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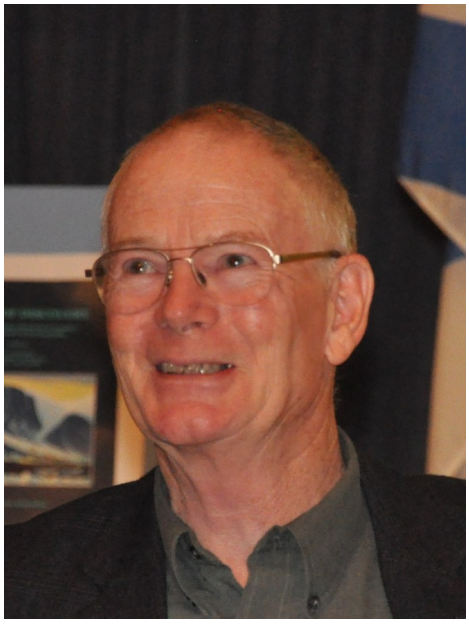
VOICEPIPE

Issue 79 October 2018

The Newsletter of the BIO-Oceans Association

BIO-Oceans Association celebrates 20 years



Four of the founders of the BIO-OA, clockwise from the top left, Bob Reiniger, Dale Buckley, Betty Anderson, and Mike Hughes. Founder photo missing Don Locke.

2018 Huntsman Award Winner

Terence P. Hughes

James Cook University, Australia

Award Presentation

20 November 2018

1330

Contents

Photos: clockwise from top left, Jackie Dale, one of the founders of the BIO-OA; Bob Reiniger (right) greets Gordon Fader at the keyboard; Dale Buckley (left) converses with Michael Sinclair; some attendees at the BIO-OA 20th anniversary at Brightwood Golf and Country Club.

Members of the BIO Oceans Association (BIO-OA) gathered at the Brightwood Golf and Country Club in Dartmouth on the evening of 17 September 2018 to celebrate the 20th Anniversary of the organization. In his opening remarks, Andy Sherin, First Vice-President expressed sadness that Jackie Dale, one of the founders of the BIO-OA passed away just a few days before this event. Don Locke, one of the founders was not present at the event. Bob Reiniger, BIO-OA's first President shared some reflections on the Association's beginnings. He thought 20 years ago that since many organizations have an alumni organization, that BIO should have one too, so he talked up this idea with several people. He had set the idea aside when Jackie Dale came to him and asked how the organization of the BIO-OA was going. Bob suggested that if Jackie hadn't come to speak with him, there would not be a BIO-OA. Dale Buckley, the initiator of the Beluga Award, took the micro-

Photos: clockwise from top left; the band's vocalist, Kitty Farmer; the band (from the left) George Ewanick, Dave Skinner, Mike Lee and Gordon Fader ; dancers Jennifer Hackett and Frank Mudge; event participants from the left Keith Manchester, Mike Hughes and Borden Chapman; and in conversation, Don Gordon (left) and Alan Ruffman (right).

phone next and spoke about the valuable contributions of several of the Beluga Award recipients. Alain Vézina, DFO Science Director at BIO sent a message of congratulations to the BIO-OA remarking on the significant contributions the BIO-OA has made to the BIO community.

During the evening, celebrants were entertained by Gordon Fader's quintet encouraging some attendees to take to the dance floor.

From the President

I start this column on a sad note. Two deaths have impacted the BIO-OA. Firstly in the last issue of the *Voicepipe* we announced the resignation of Claudia Currie as President due to a severe health situation in her family. Unfortunately her son Kyle died on 2 October 2018. Needless to say this was devastating for Claudia and her family. Shortly after Kyle's passing we heard about the death of Jackie Dale on 8 October 2018. Jackie was one of the founders of the BIO-OA and as Bob Reiniger suggested in his speech at the 20th anniversary celebration, if it wasn't for Jackie's persistence the BIO-OA may never have been established. Jackie of course was also the first woman to be the recipient of the Beluga Award.

Moving on to more uplifting news, I want to thank the organizing committees for both the Bernard Pelletier Fossil Forest and BIO Oceans Association 20th Anniversary celebration at the Brightwood Golf and Country Club. We were happy to have in attendance family members of those persons being recognized in the garden Bernard Pelletier, Surat Srivastava, Lloyd Dickie and Don Gordon.

At the forest dedication Patrick Potter reminded us that the forest will need tender loving care and additional dedications and signage in the future. Members are encouraged to keep this in mind when thinking of how to recognize BIO-OA members and BIO colleagues in the future.

As you will see in the article following on this page we still have no firm commitment for the restoration of the CSS *Acadia.* There has been superficial work conducted on the superstructure but the main threats to the preservation of the 'Grand Old Lady' are not yet being addressed.

Andy Sherin, First Vice President

In Memoriam

Kyle Raymond Blakeney Currie, died 2 October 2018, firefighter and son of Claudia and Randy Currie.

Jacqueline (Jackie) Dale, died 8 October 2018, BIO-OA founder, FRB and Marine Ecology Laboratory, and a recipient of the Beluga Award.

Global Warming is Transforming the World's Coral Reefs

Distinguished Lecture

Terence P. Hughes
2018 Huntsman Award Winner

20 November 2018

Update on the CSS *Acadia*

The following email message was received from Minister Glavine as a response to our request for a meeting to discuss the CSS *Acadia.*

Dear Mr. Sherin:

Thank you for your email dated September 4, 2018 regarding CSS *Acadia*.

We know the CSS *Acadia* is important to Nova Scotians; it is important to us as well for its historic significance and as an attraction on the Halifax waterfront. We are aware of the conservation issues with the vessel; not uncommon for steel-hulled ships of this age that are in the water. We take these issues seriously, and planning for the long-term sustainability of the vessel remains ongoing. Concurrently, we continue our daily work to ensure the ship is maintained. Museum staff also continue to assess the ship's condition as part of our ongoing maintenance and preservation plans. As you are aware, all government capital investments are considered as part of a process which prioritizes all the various demands on government. As soon as we have new information to share, and next steps are confirmed, we will share this information with stakeholders. Please rest assured that a process to address the longer-term future of the *Acadia* is underway.

Thank you for your continued interest in supporting the CSS *Acadia*.

Sincerely,

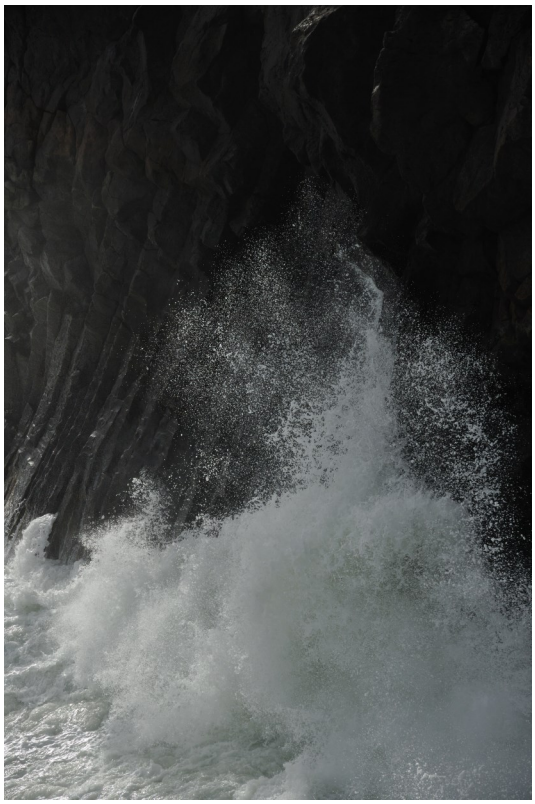
Leo Glavine

The Land of Ice and Fire

Your editor had the opportunity to visit Iceland in late September to attend the CoastGIS 2018 symposium in Ísafjörður, Westfjords, Iceland. The Westfjords in the northwest of Iceland has the oldest rocks in the country. As the name suggests the region is highly indented with fjords.

For the week before the symposium we travelled with my daughter and her husband. The first few days were spent in the capital Rekjavik (see photos on page 6). We then spent a day travelling what is called the 'Golden Circle', that includes the Þingvellir National Park, the Geysir Hot Springs (see photos page 7) and the Gullfoss waterfall (see photos page 8). These are very popular tourist sites and we experienced the challenge of finding parking spots at all three sites. Indeed tourism has become a significant contribution to the Icelandic economy after fishing and aluminum smelting. There are more sheep in Iceland then people, they are everywhere, sometimes on the road. Icelandic horses are also a common sight in the fields and we saw a group of horse riders herding sheep for the annual roundup of sheep from their common grazing areas before the winter. The aquaculture industry is growing and is a topic of public discussion as it is in Nova Scotia.

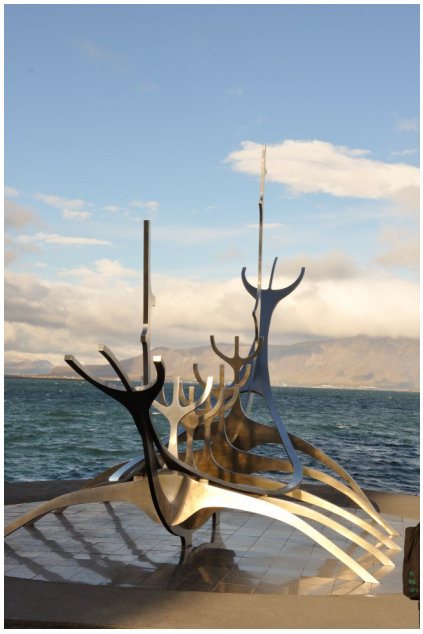
Photos: top; a view of the Ísafjörður harbour; below, clockwise from top; salmon cages in Ísafjörður; waves crashing on volcanic cliffs on a very windy day; sunset over Tálknafjörður.



Rekjavik

Rekjavik, the capital of Iceland, is a small city of 123,000 people, very much like Halifax in size and amenities.

Photos: clockwise from the top; View of Rekjavik from the bell tower of the Hallgrimskirkja looking east; the 'Solfar' or 'Sun Voyager' sculpture on the Rekjavik waterfront created by Icelandic sculptor Jon Gunnar Arnason; Hallgrimskirkja designed to mirror basalt columns; the statue of Leif Ericson, the first known European to have set foot on continental North America, in front of the Hallgrimskirkja; and the ICGV *Thor*, the flag ship of the Landhelgisgæslan or Icelandic Coast Guard tied up in Rekjavik.



The Mid-Atlantic Ridge, hot springs and basalt

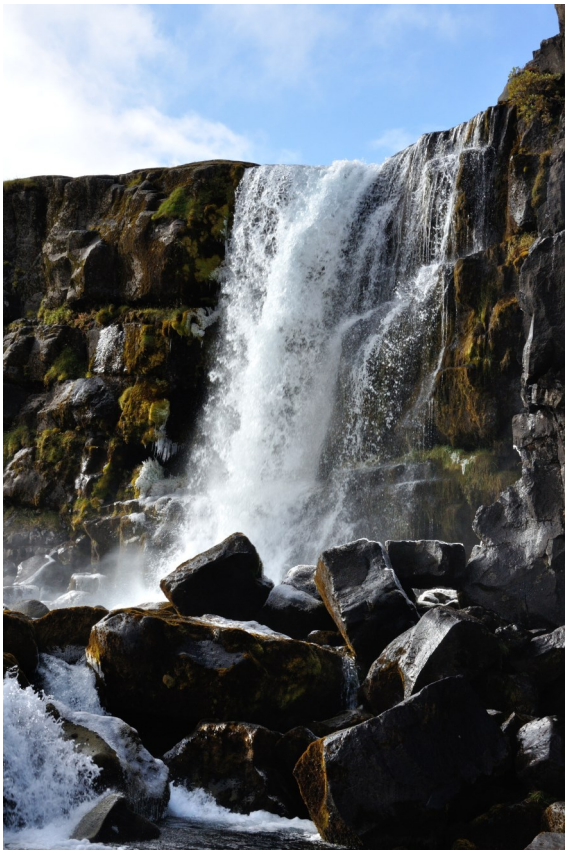
Iceland is located on top of the Mid-Atlantic Ridge and a mantel 'hotspot' with the eastern side on the Eurasian plate and the western side on the North American plate. The plates are separating at a rate between 1.8 and 3.4 cm/year. Hot springs are common with the most spectacular example at Geysir Hot Springs. Lava fields, columnar basalt and mountains of layered volcanic rock are everywhere.

Photos: clockwise for the top; View of the graben in the Þingvellir National Park. Þingvellir sits in the Reykjaneshryggur-Langjökull rift system. Þingvellir is the site of the first Alþingi ("National Assembly"), formed in 930 AD; a half a kilometer cliff of hundreds of basalt column stacks at Gerðuberg; and Strokkur spouts hot water as high as 30 meters into the air every few minutes in Geysir Hot Springs area.

Waterfalls

Waterfalls are ubiquitous in Iceland. There would be several waterfalls visible from the road within a few kilometres.

Photos: top; The upper cascade at Gullfoss on the 'Golden Circle' route; bottom right; Dynjandi or Fjallfoss is the largest waterfall in the Westfjords cascading some 99-100 meters; bottom left; the waterfall in the Þingvellir National Park.



BIO Today

CHS makes high-res bathymetric data of Canada's major waterways available free of charge to all

The Canadian Hydrographic Service (CHS) announced in *In the Loop* on 11 October 2018 that CHS has made a major leap forward in improving accessibility to bathymetric data for Canada's navigable oceans, rivers and lakes.

The release of CHS NONNA-100 products marks the first time ever that a complete inventory of CHS bathymetric data is available free of charge to the general public at such high resolution, for non-navigational use.

"NONNA" refers to the "NON-NAvigational" purpose of the data, while "100" indicates a spatial resolution of 100 metres.

Never before has the CHS offered up their complete inventory of bathymetric data, particularly at 100 metres resolution. Now the data is available free of charge on the Federal Geospatial Platform and Open Data to anyone interested in Canada's marine space. There are many possibilities for its use – research on fish and marine mammal habitat, earthquake and fault studies, coastal planning, ecosystem management – to name just a few.

These bathymetric products (or data cells) include a wealth of detail about the nature of Canada's seafloor, its depth and other underwater features of our major bodies of water. They will be of huge interest to anyone, from marine biologists to marine engineers, with a use for detailed bathymetric data and who want to download it for purposes other than navigation.

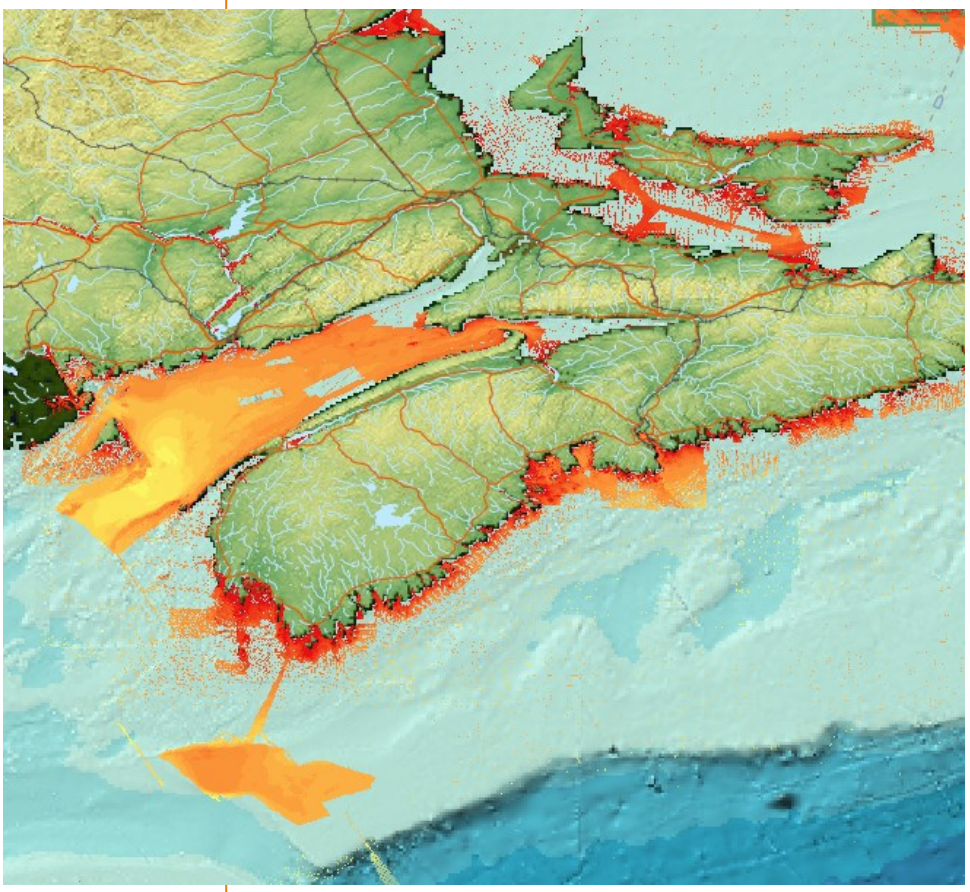
CHS NONNA-100 products combine all validated bathymetric data acquired by CHS from a variety of survey platforms, including satellites, aircraft and oceangoing vessels, as well as leading technologies like multibeam echosounder and LIDAR (a remote-sensing method that employs pulsed laser light to gather three-dimensional data about the earth's underwater terrain).

Drawn from multiple bathymetric sources, combined at remarkably high spatial resolution, CHS NONNA-100 Bathymetric Data represents a five-fold improvement in detail and accuracy over the 500-metre data formerly available to the general public from CHS.

While CHS NONNA-100 products offer bathymetric data for most of Canada's exclusive economic zone, equivalent products for the High Arctic (68Nº to 83Nº) are still under construction and will be available in the next year or so.

CHS NONNA-100 Bathymetric Data will serve as Canada's principal contribution to Seabed 2030. This collaborative effort between the Nippon Foundation and the General Bathymetric Chart of the Oceans (GEBCO) aims to compile all bathymetric data to create an authoritative map of the world's ocean floor by 2030 and make it available to everyone.

You can access all geospatial data from the Government of Canada, including CHS NONNA-100 Bathymetric Data, on the Federal Geospatial Platform or Open Data.



Map showing the distribution NONNA-100 m gridded bathymetry around Nova Scotia displayed in the COINAtlantic Search Utility on-line mapping tool using the web mapping service found on the Open Data site.

Editor's Keyboard: Welcome to this extraordinary issue of the *Voicepipe*. Extraordinary because of the articles on two special events that mark BIO-OA history. Twenty years, who would have thought our organization lasted that long and is still be a positive force in building community at BIO. Of personal significance to me is the role Dale Buckley had in advancing the BIO-OA by establishing the Beluga Award. Dale was my first supervisor at BIO. The Bernard Pelletier Fossil Forest took a lot of time and hard work by our President Claudia and others, but now has been planted and dedicated. I had the opportunity to talk with Diane Srivastava at the anniversary event about her data rescue project which has been delayed in starting. Readers can read about this project in *Voicepipe* No. 77. In the BIO Today column I have highlighted the release of gridded bathymetry data from CHS. This has been a long time in coming but those who have been working on this demanding initiative are to be congratulated. As the map in the article shows there is still a long way to go to have more complete coverage on the continental shelf, but keep up the good work. *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), Michael Murphy (2015-17), Claudia Currie (2017-2018)

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Unless otherwise credited all photographs were taken by Andy Sherin

Bernard Pelletier Fossil Forest is Dedicated

Dr. Bernard (Bernie) Pelletier at the BIO-OA Reception celebrating BIO's 50th Anniversary at the Brightwood Golf and Country Club on 24 October 2012.

Photos: top; Family members of the late Bernard Pelletier (from the left) Margaret, Marianne and Dave Pelletier, Dave's partner, Elayne Adler and Patrick Potter; bottom; Family members with Lloyd Dickie (from the left) Sarah Hayes, Lloyd, Marjorie Dickie and Kate Dickie.

On the afternoon of 17 October 2018, the **Bernard Pelletier Fossil Forest**, a Cretaceous and Paleogene woodlands, was dedicated in the BIO courtyard.

One bed in the forest contains plantings based on Cretaceous-aged fossils found on northwestern Ellesmere Island. Fossilized plant material in the Hansen Point Volcanics show that the Cretaceous environment was one of alluvial plains and peat bogs. Volcanic activity related to the formation of a large ridge in the adjacent Arctic Ocean rocks was likely common as evidenced by the dominance of volcanic rocks in the unit. In the ancient terrestrial environment the most common leafy shoots belonged to conifers, and these are represented in the courtyard garden by *Taxodium distichum*, the bald cypress. Another fossil found on Ellesmere Island displayed the unique foliage of other conifers, represented by the only living member of the ginkgo family, *Ginkgo biloba*, the maidenhair tree. Fossilized ferns and pines were also found at the Cretaceous site and the large pine trees in the courtyard planting stand in for them. The largest fossil tree trunks were twenty-four centimetres across and had an estimated height of fifteen to twenty

Photos: left; Dr. Don Gordon (left) and Mark MacLean, Don's son in law; right; Diane Srivastava, Shiri's daughter.

metres.

Another bed represents the younger Paleogene fossils found on nearby Axel Heiberg Island. Species found there include the Cretaceous ones previously mentioned as well as *Chamaecyparis* (or false cypress) and Dawn Redwood (*Metasequoia glyptostroboides*). At this rich fossil site, the exquisitely preserved fossil remains include Dawn Redwood cones and Walnut seeds. Preserved tree rings show that some individual trees lived for as much as one thousand years, growing to 45 metres in height and 2-3 metres in diameter. Other tree species include spruce, hemlock, larch, Chinese water pine.

A *Gingko biloba*, a Cretaceous tree, was dedicated to Dr. Lloyd Dickie in recognition of his exceptional contributions. Founding director of the Marine Ecology Laboratory at BIO in 1965, Lloyd assembled and worked with an outstanding group of scientists from diverse fields to investigate the productivity of marine ecosystems.

A *Taxodium distichum* was dedicated to Dr. Donald Gordon in recognition of the outstanding lifetime contributions to marine science and BIO including in the early 1970s as the leader of a new pollution research unit, the Marine Environmental Quality Division of the Marine Ecology Laboratory. He is a Beluga Award recipient and most recently, he completed the *A Chronology of the First Fifty Years of BIO (1962-2012).*

A *Metasequoia glyptostroboides* (Dawn redwood) was dedicated to the late Dr. Surat P. Srivastava to honour an outstanding lifetime contribution to marine geophysics and the development of the theory of plate tectonics. He and his wife Vivien came to Bedford Institute of Oceanography in the mid 1960s. Shiri was at the forefront of research into marine geophysics, notably the reconstruction of the North Atlantic through geologic time. Later, he and Matt Salisbury coordinated Canada's involvement in the Ocean Drilling Program. As Bosko Loncarevic said in his tribute to Shiri in 2013, "those who remember Shiri will remember him mostly for his loyalty. He was uncompromisingly loyal to his family and friends, to his work, to the institutions that he worked for, and to the colleagues that shared his knowledge."

Although the Bernard Pelletier Arctic Fossil Forest was now officially opened, Patrick Potter, the ceremony's MC said "this is a beginning, not an end. The garden plantings will mature, and there will be many opportunities for people to support this living exhibit: from additional signage, plantings and tree dedications to helping out with weeding." He mentioned that Ruth Jackson had started the practice of meeting out in the courtyard at coffee time to weed the garden on what she called 'Weedless Wednesdays'.