



## 2013 STREAM RESTORATION SEASON IN REVIEW

By Charlyne Robertson

Since 2006, Clean Nova Scotia's Stream Restoration program has worked to improve water quality and fish habitat in the watersheds of Dartmouth, Cole Harbour and Preston, Nova Scotia. The program shares its successes and knowledge by networking with environmental organizations and engaging members of these communities. This past season, the Clean Nova Scotia "Streams Team" undertook a variety of projects to help create fish habitat, monitor water quality and promote community involvement.

Common issues for watercourses in the Dartmouth area are often rooted in commercial and residential development, which can leave streams channelized, diverted, straightened, and shallow. These alterations disrupt the natural function of the stream, which in turn has a negative effect on fish habitat. In addition, urbanization can contribute to the loss of riparian vegetation and subsequent erosion, which is detrimental to fish habitat and water quality. To mitigate these issues, the Streams Team - with mentorship from the NSLC Adopt-a-Stream program – installed in-stream structures, removed debris, planted trees in riparian zones, and conducted on going fish and water quality monitoring in Dartmouth watersheds throughout the summer.

Ellenvale Run, a stream located near the Portland Hills Estates, has been the focus of Clean Nova Scotia's in-stream restoration work for several years now. This summer, the Streams Team installed four new digger logs and two new rock deflectors in the stream, while maintaining existing in-stream structures to improve habitat for Brook trout and Atlantic salmon. The purpose of a digger log is to mimic a fallen tree and create fast flowing water up-stream, and a deep, cool pool downstream, providing cover for trout and salmon. A deflector, when installed in sequence, creates a natural curving pattern and consolidates and deepens the stream flow, alleviating erosion.

In an effort to better understand the suitability of various streams for fish and to identify potential sources of habitat disruption, the Streams Team conducted ongoing water quality testing through the months of June, July, August and September. Working with CURA H<sub>2</sub>O, the team collected water quality data from the Cow Bay River, Little Salmon River, and Horne's Brook watersheds that will be used to create a baseline of water quality information for future comparisons. CURA H<sub>2</sub>O kindly provided Clean Nova Scotia with water quality monitoring training and equipment for the summer, making this type of work possible. With a baseline for comparison, it's now easier to recognize negative changes to the health of these watersheds' and make better management decisions.

As part of the monitoring initiative, benthic invertebrates (e.g. insects living along the bottom of watercourses) were collected to help determine the health of the streams. Some bugs can live in all environments and even thrive in polluted, unhealthy conditions, while others are very sensitive to pollution, making their presence (or absence) indicative of a stream's health. When conducting analyses, Clean Nova Scotia followed the Canadian Aquatic Bio-monitoring Network (CABIN) protocol.

Assessments of the presence/absence of native fish species in various watercourses were then used to gauge stream health and determine where to focus future restoration work. Priority species for restoration work include Atlantic salmon and Brook trout. As a plus, all forms of restoration work provide benefits to other native species such as gaspeareau, killifish and the American eel.

Many species of fish found in Nova Scotia need to migrate from freshwater to saltwater. Culverts pose a potential threat to fish during migration as they can block or impede passage. Following guidelines put forward by the Clean Annapolis River Project (CARP), the team ascertained which culverts were suitable for fish passage. With this knowledge, recommendations can be made to developers and city planners about which culverts should be made more suitable for fish passage and how to achieve this.

Stream cleanups were also part of the summer work, and provided the public with hands-on learning and participation opportunities. Working with the Girl Guides and Auburn Drive High School local youth got involved in two tree planting events at Bissett Lake, to help restore and strengthen the riparian zone along Settle Run. Over two hundred trees were planted and some very motivated and energetic youth were given the opportunity to get their hands dirty while learning about stream restoration.

Clean Nova Scotia's Streams Team looks forward to more restoration and monitoring work next summer!