

VOICEPIPE

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Don Gordon Awarded King George III Coronation Medal



From the left: Doug Wentzell, RDG, DFO Maritimes; Joleen Gordon, Don’s wife; Heather Gordon MacLean, Don’s daughter; and Francine Desharnais, Regional Director of Science.

On Friday, 28 February, 2025, the family of the late Dr. Don Gordon was presented with the King George III Coronation Medal. This medal commemorates the Coronation of His Majesty King Charles III as King of Canada and is awarded to individuals who have made a significant contribution to Canada or to a particular province, territory, region or community of Canada, or have made an outstanding achievement abroad that brings credit to Canada.

Donald Gordon joined the Bedford Institute of

Oceanography (BIO) in 1970. He served as a research scientist, divisional manager, and acting director for 35 years. His various research projects provided important insights into the impacts of human activities on marine ecosystems such as oil spills, tidal power, offshore drilling, and fishing gear. He published widely in the scientific literature and participated in numerous international science programs. Over his career, he participated in 58 oceanographic cruises and attended scientific meetings around the world. continued on page 7

A LOG OF THE CSS/CCGS HUDSON 1963-2022

Donald C. Gordon, Pierre M. Clement, David L. McKeown, and Keith Manchester

Canadian Technical Report of Fisheries and Aquatic Sciences 3681

Link to the report:

<https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41280817.pdf>

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On Thin Ice: Sampling the Arctic Ocean for chlorinated organic pollutants using Canada's Ice Island (Part 2)

by Barry Hargrave

Sampling for organochlorine (OC) pollutants in air, snow, seawater and components of the food web using Canada's Ice Island in an offshore area of the eastern Arctic Ocean described in a previous issue of *VoicePipe* started immediately after the planes were unloaded. Our objectives required working as far away from the base camp as possible, which itself could be a source of contamination. Sampling was carried out beside the island through holes melted in thinner first-year ice.



Peter Vass preparing a plankton net for lowering into the ice hole next to the Ice Island.

The portable ice melter with a copper hoop was used to create a 1m diameter hole in the 1 to 2m thick ice to collect plankton samples. Smaller holes were melted to deploy the Seastar water samplers. Melting the holes took about 45 minutes after which ice plugs were pushed



Peter Vass preparing a plankton net for lowering into the ice hole next to the Ice Island.

down and to the side to create contaminant-free, water-filled sampling holes. We erected an insulated tent over the larger hole covering a winch and hydraulic power unit hauled to the site on qamutiks. A portable heater created a comfortable working space. Plankton nets could be prepared free of possible contamination and without being exposed to sub-zero temperatures.

We wanted to make an inventory of OC concentrations to trace pathways from the atmosphere (snow and particle fallout), river input and oceanic exchange that bring contaminants to the Arctic Ocean. Land runoff makes a small contribution compared to ocean currents, primarily the West Spitsbergen current between Greenland and Norway and the Bering Strait inflow between Alaska and Russia. However, river discharge, mostly from the Siberian coast of Eurasia, is significant enough to reduce salinity slightly in the upper 100 m of the entire Arctic Ocean.

OCs entering via oceanic currents can be identified by comparing concentrations of specific compounds meas-

ured at various depths. Surface and deeper layers identified by their characteristic temperature, salinity and dissolved nutrient concentrations contain distinctive amounts of different types of the contaminants that can be used to differentiate between those arriving from the air, freshwater discharge or ocean exchange. We used a new battery-operated underwater sampler designed in Canada by Seastar Instruments Ltd. in Sidney, British Columbia. The samplers pump measured volumes of seawater through a filter and resin column to concentrate particulate and dissolved OCs from seawater. The samplers were attached to a cable suspended through the ice hole at different depths for up to 24 hr. OCs concentrated on filters and resin columns were later extracted and measured by Arctic Laboratories in Sidney.

We towed conical fine-mesh nets on hoops vertically through the water under the ice to collect phytoplankton and zooplankton that larval and juvenile fish feed on. Various size fractions of plankton were collected using nets with different mesh sizes. Analysis of these samples

indicated, as had been observed in other studies, that both dissolved and particle-associated OCs are accumulated by zooplankton and fish. We collected bottom-living (benthic) animals and sediments using a grab – a heavy two-jawed device that clamps shut when it hits the bottom. Mobile benthic animals such as brittle stars (echinoderms) and scavenging amphipods (arthropods) were attracted to traps baited with pieces of dead fish protected in mesh bags to prevent ingestion. Our attempts to capture fish by suspending baited hooks at various depths or pulling a net horizontally under the ice between two adjacent holes were unsuccessful. We had hoped to compare OCs in fish tissues with levels measured in planktonic and benthic animals, their food supply.

Since the atmosphere is a major source of OCs to the Arctic Ocean we collected samples of small droplets (aerosols) and particulate matter (dust) using a high-volume vacuum pump powered by a portable generator located downwind of the sampler to minimize contamination. Large volumes had to be sampled due to the low concentration of OCs present in air. We collected air samples at different locations around the island away from the main camp. Pumps ran continuously over several days but filters and foam cartridges were changed frequently to measure day-to-day variations. Even at 81 °N remote from human influence, after 30 hours of collection a grey film of particulate matter appeared on white glass fiber filters in the high volume sampler. Higher concentrations of dust are present at more southern latitudes, particularly in industrialized temperate zones, but global air masses move airborne particles long distances. Mid-latitude emissions from burning fossil fuels, smelting and industrial processes reach polar regions where in the dust in the lower troposphere is referred to as Arctic haze.



Barry Hargrave with a Seastar pump used to extract OCs from seawater.



Brian Fowler with air sampling equipment.

We also collected snow samples from around the perimeter of the island in a special melting tank. After thawing, we filtered the water through resin columns that separated OCs. We discovered that one of the main ways OCs enter the marine food web is by being concentrated in melt water from snow that collects in frozen ponds on the ice surface. Throughout the summer, melt water accumulates in these ponds and then flows into the ocean through cracks in the ice. A layer of low salinity water forms under the ice where algae attached to the under-ice surface proliferate. They concentrate OCs and further bioaccumulation occurs when zooplankton graze on the algae. These crustaceans are in turn consumed by fish which are eaten by seals. The arctic marine web is thus an efficient collector of OCs in the food web leading directly to northern people.

June 1, 1986 – As we leave Ice Island, I am thinking of my experiences over the past 12 days. We couldn't depend on our biological clocks to set day-night routines since the day never ended. Although the sun does not set between late May and early August at 81 °N, the nature of the light changes dramatically over 24 hours. When clouds are present, a diffuse grey brightness illuminates the frozen landscape. As the sun sinks closer to the horizon in the evening, it gets colder and ice crystals sparkle in the still air. In the evening and at night, the colours change to soft blue and orange depending on the sun's position and cloud cover. Just as the surface of the ocean constantly changes colour reflecting the sky, so the polar ice mirrors its atmospheric dome. The memory of my first trip to the Arctic will never be forgotten.

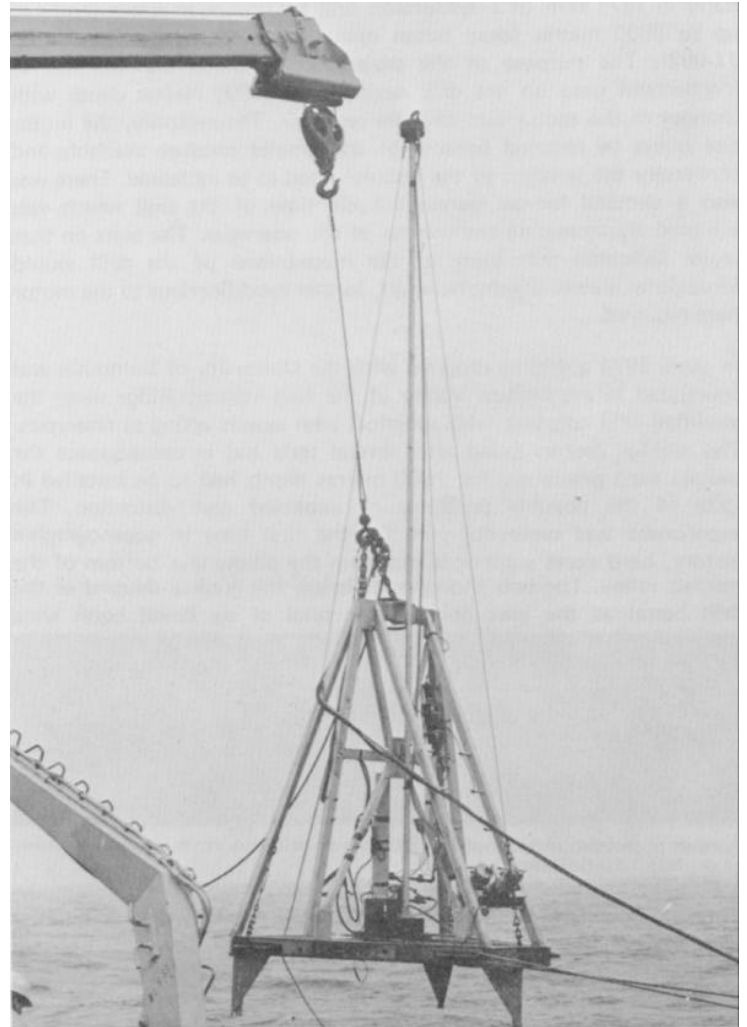
Drilling the Mid-Atlantic Ridge: The Electric Drill

by D.L. McKeown

In my preceding article "*Drilling the Mid-Atlantic Ridge: The Hydrostatic Drill*" I described the efforts BIO scientists and engineers made to create a device to collect bedrock cores from the Mid-Atlantic Ridge during the Institute's first decade. By the late 70's, BIO's interest in the geology of this area had waned substantially but continental shelf studies continued to be a major geological focus. Consequently, BIO engineers turned their attention to the development of tools to aid in these investigations. This led the inventive minds of George Fowler and Peter Kingston to create an electrically powered rock core drill capable of penetrating through a modest overburden to obtain bedrock cores from continental shelf areas. Under their leadership and with enthusiastic support from Lew King and other geologists, the team created a very clever drive mechanism that sat at the base of the drill platform to simultaneously rotate the drill barrel and force it to extend into the sea floor. This apparatus was powered by a standard submersible, electric water well pump motor connected to the ship by two cables, a buoyant load line and a buoyant power/signal cable. It was employed with great success over the next two decades as part of BIO's widespread east coast and Arctic geological studies as well as one expedition to the west coast. Furthermore, the design was licensed to a commercial company which then made and sold several units.

During the 1971 joint BIO/Dalhousie University expedition to the Mid-Atlantic Ridge, one of the participants had been a graduate student, Pat Ryall. In 1978, he returned to Halifax and joined the faculty of the university. Thinking about how he might pursue questions about sea

floor spreading awakened by his earlier experience, he concluded that a deep sea version of BIO's electric drill would be the answer. This led to discussions with George Fowler resulting in an agreement that Pat would



The original shallow water electric rock core drill (BIO Annual Report 1971)

lead a project to study mid-ocean ridge structures, including obtaining the necessary funding while George and his team would create a deep sea version of their electric drill to obtain the bedrock samples he required. The goal was to create an electrically powered drill capable of penetrating into the seafloor to collect 2.5 cm diameter bedrock cores up to 6 metres long, on slopes of up to 30 degrees, in water depths of at least 3500 metres.

The first step was to employ the existing shallow water drill but increase the length of the lowering rope and electrical power umbilical in order to operate at greater depths. In 1979, the team took this initial prototype to the Azores Seamount where they collected 10 cores totaling 15m in length in water depths of 450-650m. While successful, this handling system limited the operation to unacceptably shallow depths. To overcome this limitation, they devised a high voltage power and communication system with appropriate safety features to protect the deck crew and replaced the separate strength and power umbilical system with a single armoured cable. Skipping over a number of years of engineering trials and tribulations, they eventually created a drill system that enabled them to collect 57 cores totaling in length 23.5m in water depths ranging from 400m to 2960m both at sites on the Mid-Atlantic Ridge and at other locations in the Atlantic and Pacific Oceans. The last trip with the deep electric drill occurred in 1985 when the Ryall/Fowler team took their drill to the Kane Fracture Zone to obtain bedrock cores and conduct a survey to select targets suitable for bare rock drilling for the upcoming Ocean Drilling Program (ODP) Leg 106. Thirty-four years later in 2023, the *JOIDES Resolution* drill ship obtained a single 1268m bedrock core on the Mid-Atlantic-Ridge. Such is scientific and engineering progress.



Closeup of the deep sea version of the electric rock core drill. (Photo courtesy of George Fowler.)

I can't resist including one example of the misadventures of engineering development that I skipped over above. One day the team developing the BIO electric drill loaded it onto CFAV *Bluethroat* and went to Eastern Passage behind McNabs Island to conduct some trials with an especially long drill mast/core tube. Everything was going well until the drill suddenly stopped working so they requested that the crew bring the drill back on board. As it arose through the surface, they could see that the drill barrel was severely bent. At this point it dawned on them that the tide had gone out and the ship had settled down on the top of the drill!

My thanks to George Fowler and Pat Ryall for historical recollections and photos. They offered much detail which I have omitted because, while I found it fascinating, only geeky readers would appreciate it.

Meeting for over 15 years - The "First Wednesday of the Month Lunch" Group

by Jennifer Mudge

It was warm and sunny as my 7 year old grandson Grayson and I stepped hesitantly into the cool, dimly lit Ship Victory for lunch on Wednesday, September 4th 2024. I hadn't expected that I would be taking care of my grandson that day. His parent's had not realized that Grayson's summer camp stopped on September 3rd and school wasn't starting till the 5th. But I resolutely decided that I wasn't going to change the lunch plans I had made weeks before.

We were greeted by Ron Macnab with his beaming smile who arranged an extra chair for Grayson beside me amongst the 15 who had already gathered. Mike

Lamplugh who sat across the table immediately put young Grayson at ease with "Hey Bud, How're you doin'?" Grayson grinned and for the next hour he and I enjoyed listening to the lively laughter and conversation even joining in. I was thrilled to renew BIO acquaintances and get to meet others.

My interest in attending the "First Wednesday of the Month" lunch started on Jul 30, 2024. Ron Macnab sent me this email about the group, proposing an idea:

(ROMEOS (Retired Old Mariners Eating Out*) crowd * a sobriquet created by Mike Lamplugh's wife.)

The ROMEOS distribution list comprises 70+ names of retirees from the ranks of former BIO hydrographers, cartographers, technicians, also a smattering of managers and research scientists. It's primarily a social organization that aims to preserve and strengthen the bonds of friendship that have been forged during



ROMEOb meeting for lunch at Parkside Pub and Smokehouse. Can you name all the ROMEOb in this picture?

numerous seagoing deployments over the past several decades. Our primary activity is to gather for lunch on the first Wednesday of each month at the Ship Victory Lounge and Restaurant on Windmill Road. On a good day, lunchtime attendees might number 25.

I happen to be the group's informal moderator.

I should stress that this is a very loose-knit group, in fact one of our founders (Jerry Dease) characterizes its operating principles as 'no dues to pay, no minutes to read.' I should also admit that I don't know how many ROMEOb are also members of the Oceans Association.

What I do want to acknowledge in this note is the overlap that exists between the interests of the Oceans Association and the ROMEOb, as well as the communications between those two organizations that occasionally duplicate each other. I also want to underscore a willingness to collaborate with the OA as the need arises. Let me know if you consider this is worth discussing.

Cheers! Ron Macnab

At the end of the luncheon Ron was insistent that I speak with Jerry Dease and Morley Wright, who were instrumental in forming the lunch group. They both retired from BIO in 2009, and were inspired to start a lunch group of retired colleagues by another retiree group who had been meeting regularly for many years. When I asked Morley and Jerry which month they held their first lunch, they thought a moment, and both realized it was September. Subtracting 2009 from 2024, I blurted out – well then today is your 15th Anniversary! Morley and Jerry both turned to each other nodding their heads, smiling in quiet celebration. I suggested writing a future

VoicePipe article about the group.

The next day Ron Macnab reported

Hey ROMEOb –

Morley's head count reported an attendance of 17, enough to fill one long table. There were lively conversations all-round, and lots to keep Tracy on her nimble toes as she hustled the usual mix of orders. ...

I looked forward to the next First Wednesday of the Month lunch at the Ship Victory.

On Fri, Sep 27, 2024 Ron emailed

Hello ROMEOb,

This is a reminder of our lunch this coming Wednesday, October 2nd. I will be unable to join you as I am hospitalized once again - with a broken hip this time. But I know all of you will enjoy the lunch, companionship, and good conversation.

Cheers, Ron

Though disappointed that Ron would not be able to attend, I arrived early bringing a good camera for photos for an article. As I approached I noticed a piece of paper on the Ship Victory side door - "KITCHEN CLOSED UNTIL FURTHER NOTICE...SORRY FOR THE INCONVENIENCE". I learned the cook had accepted a job on a Navy vessel sailing immediately leaving no time to replace him.

As others arrived, the location was quickly moved to the Parkside Pub and Smokehouse at 14 Highfield Drive. Soon the group were smiling and laughing, sharing sto-

ries and jokes and family updates.

The group has met almost exclusively at the Ship Victory since its beginning except during COVID in 2020. After reopening, Tracy has served the group for the last 4-5 years. Joyce had served the ROMEOs for the decade previous to COVID. Joyce retired in 2020 at age 81 after serving at the Ship Victory for 45+ years!

Over the next several months, I joined the ROMEOs on the First Wednesday's of each month, now at the Parkside Pub. Many are regulars and those who occasionally attend. I meet one or two folk new-to-me each month. The laughter, friendship and broad range of interesting topics are uplifting. I hear about amazing adventures, unique hobbies and discover surprising mutual connections. Sharing a lunch-hour with this group nourishes not only the body but the spirit.

On Tues Dec 10th 2024 Ron typed his last email to the ROMEOs signing off Joyeux Noël, Ron Macnab.

On Mon, Jan 6th, 2025 Ron's final message to the group, with his wife Mary's assistance -

Hello Everyone,

If you recall, Ron sent a note prior to Christmas ...

I want to let you know that Ron's leukemia and lymphoma have progressed to a stage where it is highly unlikely that he will be able to attend any future luncheons with you. And, as you've no doubt surmised, because I'm sending this email instead of Ron, he is no longer using his computer. So, this is the last luncheon reminder that will be going out under Ron's name. I'm sure another member of your group will volunteer to take over this responsibility to ensure your luncheons continue.

Ron would want me to let you know how much he loved meeting with all of you at these monthly luncheons to share stories of past exploits and to catch up on your current happenings. Thank you for your friendship over the years.

Ron and Mary

Bruce Anderson graciously has taken on the role of unofficial moderator.

On Mon, Feb 3, 2025 Ron's wife Mary emailed news to the ROMEOs

Hello Dear Friends,

It is with sadness that I want to let you know that Ron's journey with cancer ended Sunday morning at 6:00 a.m. He died peacefully at home. Our four children have been with us around the clock for the past week, so we supported Ron and each other with care and love.

...

Coronation Medal continued

world. He was also a dedicated volunteer working to address local environmental issues through his involvement on the Dartmouth Lakes Advisory Board. He won several awards for his many contributions to Canadian oceanography. However, above all these professional accomplishments, he is best remembered

Mary

At the ROMEOs lunch on Wed, Feb 5th Ron's son, Paul, was welcomed by colleague friends of his father's as well as of Paul himself. They expressed their profound sympathy and renewed their connections with Paul. Bruce emailed the report of the lunch –

Hello All,

We had a great turn out today for our monthly lunch. There were a total of 22 attendees today and from the amount of conversation, a good time was had by all. We raised our glasses and had a toast to our friend Ron Macnab. Ron's son, Paul, joined us at lunch as well.

Hope to see you on March 5th for the next lunch.

Cheers, Bruce

Many ROMEOs attended the Celebration of Life for Ron on Monday 10 March which overflowed the meeting room of the Fairbanks Centre in Dartmouth. The YouTube video can be viewed here <https://www.youtube.com/live/mq9RhF2g9pc>

Little did I realize that each month my intended message about this lunch group kept changing! Besides the longevity of this group, begun by Morley and Jerry, and Ron's vision of networking with other similar BIO groups like the OA, I originally intended to share some of the hilarious or amazing dialogues I heard, or the humorous incidents when the venue changed suddenly. But now I feel the overall message is that this terrific group will continue to withstand changes over time. The Ship Victory didn't define it. Memories of individuals who have shared their friendship with the group will be remembered, and new additions will be welcomed.

Since I joined last Fall, Paul Macnab has also joined. On 26 Feb 2025, Bruce welcomed three new additions to the group. If you would like to be added to the email list for the First Wednesday of the Month Lunch Group (ROMEOs) you can email Bruce at bruceanderson10@gmail.com or just drop in to the Parkside Pub on a First Wednesday of the Month and look for familiar faces, usually in the back room!

Thank You Ron for introducing me to this group!

Jennifer Mudge

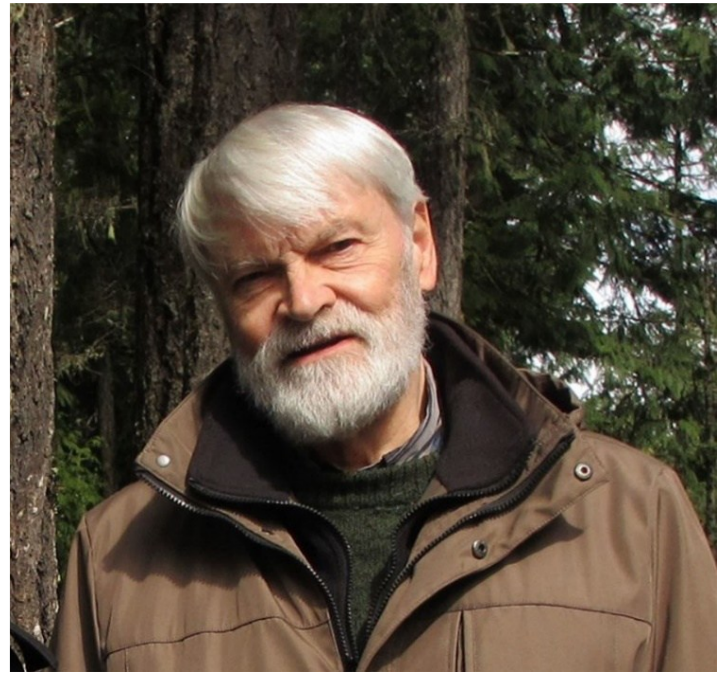
for his collaboration and mentoring of all those he worked with regardless of their role. He saw value in every team member from the student volunteer to the ship steward. He retired in 2005 but continued to work tirelessly up until his passing in July 2024 as an emeritus scientist documenting the history of BIO (see example in the box on page 1) and Canadian oceanography, as a major contributor to the BIO-OA and the *VoicePipe*.

Dr. C.F.M. (Mike) Lewis (1938-2025)

by Don Forbes

Mike Lewis was one of the best, a scientist with vision, drive, creativity, and generosity, skilled in connecting the dots and drawing unexpected conclusions from new evidence. Meticulous, always curious, hard working, and data-driven, Mike was able to see beyond the prevailing paradigm, revealing insights that had been missed before. He was also greatly appreciated as a kind and supportive mentor and colleague — considerate, respectful, collegial, good-natured, and always a source of sage advice. Mike was widely recognized as the pre-eminent expert on the late- and postglacial evolution, paleoclimate, and water balance of the Laurentian Great Lakes and their ice-dammed predecessors. Mike's breadth of knowledge and inclusive perspective attracted a wide range of scientific collaborators from across Canada and beyond.

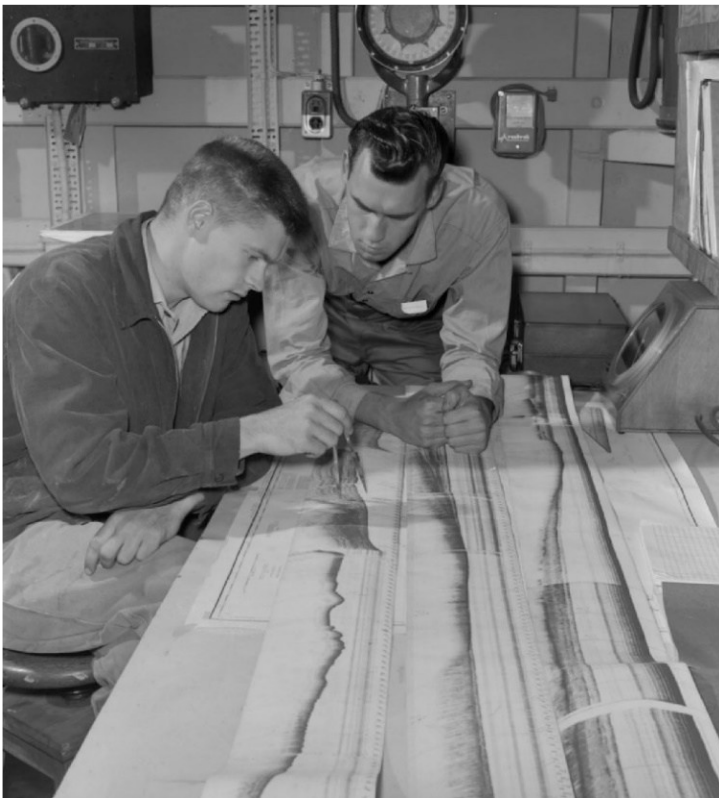
The son of a forester, Mike was born in Iroquois Falls and spent his early years in Cochrane, Ontario, nurturing his affinity for the northern boreal landscape. Growing up later in southern Ontario, he was surrounded by evidence of the last ice age and its aftermath, as well as by three of the North American Great Lakes, which later became the signature focus of his scientific career. Mike



Mike Lewis on Vancouver Island (courtesy of the family)

attended the University of Toronto, where Tuzo Wilson was a stern mentor and sent him to Nova Scotia in the early 60s “to get some sea time.” As a student, he began working on lakebed sediments as early as 1961, when he was featured in a National Film Board production. Graduating with a Ph.D. in 1967, Mike's thesis topic was “Sedimentation studies of unconsolidated deposits of the Lake Erie basin.” Though little suspected at the time, this laid the groundwork for his innovative recognition years later of aridity and former closed lake basins in Lake Erie and other Great Lakes.

Mike was employed by the Geological Survey of Canada in Ottawa and Burlington (at the Canada Centre for Inland Waters), and since 1978 at the Bedford Institute of Oceanography (BIO) in Dartmouth, Nova Scotia. In recent years, he became one of the longest serving and most productive emeritus research scientists (on a volunteer basis) for almost a quarter century. During his earlier career, he made important contributions on continental shelf sediment dynamics, ice scour, and other seabed and lakebed hazards. With Mike Keen, he coordinated the chapter on “Constraints to Development” in the DNAG volume *Geology of the Continental Margin in Eastern Canada* (*Geology of Canada*, no. 2, 1990). He led a chapter on the urban geology of Halifax for a prize-winning volume on the *Urban Geology of Canadian Cities*, published in 1998. In 1979, with Steve Blasco and others, Mike participated in the Lomonosov Ridge Experiment (LOREX), operating from an ice camp that drifted to within ~35 km of the North Pole, but also faced the emergency of an ice crack forming beneath the



Mike Lewis (L) and Dave Keen examining subbottom lakebed records aboard CNAV *Porte Dauphine*, Lake Erie, 1961 (Library and Archives Canada/ National Film Board fonds/ e011177534, copyright expired; photographer: Gar Lunney)



Mike Lewis (right) debating a point of geology with Fred Jodrey (left) and Ken Asprey (centre) (Fred's having none of it), CCGS *Namao*, Lake Winnipeg, 1996 (Don Forbes photo)

marine geology tent, forcing a camp relocation that took several days. Mike also published on organic matter and contaminants in lakebed sediments. He identified the anthropogenic origin of curious lineaments in acoustic backscatter images of Lake Ontario, finding that they were the trails of silt-sized coke and other combustion debris in lake-bottom clay along steamship routes between ports on opposite sides of the lake.

With Brian Todd, Harvey Thorleifson, and others, Mike Lewis led the development and execution of a groundbreaking multi-disciplinary study of Lake Winnipeg (similar in size to Lake Erie), filling what was perhaps the last great blank area in the geological map along the margin of the Canadian Shield. Set within the basin of what had been the largest late-glacial ice-dammed lake, Lake Agassiz, the project supported airborne, ship, boat, and ice-based survey and sampling programs from 1994 to 1997, leading to two large compilation volumes: GSC Open Files 3113 and 3470 (totalling 1498 pages) and many refereed papers. Spinoff projects ensued, including a recent continental-scale synthesis with Andy Breckenridge and Jim Teller of crustal tilting along the southern margin of the former Laurentide Ice Sheet from Lake Agassiz to Lake Champlain (Lewis et al, 2022. *Can. J. Earth Sci.* 59: 826-846). Perhaps the most significant result was recognition that Lake Winnipeg was a closed-basin lake (without outlet) for several thousand years after the drainage of Lake Agassiz (Lewis et al. 2002, *Geology* 29, 743-746), changing the paradigm for interpretation of submerged lowstand shorelines in the Great Lakes.

These lakes were Mike's perennial source of fascination, as he worked to unravel the very complex interactions of the waning Laurentide Ice Sheet, meltwater drainage and ice-dammed lakes, glacial isostatic tilting,

switching of outlets, and varying climate, leading to multiple large fluctuations in lake levels and lake extent. Early challenges to interpretation based on assumed overflow control of lake level were resolved when the Lake Winnipeg work led to a key insight — recognition that the water balance of these large natural reservoirs is sensitive to climate and had shifted to negative at times in the past under early- to mid-Holocene climate, when no water flowed over Niagara Falls.

For this and other work, Mike was presented in 2007 with the Michael J. Keen Award by the Marine Geoscience Division of the Geological Association of Canada. In 2015, he was the recipient of the W.A. Johnston Award from the Canadian Quaternary Association. His acceptance talk, "Understanding the Holocene closed-basin phases (lowstands) of the Laurentian Great Lakes and their significance," was published in *Geoscience Canada* 43 (3) in 2016 (<https://id.erudit.org/iderudit/1037739ar>).

Another noteworthy contribution during Mike's retirement years was the 2014 book, *Voyage of Discovery: Fifty years of Marine Research at Canada's Bedford Institute of Oceanography*, which he co-edited with David Nettleship, Don Gordon, and Mike Latremouille. Apart from editorial work, Mike headed a chapter on "Marine Geoscience and Lakes." The lengthy acknowledgements of that chapter attest to the breadth of Mike's Canadian and international collaborations and impact.

Mike's interests extended beyond geoscience. When they moved to Nova Scotia, he and Sue purchased a 19th century heritage home with an intriguing history in downtown Dartmouth. Many years were devoted to its adaptation as a comfortable home, and then to repairing it after damage in Hurricane Juan. Beside the Great Lakes, old houses, and trees, Mike was a dog-lover and the first dog I recall from his Dartmouth days was a very red retriever, named Buck in honour of his esteemed red-headed colleague, Dale Buckley. Mike and Sue also purchased land on a high terrace above the tidal Shubenacadie River, looking down onto one of the 19th century wooden shipyards that were so prevalent in the age of sail.

The cabin they built in the woods there was a welcome refuge. Mike, the son of a forester, devoted himself to planting saplings of Acadian forest species, helping to bring back some of the original diversity. That "New Forest," together with the wealth of knowledge and understanding Mike Lewis helped to reveal, is indeed a worthy legacy.

The family obituary and condolences can be found at <https://www.dignitymemorial.com/en-ca/obituaries/dartmouth-ns/mike-lewis-12205281>

From Water Pollution Studies to Legislation and Regulatory Action: Celebrating 50 Years of Contributions of the Canadian Ecotoxicity Workshop

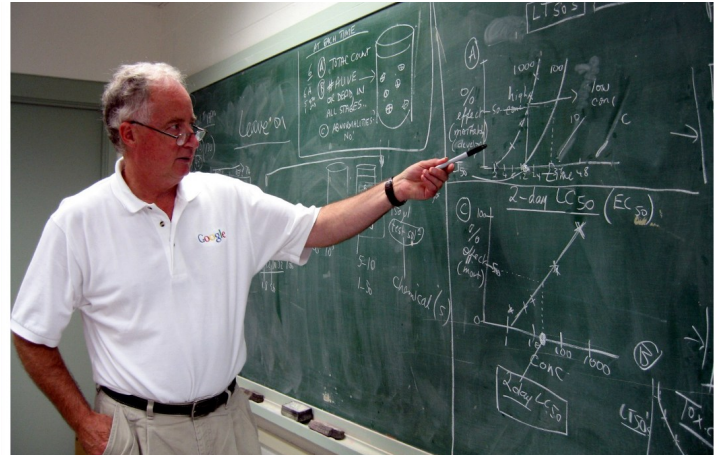
by Peter Wells

What can a half century of research achieve? This question was top of mind at the fiftieth Canadian Ecotoxicity Workshop (previously the Aquatic Toxicity Workshop), sponsored by the University of Waterloo, on 6-9 October 2024 in Kitchener-Waterloo, Ontario.

This series of meetings began in the 1970s directly after the formation of the federal government department, Environment Canada, in 1971; completion of a major revision of the federal Fisheries Act in 1973; the initiation of new national environmental legislation; and the establishment of a network of federal government aquatic toxicology and chemistry laboratories across Canada. The annual meetings became an important venue for the practitioners to come together to discuss methods, measure progress in tackling industrial pollution, and communicate key findings and concerns to federal and provincial decision makers and managers responsible for pollution control. The scientific data assembled through these initiatives quickly became the foundation for strengthened pollution regulations and guidelines for each industry, coast to coast, and the meetings became an early example of a functioning, dynamic science-policy-management interface to protect Canadian aquatic environments. Two of the early workshops involved the BIO and researchers from Environment Canada and DFO (MEL).

The theme of the 2024 meeting, “Reflecting on the Past, Charting the Future,” was designed to promote discussion of progress in water pollution control in Canada, along with the supporting research and continued needs to monitor water quality with the latest toxicological techniques. The three days of sessions were well attended, especially by graduate students from universities across the country. Topics ranged from aquatic impacts of wastewater effluents, minerals, radionuclides, emerging contaminants, microplastics and pesticides, to wildlife ecotoxicology, environmental DNA research and applications, and application of emerging technologies. Learning about the advanced techniques and seeing the dedication of the young investigators was very encouraging. In addition, many water quality and pollution control managers attended the sessions to stay current with the science and its applications.

I attended sessions on microplastics as it is a growing serious issue to ecosystem and human health and as yet little understood. Today, microplastics are pervasive in many species, in soils and sediments, and in human foods. It is, therefore, important to determine the risks



Peter Wells teaching a course on aquatic toxicology many years ago!

and implement appropriate policies and controls.

To celebrate the 50th anniversary, the meeting began with an overview of a half-century of progress in toxicity methods, monitoring, micro bio-tests, genomics, and ecology. Having been associated with the workshops since 1974, I was honoured to be invited to round off the plenary session with a talk on a current interest. I spoke on “Health of the ocean: The intersection of marine ecotoxicology, marine pollution, and human health research in an era of climate change,” which I co-authored with [Michael Depledge](#), University of Exeter Medical School, England, a long-term colleague with whom I co-taught courses. Further details about the workshop are included in the [program booklet](#).

The next annual Canadian Ecotoxicity Workshop will be held in Victoria, British Columbia, 5-8 October 2025, with the theme: “[Holistic protection of our ecosystems: Integrating ecotoxicology science into coastal and inland management](#).” Aquatic and ecotoxicology practitioners are keen to see their work directly contribute to continued and improved legislation for effective management of Canada’s aquatic ecosystems, coast to coast to coast. See, for example, the [proceedings of past workshops](#) (1974-2022). The science of ecotoxicology is being directly linked to policy development and effective management, which is an example of the science-policy interface at work on behalf of Canadians.

Reference

Wells, P. G., & Depledge, M.H. (2024). Health of the ocean: The intersection of marine ecotoxicology, marine pollution, and human health research in an era of climate change. Canadian Ecotoxicity Workshop, Waterloo, Ontario, 6-9 October 2024.

PAYMENT Select one: ___ One Year: \$20.00 ___ Five years: \$80.00

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President's Message

Happy Spring! That means I am eagerly awaiting the announcement of the 2025 Beluga Award Winner! This year's recipient will proudly join the ranks with 23 previous worthy Beluga winners since 2001. Check out previous winners on our webpage <https://www.bio-oa.ca/beluga.php>. The announcement of the 2025 winner will be emailed to members and posted on our Facebook page <https://www.facebook.com/groups/540774516043601>.

I want to recognize the Beluga Selection Committee members and Chairs dedicated to upholding the principles of this honoured award. Over 25 years, teams were led by Dale Buckley, René Lavoie, Patrick Potter, Andrew Cogswell, Penny Doherty, Melanie MacLean, Randy King and for the past two years Jenna Higgins. Monica Bravo graciously presented the award in 2023 when the committee did not have a chair. Our profound gratitude goes out to all who have been part of this award of distinction!

Once the date for the Beluga Ceremony and our AGM is determined, I will send out an email and post on our Facebook page.

We hope the 2025 Recipient and Selection Team will be joined with many past Beluga Winners and Selection Committee members. A special group photo plans to be taken for our next newsletter issue ***VoicePipe #100!***

Yours,
Jennifer

An NSIS Update

The April NSIS talk was given by Dr. Arthur MacDonald, Nobel Laureate for Physics, on ***Understanding the Universe and its Evolution from 2 km Underground***.

The talk on May 5 at 7:30 pm will be by on Dr. Lori Borgal, Assistant Professor at Mount Saint Vincent University, entitled ***Stem Cell Proliferation Gone Wrong: Mechanisms Exploited in Cancer Cell Proliferation***. Attend in person at Saint Mary's University, SMU Atrium 305.

Visit Public Lectures | Nova Scotian Institute of Science <https://nsis1862.ca/public-lectures/> for information on how to join on-line.

The Editor's Keyboard

The next issue of the newsletter will be edition 100. This is a remarkable accomplishment for the Oceans Association made possible by the contribution of stories from members and others with an interest in BIO and oceans in general. The newsletters have been guided by a series of dedicated editors which I won't name here in fear of leaving someone out.

Edition 100 should be special. The key story will be the 2025 Beluga Award ceremony but I am looking for other stories of significance. Please send them to me ASAP. The next issue will be published in the fall.

My first issue that I was editor was Edition 48 in October 2010, so Edition 100 will represent 15 years either as editor or contributing the President's message. A special thank you to Micheal Murphy who was editor during my term as President. Issue 100 is my last issue as the editor of the ***Voicepipe***. I will gladly help the next editor get established. Andy

NEW AND RENEWING MEMBERSHIP BIO-Oceans Association

www.bio-oa.ca

bio.oceans@gmail.com

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(Please fill in any changes to your contact information.)

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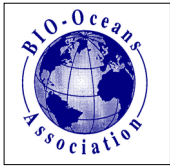
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How would you like to be involved with BIO-OA (eg. social, executive position, just the news, etc.)

How did you find out about us? _____



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 and Climate Change,

Fisheries and Oceans, and Natural Resources (or their predecessors) located in the Halifax Regional Municipality. Membership is \$20.00 per year, \$80.00 for five years.

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Association Mailing address: Bedford Institute of Oceanography, P.O. Box 1006, Dartmouth, NS B2Y 4A2.

VoicePipe mailing address: c/o Andy Sherin, 9 Rose Street, Dartmouth, NS B3A 2T4.