

# **Kennebecasis Watershed Restoration Committee Year End Report – 2009**



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# 1.0 INTRODUCTION

The Kennebecasis Watershed Restoration Committee (KWRC) is composed of various provincial and federal departments, local municipalities and local interest groups. Beginning in 1994, the committee has worked on enhancing the general health of the Kennebecasis Watershed, focusing on water quality and fish habitat within the greater Kennebecasis Watershed (Figure 1). Surveys were completed to identify the type and

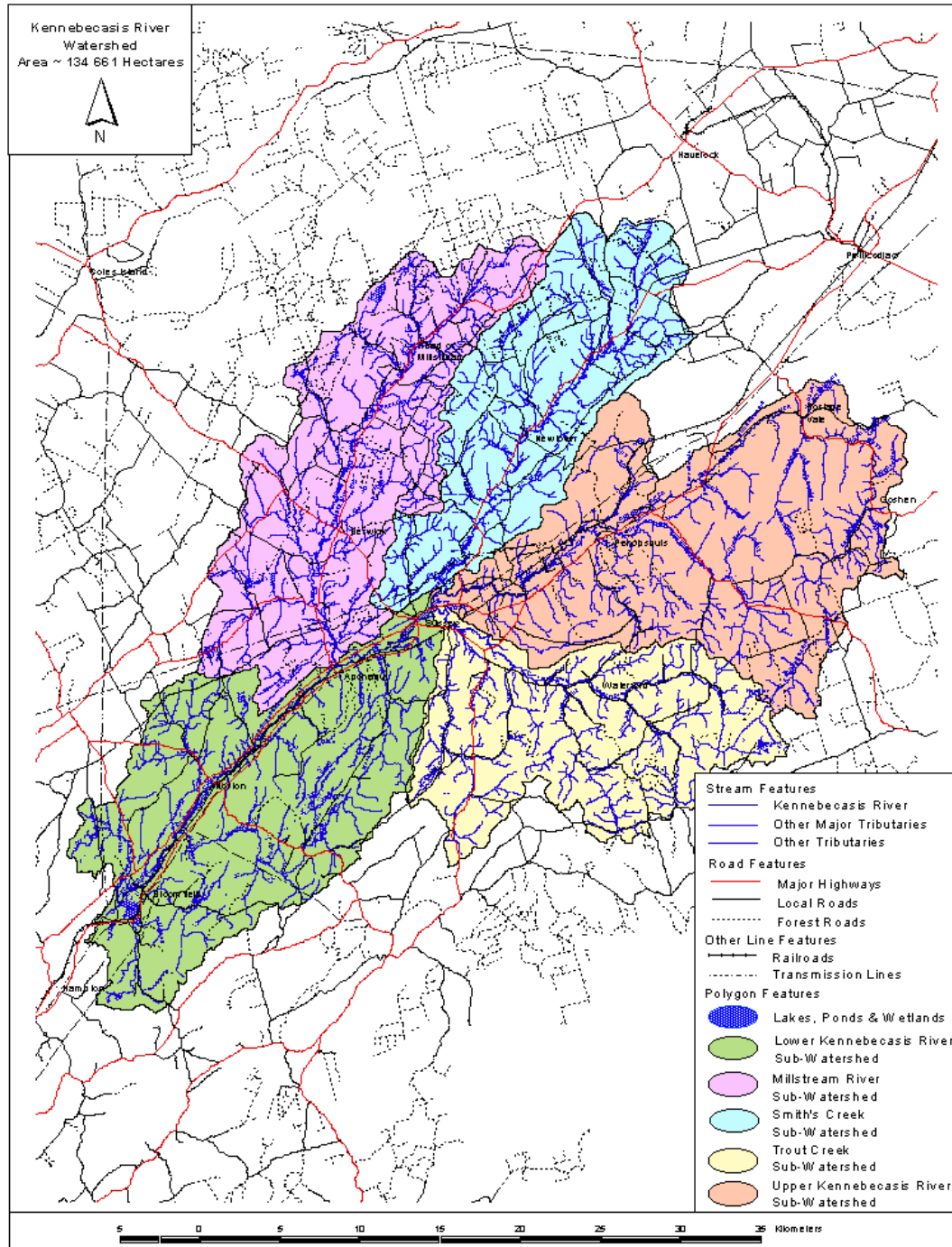


Figure 1: Map of the Kennebecasis Watershed showing the sub-watersheds.

location of major stream habitat problems, and guide in-stream work focused at addressing these problems and improving the aquatic conditions of the watershed. Work has been carried out to decrease erosion, enhance fish habitat, improve the riparian zone habitat and educate the public on environmental issues.

Since 1994, over 502 stream enhancement structures have been installed, 48km of fencing has been erected, 2.7km of banks have been stabilized, fish populations have been monitored and water quality assessments have been completed. The ultimate goal of the committee is to re-establish the natural habitat of the Kennebecasis Watershed in order to maintain clean, healthy waterways and proper aquatic habitat.

This report will outline the projects that the KWRC completed in 2009 as well as provide a brief overview of the financial status of the KWRC. This document is intended as an overview, further detail on each project can be found with the project reports which can be found in the appendix.

## 2.0 FUNDING

Part of the reason for the great success experienced by the KWRC is our ability to always attain funding. This in part is due to our great effort in applying to various sources for funding. Our total revenue generated for 2009 was approximately \$325,022.67 with some of this being moved forward to projects with a 2010 completion date. The sources of this revenue are illustrated in Table 1.

<b>Funding Source</b>	<b>Amt Requested</b>	<b>Amt Granted</b>
NBWTF Musquash Bk Rest	\$ 41,097.18	\$ 17,000.00
NBWTF Lower Kenn Rest and Assess	\$ 37,337.79	\$ 20,000.00
ETF Engage, Assess & Rest	\$ 69,783.19	\$ 40,000.00
ETF Classes and Masses	\$ 17,131.69	\$ 10,000.00
Gulf Of Maine Council	\$ 21,262.44	\$ 18,919.97
Summer Career Placement	\$ 5,517.20	\$ 5,664.00
SEED	\$ 5,517.20	\$ 2,851.00
Corridor Resources*	\$ 6,000.00	\$ 6,000.00
PCS HADD**	\$ 216,217.50	\$185,629.36
Shell Environment Fund	\$ 4,655.66	\$ 1,286.00
Revenue Canada - HST Rebate	\$ 11,388.02	\$ 11,388.02
Tree Canada/Canadian Tire***	\$ 3,784.32	\$ 3,784.32
Sussex Fish and Game	\$ 2,500.00	\$ 2,500.00
	<b>\$ 470,910.73</b>	<b>\$325,022.67</b>

*Table 1: Revenue by funding source*



In comparison to previous years 2009 was a successful year for funding with only a slightly larger than average budget. The 2009 ledger can be found in Appendix B.

### **3.0 HUMAN RESOURCES**

Like most non-profit organizations, the KWRC struggles to secure adequate financial resources to maintain skilled, full time human resources. The Committee has been fortunate enough to keep a Project Manager in place full time through most of its existence. Beyond this one individual however, resources have been scarce. In 2009 thanks, in part, to the success of a new funding partnership and a HADD project, the KWRC was able to employ a full time Project Manager and a Restoration/Education Coordinator. Unfortunately, the individual hired, as the Restoration/Education Coordinator, was offered a better paying position with benefits and moved on at the end of December 2009.

The summer of 2009 was busy and the KWRC was awarded funds to hire 3 students to complete restoration and habitat assessment work. These 3 students worked under the Restoration/Education Coordinator to complete the work. The KWRC was also fortunate enough to work out an arrangement with the Fundy Model Forest where a student was shared part time by each organization.

Further partnership also saw two master students completing field work for the KWRC. The Canadian Rivers Institute (CRI) with some financial support from the KWRC will complete two research projects on the Upper Kennebecasis Watershed. Both of these projects have increased the capacity of the KWRC and will result in reports on Brook Trout populations and riparian health in the Upper watershed

### **4.0 ACTIVITIES**

Numerous projects were undertaken in 2009. Some were completed, while others will be completed in subsequent years. The focus of our work, as is our custom, was restoration efforts, but water sampling, habitat assessment, and public education efforts all took up significant staff time as well.



#### *4.1 Water Classification:*

Water classification had initially begun in 1999 but by 2002 the provincial government had turned its focus to other things. Classification was never completely off the radar however, and by the fall of 2007 the Department of Environment (DENV) requested that the KWRC work with them to complete the classification effort. In 2008 water samples were collected to further the understanding of the Kennebecasis watershed.

Issues with dissolved oxygen (DO) results led to a need to gather further data on this parameter in 2009. Staff revisited sites sampled in 2008 and gathered more confident DO readings. Our habitat assessment efforts in 2009 will also add data to our water classification information. Further meetings with DENV staff have also led to a new time line on the delivery of the Water Classification regulation for the Kennebecasis. The “2009 Water Quality Monitoring Report”, can be found in the appendix and will provide additional data to our management plan and water classification implementation.

#### 4.2 Restoration Efforts:

The KWRC has become very confident in installing many different habitat restoration structures over the 15 years they have been active. Whether planting trees, erecting agricultural fences, back sloping eroding banks, or installing rock sills KWRC staff has developed tested methods and partnerships to get the needed work done. In 2009 we had two major project sites; Thompson Brook and Musquash Brook. We also were in the development phase of the Ward’s Creek – Walkerville Farms project and secured some materials for that Potash Corp HADD project but it will not be discussed in this report.

##### 4.2.1 Riparian Zone Planting

### Trees Planted by KWRC 2009

**Species Planted:** spruce, pine, willow

Landowner	Trees Planted	Area Restored (m2)
Anthony Habraken	369	220
Dale Robinson	576	581.4
Daryl Walker	1036	618
Donnie McFarlane	1017	716.4
Gerard Verhoeven	1738	753
Jeff Floyd	437	1647.84
John Malone	268	784
Keir Miller	108	58
Ken Lisson	2230	2651.3
Lorna Crothers	328	68.8
Terry Bannister	287	60.19
<b>Total:</b>	<b>8394</b>	<b>8158.93</b>

In 2009 KWRC staff planted over 8300 trees restoring approximately 8158.93m2 of riparian zone. A good portion of the trees planted were willow seedlings that staff and volunteers worked at growing. Cuttings, from willows previously planted by the KWRC, were attained using volunteers and staff whom then struck these in jiffy pots. The seedlings were grown through the spring at a local nursery that provided space for us in-kind. These trees were also supplemented by surplus trees from the Canadian Forestry Service Greenhouse in Fredericton as well as from the local JDI Woodlands Greenhouse. The trees will increase biodiversity, soil stability, and habitat cover while decreasing carbon emissions, erosion, and stream water temperatures. Table 2 provides the details of our planting efforts in 2009.

Table 2: Tree planting effort in 2009

#### 4.2.2 Riparian Fencing Effort



*Picture 1: A view looking onto a portion of the riparian fencing at the Floyd Farm*

Riparian zone planting in our watershed would often be futile without landowners agreeing to allow KWRC staff to erect riparian zone fencing in many of our sites. Cattle would quickly graze freshly planted willows if permitted so therefore riparian zone fencing is important. The riparian fencing restricts livestock access to the fragile stream banks and thus protects the banks against erosion and vegetation degradation.

In 2009 the KWRC worked with Mr. Jeff Floyd who owns a farm along Thompson Brook in the Lower Kennebecasis sub-watershed. Staff, in cooperation with the landowner, erected 516m of barb wire fence which will protect 2575m<sup>2</sup> of riparian zone. With the fence in place existing trees along

with trees planted by KWRC staff will be provided ample opportunity to mature and provide numerous benefits to the watercourse of Thompson Brook.

To further improve the conditions of this farm the KWRC worked with the landowner to provide a stable agriculture ford. Prior to the work the farmer was utilizing an equipment crossing area that impacted over 30m of stream length. By altering his fence plan the KWRC was able to improve his approach and crossing alignment so that now only 5m of stream length is impacted. The crossing serves as a watering hole for cattle and as an equipment crossing for the farmer. It also greatly improves the 25m of stream habitat that was previously impacted by the equipment ford.

In the fall of 2009 this site was subject to three severe flood events, one of which cost the farmer cattle and equipment. The fence and ford received some damage but for the most part withstood the events relatively well. An effort will be made in 2010 to repair the damage caused by the last of these three floods.

#### 4.2.3 Bank Stabilization

Our habitat assessment report in 1994 revealed that a large percentage of the stream banks in the Kennebecasis Watershed were heavily eroded. Since that time we have been working at stabilizing as many of these banks as possible. With various techniques to stabilize these banks staff consult with DFO to insure that the best method for each site is being utilized. In 2009 the KWRC worked with contractors to stabilize 70m of





*Picture 2: A stabilized bank at Lisson Dale Black Angus Farm that was stabilized. Small groynes further increase habitat and channel stability*



*Picture 3: The smaller bank stabilized by the KWRC in 2009.*

eroding stream bank. The site was a continuation of work completed in 2008, as the KWRC worked to finish the restoration effort at Lisson Dale Black Angus Farm on the lower reaches of Musquash Brook. Two severely eroding banks, 28m and 42m in length, were armored using rock and then planted to further enhance the degraded riparian area. Rock groynes were implemented in association with the armoring to further improve aquatic habitat and increase channel stability in this portion of Musquash Brook. After three heavy rain events in the fall of 2009 these banks are still intact and working well.

#### 4.2.4 Stream Clean-up

Stream clean-ups are a great way to engage the public in the restoration of the local streams. This engagement is in direct cooperation with our mission and often has very positive results. Staff developed a partnership

with the “TD Great Canadian Shoreline Clean-up” in 2008 which we built upon in 2009 as we hosted our 2<sup>nd</sup> annual community event in September. Numerous volunteers removed trash and debris from 4km of river banks within the Kennebecasis Watershed. A total of 1034lbs of trash was removed from the system during this event. Earlier in the summer we hosted two other clean-up days. The first was in cooperation with grade 8 classes from the Sussex Middle School who cleaned up the walking trail and the associated river bank along Trout Creek. These kids got into their work and enjoyed the afternoon on the creek while removing 286lbs of trash.



*Picture 4: Stream Clean-ups are an interactive way to educate youth and provide them with an appreciation of the river systems*



The final clean-up day was held in cooperation with the Atlantic Community Church and their Tidal Impact Youth forum. These kids removed 968lbs of trash from the Millstream River and Kennebecasis River over two afternoons. This was part of their community service effort for a week long event that aided many components of the local community and could be the first step in a new partnership.

#### 4.3 *Juvenile Population Study*

Partnerships are important to the KWRC and in 2008 we developed a new partnership with the Canadian Rivers Institute. This partnership resulted in the KWRC being able to re-visit the Upper Kennebecasis River and begin to re-assess the juvenile populations of Brook Trout (*Salvelinus fontinalis*). The study started in 2008 and crews reassessed sites that were completed in a 1998 study which was done by a University of New Brunswick Master's student. The field work has been completed and a report on this effort can be found in the appendix of this document. The trout population is surprisingly at a different level than hoped but explanations of these findings are offered in the report. It is highly recommended that further studies be done to attain a better understanding of the conditions of the trout in the Kennebecasis system and determine what actions need to be taken to improve trout numbers.

#### 4.4 *Riparian Zone Assessment*

This project was again a result of the partnership created with the Canadian Rivers Institute. A master's project was developed in which a student has been assessing the riparian area and land use composition in the Upper Kennebecasis watershed. The end result will be an improved understanding of how land use and riparian status are impacting aquatic habitat health. This is a two year field study and will use various techniques to create a link from land use to habitat relations using slimy sculpin as an indicator species.

#### 4.5 *Lower Kennebecasis Watershed Habitat Assessment*

Funding was secured for a habitat assessment project of six small tributaries to the Lower Kennebecasis sub-watershed. It was felt these tributaries were important factors in buffering the impacts on the Lower Kennebecasis due to the lack of larger tributaries. A report on the finding of this assessment can be found in the appendix of this



*Picture 5: Habitat assessment is a good way to identify threats and issues at a stream level and locates areas of possible restoration.*

document. Crews worked for approximately 4weeks completing the assessment of over 37km of stream within this sub-watershed and identified future areas for restoration efforts to occur.

#### *4.6 Public Engagement*

Public involvement in the restoration of the Kennebecasis Watershed is a key component in our Mission statement. Staff have been active in numerous ways within the watershed; either through education, policy, or consultation. The biggest benefit that the KWRC receives from these efforts is the opportunity to share our success with others and garner further government support for future funding applications.

In 2009 the KWRC was busy developing and completing a number of educational tools. The first education project completed in 2009 was the “Working with ATV groups to protect our watershed” and “Working to protect your agricultural resources” pamphlets. These pamphlets will serve as a contact point for ATV users to identify the KWRC as a partner in building better trails and for farmers to view the KWRC as an aid rather than a hindrance. By the fall of 2009 residents had already made calls to the KWRC after receiving a pamphlet from somewhere.

As in previous years the KWRC also visited high school and middle school classes to educate students about riparian habitats and the value they have in protecting aquatic habitats and water quality. Students who heard our presentations in 2007 worked with us in 2009 so we are reaching our goal of creating community minded environmental leaders.

Likely the biggest education development project for 2009 was the upgrading of our website. The website was actually booted live March 28, 2010 with a big response right away. With more maps and more detailed information the site is more user friendly and with a different set up it is now more easily edited and updated, making it easier to notify our followers of upcoming events.

Beyond these efforts the KWRC was also involved in a number of workshops and conferences. For an outline on our participation in various public and stakeholder events see the appendix.

## **5.0 EXPENSES OVERVIEW**

In the past KWRC staff has provided little feed back on the costs of the restoration efforts back to Committee members. In this section of the report an attempt will be made to demonstrate these costs for the main budget line items. The fiscal year for KWRC is April 1, 2009 until March 31, 2010. The table below provides a general overview of spending in 2009 and the complete 2009 ledger can be found in the Appendix. It should be noted that the reason for a greater revenue number compared to the expenses is due to two projects being carried over into 2010, with the monies being

approved in 2009. The larger of these projects is the Potash Corp – Ward’s Creek Restoration Project which was only invoiced for \$2926 in 2009.

<b>Expenses Overview 2009</b>		
Item	Expense	%
Human Resources	\$ 75,627.34	57.4%
Office and Administration	\$ 3,303.00	2.5%
Education & Outreach	\$ 9,250.80	7.0%
Travel Expenses	\$ 12,895.16	9.8%
Restoration and Monitoring	\$ 30,573.65	23.2%
	<b>\$131,649.95</b>	<b>100</b>

Table 3: Spending breakdown for 2009

## 6.0 LANDOWNERS

The restoration work completed by the KWRC often depends on being able to find cooperative landowners to work with. In 2009 the committee had numerous discussions and looked at developing new projects for 2010 and beyond. Table 4 provides a list of landowners who were contacted in 2009.

<i>Landowner</i>	<i>Location</i>	<i>Work Planned or Completed</i>
Mr. Jeffrey Floyd	Thompson Bk	Farm site assessment
Kenneth and Carolyn Lisson	Musquash Brook	Farm site assessment, fencing, bank stabilization, riparian planting
Paul and Jim Walker	Ward’s Creek	Farm site assessment, riparian restoration, stabilize ford, bank stabilizations
Kier Miller	Parson’s Brook	Riparian Planting
Sean Moffet	McNair Brook	Bank stabilization and riparian planting
John Malone	Upper Kennebecasis	Riparian Planting

Table 4: Cooperative Landowners for 2009

## 7.0 CONCLUSION

This year has been a very successful year for the KWRC however there is still much work to be done throughout the watershed. The restoration activities completed this season will provide improved aquatic habitat as well as additional terrestrial habitat within the enhanced riparian zones. We hope that through our meetings and presentations we can spark the interest of many more community members who will be

willing to share their time and efforts in the restoration of our beautiful watershed. The community has greatly benefited from our restoration work, whether it is in the prevention of erosion, the creation of habitat, the improvement in water quality, the increased recreational opportunities, or simply a greater sense of community, our work has provided a great deal to the Kennebecasis Watershed.



*APPENDIX A*

**Kennebecasis Watershed Restoration Committee  
Members**

**Kennebecasis Watershed Restoration Committee**

MLA Kings East

Town of Sussex

Village of Sussex Corner

Royal District Planning Commission

Potash Corporation of Saskatchewan

Department of Fisheries and Oceans

Kings County Soil and Crop Improvement Association

N.B. Soil and Crop Improvement Association

N.B. Department of Natural Resources

N.B. Department of Agriculture and Aquaculture

N.B. Department of the Environment

N.B. Department of Transportation

Sussex Fish and Game Association

Canadian Forest Service

Town of Hampton

***APPENDIX B***

**2009 Complete Ledger**

*APPENDIX C*

**2009 Water Quality Monitoring Report**



*APPENDIX D*

**Lower Kennebecasis Tributaries  
Habitat Assessment Report  
2009**

*APPENDIX E*

**Brook Trout in the Upper Kennebecasis River:  
10 years after implementation  
of the “no kill zone”**