



# 2023 Director's Report to the Members

# Strategic Guidance

## **MISSION**

FORCE is the catalyst for the safe development of clean tidal energy technology.

## **STRATEGIC GOAL**

Demonstrate the viability, sustainability and safety of tidal stream technologies.

## **SUCCESS IN 2023**

FORCE:

- Presents tidal as an integral contributor to our national and provincial strategies for a clean energy future
- Presents tidal as a positive narrative
- Plays a positive role in regulatory review process for projects and monitoring
- Recognized as a global leader in environmental monitoring and science
- Critical resource for successful operation of tidal devices in the Bay of Fundy
- Demonstrates and communicates the value of local supply chain and partners

## **STRATEGIC DIRECTIONS AND INITIATIVES:**

### **Facilitate the demonstration of the technology**

- Enable the resources and conditions to test turbines
- Prove the technology
- Create a shared infrastructure
- Develop a robust business case for tidal energy

### **Become a leading centre for research and development**

- Understand the resource and the environment
- Retain and promote our expertise
- Build meaningful collaborations with research partners
- Nurture innovation and integrate learning

### **Demonstrate environmental management**

- Identify and appreciate the potential effects of tidal energy
- Establish best practice measures
- Develop our credibility as an environmental steward
- Consider long-term sustainability

## **Build awareness, understanding and support**

- Foster internal and external collaboration
- Educate through a balanced story of successes and challenges
- Secure continued, predictable and sustainable government support
- Engage and involve key stakeholders and industries
- Advocate and facilitate to align expectations

## **Pursue business opportunities**

- Grow and refine our knowledge and skills for export
- Explore additional tidal demonstration opportunities at FORCE and beyond
- Identify and evaluate various forms of revenue generation
- Advance opportunities that align with our core mandate

## **PROVINCIAL GOVERNMENT OBJECTIVES**

FORCE was first envisioned by the Province to pursue two key strategic goals:

- To attract innovators, entrepreneurs, and developers by reducing risk and barriers to entry and by creating synergies between developers.
- To earn regulator and public confidence by being a credible operator and environmental manager.

FORCE is intended as an instrument of public policy to be utilized by a variety of people in a variety of ways. It is agnostic to tidal stream energy devices. It enables learning about tidal stream technology; it does not promote devices in general or any of them in particular. But the creation of FORCE is premised on two beliefs:

- FORCE can accelerate tidal energy development in an environmentally responsible way; and
- Tidal stream energy devices have the potential to produce reliable, renewable energy in Nova Scotia on commercial terms in the next seven to ten years and provide manufacturing and service-sector opportunities for Nova Scotians in a worldwide industry.

## **FORCE STRATEGIC INITIATIVES: PROGRESS**

### **1. FACILITATE THE DEMONSTRATION OF THE TECHNOLOGY**

#### **Facility Maintenance**

Central to FORCE's goal to demonstrate technology is the ability to transmit power to the electricity grid. Our facility includes the transmission system, the collector circuits and switchgear, cable vaults, subsea cables, communications systems for real time monitoring and data transfer, the real property and easements and the visitor center. All of which, must be maintained to acceptable standards, as described in the sublease.

FORCE has completed a 30 MW capacity upgrade to the interconnection facility; the upgrade resulted in the facility becoming transmission connected at 69kV as opposed to operating a distribution connection at 25kV, requiring different level of oversight by NSPI. These interconnection agreements (GIAs) are between NSPI and the Interconnection Customers (ICs). The costs associated with operating the facility and the interconnection are outlined in these agreements.

The final phase of the substation upgrade is a curtailment test of the facility with a connected generator; this test has been deferred until the next turbine is connected to the substation.

In early 2023 Strum Engineering completed the annual maintenance testing program of terrestrial and subsea cables, substation yard equipment, and the cable vaults system. Overall results of the annual maintenance testing program were satisfactory with no critical deficiencies reported.

#### **Operations**

FORCE maintains a business office at 75 Alderney Drive in Dartmouth, an equipment storage and mobilization facility at 60 Trider Crescent in Burnside, and a visitor centre and substation along West Bay Rd.

Operations in Minas Passage over the last year included continuous data capture as part of the Risk Assessment Program (RAP) via the array of acoustic receivers through the site, as well as marine activities this year to replace the tide sensor: there is now a tide and temperature gauge feeding into FORCE's online data dashboard at [www.fundyforcelive.ca](http://www.fundyforcelive.ca)

The online mapping tool (internal to FORCE) for marine operations planning is now active.

## Technology Development

### *BigMoon Power*

BigMoon's first device, the "Falcon" began trials in fall 2022. The unit's nameplate capacity is 500kW, enough to power about 500 homes, comprised of a large wheel suspended between the pontoons of a 30-metre barge anchored to the ocean floor. The barge swivels to face the current in both directions. Four 170-ton moorings for the device were completed in March 2023, at Darren Porter's site in Walton. The Falcon is currently in Saint John, from which BigMoon is expected to commence its deployment operation.



*BigMoon Power's "Falcon" tidal energy device.*

### *Sustainable Marine*

On March 20, 2023, Sustainable Marine Energy Canada (SMEC) advised Fisheries and Oceans Canada (DFO) that it was "withdrawing [their] application, and [would] not be continuing the development of [their] Pempa'q instream tidal energy Project" at FORCE, citing the lack of a "pathway to deliver [their] project at FORCE, let alone one that aligns with other provincial and federal instruments."

SMEC placed the PLAT-I platforms into storage, with all equipment removed from the seabed at the site. The company appointed Deloitte Restructuring as trustee in charge of the administration of their voluntary bankruptcy. In June 2023, largely in response to SME's closure as well as sustained public communication by SME, Marine Renewables Canada, FORCE, and NS Premier Tim Houston, the Minister of Fisheries and Oceans and the Minister of Natural Resources launched the **Task Force on Sustainable Tidal Energy Development in the Bay of Fundy**. Its purpose is to provide advice on how to clarify requirements for fish protection,

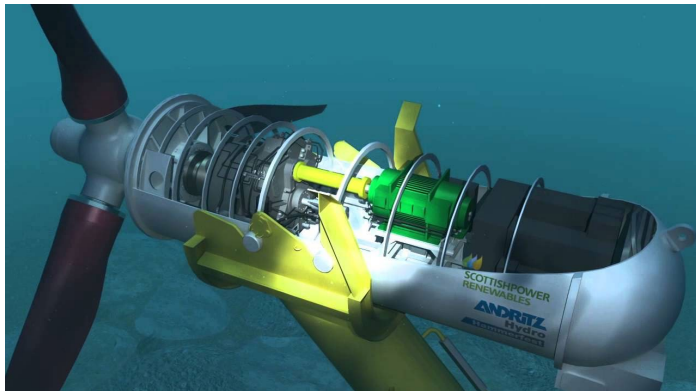
improve transparency and methodology of risk assessment and decision making on tidal turbine deployments, and reduce turnaround time for regulatory decisions.



*Sustainable Marine PLAT-1*

### ***DP Energy***

DP Energy plans to deploy 6 Andritz Hammerfest Hydro (AHH) MK1s in a project called Uisce Tapa, meaning fast flowing water in Gaelic. The Mk1 has an 18.4 m diameter rotor and rated power of 1.5 MW for a project total of 9MW. The turbine is a horizontal axis, 3 bladed, seabed mounted tidal turbine, which has been successfully deployed (3 machines) at MeyGen in Scotland.



*DP Energy's Andritz Hammerfest Hydro technology*

### ***Eauclaire Tidal***

Eauclaire has partnered with a European technology company to deliver its project; this technology has been reviewed and approved by the NS Department of Natural Resources and Renewables. The technology is not yet public.

## 2. BECOME A LEADING CENTRE FOR RESEARCH AND DEVELOPMENT

### Tidal Collision Risk Evaluation Project (T-CORE)

FORCE executive director Lindsay Bennett serves as co-chair (along with Dr. Anna Redden) of the **Risk and Monitoring Working Group** to the Government of Canada's Task Force on Sustainable Tidal Energy Development in the Bay of Fundy.

The primary role of the working group is to build a work plan to evaluate and monitor the collision risk of fish with different designs of tidal stream energy devices during 2024-2026.

In service of this core mandate, FORCE is partnering with Acadia University to seek funding for a research grant for the Tidal Collision Risk Evaluation (T-CORE) project.

This project supports the advancement of Canada's MRE sector by evaluating the risk of tidal stream turbines to fish.

One of the main challenges in developing environmental effects monitoring plans for DFO regulatory review and approval is the potential for adverse interactions between fish and tidal stream energy devices.

This includes predicting the risk of adverse interactions, describing and quantifying that risk, implementing monitoring measures to validate risk predictions so legislative compliance can be verified (e.g., are appropriate deterrence, mitigation, and offsetting measures being implemented), and meeting the pre-conditions and permitting provisions of the *Fisheries Act* and *Species at Risk Act*.

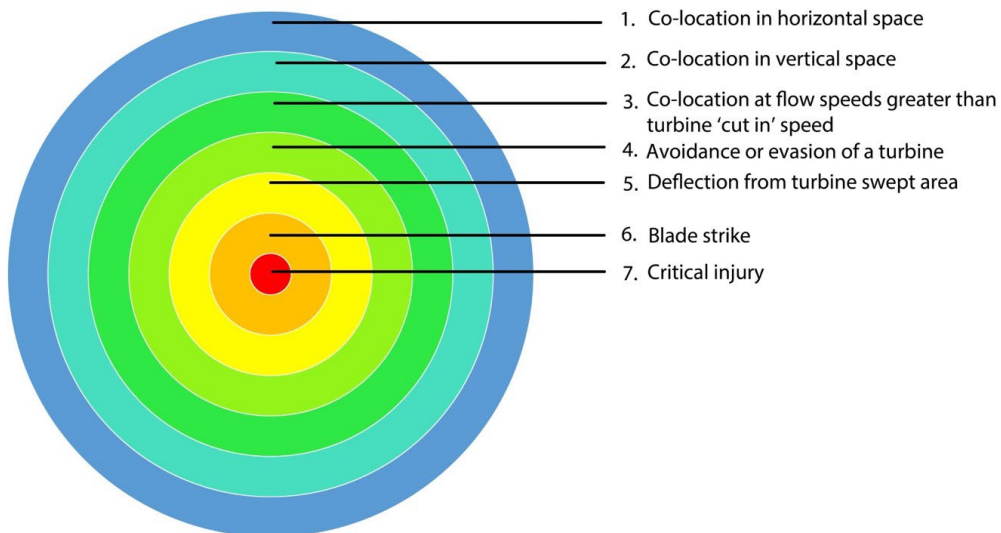
This is a particular concern in Minas Passage due to the seasonal presence of aquatic species at risk (specifically Inner Bay of Fundy Atlantic salmon and White shark), including their uncertain population status and level of allowable harm.

T-CORE proposes to address significant data gaps and concerns raised by DFO and others in relation to collision risk of marine animals with the rotating parts of tidal stream energy devices in Minas Passage especially regarding risk to fish species of conservation concern, the effectiveness of monitoring technologies, and the accuracy and precision of collision risk models.

This project will evaluate the risk of critical injury and mortality to fish due to blade strike from operational tidal stream turbines in Minas Passage. The approach will incorporate components related to encounter probability as well as collision risk and related survivability.

Specifically, the project will evaluate the probability that:

1. Fish will encounter a turbine – by using optical cameras, strengthening the existing acoustic receiver network in Minas Passage, ongoing fish tagging efforts, evaluating new acoustic receiver technologies, and exploring the use of trawl nets.
2. Fish are able to avoid a turbine – by establishing a grid of acoustic receivers in the ‘pathway of approach’, and deploying a series of imaging sensors near or on an operating turbine.
3. Fish will be deflected from the swept area – by developing and applying LES models.
4. Fish will be struck by a turbine blade – by developing and applying numerical models and validating predictions using imaging sensors coupled with species detection and identification software.
5. Fish suffer critical injury – by combining laboratory studies and numerical modelling approaches.



**Figure 1.** T-CORE framework for quantifying the likelihood of collision risk for fish and operational tidal energy turbines. Adapted from Copping et al. (2017).

## Drifter Research

New research suggests FORCE tidal test site is low risk for Atlantic salmon post-smolts.

Cutting-edge research led by Dr. Brian Sanderson at Acadia University, with input from FORCE science director Dan Hasselman, is unlocking new ways that fish tagging (acoustic telemetry) can be used to measure the likelihood that fish will encounter a tidal device in Minas Passage.

Sanderson’s team conducted a number of experiments, including attaching fish tags to drifting buoys (‘drifters’), to examine how well the acoustic tag transmissions are detected by receivers in the extremely turbulent waters at the FORCE test site in Minas Passage.



Some of the findings under these unique conditions include:

- 1) Fish tags that send signals more frequently are more likely to be detected,
- 2) The detection of acoustic tags drops off rapidly at distances over 150 m and at flow speeds greater than 3 m/s,
- 3) The strong currents of Minas Passage are expected to sweep most Atlantic salmon post-smolts to the south of the FORCE site,
- 4) The probability that Inner Bay of Fundy Atlantic salmon post-smolts will encounter a tidal device at the FORCE site is low.

The original papers can be found here:

- [Sanderson, B.G., C.W. Bangley, L.P. McGarry, and D.J. Hasselman. 2023. Measuring detection efficiency of high-residency acoustic signals for estimating probability of fish-turbine encounter in a fast-flowing tidal passage. \*Journal of Marine Science and Engineering\* 11\(6\): 1172.](#)
- [Sanderson, B.G., R.H. Karsten, and D.J. Hasselman. 2023. Towards estimating probability of fish-turbine encounter: using drifters equipped with acoustic tags to verify efficacy of an array of acoustic receivers. \*Journal of Marine Science and Engineering\* 11\(8\): 1592.](#)
- [Sanderson, B.G., R.H. Karsten, C.C. Solda, D.C. Hardie, and D.J. Hasselman. 2023. Probability of Atlantic salmon post-smolts encountering a tidal turbine installation in Minas Passage, Bay of Fundy. \*Journal of Marine Science and Engineering\* 11\(5\): 1095.](#)



*Fish tagging led by Mi'kmaq Conservation Group as part of 2020-2023 Risk Assessment Program (RAP).*

## **Risk Assessment Program (RAP)**

FORCE's Risk Assessment Program (RAP), which began in 2020, has developed a science-based tool to address a key question in the permitting process: estimating the probability that valued fishes will encounter an offshore energy device at the FORCE site. RAP is a collaborative effort between FORCE, the [Ocean Tracking Network](#), the [Confederacy of Mainland Mi'kmaq](#), [Acadia University](#), [Marine Renewables Canada](#), and local fishers. This collaboration brings together the

expertise and knowledge needed to evaluate and minimize environmental harm from tidal energy devices by integrating the knowledge and expertise from multiple partners, and establishes the foundation for future environmental effects monitoring programs and best practices.

To date, RAP has acquired tag detection data from 22 different telemetry projects and environmental data, demonstrating FORCE's ability to coordinate with dozens of collaborators and synthesize multiple types of data to answer questions about marine species interactions with ocean energy devices.

The first phase of the RAP combined available knowledge on selected fish species' movements and habitat use in the FORCE project area derived from detections of acoustically tagged fish, with local physical oceanographic data to develop predictive species-specific distribution models (SDMs) for Minas Passage. That information was a critical first step to understanding the likelihood of fish overlapping in space and time with proposed tidal energy devices in the region.

The SDM predictions were subsequently verified and refined using a new fish tagging program in coordination with the Confederacy of Mainland Mi'kmaq, fisher Darren Porter, and Acadia University. The approach was then expanded to include device specific parameters to develop scientifically credible encounter rate models (ERMs) that help quantify the likelihood of fish being in the same volume of water as the turning components of tidal devices that present risk for collisions.

SDMs and ERMs are standard tools in the environmental permitting and monitoring of marine renewable energy (MRE) devices internationally, and are currently being used to help quantify the risk of offshore wind projects in the United States.

As part of RAP this year, FORCE is collaborating with Dr. Andrea Copping, a senior research scientist at Pacific Northwest National Laboratory (US Department of Energy), to publish a paper on collision risk.

**Other research work** this year includes FORCE's participation in the 2024 State of the Science report, as well as Hasselman et al. publishing of "'Scaling up' our understanding of environmental effects of marine renewable energy development from single devices to large-scale commercial arrays in *Science of The Total Environment*.

<https://www.sciencedirect.com/science/article/pii/S0048969723054268>

### 3. DEMONSTRATE ENVIRONMENTAL MANAGEMENT

#### Leadership

FORCE has increased its capacity for science leadership significantly in recent years, enabling FORCE to speak with credibility to regulators, scientists, academics and stakeholders, and is also able to work with EMAC to design studies in-house as FORCE continues to adaptively manage its environmental effects monitoring programs. After an initial focus on engineering design and capital construction of onshore and offshore assets, FORCE expanded its focus on environmental stewardship in response to regulatory, stakeholder, and rights holder feedback.

This year, FORCE welcomed **Melissa Nevin**, Director of Fisheries and Integrated Resources, Atlantic Policy Congress of First Nations Chiefs, to the board of directors.

FORCE also added **Ray Pieroway** Technical Director. Ray comes to FORCE with 15 years of experience in various technical capacities, including previous work for FORCE as an ocean technologist, and as lead technologist for Sustainable Marine Energy Canada.

**Hannah Dickinson** was hired as an interpreter at the VC through Canada Summer Jobs Program.

#### Environmental Effects Monitoring

Monitoring activities began at FORCE in 2009; the most recent phase began in May 2016 with academic and research partners including Acadia University (Wolfville, NS), EnviroSphere Consultants (Windsor, NS), GeoSpectrum Technologies Inc. (Dartmouth, NS), JASCO Applied Science (Dartmouth, NS), Luna Ocean Consulting (Shad Bay and Freeport, NS), Nexus Coastal Resource Management (Halifax, NS), Ocean Sonics (Great Village, NS), Sea Mammal Research Unit Consulting (Canada) (Vancouver, BC), University of Maine (Orono, ME), Fishermen and Scientists Research Society (Halifax, NS), and local commercial fishers.

Working in partnership with universities, research entities, and local marine operators, FORCE has led a monitoring program focused on the five key variables mentioned above: fish, marine mammals, lobster, seabirds, and marine sound. Since 2016, FORCE has completed:

- Over 560 hours of hydroacoustic fish surveys
- Over 5,000 'C-POD' marine mammal monitoring days
- Bi-weekly shoreline observations
- 49 observational seabird surveys



- Four drifting marine sound surveys and additional sound monitoring, and
- 11 days of lobster surveys

This year, FORCE partnered with:

- Eastern Shore Fishermen’s Protective Association (ESFPA) and Little Hope Management Committee (LHMC) to help build regional capacity for the use and application of hydroacoustics, and to provide hands on training and guidance during the development of a standard operating procedure documentation for the correct use of the Kongsberg EK80 BWBT echosounder and associated post-processing so that ESFPA & LHMC can lead those elements of this work going forward.
- Innovasea to deploy their new NexTrak R1 receivers in Minas Passage, as part of ongoing efforts to test and improve fish monitoring in the Bay of Fundy and ensure tidal stream energy is developed responsibly.
- OSC, Innovasea, DeepSense (Dalhousie U), BigMoon, NS Power and NB Power for an AI Tagless Fish Tracking Program to help tidal/hydro power companies gather more conclusive fish tracking evidence, and further protecting fish populations, this project will use AI to drive two important strategic capability breakthroughs in fish tracking technologies, specifically
  - Reliable fish tracking in extremely harsh marine environments
  - Improved availability of fish tracking insights from extremely remote sites.

## **BUILD AWARENESS, UNDERSTANDING AND SUPPORT**

Social license for tidal stream technology depends on public and regulator confidence that its effects on marine life and the environment are understood and acceptable. Most residents of Nova Scotia have limited knowledge about the project, however polling indicates that many support both renewable energy use and tidal stream demonstration.

Media coverage this past year focused on Sustainable Marine’s decision to suspend operations, as well as provincial and federal coverage of Premier Tim Houston’s disappointment with the federal government’s regulatory approach to the sector.



Outreach activities in 2022/2023 focused on four key engagement areas:

- Government relations
- Engagement with regulators
- Engagement with tidal project developers
- Visitor Centre activities, including outreach to the local community in Parrsboro and Cumberland County

Some of the highlights for 2022/2023 year included:

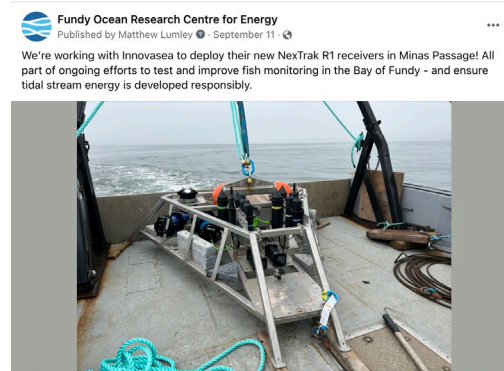
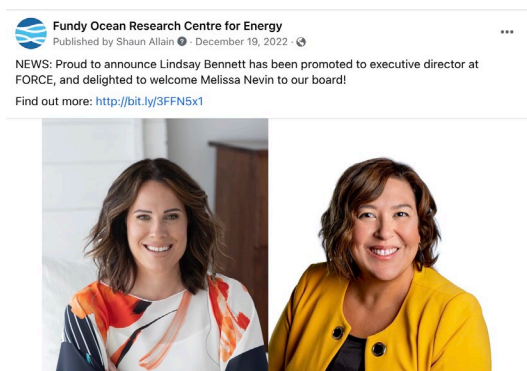
- Ongoing outreach in person and virtually/ electronically to political and departmental staff at NRCan, DFO, Premier’s Office, and NRR
- Reconcept investment team meeting and tour
- DP Energy and investors from Chubu Electric meeting and tour
- Minister Rushton (NRR) meeting and tour
- Minister Murray (DFO) and staff meeting and tour
- Department of Natural Resources and Renewables staff off-site meeting
- NDP federal leader Jagmeet Singh meeting and tour

## Social Media

Since our last AGM, our social media presence has increased slightly; the largest growth being on Instagram (17% increase to 767 followers). Social media interactions are mixed to positive: many specific questions about technology and generally positive response to any industry progress; negative comments typically question potential fish impacts and the use of tax payer dollars without any technology advance/success. Technology progress receives the most interactions, followed by environmental research (e.g. RAP program).

Top posts include:

1. Announcement of Lindsay Bennett promotion and Melissa Nevin appointment
2. Innovasea fish tracking project with FORCE and others



## Media

The tidal sector in Nova Scotia had coverage in regional, national, and international print/radio/broadcast media focused on Sustainable Marine shut down. Additional coverage in AllNovaScotia focused on the progress and challenges of BigMoon Power's project. Headlines included:

- National Observer: Tidal power company tanks project over federal red tape
- CTV: Tidal energy company blames DFO as it pulls out of Bay of Fundy
- Saltwire Op-ed: Government-wide solution required to allow tidal energy to move forward (MRC)
- Saltwire Op-ed: The end of ocean energy for Canada? (FORCE)
- New York Times: A once-promising green energy technology hits a roadblock
- CBC: Fisheries minister creates task force to clarify regulation of tidal power
- Saltwire: Putting tidal energy back on stream
- AllNS: Dispute settled over tidal turbine retrieval
- AllNS: Big Moon loses fabricator with East Coast's demise

## Attendance at Events/ Conferences

FORCE staff regularly participate in events and conferences locally, regionally and internationally to strengthen relationships with partners and stakeholders in government, academia, Mi'kmaw communities, and industry. In addition, ongoing public engagement work takes place in the community of Parrsboro. Events, presentations, meetings in the past year include:

### *Cumberland Community*

- Community Liaison Committee (CLC)
- Parrsboro Board of Trade
- Bay of Fundy Ecosystem Partnership (BOFEP)
- Parrsboro Shore Historical Society

- FORCE is an active partner in Cliffs of Fundy GeoPark
- Ottawa House By-the-Sea in Parrsboro
- Support for Parrsboro food bank, Adult Community Daycare and Parrsboro Rink
- FORCE represented at AGMs for Parrsboro Shore Historical Society, Cliffs of Fundy, Parrsboro District Board of Trade & Cumberland Chamber of Commerce.

#### *Government & Regulatory*

- Ongoing with NRR, NSECC, DFO, NRCAN staff
- Meetings with NRR, DFO, ECCC Ministers
- Municipalities, Cumberland and Digby

#### *Fishers*

- Local fishers on CLC
- Fishermen and Scientist Research Society (FSRS) conference and tradeshow participation

#### *Science Community*

- Environmental Monitoring Advisory Committee (ongoing)
- RAP Post-doc Advisory Committee meetings (ongoing)
- OES Environmental (ongoing)
- Innovasea – testing acoustic tagging technology and receivers
- Eastern Shore Fisherman's Protective Association (ESFPA)
- Presentation at Dalhousie University's Coastal Ecology program

#### *Industry*

- Berth holders and other tidal proponents (ongoing)
- Marine Renewables Canada (ongoing)
- Marine operators and suppliers (ongoing)
- EHRC (Electricity Human Resources Canada); FORCE field research assistant Chuck Taylor took part in video profiling FORCE to introduce young Canadians to new, green technology, that can play a role in Canada's clean energy future and help respond to climate change impacts.

#### *Halifax*

- Exhibit booth at H2O conference

#### *Mi'kmaw (also see below)*

- Atlantic Policy Congress of First Nations Chiefs Conference attendance and participation in tradeshow
- KMKNO briefings (ongoing)

#### *International collaboration*

- Presentations at International Conference on Ocean Energy (ICOE)

- Participation at University Marine Energy Research Conference (UMERC)
- Participation at Sensing the Ocean with Marine Radar Workshop (SoMAR) in Liverpool, U.K., June 2023
- International WaTERS Workshop participation, November 2023

## First Nations Engagement

FORCE continued to engage indigenous groups and communities throughout 2022/2023. FORCE partnered with the Mi'kmaw Conservation Group (MCG) to conduct fish tagging and engagement work as part of the RAP project; there is a possibility to continue this or related work as part of the proposed T-CORE project.

In terms of providing formal input into FORCE's activities, the Mi'kmaq Rights Initiative/Kwilmu'kw Maw-klusuaqn (KMK) has a representative on FORCE's Community Liaison Committee, and also on the Risk and Monitoring Working Group of the Task Force on Sustainable Tidal Energy in the Bay of Fundy. Previously, the Mi'kmaw Conservation Group (MCG) had a representative on FORCE's Environmental Monitoring Advisory Committee (EMAC). However, MCG stated they are now under-resourced to provide ongoing participation on EMAC.

FORCE continues to consider other ways to ensure Mi'kmaw rights holders are regularly engaged in providing input.

FORCE holds quarterly meetings with KMK staff engaged on the energy file and has facilitated meetings/introductions with berth holders when requested. FORCE also engages the benefits group at KMK when posting jobs/RFPs online, and meets with Atlantic Policy Congress staff to provide updates.

## Government Relations

As highlighted above, FORCE continued to engage politicians and the public service at the municipal, provincial, and federal levels. Ongoing engagement with the Municipality of Cumberland continues to be a valuable relationship and the source of future partnerships, and two municipal councilors sit on FORCE's Community Liaison Committee. FORCE meets regularly with staff from the Department of Natural Resources and Renewables, Fisheries and Oceans Canada, and Natural Resources Canada.

Throughout 2023, FORCE continued to press legislators and regulators for the need to develop a clear, consistent, and transparent set of regulatory requirements to get projects in the water, fight climate change, and support Canada's blue economy. FORCE made a submission to DFO's Blue Economy regulatory review, and followed the submission up with letters to the Premier, DFO, and other Ministers and Members of Parliament, as well as an op-ed that was published in Saltwire. This work contributed to the federal response to strike a task force.



Most recently, FORCE is meeting with NRR, NRCan and DFO to discuss the financial implications of two berth holders requesting rent relief during this regulatory exercise.

## Task Force

As mentioned in the Sustainable Marine update above, both in response to its collapse and resulting pressure from industry (SME, MRC), government, and FORCE, a task force on sustainable tidal energy was struck on June 20, 2023 by Joyce Murray, former Minister of Fisheries, Oceans and the Canadian Coast Guard, and Jonathan Wilkinson, Canada's Minister of Natural Resources, with the intention to "explore issues and opportunities associated with the deployment of tidal energy projects in the Bay of Fundy."

Executive director Lindsay Bennett and FORCE chair Doug Keefe are both members.

The stated purpose of the task force is to:

- Build on work to date to clarify requirements for fish protection
- Improve transparency and methodology of risk assessment and decision making on tidal turbine deployments
- Reduce turnaround time for regulatory decisions for tidal energy projects in the Bay of Fundy

The task force recently released its interim report (<https://www.dfo-mpo.gc.ca/pnw-ppe/ffhpp-ppph/publications/bay-fundy-tidal-interim-report-baie-fundy-marees-rapport-provisoire-eng.html>); members are working towards a final report by **end of year**.

FORCE's goal, along with other task force members, is to build a process for regulatory authorization decisions that is clear, consistent, and transparent so the sector can advance financeable projects.

Next up in the process is to explore flexibilities within DFO's process, including:

- a case study exercise reviewing hypothetical tidal energy project(s) through DFO's regulatory review process to better understand how DFO's risk assessment process is applied and how a single authorization could better align with the operational lifecycle of a project.
- supporting the work to better understand collision risk and to advance development of promising monitoring technologies and methodologies.
- discussions on science in the context of outstanding questions facing the tidal sector, including exploring ways to leverage DFO's CSAS process.
- expanding engagement with implicated partners and stakeholders.

## Visitor Centre

The Visitor Centre (VC) is the flagship of our engagement efforts. This year, following the reduced hours of operation through the COVID-19 pandemic, FORCE opened the VC five **days a**

week, free to the public Thursday – Monday, 10AM – 4PM, and attracted approximately 1200 visitors to date this year.

In addition to members of the general public, FORCE also hosted school groups, a Cliffs of Fundy Geopark staff and evaluation team from UNESCO, the Goethe University Frankfurt Micropaleontology & Paleo-oceanography Research Group, and an NSCC Oceans Technology class.

## 5. PURSUE BUSINESS OPPORTUNITIES

As a result of meeting our ongoing berth holder, government, and other sponsor obligations – including marine and substation operations, environmental monitoring, FAST, R&D partnerships, regulatory compliance and outreach – the project generates a considerable amount of expertise and knowledge. Opportunities exist to leverage this know-how to assist other regions in developing their MRE resource while, at the same time, generating funds to augment our own research and development activities. These opportunities make sense: they serve a dual role of developing our ability to deliver expert support to the sector as well as providing additional funding.

With this in mind, FORCE awarded Envigour Consulting (Bruce Cameron) to assess FORCE’s structure and governance to optimize the delivery of its mandate, ensure strategic alignment with provincial and federal goals for marine renewable energy, and pursue strategic business opportunities related to MRE. The strategic review made a number of findings, including the following highlights:

In terms of governance:

- The current structure makes it challenging to balance private/public interest, i.e.:
  - Support for deployment and demonstration of MRE technology, and
  - Independence, credibility of research and monitoring

Both interests must be protected:

- No industry without devices in water
- Regulatory approval uncertain without credible science

The report recommends:

- New agreements to protect/clarify developer access to facility
- Broader membership focused on research, monitoring, regulatory approvals

The report also identified additional opportunities for funding. For example:

- Services for developers outside the FORCE site
- Services for other ocean users
- Potential for additional berths
- Risk assessment and other services related to offshore wind

- Integration into provincial research initiatives
- Integration into established science programs, college and university courses, labour support, and more

In terms of FORCE's organizational model, the report suggested it needs:

- Contractual assurance to developers that their projects remain whole
- New members (report recommends a revised ratio of industry seats to seats committed to research and science community, a Mi'kmaw organization, other independents)
- Ongoing input and supports from government and other partners to strengthen research agenda

The report also recommends creating a legally separate entity to provide:

- Services related to sensor/monitoring technology packages and expertise
- Services to other ocean sectors

## **CONCLUSION**

In 2022/23, FORCE was active in all five of its strategic initiatives, namely, to:

- Facilitate the demonstration of the technology
- Become a leading centre for research and development
- Demonstrate environmental management
- Build awareness, understanding and support
- Pursue business opportunities

