

## Appendix D - Aquatic Life Classification Attainment Report

To: Peter Newkirk From: Leon Tsomides

Subject: Lower Androscoggin River Date: January 18, 2011

The Biological Monitoring Unit sampled three locations on the Lower Androscoggin River in 2010 (Stations 954, 955, and 956). **Station 956** is the upstream-most station, located in Brunswick above the Pejepscot Dam and accessed by boat from the public fishing park, off the River Road. This station is **impounded by the Pejepscot Dam and is approximately 20 feet deep**. **Station 954** is located in Brunswick in the **free-flowing section below the Pejepscot Dam, is about 3 feet deep** and can also be accessed at the River Road public fishing park. **Station 955** is located in Brunswick **in the impoundment created by the Brunswick Topsham Dam, is about 10 feet deep** and can be accessed from Route 1 at the Brunswick canoe portage parking area.

The Lower Androscoggin River is currently statutory Class C. Of the three stations sampled, two attained Class C aquatic life standards and one station attained Class B as detailed below.

### Macroinvertebrate Results

The Biological Monitoring Unit uses a statistical model to predict the probability of samples attaining Class A, B, or C aquatic life criteria. The macroinvertebrate community attained Class B criteria at Station 954. The macroinvertebrate communities attained Class C criteria at Stations 955 and 956.

#### **Station 956** (Log 1978 Above Pejepscot Dam; Impounded) **Attained Class C**

Station 956 attained Class C criteria for aquatic life (see attachment Log 1978). The number of total organisms at this site was much lower than at stations 954 and 955 (see below). The Generic Richness of sensitive taxa (EPT) made up only a quarter of the community present. The dominant taxa were represented by a tolerant mayfly (*Stenacron*) which is adapted to survive in high silt areas, a caddisfly (*Oecetis*) that is very tolerant of organic pollution and a tolerant snail which feeds by scraping detritus off the bottom.

#### **Station 954** (Log 1956 Below Pejepscot Dam; Free-flowing) **Attained Class B**

Station 954 attained the Class B criteria for aquatic life (see attachment Log 1956). The community consisted of a good number of sensitive organisms. Ephemeroptera abundance (mayflies) was very good and the Generic Richness of sensitive taxa (EPT) made up over half the community. The dominant taxa generally consisted of sensitive organisms. The Hilsenhoff Biotic Index which measures the community's tolerance to organic pollution was low meaning the organisms that were present, in general, were sensitive to organic pollution. This indicates that organic pollution was not high enough to eliminate these sensitive taxa.

#### **Station 955** (Log 1977 Above Brunswick-Topsham; Impounded) **Attained Class C**

Station 955 attained the Class C criteria for aquatic life (see attachment Log 1977). The Generic Richness of sensitive taxa (EPT) made up only a quarter of the community present. The dominant taxa consisted of tolerant organisms with the most dominant taxon present (*Oecetis*, a caddisfly) very tolerant to organic pollution. The Hilsenhoff Biotic Index was much higher at this station indicating that taxa present were more tolerant of organic pollution.

### Conclusions

Station 954 consisted of a good number of sensitive organisms and attained the Class B aquatic life criteria while stations 955 and 956 had aquatic communities that were more tolerant to organic pollution and siltation and met the Class C aquatic life standards.

**Notes:** Ed Friedman, FOMB

Sampling conducted only in two river segments, none in tidewater and none above Worumbo dam. In both of these areas river is predominantly free flowing. In segment above Brunswick test area 955 represents 25% or less of river segment with free flowing oxygenated water both above and below where bugs likely to be more indicative of Class B. reach between Pejepscot and Worumbo dams also is only about 25% impounded-where sample was taken. Above Worumbo most of the river [many miles] to Great Falls is free flowing albeit some of it slowly and shallow. With a gravelly bottom as found in these shallow reaches, a better showing of bugs would be expected. DEP rock basket results may be more indicative of any silty bottom as would be found in any hydro impoundment. The effects impoundments can have on aquatic life are recognized in 464. 10A