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ADDRESSING ENVIRONMENTAL ISSUES IN THE BAY OF FUNDY – BOFEPS’ 25TH ANNIVERSARY AND NEXT STEPS

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ABSTRACT

This paper describes the early beginnings, accomplishments, recent activities, and new directions of BoFEP on the group’s 25th anniversary. BoFEP is a virtual and in-person information and knowledge network for the Bay of Fundy’s coastal and marine environments. The challenges and next steps for the organization are especially important, in an era of climate change, increased demand for natural (living) resources, and greater development pressures along the ever changing shorelines of the Bay. For the foreseeable future, BoFEP’s principal focus will be on communicating information on the Bay with its broad network of partners and developing ways to enhance ocean and climate literacy in the schools and communities around the Bay.

1. INTRODUCTION

The Bay of Fundy, with its huge tides, extensive watersheds, natural resources and wildlife is one of nature’s coastal and ocean wonders. It is world-renowned and unique globally, the region being recognized with six UNESCO sites, the latest being the Cliffs of Fundy Geopark in the Minas Basin, upper Bay of Fundy.

However, over many decades, many species in the Bay such as cod, salmon and herring have diminished in numbers, and pollution (chemicals, litter, plastic) and physical disturbance threaten the health of estuaries and nearshore environments. Expansion of open-pen fish aquaculture and over-exploitation of resources, including tidal energy extraction, may have unintended consequences. Despite the Bay’s size, macro-tidal exchange and ecosystem diversity, the multiple and cumulative stresses warrant believing that the ecosystem health of the whole

Bay may be at risk. Such issues and concerns constantly require research and monitoring, followed by effective information transfer to policy and decision makers and the public to ensure appropriate management action and effective conservation and protection measures where needed.

Most of the earlier research on the bay was on its living resources, i.e., fisheries species, under the guidance of the Fisheries Research Board of Canada (Huntsman 1952, Johnstone 1977, Hubbard *et al.* 2016). Environmental research in the region spiked in the 1970s and 1980s (Gordon *et al.* 2014) and then for several years focussed largely on the potential impacts of proposed tidal power developments in the Upper Bay (Gordon *et al.* 2014, Gordon and Dadswell 1984). However, all of the proposed Upper Bay tidal developments were based upon construction of tidal barrages and were eventually shelved because of environmental concerns and cost. The exception was the construction of a demonstration tidal power station built in the early 1980s into the existing Annapolis Causeway, in the Annapolis Basin, the first such installation in North America. Until that time, only a few researchers outside of some universities (e.g., Acadia, Mount Allison, UNB, Dalhousie) were looking at the Bay of Fundy as a whole ecosystem, examining the many ecological processes and stresses comprehensively, the potential for interacting and cumulative effects, and the possibility for long-distance effects resulting from the biological connections of the Bay with the Arctic, North and South Atlantic, and North, Central and South America (Brylinsky *et al.* 1997, Hicklin 1987).

Up to the mid-nineties, there had been dramatic declines in a number of fish stocks throughout the region (especially cod, halibut, herring, halibut), jeopardising the economy and livelihood of local coastal communities. Coastal birds, especially migratory species, had also fallen in numbers or had inexplicably changed their distributions (P. Hicklin, CWS, pers. comm.). Periodic fatal collisions between ships and the North Atlantic Right whales, as well as entanglement with fishing gear, threatened the recovery of its small population; unfortunately, this is still occurring. Ship traffic and ecotourism seemed to be interfering with feeding, nursing and mating activities of whales, as well as disturbing important seabird colonies.

In the upper Bay, continuing loss of remnant salt marshes and changes in the

mudflats, both natural and man-made, threatened the species dependent on these habitats, particularly the various species of shorebirds. There were reports of great fluctuations in abundance and distribution of some bottom dwelling and intertidal animals. In some parts of the Bay, sewage contamination and sedimentation had closed once productive clam flats. The accumulations of organic wastes from large open-pen aquaculture operations seemed to have degraded nearby benthic habitats. Ominously, scientists were reporting a range of chemical contaminants (toxic chemicals) in the seawater, bottom sediments and tissues of numerous marine animals (Wells, Keizer, Martin *et al.* 1997, Chase *et al.* 2001, Burt and Wells 2010).

In many areas, marine seafloor habitats were being degraded by intensive, highly mechanised and destructive harvesting such as bottom trawling and scallop dragging. Causeways, dams or bridges have obstructed most large rivers flowing into the Bay (Wells 1999), and there were clear indications that these were altering sediment transport, water flow and related natural processes in some areas. On one such causeway built across the Annapolis River at Annapolis Royal, the turbines of a new tidal power plant were killing and maiming many passing fish, such as American shad and Atlantic sturgeon (M. Dadswell, pers. comm.), and may have contributed to the declines of shad and striped bass, and disappearance of sturgeon from the river.

Marine scientists familiar with the Bay were alarmed by the number of such ominous reports. They were puzzled that many of the changes that were visible or easily measured could not be readily explained by what was known about the oceanography and ecology of the Bay. Just over a decade earlier, scientists had reviewed knowledge about the Bay as part of a major environmental assessment of a proposed large tidal power project in Cumberland Basin, as well as conducting a major review of the Gulf of Maine of which Fundy is a part (Gordon and Dadswell 1984, Backus 1987). They were confident in having a reasonable understanding of many of the significant oceanographic and ecological processes in the Bay. However, considering their uncertainty about more recent changes, it was clear that this complex ecosystem needed another close look, especially if it was to be adequately protected against significant human-caused change.

2. PREPARING A NEW KNOWLEDGE SYNTHESIS ON THE BAY OF FUNDY

The concept of a multi-partner organization (that eventually evolved into BoFEP) to address this challenge emerged in the mid-1990s from an initiative by a small team of interested people, led by Environment Canada (EC) and Acadia University (Acadia Centre for Estuarine Research or ACER). The team of eight persons¹, calling themselves the Fundy Marine Ecosystem Science Project (FMESP), met frequently throughout 1995 at ACER. They discussed the various worrisome environmental trends in the Bay of Fundy, especially the suspected changes in sediment quality in intertidal areas used by migratory shore birds, a major concern of the Canadian Wildlife Service (CWS-EC). They began to document the range of environmental issues in the bay, based on current research and the literature, noting the disturbing signs of a diminished environmental quality and biodiversity in many parts of the Bay of Fundy.

After initial discussions, members of FMESP launched a process to address the following five broad questions:

1. What is happening in the Bay of Fundy marine ecosystem, with particular emphasis on the Upper Bay?
2. Is our knowledge of the ecosystem sufficient to understand what is happening?
3. What else do we need to know?
4. How are we going to find the answers?
5. How can we use the evolving scientific understanding in support of continued management for conservation and protection of the Bay's ecosystem?

A draft background report on current knowledge of the Bay was written with chapters authored by FMESP members and other invited scientists. Each chapter had a bibliography of published research, a summary of the current understanding of each topic, and a list² of the most pressing issues facing the Bay. The draft report, entitled “Bay of Fundy Issues”, was completed by Fall 1995. It was then circulated as a discussion piece to invitees to a workshop involving some 60 scientists and managers from around the Bay, held at Acadia University in January 1996.

¹ The Fundy Marine Ecosystem Science Project (FMESP) team consisted of Dr. Mike Brylinsky (ACER), Dr. Graham Daborn (ACER), Alison (AJ) Evans (independent consultant), Steve Hawbolt (CARP – Clean Annapolis River Project), Peter Hicklin (CWS-EC), Dr. Jon Percy (SEAPEN), Dr. Peter Wells (CWS-EC), and Louise White (DFO-BIO).

² 38 issues were identified by the workshop attendees and the report authors – this proved to be a useful guide to the topics addressed by BoFEP working groups.

The meeting itself, deemed the first Bay of Fundy Science Workshop³, was the first of 12 such biennial workshops, held around the Bay of Fundy up to May 2022. In addition to summarizing a wealth of scientific information and suggestions for further research, the workshop in 1996 concluded that addressing the problems facing the Bay could not be accomplished only by scientists and environmental managers. New work had to involve a much broader coalition of interested persons and groups, including First Nations groups, living resource users or fishermen, conservation groups, and residents of coastal communities.

The edited report and a summary of discussions at the workshop, stimulated by the five broad questions, were published by Environment Canada as “Bay of Fundy Issues: A Scientific Overview” (Percy *et al.* 1997). In a draft action plan in the report, the proposal was made to set-up a more diverse organization focused on communication and new initiatives addressed by the working groups.

3. ESTABLISHING BOFEP AND ITS MISSION

A special meeting took place at the subsequent (2nd) Fundy Science Workshop held in November, 1997, at the Biological Station, St. Andrews, NB. This workshop was held jointly with the Ecological Monitoring and Assessment Network (EMAN) of Environment Canada; it attracted over 160 participants (Burt and Wells 1998). The Bay of Fundy Ecosystem Partnership (BoFEP) was launched at an evening meeting with the aim to be an inclusive “Virtual Institute” focussed on communication. A program was developed, including a mission and vision statement, which over the 25 years has proven to be a useful guide to the groups work.

The BoFEP mission, under the mantra of “creating, sharing and using information”, is to promote the ecological integrity, vitality, biodiversity and productivity of the Bay of Fundy ecosystem, in support of the social well-being and economic sustainability of its coastal communities, and to facilitate and enhance communication and co-operation among all citizens interested in understanding,

³ It should be noted that there were numerous other Bay of Fundy workshops in the 1970s and 1980s, largely published through ACER (Acadia University). The 1996 workshop was the first in a series sponsored by BoFEP.

sustainably using and conserving the resources, habitats and ecological processes of the Bay of Fundy.

The BoFEP vision is predicated on several general principles:

- Conservation, protection and management of Bay of Fundy resources and their habitats should be ecosystem-based and reflect a holistic understanding of ecosystem structure, processes and interactions.
- Resource development and other coastal zone activities should be based on ecologically sound, integrated coastal planning and management.
- Coastal planning and management should be transparent and open to participation by resource users, coastal communities, industries, scientists, governments, managers and all other individuals and groups with interests in the Bay of Fundy ecosystem.
- Effective communication and active co-operation among all citizens with an interest in the Bay of Fundy, and linkages with groups and programs that share similar objectives are vital to this enterprise.

To advance this mission and vision, BoFEP was organized as a geographically dispersed, adaptable, responsive and inclusive network (a “Virtual Institute”) linking all of its partners to: facilitate timely sharing of information about the Bay; foster effective communications and cooperation among each other; promote and facilitate the regular assessment of the Bay’s ecosystem; identify specific issues and priorities; and promote and facilitate long-range planning and integrated coastal management for the Bay of Fundy.

4. BOFEP’S PROGRAM AND ACCOMPLISHMENTS, 1997-2022

The BoFEP program has been managed and directed with a simple management structure. Two strategic plans, with member input, have guided the organization’s focus and work. The priorities have been communicating Bay of Fundy information to a wide audience, sharing new knowledge through its biennial science workshops and other focussed meetings, running themed working groups, and conducting specific research projects with partner interest and support.

An overview of accomplishments to date follows, along with the description of the group's focus and objectives for the foreseeable future. The BoFEP website (www.bofep.org) has the detailed reports.

4.1 COMMUNICATION – KNOWLEDGE OF THE BAY

4.1.1 Fact sheets – “Fundy Issues”

From the outset in the wake of the first Fundy workshop, a priority was to prepare short “*fact sheets*” on a number of important environmental issues confronting the Bay, as well as on other Fundy topics of particular interest, hence fulfilling part of the public communications mandate. These “Fundy Issues” were researched and written on contract until 2010 by the senior author (Percy) in an impartial and non-technical way, then distributed in both print and e-versions. Printed versions were widely distributed at each workshop and proved popular. All 33 documents are on the BoFEP website, organized by theme.

A number of topics not yet addressed, e.g., species at risk in the Bay, implications of coastal erosion, whales and tourism, still require such summaries and some require updating. This is important now, given our current focus on ocean and climate literacy in schools and coastal communities. Writers for these are needed and distribution should include tourism centers as well as schools.

4.1.2 BoFEP’s Newsletter

Fundy Tidings is the quarterly e-newsletter of BoFEP published on the website. Each edition has submissions from BoFEP members, partner organizations and individuals with an interest in the Bay of Fundy. Articles include information about BoFEP and its activities, information about partner organizations and their activities, and timely news items pertaining to the Bay of Fundy. The newsletter is sent to the large list of “members”, whether they are paid members or not. Currently, there are approximately 350 people and groups on the distribution list.

4.1.3 BoFEP’s Website

Since the late 1990s, the website (www.bofep.org) has become the main visible “voice” of the organization. It is the depository for its products (such as those above) and is a visible source of information about current BoFEP activities.

Its design has evolved and it has an active Facebook page. Its importance to the organization's goals cannot be overstated. At this point in BoFEP's ongoing program, and given the ongoing rapid change in how people access information, i.e., through social media, a full time webmaster is required to manage and lead the redesign of the site.

4.2 COMMUNICATING NEW RESEARCH AND NETWORKING - FUNDY SCIENCE WORKSHOPS AND OTHER MEETINGS

4.2.1 The Biennial BoFEP Bay of Fundy Science Workshops

Since its first meetings of 1996 and 1997, BoFEP with its partners has conducted ten subsequent Fundy science workshops, in different locations in NS and NB. A range of themes has been covered, from understanding change in the Bay to protecting watersheds and estuaries, and the protection and conservation of their species and habitats. Proceedings of these meetings are always published and made available on the website. Their publication has evolved from hard copy and CD, to simply being posted on the website (and in the Google Cloud Platform). Some hard copies of early Proceedings remain for those interested.

These workshops have accomplished a major goal of BoFEP – to bring together researchers (both established and in training), environmental and resource managers, educators and other interested persons from a range of organizations to periodically exchange current information on the Bay, to network, to generate new ideas about projects and solutions, and to bring a focus to the need to sustainably manage this unique coastal ecosystem. Attendance over the years, ranging from 100-150, reflects the success of the workshops.

After the interruption caused by the Covid pandemic (2020-22) and the cancellation of the Workshop for 2020, the 12th workshop/conference was held in May, 2022, co-sponsored by ACCESS (Atlantic Canada Coastal and Estuarine Science Society) and BoFEP. The venue was both in-person and on-line. It was a great success, pointing to the continued need for such communication opportunities focussed on the Bay. Discussion is already underway for the 13th Bay of Fundy Science Workshop, to be held in New Brunswick in 2024.

4.2.2 Special Forums and Workshops – co-sponsored with partners.

Over the years, a number of other subject-focused meetings have been held, involving multiple BoFEP partners and sponsors, and most of them producing reports (all on the website). They include:

- Coastal Barriers 2000 – this addressed the ongoing concerns about the ecological impacts of dams and causeways on the many rivers and estuaries around the bay, especially their effects on migratory fish and seabirds. This followed earlier work pertaining to a potential tidal barrier on Cumberland Basin (Gordon and Dadswell 1984) and a report by Environment Canada in 1999 (Wells 1999). The Coastal Barriers meeting brought considerable renewed attention to the issue, especially pertaining to the Petitcodiac River causeway in Riverview-Moncton, which subsequently was partially opened up to enable more adequate water flow and fish passage. That decision came from active community-based pressure.
- Minas Basin Community Forums, 2000-2002. The four discussion meetings led by BoFEP included many members of the communities around the Basin and produced comprehensive reports about the priority concerns of residents (on the BoFEP website). Unfortunately, these were not followed up by the members of the Minas Basin WG, which was subsequently disbanded. There is still an opportunity for follow-up, especially given the current focus on the Minas Basin's prospects for tidal energy and increased tourism, and on the upper/inner Bay of Fundy's conservation priorities of sustainable fisheries and protection of migratory shorebirds.
- The GPAC-BoFEP Coastal Forum 2002, "Taking the Pulse of the Bay", part of the 5th BoFEP Workshop, held in Wolfville, NS. This workshop focussed on the issue of land-based pollution around the Bay, a focal point of the United Nations Environment Programme, Global Programme for Action (GPAC) in the 1990s.

Other themed meetings and studies sponsored by BoFEP and its partners have included:

- Threats to the Health of the Bay of Fundy: Potential Problems Posed by Pollutants - workshop 2010 (Burt and Wells 2010).
- Tools for healthy watersheds 2011.
- Mitigating Impacts of storm water, wastewater, etc. 2012.

- Climate Change in the Bay of Fundy 2013.
- Workshop for development of an Ocean Health Index (OHI) and report, 2015.
- Talking Circles in NB, conducted up to 2018.

Reports from almost all of these multi-partner meetings and studies are on the BoFEP website. A review of these reports to see what has been done or not, following from their summaries and recommendations, would be insightful and could still be considered in BoFEP's work plans or followed up at future workshops.

4.3 BOFEP'S WORKING GROUPS

From the outset, given the number of Fundy issues identified at the first workshop in 1996, it was envisaged that focussed Working Groups would be the action-oriented arm of BoFEP. Members from the different partner organizations would work collaboratively on new "concrete activities", including scientific research, environmental monitoring, communication on critical problems, and information synthesis.

From the late 1990s, a number of WGs were set up, chaired by different members of the BoFEP community and with participants chosen for their interest and expertise. Each WG has had a highly motivated champion as Chair, was highly focussed, and has had a different history and longevity. Reports from their work are on the website. Talks, panel sessions and posters were often given at the various workshops, describing their progress and products.

To date, the groups have included:

The Fundy Biosphere Reserve WG - it operated for several years, with the support of Fundy National Park and local environmental groups. Its work led to the submission to UNESCO for establishment of a formal UNESCO Biosphere Reserve in the Upper Bay of Fundy on the New Brunswick side. There continues to be an active group looking after the Reserve which maintains an informal affiliation with BoFEP.

The *Corophium* & Mudflat Ecology WG - it operated from 1999 to 2006 from Mount Allison University with NSERC funding and published extensively on its research findings (e.g., Hamilton *et al.* 2006). The research work is still ongoing, through MtA and UNB Fredericton. Again, members of the research

teams are affiliated with BoFEP and are always actively engaged in reporting on their research at the biennial workshops.

The Fundy Informatics WG at Dalhousie University – this group met several times in the early 2000's and soon evolved into the ongoing Environmental Information: Use & Influence research program, centered in the School of Information Management and funded by three SSHRC grants (see www.eiui.ca). It has been running over 20 years now, with many research students and many publications (e.g., Soomai *et al.* 2013), including a book (MacDonald *et al.* 2016). The group is always active at the biennial workshops and members are on the BoFEP Steering Committee.

The Minas Basin WG – it was long-running and very active, chaired by ACER at Acadia University, had a wide range of participants from different sectors, and brought a focus to the myriad of community interests and concerns in the Basin. It produced a number of reports, notably some from the community meetings held around the Basin in 2002-05 (reports on the BoFEP website). It ceased its work after its excellent Chair, Dr. Mike Brylinsky (ACER), passed away in 2015 and ACER research was redirected to tidal power development and its potential ecological impacts, and other ecological topics in the Upper Bay.

The Outreach WG - on two occasions, with core BoFEP members, it led discussions about BoFEP's goals and objectives and developed two Strategic Plans, 2011 and 2020, to guide the organization. Both strategic plans are on the web, the most recent one describing our current direction and activities.

The Salt Marsh & Restricted Tidal Systems WG – This group, active in the early BoFEP workshops and all subsequent ones, quickly evolved into a major research initiative led by Saint Mary's University and the private sector. Its members always give papers and often chair panels at the biennial workshops, given the importance of salt marsh and dyke management in this era of climate change (more severe storms, coastal erosion, flooding of low lying areas).

The Stress & Cumulative Effects WG was established by the late Dr. Mick Burt of the HMSC and UNB Fredericton, and Peter Wells, following the second EMAN/BoFEP workshop (1997). The WG addressed fisherman's concerns about open pen salmon farming and potential impacts on local fisheries. The WG held a

well-attended workshop in 2010 in St. Andrews, on pollution impacts in the lower bay, and produced a report (Burt and Wells 2010).

There were other working groups that operated for short times, then disbanded for various reasons; they included the Sublittoral Ecology & Habitat Conservation WG and the Tourism WG, centered in Parrsboro NS and which engaged partners interested in Fundy tourism for a short while.

Recently, following discussion at the 2018 BoFEP Bay of Fundy Workshop, the Ocean Literacy WG was set up and is now becoming active as the Ocean and Climate Literacy WG (2022) (M. J.A. Butler, pers. comm.). In the wake of two panel discussions on the topic at the workshops, it is developing an active agenda (as of Dec. 2022).

To summarize, the concept of the working groups was to engage a wide range of people and partners in joint discussions, followed by new, innovative and much needed research on the most outstanding environmental and resource problems confronting the Bay of Fundy. The groups worked independently, sought funding when required, and reported progress at the biennial workshops. Some WGs were short-lived, some went for many years with many successful projects (Minas Basin), and others quickly evolved into separate programs (EIUI – www.eiui.ca). Many of their reports are on the BoFEP website.

As can be seen in this paper, the concept of partner driven WGs is alive and active, strongly supported by both Strategic Plans and the broad open discussions at the 2018 workshop. For success, every WG on a key issue must have a committed champion to inspire and lead the work. People count!

4.4 CONDUCTING SPECIFIC RESEARCH PROJECTS

Over the past two decades, BoFEP obtained funding from government departments to conduct or oversee specific projects of interest to both groups. These projects produced new information, as well as providing modest overhead funds to cover the conduct of BoFEP. Reports on all of these projects are on the website. They include: Ecological risk assessment for Fundy: DDT and mercury; Identification of chemicals of emerging concern in the Bay of Fundy watershed; A century of

monitoring Prince 6 Site in the St. Croix River Estuary; Producing an Ocean Health Index (OHI) Score for the Southwest NB Bay of Fundy, Marine Resources Planning Area; A Thirty Year Assessment of the Cornwallis River Estuary, Nova Scotia; Reviewing emerging environmental issues in the Bay of Fundy (for Environment and Climate Change Canada); and Living Shorelines – a natural approach to shoreline management. Information from these projects was reported at the biennial workshops and reports are on the BoFEP website (www.bofep.org).

Conduct of such projects ceased in 2018 due to the shortage of people willing and able to seek funding and manage such projects, a very time intensive process for members of a volunteer organization.

5. BOFEP AT 25 YEARS – CHALLENGES AND NEXT STEPS

Many environmental and living resource issues (concerns) still confront the Bay of Fundy and its watersheds, and the greater Gulf of Maine, especially in this era of rapid climate change. These include the effects of sea level rise, increasingly severe storms, the impacts of increased numbers of open-pen aquaculture sites, municipal and industrial water pollution from cities such as Saint John, increasing water temperatures and ocean acidification, shifts in copepod abundance and distribution and resultant effects on the foraging areas of the northern right whales, the potential for oil spills, and effects of river barriers and tidal power devices on migratory fish. Our multi-partner workshops and those sponsored by the Gulf of Maine Council illustrate our collective ongoing commitment to track progress addressing such issues, to encourage their study and understanding, to report on them with the most reliable information available, and to point to solutions wherever possible.

BoFEP continues to be run by a small management team or committee, elected by the multi-partner Steering Committee after each AGM. Both committees are filled with committed volunteers, despite increased work loads, competing priorities, potential burn-out, and more recently the stress of an ongoing pandemic (2020 to date). We have had and still have challenges. The 2011 BoFEP Strategic Plan (see www.bofep.org) was an excellent operational guide but was only partially implemented due to a change in personnel and a focus on specific Fundy projects for

several years. The projects were successful and provided primary funding and some overhead, but did not encourage a move towards a more solid institutional structure, supported by a paid BoFEP membership. Hence, these projects provided little basic support for the organization's core role – information synthesis, communication and networking.

During this period 2010 onwards, the interest of important governmental partners such as ECCC and Fisheries and Oceans (DFO) waned, despite successful BoFEP workshops in 2009 (Wolfville), 2011 (Saint John) and 2014 (Halifax, with the Coastal Zone Canada Association). The negative impact of the federal Conservative government (2006-2015) policies on the environment was profound, in terms of reducing the civil service in the environmental sector and general funding for environmental NGOs. This government also destroyed the once proud system of marine and aquatic science libraries across the country (from nine to two), including the closure of the venerable and historic library at the Biological Station (SABS), in St. Andrews, NB, and loss of irreplaceable materials (Wells 2013, 2014, Hubbard *et al.* 2016). For the Bay of Fundy, the development of tidal power has dominated as an issue of concern and has redirected attention and funding. The long term BoFEP Secretariat and scientific support at ACER, Acadia University, one of the centers for Fundy environmental research and a major supporter of BoFEP, was closed.

Finally, despite recruitment to the Steering Committee (SC) remaining steady, engagement of SC members in BoFEP's activities has proved challenging, despite various retreats and meetings. Sadly in recent years, several of the most active older members on our BoFEP management team have passed away. A younger management team is needed, one with members actively engaged in Fundy research and projects but with time and energy to be involved in BoFEP.

BoFEP currently is fortunate to have the continued in-kind support of a range of partners active in the Bay of Fundy region - SEAPEN, FORCE, Ocean North, MAPC, DFO, several universities, CARP, IOC-Canada, and occasionally others. The group has been an active member of the Gulf of Maine Council (GOMC) Working Group since 2006, an important partner with a wide perspective of environmental and resource issues in the greater Gulf of Maine. Although our primary support for many years came primarily from the government and the universities, not from other NGOs

and the private sector, this has started to change and many groups attend our workshops.

BoFEP especially needs to strengthen the partnership with First Nations groups, given their involvement with fisheries and conservation and long history in the region; we are very fortunate to have two members on the management committee. A workshop held in February 2022, in St. Andrews, organized by First Nations (H. Akagi, pers. comm.) raised many topics and concerns that should be followed up in future discussions and meetings.

Importantly, during the Covid pandemic, BoFEP continued to operate on-line, keeping projects running and members engaged. It has pointed out the value of on-line meetings and discussion groups, saving expensive, gas-consuming road trips.

The discussions at the 2018 workshop and the subsequent completion of the second strategic plan (2020), as mentioned above, have led to very clear strategic objectives for BoFEP and achievable goals. They include: **Communication** - facilitate information exchange and dissemination; **Outreach** – workshops and networking, conduct of co-funded projects; **Conduct of working groups**, as leadership and funding permit; and **Quiet Advocacy** for a healthy Bay of Fundy ecosystem, supporting both living resources and the entire natural environment of the Bay.

BoFEP's 25th year of operation in 2022 was something to celebrate for a non-government volunteer organization. Given the regional and global importance of the Bay of Fundy and its watersheds, the focus will continue to be on Fundy information synthesis and communication, and opportunistically on specific projects. This work will continue under the over-arching theme of ocean and climate literacy, in support of the ongoing UN Decade on Ocean Science and Sustainability, the Sustainable Development Goal (SDG 14), and ongoing global efforts on ocean literacy. Our new working group on literacy is moving ahead full steam.

The constantly updated Fundy-related information can be used in appropriate and effective conservation and protection measures. Along with other organizations and our partners, study of the Bay and its protection and conservation requires a close connection between science and policy making, and above all, public understanding and support. A forward looking informed approach to the Bays

management will ensure that local and regional political decision-makers are proactive rather than reactive, and that requires an informed and concerned constituency.

The reader's views on any aspect of the work of BoFEP and this papers content are most welcome. The health and sustainability of the Bay of Fundy's environment and living resources depends upon your informed viewpoints and engagement.

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The paper is dedicated to key members of BoFEP's steering committee and its working groups who have left us over the years, most recently the distinguished Dr. Joseph Kerekes. They are honoured in our publications and will be long remembered for their extensive knowledge, hard work, friendship, and dedication to a healthy and sustainable Bay of Fundy.

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