

**INITIAL STUDY REPORT
TAILWATER BENTHIC MACROINVERTEBRATE SURVEY
PEJEPSCOT HYDROELECTRIC PROJECT
(FERC No. 4784)**



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LIST OF ABBREVIATIONS AND DEFINITIONS

Brookfield	Brookfield Renewable
CFR	Code of Federal Regulations
cfs	Cubic feet per second
Commission	Federal Energy Regulatory Commission
DO	Dissolved Oxygen
FERC	Federal Energy Regulatory Commission
HETL	Maine Health and Environmental Testing Laboratory
ILP	Integrated Licensing Process
MDEP	Maine Department of Environmental Protection
ME	Maine
mg/l	Milligrams per liter
MW	Megawatt
NH	New Hampshire
NOI	Notice of Intent
PAD	Pre-Application Document
Project	Pejepscot Hydroelectric Project (FERC No. 4784)
PSP	Proposed Study Plan
PCU	Platinum Cobalt Units
RSP	Revised Study Plan
SD1	Scoping Document 1
SD2	Scoping Document 2
SPD	Study Plan Determination
TSI	Trophic State Index
us/cm	microSiemens/centimeter
ug/l	Micrograms per liter
USGS	United States Geological Survey
VLMP	Volunteer Lake Monitoring Program

1.0 INTRODUCTION

A survey of benthic macroinvertebrates was conducted in support of the relicensing of the Pejepscot Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) No. 4784, as identified in the Revised Study Plan (RSP) submitted by Topsham Hydro Partners Limited Partnership (Topsham) on June 12, 2018 and approved by the FERC in its Study Plan Determination letter dated July 3, 2018. This is a report for the 2018 study efforts of the Tailwater Benthic Macroinvertebrate Survey. The majority of work for this study was conducted by Normandeau Associates, Inc. (Normandeau). The Maine Department of Environmental Protection (MDEP) was provided with a listing of observed taxonomic classifications and abundance (data listing provided in Appendix A) in order to aid them in their determination of water classification standards for the Project tailrace.

2.0 OBJECTIVES



The goal of this study was to determine if the attainment of Class C habitat and aquatic life criteria is being met in the river reach below the Project dam. The study objective was to determine the composition of the benthic macroinvertebrate community within the tailrace reach of the dam in accordance with the most recent MDEP protocol for macroinvertebrate sampling.

3.0 STUDY AREA

The study area included the section of the Androscoggin River located approximately 600-700 feet downstream of the Project. As specified in the RSP, a single sampling station was established within representative habitat downstream of the Project facilities ([Figure 3-1](#)).



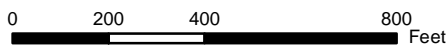
Legend

-  Macroinvertebrate Sample Location
-  Pejepscot Dam

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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PEJEPSCOT HYDROELECTRIC PROJECT
(FERC No. 4784)
MACROINVERTEBRATE STUDY



**Figure 3-1:
Location of Benthic
Macroinvertebrate
Sampling Station
Downstream of Pejepscot
August, 2018**

4.0 METHODS

Benthic macroinvertebrate community sampling downstream of the Project was conducted following the MDEP's Methods for Biological Sampling and Analysis of Maine's Rivers and Streams ([Davies and Tsomides 2014](#)) which presents the standard practices and procedures that have been adopted by MDEP to acquire benthic macroinvertebrate data for purposes of aquatic life classification attainment evaluation. As described in the RSP, a set of three rock baskets were deployed at a sampling location downstream of the power station and within representative benthic macroinvertebrate habitat. Samplers were filled with 7.25 ± 0.5 kg of clean, washed cobble graded to a uniform diameter range of 3.8-7.6 cm. Pejepsco samplers were deployed during the late summer low-flow period from July 1 to September 30 specified in the MDEP protocol and remained in the river for the required 28 days (± 4 days). At the time of deployment, baskets were oriented parallel to stream flow and were placed at locations where there was a high degree of certainty that they would remain watered for the duration of the study period and were outside of any potential bank effects.

At the completion of the exposure period, samplers were approached from the downstream side and collected by carefully lifting them into an aquatic sampling net. Following collection, samplers were washed through a 600 micron sieve bucket. Each rock was visually inspected, and the surface was rinsed through the bucket. Contents of the sieve bucket were placed in double-labeled jars and preserved with a 70% solution of ethyl alcohol. Habitat and water quality measurements were collected at the time of deployment and retrieval at both sampling locations. Habitat parameters evaluated were those shown on the physical habitat data sheet included in the MDEP protocol. These included substrate composition, canopy coverage, land use, and terrain characteristics. Water quality measurements included velocity, temperature, specific conductance, dissolved oxygen, pH, and total dissolved solids. Also noted were the dates of exposure.

The benthos samples were sent to Normandeau's benthic taxonomy laboratory located in Stowe, Pennsylvania. Taxonomists there sorted, identified and enumerated the full contents of the three rock basket samplers. Samples were analyzed using stereo-zoom and compound microscopes. Organisms were identified and enumerated to the lowest practical taxon, generally genus and species, dependent on their age and condition using published taxonomic keys. Chironomidae (midges) larvae were slide mounted after being prepared in a clearing solution and identified using a compound microscope. Worms were also slide mounted and identified using a compound microscope.

The following metrics were evaluated for the macroinvertebrate samples collected downstream of Pejepsco:

- **Total Number of Taxa:** The number of genera identified.
- **Number of EPT Taxa:** Number of genera in the insect orders Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies), collectively referred to as the "EPT"

taxa. These three groups of benthic insects are considered particularly sensitive to pollution.

- **Number of Ephemeroptera Taxa:** The number genera classified as mayflies.
- **Number of Plecoptera Taxa:** The number genera classified as stoneflies.
- **Number of Trichoptera Taxa:** The number genera classified as caddisflies.
- **Percent EPT:** The percentage of the total number of specimens in a sample representing individuals classified as mayflies, stoneflies or caddisflies.
- **Percent Ephemeroptera:** The percentage of the total number of specimens that are mayfly nymphs.
- **Number of Intolerant Taxa:** The number of genera considered to be sensitive to environmental perturbation (tolerance values = 0 – 3).
- **Percent Tolerant Organisms:** The percent of macroinvertebrate specimens considered tolerant to environmental perturbations (tolerance values = 7 – 10).
- **Percent Dominant Taxon:** The percent abundance of the single most abundant taxon.
- **Hilsenhoff Biotic Index (HBI):** A weighted average of the tolerance values of all taxa present. Organisms are assigned a tolerance value from 0 to 10 indicating their sensitivity to organic pollutants (0 being most sensitive, 10 being most tolerant). HBI is calculated as:
 - $HBI = (\sum n_i \times a_i) / N$
 - Where:
 - n = number of specimens in taxa i
 - a = tolerance value of taxa i
 - N = total number of specimens in sample
- **Shannon Diversity Index (base e):** This metric compares the distribution of individuals among all taxa present in a sample. Shannon Diversity (H') is calculated as $H' = \sum p_i \ln p_i$, where p_i is the proportion of the total number of individuals occurring in taxon i. Maximum diversity is obtained when the numbers of individuals are equally distributed among taxa. A value near zero indicates community dominance by a small number of taxa. Higher values indicate that the numbers of individuals are evenly distributed.

5.0 RESULTS

5.1 Habitat and Macroinvertebrate Collections

Macroinvertebrate samplers were installed at the sampling location downstream of Pejepscoot on August 2, 2018 and were retrieved 27 days later on August 29, 2018. Recorded physical habitat parameters at the time of deployment and retrieval are summarized in [Table 5-1](#). In general, aquatic habitat in the area approximately 660 feet downstream of the Project was primarily a mix of boulder (<10 inch) and rubble (3-10 inch) substrates. Areas of filamentous algae were present on the substrate at the sampling location during both deployment and retrieval of the samplers.

A total of 1,707 individuals representing 43 taxonomic classifications were collected from the three samplers deployed downstream of Pejepscoot ([Table 5-2](#)). Caddisfly species (genus *Hydropsyche*) and the black fly (genus *Simulium*) were the two most dominant members of the benthic macroinvertebrate community and combined to make up approximately 50% of the total number of specimens.

Metrics evaluating community tolerance/intolerance revealed that sensitive genera comprised a measurable proportion of the macroinvertebrate community downstream of Pejepscoot. Members of the orders Ephemeroptera, Plecoptera, and Trichoptera are considered particularly sensitive to pollution and can provide information important to the condition of the benthic macroinvertebrate community. Individuals from the “EPT” assemblage were present at the downstream sampling location, comprising 66.3% of the total number of specimens collected.

In addition to evaluation of the EPT contribution to the community, each taxonomic group was assigned a value of tolerance using classifications provided by MDEP. Tolerance values (range = 0-10) were further classified as Intolerant (i.e., sensitive to water quality; values = 0-3), Semi-tolerant (i.e., intermediate in their tolerance to water quality; values = 4-6) or Tolerant (i.e., low sensitivity to water quality; values 7-10). Genera classified as Intolerant to poor water quality comprised 27% of the total number of genera observed at the downstream sampling location (replicates 1-3, combined). Individuals belonging to taxonomic groups considered to be tolerant of low water quality represented only 2.6% of all specimens enumerated at from the samplers located downstream of Pejepscoot.

The Hilsenhoff Biotic Index rating provides an estimate of the overall tolerance of the community in the sample area. For the sampling location downstream of Pejepscoot this value were estimated at 4.19. Values for the HBI index range from 0 to 10 with lower values reflecting a higher abundance of sensitive groups. The estimate for the Pejepscoot macroinvertebrate community is supportive of a water quality rating of “very good” ([Hilsenhoff 1987](#)).

5.2 Water Quality Classification Standards

A full listing of taxonomic classifications and abundance values for each of the three replicates from the downstream sampling location as well as all the physical data collected during deployment and retrieval of the samplers were provided to MDEP for their determination as to

whether or not the macroinvertebrate community sampled downstream of Pejepscot meets the aquatic life criteria for that section of the Androscoggin River. The statutory class of the Androscoggin River downstream of Pejepscot is Class C. MDEP characterizes Class C waters as being of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as habitat for fish and other aquatic life. The dissolved oxygen content of Class C water may be not less than 5 parts per million or 60% of saturation, whichever is higher.

Normandeau provided taxonomic and habitat information to the MDEP on November 28, 2018 and MDEP returned a Classification Attainment Report on November 30, 2018 (see full report in [Appendix B](#)). The final determination indicated that the macroinvertebrate community sampled downstream of Pejepscot during August 2018 met Class A standards.

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Table 5–1. Summary of Macroinvertebrate Sampling Location Habitat and Conditions Downstream of Pejepscot, August 2018

Parameter	Sample Location	
	Deployment	Retrieval
Date-Time	8/2/18-13:10	8/29/18-10:56
No. Samplers	3	3
Coordinates	N43.95536 W70.02387	
Land Use (500 m radius US)	upland conifer, upland hardwood	
Terrain (500 m radius US)	Flat, rolling	
Canopy Cover (upstream view)	Open (0-25% shaded)	
Physical Bottom Characteristics	Boulders (<10") - 50% Rubble (3"-10") - 40% Sand (<1/8") - 10%	
Channel Width (m)	~80 m	
Site Depth (cm)	97	97
Flow (cm/s)	37.9	45.4
Dissolved O ₂ (mg/L)	8.21	7.97
Temperature (°C)	25.9	25.2
pH	7.09	6.95
SPC (µS/cm)	106	93
Observations		
<i>Fish</i>	juvenile YOY smallmouth bass observed	
<i>Algae/Macrophytes</i>	Present in mats on bottom substrate	
<i>Habitat Quality</i>	Good in appearance	
<i>Dams/Impoundments</i>	Pejepscot - US ~660 ft	
<i>Discharges</i>	Powerhouse	
<i>Nonpoint stressors</i>	None observed	

Table 5–2. Summary of Macroinvertebrate Metrics for Replicates Collected Downstream of Pejepscot, August 2018

Metric	Sample Location 1			
	Rep. 1	Rep. 2	Rep. 3	All
Total Number of Individuals	576	191	940	1,707
Total Number of Taxa	29	29	35	43
Number of EPT Taxa	16	20	20	22
Number of Ephemeroptera Taxa	5	7	8	9
Number of Plecoptera Taxa	1	2	2	2
Number of Trichoptera Taxa	10	11	10	11
Percent EPT	73.4%	85.3%	58.1%	66.3%
Percent Ephemeroptera	24.0%	30.9%	10.5%	17.3%
Number of Intolerant Taxa	7	10	10	12
Percent Tolerant Organisms	3.7%	3.1%	1.9%	2.6%
Percent Dominant Taxon	30.9%	23.6%	31.8%	30.6%
Hilsehoff Biotic Index (HBI)	4.24	4.25	4.14	4.19
HBI Water Quality Rating	Very Good	Very Good	Very Good	Very Good
Shannon Diversity (base e)	2.58	2.71	2.29	2.55

6.0 SUMMARY

The macroinvertebrate community was sampled approximately 660 feet downstream of Pejepscot following approved MDEP field and laboratory methods during August 2018. Macroinvertebrate samples collected at the downstream location yielded adequate numbers of sensitive taxa indicating that under the current operational regime there are no detrimental impacts to the macroinvertebrate community.

7.0 VARIANCES FROM FERC-APPROVED STUDY PLAN

There was no variance from the methodologies and schedule as described in the FERC-approved study plan.

8.0 REFERENCES

Davies, S.P., and L. Tsomides. 2014. Methods for Biological Sampling and Analysis of Maine's Rivers and Streams. DEP LW0387-C2014.

Hilsenhoff, W.L. 1987. An improved biotic index of stream pollution. The Great Lakes Entomologist 20: 31-36.

**APPENDIX A. TAXONOMIC LISTING FOR MACROINVERTEBRATE SAMPLES
COLLECTED DOWNSTREAM OF PEJEPSCOT DURING AUGUST 2018.**

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MDEP Taxonomic Code	Taxon Name	No. Identified		
		Rep 1	Rep 2	Rep 3
09020401008	<i>Acentrella</i>		1	1
09020401007011	<i>Acerpenna pygmaea</i>	44	17	11
09020209042	<i>Acroneuria</i>	4	3	1
10010104013	<i>Amnicola</i>	5	3	8
09020309048	<i>Argia</i>			1
09020401001	<i>Baetis</i>	31	11	31
09020301004012	<i>Boyeria vinosa</i>		2	
09020618072	<i>Ceraclea</i>	8	7	2
09020604015	<i>Cheumatopsyche</i>	36	15	21
09020601003	<i>Chimarra</i>	16	7	49
09021011037	<i>Cricotopus</i>	16	3	15
09021011024	<i>Diamesa</i>	1		
09021011085	<i>Dicrotendipes</i>			1
03010102	<i>Dugesiidae</i>	11	1	13
09020401005	<i>Heterocloeon</i>	9	3	3
09010203006011	<i>Hyaella azteca</i>	1		
09030101	<i>Hydrachnidia</i>			1
09020604016030	<i>Hydropsyche morosa</i>	6		9
09020604016047	<i>Hydropsyche phalerata</i>	172	45	290
09020604016	<i>Hydropsyche</i>	5	3	5
09020607026	<i>Hydroptila</i>	9	1	3
09020404018	<i>Isonychia</i>	16	1	18
09020402011	<i>Leucrocuta</i>			1
09020402015046	<i>Maccaffertium exiguum</i>	4		1
09020402015	<i>Maccaffertium</i>	34	25	32
09020604018	<i>Macrostemum</i>	17	4	49
09020618074	<i>Nectopsyche</i>	1	1	
05	<i>Nematoda</i>	1		
09021011012	<i>Nilotanytus</i>			5
09020603009	<i>Nyctiophylax</i>		1	1
09020618078	<i>Oecetis</i>	3	3	1
09020209049151	<i>Paragnetina media</i>		1	8
09020401012	<i>Plauditus</i>			1
09020603010	<i>Polycentropus</i>	8	13	8
09021011102182	<i>Polypedilum flavum</i>	1	1	8
09021011102185	<i>Polypedilum illinoense</i> group	2	3	
09021011026045	<i>Pothastia gaedii</i>			2

MDEP Taxonomic Code	Taxon Name	No. Identified		
		Rep 1	Rep 2	Rep 3
09021011072127	<i>Rheotanytarsus exiguus</i> group	4	2	3
09021011072128	<i>Rheotanytarsus pellucidus</i>	5		3
09021012047	<i>Simulium</i>	89	11	241
09021113070055	<i>Stenelmis crenata</i>	1		
08020202014001	<i>Stylaria fossularis</i>	1		
09021011076	<i>Tanytarsus</i>			1
09021011062	<i>Thienemanniella</i>	10	1	82
09021011020041	<i>Thienemannimyia</i> group			1
09020411038	<i>Tricorythodes</i>		1	
09021011065113	<i>Tvetenia vitracies</i>	5	1	9

**APPENDIX B. MDEP CLASSIFICATION ATTAINMENT REPORT FOR SAMPLE
LOCATION DOWNSTREAM OF PEJEPSCOT DURING AUGUST 2016.**

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**Maine Department of Environmental Protection
Biological Monitoring Program
Aquatic Life Classification Attainment Report**

Station Information

Station Number: S-954	River Basin: Androscoggin
Waterbody: Androscoggin River - Station 954	HUC8 Name: Lower Androscoggin
Town: Brunswick	Latitude: 43 57 19.82 N
Directions: BELOW PEJEPSCOT DAM; UP RIVER RD FROM BRUNSWICK TO PUBLIC FISHING PARK ACCESS AND CANOE PORTAGE	Longitude: 70 1 26.95 W Stream Order: 5

Sample Information

Log Number: 2716	Type of Sample: ROCK BASKET	Date Deployed: 8/2/2018
Subsample Factor: X1	Replicates: 3	Date Retrieved: 8/29/2018

Classification Attainment

Statutory Class: C	Final Determination: A	Date: 11/30/2018
Model Result with $P \geq 0.6$: A	Reason for Determination: Model	
Date Last Calculated: 11/29/2018	Comments:	

Model Probabilities

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A	0.49	Class A, B, or C	1.00
Class B	0.48	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	1.00	Class A	0.75
Class C or Non-Attainment	0.00	Class B or C or Non-Attainment	0.25

Model Variables

01 Total Mean Abundance	569.00	18 Relative Abundance Ephemeroptera	0.17
02 Generic Richness	42.00	19 EPT Generic Richness	21.00
03 Plecoptera Mean Abundance	5.67	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	0.33
04 Ephemeroptera Mean Abundance	98.67	23 Relative Generic Richness- Plecoptera	0.05
05 Shannon-Wiener Generic Diversity	3.53	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	35.67
06 Hilsenhoff Biotic Index	4.15	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	34.67
07 Relative Abundance - Chironomidae	0.11	28 EP Generic Richness/14	0.79
08 Relative Generic Richness Diptera	0.29	30 Presence of Class A Indicator Taxa/7	0.29
09 <i>Hydropsyche</i> Abundance	178.33		
11 <i>Cheumatopsyche</i> Abundance	24.00		
12 EPT Generic Richness/ Diptera Generic Richness	1.75		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	5.67		
16 Tanypodinae Mean Abundance (Family Functional Group)	2.00		
17 Chironomini Abundance (Family Functional Group)	5.33		

Five Most Dominant Taxa

Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	31.34
2	<i>Simulium</i>	19.98
3	<i>Maccaffertium</i>	5.62
4	<i>Thienemanniella</i>	5.45
5	<i>Baetis</i>	4.28



**Maine Department of Environmental Protection
Biological Monitoring Program
Aquatic Life Classification Attainment Report**

Station Number: S-954 Town: Brunswick Date Deployed: 8/2/2018
Log Number: 2716 Waterbody: Androscoggin River - Station 954 Date Retrieved: 8/29/2018

Sample Collection and Processing Information

Sampling Organization: NORMANDEAU ASSOCIATES Taxonomist: NORMANDEAU ASSOCIATES

Waterbody Information - Deployment

Temperature: 25.9 deg C
Dissolved Oxygen: 8.21 mg/l
Dissolved Oxygen Saturation: 101.3 %
Specific Conductance: 106 uS/cm
Velocity: 37.9 cm/s
pH: 7.09
Wetted Width: 81.1 m
Bankfull Width: 90.5 m
Depth: 97 cm

Waterbody Information - Retrieval

Temperature: 25.2 deg C
Dissolved Oxygen: 7.97 mg/l
Dissolved Oxygen Saturation: 96.9 %
Specific Conductance: 93 uS/cm
Velocity: 45.4 cm/s
pH: 6.95
Wetted Width: 80.8 m
Bankfull Width: 88.4 m
Depth: 97 cm

Water Chemistry

Summary of Habitat Characteristics

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>	
Upland Conifer	Open	Flat	
Upland Hardwood			
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>	
Regulated Flows	Below Dam	Boulder	50 %
	Main Stem	Rubble/Cobble	40 %
		Sand	10 %

Landcover Summary - 2004 Data

Sample Comments



**Maine Department of Environmental Protection
Biological Monitoring Program
Aquatic Life Taxonomic Inventory Report**

Station Number: S-954

Waterbody: Androscoggin River - Station 954

Town: Brunswick

Log Number: 2716

Subsample Factor: X1

Replicates: 3

Calculated: 11/29/2018

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
DugesIIDae	03010102	8.33	8.33		--	1.5	1.5
Nematoda	05	0.33	0.33		--	0.1	0.1
<i>Stylaria</i>	08020202014		0.33		CG		0.1
<i>Stylaria fossularis</i>	08020202014001	0.33			--	0.1	
<i>Hyaella</i>	09010203006		0.33	8	CG		0.1
<i>Hyaella azteca</i>	09010203006011	0.33			--	0.1	
<i>Acroneuria</i>	09020209042	2.67	2.67	0	PR	0.5	0.5
<i>Paragnetina</i>	09020209049		3.00	1	PR		0.5
<i>Paragnetina media</i>	09020209049151	3.00			--	0.5	
<i>Boyeria</i>	09020301004		0.67	2	PR		0.1
<i>Boyeria vinosa</i>	09020301004012	0.67			--	0.1	
<i>Argia</i>	09020309048	0.33	0.33	7	PR	0.1	0.1
<i>Baetis</i>	09020401001	24.33	24.33	4	CG	4.3	4.3
<i>Heterocloeon</i>	09020401005	5.00	5.00	2	SC	0.9	0.9
<i>Acerpenna</i>	09020401007		24.00	5	CG		4.2
<i>Acerpenna pygmaea</i>	09020401007011	24.00			--	4.2	
<i>Acentrella</i>	09020401008	0.67	0.67	3	CG	0.1	0.1
<i>Plauditus</i>	09020401012	0.33	0.33		CG	0.1	0.1
<i>Leucrocuta</i>	09020402011	0.33	0.33	1	SC	0.1	0.1
<i>Maccaffertium</i>	09020402015	30.33	32.00	4	SC	5.3	5.6
<i>Maccaffertium exiguum</i>	09020402015046	1.67			--	0.3	
<i>Isonychia</i>	09020404018	11.67	11.67	2	CF	2.1	2.1
<i>Tricorythodes</i>	09020411038	0.33	0.33	4	CG	0.1	0.1
<i>Chimarra</i>	09020601003	24.00	24.00	2	CF	4.2	4.2
<i>Nyctiophylax</i>	09020603009	0.67	0.67	5	PR	0.1	0.1
<i>Polycentropus</i>	09020603010	9.67	9.67	6	PR	1.7	1.7
<i>Cheumatopsyche</i>	09020604015	24.00	24.00	5	CF	4.2	4.2
<i>Hydropsyche</i>	09020604016	4.33	178.33	4	CF	0.8	31.3
<i>Hydropsyche morosa</i>	09020604016030	5.00			--	0.9	
<i>Hydropsyche phalerata</i>	09020604016047	169.00			--	29.7	
<i>Macrostemum</i>	09020604018	23.33	23.33	3	CF	4.1	4.1
<i>Hydroptila</i>	09020607026	4.33	4.33	6	P	0.8	0.8
<i>Ceraclea</i>	09020618072	5.67	5.67	3	CG	1.0	1.0
<i>Nectopsyche</i>	09020618074	0.67	0.67	3	SH	0.1	0.1
<i>Oecetis</i>	09020618078	2.33	2.33	8	PR	0.4	0.4
<i>Nilotanypus</i>	09021011012	1.67	1.67	6	PR	0.3	0.3
<i>Thienemannimyia</i>	09021011020		0.33	3	PR		0.1



**Maine Department of Environmental Protection
Biological Monitoring Program
Aquatic Life Taxonomic Inventory Report**

Station Number: S-954 Waterbody: Androscoggin River - Station 954 Town: Brunswick
Log Number: 2716 Subsample Factor: X1 Replicates: 3 Calculated: 11/29/2018

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Thienemannimyia group</i>	09021011020041	0.33			--	0.1	
<i>Diamesa</i>	09021011024	0.33	0.33	5	CG	0.1	0.1
<i>Potthastia</i>	09021011026		0.67	2	CG		0.1
<i>Potthastia gaedii</i>	09021011026045	0.67			--	0.1	
<i>Cricotopus</i>	09021011037	11.33	11.33	7	SH	2.0	2.0
<i>Thienemanniella</i>	09021011062	31.00	31.00	6	CG	5.4	5.4
<i>Tvetenia</i>	09021011065		5.00	5	CG		0.9
<i>Tvetenia vitracies</i>	09021011065113	5.00			--	0.9	
<i>Rheotanytarsus</i>	09021011072		5.67	6	CF		1.0
<i>Rheotanytarsus exiguus group</i>	09021011072127	3.00			CF	0.5	
<i>Rheotanytarsus pellucidus</i>	09021011072128	2.67			CF	0.5	
<i>Tanytarsus</i>	09021011076	0.33	0.33	6	CF	0.1	0.1
<i>Dicrotendipes</i>	09021011085	0.33	0.33	8	CG	0.1	0.1
<i>Polypedilum</i>	09021011102		5.00	6	SH		0.9
<i>Polypedilum flavum</i>	09021011102182	3.33			--	0.6	
<i>Polypedilum illinoense group</i>	09021011102185	1.67			--	0.3	
<i>Simulium</i>	09021012047	113.67	113.67	4	CF	20.0	20.0
<i>Stenelmis</i>	09021113070		0.33	5	SC		0.1
<i>Stenelmis crenata</i>	09021113070055	0.33			--	0.1	
Hydrachnidia	09030101	0.33	0.33		--	0.1	0.1
<i>Amnicola</i>	10010104013	5.33	5.33		SC	0.9	0.9