

Studying Atlantic Salmon in Whately's West Brook

Under the leadership of Dr. Ben Letcher, the U.S. Fish & Wildlife Service has been intensively studying the behavior, growth and survival of juvenile Atlantic Salmon in a one kilometer stretch of Whately's West Brook. West Brook was selected for the study because it is an ideal stream for juvenile salmon:

- (1) it is fed almost exclusively by groundwater, giving it an average summer temperature of 50° F;
- (2) its waters contain high levels of dissolved oxygen, and
- (3) aquatic invertebrates (prey) are plentiful.

Each spring, as part of the watershed-wide effort to restore Atlantic Salmon to the Connecticut River watershed, approximately 7000 salmon fry are released in West Brook. These are the fish that are subject of the research team's close observations.

Since 1996, researchers have monitored the movements of over 1000 salmon in West Brook. The team is able to do this by injecting each fish with a passive integrated transponder, or PIT tag. Each glass-encased tag emits a frequency that can be read much like a bar code on items purchased at the grocery store. So, whenever the researchers capture a juvenile salmon, they pass an electronic reader over the fish and the electronic unit displays the fish's unique identification number.

Over the course of each year, the research team surveys West Brook ten times. Although most of the surveys are done during the day, the team has occasionally done their surveying work at night to see if the fishes behaviors change over a 24-hour day. The survey is done by sampling each of the ten permanent 100-meter sections within the one kilometer stretch. Each 100-meter section is systematically electro-shocked, which allows the researchers to not only capture all the fish, but to also pinpoint where each individual was found. At the same time, the researchers weigh each fish and chart the growth of each individual.

Among the most noteworthy discoveries are:

- Juvenile salmon (parr) show great site fidelity. Once they've found a suitable hiding place, the majority of individuals are consistently found in the same location.
- Most of the weight gain (70%) occurs in the spring and in West Brook, the juvenile salmon actually lose weight during the summer season
- Daytime vs Nighttime??
- Seasonal change??
- Other neat discoveries??

In 2001 Ben Letcher's team installed a sophisticated device at a downstream weir that allows them, much like Speed Pass on the turnpike tolls, to record when each salmon smolt migrates downstream during the spring. This information will be valuable??

For information on the Life History of Atlantic Salmon:

<http://www.bio.umass.edu/biology/conn.river/salmon.html>

For more information about Ben Letcher's research:

<http://www.lsc.usgs.gov/cafl/lsc-afl.htm>