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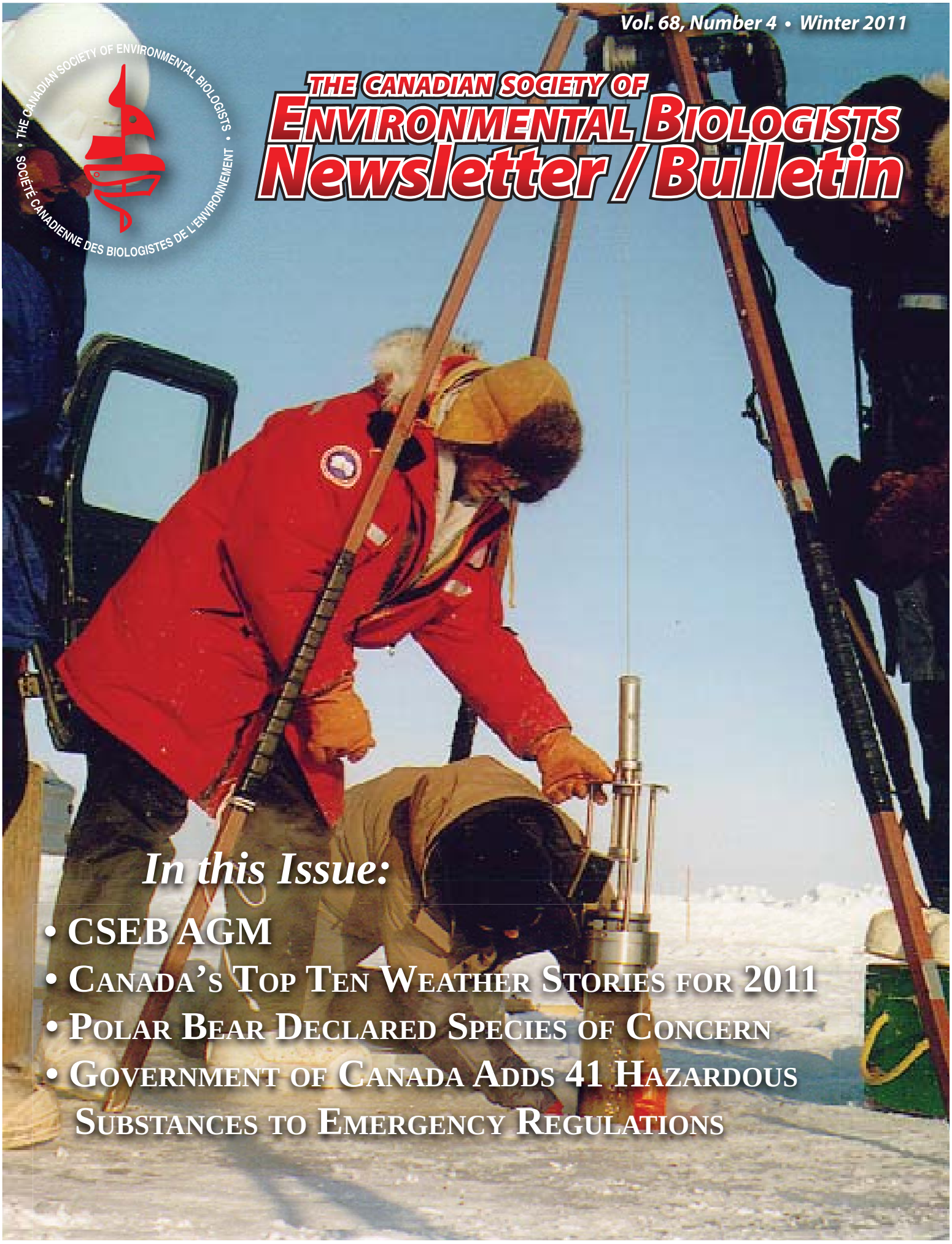
• THE CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS •
• SOCIÉTÉ CANADIENNE DES BIOLOGISTES DE L'ENVIRONNEMENT •

THE CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS Newsletter / Bulletin



In this Issue:

CSEB Newsletter Bulletin SCBE

VOLUME 68, ISSUE 4, 2011

CSEB Website http://www.cseb-scbe.org

Webmaster: Shawn Martin • Email: shmartin@eba.ca

In this issue

Date of Issue- December 2011

Cover Photos:
Front Cover: Collecting benthic samples using a modified KB corer at Lac de Gras. In the photo, Erik Madsen (l) Bart Blais, Anne Wilson (kneeling), Ron Bujold (rt) April 1999.

Back Cover: Winter water sampling at Lac de Gras by Bart Blais April 1999.

Photo Credits: Sid Bruinsma (formally with Environment Canada) and Jiri Herimann, contributed by Anne Wilson, 1st Vice-President of CSEB.

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CSEB NEWSLETTER 2011

Vol. 68, Number 4 Winter 2011

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

Editor: Gary Ash

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LE BULLETIN de la SCBE 2011

Vol. 68, Numéro 4 Hiver 2011

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

As I write this as your president, and just before a good part of the world starts its holidays, I am reminded of the downtime I enjoyed while working to be with family and friends. And although you will read this Bulletin well after the fact, I hope the "downtime" you might have had was enjoyable, peaceful and rewarding.

The year that has gone by has not been without its struggles within the CSEB. We failed to hold our workshop/conference and AGM in Brandon and Riding Mountain National Park due to forest fires in RMNP and disruptive administrative issues at the University of Brandon, both of which were out of our control. Talk about "a perfect storm" which conspired against us, but we are well ahead of the game in terms of pulling the conference/workshop together in the spring!

You will also note in this Bulletin the outcome of the National AGM held in December 2011. Needless to say, one of the major concerns, if not THE major concern, is the declining membership within the CSEB. Thinking upon this, we need to ask ourselves why this is. So I need to ask you, the current members of the CSEB, how is our organization not meeting your needs; and what could we do better as an organization? Any suggestion you might have would be most helpful as we plan a course of action over the next few years. I have committed to developing an action plan for the remainder of my mandate in 2012, and input from you would provide me with some insight as to the direction we need to go in over the next few years would be appreciated. The CSEB organization is the membership – that is you. As individuals, you may not think you have influence, but as an organization we can be a powerful influence on other organizations and governments. However, the CSEB right now needs to coalesce to determine our raison d'etre, and where we should focus our efforts. Initially we need to embrace biologists in all parts of the country, renew our energies in building membership and provincial chapters, so that as a national organization, we can represent all Canadians on environmental matters.

Please provide suggestions to me, or any member of the executive or regional directors. Don't leave it for the executive or the directors, consisting of six individuals to decide the future of the CSEB. The CSEB is only as good as its members! I might capitalize and alter one of John F. Kennedy's famous lines; ask not what the CSEB can do for you, but what you can do for the CSEB.

Robert Stedwill
National President
rjstedwill@live.ca

Canadian Society of Environmental Biologists

50th Annual General Meeting

Wednesday, December 14, 2011
Via conference call and web cast
6:00 pm EST

In Person Location:
Concordia University College, Edmonton Alberta

This meeting also had teleconference and web conference options for members across Canada to attend. Minutes and individual reports will be published in the Canadian Society of Environmental Biologists (CSEB) newsletter.

Attendees: Robert Stedwill, Brian Free, Gary Ash, Joseph Hnatiuk, Karen March, Patrick Stewart, Sheri Dalton, Mariola Janowicz. Regrets: Anne Wilson, Bill Paton.

1. **Welcome**

   - Welcome and Review of Agenda - from President R. Stedwill.
   - Call to order and review of Agenda. As discussed in 2010 Annual General Meeting, only items related to finance require formal approval.

2. **Review of 2010 AGM Minutes**

   - 2010 Minutes read by B. Free.

3. **President Report** (R. Stedwill) – Highlights:

   - Input from members needed; How do we engage members, particularly new biologists?
   - Lots of current issues that CSEB can provide insight into – Kyoto, Environment Canada cutbacks.
   - Goal for coming year to recruit new contributing members.

4. **Vice President Report** (Anne Wilson by email)

   - Noted quiet VP role in 2011 and looking forward to next year.
   - Confirmed will remain as VP.

5. **2011 Financial Report** (Preliminary) (K. March)

   - Reviewed receipts and expenses. K. March noted will not be finalized until Dec. accounts in.
   - Confirmed hotel hold money for April Conference is still in place.

- J. Hnatiuk question if mail redirect is required. Agreed that a national address is important and therefore redirect is required.
- B. Free question on newsletter production costs relative to electronic mailouts. Gary indicated that production cost is the majority, however mailout costs will be reduced if electronic mailout increases.
- Noted the video cost not itemized – K. March to modify report to include.
- G. Ash suggested Journal costs be itemized separately in receipts – K. March to modify report.
- Motion to accept (as amended): B. Free; second J. Hnatiuk, all accepted.

6. Draft Budget for 2012 Report (K. March)

- Draft reviewed; modifications to include removal of new membership line (is included in membership), Conference proceeds to include sponsorship moneys (for 2012 to be set at $2000, revenue generation for 2011 to be 0$, web hosting for 2012 to be 0 $ as was included in 2011, membership postage to be included in membership renewals
- Motion to accept (as amended): J. Hnatiuk, second P. Stewart, all accepted

7. Membership Secretary Report (G. Ash)

- Membership highest in Alberta, then Ontario.
- Membership down from last year and downward trend over time.
- Discussion on membership recorded in Item on Priorities for 2012, below.

8. Past President Report (B. Free)

- Still active assisting president.

9. Newsletter Editor Report (G. Ash)

- Three issues out so far, one pending. Need material.
- B. Free extended thanks for a job well done.

10. Atlantic Regional Report (P. Stewart)

- The Atlantic Region was slow this year, no meeting, new regional director not found, P. Stewart to remain in position. Regional issues in the year included mining in Newfoundland, hydro Lower Churchill, Fundy tidal, oil offshore – plenty of opportunity for new members to be involved. Nova Scotia generally has good protected areas and Species at Risk legislation.

11. Manitoba Regional Report (B. Paton by email)

- Need to confirm a new conference date.
- Will follow-up on new members.

12. Saskatchewan Regional Report (R. Stedwill)

- No meetings were held, members busy due to provincial boom.
- Regional issues included: cumulative effects assessment, unprecedented powerline development, provincial election returned the Conservatives and expect development to be on-going, need for environmental regulations to match development.
- Will focus on chapter activity.

13. Alberta Regional Report (J. Hnatiuk)

- Regional issues include: booming economy, oil sands, nuclear development Bruce Power not expected, landuse issues, Alberta Environment now Environment and Water, new premier and election pending so some issues on hold, Athebasca review, grizzly, sage grouse, Caskill Mountain tourism vs. timber harvest, water issues (Old Man), fraccing misinformation, EA review. Lots to get involved in.
- CSEB can offer advice based on good biology.
- J. Hnatiuk represented CSEB in National Energy Board (NEB) review (streamlining).

14. Territories Regional Report (A. Wilson by email)

- CSEB activity small but steady, had well attended seminar; extended thanks to Peter Chapman; collaborated on Arctic Newsletter with Paula Smith.
- Regional issues included: large scale development and need for responsible development in sensitive areas.
- Confirmed P. Smith will remain as director.

15. Canadian Environmental Network Report (J. Hnatiuk)

- Have funding issue and may dissolve.
- Involved in: 7 year CEAA review (terminated – and noted EA may be down loaded to the provinces), NEB review, Integrated Pest Management Advisory Council.
- Noted that government needs good information, CSEB members should provide. Feel free to meet your MP or MLA.
- G. Ash extended thanks to Joseph for his good work.

16. Election of 2012 Board of Directors (B. Free)

- President – Robert Stedwill has one more year in term.
- VP (Anne Wilson) and Secretary Treasurer (Karen March) to be renewed for 2012.
- Will need to call for elections for VP and Secretary Treasurer next year.
- Newsletter editor is an ongoing appointment.
- No nominations for regional vacancies.
- Sheri Dalton, Joseph Hnatiuk (Sask. & AB) in until next year.
- Bill Paton directorship has expired, Ontario and Quebec have no directors.
- Patrick Stewart (Atlantic) and Paula Smith (Territories) will remain.

- Anne Wilson directorship has expired but she will remain as needed.
- Call for nominations from the floor: B. Free. None forthcoming.
- Move for nominations to cease: S. Dalton, second K. March. B. Free declared Executive and Board of Directors by acclimation.

17. Looking Forward: Priorities for 2012 (R. Stedwill)

- Discussion on increasing membership and need for active members – comment that Saskatchewan membership is down in part due to retirements (corporations pay some memberships). J.Hnatiuk comments that retired members can be big contributors and called for participation. Also that student involvement is important. CSEB can provide a balanced viewpoint. P. Stewart noted that this is a volunteer society and time is an issue for all; we need to make personal commitments to being involved. G. Ash commented that chapter activity is key to CSEB; priority should be filling Regional Director positions. Suggested that members be personally phoned to be asked to sit on committees.
- Wendy Thompsen identified as someone with good communications skills CSEB may learn from.
- R. Stedwill to work to fill vacancies.

Action: R. Stewill to develop an action plan to address issues of regional membership and focus on grassroot active members. Priorities membership, Regional Directors and Chapter activity. J. Hnatiuk volunteered to help.

Special Presentation (M. Janowicz) – Genetic, Biological and Ecological Characteristics of Pure Westslope Cutthroat Trout and Hybridized with Introduced Rainbow Trout Populations in the Rocky Mountains, Alberta, Canada.

Closing and Adjournment (8:45 EST)

CSEB BUDGET FOR 2012

Prepared by Karen March, Secretary-Treasurer

(Approved at Dec. 14 2011 AGM)

	2008	2009	2010	2011	2012
Receipts	Approx. from expendatures			Estimated	Proposed
Membership fees	$6,800	$9,300	$6,700	$5,700	$7,500
NRC Journals	$1,500	$2,900	$1,000	$1,200	$1,000
Publication Sales	$0	$0	$0	$0	$0
Bank Interest	$2	$0	$0	$0	$0
Conference Proceeds (incd. Sponsors)	$0	$3,800	$0	$0	$2,000
Revenue Generation	$0	$0	$0	$175	$0
Total receipts	*$8,302*	*$16,000*	*$7,700*	*$7,075*	*$10,500*
Expenses					
Corporate registration	$30	$30	$30	$30	$30
Newsletter Production	$5,000	$4,500	$4,700	$3,600	$4,600
Board Meeting (travel subsidy)	$150	$0	$0	$0	$100
Administration (conference call, misc.)	$2,000	$2,000	$600	$150	$600
Web hosting	$80	$120	$70	$150	$0
NRC Journals (estimated)	$1,500	$2,900	$1,000	$1,200	$1,000
Postage Newsletters	$1,600	$1,250	$1,300	$1,000	$1,350
Mail Box Rental	$200	$250	$250	$250	$250
Redirect Mail	$300	$1,000	$300	$350	$1,000
Chapter Rebates	$0	$0	$0	$0	$0
Membership renewal, cards, postage	$1,000	$1,000	$500	$600	$1,000
Bank Charges	$25	$15	$10	$20	$20
Miscellaneous	$50	$350	$30	$1,000	$100
Total expenses	*$11,935*	*$13,415*	*$8,790*	*$8,350*	*$10,050*

Canada's Top Ten Weather Stories for 2011

Reprinted from Environment Canada's website http://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=8E2C07A1-1

Arctic Sea Ice Near Record Low

According to Environment Canada and the National Snow and Ice Data Centre in Colorado, sea ice covering the Arctic Ocean declined to its second-lowest extent on record in September 2011. The near-record ice melt was surprising owing to the absence of the unusual warm weather and oceanic conditions that contributed to the super melt in 2007. Thin, year-old ice less than a metre thick that now dominates the Arctic ice pack is much more prone to melting than durable, multi-year ice. Since 1979, September Arctic sea ice extent has declined by 12 per cent per decade. Additionally, the five greatest ice retreats of the satellite era have occurred in the past five years.

Arctic sea ice cover fell below 4.33 million square km on September 9, 2011, with only 310,000 square km more than the previous record of minimal ice extent in 2007 – the lowest seasonal ice minimum extent since record-keeping began more than 50 years ago. This year's minimum level was 35 per cent below the 1979 to 2000 average minimum of 7 million square km.

Although it's much more difficult to measure, it's estimated that sea ice volume shrunk to a new record low of 4,200 cubic km – some 8 per cent less than the record set in 2010.

The melt season started with more first-year ice and less of the thicker multi-year ice. The oldest and hardest multi-year ice, which ranges in thickness from 2 to 5 metres, now accounts for only 20 per cent of all sea ice compared to 90 percent 30 years ago. Arctic sea ice is now estimated to be 40 to 50 per cent thinner than it used to be. Continued loss of the oldest, thickest ice has reduced the summer minimum extent.

Ice cleared again from both the Northwest Passage and the Russian Northern Sea Route, along with much of the Beaufort Sea north of the Yukon-Alaska border. According to the Canadian Ice Service, sea ice extent in the wider and deeper northern route through Parry Channel was the lowest in September 2011 since record-keeping began in 1968. The Northern Sea Route opened in mid-August and was still open at the end of September. The southern route of the Northwest Passage, through the straits of the Canadian Arctic Archipelago, opened for the sixth year in a row. The area around the magnetic North Pole would have 75 per cent ice coverage in a typical year. However, in August 2011, ice covered just 40 per cent of the area.

By late January, waters in the Miramichi Bay and much of the Gulf of St. Lawrence and Northumberland Strait are usually frozen solid, with ice as thick as 30 cm. In 2011, the ice was half that thick as a result of unseasonably mild temperatures, strong winds and a high storm surge. And it marked the second year in a row that these water bodies encountered abnormally low ice concentrations. Last year, ice cover was the lowest since the 1969 season. For some veteran fishers, the last two winters were the worst in more than four decades – just too thin and "slushy" to hold an ice-fishing shack.

At the start of the East Coast seal hunt in late March, only a couple of boats could get into the Gulf of St. Lawrence to hunt on small patches of ice. The ice also broke up faster than normal, causing hundreds of seal pups to drown. In the end, only a fraction of the seal hunt quota was taken. In August 2010, a huge tabular sheet of ice fractured off the Petermann Glacier near Greenland. It was initially thought to be 251 square km – the biggest ice island bobbing around the North Atlantic in nearly 50 years. Once the size of Manhattan, it came down the Labrador coast through May and June 2011 and became visible off Newfoundland's Northern Peninsula in mid-July, much to the thrill of locals and iceberg tourists. The ice behemoth was one-fifth its original size, weighing between 3.5 and 4 billion tonnes, and featured its own geography of hills, waterfalls and ponds, but was weathering quickly from wave action and warmer sea water.

Arctic Ozone Hole Growing

Reprinted from Environment Canada's Website http://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=E3853A8C-1

International research scientists reported that a gaping hole in the ozone layer occurred above the Arctic in 2011. The hole, covering about 2 million square kilometres, was about twice the size of Ontario and allowed high levels of the sun's harmful ultraviolet radiation to destroy large swaths of the protective ozone layer over northern Canada, Europe, and Russia this spring. The unprecedented amount of ozone lost was comparable to that destroyed in Antarctica in recent years, even though the Arctic hole was much smaller in size. Scientists found that the cold spring in the polar stratospheric layer, extending about 15 to 35 km above the surface, lasted a month longer, enabling harmful compounds more time to deplete the ozone.

Government of Canada Adds 41 Hazardous Substances to Emergency Regulations

Reprinted from Environment Canada Website

OTTAWA, Ont. -- December 21, 2011 -- Canada's Environment Minister, the Honourable Peter Kent, announced the addition of 41 unique substances to the *Environmental Emergency Regulations*. The substances include styrene, an explosive chemical used to make polystyrene plastic containers, and ammonium nitrate, a fertilizer.

"The Government of Canada continues to meet its commitment to protect Canadians and safeguard our environment," said Minister Kent. "These amendments to the *Environmental Emergency Regulations* will further protect Canadians where it matters most: at work, in their homes and in their communities."

Thirty-three substances in use in Canadian commerce, in several physical states, and some substances classed in their different forms are now added to the *Environmental Emergency Regulations*, for a total of 41 unique listed additions.

Facilities that handle these 41 listed substances at or above regulated quantities are required to develop environmental emergency (E2) plans, if they are not already in place.

E2 plans require that individuals and industrial facilities using or storing regulated hazardous substances listed in the regulations have plans for and can manage the consequences of an unintended release of the substance into the environment.

The amendments include an exemption that reduces administrative burdens for some facilities in the propane gas sector. Facilities with propane in storage containers are excluded from the E2 regulations if their storage containers of less than 10 tonnes are located at least 360 metres from their property boundaries.

Other uses of propane are already controlled under the existing *Environmental Emergency Regulations*.

The complete list of substance and details of the amendments to the *Environmental Emergency Regulations* can be found at www.ec.gc.ca/ee-ue/default.asp?lang=En&xml=47FA3987-D3B8-40D8-BD6E-D32D0C9AB586.

For more information, please contact:

Office of the Minister of the Environment, 819-997-1441
Media Relations, Environment Canada, 819-934-8008

Polar Bear Declared Species of Concern

November 10, 2011 -- Canada's Environment Minister, the Honourable Peter Kent, has declared the polar bear as a species of special concern under the *Species at Risk Act*.

"Canada is home to two-thirds of the world's polar bear population and we have a unique conservation responsibility to effectively care for them," said Minister Kent. "Our Government is demonstrating leadership in protecting this iconic species. Listing the polar bear under the *Species at Risk Act* represents an important contribution to protecting our environment and the animals that live in it."

As a result of the listing, a management plan must be prepared within three years. It should be noted that the plan will not result in prohibitions. The ultimate aim of the plan will be to alleviate human threats in order to remove the polar bear from the Species at Risk list.

This management plan will build on the National Polar Bear Conservation Strategy. In a recent meeting held in Iqaluit in October, Canada — in cooperation with the United States, Russia, Norway, and Greenland — presented our National Polar Bear Conservation Strategy. This Strategy will act as the cornerstone of the management plan. It aims to illustrate, strengthen and formalize Canada's existing polar bear conservation measures.

"At Environment Canada, our business is protecting the environment," said Minister Kent. "We collaborate with our partners at home and abroad to realize concrete progress on initiatives that will protect the health of our people, our species and our planet. By listing the polar bear as a species of concern, we are doing just that."

Environment Canada held extensive consultations with provincial and territorial governments, regional wildlife management boards, Aboriginal peoples and other stakeholders. The vast majority supported the listing. It can be found in the *Canada Gazette* Part II.

For more information, please contact:

Melissa Lantsman, Director of Communications
Office of the Minister of the Environment, 819-997-1441
Media Relations, Environment Canada, 819-934-8008

REGIONAL News

Opportunity: REGIONAL DIRECTOR OF THE CSEB

What is a Regional Director?

The CSEB is organized around **8 Regions**: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Atlantic and Territories. Two Regional Directors are **elected** by a vote of the regular members within each region. Currently, there are two and four-year terms of office available.

What Does a Regional Director Do?

Regional Contact

- Serve as the main CSEB contact for the Region. Members and prospective members can contact you for information about the CSEB.
- Work with regional members to organize meetings and establish an active Chapter.

Information Agent

- Serve as a conduit for information, both by bringing regional issues to the CSEB Board's attention and by helping to inform the Region's members about CSEB issues and activities. A quarterly report about environmental issues and events in your Region is required for the National Newsletter.

Board Representative

- Provide advice to the National Executive
- Participate in discussions and Board decisions regarding Society operations. There is a monthly teleconference with the other Board members to discuss Society business.

What Are The Benefits?

- Network with biologists from across Canada.
- Take a more active role in giving environmental biologists a voice.
- Learn more about Society operations.

How Can I Sign Up?

If you wish to express your interest in becoming a Regional Director or know another Regular member who is interested, please contact Robert Stedwill, President, at rjstedwill@live.ca.

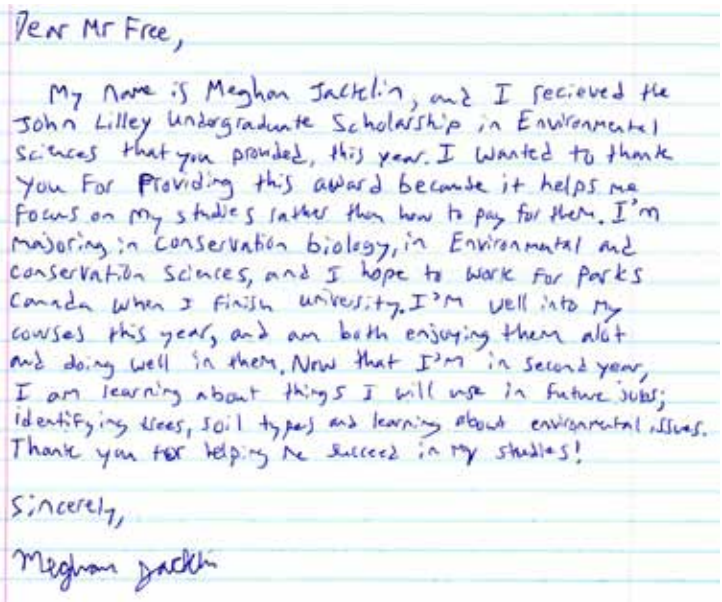
John Lilley Undergraduate Scholarship in Environmental Sciences

Submitted by Brian Free, Past President of CSEB

In 2008, the John Lilley Environmental Scholarship was established in memory of our past President and long-time supporter and friend, John Lilley. The scholarship is at the University of Alberta and is awarded to a student with superior academic achievement entering the second year of study for a Bachelor of Science in Environmental and Conservation Sciences in the Faculty of Agricultural, Life and Environmental Sciences. Selection is based on demonstrated involvement with a not-for-profit environmental organization and academic standing.

The scholarship was endowed by the Canadian Society of Environmental Biologists and friends and family, in memory of former CSEB President, John Lilley. Applications are due by May 1, using the Faculty of Agricultural, Life and Environmental Sciences Entrance Awards application, available from the Student Services Office in 2-31 General Services Building. www.cseb-scbe.org

2011 Recipient Meghan Jacklin.



Dear Mr Free,

My name is Meghan Jacklin, and I recieved the John Lilley Undergraduate Scholarship in Environmental Sciences that you provided, this year. I wanted to thank you for Providing this award because it helps me focus on my studies rather than how to pay for them. I'm majoring in Conservation biology, in Environmental and conservation Sciences, and I hope to work for parks Canada when I finish university. I'm well into my courses this year, and am both enjoying them alot and doing well in them. Now that I'm in second year, I am learning about things I will use in future jobs; identifying trees, soil types and learning about environmental issues. Thank you for helping me succeed in my studies!

Sincerely,

Meghan Jacklin

BRITISH COLUMBIA News

Nomis Power Corporation Has Received An Environmental Assessment Certificate For The Proposed Nahwitti Windfarm Project Located On Vancouver Island

Reprinted from BC Government Website

Dec. 22, 2011 - Nomis Power Corporation is under the management and direction of Rupert Peace Power Holdings, which is a privately held company.

Environment Minister Terry Lake and Energy and Mines Minister Rich Coleman made the decision to grant the environmental assessment certificate after considering the review led by B.C.'s Environmental Assessment Office.

The proposed $280-million project will be located 11 km north of Holberg, 45 km northwest of Port Hardy on Vancouver Island. Once completed, the project will produce up to 100 megawatts of wind energy, enough to provide energy for up to 30,000 homes.

The proposed project will include up to 50 wind turbine generators, up to 30 km of new access roads and bridges as well as upgrades to existing roads and bridges and up to 20 km of underground and aboveground transmission lines. The proponent has reached an agreement with the proponents of the neighbouring wind energy project, Cape Scott Wind Farm Project, to share the transmission infrastructure connecting to the BC Hydro grid near Port Hardy.

The Environmental Assessment Office assessment report concluded the project is not expected to result in any significant adverse effects, based on the mitigation measures and conditions of the environmental assessment certificate.

The provincial environmental assessment certificate contains design features, mitigation measures and 104 conditions that form legally-binding requirements that Nomis Power Corporation must adhere to throughout various stages of the project. Key requirements include:

- A technical advisory committee to review bird and bat monitoring data results and develop adaptive management strategies.
- Implementation of a sediment and erosion control plan.
- Compliance with applicable Fisheries and Oceans Canada (DFO) operational statements and DFO's policy requiring compensation for any destruction of fish habitat.
- Implementation of an access management plan to ensure access is provided for the public during all stages of construction and operation, except where it poses a safety concern.
- Implementation of a traffic management plan to maintain safe access to the vicinity of the project during construction.

Based on the information provided to date by the proponent, the project did not require a federal environmental assessment under the *Canadian Environmental Assessment Act*. A federal environmental assessment may be required in the future as detailed design plans become available.

Local and provincial taxes generated over the 35-year lifespan of the project will be approximately $68-million including business licensing, lease, licence and tenure fees. The seven-month project construction period is expected to generate 180 person years of direct employment, and the operational phase of the project is expected to create 350 person years of full-time direct employment. During operations, the proposed project will avoid greenhouse gas emissions by approximately 165,000 tonnes annually.

The Quatsino, Kwakiutl and Tlatlasikwala First Nations participated in the environmental assessment process and the proponent was directed to consult with these First Nations. The Province is satisfied that the Crown's duties to consult and accommodate First Nations' interests have been discharged as they relate to the decision to grant the environmental assessment certificate.

Before the project can proceed, Nomis Power Corporation must still obtain the necessary provincial authorizations, an electricity purchase agreement with BC Hydro and potentially regulatory approval from federal responsible authorities.

More information on the environmental assessment certificate can be found at: www.eao.gov.bc.ca

Contact:
Suntanu Dalal, Media Relations,
Ministry of Environment, Ph: 250 387-9745

Kokish River Hydroelectric Project Approved

Dec. 13, 2011 – Kwagis Power Limited Partnership has received an environmental assessment certificate for the proposed Kokish River Hydroelectric Project. Kwagis Power Limited Partnership consists of Brookfield Renewable Power Inc. and 'Namgis First Nation.

Environment Minister Terry Lake and Energy and Mines Minister Rich Coleman made the decision to grant the environmental assessment certificate after considering the review led by B.C.'s Environmental Assessment Office.

The proposed $200-million project will be located on the Kokish River, 15 km east of Port McNeill on Vancouver Island. Once completed, the project will produce up to 45 megawatts of electricity and will involve the diversion of water into a nine kilometre-long penstock pipe constructed under and beside existing roads to a powerhouse downstream of the Telegraph Cove Road bridge.

A 500-metre transmission line will deliver power from the project to the BC Hydro grid. Kwagis Power has an Electricity Purchase Agreement with BC Hydro to deliver power to the BC Hydro grid by April 2014.

The Environmental Assessment Office assessment report concluded the project is not expected to result in any significant adverse effects, based on the mitigation measures and commitments included as conditions of the environmental assessment certificate.

The provincial environmental assessment certificate contains design features, mitigation measures and 77 commitments that form legally-binding requirements that Kwagis Power must adhere to throughout various stages of the project. Key requirements include:

- Project construction oversight by an independent environmental monitor.
- Ensuring project in-stream works and infrastructure do not obstruct fish migration upstream and downstream.
- Maintaining sufficient river flows for all life stages of key fish species as determined by the Ministry of Forests, Lands and Natural Resource Operations and Fisheries and Oceans Canada.
- Preparing and implementing a habitat compensation plan acceptable to Fisheries and Oceans Canada.
- Effectiveness and response monitoring during project operations.
- Facilitating kayaking opportunities during project construction and operations.
- Consulting recreation organizations during project construction, operation and decommissioning to ensure continued angling and other recreational access to the Kokish River.
- Annual compliance reporting during construction and throughout the life of the project.

The project also triggered a federal environmental assessment as a screening under the Canadian Environmental Assessment Act. A co-operative environmental assessment was completed pursuant to the Canada/British Columbia Agreement for Environmental Assessment, and a joint provincial-federal assessment/screening report was prepared.

Local and provincial taxes generated over the 40-year lifespan of the project will be approximately $84 million including property taxes ($48 million) and land and water rents ($36 million). The two-year project construction period is expected to generate 150 person years of full-time direct employment, and the operational phase of the project is expected to create 120 person years of full-time direct employment over the estimated 40 year life of the project.

The Environmental Assessment Office consulted the 'Namgis (proponent partner) and Tlowitsis First Nations regarding project effects on their interests. The 'Namgis First Nation participated on the Environmental Assessment Office's Working Group to assess potential project effects separate from their business interests. The Tlowitsis First Nation indicated an interest in

the proposed project, but did not participate in the review of the proponent's application. The Province is satisfied that the Crown's duties to consult and accommodate First Nations interests have been discharged as they related to the decision to grant the environmental assessment certificate.

Before the project can proceed, Kwagis Power must still obtain the necessary provincial authorizations, as well as regulatory approval from federal responsible authorities.

More information on the environmental assessment certificate can be found at: www.eao.gov.bc.ca

Contact:
Media Relations,
Ministry of Environment, Ph: 250 387-9745

ALBERTA News

Submitted by Brian Free, Past President of CSEB

According to government data, mountain pine beetles threaten the health of six million hectares of Alberta forests with stands of pine trees. Beetles live under the bark of mature pine trees. They emerge to fly and infest new trees in July and August each year. The winter weather can help control the infestation as minus 40º C without wind chill for 24 hours at the right time in the beetles' life cycle can kill them. Beetles can maintain their populations if only two and a half per cent of them survive the winter.

The infestations began in southwest Alberta in 2002, and increased rapidly in west-central Alberta in 2006 and 2009 after a wind-assisted in-flight of insects from British Columbia. Aerial surveys show Alberta is making progress in its fight against mountain pine beetle infestations in some parts of the province.

The 2011 aerial surveys show about 50 per cent fewer beetle-killed pine trees in west-central Alberta and east to Slave Lake. However, the number of newly attacked trees has increased in the Grande Prairie and Peace River areas. Looking forward, the mild winter we've been having so far may allow the beetle populations to rebound and expand again next year.

After a lot of bad press about the contribution of Alberta's oil sands to global warming at the climate change conference in South Africa, attention has turned to the secondary issue of getting the bitumen to market. Two proposals are on the table: the Keystone pipeline to transport diluted bitumen south through the US midwest to Texas refineries and the Northern Gateway pipeline to transport the bitumen across several mountain ranges to the BC coast. For both routes, the risk of pipeline leaks or failure is a significant environmental concern, along with intrusion into sensitive areas depending on the route taken. Additional issues are associated with the Northern Gateway pipeline as it will cross the traditional lands of several First Nations. As well, the Gateway pipeline will require an expansion of harbour facilities at Kitimat, BC, and the associated tanker traffic along the BC coast raises the spectre of disastrous oil spills in this northern marine ecosystem.

With all of the jobs and revenue at stake, will these environmental concerns be carefully considered before decisions are made? The federal government's weak support for the Canadian environmental assessment process and cutbacks to Environment Canada staff make it difficult to believe so.

MANITOBA News

Manitoba Announces Clean Environment Commission Public Hearings on Manitoba Hydro Bipole III Project

Reprinted from Manitoba Government Website

December 2, 2011 - The province is asking the Clean Environment Commission (CEC) to hold public hearings on the proposed Bipole III Transmission Line Project, Conservation Minister Dave Chomiak announced.

"Public hearings will provide an opportunity for input from a wide cross-section of the public and other stakeholders," said Chomiak. "This will ensure the voices of Manitobans are heard during the commission's review of the project."

The minister noted the hearings will follow a public review of Manitoba Hydro's environmental impact statement for the Bipole III project, which was filed Dec. 1st with Manitoba Conservation.

Over the next several weeks, the public will be notified through newspaper advertisements that the environmental impact statement is available for review and comment at public registry locations throughout the province. The environmental impact statement documents will also be posted on the Manitoba Conservation web page, Chomiak said.

The public review period for the environmental impact statement is expected to be 90 days, after which the public hearing schedule and locations will be determined by the Clean Environment Commission. A participant assistance program will be made available to interveners in the public hearings, the minister said, adding details will be made available from the CEC in due course.

Manitoba Hydro prepared its environmental impact statement on a preferred route for the Bipole III project following an extensive public and stakeholder consultation process and following guidelines provided by Manitoba Conservation in June 2010.

Manitoba will also be undertaking a comprehensive a Crown-Aboriginal consultation process for the Bipole III project, Chomiak said.

Information on the environmental impact statement review will be posted on the Manitoba Conservation website when available at www.gov.mb.ca/conservation/eal

Manitoba Invites Public to Provide Comments on Caribou Action Plans

December 21, 2011 - Manitobans are invited to provide feedback and input on draft action plans to protect boreal woodland caribou populations in the eastern parts of the province, Conservation Minister Dave Chomiak announced today.

"Boreal woodland caribou are a threatened species, and the Owl-Flintstone and Atikaki-Berens caribou populations are particularly vulnerable," said Chomiak. "We've worked with the Eastern Manitoba Woodland Caribou Advisory Committee to develop plans to protect these populations and are now seeking input from the public to make sure these plans are as complete as possible."

In 2006, the province released a recovery strategy for boreal woodland caribou. The draft action plans for the Owl-Flintstone and Atikaki-Berens areas build on this strategy and outline the specific actions the province will take to protect boreal woodland caribou populations and their habitat to ensure the long-term survival of woodland caribou in these areas, Chomiak said.

Currently, management programs for boreal woodland caribou are in place to assess habitat needs and use on each high-risk range in Manitoba. Proposed developments in any of the identified areas are subject to a strict environmental review process, the minister said, adding results are used to assess and set conditions on work plans, permits and environmental license requests.

The draft action plans will be available on the Manitoba Conservation website for 90 days. Following the public comment period, additional discussion will be initiated with First Nations and other stakeholders. The final action plans will likely be released by the summer of 2012.

The minister noted the action plans build on other work to protect caribou populations in Manitoba including the following:

- investing almost $2.5 million through the East Side Road Authority to monitor woodland caribou and moose populations on the east side of Lake Winnipeg, which includes hiring local residents and trappers to collect field data to support the decision-making process;
- hiring two full-time biologists dedicated to researching and monitoring boreal woodland caribou;
- hosting the 13th North American Caribou Workshop with more than 400 participants from around the world including researchers and international experts on sustaining caribou populations;
- becoming the first provincial government to list the boreal woodland caribou as threatened under the Endangered Species Act in 2006;
- creating caribou management bodies with First Nations and stakeholders in all caribou areas across Manitoba; and
- regularly adding to the network of protected areas and committing to protect the boreal forest on the east side of Lake Winnipeg.

To review and comment on the draft action plans, visit: www.gov.mb.ca/conservation/wildlife/pdf/caribou_action_plan_11_29_2011.pdf

Government of Canada Announces Over $398,000 for Nine New Projects to Clean Up Lake Winnipeg

Reprinted from Environment Canada Website

October 14, 2011 - James Bezan, Member of Parliament for Selkirk-Interlake, on behalf of the Honorable Peter Kent, Minister of the Environment, announced $398,050 in federal funding for nine new community projects supported under the fifth round of the Lake Winnipeg Basin Stewardship Fund.

"Government of Canada has taken concrete actions to ensure clean water for all Canadians," said Minister Kent. "Our plan for Lake Winnipeg includes investing in monitoring, sound science, cleaning up problem areas and building strong partnerships across the watershed to protect this valuable freshwater resource."

"The Government of Canada's Lake Winnipeg Basin Initiative is delivering real results to help clean up and rehabilitate Lake Winnipeg," said MP Bezan. "This latest round of projects is just one of the many ways that the Government of Canada is working with communities and partners at all levels of government to protect Lake Winnipeg's entire watershed for future generations."

Initiatives supported by the Lake Winnipeg Basin Stewardship Fund are high-impact projects that reduce nutrient loads and improve the overall ecological sustainability of the lake and its watershed. In previous rounds of the Lake Winnipeg Basin Stewardship Fund, the Government of Canada announced over $2.0 million to support 37 other community and stakeholder projects. The projects are reducing phosphorus and other harmful substances from entering the lake, restoring urban and rural streams and riverbanks, and educating the public on how to help clean up Lake Winnipeg.

Through the Lake Winnipeg Basin Initiative, Environment Canada has implemented a comprehensive research, monitoring and information program throughout the Lake Winnipeg watershed to provide residents with the information needed to help clean up the lake.

This investment to clean up Lake Winnipeg is part of the Government of Canada's Action Plan for Clean Water. Other projects funded by the Action Plan include the clean-up of contaminated sediment in Great Lakes Areas of Concern and the clean up of Lake Simcoe.

Related Document:

Contributions under the Fifth Round of the Lake Winnipeg Basin Stewardship Fund [Backgrounder, 2011-10-14]

For more information, please contact:

Melissa Lantsman
Director of Communications
Office of the Minister
of the Environment
819-997-1441

Media Relations
Environment Canada
819-934-8008

ONTARIO News

Expert Report Confirms No Direct Health Effects From Wind Turbines

Reprinted from Ontario Ministry of Environment Website

December 16, 2011 - An expert report has concluded there is no direct health risk from wind turbine sound at Ontario's regulated setback distance.

The study analyzed the latest findings on low frequency noise and infrasound from wind turbines. In addition, three experts in the field of noise, vibration and acoustics reviewed and validated the report.

The report found that the province's rules to control wind turbine sound are rigorous. Ontario has one of the strictest noise limits in North America, which includes a 550 metre minimum setback, based on a 40 decibel limit. These requirements align with the limits set by the World Health Organization.

Building a clean energy system that supports healthier families, a clean environment and a green economy is part of the McGuinty government's plan to create jobs for Ontario families and ensure we have the electricity we need to power our homes, schools, hospitals and our economy.

Quick Facts

- Ontario is phasing out coal fired electricity by 2014 and increasing renewable energy like wind, solar and biomass.
- Noise, vibration and acoustics experts Howe Gastmeier Chapnik Limited (HGC Engineering) conducted the study.
- The consultants looked at more than 100 papers and reports from Ontario, Alberta, and countries around the world.
- Ontario will continue to monitor this evolving science's technical developments, and any emerging regulatory policies introduced in other countries.

Learn More

- Read the Low Frequency Noise and Infrasound from Wind Turbines Report www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_092086.pdf

Contacts

- Contact information for the general public 416-325-4000 or 1-800-565-4923
- Joe Kim, Minister's Office, 416-314-6736 Joe.Kim@ontario.ca
- Kate Jordan, Communications Branch, 416-314-6666 Kate.Jordan@ontario.ca

Environment Canada Confirms December In Ontario Was Warmer Than Usual

Reprinted from the North Bay Nugget

The entire province experienced higher than average temperatures throughout December, in some cases by as much as 5.5 degrees, according to an Environment Canada news release.

The warmer temperatures, however, did not surpass those of December 2006, when winter went missing.

Northern Ontario was also drier than usual and a large percentage of the precipitation that was received was rainfall. But a few locations, including North Bay, received more rainfall than normal.

Snowfall amounts ranged from below normal to normal. Wiarton and Elliot Lake received about one-third of their normal snowfall totals for December. And Sault Ste. Marie's 2011 snowfall was its second-lowest snowfall total since the 1960s.

The milder-than-usual temperatures in December result in lower snowfall accumulations overall, plus a few major snowstorms.

Instead, there were more frequent freeze and thaw cycles resulting from the passage of cold or warm fronts.

QUEBEC News

Quebec to Introduce Cap-and-Trade System

Province Will be the First in Canada to Enforce Such Regulations

Reprinted from CBC News online edition.

Dec 15, 2011 - The Quebec government is introducing a cap-and-trade system in an effort to reduce carbon emissions in the province.

Quebec will join the state of California and be the first Canadian province to start enforcing cap-and-trade regulations for carbon emissions.

Environment Minister Pierre Arcand said as of Jan. 1, 2013 the ceiling for allowable emissions will gradually become stricter.

Industries that invest in cleaner technologies will be rewarded by being able to trade carbon credits with those who emit more than what is permitted.

Arcand said the cap-and-trade system is more flexible and fair than imposing a carbon tax on all carbon production.

He said the new system will eventually apply to petroleum companies as well, which he said could cause a rise in gas prices.

Quebec is the first province in Canada to adopt such a system.

Quebec Toughens Environmental Quality Act

Dec. 1, 2011 - The Environmental Law and Litigation newsletter reported that leading Quebec environmental lawyer, Jean Piette, advised that substantial changes have been made to the *Act on Environmental Quality* in Quebec. Changes include a new system of administrative penalties, fines up to $18 million, prison sentences of 5 years, a limitation period for prosecutions of five years (unlimited in some cases), new powers to issue orders, new inspection and investigation powers, criminal and civil liability of directors and officers of businesses, and a discretion to refuse or revoke an environmental permit because a director, officer, shareholder or a money lender has committed environmental violations, tax offences or a crime as appropriate.

Quebec has also adopted a new policy intended to increase waste diversion.

ATLANTIC News

Nova Scotia Releases Wetland Policy

Submitted by Patrick Stewart, Atlantic Region Director

The Province of Nova Scotia has released a new policy on wetlands conservation and development. The Nova Scotia Wetland Conservation Policy issued in mid-October profiles the importance of wetlands and threats from human activities, and outlines a management approach, including guidelines for the regulation and permitting of wetland-impacting activities.

Wetlands are an important landscape component in Nova Scotia — one that is impinged on by most human activities. In particular, some of the Province's wetlands have exceptional wildlife value and also have seen major historic losses. The latter includes coastal salt marshes which have been impacted by coastal development and the historic practice of creating dykeland for agriculture from salt marshes around the inner Bay of Fundy. Particularly important wetlands, such as existing salt marshes, are considered in the policy to be Wetlands of Special Significance (WSS) and are given special attention.

The basic premise of the Provincial strategy is to manage human activity in or near wetlands, with the goal of no loss in Wetlands of Special Significance while preventing net loss in area and function for other wetlands. The policy also promotes wetland protection, stewardship and awareness-building of the importance of wetlands; promotes long-term net gain in wetland types that have experienced high historic losses; and encourages the use of buffers to better ensure the integrity of wetlands adjacent to residential, commercial, and industrial development and agricultural, mining and forestry operations.

The Province, as well as the public affected by the first formal policy released in early 2006, has been on a steep learning curve. The public in particular was largely unaware of wetlands and unused to dealing with them. Because of the widespread occurrence, variety and uncertainties in the definition of wetlands, regulators met opposition from commercial interest, particularly the agricultural and forestry sectors.

The current Policy presents a compromise of sorts, including lower compensation ratios (i.e.. 2:1) for some wetland losses as well as entrenching the importance of the historic losses of wetlands such as salt marshes, by encouraging the avoidance of any development in these areas. Other exceptions in the Policy is the exclusion of regulatory requirements for damage to wetlands less than 100 square metres, as well as those within agricultural drainage ditches; created accidentally by urban, commercial, industrial or agricultural construction projects completed in the past 20 years; or linear developments such as forest access roads, secondary roads, and driveways that are less than 10 m wide and occupy less than 600 square metres.

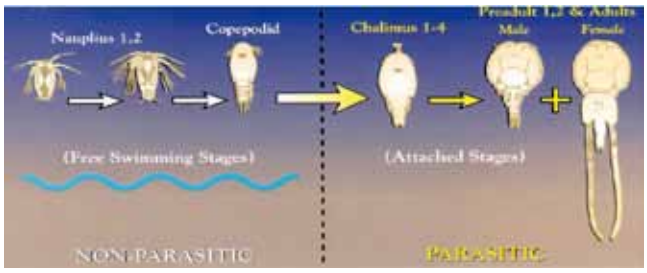
The Nova Scotia Wetland Conservation Policy can be accessed online at:

http://www.gov.ns.ca/nse/wetland/conservation.policy.asp

The Atlantic Chapter of CSEB has had another successful quarter, participating in planning the national conference and online Annual General Meeting. We are presently looking for individuals who would be interested in chairing local meetings and possibly forming regional CSEB branches. CSEB is a unique organization, which both supports both professionals and students in environmental biology, including all major biological sectors. For more info contact P. Stewart enviroco@ns.sympatico.ca

New Brunswick Sea Farms Charged for Misuse of Sea Lice Pesticide

Officials with the largest sea farming business in Atlantic Canada were charged this November with releasing the pesticide cypermethrin after treating sea-farmed atlantic salmon for sea lice in Passamaquoddy Bay in southwestern New Brunswick.



The life cycle for L. salmonis includes nauplii, copepodid, calimus, preadult and adult stages

Environment Canada charged three senior officials with Cooke Aquaculture, a New Brunswick company with sea farms throughout Atlantic Canada, with releases of the chemical after lobster dieoffs in the vicinity of sea farms were associated with cypermethrin applications.

Cypermethrin is an insecticide that operates as a fast-acting neurotoxin in insects, and is highly toxic to fish and aquatic insects. Normally sea lice infections are treated through applications of another chemical, SLICE, in feed, or through treatments involving out-of-pen treatment of affected animals. The chemical is used for land-based aquaculture applications and has been used in other countries. However cypermethrin is not approved for use in Canada.

Details of the use of cypermethrin for which the charges were laid were not released. Environment Canada connected the dots after elevated concentrations of cypermethrin were found in samples of dead and dying lobster and in the environment in the vicinity of the aquaculture operations in mid-2009, after an unexplained die-off occurred in the area.Based on article by Jonathan Riley, *The Digby Courier*, and information from the Atlantic Salmon Foundation.

Sea Lice feeding on a fish

The life cycle for C. elongatus includes nauplii, copepodid, calimus, and adult stages

Sea Louse:
'Sea lice' are copepods — small planktonic invertebrates — in the family Caligidae. As a group they have developed an adult stage, which lives as a parasite on fish, feeding on mucus, epidermal tissue, and blood. Like other copepods and many plankton, they undergo juvenile stages in which they swim in the water column, but instead of living to maturity there, they attach to fish where they complete their life cycle. Many species are unique to their host, but can parasitize other species. For example ***Lepeophtheirus salmonis****, the common culprit for harming fish in Canadian sea farms, has a high specificity for salmonids, including farmed Atlantic salmon, brown trout, Arctic char and all species of Pacific salmon, but has also been known to develop on, but not complete, its life cycle on the three-spined stickleback. Under normal conditions, the abundance of sea lice is balanced by the low density of fish, which limits the ability of the parasite to spread between individuals. Sea farms offer conditions of high fish density where sea lice can more easily spread.*
en.wikipedia.org/wiki/Sea_lice

Sources: Wikipedia and www.upei.ca/~anatphys/Sea_Lice/licecycl.htm

Early Fundy High Tides May Not Have Been So High, and Mi'qmaq Oral History Recorded the Change

Submitted by Patrick Stewart, Atlantic Region Director

Nova Scotia geologists have come up with a theory that high tides in parts of the Bay of Fundy may not have been the norm as little as 3400 years ago. A recent paper in the *Canadian Journal of Earth Sciences* reviewed geological dating of sediment cores and fossils showing elevations of previous shorelines such as flooded forests and communities of marine shellfish, and determined that parts of the Bay experienced a sudden flooding and tidal range increased significantly around that target date.

The finding also appears to be corroborated by a legend of the indigenous peoples of the area — the Mi'qmaq — which incorporates a tale of a sudden change of conditions, involving flooding of the inner part of the Bay.

The information obtained by the geologists from dating sediments in cores based on the age of peat deposits and submerged tree stumps, was not in itself enough to clinch the date. Findings of local marine biologists who had identified and radiocarbon-dated the presence of fossil communities of oysters, salt-marsh-associated mussels, and boring clams in rocks near low tide marks, was necessary to confirm the past changes in tidal range.

The sudden change in tidal range applies only to the inner southern branch of the Bay of Fundy known as Minas Basin. The more northerly branch known as Chignecto Bay showed a gradual increase in tidal range as expected in the response of water flow to the gradual re-flooding of the continental shelf after the melting of the continental glaciers at the end of the Pleistocene glaciation.

The biological data showed both that the communities that existed before approximately 3400 years were typical of a small (1-2 m) tidal range, while communities of rock boring clams found just below the low present low water, and the record of modern salt marshes, demonstrated the high 15+ m tidal range, which has occurred since.

The paper, entitled "*Catastrophic tidal expansion in the Bay of Fundy, Canada* " by John Shaw et al., suggests the reason for the change was the breaching of a barrier of fluvial material — a massive sand and gravel bar more than 100 m thick — which had accumulated at a narrow point in the Bay located at Cape Split, which separates the Minas Basin from the outer Bay of Fundy. Around 3,400 years ago, with sea level gradually rising, a catastrophic event such as a hurricane or storm surge caused a major breach in the bar. Once breached, the daily flood of the tides caused massive flooding of the Minas Basin lowlands and the establishment of the current high tide regime. Subsequent high tides and resulting currents have eroded a channel up to 170 m deep.

Mi'qmaq present on the shores wouldn't have been oblivious to such a massive change. Quoting from the Shaw et al. paper, the

legend determined from oral history describes how "Glooscap [the Mi'qmaq deity], wanting to take a bath, ordered Beaver to build a dam across the mouth of the bay to hold the ocean water so that there would be lots of water for his bath. Beaver did as Glooscap asked, but Whale [the sea spirit] was unhappy because now the water did not flow as before…..Glooscap…not wanting the whale to be upset, told Beaver to break the dam and release the water. Beaver liked the dam he had made, so he was slow to begin taking it apart. Whale became impatient…and he started using his great tail to break the dam apart. This caused the water to flow back and forth with such force that it continues so until this day".

The Glooscap legend also inspired an early foray by an historical researcher into the possibility that the extinct giant beaver *Castoroides ohioensis*, had been somehow involved in creating the legend.

This is a rare instance of a major geological event apparently recorded in human oral history.

TERRITORIES News

Greetings From Your Territories Directors!

Nunavut Regional Update

Submitted by Paula Smith, NU Regional Director

Activity in the mining sector in the territory continues to be busy with the Mary River iron ore project continuing through the environmental assessment process and the Kiggavik uranium and Meliadine gold projects lining up to start their respective reviews in the new year. The Draft Environmental Impact Statement for the Kiggavik project is expected to be submitted to the Nunavut Impact Review Board before the end of 2011 meanwhile the guidelines for the EIS for Meliadine are expected to be completed early in the new year.

Beyond mining in the news, a fuel spill at the Resolute tank farm and continued media coverage of the poor state of Nunavut's landfills were in the news. Cleanup is on-going, and like most issues in the North, is further complicated by weather conditions.

Finally, the trade restrictions on the trade of narwhal tusks is still in the news up here. Fisheries and Oceans Canada (DFO) has recently partially lifted international trade restrictions on narwhal tusks harvested from the communities of Arctic Bay, Clyde River, Qikiqtarjuaq, Pangnirtung and Iqaluit. DFO imposed a narwhal tusk trade ban on 17 Nunavut communities last year, which caused an outcry from impacted communities and Inuit groups.

From Iqaluit, all the best for 2012!

NWT Regional Update

Submitted by Anne Wilson, CSEB 1st Vice President and NWT Regional Director

Winter has arrived, and biologists working in the North have shifted gears from winding up the fall sampling and monitoring programs, to putting away equipment and thinking about data and reports. I've been substantially desk-based, but have enjoyed travel to Yellowknife and Kugluktuk recently, and mine site visits in the fall to Nunavut and Northern Saskatchewan. I am grateful that my new job, although based in Edmonton, keeps me connected with the Northern files for environmental assessment and monitoring programs. The new year will see a shift in focus to the oil sands, and there is no shortage of work to be done on that sector with respect to environmental protection.

Mining news:

Environmental assessments are proceeding for the three proposed mining developments in the NWT.

- The Tyhee Yellowknife Gold Project review is in the 'Information Request' (IR) stage, with the Mackenzie Environmental Impact Review Board directing questions to the proponent on a broad range of topics. This occurred without a determination being made on the conformity check, so presumably further information was needed to bring the Developer's Assessment Report (DAR) into conformity with the Terms of Reference. Work on this file will resume once the extensive information requests have been filed by the developer.

- The Fortune Minerals Ltd. NICO project environmental assessment has proceeded through the conformity check for the DAR, with information requests completed recently, and technical meetings have been scheduled for Feb. 7-9th in Yellowknife. This is a proposed cobalt-gold-bismuth mine located about 50 km NNE of Whati, in the Tlicho territory.

- The Avalon Rare Metals Inc. Thor Lake Rare Earth Element Project involves a 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. Deficiencies with Avalon's DAR submission have been addressed, and the process has proceeded to the Information Request stage.

- The Giant Mine Remediation Project proceeded to technical sessions in November, and further information is being assembled prior to going to public hearings in the new year. The revised work plan contemplates hearings in April 2012. Meanwhile, remedial work on some aspects of the site management have had to be conducted on an emergency basis – such as stabilization of tailings located in a creek alignment, and ground stability work – as the risks of not taking action are high. The project includes the containment of 237,000 tonnes of arsenic trioxide dust currently stored underground, generated over 6 decades of mine production.

- The Board recently released their Report of Environmental Assessment for the Prairie Creek Mine Project, finding that the project would not have any significant adverse environmental effects, and could proceed to the regulatory stage. Surprisingly, the report did not contain binding measures as a condition of approval, but relies on the proponent fulfilling their commitments and the regulatory process. It will be interesting to see where this goes next, as there is a lot of concern on the part of First Nations and ENGOs.

- The DeBeers Canada Inc. Gahcho Kue Diamond Project Board panel-level review is ongoing. Following receipt of all the additional information on the Environmental Impact Statement for conformity, it has moved forward to the IR stage. This review is tentatively scheduled to run through 2012, with hearings in Dec. 2012 and a decision in July of 2013.

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

On the regulatory front, there has been a lot of activity with the renewal of the Snap Lake Diamond Mine's water licence. Hearings were held this month (Dec.) and the Mackenzie Valley Land and Water Board must consider evidence and issue a licence early in the new year. Information can be found at http://www.mvlwb.ca/default.aspx

In Nunavut, the Jericho Diamond Mine was the subject of water licence hearings Nov. 30 - Dec. 1 in Kugluktuk. The Nunavut Water Board processes are a pleasure to participate in – they are run on the principles of natural justice and fairness, and manage to blend respect for tradition and elders (and all participants) with a rigorous technical examination and reach effective outcomes. The renewal water licence was recently issued to Shear Diamonds (subject to signature by the AANDC Minister) and presented protective and fair regulation of the development. This site is to be re-opened for further feasibility work and site development, with the goal to resume production in 18-24 months.

Closing:

Although I am now based in Edmonton, my interest still focuses on the North and I would love to hear from others doing work north of 60! If you are doing work that you would like to highlight in the newsletter, 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 educational variety - with colleagues in the north. Please email your thoughts to anne.wilson@ec.gc.ca or paula.c.smith@ec.gc.ca.

Igloolik Hunters Attacked by Polar Bear:
Man Fought Off Bear With a Hammer

Reprinted from CBC News

A group of hunters near Igloolik, Nunavut, had a harrowing experience when they were attacked by a polar bear that was with her cubs. The bear died after the hunters shot it. On Wednesday, five men went out to retrieve their cache of Igunaq, or aged walrus meat, when the bear attacked them. John Arnatsiaq, 58, squared off against the bear after it went after his friend.

"All of a sudden the bear was right there. But it wasn't going for me – it was going for the other guy," said Arnatsiaq. Arnatsiaq jumped in between the two and shoved a hammer in the bear's mouth.

"What I did was poke the bear with the hammer and put the hammer in its mouth and pull to make him angry so it will go after me instead of going after that guy. Because I knew that guy had bullets in his pocket and that his rifle was not loaded," said Arnatsiaq. Arnatsiaq said the bear kept going for his friend and swatted Arnatsiaq away. Arnatsiaq grabbed the bear's fur and kept swinging the hammer.

"And then we were fighting for a few minutes and then I missed my footing and almost fell. That's when the bear was going for my shoulder," he said. The bear bit into his hand which was covering his shoulder. At that point, the other hunters were finally able to shoot the bear and the cubs, which had joined in the fight. "It could have been worse, I'm fine, I'm ok," he said.

Arnatsiaq said the bear was hungry and wanted the walrus meat.

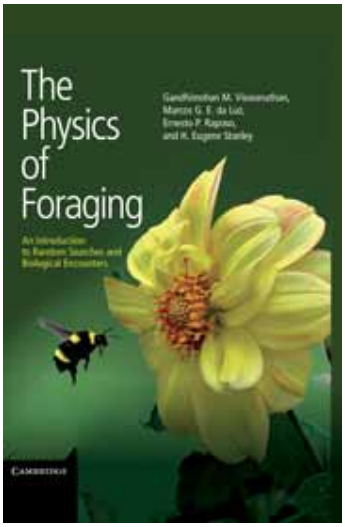
Arnatsiaq didn't escape unscathed – the bear also bit his face, requiring him to get five stitches in his lip. He said his body is also sore.

Arnatsiaq has had close polar bear encounters before. In the past, he smashed a bear on the nose with his camera. "First time with a camera, this time with a hammer. Probably no more next time," he said.

Polar bears are the largest terrestrial carnivores on the planet. Adult female bears can weigh up to 550 pounds and can grow to nearly eight feet in length.

The group was out near Igloolik, Nunavut, Wednesday to get their cache of Igunaq, or aged walrus meat. (The Canadian Press)

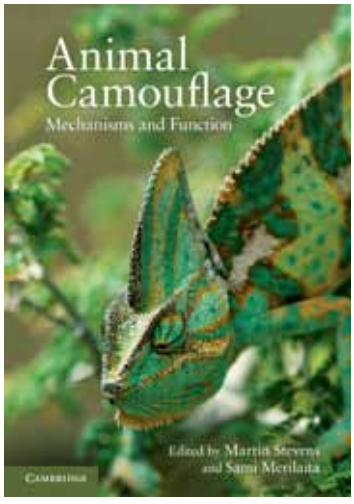
BOOKS IN Print



The Physics of Foraging An Introduction to Random Searches and Biological Encounters

By M.V. Gandhimohan, M.G.E. da Luz, E.P. Raposo and H.E. Stanley. Cambridge University Press, 2011. Hardcover, 178 p., $50.95 CAD.

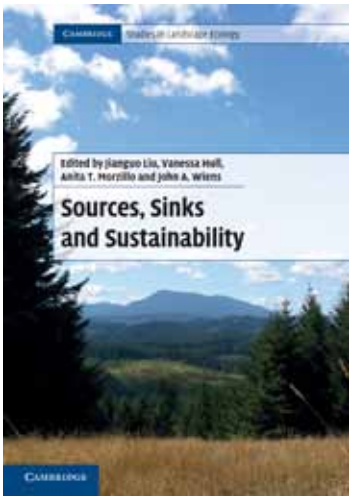
Do the movements of animals, including humans, follow patterns that can be described quantitatively by simple laws of motion? If so, then why? These questions have attracted the attention of scientists in many disciplines, and stimulated debates ranging from ecological matters to queries such as 'how can there be free will if one follows a law of motion?' *The Physics of Foraging* is the first book on this rapidly evolving subject, introducing random searches and foraging in a way that can be understood by readers without previous background on the subject. It reviews theory as well as experiment, addresses open problems and perspectives, and discusses applications ranging from the colonization of Madagascar to the diffusion of genetically-modified crops. The book will interest physicists working in the field of anomalous diffusion and movement ecology as well as ecologists already familiar with the concepts and methods of statistical physics.



Animal Camouflage Mechanisms and Function

By M. Stevens and S. Merilaita, eds. Cambridge University Press, 2011. Paperback, 376 p., $65.95 CAD.

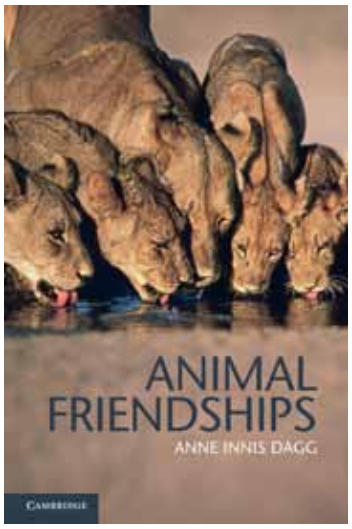
In the past ten years, research on the previously dormant field of camouflage has advanced rapidly, with numerous studies challenging traditional concepts, investigating previously untested theories and incorporating a greater appreciation of the visual and cognitive systems of the observer. Using studies of both real animals and artificial systems, Stevens and Merilaita's *Animal Camouflage* synthesises the current state and understanding of camouflage research. It introduces the different types of camouflage and how they work, including background matching, disruptive coloration and obliterative shading. It also demonstrates the methodologies used to study them and discusses how camouflage relates to other subjects, particularly with regard to what it can tell us about visual perception. The mixture of content dealing with primary research as well as reviews shows students and researchers where the field currently stands and where exciting and important problems remain to be solved, suggesting the direction of camouflage research in future.



Sources, Sinks, and Sustainability

By J. Liu, V. Hull, A.T. Morzillo, J.A. Wiens, eds. Cambridge University Press, 2011. Paperback, 544 p., $69.95 CAD.

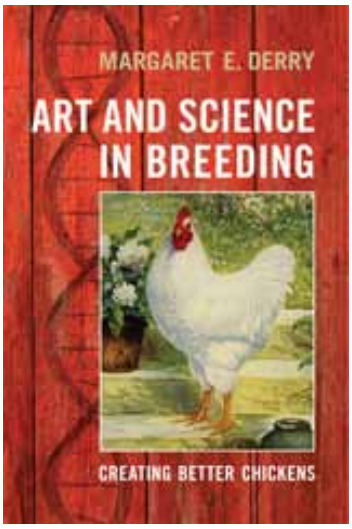
Source-sink theories provide a simple yet powerful framework for understanding how the patterns, processes and dynamics of ecological systems vary and interact over space and time. Integrating multiple research fields, including population biology and landscape ecology, this book presents the latest advances in source-sink theories, methods and applications in the conservation and management of natural resources and biodiversity. The interdisciplinary team of authors uses detailed case studies, innovative field experiments and modeling, and comprehensive syntheses to incorporate source-sink ideas into research and management, and explores how sustainability can be achieved in today's increasingly fragile human-dominated ecosystems. Providing a comprehensive picture of source-sink research as well as tangible applications to real world conservation issues, this book is ideal for graduate students, researchers, natural-resource managers and policy makers.



Animal Friendships

By Anne I. Dagg Cambridge University Press, 2011. Hardcover, 246 p., $97.56 CAD.

Research into social behaviour in animals has often focused on aggression, yet members of social species are far more likely to interact with each other in a positive way. In *Animal Friendships*, Anne Dagg of the University of Waterloo explores non-sexual bonding behaviours in a range of mammalian and avian species. Through analysis of factors which trigger and deepen friendships, Dagg uncovers a world of intricate and complex social interactions. These factors include sources of food, formation of coalitions, play dates for infants, mutual grooming and the apparent pleasure of simple companionship. Chapters cover different types of friendship: from those between two individuals, such as male-female or parent-offspring friendships, to those within family groups and even inter-species friendships. Not only does the book explore how and why friendships form, it also showcases the ingenious field techniques used by researchers enabling the reader to understand the scientific methodology. An invaluable read for both researchers and students studying animal social bonding.

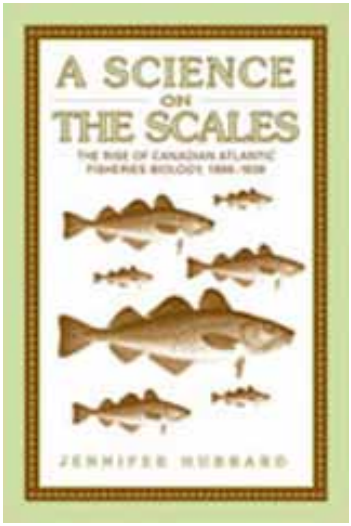


Art and Science in Breeding: Creating Better Chickens

By Margaret E. Derry University of Toronto Press, 2011, Clothbound, $65.00 CAD

Chickens are now the most scientifically engineered of livestock. How have the methods used by geneticists differed from those employed by domestic breeders over time? *Art and Science in Breeding* details the relationship between farm practices and agricultural genetics in poultry breeding from 1850 to 1960.

Author Margaret Derry traces the history and organization of chicken breeding in North America, from craft approaches and breeding as an 'art,' to the conflicts that had emerged between traditional and scientific methods by the 1940s. The author assesses links between the 'scientific' revolution of chicken farming and the development of corporate breeding as a modern, international industry. Using poultry as a case study for the wider narrative of agricultural genetics, *Art and Science in Breeding* adds the perspective of considerable knowledge to a rapidly growing field of inquiry.



A Science on the Scales: The Rise of Canadian Atlantic Fisheries Biology, 1898-1939

By Jennifer M. Hubbard University of Toronto Press, 2005. Clothbound, 300 p. $74.00 CAD.

In *A Science on the Scales*, Jennifer M. Hubbard of Ryerson University tells the story of how a new and emerging science - marine and fisheries biology - became an important enterprise in Canada. She uses extensive archival research - focused on scientific correspondence and internal reports - and follows the science's development in Canada, as well as in Scandinavia, the United Kingdom, and the United States. In so doing, Hubbard describes the important, but fraught, relationship between the economic and social history of Atlantic Canada and its relations with the federal government, particularly in the context of the generally low priority given fisheries issues.

Despite a variety of challenges, contributions made by the research organization that eventually became the Fisheries Research Board of Canada proved to be vital in the development of the science. Indeed, its flagship research station, the Atlantic Biological Station in St. Andrews, New Brunswick, became for a time one of the world's leading centres for marine science, its dynamic scientists and facilities providing the impetus that helped Canadian fisheries biology to achieve internationally recognized status. An original and timely work, *A Science on the Scales* shines a light on a heretofore-neglected aspect of Canada's science history.

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