

Maine GOETF
Sub-Committee #5: Tidal Power
Scope Area: Human and Ecosystem Impacts

3/10/2009 Conference Call
Notes

In Attendance: Gayle Zydlewski (UMaine, Scope Leader); Parker Hadlock (Cianbro, Tidal Power Chair); Bob Blackmoor (Cianbro & TEDEC); Nate Vail (HDR DTA, aka Devine Tarbell); Normand Laberge (Tidewalker Associates); Teresa Johnson (UMaine); Mark Dittrick (Sierra Club Canada); David Morang (Cooke Aquaculture); John Ferland (ORPC)

Today's outcome: Brainstorm a list of ecosystem and human impacts of tidal power

Scoping group outcomes: report preliminary information to Parker by April 14th; preliminary recommendations to OETF by May; final report by August

Parker briefly reviewed the Tidal Power sub-committee and the formation of three scope areas: generation, regulation, and human and ecosystem impacts.

Brief introductions were made by all those attending.

Gayle raised the point of a distinction between **Ecosystem** impacts and **Environmental** impacts. The distinction was not clear to everyone and the point was not belabored. The distinction will be sorted out as we move through discussion and in any final products.

Open discussion of ideas:

How will GOETF subcommittees interface?

Will monitoring criteria be the same for every project, even those within the same area as others?

Will monitoring impacts be dealt with through legislation?

These questions were not directly answered in the call and need discussion with the larger OETF group.

Environmental "problems": For turbines tethered in the water column, tethered to the bottom what are the acoustical impacts of (1) tethers and (2) turbines?

There could be the opportunity to monitor environmental impacts using cabled observatories to collect "baseline data" (Bob Blackmoor will provide information being collected by TEDEC).

Potential Impacts:

Ecosystem (positive):

- Emission free energy source
- Decreased Carbon levels into the atmosphere
- Generation of renewable & **predictable** energy
- Local energy resource – (+ human impact)

Ecosystem (negative):

- Fisheries

- Fish habitat
- Fish passage
- Presence of endangered species
- Acoustic
- Overall animal impacts

Human impacts (positive):

- Jobs
- Higher income jobs
- Activity at work
- Using existing port infrastructure
- Growth opportunities for local companies
- Advanced composite technology industry
- Research and Development opportunities

Human impacts (ISSUES or Challenges – not necessarily negative):

- New use in harbors
- New stakeholders to engage
- Aquaculture companies
- Need good communications among all stakeholders
- Need to balance seasonal activities
- Learning to work together in a new way, i.e. new harbor “user”

There is a need to differentiate sources of energy (hydrokinetic, wave, tidal dam, pump storage, tidal barrage) to understand impacts. Each will be considered but level of consideration should reflect relative development opportunities in Maine.

Environmental impact: tidal range reduction

Environmental impact: erosion

Environmental benefit (specific to barrage): aquaculture development

Environmental impact: decrease in right whale forage species (not so much direct contact concern but change in nutrient pumping)

Water column species of concern: marine mammals, diving birds, fish (salmon, striped bass, alewife, shad, sturgeon, eels)...point was made that it will be the ecosystem effects, e.g. loss of fish or zooplankton for larger animals that could be locally important.

The point was made that characterizing the existing environment BEFORE a project is initiated and making a statistically useful comparison with one year of information may not be useful.

Canadian guidance frowns on adaptive management of projects when endangered species are involved and that scaling up from a pilot project would be complex and will not be linear to the impacts experienced at the pilot project level.

The question was raised about the realism of putting a project “out there” and testing possibilities.

Concern was raised about the importance of considering the cumulative impact of a fully operational site AND once all sites in the Gulf of Maine are developed what the cumulative impacts will be. For example, can the “system” adapt when the tidal range is decreased at all of these locations? Consider that there will be 66 in-stream turbines installed in Head Harbor Passage.

FERC requires one year of monitoring prior to a pilot project (up to 5 MW over a 5 year period). Challenges include the ability to get equipment in the water at the appropriate scale to tell the right story. There was a suggestion that model monitoring protocols could be developed with MTI (cluster enhancement) funds to put the baseline characterization in the public domain in an effort to decrease duplication of effort.

This is similar to the efforts being conducted in NJ where DEP is using public resources to characterize existing resources offshore.

Suggestion: use the FERC pilot project requirements as a starting point for identifying environmental impacts but that we should also think beyond the regulatory mandate.

It was mentioned that the state and federal agencies need to recognize the minimal impact of hydrokinetic energy and that state policies should reflect the need to move the technology forward.

Impacts to fishermen were mentioned (e.g. tying up dragging areas)

Human impacts include more opportunity for local use of energy (i.e. “balancing the grid”) and getting off the grid. As tidal energy improves it will not be limited to highly energetic areas and more opportunities for smaller communities will develop. Further development in this sector will also enhance power quality management.

The importance of the tidal energy sector revitalizing working waterfronts was mentioned in relation to infrastructure, e.g. maintaining marine-based industry.

While the discussion was focused on environmental/ecosystem impacts some human impacts were also raised (e.g. navigation). Gayle said she would pull those out of the notes for further discussion later.

Action Items:

- **Nate Vail** will forward FERC pilot permitting criteria to **Gayle** who will circulate it to the group
- **Gayle** will summarize requirements in a table
- **Bob Blackmoor** will provide information on cabled observatories that **Gayle** will circulate
- **Parker** will find out how sub-committees will effectively interface to result in clear recommendations, e.g. monitoring impacts identified by this group
- **Gayle** will compile a list of Impacts from these notes and add to those mandated by FERC
- **Gayle** will contact state and federal agencies for input to this group (perhaps joining the next meeting)
- We will consider next steps via email
- ***Possible IN PERSON meeting in the first week of April***