Environmental and Socio-economic Impact Assessment of (Marine Energy in) the Bay of Fundy

Graham Daborn
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Strategic Environmental Assessment — Nova Scotia-style

- Offshore Energy Environmental Research Association (OEER)
- Background Document
- Technical Advisory Group (TAG)
- Public Forums (6)
- Stakeholder Roundtable
- Draft SEA
- Public Forums
- SEA to Minister
- NS Department of Energy
- RFPs for Test Facility & Demo projects
- Selection of Primary Contractor & Selected Technologies
Energy Alternatives

- Waves
- Offshore Wind
- Tidal Lagoon
- Tidal Stream
Present Design Alternatives for Minas Basin

- **TISEC**: Bottom-mounted, horizontal axis turbines:
- **Lagoon?**

Open-Center Turbine  Clean Current™  UEK ‘Kite’™
SEA Recommendations (29)

- Sustainability principles (10)
- Permit demonstration of TISEC
- Legislation for Marine Renewable Energy
- Research needs (Specific environmental unknowns; coordination; TEK; standards; socioeconomic study)
- Incremental process (6)
- Integration & end use issues (4)
- Fisheries-related (4): database; collaboration; compensation
- ICM & public involvement/education (8)
Environmental Issues: Physical

- **Tidal dynamics**
  - Effects on flows; how much energy can be taken?

- **Sediments & substrate**
  - What are effects on scour & deposition patterns?

- **Ice**

- **Noise & Vibration**

- **Electromagnetic field effects**

- **Pollution & contaminants**
Environmental Issues: Biological

**Fish**
- Interference with migration pathways?
- Resident vs migratory stocks?
- Effects of EMF?

**Other fauna: mammals, birds & benthos**
- Effects of noise/vibrations?
- Effects of EMF?
- Secondary ecological effects of sediment changes?

**Species (& sites) at risk**
- Right whale; iBoF Atlantic salmon; Striped bass; Sturgeon; wolffish; cusk...etc.
Fundy’s Biological Connections

Migratory Shorebirds

Marine Mammals

Migratory Fish

Fisheries
## Environmental Issues

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<thead>
<tr>
<th>Question</th>
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<th>Commercial Scale</th>
<th>Within EIA?</th>
<th>Extra-EIA?</th>
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Socio-Economic Issues

- Displacement
  - fisheries,
  - recreation,
  - transportation etc.

- Economic costs vs. benefits
  - Scale: local vs. regional (grid-connected)
  - Export vs. local development
  - Employment
  - Tourism
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Workshop challenges

1. *What are the priority research needs to assess the acceptability of marine energy from the Bay of Fundy?*  
   *(Both environmental and socioeconomic).*

2. *How should these research needs be met?*  
   *(Who does the work? What kind of coordination/governance is most suitable? etc)*

3. *Who pays?*  
   *(And for what)*
“Three players in the research game”

Private sector (proponents, consultants etc)

Government (provincial, federal)

Academia

Profit, meeting regs.

Sustainability Regulations

Curiosity; education