



## **FORCE Response to EMAC Recommendations Regarding the Environmental Effects Monitoring Program (EEMP) for 2011**

The FORCE Board would like to thank the Environmental Monitoring Advisory Committee (EMAC) for their Recommendations for the 2011 EEM Program. The Board recognizes the significant effort by the Committee members to review and discuss the projects that were completed in 2010 in developing their Recommendations.

It is also appreciated that EMAC recognizes the limited options available for EEM monitoring in the Minas Passage, an extremely high flow environment (up to 6 m/sec). In many cases, especially with fish and marine mammal monitoring, the studies completed to date and those recommended for 2011, will provide additional baseline data and will also contribute to ongoing research.

To date, no specific issues related to the Environmental Assessment (EA) predictions (see <http://www.gov.ns.ca/nse/ea>) have been identified by the studies completed. FORCE is preparing a report on the EEM studies completed since the deployment and retrieval of NSPI/OH turbine, and this report, which will include all the study reports as an appendix, will be made available to the public.

In addition to FORCE actions, as identified in our Responses below, FORCE will continue to work with others, such as the Offshore Energy and Environmental Research (OEER) Association, to investigate the potential environmental effects of turbines located in the Minas Passage. As further deployments of turbines are not scheduled until 2012, the next year provides FORCE with an opportunity to collect additional baseline data.

### **RESPONSES TO EMAC's 2011 EEMP RECOMMENDATIONS**

#### **(A) HIGH PRIORITY PROGRAMS (Immediate Implementation)**

##### **Fish Migration and Behaviour**

###### **Recommendations:**

- 1) FORCE should support the expansion and enhancement of the acoustic fish tracking research program which commenced in 2010. This would require vessel time, additional acoustic receivers, and acoustic transmitters (tags) for several high profile

fish species, including Atlantic salmon. The tag detection period in 2011 should span April to November.

- **RESPONSE: Agreed. FORCE will work in cooperation with other research funding agencies, to fund this work for 2011.**
- 2) EMAC recommends that FORCE engage local fishers (weir, lobster, First Nations representatives and others) that fish in the Minas Channel / Passage area, in a workshop in the spring or summer 2011 to identify opportunities to engage in a cooperative program whereby catch data can contribute to a fish monitoring program.
- **RESPONSE: Agreed. FORCE will hold a meeting or workshop with the local fishers in 2011 to provide them with an update on the fish and lobster studies completed in 2009 and 2010. The intent will be to solicit their feedback for the design of future studies.**
- 3) FORCE should investigate the value of reviewing existing weir data held by DFO, to determine if detailed analysis of this data could be undertaken to assist in assessing fish movements in the Minas Passage and adjacent areas.
- **RESPONSE: Agreed. FORCE has been in contact with DFO and will determine the best approach to complete this review and analysis and report back to EMAC. A third party consultant will also advise on the value of undertaking a detailed analysis of this data and report back to EMAC.**
- 4) EMAC recommends that FORCE conduct a review of fish monitoring technologies and netting options, with an assessment of their suitability for use in the Minas Passage environment.
- **RESPONSE: Agreed. FORCE will proceed with this review and provide a status report on the instrumentation options to EMAC.**

## Marine Mammals

### **Recommendations:**

- 5) EMAC recommends that vessel-based observer surveys of marine mammals be conducted from June through August 2011 following the same sampling protocols as employed in the 2010 surveys. In addition, recordings of observations from vessels of opportunity should be encouraged.
- **RESPONSE: Agreed, FORCE has already initiated this marine mammal survey work as part of the “from shore” observations studies, in March**

through May 2011, and will undertake the vessel observation surveys in June through August 2011.

- 6) FORCE should support the continuation of marine mammal monitoring using continuously recording passive acoustic devices (e.g. C-PODs), with data collection during April to November, within and outside the FORCE Demonstration Area. As this is a high-cost project, opportunities for cost-sharing with other funding sources and/or agencies should be pursued.
- **RESPONSE:** Agreed, FORCE will support this study in 2011, in cooperation with other research funding agencies.

## LOBSTERS

### Recommendations:

- 7) EMAC recommends that FORCE support a lobster catch rate study in the general area of the FORCE Demonstration Area using the proposed BACI sampling design. Sampling should be undertaken in September 2011, prior to the fall lobster fishing season.
- **RESPONSE:** Given the uncertainty of whether the proposed sampling design will meet the objectives of the EA predictions, FORCE will engage a third party consultant to review the lobster catch and tagging approaches, and provide advice on future surveys. FORCE will provide the consultant's report to EMAC for their review and discussion prior to a decision on a September 2011 lobster survey.

## MARINE BIRDS

### Recommendations:

- 8) EMAC recommends regular shore-based surveys of marine birds using sampling procedures similar to those employed in the 2010 monitoring program, with the addition of surveys during March-April to catch the spring migration, and in November to catch overwintering deep diving birds.
- **RESPONSE:** Agreed. FORCE initiated this marine bird survey work in March 2011, in conjunction with the "from shore" marine mammal observations, which will continue into November 2011.

## (B) OTHER PROGRAMS

### Fish Migration (Movement) and Behaviour

#### Recommendations:

- 9) EMAC recommends suspending the project involving coincident echo sounding and netting until a review of the Final Report from the 2010 surveys is available, at which time the value of and need will be reassessed.
- **RESPONSE:** Agreed. Once the Final Report is available, which is expected in mid-May 2011, it will be provided to EMAC for review and feedback. FORCE will also have a third party consultant review the Final Report and provide advice on future such surveys, taking into account a review of available monitoring and netting options, as identified under Recommendation (4).

### Benthic Habitat and Scour

#### Recommendations:

- 10) EMAC recommends that, using all forms of existing information, a study be conducted to examine the nature and extent of various benthic communities within the FORCE Demonstration Area. The study should also identify areas and habitat features for which data are not available (i.e. gap analysis), and should include a review and evaluation of various methodologies used for assessing / classifying benthic communities.
- **RESPONSE:** Agreed. FORCE will undertake this benthic habitat work in 2011, either on its own or in cooperation with other research funding agencies.

### Acoustic Environment

#### Recommendations:

- 11) FORCE has released a RFP for baseline studies on the acoustic environment in Minas Passage. EMAC considers the proposed work to be sufficient for establishing baseline conditions for the EEMP.
- **RESPONSE:** FORCE released a Request for Proposals (RFP) in April 2011 to identify an appropriate acoustic monitoring approach for the Minas Passage and the completion of a noise survey in 2011. The study report will be provided to EMAC for their review and feedback.

## Conductivity and Temperature with Depth (CTD), Suspended Particulate Matter (SPM) and Currents

### Recommendations:

- 12) Sufficient CTD and SPM data are available from prior monitoring and other sources. A specific program to monitor CTD and SPM during 2011 is not required for the EEMP.
- **RESPONSE: Agreed. While no specific sampling program will be undertaken to collect CTD and SPM data, FORCE will support the opportunistic collection of CTD data and SPM data by those conducting environmental surveys in the Minas Passage.**
- 13) Monitoring of the currents in the FORCE Demonstration Area will be conducted under a FORCE research program. Any additional monitoring of currents is not needed for the EEMP.
- **RESPONSE: Agreed. FORCE will undertake monitoring for currents under its 2011 Research Program to provide additional information to turbine developers and modelers. A RFP for this work was issued in April 2011.**

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