

VOICEPIPE

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Figure 1. The SS Arrow stranded on Cerberus Rock, Chedabucto Bay, NS, February 1970.

SS Arrow Oil Spill in Chedabucto Bay Reflections on the 50th Anniversary (D.C. Gordon, K. Lee and P.G. Wells)

Fifty years ago, on February 4th 1970, the Liberian tanker SS *Arrow*, under charter with Imperial Oil Ltd., ran aground on Cerberus Rock in Chedabucto Bay, on the east coast of Nova Scotia. Carrying 14,700 tons (108,000 barrels) of Bunker C fuel oil, the ship broke in two and released about two-thirds of its cargo into the icy waters of the Bay. Much of the spilled oil stranded on the north and south shores of the Bay (Fig. 2), while some oil emulsified into the water column and was transported as far away as Sable Island. The legacy of this spill to Canadian marine science and our collective capacity to respond to such environmental emergencies has been enormous and is worthy of reflection.

Our Covid19 Edition!

**Remember what our
Premier said:**

**Stay
The
Blazes
Home!!!!**

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for self-cleansing after an oil spill. The concept of bioremediation was born, whereby steps could be taken to accelerate the natural rates of bacterial degradation of the oil's hydrocarbon constituents and reduce overall concentrations and toxicity. Subsequent research demonstrated that adding ordinary garden fertilizer and tilling stranded oil hastened the bacterial degradation process.



Figure 3. Steam-cleaning a rocky shoreline coated with stranded oil.

This early research on bioremediation strategies was successfully tested at the 1989 *Exxon Valdez* spill site in Prince William Sound, Alaska. Subsequently, in collaboration with other agencies, BIO undertook a series of experiments to explore the effectiveness of different bioremediation techniques on stranded oil in a variety of coastal environments in Canada, the US, the UK, France, Norway and The Netherlands. These studies identified the key factors controlling the potential of various bioremediation techniques to increase the rate of natural oil degradation, cutting months or years from recovery times in vulnerable coastal environments. BIO also developed a new oil spill countermeasure strategy called “surf-washing”, whereby stranded oil at the high tide mark is mechanically relocated into the surf zone where wave action can stimulate the formation of biodegradable oil-mineral aggregates that are rapidly dispersed and biodegraded in the water column.

Chemical dispersants can also be used to ameliorate the impact of oil spills. Under the right conditions, they can enhance the movement of oil from the sea surface into the water column as small droplets to be dispersed and degraded more rapidly by naturally occurring microorganisms. A major program was established at BIO to test their efficacy and toxicity of oil

spill dispersants, the results of which were used to develop Canadian as well as international guidelines for the use of dispersants in combating oil spills.

With time, the BIO oil spill research program expanded beyond the *Arrow* spill to address other important emerging questions around oil exploration and development. For example, surveys of hydrocarbons in water and sediments were conducted in other coastal areas of Atlantic Canada, as well as in offshore waters. This was done during the early days in the development of the offshore oil industry and some sites were located near industrial activities. Studies of natural oil seeps off Baffin Island were also carried out. Due to concerns about hydrocarbon effects on fisheries, especially on juvenile stages, new techniques for marine ecotoxicology were developed. Microscale aquatic toxicology tests included enzyme induction in winter flounder, amphipod survival, echinoid fertilization, grass shrimp embryo-larval toxicity, and bioluminescent bacterial tests. In addition, studies were carried out on the sub-lethal effects of petroleum hydrocarbons on lobster larvae and marine phytoplankton.

Because of climate change effects on sea ice in the Arctic, there is an increased risk of oil spills from more marine shipping across Canada's northern waters. Hence, much of the recent research at BIO has focused on the fate of oil spilled in ice-infested waters and the efficacy of various remediation technologies under arctic conditions. Despite cutbacks in federal science in recent years, a strong international program in oil spill research continues at BIO under the Centre for Off-shore Oil, Gas and Energy Research (COOGER) established by Ken Lee. He is currently leading the Multi-Partner Research Initiative under Canada's Ocean Protection Plan to foster an international network of scientists to develop new oil spill response strategies and advance scientific knowledge to support decision making in oil spill response operations.

The knowledge gained from studying the *Arrow* spill and subsequent research has been applied by BIO scientists to study and provide advice on other major oil spills, both in Canada and abroad. These include the *Golden Robin* spill in the Bay of Chaleur (1974), the *Argo Merchant* spill off Nantucket (1976), the *Amoco Cadiz* spill in France (1978), the *Kurdistan* spill in the Cabot Strait (1979), the *Exxon Valdez* spill in Alaska (1989), the *Sea Empress* spill in Wales (1996) and the *Deepwater Horizon* blowout in the Gulf of Mexico (2010).

Fifty years after the spill, the stern section of the *Arrow* still lies on the seabed off Cerberus Rock. Despite attempts to remove remaining oil from the wreck during Operation Oil, some small amounts were not recovered. Over the years, surface slicks have occasion-

ally been observed. In 2015, Coast Guard divers removed several thousand additional liters of oil. Small amounts may still remain. Weathered oil is still present in the sediments of a few low energy shallow water habitats, such as Black Duck Cove. However, the overall marine ecosystem of Chedabucto Bay has largely recovered from the *Arrow* spill. Not surprisingly, many younger residents in the region today have no knowledge of this environmental emergency that gained international attention in 1970. Indeed, Black Duck Cove is now a small day-use provincial park with a beautiful sandy beach and rocky shoreline with boardwalks and a shoreline-walking trail.

In conclusion, the collective results of BIO research stimulated by the *Arrow* spill have had many practical applications in Canada and abroad. These include improved oil detection/characterization and marine environmental risk procedures and improved emergency response measures for oil spills, including consideration of natural recovery processes and the application of dispersant and bioremediation agents. As a case study, the *Arrow* oil spill highlights the importance of science-based evidence in decision making for the most effective oil spill option(s) available. Given the projected increases in ship traffic across the North as ice retreats due to climate change, this new knowledge is invaluable for developing oil spill preparedness for Arctic waters. Above all, the *Arrow* spill led to an increased public awareness of the threats of oil spills to coastal water and sediment quality, marine wildlife (e.g. seabirds), and fisheries, as well as the need for enhanced marine environmental protection and emergency response measures. This event on our coastline 50 years ago has left a lasting and proud legacy in our ocean research community.



Figure 4. Stranded oil on a beach in Black Duck Cove.

The Hidden Workings of Research Vessels – Hudson 70

We received this letter after the article in our last edition highlighting the Hudson 70 anniversary.

To the Editor:

It was nice to be reminded of all the worthwhile things that were accomplished during the Hudson 70 voyage, now 50 years ago, in the January edition of *VoicePipe*. I was lucky enough to join the vessel in Esquimalt in August 1970 as the third officer and so became part of Hudson 70. Having made two trips around the world on the *H.R. Vema*, owned by Columbia University, I was no greenhorn when it came to working on an oceanographic research vessel. What was vastly different was the type of vessel I joined on that August day. The *Hudson* was, at that time, a sailor's dream. For me, it was like going from a Volkswagen Beetle to the latest model Cadillac. Her diesel engine propulsion, twin screw, and bow thruster made maneuvering and station keeping a snap. When trimmed right and with the flume tanks working, she was just about the most seakindly vessel you could wish for. In short, she was a lady you liked to go to sea with. She probably still is, in her old age. Some vessels just occupy a special place in a poor sailor's heart.

Having subscribed to your magazine for quite a number of years, I do not recall ever reading a contribution from one of the gang who kept the research vessels ticking, nor anything resembling an ode to those who made it so. Maybe I missed it, it wouldn't be the first thing I missed. Still, I like to wax, not so eloquently I'm sure, a little about what it took and still takes to keep an oceanographic research vessel ticking, and ticking it must in order to enable the scientists and technicians to do their work.

I'll start off with the black gang, that would be the people who shun daylight and toil away in the bowels of the ship in order to keep the machinery turning. When the engines stop, everything stops. So maybe they could be a pretty important part of the equation. They are also the people who are called upon when the deck machinery needs to be coerced back to its duty. No winches or cranes and the program could quickly be in jeopardy.

Then there is the deck gang. Those are the people who would be in closest contact with the scientific component and are the most baffled by it all. They would be the ones who handle all the scientific gear. Help to get it ready. Hoist it in and out, lower it and raise it and without their assistance and expertise, the

program's success would look bleak indeed.

Then there is the galley staff and stewards' department. Give them a thought please. Where would you be without food? Not only that, on board ship all you have to do is sit down in the mess room and your order is brought to you by a hopefully chipper steward. No muss no fuss. You didn't need to cook and you didn't have to worry about dirty dishes and all at no cost. How is that for a job perk? Besides, if the food is good, it boosts morale as well. In short, these people would be sorely missed if they were absent from the overall picture.

Last but not least, there is the captain and his entourage, the mates. They are the ones with their noses stuck up in the air, acting like they are God's gift to the scientific world and at the same time thinking of excuses for stopping many a vital scientific project dead in its tracks. Too dangerous, weather not suitable, no time, too close to navigational hazard and on and on. All to the utter distraction of the senior scientist. But the captain is Lord. His word is the law. He is an absolute dictator and his sycophants make sure that his edicts are carried out, if they know which side their bread is buttered on. There is not even a scintilla of democracy on a ship. Hasn't been since time was invented, whenever that was.

Somehow, it all comes together and some work is actually done, as is evident by the results of Hudson 70. I look back fondly on my time on research vessels. It may be because I was captain for a while.

Cornelius (Casey) de Vries

Citizen science, iNaturalist, and the City Nature Challenge (Mary Kennedy)

Between April 24-27th, over 250 cities/areas around the world will be participating in the international City Nature Challenge. Six areas in the Maritimes are registered to participate in this event this year. (<https://citynaturechallenge.org/>). Choose an area to support, get outdoors, explore, observe nature, share observations, and have fun!

The international City Nature Challenge project will track contributions from each registered area and once the event starts the leaderboard (<https://www.inaturalist.org/projects/city-nature-challenge-2020>) will be constantly refreshed until the last hour of the day on April 27th. Statistics monitored will be the number of observations, the number of participants, and the number of species.



Figure 1. Link to the iNat Maritimes umbrella project for more info: <https://inaturalist.ca/projects/city-nature-challenge-2020-the-maritimes-umbrella-project> (Photo credit Clean Foundation)

iNaturalist, described as one of the world's most popular nature apps, is the platform used during the CNC. Many of us were introduced to iNat during Canada150 celebrations when it was used in 35 bioblitzes across the country (<https://inaturalist.ca/projects/bioblitz-canada-150>). Locally we are using the CNC as a means to introduce iNaturalist to our community. iNat is easy to use. There are options to download the free app and/or to upload photos directly to iNaturalist.ca. Online video tutorials provide easy to follow instructions on how to add observations (<https://www.inaturalist.org/pages/video+tutorials>)

The reason that you choose to continue using iNaturalist may be personal – maybe you have a file cabinet full of photos of research critters that will be discarded with down sizing; maybe you wish to start learning the names of birds or wild flowers; maybe you are busy travelling and want to learn more about local flora and fauna; maybe using iNat is a novel way to connect with grandchildren who are experts on mobile devices; maybe you want to learn the names of the weeds and pests that are invading your garden. Perhaps in retirement you took up fishing and you wish to highlight your catch (before it gets released and no one believes you). iNat is also a tool that can be used to re-

port sightings of invasive species such as green crab or *Codium* and also a way to share images of any ticks that you might encounter! Go to iNaturalist.ca today and explore the content. Then signup! Participate in a CNC near you!

..... Participate in 3 easy steps:



FIND WILDLIFE

It can be any plant, animal, or any other evidence of life found in your city.



TAKE A PICTURE

Take pictures of all the wild flora and fauna you can find in your area. Be sure to note its location.



SHARE

Upload your photos on iNaturalist.ca or the iNaturalist app. Your observations will be automatically included in the City Nature Challenge.

Follow the City Nature Challenge - the Maritimes on Facebook



Tramping Coast to Coast in Northern England (Peter Wells)

Long distance walking, alone or with a partner or group, benefits both body and soul and is a grand way to experience the nature of a country. My objective this past spring was the famed Wainwright Coast to Coast route across northern England, considered one of the classic country walks.



Figure 1 The Coast to Coast walk – St. Bees to Robin Hood's Bay, through three National Parks – Lake District, Yorkshire Dales, North York Moors. (All photos, Peter Wells)

After a winter of planning, anticipation and conditioning, I flew to London in late April, 2019, went north by train to Penrith in Cumbria, and by bus to Keswick, the market town in the heart of the Lake District National Park and the Cumbrian Mountains. While staying in a pleasant Inn in Keswick for 10 nights, I did lots of local walks and some climbs up the beautiful rocky peaks, locally called fells. Some relatives came to visit, and provided company one day for a strenuous climb up two of the highest fells in the Park. They likely were testing the condition of “the old guy from the colonies”!

In early May, I went by bus and train to the coast of the Irish Sea and village of St. Bees, the starting point of the Coast to Coast walk. There, by pre-arrangement with the company Sherpa Expeditions, I joined a group of nine Australians and a guide from Yorkshire. This offered company, ease of route-finding, and prearrangements for accommodation and baggage transfer - no longer did I have to carry the 12+ kg pack of recent UK walks!



The walk is named after Alfred Wainwright (MBE, 1907-1991), a life-long lover of the Lake District's mountains and lakes. He was a dogged writer of renown who tramped all the paths in the District and penned and beautifully illustrated many hiking guidebooks in mid to late twentieth century. Late in life, he had the vision of a route across the whole of northern England, passing through three national parks and by its many towns, villages and historic sites. The walk has gained fame and attracts several thousand people annually. It is 307 km long, takes 15 continuous days, is generally done west to east to accommodate the prevailing winds, and is considered to be of moderate difficulty. Several excellent guidebooks and maps are available. The route is marked in relatively few places so an experienced guide is preferred for easier travel, especially through the mountainous sections and the moors where many paths intersect and danger lurks in poor weather.

My companions were from all parts of Australia and the guide was from Leeds, Yorkshire – a merry group we were! The walk took us through the three national parks which have quite different landscapes – mountains, hills and valleys, and moors stretching from sky to sky. Walking 6-9 hours a day, we sometimes stopped for short rests and exploration of interesting sites. At the end of each day, we dined together and

shared stories of what we had seen or occasionally suffered through, specifically the variable mix of weather – rain, sleet, wind, heat. The companionship made the walk fun; the group quickly bonded, given the conditions. Australians are very friendly and considerate, as was our guide. Two of the group suffered badly but bravely from blistered feet, not a trivial problem on such a walk.



The landscapes of northern England are impressive – big mountain vistas, long river valleys, high ridges, and moors stretching horizon to horizon – an amazing wild land that remains largely intact, despite England's large population and long (~8000 y) recent human history. We saw little wildlife, only a few birds such as geese, ducks and sparrows, and noisy quail on the moors. But there were hillsides filled with bluebells and yellow gorse, and in the agricultural areas, there were lots of sheep, cattle and horses, and fields of barley and canola, which we often walked through.



In the Cumbrian mountains, we came across huts for walkers, and on the moors, huts for hunters who shoot quail in the fall. East of the mountains, after almost a week of walking, on top of a high hill were nine large stone cairns, the Nine Standards Rigg; they are of unknown origin, perhaps Roman, perhaps more recent, but impressive for their size and visibility from afar. While walking across the moors,



we often came across Neolithic burial mounds and many stone way markers. We visited numerous old churches and chapels on the route, one of them with a tombstone for a villager claiming to be 169 years old! The village is said to be popular with retirees.



We walked through a variety of pretty villages and larger market towns, and stayed in pubs and small hotels, such as the quite isolated Lion Inn in the North York moors. All were very quiet and comfortable, with excellent food and drink. Tasting local ales was popular at the end of a long day! In Richmond, Yorkshire, the largest town on our route, we were treated to an afternoon of exploring ruins of a thousand year old Norman castle.

A highlight of the walk for me was being met by English friends from the previous SW Coast Path walks. We hiked together for two days in the North York Moors NP where a well maintained slated trail intersects with another path, the Cleveland Way. This park is a rugged landscape of hills, moors, rocky ridges, steep climbs, and spectacular views.



On Day 15, the walk ended above cliffs of the North Sea coast, near our destination, Robin Hood's Bay. A five kilometer walk south along the cliff tops led us to the picturesque town, where we dipped toes into the sea and celebrated the walk with a special dinner and plenty of warm farewells. The next walking adventure is being planned, perhaps this time in Scotland. With so many fascinating places to explore, there may be more tramping tales in these pages next year!

Sign Language in *La Belle Province* (Ron Macnab)

A while ago, Mary and I went on a camping expedition up and down the two sides of the Saguenay River valley, all the way to *Lac Saint Jean* and back. As we drove through the towns along the way, I was struck by the inventive bilingual wording that appeared on a lot of the roadside commercial signage. These signs featured a blend of French and English vocabularies: the spellings of some English words were changed to make them resemble French, while others were incorporated without change.

This is not what I was expecting to see, having heard so much since 1977 about the Province of Québec's *Loi 101* (Bill 101) that among other things regulates the use of language on commercial signs and posters, which must be in French – although other languages may be shown, provided French is markedly predominant.

Briefly put, two of the several objectives of Bill 101 were (a) to ensure the primacy of the French language in Québec, and (b) to guard against the casual assimilation of words from other languages. Monitoring and enforcement of Bill 101's provisions are the responsibility of the *Office québécois de la langue française* (OQLF), referred to in some quarters as the

'language police.'

These requirements were highly controversial when Bill 101 was enacted (remember the battles over apostrophes and English corporate names?) however the authorities pressed on with their policies, so I was expecting to see a high level of compliance on modern-day signage. However, this is not what I was finding alongside the roads to and from *Lac Saint Jean*: I append below a selection of my observations (with intact or revised English components italicized) loosely grouped into two categories:

Corporate and Merchant Names

Auberge chez <i>woof</i>	Doggy daycare centre
Bébé <i>kidz</i>	Clothing for infants
<i>Best Buy</i>	Appliances, electronics
<i>Blasteck</i>	Audio store
<i>Home Hardware</i>	Hardware emporium
Le <i>bunker</i> restaurant	Eatery
Le <i>hang</i> 'art	Picture framer (in French, sounds like 'hangar')
Leon/ <i>Leon</i> 's	Appears with and without apostrophe
Minute <i>muffler</i>	Muffler shop
<i>Outfront</i> media	Roadside advertising
Repas <i>truck-stop</i>	Roadside diner
Vidéo <i>cool</i>	Video rentals

Descriptions of Goods and Services

<i>Batterie</i> de montre	Watch battery
Belles et <i>bum</i>	Intriguing, but not investigated
Caféine <i>fix</i>	Coffee shop
Comptoir <i>lunch</i>	Lunch counter
Le <i>deal</i> de l'été	Big summer sale
Le <i>smoked-meat</i> à son meilleur	Best quality smoked meat
Musique <i>country</i> tous les samedi soirs	Country music every Saturday night
On a une <i>job</i> pour toi	Employment centre (we have a job for you)
<i>Party</i> de fermeture	Going out of business celebration
<i>Slabs</i> à vendre	Live edge sawmill offcuts for sale

Presumably, the OQLF's concerns extend to non-English terminology, and I noted non-English words on some signs, e.g. '*Scotiabank*' (Latin) was partially translated and rendered as 'Banque Scotia' when technically, 'Banque Ecosse' might have been more appropriate; 'Le *wok* de Hong Kong' (Chinese) was retained in its entirety; '*Tattoo* Piercing' (Polynesian) survived unscathed, although the correct French word

for ‘tattoo’ is ‘tatouage’; and ‘Kisti coyote’ (Aztec) was left unaltered. While the wording of Bill 101 may be specific, a certain flexibility of interpretation appears to have spawned more than a few inconsistent outcomes.

It is enlightening to acknowledge a significant difference between the policies of Québec and France concerning the appearance of foreign words, particularly English words, in public signage: in Québec, such matters are addressed as a matter of law, whereas in France, the issue appears to be considered in a much more casual fashion. In a spirit of unbiased investigation, I decided to begin my recent travels in France by searching for and recording examples of signage that combined French and English terms. It did not take very long to uncover many examples that in principle would have contravened the provisions of Bill 101 – in fact they were ubiquitous and exuberantly indicative of a Gallic spirit of *laissez-faire*, with many signs presented exclusively in English. So numerous and commonplace were these examples that before long I stopped noticing them – except for the STOP signs at intersections, which retained their English flavour.

Evidently the pre-eminent language authority in France (*l’Académie française*) is not too concerned about mixed vocabularies on outdoor signage, unlike Québec’s OQLF. According to Wikipedia, *l’Académie* ‘has the task of acting as an official authority on the language; it is charged with publishing an official dictionary of the language. Its rulings, however, are not binding [on] either the public or the government.’

Depending on whom you ask, it is estimated that thirty to forty percent of the words in the English language are either assimilated without change, or else derived, from the French. A consideration of the words assimilated from other languages could well reduce the content of “original” English words (however that might be defined) to less than half of that language’s total vocabulary. I have yet to uncover the reverse metric, i.e. a measure of English and other words that have been formally absorbed into *Québécois* French.

Purists might decry the mongrelizing of English, but its speakers and writers seem quite comfortable expressing themselves with a polyglot vocabulary that expands steadily through the constant ingestion of foreign words. I cannot think of a single Anglophone jurisdiction anywhere in the world that might propose to mirror Québec’s Bill 101 by banning the use of words with a non-English origin: one can imagine the consternation that such a piece of legislation would sow among a population that suddenly found itself deprived of half of its working language through the stroke of a legislative pen. To observe the reverse of that situation in Francophone Quebec is to wonder why a mature society that boasts such a vibrant culture – both artistic

and intellectual – should feel obligated to legislate against linguistic interlopers. However, this is Canada, and Bill 101 demonstrates that we do things differently here. *Vive la différence!*

Ron Macnab is a marine geophysicist who retired from the Geological Survey of Canada nineteen years ago. He was born and brought up in Northern Ontario, where he was educated largely en français.

Death of Trevor Platt

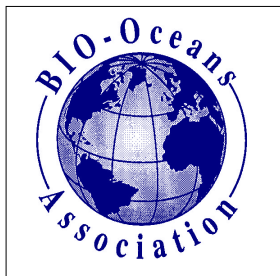
Trevor Platt died recently in Plymouth, UK, from complications following a vertebral fracture. He arrived at BIO as young scientist in 1965 and went on to develop a distinguished career in biological oceanography. The central theme of his research over fifty-five years was primary production in the ocean by phytoplankton. He began his work in St. Margarets Bay and with time expanded his interest to cover the global ocean. He won many national and international awards, including the Huntsman Award in 1992, and brought much recognition to our BIO community. Further details can be found at this link:

https://www.pml.ac.uk/News_and_media/News/In_memoriam_Professor_Trevor_Platt_FRS

Special Beluga Award for Dale Buckley



As part of the 20th anniversary celebration of the Beluga Award, the BIO OA will present a special Beluga Award to Dale Buckley. Dale was one of the founding members of the OA and he was instrumental in establishing the Beluga Award, first presented in 2001. The award celebrates employees who have exhibited unselfish dedication to community spirit at the Bedford Institute of Oceanography (BIO). Dates for this year’s ceremony will be determined later as we deal with COVID restrictions.



From the President

Dear BIO-OA members and other readers:

I am writing my message today having performed physical distancing since the 15th of March. My wife Sheila has a serious respiratory vulnerability and we have

an engineer, a registered nurse and an epidemiologist as daughters. Needless to say they have been providing us with advice to stringently practise all of the protocols to limit our exposure to COVID-19. In these trying times we are grateful for all those people that continue to look after our wellbeing including of course our health professionals but also those stocking the shelves in the grocery store, the truck drivers keeping the supply chains open, and all the other unsung heroes. Having visited Lombardy in the last couple of years, we can be thankful that we are not experiencing, at least not yet and hopefully never, the tragic circumstances visited upon these beautiful people.

Our editor has generated another brilliant issue of the *Voicepipe* with its focus on the anniversary of the *Arrow* disaster and BIO's contribution to the cleanup. The newsletter also continues its celebration of the Hudson '70 expedition. Fifty years ago CSS *Hudson* was executing Leg 4 of the expedition from Punta Arenas to Valparaiso (3 March– 7 April 7, 1970) studying the oceanography of the Chilean fjords in collaboration with scientists from Chile. On 15 April 1970 CSS *Hudson* embarked on Leg 5 to begin the longest line of oceanographic stations ever completed, with the aim of providing a north-south transect of temperature-salinity structure and gravity data that could be used to calibrate *Seasat*'s altimeter and later altimeter equipped satellites. Satellite altimetry data made possible the first Global Seafloor Topography images.

Don Gordon has prepared a wonderful Power-Point presentation on Hudson '70 which Kelly Bentham has installed on a video screen by the front door of BIO. It is planned to have this presentation available on the BIO Oceans Association website soon. Thank you, Don and Kelly.

Your Executive is planning other Hudson '70 celebratory events this year which hopefully will be possible to have in person. Please watch for announcements by email and in a future issue of the *Voicepipe*.

Searching for the next recipient of the Beluga Award is well underway. As part of the 20th anniversary of the Beluga Award, we will be presenting Dale Buckley with a special Beluga for his efforts in conceiving the idea for the award. Of course the date and format of the award ceremony as well as the next BIO-OA AGM is uncertain not only due to the restrictions of COVID-

19 but also the renovations of the William Ford Auditorium.

While on the topic of the AGM, I would invite members to seriously consider contributing to the Association by joining the Executive in one capacity or another. Volunteers for Directors at Large are always welcome. At this time we need to fill the office of First Vice President and Social Coordinator. Please communicate your willingness to join the Executive by sending an email to asherin@ncf.ca

In closing let me wish all members and readers, good health and a quick recovery for any of you that may have become ill. "Be of good courage" in these challenging times.

Photoshop Archives at the Bedford Institute of Oceanography (Donald Gordon)

Over the years, many photographs of BIO ships, facilities, programs, staff and activities have been taken by the photographers in the BIO Photoshop. The principal photographers have been Norm Fenerty, Roger Belanger, Heinz Wiele and Kelly Bentham. In the early years before the advent of digital cameras, this work was done using film. Photoshop staff wisely archived much of their work. As a result, the Institute is most fortunate to have an extensive historical collection of coloured slides and negatives available today. Over the past year,



Coloured slides are stored in the larger cabinets and negatives in the smaller ones. (Don Gordon photo)

under the guidance of Kelly Bentham, I have reviewed this collection to improve its organization and accessibility. This is a brief overview of the current state of the Photoshop archives and how they can be used. All colour slides taken by BIO photographers during the period of 1970-2000 held in the Photoshop Archives

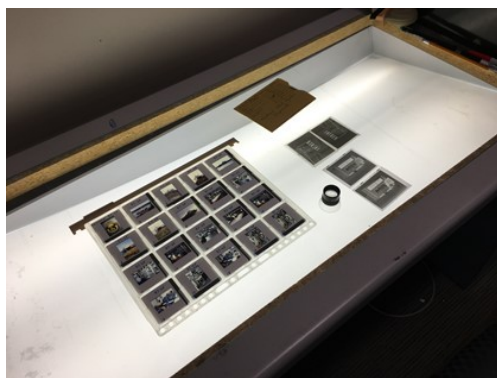
have been reviewed and placed in archival plastic pages, each holding 20 slides. The entire collection consists of approximately 24,000 slides which are organized by subject, chronologically where possible. The major subjects include cruises, field projects, ships, equipment, marine organisms, aerial photos and scenic photos. A full inventory of the collection has been prepared and is available under the Archive Directory on the BIO-OA website (BIO Photoshop Colour Slide Inventory). Hard copies are also available in the Photoshop.

Over the years, Photoshop staff maintained a careful record of photographic work using black and white film (and some times colour film). Job number, date, name of client, a brief description of the job and film size were recorded by hand in logbooks. All negatives were placed in envelopes, labeled with job number and stored sequentially in filing cabinets. These negatives cover the time period from October 1963 to November 2004. There are almost 9,000 job entries over this 41-year period, each having from one to over 100 individual negatives. All the logbook data have been entered, in chronological sequence, into an Excel spreadsheet. The bulk of this work was carried out by Heinz Wiele before he retired. This Excel spreadsheet is now available for use on the BIO-OA website (Negative File Index) and can be searched by key words such as date, name and subject. The website also has a short description of the negative inventory (BIO Black and White Negative Inventory).

These collections are located in the Photoshop Archive Room on the Ground Floor of the Strickland Building (ST- G13). Arrangements can be made with Kelly Bentham for viewing them. Once the general subjects have been identified using the inventories, the appropriate pages (for slides) and /or envelopes (for negatives) can be pulled from the filing cabinets and viewed on a neighbouring light table.

Slides and negatives cannot be removed from the Photoshop but those of particular interest can be scanned by Kelly Bentham. Since all photographs were taken by Photoshop staff, there are no copyright issues in using them.

These collections contain an extensive inventory of images which illustrate the evolution of BIO facilities, staff, programs and activities during its early



years. They provide a fascinating glimpse into the past. Past staff are to be commended for building these priceless collections. Hopefully current managers will appreciate their value and take the necessary steps to ensure their long-term preservation.

The value of these collections is illustrated by two recent examples. Selected images of the Hudson-70 expedition have been digitized for a presentation celebrating its 50th anniversary. In addition, staff from the Maritime Museum of the Atlantic are reviewing the available images of the CSS *Acadia* for possible use in a new display under development.

Hudson 70 - Leg 4: Chilean Fjords

This time 50 years ago, *CSS Hudson* was on Leg 4 of the expedition, leaving Punta Arenas, Chile (on the Strait of Magellan) early March and arriving in Valparaiso on April 7, 1970. The general purpose of this phase was to obtain data on the many fjords of southern Chile, particularly water characteristics and plankton distribution. The leg had a rocky start, delayed several days waiting for a pilot, and then losing the use of both sounding launches due to severe corrosion of the lifting wires in the falls. Work continued through bad weather and heavy ice by using the lifeboat to collect data. For example, in the Golfo de Penas, *Hudson* encountered winds of 40 to 50 knots with 6 to 8 foot swells, apparently good weather for that area.



Not all the work was confined to the narrow passages in the coastal fjords. *Hudson* took oceanographic observations in the open ocean between 42°S and 33°S, making STD casts along a section of the Humbolt current. The vessel also visited Isla Robinson Crusoe in the Juan Fernandez Islands, well off the coast of Chile before proceeding to Valparaiso and the end of this leg.

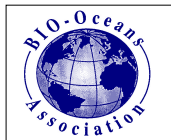
Editor's Keyboard:

This edition presented some unique challenges. We had no access to BIO given the state of emergency for Covid19, restricting our photos to those from contributors or from online sources. More importantly, our distribution is only through email or online publishing. Those members who usually receive a copy by mail will have to wait for some time for their copies.

That said, the newsletter again demonstrates the breadth of activities of our members, from travel, work at BIO, and efforts to recognize the contributions of previous employees. I was encouraged to see the response to our previous article on *Hudson 70* and de-

lighted to highlight the work of BIO on the 50th anniversary of the grounding of the *Arrow*. Please feel free to send your stories or articles for our next edition planned for July or August.

I would also remind all that we will be having our annual meeting in conjunction with the Beluga Award ceremony. While it is usually in late May, the date has not yet been set pending the situation with the pandemic. As well as recognizing this year's winner, the OA will be honoring Dale Buckley with a special award on this, the 20th anniversary of the award. Stay tuned for information on the date.



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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