

## **The Watershed**

The Hunter River Watershed covers 9,000 hectares in northern Queens County, Prince Edward Island. The watershed encompasses the larger communities of Hunter River, New Glasgow and North Rustico as well as a large well-populated rural area. Where the river runs through New Glasgow, it is known as the Clyde, hence the name of the watershed group.

The watershed has 100km of waterways, including a tidal estuary and two major dammed ponds. The land is gently rolling, with ground-water fed streams following the glacial valleys of the previous ice-age. Residential development and tourism operations are evident throughout the watershed. The high slope of the land severely restricts the farming of row-crops, but at the same time it increases the potential for soil erosion.

Farmland accounts for 56% of the land in our watershed and woodland is 31%, so farming and forestry practices have a large impact on the quality of surface-water. The recent introduction of buffer zones along waterways, environmental farm plans, funding for ecologically sustainable practices and the formation of a number of community groups have started to reverse some of the negative impact that earlier generations had on our watershed.

## **The Watershed Group**

An active watershed enhancement group, with the support of many residents, farmers, fishers and businesses, the Hunter-Clyde Watershed Group has been restoring our streams since the year 2000. Tree planting, debris clearing and the creation of narrower channels to speed up water flow have resulted in much improved fish habitat, while surface-water testing and continued documentation of the watershed have created a valuable baseline with which to gauge the improvements that will be made in the future. We have employed around 30 students over the years in watershed restoration projects. Over the past 18 months we have enjoyed increased funding from the provincial government and we are actively involved in efforts to secure permanent funding for our essential work and that of other watersheds across PEI. Our goal is to "support efforts to address ecological issues in the Hunter River watershed" and our mandate is the support of our membership which includes 19 local businesses, many farmers, fishers and the three community councils. Last year we received a \$500 donation from a farmer on whose farm we had undertaken a program of terraced tree planting to prevent silt from entering the river.

A board of directors oversees our work and our Annual General Meeting allows any interested individuals to join our board. Through meetings with local community councils, we are involved with a number of multi-faceted projects which involve an ecological component, such as the creation of a new park in Hunter River and an initiative to develop a riverside trail linking Hunter River to the North Shore. We have received funding from the provincial and federal governments every year and last year the provincial government provided money for a watershed technician and watershed manager, representing a three-fold increase in our annual funding and allowing us to expand the activities of the group into new areas. Our accomplishments are many and include having planted thousands of trees, built hundreds of brush mats, made numerous bat and swallow boxes, taken and analyzed many water samples, cleared garbage from riparian zones, worked with TPW to build rock-pools for fish passage and removed beaver dams where they were causing obstructions. Last year we raised public awareness of watershed issues by

beginning an education program in the local schools, setting up a booth at a number of public events and helping to run a nitrate clinic.

We now have a Stewardship Plan, which is a community driven document to manage the health of our watershed over the long term. It is a continually evolving document and this Management Plan will form part of that document.

### **Fisheries Resource**

Presently the river has Brook Trout, Smelts and Gasperaux. The dam in Hunter River prevents anadromous fish passage. 9km of the river is tidal, supporting oyster and mussel operations as well as being an important harbour for the landing of lobster and tuna. The brook trout population is healthy with a number of shady overhanging areas and many kilometres of year-round streams.

### **Monitoring and Assessment**

Monitoring and assessment is undertaken as funds and manpower are available. Over the past years, we have measured surface-water quality in a number of areas and undertaken some targeted research in suspected problem areas.

Fish populations are reported to us by anglers. As we progress, this important task will become more formalised in order to ensure that we are comparing high quality data from year to year.

In 2009, we plan to begin a Riparian Health Assessment of the entire watershed, aiming (funding permitting) to assess one quarter of the watershed. This program, with support from the PEI Soil and Crop Improvement Association, will allow us to target problem areas and modify our stewardship plan to address these areas. The RHA will also provide a baseline against which to measure progress.

In the future, we may become involved with CAMP (Community Aquatic Monitoring Program), CABIN (Canadian Aquatic Benthic Invertebrate Network) and other programs to co-operatively study and monitor the health of our watershed.

Mapping our data is an important part of the monitoring and reporting process, it enables us to overlay publicly available maps such as slope, land-use and soil type with our own data. We plan to put all of this data on our website using an interactive mapping system.

### **Problems and Issues**

The two large ponds present two major problems for our watershed. Campbells Pond causes the water temperature to rise by up to five degrees (1) in the summer and is full of silt. Bagnalls Pond is a barrier to fish with a large dam, as well as a very heavy sediment load. It has been estimated that the cost of emptying these ponds would run into hundreds of thousands of dollars, money which is not currently available. The problems with Hunter River pond are compounded by the problem of managing the sluice-gate in the dam, which is privately owned. Campbells Pond has a fish ladder but this may not be adequate to allow all types of fish to pass through.

There are anoxic events in the estuary on a regular basis. These are caused by inadequate flushing, which may be due to the sediment in the estuary, spikes in nitrate levels, high water temperatures, narrow

causeways and limited outlets to the sea. Our watershed shares a bay with the Wheatley River watershed, so these two systems are closely linked in the estuary.

Generally, the chemistry of the water is not that bad. Some sampling has been undertaken and surface-water nitrate levels are acceptable. Most streams turn red during heavy rain and melt events, causing the river to turn red. This is an impediment to fish habitat in itself, as well as causing the natural gravel stream-bed to be covered with silt. Siltation of the tidal estuary is significant, water which once carried ocean-going vessels can now cause a kayak to become grounded and there is only one small navigable channel in Rustico Bay, that channel changes year to year.

In the upstream areas, much restoration work is needed. Even though there is less potato farming than many areas of PEI, minimal buffer zones and high sloped land has caused, and continues to cause, serious sediment loads for the streams. Many of the streams are too wide, too exposed, full of silt and surrounded by alders and other inappropriate vegetation. Standard stream restoration methods such as sediment traps, tree planting, brush matting and debris removal are a mainstay of the work undertaken in the summer and the 90km of streams mean that this is a major task. Well planned restoration work is being done but there is a lot to do yet.

Hand in hand with stream improvement work are the measures that can be taken by landowners to reduce sediment and chemical run-off. The watershed group works with farmers to reduce the environmental impact of intensive farming as far as possible. Various incentive programs are available to offset some of the costs, including the work which the watershed group can undertake at no cost to the farmer.

### **Stream Habitat**

The Hunter River watershed has some excellent areas for spawning and raising fish. There are a number of good springs, although many of them are in need of tree planting and careful management. Some sections of the streams have good riparian cover, overhanging banks and gravel bottoms. Some brush matting has been undertaken by the watershed group, but much more needs to be done. Water temperature above Campbell's Pond and in the more northerly streams is of a temperature that is suitable for all fish species. Campbell's Pond causes an excessive rise in water temperature during the summer (1). Tidal areas suffer from occasional anoxic events.

### **References**

1. Water Quality - Monitoring the Hunter-Clyde Watershed by Emily McGuire, 2005