DFO's guide to Adaptive Environmental Effects Monitoring Programs (AEEMP) for tidal energy devices in the Bay of Fundy

The department has developed the following monitoring requirements to provide more clarity on the Adaptive Environmental Effects Monitoring Programs (AEEMP) requirements for tidal energy devices in the Bay of Fundy. These may be modified as new scientific information is available.

Monitoring requirements

1. The proponent, at a minimum, must be able to identify whether fish are passing through the swept area of the turbine (the area of the circle created by the blades as they rotate). This is essential to determine collision risk. Ideally, the proponent monitors outside the swept area to inform how fish are interacting with the turbine (for example, evading).
2. The proponent must install monitoring equipment that can monitor ebb and flood tides due to limitations with current monitoring technologies and considering fish behaviour.
3. The proponent must:
   - include testing of alternative monitoring equipment and technologies to sample during peak tidal cycles (cycles during which the water is flowing greater than 3 metres per second)
   - validate the primary monitoring method's monitoring results
4. This can include net surveys or other methods that can help fill monitoring gaps during peak tidal cycles.
5. Depending on the initial monitoring results, the department may require the proponent to activate additional elements of their monitoring plan, as defined in their AEEMP, to determine what happens to fish passing through the swept area of the turbine.
6. The proponent must implement a contingency plan from their AEEMP if data is inconclusive or if there are technological issues.
7. The proponent is responsible for data collection, processing, analysis and interpretation using the best available and most appropriate scientific methods.
8. The proponent must be able to submit raw data or detailed analysis methodology reports on request by DFO.

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9. At a minimum, monitoring equipment must be able to be observed remotely at all tidal cycles (ebb, flood and slack).
10. At a minimum, monitoring equipment must be able to provide remote observations of a proportion of night and day hours. A proportion of each month must also represent diel (periods of 24 hours) and seasonal animal presence in the area.
11. The proponent must complete appropriate modelling and assessments prior to submitting the AEEMP and recommend what percentage of the day/month/tide cycle would provide statistically robust information to DFO to be able to assess collision risk. This will vary by project and device design and location.
12. The proponent must submit the first month of data to DFO within the ensuing 6 months. Proponents must take weekly samples from the data to make sure monitoring equipment is functional and that usable data is collected and stored.
13. The proponent must provide DFO with a monthly overview report summarizing how they are meeting the above criteria. The monthly summary must include:
    - when proponents verified the monitoring equipment
    - amount of data collected, and dates and collection times
        - for example: duty cycle, tidal cycle time of day, etc.
    - progress on detailed analysis with information on meeting key targets
        - for example: reporting every 6 to 12 months
    - list of key fish (including marine mammals) observed on monitoring equipment, if available
    - any issue with, or malfunctioning of, the environmental monitoring equipment and/or the associated software
14. DFO will review and analyze the data to draw conclusions related to collision risk.