



2010–2011

ENVIRONMENTAL SCIENCE INVESTIGATOR

PROGRAMS AT THE RIVER INSTITUTE

The following programs take place outdoors and/or in the River Institute's accredited labs (ISO 17025). The River Institute is located next to St. Lawrence College on the shores of the St. Lawrence River—a perfect place to study the river ecosystem! All programs are appropriate for grades 7-12.

Water Quality and Its Importance

Recommended for: Grade 7 Geography, Grade 8 Science, Grade 9 Science, Grade 11 Environmental Science and Grade 12 Chemistry (College)

In this program, students will collect a sample of water from the river, and use this sample to measure water quality parameters such as turbidity, pH, conductivity, dissolved oxygen and bacterial counts in the River Institute's labs. They will learn how these measurements relate to the health of aquatic ecosystems and human health. Students are invited to bring a sample of well or other water for comparison if they wish. This program can be paired with the Aquatic Invertebrates program for a full-day outing.

Aquatic Invertebrates

Recommended for: Grade 7 Science, Grade 9 Science, Grade 11 Biology and Grade 11 Environmental Science

Students will collect aquatic invertebrates from the St. Lawrence River using various types of sampling equipment. They will identify their samples using scientific keys and learn to calculate the biotic index of the sampling site based on their findings. Although chest waders are provided for students, it is recommended that students also bring rain boots and a complete change of clothing.

This program can be paired with the Fish Ecology program or the Water Quality and its Importance program for a full-day outing.

The St Lawrence River Institute of Environmental Sciences offers a variety of hands-on environmental education programs for intermediate and high school groups. During these programs, students learn the sampling and analytical techniques that are used by environmental scientists, and participate in research projects relating to the St Lawrence River ecosystem. Programs are designed to meet the goals of the Ontario science curriculum. Program content is flexible, and can be modified to meet the needs of students and teachers.

Call the River Institute **613-936-6620**.

Fish Ecology

Recommended for: Grade 7 Science, Grade 9 Science, Grade 11 Biology and Grade 11 Environmental Science

Students will learn how to sample and collect fish in the St. Lawrence River using seine nets and gill nets. Students will catch fish from near shore or open water areas; identify them using scientific keys; and record the length and weight of each fish. The river ecosystem and the interactions of fish with their environment will be discussed. Although chest waders are provided for students, it is recommended that students also bring rain boots and a complete change of clothing. This program can be paired with the Aquatic Invertebrate program for a full-day outing.

Human Genetics and DNA

Recommended for: Grade 10 Science, Grade 11 Biology, Grade 12 Biology

Using a sample of their own DNA (cheek swab), students will perform PCR (Polymerase Chain Reaction) reactions using DNA "probes" to augment specific genomic sequences. They will then visualize their results using gel electrophoresis. This hands-on exercise will help students develop laboratory technical skills to understand the genetic diversity of all living things. This program can be paired with the Water Quality and its Importance program for a full-day outing.





PROGRAMS AT COOPER MARSH

The following programs take place at Cooper Marsh Conservation Area and Visitors Centre, located in South Lancaster. This publicly accessible marsh wetland area has many walking trails and is an ideal location for outdoor adventures. Cooper Marsh programs are recommended for the Fall and Spring months, unless otherwise indicated. All programs are appropriate for grades 7–12.

Nature Hike

A naturalist will guide students on an interpretive walk through the marsh. They will learn how plants and animals adapt to their environment, and how invasive species and seasonal changes affect the marsh ecosystem. Students may bring binoculars if they wish. Trails at Cooper Marsh are 1–3 km in length including sections on boardwalks. If you would like the naturalist to focus on a certain topic, please specify upon booking.

The Marsh Ecosystem

Students will discover the diversity of living things in the marsh wetland by participating in hands-on activities. They will use nets to sample invertebrates, and learn to identify their samples using dichotomous keys. They will determine plant biodiversity using techniques such as quadrant area analysis. These activities will provide information about the importance of the marsh habitat for biodiversity and watershed management.



Program Costs

The cost for a single two-hour program is \$250 (limited to a maximum of 30 students). Cancellation notice must be provided at least five business days before the scheduled program. A \$50 fee will apply for no-shows, or for bookings cancelled less than 5 business days before the scheduled date.

Please note that programs at Cooper Marsh take place outdoors and will be delivered rain or shine—please dress appropriately!

Map

St. Lawrence River Institute (A) is located at 2 Belmont St., Cornwall, adjacent to St. Lawrence College.

The Cooper Marsh Conservation Area (B) is located in South Lancaster, approximately 25km east of Cornwall along Highway 2.

For more information or to book programs, please contact:

Lindsay Lefebvre, Educator/Biologist
St. Lawrence River Institute of Environmental Sciences
Tel: (613) 936-6620 ext. 229 • Email: llefebvre@riverinstitute.ca
www.riverinstitute.ca

Sponsors:



Eastern Ontario Water Resources Committee /
Comité des ressources en eau de l'Est de l'Ontario



Imperial Oil
Foundation

