

VOICEPIPE

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The Newsletter of the BIO-Oceans Association



Glen Morton: 2016 Beluga Award Winner



Glen Morton is one of the unsung heroes of BIO. Most people at BIO have seen and admired equipment that Glen has designed and built for oceanographers and biologists from every group and division, even if they didn't know who did the work. Underwater cameras, diamond saws, the Arctic Rover, davits for lowering gear, tide gauge brackets, CTD winches - you

2016 Beluga Award Ceremony and BIO Association AGM
26 May 2016

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Sherm

can find his legacy scattered everywhere around BIO and on our vessels, large and small. His range of effort, technical competence, and design is astounding.

Of the many people who have benefitted from his expertise, one notes: “Glen is one of those who reach above routine duties to ensure the success of projects at BIO. He intuitively understands what a research scientist may expect from a specialized piece of equipment and blends that with his extensive experience in design. The result will be hardware that survives years of harsh marine field use while being easy to deploy and frequently aesthetically pleasing. This is a rare talent.”

Glen’s continuing and unassuming dedication to the job at hand, while constantly ignoring the potential for recognition, has always been motivated by a strong sense of teamwork and the satisfaction of finding efficient solutions to challenging problems. Indeed, he encourages cooperation and fosters teamwork at BIO far beyond the conditions of his position at the Institute. Many consider him the go-to guy when they need a piece of equipment re-designed or built. And if he can’t do it himself, he knows who to talk to, when to talk to them, and how best to engage them. Engineers, welders, ship’s crew, scientists, and even managers – Glen involves anyone and everyone in the projects that need doing, and makes everyone glad to be involved.

Another person notes: “Glen has the ability to always make someone feel like their project is a top priority... He is as busy (or likely busier) than most, yet when you really need his help, he is there. When working with Glen, I have always felt that collaboration was more than just a sum of its parts and realistically, it is mostly due to Glen. He simply makes our jobs easier and makes us smile. What more could you ask of a co-worker?”

Glen Morton is the type of dedicated, helpful, unassuming and skilled team player that makes work at BIO so much more enjoyable and productive. Glen deservedly joins a long list of exceptional Beluga Award recipients. We are proud to recognize Glen as this year’s recipient of the Beluga Award.

Congratulations Glen!

INSTITUTE FOR OCEAN RESEARCH ENTERPRISE
Special Geoforce Group & IORE 2016 Ocean Connector Event

‘VOYAGE OF DISCOVERY’

**Fifty Years of Marine Research at Canada’s
 Bedford Institute of Oceanography**

Celebration and Promotion

by Geoforce Group & IORE

4:00 p.m., Thursday, 19 May 2016

T-Room, Sexton Campus (formerly TUNS),
 Dalhousie University
 1360 Barrington Street, Halifax, Nova Scotia

PLEASE join us for the celebration of the BIO-Oceans Association’s milestone ‘*Voyage of Discovery*’ (VOD) book that demonstrates the value of marine science *per se*, the benefits of industry-government collaboration on technology and instrument developments (e.g., the Huntce/Geoforce DTS experience), and the need to develop a new generation of ocean explorers. A history of BIO will be presented by BIO emeritus research scientist Dr. Donald Gordon entitled:

‘Bedford Institute of Oceanography: A Unique Experiment in Federal Science’

The overall goal of the IORE/Geoforce Group initiative is to develop a theme of intergenerational working groups to effectively “pass the torch” and to use VOD to help achieve this goal. VOD is featured on the Geoforce Group website (www.geoforcegroup.com – click on ‘Contest’ in top line) and is being used as an award prize for members of IORE and other marine companies.

Reception and book signing to follow

For more information, please call:

Katie Cook, IORE Event Coordinator – 902-494-3134
 Ulrich Lobsiger, Geoforce Group – 902-463-0932
 David Nettleship, BIO-OA – 902-826-2360

Read the book review of the *Voyage of Discovery* in Geoscience Canada at:

<https://journals.lib.unb.ca/index.php/GC/article/view/24339/28353>



FROM THE PRESIDENT

The Association is busy preparing for its Annual Meeting, scheduled for 26 May 2016 in the Ford Auditorium at BIO. Our meeting begins at 9 am with coffee and snacks with the formal business

meeting from 9:30 am to 10:30 am. This will be followed by the Beluga Award Ceremony with a social time from 10:30 am to 11 am and the formal presentation of the Beluga Award to this year's recipient Glen Morton commencing at 11 am. I hope everyone will turn out both for the meeting and the celebration of Glen's work at BIO. His work exemplifies those characteristics of teamwork and cooperation that are so crucial to the success of the Institute's work. A full description of Glen's contribution to the work and life of BIO is presented on pages 1 and 2 of the *Voicpipe*.

The membership will be asked at the Annual Meeting to ratify changes to our founding documents, the Memorandum of Association and By-Laws, most of which are housekeeping changes but one deserves some attention. The review committee, during its study of the Association's activities and mandate, uncovered a number of inconsistencies in these documents and a committee led by Don Gordon and assisted by Betty Sutherland, Paul Keizer, David Nettleship, and Lori Collins, prepared new versions. These versions were reviewed and approved at the Executive meeting of 30 March. They will now be presented to the membership for ratification. While most changes were minor, we have decided to add another objective to our Memorandum of Association that we feel fits with the purpose of the OA:

“To encourage, assist, and conduct outreach initiatives, both internally and in collaboration with other organizations, to increase public understanding of the oceans and ocean science.”

The Executive has also discussed other aspects of the review committee's report. The OA will become part of BIO's Outreach Committee, but our participation will be determined on the attributes of specific projects and our members' interests. We also added another category – partnerships with other organizations – as we felt many other organizations outside of BIO can be vehicles for our activities. Two examples are our partnerships with GeoForce and the Maritime Museum of the Atlantic. We have also commenced work on preparing short biographies of various people that have been profiled throughout BIO. Many rooms have photos of former

employees with little detail as to their significance to the Institute. Pierre Clement has completed an inventory of these along with details on next steps that will be reviewed by the Executive at an upcoming meeting.

The review committee also provided suggestions on communications and membership that the Executive reviewed. We will continue to seek membership from all sectors of BIO, and while retirees form the bulk of our membership, we will need to attract members of all age categories from the current workforce. We will need to examine how we do this and various ideas were suggested, to be actioned later. Andy Sherin agreed to investigate use of social media as a way of complementing our communications with current and future members.

The Executive added two other items to the renewal agenda – succession planning and our conduct of business. We have changed the format and timing of our meetings to be more focused on key items with reports to be delivered as summary documents, and we have reverted back to a schedule of 4 to 5 meetings per year, rather than monthly. Succession planning dealt with both people and process. We want to be able to manage our files to ensure access as people move on, and we want to continue to have people take active roles in the various offices and projects of the OA. Work on this will continue in the fall.

As I stated previously, the OA is a strong organization: we have a solid, committed membership base; a great range of activities; and a healthy financial situation. This exercise of renewal should help us prepare for the next phase of the organization's life and to best meet the needs of present and future members. The review committee recommended making the OA a more project-based, outward looking organization with a focus on the ocean sciences. The Executive has considered these recommendations and is now acting to implement those it deems appropriate. This process will take time and will be more evolutionary, rather than revolutionary, building on the strengths of our current organization.

Mike Murphy
President

In Memoriam

Ken Freeman, DFO biologist, died 11 April 2016

Robert ‘Bob’ Bouchard, crew CSS *Baffin* and CSS *Hudson*, died 15 February 2016

I am a lucky person or what?

Dale Eliot Buckley

by Andy Sherin



Dale Buckley at the reception held by the BIO Oceans Association the evening before the BIO 50th Anniversary Gala.

In his introduction to the a BIO Open House Dale Buckley said that the development of BIO can be divided into three phases. The first phase was the ‘exploration phase’ in the 1960s, going out and discovering what was there. For example, until we went to the Labrador Sea, we didn’t know anything about it from a geological aspect. The second phase was the ‘process understanding phase’ in the 1970s and 1980s. In the 2000s, BIO is perhaps in the ‘management phase’ where we can use our knowledge to address ocean management issues. Unanswered in Dale’s interview, conducted in 2003, is whether BIO has entered a fourth phase. In the interview he expressed the opinion that government departments really didn’t want to do science anymore. Dale did speak about the funding cuts in the 1980s and 1990s. He regretted that they had been unable to get a talented scientist and analytical equipment operator on staff despite her knowledge of mineralogy and chemistry and contributions running the scanning electron microscope. “We tried desperately to have her on staff” he said “and every time we got close, there was another budget cut.” “We could not implement

quality assurance and quality control” so we were unable to produce environmental data to meet international quality assurance standards which he anticipated would have become mandatory fairly soon. Another impact of budget cutting was the lack of resources to stay current with new technologies in the laboratory.

On the other hand, Dale mentioned how he had given advice to a young man he met at a science fair when he was in Grade 9. The young man went on to win the world championship at the science fair, and earn a Ph.D. from Berkley. He eventually returned to Nova Scotia and now is the lone geochemist in GSC Atlantic at BIO.

Influences for Dale’s early career included his older brother who enrolled with him in geology at Acadia University and his professors. Dr. Harcourt Cameron introduced Dale to oceanography. Dr. Cameron had done some great work in the 1950s using high altitude air photographs showing that Sable Island was a dynamic moving island. He was also able to monitor the tidal wave as it came up the Bay of Fundy. “He was quite a pioneer.”

After university, Dale joined the Royal Canadian Air Force (RCAF). When he was based at the Uplands Air Force base near Ottawa he witnessed the flight of the *Avro Arrow*. “Everyone who knew the aircraft knew what a terrific fighter it was. To see it cancelled was devastating to everybody.” Cancellation of the *Avro Arrow* convinced him that his future in the RCAF was not as good as he at first thought.

Dale joined the Canadian Hydrographic Service and was flown by helicopter to the CSS *Baffin* on survey south of Yarmouth. He was sworn into the public service on the ship’s deck at noon 1 June 1960. Later that year he participated in a six month long CSS *Baffin* survey to the Arctic. He carried out the first surficial geology survey in Lancaster Sound The *Baffin* surveyed Radstock Bay, the Gulf of Boothia, Fury and Hecla Strait, Hudson Bay and Hudson Strait. “We never touched port until we got to Baffin Island and were refueled at sea from the CGCS *Labrador*. It was a unique experience.

He recounts meeting another BIO pioneer on this trip. “I was walking across this barren land [on the Boothia Peninsula] and I could see a figure coming towards me. I walked up to him, and this man stuck out his hand and said “Dr. Livingston, I presume.” It was John Lazier who happened to be on the CCGS *Labrador*, and I didn’t know he was there.”

Upon returning to Ottawa after the survey, Dale transferred to the new Oceanographic Research Division and



Dale positioning the MV *Vilma L* with a sextant during Environmental Marine Geology's Canso Strait project in 1973.

was granted educational leave to return to university for a graduate degree. He studied geochemistry at the University of Western Ontario under Dr. Jim Kramer. Educational leave was granted more often at that time since the government recognized that they needed staff formally trained in oceanography. Dale was later granted another period of educational leave to earn his Ph.D. at the University of Southern California and the University of Alaska.

In 1963 Bernie Pelletier, Head of the Marine Geology Group of the Geological Survey of Canada was transferred to BIO from Ottawa along with several other scientists and technicians including Rock Cormier, George Duncan, Lew King, Jim Marlow, Gus Vilks, and Bob Lesley. He remembers the hiring of Sonia Pritchard, the first female technician.

Dale's first project was working with the Fisheries Research Board on oysters that were growing crooked shells in Prince Edward Island. Oysters from PEI had won the world's gold medal in 1905 and with the crooked shells were now looking very second class. They discovered that deforestation around the estuaries had

caused excessive siltation, smothering the oysters. As a result, the technology to grow oysters on nets or strings was developed.

Dale was based at BIO for summer research before its official opening. He recalls that the atmosphere in those early days was quite different from today. Dr. van Steenburgh was a tremendous man with astounding foresight. "He knew what he wanted this institute to be, what this institute could be...that that could be achieved by giving people a great deal of independence." His lieutenants like Bill Cameron and Bill English held similar opinions that the way to be innovative was to give people freedom, giving them the opportunity to do things on their own initiative rather than to be overly directed to do things.

He remembered Bernie Pelletier came into the office in that first year with a piece of foolscap paper and a piece of Scotch tape and taped it to the wall and said "What do you guys want?". Dale also remembered other interesting characters from that time like Jim Marlow who liked doing things he'd never done before and Gus Vilks who had a very interesting history, being essen-

tially a displaced person.

In 1972 the Atlantic Geoscience Centre was formed and Dale was named the Head of the Environmental Marine Geology Subdivision (EMG). “That name never existed before in any university and our concept was that we would study contemporary geological processes, like how foraminifera respond to the environment, the processes of chemical change that takes place in the oceans, and the dynamic sedimentation processes like coastal erosion so we could both understand the past processes and the modern impact of human influence on the oceans”.

An interesting series of EMG projects and contributions commenced. These included in more or less chronological order: a study of estuarine processes in the LaHave Estuary, a multi-disciplinary project investigating the impact of the Canso Causeway and industry on Canso Strait, and a study of the Miriamichi Estuary. Each of these studies examined the pathways for contaminants from urban and industrial sources to the ocean. The LaHave study was specifically prompted by the international scare about the amount of mercury found in tuna. “We wanted to know how that mercury got from land through the estuary out into the marine area.” In the Miramichi they conducted a year round study, sampling from the ice in the winter. It was “a very useful study” said Dale “because it demonstrated that those kinds of estuaries discharge most of their sediments in a very short period of time in the spring,” about 20 days. “We were adding to our knowledge of how estuarine systems work”.

Other areas of investigation Dale was involved in were the feasibility of deep sea disposal of nuclear waste with the Nuclear Energy Agency, advice on oil spill clean-up with the *Amoco Cadiz* in France and the *Exxon Valdez* in Alaska, the analysis of ‘rusticles’ from the *Titanic* and his final project, the study of the sediments of Halifax Harbour as part of the clean-up of waste water treatment for the city. “We were able to show that the harbour is not well flushed, that if you dump something into the harbour you run the risk of it being trapped in sediments and maybe slowly leaking back into the system in later years.”

Dale had learned from his experience in Indonesia that sometimes the public is most concerned about the aesthetics of water, such as floating condoms in the harbour. When you have dealt with that, the problem is solved in the public’s mind. However the leaking of contaminants from the old land fill site in Fairview

Cove is invisible and thus away from the eye and the mind of the public.

His most cited paper was ‘Atomic Adsorption Analyses of 18 Elements from a Single Decomposition of Aluminosilicate.’ “One would like to think once you have completed 40 years of your career that the paper that most often ...quoted is the one in which you’ve put forward a profound new theory in science.” The paper was a methods paper describing the dissolution of solid material in teflon bombs that were heated with a combination of acids, a technique now used in research institutes all over the world.

Dale was a founding member of the BIO Oceans Association (BIO-OA). “One of the things that we wanted to do was preserve the history of this Institute.” The BIO-OA initiated the Beluga Award which recognizes people who have lived up to the ideals of what an integrated institute should be.

At the end of the interview Dale said “once I decided that oceanography was going to be my main interest...I could not have chosen a better place to work. I remember being out on the docks when the *Hudson* was being commissioned and thinking, I am a lucky person or what to be able to have come through the university system at the right time when this Institute was being established.”

Dale Eliot Buckley is the second of two sons to Mable and Arthur Buckley who lived in Black River, King’s County, Nova Scotia. He attended a one room school in Newtonville until grade 7 when he transferred to school in Wolfville. He did his last year of high school in North Sydney where he was able to take one of the few courses in geology offered at the high school level in the province and discovered that he liked geology. He attended Acadia University under the Reserve Officers Training Plan and majored in geology with a minor in chemistry.

Editor’s Note: This article is based upon an interview with Dale conducted by Alan Grant and Cora Crosman on 12 February 2003 as part of the BIO Oral History Project. Readers are reminded of articles in earlier issues of the *Voicepipe* also based upon interviews conducted for the BIO Oral History Project.

For full disclosure, your Editor was Dale’s summer student from 1971 to 1973. I spent the summer of 1973 on the Canso Strait Project in Port Hawkesbury, NS much of that time sitting in front of an atomic adsorption spectrometer. Your Editor’s first scientific cruise was with Dale in 1971 aboard the CSS *Dawson* up the LaHave River to Bridgewater.

From the seamounts to earth orbit and back

By Andy Sherin



Kathy Sullivan, photograph from the TIME Magazine's article on one of the 100 most influential women in America. Photo Credit: Stephen Voss for TIME Magazine

Dr. Kathryn D. Sullivan gave a public lecture at Dalhousie University on Tuesday 26 April 2016 entitled 'Looking at Earth: An Astronaut's Journey'. The event was held in a packed auditorium and organized by the oceanography students at Dalhousie. It was attended by a strong contingent of young people including a troop of Girl Guides. There was an enthusiastic question period asking her everything from her experiences in space to the commercialization of space travel, climate change, and aquaculture.

In the corridor of the Murray Building at BIO is a framed photo of Kathryn (Kathy) Sullivan along with the patches that she took into earth orbit on her first shuttle flight. On that flight she became the first American woman to walk in space. She was a student of Dr. Charlotte Keen of GSC Atlantic at BIO and she used to



Resembling an opulent diamond tapestry, this image from NASA's Hubble Space Telescope shows a glittering star cluster that contains a collection of some of the brightest stars seen in our Milky Way galaxy. Called Trumpler 14, it is located 8,000 light-years away in the Carina Nebula, a huge star-formation region. Because the cluster is only 500,000 years old, it has one of the highest concentrations of massive, luminous stars in the entire Milky Way. (The small, dark knot left of center is a nodule of gas laced with dust, and seen in silhouette.)

This composite image of Trumpler 14 was made with data taken in 2005-2006 with Hubble's Advanced Camera for Surveys. Blue, visible, and infrared broadband filters combine with filters that isolate hydrogen and nitrogen emission from the glowing gas surrounding the open cluster.

Photo credit: NASA

frequent the halls of BIO. She sailed aboard CSS *Hudson* while studying for her Ph.D. at Dalhousie University.

After earning her Ph.D. at Dalhousie on the topic of the Newfoundland seamounts she applied and succeeded in becoming a NASA astronaut, one of the first six women to become an astronaut, and travelled into earth orbit three times. She was mission specialist during the mission that deployed the Hubble telescope. The Hubble telescope has changed the public's perception of the universe with its spectacular images. She commented that no one in the human race before us has seen the earth as our generation has seen it; therefore we look at the earth in very different ways from previous generations. From earth orbit you see how completely everything is interconnected. The foremost challenges for science are at

the interfaces between disciplines and systems. In her time as an astronaut she was part of a team doing work that was hugely creative and improvisational since no plan will survive its first contact with reality. After several other appointments in science administration, Kathy was appointed the Administrator of the National Oceanographic and Atmospheric Administration (NOAA) in 2014.

As a child, Kathy would pour over every map she could get her hands on and wondered what it would be like to live in the places represented on the map. Her father was an aerospace engineer and a great influence. He used to share his insights with her on the early manned space program. Although she saw his job as leaving each day for an office he was actually designing really cool airplanes.

Following her time as an astronaut, Kathy wanted to harness the power of the vantage point from space and get into roles to make the perspective matter to society in

terms of monitoring, mapping, predicting, and forecasting.

At NOAA they deal with the challenge of environmental intelligence. For example she participates in the briefing of the White House on the year's upcoming hurricane season. Although the hurricane's winds cause property damage, people die because of the water, storm surges, waves and flooding. Satellites can monitor phytoplankton productivity and sea surface temperature. When asked during question period which satellite she felt was the most important to launch next, she answered sensors that would permit better management of water resources especially measuring soil moisture.

Answering a question, Kathy said that her experience at sea while at Dalhousie and aboard CSS *Hudson* had proved to NASA she knew how to work in a team and how to deal with problems when you were isolated. She credits this experience as influential to her success of becoming an astronaut.

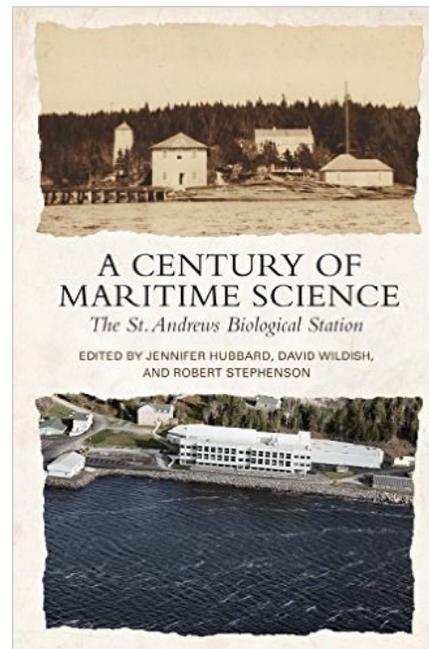
BIO staff contribute to an important national climate change assessment of Canada's marine coasts

On 12 April 2016 the Honourable Jim Carr, Minister of Natural Resources, released '[Canada's Marine Coasts in a Changing Climate](#)', a Government of Canada scientific report that assesses how climate change is increasingly affecting Canada's coastal regions and highlights the potential impacts on communities, economies and ecosystems. In a news release Minister Carr said "This newly released scientific report underscores the importance of being informed by the best science available to plan for climate resilience and adaptation, which will be important elements of the pan-Canadian framework to address climate change."

Natural Resources Canada engaged over 60 authors from Canadian universities, federal departments, other levels of government, industry and professional organizations to develop this scientific assessment report. The report is a definitive and accessible resource on climate change sensitivity, risks, opportunities and adaptation along Canada's marine coasts.

At least six staff and former staff from BIO contributed to the report, including Don Forbes and Gavin Manson as authors, Andy Sherin, served on the advisory committee, and John Loder, Will Perrie and Nancy Shackell reviewed the report available at: <http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2016/18388>

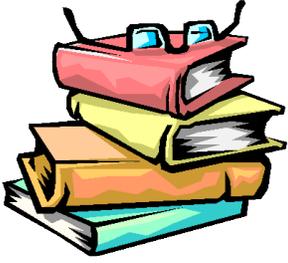
A Century of Maritime Science: The St. Andrews Biological Station



Located on the Bay of Fundy, the St. Andrews Biological Station is Canada's oldest permanent marine research institution. 'A Century of Maritime Science' reviews the fisheries, environmental, oceanographic, and aquaculture research conducted over the last hundred years at St. Andrews from the perspective of the participating scientists. Introductory essays by two

leading historians of science situate the work at St. Andrews within their historical context. The book offers a captivating mixture of first-hand reminiscences, scientific expertise, and historical analysis.

A Century of Maritime Science: The St. Andrews Biological Station is available in hardcover is available on Amazon for \$80.00



NOTEWORTHY READS: BOOK REVIEWS IN BRIEF

David N. Nettleship
Book Review Editor

The *Noteworthy Reads* section is an effort by BIO-OA to produce a representative list of recent noteworthy book publications related to the marine sciences and other subjects of general interest. The listing is not intended to be comprehensive or complete, but merely an attempt to highlight a number of 'good reads' that may be of interest to OA members and associates. Most books listed are available at local bookstores and public libraries. Book prices are regular retail in Canadian funds, but discounts of 20-30% are normally available on line at: e.g., amazon.ca or chapters.indigo.ca. Contributions of book reviews to 'Noteworthy Reads' are welcome – send via e-mail to David Nettleship: dnnlundy@navnet.net (phone: 902-826-2360).

SPECIAL PUBLICATION:

NATURE AND ENVIRONMENTALISM

Wulf, Andrea. 2015. *The Invention of Nature: Alexander von Humboldt's New World*. Alfred A. Knopf, New York, NY. 473 pp. Hardcover, \$39.00 (ISBN 978-0385350662).- At long last a worthy biography of Alexander von Humboldt (1769-1859) has appeared, produced by acclaimed writer Andrea Wulf, that brings this much forgotten intrepid explorer and scientist to life revealing how he changed the way we view the natural world. Comprehensively researched and compellingly written, Wulf not only reviews the incredible journeys of discovery undertaken by Humboldt between 1799 and 1829 – across the Americas, through Venezuela, and across Russia – but reveals and explains the revolutionary ideas generated from his studies and their influence on many 19th century iconic figures including his disciples Charles Lyell and Charles Darwin, as well as luminaries Ernst Haeckel, George Marsh, John Muir, and Henry David Thoreau. Humboldt revolutionized entire fields – geology, geography, botany, zoology, and others – and consolidated diverse views into a new science now named ecology. Wulf provides an extraordinary primer in the basics of Humboldt's studies and the impact they had not only on the natural sciences directly, but also on the interconnection of mind and nature and the links between science, society, and the arts and humanities. Her summary of Humboldt's books, diaries and letters reveal his firm belief that knowledge, once obtained, has to be shared, exchanged, and made available to everyone. And share it he did through his many writings and books, especially his ecological blockbuster 'Essay on the Geography of Plants' (1807), 'Views of Nature' (1808), and bestselling popular 'Cosmos' series (5 volumes, 1845-1862). We are very much in debt to Andrea Wulf for reminding us of the importance of Alexander von Humboldt, as the founder of modern international science and for giving us his concept of

nature as global patterns and the web of interconnections between living things and their environment (the web of life) - the presence of a complex and interconnected global system. Read, admire, and treasure Alexander von Humboldt, brought back to life by this comprehensive and inspiring biography.

General Reviews

Carroll, Sean B. 2016. *The Serengeti Rules: The Quest to Discover How Life Works and Why It Matters*. Princeton University Press, Princeton, NJ. 272 pp. Hardcover, \$34.95 (ISBN 978-0691167427).- Sean Carroll, master storyteller and evolutionary biologist, with this his latest popular science book, takes us on an incredible journey to elucidate the ecological rules of life on Earth. An exploration of the unity of life is made from the molecular level through to the larger ecosystem of the Serengeti that together clearly illustrate the processes that result in the natural regulation of numbers in all living systems. This is a wonderful book that leaves us with a much better understanding of how the biosphere works and what happens when certain mechanisms fail. Overall, an educational and entertaining read for everyone about the central importance of modern biology to human life and the planet as a whole!

Cunningham, Liz. 2015. *Ocean Country: One Woman's Voyage from Peril to Hope in Her Quest to Save the Seas*. North Atlantic Books, Berkeley, CA. 344 pp. Softcover, \$21.95 (ISBN 978-1583949603).- A moving narrative of adventure travels to marine areas -- from islands off Haiti and the Dominion Republic to the Mediterranean and Sulawesi Sea – that gives a vivid picture of ocean biodiversity and underlines the vulnerability of all ocean waters to destructive human activities including oil and toxic chemical pollution, overfishing, and climate change. Cunningham's survey concludes that the present threat is enormous and growing, and requires immediate action to safeguard the health of the planet. Examples of what can be done are provided. An important and moving read.

Dreger, Alice. 2015. *Galileo's Middle Finger: Heretics, Activists, and the Search for Justice in Science*. Penguin Press, New York, NY. 352 pp. Hardcover, \$32.95 (ISBN 978-1594206085).- A passionate investigation of character assassinations in academia and the need for science and social justice to work in harmony to ensure human freedom. Numerous examples are given that demonstrate how social media have been employed over generations by politicians and economists to discredit the findings of researchers and avoid the truth. A delightful and educational read of the 'good, bad and ugly' parts associated with the pursuit of knowledge and justice. Alice Dreger has done a fine job in leading the fight for truth.

Franklin, Jonathan. 2015. 438 Days: An Extraordinary True Story of Survival at Sea. Atria Books (Simon & Schuster), New York, NY. 288 pp. Hardcover, \$27.30 (ISBN 978-1501116292).- Want a gripping story to read on the beach this summer? Well, this amazing true story of survival might be precisely what you're looking for. Journalist Franklin has produced a gripping account of long-term survival by fisherman Salvador Alvarenga on the open ocean in a small fishing boat. Following engine and electrical failure in a storm, Alvarenga and his single crewmate were blown offshore from the west coast of Mexico to spend the next months drifting at sea trying to avoid starvation and dehydration. More than a year later, Alvarenga was found alone and delirious in the Marshall Islands, 5,500 miles away from his initial departure location (his shipmate died a few months into the journey). This incredible survival narrative will move and educate all readers about human endurance and survival at sea.

Hardt, Marah J. 2016. Sex in the Sea: Our Intimate Connection with Sex-Changing Fish, Romantic Lobsters, Kinky Squid, and Other Salty Erotica of the Deep. St. Martin's Press, New York, NY. 288 pp. Hardcover, \$31.50 (ISBN 978-1137279972).- Coral reef ecologist Marah Hardt delves into the sex lives of sea creatures in a fascinating and often amusing manner that both informs and entertains beyond all expectations. The mating rituals and sexual antics that occur in ocean waters – by sea slugs, horseshoe crabs, deep-sea squid and armored lobsters to giant blue and right whales and many others -- are brought to life in a unique way of exploring the extremely high diversity of breeding systems that have evolved beneath the waves, all aimed to ensure reproductive success. A great read delivered with wit and scientific knowledge!

Kiehl, Jeffrey. 2016. Facing Climate Change: An Integrated Path to the Future. Columbia University Press, New York, NY. 176 pp. Hardcover, \$28.00 (ISBN 978-0231177184).- Wonder why climate change and evidence of a warming planet have received so little attention until recently? Atmospheric scientist and behaviour analyst Kiehl believes that psychological defences against anxiety over change prompts denial in addressing these problems. The key message delivered is that to understand the nature of the world today is to transform ourselves. We must use science (the facts), Jungian psychology (to understand why we fear change), and philosophy (prompts us to ask about our place in the world) to attain a balanced existence within the biosphere. Technology alone is not the answer. Overall, an analysis that prompts deep thinking with surprising conclusions being drawn.

Lewens, Tim. 2016. The Meaning of Science: An Introduction to the Philosophy of Science. Basic Books, New York, NY. 272 pp. Hardcover, \$36.90 (ISBN 978-0465097487).-

This book is an interesting introduction to the philosophy of science and goes a long way to providing an insight into the meaning of science. It doesn't give a definitive answer but instead shows the complexity of the principal subject of 'meaning', especially in the modern world today, and provides an abundance of examples for the reader to ponder and draw conclusions from. It succeeds admirably in showing why both science and philosophy are both interesting and important.

MacGregor, Roy. 2015. Canoe Country: The Making of Canada. Random House Canada, Toronto, ON. 320 pp. Hardcover, \$32.00 (ISBN 978-0307361417).- Roy MacGregor, a gifted storyteller and award-winning writer, has produced an engaging and exciting account of the wonders and peace of paddling, as well as a well researched history of the significance of the canoe to the exploration and development of Canada as a country. The tales presented captivate and excite, and in the process succeed in confirming the canoe's place in Canadian life, past and present. Without question, 'Country Canoe' is must reading for all canoeists, and will also entertain and delight any outdoor enthusiast or armchair adventurer.

Maginley, Charles, Bernard Collin, and Ronald Barrie. 2014. The Canadian Coast Guard Fleet, 1962-2012. Long Hill Publishing, Mahone Bay, NS. 296 pp. Hardcover, \$60.00 (ISBN 978-0973394641).- A history of the Canadian Coast Guard Fleet from its creation in 1962 to its 50th anniversary on 26 January 2012. Prior to 1962, the fleet was called the Canadian Marine Service within the federal Department of Transport, an organization that had been known and held in high regard by Canadians for half a century. The name change in 1962 represented an acknowledgement of the growth of the fleet of icebreakers and other ships since the end of World War II (1945) and its importance in the development of marine policy and safety in arctic and boreal waters of Canada. All the vessels are described and illustrated making this book a 'must have' reference source for anyone interested in the Canadian Coast Guard.

Skloot, Rebecca (Ed.). 2015. The Best American Science and Nature Writing 2015. Houghton Mifflin Harcourt Publishing, New York, NY. 352 pp. Softcover, \$20.95 (ISBN 978-0544286740).- An exquisite collection of writings – 26 contributions (essays) by 26 authors (9 female) – from award-winning writers and newly germinated stars of the future. Subjects range from Brooke Jarvis on deep-ocean mining to Elizabeth Kolbert on New Zealand's unconventional conservation strategies. Altogether a group that celebrates the growing diversity in science and nature writing alike, that focus on the wonders that surround us and why major efforts to preserve them for future generations are being made.

‘VOYAGE OF DISCOVERY’

Sales Mission: The Track and Route!

by D.N. Nettleship

As reported at BIO-Oceans Association executive meetings on 27 January and 24 February 2016, sales were brisk and efficient through the seven days of special promotions held for the ‘*Voyage of Discovery: Fifty Years of Marine Research at Canada’s Bedford Institute of Oceanography*’ (VOD) book in December 2015. The total for December was 39 books sold with 83% purchased during the 3-day ‘special reduced sale price’ on 22-24 December 2015, with another two sold the first week of January 2016 bringing the final total of books sold to 41. It would be ideal to see these totals repeated in future months.

The present challenge is for us to identify new ways of broadcasting and selling VOD. A number of new ideas have emerged with the hope that BIO-Oceans Association members will come up with additional suggestions. Just think, if each executive member sold one book a month – not an impossible task based on past experience – a total annual sales figure would be 252 books sold (12 months x 21 members)! Add this to sales from other OA members and our retail outlets (n = 21) supplemented by sales at meetings and conferences, and we will see our supply of unsold books diminish quickly. I don’t know if this can be accomplished, but this is the kind of mental exercise we all need to pursue and put into action on a regular basis if we sincerely wish to sell VOD books.

Current activities and new initiatives include:

Geoforce Group & IORE celebration/promotion of VOD, 19 May 2016, Dalhousie University - For details, see announcement on page 2.

VOD Retail Booksellers – 21 sellers spanning four provinces: NS, NB, PEI, & NL, plus ‘big box’ sellers Amazon.com and Indigo-Chapters.

Announcements and Reviews – Notices in six external magazines and newsletters have been published since November 2015 with major reviews scheduled to appear in AINA journal ‘*Arctic*’ and Geological Association of Canada’s publication ‘*Geoscience Canada*’; review copies are being sent out to a selection of other journals/magazines of organizations in North America and Europe including *ICES*, *Oceanography*, *Canadian Geographic*, *Canada’s History* (formerly the *Beaver*), and *Sea History*. [Note: additional suggestions most welcome – send to

VOYAGE OF DISCOVERY

Fifty Years of Marine Research at Canada’s
Bedford Institute of Oceanography

Edited by

D.N. Nettleship
D.C. Gordon, C.F.M. Lewis
and M.P. Latremouille



Bedford Institute of Oceanography
Oceans Association

‘dnnlundy@navnet.net’.]

Meetings & Conferences – Several OA members continue to highlight/flag VOD at meetings whenever possible. We need a volunteer to oversee the identification of local, national, and international meetings where BIO staff is attending so individuals can be provided with a display copy (ies) to show participants along with order forms to obtain prepaid purchases. Definitely an interesting and challenging task for a team of two or more workers. [Note: if interested, contact OA president Mike Murphy or David Nettleship.]

BIO-OA Website – Intend to enhance the ‘friendliness’ of VOD purchase procedure for buyers who wish to use credit cards at time of placing a book order – ease of order/payment is essential to bolster sales using the OA website.

Let the ‘Voyage’ for sales and dispersion of marine science knowledge via VOD continue!

Editor's Keyboard: BIO now has another worthy winner of the Beluga Award, chosen from nominations made by the members of the BIO OA and BIO staff to recognize their co-workers' contributions to making BIO a great place to work on important things. This issue also features an article on Dale Buckley. Dale was a founding member of the BIO Oceans Association and one of the instigators of the Beluga Award. We have Dale and his contemporaries to thank for introducing such a meaningful award to the BIO community. Also I

have Dale to thank for introducing me to such a rewarding career at BIO and making it possible for me to meet my partner-in-life at the distilled water tap on the 4th floor of the Van Steenburgh Building. I applaud BIO OA for adding "public understanding of the oceans and ocean science" to their objectives. As Dale remarked in his interview, the public is often only concerned with aesthetics if they don't have an understanding of the oceans. The BIO-OA can be an influential player in rectifying this lack of understanding. *Andy Sherin*



ABOUT THE BIO-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.

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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), Paul Keizer (2011-13), Mike Hughes (2013-15)

Note: Some contact information on this page has changed from previous issues of the *Voicepipe*

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Unless otherwise credited all photographs were taken by Andy Sherin