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THE CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS Newsletter / Bulletin

In this Issue:

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- When Politics Override Environmental Priorities
- Regional News
- Sea Turtle “Selfie” Helps Biologists Track Pilgrimage to Nova Scotia



CSEB Newsletter Bulletin SCBE

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Front And Back Covers: Environmental Engineering Technology students from Nova Scotia Community College, Woodside campus, conduct stream measurements on Grassy Brook. The stream passes through the heart of a large 'big box' shopping mall, but stream and wetland values have been preserved in the design..

Photo Credit: Norval Collins, CEF Consultants, Halifax

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CSEB NEWSLETTER 2015

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

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

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LE BULLETIN de la SCBE 2015

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Le Bulletin de la SCBE est une publication trimestriel de la Société Canadienne des Biologistes de l'Environnement. Le Bulletin informe les membres des activités 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 diversifié d'environnementalistes Canadien. Les membres sont invités à contribuer des articles, photos (noir et blanc) ou des messages qui sont d'intérêt nationale en sciences biologiques et environnementales. Les lettres à l'éditeur sont bienvenues.

Tout la correspondance 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'éditeur:** Gary Ash, Editor, courriel: gash@golder.com

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The Canadian Society of Environmental Biologists



CSEB OBJECTIVES

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

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

OBJECTIFS de la SOCIÉTÉ

La Société 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 professionnelles 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.

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NATIONAL News

PRESIDENT'S Report

By Bill Paton, CSEB President

Spring Greetings

As your new CSEB/SCBE President, I first want to thank Robert, our Past President, for his many contributions to the society and most important, personally, his commitment to mentor me when needed. We are indeed very fortunate that we have a dedicated Executive that serve the Society extremely well. However, we note that new members from all provinces are very welcome and needed.

In recent months, by-law reconstruction to comply with new federal legislation on non-profit organizations has been thoroughly addressed and is available for your review. Under the leadership of Brian Free and his group, a new updated website is in progress and will aid greatly in linking the Society with the membership and the wider public. Work also continues on finding a suitable location and partnership for our annual AGM and Workshop (theme to be determined). Our promotional video is now on YouTube and will raise our national profile and hopefully attract new membership. I have distributed it to Biology, Environmental Science/Studies Departments across Canada, and several have indicated linkage on their websites.

When we review our objectives as a society, the commitments to conservation of our natural resources and their environmentally sound management, imply that we have a role in contributing to the debate on major national initiatives before government and the general public. For example, currently there are opportunities to comment on Enbridge Pipelines Inc. replacement programs in Alberta, Manitoba, and Saskatchewan; Harper Creek Mine Project in British Columbia; and the Black point Quarry Project and the Shelburne Basin Venture Drilling Project both in Nova Scotia (<https://www.ceaa-acee.gc.ca/050/participation-eng.cfm>). In the Canada Gazette, the current consultation is on the Regulations Amending the Metal Mining Effluent Regulations (<http://www.gazette.gc.ca/consult/consult-eng.html>). If you would like to participate in these kinds of initiatives, please let me know.

Hopefully the worst of winter is over and we can look forward to an early spring and a fruitful upcoming field season.

Check out the CSEB Video at
<http://youtu.be/J7cOuDbBf9c>

WEBSITE Update

By Brian Free, CSEB Member

The CSEB has engaged an Edmonton company, Phoenix|D, to re-design the CSEB website. Designers Aurooba and Bobbi have been working with a group of CSEB Board members to review the look and feel of our website and how we might change the design and improve its content. It has been an interesting process, as we review proposed moodboards, design elements, and wireframes. I don't recall covering these topics in Ecology 101! For those familiar with websites, it will be constructed using "WordPress", which is a user-friendly (I'm told) software package for managing web sites. The new website will be more attractive and will contain more information and resources for members.

The new website should be up and running by the time you get your next newsletter. Have a look at our website today, so you can see how different the new website is. If you have any suggestions, please send them to bfree@cseb-scbe.org

CLIMATE CHANGE

Submitted by R.J Stedwill, CSEB Past President

It all started in Rio de Janeiro in 1992. Well, not really. It was in 1992 that scientists and political leaders got together to talk seriously about climate change during the UN Conference on the Environment and Development. Climate change had started long before when the industrial revolution was ramping up. It was only in 1992 when people thought we'd better talk about it. This conference resulted in the Framework Convention on Climate Change (UNFCCC).

In 1995 parties to the UNFCCC met in Berlin, which happened to be the 1st Conference of Parties (COP 1), to outline specific targets on greenhouse gas emissions. COP 2 took place in 1996 in Geneva, Switzerland where further deliberations took place, to be followed by COP 3 in December of 1997, at which the Kyoto Protocol was concluded in Kyoto, Japan, during which the parties agreed to the broad outlines of emission targets.

The Protocol was followed by COP meetings 4-8, at which point, Canada, along with Russia, ratified the Protocol in 2002. COP meetings 9-11 followed, finally bringing the treaty into effect on February 16, 2005. Needless to say, with COP 12-14 meeting discussions resolving little, the Secretary General of the United Nations called a Summit in September 2009 on Climate Change to prepare an agreed

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REGIONAL News

BC News

By Loys Maingon, CSEB BC Director

When Politics Override Environmental Priorities

In British Columbia, 2015 begins much as 2014 ended. With relatively little precipitation over the past 3 months, the snowpack on Vancouver Island is down to 10% as of March 13, 2015. An initial water advisory restricting water usage in the Cowichan that would normally be issued in July has just been issued March 13. Last year in August, the province declared a state of emergency with regard to the low levels of the Cowichan River and its impact on the local tourism, fishing, and pulp and paper sectors. Once again the needs of the main employer, the New Catalyst mill, have been prioritized to sustain the local economy, over any long-term environmental considerations.

Underlying this crisis is a silent refusal to acknowledge that while pundits continue to tell us that “it’s the economy, stupid,” the reality is that the market economy relies largely on the state of the environment: “it’s only the environment that makes the economy possible.” That is true, even if we wish to think of the environment only as “the natural capital,” which is the central – if silent – assumption of Adam Smith’s Wealth of Nations.

To some, the anomalous situation we are witnessing might be written off as just an accident in simple weather patterns. This is, in fact, the product of a pervasive state of denial, deeply rooted in a quite anti-environmental prejudice. While some may have forgotten, in its cutbacks of BC Parks, the Campbell government specifically targeted “nature education” programs in BC parks, because these were seen as a “breeding grounds for environmentalists.” About half the jobs (145/320) targeted were BC Park’s environmental scientists and biologists.¹

As with everything related to climate change, which too many people still continue to deny against the consequences of the vast majority of the scientific community, the current situation is a product of our making, for which nobody is willing to assume responsibility. We may want to package this intellectually and call it “the Anthropocene” – an age of extinctions governed by the impacts of man – as though it were a natural progression. In fact, man’s impact on the planet started from the moment of conception and has grown exponentially ever since our first attempts at agriculture. What is not natural is the denial of a bond between man and nature. That bond and an obligation to maintain a conscious continuity between this generation and both the past and future has always been recognized by agricultural societies as the keystone to responsible stewardship, a concept well-honed by the American poet and essayist, Wendell Berry.²

Climate change, as Naomi Klein summarily puts it: “This Changes Everything.”³ In spite of repeated warnings from the scientific community dating back to the first release of *Limits to Growth* in 1972, which already projected the impact of climate change, we have continued to prioritize business interests over environmental interests. It should, therefore, come as no surprise that the economic data and related impacts from 1972 to 2015 perfectly track the projections of the *Limits to Growth* “Business-as-usual” scenario (Figure 1).³

In other words, in spite of much posturing and window dressing, for the past 40 years politicians have failed to take heed of objective information provided by the scientific community, and have failed to translate this information into an actual consensus to address real and developing problems that are now very much at our doorstep. In spite of much talk of “sustainability,” eco-friendliness, and many conferences of parties, politics have continued business as usual, essentially unchanged and with the same indifference to the environment.

To fail to heed objective scientific information is one thing. What is now happening increasingly is that politicians are confusing commercial advertising and the interests inherent in it with the public interest. In so doing, there is an increasing trend to “control the message,” as a means of avoiding having to deal with an unfolding reality.

It is disconcerting to observe a growing inverse relationship between support for science and the developing environmental crisis. As the environmental crisis develops, instead of supporting environmental science, governments around the world are suppressing scientific freedom of inquiry and expression, in order to control the messaging in favour of a continued status quo, even as it becomes increasingly more obvious that the present status quo is unsustainable.⁵ Though examples of this are known at home to Canadians, this phenomenon is increasingly widespread across the world. In scientific circles associated with government, there are increasingly only degrees of freedom of expression. Only the means of free enquiry and the free expression thereof vary. To varying degrees of social latitude, from east to west, from the Middle East to China, and from Russia to South Africa, professional scientists are only marginally free to speak. State or industrial controls always constrain what can be said for the public good.

The anti-environmental bias has been well documented in North America by Robert R. Kuehn (2004).⁶ As Kuehn amply documents, these attacks are rarely on the substance of the science and almost always on the purported character of scientists. It has now reached the level of a “party line”. witnessed in the governor of Florida’s directive to environmental and climate scientists not use the term “climate change”.⁷ Environmental scientists can be fired for

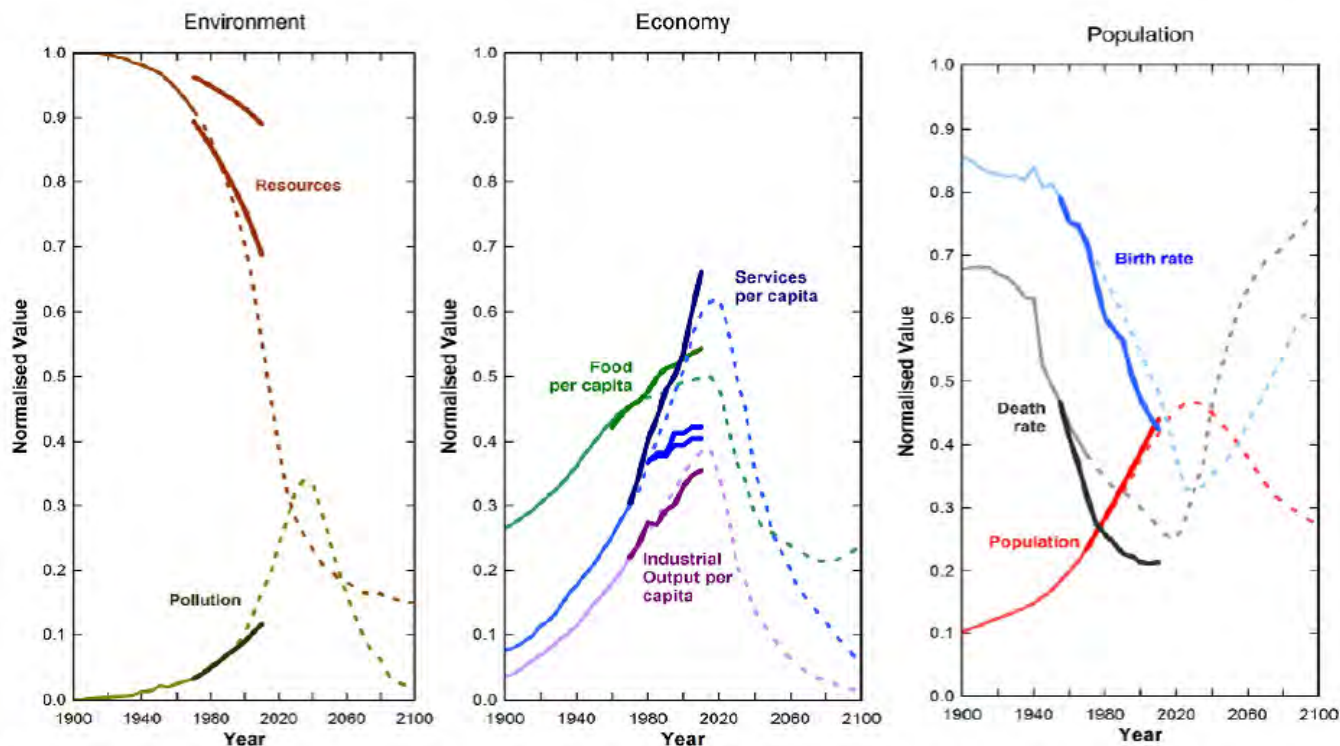


Figure 1. LTG BAU (Standard Run) scenario (dotted lines) compared with historical data from 1970 to 2010 (solid lines)—for demographic variables: population, crude birth rate, crude death rate; for economic output variables: industrial output per capita, food per capita, services per capita (upper curve: electricity p.c.; lower curves: literacy rates for adults, and youths [lowest data curve]); for environmental variables: global persistent pollution, fraction of non-renewable resources remaining (upper curve uses an upper limit of 150,000 EJ for ultimate energy resources; lower curve uses a lower limit of 60,000 EJ [Turner 2008]).

correctly naming the unfolding phenomena that they observe and measure.⁸

In keeping with this brave new reality, the same politicians who would effectively deny the growingly self-evident reality of climate change have also adapted a strategic response. When asked by school children about climate change, Republican candidates answer that they are not scientists and, therefore, cannot discuss this. By this logic only an accountant can discuss the state budget, and only a soldier can discuss a declaration of war. This is a kind of strategic “neutrality”, which merely confirms the legal axiom: “Silence is approbation”. So-called “neutrality” is really a hypocritical way of not dealing with real problems. It is a two-faced abdication of social responsibilities. Having repressed public access to scientific information, these same politicians then also deny that that very information was accessible to them, and claim that the same information is available to the public. This is Orwellian logic worthy of 1984.

It is important to understand where this trend is currently headed in Canada. The muzzling of Canadian scientists has already become an international scandal, and has been well documented.

To a large extent, the deliberate ignorance and feigned neutrality that has increasingly cast a veil over public information and public discourse, has been the growing means by which business as usual has dominated the past 40 years. However, until this decade, however marginalized, there has always been the possibility for environmental scientists to pursue independent research. Recently, the Canadian Institutes of Health Research (CIHR/ISRC) have released a new funding policy: all health research projects applications must have matching funds from private partners. There are very few really independent private partners able to fund research outside of industry.

This policy effectively makes it mandatory for Canadian researchers to have their research approved by industry. Canadian scientists have pointed out that this effectively muzzles scientific research, particularly in environmental health, because it means that very few projects that might be critical of, or are of no benefit to, industry will be funded.⁹ From the point of view of environmental health and environmental biology, it should not take too much imagination to understand what that means in terms of pollution research associated with climate change related impacts. Schindler’s landmark 1970s work on phosphates at the Experimental Lakes, or more recent work on the health

impacts of the oilsands development on First Nations health, would never have received funding under these standards.

That is where the importance of this June's *Tsilhqot'in* judgement is becoming increasingly more relevant to all Canadians. While there has always been a pretense that environmental decisions required a social license, *Tsilhqot'in Nation vs British Columbia* has re-asserted the obligations of government to the well-being of First Nations, and has elevated the standard for meaningful consultation with the people affected. The precedent inherent in "meaningful consultations" has a special significance for all Canadians. Governments have to prioritize the interests of ordinary people rather than those of corporations. In this respect, *Tsilhqot'in* stands as a predecessor to an environmental bill of rights, which some municipalities throughout British Columbia are beginning to enact.¹⁰

This spring, the implications of *Tsilhqot'in Nation vs British Columbia* are becoming more obvious in two important events, the spring herring spawn and the Site C decision.

In British Columbia political interference in scientific recommendations is a regular annual event. Every year, fisheries associated with the herring spawn have become a political decision, rather than a conservation concern. Ever since the collapse of the herring fishery in the 1960s that ended interception fisheries, and the subsequent rebuilding of the stock with a total closure from 1968 to 1971, the conservation of the stock and its ecological importance have remained a source of concern. Although the herring fishery has been replaced with terminal fisheries, or roe fisheries, the returns have continued not to meet pre-collapse expectations. With the increasing importance of First Nations consultation, First Nations have increasingly asserted their management rights over all resources, particularly with regard to traditional fisheries.

As DFO memos show, in 2014 the federal Fisheries minister, Gail Shea, overrode the advice of DFO scientists regarding "the three [herring fishing] areas showing signs of recovery, it is recommended that they remain closed in 2014". Contrary to First Nations' tests which determined that they had "seldom seen lower levels of herring roe in their nets", the fishery was opened at the request of industry.¹⁰ Political interference, and disregard for scientific information, has resulted in social unrest in fishing ports and in a series of largely inconclusive First Nations lawsuits leading ultimately to the closure of the commercial herring roe fishery in several but not all areas, for this year. It is not just a question of a costly legal process that could have been easily avoided by following objective scientific advice. The litigation process is really a preliminary testing ground for the precedents set in *Tsilhqot'in vs British Columbia*. Although the balance of rulings followed by tactful retraction by the federal ministry has allowed the ministry to save face, the argument still largely revolves around the priority of science and the public interest of the individuals most directly affected, and the interest of an economic status quo that is contrary to the interest of the environment.

Similarly, although the provincial government has approved with great fanfare the development of the Site C hydroelectric project, that development is currently mired in at least three lawsuits in BC and in Alberta (Blueberry River Nation, Mikisew Cree, and Athabasca Chipewyan). In all three cases, as in *Tsilhqot'in vs British Columbia*, the initial suit rests on "failure to consult". Additionally, this is reinforced by the head of the review panel, Harry Swain's categorical disavowal of the approval, because the government exempted the project from the mandatory regulatory review by the BC Utilities commission, therefore without objective scientific and economic advice. In fact, the review panel had recommended against this project, because BC Hydro had not made a valid economic case. In other words, Site C was approved by the government, against clearly articulated environmental concerns, and against clear economic concerns that an economic case has yet to be made. Once again, the project was approved for political reasons to maintain an economic status quo that is neither sustainable globally nor desirable by the people most directly affected locally.

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ALBERTA News

Submitted by Joseph Hnatiuk, CSEB Alberta Director

The 2015 year began with a continuation of many similar activities that I have been involved with in the past. The most recent one was attending the Alberta's Endangered Species Conservation Committee. A brief history of the committee is given below.

Alberta's Endangered Species Conservation Committee (ESCC), is made up of a balance of members from stakeholder groups representing resource base land users, corporate and government land managers, conservation groups and university scientists. The mandate is to advise the Minister of Alberta Environment and Sustainable Resource Development (AESRD) on matters relating to identification, conservation and recovery of species at risk in Alberta. The committee feels the principles noted below are important in a provincial and federal context.

They are as quoted from Alberta's ESCC policy statement:

- The identification, conservation and recovery of threatened and endangered species, as well as prevention of extinction, are shared values of this committee and Albertans in general;
- The biological status of species should be determined by independent scientists using the best science available in an open and transparent process;
- In accordance with the precautionary principle as stated in the Accord for Protection of Species at Risk in Canada, where the balance of scientific information indicates a species at risk, conservation and protective measures will be taken;
- Government has the responsibility to coordinate and facilitate the recovery of species. However, the success of a recovery plan depends on the knowledge and commitment of organizations and individuals who own, manage and use the land. Recovery teams must include these landowners/land managers;
- Prevention and recovery programs for species at risk will be pursued by encouraging voluntary and cooperative, recovery and management efforts that cost-share on an equitable basis; and
- This committee encourages the elimination of any government policy disincentives to landowners to protect species at risk.

Other agenda items included a discussion of the Species at Risk program and the committee's role. Detailed presentations included Guidelines for Application of IUCN Red List Criteria at Regional and National Levels, IUCN Red List Categories and Criteria and Guidelines for Using the IUCN Red List Categories and Criteria.

Species discussions included the "Status of the Chestnut-collared Longspur (*Calories ornatus*) in Alberta". A draft

action plan was also discussed; the recommendation of the discussion will be submitted to the Minister shortly.

Draft Conservation action statements for the Canada Warbler and Brassy Minnow were discussed and approved.

In conclusion, I wish to commend the ESCC Secretariat of the Fish and Wildlife Policy Branch, Policy Division, Alberta Environment and Sustainable Resource Development for the great work they are doing with Species at Risk.

SASKATCHEWAN News

By Robert Stedwill, CSEB Past President.

March of 2015 has not come soon enough, as we have had more snow events than usual, but not near the amounts that the Maritimes have experienced, or New England in the United States. Regardless, the snow is disappearing quickly.

News from Saskatchewan will be brief, providing snippets from newspapers over the last little while. Interestingly, one piece that caught my eye concerns a group at the University of Regina which has grabbed some attention by Regina City council with respect to citizens' "Right to a Healthy Environment" under Suzuki's BlueDot banner. One of the students involved has put considerable effort into engaging City council on this subject, with the ultimate goal of including this concept into Canada's Charter of Rights and Freedoms. Why Canada has not embraced this concept, where 110 other countries have is interesting, and will need to be followed.

On another front, a legislative bill entitled "Buy Local Day Act" received unanimous support from both government and opposition members, even though it was introduced by the opposition recently. The Act would declare the first Saturday of each month to be "Buy Local Day in Saskatchewan". In the write up, not one mention of the environment was made, with only economic references made as to why this was a good thing. The economic argument can be made, but the concept of buying locally has always been, in my mind anyway, a means by which the need to transport everything hundreds, if not thousands of kilometres, with attendant polluting emissions, to be reduced. Time will tell if the idea will catch on and the message of buying locally greatly expanded to include the idea of environmental protection.

In January, the governments of Saskatchewan and Alberta renewed their agreement to combat the Mountain Pine Beetle infestation in Alberta in order to keep the beetle from infesting Saskatchewan's northern boreal forest. The Saskatchewan government has committed 1.25 million dollars to help control the outbreak in Alberta and prevent or slow the spread to Saskatchewan. The eastern movement of the beetle eastward is particularly due to warmer winters, thought to be caused partly by climate change.

And lastly, speaking of climate change, SaskPower's carbon capture project at its Boundary Dam Power Station is up and

running and apparently is improving its ability to remove carbon dioxide from its flue gas streams as coal is burnt. When operating at full capacity following the commissioning phase, it will be the equivalent of taking 250 000 vehicles off the road. Ironically, the carbon dioxide removed will be used to enhance oil extraction from oilfields in the Estevan area, which when burnt, will release more CO₂ into the atmosphere.

The technology I believe has been proven, however, the debate will need to be had as to whether this facility is a short term solution, during which other energy sources are explored for Saskatchewan, or a long-term expensive add-on to existing coal facilities; here or elsewhere in the world.

MANITOBA News

Submitted by Bill Paton, CSEB President.

Flood Mitigation Initiatives

In early December, the province's plan to either build a series of large dams, construct miles of dikes, or purchase flood-prone farmland was presented for public comment in a series of open houses held around the affected areas. The following lakes and rivers were considered in the study – Assiniboine, Souris, Qu'Appelle, Fairford and Dauphin Rivers, and Lakes Manitoba, St. Martin, Winnipegosis, Dauphin and Shoal. All of these waterbodies have experienced record floods in 2011 and 2014.

The study analyzed six independent large dams as well as a combination of 21 small dams. The estimated construction costs for the six large dams ranged from \$90 million to \$525 million. Upgrading current dikes and adding new ones ranged in cost from \$735 million to \$1.575 billion. Major outlet and diversion channels were proposed for the lakes. The cost of all these initiatives was projected into the billions of dollars.

The most sensible solutions involved purchasing flood-prone land and properties. For example, farmers situated below the Shellmouth Dam on the Assiniboine River have been restricted from using their land for the last five years. Purchasing the farmland for \$20 million is preferred to the cost of diking the affected riverbanks - \$75 million.

Wetland restoration was addressed. The report by Dr. John Pomeroy of the University of Saskatchewan was highlighted. The report entitled "Enhancements and Testing of the Prairie Hydrological Model" was released in the spring of 2014. The study was based on the Smith Creek watershed (460 square kilometres) and indicated that restored wetlands have a significant impact on peaks and volumes of even major, large floods. Using Pomeroy's calculations, the Manitoba study estimated that for a repeat of the 2011 flood, a 15% restoration of wetlands could result in a peak flow reduction at Portage la Prairie of approximately 30%. However, this was considered not cost effective.

TERRITORIES News

Submitted by Anne Wilson, CSEB 1st Vice-President and Territories Director

This comes from Nunavut where I am attending public hearings. It is not far off of the spring equinox, and time to set our clocks ahead for daylight savings time but we are still in the grips of hard winter here!

It is fascinating to listen to people voice their concerns with development, with firsthand stories of the Inuit traditional way of life from elders, alongside the passionate and articulate presentations from the younger Inuit. Caribou, fish, water quality, marine mammals and birds are all of great concern. Closure planning is front and center for mining developments. Walking through the Hamlet, there are brand new snowmobiles in many yards, and new vehicles parked at the community arena – the other side of the development issue. Jobs, but not at any cost seems to be the message.

The current pace of development activity in the Northwest Territories and Nunavut reflects the lower prices for gold, base metals, iron ore, and oil and gas. A number of projects that have received environmental assessment or regulatory approvals are not being built due to difficulties finding financing. Diamonds do seem to be holding their own, and are fueling much of the NWT economy.

Existing projects continue through the environmental assessment and regulatory processes, although there are few new ones coming in. Operating mines continue to do extensive environmental monitoring, with the annual reporting deadline of March 31st coming up.

Mining and Other Development News

Ongoing environmental assessments underway in the NWT and Nunavut include the following:

- Jay Expansion - Ekati Diamond Mine (Dominion Diamond Ekati Corp). The Jay Pipe is located under Lac du Sauvage, and is proposed to be accessed by constructing a ring dike around the kimberlite pipe. The Developer's Assessment Report and first round of information requests and responses are available for review, and technical meetings are scheduled for April in Yellowknife.
- The Mackenzie Valley Highway project has been reduced in scope, due to funding realities, and now consists of 333 km of all-season gravel road connecting Wrigley and Norman Wells. The original proposal was almost 500 km longer to the north, so the impact assessment scope and terms of reference are being revised.
- The Yellowknife Gold Project (Tyhee) is still on the books, but not active.
- The Giant Mine Remediation project is awaiting Ministerial approval for finalization of the environmental assessment report, before it can proceed to the regulatory processes.
- Prairie Creek Mine (Canadian Zinc Corp.): The road EA continues, and the company is working to assemble financing needed to take the mining project into production.

- The Meliadine Gold project near Rankin Inlet recently received a positive environmental assessment decision from the Nunavut Impact Review Board, which gave this approval with 127 recommended terms and conditions. A water licence application is expected shortly.
- Sabina's Back River gold project is undergoing environmental assessment, and the Final Environmental Impact Statement will be out in August.
- Areva has submitted their Final Environmental Impact Statement to the Nunavut Impact Review Board for their Kiggavik Uranium Mine project. Public hearings were held in early March 2015 in Baker Lake. The project has drawn significant attention from public, ENGOS, and regulatory agencies.

In the regulatory forum, several mining projects are moving towards development or have applied for amendments to their water licences, or renewals.

- Snap Lake Diamond Mine (DeBeers Canada Inc.) has applications in for amending their water licence to allow higher discharge limits on total dissolved solids. Treatment will be necessary, and that solves some problems and causes others – disposal of brine residuals, and lots of them. Public hearings were held in Yellowknife in March 2015.
- Fortune Minerals has not advanced further, and is working on financing to move the project to construction. Road access is also an issue.
- Canadian Zinc Corp.'s Prairie Creek Project was issued a water licence in September and the company is seeking financing to proceed.
- DeBeers Canada's Gahcho Kué Diamond Mine is under construction.
- The Avalon Rare Metals project is on hold, while the company does further work and lines up financing prior to going to water licence hearings.
- Baffinland's Mary River iron ore mine is in production, with ore mined and stockpiled for shipment next open water season. They have applied for an amendment to do more shipping from the Milne Port, proposing 10 months a year (icebreaking). This will require public input and hearings.
- The Meadowbank Gold mine's Type A Water licence is up for renewal in May 2015; Agnico Eagle has submitted an application which is under review, with public hearings expected in April of 2015.
- The Lupin gold mine has been in "care and maintenance" for years, and the new owners have renewed the water licence with the stated intention of developing the Ulu deposit and reopening the mill.
- The Nanisivik and Polaris lead zinc mines have been issued closure licences, which cover the final monitoring phase.

Full details for current environmental assessments are available on the Board's web site at <http://www.reviewboard.ca/registry> and regulatory files at <http://www.mvlwb.ca/Boards/mv/SitePages/registry.aspx>.

Closing:

If you are connected to activities in the Yukon, NT or NU, there is a vacancy for a Director, and I would love to welcome someone on board. 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 educational variety - with colleagues in the North. Please email your thoughts to anne.wilson@ec.gc.ca.

ATLANTIC News

Submitted by Pat Stewart, CSEB 2nd Vice President and Atlantic Director

Sea Turtle 'Selfie' Helps Biologists Track Annual Pilgrimage to Nova Scotia

Marine biologists from Halifax recently mounted a video camera on the back of a leatherback sea turtle to see what its day-to-day underwater life would look like. Not surprisingly, the short video released in early March 2015, showed it zeroing in on its favourite prey item—jellyfish—as well as showing bleak views of an austere and unrelenting North Atlantic.

But what may seem even more surprising is that leatherbacks—a large, shell-less sea turtle that can reach 6 m or more in length—are found in Nova Scotia waters at all.

Sea turtle biologist Dr. Mike James recalls there was plenty of hollering when a new data recording device containing a camera worked for the first time when attached to the shell of a swimming leatherback turtle.

"We recovered the tag and took the little (memory) card and put it in my computer, and the first thing we saw was the turtle's head, and shortly thereafter it was following prey," James said. "It was amazing."

The camera and environmental and GPS sensors of the instrument package attached to the turtle's shell behind its head, has provided James and other marine biologists with intricate behavioural data, as well as one-of-a-kind video footage of leatherback activities in ocean waters off Neils Harbour, Cape Breton Island, Nova Scotia. An account of the study was recently published in the journal *Frontiers in Ecology and Evolution*.

James' studies are based on the annual migration of the tropical *Dermochelys coriacea* to Nova Scotia to feed. It was a little over 50 years ago when the presence of the species in Nova Scotia waters was brought to the attention of the scientific world when an Acadia University biologist in Wolfville, Nova Scotia, documented a stranded leatherback on the coast of Nova Scotia [see text box on Page 11].

Since then it has become well known that the waters off eastern Nova Scotia and towards Newfoundland are the main summer feeding areas. Leatherbacks move up from the tropics in the Caribbean and off Florida in the Gulf Stream, a northward flowing, warm ocean current located 200-300 km off the east

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coast, and then ‘peel off’ when they reach the continental shelf of Nova Scotia.

Jellyfish have a ubiquitous presence in coastal waters here, and the leatherback’s timing coincides with abundance of adult jellyfish, which develop from microscopic to soup-bowl size morsels by summer. Turtles concentrate in the Sydney Bight area of eastern Nova Scotia, the enclosed stretch of ocean in the northeastern part of Cape Breton Island.

James initiated the research almost a decade ago in collaboration with the Canadian Sea Turtle Network—a Halifax non-profit research organization—and a team of biologists, engineers and fishermen. “For leatherbacks, we are interested in identifying areas where they are at risk and behaviours that put them at risk.” says Dr. James.

The instrument package has an advantage of providing “fine-scale” data, such as water temperature and the swimming depth at a given moment, information which satellite-link tags, which are frequently used by researchers tracking, aren’t good at providing.

“We wanted to put tags on animals that were free-swimming, and wanted to get them back and wanted to do it in Canadian waters. The challenge became how could we do this?”

James collaborated with engineers at Xeos Technologies Inc. and Soko Technologies Inc. in Dartmouth to develop an instrument that could capture the data. The instrument package dumps all that

data to the boat when the animal surfaces from a dive, enabling the researchers to track the turtle in real time.

The instrument is attached with a suction cup that has a release on it so that it will come off when required. Suction cup technology was developed for use on whales—normally it is difficult to attach instruments to leatherbacks because the shell is covered in skin.

During the study, researchers learned leatherbacks primarily target their jellyfish prey during daylight at the lowest point in their dives, as well as on the ascent, silhouetting the jellyfish against the light from the surface of the water. The study showed that the animals are inhabiting relatively warm water — the top 30 m roughly which forms the seasonal thermocline— and that they are constantly feeding.

Although each of the twenty-four leatherbacks tagged in the study won’t get to share their videos with friends back home, they’ve unknowingly provided a much greater legacy for their species. So when, like snow-birds, they hit Caribbean beaches to spend the winter, they can just relax.

See the leatherback video at <http://thechronicleherald.ca/novascotia/1271846-study-shines-light-on-leatherback-turtle-thanks-to-camera-strapped-to-shell>

Article compiled based on articles in Halifax Chronicle-Herald and National Geographic Magazine

NS Biologist Unravels Leatherback Story

One late summer day in 1961 a biologist named Sherman Bleakney got a telephone call about a strange sea creature that fishermen had just unloaded on a wharf in Halifax, Nova Scotia. Bleakney, who lived nearby, was captivated by what he found there. Sprawled on its back amid a curious crowd was an immense black sea turtle tipping the scales at 900 pounds, with a soft, rubbery carapace, winglike front flippers, and a massive, conical head like an artillery shell. Bleakney recognized it as a leatherback, the biggest of all sea turtles. Leatherbacks, he recalled, were supposed to be creatures of the tropics, as out of place in chilly, gray Canadian waters as parrots in a Halifax park.

When Bleakney began asking around, though, he learned that fishermen saw leatherbacks swimming in the waters off Maritime Canada regularly enough to call late summer "turtle season." The conclusion was inescapable, he wrote in 1965. "Evidently there is an annual invasion of our cool Atlantic coastal waters by turtles of tropical origin." Their southern roots were obvious from the few dead turtles he examined. One had a twig from a tropical mangrove tree stuck in its eye; others carried warm-water barnacles. Yet the leatherbacks were surviving, even flourishing, at temperatures that would kill other sea turtles. Stranger still was what he found inside them: Their huge stomachs contained masses of chewed-up jellyfish, stinging tentacles and all, and their gullets were lined with three-inch spines, angled inward to hold in all that slippery prey.

Bleakney eventually moved on to other studies—sea slugs were a special passion of his—but he never stopped marveling at the great beasts he had encountered on the fishing piers of Nova Scotia. "It was mind-boggling," he recalled in a recent interview with Canadian conservationists. "A reptile of that size, that lives in ice water, that can thrive on jellyfish." Almost

50 years later, scientists are still astonished at the leatherback's physical prowess, though today wonder is alloyed with a more modern sentiment: fear that even before we fully understand the leatherback and its epic life story, our own activities may be driving it to extinction. *Source: National Geographic, May 2009*



Leatherback sea turtle surfaces in the waters off eastern Cape Breton Island in a study of behaviour and biology.



Under water a cruising leatherback targets its principal prey—a jellyfish. And a few seconds later, casually dines on its relatively passive and nettled prey.

Continued from Page 3

outcome for the Copenhagen Conference (COP 15). Again, although well attended, the Copenhagen meeting failed to come to any binding agreement, only producing an accord. Based on my understanding, this Accord only gave lip service to supporting the Kyoto Protocol, agreed to in 1997, and as a consequence, essentially spelled its death.

Discussions carried on at Cochabamba in 2010, also culminating in an accord protesting the outcome of Copenhagen, only to be followed by the Ambo Declaration developed at Tarawa, Kiribati, to be presented in Cancun in 2010 (COP 16), in support of the Kyoto Protocol. The Protocol was rejected once again. The Climate Change conference held in Bangkok in April 2011 attempted to amend Cancun and revive, once again, the Kyoto Approach. In June of the same year in Bonn, Germany, delegates again tried to revive Kyoto in time for yet another conference in South Africa (COP 17).

In 2011, Canada became the first signatory to announce its withdrawal from the Kyoto Protocol, and on December 31, 2012, the Protocol expired.

Following Canada's withdrawal from Kyoto, COP 18 took place in December 2012 in Qatar before the expiration of Kyoto, which addressed the Green Climate Fund and adaptation, with COP 19 taking place in Poland in November of last year.

Currently underway is COP 20, in Lima, Peru, where the goal is to provide the "opportunity for global nations to negotiate and shape the contribution they will give to vastly reduce their carbon emissions, before a definitive commitment in Paris". It will also be an essential platform to showcase the undertakings to mobilize the green economy, and enable low carbon development.

"Innovative policy, finance, technology and leadership are fundamental to achieving a climate neutral future".

We have come a long way since 1992, 22 years in fact, and I see little evidence of the bold statement above (literally and figuratively). When I read the outcomes of the previous nineteen meetings of COP, I am not convinced that we are any further ahead than we were in Rio. The world's environment I believe is at the tipping point, and the weak links in all of it are human beings, inherent in their belief that the economy must prevail, to the detriment of most living things.

Stating that to regulate gas emissions in the oil industry at this time of falling crude prices is "crazy", leaves one to wonder what kind of planet will be left. Unfortunately, my belief is that COP 21 in Paris next year will come and go, regrettably with no real commitments made by governments wanting to protect their economies.

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