

# CO-CREATION OF INDIGENOUS WATER QUALITY TOOLS



Five nights after the first new moon, after the winter solstice in conjunction with the star constellation Pleiades, it is our belief that our ancestors in the spirit realm are beginning their Midwinter ceremonies. Likewise, here in the physical world, we too begin our Midwinter ceremonies. My uncles announced that the Midwinter ceremonies are now to begin for seven days. All onkwehon:we people were encouraged to stir ashes at the fire symbolizing that the old year is gone and we celebrate the coming of our New Year. We encourage all the elements including water in the natural world to again carry out their sacred duties so that all life can flourish



# PROGRAM OBJECTIVES

THIS PROJECT RESPONDS TO THE GLOBAL WATER FUTURES MANDATE AND ADDRESSES SOME OF THE GOALS OUTLINED IN UNDRIP, WHILE OUR COMMUNITY PARTNERS, **THE HAUDENOSAUNEE OF SIX NATIONS** AND **LUBICON LAKE NATION**, CONTRIBUTE TO OUR KNOWLEDGE OF WATER FUTURES.

- TO IDENTIFY POSSIBLE WAYS TO PREVENT CONTAMINATION OF DRINKING WATER, PROTECT SOURCE WATER AND TREAT DRINKING WATER
- TO IDENTIFY THE HUMAN HEALTH IMPACTS FROM WATER-QUALITY CONTAMINANTS
- TO DETERMINE HOW CANADA WILL ADDRESS WATER RESOURCE PROTECTION AND DEVELOPMENT CHALLENGES THAT IMPACT INDIGENOUS PEOPLES ACROSS CANADA.
- TO INCLUDE INDIGENOUS KNOWLEDGE AND AUTHORITIES IN WATER RESOURCE PLANNING, SCIENCE AND GOVERNANCE MODELS FOR WATERSHED MANAGEMENT





# Indigenous Knowledge and Community

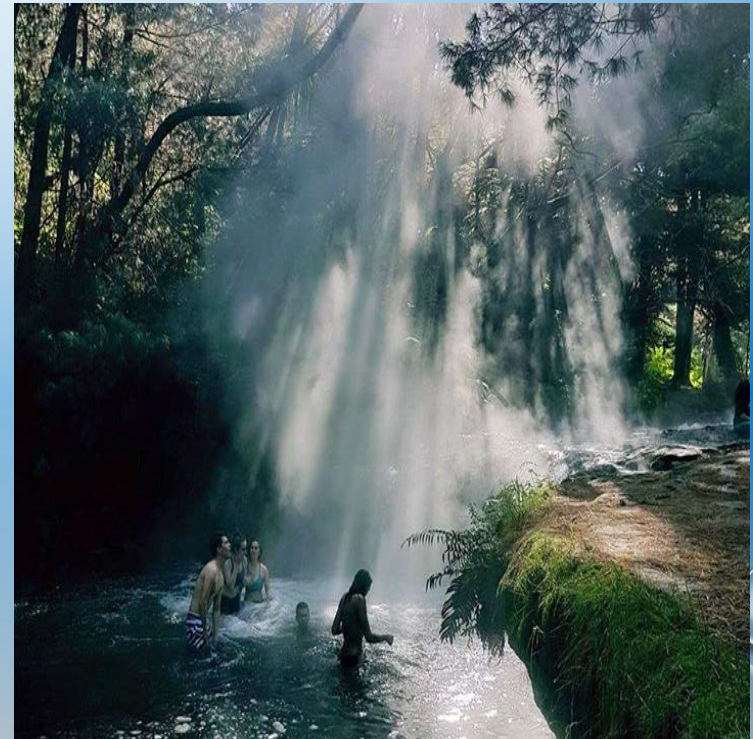
## Team Lead: Dr. Dawn Martin-Hill Community

- The foundations of Indigenous Knowledge underscores creations interconnection and inter-dependence of all life forms.
- Building on the CIHR-IAPH funded Ohero:kon, “Under the Husk” youth program, we will have bilateral training and education of TEK and WS.
- Partnering with the Indigenous Elders and Youth Council, the youth will provide cultural training for researchers and project partners.
- The primary concerns for the two communities are:
  - I. The quality of their drinking water
  - II. The ecological integrity of their source
  - III. Governance of these waters.



# ECOSYSTEM HEALTH

- A COUPLED HYDROLOGICAL MODEL WILL BE DEPLOYED TO EXPLORE THE BIOPHYSICAL AND HYDROLOGICAL PROCESSES AND FEEDBACKS FOR HYDROLOGIC MODELING.
- THE AIM IS TO INVESTIGATE THE IMPACTS OF CLIMATE CHANGE ON HYDROLOGIC PROCESSES, AND EXPLORING THE AFFECTS ON THE WATER AND ECOSYSTEMS OF THESE COMMUNITIES.





# ECOSYSTEM HEALTH ASSESSMENT

## TEAM LEAD: DR. PATRICIA CHOW-FRASER

- WATER HAS SPECIAL SPIRITUAL AND CULTURAL SIGNIFICANCE TO INDIGENOUS COMMUNITIES: THE HEALTH OF THE ECOSYSTEMS AND THAT OF THE PEOPLE ARE INHERENTLY ENTWINED.
  - ECOSYSTEM HEALTH WILL BE QUANTIFIED THROUGH WATER-QUALITY TESTS AND BIOLOGICAL INDICATORS.
  - OBTAINING THESE DATA IS NECESSARY TO MAKE INFORMED DECISIONS ON ENVIRONMENTAL MANAGEMENT, REHABILITATION, AND PROTECTION.



PRIMARY FOCUS IS CAPACITY BUILDING  
SENSOR TOOLS CO-CREATION INCLUDING  
APPS WITH IK EXPERTS IN TWO LANGUAGES

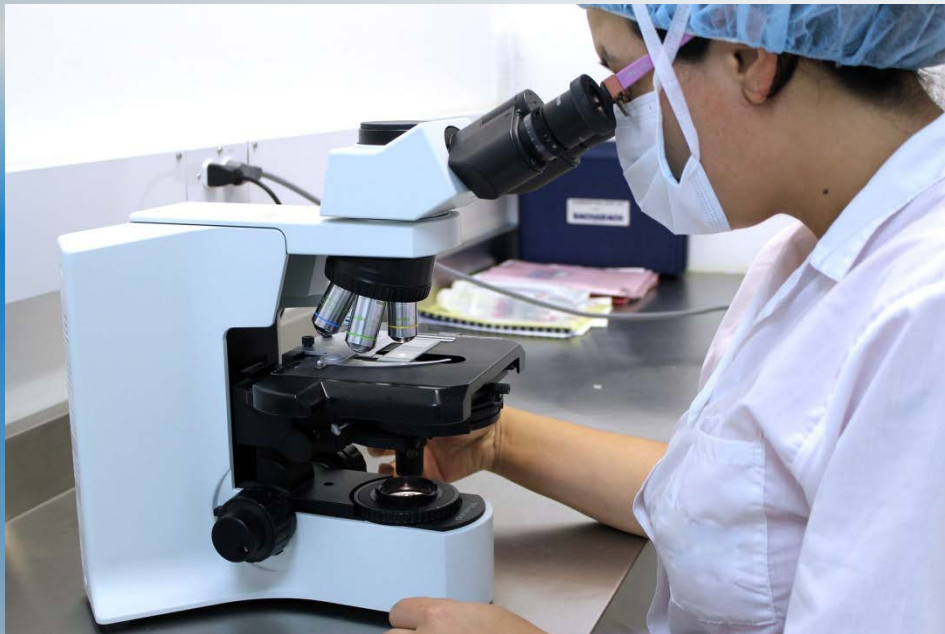




# COMMUNITY HEALTH ASSESSMENT

## TEAM LEAD: DR. M. CONSTANTINE SAMAN

- WATER QUALITY IN INDIGENOUS COMMUNITIES HAS BEEN IMPACTED BY MULTIPLE FACTORS, AND MONITORING ITS EFFECT ON HEALTH IS CRUCIAL.
  - ENDOCRINE DISRUPTING CHEMICALS (EDCS) ARE COMPOUNDS THAT CAN LEAD TO DELETERIOUS EFFECTS ON HEALTH.
  - THEY MAY HAVE MANY USES THAT CAN CONTAMINATE THE WATER AND CONCENTRATE IN THE FOOD CHAIN.



- The objective is to measure the impact of EDCs in water on the risk of diabetes, hormonal health, gastrointestinal health and cancer.
- We will co-create and use tools that, along with biological samples, will be deployed to determine how EDCs impact the health status and metabolic outcomes of the two communities.



# CO-CREATION PROJECT-HEALTH COMPONENT

- THE OVERARCHING GOAL OF THIS COMPONENT IS TO ASSESS THE EFFECT OF ENVIRONMENTAL CONTAMINANTS ON HEALTH OUTCOMES
- WE ARE FOCUSED ON MEASURING ENDOCRINE DISRUPTING CHEMICALS & PERSISTENT ORGANIC POLLUTANTS
- SURVEYS AND BIOLOGICAL SAMPLE ANALYSES WILL DETERMINE THE EFFECT OF CONTAMINANTS ON THE RISK OF DIABETES, CARDIOVASCULAR DISEASES, AND CANCER







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