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OEER Association  
Suite 400, Bank of Montreal Building  
5151 George Street  
Halifax, NS B3J 3P7

Dear Sir or Madam:

Re: Background Report for Fundy Tidal Energy

I have read the sections which pertain to marine mammals and seabirds. Overall much of the information available can be found in the document, however, I would like to make specific comments to certain areas of your report.

1. 5.2.2.5 Marine Mammal section. Overall a poor introduction to marine mammals because of the way it is written. I would have deleted most of the first section retaining the first paragraph and table because it was written from a New Brunswick perspective (Quoddy/Grand Manan) and ignores the Nova Scotia side of the Bay and anything north of Grand Manan and incorporate this information into the various sections that follow. For example: "Harbour seals are found in the inner Quoddy Region and the shore of eastern Grand Manan, and grey seals are seen around Grand Manan in small numbers". When the Seal section is reached, the discussion then changes to the Nova Scotia perspective. This gives an overall confused picture of what is happening throughout the Bay. If you read the first mention of seals, you would think there are seals only on the western side of the BOF, but if you read only the Seal section, you would think that seals are only on the eastern side of the BOF. You also did not capture that harbour seals swim up the Saint John River and into some of the other river systems emptying into the BOF.

Harbour porpoises use the entire BOF, including Chignecto Bay and up the Petitcodiac River. The Moncton Fire Department has rescued stranded harbour porpoises and also Atlantic White-sided dolphins in the Petitcodiac River. It is suspected they are after the gaspereau or alewife runs. Many of the harbour porpoises are also breeding in the BOF, after calving in early summer, since their gestation is 11 months so it is not just harbour and grey seals that are breeding. Right whales also engage in social interactions but actually breeding occurs in the winter when they have left the BOF.

While the finback may, in some summers, be the most common baleen whale, I would argue that right whales are often equally or more abundant with up to 200

different individuals recorded in one year. Of course, we have no actual numbers of different minke whales but do have an idea for humpback whales.

Year round residency is not limited to harbour and grey seals and harbour porpoises (porpoises by the way are abundant until late December). Finbacks and possibly humpbacks have been recorded in the BOF every month of the year. The number of whales is reduced from summer occurrences and is related to food supply and possibly age or breeding status. It is presumed that juvenile or non-breeding individuals may not migrate to calving areas in the winter but take advantage of year round feeding opportunities. It should be noted that distinct breeding areas are not known for finbacks and their migratory patterns are not well known.

In Table 5.4, minke whales do eat euphausiids and are also known to have a much wider diet and may take individual fish or even birds. The NMFS has video images of a minke whale following a groundfish trawl picking off individual fish as they escaped the net mesh. In Quebec there is a record of a minke whale eating eider ducklings. Purse seiners often have minke whales capturing herring that escapes from the purse seine. Finbacks also eat small schooling fish which would most often be young herring in the BOF. Blue whales are almost exclusively euphausiids feeders and the wide food sources listed is misleading. Sei whales also eat copepods and occur with right whales.

There appears to have been a shift in dolphin species in the BOF. Until the late 1970s white-beaked dolphins were the more common. Their occurrence declined and Atlantic white-sided dolphins were more likely to be seen. This is described in Katona, Rough and Richardson, "A field guide to the whales, porpoises and seals of the Gulf of Maine and Eastern Canada". In the last three years both dolphins have been occurring but in smaller numbers. Their occurrence does range into October and November. It must be remembered that seasons in the marine system are much delayed compared to terrestrial.

Some of the very uncommon marine mammals where their occurrence has only been recorded one time really need only cursory mention. Bottlenose dolphins, for instance, are mostly limited from New Jersey south.

Your reference to killer whales in the BOF in 1999 is incomplete. The total number was more likely 20 and the pod did split and were seen at the same time on both the Brier Island side and Grand Manan side of the BOF. Additional sightings of individual killer whales have occurred since that time. Killer whales were more abundant in the BOF until the 1950s. Again, refer to Katona, et. al. for historic description.

The belugas that are found in the BOF are lone, transitory individuals, usually young animals that have strayed from their pods. The latest record was of "Poco" in 2003 who toured the BOF, staying mostly along the shoreline from Pocologan to the inner Passamaquoddy Bay, frequenting salmon aquaculture sites, before heading south as far as Boston. This whale died the following year in Maine waters from bacterial infection. "Wilma" another lone beluga became part of oil spill preparedness in Nova Scotia for several years until she failed to return one summer. The Whale

Stewardship Program has detailed information about lone or extralimital beluga in Atlantic Canada.

The Pygmy sperm whale is usually found in warmer waters to the south but two strandings have been recorded in the last 20 years, one from Saint John harbour and the other from Blacks Harbour. I believe Don McAlpine, New Brunswick Museum published a note about these strandings. As is frequently found with stray marine mammals, they can turn up in what may be considered "strange" locations.

Again in the Baleen Whales section, a larger picture of the BOF is not necessarily depicted. The second paragraph should also make mention of not only upwelled areas around Grand Manan but also Brier Island, Head Harbour. The sentence "Those species that occur commonly are usually present only between June and November of each year." I think there are enough exceptions that it would be better to say that "Commonly occurring baleen whales are usually present between June and November but individuals of some species may be present year round."

You have highlighted threats to right whales but not the other whales. Everything you list for right whales is applicable to the other baleen whales, entanglements, marine contaminants, biotoxins, ship strikes, inadequate prey..... and noise which may be even more important than is often considered. A recent paper by Parks, et.al. reveals that the frequency of communication by right whales has been changing, perhaps in response to a noisier environment. In essence, the whales are having to shout.

Your statement that sei whales are a recent newcomer to the BOF needs to be qualified. Since 1980, sei whale presence in the BOF was not noted until the early 1990s and the whales were seen in the company of right whales in the Grand Manan Basin. They are also seen along the Nova Scotia shore. Most of these observations are by whale watchers.

2. 5.2.2.4 Birds. It is misleading to refer to Christie (1983) seabirds and include all species of birds in the same sentence. Although there may be over 300+ species of birds identified, these are not all seabirds. Red-necked phalaropes is the accepted name for northern phalaropes, similarly long-tailed duck instead of oldsquaw.

While seabirds are attracted to areas where marine mammals or blue-fin tuna are forcing prey to the surface, these are also often areas of tidally-upwelled zooplankton and it is a combination of these factors. Dave Johnson's PhD. thesis and papers published from the thesis gives a good description of some of these features from the Long Eddy rip off northern Grand Manan. (Johnston, Dave. 2004. Fine scale oceanographic features and foraging marine predators: The ecology and conservation of an island wake in the Bay of Fundy, Canada. Duke University Ph.D. <http://www.mbari.org/staff/davej/LongEddy/index.html>)

You have no mention of brant, which are frequent coastal waters on the eastern side of Grand Manan and extending to Maces Bay during their northerly migration. Common murrelets are also very common in the winter with razorbills and dovekies.

3. Section 6.6.2. Interactions with Annapolis Tidal Generating Station. You should also add a minke whale in 2007. This whale did not survive and the carcass was found above the tidal generating station.

4. Summary and Conclusions. The table is very helpful. I would point out with marine mammals that sound disturbance and possible exclusion from habitat, and affects on prey, and possibly changes of the tidal regime are extremely important factors. Wind farms anchored in marine systems appear to have some exclusion effects on harbour porpoises in European waters. It must be remembered that while some of the potential experimental sites may not have many marine mammals, exceptions to the generalizations always occur and should be part of the planning process. Head Harbour area is rich in marine mammals and seabirds year round and monitoring of both pre- and post- occurrence is necessary. Tourism and Recreation section should include consultations with the industry.

Thank you for the opportunity to comment on specific aspects of the report.

Sincerely,

Laurie Murison  
Managing Director