

**GRANT-PLATTE RIVERS  
STATE OF THE BASIN REPORT**

**VOLUME 7**

**MIDDLE GRANT RIVER WATERSHED NARRATIVE**

**(GP05)**

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# Table of Contents

<b>MIDDLE GRANT RIVER WATERSHED (GP05)</b> .....	<b>1</b>
SURFACE WATER NARRATIVES .....	5
RECOMMENDATIONS FOR THE MIDDLE GRANT WATERSHED .....	6
<i>Non-point Source Pollution</i> .....	6
<i>Protecting and Improving Water Quality and In-Stream Habitat</i> .....	6
<i>Outdoor Recreation, Wildlife Habitat and Protecting Open Space and Farmland</i> .....	6

# GP05 Map

## MIDDLE GRANT RIVER WATERSHED (GP05)

The Middle Grant River watershed covers about 80 square miles in west central Grant County. The topography is gently to moderately rolling land with steep-side valleys and broad ridgetops. The watershed is part of the larger Grant River drainage area that is one of the major contributors of sediment to the Mississippi River. The USGS maintains a flow monitoring station on the Grant River near Burton. Data from this station shows that almost 54,000 tons of sediment was discharged to the river above Burton during 1998 (Holmstrom, et.al., 1998).

There are 97.3 total miles of streams in the watershed. There are only a few wetlands in the watershed and they lie next to or very near streams. These wetlands are disturbed by agricultural activities, primarily grazing or cultivation during drier periods. There are no cold water streams or exceptional resource waters in the watershed. There are 42 miles of warm water sport fishery. Hackett Branch was added to the state's list of impaired streams in 1998. The streams and watershed as a whole have been ranked as a medium priority for non-point source pollution and the groundwater is considered vulnerable to potential contamination as a result of non-point source pollution. Blake Fork has been ranked as a high priority for a small-scale non-point source pollution abatement project.

Agriculture is the main land use in the watershed. Approximately 70 percent of the land use is either cropland or pasture. The watershed's estimated annual soil loss is 7.4 tons per acre per year (Midwest Reclamation Planners, no date). Grant County LCD has ranked this watershed as Grant County's second priority area for erosion control in the county. There are only three municipalities in the watershed; **Lancaster** (4,242), **Patch Grove** (204), and **Bloomington** (761). None of these municipalities are experiencing rapid growth. Each of the municipalities has a public wastewater treatment plant that discharges treated effluent to surface waters and all of these facilities are generally functioning well with no recent significant problems.

Public recreational opportunities are minimal in the watershed. The only public lands are municipal parks in the three municipalities. Public access to streams is available only at road crossings. Hunting is allowed on private lands with the permission of the property owner.

The City of Lancaster has been known to have a significant water quality impact on Pigeon Creek (Fix, 1991). Since 1991, however, Lancaster has undertaken improvements to its wastewater treatment plant and collection system to address this problem. Recent compliance monitoring annual reports submitted by the city and Department inspection reports show the facility to be in good operating condition. The primary problem the facility has now is excessive influent loading during major storm events that has resulted in some bypassing of effluent. The City is reviewing the infiltration problem with its collection system and will be addressing this problem through better maintenance and improvements of that system. Recent whole effluent toxicity testing of the City's effluent indicated no problems. Lancaster also needs to address potential construction site erosion control and community wide stormwater management issues and problems. As of October 2000, Lancaster is challenging the phosphorus limits in its WPDES wastewater discharge permit. Foremost Foods operates a milk processing plant in Lancaster. This facility currently, (2001), sends its process and sanitary wastewater to the Lancaster wastewater treatment plant. Foremost is proposing to treat its wastewater on-site for discharge of the treated effluent to a tributary of Pigeon Creek.

## ***SURFACE WATER NARRATIVES***

**Blake Fork** - Blake Fork is a spring and seepage stream (Smith and Ball, 1971) beginning near Patch Grove and flowing to the Grant River west of Lancaster. Agricultural non-point sources of pollution, particularly sediment from farm fields and eroding banks appear to be major problems in the watershed. Some barnyards and at least one animal transfer site may also be problems. Smallmouth bass have been found at two sites on Blake Fork during fish surveys done in 1995-1996 (Wang et.al., 1996). Index of Biotic Integrity (IBI) scores and stream water quality ratings, indicators of environmental degradation, for Blake Fork ranged from fair to poor. In-stream habitat evaluations show Blake Fork to have generally fair habitat quality (Wang et.al., 1996). Macroinvertebrate samples found nearly 70% of the samples to be midges, while conversely, only about 12% of the samples were stoneflies, mayflies or caddisflies (Marshall, 1999). High numbers of midges typically suggest some sort of environmental degradation usually as a result of agricultural non-point source pollution (Gamman, 1983). These data, coupled with the local intensely agricultural land use, indicates the stream is affected by non-point sources of pollution. The stream is considered a high priority for a non-point source pollution abatement project.

Bloomington and Patch Grove both operate permitted wastewater treatment plants that discharge to Blake Fork. Review of DNR wastewater files indicates that the Bloomington and Patch Grove facilities are generally operating well.

**Hackett Branch** - Hackett Branch and some of its smaller tributaries are spring and seepage fed streams which often indicate good water quality potential (Smith and Ball, 1971). The stream, however, has been designated an impaired water and is listed on the 303(d) of impaired waters. The Index of Biotic Integrity (IBI) scores and stream water quality ratings, indicators of environmental degradation, for Hackett Branch, ranged from fair to poor while in-stream habitat evaluations show the stream to have generally fair to good habitat quality (Wang et.al., 1996). These data, coupled with the local intense agricultural land use, indicates the stream is most likely affected by non-point sources of pollution.

Recent sampling done in 1994 through 1996 found good water quality. Macroinvertebrate samples from the same year found approximately 12% of mayflies, caddisflies and stoneflies compared to just over 65% midges (Marshall, 1999). High numbers of midge typically suggest some sort of environmental degradation usually as a result of agricultural non-point source pollution (Gamman, 1983).

**Pigeon Creek** - Pigeon Creek is a spring and seepage fed stream beginning just east of Lancaster and flowing southwest to the Grant River near Beetown (Smith and Ball, 1971). While the dominant land use in the Pigeon Creek sub-watershed is agricultural, stormwater from the City of Lancaster also drains to Pigeon Creek.

Smallmouth bass have been found at sites on Pigeon Creek during fish surveys done in 1991-1996 (Wang et.al., 1996). While the numbers vary from year to year, overall the stream has a very good population of smaller sized smallmouth bass and also appears to be an important bass nursery stream for the Grant River (Lyons, 2000). Index of Biotic Integrity (IBI) scores and stream water quality ratings, indicators of environmental degradation, for Pigeon Creek were generally fair with three poor observations. In-stream habitat evaluations show Pigeon Creek to have generally good instream habitat quality (Wang et.al., 1996). Macroinvertebrate data collected in 1994 through 1996 found the stream to have fair water quality. Approximately 12%

of the samples were mayflies, caddisflies and stoneflies compared to nearly 65% midges (Marshall, 1999). High numbers of midge typically suggest some sort of environmental degradation (Gamman, 1983).

## ***RECOMMENDATIONS FOR THE MIDDLE GRANT WATERSHED***

### **Non-point Source Pollution**

- ◆ The **City of Lancaster**, with the assistance of the DNR, Southwestern Wisconsin Regional Planning Agency, and Southwest Badger RC&D, should address stormwater management issues and problems in the city.
- ◆ The DNR and other partners should investigate ways to reduce sediment loading to **Pigeon Creek**.

### **Protecting and Improving Water Quality and In-Stream Habitat**

- ◆ The DNR, with the assistance of Integrated Science Services staff, should conduct basin monitoring to assess existing instream fisheries and instream habitat conditions should be done for the **Middle Grant River watershed** focusing on **Pigeon Creek, Hackett Branch, and Blake Fork**.
- ◆ The DNR should identify and recommend reaches on the **Pigeon Creek and Blake Fork** for possible bank, riparian buffer area, and instream habitat improvements/restoration in order to improve smallmouth bass potential of these streams.
- ◆ The following streams should be monitored, evaluated, and considered for possible addition to the state's list of impaired waters by the year 2002 as required by section 303(d) of the Federal Clean Water Act: **Blake Fork, Grant River, and Pigeon Creek**.
- ◆ The DNR should monitor **Grant River, Hackett Branch and Pigeon Creek** to track the status of state endangered, threatened species and state species of concern.
- ◆ The **City of Lancaster**, with the assistance of the DNR, Southwestern Wisconsin Regional Planning Agency, and Southwest Badger RC&D, should address stormwater management issues and construction site erosion.

### **Outdoor Recreation, Wildlife Habitat and Protecting Open Space and Farmland**

- ◆ Grant County with the assistance of the Grant County UW-Extension office, Southwest Wisconsin Regional Planning Commission, and the Southwest Badger Resource Conservation and Development should investigate the feasibility and desirability of developing and promoting a county canoe trail on the **Grant River**.

- ◆ The DNR, working with Grant County LCD, local conservation groups and landowners, should identify and develop projects that improve smallmouth bass fishing in the watershed by improving instream and riparian habitat and reducing sediment loading to **Pigeon Creek**.
- ◆ The DNR, in partnership with local governmental agencies and local conservation groups, should identify opportunities to provide public access on reaches of **Pigeon Creek**.