddressed

12. Trusted source of plants and medicine – water bodies / riparian areas. *"Overlap" and Unaddressed*
13. Sustaining healthy ecosystem - animals and fish (not necessarily for harvest). *"Overlap" and Unaddressed*
14. Reconciliation: Non-indigenous people living and working in the watershed being aware of and respecting the sacred and central value of water in cultural practice and identity to Treaty 8 First Nations. *"Overlap" and Unaddressed*

The values identified as being partially appropriate to be included in the first phase of Water Quality Objective development, because a Water Quality Guideline partially addresses the water Value indicators or because the development of a narrative or local component for the water values would be relatively straightforward, are listed below.

- Trusted, safe, common water
- Trusted drinkable, water
- Trusted water for ceremonial purposes.
- Trusted water that provides a sustainable fish harvest.
- Trusted water that supports a hunting harvest for generations to come.
- Trusted source of plants and medicine – water bodies / riparian areas.
- Sustaining healthy ecosystem including wetlands - animals and fish (not necessarily for harvest).

These First Nation Water Values have aspects that can be addressed through bio-physical measurements (i.e., water quality guidelines and objectives) and also have Indigenous Indicators and associated Measures that will require further work to identify and determine how to protect or enhances those Indicators.

The following pages provide example of Values Statements, Indicators and Measures that could be developed flowing from the Vision for the Kinuseo sipi / Murray River watershed. Value – Indicator-Measure examples are a starting point for understanding Water values and should not be considered a complete representation of complexity.

Peaceful Enjoyment of Treaty Rights

One of the key Values the participating First Nations identified related to water is the Peaceful Enjoyment of Treaty rights and their relationship with trusted, healthy water; the right not to be unreasonably interfered with in the exercise of Treaty rights. The First Nation Water Value of Peaceful Enjoyment is, in

part, an overarching value that is supported by the protection of other First Nation Water Values.

We have not mapped out the Indicators and Measures for the First Nation Water Value Peaceful Enjoyment of Treaty rights because:

- We expect that most of the Indicators identified for the Value of Peaceful Enjoyment will either be overlapping with water-quality-related Indicators in other First nation Water Values, or
- Indicators related to Peaceful Enjoyment will not be bio-physical water-quality measures and will require watershed and land management to support and protect the peaceful enjoyment of Treaty rights and the essential component of Treaty rights “way of life” or Pimâtisiwin⁷.

Indicators for the Value “trusted, healthy water that supports the Treaty right to fish for subsistence and cultural needs” such as visual experience and auditory experience are examples of Indicators that relate quite directly to the peaceful enjoyment of Treaty rights. These are two Indicators that were included in the development of example Indicators, Measures and Objectives.

In future work, the concept of a recreational opportunities spectrum could be applied to water and watersheds, where areas are identified for different types of zoning (see Section *Recreation and Aesthetic Perspectives* above)

Trusted Safe Common Water

Common water is a term used to describe water and waterbodies that are commonly used by community members for everyday use including bathing. Common water closely relates to the western water use value of “swimming” or “recreational use”, but is distinct from these western uses in a number of ways including the duration of water immersion, and the indicators community members would rely on to determine if the water was safe to use for common purposes. The term Common Water is also adopted to distinguish this use from sacred water sites that are not used for common purposes and require a different manner and level of protection.

Values Statement

- Water in the Kinuseo sipi / Murray River watershed, including its tributaries and wetlands, is a healthy, trusted source of water for Treaty 8 members to access at any time to support the many aspects of *Pimâtisiwin* including social life, camps and camp uses of water, human immersion such as bathing and swimming, spontaneous and extended play, and cleansing.

See Appendix D, Table D-1 for Indicators, Measures and Objectives.

⁷ *Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'Khene.

Trusted Safe Drinking Water

Drinking water that supports Treaty rights is distinct from domestic drinking water piped to homes. Trusted, drinkable water has an experiential component. No amount of water chemistry reporting may make certain water bodies or sources trusted by land users given certain experiential Indicators.

Values Statement

- Water in the Kinuseo sipi / Murray River watershed, including its tributaries and wetlands, is managed in a way that creates a healthy, trusted source of potable water for Treaty 8 members to access at any time and exercise the many aspects of *Pimâtisiwin*⁸ including camps and camp uses of water, ceremony, animal cleaning, human drinking and food preparation, following Indigenous laws, being in a state of *Kayam*, at peace and healthy and supporting *Pimâtisiwin* (a healthy way of life).

See Appendix D, Table D-2 for Indicators, Measures and Objectives

Trusted Water for Ceremonial Purposes

Values Statement

- Water in the Kinuseo sipi / Murray River watershed, including its tributaries and wetlands, is managed in a way that creates a healthy, trusted source of spiritually healthy water for Treaty 8 members to access at any time and exercise the many ceremonial aspects of *Pimâtisiwin* that require water that is respected as sacred and is stewarded following Indigenous laws.

See Appendix D, Table D-e for Indicators, Measures and Objectives

Trusted, Healthy Water that Supports the Treaty Right to Fish for Subsistence and Cultural Needs

Trusted fishable water includes the experience of the water and the aquatic environment. Trusted fishable water requires safe access, quiet and solitude, and other experiential Indicators (e.g., visual disturbance in viewshed, etc).

Values Statement

- Water in the Kinuseo sipi / Murray River watershed, including its tributaries and wetlands, is a healthy, trusted aquatic environment for fish and aquatic organisms for Treaty 8 members to

⁸ *Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'Khene.

access at any time to support the many aspects of *Pimâtisiwin*⁹ including fish harvesting.

See Appendix D, Table D-4 for Indicators, Measures and Objectives

⁹ *Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'Khene.

5 Protecting First Nations Water Values through Water Quality Objectives

Below we will use the First Nation Water Value “trusted, healthy water that supports the Treaty right to fish for subsistence and cultural needs” to illustrate the gap in the current conception of water quality and designated uses, and how that leads to a gap in the parameters of concern that are identified and regulated. We will discuss the Indicators that relate to water quality and support the exercise of Treaty rights including fishing including but not limited to bio-physical water quality objectives.

Examples of Additional Indicators to Protect Indigenous Water Values and Uses

While typical water quality guidelines focus on protecting the health of physical fish itself, the protection of the Treaty right to fish requires a more robust and holistic view of water in order to protect the use. As described in the document “Kinuseo sipi / Murray River Watershed Vision and Values - An overview to support Water Quality Objective development”, protection of this water value and use is supported by healthy water that is accessible, and trusted by local community members, elders and land users to be fishable. Trusted, healthy, fishable water is available when the following Indicators are positive and protected. Below is the draft list of Indicators of healthy water that supports fishing. Those Indicators that have an obvious overlap with BC’s bio-physical water quality objectives are highlighted in **blue**.

While much research has focused on identifying and preventing contaminants in drinking water, Indigenous teachings point out that water has various meanings and uses for people including its aesthetics; a symbol of fertility and purity; a home for living beings; a life-enriching cleansing agent; an element of interconnection; and a symbol of both strength and softness. (Bharadwaj and Bradford 2018)

Healthy water for fish habitat

- **Water chemistry (including temperature)**
- **Water biological measurements** – protect for aquatic life, CABIN- benthic invertebrates
- Healthy habitat (management, what is being stocked, etc)
- Population dynamics- changes due to flow changes and impoundment (changing flow and fish in the river)
- **Water biota** – CABIN – benthic invertebrates

Fishable water - local component

- Familiar taste¹⁰
- Familiar odour¹¹
- Typical local visual appearance (colour, flow)¹²
- **Expected temperature** (experiential, seasonal)
- Auditory Experience - proximity or presence of noise affecting the peaceful enjoyment of the Treaty right to fish for subsistence and cultural needs.
- Visual Experience- proximity to visual evidence of disturbance or potential contaminant sources.
- Olfactory Experience- proximity to smells or other olfactory disturbance or smells that suggest potential contaminant sources
- Safe access to the water
- Safe experience
- Appropriate flow (as part of access)
- Noise / disturbance of fish
- Others to be identified with community input.

Provide a sustainable supply of fish

- The Murray River provides a sustainable fish harvest (partially addressed through bio-physical water quality).

Trust - Water trusted to be healthy for fish and supporting the Treaty right to fish for subsistence and cultural needs

- Water quality related to Aquatic Life reported on a regular basis to elders and community land-users (such as, but not limited to, communication of annual reports, trends, and community-based monitoring initiatives that build community stewardship).
- Elders confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.
- Community member land-users confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.
- Community members widely believe water in the Murray River watershed to support a healthy

¹⁰ It is recognized that mechanisms for measuring these narrative or experiential Measures will need to be developed.

¹¹ As above.

¹² Colour may be able to be measured through water chemistry and written descriptors. Water flow is not within the scope of biophysical BC water quality objectives. Seasonal and site varies naturally.

fish harvest.

Note that the first two Indicators (water chemistry and water biology) included in this list are the two Indicators that typically have guidelines and/or objectives developed for parameters of concern. These are certainly important Indicators for the health of the water from a fishing perspective, but they are only a small portion of what needs to be protected for First Nations peoples to feel confident they can exercise their Treaty right to fish for subsistence and cultural needs in these waters.

Other water quality values or indicators may require mechanisms outside typical water quality guidelines and objectives in order to be managed and protected.

It is emphasized that Indicators of Value health are interconnected and rely on each other to create a holistic perception that water is healthy for fish and fish harvesting.

Other Indicators of water that supports the Treaty right to fish are more difficult, but not impossible, to fit within the construct of existing provincial designated uses and parameters of concern. For instance, ambient noise is not a typical Indicator of the quality of water, however, in order for water and the water ecosystem to support the Treaty right to fish, ambient noise needs to fall within a range of expected values for the protection of fish themselves and the protection of the experience of peaceful enjoyment of the Treaty right to fish for subsistence and cultural needs.

First Nation Water Values – Example WQOs

The following summary presents just a few Indicators and Measures that could be included in WQOs for the Murray River that go some way towards expanding WQOs and further protecting First Nation Water Values so that water is trusted to be safe and healthy for the support of a sustainable fish harvest. Many existing bio-physical WQOs already support and protect aspects of FNWVs, but it is clear that other water management measures will need to be developed in order to derive safe and healthy levels of these Indicators that support a sustainable fish harvest.

Water Quality Objectives or Guideline for aquatic ecosystems can be derived using a variety of measurement methods and data including:

- reference-site data
- laboratory-effects data such as water chemistry or turbidity measurements
- field-effects data
- multiple lines of evidence based on two or more of these data.

It is likely that a number of the Indigenous water values will be evaluated using referential data. Referential guideline values define a measurable level of change from a natural reference condition that, although the ecological consequences are unknown, is considered unlikely to result in adverse effects

(Australia and New Zealand Guidelines for Fresh and Marine Aquatic Guidelines, 2018). In the case of narrative descriptions of Indicators and Measures, referential guidelines may describe an acceptable level of change from a reference condition.

The following summary presents just a few Indicators and Measures of an expanded Indigenous perspective on water that is trusted to be safe and healthy for the support of a sustainable fish harvest. Water Quality Objectives and/or other water management measures will need to be developed in order to derive safe and healthy levels of these Indicators that support a sustainable fish harvest. Water Quality Objectives or Guidelines are only one tool for protection of aquatic ecosystems and can be derived using a variety of measurement methods and data including:

- reference-site or background data
- laboratory-effects data such as water chemistry or turbidity measurements¹³
- field-effects data – temperature, turbidity, pH, dissolved oxygen
- multiple lines of evidence based on two or more of these data.

Participating First Nation representatives conducted an exploratory exercise to develop broad concepts of Indicators for the Value:

- Trusted, Healthy Water Supporting the Treaty right to fish for subsistence and cultural needs.

We have selected four Indicators to advance and identify measurable parameters of potential concern and develop a Water Quality Objective for these Indicators in this first phase of WQO development, as follows:

- Visual appearance (local, expected)
- Temperature (local, expected)
- Taste (local, expected)
- Odour (local, expected)

We have selected these four Indicators because they most closely align with typical water quality parameters that have guidelines or objectives that exist in some form. They are also physically measurable and lend themselves to a typical understanding of water quality.

¹³ Turbidity can also be measured in situ (in the river with a probe) for instantaneous readings.

Table 1: Example Indicators, Measures and Objectives for the Water Value “Trusted, healthy water supporting a sustainable fish harvest”

Indicator	Description of Indicator	Measure(s) of Indicator Health (Parameters of Potential Concern)
Visual Appearance¹⁴	Murray River (or tributary) exhibits colour, turbidity, and signs of life within the expected range of local experience with the water body and land users’ perception of safe, healthy fish habitat.	<ul style="list-style-type: none"> - Turbidity measurement based on TSS. (Drinking water Turbidity objective is considered protective for Fish). - Colour classification measurement - Observational measurement of life and/or biota in the water, such as a CABIN measurement or other observational measurement for life forms observed - Qualitative land-user description of change from background.¹⁵
Expected Local Temperature	Murray River (or tributary) exhibits a temperature within the expected range of local experience with the water body and land users’ perception of safe, healthy fish habitat. ¹⁶	<p>Temperature measurements.</p> <p>Establish both a scientific numerical and qualitative objective that is reflective of</p>

¹⁴ Visual appearance is an overarching value in typical WQOs. The WQOs can be protective by setting WQOs for turbidity, TSS, color. The WQO number is set by deciding the desired level of protection (e.g., no change, set it at background, seasonal differences, allow some increase, or set it at WQGs level etc).

¹⁵ The qualitative, observational description of change from background may be able to be replaced through numerical measurements if a correlation is found between observations and measurements.

¹⁶ Water temperature is another overarching value in typical WQOs, through temperature measurements

		<p>background and that is considered protective.</p> <p>- Qualitative land-user description of change from background.¹⁷</p>
Expected Local Taste	<p>Murray River (or tributary) exhibits a taste within the expected range of local experience with the water body and land users' perception of safe, healthy fish habitat.</p>	<p>Establish a qualitative objective that is reflective of background and that is considered protective.¹⁸</p> <p>Taste Guideline only available for specific parameters (e.g., Fe).</p> <p>- Qualitative description of change from background.</p>
Expected Local Odour	<p>Murray River (or tributary) exhibits an odour within the expected range of local experience with the water body and land users' perception of safe, healthy fish habitat.</p>	<p>Establish a qualitative objective that is reflective of background and that is considered protective.¹⁹</p> <p>Odour Guidelines only available for specific parameters (e.g.,</p>

and setting a value that is protective for fish.

¹⁷ As per other qualitative, observation measurements, this may be able to be replaced with numerical measurements if a correlation is found.

¹⁸ BC Government cannot support or authorize the drinking of raw, untreated water, which may be a barrier to taste testing the water.

¹⁹ As per other qualitative, observation measurements, this may be able to be replaced with numerical measurements if a correlation is found.

Water quality parameters tested using western scientific bio-physical methods can measure and some aspects of the Indicators listed above. However, the local component of expected taste, odour, visual appearance, and temperature of the water requires some local land-user and Elder input in order to be locally relevant. We propose that Azimuth’s work developing Water Quality Objectives include the following Parameters and proposed WQOs developed.

Table 2: Example Narrative Water Quality Objectives

Indicator	Objective
<p>Expected Local Visual Appearance</p>	<p>In addition to turbidity, colour and biota measurements, develop a qualitative description of change from background and/or level required for peaceful enjoyment.</p> <p>Draft WQO: The visual appearance of water in a specific sampling location displays the overall appearance expected of that location and does not deviate from a background control location to a visually perceivable degree unless the specific location is known and expected to be visually different from background.</p> <p>In specific sampling locations where visual appearance is expected to be different from background (e.g., high sediment tributaries etc), a baseline expected visual appearance will be established through sampling.</p> <p>This measurement is largely assessed through water testing of turbidity, color, and biota.</p> <p>In addition qualitative measurement of the water visual appearance will be given specific descriptors and a stable set of water observers will be establish to categorize the water for each descriptor. See additional detail below.</p>
<p>Expected Temperature</p>	<p>It is expected that Expected Local Temperature will be able to be measured with field testing and not require a qualitative local component of measurement. Objective to be developed based on available guidelines, local conditions,</p>

	background measurements and community land user input.
Expected Local Taste	<p>Taste Guideline only available for specific parameters (e.g., Fe). However, BC government cannot support nor authorize the drinking of raw untreated water for tasting.</p> <p>Qualitative description of change from background and/or level required for peaceful enjoyment.</p> <p>The taste of water in a specific sampling location tastes as expected of that location and does not deviate from a background control location to a perceivable degree unless the specific location is known and expected to taste different from background.</p> <p>In specific sampling locations where taste is expected to be different from background (e.g., higher metal content tributaries etc), a baseline expected taste will be established through sampling.</p> <p>Qualitative measurement of the water taste will be given specific descriptors and a stable set of water observers will be establish to categorize the water for each descriptor. Taste includes the overall taste and the “mouthfeel” or textural aspects of the water. See additional detail below.</p>
Expected Local Odour	<p>Odour Guidelines only available for specific parameters (e.g., sulphur) and may not be sufficient to measure expected local water odour.</p> <p>Proposed WQO:</p> <p>Qualitative description of change from background and/or level required for peaceful enjoyment. The odour of water in a specific sampling location displays the overall odour expected of that location and does not deviate from a background control location to a olfactory perceivable degree unless the specific location is known and expected to be different in odour from background.</p> <p>In specific sampling locations where odour is expected to be different from background (e.g., higher sulphur tributaries etc), a baseline expected odour will be established through sampling.</p> <p>Qualitative measurement of the water our will be given specific descriptors and a stable set of water observers will be establish to categorize the water for each descriptor. See additional detail below.</p>

Descriptive Terms – Measurement

Questions remain to be answered as to how measurable, descriptive terms will be developed for the community-based qualitative measurements. For example, water quality monitors who are collecting samples for laboratory testing could also provide ratings of various qualitative descriptors. A mechanisms for input from land-users and/or Elders may require field visits. These practicalities will be an important part of next steps for these qualitative measurements.

It is emphasized that Indicators of Value health are interconnected and rely on each other to create a holistic perception that water is healthy for fish and fish harvesting.

6 Next Steps – Overlapping and Unaddressed Values

All First Nation Water Values identified, whether Overlapping or Unaddressed through BC Water Quality Objectives, must be viewed as fundamental to and interconnected in supporting and protecting Treaty Rights. At this time, resource development proponents have, in some cases, been given the right to impact the watershed in ways that have taken precedence over protecting Treaty Rights. Treaty Rights should not to be compromised or minimized (e.g., right to trusted, drinkable water that supports exercise of Treaty rights). Future work must focus on ensuring the Unaddressed Values and Indicators are a priority, rather than a secondary consideration.

Some key next steps in this work have been identified as follows:

- Further refinement of the four draft water quality objectives for overlapping First Nation Water Values.
- Identification of additional First Nation Water Values and Indicators that can be protected through BC water quality objectives.
- Development of a plan to address key First Nation Water Value Indicators that do not overlap with BC water quality objectives and are as yet unaddressed. This plan will include the identification of other paths and mechanisms for the management and protection of critical Indicators of First Nation Water Values.

We recognize that many of the FNWVs, including experiential factors such as quiet and solitude, may not be able to be protected by BC Water Quality Objectives, but they should not be lost or forgotten in the Water Values documentation. Two examples are provided below of such Indicators that require further work.

Broader Water Quality Management Indicators (non-WQOs)		
Indicator	Description	Measures
Proximal Visual Experience	<p>Experience of visual disturbance in an area of the water body (Murray River or tributary):</p> <ul style="list-style-type: none"> - level of visual evidence of industrial or recreational disturbance is within the expected range of local experience with the water body that supports the peaceful enjoyment of Treaty rights and supports the perception of safe, 	<ul style="list-style-type: none"> - Presence of visual industrial disturbance - Presence of recreational disturbance such as jet boats - Presence of potential sources of non-point source pollution (agriculture,

	healthy fish habitat.	recreational vehicles, other). - Qualitative description of change from background and/or level required for peaceful enjoyment.
Proximal auditory experience	Experience of auditory disturbance in an area of the water body (Murray River or tributary): auditory evidence of industrial or recreational disturbance is within the expected range of local experience with the water body that supports the peaceful enjoyment of the Treaty right to fish and supports the perception of safe, healthy fish habitat.	- Presence of auditory industrial or recreation disturbance (measured in dB) - Qualitative description of change from background and/or level required for peaceful enjoyment.

Plan to Address Watershed or Landscape-level First Nation Water Values

In the early 2010's, the participating First Nations were actively involved in independent technical reviews of a number of environmental assessments and permitting processes in the Kinuseo sipi / Murray River watershed. A primary concern expressed by the First Nation representatives at all of these review tables was the lack of comprehensive landscape-level cumulative effects assessment on valued ecosystem components, including the ability to exercise Treaty rights.

A number of initiatives were started in this period that were aimed, in whole or in part, at addressing the concerns of First Nations about the cumulative effects of industrial resource development in the region. For example, as part of the Teck Quintette Mines Act Permit Amendment (approved in June 2013) a commitment was made by Teck to help facilitate the creation of a Cumulative Effects Management Framework, with a Water Technical Group to be one component of that Framework.

An organizing meeting was held to discuss the need for a Murray River Cumulative Effects working group of some sort. Around the same time, in 2014, the Murray River Aquatic Cumulative Effects Framework Steering Committee was created. This new Steering Committee was focused on water quality data gathering and the development of water quality objectives. While the Steering Committee focused on database development (for water quality data), the participating First Nations were tangentially involved

in the Steering Committee and refocused their own efforts on developing a broader First Nations Cumulative Effects Framework. The work of this FN CEF group continues.

In 2018, as the work of the MRACEF Steering Committee advanced, the participating First Nations reengaged more closely with the work. While the gap between assessing bio-physical water quality and the broader watershed-level concerns of the Nations was still evident, the Nations felt that their participation and contributions could go some way toward enhancing the understanding of the group about the complexity of the First Nation Water Values.

The participating First Nations have attempted to share and describe a complex network of values and principles that guide their relationship with water and work within the watershed. The aim was to raise the understanding of First Nation Water Values and demonstrate that Water Quality Guidelines and bio-physical water quality are one piece of the puzzle that make up a watershed where First Nations can exercise their Treaty right to the peaceful enjoyment of continuing their way of life within their territory. Whether it is the disturbing presence and noise created by jet boats on the Kinuseo sipi / Murray River, the lack of protection for less roaded and disturbed areas of the watershed, visual or auditory presence of industrial activities, or the lack of safe, private access to fishing and gathering sites, it is clear that additional management mechanisms and management recommendations will be required to support and protect Treaty rights in the watershed.

A key next step in this journey will be finding or creating the management mechanisms that can lead to the broader cumulative effects assessment and management in the Murray River. The use of the recreational opportunities spectrum may be an important tool in the development of management mechanisms to protect First Nation Water Values in the watershed. Some potential avenues for this work have been identified, including the Regional Strategic Environmental Assessment, and area based management plan, community watershed initiatives, and other initiatives and mechanisms available. A work plan will be developed that outlines a path forward for this effort.

7 Closing

Treaty 8 First Nations emphasize that the stewardship of our territory, including the Kinuseo sipi / Murray River watershed, is a complex and interconnected process. Water is a sacred and central value for us, and our stewardship of water is central to our cultural identity.

Water Quality Objectives, as defined and described by the Government of British Columbia, protect and promote the health of specific bio-physical aspects of watershed and territorial health. The protection and promotion of the exercise of Treaty rights in our territory requires development of meaningful land and water management strategies and plans, of which Water Quality Objectives are one supporting tool.

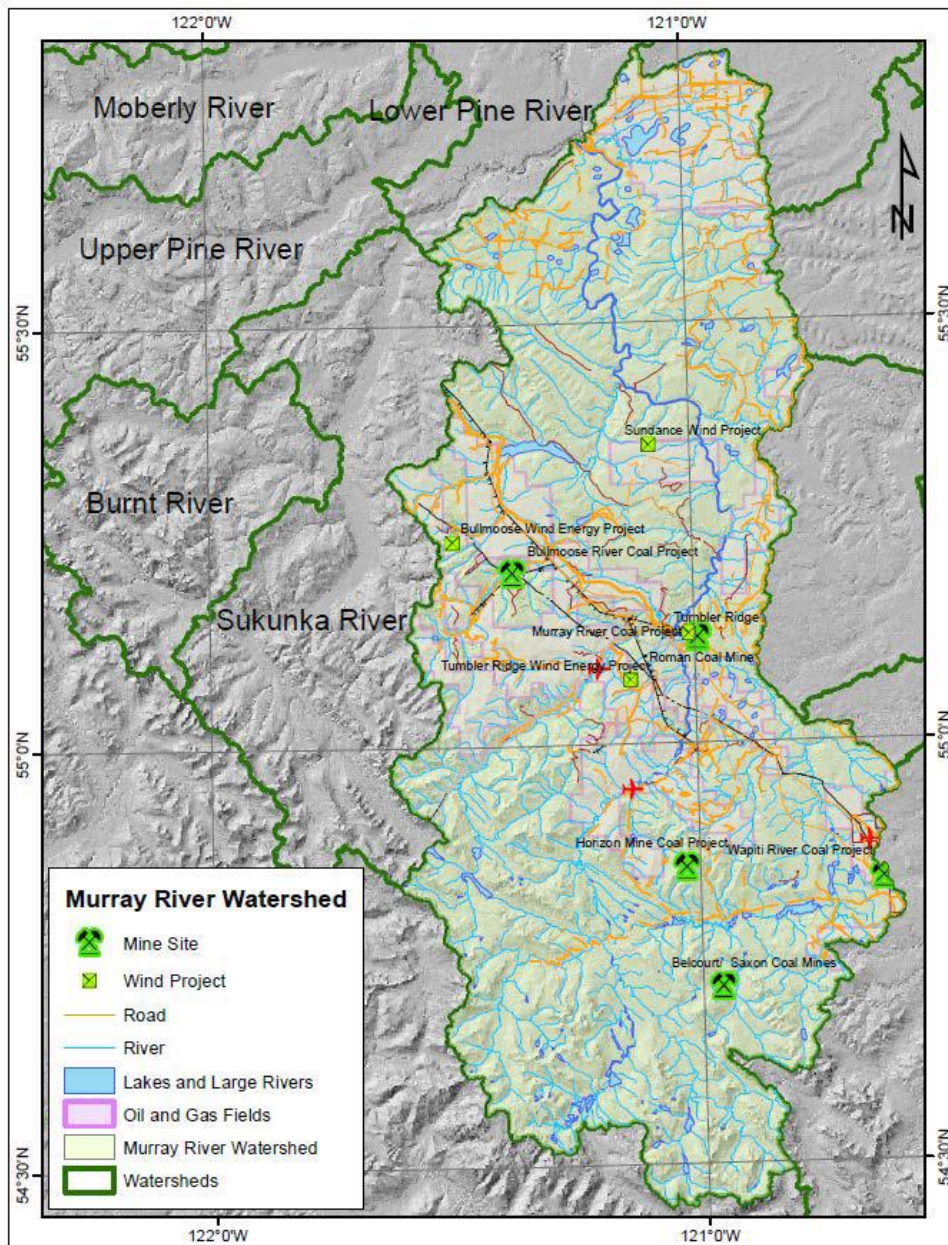
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Appendix A – Murray River map



Appendix B – Pathways for Incorporating Cultural and Spiritual Values into Water Quality Planning

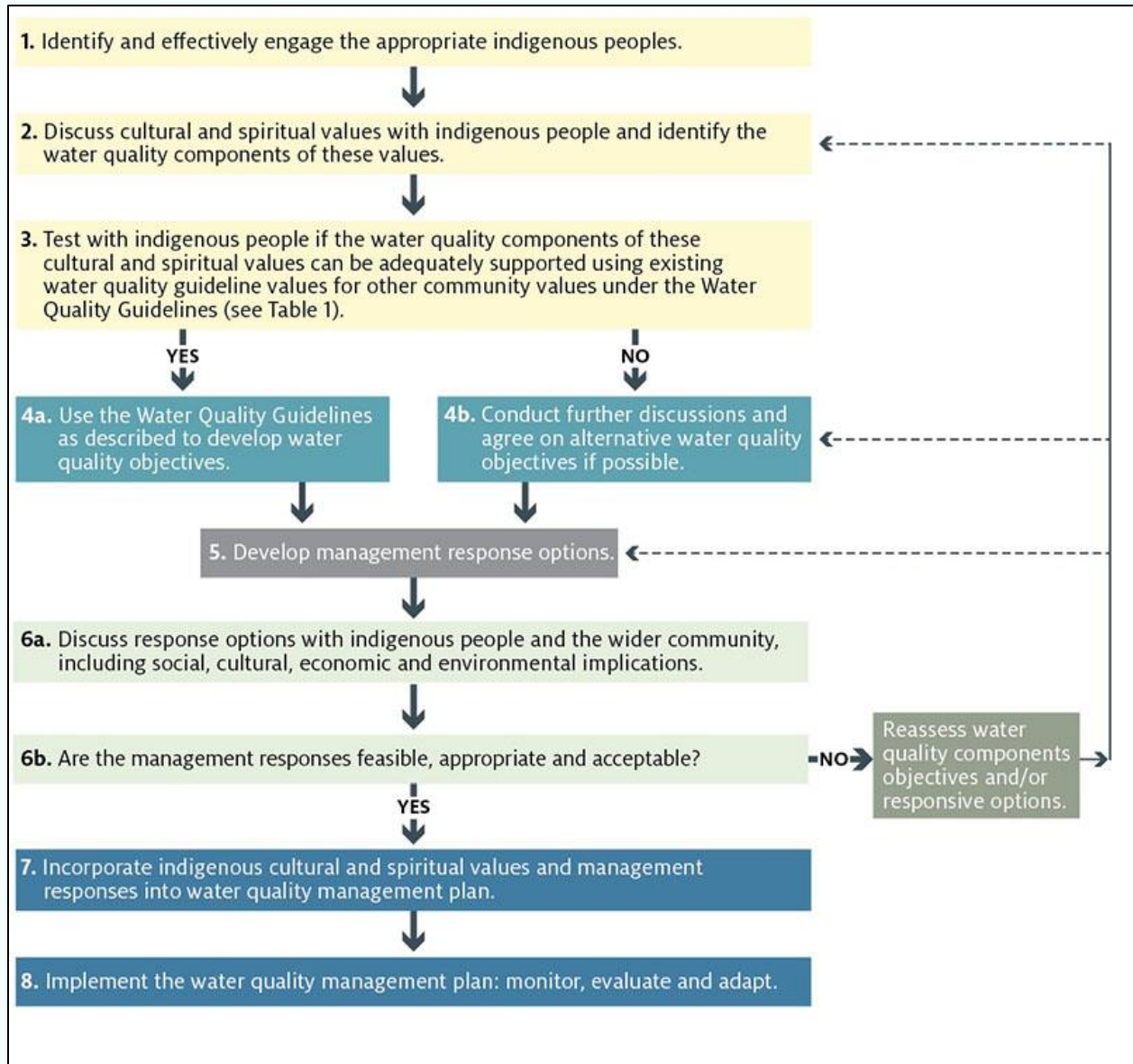


Figure 11 Proposed pathways for incorporating cultural and spiritual values into water quality planning (Australia and New Zealand, 2018).

Appendix D - First Nation Water Values and Indicators

Fourteen primary values were identified and described for water and water in the Murray River watershed; particularly as water relates to supporting the peaceful enjoyment of Treaty rights. Seven identified Water Values have some components (indicators or measures) that overlap with existing bio-physical conceptions of water quality in the BC Water Quality Guidelines. All seven of these values have components that are unaddressed and will need to be carried forward for further protective management actions. Appendix D includes four tables of Water Values with overlap with BC Water Quality guidelines.

- Trusted, safe common water
- Trusted, drinkable water
- Trusted, healthy water that supports the Treaty right to fish for subsistence and cultural needs
- Trusted water for ceremonial purposes
- Trusted, healthy water that supports the Treaty right to hunt for subsistence and cultural needs
- Trusted, healthy water that supports a thriving ecosystem
- Trusted, healthy water that supports harvesting plants and medicines for subsistence and cultural needs

Seven other Water Values have no intersection with existing Water Quality Guidelines. These water values will require Indicators of health of the value, a method of measuring that indicator, and a mechanism or guideline for how to determine if the value is being protected. These Water Values that require further development have been categorized as unaddressed and include:

- Thriving water and watershed
- Resilient water and watershed
- Water that supports Pimâtisiwin²⁰ and peaceful enjoyment & exercise of Treaty rights
- Water is at peace and healthy
- Water and the relationship with water is respected
- Share codes of conduct and share stewardship
- Reconciliation: Non-indigenous people living and working in the watershed being aware of and respecting the sacred and central value of water in cultural practice and identity to Treaty 8 First Nations.

²⁰ *Pimâtisiwin* in Cree, *Ke'maah* in the Dene language of the Dunne Za, and *Woohzoo inka sinda ooh* in Tse'Khene.

Table D-1: Indicators and Overlap for the Value Trusted Safe Common Water

Indicators, Measures and Guidelines for Value - Trusted Safe Common Water			
Indicator	Measure	Objective (What's the Goal? How to Judge)	Indicator may Overlap w BC WQOs or Unaddressed Indicator
Value: Trusted <u>Safe</u> Common Water			
Typical local visual appearance	Local component - to be developed	-	Some Overlap with Guidelines
Expected temperature (seasonal)	Local component - to be developed	-	Some Overlap with Guidelines
Experiencial component - constraints to water use	Local component - to be developed	-	Unaddressed - requires other management mechanisms
Experiencial component - positive attributes and positive relationship indicators	Local component - to be developed	-	Unaddressed - requires other management mechanisms
Sufficient supply (seasonal)	Out of Water Quality Assessment scope.	-	Unaddressed - requires other management mechanisms
Value: Trusted <u>Safe</u> Common Water - Water Chemistry			
Water biological contaminant measurements.	Human swimming guidelines? Consider incidental water intake, dermal contact.	BC Water Quality Guidelines: Recreation	Overlap with Guidelines
Healthy water chemistry.	Water Quality for swimming, including children for extended periods of time.	BC Water Quality Guidelines: Recreation (is this relevant for	Overlap with Guidelines
Water biology	Healthy insects are measured as per CABIN.		Potential to develop WQOs
Value: <u>Trusted</u> Safe Common Water			
Water quality reported on a regular basis to elders and community land-users.	Frequency of water quality reporting at a community level.	Water quality results are reported on a quarterly basis to community members including elders, youth	Related to WQO reporting
Elders confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Some measure of Elders confirming knowledge of the appropriate management of the water sources.	-	Potential to develop mechanism under BC water quality
Community member land-users confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Community members confirming knowledge of the appropriate management of the water sources.	-	Potential to develop mechanism under BC water quality
Community members widely believe water in the Murray River watershed to be safe social human use.	Local component - to be developed. Community members confirming trust in safety of water for human uses like immersion, bathing, and	-	Potential to develop mechanism under BC water quality

Table D-2: Indicators and Overlap for the Value Trusted Safe Drinking Water

Indicators, Measures and Guidelines for Value - Trusted drinkable water			
Indicator	Measure	Objective (What's the Goal? How to Judge)	Overlapping w BC WQOs or Unaddressed Indicators
Trusted drinkable water - local component			
Familiar taste	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Could add existing generic odour guidelines as a "baseline" or basic level of protection.	To be addressed through first phase of Water Quality Objectives
Familiar odour	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Could add existing generic odour guidelines as a "baseline" or basic level of protection.	
Typical local visual appearance	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Degree of change from baseline or background.	
Expected temperature (seasonal)	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Degree of changes from baseline or background.	
Auditory Experience - proximity or presence of noise affecting the peaceful enjoyment of the Treaty right to fish.	Local component - to be developed	-	Addressed via other management mechanisms
* Visual Experience- proximity to visual evidence of disturbance or potential contaminant sources	Local component - to be developed	-	Addressed via other management mechanisms
* Olfactory Experience- proximity to smells or other olfactory disturbance or smells that suggest potential contaminant sources	Local component - to be developed	-	Addressed via other management mechanisms
Experiential positive attributes	Local component - to be developed	-	Addressed via other management mechanisms

Table D-2 Continued

Healthy drinking water - chemistry perspective			
Water chemistry	Key water chemistry measurements	BC Water Quality Guidelines: Drinking Water Sources (generally consistent with Federal Guidelines)	Overlap with Guidelines
Water biological measurements.	Key biological measurements		Overlap with Guidelines
Water biology	Healthy insects are measured as per CABIN.	-	Potentially addressed via WQOs
Trusted Drinking Water			
Water quality reported on a regular basis to elders and community land-users.	Frequency of water quality reporting at a community level.	Water quality results are reported (are water quality objectives being met) on a quarterly basis to elders and community members. Media and means to be determined.	Related to WQO reporting
Elders confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Some measure of Elders confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - requires other management mechanisms
Community member land-users confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Community members confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - requires other management mechanisms
Community members widely believe water in the Murray River watershed to be safe for drinking.	Local component - to be developed. Community members confirming trust in safety of water for drinking.	-	Unaddressed - requires other management mechanisms

Table D-3: Indicators and Overlap for the Value Trusted Water for Ceremonial Purposes

Indicators, Measures and Guidelines for Value - Trusted water for ceremonial purposes (to be developed)			
Indicator	Measure	Objective (What's the Goal? How to Judge)	Overlapping w BC WQOs or Unaddressed Indicators
Spiritually Healthy water - Following Indigenous Laws			
To be developed. Placeholder Example only: Elders and users of water for ceremonial purposes believe water in sacred spaces respects Indigenous laws.	Local component - to be developed. Placeholder Example only: Elders and users of water for ceremonial purposes confirming trust in how water is managed (may be the same as line 5, Indicator 2 above).	-	Unaddressed - needs other management mechanisms
Water Trusted for ceremonial purposes - experiential local component			
To be developed. Placeholder Example only: Elders and users of water for ceremonial purposes experience water in sacred places to have the qualities that indicate the water is at peace and healthy.	Local component - to be developed. Noise, visual disturbance, access, safety, odour, animal life, etc.	-	Unaddressed - needs other management mechanisms
Healthy Water (see Trusted Safe Drinking water for Indicators and Guidelines)			
(see Trusted Safe Drinking water for Indicators and Guidelines)			Some Overlap with Guidelines
Water Trusted for ceremonial purposes			
Water quality reported on a regular basis to elders and community land-users.	Frequency of water quality reporting at a community level.	Water quality results are reported on a quarterly basis to elders and community members. Media and means to be determined.	Related to WQO reporting
Elders confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Some measure of Elders confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - needs other management mechanisms
Community member land-users confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Community members confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - needs other management mechanisms
Elders and users of water for ceremonial purposes believe water in sacred spaces can be used for ceremonial purposes.	Local component - to be developed. Elders and users of water for ceremonial purposes confirming trust in water.	-	Unaddressed - needs other management mechanisms

Table D-4: Indicators and Overlap for Value Trusted, Healthy Water that Supports the Treaty Right to Fish for Subsistence and Cultural Needs

Indicators, Measures and Guidelines for Value - Trusted, healthy water supports Treaty right to fish for subsistence and cultural needs			
Indicator	Measure	Objective (What's the Goal? How to Judge)	Overlapping w BC WQOs or Unaddressed Indicators
Fishable water - local component			
Familiar taste	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Could add existing generic odour guidelines as a "baseline" or basic level of protection.	To be addressed through first phase of Water Quality Objectives
Familiar odour	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Could add existing generic odour guidelines as a "baseline" or basic level of protection.	To be addressed through first phase of Water Quality Objectives
Typical local visual appearance (colour, flow)	Local component - to be developed as part of WQOs.	Local component - to be developed as part of WQOs. Change from baseline or background.	To be addressed through first phase of Water Quality Objectives
Expected temperature (experience)	Local component - to be developed	Local component - to be developed as part of first phase WQOs. Fluctuation from baseline.	To be addressed through first phase of Water Quality Objectives
Auditory Experience - proximity or presence of noise affecting the peaceful enjoyment of the Treaty right to fish.	Local component - to be developed	Local component - to be developed	Unaddressed - requires other management mechanisms
* Visual Experience	Local component - to be developed. Positive (woody debris, shade) or negative (proximity to visual evidence of disturbance or potential contaminant sources).	Local component - to be developed	Unaddressed - requires other management mechanisms
* Olfactory Experience - proximity to smells or other olfactory disturbance or smells that suggest potential contaminant sources	Local component - to be developed	Local component - to be developed	Unaddressed - requires other management mechanisms

Table D-4 Continued

Safe access to fishable water	Local component - to be developed. Example indicator would be increased traffic, or increased road deterioration (mud), foreshore accessible, etc.	Frequency or ease of access to fishing sites.	Unaddressed - requires other management mechanisms
Safe experience	Local component - to be developed. Ask "What are the barriers to waters being fishable?" Why aren't families accessing certain water bodies? Identifies indicators.	Local component - to be developed	Unaddressed - requires other management mechanisms
Safe, appropriate flow and access for fish	Sufficient flow for fish - natural barriers exist - no increased barriers such as culverts.	Local component - to be developed	Unaddressed - requires other management mechanisms
Noise / disturbance of fish (e.g., vibration patterns disturb fish)	Could measure vibration in fishing areas.	Local component - to be developed	Unaddressed - requires other management mechanisms
Others to be identified with community input.	Local component - to be developed	Local component - to be developed	Unaddressed - requires other management mechanisms
Healthy water for fish habitat			
Water chemistry (including temperature)	Key water chemistry measurements	BC Water Quality Guidelines (or Objectives): Protection of Aquatic Life (1)	Overlap with Guidelines
Healthy habitat (management, what is being stocked, etc)	Local component - to be developed -		Unaddressed - needs other management mechanisms
Population dynamics- changes due to flow changes and impoundment (changing flow and fish in the river).	Local component - to be developed -		Unaddressed - needs other management mechanisms
Water biology	Healthy insects are measured as per CABIN. (2)	Healthy levels of change in insects measured as per CABIN.	Unaddressed - needs other management mechanisms

Table D-4 Continued

Provide a goodly, sustainable supply of fish			
The Murray River provides a sustainable fish harvest.	To be developed.	-	Unaddressed - needs other management mechanisms
Fish Health	To be developed. May include indicators of fish health such as fish eating flying insects. Could include understanding correlation between predation and precipitation.	May include observations of fish health, fish eating, fish predation.	Unaddressed - needs other management mechanisms
Water for fish supply trusted to be healthy			
Water quality related to Aquatic Life reported on a regular basis to elders and community land-users.	Frequency of water quality reporting at a community level.	Water quality results are reported on a quarterly basis to elders and community members. Media and means to be determined.	Related to WQO reporting
Elders confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Some measure of Elders confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - needs other management mechanisms
Community member land-users confirm they trust the watershed is managed in a way that includes Treaty 8 First Nation stewardship and values.	Local component - to be developed. Community members confirming knowledge of the appropriate management of the water sources.	-	Unaddressed - needs other management mechanisms
Community members widely believe water in the Murray River watershed to support a healthy fish harvest.	Local component - to be developed. Community members confirming trust in safety of water for drinking.	-	Unaddressed - needs other management mechanisms

Note 1: Aquatic Life guidelines include protection of fish; Long-Term Average Guidelines are intended to protect the most sensitive species and life stage against sublethal and lethal effects for indefinite exposures (August 2019).

Note 2: CABIN or other benthos assessment methods could be used to MONITOR aquatic life health over time and space