

Volunteer Monitoring Program

2001

Water Quality Report

for:

River Section: (6) Upper Nashua and Tributaries. This section includes the Upper Nashua River main stem, the lower North Nashua, South Nashua, and Wekepeke Brook.

Description: The North Nashua River begins at the confluence of Whitman River and Flag Brook in West Fitchburg. It flows southeasterly through the cities of Fitchburg and Leominster, where it is affected by urban influences, including ten dams and three wastewater treatment facilities. Forested areas of Cook Conservation Land borders the river to the north in east Leominster into Lancaster. Wekepeke Brook joins the North Nashua near the intersection of Routes 190 and 117. A mixture of open and forested lands borders the river as it flows through Lancaster and joins the South Nashua at the "Meeting of the Waters" in South Lancaster.

The South Nashua River begins in Clinton, at the Wachusett Reservoir Dam outflow, and flows northerly around the east side of Clinton to join the North Nashua in South Lancaster. One wastewater treatment plant is located on the South Nashua in Clinton. The river is bordered by Clinton to the west and forested/open space to the east.

The Main Stem of the Nashua begins where the North and South Nashua Rivers join in South Lancaster and ends at the confluence of the Merrimack River in Nashua, New Hampshire. Near the beginning of the Main Stem, the river flows northerly and is bordered on the east by the scenic Bolton Flats Wildlife Management Area, and to the west by the former Devens Military Reservation.

Site	Water Body, Town	Field Description of Site Location
NM-06-01	Nashua River Main Stem, Shirley, MA	East side, upstream of Hospital Road bridge
NM-07-01	Nashua River Main Stem, Lancaster, MA	At Canoe Launch off Route 117
NM-08-01	Nashua River Main Stem, Lancaster, MA	At Night Pasture in Lancaster
NM-09-01	South Nashua River, Lancaster, MA	At the Mill St. crossing.
NN-01-01	North Nashua River, Lancaster, MA	At Main St. railroad bridge crossing
NN-02-01	North Nashua River, Lancaster, MA	At Cook Conservation Area powerline crossing.
WE-01-01	Wekepeke Brook, Lancaster, MA	Bartlett Pond outlet.

Assessment:

Biology

Coliform Bacteria - Several sites in this section have consistent problems with fecal coliform and three sites exceed the state standard based on seasonal mean (Night Pasture (NM-08), Cook Conservation Area (NN-02) and Wekepeke Brook (WE-01)). Two samples collected in August returned results of "too numerous to count" (NN-02 and WE-01), and are therefore not calculated in the seasonal means. The seasonal means were exceeded in these cases even without these samples calculated into the means.

Data from previous years indicates that many of these sights are prone to fecal coliform problems. Sources are likely variable in the more urbanized areas and therefore make discovery difficult. In the rural areas, runoff from agricultural fields may contribute to the source.

Chemistry

pH - All sites in this section are consistently near neutral.

Dissolved Oxygen - The Night Pasture site (NM-08) has a mean dissolved oxygen levels just below that required warm water fisheries (5.8 vs. 6.0). All other sites are well within the standard for warm water fisheries, and approach required levels for cold water fisheries. Lowered dissolved oxygen saturation levels were experienced during the summer months during low flow and warmer temperatures.

Alkalinity - All sites are well buffered with alkalinity greater than 20 mg/CaCO₃.

Physical

Temperature - Seasonal means for all sights indicate support o coldwater fisheries.

Standards Compliance:

Data from each site within the section are compared with Massachusetts **class B** water quality standards. For each parameter the geometric mean of seasonal results is used.

Site	Dissolved Oxygen	Fecal Coliform	pH	Temperature
NM06	Yes	Yes	Yes	Yes
NM07	Yes	Yes	Yes	Yes
NM08	No	No	Yes	Yes
NN01	Yes	Yes	Yes	Yes
NN02	Yes	No	Yes	Yes
WE01	Yes	No	Yes	Yes

(note: Yes = supports uses outlined; No = does not support uses outlined)

Summary: Fecal coliform continues to be a problem at sites in Lancaster. Sources are still unknown, but the urbanized and developed areas are likely major contributors through runoff. All other parameters indicate that the water in this section is relatively clean.

Recommended Actions:

- ◆ Continue monitoring all sites and survey stream sides for potential sources of fecal coliform.
- ◆ Adopt-a-Stream surveys, performed by members of the Lancaster Stream Team, may help identify sources of bacterial contamination to the river.