# ATLANTIC SALMON FOR HYDRODAM PASSAGE ASSESSMENT (WELDON DAM)

# AD HOC COMMITTEE

***Terms of Reference Originally submitted on***

***June 30, 2020***

# Issue Statement:

The Atlantic Salmon Implementation Team (IP) has formed an Ad Hoc Committee pursuant to the Collaborative Management Strategy (CMS) to generate options and associated costs, in response to the request from Brookfield Renewable for 100,000 Atlantic salmon smolts for conducting an upstream passage assessment at the Weldon Dam in the Penobscot River watershed.

# Charge:

Develop alternatives and associated costs for addressing the need for sufficient adult Atlantic salmon to assess upstream passage efficiency at Weldon Dam in the upper Penobscot River watershed. The options should be an itemized list of what would be provided to Brookfield Renewable through a reimbursable agreement, the associated annual cost and the biological impact to the Atlantic salmon recovery effort.

**Option #1:**

Under this option, the U.S. Fish and Wildlife Service (USFWS) would provide the Atlantic salmon smolts, the facility and oversight for marking the smolts, transportation of the smolts to the stocking release location (above the Weldon Dam) and transportation of returning adults to the assessment release location (below the Weldon Dam) through a reimbursable agreement with Brookfield Renewable. Maine Department of Marine Resources (MDMR) will provide stocking permits for the Atlantic salmon smolts, the adults to be used in the upstream passage assessment and technical guidance on the type and location of mark to be applied to the Atlantic salmon smolts used for the study. Cost estimates are annual estimates for the first three years of the assessment.

 **Estimated Costs:**

1. 100,000 Atlantic salmon smolts from Green Lake National Fish Hatchery (NFH): $100,000 (includes salary cost of staff)

2. Marking of 100,000 Atlantic salmon smolts: $16,000 (two weeks of hatchery staff time to complete an adipose clip)

3. Transportation of smolts to stocking location above Weldon Dam: $2,820 ($235 per load; 12 truckloads)

 4. Transportation of 40 adult salmon from Milford Dam to Weldon Dam: $3,500 ($175 per trip;

 20 trips)

**Total Cost: $122,320 per year**

**Biological Impact:** This action would reduce the numbers of returning adults available for broodstock and spawning by approximately 45% or 62 adult returns annually if released below Weldon or 67% or 92 adult returns annually if released above Weldon compared to existing smolt stocking at Sandy Point. These estimates are based on downstream survival estimates from Stevens et al. (2019), recent downstream passage studies conducted at West Enfield and Milford dams by Brookfield Renewable and Normandeau, and recent survival estimates from the Weldon Dam impoundment (J. Zydlewski, USGS, pers.comm).

**Option 2:**

Under this option, the USFWS will provide between 150,000 and 200,000-eyed eggs from the Penobscot River domestic line at Green Lake NFH to a facility contracted by Brookfield Renewable for the rearing of Atlantic salmon to be used in upstream passage assessments at Weldon Dam. The details of the transfer in terms of number of years and number eggs will be finalized in a Memorandum of Agreement (MOA) between the USFWS and Brookfield Renewable. Brookfield Renewable will be responsible for securing the appropriate permits and completing the MOA with the USFWS prior to the transfer of Atlantic salmon eggs.

**Total Costs:**

$12,000 - $18,000 (@ $0.08 per eyed egg) per year depending on number of eggs requested

**Biological Impact**: Based on data from MDMR, the loss of 150,000 to 200,000 eggs would result in reduced returns of approximately 3 to 20 naturally reared adults to the Sandy River annually.

**Option #3:**

Under this option, MDMR would provide Brookfield Renewable the adult Atlantic salmon for the upstream passage assessment at the Weldon Dam from the Salmon for Maine’s Rivers Project. To maximize the suitability of the adult Atlantic salmon used in the assessment, salmon smolts captured at the downstream trap at Weldon Dam would be used for rearing and as study fish. The trap is currently in need of repair and Brookfield Renewable would pay for the cost of repair in exchange for access to these study fish.

**Estimated Costs**:

$50,000 to upgrade and repair the salmon trap at the Weldon Dam

**Biological Impact**: Reduced number (40) of adult Atlantic salmon available to spawn naturally in the upper Penobscot watershed as part of the Salmon for Maine’s Rivers Project.

# Membership:

Chair: Peter Lamothe (USFWS)

Members:

Dan McCaw (PIN)

Sean Ledwin (MDMR)

 Dan Tierney (NOAA)

**Deliverables:** Options for providing smolts to Brookfield Renewable for completing upstream passage effectiveness assessments at Weldon Dam and offsetting the impacts of the action.