

# Riparian Habitat Health and Sedimentation Sources Assessment on the Scoudouc River



Prepared for:

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## **ACKNOWLEDGEMENTS**

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Cover picture: Riparian Health Assessment on the Scoudouc River, NB, September 2008.

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# 1 INTRODUCTION

## 1.1 Organisation

The Shediac Bay Watershed Association (SBWA) is a non-profit organization located in Shediac, New Brunswick. The SBWA was established in 1999 by a group of concerned residents and is now incorporated and a registered charity organisation. A Board of Directors, representing the various communities found within the 400 km<sup>2</sup> watershed boundaries, oversees its activities. The Association deals with issues related to water quality and habitat integrity.

The SBWA has a goal of ensuring ecosystem health through remediation, restoration projects, public education and community stewardship. Our vision is for a community working together to foster a healthy ecosystem that will sustain the quality of water for future generations. The SBWA has been involved in numerous projects and initiatives over the past seven years including water quality monitoring, habitat restoration, and awareness programs.

## 1.2 Background

Riparian areas are the vital transition zones between land and water. They protect land from erosion and anthropogenic activities, maintain water quality, ensure reliable stream flows, and provide productive fish and wildlife habitat corridors. The riparian area acts as a buffer zone where vegetation filters sediment and run-offs, keeping nutrients and silt from reaching the water (Gregory et al., 1991). A healthy riparian area with grown shoreline trees contributes to water temperature reduction and adequate dissolved oxygen levels for cold water fish species.

The ecological condition of the riparian area that surrounds the stream plays an important role in the survival of fish. Fish are excellent indicators of water quality and the health of a watershed. The same way, land use and other evidence of human activities in

riparian zones can be used as habitat quality indicators; they may also serve as diagnostic indicators of anthropogenic stresses (Kaufmann et al., 1999).

Disturbance of vegetation or other stabilizing soil cover often results in erosion of the exposed soils. Any disturbance to the land in or near a waterway can cause sedimentation and erosion. The impact of suspended and accumulated sediments on fish and fish habitat are well documented. Potential negative effects include loss of benthic invertebrate productivity, smothering of fish eggs, destruction of spawning areas, and fish gill abrasion (Waters, 1995; Anderson et al., 1996).

### **1.3 Project Information**

This project is part of a pilot initiative that will allow the development of a standard protocol for assessing riparian zones and fish habitat health at a watershed level. The first step was to identify a protocol that could be used by a wide range of organisations and that would emphasis a watershed landscape approach. A general protocol was proposed by the Department of Fisheries and Oceans (DFO) who adapted a well developed procedure used by the Nova Scotia (NS) Department of Agriculture: *The Riparian Health Assessment tool*. The *Riparian Health Assessment tool* is an adaptation of the Alberta Cows and Fish Program's *Caring for the Green Zone – Riparian Health Assessment for Streams & Small Rivers Field Workbook*. The DFO suggested combining this riparian assessment tool with an Aquatic Habitat Assessment protocol to confirm the relationship between riparian and stream health conditions and evaluate the health of the stream in terms of fish habitat. The SBWA used these assessment tools and performed simultaneously a Sanitary Survey to identify sedimentation and other types of pollution sources.

During the 2008 field season, information was initially gathered to identify potential sedimentation sources and hot spots according to actual land use and local knowledge criteria. We also gathered local GIS data and obtained basic information on soil types, soil erosion potential, elevations, road networks, land use categories, and stream networks. A sanitary survey performed in 1999, was also studied to compare with actual conditions.

During the 2008 field session, the SBWA was able to complete the riparian zones assessment and sedimentation sources identification for the Scoudouc River. A team of two to three members traveled riparian zones along the Scoudouc River from August to October, 2008. A total of 38.8 km of shoreline and 1.16 km<sup>2</sup> of riparian zone were surveyed, covering the Scoudouc River and its tributaries as well as the Cornwall Brook.

In addition, the SBWA simultaneously performed a Sanitary Survey to identify sedimentation and other types of pollution sources with a standard protocol. Man-made structures as well as point and non-point pollution sources were identified and their impacts were classified as potential or definite. This process helped us evaluate the health of riparian zones and allowed for the identification of potential sources of erosion and sedimentation.

The project developed as expected and allowed us to field-test the use of a protocol to assess riparian and stream health. We originally proposed to survey the entire watershed and were able to cover the Scoudouc River during the 2008 field season. We would like to extend this evaluation to the Shediac River in 2009 to obtain a complete riparian and stream health portrait within the Shediac Bay watershed. The SBWA will continue working in close partnership with DFO to optimise the use of this protocol in a watershed landscape.

## 2 MATERIAL AND METHODS

### 2.1 Sampling Protocol

The method for conducting the Riparian Health Assessment followed the protocol developed in conjunction with the DFO in 2008. The Riparian Health Assessment protocol used during the 2008 field season, has been widely used by agricultural organisations such as the NS Department of Agriculture who adapted it to Maritimes ecosystems. The tool allows for an assessment of physical conditions of riparian zones and field evaluation is facilitated by the use of the *NS Riparian Health Assessment User's Guide 2008*. Reaches characterized by similar habitat are evaluated individually. The assessment is based on a 13 point evaluation process and allows for an instant condition rate value. Most aspects are subjectively evaluated, but a well trained team can offer a standard assessment. Results are analyzed using GIS software which provides a visual description of riparian health status. A detailed description of the 13 point evaluation process and copies of the *NS Riparian Health Assessment User's Guide* are available online at <http://www.extensioncentral.com/eng/images/stories/web/ns%20riparian%20assessment%20manual%202008.pdf>. An Aquatic Habitat Assessment is combined to this Riparian Health Assessment to confirm the relationship between riparian and stream health conditions and evaluate the health of the stream in terms of fish habitat.

The information collected included land use details, riparian vegetation composition and density, riparian area width and slope, presence of natural structure such as beaver dams or wood debris jams, and potential sources of sedimentation such as access points and erosion issues. In addition, in-stream substrata was characterised and a quality index was also attributed as part of the assessment. In this case, substrata composition was visually identified and embeddedness measured. The quantity of ligneous material and the presence of deltas and islands was noted as well as physical information such as stream bankfull width, current speed and basic water quality information (temperature, dissolved oxygen, conductivity, pH, E. coli, nitrate, and turbidity) for each evaluated reaches.

A complete Sanitary Survey was also performed along the Scoudouc River using a basic approach to identify any potential sedimentation and pollution sources that might have a negative impact on water quality or habitat integrity. Man-made structures or physical alterations observed along the shoreline were inspected. All potential point pollution sources (pipe, ditch, dumps, etc.) and non-point (riparian zone alterations) were described and the geographic position and picture were recorded. The potential gravity of a pollution source was also evaluated at the time of the survey. Potential riparian zone alterations (farm lands, clear cuts, cottages, etc.) were recorded and information regarding bank erosion, vegetation status, sedimentation potential and bank slope were gathered. Potential and definite sedimentation sources were identified for further action and remediation plan development (e.g. gullying, landscape scars, ATV crossings, road and bridge washouts, cattle crossings, etc.).

The equipment used to perform the habitat status investigation and sediment sources identification includes hip waders, GPS receiver (GPSMAP 76CSx or Trimble pocket PC), digital camera, measuring tape, flow meter, elevation measuring tool, field supplies (waterproof note book, pencils, and clipboard), water quality measuring tool (YSI 600QS, Lamotte II colorimeter, Idexx Quanti-Trays and incubator for E. coli counts) and a vehicle.

## **3 RESULTS AND OBSERVATIONS**

### **3.1 Study Site**

The Riparian and Stream Health Assessment as well as the sedimentation sources identification (Sanitary Survey) took place along the Scoudouc River in Southeastern NB (Fig. 1).

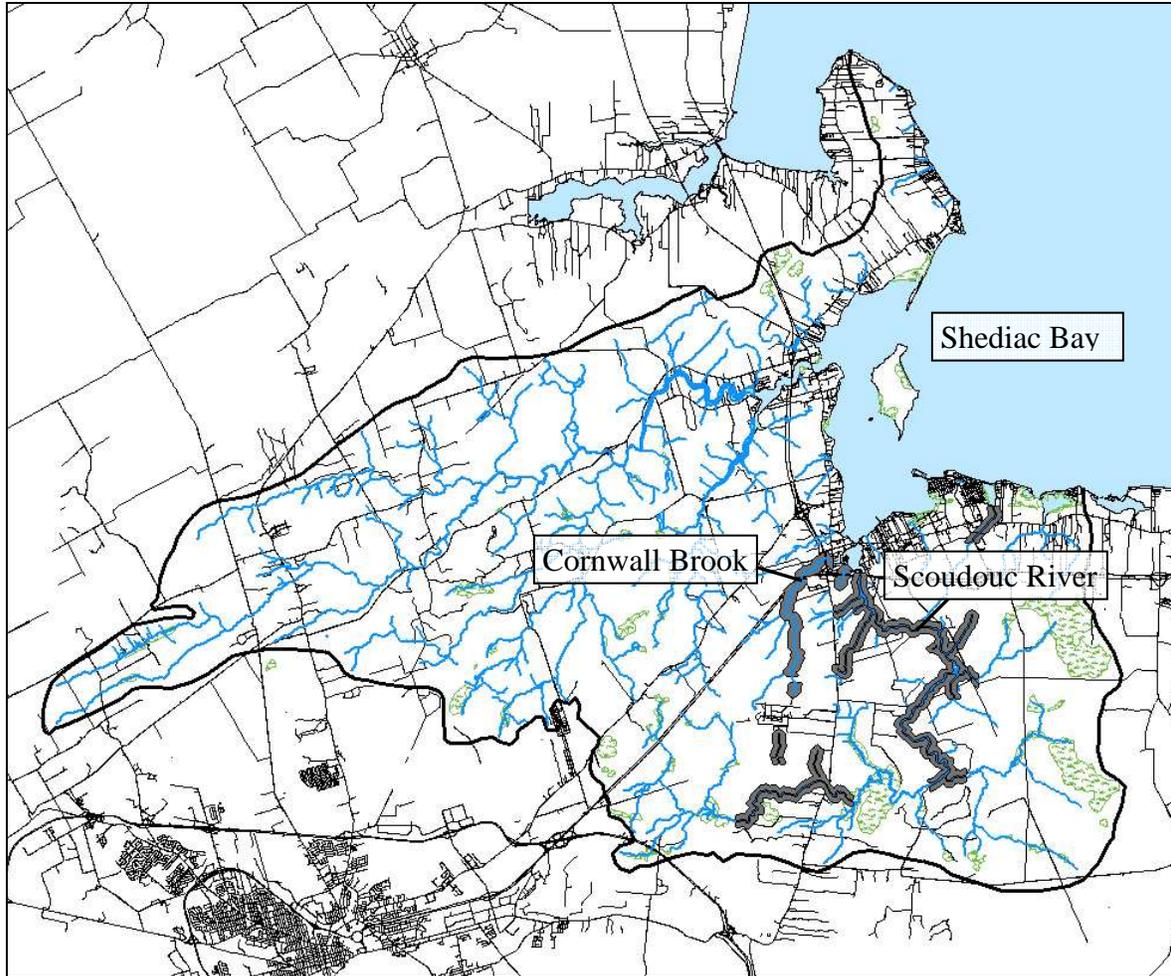


Figure 1. Riparian areas studied during the 2008 health assessment and sanitary survey along the Scoudouc River.

### 3.2 Riparian Health Assessment

A total of 38.8 km of shoreline and 1.16 km<sup>2</sup> of riparian zones were surveyed, covering the Scoudouc River and its tributaries as well as the Cornwall Brook. A total of 137 stream reaches were surveyed and 274 riparian zones were classified according to their health using the *Riparian Health Assessment tool* (Fig. 2). Results (Table 1) show that most riparian zones (63.5%) were classified as “Healthy” representing a distance of 30.0 km of shoreline. A total of 14.6% of riparian zones were classified as “Healthy with Problems”

and 17.5% of riparian zones were classified as “Unhealthy” covering 3.6 km and 4.7 km of shoreline, respectively.

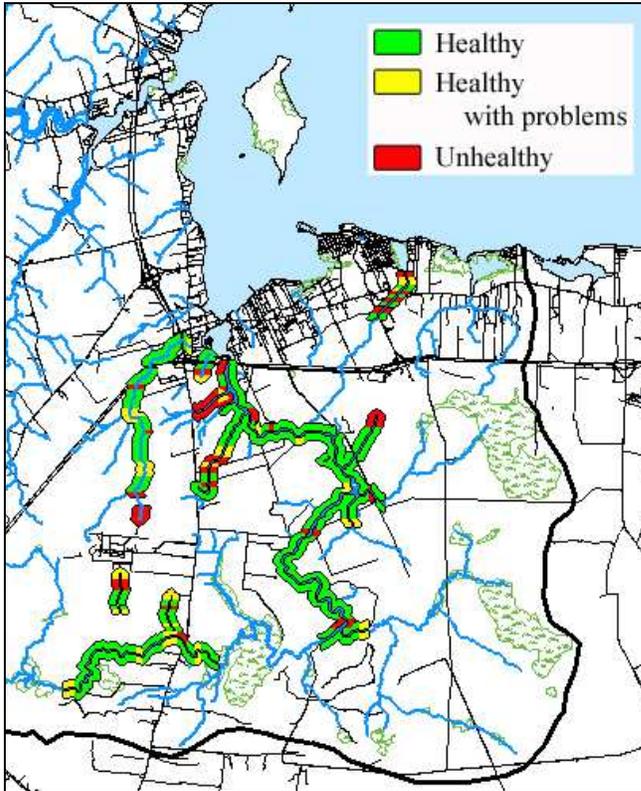


Figure 2. Riparian areas health classification following the 2008 Scoudouc River assessment.

Table 1. Scoudouc River and its tributaries as well as the Cornwall Brook riparian and stream health assessment classification.

Classification	Number of reaches	%	Distance (km)	%
Unhealthy (1)	48	17.5	4.7	12.2
Healthy with problems (2)	40	14.6	3.6	9.4
Healthy(3)	174	63.5	30.1	77.5
N/A	12	4.4	0.3	0.9
<b>Total</b>	<b>274</b>	<b>100.0</b>	<b>38.8</b>	<b>100.0</b>

During the Sanitary Survey, a total of 146 pollution and sedimentation sources were identified (Fig. 3). Most stream degradation occurrences were caused by wood debris jams (34.8%) causing stream profile alterations. Other significant problems included trail crossings creating riparian and stream bed damages as well as sedimentation intake.

Agriculture also appeared to be a source of sedimentation and organic pollution mainly in the Scoudouc and Cornwall Brook area. Among those pollution sources, 30 were considered as actual sedimentation sources and 22 could potentially contribute to sedimentation intake in the river.

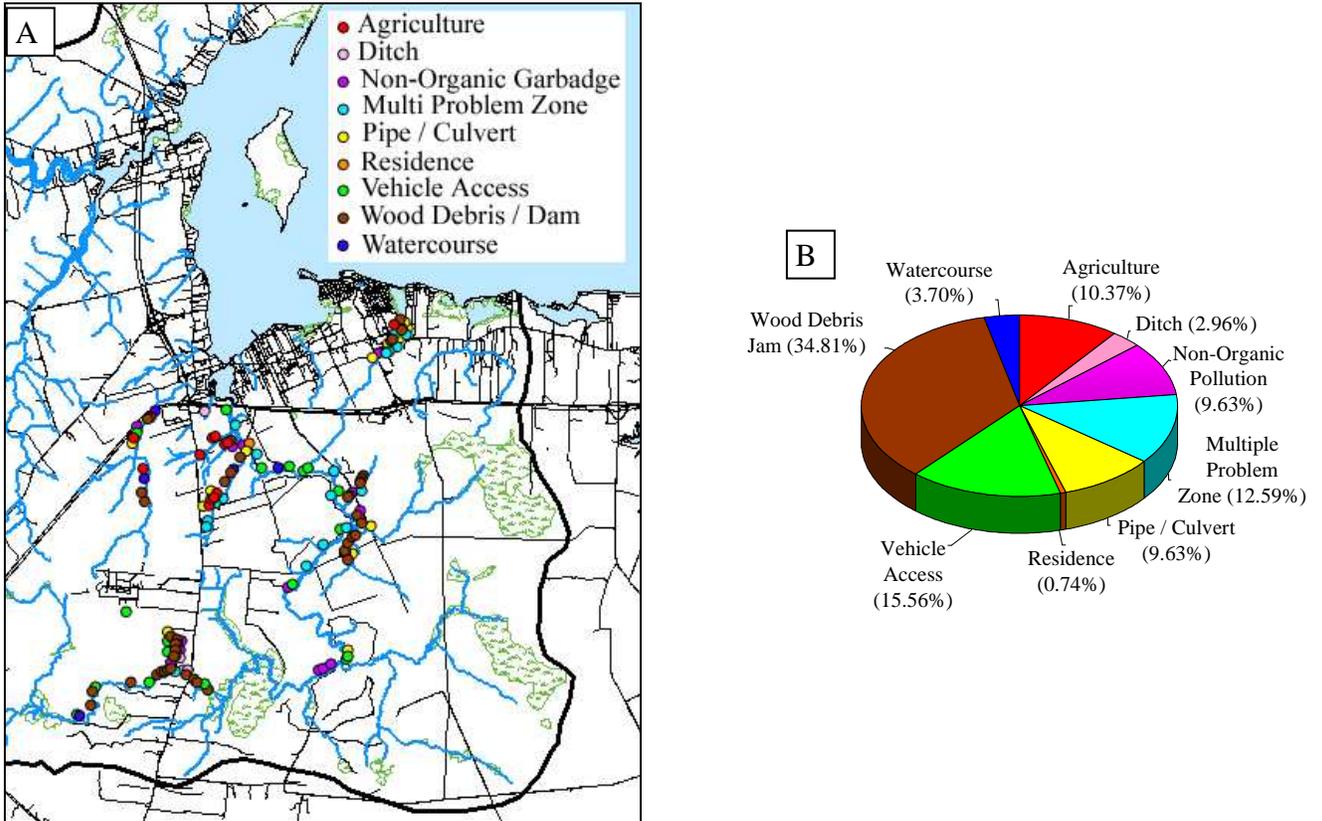


Figure 3. A) Pollution sources location and B) proportion per category as observed during the sanitary survey along the Scoudouc River performed in 2008.



Damaged riparian zone on the Scoudouc River



VTT crossing on the Scoudouc River



Damaged riparian zone on the Scoudouc River



Damaged riparian zone and cattle access the Scoudouc River

**Figure 4. Examples of sedimentation sources observed during the sedimentation sources assessment along the Scoudouc River in 2008.**

## 4 DISCUSSION

The head of the Scoudouc River is situated in a less disturbed area and riparian habitats appear to be healthier, characterized by a dense and mature vegetation cover. As we go downstream, riparian zones and stream health is degrading. Most damaged riparian zones are caused by ATV trails, deforested grounds, and farmland activities such as cattle accessing the river. Sections of the river situated in farming areas such as around the Scoudouc area and Cornwall Brook, were presenting important signs of sedimentation accumulation.

Various sources of sedimentation intake identified during the sanitary survey were directly linked to riparian zone alteration signs. It therefore appears that riparian health can be correlated to stream health conditions and fish habitat quality.

The Scoudouc River definitely shows some stream degradation signs in more occupied land and alteration appears to be linked to landuse activities. However, as a watershed entity, the river is mainly protected by dense vegetated riparian areas.

## 5 CONCLUSION

This study is allowing us to develop a detailed restoration action plan based on current environmental issues. It also allowed us to better understand the dynamic of the Scoudouc River watershed and its actual challenges.

We will use this assessment as a tool to monitor changes in our watershed and measure habitat health evolution. Therefore, the Stream Riparian Health Assessment will be repeated every five year as part of a monitoring plan to evaluate the status of the watershed. This first assessment will become the baseline information in order to measure habitat health improvement. In addition, an action plan is being developed to be able to remediate sedimentation sources and restore damaged riparian zones. Critical riparian alterations that appeared to be highly contributing to sedimentation in the river, will be addressed in subsequent years.

Extending this habitat health assessment in the rest of the watershed (Shediac River) will allow for the finalisation and enhancement of the protocol developed in partnership with DFO. The protocol used will be simplified in order to target necessary data for the establishment of an objective statement and to allow community groups to perform the work with limited resource and time.

## 6 CLOSING STATEMENT

The Shediac Bay Watershed Association is confident that the Riparian Habitat Health and Sedimentation Sources Assessment in the Scoudouc River watershed was completed successfully. It is clear that this project allowed us to better understand the relationship between riparian health and stream habitat condition. It also allowed for the creation of a solid assessment tool that can be used by other organisations.

We appreciate the honour of working with the New Brunswick Wildlife Trust Fund and thank you for your consideration.

Respectfully submitted by the Shediac Bay Watershed Association,

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Dominique Audet  
SBWA, Project Coordinator

# **7 APPENDIX A : SCODOUC RIVER SANITARY SURVEY**

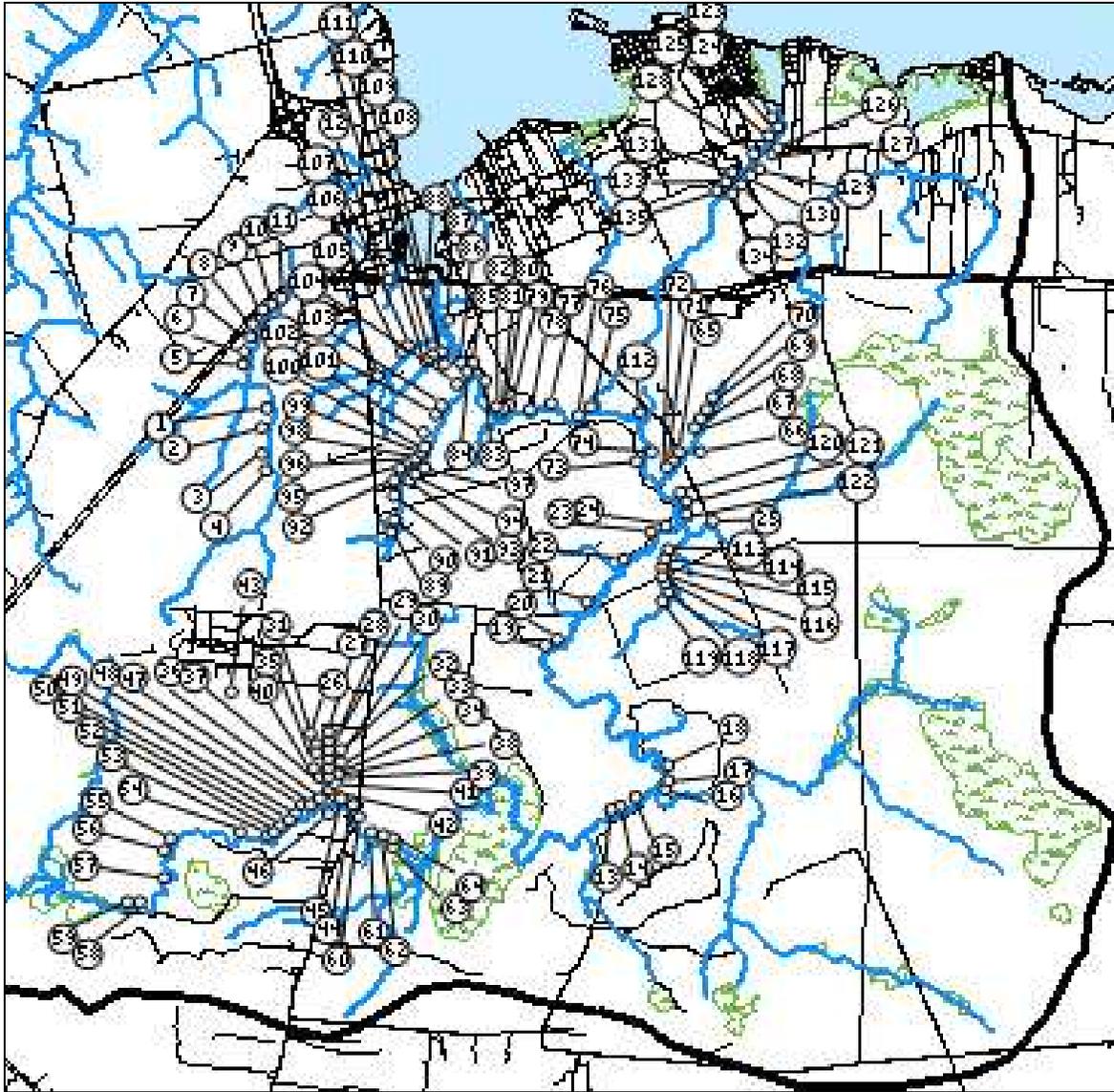


Figure 5. Pollution sources sites observed during the sanitary assessment along the Scoudouc River in 2008.

**Table 2. Sanitary survey summary for the Scoudouc River and its tributaries**

Point source #	Type	Status	Observation	Northing	Easting
1	AG	D	Cattles have access into the brook. The right bank is eroded and the vegetation is destroyed. The water is brownish due to the sedimentation. Heavy sedimentation in the stream.	46.19436	64.57960
2	WC	P	Man-made dam, looks like an old bridge with wooden structure on both bank sides. Membranes have been added into the stream to build what appears to be a dam (disintegrating structure)	46.19262	64.58012
3	W	P	Wood debris jam. There is sediment accumulation in the stream and in the debris jam. Little erosion on both sides of the bank.	46.18837	64.58018
4	W	P	Wood debris jam. There is sediment accumulation in the stream.	46.18467	64.57911
5	PC	P	A culvert/bridge appears to be too small for the reason that it has created a higher water velocity.	46.28490	64.58366
6	AG	D	Cattles have access to the stream. Both banks are eroded and the vegetation is destroyed. Water is brownish in color due to sedimentation. Heavy sedimentation in stream was observed.	46.20200	64.58247
7	VA	D	Tractor crossing. There is a trail with no riprap; however, rocks were added into the stream creating an elevated bed.	46.20343	64.58205
8	MP	P	Car parts and hay bale were observed in the stream.	46.20465	64.58162
9	W	D	A wood debris jam has created a pool as well as erosion on the right bank.	46.20568	64.57990
10	W	D	Wood debris jam. The debris has created a partial island.	46.20617	64.57882
11	WC	D	There are a lot of animal tracks on the right bank. The right bank is heavily eroded (appears to be natural erosion). It also seems to be a source of sedimentation.	46.20732	64.57730
12	DI	P	Sedimentation loads has been created from the drainage ditch which originates from the farm field.	46.20719	64.56080

13	MP	P	An old run down cabin is located on the right bank.	46.14683	64.51981
14	MP	P	An old dump site with visible scrap metal located on the right bank.	46.14779	64.51743
15	MP	P	An old dump with visible metal cans, bottles, etc.	46.14850	64.51588
16	VA	P	A small campsite with an ATV trail access on the left side of the bank.	46.14872	64.51305
17	VA	D	An ATV trail passes through the brook. Both banks are eroded and sedimentation is present. There is no Buffer zone.	46.14958	64.51353
18	PC	P	An old culvert washed out in brook.	46.15042	64.51321
19	MP	P	An old run down cabin located on the right bank.	46.16670	64.53049
20	VA	P	An ATV trail on the left bank. About 10m of buffer strip has been eroded.	46.16707	64.52950
21	MZ	D	Pipeline and ATV trails are crossing the river. There is a riprap on the left bank and erosion on the right bank.	46.17249	64.52401
		D	A pipeline crossing the river. The buffer zone has been altered on both sides (decreased in size).	46.17249	64.52401
22	MZ	D	A road is passing through the tributary as a result, sedimentation flows into the Scoudouc River. This would be a good place for a restoration.	46.17580	64.52013
		D	A road is passing though the tributary as a result, sedimentation flows into the Scoudouc River. This would be a good place for a restoration.	46.17580	64.52013
23	VA	D	A dirt road is next to the river. The road is eroded and sedimentation flows directly into the river.	46.18041	64.51428
24	MZ	D	An ATV trail is next to the river. Visible garbage near the river and sedimentation flows into river. This would be a good place for a restoration.	46.18054	64.51208
		D	An ATV trail follows the river to a camping site. The riparian zone is on the left side which is severely eroded. This would be a good place for a restoration.	46.18054	64.51208
25	PC	D	The water crosses the culvert. Both sides of the	46.18084	64.50461

			banks are eroded (downstream of the culvert).		
26	PC	D	The culvert appears to be too small for the reason that it has created a higher water velocity at outflow.	46.15694	64.57251
27	W	D	A wood debris jam as well as heavy alder population is trapping the sedimentation. This would be a good place for a restoration.	46.15491	64.57197
28	W	D	A wood debris jam is trapping the sediments. This would be a good place for a restoration.	46.15463	64.57185
29	W	D	A wood debris jam is trapping the sediments. There is a sediment accumulation in the stream. This would be a good place for a restoration.	46.15424	64.57129
30	MP	P	An old dump site with visible scrap metals, cans, bottles, etc.	46.15422	64.57108
31	VA	D	There is a small bridge for an ATV access in the trail. Visible broken vehicle parts in the brook. The sediments flow into the stream.	46.15394	64.57063
32	W	D	A few logs in the brook are blocking the water velocity.	46.15358	64.57056
33	MP	P	An old dump site with visible cans, bottles, scrap metal, etc	46.15335	64.57054
34	W	D	A wood debris jam as well as heavy alder population in the brook is trapping the sediments.	46.15313	64.57072
35	VA	D	A dirt road crosses a bridge. There is a drainage ditch on both sides of the road. A clear cut lot is located at 20m from brook. There could be a severe sedimentation problem when there is heavy rain.	46.15280	64.57085
36	W	D	There is a wood debris jam in the brook trapping the sediments. There is a sediment accumulation in the stream. This would be a good place for a restoration.	46.15211	64.57079
37	W	D	There is a sediment accumulation in the brook due to the wood debris jam. This would be a good place for a restoration.	46.15199	64.57095
38	W	D	An old bridge with broken parts is blocking the water velocity.	46.15020	64.57051

39	W	D	Sedimentation is being trapped in the wood debris jam. There is a sediment accumulation in the stream. This would be a good place for a restoration.	46.14997	64.57054
40	DI	D	A ditch from an old excavating site flows directly into the brook. There could be a sedimentation problem when there is heavy rain.	46.14920	64.57053
41	W	D	A wood debris jam as well as a heavy alder population in the brook is trapping the sediments. This would be a good place for a restoration.	46.14879	64.57051
42	W	D	An old double culvert bridge. There are sediments accumulating from the dirt road when there is heavy rain.	46.14869	64.57035
43	VA	D	There is a small bridge for an ATV in the trail. This would contribute to a sedimentation problem when there is heavy rain.	46.16019	64.58464
44	DI	D	Beside of the road, there is a run-off from the drain that flows directly into river. This would contribute to a sedimentation problem when there is heavy rain.	46.14530	46.56470
45	DI	D	Beside of the road, there is a run-off from the drain that flows directly into river. This would contribute to a sedimentation problem when there is heavy rain.	46.14671	64.56597
46	W	D	There is a beaver dam that flooded both banks.	46.14707	64.56996
	W	D	There is a small animal access leading into the river. The buffer strip is damage on the right side.	46.14707	64.56996
47	MP	P	An old dump site with visible plastics, cans, etc.	46.14663	64.57081
48	W	P	A fallen tree in the river traps the debris.	46.14643	64.57161
49	W	P	A fallen tree in the river traps the debris.	46.14610	64.57206
50	W	P	A fallen tree in the river traps the debris.	46.14582	64.57244
51	W	D	An old beaver dam flooded both sides of the river.	46.14550	64.57404
52	W	D	A 20m old beaver dam is trapping wood debris.	46.14501	64.57551
53	VA	P	There is a camping site near the ATV trail. The left	46.14352	64.57742

			bank is eroded. There is no buffer strip.		
54	W	D	A fallen tree in the river is blocking the water flow as well as trapping sediments.	46.14335	64.58385
55	VA	D	An ATV trail passes through the river. Both sides of bank are eroded. Sedimentation is present.	46.14332	64.59439
56	W	D	A fallen tree in the river is trapping wood debris. There is erosion on both sides of the river.	46.13795	64.59634
57	W	D	A wood debris jam is trapping sediments. There is a sediment accumulation in the stream. Both banks are eroded.	46.13665	64.59649
58	WC	D	There is a man-made dam where the banks are flooded. This slows the water velocity as well as trapping debris and sediments.	46.13438	64.59888
59	VA	D	An ATV trail passes through the river. Both banks are eroded and there is sedimentation in the stream.	46.13464	64.59962
60	W	P	Fisher bridge.	46.14530	64.56462
61	W	D	A fallen tree acts as natural dam. It has created a pool.	46.14367	64.56319
62	W	D	There is wood debris in the stream and trapping the sediments.	46.14279	64.56136
63	VA	P	Power line crossing. There is minimal buffer strip.	46.14388	64.55851
64	W	P	A beaver dam has created a pool which has slowed the water velocity.	46.14278	64.55663
65	MP	P	Visible polystyrene foam and logs are next to the brook. A dead porcupine was observed in the culvert.	46.18891	64.51030
66	MZ	D	An old dump site with mattresses and wooden materials on the left side of bank.	46.18907	64.51017
		D	The culvert has created a pool and a fragmentation of the fish habitat (the culvert is too high).	46.18907	64.51017
		D	Same culvert as previous (upstream) is blocked by debris which has created a large pool as a result it has slowed the water velocity.	46.18907	64.51017

67	W	D	A wood debris jam is trapping the sediments. This would contribute to a sedimentation problem when there is heavy rain.	46.19086	64.50840
68	W	D	Alders are trapping debris as well as sediments. There is a sediment accumulation in the stream.	46.19127	64.50812
69	W	D	A beaver dam has created a pool as a result, it has flooded both banks.	46.19169	64.50758
70	W	D	Two beaver dams and one hut have severely flooded both banks.	46.19222	64.50735
71	W	D	Fallen trees as well as wood debris have created a barrier. Both banks are eroded. There is a sediment accumulation in the stream.	46.18803	64.51118
72	W	D	Wood debris accumulation has created a barrier.	46.18758	64.51162
73	VA	P	There is an old trail at the end of the river. There is a possible source of sedimentation.	46.19031	64.51630
74	MZ	P	An old cemented culvert slowed the water velocity. There is a dirt road next to the river. There is a potential sedimentation problem that flows into the river when there is heavy rain.	46.18916	64.51810
		D	An ATV trail passes through the river. There is no buffer strip.	46.18916	64.51810
75	VA	D	An ATV trail passes through the river. Both banks are eroded. There is a potential source of sedimentation.	46.19445	64.52506
76	VA	D	An ATV trail passes through the river. Both banks are eroded. There is a potential source of sedimentation.	46.19398	64.52656
77	VA	D	An ATV trail has eroded the left side of the bank. There is a visible camping site. This could contribute to a sedimentation problem when there is heavy rain.	46.19419	64.53149
78	WC	P	An old excavating site found in a small tributary. There is a potential source of sedimentation.	46.19518	64.53499
79	VA	P	There is a road that leads to a camping site near the river. There is a potential source of sedimentation.	46.19429	64.53598

80	VA	D	Found an old excavating site. This site could be used for recreational purposes or camping. There is no buffer strip.	46.19407	64.53716
81	VA	D	An ATV trail is leading to a camping area. The right bank is eroded. There is a potential source of sedimentation.	46.19333	64.54077
82	VA	D	A road is leading to an old excavating site. There is no buffer strip. There is a potential source of sedimentation.	46.19529	64.53429
83	MZ	D	A culvert is used for precipitation run-offs.	46.19865	64.54426
		D	There is a residential clear cut. The right bank is eroded. There is no buffer strip.	46.19865	64.54426
84	PC	D	There is a broken culvert. It is used for precipitation run-offs. The bank is collapsed. There is a potential source of sedimentation as well as contamination.	46.19988	64.54604
85	R	P	A residential clear cut. The right bank is eroded. There is a small wharf.	46.20016	64.54787
86	MP	D	There are columns from an old railway bridge.	46.20049	64.54853
87	MZ	D	An agricultural field next to the river (is on the left bank). There is minimal buffer strip. There is a potential source of sedimentation when there is heavy rain.	46.20510	64.55101
		P	The right bank is eroded near residential area.	46.20510	64.55101
88	VA	D	There are two bridges passing through the river. There is a riprap present. There is a run-off from the HWY-15 that flows directly into river	46.20914	64.55184
89	MZ	D	Cattles are having access to the stream. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.17792 to 46.19042	64.55956 to 64.55795
		D	A culvert is blocking the water velocity. The water becomes stagnant. There is visible cow manure next to the water.	46.17792 to 46.19042	64.55956 to 64.55795

		D	Cattles are having access to the stream. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.17792 to 46.19042	64.55956 to 64.55795
90	MZ	D	There is a double culvert which has created a pool as a result it has slowed down the water velocity.	46.19042	64.55795
91	PC	D	An old broken culvert in the brook it has created a barrier as well as slowing the water velocity.	46.18173	64.55800
92	MZ	D	There is a dirt road next to the brook. There is a potential source of sedimentation when there is heavy rain.	46.18260	64.55772
		D	A culvert is trapping debris and sedimentation.	46.18260	64.55772
93	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.18273	64.55784
94	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.18398	64.55770
95	PC	D	There is a potential source of sedimentation near the culvert (coming from the road) when there is heavy rain.	46.18549	64.55812
96	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. There is heavy sedimentation in the stream.	46.19664	64.55720
97	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.18634	64.55576
98	MZ	D	A dirt road is passing through the stream. There is a potential source of sedimentation when there is heavy rain.	46.18732	64.55551
		D	An old bridge with debris is slowing the water velocity.	46.18732	64.55551

99	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.18722	64.55526
100	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.18819	64.55411
101	W	D	An old beaver dam is slowing the water velocity.	46.19055	64.55239
102	W	D	A wood debris jam is blocking the water velocity as well as trapping the sediments. This would be a good place for a restoration.	46.19271	64.55095
103	WC	D	An old brook bed is dry. There is a potential sedimentation source.	46.19358	64.55064
104	W	P	A wood debris jam is blocking the water velocity as well as trapping sediments. This would be a good place for a restoration.	46.19730	64.54739
105	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.19817	64.56216
106	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.20089	64.55700
107	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.20187	64.55534
108	W	P	A wood debris jam is slowing the water velocity as well as trapping sedimentation.	46.20051	64.55114
109	MP	P	There is garbage as well as wooden material on the right bank.	46.20036	64.55157
110	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.20010	64.55185

111	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.19964	64.55352
112	MZ	D	A blocked culvert is slowing the water velocity.	46.19459	64.51601
		D	There is garbage on both sides of the culvert and it is slowing the water velocity.	46.19459	64.51601
		D	A dirt road could potentially be a sedimentation source when there is heavy rain.	46.19459	64.51601
113	W	P	A wood debris jam is slowing the water velocity. There is a sediment accumulation in the stream as well as in wood debris (trapped). This could be a good restoration site.	46.17808	64.51122
114	W	P	A wood debris jam is slowing the water velocity. There is a sediment accumulation in the stream as well as in wood debris (trapped). This could be a good restoration site.	46.17784	64.51212
115	W	P	A wood debris jam is slowing the water velocity. There is a sediment accumulation in the stream as well as in wood debris (trapped). This could be a good restoration site.	46.17686	64.51212
116	W	P	A wood debris jam is slowing the water velocity. There is a sediment accumulation in the stream as well as in wood debris (trapped). This could be a good restoration site.	46.17585	64.51197
117	W	D	An old beaver dam has created a large pool. As well as slowing the water velocity.	46.17576	64.51260
118	PC	D	The banks are lightly eroded near the old culvert. A dirt road could potentially be a source of sedimentation when there is heavy rain.	46.17553	64.51205
119	W	D	An old beaver dam is blocking the water velocity and has created a pool.	46.17423	64.51099
120	MP	P	Tires in the brook.	46.18419	64.50786
121	W	P	A wood debris jam has created a natural dam. This could be a good restoration site.	46.18259	64.50936

122	W	P	A wood debris jam has created a dam. There is sediments accumulation in the stream as well as in the wood debris. This could be a good restoration site	46.18132	64.51011
123	AG	D	Cows are having access to the brook. Both banks are eroded and the vegetation is destroyed. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.23057	64.49484
124	PC	P	An old culvert has created a pool. Cows have access into brook. Both banks are eroded. The water is brownish in color due to the sedimentation. There is heavy sedimentation in the stream.	46.22962	64.49465
125	PC	P	An old culvert in the stream. There is sedimentation in the stream as well as next to the culvert.	46.22796	64.49410
126	MZ	D	A double culvert and a bridge are responsible for slowing the water velocity and by creating a pool.	46.22741	64.49491
		D	A double culvert and a bridge are slowing the water velocity.	46.22741	64.49491
127	MZ	D	A bridge is slowing the water velocity. A Heavy alder population is present.	46.22719	64.49527
		D	A culvert is slowing the water velocity. A heavy alder population is present.	46.22719	64.49527
128	PC	D	There is water coming out of from a pipe (coming from a shack). The source is unknown.	46.22746	64.49535
129	MZ	P	A bridge is slowing the water velocity.	64.22658	64.49651
		P	There is a potential sedimentation source from the road when there is heavy rain.	64.22658	64.49651
		D	A culvert used for precipitation run-off that flows directly into the stream. There are broken pieces of asphalt that could potentially be a source of contamination.	64.22658	64.49651
130	W	D	A residential bridge where both banks are eroded.	64.22638	64.49695
131	PC	P	There is water coming from a pipe next to a residential area.	46.22563	64.49767

132	MZ	D	There is garbage such as tires and metals in the stream. There is also trapped sedimentation.	46.22442	64.49885
		D	Wood debris has created a barrier.	46.22442	64.49885
133	MZ	D	Two pipes could potentially be contaminated with precipitation run-off. The precipitation run-off flows directly into the stream	46.22316	64.50081
		D	A double culvert is blocking the water passage.	46.22316	64.50081
134	MP	D	An old dumping zone (cars) has diverted the brook by forming an island. There is heavy sedimentation in the stream.	46.22179	64.56275
135	PC	D	Old pierced culvert. The water is flowing under the mouth of the culvert.	46.22080	64.56327