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THE CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS Newsletter / Bulletin

In this Issue:

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In this issue

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CSEB NEWSLETTER 2008

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The Canadian Society of Environmental Biologists Newsletter is a quarterly publication. The Newsletter keeps members informed of the Society's activities and updates members on the current affairs and advances in the field of environmental biology. This publication draws together the widely diverse group of Canadian environmental biologists through a national exchange of ideas. Members are invited to contribute papers, photos or announcements that are of a national biological and environmental interest. Letters to the editor are welcome. This is a volunteer non-profit organization and we rely on your participation to make the newsletter a productive forum for ideas and discussion.

All business correspondence, changes of address, undeliverable copies and membership applications should be sent to: CSEB National Office, P.O.Box 962, Station F, Toronto, ON., M4Y 2N9. **Editorial correspondence: Gary Ash, Editor, e-mail: gash@golder.com**

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LE BULLETIN de la SCBE 2008

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Le Bulletin de la SCBE est une publication trimestriel de la Société Canadienne des Biologistes de l'Environnement. Le Bulletin informe les membres des activité de la Société sur événements courant ainsi que les progrès qui font en sciences de l'environnement. Par un échange d'idées au niveau national, cette publication intéresse un groupe très diverssifié d'environmentalistes Canadien. Les membres sont invités a contribuer des articles, photos (noir et blanc) ou des messages qui sont d'intérêt nationale en sciences biologiques et envrionmentales. Les lettres à l'editeur sont bienvenues.

Tout la correspondence d'affaires, y compris les abonnements, les changements d'adresse, les exemplaires retournés et les formulaires: CSEB National Office, **P.O.Box 962, Station F, Toronto, ON, M4Y 2N9. Les lettres à l'editeur: Gary Ash, Editor, courriel: gash@golder.com**

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The Canadian Society of Environmental Biologists

CSEB OBJECTIVES

The Canadian Society of Environmental Biologists (CSEB) is a national non-profit organization. Its primary objectives are:

- to further the conservation of Canadian natural resources.
- to ensure the prudent management of these resources so as to minimize environmental effects.
- to maintain high professional standards in education, research and management related to natural resources and the environment.

OBJECTIFS de la SOCIÉTÉ

La Société Candienne des Biologistes de l'Environnement (SCBE) est une organisation nationale sans but lucratif. Ses objectifs premiers sont:

- de conserver les ressources naturelles candiennes.
- d'assurer l'aménagement rationnel de ces ressources tout en minimisant les effets sur l'environnement.
- de maintenir des normes professionnels élevés en enseignement, recherche, et aménagement en relation avec la notion de durabilité des ressources naturelles et de l'environnement, et cela pour le bénéfice de la communauté.

NATIONAL

President's Report

Submitted by: Brian Free, CSEB President

Greetings!

I'm very excited about the prospects for the CSEB. This year is our 50th anniversary and we're still going strong! Membership remains steady, but further recruitment is important, especially in some regions. The best way to attract members is to get active! I encourage you to visit the CSEB website and review our objectives. Give some thought as to what activities you would like CSEB to pursue. Holding a meeting for local members is a good way to get to know each other. What are the key issues in your region?

A number of members have mentioned to me that they value the CSEB as a voice for environmental biologists to express concerns and opinions about current environmental issues. To this end, I am encouraging increased involvement of the CSEB in the Canadian Environmental Network and the provincial/territorial environmental networks across Canada. These networks provide good access to information about environmental issues and relevant government consultation processes.

I also want CSEB to support members' interests in public education and promoting the profession of biology. Members should get out to schools and colleges in their community and talk to our youth about the environment and careers in biology. You'll notice that we do post employment opportunities for biologists on our website. All members should keep an eye open for job notices in your region and send them to our webmaster for posting!

All of these actions require input from members across the country. CSEB is a volunteer-run organization and nothing gets done without member participation. Please contact the national office or your regional director and volunteer to contribute to the success of the CSEB.

Brian Free
President

British Columbia News

Submitted by: Jim Armstrong, CSEB British Columbia Director

We have been requested by the CSEB Executive to host the 2008 Annual conference in British Columbia. As this undertaking will require that the BC Chapter to become more active than it has been over the past few years, I would request that all BC members submit their ideas and availability to me (*Jim.Armstrong@metrovancouver.org*) by June to allow for discussion and feedback to the Executive. Additionally, I will be contacting each BC member over the next month to discuss your interests and areas of expertise in the hopes of building on the submitted information.

There are many issues that BC has now chosen to take a leadership role on including climate change, solid waste management and protection of salmon wild stock. Each of these could be incorporated into the theme for the annual conference.

OTHER BC NEWS

Submitted by Tom Northcote, CSEB newsletter contributor

Ken Hall, UBC Emeritus Professor, addressed the Osoyoos Oxbow Society meeting on 11 March 2008 on the importance and ecology of such habitat and heard their concerns about a proposed residential development on a 28 hectare (70 acre) parcel of private land at the north end of Osoyoos Lake, lowermost in the chain of large lakes in the B.C. Okanagan Basin. This development has the potential to have negative impacts on the oxbows and wetlands in the area. The habitat diversity including open water, marshes, riparian vegetation and fields adjacent to the antelope brush/sagebrush desert region makes this a very key area for many species of plants, birds, and other wildlife that are considered endangered and threatened. Several development scenarios have been proposed and some environmental assessments conducted. The development proposes buffer zones around sensitive habitat and areas where rare plants occur. Nevertheless, many people in the region are concerned that the footprint of such a development in this special region would create enough disturbance to permanently degrade this important ecosystem.

Hans Schreier, UBC Emeritus Professor, has been studying the occurrence of arsenic in Lower Fraser Valley groundwater. Elevated arsenic levels have been reported in several B.C. locations and other parts of the world in recent years. Because arsenic is a carcinogen that can cause cancers and other chronic health effects over a lifetime of ingestion, it has become a source of increased concern

(Wang & Wai 2004: Journal of Chemical Education 81(2): 207-213). Health Canada recently reduced the maximum acceptable concentration for arsenic from 0.025 to 0.010 mg/L, based on municipal and residential scale treatment achievability and consideration of its health effects, considering concentrations below 0.0003 mg/L to have negligible effects over lifetime exposure. However concentrations above that level in surface and groundwater wells occur in many parts of the world including Canada in natural and untreated spring water. In central B.C. arsenic occurs in mineralized areas, and with volcanic fissure in granitic bedrock along the Sunshine Coast. Recent work has focussed on the extent, concentrations and sources of arsenic in drinking water from private groundwater wells in the Surrey-Langley area, determining the spatial extent of its groundwater concentrations in relation to geology and land use. All such wells draw water from 25 different aquifers located in different surficial materials deposited during the quaternary periods. One hundred wells were sampled in 2007 for arsenic, pathogens, and a range of metals. Some 43% of privately owned wells had arsenic levels above the maximum acceptable concentration (0.010 mg/L).

Arsenic was predominately found in deep wells and was positively correlated with parameters reflective of marine environments, clearly coming from natural sources, its most common occurrence being in deep surficial deposits associated with marine materials. Very few low cost and effective treatment options are available for small systems, which makes it difficult for individual well owners to address the problem.

Future of Wild Pacific Salmon

Submitted by Tom Northcote, CSEB newsletter contributor

Gordon Hartman and I, among many others, have been involved in contributions to a book entitled "Salmon 2100: The Future of Wild Pacific Salmon," published by the American Fisheries Society, Bethesda, Maryland. This project was organized by Dr. Robert Lackey, Department of Fisheries and Wildlife, Oregon State University, Corvallis, who was the primary Editor for the book. In it Gordon Hartman, I and C.J. Cederholm have a chapter entitled "Human numbers - The alpha factor affecting the future of wild salmon", pages 261 - 292, drawn in part on my 1996 paper "Effects of human population growth on the Fraser and Okanagan River systems, Canada: a comparative enquiry" published in GeoJournal 40 (1-2): 127-133.

An updated version of the Salmon 2100 project web site is available at:

http://oregonstate.edu/dept/fw/lackey/Salmon2100.htm

The primary goal of the Salmon 2100 Project was to identify practical options having a high probability of maintaining biologically significant populations of wild salmon. Current wild salmon recovery efforts in western North America (especially California, Oregon, Washington, Idaho, and southern British Columbia), as earnest, expensive, and socially disruptive as they currently are, do not appear likely to sustain biologically significant populations of wild salmon through this century. Long-term sustainability, although broadly supported in the abstract, remains elusive in reality. Rather than supporting or advocating any particular or class of policies, the overarching theme of the Salmon 2100 Project is to help policy makers and the public evaluate a suite of possible policy options by providing a number of independent, practical, policy-neutral policy prescriptions that would work. To accomplish its goal, the Project has enlisted 33 scientists, resource managers, policy analysts, and policy advocates.

The policy prescriptions offered by Project participants are universally candid, sometimes uncomfortably radical, and occasionally sobering. Most Project participants conclude that major, sometimes wholesale modification of core societal values and priorities will have to occur if significant, sustainable populations of wild salmon are to be present in the region through 2100.

Research On Two Saline Meromictic Lakes in BC

Submitted by Tom Northcote, CSEB newsletter contributor

Following are the title and abstract of a manuscript that Ken Hall and I are submitting for consideration on our recent near decade of research on two saline meromictic lakes, one of which (Mahoney Lake) near Okanagan Falls, B.C., I have been studying with students and colleagues since 1961.

Title: Salinity Regulation Of Zooplankton Species Abundance And Vertical Distribution In Two Meromictic Lakes

Abstract: Zooplankton abundance and vertical distribution were followed in two south-central British Columbia meromictic lakes during the recent decade of their declining water levels. The lower salinity upper 8 m of both lakes circulate partially most years to their primary chemoclines marked by a 10-15 cm layer of purple sulphur bacteria (*Amoebobacter purpureus*) heavily grazed upon mainly by late copepodite stages and adults of *Diaptomus connexus*, possibly by some rotifers, but apparently not by cladocerans. Vertical distribution profiles are presented mainly for the rotifer *Brachionus plicatilis*, two cladocerans *Ceriodaphnia lacustris* and *Daphnia pulicaria*, as well as copepodite and adult *Diaptomus connexus* during normal periods of unimeromixis and less common ones of bimeromixis caused by shallow upper salinity layers coming from drainage basin inputs.

Protest Over Pitt River Power Development In BC

Reprinted from a Globe and Mail article written by Mark Hume, April 1, 2008.

VANCOUVER — A public outcry over a hydro proposal on the Pitt River has sparked a call by the NDP for a moratorium on all private power projects in the province until an inquiry can be held.

NDP Leader Carole James made the request yesterday after the government suddenly withdrew a motion that called on the House to voice support for independent power projects, or IPPs, in British Columbia.

Ms. James said the Liberals pulled the motion because of the controversy that flared last week when more than 1,000 people showed up at a public hearing on a proposal to build seven linked IPPs on tributaries of the Pitt - a wilderness fishing river just outside Vancouver that counts among its fans several star players from the Vancouver Canucks.

"The overwhelming public opposition to the run-of-the-river project on the Upper Pitt River shows the government should stop this process until we have a full, independent investigation," Ms. James said.

"We've seen quite clearly that [the] government's energy plan has failed communities and restricted B.C. Hydro. It does not give enough consideration to public input, to the environmental impact, nor does it address the broader question about how these projects would fit into B.C.'s public energy plan."

Ms. James said a legislative committee or an independent commissioner should be appointed to hold province-wide hearings to allow the public to comment on all aspects of the power policy that has led to the flood of IPP proposals in B.C.

"The public doesn't feel they have had a say with IPPs in this province," she said. She said the motion by Randy Hawes, the chief government Whip, was to have come forward for debate yesterday - but it was withdrawn without warning because the Pitt River controversy had generated so much heat around the IPP issue.

"Clearly, this government is embarrassed and sees they're heading in the wrong direction," Ms. James said. "Now that they've seen the public reaction, they're hiding from public debate about their agenda to bring in privatized power. But hundreds of projects are still on the table. We're saying 'let's stop this process until we have a full independent investigation.'"

Mr. Hawes said the motion was deferred "to provide some separation" between the wider issue of IPPs and the specific controversy surrounding the Pitt project, which would have involved a power line through a provincial park.

He said the government remains committed to IPPs and that the NDP shouldn't be opposed to them in general unless they have a better idea of how B.C. can meet its energy needs.

"I really hope the NDP are prepared to come forward with some alternatives," he said. "What are they suggesting? Nuclear power?"

The proposed project on the Pitt River was thrown into question last week when B.C. Environment Minister Barry Penner announced the province would not allow Northwest Cascade Power Ltd. to put a power line through Pinecone Burke Provincial Park.

Jako Krushnisky, President and CEO of Run of River Power Inc., whose subsidiary Northwest Cascade Power was developing the project, was taken aback by the government's decision and said the company is considering its options.

Meanwhile, opposition to the Pitt River project has continued to grow. Dan Gerak, owner of a fishing resort on the river, said the government clearly misjudged the public mood on IPPs. "The opposition to the proposal was just incredible," he said. "People were lining up to fight against it."

Among those who contacted him recently to offer support were Canucks players Willie Mitchell and Brendan Morrison, who recently fished the river with several teammates.

The government began promoting IPPs in 2002 as a way to augment B.C. Hydro's production in order to meet a growing demand for power. There are about 35 IPPs now operating, with 60 more coming on line.

Saskatchewan News

Submitted by: Joseph M. Hnatiuk. National CSEB Board member, Saskatchewan CSEB Chapter.

The Saskatchewan Chapter has been having their regular executive meetings and are monitoring many current provincial activities. These include the significant oilsands explorations occurring in the Northwest part of Saskatchewan adjacent to the Alberta oilsands. Until more information becomes available including the potential development opportunities in Saskatchewan, the CSEB Saskatchewan chapter will not make any statements. The new Provincial Saskatchewan Party Government has also indicated the possibility of having more uranium development including refining and nuclear power generation. The CSEB local chapter will continue to monitor the progress of the proposal as information becomes available.

The most recent thrust in renewable energy developments in the Province has raised much discussion both as an opportunity for rural Saskatchewan development in grain production and refining as well as added pressure on the cost of grains used for food. The issue of no change in green house gas emissions as a result of the grain production and refining will have to be looked at in more detail. Our CSEB chapter will be doing background work in that regard.

Of national interest is the Federal Government funding that has recently been committed to Saskatchewan for carbon sequestration research. The current feeling is that the technology will be of great benefit to meeting our greenhouse gas future targets. Our CSEB members are following the developing research.

ENVIRONMENTALISTS CALL FOR FREEZE ON OIL SANDS EXPLORATION PERMITS

Reprinted from a Globe and Mail article written by Mark Hume, April 1, 2008.

On March 27th, the Saskatchewan Environmental Society sent out a media press release that called on the Minister of Environment to undertake a Strategic Regional Environmental Assessment of the watersheds of the Clearwater, Descharmes, Firebag and Richardson Rivers in north western Saskatchewan before any further permits are issued for exploratory drilling or seismic work related to oil sand development.

A major oil sands project would have very serious impacts on water and air quality in northwestern Saskatchewan, while also significantly increasing Saskatchewan's greenhouse gas emissions. It makes sense to assess the capacity of the local and regional environment to sustain such projects before continuing to issue more and more exploration permits. It concerns the Society that no publicly accessible ecological baseline study of the region has been carried out.

While SES has been told that an environmental impact assessment will be required if a development proposal is advanced, it is reasonable to assume that the capacity of this landscape to absorb the impact of such development should be carefully examined before the companies are encouraged to invest heavily in exploratory work. Rather than just looking at the impact on a project-by-project basis, a Strategic Regional Environmental Assessment would examine the potential impacts of the whole policy and program to conduct oil sands development in this region.

Even exploratory work, when conducted on a large scale, requires a thorough environmental assessment before being permitted. This has not taken place. The exploratory work now being undertaken in the pristine northwest region can have significant, long-term impacts.

It appears inevitable that wildlife habitat is already being disrupted by thousands of kilometres of seismic line-cutting that is criss-crossing an area where regeneration is slow, opening up human access corridors throughout the region. Already hundreds of exploratory wells are being drilled and heavy motorized traffic is being introduced into previously quiet, natural environments.

Saskatchewan does not want to repeat Alberta's mistakes when it comes to the destruction of the natural environment from oil sands development. Careful assessment of the capacity of the natural environment to sustain such development is a good first step to avoiding serious damage.

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Ontario News

Submitted by: Wendy Thomson and Natalie Helferty

The greenbelt is a key ecological issue in southern Ontario. As such it is forefront in the minds of chapter Executive members Natalie Helferty and Wendy Thomson, who are asking other chapter members to please supply comments and submissions to the address below by April 30th.

New Criteria for Assessing Municipal Requests to Expand the Greenbelt Description of Policy:

Ontarians have come to cherish the Greenbelt since it was created in February 2005. It protects 1.8 million acres of environmentally sensitive and agricultural land around the Greater Golden Horseshoe. Growing the Greenbelt can improve Ontarians' quality of life.

The Ministry of Municipal Affairs and Housing has developed draft criteria for public input that could be used in considering potential requests by municipalities to grow the Greenbelt. Included here is some background information about the Greenbelt and its creation, and an outline of the draft criteria that could be used by the Minister of Municipal Affairs and Housing to consider municipal requests to expand the existing Greenbelt. Comments and suggestions on these draft criteria are welcome.

Background:

Providing agricultural and environmental protection, the Greenbelt also contains important natural resources and supports a wide range of recreational, tourism and cultural opportunities. The Greenbelt helps protect the water we drink and the air we breathe. It offers green spaces to enjoy hiking and skiing. It preserves farmland so that future generations can enjoy food that is grown and raised close to home.

The Greenbelt includes the Oak Ridges Moraine, the Niagara Escarpment and land that is known as "Protected Countryside" and lies at the heart of the Greater Golden Horseshoe. The Greenbelt is the cornerstone of the Greater Golden Horseshoe Growth Plan, Ontario's overarching strategy for managing growth for the area. The Greenbelt Plan identifies where major urban growth cannot take place. The Growth Plan directs most growth to existing urban areas, away from environmentally sensitive and prime agricultural areas.

The *Greenbelt Act* and Plan The Greenbelt Plan and Greenbelt boundary were established under the *Greenbelt Act*, 2005. The Act allows only the Minister of Municipal Affairs and Housing to propose amendments to the Plan. Only Ontario Cabinet can approve those proposals. Decisions on planning applications must conform to the Greenbelt Plan. Municipalities are also required to bring their planning documents (e.g., official plans) into conformity with the Plan. The Act requires a comprehensive policy review of the Greenbelt Plan every 10 years. The review must be co-coordinated with the reviews of the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan. The first 10-year review is to take place by 2015. The Act also required the government to create the Greenbelt Council, an advisory body to the Minister on Greenbelt matters. The

Greenbelt Council provides advice to the Minister on both the 10-year review and any proposed amendments to the Plan. Greenbelt Vision The Greenbelt is a broad band of permanently protected land which:

- Protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant land use;
- Gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in south-central Ontario will be organized;
- Provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses.

Greenbelt Goals: To enhance our urban and rural areas and overall quality of life by promoting the following matters within the Protected Countryside:

- Agricultural protection
- Environmental protection
- Culture, recreation and tourism
- Settlement areas
- Infrastructure and natural resources.

Please refer to the Greenbelt Plan for more information on the Greenbelt's goals.

Greenbelt Facts: The Greenbelt includes about 1 million acres of protected land in addition to the land protected by the Niagara Escarpment Plan and the Oak Ridges Moraine Plan. The total area of protected land in the Golden Horseshoe is now 1.8 million acres — an area larger than Prince Edward Island. The Greenbelt extends 325 kilometers from the eastern end of the Oak Ridges Moraine near Rice Lake, to the Niagara River in the west. It is about 80 kilometers wide at its widest point from the mouth of the Rouge River to the northern tip of Durham Region. The Greenbelt's Protected Countryside natural heritage system is about 535,000 acres in land area, and provides full protection for about three-quarters of the lakes, wetlands and forests in the Greenbelt. The Greenbelt brings under the plan the headwaters of all major watersheds in the western Greater Toronto Area that were not protected by the Niagara Escarpment or Oak Ridges Moraine plans. The Greenbelt permanently protects about 100,000 acres of Niagara Peninsula tender fruit and grape specialty crop areas and the entire Holland Marsh specialty crop area of over 15,000 acres, located in York Region and Simcoe County.

Draft Expansion Criteria Introduction to Draft Criteria

The Ministry of Municipal Affairs and Housing, working in partnership with other provincial ministries, has developed draft criteria to consider municipal requests to grow the Greenbelt. The ministry is looking for feedback on the following six criteria.

1. Municipal Request: Requests for growing the Greenbelt from regional, county and single-tier municipal governments will be considered. A municipality requesting to expand the Greenbelt should address the following questions:
   - Is the request supported by regional, county or single-tier municipal council?
   - Does the request identify the geographic area within the municipality to be considered for addition to the Greenbelt?
   - What specific measures has council taken to engage the public and key stakeholder organizations about growing the Greenbelt in its municipality?
   - What specific measures has council taken to engage Aboriginal communities about growing the Greenbelt in its municipality?
   - Is there consensus among a region or county and its lower-tiers affected by the proposal? Is the request supported by council resolutions?
   - Has the municipality provided a supporting rationale as to how the criteria have been met?
2. Embraces Greenbelt Purpose: The Greenbelt establishes its main purpose through the vision and goals outlined previously. Proposed expansions to the Greenbelt must recognize its key role in guiding land use planning in the Greater Golden Horseshoe and seek to maintain this purpose.
   - Does the proposed expansion protect environmentally sensitive and agricultural lands while meeting the needs of growing communities?
   - Is it consistent with the vision and goals of the Greenbelt Plan?
3. Additions to the Greenbelt: Greenbelt additions should be logical extensions to its existing area. New lands to be added should be easily connected and not create isolated patches. Further, the *Greenbelt Act*, 2005 provides that the Greenbelt's area cannot be reduced through an amendment.
   - Is the proposed expansion next to the existing Greenbelt?
   - Does the proposed expansion consist only of additions to the Greenbelt and not include deletions?
4. Connections to Greenbelt Systems: The Protected Countryside was built using a provincial-scale 'systems approach'. Requests to grow the Greenbelt should connect to and build upon this framework that established the original Greenbelt.

- Is the proposed expansion based on a provincial-scale systems approach that formed the original Greenbelt (as opposed to local or regional scales)?
- Does the proposed expansion build upon the Greenbelt's natural heritage system?
- Does the proposed expansion build upon the Greenbelt's agricultural system?
- Does the proposed expansion build upon the Greenbelt's water resource system?

5. Complement Greater Golden Horseshoe Growth Plan: The Growth Plan sets a framework for managing growth and revitalizing existing urban communities in the greater Golden Horseshoe. It also steers growth away from environmentally sensitive and prime agricultural areas. The Greenbelt Plan identifies where major urban growth cannot take place. To implement the Growth Plan's policies, municipalities are required to update their official plans by June 2009.

   - Does the proposed expansion complement the Greater Golden Horseshoe Growth Plan?
   - Will affected municipalities be able to bring their official plans into conformity with the Growth Plan if the proposed Greenbelt expansion occurs?

6. Timing and Relationship to other Provincial Initiatives: There are a number of provincial initiatives affecting the Greater Golden Horseshoe including broader transportation/ transit planning, protection of water resources and planning for future growth.

   - Does the request for growing the Greenbelt complement and support these ongoing provincial initiatives? (E.g., Does it allow for the completion of Source Protection Plans under the *Clean Water Act,* 2006?)

7. Building the Greenbelt by 'Layers': The process of building the Greenbelt in 2004/05 involved extensive consultation and collaboration. It was led by the Greenbelt Task Force, an advisory group that conducted public meetings and reported back to the Minister of Municipal Affairs and Housing in August 2004. The Greenbelt Plan was drafted based on the Task Force's recommendations and advice. For more information on these recommendations, please review the Task Force's report "Toward a Golden Horseshoe Greenbelt" at www.mah.gov.on.ca/GreenbeltTaskForce.

   The provincial Growth Plan for the Greater Golden Horseshoe was developed at the same time as the Greenbelt Plan in order to consider the amount of land required to meet the needs of growing communities. The Greenbelt Plan: The Oak Ridges Moraine Plan and Niagara Escarpment Plan form the backbone of the Greenbelt. The Greenbelt's natural heritage system includes and builds on the natural heritage systems in moraine and the escarpment. The final Greenbelt boundary was determined by identifying a natural heritage system and defining an agricultural system. The government also considered the amount of land required to accommodate anticipated growth. Together, these components form the Protected Countryside of the Greenbelt. The natural heritage system identified major core areas containing high concentrations of natural features and linking areas that ecologically connect the core areas. Major valley corridors of rivers flowing from the Oak Ridges Moraine and the Niagara Escarpment also provide links from the Greenbelt to Lake Ontario.

   The Agricultural system was identified based on a number of factors including the Greenbelt Land Evaluation Area Review (LEAR) study, the existing pattern of agriculturally protected lands set out in municipal official plans, and a consideration of projected future growth patterns. The LEAR method uses a scoring system and considers a number of potential factors such as soils, climate, productivity and land fragmentation. Studies were also done to identify two Specialty Crop Areas: the Niagara Peninsula tender fruit and grape area, and the Holland Marsh.

8. Purpose of Policy: As part of a provincial process to consider applications by regional and county governments to grow the Greenbelt, the Ministry of Municipal Affairs and Housing has developed a set of draft criteria by which to consider municipal requests to expand the existing Greater Golden Horseshoe Greenbelt.

   After expansion criteria have been finalized, if a municipal request meets the criteria, the Minister of Municipal Affairs and Housing may propose an amendment to the Greenbelt Plan. *[NB: Unfortunately, expansion for municipalities not abutting the Greenbelt, such as Guelph and Kitchener-Waterloo, who would like to be included, will not be considered by MMAH given the 'patchwork' nature of Greenbelt protection around Toronto that would ensue. Natalie Helferty]*

   The Act specifies that amendments to the Plan can only be proposed by the Minister of Municipal Affairs and Housing. It also specifies that any amendments shall not have the effect of reducing the Greenbelt Area. Any expansion would require Cabinet approval to amend the Greenbelt boundary regulation (O.Reg. 59/05); and the Greenbelt Plan. The Act requires the Minister to consult on a proposed amendment with the Greenbelt Council, the Ministry of Natural Resources, the Niagara Escarpment Commission, affected public bodies, Greenbelt municipalities and the Public. Other stakeholders would also be consulted. A posting on the Environmental Bill of Rights Registry would also be required.

9. Public Consultation: This proposal has been posted for a 69 day public review and comment period starting February 21, 2008. If you have any questions, or would like to submit your comments, please do so by April 30, 2008 to the individual listed under "Contact." On-line submission of comments on this proposal is not permitted. Electronic comments can be sent to: greenbelt@ontario.ca All comments received prior to April 30, 2008 will be considered as part of the decision-making process by the Ministry of Municipal Affairs and Housing if they are submitted in writing and reference EBR Registry number 010-2866.

Please Note: All comments and submissions received will become part of the public record. You will not receive a formal response to your comment, however, relevant comments received as part of the public participation process for this proposal will be considered by the decision maker for this proposal.

[NB: In our opinion, upon review, we see very few municipalities abutting the current Greenbelt willing to move forward with requesting inclusion in the Greenbelt, except perhaps Simcoe County north of the Oak Ridges Moraine. The government has already announced plans for the Lake Simcoe Protection Act, so even a Greenbelt expansion request may not be undertaken for that area. We will see how municipalities respond to this offer, but are not holding our breath on great strides forward. Natalie Helferty]

Atlantic News

Submitted By: Patrick Stewart, CSEB Atlantic Director

Peticodiac River Causeway

The final restoration of the flow of the Peticodiac River in Moncton, New Brunswick, is now only a couple of years away. Then a bridge will replace part of a causeway, which now limits flow and blocks fish movement upstream. The river, which historically was both a major Atlantic Salmon river and one of the main tidal rivers at the head of the Bay of Fundy, was blocked by the causeway constructed in the late 1960s. The Sentinelles Peticodiac Riverkeeper, a local environmental group whose membership included a number of local biologists, brought attention to the plight of river and set wheels in motion to have the structure examined as a barrier to fish passage, which is illegal under the Fisheries Act, and which became a major factor in the eventual solution of the problem. Causeways on tidal rivers were widely constructed in Atlantic Canada in the 1950s and 1960s, with sometimes dramatic losses in productivity of the tidal ecosystems, impairment of fish passage, upstream erosion problems and sometimes eutrophication. In many cases, and the Peticodiac is an example, the causeways have been removed or altered to improve flow and help restore tidal conditions.

Nova Scotia Takes Tougher Stance on Quarries

In the aftermath of rejection by a federal CEAA Panel Review of a large aggregate quarry on Digby Neck on Nova Scotia's Bay of Fundy, the Province of Nova Scotia has sent back an environmental assessment and application for expansion of a gypsum quarry in a coastal area of the Bay of Fundy, requesting additional environmental focus reports. The new

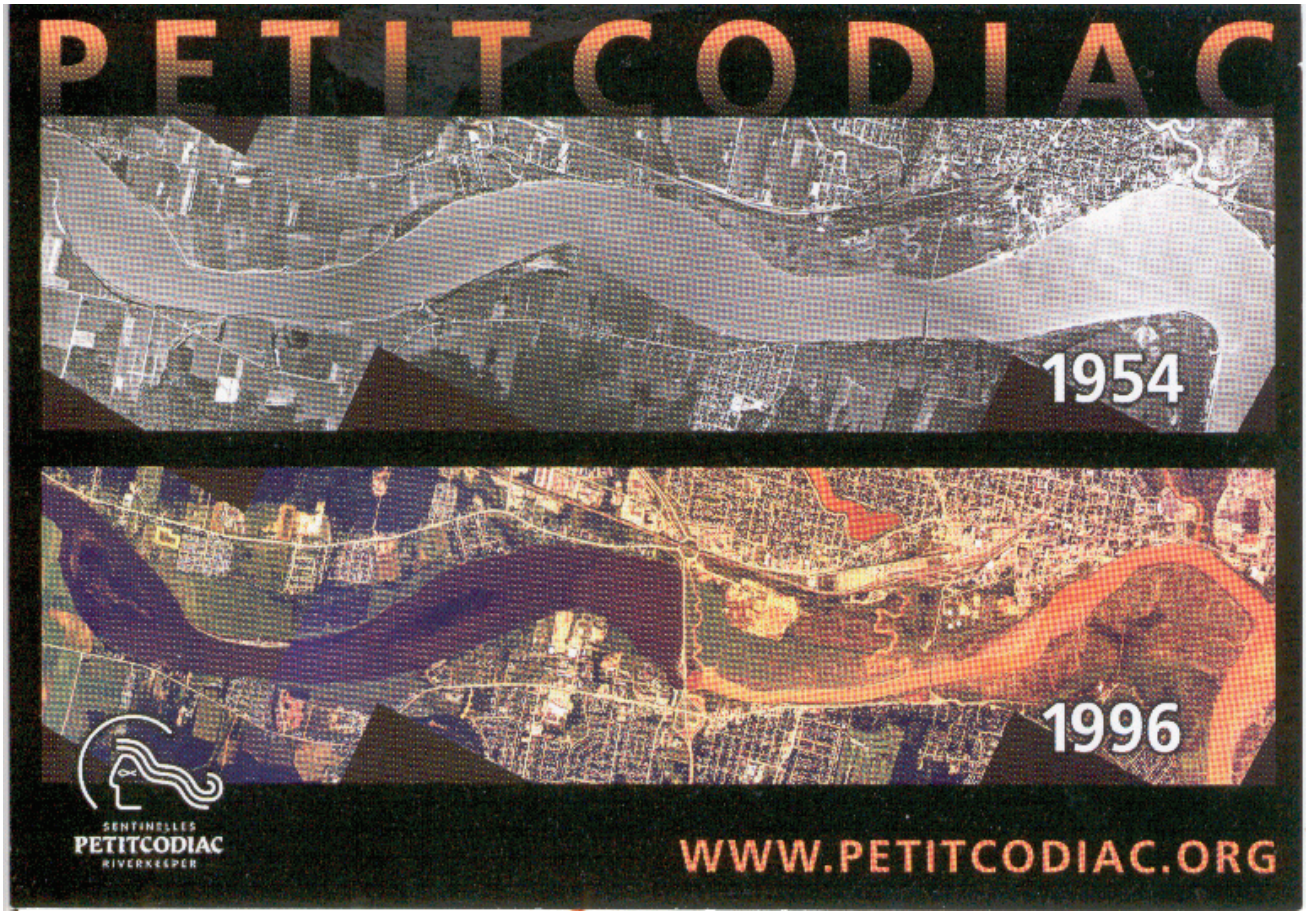

Fig 1. Peticodiac river before and after installation of a causeway

quarry will be an extension of Fundy Gypsum Company's Miller's Creek quarry on the Avondale Peninsula, one of two existing quarries in the Windsor area. Proposed to be over 4.2 km^2 (1038 acres) in area, the proposed quarry would occupy a large part of the peninsula, eliminating medium-aged mixed deciduous forest ecosystems, farmland, and some gypsum plant communities, some of them rare, as well as altering drainage, in particular a number of small streams which enter the tidal Avon and Kennetcook Rivers in the area. Residents see the loss of lands in back of the small communities around the peninsula, as well as noise and possible interference with groundwater, as issues during the operation of the quarry. They also contend that the loss of the streams will impact already stressed populations of Atlantic salmon and striped bass, the former listed as endangered under the federal *Species at Risk Act*. Historically large Nova Scotia quarries have not been required to submit to a federal review process but must submit an environmental assessment to the Province. Small quarries, depending on size, have been able to avoid environmental assessment. The Digby Quarry Review Panel recommended that quarries of all kinds should receive more scrutiny, and this seems to be the route Nova Scotia is taking.

Bio-Humour

The local game warden in a small town in Oregon had arrested a man for killing and eating an Egret. The man went before a judge to plead his case. After pleading guilty, the judge asked him why he did it.

"I was just trying to feed my hungry family" he told the judge, "and I've never done anything like that before. "

The judge, being a family man himself, had a soft heart and agreed to let the man go free, since he was only trying to feed his family and it was his first and only offense.

"Before you go, though, I want to ask you a question," the judge quipped, "What does Egret taste like?"

"Well your Honour" the man told him, "It's not as tender as Spotted Owl but its better than Bald Eagle!!"

Territories News

Submitted by: Anne Wilson, CSEB Vice-President

Ron Bujold Coring Yellowknife Bay (Photo taken by Anne Wilson)

Another winter is soon behind us, and although temperatures have been below normals a lot this spring, the lengthening days signal that winter's days are numbered. We've had a good cold winter, which has helped with ice road building and hopefully with keeping some of the "southern" pests away (I'm thinking of pine beetles and maybe to discourage leaf miners). Many monitoring programs schedule the "winter" work in April, when temperatures have moderated and available daylight allows for more time out when sampling. Never mind that this can mean up to two metres of ice to drill through!

Activity in the NWT and Nunavut continues at high levels, with the current high commodity prices in the mineral and energy resource sectors driving exploration and development. The Doris North Gold mine in Nunavut has been granted land and water use permits, and awaits designation of its Tailings Impoundment Area. The Meadowbank Gold Project north of Baker Lake is in the water licence stage, and hopes to proceed on an accelerated schedule to construction in 2008. Several other Nunavut projects are at the environmental assessment stage: High Lake/Ulu zinc and gold; Sabina Silver Corp's Hackett River Mine; Bathurst Inlet Port and Road; Baffinland's Mary River iron ore project. The NWT isn't quite as busy but we are working on the Taltson Hydroelectric expansion, and the Tamerlane Pine Point zinc test mine has cleared the EA stage and is proceeding to licensing and construction. This project has an interesting aspect – they will be dealing with large groundwater flows by freezing a "wall" around the ore body, which will be mined using underground techniques. There are numerous mineral exploration and seismic project assessments underway, and the Gahcho Kue Diamond Mine panel type review will gear up again this spring with the release of their Environmental Impact Statement.

This report is brief, as I am busy preparing for a trip to one of the mines to the north, where we are sampling sediments to investigate the links between older incinerators and dioxins and furans in the adjacent lake sediments. We all know that what goes up must come down!

Please think about drafting your newsletter articles for our next issue – we are focusing on environmental monitoring and look forward to a variety of perspectives!

Synthesis of Long-term Studies on the Interactive Ecology of Cutthroat Trout and Dolly Varden Char Populations in Near-coastal Lakes of British Columbia

Submitted by : T.G. Northcote

Professor Emeritus UBC Department of Zoology and of Forest Sciences c/o 10193 Morrison Close, Summerland, B.C., CANADA V0H 1Z7

INTRODUCTION

That cohabiting coastal cutthroat trout (*Oncorynchus clarki clarki* and Dolly Varden char (*Salvelinus malma*) together frequently occupy lakes as residents on islands along much of the coastline of B.C. and range inland up to 100 km or more probably has been known by many anglers and others for many decades (see Maps 40, 52 in McPhail 2007). During regional limnological surveys from late spring through summers of 1951 and 1952 (Northcote and Larkin 1956) I often noted in a number of B.C. coastal lakes that cutthroat trout were most often taken by nets in the shallow nearshore waters whereas Dolly Varden were far more abundant in nets set in offshore deeper layers. Earlier Foerster and Ricker (1941) briefly reported on such summer distribution differences for cohabiting Cultus Lake populations of cutthroat trout and Dolly Varden, as did Bilton and Shepard (1955) at least for cutthroat trout distribution where they cohabited with Dolly Varden in Lakelse Lake.

Subsequently research on this subject became the focus for at least seven of my M.Sc. and two of my Ph.D. student theses over the 1965 to 1985 period, most of which resulted in publications to be noted herein.

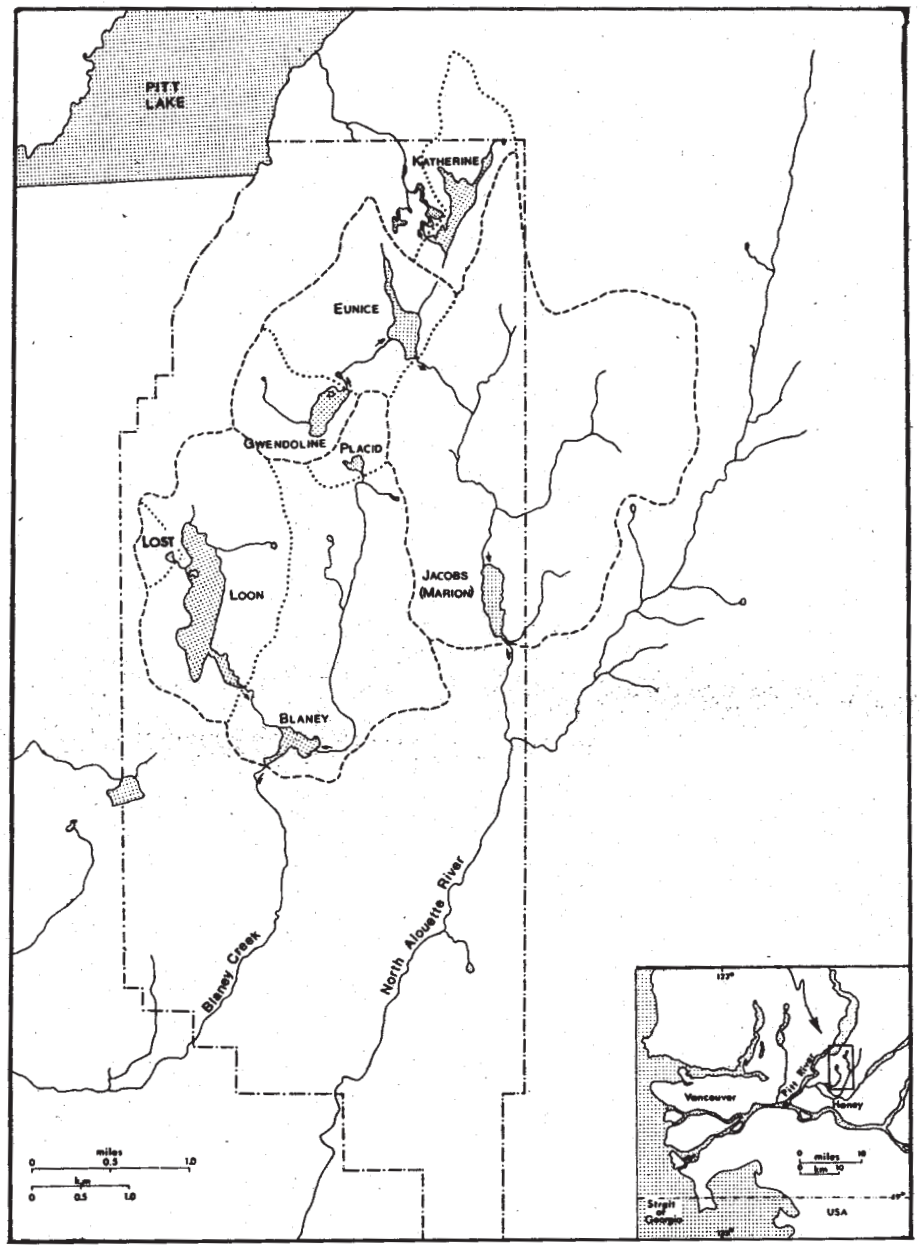

Fig.1. Location of the study lakes in the University of British Columbia Research Forest.

STUDY CHRONOLOGY

Main authorship for the studies reported here is given in Table 1 and completely in references.

The first period of study (1967) examined the spatial relationship and prey of cutthroat trout and Dolly Varden in lakes where they lived allopatrically, i.e. without the other species, or sympatrically, i.e. with the other species. Then further field studies in 1968 were combined with a series of laboratory experiments on spatial distribution and feeding behaviour of the two species in observation tanks at UBC.

Next came preparation in the late 1960s and early 1970s for cutthroat trout and Dolly Varden introduction from the cohabiting populations in Loon Lake (UBC Research Forest) separately into two nearby fishless lakes there (Eunice and Katherine), holding a third lake (Gwendoline) for a quasi-control without fish, after first investigating zooplanktonic and benthic invertebrate species and abundance in all three lakes. In addition other studies included three lakes in the Research Forest (Lost, Loon, Blaney) which had long contained native populations of cutthroat trout and Dolly Varden, while a fourth one (Placid) had a native population of only cutthroat trout, and a fifth one (Jacobs, also called Marion) contained rainbow trout and kokanee salmon (see Fig. 1 for lake locations). Transfer of cutthroat trout to Eunice Lake and Dolly Varden to Katherine Lake was made from autumn 1974 to spring 1976, followed by assessment of these introductions on their macrozooplankton communities.

As a broader follow-up, spatial distribution, prey use, and growth of cutthroat and rainbow trout (17 allopatric and 10 sympatric populations) were examined in coastal B.C. lakes, along with laboratory experiments on their aggressive behaviour and prey capture. Also the *Diaptomus* species of zooplankton in seven of the studied Research Forest lakes were identified, as well as means for separating their six naupliar instars.

Then a series of life history variables (age at sexual maturity, annual survival rate, growth rate, maturity length, female fecundity) were determined for the donor Loon Lake populations (cutthroat trout, Dolly Varden char) and compared with those in the transplanted ones in Eunice and Katherine lakes. Over an 11 year period (1973 – 1983) the phytoplankton and zooplankton populations of four Research Forest lakes (Katherine – transferred Dolly Varden, Eunice – transferred cutthroat, initially the fishless control Gwendoline Lake until about 1979 when barrier failure prevented entry of some cutthroat from Eunice Lake, and Placid Lake – native cutthroat trout) were sampled about every two weeks to follow seasonal population dynamics.

In the mid 1970s the first detailed study of sympatric (Loon Lake) and post-transfer allopatric populations of cutthroat trout (Eunice Lake) and Dolly Varden (Katherine Lake) was made during spring, summer and autumn periods, as well as their respective use of major prey types.

A series of laboratory experiments on visual prey detection and foraging was made on Loon Lake stocks of adult cutthroat trout and Dolly Varden during the summer of 1980. The almost transparent *Chaoborus* larvae, common in many Research Forest lakes, after feeding became more obvious with prey in their guts and increased their risk of predation by salmonid predators. Retinal structure of cutthroat trout and Dolly Varden char populations, both sympatric and allopatric, were examined in relation to their vertical distribution and feeding behaviour.

Use of lake space (shoreline versus offshore, shallow or deep) and prey type use was examined eight years after the experimental transfers from the sympatric lake source of cutthroat trout and Dolly Varden char to their respective allopatric lakes nearby, showing little change for the transferred trout but much greater use of shallow, nearshore habitat by the transferred char.

Winter (1978, 1988) spatial distribution and feeding of native trout and char in Loon Lake, as well as the experimental allopatric populations in Eunice and Katherine lakes were examined and compared with that of other major study seasons.

Population dynamics of two major species of zooplankton, *Daphnia rosea* and *Holopedium gibberum*, in the three study lakes where fish introduction occurred (Katherine – char, Eunice and later Gwendoline – cutthroat) were followed for a ten year period (1974 – 1983).

Another intensive study of the native trout and char in Loon Lake and its comparison with their experimentally segregated populations in Eunice and Katherine lakes respectively, took place during June, August, and October in 1982, examining again especially their sympatric and allopatric use of shallow to deep waters.

In April and May 1994 near-adult char from Katherine Lake were transferred to Eunice Lake and cutthroat from Eunice Lake were transferred to Katherine Lake, successfully rebuilding cohabiting and spawning sympatric populations in these two lakes from those originally coming from the long-term native populations in Loon Lake.

What might have been a final conclusion to this long series of studies on the role of interactive segregation between Dolly Varden char and cutthroat trout in the coastal lakes of British Columbia was presented to the International Charr Symposium at Trondheim, Norway in June 1994.

But in July 2001 another period of intensive bottom and pelagic netting for cutthroat trout and Dolly Varden char was arranged in Loon, Eunice, and Katherine lakes to examine more fully after a longer period of their experimental cohabitation in the latter two lakes, focusing on examination of to what degree population differences in resource use may be a result of asymmetric competition between coexisting salmonid populations.

SUMMARY OF MAJOR FINDINGS

Before reviewing briefly the major findings from the series of studies outlined above, it would be useful to examine the most recent coverage of the distribution of coastal cutthroat trout and Dolly Varden char in British Columbia (McPhail 2007).

These two salmonids broadly overlap along much of the coastal and near-coastal regions of this province, including the Queen Charlotte Islands and Vancouver Island, and probably on many of the smaller coastal islands as well. Clearly there would be no lack of promising lake localities to examine in further detail the interactive ecology of these two species!

Table 1. A summary of major research findings coming from studies on the interactive ecology of coastal cutthroat trout and Dolly Varden char in British Columbia lakes.

The references given should be consulted for full details and authorships.

CT = cutthroat trout; DV = Dolly Varden char; RB = rainbow trout

Study Period (years; seasons)	Author/s	Major Subjects & Findings
1967, 1968; spring-autumn mainly	Andrusak & Northcote (1970 ; 1971)	1. In allopatry both species have broad vertical distribution, using surface, mid-water, benthic prey. 2. In sympatry CT mainly in near-surface areas using surface and planktonic prey; DV mainly off-shore using deep benthic prey.
1968; mainly	Schutz & Northcote	1. CT fed more successfully on surface prey, DV on benthic prey. 2. DV more successful than CT in benthic prey capture at low experimental light intensities.
1963-1974;	Northcote & Clarotto	1. Macrozooplankton species size, abundance, vertical distribution, & predatory use by CT & DV (where present) for fish & fishless lakes in UBC Research Forest.
1967-1976;	Northcote et al.	1. Massive decline in 2 species of *Chaoborus* larvae in previously fishless lakes after CT & DV separate lake introductions; not in fishless control lake (UBC Research Forest). 2. Fish predation a factor, but not the major one, affecting zooplankton body size and abundance seasonally in all UBC Research Forest lakes.
1950s-1970s	Nilsson & Northcote	1. Major differences in food, size, growth rate of 17 allopatric & 10 sympatric coastal lake populations of cutthroat and rainbow trout. 4 million tonnes 2. In experimental tanks rainbow more aggressive than cutthroat & use different prey capture means.
1970-1973; most months	Fedorenko & Swift (1972) Fedorenko (1975a,b)	1. Comparative biology of two *Chaoborus* species in Eunice Lake 2. *Chaoborus* feeding characteristics & predation impact in Eunice Lake.
1973-1974; 1979	Green & Northcote	1. *Diaptomus* species identified in seven Research Forest lakes, *D. kenai* in five of the lakes. 2. Development of the 6 naupliar instars of *D. kenai* described; those of four other species distinguished.
1982;	Jonsson et al.	1. Five life history variables for male, female sympatric (Loon L.) CT & DV determined, and compared with allopatric Eunice & Katherine L. populations. 2. Good agreement in observed & predicted age at maturity in these populations.
1974 summer;	Hume & Northcote	1. Transferred Loon L. DV didn't greatly change highly benthic distribution in allopatry but became very zooplanktivorous, nearly eliminating midwater *Chaoborus* late larval #s before reverting to benthos. 2. Allopatric CT had similar effect on *Chaoborus* late larval #s, & used more large benthic prey than when sympatric with DV in Loon L.
1973-1983;	Walters et al.	1. Although plankton biomass dynamics in Res. For. lakes were disturbed by salmonidae dynamics seasonally simple & stable; zooplankton biomass equilibrium set mainly by phytoplankton production.
1980;	Henderson & Northcote	1. DV visual prey detection ca. 1-2 orders magnitude lower than CT in midsummer, but permited effective prey search & use in deeper waters during day & in upper 5m at night by DV. 2. A greater reaction distance to *Diamtomus kenai* prey & higher foraging velocity permit CT visual search of water volume seven times greater than DV during a summer day.

continued

1986;	Giguère & Northcote	1. Almost transparent *Chaoborus* larvae with abundant food in gut greatly increased risk of visual predation by salmonid predators & were nearly eliminated from two study lakes within a year after CT & DV introduction.
1987;	Henderson & Northcote	1. Sympatric (Loon L.) DV have a retinal rod/cone ratio ca. 3x > CT, & a summation ratio (photoreceptor : bipolar : ganglion cells) nearly 2x > visually at lower CT, suggesting that DV could operate irradiance levels than CT, but their visual acuity would be poorer, helping to explain differences in vertical distribution & foraging of the two species in sympatry.
1982;	Hindar et al.	1. Experimental allopatric DV significantly increased their lake vertical distribution cf. to that in sympatry, & their use of shallow-dwelling zoobenthos. 2. Experimental allopatric CT showed minor changes in proportions of major prey types used. 3. Results suggest that aggressive dominance of CT is the most important mechanism for displacing DV from littoral and near-surface habitats in sympatry with CT.
1982; summer -autumn	Andrew et al. (1992)	1. From June to October CT used mainly littoral and and epipelagic habitats in sympatry and allopatry, and DV used all habitats in allopatry, but in sympatry deep autumn habitats (pelagic, epibenthic) not frequented by CT. 2. Diel (day, night) and seasonal changes in habitat use of CT & DV were not pronounced. 3. Shift in habitat use by experimentally allopatric DV but not CT suggests that effect of competition between sympatric CT and DV for habitat resources are greater on DV.
1967-1994; year-round	Northcote (1995)	1. Validation of the competitive exclusion principle was attempted over a 40 year period for species pairs, mainly DV & CT, by field comparisons in sympatry and allopatry on use of habitat and prey resources, by laboratory study of trophic and visual structures, by field manipulation experiments, and by controlled laboratory behavioural experiments. 2. Although much information was obtained on ecological interactions between the species, little insight was gained on the principle validity or mechanisms that might support it.
1974-1983; year-round	Walters et al. (1990)	1. *Daphnia rosea* & *Holopedium gibberum* seasonal abundance highly variable over the years in four UBC Res. For. Lakes (Eunice, Katherine, Gwendoline, Placid). 2. Environmental interannual variation factors had more important influence on seasonal plankton abundance in all these lakes. 3. Timing & magnitude of summer population maxima differed significantly among years but were not correlated between these two species. 4. Annual differences in growth, mortality rates, peak abundances not associated with any obvious insolation, rainfall, water temperature differences
1978, 1988; winter	Rempel & Northcote (1989)	1. Winter spatial distributions of CT & DV in Loon (sympatric), Katherine (experimental allopatric DV), Eunice (experimental allopatric CT) highly overlapped. 2. Winter diets of CT & DV suggest that some food resource segregation does not completely cease during winter
1970s -1990s spring-autumn	Jonnson et al. (in review)	1. Evidence of asymmetric competition found because DV displaced from littoral habitats when sympatric with CT, whereas CT largely unaffected by presence of DV when sympatric (both native & experimental cohabiting populations of both species).

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What Do You Do With Three Million Tonnes of Garbage?

Submitted by : Lucy Duso
Utility Analysis & Environmental Management Div. Policy & Planning Department, Greater Vancouver Regional District.

Metro Vancouver, as a regional non-partisan government body in the lower mainland of British Columbia is responsible for, among other services, managing the region's three million annual tonnes of solid waste.

Exciting waste management challenges are on the horizon. At the same time that Metro Vancouver is in the process of updating a regional Solid Waste Management Plan, we are losing access to a nearly-full drybelt interior landfill that has taken about one third of the solid waste for the past 20 years. Where will those 300,000 tonnes of waste go now? In addition decision makers must take into consideration Metro's own sustainability principles, not to mention recent commitments made by the provincial government to reducing BC's GHGs in the immediate future. Add to this the current economic speed train the region is on, which is increasing our per capital disposal rates even though residents and businesses feel they are recycling more than ever.

How to we manage the waste today?

To summarize a vastly complex program: The 22 municipalities that form Metro Vancouver each have their own garbage collection programs. In addition, most businesses have private collection service. Metro Vancouver manages this waste after it is collected. Today, three options for permanent disposal exist:

- 1 landfill in Cache Creek (closing 2010)
- 1 landfill in the City of Delta and
- 1 waste-to-energy facility in the City of Burnaby.

Another 500,000 tonnes of construction and demolition waste is disposed of in private sector landfills.

What's in the new plan for this three million tonnes (and growing) of garbage?

In 2007, Metro Vancouver's Board established the Zero Waste Challenge. The core goals of this challenge are:

1. Minimize the amount of waste generated
2. Maximize the recovery materials through reuse and recycle programs

   These two goals fold into the updated Solid Waste Management Plan, along with a third goal to:

3. Extract the maximum benefit from the disposal waste stream. This includes investigating commercial composting, waste-to-energy and other technologies.

How will we maximise diversion?

Currently, about 52% of our waste is recycled. Most recycling is done by private enterprise, under contract to the municipalities for residential recycling and to individual businesses for industrial recycling.

Plans are underway to raise this diversion rate to 70%, ideally by the end of 2010.

To do this, major region-wide programs need to be developed including:

1. Create separated wood depots
2. Initiate commercial-scale composting for food and hotel industry food waste, which can eventually expand to residential food waste
3. Modify building demolition permits to require higher landfill diversion rates
4. Ban from the garbage items that have an accessible existing recycling program
5. Expand plastic recycling opportunities, and make them consistent across all 22 municipalities
6. Increase take-back programs, where producers take back end-of-life products (e.g., used oil and beverage containers)

Education, information and outreach programs operate continuously to keep residents and businesses involved in the recycling programs.

How will we extract the maximum benefits from waste?
Of particular interest to your readers may be the compost and the waste-to-energy options. Let's start with composting.

Metro Vancouver currently does not have region –wide food waste composting. (There is yard waste composting across the region; in fact yard waste is now banned from the garbage.) There is a good example of a commercial scale food waste operation in the Pacific Northwest; Cedar Grove Composting in Everett Washington composts 150,000 tonnes of mixed yard and food waste per year. Metro Vancouver is currently running a pilot with produce retailers and hotels providing food waste. The aim is to move from pilot to operational within a year. A facility might take up to 95,000 tonnes of food out of the garbage per year. In addition to waste diversion, depending on the technology chosen there is the potential to capture heat energy, methane gas and produce a useful growing medium.

When it comes to waste-to-energy opportunities, this organization is still in an exploratory stage with regards to facilities and processes. A current summary can be found on our Zero Waste website. According to Metro Vancouver's Waste Committee Chair Marvin Hunt,

"After aiming for the 70% diversion rate, we would continue to look at the highest and best use of resources for the remaining waste; waste-to-energy could play a significant role in that."

A key outcome of the current Solid Waste Management Plan is to secure long-term waste disposal for the region. With the closure of the interior landfill (Cache Creek), Metro Vancouver needs to find a long-term solution to the region's waste.

Reasonable steps to managing 3 million tonnes of garbage are; reducing what is generated, diverting everything possible, capturing energy and gas from what is disposed and only then landfilling the remainder. In our vision of a perfect solid waste management plan, this would be about 15% of the original volume of waste, in the form of inert ash.

For more information on Metro Vancouver's Solid Waste program visit the Zero Waste Challenge link at

www.metrovancouver.org.

Quick Facts about Metro Vancouver's Solid Waste Program

Number of residents (2008)	2.1 million (4.4 million total in B.C.)
Predicted number of residents (2020)	3.1 million
Total waste generated per year (2008)	3 million tonnes
Volume of food waste in waste stream (2008)	188,000 tonnes/ year
Predicted waste generated per year (2020)	4 million tonnes
Waste generation per capita per year (2005)	1.53 tonnes
Waste diversion rate as of (2008)	52%
New waste diversion goal for (2010)	70%

Conferences & Courses

Waste - The Social Context '08

May 11 – 15, 2008, Shaw Conference Centre - Edmonton, Alberta

Contact: Jerry Leonard

Tel: (780) 496-7316 Fax: (780) 944-5709

Website: http://conference.ewmce.com/prothos/onware.x/conf/252/index.p?!=public=12081482392216=1=37983188&Conferene=252

Forest and Resources Expo 2008 - Trade Show/Exhibition

June. 5-7, 2008, Prince George Civic Centre - Prince George, BC.

Contact: Tel: (250) 563-8833

Website: http://www.forestandresources.org/

The Windfall Ecology Festival

June 7-8, 2008, Fairy Lake Park, Newmarket - Ontario, Canada

Contact: Alec Simpson

Tel: (905) 727-0491 ext. 113

Website: http://www.windfallcentre.ca/index_____php?st=2&s=Green_Workshops&p=Overview&t=&

WDA 2008 Annual International Conference of the Wildlife Disease Association

August 3-8, 2008, University of Alberta, Edmonton, Alberta, Canada

Contact: Margo Pybus

Tel: (780) 427-3462 Email: margo.pybus@gov.ab.ca

Website: http://www.biology.ualberta.ca/parasites/WDA08/

138th Annual Meeting of the American Fisheries Society: Fisheries in Flux: How Do We Ensure Our Sustainable Future

August 17-21, 2008, Ottawa Congress Centre and Westin Hotel, Ottawa, Ontario

Fisheries and fish communities are not static properties of ecosystems. Stressors such as overexploitation, species invasions, habitat degradation, climate change, and water resource demand are a few of the factors that drive changes. These changes potentially threaten sustainable use. Some notable examples include the collapse of the cod fishery on the east coast, declines in the B.C. salmon fishery and fish community changes in the Great Lakes as a result of the introduction of zebra mussels. Can we find solutions to these threats? What are we doing to ensure a sustainable future and what changes need to be made in our management of aquatic ecosystems? Come to the meeting and explore possible answers to these and many other issues affecting North America's fisheries.

For further information, see ***http://www.fisheries.org/afs08/***

North American Lake Management Society. Lake Management in a Changing Environment

Nov. 11-14, 2008, Château Lake Louise, in beautiful Lake Louise, Alberta.

Contact: Al Sosiak

Tel: (403) 297-5921

Website: http://www.nalms.org/Conferences/2008LakeLouise/

National DFO-ENGO Workshop on Fish Habitat

Consultation Closed

When Held: November 5-6, 2007
Where: Gatineau, QC

Under the direction of the National Fish Habitat Coordinating Committee, the Department of Fisheries and Oceans Canada (DFO) and Canadian Environmental Network (RCEN) organized a National DFO-ENGO Workshop on Fish Habitat. The purpose of this workshop was to bring together DFO officials and ENGOs involved in fish habitat stewardship to discuss fish habitat concerns and the implementation of DFO's habitat management program.

Priority issues identified by the Canadian ENGO community were addressed at the workshop in order to develop specific recommendations to improve DFO habitat management policy and its implementation, as well as to identify opportunities for ENGOs and DFO to collaborate towards these objectives.

The selected ENGO delegates were as follows:

1. Susanna D. Fuller, Ecology Action Centre, NS*+
2. Martha Kostuch, The Friends of the Oldman River, AB*
3. Olga Schwartzkopf, The Soil & Water Conservation Society- BC Chapter*
4. Cliff Wallis, Alberta Wilderness Association, AB*
5. Julie Huntington, CPAWS, NL +
6. John Werring, David Suzuki Foundation, BC +
7. Doug Badger, Regional Environmental Action Committee, AB
8. Denys Bourque, Club d'ornithologie du Madawaska, ltée / Les Intendants du Madawaska, NB
9. Meredith Brown, Ottawa Riverkeeper/Waterkeeper Alliance, ON
10. Gretchen Fitzgerald, Sierra Club of Canada Atlantic Chapter/ Nova Scotia Environmental Network, NS
11. Lisa Marie Fox, Cochrane Environmental Action Committee, AB
12. Jen Graham, Coastal Coalition of Nova Scotia, NS
13. Joseph Hnatiuk, Canadian Society of Environmental Biologists, SK
14. Sharon Jeffery, Vancouver Aquarium Marine Sciences Center University of British Columbia, BC
15. Bruno Marcocchio, Sierra Club of Canada, NS
16. Allister Marshall, Potlotek Fish and Wildlife Association, NS
17. Zo Ann Morten, Pacific Streamkeepers Foundation/SEHAB, BC
18. Isabel Muzichuk, Saskatchewan Eco-Network, SK
19. Dianne Ramage, Pacific Salmon Foundation, BC
20. Jeffery Young, David Suzuki Foundation, BC

* ENGO member of the National Fish Habitat Coordinating Committee
+ ENGO member of the Workshop Organizing Committee

Workshop Presentations
ENGO Case Studies

- The Coastal Coalition of Nova Scotia by Jennifer Graham
- Duck Pond Mining Project: an example of economic growth at the expense of the environment by Julie Huntington
- Marine Habitat – Impacts of Fishing (coming soon)
- Nanoose Bay Estuary
- Sydney Tar Ponds – Sierra Club of Canada

DFO Presentations

- Developing and Implementing a Fish Habitat Risk Management Framework
- DFO Compliance Program
- DFO Gulf Region: Risk Management Framework Implementation
- DFO Pacific Region: ENGO-DFO initiatives and Implementation of the Risk Management Framework
- Habitat Compliance Modernization
- The Habitat RMF: Science, Policy, Values and Judgments.
- NRIA-DFO
- Overview of Fisheries and Oceans Canada's (DFO) Habitat Management Program (HMP)

Other Resources:

- Links to MOUs between DFO and partners
- Habitat Branch Practitioners Guide
- Science documents on the Pathways of Effects
- DFO Organizational Chart

Background Information

This workshop is a result of the joint ENGO-DFO National Fish Habitat Coordinating Committee. Established in 2007 through the RCEN and DFO, the purpose of this Committee is to facilitate, organize and coordinate cooperative activities between ENGOs and DFO that are in support of fish habitat management in Canada.

This workshop builds on the outcomes of the National ENGO and DFO Workshop on Strengthening the Application of the Habitat Protection Provisions of the Fisheries Act, which took place in Ottawa in October 2006; and on the West Coast Regional DFO-ENGO Workshop held in March 2007.

For more information, contact Leela Ramachandran, telephone: (613) 728-9810 ext. 223.

Workshop Summary

To facilitate communication and collaboration between environmental non-government organizations (ENGOs) and the Department of Fisheries and Oceans (DFO), a National Fish Habitat Coordinating Committee was established in 2006 comprised of DFO and ENGO members of the Canadian Environmental Network (RCEN).

Initial workshops were held in Ottawa (October 2006) and in the Pacific Region (March 2007). Following on the success of those workshops, a national DFO-ENGO workshop facilitated by the RCEN was held on November 5 and 6th 2007 to discuss the Habitat Management Program's Risk Management Framework, including the role of science, and DFO's Compliance Framework. This national workshop was jointly organized and co-chaired by ENGO members of the RCEN and staff of the DFO Habitat Management Directorate

in Ottawa, and brought together ENGOs across Canada to discuss with DFO ways to improve implementation of the Habitat Management Program (HMP) and address the various concerns of ENGOs from across Canada.

The primary objective of the workshop was to bring together DFO staff and representatives from ENGOs (including fish habitat stewardship groups) from across Canada to discuss ways to improve the implementation of the Habitat Management Program. More specifically, this national workshop focused on the Risk Management Framework and Compliance Framework.

ENGOs across Canada have concerns about the destruction of fish habitat, including cases where DFO failed to take enforcement action pursuant to Section 35(2) of the Fisheries Act. ENGOs are regularly involved in habitat stewardship activities, including enhancement and restoration projects, and continue to see incidences of fish habitat destruction where such destruction could have been avoided by DFO. Of particular concern are how low risk activities are addressed under the Environmental Process Modernization Plan (EPMP), and the cumulative impacts of ongoing low impact activities taking place and without the proponent having to notify DFO so that it can be monitored. ENGOs across Canada are deeply concerned that the Risk Management Framework (RMF) will result in lack of monitoring of activities considered low impact, particularly as there is currently no mechanism to measure or guard against cumulative effects.

In particular, Letters of Advice (LoA) and Operational Statements (OS) developed to reduce the number of low risk habitat referrals to the department each year are seen as decreasing public awareness and subsequent participation in reviewing project applications that could be reviewed as part of environmental assessments triggered by the potential issuance of an Authorization of Habitat Alteration, Disruption or Destruction (HADD), as well as allowing unacceptable habitat destruction. The voluntary nature of compliance with the LoAs and OSs was also of concern, particularly if the use of these leads to destruction of fish or fish habitat, without a clear authorization to do so. ENGO's presented case studies from the regions, with specific examples of where habitat is being destroyed, and where there is difficulty in gaining the necessary cooperation from DFO to ensure that we don't continue to lose habitat.

Several organizations raised issues regarding Memorandums of Understanding (MoU) with various levels of government and industry and suggestions were made to create goal based MoUs so that habitat protection is achieved. There is a need for a system where information that is collected by ENGOs can be given to DFO for action.

DFO presentations demonstrated a clear need for increased capacity, and that the development and implementation of the EPMP was a response, in part, to the large number of referrals it was receiving each year. The EPMP, including the Risk Management Framework, will redistribute the large workload, previously focused on requests for reviews of project referrals, into a broader risk management approach.

The history behind the development of the EPMP was described, as well as the development of the RMF, particularly with respect to the life cycle approach. The RMF was described as needing continual improvement through communication, consultation and collaboration with stakeholders. The RMF was also addressed by DFO staff in terms of a decision making process that considers science and values to reach a conclusion.

Following the ENGO case studies, examples of regional implementation of the RMF, with a focus on successful protection of fish and fish habitat were presented and discussed. There are regional differences, particularly in the relationship between ENGOs and DFO, and hence the level of collaboration around fish habitat protection.

A representative from the Natural Resources Industry Association (NRIA) was invited to offer an example of where the EPMP and the RMF as it is currently applied, resulted in successful protection of fish habitat. While the regulatory process has become streamlined, and there is increased predictability for industry regarding activities that may cause a HADD, it was difficult to see where improvements had been made in actual protection of fish or fish habitat. Examples of best practices in the forestry industry in Alberta were offered by ENGOs,The discussion with the NRIA representative was useful, and indicated that a joint meeting between the ENGOs and the NRIA may provide an opening to find some common ground.

On the second day of the workshop, the focus of the discussion switched to achieving compliance with the habitat protection provisions of the Fisheries Act. The discussion was productive, and lead to several ideas for how ENGOs can help promote compliance and become involved in reporting and prosecution when a HADD occurs. Challenges to on the ground enforcement were clearly articulated by Fisheries Officers.

In summary, the discussion covered some difficult topics, and there remained a desire to have more information on the scientific information that is being used to make habitat authorization decisions, in the context of the EPMP and the RMF. There was an increased level of understanding of the challenges facing ENGOs who are often called upon to address habitat destruction and the task of DFO to protect fish and fish habitat. Recommendations were put forth to improve both communication and collaboration between DFO and ENGOs as well as how to improve the protection of fish and fish habitat in Canada.

Areas identified for Improvement: Comments were made before, during and after the meeting that the agenda was too ambitious and the discussion including the question and answer session limiting. Some changes were made throughout the meeting to accommodate these concerns but time was too short to make any substantive changes. The workshop organizing committee welcomes suggestions for future meetings with regard to structure and organization.

CSEB FINANCIAL REPORT FOR 2007

Submitted by: Jackie Spry, previous CSEB Secretary-Treasurer

Cash in bank as of January 1/07	$6,118.89
GIC investment	$1,373.93
Receipts	
Membership Fees	$10,181.24
2005 Conference	$7,918.55
2007 Conference	$2,935.00
NRC Journals	$486.54
Publication Sales	$0.00
Bank Interest	$0.00
Contribution	$0.00
New Memberships	$320.00
Total (2007)	**$21,841.33**
Expenses	
Newsletter Production	$6,761.68
Membership Renewal	$1,058.26
J. Lilley Scholarship	$2,000.00
AGM	$3,109.77
Administration	$595.15
Journals	$486.54
Postage	$1,284.52
Newsletter mailouts	$788.37
Mail Box Rental	$572.11
Mail Redirect	$1080.72
Chapter Rebates	$0.00
Web charges	$211.72
Bank Charges	$19.20
Society registration (federal)	$30.00
Total (2007)	**$17,998.04**
Difference	$3,843.29
Cash in bank as of Dec 31/07	$10,228.59
GIC investment	$1,390.37

How You Can Donate to the John Lilley Environmental Scholarship Fund

Earlier this year, the CSEB entered into discussions with the University of Alberta about establishing a scholarship to honour John Lilley, a former national president and long-time active CSEB member. John passed away in July but before he died, the Alberta Chapter had a chance to talk with him about his ideas for the scholarship. We have incorporated those into the terms of reference for the award, which we expect to be available in 2008 for the first time.

In accordance with John's wishes, the scholarship will be available to students enrolled in Environmental and Conservation Sciences at the U of A, before they enter their second year of the program. If no suitable candidates are available from that program, students entering their second year of Biological Sciences will be considered. Demonstrated experience with a not-for-profit environmental organization will be given a high priority, along with superior academic achievement.

Donors to the scholarship fund will receive a tax receipt from the U of A. If you would like to contribute in memory of John, please send your donation to:

Emily Lennstrom
Senior Development Officer
Faculty of Science
G222 Biological Sciences Building
University of Alberta
Edmonton, Alberta T6G 2E9

Tel: 780-492-6688

Please Renew your Membership

For more information please contact Gary Ash at gash@golder.com

Wanted: Regional Newsletter Contributors

CSEB needs to set up a network of regional newsletter contributors to gather newsworthy information and solicit regional based articles for inclusion in the quarterly CSEB Newsletter/Bulletin. If you are interested, please contact Gary Ash at gash@golder.com.

CSEB SPECIAL NEWSLETTER ISSUE ON ENVIRONMENTAL MONITORING

Calling all biologists involved in monitoring programs!

The CSEB would like to put together a special newsletter on the theme of "Monitoring," and seeks submissions from all disciplines. Some suggested topics would include:

Case study type articles:

- Examples of programs that have made a difference – some "good news" stories.
- Monitoring elusive species – your stories on innovative ways to track or measure creatures that are rare or evasive!
- Review of some existing programs, and analysis/comparison of strengths and weaknesses of each.

Or technical articles on:

- Designing cradle-to-grave monitoring programs.
- What considerations are there for baseline data collection – when is enough, enough? How do we ensure we have defined natural variability?
- Limitations and workarounds for comparing new data to old, when methods and detection limits have changed.
- Statistical aspects of monitoring.
- Measures of change in various environmental compartments – what is ecologically significant?
- Scale of monitoring (spatial and temporal), and discipline-specific indicators.
- Aligning monitoring programs: e.g., requirements under the MMER, regulatory instruments, EIA follow-up, fisheries compensation programs, and ISO programs.
- Monitoring and adaptive management.
- Use of "reference condition" data when controls are difficult to establish.
- A bibliography (annotated) of best resources and references.
- Any other aspect relevant to monitoring!

Do you have a favourite recent text on some aspect of monitoring? Book reviews would also be welcome.

We would like to put this together for the summer 2008 newsletter, and with your help, produce an interesting and informative issue!

Please email Gary Ash (gash@golder.com) or Anne Wilson (anne.wilson@ec.gc.ca) with your ideas and suggestions, or any questions.

Deadline for submissions will be May 30, 2008.

CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS
LA SOCIETE CANADIENNE DES BIOLOGISTES DE L'ENVIRONNEMENT

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Student Members: persons who are enrolled in an accredited college or university in a discipline of the biological sciences, and who are preparing themselves for professional work in teaching, management, or research related to natural resources and to the application of sound ecological principles to management of the environment.

Associate Members: persons who support the purposes and activities of the Society but who do not qualify for Regular or Student membership.

Complete this form and return with cheque payable to:
The Canadian Society of Environmental Biologists

Membres Réguliers: les personnes ayant un degré ou diplôme d'un collège ou une université dans une discipline des sciences biologiques et qui sont ou qui ont déjà éte engagé professionnellement en aménagement, enseignement ou recherche tenant a l'environnement ainsi que ressources naturelles.

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Foreign please add/Pour les commandes adressés à étranger, veuillez ajouter		**$10** ___

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