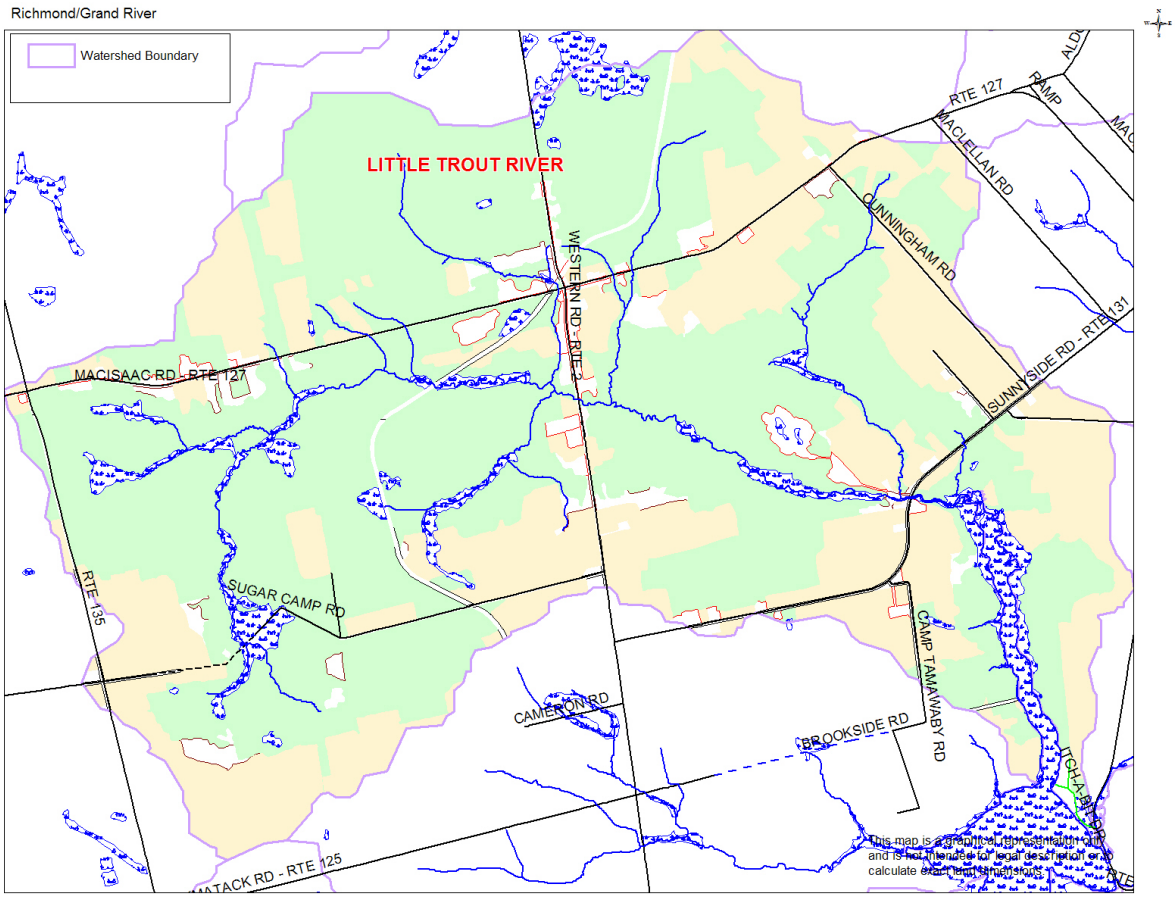
Fish Habitat Management Plan for

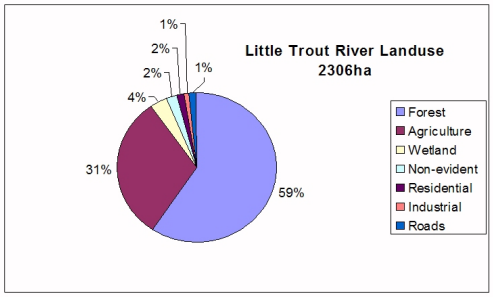
Little Trout River
May 2008

The Watershed

The Little Trout River is a 2306-hectare drainage system located in Richmond, PEI. The headwaters originate through St. Hubert and flows northeast into the Grand River. The Little Trout River is characterized as a small coastal stream that receives all of its baseflow from groundwater (spring fed). The main stem of the stream is 6kms long and including its tributaries, the sum of fresh water stream length totals 25kms.



Fifty nine percent (59%) of the drainage is forested and provides a habitat for all wildlife common to PEI. Thirty one percent (31%) of land use is agricultural and the majority of this is not directly adjacent to the stream. The Little Trout River is situated in a region of low topography and the riparian zone is comprised mainly of alders, red maple, white spruce and white birch. There are also large numbers of dead American elms, particularly in the lower reaches of the river. One notable stand of large red oak occurs in the headwaters off the MacIsaac Road.



There are no man-made ponds within the Little Trout River drainage basin. The last mill dam, located below the head of tide at Fitzgerald's Mills, washed out in the 1960s. However, there are a number of active and inactive beaver impoundments present.

The Watershed Group

The Richmond Bay Watershed Association, formerly the Richmond/Grand River Watershed Committee) formed in 2003/2004. The mandate of the organization is to rehabilitate, conserve and protect watersheds and promote watershed stewardship and environmental education in central Prince County.

Present Fisheries Resource

The Little Trout River supports native brook trout throughout the entire watershed and sea run brook trout also make use of a large portion of the watercourse. Angling for this species is limited to the head of tide, where there are some deeper holding areas, and at road crossings. The stream crossing of Highway 2 in Richmond is a popular angling destination. The river was stocked with brook trout semi-naturally reared in Profit=s Pond. In 2004, 1,100 brook trout were stocked into Little Trout River.

The Little Trout River is especially unique because it is the last remaining stream which flows into the Grand River that still has a run of wild Atlantic salmon. Numbers are too low to support a recreational fishery, although poaching was a traditional practice in the area.

The Little Trout River enters Grand River which is home to valuable commercial fisheries for oyster, eels, smelt and gaspereau.

Monitoring and Assessment

There are two sites on the Little Trout River that are regularly surveyed to determine the density of brook trout and Atlantic salmon. An annual redd survey is completed to determine the location and intensity of salmon spawning. Water temperature has been monitored at various locations using data recorders.

Problems and Issues

In-stream sediment

Water quality throughout the watershed is generally very high. The principle problem is the amount of fine sediment on the stream bed. This material probably originated from past land use abuses but has been tied up in debris and beaver dams for many years. Constructing and maintaining sediment traps, either, in-stream or bypass traps, and building brush mats will be the best means of consolidating the sediment and protecting downstream habitat.

Fish Passage

The movement of fish on the Little Trout River is compromised by both natural and man-made blockages. Beaver management remains an ongoing issue on the Little Trout River. When the Richmond Bay Watershed Group began its restoration efforts, there were dozens of active and inactive dams throughout the system, including a dam at the head of tide. These dams block the movement of anadromous fish species into and out of the river and can prevent trout from reaching desired spawning areas in the headwaters of the system. Improperly installed culverts also impede the movement of fish. The group has worked with the Department of Transportation and Public Works to address perched or "hanging' highway culverts.

Water Quality

Water quality within fresh and salt water in the Little Trout River watershed is relatively good. The measured concentration of nitrate nitrogen, a leading cause of eutrophication in many Island estuaries, is low and there have been no recorded instances of anoxia within the estuary. There are elevated summer water temperatures within the system, particularly in the headwaters. Numerous beaver dams have flooded large areas, increasing solar radiation and raising water temperatures to levels above the optimum range for salmonids.

Description of Stream Habitat

Head of Tide to Route 2 (~ 2.5 km)

Substrate is poor, comprised of flat, shale-like rock and significant amounts of clay. Large sections consist entirely of sand and bedload movement is considerable during the winter months. The primary holding areas are located near the head of tide, where deep pools naturally occur. Smaller pools can be found throughout the reach. A flat section in the middle of the reach was formerly impounded by beaver dams and contains in-stream debris. Many substantial springs have been located. The riparian zone is primarily composed of alders, white spruce and red maple and there are large numbers of dead elm in this reach.

This section has received intensive stream restoration work, most noteworthy being the large numbers of brush mats constructed. An in-stream sediment trap was excavated downstream from Route 2 approximately 10-15 years ago by a group previously working on the river. Three holding pools were excavated at the head of tide to provide holding areas for fish.

Note: Most salmon spawning occurs in the lower reach above the head of tide. Redds are difficult to observe in this system because of the flat, angular rock and the quickly moving bedload which infill redds soon after they are laid.

Route 2 to Decommissioned Bridge (2.2 km)

This reach was severely impacted by numerous beaver dams and the stream bottom is predominately composed of fine sediment. An abandoned bridge that was regularly targeted by beaver dams was removed. This area is now a grassy meadow. A large sediment bypass pond was excavated in a former beaver flowage upstream from Route 2 to capture material liberated from upstream restoration activities.

Decommissioned Bridge to headwaters (~3 km)

This reach still contains a number of active and inactive beaver dams. Many substantial springs have been located. While some areas of gravel/cobble substrate exist, most sections contain large proportions of fine sediment retained in beaver flowages.

Specific Strategies

1. ***Protect Fish Habitat***
   a) Continue to encourage landowners to leave an appropriate riparian zone, if possible, in excess of provincial guidelines;
   b) Develop a long-term management plan for maintenance of the riparian zone;
   c) Continue planting native tree and shrub species within the riparian zone;
   d) Identify critical spawning habitat and ensure that these sites are accessible;
   e) Maintain a positive relationship with local trappers and encourage the harvesting of beavers during the trapping season.

2. ***Rehabilitate Degraded Fish Habitats***
   a) Remove inactive beaver dams upstream from the decommissioned bridge site and assess all remaining active dams;
   b) Remove excessive brush and debris, being careful to maintain large woody debris;
   c) Install and maintain sediment collection traps, either instream or bypass, to capture sediment liberated during beaver dam removal or stream restoration activities;
   d) Install brush mats throughout the watercourse to capture sediment and narrow stream channel where desired.

3. ***Increase Angling Opportunities***
   a) Maintain and expand existing angling pools on the river, particularly at easily accessible areas (e.g. road crossings) and the head of tide;
   b) Communicate with landowners to ensure that angling areas remain open to the public.

4. ***Monitoring***
   c) Continue monitoring salmon spawning success through electro-fishing surveys and redd surveys;
   d) Continue monitoring stream water temperatures;
   e) Monitor the rate of infilling of all sediment collection traps.