

**St. Lewis River**  
**Atlantic Salmon Habitat Enhancement Project**  
**Environmental Assessment Registration**  
**Pursuant to the Newfoundland and Labrador**  
***Environmental Protection Act***

Submitted by:

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Wood Project #: TF1691801

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## **1.0 INTRODUCTION AND NAME OF THE UNDERTAKING**

This Undertaking is referred to as the “**St. Lewis River Atlantic Salmon Enhancement Project**” (also referred to herein as “the Project”).

### **1.1 Nature of the Undertaking**

The St. Lewis River flows into St. Lewis Inlet, a 30 km long estuary on the coast of Labrador, Figure 1-1. The closest communities are Port Hope Simpson located approximately 26 km to the north and St. Lewis (formerly Fox Harbour), Battle Harbour and Mary’s Harbour, all located outside of the inlet in St. Lewis Sound to the east of the Project site.

Atlantic Rivers Outfitting Company is proposing to utilize a run-around flow pathway on a falls forming a partial obstruction to Atlantic salmon passage on the St. Lewis River, Labrador, to create a pool and weir type fishway which will provide greater accessibility for Atlantic salmon to a 32 km section of this river. The falls forming the partial obstruction is located approximately 28 km upstream on the main stem of the River.

**Figure 1-1 St. Lewis River Atlantic Salmon Enhancement Project: General Location**



## 1.2 Purpose of the EA Registration

The proposed project is subject to Part 10 of the Newfoundland and Labrador *Environmental Protection Act* and the associated *Environmental Assessment Regulations*. This document is intended to initiate the provincial environmental assessment (EA) review, and in doing so it:

- Identifies the Project's proponent;
- Describes the proposed project, including its overall purpose and rationale, as well as its key components and planned construction and operational activities;
- Describes recent Project related consultation activities undertaken by Atlantic Rivers Outfitting and the main findings to date; and
- Provides an overview of the existing environmental setting for the Project, some of the potential environmental considerations that have been identified to date, and Atlantic Rivers Outfitting Company's planned approaches for addressing these in moving forward with Project planning and eventual implementation.

This EA Registration document has been prepared and submitted by Atlantic Rivers Outfitting, with assistance from Wood Environment and Infrastructure Solutions.

## 1.3 Environmental Assessment Process and Requirements

The Newfoundland and Labrador *Environmental Protection Act* (NL EPA) requires anyone who plans a project that could have a significant effect on the natural, social or economic environment (an "Undertaking") to present it for review through the provincial EA process. The definition of an "undertaking" in the NL EPA includes proposed modifications, rehabilitations and extensions of such projects.

The associated *Environmental Assessment Regulations* (Part 3) list those projects (potentially including proposed modifications, rehabilitations and extensions of same) that require registration and review.

Section 28 of the *Environmental Assessment Regulations* states that:

*28. An undertaking that will occur within 200 metres of the high-water mark of a river that is a scheduled salmon river under the Fisheries Act (Canada) shall be registered.*

The St. Lewis River is a scheduled salmon river and the proposed Project involves works within the channel of the river requiring registration under the NL EPA.

Following public and governmental review of the EA Registration, the Minister of Municipal Affairs and Environment will determine whether the Project may proceed, subject to any terms and conditions and other applicable legislation, or whether further assessment is required.

In addition to approval under the EA process, the Project may also require a number of other authorizations from relevant regulatory authorities. These are identified and discussed later in this document and in Appendix A.

## 2.0 THE PROPONENT

**Name of Corporate Body:** Atlantic Rivers Outfitting

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Atlantic Rivers Outfitting is a Newfoundland and Labrador company that operates two catch-and-release Atlantic salmon fishing lodges in Labrador, one lodge on the Hunt River in Northern Labrador and one on the St. Lewis River in Southern Labrador. The lodge on the St. Lewis River is located on the main stem of the river approximately 10 km from tidewater and 18 km downstream from the proposed project location.



### **3.0 PROJECT SCOPE**

The following sections provide a brief introduction to, and overview of the proposed Project, including its overall nature and its underlying purpose, need and rationale.

#### **3.1 The Project**

A falls located approximately 28 km upstream on the main stem of the St. Lewis River in southern Labrador, Figure 1-1, has been identified as a partial obstruction to Atlantic salmon movement. Atlantic Rivers Outfitting is proposing to utilize a run-around flow pathway on this falls to create a pool and weir type fishway which will provide greater accessibility for Atlantic salmon to a 32 km section of the main stem of the river between this falls and the next identified complete obstruction to salmon movement.

#### **3.2 Purpose, Need and Rationale**

The Department of Fisheries and Oceans (DFO) assessment of Atlantic salmon habitat and productivity potential of rivers of Labrador describes the St Lewis River as having a drainage area of 2,590 km<sup>2</sup> consisting of the 145 km long main stem and 45 tributaries (Anderson, 1985). The lower main stem is characterized by narrow gorges and canyons surrounded by steep hills. A falls located approximately 28 km upstream on the main stem was identified as a complete obstruction to Atlantic salmon migration, however, it cannot be confirmed that field surveys were completed in making this assessment (e.g. species presence above the falls or measurements at the falls). The DFO, in conjunction with Atlantic Rivers Outfitting, has conducted recent research on salmon movements and habitat use on the St. Lewis River that confirmed, through electrofishing and observations, that Atlantic salmon adults and juveniles are located upriver of the falls, although in low numbers (M. Robertson, personal communication). Field observations conducted at the falls in 2017 by Wood Environment and Infrastructure Solutions personnel identified a small "run-around" channel along the left-side (southern side) of the falls that would likely allow intermittent upriver access during ideal flows, Figures 3-1 and 3-2. As a result, the falls is considered a partial obstruction to Atlantic salmon passage. It is not clear if passage would be possible every year, or only during years when suitable flows occur during salmon presence below the falls.

**Figure 3-1 St. Lewis River Falls at Km 28 View from North side showing the rock fracture run-around along the South side, on the left**



**Figure 3-2 St. Lewis River Falls at Km 28 view from above the falls showing the rock fracture run-around along the South side, on the right**



DFO research on Atlantic salmon movement and spawning in the St. Lewis River during the summer of 2014 indicated that six of eight salmon that were fitted with tracking tags at locations on the lower main stem of the river moved upriver to areas below the falls at km 28 during the summer. These tagged salmon migrated back to the lower reaches of the river nearer the estuary to spawn, indicating a lower availability of spawning habitat in the accessible areas of the river near the falls at km 28 (M. Robertson, personal communication). Incidental observations by the DFO researchers identified the presence of significant areas of suitable spawning and rearing habitat upriver of the falls at km 28 compared to that below. As well, Anderson (1985) indicated that there were 5,613 units of accessible spawning habitat (one unit = 100 m<sup>2</sup>) and 13,603 units of rearing habitat on the main stem of the river below the falls at km 28 and an additional 6,333 units of spawning habitat and 28,076 units of rearing habitat that is less accessible because of the migration obstruction posed by the falls. Additional spawning and rearing habitat was also identified in tributary streams above the falls.

The presence of the run-around flow pathway at the falls presents an opportunity to utilize this natural channel to create a pool and weir type fishway and regulate the water flow into the fishway at the top of the falls that will allow salmon and trout to migrate upstream of the falls at km 28 during greater flow ranges than presently possible. Upon completion of the fishway, it is expected that the falls will be passable during 50 to 60% of the

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natural flow levels anticipated during the migration period. This will allow for the enhancement of Atlantic salmon productivity of the St. Lewis River.

## 4.0 PROJECT DESCRIPTION

The following sections provide a description of the Project, including its location, main components, and the various activities that will be associated with its construction and operation phases.

### 4.1 Geographic Location

St Lewis River is located on the eastern coast of Labrador at latitude 51° 20' 0.2" (51.3334°) north, longitude 55° 36' 52.8" west. The falls lies approximately 28 km upstream on the main stem of the river and approximately 25 km from the Trans Labrador Highway, Route 510, Figure 1-1.

### 4.2 Project Components

The fishway concept is shown in Figure 4-1. The proposed concept is a pool and weir type fishway that will have eight baffles creating jumps for migrating salmon. Based on field surveys completed in 2017, the falls is estimated to be four metres high from the bottom to the top of the run-around. Each fishway pool is estimated to be approximately 2 to 6 m long, 1.5 to 2 m wide and 0.6 to 1 m deep, with a jump of 0.6 m at each baffle. The upper-most baffle will have a narrow vertical slot which will regulate water levels during high flows while allowing flow into the fishway during lower flow conditions.

**Figure 4-1 Fish passage concept with concrete baffles creating pools in the run-around flow pathway occurring at the falls located at km 28**



### 4.3 Construction

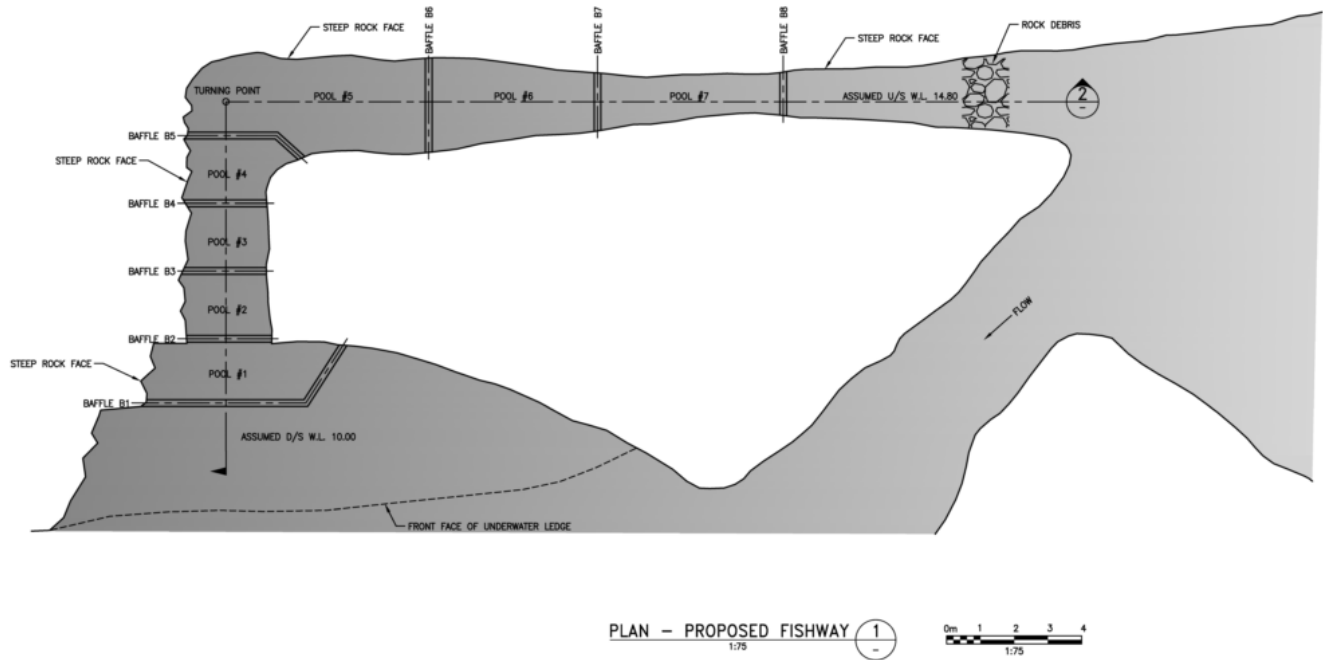
Plan and profile drawings of the proposed fishway baffle and pool arrangement are provided in Figures 4-2 and 4.3. The physical infrastructure to be constructed is comprised of the installation of eight concrete baffles in the natural channel between the steep rock face forming the south side river bank and a rock outcrop that splits the river flow in this area.

Construction of the fishway pools will be completed by a combination of rock removal and the installation of reinforced concrete baffles. The exact location of the fishway baffles will be determined in the field, prior to construction.

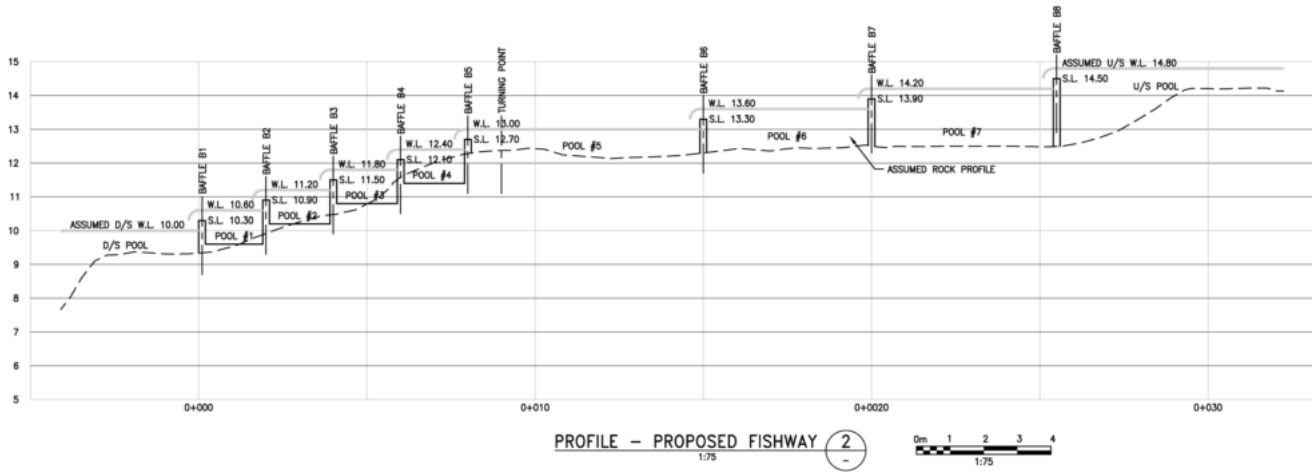
It is proposed that the concrete baffles will be constructed of reinforced concrete to withstand the water and ice forces exhibited by the river at this location. Ready mix concrete will be used in baffle construction.

Most, if not all rock removal will be carried out using drill and wedge methodology to remove sufficient rock to create pool depths. Using this method, small holes will be drilled in the rock in a closely spaced pattern. Steel wedges will then be hammered into the holes to split the rock as required to form the pools. Explosives may be utilized to facilitate rock removal, but only on a limited "if required" basis using small amounts of dynamite. Rock removed to form the fishway pools will be deposited on the side of the river away from the fishway structure. The methodology and equipment are similar to that used by Atlantic Rivers Outfitting during construction of their lodge foundation on the St. Lewis River.

**Figure 4-2 Plan view of proposed St. Lewis River fishway**



**Figure 4-3 Profile view of proposed St. Lewis River fishway**



The upstream section of the fishway is adjacent to a seven to ten metre vertical cliff face consisting of fractured rock. This rock face will be secured using steel mesh, or other protective system, to allow for safe working conditions while constructing the fishway, especially if explosives are expected to be used for small portions of the rock removal. The area adjacent to the site consists of steep rock faces and a set of access stairs will be required to provide safe access to the work areas. Materials and equipment to be used in construction will be temporarily stored on the rocky plateau above the south side of the river bank (Figure 4-3).

**Figure 4-4 View of falls at km 28 showing rocky plateau above the South bank of the St. Lewis River**



The construction area will be isolated from the flow of the river by constructing a cofferdam at the extreme upstream section of the run-around channel, allowing construction to be carried out in relatively dry conditions. Additionally, a cofferdam will be required at the lower section, or fishway entrance, to allow the construction of the first baffle. These temporary cofferdams will control water flow around the construction area and reduce the difficulty in constructing the remainder of the lower fishway structure. Some pumping is expected to be required during construction. Any construction water pumped from the site will be discharged into vegetation along the side of the river.

Access to the site during construction will be provided by helicopter. All materials required for construction will be delivered to the site by helicopter and the work crew will be transported to and from the site daily.

#### **4.3.1 Construction Period**

Atlantic Rivers Outfitting proposes to begin work on the proposed Project following the completion of the salmon fishing season at the St Lewis River lodge in 2019. This will enable preparatory work, acquisition of materials and equipment, and installation of upstream and downstream cofferdams to begin in August 2019. Field work at the km 28 falls will be completed by November 2019, if field conditions permit. If field conditions do not permit completion of the work of installing fish passage pools before freeze up in 2019, then the work site will be stabilized and equipment removed until 2020. If this is the case, then the work will be resumed



following the completion of the salmon fishing season at the St. Lewis River lodge in 2020. All work will be completed and equipment and materials removed from the km 28 falls site by November 2020.

#### **4.3.2 Labour Force**

As the work to be complete involves the use of labour and hand-held equipment to pour concrete baffles and excavate the pools to form the fishway facility, Atlantic Rivers Outfitting proposes to utilize persons from the local area who are employed as salmon fishing guides at the St. Lewis River Lodge to complete the proposed work. These guides are employees of the Lodge and will remain as employees of Atlantic Rivers Outfitting during construction of the proposed Project.

#### **4.4 Operations and Maintenance**

Once constructed, the proposed fishway is intended to provide a pathway for Atlantic salmon migration around the falls at km 28 without further need for human intervention or operational requirement. The concrete baffles and pools will be visually inspected yearly by Atlantic Rivers Outfitting to identify any physical changes or deterioration of these components and the results of these inspections will be provided to DFO officials.

## **5.0 ALTERNATIVE PROJECT LOCATIONS AND APPROACHES**

The presence of the natural “run-around” flow path on the south side of the falls at km 28 on the St. Lewis River provides an opportunity to enhance the potential for Atlantic salmon migration around this partial obstruction using a baffle and pool fishway design with minimal construction effort and no ongoing operational requirements. No alternative locations or approaches to providing this enhancement of Atlantic salmon migratory potential on the St. Lewis River have been identified at this time.

## **6.0 ENVIRONMENTAL SETTING, POTENTIAL INTERACTIONS AND MITIGATION**

The following provides an overview of the existing environmental setting for the proposed Project, including a description of relevant components of the natural and human environments. This is followed by an analysis of the Project's potential environmental interactions and the identification and description of mitigation measures which will be put in place to avoid or reduce any such effects.

### **6.1 Natural Environment**

The St. Lewis River is approximately 145 km long and occurs within the southern portion of the Paradise River ecoregion and Paradise River ecodistrict of Labrador (Riley et al 2013). This ecodistrict occupies 17,176 km<sup>2</sup>, approximately 5.8 percent of Labrador.

The climate of the Paradise River ecodistrict is characterized by cool summers and short cold winters. Although close to the coast, the ecodistrict is not as strongly affected by maritime climate and weather as strictly coastal districts. The growing season is 144 days and the average annual temperature is 0.2 °C. Mean annual precipitation averages 836 mm.

Bedrock in the ecodistrict is dominated by massive Archean granite, and metamorphic gneiss, amphibolite, gabbro, and other acidic intrusives. The ecodistrict is rough and undulating with deeply dissected lower elevation slopes. The surface rises rapidly from the east to elevations of 719 m ASL, and is covered with thin sandy morainal deposits of variable thickness.

Forests in the ecodistrict are dominated by closed stands of Black Spruce and Balsam Fir, typically with understories of feathermoss on moist upland slopes. Middle seepage slopes are dominated by spruce-fir-birch forests, with rich herb understoreys. Dry sites are characterized by open lichen-spruce woodlands, and a dwarf, open or sometimes closed cover of Black Spruce and Tamarrack with ericaceous shrubs found on raised dome bogs.

The forests of the region provide habitat for caribou, moose, black bear, red fox, lynx, American marten, porcupine, snowshoe hare, small mammals, waterfowl, and other birds.

Fish species that typically inhabit rivers of southern Labrador and are expected to be present in the St. Lewis River include; Atlantic salmon (*Salmo salar*), brook trout (*Salvelinus fontinalis*), Arctic char (*Salvelinus alpinus*), American eel (*Anguilla rostrata*), rainbow smelt (*Osmerus mordax*), threespine stickleback (*Gasterosteus aculeatus*) and Longnose sucker (*Catostomus catostomus*). Each of these (with the exception of stickleback and sucker) hold recreational and/or commercial value. A brief summary of the overall life history and uses of these species is presented in Table 6.1.

**Table 6.1 Fish Species Known to Occur in the Rivers of Southern Labrador**

Common Name	Scientific Name	Biological/Habitat Details
Atlantic salmon	<i>Salmo salar</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: 8-16°C</li> <li>• Preferred depth: Variable</li> <li>• Preferred substrate: gravel, cobble, boulder</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• Distributed throughout Newfoundland and Labrador</li> <li>• Occurs as landlocked (Ouananiche) and anadromous life histories</li> <li>• Spawn in clean, well aerated, gravel bottom riffle sections of stream</li> <li>• Diet depends on the size and habitat of fish, as well as season</li> <li>• Juvenile anadromous salmon remain in natal watersheds for 3-6 years in Labrador</li> <li>• Adult salmon generally remain at sea for 1-3 years before returning to their natal stream to spawn</li> </ul> <p>Recreational/Commercial Value</p> <ul style="list-style-type: none"> <li>• Recreational fishery</li> <li>• There has not been a commercial salmon fishery in Newfoundland and Labrador since 1997</li> </ul>
Brook trout	<i>Salvelinus fontinalis</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: 11-16°C</li> <li>• Preferred depth: 0.06-0.90 m</li> <li>• Preferred substrate: gravel, cobble, boulder</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• Inhabits lakes and rivers throughout Newfoundland and Labrador</li> <li>• Can be landlocked or anadromous</li> <li>• Feed mainly on aquatic and terrestrial insects and fish</li> <li>• Can hybridize with other salmonid species</li> </ul> <p>Recreational/Commercial Value</p> <ul style="list-style-type: none"> <li>• Recreational fishery</li> <li>• No commercial fishery in Newfoundland and Labrador</li> </ul>
American eel	<i>Anguilla rostrata</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: variable; below freezing to over 19°C</li> <li>• Preferred depth: ≤1m</li> <li>• Preferred substrate: boulder, rubble, silt, muck, clay</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• The only catadromous (spawn at sea) species in Newfoundland and Labrador</li> <li>• All American eels spawn in the Saragasso Sea.</li> </ul>

Common Name	Scientific Name	Biological/Habitat Details
		<ul style="list-style-type: none"> <li>• Can survive in very shallow water, and can move across wet grass or rocks during migrations</li> <li>• Eels hibernate over the winter in soft substrates</li> </ul> <p>Recreational/Commercial Value</p> <ul style="list-style-type: none"> <li>• Recreational / commercial fishery</li> <li>• Few commercial licenses in Newfoundland and Labrador</li> </ul>
Arctic char	<i>Salvelinus alpinus</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: 3-16°C</li> <li>• Preferred depth: &gt; 1m</li> <li>• Preferred substrate: boulder, rubble, gravel</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• Populations in Labrador are mostly anadromous but may also be landlocked</li> <li>• Slower growing than other salmonids due to their northern distribution</li> </ul> <p>Recreational/Commercial Value</p> <ul style="list-style-type: none"> <li>• Recreational fishery</li> <li>• Several commercial fisheries throughout Arctic Canada</li> </ul>
Rainbow smelt	<i>Osmerus mordax</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: approximately 15°C</li> <li>• Preferred depth: &gt;2m</li> <li>• Preferred substrate: cobble, gravel, sand, clay</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• Schooling pelagic species found in lakes and nearshore marine habitats.</li> <li>• Anadromous populations spawn in rivers in April to June</li> <li>• Landlocked populations are known to exist in both normal and dwarf form.</li> </ul> <p>Recreational/Commercial Value</p> <ul style="list-style-type: none"> <li>• Recreational fishery</li> <li>• Food source for other recreational / commercial fish species</li> </ul>
Threespine stickleback	<i>Gasterosteus aculeatus</i>	<p>Typical Habitat</p> <ul style="list-style-type: none"> <li>• Preferred temperature: 9-12°C</li> <li>• Preferred depth: variable, generally &lt;1m</li> <li>• Preferred substrate: within or near vegetation</li> </ul> <p>Biology and Ecology</p> <ul style="list-style-type: none"> <li>• Common throughout Newfoundland and Labrador, in fresh, brackish and marine environments</li> <li>• Maximum lifespan is typically 2-2.5 years</li> </ul>

Common Name	Scientific Name	Biological/Habitat Details
		Recreational/Commercial Value <ul style="list-style-type: none"> <li>• Limited; may be a food source for larger recreational / commercial species</li> </ul>
Longnose sucker	<i>Catostomus catostomus</i>	Typical Habitat <ul style="list-style-type: none"> <li>• Preferred temperature: 10-15°C</li> <li>• Preferred depth: &lt;1m</li> <li>• Preferred substrate: bolder, rubble, cobble and gravel</li> </ul> Biology and Ecology <ul style="list-style-type: none"> <li>• Primarily bottom-dwelling in clear, cold waters</li> <li>• Often found in swift rivers with stony bottoms</li> </ul> Recreational/Commercial Value Limited;
Sources: Grant and Lee (2004),		

Of these species, only the American eel is designated as a species of special conservation status, being listed as vulnerable under provincial legislation (*NL ESA*) as well as being assessed as threatened by COSEWIC (2012).

## 6.2 Human Environment

The nearest communities to the proposed Project site are Port Hope Simpson, approximately 26 km to the northeast, Mary's Harbour, approximately 49 km to the east, and St. Lewis approximately 58 km to the east. These communities are located along the coast and are accessible via route 510, the Trans Labrador Highway. The proposed Project location is not directly accessible by road. Route 510 is the closest road, but is approximately 26 km from the site at its closest approach.

Port Hope Simpson has a population of approximately 575 residents and is located on the south side of the Alexis River, a scheduled salmon river. The community has commercial operations including hotel, restaurants, gas station, grocery stores, a hardware store, an air strip and helicopter landing pad.

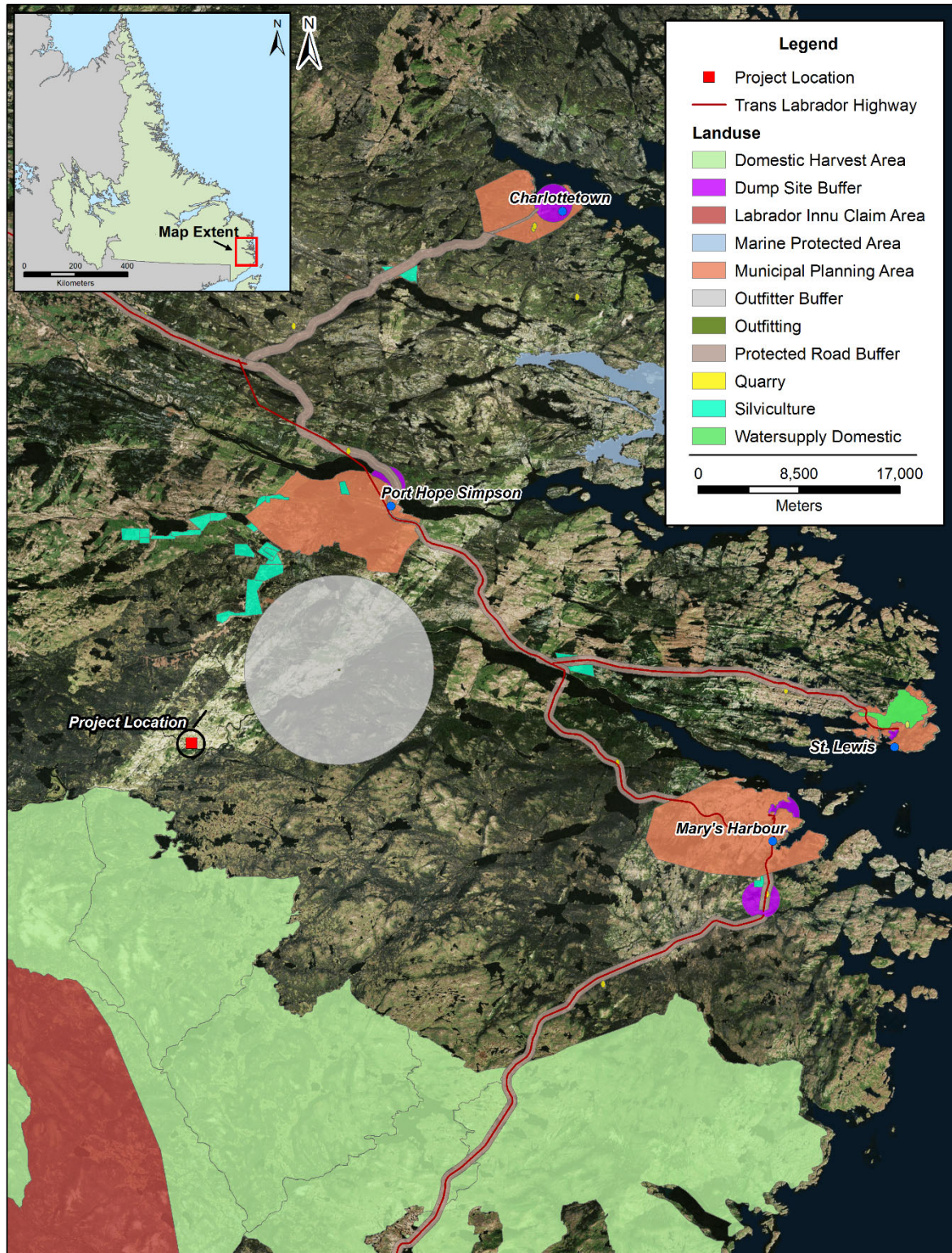
Mary's Harbor has a population of approximately 475 residents and is located at the mouth of the St. Mary's River, a scheduled salmon river. The community has commercial operations including hotel, restaurants, gas station, grocery stores, and an air strip.

St. Lewis, formerly known as Fox Harbour, has a population of approximately 210 residents and is located on the north side of St. Lewis inlet. It has a recorded history dating to the early 18<sup>th</sup> century, when its sheltered location, proximity to good fishing grounds and seal migratory routes made it a desired location for the English based migratory fishery.

The NunatuKavut Community Council (NCC) is the governing body for the Inuit of south and central Labrador, collectively known as the Southern Inuit of NunatuKavut, which includes members in the communities in the area in which the St. Lewis River is located. The NCC has a Natural Resources and Environment Department which oversees a Habitat Stewardship Program for Species-at-Risk and employs fisheries and wildlife guardians to monitor annual hunts and fisheries.

Designated land use areas identified in the provincial land use atlas in the proposed Project area are shown on Figure 6-1. There are no conflicts identified in the immediate project area. The outfitter buffer identified on Figure 6-1 is for Atlantic Rivers Outfitting's St. Lewis River Lodge, located approximately 18 km downstream from the proposed Project site. There are no other outfitter camps identified on the river.

**Figure 6-1 Designated land use areas identified in the provincial land use atlas in the Project area**





## 6.2.1 Stakeholder Engagement and Public Consultation

Atlantic Rivers Outfitting has actively engaged with stakeholders to identify and address any issues relevant to the Project. Atlantic Rivers Outfitting has reviewed the proposed Project with the DFO and Provincial Water Resources Management Division, the lead agencies with responsibilities for approving works that have potential to interact with fish habitat and water quality associated with Project construction and operation. The proponent has also discussed the proposed project with representatives of the NCC, the governing body for the Southern Inuit of NunatuKavut.

The DFO reviewed the proposed Project, through their Request for Project Review process, to determine whether it is likely to result in serious harm to fish under Section 35 of the *Fisheries Act*, and whether it is likely to affect listed aquatic species at risk. The determination recommended the following mitigative measures:

- Location is selected based on optimum conditions (proximity, reduced construction and disturbance);
- All work be carried out in the dry;
- Construction will not affect or impede fish passage;
- Erosion and sediment control plan will be developed and implemented to prevent release of any silt or construction debris;
- Any construction water pumped from the site will be discharged into vegetation;
- Appropriate material handling and response plan will be available before any construction activities and implemented before any in water activities;
- All machinery will be clean, any potential for spills will be avoided, and a spill response plan will be completed and implemented prior to any activities; and
- Any blasting will adhere to DFO guidelines and be designed/completed by experienced personnel.

The DFO concluded that with incorporation of these measures into the Project planning, the Project will not result in serious harm to fish or prohibited effects on listed aquatic species at risk. The letter response from the DFO documenting the results of the Request for Project Review is included in Appendix B.

The proposed project has also been discussed with the Water Resources Management Division, Department of Municipal Affairs and Environment. It was determined that an application for approval to undertake work within a freshwater body would be required under the *Water Resources Act*. This application has been submitted. Although no issues have been identified in association with approval of the proposed project, the approval cannot be issued by the Department prior to release under the province's EA Process.

Atlantic Rivers Outfitting has also provided information relating to the proposed Project design and construction to NCC representatives. Although no issues relating to the proposed Project design and construction were identified by NCC, they requested that public information sessions be held in St. Lewis and Mary's Harbour to ensure that the people of those communities are informed of the proposed Project design and provided an opportunity to comment. Atlantic Rivers Outfitting attempted to arrange public information sessions in these two communities in February and March 2019, but were not successful because of winter travel difficulties along the Southern Labrador coast, and other difficulties with organizing sessions at those times. Atlantic Rivers Outfitting remains committed to undertaking the community information sessions requested and will endeavor to complete these during the EA Registration review period.

### 6.3 Potential Environmental Interactions and Mitigation

The following sections provide the results of an environmental effects analysis for the proposed Project.

#### 6.3.1 Natural Environment

The Project work site will be limited to the side channel in which the fishway will be constructed and a small area on the south bank of the river to be used for material storage.

##### Construction

The proposed Project work site has a small footprint and the potential for negative interactions with components of the natural environment will be low. The equipment required for construction is limited to hand-held drills and jack hammers, with power supplied by small generators at site. The area is not accessible by road so personnel involved in construction will be flown to and from the site daily. Food waste will be removed from the site daily and handled in accordance with local community waste management practices. Construction waste will also be removed from the site for handling in accordance with local waste management practices.

The in-river work site is in a small side channel that will be further isolated from river flows by installation of an upstream and a downstream cofferdam. This will allow the construction of the pools and baffles that will form the fishway to occur under mostly dry conditions. This will limit the potential for negative interaction related to water quality, fish and fish habitat during construction.

The DFO has reviewed the proposed Project and recommended mitigative measures to avoid and mitigate any potential for serious harm to fish. The recommended mitigations are incorporated into the proposed Project mitigation measures identified in Table 6.2 and will also be incorporated into the Project specific EPP which will be developed prior to the start of construction and implemented by Atlantic Rivers Outfitting during construction.

##### Operations and Maintenance

Once constructed, the proposed fishway is intended to provide a pathway for Atlantic salmon migration around the falls at km 28 without further need for human intervention or operational requirement. The concrete baffles and pools will be visually inspected yearly by Atlantic River Outfitting to identify any physical changes or deterioration of these components and the results of these inspections will be provided to DFO officials.

##### Environmental Effects Assessment Summary

The potential effects of project development on natural environment are summarized in Table 6.2.

**Table 6.2 Examples of construction activities, their interaction with key ecosystem components and proposed measures for mitigating adverse effects**

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation
	Construction	Operations	Issues / Interactions	
Wildlife	.	.	<ul style="list-style-type: none"> <li>Incidental encounters with wildlife</li> <li>Contamination of wildlife and their habitats by oil and other harmful substances</li> </ul>	<ul style="list-style-type: none"> <li>Avoid intentional feeding of wildlife (e.g. red foxes, black bears, gull species etc.).</li> <li>Ensure that waste and other materials are removed from site and properly disposed of/managed.</li> <li>Ensure that any fuel handling on site, including refueling of any</li> </ul>

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation
	Construction	Operations	Issues / Interactions	
				<p>generators or handheld equipment occurs at a site at least 100 m from the river bank and is within a prepared drip containment area.</p> <ul style="list-style-type: none"> <li>• A Project specific EPP will be developed prior to the start of any construction activity.</li> </ul>
Vegetation			<ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Possible fuel spills</li> </ul>	<ul style="list-style-type: none"> <li>• Minimizing the Project footprint by confining vegetation clearing and other forms of ground disturbance to the extent possible</li> <li>• Ensure that any fuel handling on site, including refueling of any generators or handheld equipment occurs at a site at least 100 m from the river bank and is within a prepared drip containment area.</li> <li>• A Project specific EPP will be developed prior to the start of any construction activity.</li> </ul>
Surface Water			<ul style="list-style-type: none"> <li>• Deposition of sediment in waters frequented by fish</li> <li>• Possible fuel spills</li> </ul>	<ul style="list-style-type: none"> <li>• Isolate the work area from direct river flows by installation of upstream and downstream cofferdams;</li> <li>• Ensure that any water that is present in the work areas is pumped to adjacent vegetated areas</li> <li>• Ensure that any fuel handling on site, including refueling of any generators or handheld equipment occurs at a site at least 100 m from the river bank and is within a prepared drip containment area.</li> <li>• An appropriate material handling and response plan will be available before any construction activities and implemented before any in water activities.</li> </ul>

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation
	Construction	Operations	Issues / Interactions	
				<ul style="list-style-type: none"> <li>All machinery, such as jackhammers, will be clean and any potential oil leaks will be avoided.</li> <li>A Project specific EPP will be developed prior to the start of any construction activity.</li> </ul>
Fish and Fish Habitat			<ul style="list-style-type: none"> <li>Deposition of sediment in waters frequented by fish</li> <li>Possible fuel spills</li> </ul>	<ul style="list-style-type: none"> <li>Isolate the work area from direct river flows by installation of upstream and downstream cofferdams;</li> <li>Ensure that any water that is present in the work areas is pumped to adjacent vegetated areas</li> <li>Ensure that any fuel handling on site, including refueling of any generators or handheld equipment, occurs at a site at least 100 m from the river bank and is within a prepared drip containment area.</li> <li>An appropriate material handling and response plan will be available before any construction activities and implemented before any in water activities.</li> <li>All machinery, such as jackhammers, will be clean and any potential oil leaks will be avoided.</li> <li>Any blasting will adhere to DFO guidelines and be designed/completed by experienced personnel.</li> <li>A Project specific EPP will be developed prior to the start of any construction activity.</li> </ul>

With the implementation of the environmental mitigation measures outlined here, including those identified in the DFO letter response to the Request for Project Review, the proposed Project is not likely to result in significant adverse environmental effects on the natural environment.

### 6.3.2 Human Environment

The Project site is not accessible by road and at least 26 km from the nearest community. The limited quantity of materials required for construction and all personnel will be flown to and from the project site by helicopter.

#### Construction

The scope of the proposed Project is limited in terms of labour and materials required, however, these will be obtained locally, to the extent possible, during construction.

No resource conflicts have been identified in the area of the proposed Project

#### Operation and Maintenance

Once constructed, the proposed fishway is intended to provide a pathway for Atlantic salmon migration around the falls at km 28 without further need for human intervention or operational requirement.

#### Environmental Effects Summary and Evaluation

A summary of the potential environmental interactions, mitigations and potential residual environmental effects of the proposed access road on surrounding freshwater aquatic environment are presented below in Table 6.3.

**Table 6.3 Environmental Effects Summary: Human Environment**

Environmental Component	Project Phase/Potential Interaction			Key Considerations and Environmental Mitigation
	Construction	Operations and Maintenance	Issue/ Interactions	
Resources			<ul style="list-style-type: none"> <li>Conflict with other resources or resource users</li> </ul>	<ul style="list-style-type: none"> <li>The area of disturbance will be limited to only that required.</li> <li>No resource conflicts have been identified.</li> </ul>
Community			<ul style="list-style-type: none"> <li>Conflict with communities in the area</li> </ul>	<ul style="list-style-type: none"> <li>Labour and materials will be obtained locally to the extent possible.</li> <li>No new access will be created.</li> </ul>

The proposed Project is not likely to result in significant adverse environmental effects on the Human Environment.

### 6.4 Environmental Protection and Response Planning

An EPP is an important tool for consolidating environmental information and procedures in a useable format for their timely and effective implementation in the field. An EPP provides clear and concise instructions to all Project personnel regarding mitigation procedures and techniques to avoid, reduce or respond to environmental issues associated with construction and/or operations activities.

Atlantic Rivers Outfitting is committed to developing and implementing an EPP for construction of the Project which incorporates the commitments and controls identified in this EA Registration as well as the terms and conditions of any eventual EA approval and subsequent environmental permits that are required and obtained for the Project. For example, the EPP will include an erosion and sediment control plan and a material handling and response plan as recommended in the DFO Project review.

## **6.5 Environmental Monitoring and Follow-up**

The Proponent is committed to obtaining all required authorizations for the proposed Project, and to complying with all applicable regulations (including any associated compliance monitoring and reporting requirements). No other environmental monitoring or follow-up is considered necessary in relation to the proposed Project.

## **7.0 PROJECT-RELATED DOCUMENTS**

Additional Project related documents include:

- Drawing No. TF1691801-0010-PAP-0100 Civil Plan and Profile St. Lewis River Upper Fishway included in Appendix A;
- the DFO letter response to the Request for Project Review included in Appendix B

## **8.0 FUNDING**

The estimated cost of the project is \$226,000, which includes costs for materials, equipment, and labour as well as estimated costs for the helicopter transport of materials, equipment, and labour to and from the work site during Project construction.

This Project does not rely on funding from government agencies or external organizations.



## **9.0 APPROVAL OF THE UNDERTAKING**

In addition to approval under the provincial EA process, the Project will require a number of environmental permits and other approvals from various provincial and federal authorities in relation to its proposed construction and/or operations and maintenance activities.

A listing of some of the main permits, licences, approvals and other authorizations that may be required for the Project is provided in Appendix C.

## **10.0 PROJECT SCHEDULE**

Atlantic Rivers Outfitting is prepared to initiate the necessary permits and approvals process as identified in Appendix C following release under the EA Process in 2019. As well Atlantic Rivers Outfitting will acquire the materials and equipment needed to permit completion of the Project in the fall of 2019, if field conditions permit. If field conditions do not permit completion of the work of installing the fishway baffles and pools before freeze-up in 2019, then the work site will be stabilized and equipment removed until 2020. If this is the case, then the work will be resumed following completion of the salmon fishing season at the St. Lewis River Lodge in 2020. All work will be completed, and equipment and materials removed from the Project site by November 2020.

## **11.0 EA REGISTRATION SUMMARY AND CONCLUSION**

Atlantic River Outfitting is proposing to utilize a run-around flow pathway to create a pool and weir type fishway at a falls which has been assessed as creating a partial obstruction to Atlantic salmon movement at a location approximately 28 km upstream on the main stem of the St. Lewis River in southern Labrador. The presence of the run-around flow pathway at the falls presents an opportunity to utilize this natural channel to create a pool and weir type fishway and regulate the water flow into the fishway at the top of the falls that will allow salmon and trout to migrate upstream of the falls with relatively low effort and minimal disruption of the existing river environment. Upon completion of the fishway, it is expected that the falls will be passable during 50 to 60% of the natural flow levels anticipated during the migration period. This will allow for the enhancement of Atlantic salmon productivity of the St. Lewis River.

The proposed Project work site has a small footprint and the potential for negative interactions with components of the natural environment will be low. The equipment required for construction is limited to hand-held drills and jack hammers with power supplied by small generators at site. The area is not accessible by road so personnel involved in construction will be flown to and from the site daily. The in-river work site is in a small side channel that will be further isolated from river flows by installation of an upstream and a downstream cofferdam. This will allow the construction of the pools and baffles that will form the fishway to occur under mostly dry conditions. This will limit the potential for negative interaction related to water quality, fish and fish habitat during construction. Once constructed, the proposed fishway is intended to provide a pathway for Atlantic salmon migration around the falls at km 28 without further need for human intervention or operational requirement.

The scope of the proposed Project is limited in terms of labour and materials required, however, these will be obtained locally, to the extent possible, during construction. No resource conflicts have been identified in the area of the proposed Project.

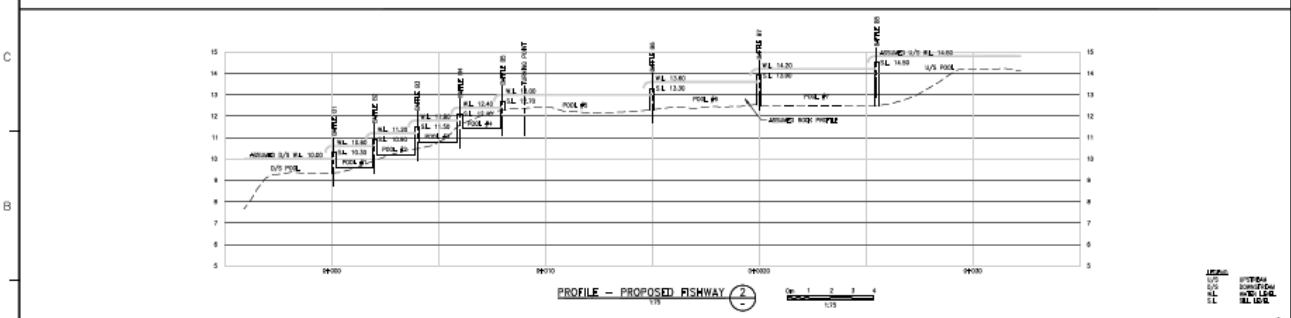
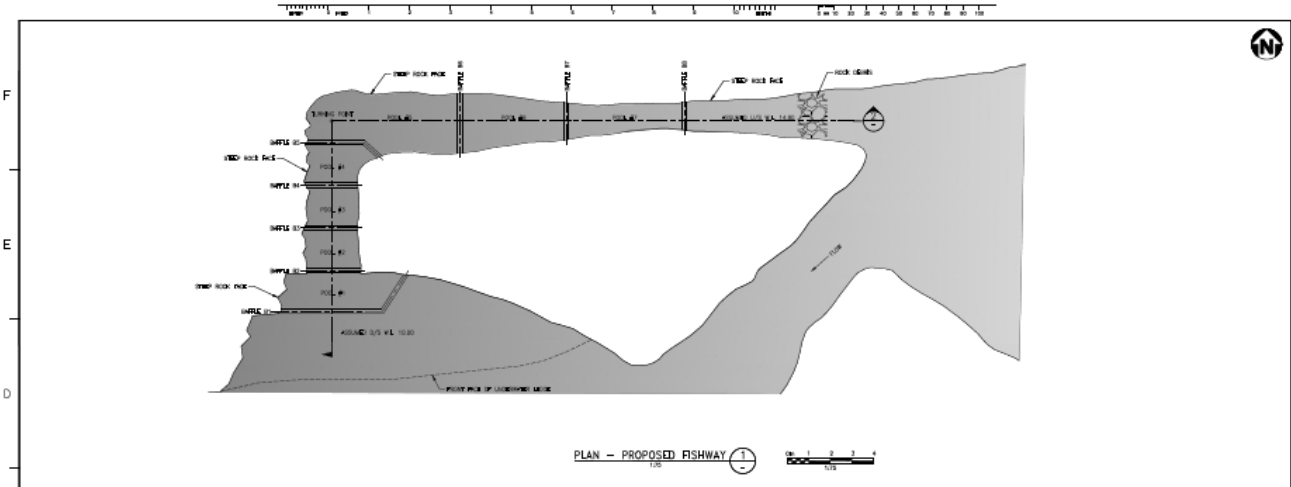
Atlantic Rivers Outfitting is committed to developing and implementing an EPP for construction of the Project which incorporates the commitments and controls identified in this EA Registration as well as the terms and conditions of any eventual EA approval and subsequent environmental permits that are required and obtained for the Project. For example, the EPP will include an erosion and sediment control plan and a material handling and response plan as recommended in the DFO Project review.

## **12.0 REFERENCES**

- Anderson, T. C. 1985. The rivers of Labrador. Canadian Special Publication of Fisheries and Aquatic Sciences 81: 389p.
- Grant, C. G. J. and E. M. Lee. 2004. Life history characteristics of freshwater fishes occurring in Newfoundland and Labrador, with major emphasis on riverine habitat requirements. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2672: Xii + 262p.
- Robinson, M. 2018. Personal Communication.

**APPENDIX A**

**DRAWING No. TF1691801-0010-PAP-0100 CIVIL PLAN AND PROFILE ST. LEWIS RIVER UPPER FISHWAY**



DATE: 11/11/10 DRAWN BY: JMM CHECKED BY: JMM PROJECT NO: 171681801-0010-PAF-0100		SCALE FOR THIS DRAWING: 1" = 10' SHEET NO: 1 OF 1 PROJECT NO: 171681801-0010-PAF-0100		CIVIL PLAN AND PROFILE OF LOWER REVER UPPER FISHWAY		UNTEC FOSTER WHEELER AND FOSTER WHEELER OF CIVIL ENGINEERS 2000 N. 10TH ST. DENVER, CO 80202	
8 7 6 5 4 3 2 1		8 7 6 5 4 3 2 1		8 7 6 5 4 3 2 1		8 7 6 5 4 3 2 1	

**APPENDIX B**

**LETTER FROM DFO JULY 6, 2018 RE: ST. LEWIS FALLS ENHANCEMENT PROJECT – ST. LEWIS, LABRADOR –  
IMPLEMENTATION OF MITIGATION MEASURES TO AVOID AND MITIGATE SERIOUS HARM TO FISH**



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

P.O. Box 5667  
St. John's, NL A1C 5X1

**JUL 06 2018**

Your file      Votre référence

Our file      Notre référence  
18-HNFL-00421

Adam Walsh  
Atlantic River Outfitting Company  
Suite 805, 140 Water Street  
St. John's, NL A1C 6H6

Dear Mr. Walsh:

**Subject: St. Lewis Falls Enhancement Project – St. Lewis, Labrador – Implementation of mitigation measures to avoid and mitigate serious harm to fish**

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on June 25, 2018. We understand that you propose to:

- Install 8-9 baffles and remove rock to create a pool and weir style fishway around a natural obstruction with a total footprint of 75m<sup>2</sup>.

Our review considered the following information:

- An Application for Review and associated documentation
- Additional information provided by email on June 27, 2018.

Your proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act* unless authorized. Your proposal has also been reviewed to determine whether it is likely to affect listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*, unless authorized.

To avoid and mitigate the potential for serious harm to fish we recommend implementing the measures listed below:

- Location is selected based on optimum conditions (proximity, reduced construction and disturbance);
- All work will be carried out in the dry;
- Construction will not affect or impede fish passage;
- Erosion and sediment control plan will be developed and implemented to prevent release of any silt or construction debris ;

Canada

.../2



- Any construction water pumped from the site will be discharged into vegetation;
- Appropriate material handling and response plan will be available before any construction activities and implemented before any in water activities;
- All machinery will be clean, any potential for spills will be avoided, and a spill response plan will be completed and implemented prior to any activities; and
- Any blasting will adhere to DFO guidelines and be designed/completed by experienced personnel.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not result in serious harm to fish or prohibited effects on listed aquatic species at risk. As such, an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.

It is your responsibility to ensure you follow any additional requirements from other federal, provincial and municipal jurisdictions and ensure compliance with the *Species at Risk Act* and the pollution prevention provisions of the *Fisheries Act*.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to avoid causing serious harm to fish and avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to <http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html>

A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact me at our St. John's office at (709) 772-2508 or by email at [John.ORourke@dfo-mpo.gc.ca](mailto:John.ORourke@dfo-mpo.gc.ca). Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,



John O'Rourke

Senior Biologist – Hydro, Flows & Linear Development  
Regulatory Review – Fisheries Protection Program

Cc: Jim McCarthy – Amec Foster Wheeler Americas Limited

## **APPENDIX C**

### **LIST OF POTENTIALLY APPLICABLE PERMITS AND AUTHORIZATIONS**

List of Potentially Applicable Permits and Authorizations (Provincial, Federal, Municipal)

<b>Approval Potentially Required</b>	<b>Legislation / Regulation</b>	<b>Project Component / Activity Requiring Approval or Compliance</b>	<b>Department or Agency</b>	<b>Requirements</b>
<b>Government of Newfoundland and Labrador</b>				
License to Occupy Crown Land	<i>Lands Act</i>	Any development on Crown Lands	Crown Lands Administration, Department of Fisheries and Land Resources	Approval is required for Project activities and infrastructure on Crown Land.
Commercial Cutting Permit  Operating Permit	<i>Forestry Act and Cutting of Timber Regulations</i>	Clearing land areas for the access road and drill site	Forestry and Agrifoods Division, Department of Fisheries and Land Resources	A permit is required for the commercial cutting of timber on Crown Land.
Permit to Burn	<i>Forestry Act and Forest Fire Regulations</i>	Any burning required during Project clearing	Forestry and Agrifoods Division, Department of Fisheries and Land Resources	A permit is required to light fires outdoors between April and December. Permits are not issued during forest fire season.
Certificate of Approval for any Alteration to a Body of Water	<i>Water Resources Act</i>	Any activities which may alter a water body	Water Resources Management Division, Department of Municipal Affairs and Environment	Approval is required before starting construction activities within 15 metres of any water body. Construction activities include all stream crossings, drainage works and any other work such as landscaping, clearing or cutting of any natural vegetation within 15 metres of a body of water.
Compliance Standard	<i>Water Resources Act, Environmental Control Water and Sewage Regulation</i>	Any waters discharged from the Project site	Water Resources Management Division, Department of Municipal Affairs and Environment	A person discharging materials into a body of water must comply with the standards, conditions and provisions prescribed in these regulations for the constituents, contents or description of the discharged materials.  This Permit, if granted, will contain specific terms and

<b>Approval Potentially Required</b>	<b>Legislation / Regulation</b>	<b>Project Component / Activity Requiring Approval or Compliance</b>	<b>Department or Agency</b>	<b>Requirements</b>
				conditions to prevent water quality degradation during construction and for the life of the project and may include requirements for water quality monitoring and reporting.
Policy Directives	<i>Water Resources Act</i>	Project activities	Water Resources Management Division, Department of Municipal Affairs and Environment	The Department has a number of potentially applicable policy directives in place for specific types of work and/or work in sensitive areas.
Compliance Standard	<i>Environmental Protection Act, Air Pollution Control Regulations</i>	On-site generators	Pollution Prevention Division, Department of Municipal Affairs and Environment	The Regulations outline specific ambient air quality standards and emission standards, as well as relevant engineering design (e.g., stack height) requirements and other provisions
Mobile Fuel Storage Tank Relocation Request Form	<i>Environmental Protection Act and Environmental Guidelines for Fuel Cache Operations</i>	Temporary fuel storage	Engineering Services Division, Service NL	A permit is required for any temporary fuel storage in a remote location.
Compliance Standard	<i>Occupational Health and Safety Regulations</i>	Compliance with Regulations and standards	Occupational Health and Safety Division, Services NL	Compliance
Compliance Standard	<i>Dangerous Goods Transportation Act and Regulations</i>	Storing, handling and transporting fuel, oil and lubricants	Department of Transportation and Works	If the materials are transported, handled and stored fully in compliance with the regulations, a permit is not required. A Permit of Equivalent Level of Safety is required if a variance from the regulations is necessary. Transporting goods considered dangerous to

<b>Approval Potentially Required</b>	<b>Legislation / Regulation</b>	<b>Project Component / Activity Requiring Approval or Compliance</b>	<b>Department or Agency</b>	<b>Requirements</b>
				public safety must comply with regulations.
Compliance Standard	<i>Health and Community Services Act, Sanitation Regulations</i>	Sewage and waste disposal	Department of Health and Community Services, or Services NL	Outlines standards for sewage and waste disposal.
Compliance Standard	<i>Occupational Health and Safety Act and Regulations</i>	Project-related occupations	Service NL	Outlines minimum requirements for workplace health and safety. Workers have the right to refuse dangerous work. Proponents must notify Minister of start of construction for any project greater than 30 days in duration.
Compliance Standard	<i>Occupational Health and Safety Act, Workplace Hazardous Materials Information System Regulations</i>	Handling and storage of hazardous materials	Operations Division, Service NL	Outlines procedures for handling hazardous materials and provides details on various hazardous materials.
<b>Government of Canada</b>				
Letter of Advice for Works or Undertakings Affecting Fish Habitat	<i>Fisheries Act</i>	Construction of watercourse crossing or any other activities in or near water that may support a fishery	Fisheries and Oceans Canada	If Project construction is able to adhere to planning guidance found in DFO Operational Statements there is no DFO review required. Instead, DFO requests that an Operational Statement Notification Form be submitted to them. If the Project construction can not adhere to guidance found in the relevant Operational Statements, a Request for Project Review application is required to be submitted to DFO.

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
				DFO will make a determination on the level of risk associated with the project activity. If it is determined to be a low risk then a Letter of Advice would be issued. If it is determined to be a higher level of risk an Authorization may be required.
Work Approval for Construction Within Navigable Waters	<i>Navigable Waters Protection Act</i> and Regulations	Construction of watercourse crossing, docks, and any other in-water work.	Transport Canada	A permit is required for certain works or construction activity located below the high water mark, either over, under, through or across any navigable waters. Any in-water works will be reviewed against the Minor Works and Waters Order pursuant to Section 13 of the <i>Navigable Waters Protection Act</i> to determine if they meet the criteria of a "minor" work or water, and if further review and approval is required.
Compliance Standard	<i>Fisheries Act</i> , Section 36(3), Deleterious Substances	Any run-off from the Project site being discharged to receiving waters	Environment Canada	Environment Canada is responsible for Section 36(3) of the <i>Fisheries Act</i> . Discharge must not be deleterious and must be acutely non-lethal.
Compliance Standard	<i>Migratory Birds Convention Act</i> and Regulations	Any activities which could result in the mortality of migratory birds and endangered species and any species under federal authority	Canadian Wildlife Service, Environment Canada	Prohibits disturbing, destroying or taking a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, and possessing a live migratory bird, carcass, skin, nest or egg.

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
<b>Municipalities</b>				
Approval for Waste Disposal	<i>Urban and Rural Planning Act, 2000</i> , and Relevant Municipal Plan and Development Regulations	Waste disposal	Town of St. Anthony	The use of a community waste disposal site in Newfoundland and Labrador by proponents/contractors to dispose of waste requires municipal approval. Restrictions may be in place as to what items can be disposed of a municipal disposal site.

