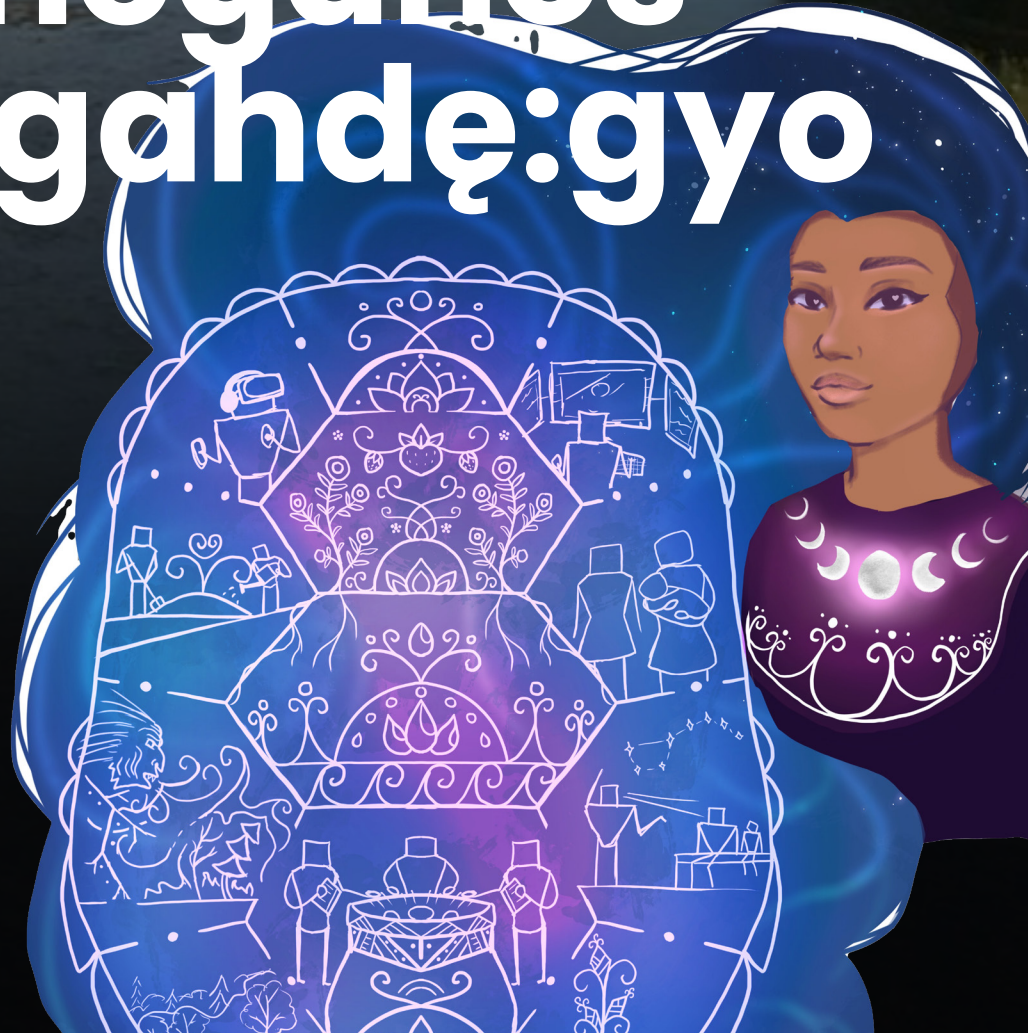




Water is Life

Ohneganos Ohnegahde:gyo



Background Information
Summer 2023 (v1.0)



Guiding Principles

As 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 **Oheniton Karihwaterkwén** (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 Karihwaterkwén and the political philosophy as governed by the **Kahswenhtha** (Two Row Wampum) would establish a relationship based upon peace, power and righteousness and would restore harmony, strength and balance to our natural world...

Mary Arquette, Maxine Cole, and the Akwesasne Task Force on the Environment

Restoring Our Relationships for the Future in Blaser, Feit, and McRae (2004)

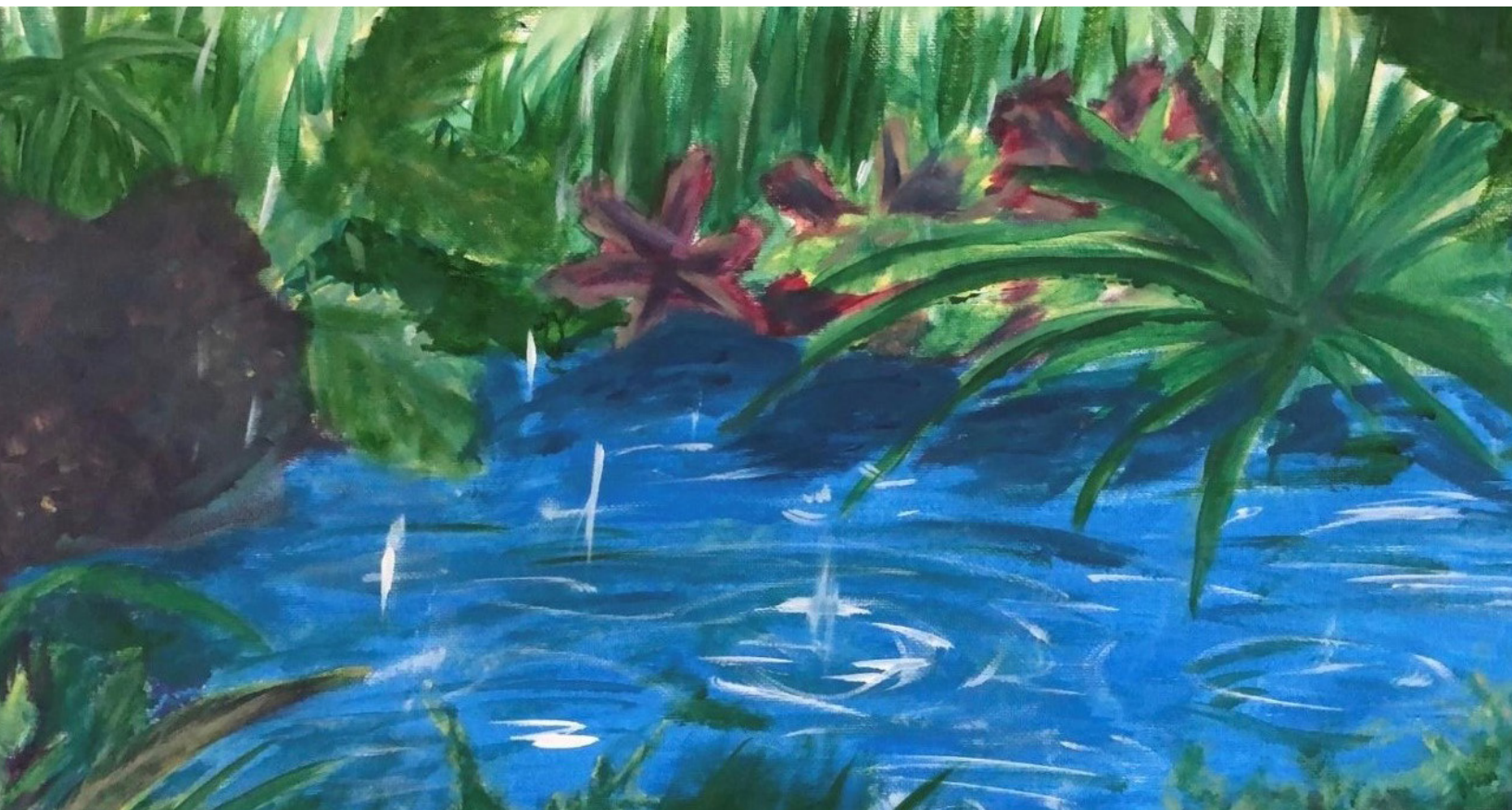
Ohèn:ton Karihwatéhkwen

Thanksgiving Address

Within the Creation Story, Original Instructions were given to the people of this land. They include the Ohenton Kariwatehkwen: "the words before all else." We also call this the Thanksgiving Address and recite our thanks to all of Creation to "open the day" (in other words, to welcome, greet and thank the beginning of the day). 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.

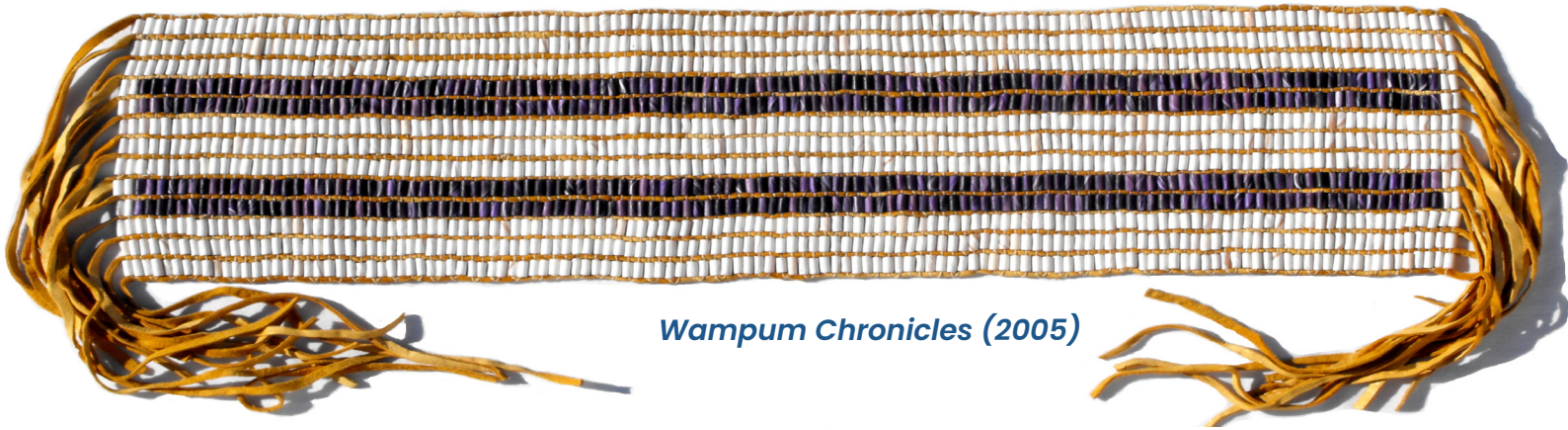
Joyce Tekahnawiiaks King

The Value of Water and the Meaning of Water Law for the Native Americans Known as the Haudenosaunee (2007)



Raindrops Hitting the Puddle

Six Nations Summer 2020 Art Competition



Wampum Chronicles (2005)

Kaswentha: Two Row Wampum

The Kaswentha (pronounced Gus-we'n-ta) is a treaty belt created in the 17th century to record an agreement between the Haudenosaunee Confederacy and Dutch settlers in eastern New York. Also known as the Two-Row Wampum, the belt consists of alternating rows of purple and white wampum running the length of the belt. The two purple rows symbolize two vessels traveling the river of life together, side-by-side. One vessel, a ship, is for the Dutch. The other vessel, a birch bark canoe, is for the Haudenosaunee. Inside each vessel is what defines it as a society – its customs, laws and way of life. The three white rows, which both separate and surround the vessels, symbolize the Haudenosaunee principles of skennen (peace), kariwio (good mind), and kasastensera (strength).

The Two-Row Wampum Treaty, which the Kaswentha documents, is a mutual recognition by the treaty signatories that their two societies are distinct and should remain so, as symbolized by the ship and the canoe. These vessels are meant to travel the river of life together, side-by-side, but with each people in their own vessel. Native and non-Native peoples are to help each other from time to time, as people are meant to do, and their respective knowledge systems, or sciences, are tools to be used in this partnership. The Two-Row Wampum Treaty therefore calls for cooperation to serve common interests even as it recognizes the vast differences between the two parties in the treaty, and their inherent right to sovereignty in their own affairs.

James W. Random and Kreg T. Ettenger

'Polishing the Kaswentha': a Haudenosaunee view of environmental cooperation (2001)

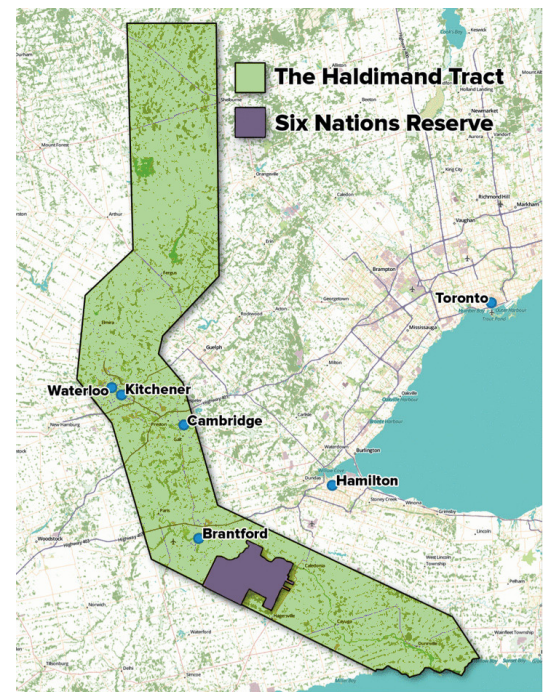
Community Partners

Six Nations of the Grand River

Six Nations of the Grand River is Canada's most densely populated First Nations community, located in the Golden Horseshoe region of Southern Ontario.

The land title granted to Six Nations on October 25 1784 was approximately 950,000 acres. However, today's current land boundary only spans about 46,500 acres (4.9% remaining) as of April 2001.

Six Nations of the Grand River refers to the six First Nations comprising the Haudenosaunee Confederacy: Cayuga, Oneida, Onondaga, Seneca, Mohawk, and Tuscarora. Haudenosaunee means people of the longhouse and is synonymous with the terms Iroquois or Rotinonshonni.



Governance

Haudenosaunee Confederacy Council

- Traditional governance system for Six Nations people since time immemorial.
- Grand Council has 50 Hereditary chiefs and clan mothers

Six Nations Elected Council

- Elected Band Council is the political structure introduced by the Government of Canada through the Indian Act (1920s).
- Has an Elected Chief and Council members.



The Great Law of Peace

The Peacemaker introduced a law referred to in the Mohawk language as the Kaianerekowa (Ga-yawn-ne-lit-goe-wa) or the Great Law of Peace. This law reestablished a clan system headed by a matriarch or clan mother through matrilineal family ties.

Dish With One Spoon

One Dish/One Spoon principle represents a tenet of the Great Law of Peace and is a succinct expression of our ongoing responsibilities to conserve what sustains us:

1. Offer thanks;
2. Don't take the first "catch" you encounter;
3. Take only what you need in life to sustain yourself and your family;
4. Leave some of the "catch" for the future, ensuring the future of seven generations for your family and the species' survival.



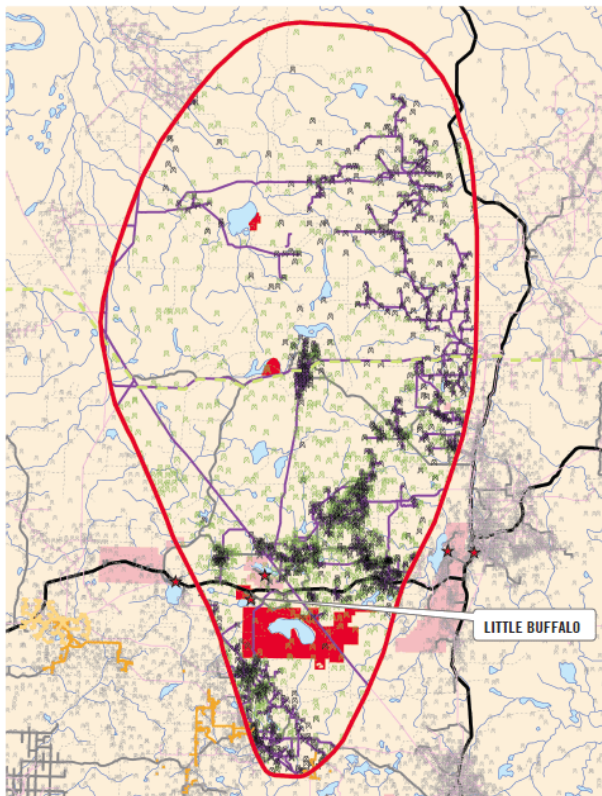
Lubicon Lake Cree Nation

Lubicon Lake Cree Nation is located in Alberta, by Lubicon Lake and Little Buffalo. Little Buffalo is the hamlet where the local school, nursing station and council offices are located.

Lubicon Lake Cree Nation is not a reserve. There was no legal recognition of Lubicon lands as Britain did not meet with Lubicon chiefs when they negotiated for Treaty 8 in 1899. On October 24th, 2018, Alberta, Canada and Lubicon Lake Band finalized a 'Treaty 8 Lands and Benefits Claim Settlement Agreement'. The settlement includes more than 346 square kilometers and \$113 million.



OIL AND GAS DEVELOPMENT ON LUBICON LAND



As of December 2008

Oil and Gas Wells: 2,684	Arterial Roads ~ 69.2 linear km	<small>Map Projection: Alberta 10TM Data sources: Government of Alberta, Alcanas Geographics, INS, GlobalVias/Mapbox.ca, GeoGratis and GeoBase, NRCan Some data digitized by David Pfanders Cartography: Giza Environmental Services</small>
Active Wells 1,305	Secondary Roads ~ 439.5 linear km	
Capped Wells 1,379	Resource/Recreation Roads ~ 4,092.1 linear km	
North-Central Corridor Pipeline ~ 94.5 linear km		
Other Pipelines ~ 2,366 linear km		
In-Situ Oil Sands Projects	Lubicon Cree Traditional Territory	
Proposed In-Situ Oil Sands Projects	Proposed Lubicon Reserve Lands	
	Other First Nations reserves	

AMNESTY INTERNATIONAL
www.amnesty.ca/lubicon

Governance



Lubicon Lake Nation

- Traditional governance system for Lubicon.
- Bernard Ominayak is Chief



Lubicon Lake Band

- Elected Band Council political body for Lubicon.
- Billy Joe Laboucan is the Chief

Present Day

People have always lived off of the land at Lubicon Lake Cree Nation. However, in 1975, the government of Alberta granted oil and gas exploration on traditional lands which has resulted in the destruction of the local economy, culture, health and ecosystem. There is currently no running water and poor sanitation in Little Buffalo. Water is delivered by truck to community cisterns and carried by bucket into individual homes. Drinking water is bottled and large jugs are purchased from the nearby town of Peace River. The oil-sands, pipeline projects, and wells all pose as threats to the environment, with 70% of Lubicon traditional territory being leased for future exploitation. In April of 2011, a pipeline released 44 million litres of crude oil into a wetland 12 kilometers away from Lubicon territory.

A lack of access to water along with environmental degradation from the oil projects has adversely impacted the people of Lubicon. Skin rashes cause residents to suspect overly high chlorine levels in the water, cancer has been found in the moose hunted, and there are respiratory problems, cancers, stillbirths and tuberculosis.

Project Stakeholders & Collaborators

Six Nations Grandmothers Council

Our Global Water Futures research projects have the support of community grandmothers and clanmothers. Our Grandmothers Council is integral to the research as women are the keepers of water. An Indigenous water ethics states it is the responsibility of women to take care of water. Our research progresses with their wisdom and direction. Their time is valuable, so our team makes sure to always approach the Grandmothers Council with respect and gratitude.

Six Nations Water Committee

To ensure the Global Water Futures research projects have the ongoing support of the Haudenosaunee Confederacy Council, four Hereditary Chiefs have formed a Water Committee. The Water Committee helps direct the research through consultations and feedback, but they also are critical to the co-creation as they contribute their knowledge. Our relationship with the Chiefs is rooted in respect for their wisdom and leadership. With many duties from within community, the team is gracious for the support that has been provided by the Water Committee.

Six Nations Birthing Centre (Julie Wilson)

Tsi Non:we lonnakeratstha/Ona:grahsta' is a Maternal and Child Centre located on Six Nations which has been in operation since 1995. Tsi Non:we lonnakeratstha/Ona:grahsta' provides a balance of traditional and Contemporary Midwifery services and programs. The expectant mother and her family are offered a choice of services and programs that will compliment and support their personal beliefs and customs. Ohnkewhon:we midwifery care is based on respect for all life and enables women to reclaim control of birth for themselves.

Cultural Practice As Foundation

We rely on our Grandparents Group, a group of culturally knowledgeable Six Nations Elders for spiritual/cultural direction and guidance. This helps ensure that our programs and services maintain a Haudenosaunee cultural foundation.

Six Nations Health Services (Sara Smith)

Six Nations Health Services is the community health system which provides culturally appropriate support and care for community members on their wellness journey. Health Services offers services for community members from birth to death. The goal of Health Services is to meet people where they are at and work together with community members with a good mind, respect and compassion.

Six Nations Social Services (Ashley Cooke)

Social services support and strengthen family-based obligations and traditions of charing, sharing, mutual respect, health and harmony that are rooted in culture. Social Services offers childcare, child and family services, supports for youth, and crisis supports.

Kawenní:io/Gawení:yo Private School

Kawenní:io/Gawení:yo Private School is a K-12 Mohawk and Cayuga language immersion school located at Six Nations of the Grand River Territory (www.kgps.ca). To date, our partnership with Global Water Futures, has provided diverse learning experiences for our Grades 7-12 students including: a trip to the Smithsonian Institute's museums, archives and libraries to examine Haudenosaunee collections; a digital storytelling workshop, and participation in 'easing their minds' teachings – bringing in Haudenosaunee leaders to share teachings about water.

Indigenous Elders and Youth Council (James Knibb-Lamouche)

IEYC is committed to the protection of Indigenous Knowledge, Traditional Medicines, and Cultures. We are a group of Elders, Youth, academics, advocates and community members from Indigenous Nations from across Turtle Island. Our previous partnerships and initiatives have included Indigenous Nations from North and South America, such as the Haudenosaunee, Nehiyawak, Lakota, Anishinaabek, Nakota, Ingano, Kofane, Dine, Waura, Trio and Siona, among others. We have also worked with many environmental, health, and research organizations and institutions such as McMaster University, Amazon Conservation Team, National Aboriginal Health Organization, and the University of Victoria.

Haudenosaunee Resource Centre (Jock Leroy Hill)

The primary focus of the Haudenosaunee Resource Centre is to strengthen and preserve resources of the Haudenosaunee through language, ceremonies, oral teachings, recordings, fundamentals of protocols, ethics and morals so that our future generations may understand the importance of what our ancestors have passed along.

Ogwanohgwatrae: Tseh Niyogwai:ho'de: Traditional Medicine Program

The traditional medicine program addresses holistic health needs and improves community access to traditional Hodi:noshoni medicine through a variety of health services and supports. Some services offered include: traditional medicines, traditional practices, education, community outreach and workshops and training activities.

Woodland Cultural Centre

Woodland cultural centre was established in October 1972 upon the closure of the Mohawk Institute Residential School. The centre serves to preserve and promote Indigenous history, art, language, and culture and creates the opportunity to bring the story of Haudenosaunee people of the Eastern Woodlands to life through exhibitions and programs.

Six Nations Wildlife Management Office (Lauren Jones)

The Six Nations Wildlife Management Office provides assistance to the community to ensure that the cultural integrity of the natural resources is maintained for present and future generations. This is achieved by utilizing modern ecologically sound management principles, traditional environmental knowledge, as well as continuing ongoing rehabilitation and reforestation practices.



Project Updates

Research Funding

The two research projects that are highlighted in this booklet are funded by a Canadian research program called Global Water Futures (GWF). Led by the University of Saskatchewan, the goal of GWF is to "...deliver risk management solutions - informed by leading-edge water science and supported by innovative decision-making tools - to manage water futures in Canada and other cold regions where global warming is changing landscapes, ecosystems, and the water environment".

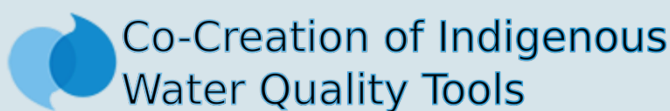


GLOBAL WATER FUTURES
SOLUTIONS TO WATER THREATS
IN AN ERA OF GLOBAL CHANGE

Ohneganos and our research projects follow this mandate by harmonizing Western Science and Indigenous Knowledge with the goal of better understanding the water problems that disproportionately impact Indigenous communities. This innovative research methodology will ensure that the Indigenous perspectives and governing wisdom of the community are integrated into the research and the solutions that are developed. This research is led by community, for community.

Ohneganos Subprojects

Click [here](#) to learn more!



'CCIWQT'



'Ohneganos'

Co-Creation of Indigenous Water Quality Tools

'CCIWQT' or 'Co-Creation'

DIAGNOSING CHANGE, DEVELOPING DATA, AND CREATING SOLUTIONS

CCIWQT was developed by combining the Global Water Futures mandate, the goals outlined in UNDRIP, and the Sustainable Development Goals to ultimately empower our community partners to exchange knowledge and tools in order to manage water futures.

This will ensure holistic health and well-being, and deliver unprecedented scientific understanding, monitoring technologies, and modelling tools in response to water quality threats, especially to the under-served Indigenous communities. CCIWQT has **three main subteams** and several different **research activities**, listed below.



**Traditional Ecological
Knowledge**



Ecosystem Health



**Sensor Systems &
Data Synthesis**

Research activities include:

- Investigate health issues related to water using health surveys.
- Develop a transdisciplinary risk assessment framework using a multi-stakeholder approach.
- Develop local-scale climate change models to forecast and predict temperature and precipitation changes
- Co-develop youth training certificate programs for research methodologies and environmental monitoring.
- Develop water governance structures based on Indigenous Knowledge and local laws.
- Construct youth medicine gardens for traditional medicine and healing practices.
- Conduct tap water testing to determine assess the presence of bacteria and heavy metals.
- Investigate the health of the local creeks and create GIS maps of natural features in the communities.

...and much, much more!

Ohneganos: Indigenous Ecological Knowledge, Training, and Co-Creation of Mixed-Method Tools

'Ohneganos' or 'TEK Mixed-Methods'

DEVELOPING TOOLS, BUILDING RESILIENCE, AND YOUTH EMPOWERMENT

Ohneganos is a response to the findings from the Co-Creation project indicating that there are alarming levels of water anxiety in our partner communities.

Following extensive engagement with our partners, we developed a plan - Ohneganos. This project has three main objectives: a) the co-creation of **bilingual educational resources** to build communities' capacity to manage future environmental challenges; b) the strengthening youth **mental health resilience** related to water security, c) the training of youth in **water rights and governance** strategies inclusive of Indigenous laws.



Indigenous Knowledge Training



Youth Mental Wellness



Water Governance

Research activities include:

- Production of digital stories demonstrating how water quality shapes and informs mental well-being.
- Adapting a mental wellness mobile application to provide tools for youth struggling with water anxiety.
- Investigate the impact of water insecurity on youth by delivering a mental wellness survey.
- Identifying water protection measures and developing a citizen's guide to ecocentric protection.
- Developing a website to make educational resources publicly available.
- Archival mapping of waterways, including place-naming in local languages & describing traditional uses.
- Turtle tracking & monitoring to gather information on water geographies, environmental health, nesting sites.
- Youth training in UNDRIP and attending the UNPFII for training in legal water governance frameworks.
- Creating new pathways into post-secondary STEM programs for Indigenous Youth.
- Creation of a new Traditional Ecological Knowledge program at local post-secondary institutions.

...and much, much more!

Haudenosaunee Summit on Climate Change

Troubling water quality findings presented by the Ohneganos team prompted the Haudenosaunee Confederacy Chiefs Council to host a nation-wide conference regarding environmental health, climate change, and water research at Six Nations in 2019. Key findings from the summit are summarized below.



Climate Change Preparedness

Planning: Need strategies in place to mitigate intense flooding, snow/ice storms, and virus outbreaks.

Resources: Consider the impact of community resources from increased environmental migration.

Mental Preparedness: Raise collective awareness through education.

Emotional Preparedness: Supports need to address mental health threats resulting from climate change and water anxiety.

Physical Preparedness: Increased emphasis on land-based learning and self-sustainability (i.e. collecting and cleaning water, cooking on the land, community gardens, traditional medicines).

Spiritual Preparedness: Increased use of language, ceremony, connection, healthy relationships, living in balance and in harmony.

Environmental Health

Leadership: Increase community meetings regarding climate change. Promote viewing environmental health as a world issue and not solely as a Haudenosaunee issue.

Collaboration: The necessity to work together as Haudenosaunee first and then establish working groups for allies.

Direct-Action: Continue raising awareness for the No Nestle Campaign in Six Nations. Encourage community to clean the McKenzie Creek.

Sovereignty: Threats to Indigenous sovereignty (ranging from data sovereignty to food sovereignty) are important. Indigenous communities need to own the data. Encourage community members to plant and consume a traditional diet.



Water Security and Governance

Women: Governance system must involve teachings which emphasize women's relationship to water.

Education: Public education campaign was suggested to publicize the Haudenosaunee laws and value systems.

Empowerment: Traditional leadership is empowered by traditional teachings, historic agreements, nation-to-nation relationships.

Decision-Making: Need to set clear regulations that incorporate Haudenosaunee values and teachings while protecting Indigenous Knowledge.

Laws: Legislation must embody the Haudenosaunee's responsibility to and relationship with the land as one of interconnectedness.

Project Highlights!

(a) Indigenizing Research

A Resource Guide for Indigenous Peoples, Academics & Policy Makers


This living resource guide was developed by members of the Co-Creation team with the purpose of sparking dialogue between Indigenous researchers, community members, activists, academics, and policy-makers to better improve research practices involving Indigenous communities.

Indigenizing research involves weaving Indigenous research methodologies, knowledges, experiences, and worldviews into scientific research – that which currently privileges Western Science and Euro-Western human-centered perspectives.

INDIGENIZING RESEARCH




A RESOURCE GUIDE FOR INDIGENOUS PEOPLES,
ACADEMICS AND POLICY MAKERS

A Living Document




“What water gives us” by Jaden Squire

Version 3 (August 2020)
Prepared by the Research Team
Co-Creation of Indigenous Water Quality Tools



Click [here](#) to download the research guide from our website!

(b) Mapping Traditional Ecological Knowledge (TEK)



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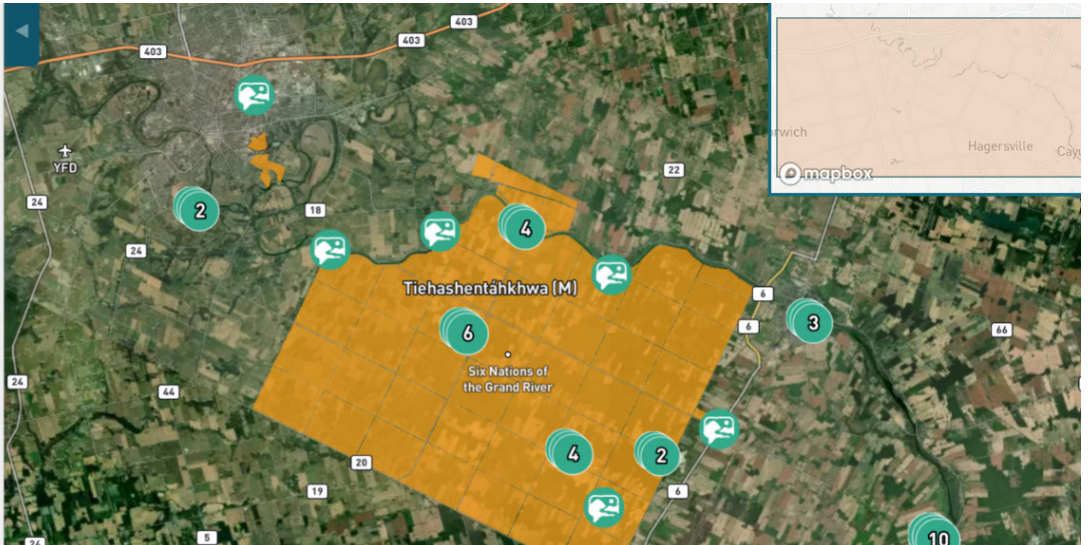
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kaheh at Sour Springs (Photo)

photo was taken at Sour Springs Longhouse when the General was condoled as a chief. In this picture Deskaheh (Levi General), Augustus Williams, Joe an, Alexander General ad Hubert Cusick. Photo sent fanya Martin Credit: Brantford Expositor





SIX NATIONS COMMUNITY MAPPING




OHNEGANOS PROJECT

OUR STORIES OUR HISTORY

We are asking for community members to share stories with the Ohneganos mapping team. We are aiming to build a map with Six Nations community member perspectives, knowledge and history. All stories, pictures, videos and audio will be credited to the source.

-  Historical Pictures
-  Written, Audio Recordings, Video Recordings
-  Family Stories


Grand River Drone Footage 2



Drone footage of a stretch along the Grand River, close to Caledonia.

Region: Six Nations

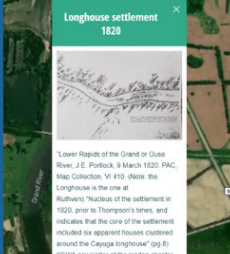
Six Nations Map 1932



This is a 1932 road plan of the Six Nations Indian Reserve located near the present-day city of Brantford, Ontario. It shows main roads, buildings and lots. Maps: digital library.yorku.ca/yorku/1151074/road-plan-six-nations-Indian-reserve-comparing-part-histories-lacumera-omindaga-onandica


Type of place: The Porcupine

Longhouse settlement 1820

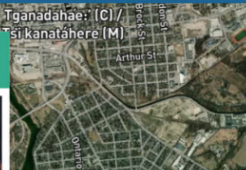


Lower Rapids of the Grand or Queen River, J.E. Portlock, 8 March 1820: PAC, Map Collection, VI 410 (date: the Longhouse is the one at Buller's "Nucleus" of the settlement in 1820, prior to Thompson's times, and indicates that the core of the settlement included an apparent house clustered around the Cayuga longhouse" (pg. 8) KEWA newsletter of the london chapter

Tutela Nation



Tganadahae' (CI) / Tsi'kanatahere (M)



Learn more about the Ohneganos Mapping Project by clicking [here!](#)

(c) Youth Empowerment & Capacity Building

Water Governance

Ohneganos has provided community youth and students with opportunities to present their work at the United Nations (e.g. the [UNPFII](#) and [UN Water Conference](#)).

In 2019 and 2023, side table events were accepted and resulted in a number of youth being sponsored to attend the events in New York City. While at the events, Six Nations women and youth forged connections with Indigenous peoples from all over the world, strengthening their ability to understand and address issues of water and food security, conservation, and climate change.

Out of these connections, Ohneganos youth lead, Makasa Looking Horse, has been invited by numerous Indigenous organizations to present at conferences, including the honour of speaking the opening words and conducting the opening prayer at the inaugural Youth Climate Summit in 2019 (as part of the Indigenous Youth Caucus). Similarly, impressed by her presentation at the 2019 UNPFII,

Ohneganos Project Officer, Karissa John, was invited by Chiefs of the Haudenosaunee Confederacy Council to present with them in the United Nations proceedings for the 12th session of the United Nations Expert Mechanism on the Rights of Indigenous Peoples ([EMRIP](#)) in Geneva, Switzerland.

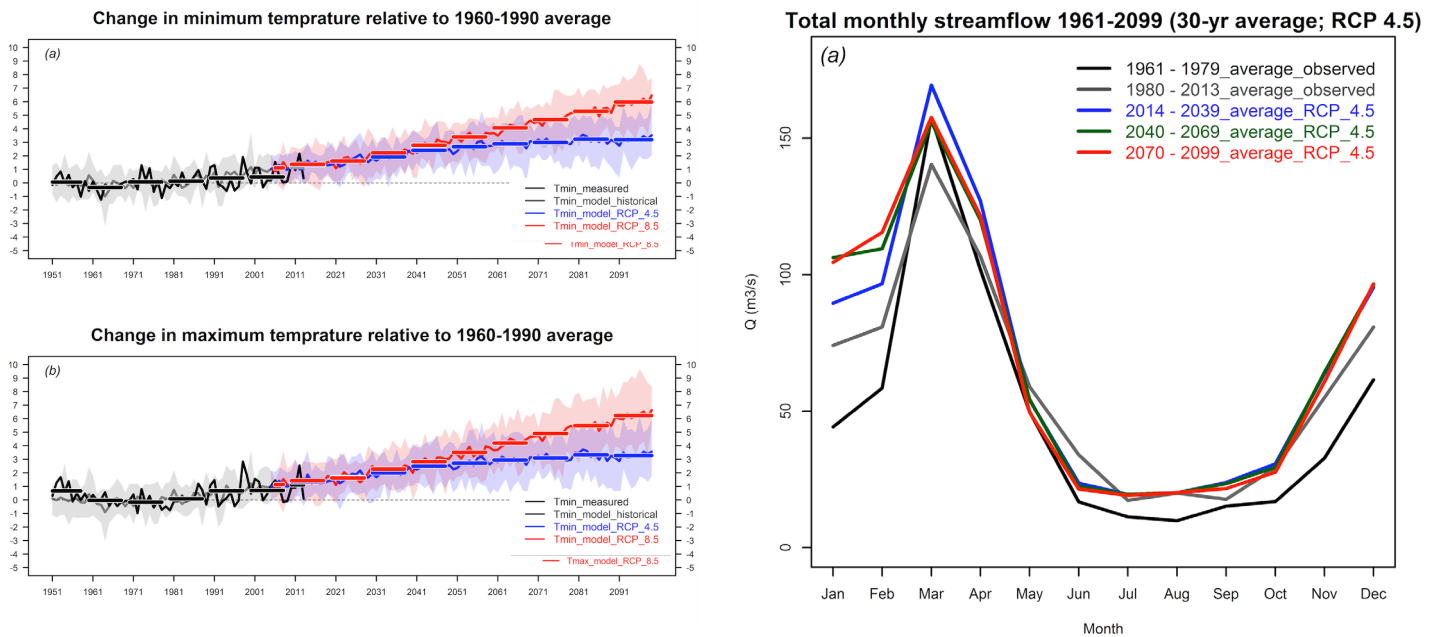


Members of the Ohneganos (students and faculty) in a digital storytelling workshop at a UNPFII side table event.

(d) Climate Change and Hydrological Predictions

One Ohneganos subgroup, a team led by Dr. Altaf Arain, has been working to determine anticipated impacts of climate change and extreme weather events on streamflow, flooding/drought events, and water resources in the Six Nations area. A hydrological model (GS-Flow) is being used to explore the hydrological predictions of the McKenzie Creek (with implications within Six Nations and the surrounding areas). This project has provided downscaled projections of temperature and precipitation for the Six Nations area to aid the community with future water security & climate change mitigation and emergency preparedness & adaptation planning.

Modelling Results



(a) Minimum temperature and (b) maximum temperature predictions relative to 1960–1990 baseline average. (c) Total monthly streamflow changes for McKenzie Creek relative to historical averages and based on 'best case scenario' (RCP 4.5).

- Annual **temperatures** are projected to *increase significantly* over 2006–2098.
- Tmax will increase by 3.6 – 6.6°C; Tmin will increase by 3.4 – 6.1°C
- Increase in hotter summer days (Tmax ≥ 25°C) and nights (Tmin ≥ 20°C)
- Statistically significant *increase* in heavy (≥ 10mm) and very **heavy rainfall** (≥ 20mm)
- Increase in spring streamflow in early 21st century, followed by decrease in later years

Future Implications:

- Overall increases in seasonal temperature, with significant warming projected for summers and winters.
- Increases in summer temperatures and more frequent and intense heatwaves, and droughts will impact the region's climate as well as growing season length, evapotranspiration, water budget and ecosystem, and food productivity.
- Earlier snowmelt and increased winter precipitation will increase winter-spring streamflow resulting in greater risk of winter-spring flooding.

ACKNOWLEDGEMENTS



**CANADA
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**APOGÉE
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EN RECHERCHE



**CONTINUING
EDUCATION**



MOHAWK



**UNITED NATIONS
UNIVERSITY**
UNU-INWEH
Institute for Water,
Environment and Health



LUBICON LAKE NATION



Six Nations Health Services

let's talk 
science

Click [here](#) to learn more!



Ohneganos Ohnegahdę:gyo

