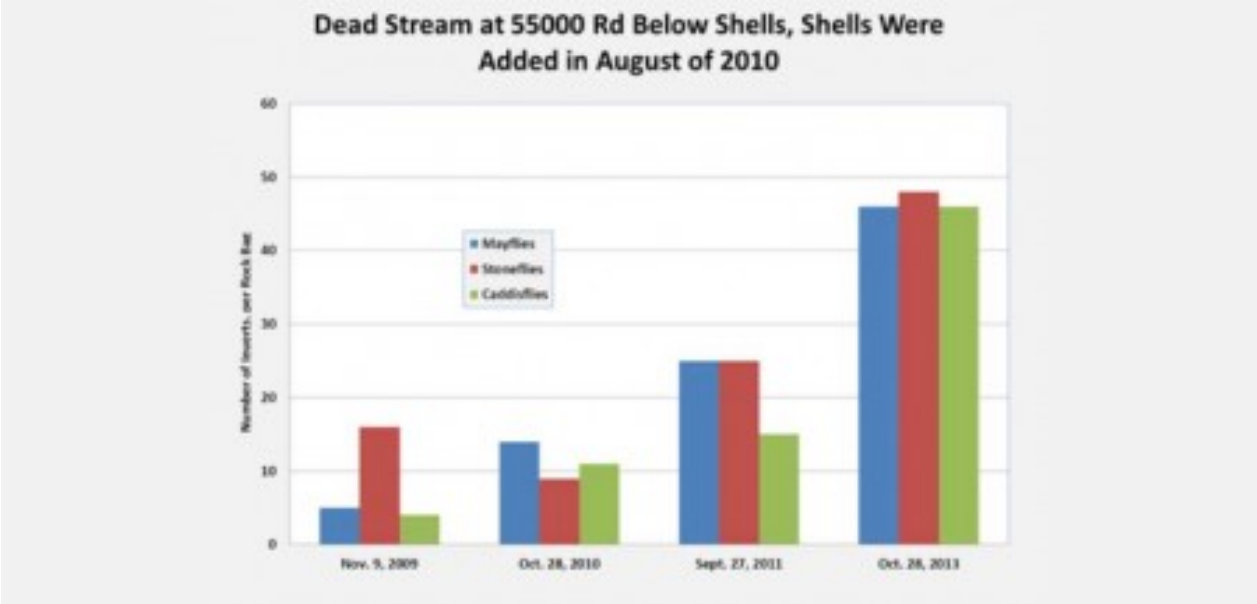
DOWNEAST SALMON FEDERATION

## Clam Shells

Years of acid rain, heavy timber harvest, and degradation of riparian zones have all contributed to the acidification of our waters. This is a serious issue that is not easily turned around. The changes these activities make in the pH of our water systems are compounded by the lack of buffering chemicals found in our thin soil and silica-rich bedrock composition in Downeast Maine. A more acidic stream can have impacts on fish directly by affecting their gill function as metals are extracted from soil and rocks and accumulate on the gills.

There is also a decrease in lower trophic level productivity as many important macro invertebrates also struggle in a low pH environment. This decrease in productivity can cause bottom-up trophic cascades affecting species along all levels of the trophic ladder.

A decrease in pH has serious consequences for not only Atlantic salmon, but many other fish species and macro invertebrates alike. Because of this, it is important that mitigation projects such as the Clamshell Project headed by Mark Whiting with the Maine Department of Environmental Protection not only continue, but grow in scale. The Downeast Salmon Federation has worked with Mark over the years to help treat some of our rivers in the Downeast region, and is eager to help even more.




Courtesy of Mark Whiting, DEP

The Clamshell Project is quite simple on the surface, clamshells are put in the streams to buffer streams with chronically low pH, but there is much more to the project than just that. Clamshells received from local processors are placed in the rivers at treatment rates determined by project biologists.

It takes tons of shells for each stream (the dose depends on the pH and stream/watershed size. To determine the success of these treatments, Maine DEP works with US Fish and Wildlife Service and Maine Department of Marine Resources to compare juvenile fish production pre and post treatment. DEP also assess the productivity of lower trophic level organisms by doing macroinvertebrate surveys and leaf pack surveys (see graph).