# Appendix 4B

## Biological Assessment
## Macroinvertebrate and Fish Site Sample Results

## Pamlico River Subbasin
## HUC 03020104

The full report is available on the DWQ Environmental Sciences Section website:
*http://portal.ncdenr.org/web/wq/ess/reports*.

**BENTHIC MACROINVERTEBRATE SAMPLE**

| Waterbody | Location | Station ID | Date | Bioclassification |
|---|---|---|---|---|
| **Beaverdam Swamp** | **SR 1523** | **OB129** | **02/13/07** | **Moderate** |

| County | Subbasin | 8 digit HUC | Latitude | Longitude | AU Number | Level IV Ecoregion |
|---|---|---|---|---|---|---|
| Beaufort | 7 | 03020104 | 353210 | 765641 | 29-10-2 | Mid-Atlantic Flatwoods |

| Stream Classification | Drainage Area (mi2) | Elevation (ft) | Stream Width (m) | Stream Depth (m) |
|---|---|---|---|---|
| C; NSW | 9.5 | 21 | 4 | 0.4 |

| | Forested/Wetland | Urban | Agriculture | Other (describe) |
|---|---|---|---|---|
| **Visible Landuse (%)** | 90 | 0 | 10 | 0 |

| Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile) | NPDES Number | Volume (MGD) |
|---|---|---|
| None | N/A | N/A |

**Water Quality Parameters**

| | |
|---|---|
| Temperature (°C) | 4.3 |
| Dissolved Oxygen (mg/L) | 11.5 |
| Specific Conductance (µS/cm) | 106 |
| pH (s.u.) | 5.1 |
| Water Clarity | slightly turbid |

**Habitat Assessment Scores (max)**

| | |
|---|---|
| Channel Modification (5) | 5 |
| Instream Habitat (20) | 10 |
| Bottom Substrate (15) | 7 |
| Pool Variety (10) | 2 |
| Left Bank Stability (7) | 8 |
| Right Bank Stability (7) | 2 |
| Light Penetration (10) | 7 |
| Left Riparian Score (5) | 5 |
| Right Riparian Score (5) | 1 |
| **Total Habitat Score (100)** | 47 |

**Site Photograph**

**Substrate** Sand and silt.

| Sample Date | Sample ID | ST | EPT | BI | EPT BI | Bioclassification |
|---|---|---|---|---|---|---|
| 02/13/07 | 10149 | 52 | 3 | 7.02 | 6.43 | Moderate |
| 03/11/02 | 8700 | 50 | 4 | 7.50 | 7.25 | Moderate |

**Taxonomic Analysis**

Since 2002, EPT taxa richness, total taxa richness, and EPT abundance (13 in 2002 and 14 in 2007) have remained essentially unchanged between sampling events. The only community metric that has shown any change was the BI and EPTBI both of which decreased in 2007. Although overall taxa richness is basically unchanged, there were several very tolerant taxa that were present in 2002 but were not found in 2007 and include the chironomids *Cricotopus bicinctus* , *Orthocladius clarkei* , *Cladotanytarsus* sp., *Dicrotendipes fumidus* , *Endochironomus nigricans* , *Procladius* sp., *Tanypus carinatus* and *Glyptotendipes* sp., as well as the low-dissolved oxygen indicator gastropod *Physella* sp. The lack of these taxa suggest slightly improved water quality for

**Data Analysis**

The large decrease in the BI and EPTBI indicate that the invertebrate community has shifted towards a slightly more intolerant community in 2007 versus that observed in 2002 and suggests slightly improved water chemistry. Indeed, pH in 2002 was 6.2 and was only 5.1 in 2007. This suggests lowered runoff from adjacent agricultural fields of which most of the Beaverdam Swamp watershed is comrpised. The fact that taxa richness metrics did not increase is likely the result of the poor habitat as Beaverdam Swamp is a channelized system and appears to be regularly maintained.