

## **Sampling fish from the watercourses within the Ganaraska Region Conservation Authority are: A Shocking Story**

Biologists at the Ganaraska Region Conservation Authority (GRCA) regularly use electricity to stun fish so they can be caught. Electrofishing is a common scientific survey method used to sample fish populations to determine abundance, density, species composition, contaminant load, life history and genetic diversity, presence of invasive species, and ecological health of the area being sampled. When performed correctly, electrofishing results in no permanent harm to fish, which often return to their natural state in as little as several minutes after being captured.

Electrofishing relies on two electrodes that are connected to a backpack unit that deliver pulsed direct current (DC) into the water to temporarily stun fish. The current runs from an anode to the cathode creating a high-voltage potential (and closed electrical circuit). When a fish encounters a large enough electrical gradient, it becomes affected by the electricity. The size of the fish dictate where this electrical gradient will lie (a large fish has more surface area, so is affected sooner). This causes uncontrolled muscular convulsion that result in the fish swimming toward the anode. At this time the fish is captured in a net so that GRCA biologists can sample the fish. At least two people are required for an effective electrofishing crew: one to operate the anode, and the other to catch the stunned fish with a dip net.

The GRCA regularly electrofishes many watercourses within its area of jurisdiction to examine the ecological health of where the sampling is taking place. This is done by looking at the number of species that are considered sensitive to habitat alteration and pollution (like juvenile salmon and trout) relative to the number of species that are tolerant to these stressors (certain minnow species). This ratio can give biologists an idea of how healthy the watercourse is, or if considered unhealthy, a window into why it may be unhealthy.

For further information on electrofishing or any other fisheries service, please contact Brian Morrison, GRCA Fisheries Biologist at 905.885.8173 or [bmorrison@grca.on.ca](mailto:bmorrison@grca.on.ca).