

## ÉcoLac fall workshops 2015

**October 30, 31, and November 1<sup>st</sup>, 2015**

**Station de biologie des Laurentides (SBL), Université de Montréal**

The GRIL student committee and the coordinators of the NSERC-CREATE training program ÉcoLac are proud to announce the 2015 edition of the "[ÉcoLac fall workshops](#)". The fifth edition of these training workshops will be held on October 30, 31, and November 1<sup>st</sup> at the Station de biologie des Laurentides (SBL), in St-Hippolyte. These workshops are the perfect opportunity to interact with other students from the GRIL and from the ÉcoLac program, and acquire additional knowledge and skills in limnology! In the morning, student speakers will address various topics related to limnology, and in the afternoon, these themes will be implemented in the field, laboratory, or by computer. In the evening, it's conference time!

### **WORKSHOPS/CONFERENCES... (SEE FOLLOWING PAGES FOR ABSTRACTS):**

- Catch me if you can! Ichthyologic fauna capture methods: An overview.
- Freshwater fishes of Quebec: from taxonomy to anatomy.
- Tell me your frequency, and I will tell you where you are!
- Environmental DNA at the service of the biodiversity in aquatic environment.
- Benthic macroinvertebrates: diversity, function and sampling.
- Geographic information system (GIS): introduction to basic principles using QGIS.
- What are treatment wetlands and how they function? Does it really work?  
(Friday evening conference)
- Inkscape at your service: designing vector graphics, much more accessible than you think!  
(Saturday evening talk)

### **SCHEDULE:**

**Arrival at the SBL:** all participants of the ÉcoLac fall workshops 2015 are expected Friday, October 30 between 6:00 pm and 8:00 pm. A conference is scheduled for 9:00 pm. Please note that it is possible to get to the SBL earlier, starting at 2:00 pm, but no meals will be available on site.

The event will end on Sunday, November 1<sup>st</sup> in the afternoon.

**Important note:** this is a bilingual activity. Accordingly, for all conferences, either the presentation or the visual support will be presented in English.

### **COST:**

For **ÉcoLac trainees**, registration fee of **\$90** apply. Each trainee will then receive a scholarship to cover this amount, and travel expenses to the SBL.

For all **graduate students and postdoctoral fellows member of the GRIL**, it is **free!** Travel expenses can be reimbursed for drivers who are not registered in the ÉcoLac program **AND** who show an obvious effort to carpool.

**Graduate students and postdoctoral fellows that are not GRIL members, undergraduate students, and research assistants** interested in attending the workshops will have to pay registration fee of **\$90**. For students that are not affiliated to GRIL or ÉcoLac, participation will be confirmed based on the number of participants registered (limited to 46 participant in total).

Please note that registration include accommodation for two nights at the SBL, all meals for October 31<sup>st</sup> and breakfast / lunch for November 1<sup>st</sup>.

### **TO REGISTER:**

**Before midnight on October 22**, complete the online registration form in our website [Documents internes du GRIL](#) (password: **GRILdoc**). Details will be emailed to all participants on October 26.

### **QUESTIONS?**

Contact Marie-Andrée Fallu : (819)-376-5011, # 3671 – [marie-andree.fallu@uqtr.ca](mailto:marie-andree.fallu@uqtr.ca)

## TITLES AND ABSTRACTS – WORKSHOPS/CONFERENCES

### **Catch me if you can! Ichthyologic fauna capture methods: An overview.**

*Vincent Rainville, Pierre-Marc Constantin and Antoine Filion*

**Conference:** Ichthyology often requires to capture live specimen, whether to perform morphological measurements, collect samples or mark individuals for a long term follow-up or for estimating population abundance. In this conference, an overview of the principal sampling gears for freshwater fish will be made, and their context of use and limitation will be explained.

**Workshop:** The workshop will take place on the lac Croche, where participants will experience the preparation, installation and use of different fish sampling gears (Alaska fish traps, seine nets, gillnets and minnow traps), including backpack electrofishing initiation!

### **Freshwater fishes of Quebec : from taxonomy to anatomy.**

*Camille Macnaughton and Simonne Harvey-Lavoie*

**Conference:** Would you be able to correctly identify and differentiate between the hundreds of species belonging to the 25 families of freshwater fishes found in Quebec? Over the course of this presentation and workshop, we will briefly discuss the key anatomical characteristics that will enable you to identify families if not the many species commonly surveyed in Quebec. Using the large ichthyologic collection from UdeM and live specimens, the workshop will give firsthand knowledge on how to use taxonomic keys, as well as show participants some of the key internal structures that will facilitate the dissection of species native to the lakes at the SBL.

**Workshop:** The workshop will take place in the Paul-Piriot pavilion (teaching laboratory), where the University of Montreal's extensive fish collection and fish identification keys will be at your disposal. Participants will be able to manipulate specimens to better their knowledge of the different anatomical characteristics that will enable them to correctly identify families and species belonging to these families. Specimens caught from SBL lakes will also be available for the dissection part of the workshop. Combined with our collective fish-related field and lab knowledge, there is bound to be something to learn for everybody, irrespective of your prior fish identification experience!

**Tell me your frequency, and I will tell you where you are!**

*Pierre-Marc Constantin and Rosemarie Gagnon-Poiré*

**Conference:** Telemetry is a great tool to document, over a long uninterrupted period, how an organism interacts with another organism or with its environment. During this conference, the underlying physical phenomenon and the basic principles of radio and acoustic telemetry will be presented, along with an overview of the necessary equipment and the possible application of telemetry.

**Workshop:** The workshop will be conducted in three parts. First, participants will be introduced to the equipment used for radio and acoustic telemetry. Afterwards, participants will build a stationary telemetry system, and adjust as effectively as possible the antenna detection range. The workshop will then carry in one of the stream of the Station, where participants will be immersed in a "passive transponders hunt" using a portable detection system.

**Environmental DNA at the service of the biodiversity in aquatic environment.**

*Joanna Gauthier and Heba El-Swais*

**Conference:** The environmental DNA (eDNA) method is recently becoming very popular in biodiversity science. The potential of this approach was indeed demonstrated by the detection of threatened and invasive species in aquatic environments. More recently, researchers begin to use eDNA methods to detect organisms in sediments. This conference aim to demystify eDNA, with a special attention to the methods used in sediments. The advantages and the limitations of using these approaches will be discussed, as well as the projects going on in this research field.

**Workshop:** This workshop will be in the form of a discussion about the molecular methods used to detect eDNA in water as well as in sediments. All the steps of the process (collection of the sample, DNA extraction, choice of primers, PCR, qPCR, sequencing) will be discussed. With this workshop, participants should become familiar with the different methods that could be used to detect eDNA.

### **Benthic macroinvertebrates: diversity, function and sampling.**

*Laurent Fraser and Gillian Martin*

**Conference:** Benthic macroinvertebrates are particularly interesting for ecologists, since they generally represent highly diverse communities at both taxonomic and functional levels. Moreover, the response of these communities to disturbance is clear and fast, making it an effective indicator often used to assess the impact of humans on river ecosystems. Unfortunately, these invertebrates are often among the forgotten organisms in aquatic ecosystems... This is why I invite you to learn about these misunderstood!

The presentation offered address the taxonomic diversity of these organisms, describe their functions and roles in the ecosystem, and concrete examples of their use in ecology will be presented.

**Workshop:** The field section is divided into two parts: one for collecting specimen, and one for identification. Sampling will take place in a stream situated to the effluent of the Lac Croche. I will introduce you to the main sampling techniques for benthic macroinvertebrates in rivers, and will explain the abiotic parameters that must be measured to allow a proper interpretation of our results. The second part will take place in the laboratory, where we will proceed the substrate samples collected. Then I will explain the procedure for an efficient identification of your specimens, by presenting the morphological characteristics that are important for identification.

### **Geographic information system (GIS): introduction to basic principles using QGIS.**

*Julia Jakobsson*

**Conference:** Geographic information systems (GIS) lets us capture, store, manage, visualize, analyze, and interpret all types of geographical and spatial data. This conference talk will center on the basic principles of GIS and GIS data, with explanations on the structure of data types and remote sensing. Regardless of which software would be used, these principles are the same and give an introduction to thinking about data spatially.

**Workshop:** The workshop will provide an introduction to using GIS software. First the participants will be introduced to some fundamental principles of GIS, which will then be implemented using open source software. This will provide the participants with means to think about spatial information more critically and a starting point for continuing to learn independently. Using the leading open source software QGIS has the advantage of being free, running on multiple operating systems and having a vast online community for resources and development. This workshop is recommended for those who have little or no prior experience in using GIS software or QGIS.

## TITLES AND ABSTRACTS – SPECIAL CONFERENCES

### Friday evening conference:

#### **What are treatment wetlands and how they function? Does it really work?**

*Mariana Rodriguez*

Treatment wetlands (also known as "constructed wetlands") are complex engineered ecosystems designed to remove pollutants from wastewater. This technology was inspired from filtration processes taking place in natural wetlands. This workshop will introduce the use of treatment wetlands and planted drying beds for wastewater treatment. A brief history of the development and the processes involved in this technology will be presented. Some examples of the different types of wetlands, their functioning and dynamics, the role and the choice of plant species will also be discussed.

### Saturday evening workshop / conference:

#### **Inkscape at your service: designing vector graphics, much more accessible than you think!**

*Pierre-Oliver Benoit*

This after dinner workshop / conference is intended to be very casual! We will discover together *Inkscape*, a vector graphics software. After convincing you of the relevance in acquiring some basic skills in graphic design (with supporting examples), we will see some basic features of this software, just enough to pique your curiosity! Why *Inkscape*? This software is open-access, continuously evolving, very powerful and totally intuitive! No need to be an expert in graphic design, only curiosity is required!

Participants should download the free software *Inkscape* (<http://www.inkscape.org>) on their laptop in advance, and bring a mouse if possible.