ENVIRONMENTAL EFFECTS METADATA SURVEY FORM

Name	Date submitted
Paul Warren	September 10, 2013

Project name: Annapolis Tidal Station

Project description:
Project Developer: Nova Scotia Power

Technology type: Tidal barrage

Resource (wave, tidal): Tidal

Project scale (test site, prototype, array, commercial): Commercial

Installed capacity (MW): 20 MW

Project Website:
http://www.nspower.ca/en/home/aboutnspower/makingelectricity/renewable/annapolis.aspx

Launch Date: 1984

Additional Description: The Annapolis Tidal Power Plant came online in 1984. The turbine is a single effect 7.6 m diameter horizontal axis Straflow turbine designed to generate power during discharge from the reservoir into the sea. It has a capacity of 20 megawatts and a daily output of roughly 80-100 megawatt hours, depending on the tides.

Location:

Ocean/Water body: Bay of Fundy; Annapolis River

Closest city: Granville's Ferry and Annapolis Royal

Country: Canada

Coordinates (please use Mercator): 44°45'2.50"N, 65°30'40.95"W

Process status: In 1980 Nova Scotia Power started construction on Hogg Island at the mouth of the Annapolis River as a federal and provincial government pilot project. Four years later the construction was complete and the station began operation. It is currently the third largest tidal barrage in the world.

Licensing information (brief description):
The Annapolis Tidal Generating Station generates electricity from tidal flows in the Bay of Fundy, and operates in full compliance with all regulatory requirements (i.e. Fisheries Act). Although Annapolis Tidal maintains operating agreements with DFO, no formal Operating Approval exists for Annapolis Tidal with Nova Scotia Environment (NSE), as the facility operates in federal jurisdiction solely.

Key Environmental issues: EIA included release of suspended sediment, scour in existing channels and at adjacent shorelines, flood flow management, and passage of anadromous fish through the barrage. Concerns with increased basin water levels included interference with existing agriculture, flooding, and accelerated rates of bank erosion.

While effectively generating electricity, the blocking of water flow by the dam (to allow the tidal difference to accumulate every six hours) has caused a slight increase in river bank erosion on both the upstream and downstream ends. The dam also has the potential to trap some marine life. Two notable cases occurred in:

- August 2004: a mature Humpback whale (nicknamed Sluice) swam through the open sluice gate at slack tide, ending up trapped for several days in the upper part of the river before eventually finding its way out to the Annapolis Basin.
- Spring 2007: When a body of an immature Humpback whale was discovered near the head of tide in the river at Bridgetown. A post-mortem was inconclusive but suggested the whale had become trapped in the river after following fish through the sluice gates.

Environmental webpage: *link to project official environmental webpage (if available)*

Baseline studies and project effects studies: Annapolis Royal Generating Station				
General description	Environmental Impact Assessment results.			
Receptor	**Study description including question and/or objective** (several can be listed per receptor)	**Design and methods** (brief description)	**Results** (brief description)	**Status** (planned, underway, completed, with dates)
Physical Environment	Release of suspended sediment, scour in existing channels and at adjacent shorelines, flood flow management.	N/A	N/A	N/A
Fish and Fisheries	Passage of anadromous fish through the barrage.	N/A	N/A	N/A
Other	Increased basin water levels included interference with existing agriculture, flooding, and accelerated rates of bank erosion.	N/A	N/A	N/A
Reports or Papers	Assessing the Environmental Impact of the Annapolis Tidal Power Project			
Research	N/A			

Projects	

Monitoring and adaptive management: Annapolis Royal Generating Station				
General description	Monitoring plans post deployment.			
Receptor	**Monitoring program description including question and/or objective** (several can be listed per receptor)	**Design and methods** (brief description)	**Results** (brief description)	**Status** (planned, underway, completed, with dates)
Marine Mammals	N/A	N/A	August 2004: a mature Humpback whale (nicknamed Sluice) swam through the open sluice gate at slack tide, ending up trapped for several days in the upper part of the river before eventually finding its way out to the Annapolis Basin. Spring 2007: When a body of an immature Humpback whale was discovered near the head of tide in the river at Bridgetown. A post-mortem was inconclusive but suggested the whale had become trapped in the river after following fish through the sluice gates.	N/A
Reports or Papers	Assessing the Environmental Impact of the Annapolis Tidal Power Project			
Research Projects	N/A			