

Farm Brook Watershed-Based Fish Habitat Restoration Plan

Prepared for:
Cheticamp River Salmon Association



Prepared by:
Jillian Baker and Aaron Krick

Completion date:
November 2021



Contact information

Group Name: Cheticamp River Salmon Association
(CRSA)

Contact Name: Jillian Baker
Position: Project Manager
Phone: 902.224.0002
Email: cheticamproversalmon@gmail.com

Physical Address:
15461 Cabot Trail
Cheticamp, Nova Scotia
BOE 1H0

Website: www.cheticampsalmon.com

Contact Name: René Aucoin
Position: President
Phone: 902.224.5854
Email: aucoinrene@gmail.com

Mailing Address:
PO Box 1022
Cheticamp, Nova Scotia
BOE 1H0

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1. Restoration plan objectives

The intent of this Farm Brook fish habitat restoration plan is to provide a strategy to improve fish habitat conditions and fish populations and resources within the Farm Brook system, as well as on a watershed-wide basis. The plan focuses on how to improve watershed conditions for fish while also taking into consideration water and land uses by other resident plants and wildlife. By taking a watershed-based approach to restoration planning, the Cheticamp River Salmon Association (CRSA) will gain a more comprehensive portrait of the restoration needs and determine specific activities that can be undertaken to improve habitat and environmental conditions generally.

The plan focuses on, but is not limited to, how to improve salmonid habitat and the habitat of other native fish species in the Farm Brook watershed. Using salmonid species as a biological indicator will help improve recreational and food source fishery resources, stream functionality, and the aesthetic value of the watershed environment.

Objectives	<p>The main objectives of this plan are to assess the existing condition of fish habitat within the Farm Brook watershed, to determine likely limiting habitat factors and fish habitat restoration needs, and to identify actions needed to restore and improve habitat where problems have been identified.</p> <p>This plan is intended as a resource to help guide efforts to accomplish the following:</p> <ol style="list-style-type: none">1. To promote recruitment of Atlantic salmon and native trout species through an increase of fish habitat and an increased ability of fish to successfully migrate and spawn, and2. To restore and/or improve the natural conditions of Farm Brook, including natural hydraulic processes and riparian habitat.
Specific Goals	<ul style="list-style-type: none">• To assess the existing degree of habitat connectivity within the watershed, to identify any fish passage problem areas, and to prescribe solutions at applicable sites• To assess existing water quality within the river system and to determine projects/actions that can be undertaken for improvement• To establish baseline information (including data on water quality parameters, channel measurements, substrate composition) for the Farm Brook watershed that can be used to track changes, assess effectiveness of restoration efforts, and identify potential problems within the watershed• To determine where physical habitat has been altered and/or degraded and to determine applicable projects for physical in-stream habitat restoration• To assess riparian zone quality and function and to determine activities that may be undertaken for improvement of riparian areas

- To identify require maintenance of existing restoration structures installed in previous years, i.e., to assess existing instream structures to determine where upgrades, alterations, removals, and/or repairs may be needed
- To identify land use practices that may be impacting habitat within the watershed and to outline activities and / or projects that may be undertaken to encourage better watershed stewardship
- To prioritize proposed restoration projects specific to the watershed, based on their potential to improve aquatic productivity, watershed conditions and environmental health

2.a Introductory information – Farm Brook watershed

1	Location in province (town[s], county, and region)	Farm Brook is located just south of Cheticamp, Nova Scotia in the county of Inverness on the western side of Cape Breton Island The Farm Brook watershed is a secondary watershed, in the boundaries of the Cheticamp River primary watershed
2	Watershed area (square km)	21.6 km ²
3	Watershed drains into (include coordinates of confluence)	Southern Gulf of St. Lawrence (46.5825, -61.02833)
4	Distance of watercourse mouth from ocean (km)	The Farm Brook watershed includes the estuary and mouth of the brook that flows into the ocean
5	Distance of watercourse mouth from head of tide (km)	>0.5km
6	Natural watercourse width at mouth (m)	~8.5m
7	Length of watercourse (km)	Approx. 11 km
8	Elevation at headwaters (m)	Approx. 425 m
9	Elevation at mouth (m)	<1 m
10	Lake(s) within watershed (provide name[s], appr. size [square km] and known or suspected impacts)	One small lake, Lac des Kanivais/Tower Lake (46.56972, -60.9622) - origin of unnamed small tributary
11	Significant tributaries within watershed (name[s] and length[s])	Two small unnamed tributaries

12	Most common substrate type and size	Variable, but predominantly cobble; gravel second most common substrate type in the lower-mid reaches, and boulder is second most common substrate type at higher elevations
13	Soil type(s) and geological characteristics	Soils in lower half of watercourse characterized as predominantly reddish brown to fine sandy loam with alluvial deposits over gravel; upper half of watercourse predominantly reddish brown loamy sandy to loamy sand outwash materials ⁱ
14	Average water temperature in summer (June-September)	14.4°C (Average over period of July 22-Sept 15, 2021 measured in Site 2b in pool across from Alfred's cabin) 13.7°C (Average over period of June 27 – September 15, 2006, measured in Site 2a approx. 300m upstream of Cabot Trail bridge)
15	Peak water temperature	Max. temp of 21.9°C in 2021 on August 13 th in pool across from Alfred's cabin Max. temp of 19.2°C in 2006 on July 18 th , ~300m above Cabot Trail bridge
16	pH range	7.3-8.3
17	Native fish species present	Atlantic salmon, brook/speckled trout, American eel
18	Non-native fish species present	None known
19	Endangered / threatened / at risk species present (aquatic or non-aquatic)	Atlantic salmon (special concern), American eel (threatened)
20	Fish stocking (if applic. note species and avg. number per year)	Farm Brook is stocked annually with brook trout from the Margaree Fish Hatchery; recent stocking for Farm Brook: 2017 – 550 mix of 1 yr old and 2yr old 2018- 2500 fry, 500 mix of 1 yr old and 2 yr old 2019 – 5000 fry, 425 mix of 1 yr old and 2 yr old 2020- 750 mix of 1yr old and 2 yr old 2021- 300 2yr old
21	Angling (existing angling regulations for the watershed; popular angling locations)	The season for trout angling is between April 15 – September 30 for tidal waters, and April 1 – September 30 for inland waters; use of natural bait for trout is prohibited

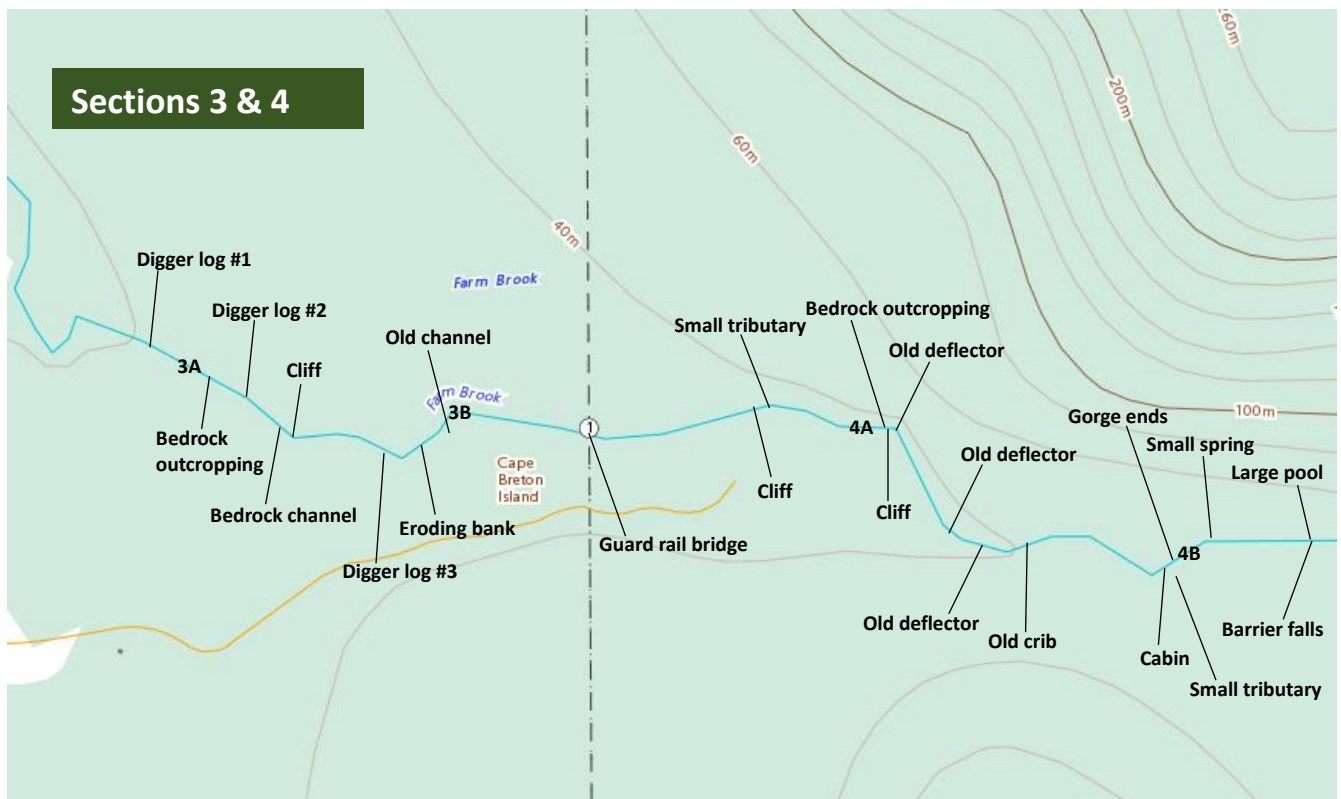
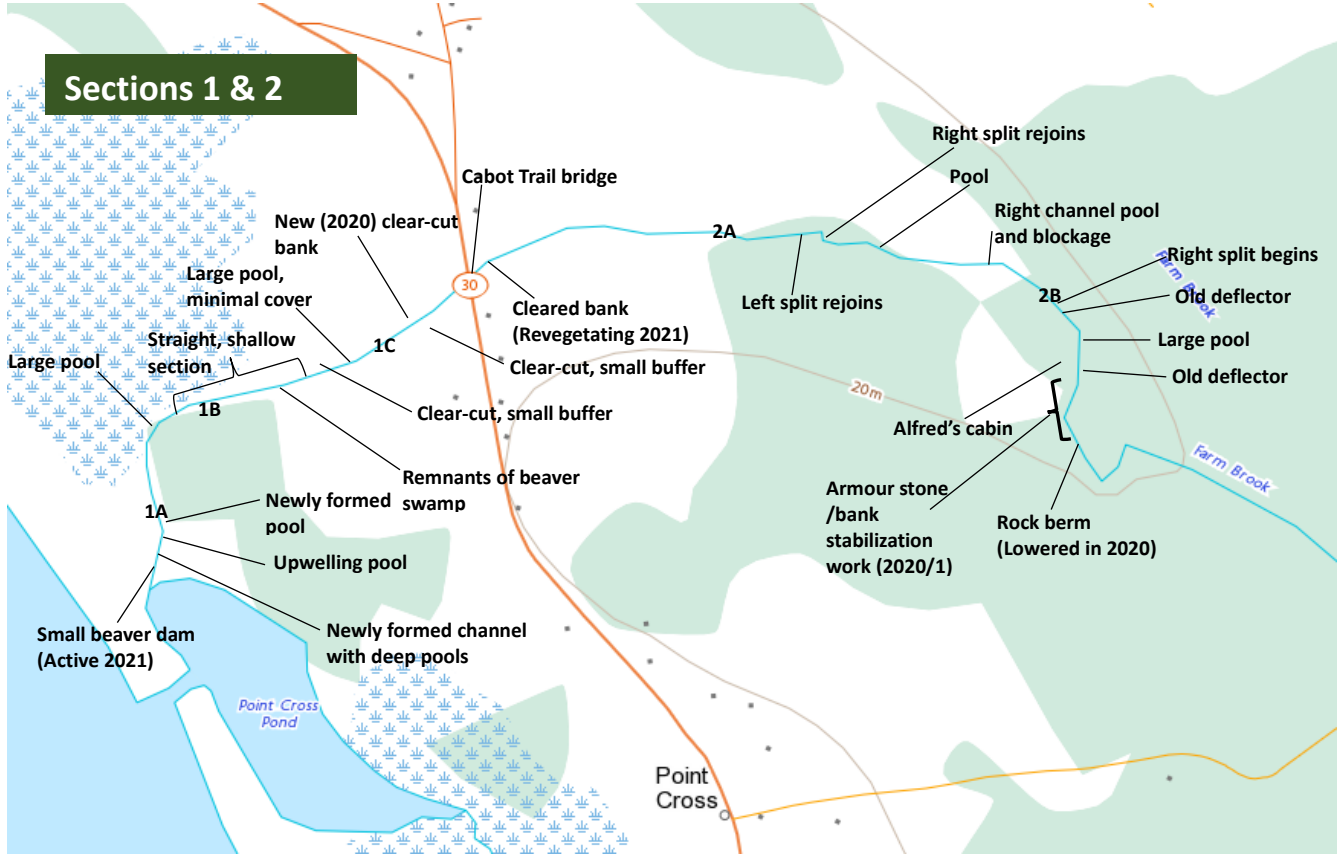
		<p>and daily bag limit is five trout, with no retention of trout permitted between September 1 – 30</p> <p>Angling for salmon requires a license specific to Atlantic salmon; salmon angling is strictly catch and release, between June 1 – October 31, and barbless artificial flies must be used</p> <p>Small numbers of local anglers fish trout at Lac des Kanivais/Tower Lake, as well as at some of the larger pools on Farm Brook</p>
22	Forestry activities and impacts (explain)	Some recent clearcutting was done by a landowner with property in the upper watershed – clear-cut area was replanted
23	Urban/residential development impacts (explain)	<p>There are a few residential properties located near Farm Brook on the Cabot Trail, located between ~50-100m from the watercourse.</p> <p>An RV park also borders Farm Brook, constructed in the floodplain on the right bank below the Cabot Trail bridge; work on the Point Cross RV Park began in 2018 and the park was open for business in 2021; construction of the park resulted in a variety of impacts to the Farm Brook watershed -e.g., vegetation was cleared to the brook and large volumes of gravel/fill were used to create a series of RV parking sites right adjacent to the brook, a berm was built along the bank where the RV sites were created in an attempt to control/prevent flooding, and a road was developed directly through a wetland in order to create beach access for RV park users.</p> <p>Two hunting/fishing cabins are located on Farm Brook, the first located ~750m upstream of the Cabot Trail bridge, and the second not far below the barrier falls; a large rock berm was installed by landowner upstream of the lower cabin to protect the cabin from flooding.</p>
24	Agricultural impacts (explain)	Farming occurred in the mid-1800s-early 1900s in the upper watershed, above the barrier falls; small-scale farming also took place below Cabot Trail bridge on property not far from the right bank in the 1950s-60s

25	Other industry impacts (explain if applicable)	No other known industry impacts
26	Historical conditions, impacts and considerations	A large debris jam formed in the bottom reach of Farm Brook somewhere around 2010-12; the debris grew over the next 5 years, causing extensive back flooding and loss of riparian vegetation, limited/no fish passage, re-routing of the watercourse; the CRSA removed the blockage with an excavator during the summer of 2018
27	Barriers present on the main river stem	Barrier falls located approximately 3.5 km upstream (46.57165, -60.99849) Beavers began construction of a dam just above the Farm Brook estuary (summer 2021) – beaver dam may result in a barrier during low water conditions and/or if beavers increase size of the dam
28	Other information	

2.b Watershed boundary map



3. Labelled 1:10 000 maps – Farm Brook watershed



4. Problem and prescriptions table – Farm Brook 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
Section 1	<p>Mouth of Farm Brook at Point Cross estuary to Cabot Trail bridge. This section is approximately 550m long. Brook averages approximately 6m wide in this section. The riparian habitat is limited in this section due to clear-cuts to the bank at the Point Cross Beach RV Park, and thin riparian areas elsewhere. The section of the former major blockage of large woody debris continues to have limited riparian shading but is considered mostly well vegetated. The remaining riparian zone consists of mostly alders and some shrubbery, as well as several species of maple. The brook consists of mostly riffles through this section with a few major pools that have minimal cover.</p> <p>Date Sampled: August 12, 2020 Water Quality Sampled: 17.2°C; pH: 7.34; Conductivity: 198.8 us/cm; DO: 85%, 8.2mg/L; Salinity 0.11ppt; TDS: 162.10g/L</p> <p>Date Sampled: July 20, 2021 2:46pm Water Quality Sampled: 15.1°C; pH: 8.31; Conductivity: 123.1 us/cm; DO: 41.8%, 4.21mg/L; Salinity 0.07ppt; TDS: 98.7mg/L</p>							
1a	Pool and re-routed course to estuary	Confluence with estuary N 46.58407 W 061.02688	Sharp 90-degree bend/pool N 46.58569 W 061.02642	<p>Brook re-routed through this section due to old channel blockage and infilling, resulting in near 90° bend with deep pool and brook creating new channel to estuary.</p> <p>Section continues to be prone to blockages, beaver activity, and shallow braiding in previous years, but passage is improved (2021 assessment) due to combination of CRSA intervention and spring high flows. Blockages were cleared by CRSA in 2018, several new pools have formed, and channel has deepened in areas that were previously considered a barrier to fish passage.</p>	Site can be accessed by walking downstream from the Cabot trail bridge.	<p>More trees could be planted to improve the riparian shading, with focus around significant pool.</p> <p>Beaver activity should be monitored as beavers began construction of a low dam just upstream of the estuary during the summer of 2021. Due to the location of the dam, intervention may be required if beavers build a larger structure as it may become a significant barrier to fish passage and restrict access to the entire watercourse.</p>	Low/medium	The complete blockage was removed summer 2020. 2021 assessments show significant improvement in all areas of concern.

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
1b	Former major blockage, area of beaver activity, long straight riffle	Sharp 90-degree bend/pool N 46.58569 W 061.02642	Upstream limit of major channel blockage (removed in 2018), site of former beaver dam N 46.58552 W 061.02512	<p>Section is approximately 100m long, channel averages ~6 m wide.</p> <p>The section was previously almost entirely blocked with large woody debris, creating a major blockage to fish passage.</p> <p>Riparian habitat is relatively healthy with mixture of shrubs, small alders, and grasses, but there is still no cover in the long, straight, shallow section where the former blockage was. The long straight riffle section also presents a likely impediment to fish passage.</p> <p>The beaver dam had flooded the riparian zone off the left bank, but the flooded area dried up following removal of dam in 2020 and the channel has deepened.</p>	<p>Point Cross Beach RV Park is located along the right bank; RV park owner will need to be involved in discussions around riparian habitat restoration efforts and installations of instream structures.</p> <p>Site can be accessed by walking downstream from the Cabot trail bridge.</p>	<p>Have consultants develop plan for installation of instream structures, e.g., digger logs, deflectors, to help encourage formation of pools, re-establishment of natural pool-riffle sequence through section of very long straight riffle.</p> <p>Consider inclusion of structures to increase instream cover in areas where it is lacking.</p> <p>Continue monitoring health of planted trees and plant additional seedlings in areas of continued poor/absent riparian shading.</p>	Medium/high	<p>Saplings were planted throughout this section (~200 between 2018 and 2020), but few are taking due to poor soil conditions along right bank. Banks considered fully vegetated during 2021 HSI assessments, but mostly with small shrubs and grasses.</p> <p>NSSA consultant Will Daniels visited the site in 2021 and confirmed that fish passage likely a concern in this section due to long riffle with no habitat diversity. Daniels suggested the site could be good candidate for installation of instream structures.</p>

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
1c	RV park, riparian vegetation thin/absent	Upstream limit of major channel blockage (removed in 2018), site of former beaver dam N 46.58552 W 061.02512	Cabot Trail bridge N 46.58543 W 061.02223	<p>Section is approximately 240m long, and channel is ~6 m wide.</p> <p>The right bank is almost completely clear-cut in the upper ~100m of this section, where there is also a berm (constructed as part of development of Point Cross Beach RV Park in 2020). A series of RV parking sites with firepits and individual septic tanks have been developed along the right bank.</p> <p>There is one large pool not far above the lower limit of the section, formed in part around a dead tree and some large woody debris embedded in the channel.</p>	<p>Point Cross Beach RV Park is located along the right bank; RV park owner will need to be involved in discussions around riparian habitat restoration efforts and installations of instream structures.</p> <p>Section can be accessed at the Cabot Trail bridge.</p>	<p>CRSA could explore ways to work with RV park owner to improve conditions along the brook, including revegetating banks and lowering/removing berm.</p> <p>Lack of pools, instream cover, and water depth also identified as potential limiting factors through this section (HSI assessments 2021); have project consultants with AAS visit site and explore options for installation of instream structures to address issues.</p> <p>CRSA should consider ongoing monitoring water quality through Section 1, including installation of water temp. logger.</p>	Medium/high	<p>Small number of trees (>50) planted along right bank in summer 2020, however poor growing conditions due to large volumes of gravel/fill and little soil have resulted in low survival rates.</p> <p>RV park owner has expressed concern about CRSA staff accessing his property.</p>

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
Section 2	<p>Cabot Trail bridge to rock berm. This section is approximately 800m long. Brook averages 5m wide in this section. The riparian habitat appears mostly healthy and is variable, consisting of alders, shrubs, and abundant and mixed hardwood. There are a couple places where the channel is split through this section. Through much of this section there is a healthy ratio of riffle habitat and small pools, however some reaches lack holding pools and adequate instream cover for adult fish.</p> <p>Date Sampled: August 12, 2020 Water Quality Sampled: 16.3°C; pH: 7.50; Conductivity: 188.7us/cm; DO: 83%, 8.1mg/L; Salinity 0.11ppt; TDS: 146.90g/L</p> <p>Date Sampled: July 20, 2021, 2:53pm Water Quality Sampled: 14.4°C; pH: 7.77; Conductivity: 119.0 us/cm; DO: 70.5%, 7.20mg/L; Salinity 0.07ppt; TDS: 97.0mg/L</p>							
	2a	Small areas of cleared banks, beaver dam	Cabot Trail bridge N 46.58543 W 061.02223	Split rejoins N 46.58416 W 061.01749	This section is ~400m long and channel is ~5m wide. The riparian area appears mostly healthy, except for two small clear-cuts off the right bank at the downstream limit of this section. Limited pools in this section, with existing pools small and containing little to no cover.	Site can be accessed by walking upstream from the Cabot Trail bridge. There are a couple houses near the river, just above the bridge.	Digger logs could be installed to encourage formation of more developed pools. The sites of the clear-cuts should be monitored to ensure they are extended, and ideally CRSA should work with local landowners to revegetate the affected banks. Section should be monitored for return of beaver activity.	Low/medium
2b	Formerly characterized by channel instability due to oversized	Split rejoins N 46.58416 W 061.01749	Rock berm N 46.58161 W 061.01592	This section is ~400m long and channel is ~5m wide. The riparian habitat is good until the berm, where there is minimal cover along the left bank. There is a minor split (~15% of flow) starting shortly	Site can be accessed at Alfred's cabin.	The old deflectors are providing instream cover and do not need to be removed at this time.	Medium	Berm lowered in 2020 to allow the brook access to its floodplain. ~150m section 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
Section 3	rock berm, split channels			<p>below Alfred's cabin. Deep pool with good cover and shading on right side across from Alfred's cabin, as well as nice pool below the berm where large boulders were placed by landowner along left bank to act as deflectors.</p> <p>There are a couple old wood deflectors previously installed by CRSA left in the channel below the cabin.</p>		<p>Trees should be planted around the berm and bank stabilization work carried out by CRSA below the berm.</p> <p>A number of digger logs could be installed in this section to help increase number and quality of pools in this section.</p> <p>Sections of channel split should be assessed for fish passage periodically as they appear more prone to blockages of woody debris.</p>		<p>left bank directly below berm that was badly eroded due the berm was repaired using armour stone (2020-1).</p> <p>200 mixed hardwood seedlings on order from Scott & Stewart nursery for spring planting 2022 in riparian area along berm and bank stabilization work.</p>
		<p>Rock berm to guard rail bridge. This section is approximately 700m long and brook averages 5m wide in this section. The riparian habitat appears healthy in this section, consisting of mixed softwood and hardwood. There is a mix of riffles and small pools throughout this section.</p> <p>Date Sampled: August 12, 2020 Water Quality Sampled: 16.7°C; pH: 7.61; Conductivity: 152.0us/cm; DO: 83%, 8.1mg/L; Salinity 0.09ppt; TDS: 117.65g/L</p> <p>Date Sampled: July 20, 2021, 3:07pm Water Quality Sampled: 13.8°C; pH: 8.27; Conductivity: 117.6 us/cm; DO: 62.3%, 6.44mg/L; Salinity 0.07ppt; TDS: 97.2mg/L</p>						
3a	Start of digger logs	Rock berm N 46.58161 W 061.01592	Cliff N 46.57893 W 061.01404	This section is ~350m long and averages ~4m wide. The riparian habitat is healthy, with a fair bit of overhead cover. The channel is relatively straight in this section.	Site can be accessed by walking upstream from Alfred's cabin.	Digger logs should be monitored yearly, with maintenance performed as required to ensure	Low	2 digger logs installed in 2019/2020.

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
						proper functioning.		
3b	1 digger log, new channel	Cliff N 46.57893 W 061.01404	Guard rail bridge N 46.57746 W 061.01048	This section is ~400m long and averages ~4m wide. Riparian habitat appears very healthy. The brook has a few nice bends and has formed a new channel where there are trees still rooted in the substrate. The old channel was dry in 2020 but has ~15% of flow in 2021.	Site can be accessed by walking upstream from Alfred's cabin, or downstream from the guard rail bridge.	The site of the digger log installed in 2019 should be re-assessed and log repaired/replaced as needed.	Medium	1 digger log installed in 2019, maintenance needed.
Section 4	<p>Guard rail bridge to barrier falls. This section is approximately 1350m long. Brook averages 4m wide in this section. The riparian habitat is high quality throughout this section, with full shading throughout most of it, especially through the gorge, with abundant and large hardwoods. The channel appears quite healthy and is mostly boulder-filled riffles and large pools.</p> <p>Date Sampled: August 14, 2020 Water Quality Sampled: 16.7°C; pH: 7.50; Conductivity: 110.0us/cm; DO: 85%, 8.3mg/L; Salinity 0.06ppt; TDS: 85.15g/L</p> <p>Date Sampled: July 20, 2021, 3:15pm Water Quality Sampled: 14.4°C; pH: 7.86; Conductivity: 75.8 us/cm; DO: 68.3%, 6.97mg/L; Salinity 0.05ppt; TDS: 61.8mg/L</p>							
4a	Old crib and deflectors	Guard rail bridge N 46.57746 W 061.01048	Upstream end of crib N 46.57380 W 061.00506	The section is ~700m long and averages ~4m wide. The brook appears very healthy in this section and has one small tributary. There are a few old dry channels throughout, as well as three deflectors and a large crib.	Site can be accessed by walking upstream from the guardrail bridge or the dirt road on the left side of the river, which comes out at the crib.	Monitor for blockages, ensure old structures don't cause passage issues.	Low	No recent work in this section.
4b	Barrier falls	Upstream end of crib N 46.57380	Barrier falls N 46.57165 W 060.99849	Section is approximately 650m long and averages ~4m wide. This appears to be the healthiest section	Site can be accessed from the cabin.	Monitor for blockages.	Low	No recent work in this section.

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
		W 061.00506		of the brook; the gorge starts at the cabin and goes upstream to the falls, providing complete riparian cover. The substrate is mostly boulders with bedrock and there are plenty of large pools and riffles. There is a small tributary coming out by the cabin, as well as a spring closer to the falls.	There is a small trail running up from the cabin.			

5. Restoration Plan Summary – Farm Brook watershed

<p>Changes in the watershed - current conditions compared to historical conditions. Future changes to the natural environment expected in the watershed</p>	<ul style="list-style-type: none"> • Development along the lower reaches of Farm Brook is likely to continue and is expected to impact the watercourse. E.g., a small lot was cleared adjacent to the right bank of Farm Brook immediately above the Cabot Trail bridge and the property is listed for sale (2020-1). The major changes below the Cabot Trail bridge as a result of construction of the RV park will impact the watershed and should be monitored, including the clearing of riparian vegetation, construction of a road that dissects a wetland to improve beach access, and creation of a small berm along right bank. • Historically, Farm Brook has supported small runs of Atlantic salmon, however no assessments of population size exist. The major blockage that developed below the Cabot Trail bridge in the early 2010s was likely a full barrier to migrating fish, however, following the removal of the blockage in 2018, salmon have returned and are successfully spawning in Farm Brook (this was confirmed during an electrofishing training exercise on Farm Brook in 2021 as salmon parr were caught).
<p>Most likely limiting factors with regard to aquatic productivity in the watershed</p>	<ul style="list-style-type: none"> • Access to upstream spawning and rearing habitat/fish passage: Straightened channel in area of former major channel blockage (Site 1b) consists of a long shallow riffle and no pools is likely to limit access to upstream habitat, particularly during periods of low flow; these conditions are especially concerning as the potential barrier exists at the downstream end of site 1b, thereby having the potential to limit/cut-off access to all upstream habitats. • Healthy riparian zones: Reduction of riparian habitat in lower reaches of Farm Brook (Site 1) connected to development is likely to negatively impact the watercourse and watershed, including increasing risk of erosion and likelihood of sands, silts, and potentially excess nutrient loads being flushed into Farm Brook, as well as reducing benefits such as shading and cover for fish. • Instream cover and holding pools: Habitat Suitability Index assessments conducted in 2021 helped pinpoint areas lacking sufficient instream cover for both Atlantic salmon and brook trout of different age classes, as well as reaches with few and small pools, indicating that lack of holding pools and cover may become limiting factors in several locations, including Site 1c and Site 3a.
<p>Habitat connectivity and physical habitat restoration projects, in order of importance</p>	<ol style="list-style-type: none"> 1. Develop design/layout for instream structures (e.g., digger logs and/or deflectors) in Site 1, priority Site 1c, to encourage formation of pools/restore more natural pool-riffle sequence to improve fish passage, improve habitat complexity

	<ol style="list-style-type: none"> 2. Reassess section of brook downstream of rock berm by Alfred’s cabin and consider installation of instream structures to restore habitat negatively impacted as a result of the berm, including structures to help restore natural pool-riffle sequence, enhance existing shallow/small pools, increase instream cover 3. Continue to monitor channel splits and other areas prone to blockages of woody debris (e.g., Site 2a, Site 3b, Site 4a) and thin/remove blockages if they develop and become barriers to fish passage 4. Monitor watercourse for new beaver activity and development of dams, especially in the lower reaches of Farm Brook, that have the potential to limit fish passage to important upstream habitat 5. Carry out annual assessments of functioning/effectiveness of existing instream structures and conduct maintenance as required to allow for continued benefits
Water quality improvement and/or monitoring projects, in order of importance	<ol style="list-style-type: none"> 1. Conduct Habitat Suitability Index (HSI) assessments as part of monitoring program for Farm Brook, including conducting HSIs at sites before restoration activities are undertaken, and again as part of follow-up monitoring. 2. Regular and long-term monitoring should be undertaken and should include biological characteristics (e.g., aquatic invertebrates), physical properties (e.g., temperature and clarity), and concentration of chemical substances (e.g., nutrients, minerals, pollutants), with an emphasis on sites near and downstream of developments. 3. As part of monitoring physical properties of water, install minimum of two water temperature loggers in Farm Brook (one below Cabot Trail bridge and one above) to monitor summer water temperatures (June – September). 4. Include electrofishing as part of monitoring activities on Farm Brook, following protocols used in nearby watershed/watercourses to increase opportunities for meaningful comparisons.
Riparian buffer zone restoration projects, in order of importance	<ol style="list-style-type: none"> 1. Work with RV park owner to re-establish/restore riparian zone through much of Site 1, focusing at minimum on replanting native trees and shrubs to establish a functioning riparian buffer strip 2. Work with landowner in Site 2b to restore the riparian zone along and downstream of the rock berm 3. Develop information package for landowners focused on best management practices for riparian zones and provide access to tools and other resources that will help landowners restore and/or enhance riparian areas on their properties

6. Sample site photos – Farm Brook watershed

Sections 1 & 2



1a – Aerial view of old channel to mouth of brook and new route to estuary (2017)



1a – Small beaver dam under construction (summer 2021)



1a – Looking downstream to narrow falls above estuary (2020)



1a – Large pool at sharp bend



1b – Aerial view of upstream start of major channel blockage before CRSA removal (2017)



1b –Upstream end of major blockage of large woody debris (2018) 0



1b –Long straight narrow riffle section, looking downstream



1b –Location of large beaver dam removed in 2020, looking upstream (2020)



1c –Berm and clear-cutting through majority of section (2020)



2b –Rock berm above Alfred’s cabin before restoration project (2020)

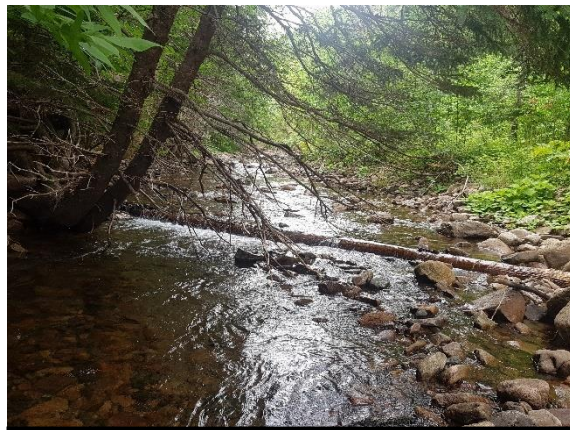


2b –Rock berm after being lowered in 2020 as part of restoration work



2b –Armour stone and rock berm above Alfred’s cabin (2020/1)

Sections 3 & 4



3a –One of the lower digger logs completed in 2020



3b – New channel with trees in substrate



4a – Old deflector



4a – Cliff



4a – Debris jam



4b – Small tributary by cabin



4b – Barrier falls



4b – One of many large pools in this section

Farm Brook Habitat Suitability Index data and results – collected summer 2021

NSFHAP Field Data Entry - Field Sheet #:												Site 1b, starting at riffle above pool at sharp bend							
River Name	Farm Brook			Watershed Code	83			Date	18/07/2021			Time	2:42 AM		Crew	Will, Jillian, Matt, Aaron, Keats			
Site Boundary Coordinates	Downstream	46.5855 ° N			-81.021 ° W			Upstream	46.5855 ° N			-81.021 ° W							
Watershed Area (km ²)	20.8		Calculated Bankfull Width (m)	8.5			Transect Spacing (m)	17			Site Length (m)	51		Stream Order	4				
Air Temperature (°C)	24.8		Water Temperature (°C)	17.9			pH	7.61			Conductivity (S/m)	121.3		TDS (mg/L)	91.6		DO (mg/L)	4.4	

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths				Thalweg	Slope
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	10	10	7.7	100	3.7	18	18	29	22	5.9	
T2	10	10	6.2	128	4.6	14	18	16	25	2.6	
T3	10	10	6.6	57	5.8	12	16	14	21	4.1	
Average	10	10	6.8333333	95	4.7	17.2222222			22.6666666		

Substrate and Cover																						
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover	
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock				
T1	46.58557	-61.02647	riffle	0	2	16	2	0	0	0	1	12	7	0	0	6	10	4	0	0	7	4
T2	46.58565	-61.02617	run	0	7	11	2	0	14	4	2	0	0	0	12	4	4	0	0	0	10	1
T3	46.58559	-61.02594	riffle	0	10	10	0	0	0	6	14	0	0	0	5	12	3	0	0	0	0	0

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
1.555	5.888	10.11	2.444	0	

Riverbanks & Riparian Area									
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height	
Left Bank	10	100	40	0	85	15			
Right Bank	0	100	100	0	40	60	10		
Vegetation Index:	310		Avg.: 62.5		Avg.: 37.5				

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	571.43
% Chironomids	6.73

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	0	6	1	7
Snails, Limpets	Gastropoda	0	0	0	0
Sow Bugs	Isopoda	0	0	0	0
Aquatic Earthworm	Oligochaeta	0	0	0	0
Beetles	Coleoptera	0	0	0	0
Mayflies	Ephemeroptera	15	20	5	40
Fishflies, Alderflies	Megaloptera	20	30	7	57
Stoneflies	Plecoptera				
Caddisflies	Trichoptera				

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	16/07/2021	Will, Jillian, Matt	48.58557° N	-81.02847° W	48.58558° N	-81.02573° W	0.30	0.30	0.95	0.22	0.30	1.00	0.57	0.90	1.00	no			1.00	0.63	0.15	0.44

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	16/07/2021	Will, Jillian, Matt	48.58557° N	-81.02847° W	48.58558° N	-81.02573° W	0.12	0.30	0.95	0.22	0.30	1.00	0.57	0.91	0.90	no			1.00	0.86	0.50	0.44

NSFHAP Field Data Entry - Field Sheet #:										Site 1c, ~lower half of section				
River Name	Farm Brook	Watershed Code	83	Date	18/07/21	Time		Crew	Matt. Aaron. Keats					
Site Boundary Coordinates	Downstream	48.637 °	° N	-81.00 °	° W	Upstream	48.582 °	° N	-81.02 °	° W				
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5	Transect Spacing (m)	17	Site Length (m)	51	Stream Order	4					
Air Temperature (°C)	23	Water Temperature (°C)	14.9	pH	7.84	Conductivity (µm)	126	TDS (mg/L)	101.5	DO (mg/L)	59.5			

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	10	10	16	55	7.8	6	13	8	18	5.5	
T2	10	3	16.2	65	12.1	3	26	18	34	5.2	
T3	10	10	13.4	48	5	42	20	5	45	3	
Average	10	7.66666666	15.2	56	8.3	15.66666667			32.3333333		

Substrate and Cover																							
	GPS Coordinates	Habitat Type	1/4 of width					1/2 of width					3/4 of width										
			Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock						
T1	46.63754	-6100756	riffle	4	16	0	0	0	0	1	19	0	0	0	0	2	16	2	0	0	0	10	6
T2			pool	0	8	12	0	0	0	9	11	0	0	20	0	0	0	0	0	0	0	14	0
T3	46.58290	-61.02401	run	2	2	14	2	0	0	10	10	0	0	0	4	12	4	0	0	0	10	10	

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
2.888	5.777	10.44	0.888	0	

Riverbanks & Riparian Area							
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade
Left Bank	70	40	0	10	25	75	
Right Bank	80	70	20	5	10	90	70
Vegetation Index:	200				Avg.: 17.5	Avg.: 82.5	

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae			8	
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	14			14
Fishflies, Alderflies	Megaloptera	30	20	34	84
Stoneflies	Plecoptera				
Caddisflies	Trichoptera				

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	83	16/07/2021	Will, Jillian, Matt	46.58557° N	-61.02647° W	46.58558° N	-61.02573° W	0.30	0.30	0.95	0.22	0.30	1.00	0.57	0.90	1.00	no			1.00	0.63	0.15	0.44

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	83	16/07/2021	Will, Jillian, Matt	46.58557° N	-61.02647° W	46.58558° N	-61.02573° W	0.12	0.30	0.95	0.22	0.30	1.00	0.57	0.91	0.90	no			1.00	0.86	0.50	0.44

NSFHAP Field Data Entry - Field Sheet #:										Site 1c, ~upper half of section				
River Name	Farm Brook	Watershed Code	63	Date	21/07/20	Time		Crew	Matt Aaron Keats					
Site Boundary Coordinates	Downstream	46.585 °	°	" N	61.023 °	°	" W	Upstream	46.585 °	°	" N	61.022 °	°	" W
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5	Transect Spacing (m)	17	Site Length (m)	51	Stream Order	4					
Air Temperature (°C)	22	Water Temperature (°C)	15.4	pH	7.56	Conductivity (S/m)	81.1	TDS (mg/L)	64.6	DO (mg/L)	5.43			

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	5	0	9.8	1.01	9.5	23	27	23	30		5.8
T2	3	0	9.5	1.1	7.7	15	33	52	54		7.8
T3	5	0	8.7	1.4	7.3	21	26	27	33		6.7
Average	4.33333333	0	9.33333333	1.17	8.16666666	27.44444444			39		

Substrate and Cover																							
	GPS Coordinates	Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover			
			Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock						
T1	46.5854	-61.02305	riffle	0	0	20	0	0	0	0	0	20	0	0	0	4	13	3	0	0	0	18	10
T2	46.58543	-61.02285	run	0	10	8	2	0	0	2	18	0	0	0	0	20	0	0	0	0	5	15	4
T3	46.58542	-61.02261	riffle	0	4	16	0	0	0	0	20	0	0	2	0	16	2	0	0	0	8	8	7

Average Substrate Size				
Fines	Gravel	Cobble	Boulder	Bedrock
0.222	2.222	16.77	0.777	0

Riverbanks & Riparian Area										
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height		
Left Bank	80	100	10	0	10	90				
Right Bank	0	100	0	40	75	25	20			
Vegetation Index:	247.5				Avg.: 42.5	Avg.: 57.5				

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	6,700.00
% Chironomids	1.47

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	0	1	0	1
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	2			2
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	0	10	9	19
Caddisflies	Trichoptera	6	20	20	46

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	83	21/07/20	Matt Aaron Keats	46.5854° N	01.02305° W	46.5854° N	01.02201° W	0.30	0.30	1.00	0.28	0.30	1.00	0.88	1.00	1.00	no			1.00	0.88	0.48	0.58

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	83	21/07/20	Matt Aaron Keats	46.5854° N	01.02305° W	46.5854° N	01.02201° W	0.12	0.30	1.00	0.28	0.30	1.00	0.88	1.00	0.92	no			1.00	1.00	0.50	0.58

NSFHAP Field Data Entry - Field Sheet #:											Site 2a, bottom section above Cabot Trail bridge												
River Name	Farm Brook		Watershed Code	63		Date	21/09/21		Time			Crew	Matt Aaron Keats										
Site Boundary Coordinates			Downstream	46.585 °			° N		-81.02 °		° W		Upstream	46.585 °			° N		-81.02 °		° W		
Watershed Area (km2)	21.3		Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4										
Air Temperature (°C)	23		Water Temperature (°C)	15.4		pH	7.53		Conductivity (S/m)	104.2		TDS (mg/L)	83		DO (mg/L)	3.34							

Channel Cross-sections												
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope		
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)	
T1	6	2	9	67	8.8	63	36	5	79	1.6		
T2	0	4	9.8	94	6.9	30	24	19	32	3		
T3	1	3	10.3	1.03	6.5	15	22	22	24	7.7		
Average	2.3333333	3	9.7	54.01	7.4	26.2222222			45			

Substrate and Cover																																					
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover																
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock																			
T1	46.58527	-61.02196	pool	0	15	5	0	0	0	12	8	0	0	0	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
T2	46.58530	-61.02169	run	0	0	15	5	0	0	12	8	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T3	46.58518	-61.02151	riffle	0	0	20	0	0	0	0	16	4	0	0	1	10	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
2.111	6.777	10	1.111	0	

Riverbanks & Riparian Area									
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height	
Left Bank	100	85	50	5	60	40			
Right Bank	60	40	60	5	15	85	80		
Vegetation Index:	287.5				Avg.:	37.5	Avg.:	62.5	

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	866.67
% Chironomids	10.34

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m2)	% Pool Cover	Percentage of Pools	Pool Class Rating
1	80	33	47	20	5.3	83.21	30	22.05	B

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	2	1	3	6
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	4	2	4	10
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	8	6	2	16
Caddisflies	Trichoptera	10	4	12	26

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	21/08/21	Matt Aaron Keats	46.58527° N	-61.02196° W	46.58518° N	-61.02151° W	0.82	0.60	1.00	0.51	0.30	1.00	0.95	1.00	1.00	no			1.00	0.56	0.82	1.00

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	21/08/21	Matt Aaron Keats	46.58527° N	-61.02196° W	46.58518° N	-61.02151° W	0.98	0.60	1.00	0.51	0.30	1.00	0.95	1.00	0.93	no			1.00	1.00	0.50	1.00

NSFHAP Field Data Entry - Field Sheet #:											Site 2b, upstream start channel split starting at old deflector					
River Name	Farm Brook		Watershed Code	63		Date			Time			Crew				
Site Boundary Coordinates	Downstream	46.35 ' ' ' ' ' N		-61.011 ' ' ' ' ' W		Upstream	46.35 ' ' ' ' ' N		-61.01 ' ' ' ' ' W							
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4				
Air Temperature (°C)	18	Water Temperature (°C)	12		pH	7.7		Conductivity (S/m)	66		TDS (mg/L)	57.1		DO (mg/L)	5.1	

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	1	3	10.4	84	7.3	22	37	19	38	4.9	
T2	0	10	5.9	63	5	22	43	46	61	3.5	
T3	4	10	7.7	61	6.1	16	40	13	41	4.1	
Average	1.66666666	7.66666666	8	69.33333333	6.13333333	28.66666667			46.66666666		

Substrate and Cover																								
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover			
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock						
T1	46.58264	-61.01582	riffle	2	10	8	0	0	0	0	1	14	4	0	0	0	4	14	2	0	0	0	10	0
T2	46.58258	-61.01549	pool	0	6	14	0	0	0	0	0	10	10	0	0	0	2	10	8	0	0	0	20	20
T3	46.58249	-61.01534	run	0	3	13	4	0	0	0	3	15	2	0	3	3	14	0	0	0	0	14	3	

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
0.555	3.555	12.44	3.333	0	

Riverbanks & Riparian Area								
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height
Left Bank	100	100	25	10	20	80		
Right Bank	100	60	60	10	5	95	75	
Vegetation Index:	323.7				Avg.:	12.5	Avg.:	87.5

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m ²)	% Pool Cover	Percentage of Pools	Pool Class Rating
1/2	64	13	51	8.3	5.2	33.88	100	10.83	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness
	Length (m)	Width (m)	Area (m ²)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	% Fines under surface
Atlantic Salmon								
Total			0					
Brook Trout								
Total			0					

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	no			
T2	yes	sharp	grasses	
T3	no			

Rock Grab or 3 Minute Kick	Grab
Net Type/Mesh Size	
% EPT	1,750.00
% Chironomids	5.41

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	3		1	4
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	4			4
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	5	10	6	21
Caddisflies	Trichoptera	8	25	12	45

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63			46.35° ** N	-61.01 02° ** W	46.35° ** N	-61.01 ** * W	0.59	0.60	1.00	0.75	0.30	1.00	1.00	1.00	1.00	no			1.00	0.79	0.80	1.00

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63			46.35° ** N	-61.01 02° ** W	46.35° ** N	-61.01 ** * W	0.65	0.60	1.00	0.75	0.30	1.00	1.00	0.86	0.87	no			1.00	1.00	0.50	1.00

NSFHAP Field Data Entry - Field Sheet #:										Site 2b, uppermost end of section to Alfred's cabin						
River Name	Farm Brook		Watershed Code	63		Date	21/07/21		Time	Crew					Matt, Aaron, Keals	
Site Boundary Coordinates Downstream			46.582 ' ' " N		-61.01: ' ' " W		Upstream	46.581 ' ' " N		-61.01: ' ' " W						
Watershed Area (km2)	21.3		Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4			
Air Temperature (°C)	20		Water Temperature (°C)	14.2				7.72	Conductivity (S/m)	97.5		TDS (mg/L)	79.6		DO (mg/L)	49.1

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	15	2	12.4	50	10.4	15	15	1	16	7.7	
T2	20	2	10.5	62	7	100	100	58	100	11	
T3	6	10	17	71	5.6	25	27	16	30	11.1	
Average	13.6666666	4.6666666	13.3	61	7.6666666	39.6666667			48.6666666		

Substrate and Cover																						
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover	
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock				
T1	46.58205	-61.01559	riffle	0	10	8	2	0	0	10	10	0	0	4	8	8	0	0	0	0	20	20
T2	46.58186	-61.01551	pool	0	0	8	12	0	0	14	6	0	0	0	20	0	0	0	0	0	20	20
T3	46.58168	-61.01564	run	0	4	13	3	0	0	0	19	1	0	0	2	18	0	0	0	0	20	20

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
0.444	7.555	10	2	0	

Riverbanks & Riparian Area										
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height		
Left Bank	80	75	40	20	0	100				
Right Bank	90	70	20	10	0	100	60			
Vegetation Index:	275				Avg.:	0	Avg.:	100		

Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m ²)	% Pool Cover	Percentage of Pools	Pool Class Rating
1/2	100	15	85	24	8.5	160.14	100	40.96	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness
	Length (m)	Width (m)	Area (m ²)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	% Fines under surface
Atlantic Salmon	4	7	28	6	50	3	19.6666666	0
Total			28				19.6666666	0
Brook Trout								
Total			0					

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	no			
T2	yes	gradual	none	
T3	yes	gradual	none	

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	377.78
% Chironomids	7.14

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	4	3	2	9
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta	2		1	3
Beetles	Coleoptera				
Mayflies	Ephemeroptera	30		4	34
Fishflies, Alderflies	Megaloptera	20	32	28	80
Stoneflies	Plecoptera				
Caddisflies	Trichoptera				

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	21/07/21	Matt, Aaron, Keats	46.58207° N	-81.01539° W	46.58168° N	-81.01564° W	1.00	0.60	1.00	1.00	0.30	1.00	1.00	1.00	1.00	yes	0.00	1.00	1.00	0.60	0.37	1.00

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	21/07/21	Matt, Aaron, Keats	46.58207° N	-81.01539° W	46.58168° N	-81.01564° W	0.67	0.60	1.00	1.00	0.30	1.00	1.00	1.00	0.86	yes	0.01	1.00	1.00	1.00	0.50	1.00

Site 3a, section starting at rock berm

NSFHAP Field Data Entry - Field Sheet #:																
River Name	Farm Brook		Watershed Code	63		Date	21/07/21		Time	Crew			Matt aaron keats			
Site Boundary Coordinates	Downstream	46.581 ' ' ' N		-61.01 ' ' ' W		Upstream	46.581 ' ' ' N		-61.01 ' ' ' W							
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4				
Air Temperature (°C)	21	Water Temperature (°C)	14.7		pH	7.91		Conductivity (S/m)	100.1		TDS (mg/L)	80		DO (mg/L)	4.66	

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg Location (m)	Slope (percent)	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)			Thalweg depth (cm)
T1	0	8	14.4	1	6.4	52	43	45	47	6.8	
T2	0	2	14.1	0.7	12	5	3	16	30	12.8	
T3	0	4	17	1.5	9.5	15	24	29	18	4.1	
Average	0	4.66666666	15.16666666	1.06666666	9.3	25.77777778			31.66666666		

Substrate and Cover																						
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover	
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock				
T1	46.5815	-61.01593	pool	0	4	11	5	0	17	0	3	0	0	0	0	3	7	10	0	0	13	13
T2	46.58123	-61.01596	run	0	0	18	2	0	0	0	8	12	0	0	5	10	5	0	0	4	1	1
T3	46.58106	-61.01577	riffle	0	1	14	5	0	0	4	8	8	0	2	0	6	12	0	0	18	2	2

Average Substrate Size				
Fines	Gravel	Cobble	Boulder	Bedrock
2.111	1.888	9.444	6.555	0

Riverbanks & Riparian Area								
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height
Left Bank	0	10	40	60	20	80		
Right Bank	70	50	10	70	0	100	20	
Vegetation Index:	132.5			Avg.:	10	Avg.:	90	

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m2)	% Pool Cover	Percentage of Pools	Pool Class Rating
1	75	33	42	26	6	122.46	10	25.82	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness
	Length (m)	Width (m)	Area (m2)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	% Fines under surface
Atlantic Salmon	12	7	84	50	75	16	47	0
Total			84				47	0
Brook Trout								
Total			0					

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	yes	gradual	none	
T2	no			
T3	no			

Rock Grab or 3 Minute Kick	Rock grab
Net Type/Mesh Size	
% EPT	1,325.00
% Chironomids	7.02

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	2	1	1	4
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	3		6	9
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	2	15	3	20
Caddisflies	Trichoptera	1	22	1	24

Brook Trout																							
River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	21/07/21	Matt aaron keats	46.5815° N	-61.01593° W	46.58106° N	-61.01577° W	0.88	0.60	1.00	0.39	0.30	0.97	1.00	1.00	0.98	yes	0.00	1.00	1.00	0.80	0.22	0.58

Atlantic Salmon																							
River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	21/07/21	Matt aaron	46.5815° N	-61.01593° W	46.58106° N	-61.01577° W	1.00	0.60	1.00	0.39	0.30	0.97	1.00	1.00	0.78	yes	1.00	1.00	1.00	1.00	0.50	0.58

Site 3a, section starting at lower digger log

NSFHAP Field Data Entry - Field Sheet #:														
River Name	Farm Brook	Watershed Code	63	Date	July 29, 2021	Time		Crew						
Site Boundary Coordinates	Downstream	46.580 °	'	" N	-61.01 °	'	" W	Upstream	46.579 °	'	" N	-61.01 °	'	" W
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5	Transect Spacing (m)	17	Site Length (m)	51	Stream Order	4					
Air Temperature (°C)	18	Water Temperature (°C)	12.2	pH	7.58	Conductivity (S/m)	67.5	TDS (mg/L)	58.1	DO (mg/L)	8.87			

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	2	0	9.4	83	8.2	13	28	69	70	7.1	
T2	0	0	9.3	105	8	21	31	22	33	4.9	
T3	0	3	8.5	115	6.7	19	16	20	28	1.7	
Average	0.66666666	1	9.06666666	101	7.63333333	26.55555556			43.66666666		

Substrate and Cover																					
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock			
T1	46.58018	-61.01466	pool	7	8	0	5	0	3	10	4	3	0	1	4	5	10	0	0	20	20
T2			run	6	3	4	7	0	1	3	16	0	0	2	3	10	5	0	0	6	1
T3	46.5799	-61.01443	riffle	0	4	6	10	0	0	3	13	4	0	0	4	14	2	0	0	5	0

Average Substrate Size				
Fines	Gravel	Cobble	Boulder	Bedrock
2.222	4.666	8	5.111	0

Riverbanks & Riparian Area									
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height	
Left Bank	100	40	40	25	25	75			
Right Bank	100	10	10	25	25	75	90		
Vegetation Index:	187.5			Avg.:	25	Avg.:	75		

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m2)	% Pool Cover	Percentage of Pools	Pool Class Rating
1	100	21	79	11	4	34.54	95	8.87	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness
	Length (m)	Width (m)	Area (m2)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	% Fines under surface
Atlantic Salmon	4	4	16	10	4	50	21.33333333	0
Total			16				21.33333333	0
Brook Trout								
Total			0					

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	no			
T2	no			
T3	no			

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	429.41
% Chironomids	18.89

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	25	5	4	34
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	40	16	13	69
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	40	10	5	55
Caddisflies	Trichoptera	16	4	2	22

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	29/7/21		46.580 18° 34' N	-61.01 466° 44' W	46.579 9° 59' N	-61.01 443° 43' W	0.55	0.60	0.93	0.43	0.30	1.00	1.00	1.00	1.00	yes	0.00	1.00	1.00	0.66	0.79	0.81

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	29/7/21		46.580 18° 34' N	-61.01 466° 44' W	46.579 9° 59' N	-61.01 443° 43' W	0.56	0.60	0.93	0.43	0.30	1.00	1.00	0.88	0.91	yes	0.11	1.00	1.00	1.00	0.50	0.81

Site 4b, bottom of section, upstream from top of old crib

NSFHAP Field Data Entry - Field Sheet #:														
River Name	Farm Brook		Watershed Code	63		Date	July 30, 2021		Time	Crew				
Site Boundary Coordinates	Downstream	46.627 ' ' ' N		-60.961 ' ' ' W		Upstream	46.573 ' ' ' N		-61.00 ' ' ' W					
Watershed Area (km2)	21.3		Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4	
Air Temperature (°C)	17		Water Temperature (°C)	11.9		pH	7.85		Conductivity (S/m)	56.4		TDS (mg/L)	48.9	
												DO (mg/L)	7.53	

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths			Thalweg	Slope	
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	0	15	11.8	100	2.3	32	29	26	37		1.1
T2	1	10	10.7	91	6.4	34	34	29	41		2.6
T3	2	1	12	88	7	21	33	32	46		7.5
Average	1	8.66666666	11.5	93	5.23333333	30			41.33333333		

Substrate and Cover																					
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock			
T1	46.62776	-60.96878	riffle	0	0	2	18	0	0	0	0	20	0	0	0	5	15	0	0	10	10
T2	46.37375	-61.00493	pool	0	3	7	10	0	0	3	2	15	0	3	7	5	5	0	0	10	10
T3	46.57379	-61.00468	run	0	2	2	16	0	0	1	1	18	0	0	5	10	5	0	0	12	4

Average Substrate Size					
Fines	Gravel	Cobble	Boulder	Bedrock	
0.333	2.333	3.777	13.555	0	

Riverbanks & Riparian Area								
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height
Left Bank	100	10	80	0	15	85		
Right Bank	100	0	15	80	0	100	98	
Vegetation Index:	181.2				Avg.: 7.5	Avg.: 92.5		

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m2)	% Pool Cover	Percentage of Pools	Pool Class Rating
2	38	15	23	15	4	47.10	100	17.65	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness % Fines under surface
	Length (m)	Width (m)	Area (m2)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	
Atlantic Salmon	6	4	24	110	58	25	64.3333333	0
Total			24				64.3333333	0
Brook Trout								
Total			0					

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	no			
T2	yes	gradual	grasses	
T3	yes	gradual	none	

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	1,833.33
% Chironomids	5.17

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae	1	2		3
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera	10	2	4	16
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	10	6	12	28
Caddisflies	Trichoptera	4	4	3	11

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover (Late Growing Season (Adult))	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook	63	30/7/21		46.62776° N	-60.96828° W	46.57379° N	-51.00468° W	0.74	0.60	1.00	1.00	0.30	1.00	1.00	1.00	1.00	yes	0.00	1.00	1.00	0.87	0.37	0.53

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook	63	30/7/21		46.62776° N	-60.96828° W	46.57379° N	-51.00468° W	0.91	0.60	1.00	1.00	0.30	1.00	1.00	0.84	0.81	yes	1.00	1.00	1.00	1.00	0.50	0.53

NSFHAP Field Data Entry - Field Sheet #:											Site 4b, mid section, near cabin					
River Name	Farm Brook		Watershed Code		Date		Time		Crew				Matt, Aaron, Keats			
Site Boundary Coordinates	Downstream	46.572	'	" N	-61.001	'	" W	Upstream	46.582	'	" N	-61.02	'	" W		
Watershed Area (km2)	21.3	Calculated Bankfull Width (m)	8.5		Transect Spacing (m)	17		Site Length (m)	51		Stream Order	4				
Air Temperature (°C)	21	Water Temperature (°C)	13.5		pH	7.71		Conductivity (S/m)	46.1		TDS (mg/L)	37.9		DO (mg/L)	7.68	

Channel Cross-sections											
	Floodplains		Height and Widths			Wetted Depths				Thalweg	Slope
	Average Left Width (m)	Average Right Width (m)	Bankfull Width (m)	Bankfull Height (cm)	Wetted Width (m)	1/4 of Width (cm)	1/2 of Width (cm)	3/4 of Width (cm)	Thalweg depth (cm)	Thalweg Location (m)	Slope (percent)
T1	2	1	13.2	47	8.2	41	30	51	60	9.2	
T2	6	0	12.6	62	10	15	29	32	53	7.9	
T3	1.5	2	11.5	100	8.8	45	55	25	61	5.1	
Average	3.16666666	1	12.43333333	69.66666666	9	35.88888889			58		

Substrate and Cover																					
	GPS Coordinates		Habitat Type	1/4 of width					1/2 of width					3/4 of width					% Embedded	10 cm In-stream Cover	20 cm In-stream Cover
				Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock	Fines	Gravel	Cobble	Boulder	Bedrock			
T1	46.57256	-61.00088	riffle	0	0	0	20	0	0	0	0	20	0	0	0	2	18	0	0	18	18
T2	46.7225	-61.00085	run	0	0	3	17	0	0	0	10	10	0	0	0	4	16	0	0	18	10
T3	46.57211	-61.00069	run	0	6	14	0	0	0	4	12	4	0	0	0	18	2	0	0	18	18

Average Subs			
Fines	Gravel	Cobble	Boulder
0	1.111	7	11.88

Riverbanks & Riparian Area									
	% Trees	% Shrubs	% Grass	% Bare Soil	% Eroding	% Stable Ground	% Stream Shade	Ice Scar Height	
Left Bank	100	80	60	100	0	100			
Right Bank	100	0	0	0	80	80	100		
Vegetation Index:	225				Avg.:	40	Avg.:	90	

Pool Measurements									
Transect #	Max Depth (cm)	Depth of Pool Tail (cm)	Est. Low Flow Max. Depth (cm)	Length (m)	Width (m)	Pool Area (m ²)	% Pool Cover	Percentage of Pools	Pool Class Rating
3	63	35	28	7	6	32.97	100	7.18	B

Spawning Areas								
	Size of Area			Substrate Size				Embeddedness % Fines under surface
	Length (m)	Width (m)	Area (m ²)	Rock #1 (cm)	Rock #2 (cm)	Rock #3 (cm)	Average	
Atlantic Salmon								
Total	0							
Brook Trout								
Total	0							

Point Bars				
Transect	Present	Angle	Vegetation	Comments
T1	no			
T2	no			
T3	no			

Rock Grab or 3 Minute Kick	
Net Type/Mesh Size	
% EPT	
% Chironomids	

Benthos Tally					
Common Name	Scientific Name	1	2	3	Total
Midges	Chironomidae				
Snails, Limpets	Gastropoda				
Sow Bugs	Isopoda				
Aquatic Earthworm	Oligochaeta				
Beetles	Coleoptera				
Mayflies	Ephemeroptera		6		
Fishflies, Alderflies	Megaloptera				
Stoneflies	Plecoptera	3	4	2	9
Caddisflies	Trichoptera	0	3	8	11

Brook Trout

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (Juvenile)	% Instream Cover - Late Growing Season (Adult)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Avg Max Water Temp	pH	Spawning present	Avg Size of Substrate in Spawning Areas	% Fines in Spawning Areas	% Fines in Riffle-Run Areas	% Substrate Size Class for Winter Escape	Avg Thalweg Depth During the Late Growing Season	% Stream Shade
Farm Brook			Matt, Aaron, Keats	46.57256° N	-61.00088° W	46.5829° N	-61.02401° W	0.50	0.60	1.00	0.87	0.30	1.00	1.00	1.00	1.00	no			1.00	0.94	0.89	0.44

Atlantic Salmon

River Name	Watershed Code	Date	Crew	Downstream Lat	Downstream Long	Upstream Lat	Upstream Long	% Pools	Pool Class Rating	% Instream Cover (fry)	% Instream Cover (parr)	Dominant Substrate Type in Riffle-Run Areas	Avg % Vegetation Along the Streambank	Avg % Rooted Vegetation and Stable Rocky Ground Cover	Summer Rearing Temp During Growing Season	pH	Spawning present	Substrate for Spawning and Incubation	% Fines in Spawning Areas	Fry Water Depth	Parr Water Depth	Stream Order	% Stream Shade
Farm Brook			Matt, Aaron, Keats	46.57256° N	-61.00088° W	46.5829° N	-61.02401° W	0.47	0.60	1.00	0.87	0.30	1.00	1.00	1.00	0.87	no			1.00	1.00	0.50	0.44

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