



Environment, Water
and Climate Change

MONTROSE RIVER FISHKILL 2020

Preliminary Report

November 2020

**MONTROSE RIVER FISHKILL
PRELIMINARY REPORT, NOVEMBER 2020**

SUMMARY

- A fish kill on the Montrose River in Alma, PEI was reported to the Prince Edward Island Department of Justice and Public Safety on August 28, 2020.
- Representatives from the Department of Justice and Public Safety, the Department of Environment, Water and Climate Change, Environment and Climate Change Canada and the Cascumpec Bay Watershed Association responded to the incident.
- A total of 2057 brook trout and 6 sticklebacks were collected over a 4.5 km section of stream flowing into Marchbanks Pond on the Montrose River.
- Officials with the provincial Department of Justice and Public Safety and Environment and Climate Change Canada continue to investigate the incident.

BACKGROUND

In the afternoon of August 28, 2020, the Coordinator of the Cascumpec Bay Watershed Association was contacted by a landowner in the Alma area who had discovered multiple dead fish in the stream on his property. After the watershed crew visited the site and saw the extent of the fish kill, the Watershed Coordinator called the Manager of Investigation and Enforcement with the PEI Department of Justice and Public Safety (DJPS). A Conservation Officer confirmed the fish kill and called the 1-800 Environmental Emergency number.

RESPONSE AND INSPECTION DETAILS

The Manager of Investigation and Enforcement and two Conservation Officers from the Department of Justice and Public Safety responded to the fish kill and began their assessment in the vicinity of the Route 2 crossing in Alma. The Environmental Emergency Responder, the Freshwater Fisheries Biologist and a Wildlife Technician from the Department of Environment, Water and Climate Change (DEWCC) arrived on site at approximately 3 PM. An Environment Officer with the Department of Environment and Climate Change Canada (ECCC) in Moncton, New Brunswick, also responded.

Water and fish samples collected were transported to the Environment and Climate Change Canada laboratory in Moncton. Water samples were also collected for analyses at the PEI Department of Environment, Water and Climate Change Analytical Laboratories in Charlottetown. No dead fish were observed upstream from the Confederation Trail; the stream crossing at that location is considered an obstruction to fish moving upstream. Fish samples were not collected for necropsy at the Canadian Wildlife Health Cooperative at the Atlantic Veterinary College because of the extent of decomposition observed.

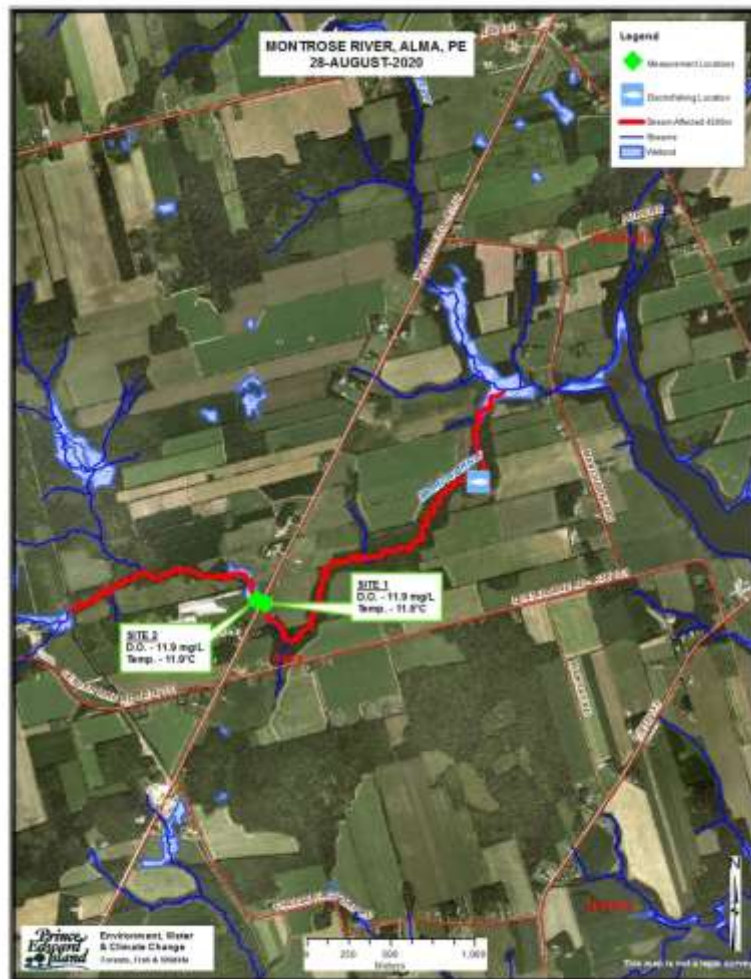


Figure 1. Montrose River in Alma, PEI. The length of stream affected is indicated in red. Water temperature and dissolved oxygen readings for two locations are indicated as Site 1 and Site 2. The electrofishing site is also identified.

ENVIRONMENTAL CONDITIONS

Rainfall

According to the Cascumpec Bay Watershed Association Coordinator, there was intense rainfall in the Alma region on August 25, 2020. Environment Canada's Summerside weather station recorded 48.3 mm on August 25 while Weather Underground shows rainfall totals of 22.6 mm at their Alberton weather station (www.wunderground.com).

Water Temperature and Dissolved Oxygen

The Environmental Emergency Responder (EWCC) took water temperature and dissolved oxygen measurements at two locations (Figure 1). Water temperature readings at both locations (11.9 °C and 11.5 °C) are within the optimum range for brook trout (*Salvelinus fontinalis*). Dissolved oxygen concentrations (11.9 mg/L) were slightly above saturation values for these temperatures.

FISH CLEAN-UP

Clean-up of dead fish on the Montrose River was completed on August 28-29, 2020, with a total of 2057 brook trout collected. On August 28, the Manager of Investigation and Enforcement (DJPS) and the Environment officer (ECCC) collected 228 brook trout from Route 2 to the Confederation Trail, of which 15 were taken to the Environment and Climate Change Canada laboratory for analyses. The Freshwater Fisheries Biologist and Wildlife Technician from the Department of Environment, Water and Climate Change collected 679 brook trout and 1 stickleback upstream from Marchbanks Pond. On August 29, two employees of the Cascumpec Bay Watershed Association completed the clean-up by collecting 1150 brook trout downstream from Route 2. Some live fish were observed and a small number of moribund fish were found. Many of the smaller fish in deeper water were unable to be retrieved and many partial carcasses of trout were observed during the clean-up. There was also an abundance of raccoon and great blue heron tracks observed in the stream bottom and floodplain.

Length measurements were obtained on 679 of the fish collected on August 28. Brook trout fry (<8 cm) made up over half of the total fish collected (Figure 2). These were not measured but were assigned an average length of 5.3 cm, as determined by measuring lengths in a subsample of fish.

Two wildlife technicians from the Department of Environment, Water and Climate Change canoed Marchbanks Pond on August 29, 2020, but no dead brook trout were found in this section. Five dead sticklebacks were retrieved within the pond.

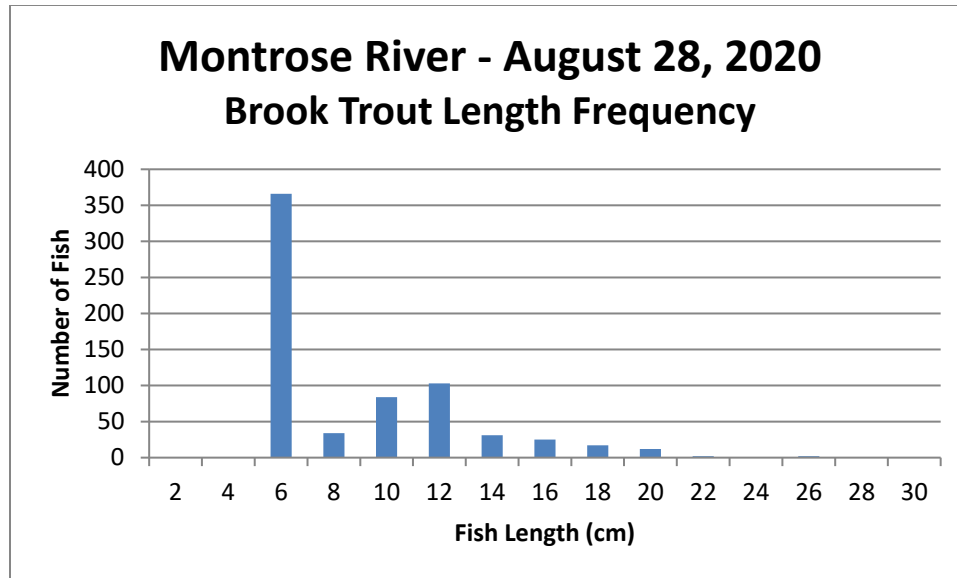


Figure 2. Length frequency graph for 679 brook trout collected in Montrose stream, August 28, 2020.

RESULTS

WATER ANALYSES

PEI Dept. Environment, Water and Climate Change

Two water samples were analyzed for general water chemistry at the PEI Analytical Laboratories in Charlottetown. Most of the results are in ranges typical for Prince Edward Island streams. Results for six parameters – barium, calcium, manganese, sulphate, nitrate and total nitrogen - would be considered high, although not at levels toxic to aquatic life. Nitrate values exceed the CCME guideline.

Environment and Climate Change Canada

The Environment and Climate Change Canada Environment Officer collected water and fish samples for analyses. The results of these tests are unavailable.

FISH POPULATION IMPACT ASSESSMENT

On September 10, 2020, the Forests, Fish and Wildlife Division carried out fish population assessment on the Montrose River at a private stream crossing midway between Route 2 and Marchbanks Pond. Fish were captured using a Smith-Root LR-24 backpack electrofisher and a three pass removal technique with barrier nets at upstream and downstream boundaries of the site. The density of fish per 100m² was determined using the Zippon method. Only five brook

trout were found in a 135 m² section, representing a density of 3.9 trout/100m². The density is much lower than what would be expected in a stream of this size. In Prince Edward Island streams, it is normal to get over 50 trout/100 m² and densities exceeding 400 trout/ m² have been recorded.

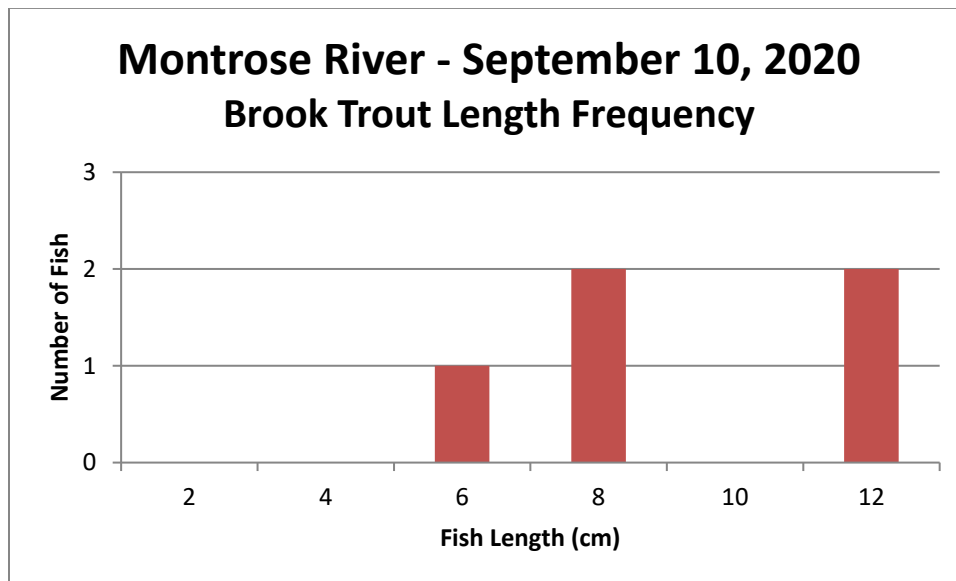


Figure 2. Brook trout length frequency graph for Montrose River, September 10, 2020.

FISH STOCKING

On September 15, 2020, the Department of Environment, Water and Climate Change - Forests, Fish and Wildlife Division - stocked 3700 fall fingerling brook trout into Montrose River. These fish, offspring from Trout River broodstock, were produced at the Abegweit Biodiversity Enhancement Hatchery in Scotchfort. Half of the fish were stocked in the area of a private stream crossing midway between Marchbanks Pond and Route 2; the remaining fish were stocked at a private crossing closer to Route 2.

APPENDIX I

MONTROSE RIVER FISHKILL

August 28, 2020

PHOTOS



Photo 1. The manager of Investigation and Enforcement and two Conservation Officers (JPS) look at a map of the Montrose River. August 28, 2020.



Photo 2. Wildlife technician (EWCC) collects dead fish in the Montrose River. August 28, 2020.



Photo 3. Dead brook trout in Montrose River. August 28, 2020.



Photo 4. Wildlife technician (EWCC) collects brook trout in Montrose River. August 28, 2020.



Photo 5. Raccoon tracks next to Montrose River. August 28, 2020.



Photo 6. Great blue heron tracks in the Montrose River. August 28, 2020.



Photos 7-8. Stocking brook trout fingerlings into Montrose River. September 15, 2020.

APPENDIX II

MONTROSE RIVER FISHKILL

PEI Analytical Laboratories

Water Quality Test Result



PEI Analytical Laboratories
Water Quality Test Report
 23 Innovation Way, Charlottetown, PE C1E 0B7



Client Name: Environment, Water & Climate Change: Sean Ledgerwood
Sampler: Sean Ledgerwood
Sample Location: Southeast of Rte. 2, 10m downstream from culvert
Sample Point:
Water Type: SurfaceWater
 Surface Water - Fresh

Sample Number: SW200831001
Date Sampled: 28-Aug-2020
Received Date: 31-Aug-2020
Reported Date:

Water Microbiology Results

Method ID	Parameter	Results	Units	Detection Limits	Date of Analysis
WML_04M*	TSS*	19	mg/L	1	31-Aug-2020

Water Chemistry Results

Method ID	Parameter	Results	Units	Detection Limits	Date of Analysis
WCL_04M*	pH for Water*	7.9			31-Aug-2020
WCL_01M*	Alkalinity*	116	mg of CaCO ₃ /L	8.0000	07-Oct-2020
WCL_01M*	Chloride*	22.2	ppm	1.0000	07-Oct-2020
WCL_07M*	Barium, dissolved*	281	ppb	0.0020	08-Oct-2020
WCL_07M*	Calcium, dissolved*	57.31	ppm	0.2000	08-Oct-2020
WCL_07M*	Cadmium, dissolved*	<2	ppb	0.0020	08-Oct-2020
WCL_07M*	Chromium, dissolved*	<5	ppb	0.0050	08-Oct-2020
WCL_07M*	Potassium, dissolved*	1.22	ppm	0.1000	08-Oct-2020
WCL_07M*	Copper, dissolved*	<5	ppb	0.0050	08-Oct-2020
WCL_07M*	Iron, dissolved*	<9	ppb	0.0090	08-Oct-2020
WCL_07M*	Magnesium, dissolved*	4.40	ppm	0.1000	08-Oct-2020
WCL_07M*	Manganese, dissolved*	18	ppb	0.0030	08-Oct-2020
WCL_07M*	Phosphorus, dissolved*	0.03	ppm	0.0200	08-Oct-2020
WCL_07M*	Sodium, dissolved*	9.84	ppm	0.2000	08-Oct-2020
WCL_07M*	Sulfate, calc from S diss*	10.26	ppm	0.2000	08-Oct-2020
WCL_07M*	Nickel, dissolved*	<7	ppb	0.0070	08-Oct-2020
WCL_07M*	Lead, dissolved*	<6	ppb	0.0060	08-Oct-2020
WCL_07M*	Zinc, dissolved*	<6	ppb	0.0060	08-Oct-2020
WCL_07M*	Hardness*	161.2			23-Oct-2020
WCL_02M*	Ammonia-N*	<0.100	ppm	0.1000	23-Oct-2020
WCL_01M*	Nitrate-N + Nitrite-N*	7.1	ppm	0.2000	07-Oct-2020
WCM_05M*	Total Nitrogen*	7.0	ppm	0.5000	23-Oct-2020
WCL_08M*	Total Phosphorus*	57.0	ppb	0.0100	30-Oct-2020

Lab Results Approved By: Jackie Garnhum - Laboratory Supervisor

Date: 02-Nov-2020

Legend: MPN = Most Probable Number
 cfu/100 mls = colony forming units per 100 millilitres
 * = method accredited by Standards Council of Canada.
 Ammonia is equivalent to (Ammonia + Ammonium)-N
 mg/L = milligrams per litre
 nd = not detected; na = not analysed
 < = less than

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**Department of Environment, Water and
Climate Change**

PO Box 2000
Charlottetown
Prince Edward Island

WATER QUALITY ASSESSMENT

Sample Code: SW200831001

Environment, Water & Climate Change: Sean
Ledgerwood
PO Box 2000
Charlottetown, PE
Canada
C1A 7N8

Client Name: Environment, Water & Climate Change: Sean Ledgerwood
Sample Location: Southeast of Rte. 2, 10m downstream from culvert
Client Phone No: 902-368-4686
Civic Address: Montrose River, Rte 2
Community: Alma

Sample Information:

Date Sampled: Aug 28, 2020

PP_NO: 0

Sampler: Sean Ledgerwood

Reference: Cindy Crane

Station ID: Private

Water Type: Surface Water - Fresh

Field Notes: Site # 1, sample # 2

Interpretation of Results:

Note: Please see reverse side for the results for specific parameters analysed.

The results and interpretation contained in this report relate only to those parameters tested.

For your information and interpretation.

Approved By:

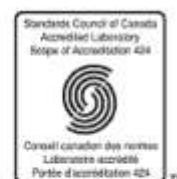
Steven Nguyen - Laboratory Technician

End of Report

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PEI Analytical Laboratories
Water Quality Test Report
 23 Innovation Way, Charlottetown, PE C1E 0B7



Client Name: Environment, Water & Climate Change: Sean Ledgerwood
Sampler: Sean Ledgerwood
Sample Location: Northeast of Rte. 2, 20m upstream of culvert
Sample Point:
Water Type: SurfaceWater

Sample Number: SW200831002
Date Sampled: 28-Aug-2020
Received Date: 31-Aug-2020
Reported Date:

Surface Water - Fresh

Water Microbiology Results

<u>Method ID</u>	<u>Parameter</u>	<u>Results</u>	<u>Units</u>	<u>Detection Limits</u>	<u>Date of Analysis</u>
WML_04M*	TSS*	17	mg/L	1	31-Aug-2020

Water Chemistry Results

<u>Method ID</u>	<u>Parameter</u>	<u>Results</u>	<u>Units</u>	<u>Detection Limits</u>	<u>Date of Analysis</u>
WCL_04M*	pH for Water*	8.0			31-Aug-2020
WCL_01M*	Alkalinity*	108	mg of CaCO ₃ /L	8.0000	07-Oct-2020
WCL_01M*	Chloride*	19.3	ppm	1.0000	07-Oct-2020
WCL_07M*	Barium, dissolved*	240	ppb	0.0020	08-Oct-2020
WCL_07M*	Calcium, dissolved*	55.63	ppm	0.2000	08-Oct-2020
WCL_07M*	Cadmium, dissolved*	<2	ppb	0.0020	08-Oct-2020
WCL_07M*	Chromium, dissolved*	<5	ppb	0.0050	08-Oct-2020
WCL_07M*	Potassium, dissolved*	1.16	ppm	0.1000	08-Oct-2020
WCL_07M*	Copper, dissolved*	<5	ppb	0.0050	08-Oct-2020
WCL_07M*	Iron, dissolved*	<9	ppb	0.0090	08-Oct-2020
WCL_07M*	Magnesium, dissolved*	4.00	ppm	0.1000	08-Oct-2020
WCL_07M*	Manganese, dissolved*	6	ppb	0.0030	08-Oct-2020
WCL_07M*	Phosphorus, dissolved*	0.03	ppm	0.0200	08-Oct-2020
WCL_07M*	Sodium, dissolved*	7.91	ppm	0.2000	08-Oct-2020
WCL_07M*	Sulfate, calc from S diss*	10.13	ppm	0.2000	08-Oct-2020
WCL_07M*	Nickel, dissolved*	<7	ppb	0.0070	08-Oct-2020
WCL_07M*	Lead, dissolved*	<6	ppb	0.0060	08-Oct-2020
WCL_07M*	Zinc, dissolved*	<6	ppb	0.0060	08-Oct-2020
WCL_07M*	Hardness*	155.4			23-Oct-2020
WCL_02M*	Ammonia-N*	<0.100	ppm	0.1000	23-Oct-2020
WCL_01M*	Nitrate-N + Nitrite-N*	7.5	ppm	0.2000	07-Oct-2020
WCM_05M*	Total Nitrogen*	7.7	ppm	0.5000	23-Oct-2020
WCL_08M*	Total Phosphorus*	57.0	ppb	0.0100	30-Oct-2020

Lab Results Approved By: Jackie Garnhum - Laboratory Supervisor

Date: 02-Nov-2020

Legend: MPN = Most Probable Number
 cfu/100 mls = colony forming units per 100 millilitres
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**Department of Environment, Water and
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PO Box 2000
Charlottetown
Prince Edward Island

WATER QUALITY ASSESSMENT

Sample Code: SW200831002

Environment, Water & Climate Change: Sean
Ledgerwood
PO Box 2000
Charlottetown, PE
Canada
C1A 7N8

Client Name: Environment, Water & Climate Change: Sean Ledgerwood
Sample Location: Northeast of Rte. 2, 20m upstream of culvert
Client Phone No: 902-368-4686
Civic Address: Montrose River, Rte. 2
Community: Alma

Sample Information:

Date Sampled: Aug 28, 2020

PP_NO: 0

Sampler: Sean Ledgerwood

Reference: Cindy Crane

Station ID: Private

Water Type: Surface Water - Fresh

Field Notes: Site # 2, sample # 1

Interpretation of Results:

Note: Please see reverse side for the results for specific parameters analysed.
The results and interpretation contained in this report relate only to those parameters tested.
For your information and interpretation.

Approved By:

Steven Nguyen - Laboratory Technician

End of Report

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