On the web at www.bio-oa.ca

BIO-OCEANS ASSOCIATION NEWSLETTER

Issue 52 October 2011

BIO Scientists keep HRM ahead in climate change adaptation planning

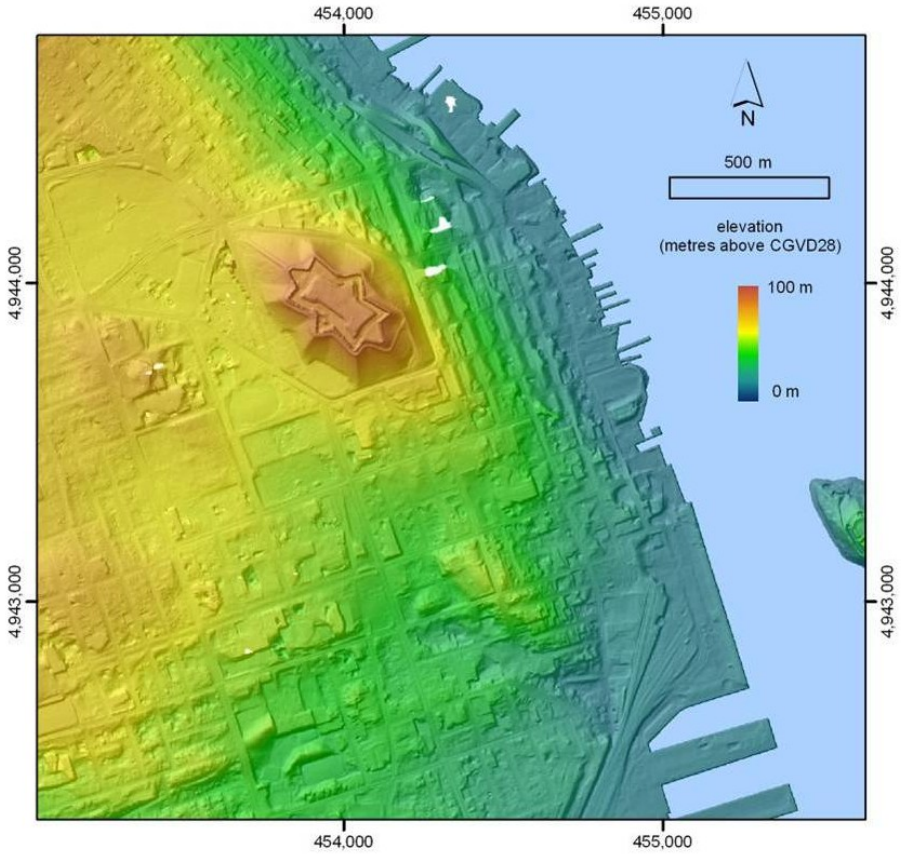


Figure 1: Detailed digital elevation model for downtown Halifax derived from the Light Detection and Ranging (LIDAR) survey in the Halifax Regional Municipality (HRM).

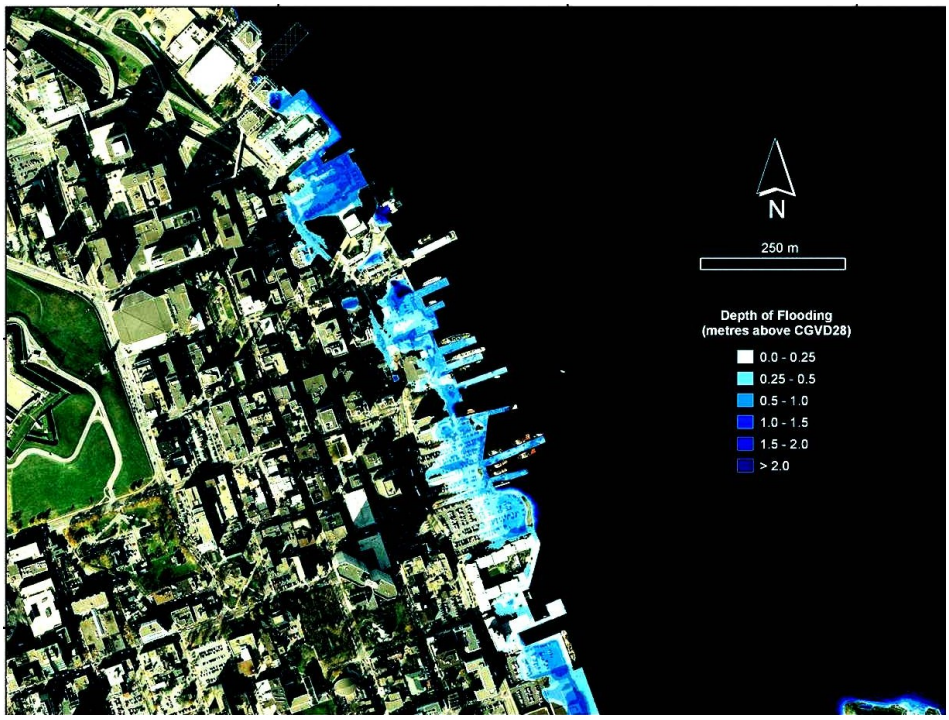
On 22 September 2011, the second workshop on Light Detection and Ranging (LIDAR) in the Halifax Regional Municipality (HRM) was held at BIO. It was organized by planners from HRM and prominently featured the work of scientists from BIO. The research conducted by Don Forbes, Gavin Manson and Dustin Whalen from the Geological Survey of Canada Atlantic underpinned many of the presentations. They had provided an estimate of future sea-level rise, surveyed actual water levels during storms in HRM and validated the LIDAR airbourne survey data with on-the-ground survey control points. The LIDAR survey provided the high resolution digital elevation model that allowed for accurate flooding forecasts.

The Bay of Fundy
A finalist in the New7Wonders of Nature competition. Every vote counts! Vote at:
MyFundy.com

Contents

The benchmark for assessing flooding vulnerability was the water levels attained during Hurricane Juan that saw substantial flooding at several locations on the HRM waterfront. With the expected rise in sea-level and the increased frequency of extreme storm events due to climate change, it is predicted that flooding vulnerability will increase. Don Forbes had presented flooding scenarios to the HRM Council previously. Council approved the use of Scenario 2c (see figure below) as the basis for HRM adaptation planning. The vulnerability to coastal flooding is influenced by sea-level, and tides plus increased water levels from storms through storm surge, seche, and wave run up. Wilf Perrie, BIO Ocean Science Division, presented his research on wave run-up modeling for Halifax Harbour. Dr. Perrie commented during question period that this work could be easily replicated for other coastal inlets in Nova Scotia where suitable bathymetry existed. Also discussed during question period were the inaccuracies of estimating risk and costs of the flooding due to the quality of information in HRM building data bases.

The work of BIO scientists in collaboration with HRM planners and others demonstrated that HRM was ahead of the pack with regards to climate change adaptation planning. The National Roundtable on the Economy and the Environment (NRTEE) released its latest report on 29 September 2011 entitled 'Paying the Price: the Economic Impacts of Climate Change for Canada'. They reported "Flooding damages to coastal dwellings, resulting from climate change-induced sea-level rise and storm surges, could cost between $1 billion to $8 billion per year with higher than average cost impacts in Atlantic Canada." NRTEE states in their report "Ignoring climate change costs now will cost us more later." HRM planners with the help of BIO scientists are protecting our community from these future increased costs.



Figures clockwise from top: Scenario 2c for flooding due to sea-level rise as approved for adaptation planning by HRM Council; Large washover channel at Martinque Beach after Hurricane Earl 05 September 2010; Hurricane Juan storm damage at Lawrencetown Provincial Park—29 September 2003. (Illustrations from the Geological Survey of Canada Atlantic. For more pictures showing the impact of storms go to http://gsc.nrcan.gc.ca/coast/storms/index_e.php)

From the President

We have just experienced one of the true joys of living in this beautiful province – the total unpredictability of the summer weather. Isn't it amazing how the forests and gardens respond to the variable weather! So summer is behind us, the nights are now cool and refreshing, and it is time to get back to work.

Much has happened since the AGM in May 2011 and our last newsletter (July 2011). The OA has received a response from the Minister of Fisheries and Oceans regarding our expressed concern about the inadequacy of the *Hudson* replacement proposal. You will find more about the *Hudson* replacement on the OA website (www.bio-oa.ca). The OA executive will continue to follow this issue and to offer the considerable expertise and experience that it has access to. Some of you have expressed concern about the OA being involved in this kind of activity. The executive debated the issue at length before taking the actions to date. The executive welcomes your comments either pro or con so that we can determine if our actions are supported by the OA membership.

On another front, the CCGS *Hudson* lost its battle with the M/V *Titanic*! Dale Buckley had pursued Canada Post for a 2012 stamp commemorating the 50th anniversary of the *Hudson*, but we have just been informed that we were unsuccessful. One of the winning proposals was a 100th anniversary stamp for the *Titanic* disaster.

The OA continues its collaboration with BIO Management as the plans for the 2012 Open House and Gala evolve. As the event draws nearer there will be many opportunities for volunteers so please let your executive know if you are interested in helping. The production of the BIO Commemorative Book is well underway. An editor in chief, Mike Latremouille, has been appointed and the editorial board is working hard soliciting manuscripts to round out the content of the publication. If you are an author, please meet the deadlines so that the book can be published by October 2012.

Did you notice? There was no OA sponsored excursion or family picnic/barbeque this summer. These are normally two well-attended events; but without a Social Co-ordinator these events did not happen! Please consider stepping forward either to take on the job yourself or to 'job share' with another member. The task is not as onerous as you first might expect. The outgoing co-ordinator, Gordon Fader, has a treasure chest of potential places to visit and events to attend along with contact names and phone numbers. The OA executive always has some interesting suggestions and potential leads as well. What is needed is someone to follow-up on those leads and make the arrangements. You then get to enjoy the fruits of your labour when you see your colleagues getting together and sharing stories, new and old, and having fun.

On a final note, Bosko Loncarevic recently made contact with the family of the late Captain Walter Kettle and has been able to borrow Captain Kettle's notes, logbooks and some photographs from his BIO scientific cruises. These documents are being copied and archived by the BIO library. Captain Kettle died suddenly from a heart attack just before he was to serve as captain of the *Hudson 70* voyage.

The OA executive is always interested in comments and suggestions from its members, so please do not hesitate to contact us. And please – YOU could be the co-coordinator of the OA social program – think about it and contact me or another member of the executive.

Paul Keizer

In Memoriam

William (Bill) Silvert, died 28 June 2011, Research Scientist, Marine Ecology Laboratory, BIO.

Robert J. Conover, died 1 August 2011, Research Scientist, Marine Ecology Laboratory, BIO.

Wanda May Farrell, died 15 August 2011, Administrative Clerk, Population Ecology Division, BIO.

Steven Solomon, died 20 August 2011, Coastal Geologist, Geological Survey of Canada Atlantic, BIO.

Richard (Dick) Vine, died 27 September 2011, Technologist, Systems Engineering Group, BIO.

Remember Bosko Loncarevic's story about his journey to BIO in Newsletter 51 (July 2011). Also read Andy Sherin's story on page 8 this issue.

We want the story of your voyage to BIO for issues of the Newsletter in 2012.

Send them to oanewslettereditor@gmail.com

A 'NEW NAME' for the Newsletter

To mark BIO's 50th Anniversary Celebrations we are asking for suggestions for a new name for the BIO OA Newsletter. We will start using the new name in the January 2012 issue.
Send your suggestions with a brief rationale to Andy Sherin
oanewslettereditor@gmail.com

Marking the 20th Anniversary of the *Polarstern / Oden* expedition to the North Pole

Carol and Keith Manchester attended a 20-year reunion of the scientific staff of two ships — the RV *Polarstern* and the RV *Oden* — who met at the North Pole on 7 September 1991. The reunion was held at GEOMAR in Kiel, Germany, on 7 September 2011. It was followed up by most participants getting on the ferry that evening and going to Göteborg, Sweden, with dinner on board, followed by a day in Göteborg before returning to Kiel. Of the seven Canadians who were on the two ships in 1991, three attended the reunion. Peter Jones and Frank Zemlyak were on the RV *Oden,* and Keith Manchester was on the RV *Polarstern*. The other four BIO participants in the expedition who could not attend the reunion were: Fred Jodrey, Kate Moran, Dave Mosher, and Peter Vass.

The following are excerpts from a letter written by Dr. Dieter K. Fütterer of the Alfred Wegener Institute for Polar and Marine Research to participants in the North Pole expedition after the reunion and show the grand time had by all:

"Time flies – so our joint celebration of 20 years of *Oden* and *Polarstern* at the North Pole has become part of history itself.

We – about 40 veterans of both vessels – enjoyed on 7 September 2011 a full day of multi-disciplinary scientific presentations at IFM-GEOMAR in Kiel. We enjoyed a marvellous dinner in the evening on board *Stena Scandinavica*, and enjoyed a full day of private sightseeing in Göteborg. Those who – for whatever reason – could not participate in our anniversary celebration have missed an opportunity.

We should be aware that our successful 1991 multi-disciplinary expedition has turned out as a mark stone, as a great step forward in Arctic Ocean (AO) research. It has demonstrated that the deep AO is accessible for scientific sampling and measurements by carefully planned ship expeditions. This has been again demonstrated in summer 2011season when *Polarstern* reached the North Pole for the third time, and the Canadian CCGS *Louis St. Laurent* and the USCGC *Healy* sampled in the central AO. A lot of samples and data have been acquired from AO during the last decades and have extended our knowledge of the Arctic Ocean very much. This has also been demonstrated in our presentations – talks and posters – during our scientific symposium at IFM-GEOMAR."

Dr. Fütterer invited participants to contribute a manuscript for a special volume to be published in *PolarForschung* .

RV *Polarstern*

RV *Oden*

** WANTED **

A SOCIAL PROGRAM COORDINATOR

The executive is seeking a person or persons to coordinate the 'Social Program' for the Oceans Association! Just think of the fun planning the venue for activities of the Association ranging from the regular 'fall and winter celebration' seminars to the 'spring fling' and 'summer barbeque', with whatever else comes to mind. The task is made easy by using the list of potential events already identified for consideration along with the assistance of the highly experienced assistant coordinator Georgina Philips who has agreed to continue in her present role. New ideas are generated by OA members and the executive along with the coordinators to ensure the work load is spread out. If you're keen to contribute by taking on this rewarding position, Please contact President Paul Keizer (ph: 861-1819, e-m: keizerp@gmail.com) or any other member of the executive. We look forward to hearing from you!

Letters to the Editor

'Letters to the Editor' are views of the author alone and do not necessarily represent those of the BIO-Oceans Association.

9 August 2011

Dear Sirs,

The Conservative Government recently announced that Environment Canada will cut 70 or so employees from its Atlantic Regional operation, primarily across scientific programs such as weather services and water quality programs. Environment Canada, now in its 40th year, something we should be celebrating, is already a seriously pared-down organization, having suffered through more than two decades of cutbacks. This time, it might be a death-blow to regional capacity and the morale of surviving employees, at the time when Atlantic Canada needs more information and sound impartial science-based advice from its public service on a wide range of environmental challenges. The challenges range from interpreting the risks of toxic chemicals in fish and invertebrate tissues (including those from aquaculture), to interpreting the impacts of causeways and their removal in the upper Bay of Fundy (half of it being a UNESCO Biosphere Reserve), to reducing the impacts of coastal industries such as mining and tidal energy extraction, and to supporting wildlife conservation focussed on endangered species such as the Piping Plover and Atlantic Right Whale. These tasks are not optional. They are necessary, urgent and mandated under considerable federal legislation and international agreements. The cutbacks will also occur just as Canada will be putting forth its positions, once again, on climate change and other global environmental concerns at the UN RIO+20 Green Economy Conference in June 2012. The cutbacks affect Canada's positioning at such conferences, perhaps the aim of the government, and relegate us to third-class status in globally important discussions and initiatives (recall the recent debacle in Copenhagen, Denmark). Canadians deserve better. The public should see through the ploy and vigorously demand a stronger environmental department here and in Ottawa, not a severely weakened one. We should be celebrating the 40th anniversary and achievements of an effective and stronger Environment Canada, not sitting back and watching its evisceration.

Peter Wells, Halifax, NS.

Correction

In Newsletter 51 (July 2011) we erroneously reported that David McKeown thanked Don Peer and Tim Milligan for the bathythermograph at the BIO-Ocean Association Annual General Meeting. The story should have stated that David McKeown thanked Tim Lambert for donating the bathythermograph and Peter Vass for restoring it. We apologize for this error.

Protection Urged for Sharks, Skates

by John McPhee[1]

Steps being taken by fishing nations to manage their impact on species such as sharks and skates don't go far enough, conservationists say.

The Northwest Atlantic Fisheries Organization met in Halifax last week. The conservation agreement that came out of that meeting was a mixed bag, said Bettina Saier, oceans director for the World Wildlife Fund.

"Generally, we thought NAFO made major advancement toward the recovery of some of the species, and also overall made an effort to implement a precautionary ecosystem approach to fisheries management," Saier said in an interview Monday."For example, they implemented a strong cod interim recovery plan and they also made some progress on the protection of vulnerable marine ecosystems such as coral and sponges from bottom fishing impact."

But she criticized the organization's decision to reject scientific recommendations on thorny skate quotas and to water down proposals for shark conservation. For example, NAFO has cut the quota for the thorny skate, a heavily fished but threatened species, to 8,500 tonnes from 12,000 tonnes next year. A scientific panel had recommended a much bigger reduction in the quota.

"It's a very vulnerable species group, in general, and good fisheries management decisions have to be based on scientific advice," said Saier. She also questioned NAFO's decision to require fishermen to report incidental catches of sharks by broad categories, such as dogfish or "large sharks." "There's no reason why that (species reporting) could not be possible," said Saier.

A shark conservation expert at Dalhousie University in Halifax agreed."If you don't know which species are caught, you can't really make clear stock assessments," Aurelie Cosandey-Godin, a postgraduate student in the university's biology department, said Monday.

Unsustainable fishing practices, such as the accidental capture of sharks in fisheries targeting tunas, swordfish or groundfish, have caused shark and other species to drastically decline. According to the World Wildlife Fund, fishermen throw back about 30 million metric tonnes of dead fish each year, representing about 25 per cent of all fish caught in the world.

Although the industry is taking steps to reduce bycatch, it is a painfully slow process. Saier said consumers have the power to strengthen conservation measures. For example, people can choose seafood that has been certified by the Marine Stewardship Council.

"The Canadian consumer and the consumer worldwide have the responsibility in choosing sustainable seafood," she said.

[1]Originally published in *The Chronicle Herald*, 27 Sept. 2011:A3.

How Many Species are there on Earth?[1]

Consider how many species of animals may be on earth – every type of bird, snake, fish, ape. How high do you think you'd have to count?

Scientists have been wondering this for centuries. And now, thanks to work led by Dalhousie researchers, they have a more precise answer to work with than ever before.

Census of Marine Life scientists, led by Camilo Mora of Dalhousie and the University of Hawaii, have published a new paper in *PLoS (Public Library of Science) Biology* estimating that there are 8.7 million species on Earth, with 6.5 million on land and 2.2 million in the ocean. The number is based on groundbreaking, analytical methods that narrow down earlier estimates.

Age old Taxonomy

In 1758, Carl Linnaeus established a system used to formally name and describe species on land and in the ocean. Since then, roughly 1.25 million have been described and catalogued into central databases. But experts estimated the total number of species could range anywhere between three million and 100 million – a sizable variance for scientists to work with.


Linnaeus

To focus this number, lead author Dr. Mora—with co-author Boris Worm, Dalhousie biologist, as well as colleagues Derek P. Tittensor, Sina Adl, and Alastair G.B. Simpson—identified numerical patterns in the taxonomic classification system (domain, kingdom, phylum, class, order, family, genus, species). This allowed researchers to see the numerical relationships between the higher levels (domain and kingdom) and the lower levels (species and genus).

The team discovered that by using numbers from the higher taxonomic groups, like in the domain and kingdom, they were able to accurately predict the number of species. This method was proven correct when it was used to calculate the number of species in many well-researched groups like mammals, fish, and birds.

Work in progress

Although the study done by Dr. Mora's team has already made international headlines, he thanks those scientists who came before him that paved the way for such research to be done.

"Keep in mind this study has been ongoing for 253 years," he explains with a chuckle. "We were fortunate that a lot of information from the past had been collected and well documented. That being said, we still had to compile the information, synthesize the information, making sure everything was statistically correct. We definitely had challenges."

'This was a very difficult study to undertake," says co-author Dr. Tittensor, a research scientist working for the United Nations Environment Programme World Conservation Monitoring Centre and Microsoft Research. "We tried many different approaches over a period of several years, only to hit a brick wall each time. We had all but given up, but kept out eyes open to possible solutions to the puzzle, and when we started to work on this approach we knew we were on to something."

Time to shape up

While this study gives the most validated estimation ever published, it also means that a overwhelming number of species have yet to be discovered, described, and catalogued – 86 per cent of all land species and 91 per cent in the ocean.

Dr. Mora says, now more than ever, there is an emphasis on narrowing down the number of species that exist given the number of species that are considered 'threatened.'

"The question of how many species exist has intrigued scientists for centuries and the answer, coupled with research by others into species' distribution and abundance, is particularly important now because of a host of human activities and influence are accelerating the rate of extinctions," he explains.

"Many species may vanish before we even know of their existence, of their unique niche and function in the ecosystem, and of their potential contribution to improved human well-being."

Asks Dr. Worm, "If we do not know — even by an order of magnitude (1 million? 10 million? 100 million?) — the number of people in a nation, how could we plan for the future? It is the same with biodiversity. Humanity has committed itself to saving species from extinction, but until now we have had little real idea of even how many there are."

"With the clock of extinction now ticking faster for many species, I believe speeding the inventory of Earth's species merits high scientific and societal priority," says Dr. Mora. "Renewed interest in further exploration and taxonomy could allow us to fully answer this most basic question: What lives on Earth?"

[1]Reprinted from *Dal News* No. 148, 25 August 2011.

Steven Solomon
1950-2011

In the early hours of 20 August 2011, we lost a valued colleague, a dear friend, an inspired and passionate northern scientist, and a person of great integrity and concern for others. Steve joined the Geological Survey of Canada (GSC) in 1990 -1991 as a term employee and immediately embraced the Arctic and its scientific challenges. Over the 20 years since that day, he made an indelible impression on arctic science, through his research efforts and his mentoring, inspiration, and sharing of wisdom across a wide network of colleagues, partners, and friends in Canada and around the world. His impact can be summed up in the words of one of his Russian colleagues, who remarked on meeting Steve's spouse and partner Sarah-Marie in St. Petersburg, Russia, in 2004: "Steve is our arctic hero!"

Of Steve's career before he came to BIO we knew only fragments from his reminiscences of those days, but Steve's family, his friend Moore Newell, and the wonderful pictures displayed at the memorial service in Dartmouth have filled in some of the gaps. Steve grew up in New York and did his first degree at Middlebury College in Vermont, graduating in 1972, and somewhere along the way he became a master cook. After a year of medical school at Columbia, he took up horse-driven farming in Vermont and became a maple-syrup producer. In San Francisco, he navigated the hilly streets as a bicycle courier. In Oregon, he worked a season as a salmon fisherman and gained his sea legs. Steve went into the oil patch and earned his stripes as a mud-logger in Montana and western Canada, explored for gold in the Yukon, and met Sarah-Marie. And there are stories of trips back east with his good friend Moore involving intrepid flights in a 1947 Luscombe "tail-dragger" that couldn't always keep up with highway traffic.

Since we came to know him at BIO, Steve has been a core member of the GSC team, in many ways a leader, always open to new ideas and technologies, always asking questions others didn't think to ask, always thinking ahead, of what's needed and how to make it happen, always organized no matter how disorganized his office. The focus of Steve's career was in the western Arctic but he made important contributions in other areas as well. In PEI, Steve played a key role in our work to understand the transformation of Rustico Inlet by 1950s causeway construction and the changes that might occur if the causeway were to be removed, as some members of the community were suggesting. We spent two wonderful weeks of glorious fall weather in October 1997 carrying out surveys in the bay using a Parks Canada patrol boat and working out of a converted church in North Rustico. That project was my real introduction to Steve's cookery skills, his early rising, and his capacity for long hours in the field.

In the mid-1990s, the GSC established a Memorandum of Understanding with SOPAC (the South Pacific Applied Geoscience Commission) based in Suva, Fiji. The coastal management program in SOPAC member island countries was supported by CIDA. The GSC in Dartmouth undertook to provide staff on short-term assignments. Steve was the first to go and made a strong impression with an efficient field program and an insightful report on coastal hazard issues in Apia, Samoa. Later he replaced Don Forbes on a 12-month secondment in Suva, with challenging projects such as work on coastal circulation and habitat enhancement for black pearls in the remote Northern Cook Islands atoll of Manihiki. He also worked on coastal vulnerability to climate change in Kiribati and Fiji, work that benefited from Steve's natural skill in diplomacy.

After his return from the South Pacific, Steve was recruited to lend his marine geological skills to work on contaminant clean-up at northern radar sites in the eastern Canadian arctic and Labrador. He spent many weeks over five years working in remote Saglek Fjord, a spectacularly beautiful part of the country, but extremely challenging for work from a small fishing boat, including mapping, coring, and oceanographic instrument deployments. I'm sure Steve's old Oregon fishing skills played a part in the success of this program. This was followed in 2003 by a stint on the west coast, using a Coast Guard hovercraft to carry out sediment sampling on the Fraser Delta. This was just one of the innovative and unusual survey vehicles and other types of scientific equipment that

Steve experimented with – another was the *Arktos-β* in 1991 (it looked like two WW-I army tanks hooked together, painted red and white, and could lumber around on land or water, with five generators going on the upper deck, a floating lawnmower convention audible for miles around)! While this experiment was not repeated, it demonstrated from his first GSC field season that Steve was always thinking about new ways to collect elusive data.

Steve was the consummate field geologist, at home in a rough camp, small boat, or helicopter. In camps, whether out in the field or at a base in Inuvik, he whipped up fantastic curries, soups, and stews. In winter field programs in the Mackenzie Delta, he persevered under the most arduous conditions when younger colleagues wondered if they would survive the day, Steve inspired confidence and focused on the task. To put down current meters under thick arctic ice, he wielded a power drill or a custom monster ice saw. Steve's field notes are legendary. They record everything. Dustin Whalen pulled out some quotes for the album of photos and memories we put together last spring. To take just one example from August 2005: "Turned around bad weather @ 1900, arrived at abandoned shack @ 2000. Dinner pepperoni, sandwich and tea, sleep sitting up, bear paw prints on bed spread!"

Steve was a truly great scientist. His intelligence, creativity, and enthusiasm shone through. His perseverance and work ethic were remarkable. Above all, his honesty, integrity and generosity were fundamental to his character. The grace with which Steve faced his illness over many months was extraordinary. He was always thinking of how to make it easier for the rest of us. This essential humanity and generosity is his true legacy. Besides Sarah-Marie, Steve leaves his son Reuben and Reuben's fiancée Melanie. The boat they built together with him during the months of his illness is a work of art and a floating memorial. And he leaves a huge hole among us in the marine science and arctic research communities.

Don Forbes

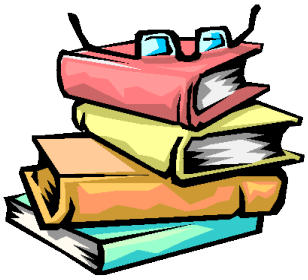
My Voyage to BIO

by Andy Sherin

It is 1971, 40 years ago, and my oceanography professor, Jim Kramer, tells the three third-year geochemistry undergrads at McMaster University in Hamilton, Ontario, that a former student of his (Dale Buckley) has asked if there are any students who would like to work for a summer in a geochemistry laboratory at the Bedford Institute of Oceanography in Dartmouth, Nova Scotia. All three of us applied to the Student Employment Office that held a competition for the job. Maybe the others turned the job down, but I won the competition. It is interesting to note that my geochemistry classmate in 1971, Peter Wallace, eventually ended up in Nova Scotia at Dalhousie University. In any case, I was soon flying east to spend the summer in Nova Scotia. I must admit I wondered what I had gotten myself into as the plane landed among the tree-covered lands surrounding the Halifax airport without a city in sight. I set to work with Dale on the 4th floor laboratory of what is now the Van Steenburg Building along with Dr. Rashid, Ray Cranston, Kevin Robertson, Gary Winters, Darrel Hardy and Bob Fitzgerald. The summer in the lab and in Nova Scotia was a great experience. I delayed my return to school in order to participate in a cruise on the CSS *Dawson* to the LaHave River and the Bay of Fundy. On the LaHave River, we turned the *Dawson* around at Bridgewater, a tight squeeze. In the Minas Channel, we learned how difficult it is to collect samples when the tide is running. I returned to BIO for three more summers. Oh, one other thing happened during those summers. I met Sheila Clyburne at BIO who would eventually agree to marry me!

After my last summer (1973) as a student, I did what many graduating students did at that time. I took a backpacking trip to Europe. I returned just before Christmas and started looking for work. Early in January 1974, I received two phone calls in one week at my parents' house in Burlington, Ontario. The first was from BIO, offering me a term position as the first curator of geological samples, working for Keith Manchester. The second call came from the Canada Centre for Inland Waters (CCIW) in Burlington, offering me a laboratory assistant position. I accepted the BIO job when they called and have never regretted that decision. I have often wondered what path my career and life would have taken if CCIW had called first.

January 1974 started a 35.5-year career at BIO in several different capacities with only a short hiatus in Ottawa between 2002 and 2005. I retired in October 2009. As soon as I retired, however, the BIO-OA asked me to become editor of their newsletter. BIO was a great place to work, and I am happy to maintain contact with the BIO community through this service.



Noteworthy Reads: Book Reviews in Brief

David N. Nettleship
Book Review Editor

Special Publication:

The Mediterranean Sea and the Human Presence

Abulafia, David. 2011. The Great Sea: A Human History of the Mediterranean. Allen Lane (imprint of Penguin Books), London, UK. 783 pp. Hardcover, $42.00 (ISBN 978-0713999341). – A first complete history of 3000 years of what has happened on and around the Mediterranean Sea. The focus is on places and individuals, showing the degree to which humans have affected this extraordinary marine environment. The book begins with an absorbing introduction 'A Sea with Many Names' followed by five major parts separated chronologically: 22,000 to 1000 BC, 1000 BC to AD 600, AD 600 to1350, AD 1350 to1830, and AD 1830 to 2010, with a summary conclusion entitled 'Crossing the Sea'. This is history at its best, thoroughly researched and presented in detail by a skilled writer who captivates and rewards the reader at every turn of this amazing journey. For example, Part 1 -- 'The First Mediterranean' – is subdivided into four sections: 'Isolation and Insulation, 22,000-3000 BC'; Copper and Bronze, 3000-1500 BC'; Merchants and Heroes, 1500-1250 BC'; and 'Sea Peoples and Land Peoples, 1250-1100 BC'. This part, like each of the four that follow, reveals the unexpected and provides a wealth of new and exciting information. It goes far beyond the unifying force on the sea and issues of human impact, but underlines the incredible diversity – ethnic, linguistic, religious, political – the Mediterranean Sea has sustained. An outstanding achievement by David Abulafia (professor of Mediterranean history, Cambridge University, England) and a major contribution to our better understanding of a key part of the world and humankind.

General Reviews

Bahadur, Jay. 2011. The Pirates of Somalia: Inside Their Hidden World. Harper Collins, Toronto, ON. 272 pp. Hardcover, $29.99 (ISBN 978-1554686827). – Have you wondered what drives the rampant sea piracy off the 3,300 kilometre coastline of Somalia in the Gulf of Aden? The common view held worldwide is one of bands of opportunistic bandits taking advantage of the vulnerability of supertankers and bulk carriers with cargos of 'riches' that pass their shores. Piracy attacks have increased markedly in recent years in the Gulf, with Somali pirates better organized, better armed, more violent, using boats capable of intercepting targets up to 1,000 kilometres from the coasts. Ransom demands have also escalated with costs to the shipping industry estimated to be between $7 billion and $12 billion annually. Unlike most books previously published on modern sea piracy, journalist Jay Bahadur focuses on the thoughts and make-up of the people involved, from the pirates themselves as to what motivates them to risk their lives in this activity to both security personnel on the ships and ex-hostages held for months before release. This book truly takes the reader inside the world of the Somali pirates. It also reveals the inner workings of the clans that run the country and the economic realities that drive the racket. A solid read, and an important expose and incredible piece of investigative work.

Daston, Lorraine and Elizabeth Lunbeck (eds.). 2011. Histories of Scientific Observation. University of Chicago Press, Chicago, IL. 460 pp. Hardcover, $75.00 (ISBN 978-0226136779). – Here is a multi-authored effort to answer the questions "What makes science work?" and "What are the key components of science as an activity?" We know 'observation' to be fundamental to all the modern sciences, employing both the natural human senses and the tools invented by scientists through the ages such as the microscope and telescope. The editors have assembled an impressive group of distinguished senior scholars in the history of science as well as more recent entries into the field to address the task. Together, this collection of essays represents the first examination of the history of 'scientific observation' itself and shows the many challenges that have faced scientific observers from the 17th century to the present time. The first part of the book "Framing the History of Scientific Observation, 500-1800" forms its core showing how 'observation' became central to modern scientific study. The remaining parts present a rich mix of case studies that show vividly the nature of problems faced by scientists in different fields of study and how they were overcome. Overall, a delightful and rewarding review of an unusually difficult topic, one that affords today's scientists the opportunity to better understand the roles that 'observation' and 'experiment' play in their own research.

De Villiers, Marq. 2011. Our Way Out: First Principles for a Post-apocalyptic World. McClelland & Stewart, Toronto, ON. 405 pp. Hardcover, $34.99 (ISBN 978-0771026485). – From the acclaimed award-winning author Marq De Villiers – 'Water: The Fate of Our Most Precious Resource' (1999), 'Sahara: A Natural History' (2002), 'A Dune Adrift' (2004) and others -- comes an important reminder to all of us that solutions do exist to correct the global crises we face. We need not give up owing to global warming, energy shortages, overpopulation and widespread famine, but must instead address the issues collectively to initiate common-sense changes to make things better and sustainable. 'Our Way Out' provides the understanding and direction necessary to initiate massive and meaningful positive change. De Villiers' thesis is straightforward: by facing the multi-sources

of the global crisis as a whole and not treating each problem in isolation from the others, we can identify the linkages and solve them together. The argument is strong and supported by the evidence presented. The critical issues of population and economic growth can only be corrected through a major push to fix the converging crises of climate change (global warming), the continuing population explosion, and our oil-based fossil-fuel economy. The remedy to avoid global disaster will be painful over the short-term, but the end result will give us something fine and lasting. I recommend a careful reading of 'Our Way Out' to be refreshed and rejuvenated about humanity's future!

Eilperen, Juliet. 2011. Demon Fish: Travels Through the Hidden World of Sharks. Pantheon Books, New York, NY. 296 pp. Hardcover, $31.00 (ISBN 978-0375425127). – Looking for a book on sharks with a different approach? Sharks have captured our attention since the beginning of a human association with the sea. Fear, hate, and awe dominate our view of the ocean's top predator. In this eye-opening work, environmental reporter Juliet Eilperen travels the world in pursuit of sharks and the people that co-exist with them or captivated by them. Love them or hate them, the principal purpose of the author's journeys is to examine the differences between individuals and cultures in regard to their attitudes toward sharks and to find explanations. The results of a plethora of interviews of fishermen, scientists, eco-tourism operators, wholesalers, marketers, chefs, and the public at large reveal a fascinating human-shark relationship. Threats to sharks from the shark-fin trade and economic forces responsible are explored, as is the wide-ranging natural history of shark-human relations. This is a guide book for the person who wants to understand what sharks are, their present status and future prospects in the world's oceans, and the human connection. Truly, an all-encompassing overview of the world of one of the ocean's awe-inspiring creatures.

Hanson, Thor. 2011. Feathers: The Evolution of a Natural Miracle. Basic Books, New York, NY. 352 pp. Hardcover, $30.00 (ISBN 978-0465020133). – 'Feathers' is simply a remarkable book! It is engaging, wide ranging, and well-researched, compelling not only by the intriguing account of the science of Thor Hanson's 'natural miracle', but also by his infectious excitement about the subject. The book is divided into five major parts, the content of each defined by its title: 'Evolution', 'Fluff', 'Flight', 'Fancy' and 'Function'. Altogether, it traces the natural history of the evolutionary and aesthetic marvel that is the feather, its engineering and significance, an extraordinary story that begins in the Jurassic period some 190 million years ago and continues to this day. Questions of "Where did feathers come from, and why?" and "What is the significance of the feather to the development of flight?" and others abound, all answered clearly and succinctly by the author through the presentation of research findings from ornithologists, biologists, paleontologists, engineers, and, in some cases, even art and fashion historians. Information gems appear throughout the book, a testament to the wonders of the 'feather' as an evolutionary marvel. The book is a compelling and readable introduction to feathers and what they mean for birds and humankind – read and enjoy the magic!

Laughton, Anthony, John Gould, Tom Tucker, and Howard Roe (eds.). 2010. Of Seas and Ships and Scientists: The Remarkable Story of the United Kingdom's National Institute of Oceanography, 1949-1973. The Lutterworth Press, Cambridge, UK. 350 pp. Softcover, $55.00 (ISBN 978-0718892302). – This multi-authored commemorative volume celebrates the more than five decades since the establishment of the UK National Institute of Oceanography (NIO) shortly after the Second World War and the outstanding accomplishments achieved by its scientists and engineers. The editors – all former members of NIO – succeeded in bringing together a team of 14 NIO scientists to prepare a collection of contributions that identify the nature of the major marine studies executed over the years since the Institute's formation. That and more has been attained, with individual chapters conveying the atmosphere and challenges of work at sea long before the presence of modern day technologies and instrumentation. The subjects of the 21 chapters are wide-ranging including exciting reviews such as: 'Marine Science in the UK before WWII', 'Steps toward the founding of NIO', 'Ocean ecology', 'Whales and whaling', 'Ocean currents – entering the modern age', 'Exploring ocean variability', 'Seawater – its chemical and physical properties', 'Waves, surges and tides', 'The rocks below the deep ocean', and 'Engineering and Applied Physics'. The book will appeal to a wide readership, in general, anyone interested in the marine and environmental sciences or those who wish to learn more about the discoveries of 50 years ago that form the foundation of modern-day oceanography.

Miller, Gordon. 2011. Voyages to the New World and Beyond. Douglas and McIntyre (D&M Publishers), Vancouver, BC. 192 pp. Hardcover, $55.00 (ISBN 978-0295991153). – A beautiful portfolio of ships that changed the world, narrating the explorers' tales, and by doing so, touches on the grand themes of maritime history. Exquisitely illustrated with almost 100 of the author's paintings of many detailed maps and sailing ships, all in colour. Following an insightful introduction, the book is structured into five parts that grip and inform simultaneously: 'Ancient Ships and Early Navigation', 'The Age of Exploration', 'Settling the New World: The Northern Voyages', 'Charting the Great Southern Ocean', and 'Exploring the North Pacific Ocean'. These accounts will excite and stimulate anyone interested in early voyages of travel and exploration, and the ships used to survey the unknown world. The epilogue 'Sailing into History' provides a perfect

ending, as does the Appendix that provides the plans of the featured historical vessels.

Nicklin, Charles and K.M. Kostyal. 2011. Among Giants: A Life with Whales. University of Chicago Press, Chicago, IL. 192 pp. Hardcover, $40.00 (ISBN 978-0226580999). – At long last, Charles "Flip" Nicklin, doubtlessly the world's best cetacean photographer, has given us a major collection of his stunning work on the great whales. Nicklin's underwater adventure with whales began in 1965 and quickly grew as his spectacular photos dominated nature and travel magazines such as National Geographic, and still do. He took underwater marine mammal photojournalism to an entirely new level and created an art form that has inspired a generation. 'Among Giants' gives us everything and more about whales and their marine environment: extraordinary and thought-provoking photographs (by a master), a captivating text that informs and inspires, that together provide an incredible story of discovery and growth of our understanding of whale biology and behaviour. Get a copy, and go diving with Flip Nicklin and his fascinating friends!

Pilkey, Orrin, William Neal, James Cooper and Joseph Kelley. 2011. The World's Beaches: A Global Guide to the Science of the Shoreline. University of California, Berkeley, CA. 302 pp. Softcover, $30.00 (ISBN 978-0520268722). – Four beach experts combine their knowledge to give us a comprehensive and readable overview of the structure, function, geology and ecology of beaches. It is a book to study, take to the beach, and then observe the dynamics and wonders of these coastal ecosystems. The text combined with the illustrations – colour photos, maps, and graphs – delivers a complete view of beaches around the world, from cold, ice-infested arctic beaches to hot, tropical shorelines showing their similarities and differences. Apart from discussions of tides, waves, wind and their influence on the dynamics of the beach environment and its plant and animal communities, the authors review the future of beaches and the increasing threat posed by expanding human populations and the associated coastal habitat alteration and destruction including toxic chemical pollution, oil spills, and climate change. Overall, this is an important book for anyone wanting to know more about beaches, their present status and future prospects. Once read, you'll never look at a beach in the same way!

Prager, Ellen. 2011. Sex, Drugs, and Sea Slime: The Oceans' Oddest Creatures and Why They Matter. University of Chicago Press, Chicago, IL. 200 pp. Hardcover, $27.00 (ISBN 978-0226678726). – Here is an informative and thorough introduction to ocean life by marine scientist Ellen Prager that will captivate, teach, and entertain. 'Sex, Drugs, and Sea Slime' shows the amazing diversity of life in the sea from microscopic diatoms, copepods and plankton through fish to the top-trophic feeders, marine birds and mammals. Details are delivered with zest by combining science with humour, a teaching-tool that Prager is a master of and uses to her advantage to ensure that the maximum number of people learn about the ocean and the living things that occupy it. Through descriptions and carefully-crafted stories of the strange lives and mating rituals of many sea creatures, along with how they interact as predators or prey, Prager succeeds in demonstrating the crucial inter-connections between life in the ocean and humankind including our health, our lives, our economy and our future. This is a 'must-read' book for anyone who cares about the future of the sea and what needs to be done to protect it.

Underhill, Douglas. 2011. Salmon Country: New Brunswick's Great Angling Rivers. Goose Lane Editions, Fredericton, NB. 224 pp. Hardcover, $45.00 (ISBN 978-0864926296). – Here is a stunning book for every sport fisherman, and for anyone interested in New Brunswick's famous salmon rivers and the beautiful lands that bound them. Doug Underhill's text brings the joy of fly-fishing on the Miramichi, Restigouche, Nepisguit, Cains, and Saint John rivers to life, along with a grand overview of the people, the traditions, mythology and history of fishing in 'Salmon Country' for the king of fish. The essays combine with the outstanding colour photographs by Andre Gallant to provide an experience like no other, from the depiction of the beauty of the land with its tree-canopied rivers and wading in gravely shoals and rapids to the highlight of the thrill of the catch and release. Overall, a beautiful book to treasure and enjoy time and time again, along with the celebration of fly-fishing, the outdoors, and the wonders of wild salmon!

Vermeij, Gerrat J. 2010. The Evolutionary World: How Adaptation Explains Everything from Seashells to Civilization. Thomas Dunne Books (St. Martin's Press), New York, NY. 314 pp. Hardcover, $31.99 (ISBN 978-0312591083). – This wonderful book by master naturalist and scientist Gerrat Vermeij is a joy to read. It will delight all who love science and are captivated by evolutionary processes and outcomes. We are shown the far-reaching impact and importance of evolution – descent with modification -- not only in the development of new species, but how a better understanding of evolution's principles can help us improve our own lives, the communities and societies we are a part of, and the environment around us. His acute powers of observation and analysis, and insights into the processes of evolution and their relationship to the development of society are gripping and thought-provoking. The writing and arguments presented are clear, free of jargon, detailed yet easily understood, and display a warmth of humanity in their manner of presentation. An absorbing read that will surprise, stimulate and excite, time and time again.

Editor's Keyboard: It has been some time since we have had such a long list of BIO community members in our 'In Memoriam' column. I have chosen a photograph of a poppy from Flanders for the front page, a long-standing symbol of remembrance. Don Forbes has written a wonderful tribute to Steve Solomon, a colleague that I had the great pleasure of working with for many years. On another note, the Government of Canada has announced the results of its shipbuilding strategy competition. Canada has a wonderful endowment of ocean coasts but not the excellent research vessels to match, as evidenced by the inadequate proposal for the replacement of *Hudson* and the *Louis* limping home from the Arctic. A visionary strategy for ocean research and its supporting vessel infrastructure is needed, equivalent to the forward-looking shipbuilding strategy. *Andy Sherin*

ABOUT THE OCEANS ASSOCIATION

The Bedford Institute of Oceanography Oceans Association (BIO-OA) was established in 1998 to foster the continued fellowship of its members; to help preserve, in cooperation with the Institute's managers and staff, BIO's history and spirit; and to support efforts to increase public understanding of the oceans and ocean science. Membership is open to all those who share our objectives. Most current members are present or past employees of BIO or of the federal departments of Environment, Fisheries and Oceans, and Natural Resources (or their predecessors) located in the Halifax Regional Municipality. Membership is $10.00 per year, $40.00 for five years, or $150.00 for a lifetime membership.

OFFICERS AND DIRECTORS

PRESIDENT	Paul Keizer	861-1819	keizerp@gmail.com
VICE-PRESIDENT	Mike Hughes	860-0784	hughes@accesswave.ca
VICE-PRESIDENT	Don Gordon	469-2798(h) 426-3278(o)	donald.gordon@dfo-mpo.gc.ca
PAST PRESIDENT	Betty Sutherland	454-6557	jesuther@dal.ca
SECRETARY	Iris Hardy	861-4797	bob.iris@ns.sympatico.ca
VICE SECRETARY	David McKeown	477-5887	davidmckeown@hfx.eastlink.ca
TREASURER	Lori Collins	466-3791	lcollins@accessable.net
DIRECTORS AT LARGE:	Bob Cook	868-2948	roberthcook@eastlink.ca
	Gordon Fader	455-6100	gordon.fader@ns.sympatico.ca
	Timothy Lambert	426-3872	tim.lambert@dfo-mpo.gc.ca
	Carol Manchester	861-3509	c.manchester@ns.sympatico.ca
	Georgina Phillips	823-3401	tandgphillips@eastlink.ca
	Tom Sephton	244-6080	tom.sephton@dfo-mpo.gc.ca
	Bosko Loncarevic	835-9606	bosko@ns.sympatico.ca

COMMUNICATIONS: NEWSLETTER, PR, AND WEB SITE

NEWSLETTER EDITOR	Andy Sherin	466-7965	oanewsletteredtor@gmail.com
ASSOCIATE EDITORS	David Nettleship	826-2360	dnnlundy@navnet.net
	Betty Sutherland	see above	see above
PR AND MEMBERSHIP	Clive Mason	426-4163	clive.mason@dfo-mpo.gc.ca
WEBMASTERS	Patrick Potter	426-6601	patrick.potter@NRCan-RNCan.gc.ca
	Philip Spencer	426-4465	philip.spencer@NRCan-RNCan.gc.ca

COMMITTEES / WORKING GROUPS: CHAIRS

BELUGA AWARD	Patrick Potter	426-6601	patrick.potter@NRCan-RNCan.gc.ca
BIO COMMEMORATIVE STAMP	Dale Buckley	434-5734	dbuckley@ns.sympatico.ca
EQUIPMENT ARCHIVES	David McKeown	see above	see above
GRAPHIC DESIGN	Art Cosgrove	443-7945	acosgrove@hfx.eastlink.ca
HMCS *SACKVILLE* HISTORY	Keith Manchester (contact)	861-3509	k.manchester@ns.sympatico.ca
LIBRARY ARCHIVES	Bosko Loncarevic	835-9606	bosko@ns.sympatico.ca
LIAISON Huntsman & BIO 50th	Don Gordon	see above	see above
NSIS LIAISON	Bob Cook	see above	see above
OUTREACH	Charles Schafer	861-3145	charlestschafer@hotmail.com
SOCIAL PROGRAMS	**Vacant (see page 4)**	**999-9999**	**xxxx@xxx.xx**

PAST PRESIDENTS

Robert Reiniger (1998-2000), Dale Buckley (2000-02), David Nettleship (2002-04), Donald Peer (2004-06), Betty Sutherland (2006-08 and 2010-11), Bob O'Boyle (2008-10)

Newsletter printed by Jean and Michael Crowell, The UPS Store, Tantallon, Nova Scotia, (902) 826-7087.