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To: <oeer@offshoreenergyresearch.ca>
CC: <wgroszko@DAL.CA>
Date: 2008-02-29 3:14 PM
Subject: Background Report for the Fundy Tidal Energy SEA Comments

Dear Sirs,

The development of a new technology necessarily includes knowledge gaps. With so many variables and the possibility of such extensive impacts, it becomes nearly impossible to predict and map out all the changes that will occur due to the installation of tidal turbines, especially in regards to marine ecology. The development of the tidal energy farms should therefore be a slow process in order to actualize the impacts in a manner that allows a preview of the changes that a large scale tidal farm will cause.

Documenting the potential effects of new technology on an ecosystem is extremely important, as the world has learned by implementing damaging technologies without first studying their impacts. The anthropogenic atmospheric pollutants that only deteriorate after long life spans are good examples of this type of imprudence. The most damaging effects the tidal farms could have would be the introduction of extreme amounts of the types of pollutants that cannot be easily removed. Prudence dictates that the effects of all the chemicals used should be known before they are applied. As well, because of the possible irreversible effects of the non biodegradable fluids and materials, certain caution must be used to measure their inputs into the surrounding marine environment. This is also one condition that should be placed on the installation of pilot products and demonstration projects ? that the dissipation of introduced chemicals be monitored.

The other areas that would need more concentrated monitoring are larger inlets through the Bay of Fundy (BoF) and the entrance to the BoF. The greatest fear I have about a tidal project is that the natural tidal cycle is thrown off. The velocities, the tidal amplitudes and the time of the tidal cycle would need to be monitored throughout the bay in order to identify a shift in the cycles. This would also be beneficial to the energy producer to determine if the turbines would eventually cause the water velocity and the height of the tide to change. This would require a long term commitment to an extensive monitoring program. The results of altering the tidal patterns could have little impact or they could have extensive impact, especially in regards to the movement of marine life.

Developing a plan for the removal of the turbines if their impacts are extreme would be wise. The plan should include leaving as little a footprint as possible so that the natural process can reestablish itself quickly, if it is necessary. This, along with a planned long term implementation of the turbines, would allow for as little risk as possible to the environment. If plans were developed to place 15-20 turbines every 5 years, to begin, then the initial change patterns could be monitored in order to predict the impact of a full size energy farm. At the same time the project could be abandoned without the need to remove too much infrastructure, if the turbines proved to be highly destructive to the environment.

Sediment movement is a potential large impact on the surrounding area. Could the sediment around the turbine be used as an anchor for the turbine? Perhaps this could lessen the effects of scouring and the transportation and buildup of sediment. It could also make it possible for the removal of the turbines without leaving a footprint. The infilling of the Petitcodiac river in Moncton brings to mind a picture of what could occur because of tidal turbines. Over the decades I lived there I saw the river fill in with sediment at a rapid

rate. Although turbines would cause some different effect, it would be prudent to have a plan to remove them if it became obvious they were causing extensive change to their surrounding landscape.

Overall I do not think it would be wise to implement this project rapidly on a large scale, or without extensive monitoring of the important characteristics of the BoF. The demonstration turbines should be placed as quickly as possible so that monitoring of their effects can begin. The key to successful implementation of tidal turbines would be flexible planning with the ability to adapt the turbines to remedy problems as experience begins to reveal the current knowledge gaps.

Good luck,
Marc Laliberte