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THE CANADIAN SOCIETY OF • SOCIÉTÉ CANADIENNE DES BIOLOGISTES DE L'ENVIRONNEMENT •

THE CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS Newsletter / Bulletin

In this Issue:

CSEB Newsletter Bulletin SCBE

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In this issue

Date of Issue- February 2013

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Front Cover: An aquatics crew member downloads turbidity data from an automated logger on Kinosis Cr. during a pipeline monitoring project.

Photo Credits: Tiffany Hnatiuk, Golder Associates Ltd., Edmonton, AB.

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CSEB NEWSLETTER 2012

Vol. 69, Number 4 Winter 2012

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 2012

Vol. 69, Numéro 4 Hiver 2012

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'environnementalistes 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 environnementales. 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

Rédacteur en chef: Gary Ash

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

- de conserver les ressources naturelles canadiennes.
- 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 News

PRESIDENT'S Report

January 21 in Regina and the temperature is sitting at a frosty -29 °C with a wind chill of -41 °C. I heard two unrecognizable birds calling back and forth early this morning, and still wonder at the ability of biological organisms to adapt to their changing environment. Watching Discovery channel last night, I watched a series on the changing environments of the Sahara and Namib Deserts in Africa, and how adaptable desert species are to their extreme harsh environment. Fascinating.

All of which is to say, and which segues into my thoughts below. This pertains to the CSEB's changing environment, and we, as an organization, need to adapt and change as well.

When I look at the poor turnout for the workshop put on by Bill Paton of Brandon University that we had in Brandon and Wasagaming in Riding Mountain National Park in May, and the surprisingly low turnout we had in December at the AGM, and at which we had an excellent presentation by Marcy Bast of SaskPower on fish stranding in the Saskatchewan River; I have to ask myself, what could we do differently to get more biologists engaged in THEIR organization? The AGM was set up to be "attended" online, wherein one could participate in real time, and view the excellent power point presentation, all from the comfort of your office or living room! AND, not spending one cent of your employer's travel expense money (other than your time), or out of your own pocket. The three day workshop in Brandon was a little different of course, as there were multiple speakers and a field trip, but well worth attending in person. An employer would have got their money's worth in sending a biologist whose expertise was in those areas.

The CSEB executive can only do so much (e.g., writing reports, writing articles, budgeting, sending out quarterly newsletters, arranging meetings and workshops).

But what do you want from the CSEB? What can we do differently?

I would appreciate your feedback on these questions. Because, if the CSEB does not change, and we receive no feedback or input from our membership as to what they expect or are prepared to contribute respectively, this organization will surely die. I don't want that, and I don't think you do either. Or am I wrong?

Please contact Robert Stedwill
E: rjstedwill@live.ca or P: 306-585-1854

CSEB 51ST Annual Meeting

Canadian Society of Environmental Biologists 51st Annual Meeting

Thursday, December 20, 2012
Via conference call and web cast
5:00 pm EST

Attendees: Robert Stedwill, Brian Free, Bill Paton, Joseph Hnatiuk, Gary Ash, Anne Wilson, Patrick Stewart, Karen March

Regrets: Paula Smith

AGENDA:

1. Welcome and Review of Agenda – President Robert Stedwill
2. Approval of the Minutes from the 2011 AGM – Karen March
3. President's Report – Robert Stedwill
4. 1st Vice President's Report - Anne Wilson
5. 2nd Vice President's Report – Bill Paton
6. Secretary-Treasurer's Report – Karen March
7. Membership Secretary's Report – Gary Ash
8. Newsletter Editor's Report – Gary Ash
9. Past President – Brian Free
10. Regional Reports
    a. Atlantic Region Report – Patrick Stewart
    b. Manitoba Region Report – Bill Paton
    c. Saskatchewan Chapter Report – Robert Stedwill
    d. Alberta Region Report – Joseph Hnatiuk
    e. British Columbia Report – Jim Armstrong
    f. Territories Regional Report – Anne Wilson, Paula Smith
11. Honourary membership for Dr. Tom Northcote – Gary Ash
12. Election of 2013 Board of Directors – Brian Free

AGM MINUTES:

- Financial Report submitted in draft pending completion of year-end banking summary.
- Discussion and questions on the financial report: Gary is to follow up on the invoice for journals. Karen had not received this, so used last year's numbers.
- Part of the meeting cost included the memberships; this was not accounted for separately. If this can be split out Karen can adjust; Bill will send.

Motion to accept draft financial statement: Karen March
Seconded: Joseph Hnatiuk
All in favour: passed.

Draft CSEB BUDGET FOR 2013 (Dec. 8 2012)

	2008	2009	2010	2011	2012	2013
Receipts		Approx. from expenditures			Estimated	Proposed
Membership fees	$6,800.00	$9,300.00	$6,700.00	$5,700.00	$6,500.00	$7,000.00
NRC Journals	$1,500.00	$2,900.00	$1,000.00	$1,200.00	$1,200.00	$1,000.00
Publication Sales	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bank Interest	$2.00	$0.00	$0.00	$0.00	$0.00	$0.00
Conference Proceeds (incd. Sponsors)	$0.00	$3,800.00	$0.00	$0.00	$1,500.00	$1,600.00
Revenue Generation	$0.00	$0.00	$0.00	$175.00	$0.00	$0.00
Total receipts	*$8,302.00*	*$16,000.00*	*$7700.00*	*$7,075.00*	*$9,200.00*	*$9,600.00*
Expenses						
Corporate registration	$30.00	$30.00	$30.00	$30.00	$30.00	$30.00
Newsletter Production	$5,000.00	$4,500.00	$4,700.00	$3,600.00	$2,500.00	$3,500.00
Board Meeting (travel subsidy)	$150.00	$0.00	$0.00	$0.00	$0.00	$100.00
Administration (conference call, misc.)	$2,000.00	$2,000.00	$600.00	$150.00	$750.00	$750.00
Web hosting	$80.00	$120.00	$70.00	$150.00	$0.00	$150.00
NRC Journals (estimated)	$1,500.00	$2,900.00	$1,000.00	$1,200.00	$0.00	$1,000.00
Postage Newsletters	$1,600.00	$1,250.00	$1,300.00	$1,000.00	$1,000.00	$1,200.00
Mail Box Rental	$200.00	$250.00	$250.00	$250.00	$250.00	$250.00
Redirect Mail	$300.00	$1,000.00	$300.00	$350.00	$350.00	$800.00
Chapter Rebates	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Membership renewal, cards, postage	$1,000.00	$1,000.00	$500.00	$600.00	$750.00	$800.00
Bank Charges	$25.00	$15.00	$10.00	$20.00	$20.00	$20.00
Miscellaneous, Conference	$50.00	$350.00	$30.00	$1,000.00	$4,000.00	$1,000.00
Total expenses	*$11,935.00*	*$13,415.00*	*$8790.00*	*$8,350.00*	*$9,650.00*	*$9,600.00*

- Conference not finalized for next year; used low estimate assuming would be in BC or AB.
- Should we include something under Chapter Rebates? Haven't paid for several years, so probably not? Felt that chapters would not ask for, so leave as zero.
- Newsletter costs were discussed; may go down as more move to electronic copies. Domain expense should remain the same; Sean Martin is in charge of this.

Moved: Acceptance of the draft budget as final – Karen March
Seconded: Brian Free
Voted: All in favour - accepted

4:00 Presentation by Marcy Bast

- 'Understanding the Impacts of the E.B. Campbell Hydroelectic Station' by Marcy Bast, Environmental Advisor, SASKPOWER.
- Excellent presentation on the Hydro monitoring!
- Ongoing work on stranding.
- Question on pelicans – talk to CWS about deterrence?
- Eagles are getting well fed on fish that are stranded or have gas bubble disease effects.
- Changes to the Fisheries Act (FA) will not change the project, but DFO's departmental changes will affect their involvement with project committee.
- Further discussion wound up at 4:45 MST.

President's Report – CSEB Annual Meeting – December 20th, 2012

After two years as president, I believe I have a better understanding of what our role is as a national organization of biologists.

We were able to hold a workshop in Manitoba, entitled "The Importance of National and Provincial Parks", which although not as well attended as I would have liked, I thought the papers and field trip were excellent! Papers were presented in Brandon, very close to Brandon University where in the evening of May 10, two poster sessions were presented which were in part a segue for the field trip to Riding Mountain National Park at Wasagaming. The workshop was written up in the summer CSEB Newsletter, so well put together by Gary Ash and his subtle use of the whip on the rest of us who contribute to the newsletter. Now if we could only find some other contributors to lessen the load!

Out of the workshop in May came letters, prepared for my signature, addressed to Ministers Kent and Ashfield with respect to omnibus Bill-C38 (or should that be ominous?), which dismembers much of which is good about the Fisheries Act, and the changes to CEAA, which foreshadows the current government's approach to industrial and resource development, at the expense of the environment. Further, the excellent research undertaken at the Experimental Lakes Area (ELA) was not spared either, in budget cuts across the government scientific community. The CSEB wrote a letter in support of the ELA's work.

The newsletter published quarterly continues to amaze me in that it provides an insight to the work being done by biologists across Canada, whether in the Great Lakes region or the High Arctic on the Arctic Ocean. Not only do we have the challenge of working in diverse environments under harsh conditions, but we also have the responsibility of ensuring that the work we do is credible, and meets the expectations and requirements of our employers and regulators. Those of you who not only work in industry and its pressures, but are also charged with addressing the environmental legislative requirements of the jurisdiction in which you operate, you have my respect. I was in your shoes at one time, it is not an easy task, and carried the mantle, or at times, the yoke, of being the "environmental conscious" of the company. One engineer said to me once that I "asked more questions than I answered". I took it as a compliment that I was doing my job. I hope that the CSEB is seen in this light for all Canadians.

Submitted by
Robert Stedwill, CSEB President

Approval of the Minutes from the 2011 AGM – Karen March

- Minutes moved to be approved by Anne Wilson

Seconded: Joseph Hnatiuk
All in favour - Passed

First VP Report

I have enjoyed working with the Board over the past year. There has not been a need to act in Robert's stead, so my role as 1st VP has centered around participation in the monthly calls. Over the next year I look forward to working with the new and returning Board members.

Submitted by Anne Wilson, CSEB Director

2nd Vice President's Report

Bill was very active, with organizing the conference.

Bill Paton, 2nd Vice-President

Membership Secretary's Report

Bill will add new Manitoba (MB) memberships from the workshop, and they can go in for 2013. Need to do more work in terms of getting members; active chapters are the key. Students are important. Action on environmental issues is an attractant. Bill will use our display to promote membership, then send back to Gary. Recruitment should follow establishment of active chapters. Patrick suggested hiring some chapter recruitment? Robert noted that the video will help. Need to pull together ideas to engage biologists in the provinces.

Submitted by Gary Ash, Membership Chairperson

Newsletter Editor's Report – Prepared By Gary Ash

18 December 2012

- In 2012 to date, three newsletters have been published.
- Newsletter distribution format is as follows:
    - Electronic Distribution – 97
    - Hard Copy Distribution – 89 (incl. two copies to National Library of Canada)
- Deadlines for Submissions for Newsletters:
    - Winter 2012 – now
    - Spring 2013 – 1 Feb 2013
    - Summer 2013 – 1 April 2013
    - Fall 2013 – 1 Aug 2013
    - Winter 2013 – 1 Nov 2013
- Currently looking for Guest Editors and submission for 2013 newsletters – Contact Gary Ash
- The newsletter can only be as good as the input of content received.
- Currently looking for photos of Biologists in Action for upcoming newsletter covers.
- I would like to thank Dr. Tom Northcote for his support of CSEB and the newsletter, with his regular submissions over the years.

Gary Ash, CSEB Editor

Past President

Brian Free – reported on activity for the year including assisting the president as required, AGM set-up, contributions to the newsletter and participation in the board meetings.

Regional Reports

Atlantic Region Report – Patrick Stewart
Noted that Atlantic members are involved with the board - Karen as Secretary-Treasurer and Patrick as Regional Director and participant in the national workshop; both met with Gary Ash to discuss building activity in the region. Key objective for this coming year is to organize a local meeting. Merry Christmas to all and this year was fun with great meetings.

Manitoba Region Report – Bill Paton
Bill organized and setup the 2012 workshop. He acknowledged the help of all those that came and assisted. It was unfortunate that the federal cutbacks coincided with the meeting timing, but it was a success anyway.

Bill received the CSEB display from Gary Ash and set up at the Conservation District Annual Conference and the David Suzuki talk. Several people took information material and there was interest from the conservation district offices as well as the Assiniboine Community College. He plans to take the display to the University of Winnipeg and Red River and will have in the Student Union Building in January to try and build involvement. If the video and a poster are available, they will be used as well, possibly on the Biology System.

Action: Poster to be circulated to all.

Saskatchewan Chapter Report – Robert Stedwill
Noted that Saskatchewan was quiet due to an economic boom; the local biologists are in the field most of the time. Plans to use video and posters to visit University of Regina and Saskatchewan and improve chapter activity.

Alberta Region Report – Joseph Hnatiuk
Joesph has been busy. The Canadian Environmental Network and caucus have lost funding so mostly responding to issues as they arise. The Biodiversity caucus meets monthly but looks at world issues and needs to focus on Canadian ones. Has been involved with landuse planning initiatives, commission document (can provide copy if interested), helped with air quality recommendations and plans to meet with Alberta biologist on the sage grouse issue. Noted need to get chapter going and active.

British Columbia Report – Jim Armstrong
Not available for meeting but provided report (available on request).

Territories Regional Report – Anne Wilson (NT), Paula Smith (NU)

Membership is quiet in the North, and there have not been any specific CSEB activities in 2012. The main activity has been providing quarterly Director's reports for the newsletter. Ongoing development in the NWT and NU brings a range of environmental challenges of interest to biologists. Climate change adds to the pressures on ecosystems; changes are affecting species' ranges and life histories. Polar bears are continually in the news, with science and political/economic interests clashing, and disagreement on the international stage about their status. In the area of data management and cumulative effects assessment there is much work to be done. Northern residents place a high value on the environment, and protection is written into permits and environmental agreements to the extent it can be regulated. The North represents the opportunity for biologists to make a real difference in understanding and protecting sensitive ecosystems. It is our hope that we can network as biologists, and use the CSEB as a voice or a vehicle to take forward important issues.

Honourary Membership for Dr. Tom Northcote
– Gary Ash motion -

Tom has made significant contributions to CSEB along with his distinguished career in fisheries and limnology in Canada. He has done a lot for the society and CSEB wishes to acknowledge his contributions with an Honourary Membership in the Society.

B. Paton 2nd, All in favour, no questions.

Action: all agreed Gary to send a plaque which may be presented at this years workshop.

Election of 2013 Board of Directors – Brian Free
One nomination for each position – Robert Stedwill President, Bill Paton 1st VP, Anne Wilson 2nd VP, Karen March Secretary-Treasurer, Gary Ash appointed membership secretary and newsletter editor, Brian Free remains Past President, Regional Directors – Jim Armstrong BC, Sheri Dalton temporary AB position, Joseph Hnatiuk director AB until 2014 and acting Saskatchewan until 2013, no Manitoba nomination, Ontario and Quebec vacant, Patrick Stewart Atlantic until 2014, Anne Wilson NWT and Paula Smith continues to 2014.

Brian Free move to accept. J. Hnatiuk 2nd, All in favour; Approved.

Action: Robert to pursue director for Saskatchewan in January.

Other Items

Pat Stewart to test listserve and send directions to Robert.

Meeting Adjourned 8:50 AST

(Minutes taken by Anne Wilson to start and completed by Karen March.)

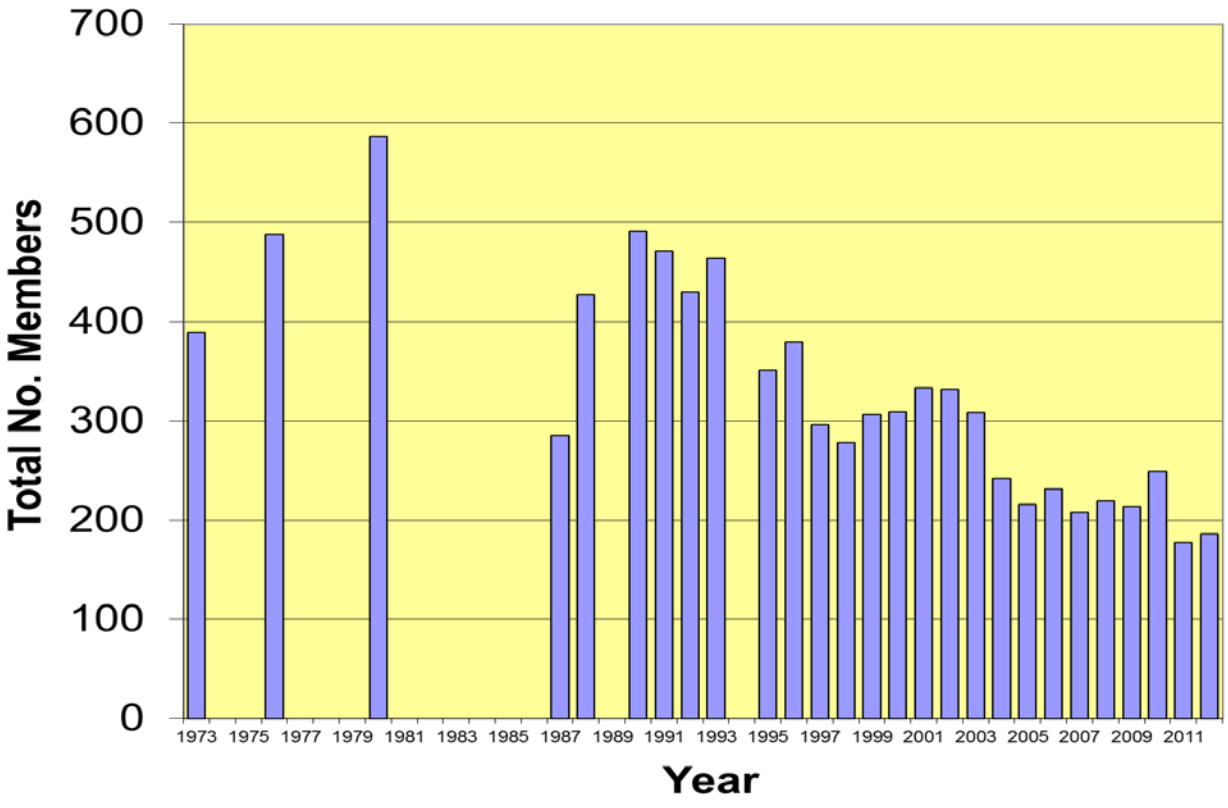
2012 CSEB Membership

by Region and Membership Category

to 18 December 2012

Region	Compl. / Hon.	Associate	Library	Regular	Student	Total
1 Atlantic	2	3	1	13	2	**21**
2 Quebec		1		9	1	**11**
3 Ontario	3	2	2	29	7	**43**
4 Manitoba				6	1	**7**
5 Sask.	1			16		**17**
6 Alberta	1		3	45	4	**53**
7 BC	2			24	2	**28**
8 Territories				3		**3**
9 USA			1	1		**2**
O Foreign					1	**1**
Totals	**9**	**6**	**7**	**146**	**18**	**186**

CSEB MEMBERSHIP BY YEAR
(1973 to 18 December 2012)



REGIONAL News

BRITISH COLUMBIA News

Submitted By Jim Armstrong, CSEB BC Director

With the changes in the *Canadian Environmental Assessment Act* (CEAA), the assessment and protection of fisheries habitat within British Columbia is significantly affected. Many major projects that previously required a CEAA review are now exempt if they are not on federal lands, do not adversely affect fisheries habitat or fall within the new definition of commercial, recreational or Aboriginal fisheries.

The fisheries changes under Bill C-38 and their overall effects are still unclear in regard to environmental protection, fisheries habitat and what the responsibilities of the individual proponents who wish to undertake major projects that may affect existing or future fisheries. When the associated Fisheries regulations are enacted later in 2013, we should have a clearer understanding of which projects will require a CEAA review or will be transferred to the BC Environmental Assessment office.

In the interim there are many fisheries habitat enhancement projects being undertaken by major proponents in partnership with First Nations and/or the Living Rivers Institute at the BC Institute of Technology (BCIT). Specifically, the restoration of estuarine areas in Burrard Inlet is being examined to ensure the future viability of the smaller salmon runs of the Seymour and Capilano Rivers. Dr. Ken Ashley, Director of the Living Rivers Institute, is working closely with various First Nations groups and the community organizations to fulfill this commitment.

In summary, there are many changes coming over the next few years and it will be important for the CSEB to maintain a presence in BC. As part of this goal, I will be working with Dr. Ashley to initiate a student chapter at BCIT where current students can gain knowledge and mentoring from the existing members who are now like me, getting long in the tooth and wanting to pass the torch onto the next generation of environmental biologists.

Sea Shepherd's Watson Vows to Stop B.C. Ocean Fertilization Plan

By Mark Hume, The Globe and Mail

Reprinted from the www.theglobeandmail.com November, 7, 2012

Russ George, the architect of a controversial ocean fertilization project off Haida Gwaii, has come under attack from the federal government, the United Nations, the International Maritime Organization – and now Paul Watson has piled on.

It's not the first time the two self-styled crusaders have clashed. Mr. Watson, who is reportedly at sea leading his organization's latest campaign against Japanese whalers, says Mr. George is an ocean "polluter" the Sea Shepherd Society has long been fighting. "We stopped him in the Galapagos in 2007. We stopped him in Bermuda, Madeira and the Canary Islands in 2008. We helped drive him into bankruptcy in 2009. Now he's back," wrote Mr. Watson in a recent commentary distributed by Sea Shepherd.

Mr. Watson hasn't been seen in public since July when he skipped bail in Germany, where he was facing possible extradition for charges related to an alleged incident with a shark finning vessel off Costa Rica in 2002. He has dismissed the charges as politically motivated, and has said he won't come back to land to deal with the issue until the end of Sea Shepherd's campaign to stop Japanese whalers in the Pacific.

The first of Sea Shepherd's four ships left Australia earlier this week to seek out Japanese whalers, and Mr. Watson has said he is going to join the vessels at some point. In a recent interview, he would say only he was at sea and was looking forward to the anti-whaling campaign, which is called Zero Tolerance because the goal is to stop the Japanese from taking any whales.

Mr. Watson, who has made a career of circling the globe fighting for ocean causes, said Mr. George came to his attention in 2007 when he announced plans to fertilize a large tract of ocean off the Galapagos Islands. Mr. Watson said Sea Shepherd thwarted those plans and then intercepted Mr. George again in the Atlantic. "In 2008 we confronted his 'research' vessel in Bermuda and forced George onto Madiera," Mr. Watson wrote. "We met him there and his plans to pollute the waters in the Atlantic were ended."

Mr. Watson said Mr. George's original plan had been to sell carbon offset credits, which he hoped to earn by triggering a plankton bloom that would absorb carbon dioxide.

Mr. George has said the Haida Gwaii experiment, in which he dumped more than 100 tonnes of iron into the ocean, was meant to stimulate a plankton bloom in order to feed salmon and demonstrate how to combat global warming. But representatives of the Old Massett Village Council, which helped fund the project with $2.5-million, have said they hoped to earn back their investment by selling carbon offset credits.

Mr. Watson said that fertilizing the ocean to stimulate plankton blooms is a potentially risky experiment, and that Mr. George acted despite international agreements restricting such large-scale ocean fertilization experiments. He said Mr. George "needs to be stopped" and promised Sea Shepherd will do just that.

"Now that he has raised his head again, Sea Shepherd will be watching him and we will interfere with future plans to dump iron dust into the marine environment," Mr. Watson wrote.

Last week the International Maritime Organization expressed "grave concern" about the Haida Gwaii experiment, saying ocean fertilization "has the potential to have widespread, long-lasting, and severe impacts on the marine environment, with implications for human health."

The federal government has said the project is under investigation by Environment Canada, and the Intergovernmental Oceanographic Commission of UNESCO has also expressed concerns about the experiment.

Mr. George did not respond to e-mails asking for comment on Mr. Watson's article, and he twice hung up when reached by phone recently.

ALBERTA News

Submitted by: Joseph M. Hnatiuk, CSEB AB Director

The past several months have been very busy as many environmentally related activities are continuing to occur. Last December I attended a meeting representing the Canadian Society of Environmental Biologists (CSEB) on the Alberta Ambient Air Quality Objectives - Stakeholder Advisory Committee (AAAQO - SAC); the AAAQO - SAC that was established to assist Alberta Environment and Water in implementing the 2011 - 2013 Alberta Ambient Air Quality Objectives Work Plan. The plans purpose is to develop and review ambient air quality objectives and guidelines as key components of the air quality management plan and its effects on the Biology in the Environment. At the meeting, items included making recommendations on the toxic and non-toxic effects of Arsenic and Acrolein, Chemicals Management Plans and the need to develop one or two objectives for Volatile Organic Compounds (VOCs). The next advisory meeting is to occur in March 2013.

At the invitation in mid-November of last year, by the Alberta Government, CSEB participated in a public consultation dealing with the South Saskatchewan Region Land Use Plan for Southern Alberta. In addition, a workbook to share our views on the Regional Advisory Council's Advice to the Government of Alberta for the south Saskatchewan Regional Plan was completed and submitted to the Alberta Government in 2012-12-14. A final plan for the area may be completed and approved by the end of 2013.

In January 2013, a meeting was held with a senior wildlife biologist of the Ministry of Sustainable Resources Development, Prairie Area, to discuss the status of Sage Grouse in Alberta and Saskatchewan. The Ministry noted that it has prepared a draft management plan for the Sage Grouse in Southern Alberta that is expected to be made available later in 2013. The Ministry noted that part of their management strategy included relocating approximately 40 birds from Montana several years ago. The success of the relocation is currently being assessed and its success may be reflected in the management plan. The biologist noted that Montana, Saskatchewan and Alberta have a scientific working team that are working on immediate, mid and long term management plans for Sage Grouse recovery. A more detailed report will be provided when details of the plan are released.

Other Alberta News

Submitted by Brian Free, CSEB Past President

Wildlife management gets complicated when feral animals are added to the mix. A case in point are the wild horses roaming certain public lands in Alberta's foothills. They compete with native species and livestock for forage and have a detrimental effect on reforestation efforts. The provincial government conducts regular population surveys and based on the results, decides whether to issue "capture licences" to remove some of these animals. Some of the captured horses are domesticated but many end up at the slaughterhouse. On average, about 30 horses are removed each year; however, last year saw over 200 rounded up, with about 800 remaining in the wild.

The government is not working to eliminate these herds, but to keep them in check. The Wild Horses of Alberta Society is calling on the Alberta government to declare feral horses a "heritage species" to ensure their long-term survival and humane treatment. However, the government does not want to restrict its management options and is not contemplating any new legislation.

On the oil sands front, more pollution studies have been published, bolstering both the supporters and the detractors of oil sands development. One study showed increased pollution levels in the region and others showed a decrease. Go figure!

Last September, researchers at the University of Waterloo and Wilfrid Laurier University published two studies of potential impacts of oil sands development on the important Peace-Athabasca Delta about 200 km north of the oil sands area. This is one of the largest freshwater deltas in the world and a very important breeding and staging area for migratory waterfowl and habitat for other wildlife. The Athabasca River flows right past the oil sands mines on its way to the delta.

One study of a lake in this delta suggests that the amount of organic contaminants, such as polycyclic aromatic compounds, transported by the Athabasca River has not increased above pre-development levels. Researchers conclude that natural erosion of exposed bitumen in the banks of the Athabasca River and its tributaries is the main route by which PACs are delivered to the delta (See Hall et al. in the open source journal, PLOS ONE 7(9) e46089 Sept 26, 2012: "Has Alberta Oil Sands Development Altered Delivery of Polycyclic Aromatic Compounds to the Peace-Athabasca Delta?"). In another study of a precipitation-fed lake in the delta, sediment cores revealed a decline in several heavy metals during the period when oil sands production was increasing. This is thought to show no effects from long-range air-borne transportation of these metals from oil sands production sites (See Wiklund et al. Sept, 2012. "Has Alberta oil sands development increased far-field delivery of airborne contaminants to the Peace–Athabasca Delta?" Science of The Total Environment, Volume 433: 379–382).

Another recent study by researchers from Queen's University and Environment Canada examined polycyclic aromatic hydrocarbons (PAHs) in the sediments of six lakes in northeastern Alberta. They also studied zooplankton populations (*Daphnia spp.*) in these lakes. These lakes are much closer to the oil sands operations than the Peace-Athabasca delta.

Although no detrimental effects on *Daphnia* populations were detected, sediment concentrations of PAHs increased significantly during the time of oil sands development. For some study lakes, PAH concentrations reached 23 times pre-oil-sands-development levels. However, the resulting levels of PAHs are still below those typical of urbanized areas. The researchers conclude that as oil sands production continues, contaminant levels will continue to rise and eventually reach levels that may impact the ecosystem (See Kurek et al. 2013. Legacy of a half century of Athabasca oil sands development recorded by lake ecosystems. Proceedings of the National Academy of Sciences.

Increased monitoring is being planned for the region under a federal-provincial agreement. As more data are available, perhaps the science will begin to catch up to the impacts of development.

SASKATCHEWAN News

Submitted by Robert Stedwill, Saskatchewan Chair

Not that 2013 is a new year anymore, as it is the 22 of January already, but there certainly are new developments going on in the province. Not only physical ones such as the K + 1 Potash mine currently under development just northwest of Regina, or the increased oil activity in the southeast, creating housing problems for the City of Estevan; but in the area of environmental legislative reform.

Saskatchewan's new "Environmental Code" is "expected to be presented in the spring as the province adopts a new, results or outcome-based model for environmental regulation that will improve protection of the environment while fostering innovation and supporting sustainable economic development.

"The Saskatchewan Environmental Code will provide directions for projects, allowing operators in many situations to proceed in an environmentally-friendly manner without unnecessary permits from the ministry, while holding proponents accountable for achieving important environmental outcomes."

Of some concern is the statement – "allowing operators in many situations to proceed in an environmentally-friendly manner without unnecessary permits from the ministry". Having worked in industry before, the thought of not having to deal with "unnecessary permits" is not unlike manna from heaven for hard driving, profit driven proponents. My own personal experience is that operators tend to forge ahead to get the job done, and ask for forgiveness later if things go sour. The actual process of getting necessary permits, allows proponents, and proponents' in-house environmental council an opportunity to provide sobering second thoughts on a project.

Time will tell.

Another new development, which I believe is long overdue, is the development of island forest management plans. The Forest Service of the Ministry of the Environment has been working to establish a 20-year forest management plan (FMP) for the Island Forests in north-central Saskatchewan. These forest areas, Fort a La Corne, Nesbit, Canwood and Torch River, are unique in the sense that they are not part of a license area, but rather consist of a number of smaller detached parcels of provincial forest in and around Prince Albert. Forest operations in the Island Forests are undertaken by six term-supply license holders and small independent operators who acquire forest products permits. Details of annual forestry operations are contained within the Island Forests Operating Plan, which is prepared by the Saskatchewan Research Council.

The new management plans will develop long-term management for these smaller parcels and their unique "island forest environments". Public consultation is occurring as of this writing, so we will look forward to seeing the outcome of the management plans having considered the public's input.

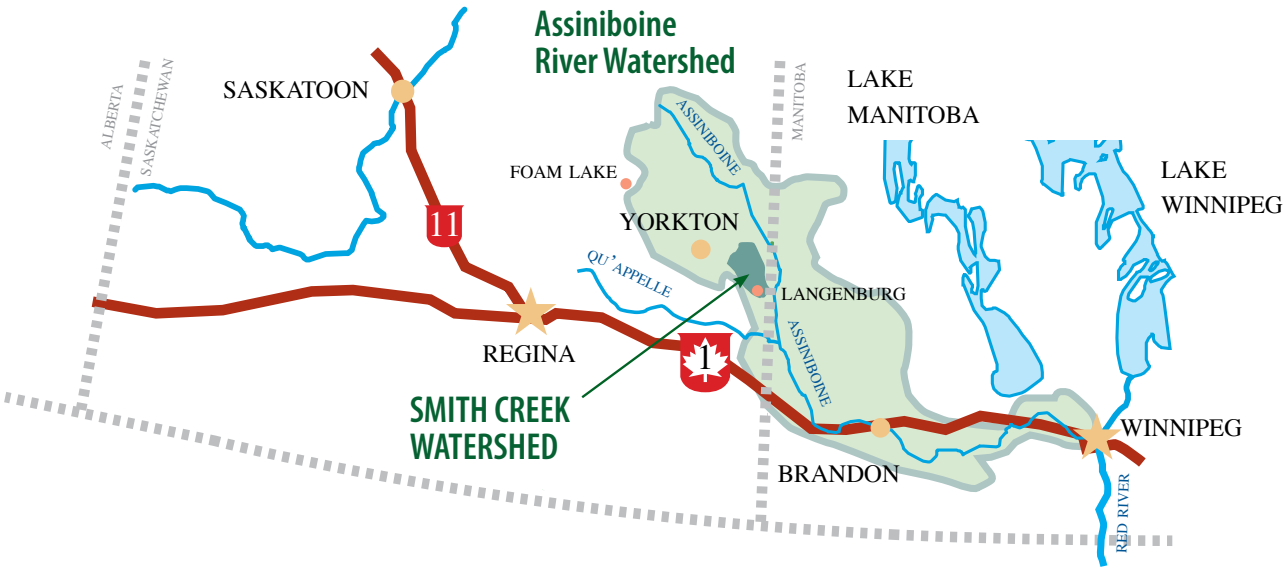
How You Can Help the CSEB

- **Contribute to the quarterly newsletter and/or website.** Give us an article on something you are interested in
- **Write a short paragraph about what you have been doing, articles or reports you have written**
- **Provide us with points of views on issues.** Your Executive is always interested in learning what issues concern you
- **Write a book review for the newsletter**
- **Become a Chapter Chair, or offer to join the Board of Directors**
- **Promote CSEB - put up a poster, distribute membership forms** - download from our website
- **Set up a Chapter** - contact any Director for help
- **Organize a CSEB event** - contact any Director for help
- **Attend the annual conference and maybe present a paper on your work.**

A Business Case for Wetlands in Saskatchewan Understanding how Wetlands Benefit Our Environment, Economy and Communities. The Smith Creek Project.

Wetlands are among the Earth's most productive ecosystems and supply a vast array of benefits to wildlife and people alike.

Wetlands, such as sloughs and marshes help mitigate flooding and drought, improve water quality, enhance groundwater recharge, store carbon from greenhouse gases, and provide recreational opportunities. **Wetlands are also one of the Earth's most threatened ecosystems.** Estimates indicate that up to 70 per cent of wetlands have been lost or degraded in settled areas of Canada and in some regions of southern Saskatchewan, **that loss is as high as 98%.**



Overview

The intent of Ducks Unlimited Canada's (DUC) Business Case for Wetlands research project is to quantify the environmental, economic and social benefits of wetlands as they relate to flooding, water quality, and carbon sequestration.

There are considerable flooding and water quality issues in southern Saskatchewan that adversely affect residents in the watershed and landowners downstream. The four-year Business Case for Wetlands project will help quantify the importance of wetlands by taking a hard look at the impacts of wetland loss in the **Smith Creek watershed**. The Smith Creek watershed is located approximately 60 kilometres southeast of Yorkton, Saskatchewan and is situated in the headwaters of the Upper Assiniboine River watershed and drains into the Assiniboine River, into the Red River and ultimately into Lake Winnipeg.

A key component of the project will be the development of a business case for wetland conservation. The project will define the economic and social barriers to wetland conservation and watershed enhancement initiatives, develop cost effective strategies to overcome these barriers, and extend the knowledge gained to governments, landowners, and the people of Saskatchewan.

Research Components

Water Movement/Flooding

DUC researchers and the University of Saskatchewan, led by Dr. John Pomeroy, have begun the field research for the hydrologic modeling component of the study. This research is being conducted within the Smith Creek watershed and investigates how wetland drainage impacts water movement and flooding downstream.

Water Quality

Researchers are collecting water samples throughout the watershed to understand the impacts of wetland drainage on water quality within the watershed and downstream. DUC researchers worked with the University of Saskatchewan, landowners and the rural municipality to establish water sampling sites and collect water samples.

Downstream Economics

Dr. Ken Belcher from the University of Saskatchewan is investigating the downstream costs of flooding due to wetland drainage. Other research will look at the costs of moving more water and nutrients downstream to our rivers and lakes. The information generated from this research will be a critical component for building the business case for wetland conservation.

Building the Business Case

Using the results of this research, John Pattison from the University of Alberta will develop a business case for wetland conservation that takes into account the environmental, economic and social benefits that wetlands provide. The business case for wetland conservation will investigate strategies to overcome barriers and extend the knowledge gained to governments, landowners, and the people of Saskatchewan.

Business Case Objectives

1. Develop a business case for water sustainability through wetland conservation.
2. Defined economic and social barriers to wetland conservation/watershed protection.
3. Determine strategies to overcome these barriers.
4. Communicate the results widely.

What Happens When Wetlands Are Lost?

Wetlands are natural basins that collect and store water from the surrounding landscape during rainfall or snowmelt.

Wetlands are able to filter sediments and nutrients before slowly releasing water. When wetlands are drained or degraded, water coming from rainfall or snowmelt can no longer be held back and instead flows rapidly downstream, carrying nutri ents and sediments through the former wetland area. This water then flows directly to the downstream ditches, rivers, lakes and drinking water supplies.

When many wetlands are drained in a watershed, this has a profound impact on businesses, landowners, and others downstream.

Ducks Unlimited Canada
Conserving Canada's Wetlands

Ducks Unlimited Canada (DUC) is the leader in wetland conservation. A registered charity, DUC partners with government, industry, other non-profit organizations and landowners to conserve wetlands that are critical to waterfowl, wildlife and the environment.

Using sound science, DUC delivers on-the-ground habitat projects, research, education programs and public policy work to stop wetland loss.

Since 1938, DUC has conserved 2.5 million hectares (6.2 million acres) of wetlands and associated habitats across Canada.

Learn more at ducks.ca.

For more information on this project please contact:

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MANITOBA News

Trihalomethanes (THMs) in Brandon's Drinking Water- Revisited After Twenty Years

Submitted by William Paton, CSEB MB Director

In 1992, a paper in the American Journal of Public Health entitled "Chlorination, Chlorination By-Products, and Cancer: A Meta-analysis." raised significantly, the already existing concerns about a positive association between consumption of chlorination by-products in drinking water and bladder and rectal cancer in humans. The authors used meta-analytic methods to pool the results of 24 epidemiological studies (Morris et al., 1992). Meta-analysis provides greater statistical power and greater resolution in the estimation of relative risks than do individual studies.

Chlorination of drinking water was first used in Chicago in 1908 and since then has been the method of choice for water disinfection throughout much of the world. It should be noted that the use of chlorine has greatly reduced the number of waterborne disease outbreaks and deaths due to scourges like cholera etc. However, in 1974, it was discovered that the combination of chlorine with organic compounds (decaying plants and algae) in drinking water produced chlorinated organic compounds – chloroform in particular which is known to cause cancer in animals.

The publication of the Morris et al. paper, alerted Health and Welfare Canada to readdress the chlorination issue. Dr. Barry Thomas, head of the criteria section, said at the time "There is no doubt that chloroform causes cancer in animals… The evidence in humans is unclear. We say it is probably causing cancer in man." Despite Thomas's reluctance to accept the 1992 study, Health and Welfare Canada found the evidence compelling enough to consult with all the provinces in an effort to lower the guideline for THMs in drinking water.

The acceptable level had been set at 350 parts per billion (ppb) in the late 1970s. A new guideline of 50 ppb was proposed, but rejected by the provinces settling for the current 100 ppb., which had been the U.S. standard for several years. In a Manitoba Environment Department report in 1992, the Brandon average was 64 ppb. (no range given). Dauphin at 260 ppb was the highest level reported. Don Rocan , an environmental engineer, said to the press that the report from Ottawa was misleading and unnecessarily alarming. He also noted that no one was rushing to adopt the 50 ppb, in part because of the high costs involved in upgrading water treatment systems.

In early October 2012 , Brandon City Council was given a report on the city's drinking water supply which highlighted significant average THM levels above the current guideline at the four required measurement sites. The worst samples were measured on August 8, 2012 – 238 ppb at Chalet test station; 243 ppb at Waverly; 222 ppb at Civic Works and 225 ppb at River Heights. Most disturbing to me was the failure of the report and therefore the media to highlight the potential health concerns associated with these exposures and acknowledgement that Brandon's situation had deteriorated significantly since 1992. It should be noted that a citizen's exposure to these carcinogens not only arises from drinking the water, but also from showering, bathing and using water for recreation (e.g., swimming, hot tubs). Use of bleach during clothes washing is yet another potential exposure. THMs can be absorbed through skin or inhaled by breathing water vapour when showering or bathing (Wallace, 1997). Prairie air has also been found to carry a variety of chlorinated compounds including chloroform (Wallace et al., 1987).

In the 20 years since the major report alerted Canada to change the guideline, what has epidemiological research contributed to our current knowledge on THMs? Continued evidence has been reported linking THMs with bladder and rectal cancer (Cantor et al.,1998; Hildesheim et al., 1998).Several studies have linked exposure to THM levels well below the Canadian guideline to colon cancer in humans (Boorman et al., 1999; Flaten, 1992; Kuo et al.,2011). Links to lung and kidney cancer have also been suggested (Liao et al., 2012; Yang et al.,1998). Increased lifetime risk of total cancers associated with chlorination by-products have also been reported (Crosta and Dotti, 1998; Karim et al.,2011; Nieuwenhuijsen et al., 2010; Pardakhti et al., 2011). In a Massachusetts study it was observed that, after adjustment for confounding influences, the frequency of stillbirths was increased for women exposed to chlorinated surface water (Aschengrau et al., 1993). Adverse reproductive effects have been reported by others – the major links are to changes in gestational age and intrauterine growth retardation (Righi et al., 2012). A cross Canada study (2011) found that THMs were highest in Manitoba, followed by Nova Scotia and Saskatchewan (Chowdhury et al., 2011). Nitrogen containing disinfection products have increasingly become a public health concern in the drinking water industry because they have been found to be more mutagenic and toxigenic than THMs (Chu et al., 2012). THMs are the only disinfection by-products currently regulated in Canada. Over 600 disinfection by-products have now been identified (Villanueva et al., 2012), eleven are regulated by the U.S. and their current regulation for THMs is less than 80 ppb with a target of zero.

The key to dealing with this problem permanently is to address the terrible quality of our raw water supply, in particular the level of dissolved organic carbon. During the growing season, nutrients from a number of sources promote the growth of aquatic plants and algae. On freeze-up these organisms die and contribute a massive load of organic matter to our streams and rivers which when interacted with chlorine during disinfection results in a complex mixture of chlorinated disinfection products. Chlorinated sewage effluents add further THMs to surface waters and impacts on fish and other biota (Racz et al., 2012) . In a 2009 University of Manitoba thesis, the issue of high THM levels in the Sanford, Manitoba, water treatment plant was studied (Cho and Gorczyca, 2010). Optimization of one phase of the treatment process (coagulation) reduced the Dissolved Organic Carbon (DOC) by 51% and resulted in a THM reduction of

73.5 ppb. A 2011 report has demonstrated that upgrades to water treatment systems in Calgary have resulted in improved removal of THMs precursors such as natural organic matter and hence reduced levels of THMs in drinking water (Chen et al., 2011).

So improvements in drinking water treatment, source protection and disinfection processes are the strategies that Brandon must implement to address this public health issue and thereby also reduce the significant medical costs associated with cancer diagnosis and treatment. The province can also improve this problem by seriously addressing the increasing nutrient enrichment of our provincial surface waters by much improved monitoring of our provincial waters and enforcement of regulations covering major emitters of phosphates and nitrates into our waterways. It is also recognized that since the sources of water that contribute to the Assiniboine watershed are outside Manitoba, we need a major clean-up strategy with Alberta, Saskatchewan and North Dakota. This measure would also contribute to the public health of those communities down stream of Brandon that use the Assiniboine watershed as a source of potable water. Fortunately, an excellent collaborative prairie strategy was developed by citizen groups in Alberta, Saskatchewan and Manitoba with funding from RBC Blue Water program a few years ago. All it needs is its adoption by all levels of government on our watershed. What is more important than healthy, sustainable communities and aquatic ecosystems?

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ONTARIO News

Submitted by Gary Ash, CSEB Editor

Bruce Power Receives $100,000 Penalty for Environmental Violation

WALKERTON, Ont. – November 5, 2012 – On October 29, 2012, Bruce Power Limited Partnership pleaded guilty in the Ontario Provincial Court of Justice to one count of violating the *Canadian Environmental Protection Act, 1999* (CEPA, 1999). This has resulted in a penalty of $100,000. The charge is for failure to conduct a leak test of all the components of an air-conditioning system or refrigeration system, contrary to the *Federal Halocarbon Regulations, 2003.*

Under CEPA, 1999, the company is required to conduct testing of their refrigeration system. The company failed to comply with requirements set out in the *Federal Halocarbon Regulations, 2003*, which requires that companies conduct an annual leak test on refrigeration systems that come into contact with halocarbons, and did thereby commit an offence contrary to paragraph 272(1) (a) of CEPA, 1999.

Bruce Power Limited Partnership is required to pay a total penalty of $100,000, which is broken down as follows: a fine of $40,000 for one count under CEPA, 1999, to be directed to the Environmental Damages Fund; a court order for an additional $20,000 awarded directly to the Environmental Damages Fund; a court order to pay $20,000 to the Saugeen Valley Conservation Foundation, $15,000 to sauGREEN for the Environment, and $5,000 to the Penetangore Watershed Group.

CEPA, 1999, aims to prevent pollution, and protect the environment and human health by preventing and managing risks posed by toxic and other harmful substances.

The Environmental Damages Fund is administered by Environment Canada. It was created in 1995 to provide a mechanism for directing funds received as a result of fines, court orders, and voluntary payments to priority projects that will benefit our natural environment.

Please visit our website to learn more about the CEPA, 1999, and the Environmental Damages Fund.

Environment Canada has created a subscription service to help the public stay current with what the Government of Canada is doing to protect our natural environment. Subscribing to Environment Canada's Enforcement Notifications is easy and free. Sign up today.

For more information, please contact:

Media Relations
Environment Canada
819-934-8008

Funding Announced to Clean Up Randle Reef in Hamilton Harbour

HAMILTON, Ont. – December 18, 2012 – The Honourable Peter Kent, Minister of the Environment, today confirmed the Government of Canada's funding to clean up contaminated sediment at Randle Reef in Hamilton Harbour. Environment Canada will lead the Randle Reef Contaminated Sediment Remediation Project in partnership with the Province of Ontario, the City of Hamilton, the Hamilton Port Authority, U. S. Steel Canada, the City of Burlington, and the Regional Municipality of Halton.

"The Harper Government is strongly committed to ensuring clean, safe, sustainable water quality for present and future generations," said Minister Kent. "Cleaning up Randle Reef is vital for Hamilton and the region. This initiative will deliver environmental, health, and economic benefits to the local community over the eight year life of the project, including the creation of approximately 60 jobs."

The Randle Reef site contains sediment contaminated with persistent toxic chemicals and heavy metals, which were deposited over a long period of time from industrial operations that are no longer active. In 1985, Hamilton Harbour was identified as an Area of Concern under the Canada–United States Great Lakes Water Quality Agreement due to significant water quality impairments. While many improvements have been made to reduce pollution in the harbour, the contaminated sediment at Randle Reef remained a principal environmental challenge.

"The Province is looking forward to working with our partners to improve Burlington Bay's environment for the benefit of the people of Hamilton, Burlington, and indeed all of Ontario," said Jim Bradley, Ontario's Minister of the Environment.

"When those in the future look back, this is the time and the event that they will say presented a new face for Hamilton to the world. The water that provided us with our identity will now be restored to the standards of civilization. For this we will be forever grateful to our partners in the federal and provincial governments," said Hamilton Mayor Bob Bratina.

"The City of Burlington is fortunate to include Lake Ontario and the Niagara Escarpment, both of which are natural assets worthy of protection by all levels of government," said Mayor Rick Goldring. "The City of Burlington is pleased to contribute to the remediation of Randle Reef. Burlington will benefit as we share the watershed and shoreline of Burlington Bay, protecting this waterway for future generations."

"As part of U. S. Steel Canada's ongoing commitment to environmental sustainability, we are pleased to contribute to a remediation project that will benefit the entire Hamilton community," said Anton Jura, President and General Manager of U. S. Steel Canada. "The new port facilities and green space added to the harbour front will improve the viability of the harbour to move our city forward."

The estimated cost of the Randle Reef sediment remediation project is $138.9 million. In addition to the $46.3 million in funding from the federal government, the Province of Ontario

has committed to provide $46.3 million, and $14 million is being contributed by the City of Hamilton, $14 million by U. S. Steel Canada and $14 million by the Hamilton Port Authority, as well as $2.3 million from the City of Burlington and $2 million from Halton Region.

As with any project, and keeping with the requirements of the *Canadian Environmental Assessment Act*, funding for the implementation is contingent on completion of the Environmental Assessment process.

Cleaning up Randle Reef will be the last major step in the process to restore Hamilton Harbour and remove it from the list of Areas of Concern. This initiative will improve water quality, making it safer to consume fish caught in the harbour. When completed, it will also remove current restrictions on navigation and generate economic returns through the creation of valuable port lands. The Randle Reef clean-up is part of the Government of Canada's Action Plan for Clean Water.

For more information, please contact:

Adam Sweet/Press Secretary
Office of the Minister of the Environment
819-997-1441 819-997-1441 FREE

QUEBEC News

Submitted by Gary Ash, CSEB Editor

Ottawa is Being Sued for $250 Million over Quebec's Environmental Stance

The Canadian government is being sued for $250 Million over Quebec's environmental position relating to fracking. Lone Pine Resources Inc. has given notice that it intends to use its power under NAFTA (North American Free Trade Agreement). The lawsuit challenges Quebec's crackdown on fracking, which is a technique for releasing natural gas and oil from shale formations. As part of NAFTA, private companies can sue the government if they feel their interests as foreign investors have been harmed by discriminatory actions by one of the three countries party to the agreement.

The Quebec government has declared a moratorium on fracking while it studies the environmental impact of the technology, which consumes large volumes of water. There is also concern that fracking may contaminate groundwater. In June 2012, Quebec passed legislation that banned drilling below the St. Lawrence River. Quebec has placed a moratorium on the use of fracking for natural gas production until the end of 2014, when the results of an environmental review is expected to be completed.

Lone Pine contends it deserves $250 million in compensation by Ottawa for the Quebec government's expropriation of its drilling permit, which it says violates Canada's obligations to treat foreign investors from other NAFTA countries fairly.

In a statement in November, Lone Pine, which is registered in Delaware, confirmed its intent to take action under Chapter 11 of NAFTA but said it "will continue to attempt to engage the government of Quebec in a constructive dialogue and to find a mutually agreeable solution on these issues."

ATLANTIC News

Submitted by Patrick Stewart, CSEB Director

The Atlantic Chapter has been involved in CSEB National activities through participation by Director Pat Stewart and Naitonal Secretary-Treasurer Karen March in organization and the holding of the December AGM. The Maritime provinces and Newfoundland and Labrador are facing environmental issues of concern to biologists—urban and industrial expansion into natural areas and wetlands; conservation of ecologically significant areas; expansion of aquaculture in coastal areas; wind farm development; biomass energy developments at the expense of forest clear-cutting; as well as cutbacks to government resulting in loss of experienced environmental biologists from National Parks and Fisheries and Oceans conservation operations. From my experience, the biologists in federal and provincial governments continue to do a sterling job…doing "the impossible with nothng" as they've faced cutback upon cutback over the past decades, and much inspiring work continues to be done. And biologists in the network of universities in the Maritimes will continue to provide important biological input to local affairs and to society as a whole. Environmental biologists in all disciplines from aquatic to terrestrial have an important role to play in all the current issues.

TERRITORIES News

Greetings from your Territories Directors!

Nunavut Regional Update

Submitted by Paula Smith, CSEB Territories Director

The biggest news in the territory is that the Mary River iron ore project successfully went through the environmental impact assessment process and received its project certificate. What that means next for Nunavummiut is unclear as recent proposed changes are now being considered. Numerous other mining projects are still being proposed within the territory and some of these projects will be high profile due to potential effects to caribou and other wildlife which is a part of the traditional diet and culture within the territory. In other project news the Iqaluit Hydroelectric Project is still in the works with Qulliq Energy proposing to construct two sites near Iqaluit to offset the city's reliance on diesel-generated power. The environmental assessment process for this project hasn't been initiated yet.

International Arctic news includes the announcement that Canada is expected to assume the chairmanship role on the Arctic Council in May 2013. Sweden previously held the role and Leona Aglukkaq will be the Canadian minister responsible for the Council for the two year term previously held by Sweden. This international council provides an intergovernmental forum and 'Responsible Arctic Resource Development' is a theme already brought forth for this new term.

Finally, another national park is being proposed for the territory. Parks Canada is completing public consultation meetings on the proposed Qausuittuq National Park, located on Bathurst Island in the Western High Arctic, north of Polar Bear Pass National Wildlife Area. The park would include key wildlife habitat for species such as the endangered Peary caribou and muskoxen and would be a representative site of this natural region.

NWT Regional Update

Submitted by Anne Wilson, CSEB Territories Director

As the days get longer, it is easier to overlook the colder temperatures. I was happy to travel to Yellowknife and Fort Simpson recently and hauled out the Snow Goose parka and the big white boots to combat temperatures which nudged -40 °C. My winter philosophy never fails…if you ignore it long enough, it will go away!

Mining news
There has been progress on a number of mining projects being assessed, with an average of one public hearing a month coming up.

Here's a summary of recent activity:

- The Fortune Minerals Ltd. NICO proposed cobalt-gold-bismuth mine project successfully completed the environmental assessment (EA) process, pending acceptance of the EA report by the federal Minister. We anticipate the regulatory process will begin shortly, with another round of public hearings for the water licence.

- The Avalon Rare Metals Inc. Thor Lake Rare Earth Element Project involves a proposed mine located on the north side of Great Slave Lake, with processing to be done at a hydrometallurgical facility sited at the old Pine Point Mine. Public Hearings are scheduled to run the week of February 18th, 2013 and will conclude the environmental assessment process with the EA Decision Report in late spring.

- The Tyhee Yellowknife Gold Project review has seen more promises of information to come, but no actual progress. It is still in the "Information Request" (IR) stage; but project details seem to be continually changing, with predictions not necessarily keeping up. Ideally, the Board would send the Proponent back to the drawing board to re-do (thoroughly this time) the Developer's Assessment Report.

- The Giant Mine Remediation Project EA hearings wound up in October, and we are still awaiting the EA Decision Report. The project includes the containment of 237,000 tonnes of arsenic trioxide dust currently stored underground, generated over 6 decades of mine production. A draft water licence will be available for review in the near future (see the Mackenzie Valley Land and Water Board web site).

- The DeBeers Canada Inc. Gahcho Kue Diamond Project EIR completed public hearings in December 2012 and a decision is anticipated to be released in July of 2013.

Full details for current environmental assessments are available on the Board's web site at http://www.reviewboard.ca/registry

Regulatory stage projects:

- Public hearings for the Prairie Creek Mine Project were held at the end of January, and went fairly smoothly – other than weather barring the scheduled meetings in Nahanni Butte. Because of the proximity to the Nahanni National Park (think of the mine as the doughnut hole, surrounded by the Park) and discharging into a stream 6 km upstream of the Park, setting appropriate water quality objectives and effluent limits is a priority topic.

- The Ekati Diamond Mine water licence is up for renewal, with public hearings scheduled for Feb. 12-13. The mine has done some excellent work on deriving site-specific water quality objectives.

Closing:
I hope this finds all of you keeping healthy, and enjoying whatever your connection is with the environment. It is important to keep making a difference! If you are doing work north of 60 that you would like to highlight in the newsletter, or running some seminars or other training opportunities, please let us know. The CSEB provides a valuable networking and communication forum, and a voice for biologists if there are any issues to be raised. There is also the option of instigating other CSEB activities – both of the fun and/or of the informational variety - with colleagues in the North. Please email your thoughts to anne.wilson@ec.gc.ca or paula.c.smith@ec.gc.ca.

More Polar Bears Spotted in N.W.T., Nunavut Communities

Residents say lack of sea ice, hunger driving them closer to arctic hamlets

Nov. 14th, 2012 - People in Clyde River, Nunavut, had to shoot three polar bears this week when a mother and two cubs were spotted in the hamlet.

Apiusi Apak, a hunter and the community's mayor, said a mother bear and two cubs were chased away early in the day on Tuesday but later returned.

"The mother was very skinny and seemed starving. The cubs looked a little better," he said.

Apak said the community's fall bear quota is gone and residents are warned daily about the polar bears. He said part of the problem is the late freeze up.

"Due to windy fall season the ocean is not freezing. We expect that when it freezes the polar bears will move on."

People in Ulukhaktok, N.W.T. and Sachs Harbour, N.W.T. have also been reporting more frequent bear sightings this year.

Ulukhaktok residents on snowmobiles chased away three bears Tuesday.

Hunter Robert Kuptana said the bears must be hungry and he hopes the animals won't develop a taste for dog food.

"A couple of doors down the road, they have a dog, and (the owners) fed it, and I guess that's what the polar bear smelled," he said. "It went to that dog and started eating his food, and one of them was fighting him for a while."

Kuptana also said the bears may be coming closer because there's not enough sea ice.

http://www.cbc.ca/news/canada/north/story/2012/11/14/north-polar-bear-sightings.html

Canada's North Poised to Cash in on Mining Boom

By Chantal Mack, Postmedia News. March 15, 2012

Canada's North is poised to lead the country in economic growth over the next two years as a boom in mining projects takes hold, a new report predicts.

The economies of the three territories are expected to grow by more than seven per cent in both 2012 and 2013, says the Conference Board of Canada's Territorial Outlook-Winter 2012, released Wednesday. That easily surpasses the expected Canadian average of 2.1 per cent this year.

The demand for metals and non-metal resources is expected to remain high, regardless of the challenges facing the global economy, said to Marie-Christine Bernard, associate director of forecasting and analysis for the Conference Board.

"The territories are well positioned to satisfy this demand," which is expected to keep prices elevated over the next few years, she said.

"That will encourage more exploration activity, more mine developments," said Bernard. "This is very positive because when there's construction and development of mines, it means there's a lot of jobs being created, then we see incomes go up and consumer demand goes up so the territories are going to be in a very good position."

Bernard said the immediate concern for northern mining industry development isn't finding a market, but rather finding workers capable of propelling these projects forward.

The economies of the Yukon and Nunavut had a strong year in 2011 and are expected to continue to improve.

The report says both are entering a period of sustained mining development, citing several large projects that have been proposed for the current decade. The Northwest Territories has yet to reach a point of sustained mining development as older mines are closing and are to be replaced by newer projects.

Real GDP for the Yukon is expected to grow by 2.9 per cent this year. That follows an estimated gain of 8.6 per cent in 2011. There will be a strong demand for workers in the Yukon, the report says.

Nunavut's economy grew by 6.8 per cent in 2011 and the territorial economy is forecast to grow by 16 per cent in 2012. Employment there is expected to surge by 6.4 per cent annually over the next three years.

The Northwest Territories' economy is expected to grow by 5.9 per cent this year.

Diamond mining, by far the territory's largest industry, is expected to benefit from global demand that continues to surpass supply, the report said.

When doing the territorial forecast, the statuses of several projects were taken into account, such as the announcement of the projects, their stage of development, whether or not there is a feasibility study.

"Then we evaluated each one of them and included the ones that we felt could likely go ahead in the next decade or so and included them in our forecast," explained Bernard.

The board also looked at other factors, such as how much the projects would produce once the development period was over.

Major projects and development costs for future mining operations

Yukon:
- Copper North's Carmacks project - $150 million
- Victoria Gold's Eagle project - $280 million
- North American Tungsten's Mactung project - $400 million
- Selwyn Resources Selwyn project - $800 million

Northwest Territories:
- Avalon's Nechalacho project - $900 million
- DeBeer's Gahcho Kue project - $650 million
- Fortune Minerals' NICO project - $215 million
- Rio Tinto's Diavik mine expansion - $250 million
- Government of NWT's Deh Cho bridge (in progress) - $192 million

Nunavut:
- Agnico-Eagle's Meliadine project - $300 million
- Baffinland's Mary River project, which is owned 70 per cent by ArcelorMittal and 30 per cent by Iron Ore Holdings LP - $4 billion

Source: The Conference Board of Canada

Treatment Of Dissolved Sulphides in Wood Waste Landfill Leachate Using Engineered Wetlands: Challenges and Long-Term Sustainable Solution

Authors: Bryant, K. B.Sc.; Seed, L. B.Sc; Chan, C. B.A.Sc. P. Eng; and A. Gunardi B.A.Sc. E.I.T
Affiliation: Keystone Environmental Ltd. Edited by: Jim Armstrong, MSc. R.P. Bio.

Background

Western Forest Products Ltd (WFP) Jordan River facility comprised a log sort and logging operations centre in South Vancouver Island. On closure of the facility, a part of the property was sold to the Capital Regional District for future park use. As part of the purchase sale agreement, Western Forest Products agreed to complete remediation of the property and deliver a Certificate of Compliance.

The property is located in the southwest coast of Vancouver Island, along the south shore of the Jordan River and fronting the Strait of Juan de Fuca.

A wood waste landfill is located on the property, adjacent to the Jordan River to the west and a spillway that was associated with a former hydroelectric generating station. Investigations found that leachates generated by the landfill were discharging to the spillway which in turn discharged to the Jordan River. Both the spillway and the river are estuarine in these reaches and are influenced by tidal cycles.

The leachate contained dissolved sulphides at concentrations up to 50 times the *British Columbia Water Quality Guidelines Regulations for Contaminated Sites (2006).*

Figure 1: Aerial view of the Juan de Fuca Strait and the Jordan River

Remediation Challenge

Remediation of the leachate before discharge to the spillway of the Jordan River was required to complete remediation of the property. The leachate is expected to continue to be released from the landfill for several years following the land sale. The property, in the vicinity of the landfill is not serviced with utilities. Therefore, a remediation strategy that is low maintenance and sustainable over a long time presented as the most viable option. Following completion of the sale, Western Forest Products will not have staff operating from the facility. Long term operation of the treatment works, therefore, needed to require minimal utility requirements, ongoing operational and maintenance needs.

Physical, chemical and biological treatments were considered to treat the sulphide leachate; however all require ongoing operator attention. As part of the final analysis, an engineered wetlands system was selected as the most viable method. This method provides minimal maintenance with no additional utility requirements.

The Solution

The engineering and biological design considered necessary residence time of leachate in the wetlands to facilitate treatment by phytoremediation, pH reduction, aeration and tidal flushing. The area available for construction of an engineered wetland is a narrow strip located between the spillway and a treed area adjacent to the landfill. To provide the surface area and hydraulic residence time necessary for treatment, two wetlands were designed, interconnected by piping to intercept and treat the sulphide leachate.

The design process included a biophysical assessment to characterize native vegetation and habitat types present at the Site, and to confirm the Site's suitability for a constructed wetland. The area in the immediate vicinity of the spillway was the primary focus of the biophysical assessment. The spillway was characterized as a tidally influenced (by Jordan River), brackish (water salinity ranged from 0.5 – 2 %) wetland ecosystem supporting a range of flora and fauna, particularly avian species.

The dominant species identified were Lyngby's sedge (*Carex lyngbyei*) and tufted hairgrass (*Deschampsia cespitosa*). These plants were selected for salvage and replanting during construction of the wetlands. Lyngby's sedge is typically found in salt marshes, estuaries, and wet saline meadows, and was the dominant plant species in the emergent zone, from the low to high watermark. Tufted hairgrass, also found in wetland ecosystems, was observed in significant

numbers in the meadow zone. The wetlands were designed so as not to encroach on the shrub zone, dominated by salal (*Gaultheria shallon*).

Construction

During construction, salvaging and re-planting of existing vegetation, including Lyngby's sedge and the tufted hairgrass were used under the sustainable management approach for the construction of the wetlands to promote natural re-growth and bio-filtration. Utilizing natural sources encouraged active bio-generation and showed promise for amphibian and aquatic habitat habitat and would provide the client with a no maintenance natural filtration system.

Vegetation and invasive species including the Himalayan Blackberry (*Rubus armeniacus*) and Scotch Broom (*Cytisus scoparius*) were removed to accommodate wetland construction. Topsoil and some previous materials were removed and stockpiled for use as base material within the engineered wetland.

Based on the biophysical assessment salvaging of existing estuarine vegetation that is salt-tolerant, including the Lyngby's sedge and tufted hairgrass was key to the engineering design. The vegetation salvage and planting was undertaken once the engineering construction of the wetlands was complete.

Approximately 2700 salvaged plants were utilized for re-planting in the Jordan River engineered wetland at an approximate ratio of 90% Lyngby's sedge to 10% tufted hair grass. The tufted hair grass was removed as a whole plant and split into smaller plant sizes before planting. Plants were transported manually to the wetland site and laid out for planting on a pre-determined grid based on salt tolerance.

Figure 2: Engineered wetland area 1 during construction before planting

Figure 3: Engineered wetland 1 following planting

Figure 4: Engineered wetland area 2 prior to planting efforts

Figure 5: Engineered wetland 2 following the plant salvage and re-planting

Innovative Approach

While the engineered wetland approach is in itself innovative, providing a sustainable, low maintenance solution that the facility offers, is an additional environmental benefit. The wetlands now enhance the existing environment by providing additional habitat for aquatic life while reducing the dissolved sulphides concentrations to levels below the BCWQG. This remedial approach uses multiple biological and physical processes (phytoremediation, pH neutralization, aeration and tidal flushing) to reduce the sulphides concentrations.

Figure 6: Planting Logistics

The solution was innovative in that it combined an engineered wetland with the sustainable approach of salvaging native species in the area of construction, removal and destruction of on-Site invasive plant species and the creation of enhanced wildlife/aquatic habitat in this ecologically sensitive estuarine region of BC.

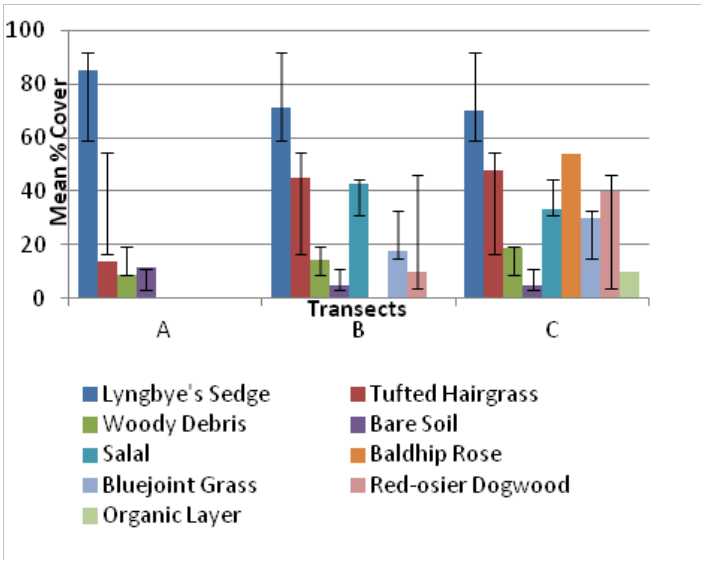

Figure 7: Biophysical Assessment

Applicability to British Columbia

Water quality monitoring following construction of the engineered wetlands confirmed that the concentration of dissolved sulphide (as H_2S) in the wetland discharge was less than the reported detection limits and the BC Water Quality Guidelines during sampling in both wet and dry seasons.

This engineered wetland remedial approach provides a sustainable, low maintenance, passive treatment system relying on native plant species and utilizing tidal action as an advantage. By enhancing the natural environment by removing invasive species and the use of native plant species the concentration of dissolved sulphides decreased as well as providing additional habitat for aquatic life.

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Special Mention

Dr. Tom Northcote Receives CSEB Honorary Membership

At the 2012 CSEB Annual General Meeting held December 14th, 2012, Dr. Tom Northcote was awarded Honorary Membership in the Canadian Society of Environmental Biologists. Nominated by Gary Ash, the motion was passed unanimously, recognizing Dr. Northcote's contribution to the society.

Dr. Northcote has been a long time member of CSEB and has made many contributions over the years to the science of aquatic biology both in Canada and elsewhere over his distinguished career, which was primarily as a professor at the University of British Columbia (see article in CSEB Newsletter/Bulletin 69(3) Fall 2012). He has provided numerous articles to the CSEB Newsletter/Bulletin including as a guest editor on a special edition on Limnology in Canada (see CSEB Newsletter/Bulletin 64(1) 2007).

Tom currently resides with his wife Heather at their home overlooking Lake Okanagan at Summerland BC.

BOOKS FOR Review

Bentham Science Publishers has published a new E-book titled **Environmental Issues for the Twenty-First Century and their Impact on Human Health.**

Author: Richard B. Philp Emeritus Professor The University Of Western Ontario

The close of the first decade of the 21st century posed additional pressing environmental issues related to human activities and their effects on the planet. The need to protect the planet seems frequently to be in conflict with the need to feed the earth's inhabitants and to supply the energy required for industry, transportation, regulating our indoor environment, and fueling other needs. The corporate world sometimes seems to have a callous disregard for the safety of its workers and the public at large. This e-book discusses the ecological and health impacts of aquaculture, the Alberta tar sands development, the Gulf Oil disaster of 2010, the hazards of inadequately safeguarding water supplies, and global warming, to name some of the important topics. This e-book will be very useful to students of environmental science, ecology, ecotoxicology and others interested in a broad overview of contemporary environmental issues. It is presented in a highly readable manner that makes it accessible to well-informed members of the public. Complex biochemical and chemical equations are avoided. Nonetheless, current primary sources of scientific information are used and referenced, making it easy for a reader to pursue a topic in greater depth if so desired.

The e-book is available for purchase to interested readers in whole format as well as individual chapters at our website here: http://www.benthamscience.com/ebooks/9781608051021/index.htm

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Terrestrial Ecosystems Ecology Principles and Applications
Authors: Göran I. Ågren, Folke O. Anderson 2012
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Authors: Helene Marsh, Thomas J. O'Shea, John E. Reynolds III 2012. Hardback $135.00, Paperback $65.00

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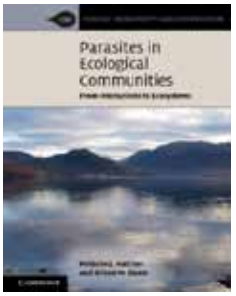

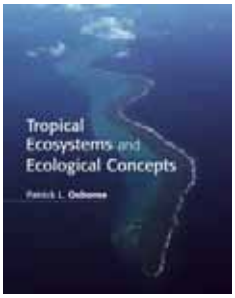

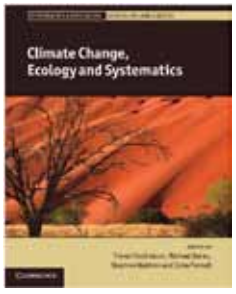

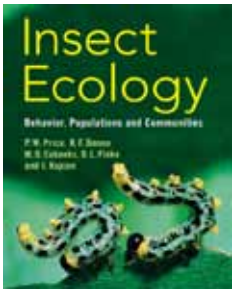

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