



ENVIRONMENT & GLOBAL WARMING: ENVIRONMENTAL RESEARCH

The environmental research programs aim to support research examining the overall health of Lake Huron and the Great Lakes. That includes exploring concerns such as invasive species, climate change and changes in populations of native fish species such as Whitefish. These research programs will enhance our knowledge of the impacts of plant operations on the surrounding aquatic life. And, they will improve our knowledge on the potential impact of climate change on Lake Huron and on once-through cooling operations.

What we want to achieve

- ▶ Fully understand the thermal, ecological and environmental impacts of once-through cooling on the surrounding aquatic environment.
- ▶ Determine the potential implications of global warming and climate change scenarios, and other stressors for the overall ecological health of Lake Huron.
- ▶ Predict the potential impact of climate change scenarios for the use of once-through cooling on Lake Huron, including warming lake temperatures, increased biofouling, and changes in species composition.

Key Activities

- ▶ Aquatic biota research will examine the thermal effects of once-through cooling on Lake Whitefish, Round Whitefish and Yellow Perch research. The research is ongoing with five years of the 10-year research program complete. The next five years will investigate:
 - ▷ *Thermal effects in Lake and Round Whitefish hatchlings and juveniles, and in spring-spawning species;*
 - ▷ *Population boundaries of Lake and Round Whitefish and Yellow Perch near Bruce Power.*
- ▶ Biodiversity research will investigate the population viability, spatial ecology and nest site selection of Spotted Turtles in relation to changing Lake Huron water levels.

- ▶ Thermal research is exploring the use of aerial thermal monitoring technologies and the effects of the substrate on temperature changes experience by aquatic biota.

Outcomes

- ▶ First five-year Lake and Round Whitefish Bruce Power/ NSERC-funded research program complete, with more than 20 peer reviewed academic publications available for public use.
- ▶ Whitefish researchers contributed to May 2018 hearing for Bruce Power 10-year PROL licence renewal through an intervention and with a research poster session.
- ▶ Researchers, regulators and members of the SON, HSM and MNO participated in a thermal effects workshop in October 2018.

Partners & Stakeholders

Institutional Research Partners: *McMaster University, University of Regina, Northern Ontario School of Medicine (NOSM), Laurentian University, and Turtle Island Centre for Excellence in Environmental Research and Education*

Funding Partners: *NSERC, Mitacs*

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