

August 23, 2007

Dr. Andrew Woodsworth  
NSERC Advisory Committee  
Andrew.woodsworth@nserc.ca

Dr. Woodsworth,

This letter is written on behalf of the *Society of Canadian Limnologists* in response to Dr. Mario Lamarca's visit on August 16 and his request for input to the International Review Committee and to the Internal Review Committee. We were able to solicit the opinion of several members of our society despite this short notice, and we offer here our comments, which we believe represent some of the key ideas held by members of our discipline.

The *Society of Canadian Limnologists* regroups specialists in all aspects of aquatic resources who study rivers, lakes, wetlands, reservoirs and groundwater across Canada and around the world. Freshwater is of prime importance to Canadians and to the Canadian economy. This was recognized by the Federal government who committed \$93 million in the 2007 Budget to support a comprehensive National Water Strategy. Canada has over 7% of the world's freshwater and 25% of the world's wetlands, which contain the majority of biodiversity found in the country and provide vital services to Canadians (e.g., drinking water, recreation, productive fish habitats). We have the responsibility to protect and manage these resources. Lack of knowledge is often the cause of extreme stresses on aquatic ecosystems, leading to environmental degradation and crises in water quality (e.g., zebra mussel invasion, toxic algal bloom, oxygen depletion and fish kills). Canada has been - and in many ways is still recognized as - a leader in freshwater research, but our claim to this position is tenuous and we can easily lose this international standing in the near future. To a large extent, Canada's much vaunted position in the international limnological community has been driven by the NSERC Discovery Grants program, and so this issue is very important to us.

We have a high-profile and influential limnological research community in Canada, and the NSERC Discovery Grant Program provides the vital core funding for our research and HQP training. The *Society of Canadian Limnologists* includes many well established and prominent members of the international research community (e.g., Dr. D.W. Schindler, Dr. J.P. Smol, Dr. P. Legendre), as well as many rising stars who have already had considerable impact internationally through their publications and research achievements. Many of our members are involved in international research programs (e.g. International Polar Year Program), organize international workshops and symposia (e.g. International Limnological Congress), and serve on the executive board of international societies (e.g. *American Society of Limnology and Oceanography*, *North American Benthological Society*, *World Water and Climate Network* in Japan), international review panels (e.g. NSF Long Term Ecological Research sites) and are editors or on the editorial boards of many international journals (*PNAS*, *Limnology & Oceanography*, *Ecology*, *Journal of Paleolimnology*, *Environmental Reviews*,

*Freshwater Reviews, Journal of Phycology, Journal of North American Benthological Society, Aquatic Biology, Aquatic Sciences, Polar Limnology, etc*). The *Canadian Journal of Fisheries and Aquatic Sciences* is one of the most influential NRC publications. Thanks in large part to NSERC's Discovery Grant Program for research and HQP-training, Canadian limnologists are well positioned on the national and international research scene.

We urge NSERC to communicate clearly to the Canadian government the need for increased funding of basic and applied research, and to ensure that new initiatives at NSERC do not dilute the budget allotted to the Discovery Grant Program. Median NSERC grant sizes have not increased in more than a decade and have not followed the rapidly escalating costs of modern research. This has begun to impair our capacity for research and training.

The NSERC Discovery Grant Program is vitally important to limnologists since it sustains long-term programs that can address complex research questions. Two key features of the Discovery Grants Program have been the long-term commitment and the latitude given to researchers to change or alter their research program as they proceed in a 5 year cycle. This has allowed Canadian researchers to shift their focus as new problems arise and to produce high quality research with limited funds. The public gets quite a remarkable return (in research products, training of students, etc) for the relatively small investment in funds.

The long-term commitment and 'free-hand' aspects of the Discovery Grant Program should be protected vigorously. It helps to attract and retain world-class scientists in our discipline. It also offers crucial support to young scientists in the early phase of their career when they develop and establish their research program. It helps maintain our capacity and excellence in training students who are being attracted to science in part through NSERC and other federal initiatives (e.g. Canada millennium scholarships). Finally, it helps maintain the breadth of expertise we need to face the increasing demand for non-technical information from the public. Many limnologists are already taking a very active role in reaching out and promoting scientific and environmental literacy (e.g. Bacon & Egghead parliamentary breakfasts, Groupe de recherche inter-universitaire en limnologie et en environnement aquatique - GRIL, ArcticNet, Past Global Changes - PAGES). Maintaining the breadth and excellence of academic expertise in limnology is important for Canada, and depends in large part on the long-term support and flexibility offered by the Discovery Grant Program.

We also need to ensure that substantial additional funding sources beyond the Discovery Grants Program are available to support exciting new integration in our discipline (e.g. physical-biogeochemical-biological couplings), to address effectively the global importance of freshwaters in our biosphere, and to support more applied aspects of limnology. One may first think that in applied work, money and resources from industry and the private sector may offset some costs. Of course, for some research programs this source of funding is available and appropriate. However, it must also be emphasized that for many applied limnological studies, the research and findings are at odds with industry

(e.g. much environmental work). For these studies, the Discovery Grants program is critical in providing “no strings attached” research on health and environmental issues that are critical to the ecology, health, and economy of Canada. We feel that this aspect to the Discovery Grants program (i.e. free hand research) is often not fully appreciated by politicians, policy makers, and the public at large.

A new more integrated structure of GSC could better serve the limnological community and would clarify the contributions we offer to the Canadian public. The study of freshwater ecosystems is essentially multi-disciplinary, and limnologists are currently divided between four GSCs for funding: GSC18 (Evolution & Ecology), GSC9 (Environmental Earth Sciences), GSC8 (Solid Earth Sciences) and GSC6 (Civil Engineering). Some of our colleagues do not fit well in the current GSC structure (e.g. biogeochemists, environmental toxicologists). On the other hand, we share many interests with marine scientists. Limnologists would be better served by a single inter-disciplinary grant selection committee on *Freshwater and Marine Resources: fundamental and applied research*.

Thank you for the NSERC presentation at the recent international limnological congress in Montréal, and for this opportunity to provide feedback to your review committees.

### **Society of Canadian Limnologists**

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University of Alberta

Pedro Peres-Neto, Communication Officer  
Université du Québec à Montréal

cc All members of the *Society of Canadian Limnologists*