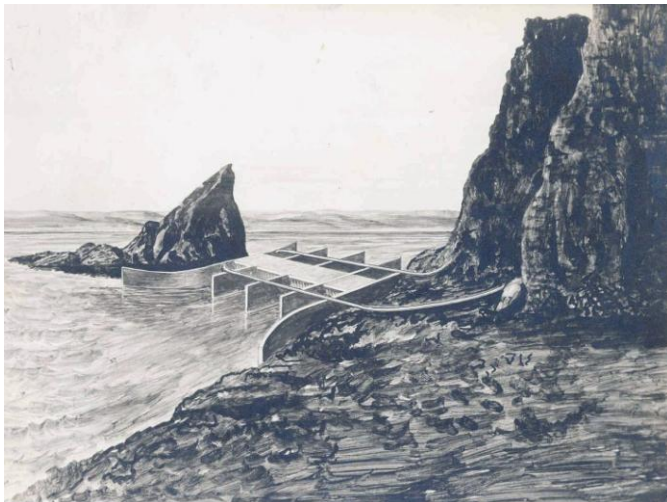


## Acadia Celebrates a Century of Tidal Power Research

During 2010, Acadia University will be celebrating a century of Bay of Fundy tidal energy research by honoring early pioneers in tidal power development and those who have devoted their careers to addressing the environmental implications and effects of harnessing tidal energy. A series of activities, celebrating both historic and current research efforts, will mark this significant milestone.

### *Tidal power history*

The year 2010 is the centennial of Wallace Turnbull's original proposal for generating electrical energy from the tides in the Bay of Fundy. Since 1910, there have been four major and numerous minor proposals for large scale tidal power development in the Bay. These have resulted in research activity in the Bay in every decade of the 20th century. It is arguable that most of what we know about the Bay of Fundy ecosystem has resulted from the dreams of harnessing its energy. The dream was shared by Acadia engineering professor Ralph Clarkson, who created in 1915 a novel tidal power plan to harness the Bay's tidal energy. He designed a prototype tidal power generator with his sights on the Minas Channel at Cape Split. In 1916, Clarkson and others, including Acadia University President George Cutten, formed the Cape Split Development Company to further their tidal power vision. Unlike those before him, Clarkson designed, built and tested his motor successfully and had apparently planned out the installation details, including the means to retime the power (using pumped storage), which is one of the major challenges in harnessing renewable energy.



Sketch of Clarkson's conception of the Cape Split project, 1915-1916. Courtesy of the Acadia University Archives.

Almost sixty years later, serious attention was given to assessing the potential for tidal power in the Upper Bay of Fundy. In the 1970s, at the instigation of George Baker (Chairman of the Tidal Power Review Board), scientists in the region established the Fundy Environmental Science Committee to investigate the implications of barrage-style tidal power development. In 1984, less than a decade later, the first and only tidal power plant in North America was installed in the causeway at Annapolis Royal. Acadia faculty and graduate students played significant roles in addressing environmental impacts in both projects, which led to the establishment of the Acadia Centre for Estuarine Research (ACER) in 1985. During the last quarter century, ACER has played a leading role in ecological research on the Bay of Fundy, including studies on the effects

of harnessing tidal power, impacts of tidal barriers, investigations of mudflat stability and animal-sediment relationships, and studies of salt marshes, coastal fishes and shorebirds.

### ***Tidal power research at Acadia in 2010***

Acadia remains focused on tidal power and in recent months received two large grants from the OEER and OETR Associations, totaling \$342,000 of the \$1.1 Million in funding that the Associations awarded for tidal research ([www.offshoreenergyresearch.ca](http://www.offshoreenergyresearch.ca)). These projects will involve assessments of the amount of tidal energy that can be harnessed, the movement and behavior of various fish species near the tidal turbine demonstration facility, and the risk of interaction between tidal turbine infrastructure in the Minas Passage and both large wood debris and sediment-laden ice cakes (the size of Volkswagen Beetles). Acadia researchers are also running test simulations and modeling tidal energy resources on high-end clusters of computers. In addition, faculty members have been invited to lend their expertise to a number of other OEER/OETR funded tidal power studies, including projects awarded to scientists at the Bedford Institute of Oceanography and other universities in Nova Scotia. “These new activities build on the long and distinguished history of research by students and faculty at Acadia, and remind us of the central role the university has played in understanding the extraordinary dynamics of Fundy tidal systems”, said Tom Herman, Acadia’s Vice-President Academic. “Acadia looks forward to the next century of tidal research and participating in those activities”.

### ***Celebratory Events and Activities***

During the current year, Acadia will celebrate a century of research on the Bay of Fundy with a series of special events and activities, including:

- A lecture series focused on the history of tidal power proposals and developments in the Bay of Fundy and elsewhere;
- A tidal power debate (31 March);
- Tidal power research seminars, film footage and displays;
- An Art Gallery exhibition featuring tidal shores and sounds; and
- A celebratory event, in the fall, in honor of the 25th Anniversary of Acadia’s Centre for Estuarine Research, recognizing past and present activities with current and former research partners and collaborators.

All events will be open to the public. The first event will be a spirited tidal power debate involving faculty and students, to be held on 31 March (7-9 pm) in the Auditorium of the KC Irving Environmental Science Centre at Acadia University. It promises to be lively!

For more information about these events and tidal power research at Acadia, contact the Acadia Centre for Estuarine Research at 902-585-1732, [anna.redden@acadiu.ca](mailto:anna.redden@acadiu.ca) or [graham.daborn@acadiu.ca](mailto:graham.daborn@acadiu.ca).

