# Main Branch LaHave

**Sub-watershed** 

## **Fish Habitat**

## **Restoration Plan**

2018

**Prepared by** LaHave River Watershed Project Bluenose Coastal Action Foundation





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#### 1. Restoration Plan Objectives

The LaHave River Watershed Project began in 2007 with the goals of developing a long-term record of the river's health through water quality monitoring and developing a watershed management plan. The LaHave River Watershed is a large (1,700 km<sup>2</sup>), highly branched system, therefore, development of a watershed management plan is being been done on a more feasible sub-watershed scale. Sub-watershed Fish Habitat Restoration Plans have been developed for several sub-watersheds in the LaHave and these documents are often adapted and updated as new information is collected.

The objective of this restoration plan is to develop a sound understanding of the environmental conditions within the Main Branch Sub-watershed, which will contribute to the overall goal of a LaHave River Watershed Management Plan. By assessing factors such as land-use practices, aquatic connectivity, fish habitat conditions, riparian health, and water quality, we will be able to identify harmful environmental impacts and carry out restoration activities to address the issues.

Objectives	<ul> <li>Investigate land-use practices within the sub-watershed and identify the potential environmental impacts stemming from these practices</li> <li>Assess aquatic connectivity within the sub-watershed by identifying culverts and debris blockages which are impeding fish passage</li> <li>Assess the riparian and in-stream fish habitat conditions of the watercourses within the sub-watershed</li> <li>Identify and prioritize areas within the sub-watershed which are in need of restoration activities (ie: digger logs, bank stabilization, riparian planting, debris removal, livestock fencing)</li> </ul>
Specific Goals	<ul> <li>GIS analysis of the sub-watershed to identify land-use types, stream crossing locations, and high priority areas in need of assessment</li> <li>Complete habitat assessments in watercourses within the sub-watershed (fish habitat, riparian health, water quality)</li> <li>Complete an assessment of aquatic connectivity within the sub-watershed by conducting culvert assessments and Identifying and prioritizing barriers to fish passage for remediation</li> <li>Complete various restoration projects within the sub-watershed to enhance fish habitat and improve the health of the LaHave River Watershed</li> <li>Complete various public education and outreach initiatives to engage the public in local environmental issues, provide volunteer opportunities, and foster a sense of watershed stewardship within the local communities</li> </ul>



### 2. Introductory Information – Main Branch Sub-Watershed

1	Location in province (town[s], county, and region)	Watershed: LaHave River Watershed Location: Lunenburg County; Nova Scotia Southern Upland Region Nearest Communities: Springfield Dalhousie Crossburn Stoddarts Cherryfield
2	Watershed area (square km)	The LaHave River watershed is approximately 1700 km <sup>2</sup> , and the Main Branch Sub-watershed is approximately 317.57 km <sup>2</sup> .
3	Watershed drains into (include coordinates of confluence)	The Main Branch discharges into the Main River at the following location: N 49°40'20.2" E 35°94'03"
4	Distance of watercourse mouth from ocean (km)	The confluence of Main Branch and the LaHave River is approximately 83.39 km from open ocean.
5	Distance of watercourse mouth from head of tide (km)	37.46 km
6	Natural watercourse width at mouth (m)	66.91 m
7	Length of watercourse (km)	The length of the watercourse runs 50.51 km.
8	Elevation at headwaters (m)	~215m
9	Elevation at mouth (m)	~70m
10		There are 42 lakes within the sub-watershed: Cloud Lake 2.24km <sup>2</sup>



	Lake(s) within watershed (provide name[s], approx. size [square km] and known or suspected impacts)	Chimney Lake 0.11km <sup>2</sup> Lily Lake 0.02 km <sup>2</sup> Shell Camp Lake 1.69 km <sup>2</sup> Frog Lake 2.53 km <sup>2</sup> Cross Lake 0.19 km <sup>2</sup> Little Marshall Lake 0.088 km <sup>2</sup> Big Marshall Lake 0.088 km <sup>2</sup> Peter Lake 0.17 km <sup>2</sup> Mistake Lake 0.19 km <sup>2</sup> Donnellan Lake 0.16 km <sup>2</sup> Foster Woodbury Lake 0.08 km <sup>2</sup> Lunenburg Lake 0.41 km <sup>2</sup> Birchbark Lake 0.47 km <sup>2</sup> Spry Lake 1.01 km <sup>2</sup> Trout Hole 0.02 km <sup>2</sup> Harris Lake 0.14 km <sup>2</sup> Lake Ezra 0.11 km <sup>2</sup> East Twin Lake 0.14 km <sup>2</sup> Joe Simon Lake 1.48 km <sup>2</sup> Freds Lake 0.018 km <sup>2</sup>
		Lake Ezra 0.11 km² East Twin Lake 0.14 km² West Twin Lake 0.14 km² Joe Simon Lake 1.48 km²
		Freds Lake 0.018 km <sup>2</sup> Manthorne Stillwater 0.14 km <sup>2</sup> Bog Lake 0.12 km <sup>2</sup>
		Little Sucker Lake 0.11 km <sup>2</sup> Big Sucker lake 0.36 km <sup>2</sup> Sucker Lakes 0.05 km <sup>2</sup> Deter/a Gtilluuter 0.20 km <sup>2</sup>
		Tanner Lake 0.12 km <sup>2</sup> Ell Lake 0.24 km <sup>2</sup> Rocky Lake 0.097 km <sup>2</sup>
		Lily Lake 0.0077 km <sup>2</sup> Little Long Lake 0.212 km <sup>2</sup> Lower Sixty Lake 0.67 km <sup>2</sup>
		Upper Sixty Lake 0.64 Km <sup>2</sup> Folly Lake 0.12 km <sup>2</sup> Grassy Lake 0.01 km <sup>2</sup>
		Lower Thirty Lake 0.49 km <sup>2</sup> Upper Thirty Lake 0.38 km <sup>2</sup> Miletree Lake 0.51 km <sup>2</sup> Crowser Lake 0.065 km <sup>2</sup>
		Springfield Lake 0.85 km <sup>2</sup>
	Significant tributaries within watershed (name[s] and length[s])	Tributaries of the Main Branch Sub-watershed:
.1	(	Mason Meadow Brook 6.44km



		Mason Brook 5.29km			
		Roop Brook 14.6km			
		Sixty Brook 8.7km			
		Bog Brook 8.7km			
		Crossburn Brook 4.7km			
		Ell Lake Brook 5.9km			
		Shell Camp Stream 16.0km			
		Spry River 5.2km			
		Twin Brooks 2.59km			
		Donnellan Brook 5.4km			
		Cloud Lake Brook 14.8km			
		Black Brook 7.5km			
		Birchbark Brook 5.1km			
		Joe Simpson Stream 5.0km			
		Sucker Brook 5.8km			
12	Most common substrate type and size	fines gravel coulder and bedrock are present			
		Soils			
	Soil type(s) and geological	The Main Branch Sub-watershed is dominated by the			
		Bridgewater Sandy Loam, which is a slaty light brown sandy			
		loam over yellowish-brown sandy loam. The Bridgewater loam-			
		drumlin phase is evenly distributed in drumlins throughout the			
		sandy loam and is a light brown sandy loam over yellowish –			
		brown grading to light olive sandy loam. It is well drained and			
		provides for good cropland.			
		The Wolfville loam (drumlin phase) is dark brown loam over			
		yellowish red loam or sandy clay loam. It is well drained and			
		provides for good crop land and mixed farming.			
13	characteristics	The Rawdon loam is moderately coarse to medium textured			
		shaly till, some coarse-skeletal shaly till. Moderate to rapid			
		permeability.			
		The Gibraitar loam is moderately coarse to very coarse textured			
		stony till, commonly gravelly and shallow to bedrock, moderate			
		to rapid permeability. Reckland: Stopy, this, coarse toytured till in hollows with			
		hodrock (Chiefly grapite, guartzite, or schief) occupying more			
		than 50% of the surface.			
		Bedrock:			
		The predominant bedrock geology is the Meguma Group broken			
		into the Goldenville Formation and the Halifax Formation. The			



		Goldenville Formation consists of sandstone turbidites and slate, while the Halifax Formation is composed of slate, siltstone, minor sandstones, and Iron-Magnesium nodules.
14	Average water temperature in summer	Source: Cann, D.B., and J.D. Hilchey. Soil Survey of Lunenburg County Nova Scotia 19.475°C (2017 Falkland Ridge temperature data)
15	Peak water temperature	20.4°C (June) (2017 Falkland Ridge temperature data)
16	pH range	The pH within the main river of the Main Branch ranges between 6-7, this range is ideal for fish habitat. The pH along many small tributaries within the Main Branch is low, ranging from 3 -5. Due to the remote location of many of these sites, agriculture is unlikely to be influencing pH, this may be a natural occurrence due to wetlands or geology.
17	Native fish species present	American eel, Atlantic salmon, Gaspereau, Brook trout, Brown bullhead, Creek chub, Lake chub, Blacknose shiner, Common shiner, Golden shiner, White sucker, Yellow perch, and White perch. <b>Note:</b> This is not a complete list and is not specific to the Main Branch Sub-watershed currently.
18	Non-native fish species present	Smallmouth bass have been confirmed throughout a large portion of the Main Branch Sub-watershed
19	Endangered / threatened / at risk species present (aquatic or non- aquatic)	The following is an incomplete and unconfirmed list of provincial species at risk which may occur within the Main Branch Sub- watershed: Southern Upland Atlantic salmon: Endangered Bank Swallow – Endangered Gypsy Cuckoo Bumble Bee – Endangered Monarch butterfly – Endangered Tall Beakrush – Endangered Little Brown Myotis – Endangered Northern Myotis – Endangered



Tri-colored Bat - Endangered
Vole Ears – Endangered
Barn Swallow – Endangered
Canada Warbler – Endangered
Rusty Blackbird – Endangered
Plymouth Gentian - Endangered
Ram's-Head Lady Slipper – Endangered
Chimney Swift – Endangered
Eastern Mainland Moose – Endangered
American Marten - Endangered
Water-Pennywort – Endangered
Blanding's Turtle – Endangered
Pink Coreopsis – Endangered
Thread-leaved Sundew – Endangered
Black foam lichen – Threatened
Eastern water fan – Threatened
Wrinkled shingle lichen – Threatened
Black Ash – Threatened
Brook Floater – Threatened
Eastern Baccharis – Threatened
Olive- sided Flycatcher – Threatened
Eastern Whip-poor-will – Threatened
Wood Turtle – Threatened
Common Nighthawk – Threatened
Eastern Ribbonsnake – Threatened
Evening Grosbeak – Vulnerable
Yellow-banded bumble bee – Vulnerable
Spotted Pondweed – Vulnerable
Snapping Turtle – Vulnerable
Blue Felt Lichen – Vulnerable
Eastern Wood Peewee - Vulnerable
Bobolink – Vulnerable
Golden-crest - Vulnerable
Tubercled Spike-rush – Vulnerable
Eastern White Cedar – Vulnerable
Eastern Lilaeopsis – Vulnerable
New Jersey Rush – Vulnerable
Long Bulrush – Vulnerable
Sweet Pepperbush - Vulnerable
Sourcos
COSEWIC 2012 Atlantic Salmon - Nova Scotia Southern Unland
COSE VVIC. 2012. Attantic Samon – Nova Scotta Southem Opiano
Nova Scotia Species at Pick Guide 2 <sup>nd</sup> edition
INUVA SCULIA SUELIES AL NISK GUIUE Z EULLULI.



		Nova Scotia Department of Natural Resources, Nova Scotia's			
		Species at Risk.			
		Speckled trout:			
		April 1 to September 30			
		Bag limit: 5 fish per day			
		September 1 to September 30 no speckled trout may be			
		retained, and natural bait is prohibited in all waters for all trout			
		species, including Special Trout Management Areas, except for			
		waters with extended seasons for trout.			
		White Perch and Yellow Perch:			
		April 1 to October 30			
		Bag limit: 25 fish			
20	Angling	Chain Pickerel:			
		Open season coincides with an open season for sportfish April 1			
		to October 31			
		Bag limit: 100 fish			
		Smallmouth bass:			
		April 1 to October 31			
		Bag limit: 5 fish			
		Atlantic Salmon:			
		Closed all season			
		Throughout the watershed, there are areas where forestry clear-			
		cutting has occurred, as well as Christmas Tree farming. Where			
		ideally a minimum riparian zone of $30 - 40$ m would be kept			
		along the perimeter of the watercourse, there are several			
		sections where the clear cutting extends to the water's edge.			
		Under the N.S. Wildlife Habitat and Watercourses Protection			
		Regulations, forest harvesters are required to maintain a 20m			
		riparian buffer along all watercourses.			
22	Forestry activities and impacts				
	(explain)	Unfortunately, the Department of Natural Resources no longer			
		tracks compliance of this regulation annually and has never seen			
		more than a 30% compliance rate. As well, there are several			
		instances where logging roads or old trails pass through the			
		watercourse. These practices have a major impact on the water			
		quality and wildlife habitat in the area. With a lack of healthy			
		riparian area, fish habitat may be destroyed due to a rise in			
		water temperature from lack of shade. As well, an increase in			



		runoff and infiltration may occur due to the decrease in riparian vegetation. This increase in runoff and infiltration may increase the fines found in the watercourse, filling in substrate and creating inadequate spawning ground. The lack of riparian vegetation may lead to a decrease in the food supply available for aquatic species.
		During stream assessments, forestry activity was seen along almost all major streams, in most cases forestry activity was set back approximately 50m from the bank. There were a few cases where the forest had been cleared or cut right up to the bank either for forestry, power lines, or roads.
		Sources: Nova Scotia Environment. 2013. Wildlife Habitat and Watercourses Protection Regulations. Rankin, J. & Miller, M. 2014. 'Province Failing on Water Governance'.
23	Urban/residential development impacts (explain)	Human development is relatively low in the Main Branch, consisting mainly of rural communities, cottages, and recreational trails. Most of the human development occurs within the southern portion of the Main Branch, including the communities of Dalhousie, Falkland Ridge, Hastings, and Cherryfield. The Cloud Lake Wilderness Area protects much of the northern portion of the Main Branch from human activity. Surrounding the wilderness area are a few recreational ATV and snowmobile trails as well as a few cabins and homesteads.
24	Agricultural impacts (explain)	Agricultural impacts within the Main Branch are very low. Agriculture in this sub-watershed consists of a few hobby farms and some Christmas tree plantations.
25	Other industry impacts (explain if applicable)	Acid rain has a major impact on water quality, wildlife, and wildlife habitat within the watershed. If soils are unable to buffer or neutralize the effects of the acid rain, then a decrease in pH of water and soils will occur. This decrease in pH can cause the destruction of certain species of wildlife and vegetation who cannot thrive at a low pH. Many rivers in Southwestern NS have been significantly impacted by acid precipitation due to the poor buffering capacity of soils in this region. Acidification impacts have been more severe in the western half of the LaHave River Watershed, due to the high acid rock drainage potential of that area.



		As well, a low pH can cause metals to precipitate out of soil and water, where it may then accumulate in salmonids. This accumulation causes physical stress on the fish and may result in poor reproductive capability. Destruction of emerging fry or successfully laid eggs may occur due to low water pH. Sources: Trudell, L. L. and White, C. E. 2013. Overview map showing locations of bedrock acid rock drainage potential maps for the southwestern area of Nova Scotia.
26	Historical conditions, impacts and considerations	There was a fair amount of evidence of forestry activities in the past. Logging roads were very common in and around the Cloud Lake Wilderness Area. It was noted that a road crossed Upper Sixty Lake at one point but has since been removed.
27	Other information	



#### 3.Main Branch Sub-Watershed stream crossing maps and culvert assessment data

Main Branch Sub-Watershed Boundary Map



Sub-watersheds of the LaHave River Watershed





Map showing all crossings assessed thus far in the Main Branch Sub-Watershed.



Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





#### Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





#### Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan





Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan



Map 7



Main Branch LaHave Sub-Watershed Fish Habitat Restoration Plan



Culvert ID	Photo	Stream Name/ Road Name	Coordinates	Culvert Information	Site Details	Barrier Status	Prescription for Restoration	Project Priority Ranking	Project Status
				Γ		Γ	Γ	1	
MBT001		Un-named stream, tributary to main river Cherry Field Rd.	E 0356406 N 4942679	Material: Corrugated Metal Pipe Shape: Circular Entrance: Headwall Baffles: Absent Deformed: Yes- caving-in Culvert Bottom: Unnatural	Date: May 1, 2018 Crew: Leah R, Sam R Culvert Slope (%):2.56 Outflow Drop (cm): -0.02 Notes:	Partial barrier	Potential need for a weir/chute	Low	Incomplete
MBT002		Un-named stream, tributary to main river North River Road	E 0356964 N 4944208	Material: Concrete Shape: Open Arch Entrance: Baffles: Absent Deformed: No Culvert Bottom: Unnatural	Date: May 1, 2018 Crew: Leah R, Sam R Culvert Slope (%): 1.82 Outflow Drop (cm): -0.22 Notes:	Partial Barrier	N/A	Low	Incomplete
							-	•	
MMB001		Mason Meadow Brook Tributary Hwy 10	E 0354542 N 4943768	Material: Concrete Shape: Box Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 3, 2018 Crew: Leah R, Sam R Culvert Slope (%): N/A Outflow Drop (cm): N/A Notes: Unable to take elevations due to steep river bank	Full barrier	Large outflow drop, would require mini fishway for passage	Low	Incomplete
HAS001		Un-named stream Hastings Road	E 0354525 N 4943788	Material: Corrugated Metal Pipe Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 3 <sup>rd</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%): -0.17 Outflow Drop (cm): 0.25 Notes:	Full Barrier	Needs weir/chute installed	Medium	Incomplete

Culvert ID	Photo	Stream Name/ Road Name	Coordinates	Culvert Information	Site Details	Barrier Status	Prescription for Restoration	Project Priority Ranking	Project Status
RID001		Un-named stream Ridge Road	E 0351983 N 4948574	Material: Corrugated Metal Pipe (Annular) Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 4 <sup>th</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%): 3.68 Outflow Drop: 0.13 Notes:	Full Barrier	Requires a weir/chute and potentially baffles.	Medium	Incomplete
RID002		Un-named stream Ridge Road	E 0354016 N 4945714	Material: Corrugated Metal Pipe (Spiral) Shape: Circular Baffles: Absent Deformed: Yes – caving in Culvert Bottom: Unnatural	Date: May 10 <sup>th</sup> , 2018 Crew: Leah R, Kaylee M Culvert Slope (%): N/A Outflow Drop: N/A Notes: Unable to take elevations due to steep river bank	N/A	Needs to be surveyed	Medium	Incomplete
		[	<b></b>	<b></b>	[				
RBT001		Roop Brook Tributary	E 034643 N 4947212	Material: Corrugated Plastic and metal (Annular) Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 4 <sup>th</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%):1.19, -1.0 Outflow Drop: 0.33, 0.03 Notes: 3 culverts at site, two plastic culverts are the same	Partial Barrier	No need for restoration as other non- barrier culvert is present	N/A	N/A
SBT001		Sixty Brook Tributary Eddy Drive	E 0355638 N 4952412	Material: Corrugated Plastic Shape: Circular Baffles: Absent Deformed: No Culvert Bottom: Unnatural	Date: May 2 <sup>nd</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%): 2.75 Outflow Drop: 0.23 Notes:	Full Barrier	Potential need for baffles/chutes	Medium	Incomplete
SBT002		Sixty Brook Tributary		Material: Corrugated Plastic Shape: Circular	Date: May 2 <sup>nd</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%): 2.0				

Culvert ID	Photo	Stream Name/ Road Name	Coordinates	Culvert Information	Site Details	Barrier Status	Prescription for Restoration	Project Priority Ranking	Project Status
		On logging road off Camel Hill Drive	E 0354860 N 4951054	Baffles: Absent Deformed: Yes – caving in Culvert bottom: Unnatural	<b>Outflow Drop:</b> 0.02 Notes: Saw larval fish and one large trout	Partial Barrier	Potential need for baffles/chute	Medium	Incomplete
LOW001		Un-named stream Lowe Road	E 0357934 N 4956591	Material: Corrugated Metal Pipe (Spiral) Shape: Circular Baffles: Absent Deformed: No Culvert Bottom: Unnatural	Date: May 8 <sup>th</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%): 2.92 Outflow Drop: -0.3	Partial Barrier	N/A	Low	Incomplete
		1		1		1	r	1	[
ELB001		Ell Lake Brook Alton Road	E 0356734 N 4955846	Material: Concrete Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 8 <sup>th</sup> , 2018 Crew: Leah R, Sam R Culvert Slope (%):0 Outflow Drop: -0.02	No Barrier	N/A	N/A	N/A
ALT001		Unknown stream flowing into upper sixty lake Alton Road	E 0357363 N 4958727	Material: Corrugated Metal Pipe (Spiral) Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 9 <sup>th</sup> , 2018 Crew: Leah R, Sam R, Kaylee M Culvert Slope (%): 0.28 Outflow Drop: 0.06 Notes: Culvert bottom has rotted and is slowly deteriorating	No Barrier	N/A	N/A	N/A

Culvert ID	Photo	Stream Name/ Road Name	Coordinates	Culvert Information	Site Details	Barrier Status	Prescription for Restoration	Project Priority Ranking	Project Status
ALT002		Unknown stream Alton Road	E 0357479 N 4960694	Material: Corrugated Metal Pipe (Spiral) Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 9 <sup>th</sup> , 2018 Crew: Leah R, Sam R, Kaylee M Culvert Slope (%): 6.02 Outflow Drop: -0.12	Full Barrier	Needs chute/weir installed	Medium	Incomplete
ALT003		Unknown Stream Alton Road	E 0358347 N 4962726	Material: Corrugated Metal Pipe (Spiral) Shape: Circular Baffles: Absent Deformed: Yes Culvert Bottom: Unnatural	Date: May 9 <sup>th</sup> , 2018 Crew: Leah R, Sam R, Kaylee M Culvert Slope (%):1.89 Outflow Drop: -0.33 Notes: Culvert has a variable slope	Partial Barrier	N/A	Low	Incomplete
		Unknown		Material: Concrete Shape: Circular	<b>Date:</b> May 9 <sup>th</sup> , 2018				
ALT004		stream Alton Road	E 0358247 N 4962734	Baffles: Absent Deformed: No Culvert Bottom: Unnatural	Crew: Leah R, Sam R, Kaylee M Culvert Slope (%): 0.79 Outflow Drop: -0.15	Partial Barrier	Needs chute/weir	Medium	Incomplete

## 4. Stream assessments and Restoration Opportunities - Main Branch Sub-watershed

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
MB001	Just upstream of bridge on Cherryfield road. Large rock near right bank creating an island.	E 0390030 N 4922932		Left Bank: Mature hardwood softwood mix- large pine + hemlock in riparian area. Bank has a gradual slope and is covered by grasses/ferns. <b>Right Bank:</b> Hardwood/softwood mix gradual slope covered with grasses. Water Description: Pool- riffle, tannin in Color, lots of surface bubbles. Wetted Width: 15m Bankfull Width: 20m Left Floodplain: 15m Right Floodplain: 5m Average Depth: 35cm Thalweg: 50cm Shade (%): 10 Embeddedness (%): 10 Inverts Present: Yes: Stonefly, Mayfly, caddisfly, small dark worms Substrate (% Coverage and Type): 60% cobble, 10% bolder, 20% gravel, 10% fines Riparian Health Assessment Score: 40	Cherryfield road plus ATV trail going through left bank riparian area.			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
MB002	River has braided, is still quite wide and shallow, lots of surface bubbles	E 0356474 N 4943148		Left Bank: Softwood dominant, gradual slope, covered by grasses and vegetation. Right Bank: Softwood / hardwood mix, gradual slope covered by grasses and ferns. Water Description: Riffle – run mix Wetted Width: 30m Bankfull: 40m Left Floodplain: 2m Right Floodplain: 2m Average Depth: 30cm Thalweg: 35cm Shade (%): 10 Embeddedness (%): 10 Inverts Present: Yes; caddisfly, stonefly Substrate (% Coverage and Type): 50% boulder, 20% cobble, 20% fines, 10% gravel Riparian Health Assessment Score: 47 YSI Temperature: Pressure: DO %: DO mg/L: SPC: TDS Salinity: pH:	ATV trail on left bank			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
MB003	Braided downstream, deep slow moving, some still water. Wider than downstream,	E 0356322 N 4943743		Left Bank: Steep slope, lots of hemlock and red maple. Lots of boulders and moss <b>Right Bank:</b> Steep bank, dominated by hemlock, maple, and white pine <b>Water Description</b> : Slow moving, tannin in colour <b>Wetted Width:</b> 25m <b>Bankfull:</b> 25m <b>Left Floodplain:</b> 4m <b>Right Floodplain:</b> 2m <b>Average Depth:</b> 70cm <b>Thalweg:</b> 80cm <b>Shade (%):</b> 10 <b>Embeddedness (%):</b> 50 <b>Inverts Present:</b> caddisfly, stonefly, mollusk <b>Substrate (% Coverage and Type):</b> mostly boulder (too deep to estimate %) <b>Riparian Health</b> <b>Assessment Score:</b> 54 Notes: Fish jumping, caught one smallmouth bass				
MB004	Large pool, small rapids upstream and downstream. Lots of exposed bedrock in stream.	E 0356366 N 4943956		Left Bank: Hardwood/ softwood mix, lots of ferns/ grasses, gradual sloping bank. Right Bank: Hardwood / softwood mix, steeper sloping bank. Lots of ferns/ grasses Water Description: Dark tannin, riffle – pool - riffle	Some forestry activity approx. 40m back on left bank.			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Wetted Width: 30m				
				Left Floodplain: 4m				
				Right Floodplain: 4m				
				Average Depth: 50cm				
				Thalweg: 65cm				
				Shade (%): 15				
				Inverts Present Mollusk				
				stonefly, caddisfly				
				Substrate (% Coverage and				
				<b>Type):</b> 60% bedrock, 20%				
				boulder, 20% cobble				
				Rinarian Health				
				Assessment Score: 54				
				<u>YSI</u>				
				lemperature: Prossure:				
				DO %:				
				DO mg/L:				
				SPC:				
				TDS Salimitan				
				Sallnity: nH•				
				bir.				
				Notes: Caught one				
				smallmouth bass				
				Left Bank: Hardwood				
	Stream has			dominant, lots of red maple.				
	narrowed			Many ferns and grasses along				
	some, lots of	E 005-5000		bank, land is level.				
MB005	exposed	E 0356229		Right Bank: Hardwood/				
	boulders	IN 4944370		and mosses on bank steep				
				slope				
				Water Description: Dark.				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Site				slow moving, small foam patches on top. Wetted Width: 20m Bankfull: 25m Left Floodplain: 10m Right Floodplain: 1m Average Depth: 70cm Thalweg: 80cm Shade (%): 25 Embeddedness (%): 20 Inverts Present: Mollusk, dragonfly, caddisfly Substrate (% Coverage and Type): 50% bedrock, 15% boulder, 20% fines, 15% cobble Riparian Health				
	I area daan			Assessment Score: 54 <u>YSI</u> Temperature: Pressure: DO %: DO mg/L: SPC: TDS Salinity: pH: Notes: 30min angling caught 0 fish	Forastry - 20m back on			
MB006	Large deep pool followed by rapids, stream braids around an island, lots of	E 0356086 N 4944651		Left Bank: Softwood dominant over story, very steep all the way down to the stream, lots of grasses / ferns. Right Bank: Hardwood/ softwood mix, very steep	Forestry ~30m back on right bank			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	large boulders.			bank mostly covered by moss. Water Description: Dark slow moving, run- riffle- pool habitat Wetted Width: 35m Bankfull: 37m Left Floodplain: 0m Average Depth: 90-100cm Thalweg: 110cm Shade (%): 15 Embeddedness (%): 10 Inverts Present: Mollusk, stonefly, caddisfly, mayfly Substrate (% Coverage and Type): 60% boulder, 10% cobble, 20% fines, 10% gravel Riparian Health Assessment Score: 54				
MB007	Stream has widened even more, looks to be quite deep. Acting similar to a wetland.	E 0355840 N 4944710		Left Bank: Small floodplain leading back to forest, softwoods/hardwoods, red maple and white pine, level slope. Right Bank: Floodplain/ forest lots of red maple/ white pine, steeper slope, lots of water loving grasses. Water Description: Deep, barely flowing, dark Wetted Width: 40m Bankfull: 40m Left Floodplain: 20m Right Floodplain: 10m	Forestry clear cut on right bank ~30m up bank			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Average Depth: 80cm Thalweg: 100+cm Shade (%): 10 Embeddedness (%): too deep Inverts Present: too deep Substrate (% Coverage and Type): fines and organics Riparian Health Assessment Score: 50 <u>YSI</u> Temperature: Pressure: DO %: DO mg/L: SPC: TDS Salinity: pH: Notes: Caught one smallmouth bass				
MB008	Riffle-run habitat, lots of boulders and rocks, fast flowing water. Site just off the bridge on East Dalhousie Road.	E 0352671 N 4950598		Left Bank: Hardwood and softwood mix (hemlock, fir, and maple are present), lots of woody shrubs and disturbance veg within 5m from the road. Bank is mostly made up of bedrock, little shade due to road. Right Bank: About the same as the left bank but more hardwood dominant. Water Description: Tannin in color, fast moving, lots of riffles and bubbles in the water	Camel hill/ east Dalhousie road and bridge just upstream			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Jite				Wetted Width: 12m Bankfull: 14m Left Floodplain: 5m Right Floodplain: 5m Average Depth: 66-80cm Thalweg: ~130cm Shade (%): 10 Embeddedness (%): 40 Inverts Present: Stonefly, caddis +fly, mayfly Substrate (% Coverage and Type): 10% gravel, 60% bolder, 40% bedrock Riparian Health Assessment Score: 37 <u>YSI</u> Temperature: 17.0 Pressure: 751.0 DO %: 94 DO mg/L: 8.9 SPC: 0.025 TDS: 16.25 Sclinitm 0.01				
	Stream widens into a large pool, grassy island and shallow	E 0352002 N 4950473		<b>pH:</b> 6.51 <b>Left Bank:</b> Mix hardwood and softwood stand (lots of maple, alder, hemlock). Lots of shrub species and ferns along the bank.	Old (10 yrs+) clear cut starting ~ 15m behind left bank			
MB009	water			<b>Right Bank:</b> Mix stand, more diversity (alder, hemlock, fir, maple, and beech), many ferns and shrubs along banks. <b>Water Description</b> : Tannin				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				in color, slow moving, large pool habitat Wetted Width: 48m Bankfull: 49m Left Floodplain: 7m Right Floodplain: 10m Average Depth: ~50cm Thalweg: 80cm Shade (%): 5 Embeddedness (%): 40 Inverts Present: Stonefly, caddisfly, mayfly, mollusks Substrate (% Coverage and Type): 30% bedrock, 40% fines, 20% boulder, 10% cobble Riparian Health Assessment Score: 49 <u>YSI</u> Temperature: 18.2 Pressure: 750.9 DO %: 89 DO mg/L: 8.4 SPC: 0.025 TDS: 16.25 Salinity: 0.01 pH: 6.60				
MB010	Run habitat, narrow but slow-moving deep water, large pool upstream	E 0352817 N 4950358		Notes: Caught 1 bass Left Bank: Softwood/hardwood mix (spruce, hemlock, and maple) Right Bank: More open mix forest (spruce and maple), thick fern cover on banks, bare bedrock/ boulder. (looks like there is an old clearing				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				~15m from bank) Water Description: Tannin in color, slow moving, Wetted Width: 10m Bankfull: 11m Left Floodplain: 1m Right Floodplain: 0.5m Average Depth: ~1m Thalweg: 1.5cm Shade (%): 15 Embeddedness (%): 50 Inverts Present: Stonefly, caddisfly, mayfly, mollusks Substrate (% Coverage and Type): fines 15%, bedrock 25%, cobble 10%, boulder 50% Riparian Health Assessment Score: 49 <u>YSI</u> Temperature: 18.8 Pressure: 751 DO %: 89 DO mg/L: 8.2 SPC: 0.025 TDS: 16.25 Salinity: 0.01 pH: 6.63				
MB011	Waterfall, fast running water over bedrock. Flows into slower moving run	E 0352932 N 4950296		Left Bank: Bank made of boulder, mix hardwood and softwood stands (beech and maple), lots of small shrubs, some human activity (chopped firewood and signs of fishing)	Human activity (chopped wood and fishing line)			
Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
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	and then into a very wide (almost lake) pool			Right Bank: Mixed soft/ hardwood, lots of tree diversity, open floor, minimal ground cover. Water Description: Tannin in color, fast moving, white bubbles Wetted Width: 13m Bankfull: 14m Left Floodplain: 0.5m Average Depth: ~1m Thalweg: 1.5cm Shade (%): 5 Embeddedness (%): 50 Inverts Present: Caddisfly, mayfly, larvae, and water beetles Substrate (% Coverage and Type): fines 10%, bedrock 60%, cobble 10%, boulder 20% Riparian Health Assessment Score: 50 YSI Temperature: 19.6 Pressure: 750.9 DO %: 103 DO mg/L: 9.5 SPC: 0.025 TDS: 16.25 Salinity: 0.01 pH: 6.72				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
MB012	Stream widens into a large pool just under a waterfall.	E 0353014 N 4950261		Left Bank: Softwood dominant, mix of hemlock, maple, and fir. Lots of ferns and shrubs along the bank, above the bank ground is mostly covered in needles. Right Bank: About the same, mix of hemlock, maple, fir, and white pine. Looks like there is a clearing ~30m from the bank. Water Description: Tannin in color but very clear. Slow moving. Wetted Width: ~40m Bankfull: ~41m Left Floodplain: 10m Right Floodplain: 10m Average Depth: 40cm Thalweg: 60cm Shade (%): 5 Embeddedness (%): 20 Inverts Present: Substrate (% Coverage and Type): fines 70%, cobble 10%, and bolder 20% Riparian Health Assessment Score: 54 <u>YSI</u> Temperature: 20.2 Pressure: 750.9 DO %: 65 DO mg/L: 5.8 SPC: 0.025 TDS: 16.25 Salinity: 0.01 pH: 6.77				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
MB013	Slower moving run, island in the middle, widens upstream into small pond. Beaver activity.			Left Bank: Mixed hard/ softwood (oak, maple, some cedar), thick ferns and shrub cover. Right Bank: Mainly soft (cedar, spruce) some oak and maple, high bank, large boulders. Water Description: Tannin in color, moderate movement. Wetted Width: 18m Bankfull: 17.6m Left Floodplain: 3m Right Floodplain: 1m Average Depth: 50cm Thalweg: 1m Shade (%): 10 Embeddedness (%): 20 Inverts Present: Caddisfly Substrate (% Coverage and Type): fines 60%, cobble 25%, and bolder 10%, bedrock 5% Riparian Health Assessment Score: 53 <u>YSI</u> Temperature: 20.8 Pressure: 750.8 DO %: 101 DO mg/L: 9.0 SPC: 0.025				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				TDS: 16.25 Salinity: 0.01 pH: 6.62				
MB014	Braided upstream, mid moving riffle			Left Bank: Lots of ferns and grassed, softwood dominant (fir, spruce, pine, oak, and maple) <b>Right Bank:</b> Pool on left bank, forest is about the same as left bank. Water Description: Tannin in color, some bubbles on water Wetted Width: ~10m Bankfull: ~10m Left Floodplain: 20m Right Floodplain: 10m Average Depth: 70cm Thalweg: 90cm Shade (%): 5 Embeddedness (%): 40 Inverts Present: caddisfly, larvae, mollusk. Substrate (% Coverage and Type): boulder 40%, cobble 30%, fines 10%, bedrock 10%, gravel 10% Riparian Health Assessment Score: 57 <u>YSI</u> Temperature: 21.2 Pressure: 760.7 DO %: 66 DO mg/L: 7.6 SPC: 0.025				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				TDS: 16.25 Salinity: 0.01 pH: 6.75				
MB015	Stream braids, main channel to right side, fast flowing riffle	E 0353501 N 4950005		Left Bank: Mixed older hardwood/ softwood, smaller channel of braid has minimal water movement. Right Bank: Mainly hardwood, clearing beyond stand of trees, signs of soil erosion, heavy fern, shrubs, and grasses cover. Water Description: Tannin – fast moving. Wetted Width: 5m Bankfull: 12m Left Floodplain: 3m Right Floodplain: 6m Average Depth: 150cm Thalweg: 250cm Shade (%): 5 Embeddedness (%): 20 Inverts Present: caddisfly, stonefly, mayfly Substrate (% Coverage and Type): fines 10%, cobble 40%, and bolder 10%, bedrock 40 Riparian Health Assessment Score: 57 <u>YSI</u> Temperature: 21.6 Pressure: 750.8 DO %: 103 DO mg/L: 9.2	Some disturbance of right bank			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				SPC: 0.026 TDS: 16.26 Salinity: 0.01 pH: 6.90				
MMBT001	Culvert upstream at Cherrybrook road. Lots of boulders in stream. Habitat is similar to upstream habitat near culvert, banks are a little bit steeper.	E 0356413 N 4942701		Left Bank: Mix of hardwoods and softwoods, forest floor is covered in moss and small plants. Right Bank: Dominated by large hardwoods, some softwood saplings. More grassy type plants, banks are very similar on each side. Water Description: Some algae on boulders, riffle-run- pool habitat. Wetted Width: 3.7m Bankfull: 3.7m Left Floodplain: 0 Right Floodplain: 0 Average Depth: 19cm Thalweg: Shade (%): 50 Embeddedness (%): 25 Inverts Present: Yes; caddisfly, mollusks Substrate (% Coverage and Type): 60% gravel, 20% cobble, 20% bolder Riparian Health Assessment Score: 47 YSI	Road upstream, forest			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Temperature: 14°C Pressure: 755.5mmHg DO %: 103 DO mg/L: 10.4 SPC: 0.04 (μs/cm) TDS: 26 mg/L Salinity: 0.02ppt pH: 4.75				
MMBT002	Small waterfall/dro p that could block fish passage. Upstream is very narrow, downstream widens out.	E 0356453 N 4942734		Left Bank: Made up of large boulders and some soil, mix of hardwood and softwood trees. Right Bank: Made up of soil and boulders, larger older softwoods and some hardwood trees. Water Description: Clear water, lots of moss/ algae covering boulders. Wetted Width: 5.09 Bankfull: 5.09 Left Floodplain: 0.5 Right Floodplain: 0.5 Right Floodplain: 0 Average Depth: 0.05 Thalweg: Shade (%): 40 Embeddedness (%): 20 Inverts Present: None found Substrate (% Coverage and Type): 40% fines, 40% gravel, 20% bolder Riparian Health Assessment Score: 49				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<u>YSI</u> Temperature: Pressure: DO %: DO mg/L: SPC: TDS Salinity: pH:				
ммвтооз	Stagnant pool just upstream caused by fallen tree, pool/riffle habitat. Slow flowing compared to upstream.			Left Bank: Mostly moss/ground vegetation. Mix of hardwood and softwood trees. Right Bank: Same as left bank. Water Description: Slow moving, clear. Lots of algae on rocks. Wetted Width: 3.2m Bankfull: 3.7m Left Floodplain: 0.5m Right Floodplain: 0.5m Right Floodplain: 0 Average Depth: 19cm Thalweg: Shade (%): 70 Embeddedness (%): Inverts Present: Yes; caddisfly Substrate (% Coverage and Type): 60% fines, 10% gravel, 30% boulders Riparian Health Assessment Score: 46	Forestry activity			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<u>YSI</u> Temperature: Pressure: DO %: DO mg/L: SPC: TDS Salinity: pH:				
MMBT00 4	Stream meets Mason Meadow Brook, widens into large pool (no rapids) and continues downstream. Pool habitat clear-cut area by brook.	E 0356559 N 4942869		Left Bank: Lots of grasses and ground vegetation. Mostly hardwood species. Right Bank: Mix of hardwood and softwood, lots of ground vegetation (ferns, moss) Water Description: Clear, pool habitat Wetted Width: 9.4m Bankfull: 12.5m Left Floodplain: 2m Right Floodplain: 0.5m Average Depth: 54cm Thalweg: Shade (%): 0-30% Embeddedness (%): 15% Inverts Present: Yes; caddisfly, mollusks, mayfly, and aquatic worm Substrate (% Coverage and Type): 60% boulder, 20% fines, 20% organic Riparian Health Assessment Score: 51 YSI	Forest and clear-cut			

Section Number Stream and Feature Site	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Temperature: Pressure: DO %: DO mg/L: SPC: TDS: Salinity: pH:				
Stream is braided, flowing	E 0394917		Left Bank: Lots of vegetation (moss, shrubs, small plants). Hardwood	Road downstream			
MMBT00 5	N 4914389		dominant mix (yellow birch, red spruce, and maple), softwoods are smaller in size. Bank steepness ~ 20cm <b>Right Bank:</b> More of softwood and hardwood mix (yellow birch, red spruce, and maple). Lots of moss and ferns, small runoff stream flowing in. Bank steepness ~30cm. <b>Water Description</b> : Tannin color, moderate flow <b>Wetted Width:</b> 2.5m <b>Bankfull:</b> 2.4 <b>Left Floodplain:</b> 4m <b>Right Floodplain:</b> 4m <b>Average Depth:</b> 15cm <b>Thalweg:</b> 25cm <b>Shade (%):</b> 90 <b>Embeddedness (%):</b> 50 <b>Inverts Present:</b> Caddisfly				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Riparian Health Assessment Score: 51 <u>YSI</u> Temperature: 11 Pressure: 747.1 DO %: 87 DO mg/L: 9.6 SPC: 0.044 TDS: 0.96				
				Salinity: 0.02 pH: 5.46				
MMBT00 6	Culvert and HWY 10 upstream, small falls down stream	E 0394917 N 4914389		Left Bank: Hardwood and softwood mix, lots of mosses, grasses, ferns, and shrubs. Bank ~15cm. Right Bank: Softwood and hardwood mix, more disturbance as the road is nearby. Water Description: Tannin color, slow moving than fast when water reaches bedrock (falls). Wetted Width: 4.5m Bankfull: 4.5m Left Floodplain: 1m Right Floodplain: 1m Average Depth: 18cm Thalweg: 25cm Shade (%): 80 Embeddedness (%): 25 Inverts Present: Caddisfly, mayfly, leech Substrate (% Coverage and Type): Riparian Health	Culvert and HWY 10			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Assessment Score: 25 <u>YSI</u> Temperature: 11 Pressure: 746.6 DO %: 83 DO mg/L: 9.2 SPC: 0.045 TDS: 29.25 Salinity: 0.02 pH: 5.46				
MMBT00 7	Near HWY 10, stream is flowing out of a larger river (headwaters of the stream)	E 0394917 N 4914389		Left Bank: Hardwood dominant, more softwoods near road. Older yellow birch and aspen. Relatively open canopy, lots of shrubby ground vegetation. Right Bank: More softwood dominant, ground mossy and lots of understory plants. Water Description: Tannin color, slow moving. Wetted Width: 5.5m Bankfull: 5.5m Left Floodplain: 10m+ Right Floodplain: 10m+ Average Depth: 43cm Thalweg: 43cm Shade (%): 80 Embeddedness (%): 25 Inverts Present: Substrate (% Coverage and Type): 30% organic, 10% fines, 30% bolder, 30% bedrock Riparian Health Assessment Score: 54	HWY 10			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<b>YSI</b> Temperature: 10.9 Pressure: 746.6 DO %: 78 DO mg/L: 8.7 SPC: 0.04 TDS: 26.00 Salinity: 0.02 pH: 5.36				
MMB001	River is braided, widens out up stream. Fast flowing water, lots of boulders in the stream, small rapids.	E 0356188 N 4942602		Left Bank: Softwood and hardwood mix, lots of older spruce, yellow birch, hemlock. Ground is mossy with lots of vegetation including saplings and small plants. Right Bank: Same as left bank, more boulders along river bank. Water Description: Dark tannin color, fast flowing, lots of bubbles and white water. Wetted Width: 10-15m Bankfull: 10-15m Left Floodplain: 10+ Right Floodplain: 10m Average Depth: 35cm Thalweg: 45cm Shade (%): 80 Embeddedness (%): 50 Inverts Present: Caddisfly, mayfly, mollusk Substrate (% Coverage and Tyne): 80% bolder 20%				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				fines <b>Riparian Health</b> <b>Assessment Score:</b> 54 <u>YSI</u> <b>Temperature:</b> 11 <b>Pressure:</b> 746.6 <b>DO %:</b> 84 <b>DO mg/L:</b> 9.3 <b>SPC:</b> 0.039 <b>TDS:</b> 25.35 <b>Salinity:</b> 0.02 <b>pH:</b> 4.95				
MMB002	Upstream river merges with another stream, large rocks create islands with trees	E 0356273 N 4942514		Left Bank: Hardwood and softwood mix, lots of large older trees and lots of ground vegetation. Right Bank: Right bank is same as left bank. Water Description: Tannin color, pool-riffle-run habitat. Wetted Width: 10m Bankfull: 15m Left Floodplain: 10m Right Floodplain: 10m Average Depth: 30cm Thalweg: 50cm Shade (%): 75 Embeddedness (%): 50 Inverts Present: Caddisfly, mayfly, stonefly Substrate (% Coverage and Type): bolder/ bedrock 80%, fines 20% Riparian Health Assessment Score: 57				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				YSI Temperature: 11 Pressure: 746.8 DO %: 87 DO mg/L: 9.6 SPC: 0.038 TDS: 24.70 Salinity: 0.02 pH: 5.19				
ммвооз	Lots of vegetation in water, pool- riffle-run habitat. Bridge and HWY 10 crossing downstream	E 0356273 N 4942514		Left Bank: Road nearby, smaller trees all softwood, lots of ground vegetation. <b>Right Bank:</b> Softwood and hardwood mix, lots of ground vegetation. Merges with small runoff stream. <b>Water Description</b> : Tannin color, pool-riffle-run habitat. Lots of vegetation in the water. <b>Wetted Width:</b> 7m <b>Bankfull:</b> 7m Left Floodplain: 5m <b>Right Floodplain:</b> 5m <b>Average Depth:</b> 35cm <b>Thalweg:</b> 40cm <b>Shade (%):</b> 80 <b>Embeddedness (%):</b> 10 <b>Inverts Present:</b> Caddisfly, mayfly <b>Substrate (% Coverage and Type):</b> 40% bolder, 20% fines, 20% cobble, 20% gravel <b>Riparian Health</b> <b>Assessment Score:</b> 32	HWY 10			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				YSI Temperature: 11 Pressure: 747 DO %: 86 DO mg/L: 9.5 SPC: 0.039 TDS: 25.35 Salinity: 0.02 pH: 5.24				
MMB004	Some braids and islands upstream. Pool downstream surrounded by wetland area.	E 0356614 N 4942666		Left Bank: Road nearby, smaller trees all softwood, lots of ground vegetation. Right Bank: Softwood and hardwood mix, lots of ground vegetation. Merges with small runoff stream. Water Description: Tannin color, pool-riffle-run habitat. Lots of vegetation in the water. Wetted Width: 7m Bankfull: 7m Left Floodplain: 5m Right Floodplain: 5m Average Depth: 35cm Thalweg: 40cm Shade (%): 80 Embeddedness (%): 10 Inverts Present: Caddisfly, mayfly Substrate (% Coverage and Type): 40% bolder, 20% fines, 20% cobble, 20% gravel Riparian Health	Some clear-cuting present on right bank			

Section Number Stream and Featur Site	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Assessment Score: 32 <u>YSI</u> Temperature: 11 Pressure: 747 DO %: 86 DO mg/L: 9.5 SPC: 0.039 TDS: 25.35 Salinity: 0.02 pH: 5.24				
MMB005	ges ary E 0356552 N 4942855		Left Bank: Hardwood and softwood mix (hemlock, aspen, birch, and spruce), lots of ground vegetation <b>Right Bank:</b> More softwood, less ground vegetation than left bank, lots of mosses. Water Description: Slow moving, tannin color. Wetted Width: 15m+ Bankfull: 15m+ Left Floodplain: 10m+ Right Floodplain: 10m+ Right Floodplain: 10m Average Depth: 50cm Thalweg: 70cm Shade (%): 20 Embeddedness (%): 20 Inverts Present: Caddisfly, mayfly, leech Substrate (% Coverage and Type): 60% fines, 30% bolder, 10% cobble Riparian Health Assessment Score: 57				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Temperature: 11.2 Pressure: 748.3 DO %: 78 DO mg/L: 8.5 SPC: 0.048 TDS: 31.20 Salinity: 0.02 pH: 5.51				
MMB006	Small bridge on private driveway, downstream meets the main river, rocks forming small islands.	E 0356596 N 4943035		Left Bank: Hardwood and softwood mix (hemlock, aspen, spruce), lots of ground vegetation. Right Bank: Hardwood and softwood mix, lots of ground vegetation. Water Description: Tanning color, fast flowing Wetted Width: 8m Bankfull: 8m Left Floodplain: 15m Right Floodplain: 5m Average Depth: 20cm Thalweg: 35cm Shade (%): 80 Embeddedness (%): 10 Inverts Present: Caddisfly Substrate (% Coverage and Type): bedrock 30%, bolder 30%, fines 10%, cobble 20%, gravel 10% Riparian Health Assessment Score: 49 <u>YSI</u> Temperature: 11.4 Pressure: 7488.6 DO %: 93	Small private driveway and bridge crossing the stream			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				DO mg/L: 10.1 SPC: 0.042 TDS: 27.30 Salinity: 0.02 pH: 5.25				
LSB001	Fast moving riffles, lots of white water, falls upstream and bridge downstream.	E 0355235 N 4951960		Left Bank: Lots of ground vegetation, dominated by older hardwoods (oak, maple, and beech). Some younger softwoods. Bank mostly made up of bedrock and boulder. Right Bank: The same as left bank Water Description: Fast moving, clear and tannin Wetted Width: 6m Bankfull: 6m Left Floodplain: 2m Right Floodplain: 4m Average Depth: 7cm Thalweg: 12cm Shade (%): 60% Embeddedness (%): Inverts Present: Stonefly, caddisfly Substrate (% Coverage and Type): 70% boulder, 10% cobble, 10% fines, 10% organic Riparian Health Assessment Score: 47 <u>YSI</u> Temperature: 20.6 Pressure: 751.1 DO %: 90	East Dalhousie Road			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				DO mg/L: 8.1 SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 6.22				
LSB002	Wide, slow flow, flat water. Some deadwood in water, small pool.	E 355305 N 4952078		Left Bank: Hardwood/ softwood mix, lots of shrubs, no sign of disturbance. Right Bank: Clearing of all branches and brush on right bank (~70% cleared) right up to the water. Hardwood dominant with some younger softwoods. Water Description: Tannin, slow moving Wetted Width: 6m Bankfull: 9m Left Floodplain: 2m Right Floodplain: 1m Average Depth: 40cm Thalweg: 1m Shade (%): 70 Embeddedness (%): 25 Inverts Present: Dragonfly nymph, caddisfly, mayfly, stonefly. Substrate (% Coverage and Type): 40% fines, 30% cobble, 20% boulder, 10% bedrock Riparian Health Assessment Score: 34 <u>YSI</u> Temperature: 20.5 Pressure: 750.7	Gravel road ~10m from bank, land has mostly been cleared (with the exception of taller trees) between road and bank.			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				DO %: 81 DO mg/L: 7.4 SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 6.05				
LSB003	Wide stream blocked by large beaver dam creating a large pool and some flooding upstream	E 0355390 N 4952125		Left Bank: Clearing for electricity lines (approx. 10m width), lots of disturbance vegetation, some stands of hardwood and softwood back from lines. Right Bank: Steep back, dam positioned between structures that was once an old rail bridge. Lawn and house behind bank, lawn starting ~5m from bank. Large telephone/ power poles running over the stream. Water Description: Tannin, still above dam, moving fast below. Wetted Width: 20m (above dam) Bankfull: 20m Left Floodplain: 0m Right Floodplain: 1m Average Depth: 1m Thalweg: 2m Shade (%): 0 Embeddedness (%): 50 Inverts Present: Caddisfly, stonefly	House, lawn, beaver dam, power lines,			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<b>Type):</b> 70% fines, 15% cobble, 10% boulder, 5% bedrock				
				Riparian Health Assessment Score: 28				
				<b>YSI</b> Temperature: 21.3 Pressure: 750.1 DO %: 56				
				DO mg/L: 6.0 SPC: 0.023 TDS: 14.95 Salinity: 0.01 pH: 5.87				
LSB004	Downstream opens up into a wetland area, slow moving run, bank is flooded.	E 0355498 N 4952232		pH: 5.87 Left Bank: Softwood dominant (hemlock and spruce), ground is mostly covered in needles, some moss and a little bit of other ground veg. Right Bank: More shrubby and riparian vegetation along bank. Water Description: Slow moving, dark and tannin. Wetted Width: 15m Bankfull: 12m Left Floodplain: 20m+ Right Floodplain: 10m Average Depth: 60cm Thalweg: 1m Shade (%): 30 Embeddedness (%): 95 Inverts Present: Substrate (% Coverage and Type): 90% organic, 5% boulder 5% cobble				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<b>Riparian Health</b> <b>Assessment Score:</b> 57 <u>YSI</u> <b>Temperature:</b> 22.3 <b>Pressure:</b> 749.8 <b>DO %:</b> 6.5 <b>DO mg/L:</b> 5.6 <b>SPC:</b> 0.022 <b>TDS:</b> 14.3 <b>Salinity:</b> 0.01 <b>pH:</b> 6.03				
LSB005	Stream narrows and becomes very slow moving, lots of shrubby vegetation and wetland like habitat	E 0355513 N 4952566		Left Bank: More large trees like maple, fir, pine, ash. Right Bank: Ground is very wet, lots of shrubs, tall grasses, and alders. Water Description: Lots of vegetation, algae, slow moving water, water is very clear Wetted Width: 7m Bankfull: 7.5m Left Floodplain: 20m Right Floodplain: 5m Average Depth: 25cm Thalweg: 50cm Shade (%): 5 Embeddedness (%): 0 Inverts Present: Caddisfly, beetle Substrate (% Coverage and Type): 80% fines, 20% organic				

Section Number Stream and Feature Site	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Riparian Health Assessment Score: 58				
			<b>YSI</b> <b>Temperature:</b> 24.2 <b>Pressure:</b> 749.2 <b>DO %:</b> 72 <b>DO mg/L:</b> 6.1 <b>SPC:</b> 0.022 <b>TDS:</b> 14.3 <b>Salinity:</b> 0.01 <b>pH:</b> 6.25				
LSB006	E 0355487 N 4952642		Left Bank: Wooded bank, largely softwood dominated. Some small brush vegetation. Right Bank: Mainly softwood, open forest floor. Some human activity, signs of camping/ fishing/ and trails. Water Description: Tannin, fast moving Wetted Width: 6m Bankfull: 8m Left Floodplain: 4m Right Floodplain: 4m Average Depth: 30cm Thalweg: 70cm Shade (%): 15% Embeddedness (%): 40% Inverts Present: Substrate (% Coverage and Type): 50% boulder, 40% cobble, 10% fines	Signs of fishing, camping, and trails			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				YSI (YSI would not turn on) Temperature: Pressure: DO %: DO mg/L: SPC: TDS: Salinity: pH:				
LSB007	Run habitat, very shallow slow moving and clear water. Lots of riffles downstream. Sharp bend in stream around point.	E 0355492 N 4952798		Left Bank: Hardwood and softwood mix (maple, birch, spruce, and fir). Some alder and lots of shrubs along bank. Right Bank: Same as left bank Water Description: Tannin, and slow moving Wetted Width: 6m Bankfull: 6.5m Left Floodplain: 10m Right Floodplain: 10m Average Depth: 20cm Thalweg: 30cm Shade (%): 70 Embeddedness (%): 20 Inverts Present: Stonefly, caddisfly Substrate (% Coverage and Type): 80% fines, 10% gravel, 10% boulder Riparian Health Assessment Score: 57 <u>YSI</u> Temperature: 21.3 Pressure: 754.9				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				DO %: 93 DO mg/L: 8.4 SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 5.91				
LSB008	Marsh downstream, lots of braids, water is fast moving riffle-run habitat. Lots of beaver activity and lots of braids.	E 0355519 N 4952907		Left Bank: Lots of grasses and alders, hardwood and softwood mix behind bank (maple, birch, and spruce) <b>Right Bank:</b> More shrubby plants and grasses, older stand of trees behind bank. Bank is mostly made up of boulder and grasses. Water Description: Very clear water, still tannin in color. Wetted Width: 8m Bankfull: 10m Left Floodplain: 30m Right Floodplain: 20m Average Depth: 20cm Thalweg: 50cm Shade (%): 80 Embeddedness (%): 30 Inverts Present: Caddisfly, beetle, tiny water spider looking thing under rock Substrate (% Coverage and Type): 70% fines, 15% gravel, 5% cobble, 10% boulder Riparian Health Assessment Score: 57 YSI				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				Temperature: 21.5 Pressure: 755.0 DO %: 9.3 DO mg/L: 8.2 SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 5.93				
LSB009	Swampy grassland area (wetland fen habitat), large beaver dam and large pool above dam. Run habitat below.	E 0355613 N 4952961		Left Bank: Lots of tall grasses, ferns, shrubs, and alder. Wet boggy like soil. Right Bank: More trees, mostly hardwood with lots of shrubs and grasses lining the bank, trees include maple, birch, spruce, alder, and pine. Water Description: Tannin but clear, slow moving run. Wetted Width: 8m Bankfull: 9m Left Floodplain: 40m+ Right Floodplain: 15m Average Depth: 50cm Thalweg: 80cm Shade (%): 0 Embeddedness (%): 40 Inverts Present: lots of caddisfly Substrate (% Coverage and Type): 50% cobble, 20% gravel, 20% boulder, 10% fines Riparian Health Assessment Score: 57				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<b>YSI</b> Temperature: 21.2 Pressure: 754.9 DO %: 84 DO mg/L: 7.4 SPC: 0.024 TDS: 15.6 Salinity: 0.01 pH: 6.07				
LSB010	End of marshy wetland area, stream narrows into fast flowing riffle. Large pool downstream.	E 0355720 N 4952935		Left Bank: Lots of shrubs and alder, very muddy and wet soil. Right Bank: More forest habitat, lots of maple, birch, and pine. Water Description: clear, fast flowing Wetted Width: 4m Bankfull: 6m Left Floodplain: 15m Right Floodplain: 15m Right Floodplain: 8m Average Depth: 15cm Thalweg: 40cm Shade (%): 60 Embeddedness (%): 50 Inverts Present: Substrate (% Coverage and Type): 40% cobble, 30% fines, 20% gravel, 10% boulder Riparian Health Assessment Score: 57 <u>YSI</u> Temperature: 21.2 Pressure: 755 0				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				DO %: 98 DO mg/L: 80.6 SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 6.0				
LSB011	Bridge and eddy road downstream, riffle – pool habitat	E 0355780 N 4952943		Left Bank: Hardwood dominant (maple, birch, beech). Bank held together by bedrock and boulder. Right Bank: Some disturbance vegetation by road, otherwise about the same as left bank. Water Description: fast moving, tannin Wetted Width: 5m Bankfull: 5m Left Floodplain: 5m Right Floodplain: 8m Average Depth: 10cm Thalweg: 50cm Shade (%): 70 Embeddedness (%): 40 Inverts Present: stonefly, caddisfly Substrate (% Coverage and Type): 50% boulder, 40% cobble, 5% fines, 5% gravel Riparian Health Assessment Score: 52 <u>YSI</u> Temperature: 22.2 Pressure: 754.9 DO %: 100 DO mg/L: 8.7	Eddy road downstream			

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				SPC: 0.022 TDS: 14.3 Salinity: 0.01 pH: 5.98				
LSB012	Slower moving run habitat, wet marshy like soil.	E 0355863 N 4953006		Left Bank: Made up of boulders and riparian trees and shrubs, behind bank hardwood and softwood mix. <b>Right Bank:</b> Less shrubs, more taller trees (birch, maple, spruce, and fir). <b>Water Description</b> : Slow moving, tannin <b>Wetted Width:</b> 7m <b>Bankfull:</b> 8m Left Floodplain: 15m <b>Right Floodplain:</b> 15m <b>Average Depth:</b> 30cm <b>Thalweg:</b> 50cm <b>Shade (%):</b> 70 <b>Embeddedness (%):</b> 40 <b>Inverts Present:</b> caddisfly, mayfly, and stonefly <b>Substrate (% Coverage and</b> <b>Type):</b> 50% fines, 40% boulder, 10% organic <b>Riparian Health</b> <b>Assessment Score:</b> 57 <u>YSI</u> <b>Temperature:</b> 22.6 <b>Pressure:</b> 754.8 <b>DO %:</b> 94 <b>DO mg/L:</b> 8.2 <b>SPC:</b> 0.022 <b>TDS:</b> 14.3 <b>Salinity:</b> 0.01				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				<b>pH:</b> 6.98				
LSB013	Fast moving riffle-run- riffle habitat, bedrock falls upstream	E 0355846 N 495153		Left Bank: Bank made up of boulders, hardwood dominant (birch, beech, maple, spruce, and fir) Right Bank: Same as left bank Water Description: Fast moving, tannin Wetted Width: 5m Bankfull: 6m Left Floodplain: 10m Right Floodplain: 5m Average Depth: 40cm Thalweg: 70cm Shade (%): 80 Embeddedness (%): 60 Inverts Present: caddisfly, stonefly Substrate (% Coverage and Type): 70% boulder, 10% organic, 10% fines, 5% gravel, 5% cobble Riparian Health Assessment Score: 57 <u>YSI</u> (YSI would not turn on) Temperature: Pressure: DO %: DO mg/L: SPC: TDS: Salinity: pH:				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
LSB01	Large pool upstream, old bridge on road just off East Dalhousie, riffle – pool – run habitat. Sharp (90 degree) bend in stream.	Bridge over stream on road just past the eddy road on East Dalhousie road		Left Bank: Lots of vegetation, hardwood dominant (shrubs (alder, wild raisin), maple, beech). Right Bank: Same as left bank Water Description: Slow moving, very clear Wetted Width: 8m Bankfull: 10m Left Floodplain: Right Floodplain: Average Depth: 50cm Thalweg: 60cm Shade (%): Embeddedness (%): Inverts Present: tons of stonefly and caddisfly Substrate (% Coverage and Type): cobble 70%, boulder 10%, gravel 10%, fines 10% Riparian Health Assessment Score: very good, minimal disturbance from bridge Notes: Caught 2 trout	Bridge and small woods road			
LSB02	Large pool, fairly deep, lots of vegetation in riparian area, stream takes a 90° turn at pool	E 0355032 N 4951524		Left Bank: Lots of vegetation, ferns, grasses, hardwood/softwood mix. Right Bank: Ferns/ grasses, hardwood/softwood mix, forestry activity 50m back (recent) Water Description: Slow				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				moving, very clear Wetted Width: Bankfull: Left Floodplain: Right Floodplain: Average Depth: 20cm Thalweg: 60cm Shade (%): Embeddedness (%): Inverts Present: tons of stonefly and caddisfly Substrate (% Coverage and Type): 70% boulder, 10% cobble, 10% gravel, 10% fines Riparian Health Assessment Score: very good (forestry activity ~50m set back)				
LSB03	Braids upstream, slow moving run-pool – habitat downstream. More grassy and shrub vegetation.	E 0354874 N 4951333		Left Bank: Hardwood and softwood mix (spruce, ironwood, maple, alder), lots of ferns and grasses. <b>Right Bank:</b> Same as left bank, forestry ~50m back from bank. Water Description: Slow moving, very clear Wetted Width: 10m Bankfull: 12m Left Floodplain: Right Floodplain: Average Depth: 10cm Thalweg: 30cm Shade (%): Embeddedness (%): Inverts Present: tons of				

Section Number and Site	Stream Feature	Lower Limit (coordinates and landmarks)	Upper Limit (coordinates and landmarks)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
				stonefly and caddisfly				
				<b>Type</b> ): 80% fines 10%				
				cobble, 10z% boulder				
				Riparian Health				
				Assessment Score: very				
				stream				
				Stroutin				
				Notes: Caught 1 trout				
	Braids			Left Bank: Lots of				
	upstream,			vegetation, hardwood				
	opens into a			dominant (shrubs (alder, wild				
	large fen	E 0354943		raisin), maple, beech).				
	wetland, lots	N 4951080		<b>Right Bank:</b> Same as left				
	vegetation			Water Description: Slow				
	(sedges.			moving, very clear				
	grasses)			Wetted Width: 8m				
				Bankfull: 10m				
				Left Floodplain:				
				Right Floodplain:				
				Average Depth: 50cm				
LSB04				Shade (%).				
				Embeddedness (%):				
				<b>Inverts Present:</b> tons of				
				stonefly and caddisfly				
				Substrate (% Coverage and				
				<b>Type):</b> cobble 70%, boulder				
				10%, gravel 10%, fines 10%				
				Riparian Health				
				Assessment Score: full				
				points				
				Notes: Caught 1 trout				

## 5. Main Branch Sub-watershed Invasive Fish Species Presence/Absence Maps



Map showing confirmed presence/absence of <u>chain pickerel</u> (*Esox Niger*) in the Main Branch Sub-watershed. Note: No chain pickerel have been confirmed present in the section of the Main River Sub-watershed above Morgan Falls as well as any sections of the Main Branch Sub-watershed. The areas outlined in green showing confirmed non-presence have been assessed by Coastal Action staff via scientific angling and/or backpack electrofishing.


Map showing confirmed presence/absence of <u>smallmouth bass</u> (*Micropterus dolomieu*) in the Main Branch Sub-watershed. The areas outlined in red showing confirmed presence have been assessed by Coastal Action staff via scientific angling and/or backpack electrofishing.

## 6. Restoration Plan Summary – Main Branch Sub-watershed

Changes in the watershed - current conditions compared to historical conditions. Future changes to the natural environment expected in the watershed	It is possible that historically the headwaters of the Main Branch system would have experienced increased levels of forestry activity, especially logging. There are numerous indicators that show high levels of forestry activity may have once occurred, these include old cutover areas, deactivated logging roads, and collapsed bridges. The sub- watershed appears to be healthy at this point and is currently experiencing low levels of anthropogenic impacts.
Most likely limiting factors regarding aquatic productivity in the watershed	<ol> <li>The most likely limiting factors are:</li> <li>Lack of riparian buffers and degraded riparian areas. This includes reduced canopy cover and shaded areas, bank erosion, and runoff.</li> <li>A large population of invasive smallmouth bass which may be outcompeting native species resulting in a loss of biodiversity.</li> <li>Connectivity issues within the watershed due to low water flows, dams and malfunctioning culverts.</li> </ol>
Most important habitat restoration needs in the watershed	<ul> <li>The most significant habitat restoration needs in the sub-watershed are as follows:</li> <li>1. Restoration of riparian buffers and degraded riparian areas.</li> <li>2. Removal of invasive species (annually).</li> <li>3. Improvement of fish habitat connectivity.</li> <li>4. Improvement of in-stream physical habitat.</li> <li>5. Proper mitigation measures in place during development activities.</li> </ul>
Water quality improvement and/or monitoring projects, in order of importance	<ul> <li>Water quality monitoring at sampling sites throughout the Main Branch will continue monthly, any concerning changes in parameters should be investigated to determine a cause.</li> <li>Continue to assess water quality during both stream and culvert assessments to help identify potential salmon habitat.</li> </ul>
Riparian buffer zone	The following riparian buffer zone restoration projects are recommended:

restoration projects, in order of importance	<ul> <li>Continue to assess waterways throughout the Main Branch Sub-watershed to identify riparian areas in need of restoration.</li> </ul>
Physical habitat	The following physical habitat restoration projects are recommended:
restoration and	
improvement projects,	Data gathered at Morgan Falls shows that salmon are consistently heading towards the
in order of importance	Main Branch Sub-watershed each year, it is possible that culverts acting as barriers are restricting salmon from accessing crucial breeding habitat. Project staff plan to prioritize these barrier culverts and restore them as necessary, most will simply require installing a chute to promote passage. Before restoring any of the barriers, staff will complete species presence/absence assessments to prevent the migration of invasive fish into areas they do not currently inhabit. Project staff plan to continue to assess tributaries to identify areas in need of restoration such as channelized sections, shallow sections and any other sections which have been degraded. Any degraded sections will be revisited with Adopt-A-Stream staff to determine the appropriate action. The section of the main channel that was assessed appeared healthy with minimal development and appropriate buffers left by foresters. The tributaries of the Main-Branch also appeared to be healthy overall; however, there are many sections that still require assessment.
Needed land use	The following land-use improvement practice projects are recommended:
Improvement	
practices, in order of	<ol> <li>Attempt to ensure any future development is completed in a way that does not cause harm to any fich hearing streams throughout the waterched</li> </ol>
	<ol> <li>Identify and prioritize areas in need of restoration due to impacts from forestry, road building, etc.</li> </ol>

## **Reference Material**

https://novascotia.ca/fish/documents/Anglers-Handbook-2018.pdf

http://sis.agr.gc.ca/cansis/publications/surveys/ns/ns7/index.html

http://sis.agr.gc.ca/cansis/publications/surveys/ns/ns7/index.html

https://novascotia.ca/fish/documents/special-management-areas-reports/2010 028 e.pdf