



**PARAGRAPH 35(2)(b) FISHERIES ACT AUTHORIZATION (HAVING
THE SAME EFFECT AS A PERMIT UNDER SUBSECTION 73(1) OF
THE SPECIES AT RISK ACT)**

Authorization issued to

Cape Sharp Tidal Venture (*hereafter referred to as the "Proponent"*)

Attention to:

Environmental Manager
Cape Sharp Tidal Venture
1223 Lower Water Street
Halifax, NS B3J 3S8

Location of Proposed Project

Nearest community (city, town, village):	Parrsboro
Municipality, district, township, county:	Cumberland County
Province:	Nova Scotia
Name of watercourse, waterbody:	Minas Passage, Bay of Fundy
Latitude:	45° 21' 49.3020"/ 51.6708"
Longitude:	64° 25' 21.7933"/ 19.5247"

Description of Proposed Project

The proponent has proposed to deploy and operate one 2.0 megawatt in-stream tidal energy turbine at Berth "D" within the Fundy Ocean Research Center for Energy's (FORCE) test site. The proponent's proposed turbine is a 16 meter diameter horizontal axis open-centre turbine mounted on a subsca gravity base. The turbine has 10 blades, which are each approximately 2.4 m in width and 4.8 m in length. The average rotational speed of the turbine will vary between 7.5 rotations per minutes (rpm) and 14 rpm, depending on the velocity of the tidal currents. The proponent has proposed to deploy and operate the turbine for a period of 18 months. The proponent has also proposed to implement an environmental effects monitoring program (EEMP) to develop a better understanding of the potential effects of an operational turbine on fish, marine mammals, and aquatic species at risk and monitor for potential serious harm and prohibited effects on listed aquatic species at risk.

Description of Authorized work(s), undertaking(s) or activity(ies) that may potentially result in serious harm to fish and impacts to aquatic species at risk

The work(s), undertaking(s), or activity(ies) associated with the proposed project described above that may potentially result in serious harm to fish and impacts to aquatic species at risk listed on Schedule 1 of the *Species at Risk Act* (SARA), are:

- Operation of an in-stream tidal energy turbine in the Minas Passage, Bay of Fundy for a period of up to 18 months.

The serious harm to fish may potentially result from the proposed work(s), undertaking(s), or activity(ies), and covered by this authorization includes:

- The incidental death of Atlantic Herring, Atlantic Mackerel, Atlantic Sturgeon, Alewife, American Eel, American Shad, Harbour Porpoise, Striped Bass and other migratory and resident fish species as a result of the operation of the turbine for a period of up to 18 months.

The impacts to aquatic species at risk that may potentially result from the proposed work(s), undertaking(s), or activity(ies), and covered by this authorization includes:

- The incidental killing and harming of an individual Atlantic salmon (Inner Bay of Fundy population), *Salmo salar*, Endangered and White Shark (Atlantic population), *Carcharodon carcharias*, Endangered as a result the operation of the turbine for a period of up to 18 months.

Conditions of Authorization

The above described work, undertaking or activity that may potentially result in serious harm to fish or impacts to aquatic species at risk must be carried on in accordance with the following conditions.

1. **Conditions that relate to the period during which the work, undertaking or activity that may potentially result in serious harm to fish or impacts on aquatic species at risk can be carried on**

The work, undertaking or activity that potentially results in serious harm to fish or impacts to aquatic species at risk is authorized to be carried on during the following period:

From:
July 20, 2018

To:
July 31, 2020

If the Proponent cannot complete the work, undertaking or activity during this period, Fisheries and Oceans Canada - Fisheries Protection Program (DFO-FPP) must be notified in advance of the expiration of the above time period. DFO may, where appropriate, provide written notice that the period to carry on the work, undertaking or activity has been extended.

The periods during which other conditions of this authorization must be complied with are provided in their respective sections below. The proponent may, where appropriate, provide written notice that these periods have been extended, in order to correspond to the extension of the period to carry on a work, undertaking, or activity.

2. **Conditions that relate to measures and standards to avoid and mitigate potential serious harm to fish and impacts on aquatic species at risk**
 - 2.1 List of measures and standards to avoid and mitigate serious harm to fish and impacts to aquatic species at risk: The Proponent shall implement all avoidance and mitigation measures and standards outlined in the following documents, unless otherwise approved in writing by DFO:

- 2.1.1 Supplemental Information Report submitted on May 1, 2015 as part of Cape Sharp Tidal Venture's Request for Review application;
- 2.1.2 Application Form for Paragraph 35(2)(b) *Fisheries Act* Authorization for the Cape Sharp Tidal Venture Project. Submitted on June 15, 2018;
- 2.1.3 Update to the 2015 Supplemental Information Report submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for Authorization under the *Fisheries Act*;
- 2.1.4 Environmental Effects Monitoring Program submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for Authorization under the *Fisheries Act*;
- 2.1.5 Application for a *Species at Risk Act* Permit for the Cape Sharp Tidal Venture Project. Submitted on June 15, 2018; and
- 2.1.6 Supplemental Information submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for a *Species at Risk Act* Permit.
- 2.2 Contingency measures: N/A
- 2.3 Dates by which these measures and standards shall be implemented: Measures and standards to avoid and mitigate serious harm to fish and impacts to aquatic species at risk shall be implemented by the date of turbine deployment.
- 2.4 Environmental effects monitoring shall be undertaken by or under the direct supervision of an individual who is qualified to operate monitoring devices and equipment and to analyze and interpret monitoring data.
- 2.5 Any individuals of the species at risk shall be handled only in the circumstances authorized under this permit: N/A

3. Conditions that relate to monitoring and reporting of potential serious harm to fish and impacts on aquatic species at risk

- 3.1 Monitoring of avoidance and mitigation measures: The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in section 2 of this authorization and report to DFO, by submitting an operational update report and interim, quarterly and annual reports, and indicate whether the measures and standards to avoid and mitigate serious harm to fish and impacts to aquatic species at risk were conducted according to the conditions of this authorization and were effective at mitigating the impacts. This shall be done by:
 - 3.1.1 Demonstration of effectiveness and functioning : Implementing all monitoring measures as described and adhering to reporting timelines outlined in the following documents, unless otherwise approved in writing by DFO:
 - 3.1.1.1 Environmental Effects Monitoring Program (EEMP) submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for Authorization under the *Fisheries Act*;
 - 3.1.1.2 Update to the 2015 Supplemental Information Report submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for Authorization under the *Fisheries Act* ; and
 - 3.1.1.3 Supplemental Information submitted on June 15, 2018 as part of Cape Sharp Tidal Venture's Application for a *Species at Risk Act* Permit.
 - 3.1.2 Providing an operational update report to DFO by the date which is thirty (30) calendar days from the effective date of turbine deployment that summarizes the operational status of the turbine and the functioning and performance of the monitoring measures.
 - 3.1.3 Providing interim, quarterly and annual reports according to the schedule outlined in the documents listed above in condition 3.1.1.
 - 3.1.4 Collecting and analyzing monitoring data as outlined in the documents listed above in condition 3.1.1.
 - 3.1.5 Processing data collected by the Tritech Gemini Imaging Sonar using the manual target detection methodology and initial subsampling methodology (i.e., 5-minute data files at 2-hour intervals over a 24-hour day every two (2) to three (3) days) for the maximum duration

- outlined in section 5.1.3 of the EEMP (i.e., six (6) months from the effective date of turbine deployment) listed above in condition 3.1.1.1 or until the secondary subsampling methodology (i.e., weekly assessments) is approved in writing by DFO.
- 3.1.6 Contingency measures: Providing details of any contingency measures that were followed to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.
- 3.1.7 Contingency measures: Implementing all applicable contingency monitoring measures outlined in the documents listed above in condition 3.1.1 in the event that the monitoring measures did not function as described or the collection of data was unsuccessful.
- 3.2 The Proponent must notify DFO as soon as reasonably practicable if they have caused, or are about to cause, impacts to fish and aquatic species at risk that are greater than those covered by this authorization.
- 4. Conditions that relate to the offsetting of the serious harm to fish and impacts on aquatic species at risk that may potentially result from the authorized work, undertaking or activity**
- 4.1 Letter of credit: DFO may draw upon funds available to DFO as the beneficiary of the letter of credit provided to DFO as part of the application for this authorization, to cover the costs of implementing the offsetting measures required to be implemented under this authorization, including associated monitoring and reporting measures included in section 5, in instances where the Proponent fails to implement required measures.
- 4.2 Scale and description of offsetting measures: As per the Letter of Intent submitted on June 15, 2018 as part of the Proponent's application for authorization under the *Fisheries Act* and attached to this authorization, a detailed offsetting plan to offset any serious harm to fish and impacts to aquatic species at risk and implementation schedule shall be developed by the Proponent in consultation with DFO and through engagement with potentially affected Indigenous groups if DFO determines that operation of the turbine resulted in serious harm to fish, impacts to aquatic species at risk, or both.
- 4.3 Offsetting criteria to assess the implementation and effectiveness of the offsetting measures: As per the Letter of Intent described above in condition 4.2, the offsetting criteria will be established if DFO determines that the operation of the turbine has resulted in serious harm to fish, impacts to aquatic species at risk, or both.
- 4.4 The Proponent must provide a plan to offset serious harm to fish, impacts to aquatic species at risk, or both to DFO for approval no later than one (1) year from the date on which the Proponent is notified that DFO has determined that the operation of the turbine has resulted in serious harm to fish, impacts to aquatic species at risk, or both.
- 4.5 Contingency measures: If the results of monitoring as required in condition 5 indicate that the offsetting measures are not completed by the date specified and/or are not functioning according to the above criteria in 4.3, the Proponent shall give written notice to DFO and shall implement the contingency measures and associated monitoring measures, as contained with the approved offsetting plan, to ensure the implementation of the offsetting measures is completed and/or functioning as required by this authorization.
- 4.6 The Proponent shall not carry on any work, undertaking or activity that will adversely disturb or impact the offsetting measures.

5. Conditions that relate to monitoring and reporting of implementation of offsetting measures (described above in section 4):

5.1 Schedule(s) and criteria: The Proponent shall conduct monitoring of the implementation of offsetting measures according to the approved timeline and criteria below:

5.1.1 The monitoring timeline and criteria will be established if and when the offsetting plan has been approved by DFO as per the Letter of Intent and described in condition 4.2 above.

5.2 List of reports to be provided to DFO: The Proponent shall report to DFO on whether the offsetting measures were conducted according to the conditions of this authorization by providing the following:

5.2.1 The reporting schedule and requirements will be established if and when the offsetting plan is approved by DFO as per the Letter of Intent and described in condition 4.2 above.

Authorization Limitations and Application Conditions

The Proponent is solely responsible for plans and specifications relating to this authorization and for all design, safety and workmanship aspects of all the works associated with this authorization.

The holder of this authorization is hereby authorized under the authority of Paragraph 35(2)(b) of the *Fisheries Act*, R.S.C., 1985, c.F. 14 to carry on the work(s), undertaking(s) and/or activity(ies) that may potentially result in serious harm to fish as described herein. The holder of this authorization is also authorized under the authority of subsections 73(1) and 74 of the *Species at Risk Act* S.C. 2002, c. 29 to carry on the works, undertakings and/or activities that may potentially kill and harm Atlantic salmon and White Shark as described herein.

This authorization may be revoked or amended to ensure the survival or recovery of the above aquatic species at risk. Without limiting the generality of the foregoing, DFO may:

- suspend any authorized activities to avoid or mitigate additional adverse direct or indirect effects to the above aquatic species at risk;
- amend or revoke this authorization; and
- direct the Proponent to carry out at the Proponent's expense any modifications or actions deemed necessary by DFO to avoid or mitigate existing impacts or to avoid further adverse direct and indirect impacts to the above aquatic species at risk.

This authorization does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

This authorization does not permit the deposit of a deleterious substance in water frequented by fish. Subsection 36(3) of the *Fisheries Act* prohibits the deposit of any deleterious substances into waters frequented by fish unless authorized by regulations made by Governor in Council.

This authorization does not permit the harassment, capture or taking of individuals of any aquatic species listed under the *Species at Risk Act* (SARA) (s. 32 of the SARA), or the damage or destruction of residence of individuals of such species (s. 33 of the SARA) or the destruction of the critical habitat of any such species (s. 58 of the SARA).

The failure to comply with any condition of this authorization constitutes an offence under Paragraph 40(3)(a) of the *Fisheries Act* and subsection 97(1) the *Species at Risk Act* and may result in charges being laid under the *Fisheries Act* and the *Species at Risk Act*.

This authorization cannot be transferred or assigned to another party. If the work(s), undertaking(s) or activity(ies) authorized to be conducted pursuant to this authorization are expected to be sold or transferred, or other circumstances arise that are expected to result in a new Proponent taking over the work(s), undertaking(s) or activity(ies), the Proponent named in this authorization shall advise DFO in advance.

Date of Issuance: JUL 19 2018

Approved by:

Mary-Ellen Valkenier
Regional Director General
Maritimes Region
Fisheries and Oceans Canada



Regional Manager
Fisheries Protection Program
Fisheries and Oceans Canada
Dartmouth, NS

June 15, 2018

Mr. McLean,

RE: Cape Sharp Tidal Venture– Letter of Intent for an Offsetting Plan under the requirements of an Authorization pursuant to the *Fisheries Act* and *Species at Risk Act*

Cape Sharp Tidal Venture (CSTV) is hereby submitting a letter of intent to the Fisheries Protection Program (FPP) of Fisheries and Oceans Canada (DFO) to implement an offsetting plan, as required under the *Fisheries Act* and *Species At Risk Act* if serious harm is caused as a result of the CSTV demonstration project.

The CSTV Project (the Project) involves the deployment and operation of one in-stream turbine at the Fundy Ocean Research Center for Energy (FORCE) in the Minas Passage, Nova Scotia. The Project will be for the duration of 18 months and will take place from July 2018 to January 2020.

The CSTV Project offsetting plan would be proportional to the level of harm identified and would offset any identified project effects to fish and fish habitat through the implementation of measures that will benefit commercial, recreational, and Aboriginal fishery species in the Minas Passage and Minas Basin. Since there is no proven level of interaction, there is no way, at this time, to quantify the amount of compensation that might be required. The amount proposed is \$100,000 and is based on the amount provided to DFO for the previous tidal energy project undertaken by OpenHydro and Nova Scotia Power in 2010/2011.

If required, the offsetting plan will be developed following a detailed evaluation of marine and estuarine offsetting options, fisheries management objectives, local fishing priorities as well as discussions with DFO, affected fishing stakeholders and First Nations. If necessary, recovery plans for any identified species at risk will also be reviewed and consultation will also involve the relevant species at risk recovery team(s). The offsetting plan will comply with the requirements of the DFO's Fisheries

Productivity Investment Policy and any requirements outlined in related documents for the protection of species at risk.

To fund this plan, a Letter of Credit will be provided to DFO from OpenHydro Technology Canada.

Sincerely,

Cape Sharp Tidal Venture

CC: Mike Wambolt, Section Head, Fisheries Protection Program, DFO
Candace Quinn, Environmental Assessment Officer, Nova Scotia Environment
Melissa Oldreive, Acting Director of Environmental Programs, FORCE
Christian Richard, VP of Special Projects, Emera
Alisdair McLean, Country Manager, OpenHydro