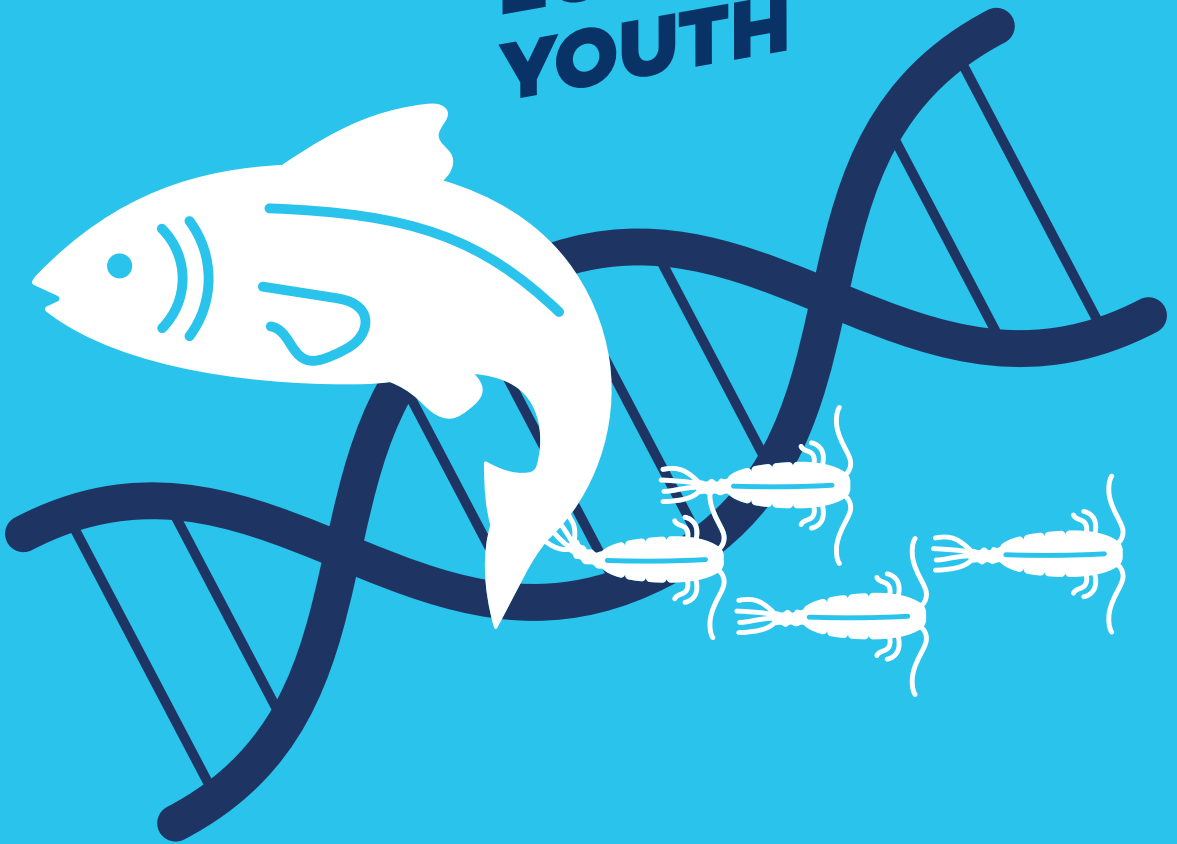


MONITORING ENVIRONMENTAL DNA & LEARNING ECOLOGY WITH YOUTH



WINNIPEG YOUTH eDNA MONITORING PROGRAM

Engaging students
in emerging science
to inspire, influence,
and develop
something new!



WHAT IS eDNA?

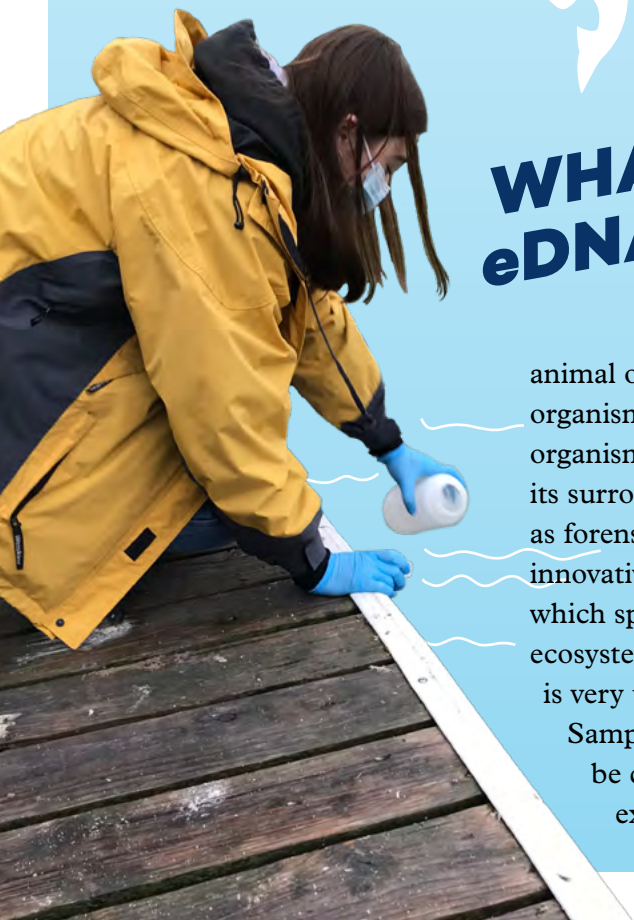
Environmental DNA, or eDNA, is DNA that been released into the environment from an organism.

It can exist either as “free-floating”

DNA molecules or DNA that is still inside an animal or plant cell. eDNA is usually created when an organism dies and starts to break down or when a living organism sheds skin or secretes waste products into its surrounding environment. You can think of eDNA as forensic ecology for animals and plants. It is an innovative way of tracking where a species has been and which species can be found in a given environment or ecosystem, on land or in water. This means that eDNA is very useful for monitoring species and populations. Sampling and analyzing eDNA has the potential to be quicker and less labour intensive than catching examples of species for analysis.

IISD Experimental Lakes Area is the world's freshwater laboratory. A series of 58 lakes and their watersheds in northwestern Ontario, Canada, IISD-ELA is the only place in the world where scientists can research on and manipulate real lakes to build a more accurate and complete picture of what human activity is doing to freshwater lakes.

The findings from over 50 years of ground-breaking research have rewritten environmental policy around the world—from mitigating algal blooms to reducing how much mercury gets into our waterways—and aim to keep fresh water clean around the world for generations to come.



The Power to Inspire ...

At IISD-ELA, we believe in the power of engaging students directly in hands-on science to inspire an interest and motivate young people to examine the world around them, kickstarting the process of lifelong learning.

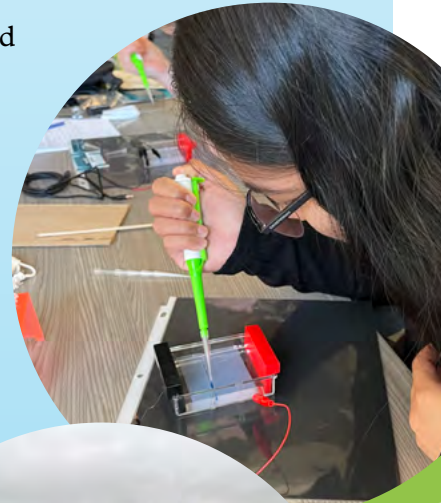
In 2021 we launched our eDNA pilot program: Monitoring eDNA & Learning Ecology with Youth (MeDLEY), a Winnipeg-based program for youth with an interest in the natural sciences who also face opportunity barriers. These students will be engaged in scientific inquiry, collaboration, and innovation during the program.

About the Program

Ten Grade 11 and 12 students from various high schools around Winnipeg will be invited to join IISD-ELA staff and scientists monthly during the academic year to participate in the youth eDNA monitoring program. Students will:

- visit the University of Manitoba to tour the campus, learn about the application process for post-secondary schools, and take part in a career services seminar
- be given the opportunity to sample for eDNA in the field, followed by learning labs that mirror the steps our researchers take to extract, quantify, and interpret the eDNA samples
- learn hands-on skills, such as fish identification, pipetting accuracy, and how to interpret PCR and gel electrophoresis results
- participate in a panel discussion with working professionals and academics within the scientific community to ask questions about career paths, school programs, and skills required to succeed in their fields

The final session of the course will include a poster social, where students will present their eDNA data to scientists and local community members. Students will work in small groups throughout the year to prepare their presentation for this event.



What Do Students Take Away From the Program?

- ✓ Meaningful hands-on field and lab experience
- ✓ Ability to apply knowledge into practice
- ✓ Practice in public speaking and presentation skills
- ✓ Gain new skills, different perspectives and expanded range of science related knowledge
- ✓ Information about university and potential careers in the environmental and science sectors
- ✓ Opportunities to work collaboratively and individually
- ✓ New friends, memories, and mentors



APPLICATION PROCESS

If you are interested in participating in the eDNA program, please contact education@iisd-ela.org.

iisd.org/ela

  @IISD_ELA

 @ExperimentalLakes

The IISD-ELA Monitoring Environmental DNA & Learning Ecology with Youth program is made possible with generous support from the Graham C. Lount Family Foundation.