



GLOBAL WATER FUTURES
SOLUTIONS TO WATER THREATS
IN AN ERA OF GLOBAL CHANGE

Co-Creation of Indigenous Water Quality Tools



Trans-disciplinary, Community-led Research

Indigenous community experts are pooling their knowledge and experience together with Indigenous and Western scientists to address the needs of our communities with us and for us.

Principal Investigator: Dr. Dawn Martin-Hill (Indigenous Knowledge)

Academic Leads: Dr. Tina Moffat (Community Health Assessment), Dr. Patricia Chow-Fraser (Ecosystem Health Assessment)

Location: Six Nations of the Grand River Territory; Lubicon Lake First Nation

Description: A community-driven project (Six Nations and Lubicon Cree) in collaboration with McMaster University to address water security, water sovereignty, and environmental health solutions on First Nations reserves.

Introduction

Water security is one of the most pressing human rights issues faced by Indigenous people globally and locally. Canada is claiming a leadership role in recognizing and positioning Indigenous knowledge as parallel to western science with the creation of the Chief Science Advisor (CSA). The CSA will focus on how scientific information is disseminated and used by the federal government, and how evidence is incorporated into government-wide decision-making. As evidenced through a 2016 Canada – U.S agreement committing to “collaborating with Indigenous and Arctic governments, leaders, and communities to more broadly and respectfully include Indigenous science and traditional knowledge into decision-making, including in environmental assessments, resource management…”.

A recent policy publication, “Quick wins for Canada’s Chief Science Advisor in Policy Options”, underscores ways Indigenous knowledge of environmental topics is being sought by both government scientists and academic researchers.



Being systematic about establishing Indigenous knowledge as a resource for policy-making, he continued, requires going beyond “casual interactions of collaboration” toward “rigorous co-production that will stand up in a court of law whenever litigation seeks to challenge a particular set of decisions.”

The workshop will highlight challenges that will face the new scientific officer, and Indigenous rights and response to climate change and water security “...under what conditions does Indigenous knowledge count as authoritative evidence on a par with scientific claims? Who counts as a bearer of Indigenous knowledge, and under what conditions may this knowledge be shared with scientists and policy-makers? How should facts be adjudicated, when the claims of Indigenous knowledge and science diverge?”

From the perspective of the traditional Haudenosaunee, we speak in terms of responsibilities with respect to water, not in terms of water rights. From time immemorial, we have held the view that the “law of the land” is not man-made law, but a greater natural law, the Great Law of Peace.⁹ ...the root words for “rain” in Mohawk means expensive, or precious or holy. Culturally, we would not abuse this resource (Cornell Journal; King:2007)

Whose laws will prevail in governance over water?

– Dr. Dawn Martin-Hill, 2018

Guiding Principles



Ohneganos Ohnegahde:gyo - Water is life

harmony, strength and balance to our natural world and to the Kaniatarowanenne. (Blaser et al. 2004).

Ohenton Kariwatehkwen (Thanksgiving Address)

Guiding Principle

The guiding philosophies for the project are drawn from the late Confederacy Chief Harvey Longboat; Rotinonshonni or Haudenosaunee (People of the Longhouse), our perspective on the river and the relationships of respect and responsibility that should exist among all parts of creation are contained in the words of our Ohen:ton Kariwatehkwen (Thanksgiving Address). This teaching instructs us to believe in the interrelatedness and interdependency of all parts of the natural world. We believe that in order to gain a true understanding of any aspect of the natural world, respect must be shown for the entire web of relationships that exist and form our natural environment...

The environmental philosophy as instructed by the Oheniton Kariwatehkwen and the political philosophy as governed by the Kahswenhtha would establish a relationship based upon peace, power and righteousness and would restore

The Ohenton Kariwatehkwen is recited before any issues are talked about when a gathering of the people takes place or to quote a Mohawk expression, "to open the door" (a comparable expression might be "to open the meeting") and serves as a reminder to the people that everything on this land was provided for human existence and in return, we are to be thankful. Indeed, it is a solemn responsibility. The consequence of forgetting the human responsibility to give thanks to Creation, to water, is that one day, if a particular part of Creation is not addressed, and we fail to give thanks, we are told this part of Creation will disappear. (King: 2007)



Project Updates

Six Nations tap water testing for indicators of pathogenic bacteria

Principal Investigator: Dr. Pat Chow-Fraser

Community navigators: Denise McQueen, Kurt Gibson

Graduate student: Sawsan Makhdoom

Undergraduate assistant: Pascale Bider

During the summer 2018, the Ecosystem Health Assessment team collected tap water samples from 75 households on the Six Nations Reserve.

We tested for evidence of pathogenic bacteria in the water source. Pathogenic bacteria and viruses in drinking water can cause gastroenteritis and other diseases, with symptoms that include vomiting, nausea, fever and abdominal pain. Very old and young individuals are particularly susceptible. Feces of animals, including wildlife (raccoons, beavers), waterfowl, dogs, livestock and people will contain pathogens. Pathogens are difficult to isolate because they are rare (for every pathogen, there are millions of other bacteria) and they do not survive very long after they are outside the intestine. Therefore, we use indicators of fecal pathogens such as *E. coli*, a bacteria in the coliform group that exist in conditions similar to those of pathogens, but that are not usually pathogenic themselves.

Health Canada guidelines indicate that a 100-mL sample of drinking water should contain no colonies of *E. coli*. Therefore, we tested 100-mL samples of tap water to determine the presence of *E. coli*.

Currently, 29% of samples tested from all water sources (i.e. different well types, cisterns, treatment plant) were contaminated with *E. coli*, compared with 19% and 27% in similar studies carried out in 2003 and 2004, respectively (Neegan Burnside 2005).

Water contaminated with *E. coli* should not be

used for drinking or preparing drinks, for washing food or brushing teeth, unless the water has first been boiled in a pot, in a kettle on a stove, in a microwave oven, or in an electric kettle that does not have an automatic shut-off.

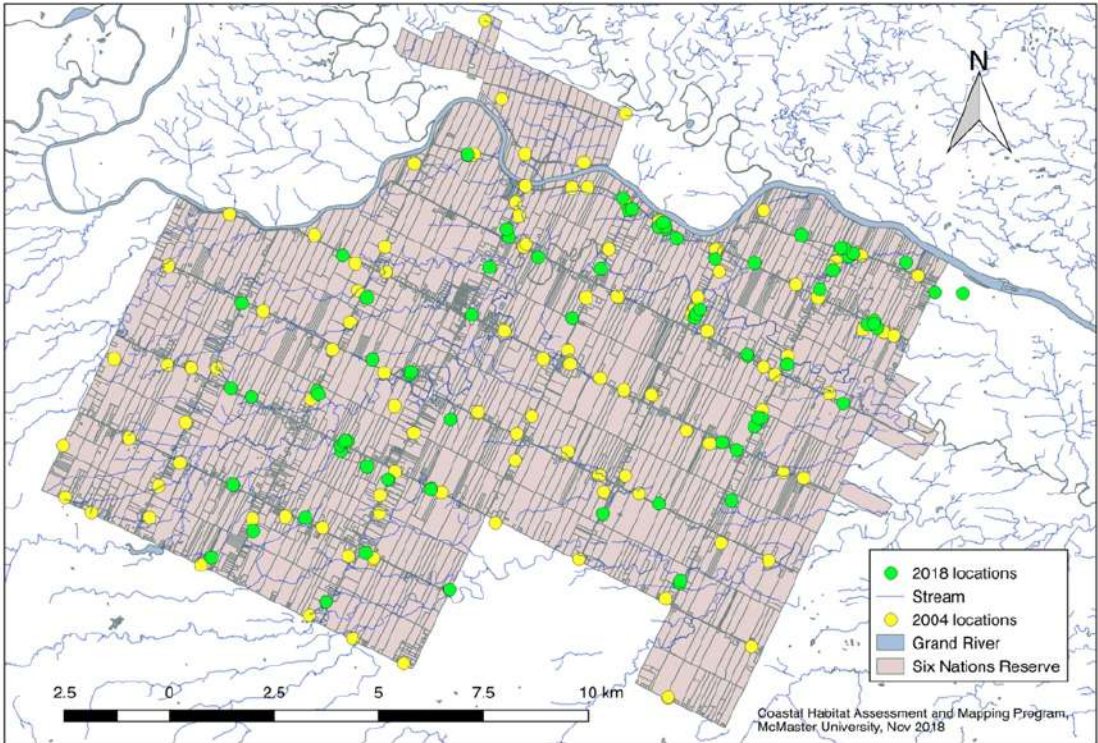


Graduate student Sawsan Makhdoom collects a sample from a kitchen tap.

To kill the micro-organisms that cause disease, the water must be kept boiling at least one minute.

Tap-water testing should be carried out regularly (more than once a year) if water sources are suspected of being contaminated with pathogenic bacteria. Health Canada notes that risk of contamination is greatest in early spring after winter thaw, after an extended dry spell, or following heavy rains. Therefore, owners of private supplies should have their water tested during these periods.

Over the next year, we plan to sample an additional 75 households that were part of the 2004 study (see map) to see how results of the water testing may have changed over the past 15 years. We will also apply a landscape approach to determine if hydrological characteristics and land-use-land-cover features may influence the pattern of contamination on the reserve.



Map showing locations of residences tested for indicators of pathogenic bacteria in source watertap water was tested, whereas wells (bored/dug and drilled) were tested in 2004.



Left: The eroded bank of McKenzie Creek showing exposed tree roots may be symptom of streambank instability. *Right:* One of the many beaver dams in McKenzie Creek that can block stream flow and make the river difficult to navigate.

Six Nations stream testing for indicators of ecosystem health

Principal Investigator: Dr. Pat Chow-Fraser

Community navigator: Makasa Looking Horse, Elan Henhawk (Faithkeeper)

Graduate student: Alana Tedeschi, Sawsan Makhdoom, Nick Luymes

Undergraduate assistant: Anjali Narayanan, Pascale Bider

Water in healthy streams is usually clear, with very little nutrient, has lots of oxygen, and support many types of benthic invertebrates, including aquatic stages of insects. When excess nutrients (phosphorus and nitrogen) from surface runoff on farmland or lawns enters the stream, it can fuel the growth of algae and make the water very turbid. Turbidity is essentially a measure of sediment and algae/bacteria in water. Levels of turbidity can be measured with expensive sensors such as the multi-parameter probe used by our team or with an inexpensive Secchi disk. If the stream is clear, the black and white quadrants of the disk should be easy to discriminate even if it is lowered to the bottom of the creek bed.

Increased algae in the stream can result in periods of low dissolved oxygen when the algae die. Some species of invertebrates and fish will not tolerate these degraded conditions (i.e., high nutrient, turbid and low oxygen) and will disappear from the ecosystem. Some of these intolerant species are insects such as mayflies, stoneflies, caddisflies and dragon flies; species of tolerant invertebrates include midges and aquatic worms. We can rank the tolerance of invertebrates encountered in the stream and calculate a score using these ranks to assess stream health. The best time to monitor benthic invertebrates in streams to determine ecosystem health is in spring, before the immature insects emerge as adults and fly away.



Anjali uses an inexpensive Secchi disk to determine water clarity, while Nick uses an expensive multi-parameter probe (Aqua Troll 500) to measure water chemistry in McKenzie Creek.

Total phosphorus (TP) is a measure of all forms of phosphorus (both dissolved and particulate), and is used by ecologists to indicate the amount of algae in water. The level in rivers and streams varies seasonally, but the provincial objective is a seasonal mean of 30 $\mu\text{g/L}$; levels above 30 $\mu\text{g/L}$ are expected to lead to excessive plant growth in rivers and streams.

Nitrogen takes on various forms in water. Nitrite and nitrate are readily used by algae and can be measured as Total Nitrate-Nitrogen (TNN). Elevated levels of TNN in water usually indicate influence of urban and agricultural runoff. According to the Canadian Water Quality Guideline, mean stream concentrations of TNN below 13 mg/L should protect aquatic life.

In areas suspected of being contaminated, *E. coli* sampling should be carried out at least several times over a month. If there are minimum 5



Community navigators Faithkeeper Elan Henhawk (Cayuga), Makasa Looking Horse (Mohawk) work with undergraduate assistant Anjali Narayanan en route to McKenzie Creek to collect water samples.

samples tested (i.e. over a 30-d period), advisories should be posted if the geometric mean exceeds 200 colonies per 100 mL. If there is only a single sample, swimming advisories should be posted if it contains > 400 colonies/100 mL.

Specific conductance reflect amount of ions in water, and can be an indicator of human activities, especially de-icing salts from road run-off. There is no specific maximum allowable level for human safety.

RESULTS

During September in 2018, our team sampled McKenzie Creek at five locations from Indian Line downstream to Hwy 6. We collected water samples to determine the concentration of phosphorus and nitrates, and E. coli, and used the Aqua Troll to measure turbidity, dissolved oxygen, and specific conductance.

- TP concentrations in McKenzie Creek varied from 90 to 200 $\mu\text{g/L}$, greatly exceeding the provincial objective of 30

$\mu\text{g/L}$.

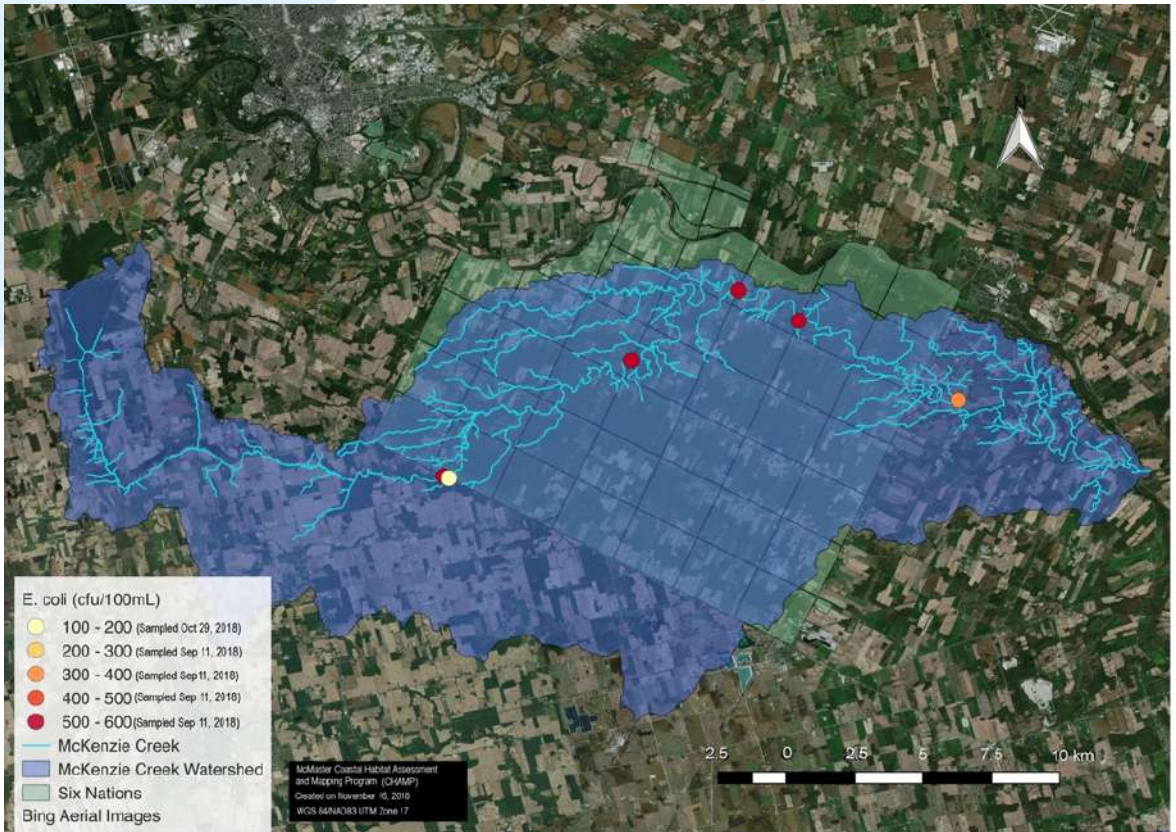
- TNN values varied from 0.05 to 0.11 mg/L, which are well below the guideline of 13 mg/L for protection of aquatic life.
- E. coli concentrations in McKenzie Creek ranged from 450 to 600 colonies/100 mL, except at Hwy 6. These values exceed the allowable level for recreational contact.
- Turbidity values varied from 70 to 170 units, which are all above 50, the maximum recommended for recreational use.
- % saturation dissolved oxygen were above 70% except for one, which was 50%.
- Specific Conductance values ranged from 490 to 660 $\mu\text{S/cm}$, which are similar to those measured in most urbanized centers.

Preliminary Conclusion

Based on nutrients, E. coli and water chemistry, McKenzie Creek is currently in an unhealthy state and actions should be initiated to restore its health.



McKenzie Creek just downstream of the dam on Indian Line.



Map showing locations of sampling sites along McKenzie Creek within its watershed (depicted in blue). Data for two sampling occasions in early September and in late October are shown. High temporal variation at the same site is not uncommon and is the reason why monthly sampling during the ice-free season as well as targeted sampling at the same location before and after storms is required to formulate a more complete picture for ecosystem assessment. Sampling of McKenzie Creek will resume in Spring 2019 and continue at least monthly until the creek freezes. (Map prepared by James V. Marcaccio, McMaster University).

Six Nations Well Water Characterization: Metals, Minerals & Organics

Principal Investigator: Dr. Charles de Lannoy

with Kyle Heybloom, Erik Frechette, Nan Zhang, Dawn Martin-Hill

The research team lead by Dr Charles de Lannoy is developing sensor surfaces that can operate under real conditions. In particular, the de Lannoy lab is studying the limits of sensor operation under real water conditions, developing sensors that are resistant to fouling and scaling, can clean themselves if they are fouled, and can operate under varying environmental conditions. In addition, the de Lannoy lab is measuring the water quality of Six Nations well, cistern, and tap water, to identify what contaminants might exist in this water to help guide the sensor-development research.

The team from de Lannoy lab conducted an initial analysis of 65 samples from wells, cisterns, and taps on Six Nations. They measured 26 metals, minerals and organics, and found elevated concentrations of chromium (Cr), aluminum (Al), manganese (Mn), arsenic (As), mercury (Hg), and uranium (U) (see table below, which shows the maximum level found in the water and the number of sites above the Canadian guideline standard).

There are several possible sources of contamination:



- Grand River: 280 km in length; downstream of 7 cities with 25 wastewater treatment effluent discharges and industrial emitters; agricultural runoff
- McKenzie Creek: flows through Six Nations reserve; wastewater lagoon
- Direct agricultural runoff
- Septic systems

Wells can allow contaminants to travel from surface to groundwater, as a result of improper well construction or well damage. Wells can also be impacted by household septic systems. A single well could contaminate an aquifer, impacting multiple nearby wells.

Further sampling and analysis will take place in 2019.

	Chromium (Cr) (mg/L)	Aluminum (Al) (mg/L)	Manganese (Mn) (mg/L)	Arsenic (As) (mg/L)	Mercury (Hg) (mg/L)	Uranium (U) (mg/L)
Maximum Value	0.07	0.2	0.2	0.095	0.008	0.073
Canadian guideline standard	0.05	0.1	0.1	0.01	0.001	0.02
Total number >75% of standard	1	14	2	1	18	1

Indigenous Knowledge and Community Update

2018 has been a productive year for the Indigenous Knowledge team! In addition to producing digital stories, traditional governance resources, and workshops on digital mapping, in November, the team travelled with Six Nations community and youth partners to Washington DC to conduct archival research on traditional water stories. They visited the Library of Congress, the Natural Museum of History, the National Museum of the American Indian, and the Amazon Conservation Team headquarters. One of the outcomes of this research was the translation of Hewitt's 1896 story Tiohtsha' ahton (The 'Exhauster') from English with Jeremy Green (Kaweni:io Private School).

Team members also presented at the 2018 World Indigenous Law Conference. Dr Nidhi Nagabhatla (UNU-INWEH, McMaster) and Dr Dawn Martin-Hill both spoke about water governance and security in First Nations communities. The purpose of the conference is to bring together lawyers, judges, academics, Knowledge Keepers, policy experts, community leadership, community advocates, students, and all interested parties to embark on and share in conversations and discourse about the implementation of Indigenous Law into western



Enjoying the fruits of their labour in the community garden at Six Nations.

contemporary legal systems. The conference was held on the traditional territory of the Three Fires Confederacy, which is comprised of the Ojibway, the Odawa and the Potawatomi.

In conjunction with the Health Assessment component led by Dr Tina Moffat, we constructed youth garden by traditional medicine house on Six Nations to teach about relationships between water, food and health, and build community relationships. All of the food grown in the garden was donated to elders in the community.



Left: youth and community members at the Smithsonian's National Museum of the American Indian, November 2018

Right: archival maps of Haudenosaunee land from the Smithsonian collection.



Community Health Assessment

(Sarah Duignan, Tina Moffat)

The community health team is a subgroup of CCIWQT and conducts interdisciplinary work between McMaster investigators and Six Nations community partners. The main goals of the team are to:

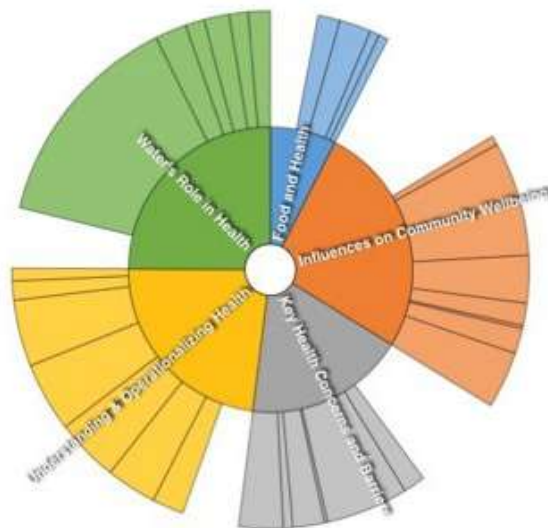
- investigate the role of water in community health and wellbeing
- co-create a community health survey to assess general health status and health concerns that integrate IK and western science
- compare water testing results (wells and tap water) with perspectives and experiences around health and water insecurity

In summer 2018, individual and focus group interviews were conducted with 7 community members (ages 20–50+). Each interview was approximately an hour long, and explored knowledge of water at Six Nations as it related to health and wellbeing of households, community and the environment.

Interviews were semi-structured and both Indigenous community partners and non-Indigenous researchers conducted the interviews. IK pedagogy was a critical component to these discussions, as it understands the holistic connections between health, governance, culture, and environment. Audio recordings of the interviews were transcribed and analyzed using NVIVO software. Interviews were coded on primary themes, and sub-codes were developed in instances where multiple ideas emerged around a central theme.

Two key themes emerged in all interviews:

1. **Water is life:** water plays a vital role in Haudenosaunee culture, law, spirituality, physical activity and health. Water is seen



as a responsibility, and contemporary water quality and protection efforts shape the health of future generations within the community.

2. **Water-specific challenges:** while there were many concerns surrounding water, the main challenges that emerged around the topic related to **holistic health** (individual and community), **agency** (who was responsible for water quality), and **access** (expenses of hauling water in and household treatment processes).

Water use and security surveys that were co-created with community members will be launched in late spring 2019, and will capture important data that will help to quantify the ways in which water is used and understood. This data will help to provide stronger statistics to connect directly with household water quality tests, and potentially screen for connections between emerging physical health conditions and water quality issues. It will also be used to better understand the ways in which water quality and access impact mental wellbeing, connections to the land, and social/community wellbeing.

Resource Guide

Decolonizing Indigenous Research: a resource guide for Indigenous peoples, academics and policy makers

(Jorge Fabra-Zamora, Piers Kreps, Dawn Martin-Hill)

The governance team has created a research guide is to foster to dialogue between Indigenous peoples, academics and policy-makers concerning methods utilized by our research team. The resource guide is expected to be accessible both to Indigenous community members and activists; along with researchers, policy-makers and academics, respecting the agency of Indigenous peoples and the principles.

Decolonizing research has been a priority of Indigenous researchers, community members, and advocates for decades. Linda Tuhiwai Smith, a contemporary proponent of decolonization, defines it as a process to undo harmful effects of colonization, including land theft, genocide, and assimilation (Smith, 2018, 2008). In this sense, we might also define decolonizing as a praxis, matching theory and practice. Today, we are increasingly seeing scholars implement these methods or theories into their research, combatting the western system. In doing this, decolonizing research might include involving elders, community members, and youth. There is often confusion around decolonization and indigenization. Indigenization often involves making a space 'Indigenous' by including Indigenous peoples, as their presence brings a different perspective. However, decolonization attempts to challenge systems. Frequently there are components of direct action taken to challenge injustice, or systems that perpetuate the exclusion or assimilation of Indigenous peoples and their knowledges. It is important to note that decolonization may look different from place to place. For general surveys of indigenous research

methodology, see Kovach (2009) Dawson et (2017) Easby, (2016). For applications, see Alfred (2005 and 2009). Martin-Hill (2008), McCarthy (2016)

In this document, you will find resources touching upon academic articles and thought ethical guidelines by government and Indigenous organizations, and decisions and standards held by international organizations. Five main topics are addressed in the guide: (1) Decolonizing Indigenous Research, (2) Traditional Ecological Knowledge and Its Relevance, (3) Research Ethics, (4) Intellectual Property, and (5) The Doctrine of Discovery, *res nullius*, and the Framework of Dominance.

A full copy of the research guide is available on our website:

cciwqt.squarespace.com

For general inquiries and copies of the research guide, contact Laura Beaudin, administrative program manager: beaudilm@mcmaster.ca

To contact our Principal Investigator, Dawn Martin-Hill, dawnm@mcmaster.ca

New Projects

Global Water Futures has funded the **Haudenosaunee Environmental Health Task Force (HEHTF)** office in partnership with McMaster University and Six Nations. It opened in December 2018.

Also, **two new grants** are under way with community partners Kawenni:io Private School, Mohawk College, and Woodlands Cultural Centre. A Grandmothers Council is being established with Beverly Jacobs as Indigenous Community Lead, to provide project oversight in the areas of Indigenous Knowledge and Traditional Ecological Knowledge, and Governance.

OHNEGANOS OHNEGAHDE:GYO – INDIGENOUS ECOLOGICAL KNOWLEDGE, TRAINING & CO-CREATION OF MIXED METHOD

We, with our partner communities, have identified three primary areas of interest:

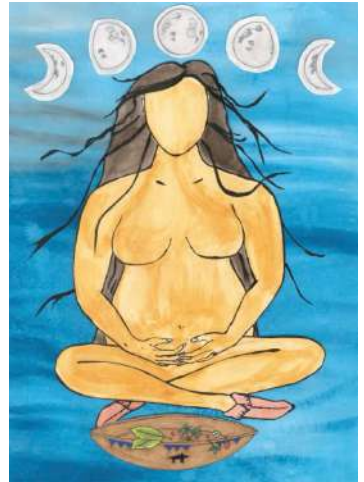
1. **IK Training:** bridging TEK and WS in the area of accredited water management training and bilingual texts/resources to build communities' capacity to manage future environmental challenges
2. **Mental Wellness:** building youth mental health resilience related to water security
3. **Water Governance:** assisting community and training youth in water governance, rights, and responses inclusive of Indigenous laws

In conjunction with guidance and feedback from the Grandmothers Council, Kawenni:io Immersion School, Six Nations Health Services, Indigenous Elder and Youth Council, Elders and Youth Water Council, and other community partners, our project is set to address these needs, via a co-creation team consisting of leading experts in TEK and WS in all three components. The three teams will focus on the issues of addressing stewardship over time; crafting bilingual, relevant resources; and fostering resilience.

Outcomes & Legacies

Some of the projected outcomes and legacies of this research will be:

- archival mapping of waterways, including placenaming in Mohawk/.Cayuga
- turtle tagging/monitoring
- youth training in UNDRIP and water governance
- development of bilingual educational material for IK/WS
- digital stories demonstrating how water quality shapes, informs mental wellbeing
- development of water governance framework within communities
- development of mental wellness app to provide tools for young people struggling with water and ecosystem anxieties/stressors
- development of mental health survey to determine impact of boil water advisories/no running water on youth



Our Team Members

CO-CREATION OF INDIGENOUS WATER QUALITY TOOLS

Indigenous Knowledge (IK) | Community Health Assessment (CHA) | Community Ecological Assessment (CEA)

Principal Investigator: Dr. Dawn Martin-Hill (IK, CHA)

McMaster University Co-PIs: Dr. Tina Moffat (CHA); Dr. Patricia Chow-Fraser (CEA)

Community Leads: Amber Skye (IK); Lori Davis Hill (CHA); Denise McQueen (CHA, CEA); Clynt King (CEA); Kurt Gibson (CEA)

Administrative Program Manager: Laura Beaudin

Community Coordinator: Karissa John

Knowledge Mobilization Specialist: Stephanie Morningstar

Academic Co-Investigators: Charles de Lannoy; Altaf Arain; Emil Sekerinski; Nancy Doubleday; Nidhi Nagabhatia; Zoe Li; Peter Kruse

Other Partners: James Knibb-Lamouche; Louise McDonald; Kathleen Padulo; Sandra Cook

Research Associate: Sarah Rabideau (CEA)

Graduate Students: Jorge Zamora (IK); Sarah Duignan (CHA)

Undergraduate Student: Makasa Looking Horse (IK)

SENSORS SYSTEM & DATA SYNTHESIS

Principal Investigator: Dr. P. Ravi Selvagnapathy

Academic Co-PIs: Dr. Dawn Martin-Hill; Kasten Liber; Scott Smith; Juewen Liu; Wahid Khan; Chang-qing Xu; Carolyn Ren; James McGeer; Jamal Deen; Charles de Lannoy; Philippe van Cappellen; Peter Kruse

Project Manager: Rana Attalla

Knowledge Mobilization Specialist: Stephanie Morningstar

Academic Co-Investigators: Nandita Basu; Qiyin Fang; Claude Duguay; Jennifer Baltzer; David Emslie; Younggy Kim; Emil Sekerenski; Zeinab Housseindoust; Fereidoun Rezanezhad; Karl-Erich Lindenschmidt; Lorne Doig; Scott Brown; Merrin MacRae; Helen Baluch

Other Partners: Lubicon Cree; Six Nations; Center for Mining Excellence & Innovation; Hoskin Scientific; AREVA Resources Canada; International Copper Association; International Lead Association; International Zinc Association; Nickel Producers Environmental Research Association

OHNEGANOS OHNEGAHDĒ:GYO – INDIGENOUS ECOLOGICAL KNOWLEDGE, TRAINING & CO-CREATION OF MIXED METHODS TOOLS

Indigenous Knowledge (IK) | Water Governance (WG) | Mental Wellness (MW)

Principal Investigator: Dr. Dawn Martin-Hill (IK)

McMaster University Co-PIs: Dr. Christine Wekerle (MW)

Community Co-PIs: Dr. Beverly Jacobs (IK, WG); Lori Davis-Hill (IK)

Administrative Program Manager: Laura Beaudin

Community Coordinator: Karissa John

Knowledge Mobilization Specialist: Stephanie Morningstar

Academic Co-Investigators: Bonnie Freeman; Caitlin Davey; Linda Staats; Amber Skye; Nicholas J. Reo

Youth Lead: Makasa Looking Horse

Other Partners: Mary Sandy (Grandmothers Council); Norma Jacobs (Grandmothers Council); Renee Thomas Hill; Johanne McCarthy; Lorraine Vanderzwet; Kamala Kruse; Lubicon Band Council – Elders and Youth Water Council; Leroy Hill; John Williams; James Knibb-Lamouche; Amos Keye; Cam Hill

AKWE:KON TEWATAHTONOKWE (WE ARE ALL RELATED)

CIHR – NEIHR

Principal Investigator: Dr. Dawn Martin-Hill (IK)

Project Manager: Danielle Gendron

Partner Communities: Six Nations and Grassy Narrows

Graduate Student: Danielle Gendron

To stay up-to-date on the progress of our teams and these projects, please visit our website:

cciwqt.squarespace.com

MANY NYA:WEHS TO OUR COMMUNITY PARTNERS & SPONSORS

Kawenni:io/Gaweni:yo Private School

Indigenous Elders & Youth Council

Mary Sandy – Grandmothers Council

Norma Jacobs – Grandmothers Council

Renee Thomas Hill – Elder in Residence,
Indigenous Studies Program, McMaster
University

Joshua Dockstator – Indigenous Students
Services, McMaster University

Johanne McCarthy – Mohawk College

Lorraine Vanderzwet–Servos – Mohawk College

Kamala Kruse – Mohawk College

Lubicon Band Council – Elders and Youth
Water Council

Leroy Hill – Haudenosaunee Resource Centre

John Williams – Hamilton Ticats, Director of the
McMaster June Jones Youth Movement Program

James Knibb–Lamouche – Indigenous Elders and
Youth Council (IEYC)

Amos Key Jr – Woodland Cultural Centre

Cam Hill – Traditional Medicine Clinic at Six
Nations

