

**Canada & UK Joint Research Competition in Tidal Energy -
Canadian Registrants
(as of November 27, 2014)**

1. **Name:** Anna Redden

Email address: anna.redden@acadiau.ca

Organization name: Acadia Tidal Energy Institute, Acadia University

Street address: 23 Westwood Ave

Address line 2: PO Box 115

City: Wolfville

Province / County: NS

Postcode: B4P 1R3

Country: Canada

Phone number: 1-902-585-1732

Business size: Small to medium enterprise (< 500 employees)

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: Environmental research and field monitoring; several years experience in acoustic technology deployment in high flow tidal sites (Bay of Fundy) for the purposes of tracking fish movements (tags / receivers) and monitoring trends in harbour porpoise presence (hydrophones); prior partners have been SMRU Ltd, OceanSonics, Vemco, Ocean Tracking Network, Fisheries and Oceans Canada.

Comment on the complementary skills / experience you would seek in a consortium partner(s):

Seeking new / advanced acoustic and optical technologies to test in high flow sites. Focus is on detection of fish and marine mammals at and near tidal energy turbines.

2. Name: Joe Hood

Email address: jhood@akoostix.com

Organization name: Akoostix Inc.

Street address: 10 Akerley Blvd

Address line 2: Suite 12

City: Dartmouth

Province / County: NS

Postcode: B3B 1J4

Country: Canada

Phone number: 902-404-7464

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Akoostix focuses on using acoustic for surveillance within the ocean. We have significant experience in a wide variety of passive and active acoustic methods for a wide variety of targets from submarines to marine mammals. We employ a range of highly qualified personnel including sonar specialists with real-world experience, physicists, programmers, and electrical engineers. Our focus is on software algorithms and data analysis.

Akoostix has developed relationships with various tidal-turbine-focused companies and researchers. This includes our role as Black Rock Tidal Power Inc.'s environmental monitoring partner for their berth in the Bay of Fundy.

Akoostix already has some experience working in the tidal region and has gathered data on operating tidal turbines to help characterize their acoustic signature and other noises. We've also developed advanced algorithms for efficiently detecting and isolating individual vocalizing marine mammals to discern their movement within a group.

Akoostix is able to use their GuardBuoy autonomous sensor system to gather data, but is also comfortable working with related technology from other manufacturers.

Comment on the complementary skills / experience you would seek in a consortium partner(s):

Selection of consortium partners would depend on the specific focus of a proposal but could include:

1. Biologists with specific experience in this field to help develop and validate strategies for effective monitoring.

2. Technical teams focused on tidal turbine development and installation that could help define valuable objectives and requirements.

3. Technical teams focused on sensor development and employment in high flow, including cost-effective moorings to simplify deployment and recovery that could help develop monitoring systems and improve data quality.

4. We are open to discussing options almost any collaborative partner as the full requirements for an effective team will evolve as the focus of the proposal(s) is decided.

3. Name: Greg Trowse

Email address: gtrowse@gmail.com

Organization name: Fundy Tidal Inc.

Street address: Box 1209

Address line 2: -

City: Westport

Province / County: Nova Scotia

Postcode: B0V 1H0

Country: Canada

Phone number: 902.292.9639

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Fundy Tidal Inc. is developing 3 tidal energy projects in the Digby Region of Nova Scotia (500 kW in Grand Passage, 500 kW in Petit Passage, and 1.95 MW in Digby Gut). Related to this call, we are also involved in R&D associated with tools and techniques for site assessment and environmental monitoring. Our project sites and adjacent infrastructure offer an ideal environment for this work. Please contact us for more information.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Fundy Tidal Inc. is seeking partners experienced in:
- the development of oceanographic sensors
- environmental monitoring, and
- tidal energy site assessment.
Please contact Greg Trowse (Chief Technology Officer) to discuss potential collaboration.

4. Name: Nicholas Fyffe

Email address: nicholas.fyffe@emera.com

Organization name: Emera Inc.

Street address: 1223 Lower Water Street

Address line 2: -

City: Halifax

Province / County: NS

Postcode: B3J3S8

Country: Canada

Phone number: 19024286822

Business size: Large enterprise (> 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Emera is an energy and services company providing grid infrastructure and utility services. It is also part of a partnership with a tidal turbine developer and industrial services provider to deploy turbines at the FORCE site in the Bay of Fundy in Canada.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Sensor and Instrumentation technology developers. Research institutes engaged in sensor development. Data processing and analysis.

5. **Name:** Desiree Stockermans

Email address: desiree@oceansonics.com

Organization name: Ocean Sonics Ltd.

Street address: 11 Lornevale Road

Address line 2: -

City: Great Village

Province / County: Nova Scotia

Postcode: B0M 1L0

Country: Canada

Phone number: 902-655-3000

Business size: Small to medium enterprise (< 500 employees)

Organization type: -

Briefly describe your organization's products or services in relation to the call: Ocean Sonics has developed a Smart Digital Hydrophone, icListen. These hydrophones are intelligent digital hydrophones that can process and/or store data, are compact and easy to use. Ocean Sonics has experience deploying hydrophones around the world and collecting sound data in high flow areas. The Company has worked with Dalhousie University and Acadia University to measure the flow noise around hydrophones and develop techniques to mitigate the noise effects to improve the performance of hydrophones in high flow areas like tidal areas. Ocean Sonics is located on the Bay of Fundy where many of the tests on the icListen Smart Hydrophone are performed.

Ocean Sonics has a team of skilled engineers and computer scientists who are able to develop new and improved instruments for these challenging environments.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Ocean Sonics is seeking partners who are interested in studying the effects of flow noise on the hydrophone and how to mitigate the effect. The Company is interested in collaborating with organizations with simulation, design and test facilities (either a tank or on site) and have experience in deploying instruments in tidal flow areas.

The Bay of Fundy is a very turbulent area and difficult to get precise measurements with existing instruments. Ocean Sonics is looking for partners who are interested in developing other smart instruments for measuring turbulence.

Ocean Sonics is seeking partners to collaborate in developing better software tools to improve the quality of data collected from hydrophones for sea mammal monitoring, sound scape data collection and machine health monitoring.

6. Name: Craig Brown

Email address: craig.brown@nscc.ca

Organization name: Nova Scotia Community College

Street address: Waterfront Campus

Address line 2: 80 Mawiomi Place

City: Dartmouth

Province / County: NS

Postcode: B2Y 0A5

Country: Canada

Phone number: 1-902-491-2174

Business size: -

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: Education and Applied Research

Comment on the complementary skills / experience you would seek in a consortium partner(s): We have been in discussion with a potential UK partner with experience in hydrodynamic and noise modeling which would complement the skills offered by NSCC. We are currently in discussion with a number of potential Canadian Industry partners.

7. **Name:** Fabian Wolk

Email address: fabian@rocklandscientific.com

Organization name: Rockland Scientific Inc.

Street address: 520 Dupplin Road

Address line 2: -

City: Victoria

Province / County: BC

Postcode: V8Z1C1

Country: Canada

Phone number: 250-370-1688

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Rockland Scientific Inc. (RSI) designs and manufactures instrumentation for direct, in-situ measurement of marine turbulence. For in-stream tidal energy generation, accurate characterization of turbulence is important for the assessment of potential energy extraction, as well as for the design and optimization of tidal energy conversion devices (turbines). RSI has demonstrated the applicability of their proprietary, non-acoustic sensing technology in the tidal energy sector. Various collaborative projects have been successfully carried out in 2013 and 2014, involving both academic and commercial organizations in Canada and the UK, respectively. This call provides an opportunity to making significant improvements to the demonstrated technology, leading to the commercialization of new instrumentation and services, which in turn will result in reducing future costs of tidal energy installation and generation.

Comment on the complementary skills / experience you would seek in a consortium partner(s): RSI is seeking to complementary skills in two key areas: (i) operational deployment of measurement assets in high-flow tidal channels at or near energy generation sites; and (ii) deployment of a laboratory measurement system, using the same fundamental RSI sensing technology, to be used in flumes and tidal test tanks for scale model testing.

8. **Name:** Richard Karsten

Email address: rkarsten@acadiau.ca

Organization name: Acadia University

Street address: 12 University Ave

Address line 2: -

City: Wolfville

Province / County: Nova Scotia

Postcode: B4p2R6

Country: Canada

Phone number: 902 585 1608

Business size: Large enterprise (> 500 employees)

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: Resource and site assessment. Numerical modelling of Bay of Fundy. Analysis of observations. Estimate of potential turbine performance and environmental impact.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Field studies. Data from deployed turbines.

9. **Name:** Lincoln Bodner

Email address: lincolnb@weir-jones.com

Organization name: Weir-Jones Engineering Ltd.

Street address: 598 East Kent Avenue

Address line 2: -

City: Vancouver

Province / County: BC

Postcode: V5X 4V6

Country: Canada

Phone number: 604 732 4801

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: The Company was founded in 1971 to provide specialized structural and geomechanical monitoring and testing services to the resource and transportation sectors. The Company's capabilities subsequently expanded in the areas of data processing and testing system design, the application of this expertise has been extended considerably, notably in the fields of structural integrity monitoring for heavy structural, energy and offshore systems. The Company has its headquarters in Vancouver and has been active in projects in 55 countries. The Company has maintained branch offices in St. John's, Newfoundland; Fort McMurray, Alberta; and Oakville, Ontario. Typically more than 90% of the Company's projects incorporate elements of system design, data acquisition, system planning, data collection, analysis, and redesign. Clients typically retain the Company on a project basis in order to characterize a problem, develop a solution, and evaluate its effectiveness.

For the last forty years Weir-Jones has carried out work for many marine clients. These include Washington State Ferries, Alaska Marine Highway, Canmar, Gulf Canada, B.C. Ferries, Canadian Coast Guard, Canadian Steamship Lines, Melville Shipping, Royal Australian Navy, United States Navy, Hibernia Management and Development Corporation, Canadian Transport Company, as well as numerous naval architects and marine equipment suppliers.

Comment on the complementary skills / experience you would seek in a consortium partner(s):

Looking for a company, institute or organization with specific tidal energy experience to partner with.

10. **Name:** Dominic Groulx

Email address: dominic.groulx@dal.ca

Organization name: Mechanical Eng - Dalhousie University

Street address: 5269 Morris St.

Address line 2: Room C304

City: Halifax

Province / County: Nova Scotia

Postcode: B3H 4R2

Country: Canada

Phone number: 9024948835

Business size: Large enterprise (> 500 employees)

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: Research in my lab, as it related to Tidal and Ocean, focus on CFD (turbulent flow, wake modeling), and design and testing of monitoring systems.

We have access to multiple high-level tools (commercial CAD, CFD, laboratory equipment) and the expertise through various faculty members and graduate researchers.

Comment on the complementary skills / experience you would seek in a consortium partner(s):

Mechanical Engineering at Dalhousie can provide needed engineering design expertise to various projects related to instrumentation.

11. **Name:** Fred Whoriskey

Email address: fwhoriskey@dal.ca

Organization name: Dalhousie University - Ocean Tracking Network

Street address: 1355 Oxford St

Address line 2: -

City: Halifax

Province / County: NS

Postcode: B3H 4R2

Country: Canada

Phone number: 902 494 4095

Business size: Large enterprise (> 500 employees)

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: OTN specializes in the use of acoustic telemetry to document the movements and survival of free-ranging aquatic animals. In association with Acadia University (see Anna Reddin listing), we have installed acoustic tracking systems to show residence patterns and movements of marine animals in sites being developed for tidal power. The primary product is knowledge for developers and industry regulators to guide the sustainable development of the tidal power industry.

Comment on the complementary skills / experience you would seek in a consortium partner(s): We seek partners interested in the transfer of these technologies and the expertise to use them, in order to assist them with site operations and meeting regulatory requirements.

12. Name: Sue Molloy

Email address: sue@glasocean.com

Organization name: Glas Ocean & Dalhousie University, Faculty of Engineering

Street address: 4 Oceanview Drive

Address line 2: -

City: Halifax

Province / County: NS

Postcode: B3P2H3

Country: Canada

Phone number: 902.233.3265

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business; Academic Institute

Briefly describe your organization's products or services in relation to the call: Tidal power research and development, Turbine and Ocean tech related work
Project development

13. **Name:** Carys Burgess

Email address: carys.burgess@emera.com

Organization name: Emera

Street address: 1223 Lower Water Street

Address line 2: -

City: Halifax

Province / County: NS

Postcode: B3J 3S8

Country: Canada

Phone number: 902-428-6091

Business size: Large enterprise (> 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Emera is an energy and services company providing grid infrastructure and utility services. It is also part of a partnership with a tidal turbine developer and industrial services provider to deploy turbines at the FORCE site in the Bay of Fundy in Canada.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Sensor and Instrumentation technology developers. Research institutes engaged in sensor development aimed at environmental data collection and monitoring. Data processing and analysis.

14. **Name:** Robert Craig

Email address: robert@nortekscientific.com

Organization name: Nortek Scientific

Street address: -

Address line 2: -

City: Halifax

Province / County: NS

Postcode: -

Country: Canada

Phone number: -

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Nortek Scientific provides integrated acoustic Doppler current profiling solutions for measurements of ocean currents, turbulence, waves, and suspended sediment. We have experience in system integration, broadband signal processing, and software and firmware development. We are providing the VECTRON field-scale ADV to the FORCE program for optimized tidal turbulence data collection on the FAST platform.

Comment on the complementary skills / experience you would seek in a consortium partner(s): We are seeking to partner with device developers that need to understand the turbulence at hub-height better than is presently possible with conventional bottom-mounted ADCP's or other in-water suspended sensors for measuring turbulence.

15. Name: Susanne Craig

Email address: susanne.craig@dal.ca

Organization name: Dalhousie University, Oceanography Department

Street address: 1355 Oxford Street

Address line 2: Steele Ocean Sciences Building

City: Halifax

Province / County: Nova Scotia

Postcode: B3H 4R2

Country: Canada

Phone number: +1 (902) 412-2800

Business size: -

Organization type: Academic Institute

Briefly describe your organization's products or services in relation to the call: Remote sensing of hydrographic phenomena. Derivation of water quality parameters from in situ, aerial and satellite measurements of ocean colour.

Comment on the complementary skills / experience you would seek in a consortium partner(s): Integration of environmental sensors with novel platforms, control systems, image analysis, ocean colour algorithms.

16. Name: Bruce Martin

Email address: bruce.martin@jasco.com

Organization name: JASCO Applied Sciences

Street address: 32 Troop Avenue

Address line 2: Suite 202

City: Dartmouth

Province / County: NS

Postcode: B0J1T0

Country: Canada

Phone number: 902-405-3336

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: JASCO provides acoustic monitoring, modeling and mitigation services to the marine energy and construction sectors. We develop our own sensors and moorings to address tough measurement challenges

17. **Name:** Marek Sredzki

Email address: sredzki@wwturbine.com

Organization name: Water Wall Turbine Inc.

Street address: 260 Oceanview Road

Address line 2: -

City: Lions Bay

Province / County: BC

Postcode: V0N 2E0

Country: -

Phone number: 604 921-2525

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Water Wall Turbine is developing a 1 MW commercial prototype for Tidal or River Stream Energy particularly suited for narrow, shallow, high speed currents. It's floating infrastructure allows for all the power train to be surface mounted in secured containment. The unique turbine structure allow high extraction efficiency with low capital and operational costs. see www.wwturbine.com

Comment on the complementary skills / experience you would seek in a consortium partner(s): We would seek a partner in the UK that is an established manufacturer, IPP or research organization to partner in Nova Scotia or UK feasibility study, anchoring research, and or power management and storage systems.

18. Name: Brian Whitehouse

Email address: bwhitehouse@oatech.com

Organization name: OEA Technologies Inc.

Street address: 3650 Hammonds Plains Road

Address line 2: Unit 14 - 393

City: Upper Tantallon

Province / County: NS

Postcode: B3Z4R3

Country: Canada

Phone number: (902) 826-0033

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: OEA Technologies is a marine monitoring company, with specialty expertise in monitoring the sea from space, using Earth-observing satellites, and from shore using coastal HF radars. In the Bay of Fundy and other such semi-enclosed bodies, HF radar is used to monitor synoptic surface currents on an operational basis.

Comment on the complementary skills / experience you would seek in a consortium partner(s): OEA Technologies is interested in teaming with partners who require synoptic surface current data and are interested in adapting HF radar to extreme surface current environments, such as the Bay of Fundy.

19. Name: Andrew Palmer

Email address: andrew@emomarine.com

Organization name: EMO Marine Technologies Ltd.

Street address: 7 A Canal Street

Address line 2: -

City: Dartmouth

Province / County: Nova Scotia

Postcode: B2Y 2W1

Country: Canada

Phone number: 909 434 1798

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: EMO Marine Technologies Ltd. designs and manufactures subsea fibre optic communications systems for use in harsh marine environments. Our products enable multiple serial data, video, and Ethernet input channels to be combined, compressed, and converted into a single fibre-optic transmission and able to be transferred over distances up to 10Km. The topside surface end of the system then converts those respective channel outputs back to the original form. Each system is comprised of a subsea pressure rated housing, available in various materials suitable for various depths, and a topside enclosure.

EMO Marine has provided a system for FORCE for use in the Bay of Fundy for a small scale subsea ocean platform fitted with oceanographic instrumentation. For these sub-surface observation applications we are converting multiple instrument data into a fibre optic transmission and then transmitting it through a subsea hybrid cable situated on the seafloor. The output data from each instrument is then made available at the observation location.

Benefits of using EMO Marine Communication Products.

- Small form-factor
- Rugged design for use in harsh marine environment
- Transmit multiple streams of data over a single fibre-optic link
- High data bandwidth
- Transmit over great distances (10km)
- Data transmitted over fibre is unaffected by electrical noise

Comment on the complementary skills / experience you would seek in a consortium partner(s): EMO Marine is seeking partners who wish to utilize our communication expertise to enable transmission of sensor data over a variety of distances and depths.

20. Name: John Ratelle

Email address: john.ratelle@sympatico.ca

Organization name: Ratelle Communications Limited

Street address: 200 North Service Road West

Address line 2: Unit 1, Suite 300

City: Oakville

Province / County: ON

Postcode: L6M 2Y1

Country: Canada

Phone number: 905-337-9700

Business size: Small to medium enterprise (< 500 employees)

Organization type: Business

Briefly describe your organization's products or services in relation to the call: Our Waveride C Frontal system is one of theoretical and applied Physics and solutions for challenging problems encountered in related technological fields in technology science, NDT, telecommunications, RF, microwaves, sensors, transducers, electronics, medical devices.

Comment on the complementary skills / experience you would seek in a consortium partner(s):
Seeking a partner with exceptional software skills, prototype manufacturing capabilities

Yes, please share my contact information.: true

No, please do not share my contact information.: -