

MSc/PhD Position in Aquatic Connectivity, Biology Dept., Memorial University, NFLD

Research Project: The search for thresholds in aquatic connectivity indices

Description of research project: Impacts of aquatic fragmentation are widespread in Canada's National Parks and their greater ecosystems. Fragmentation is particularly evident in Central and Atlantic Canada where a long settlement history and the consequent impacts of sustained use are evident in the high density of river crossings and in sluice dams associated with past forestry operations. Fragmentation associated with dams and culverts is a pervasive stressor that in many of our National Parks has resulted in the extirpation of species from their historical range. Several Species at Risk and/or culturally important species such as Atlantic salmon and American eel have been impacted, since they require migrations from freshwater to ocean environments and back. This project will contribute to the establishment of biologically meaningful thresholds for the aquatic connectivity index used in Parks Canada's ecological monitoring programs. These thresholds will allow assessments of landscape scale aquatic connectivity to be more easily interpretable by resource managers.

The project will build on recent research (Coté et al. 2009. *Landscape Ecology* 24(1):101-113) and will make use of existing databases of fish census information, together with stream and barrier locations for watersheds in a variety of locations (Ontario, New York, Maine). The bulk of the work would thus involve reviewing and checking existing data and statistical analysis. The project could be the focus of either an M.Sc or PhD.

Desired qualifications: For MSc: B.Sc. (Honours) in Biology with "A" standing and a focus on community and/or landscape ecology. Experience in Geographic Information Systems (GIS), and a strong interest in statistics is essential. A background in fish biology/ecology would be an asset. For PhD: MSc in ecology/biology with a strong background in statistical modelling, GIS, particularly GIS programming.

Supervision: This project would be co-supervised by Dr. Yolanda Wiersma (Biology) and Dr. Dave Coté (Parks Canada, Terra Nova National Park). The student would work out of Dr. Wiersma's LESA Lab, but be in close contact with Dr. Coté and partners at Parks Canada and the Department of Fisheries and Oceans.

Stipend: \$16,500/year (MSc), \$18,000/year (PhD), guaranteed for the first year and highly likely for 2 years for MSc and 4 for PhD. Funding for future years is contingent on student success.

For more information:

Memorial University Department of Biology: <http://www.mun.ca/biology/Home/>

Dr. Wiersma's home page: <http://www.mun.ca/biology/ywiersma/index.php>

Interested applicants should send a brief cover letter and CV to:

Dr. Wiersma (ywiersma@mun.ca) and Dr. Coté (David.Cote@pc.gc.ca)