

HONEY CREEK WATERSHED (LW16)

The Honey Creek Watershed lies in southern Sauk County. The streams in the upper portion of the watershed have a fairly good gradient. The south slope of the Baraboo (South) Range, a Precambrian inlier set of hills, is partially within the watershed. These hills are heavily wooded and contain unique sub-ecosystems with rare plant species. Overall population in the Honey Creek Watershed for 2000 was estimated to be just over 11,000 people. The watershed is seeing some rapid growth.

Table 1: Growth in Municipalities in the Watershed

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Plain	691	792	15%
Prairie du Sac	2,546	3,231	27%
Sauk City	3,019	3,109	3%

Agriculture, specifically dairy farming, is the predominant land use. Broad-leaf deciduous forest is the second highest land cover in the watershed after crops.

Table 2: Land Cover in the Watershed

<i>Land Cover</i>	<i>Percent of Watershed</i>
Agriculture	42.8%
Forest (Total)	37.9%
<i>Broad-Leaf Deciduous</i>	<i>36.9%</i>
<i>Coniferous</i>	<i>1.0%</i>
Grassland	9.8%
Wetland (Total)	6.6%
<i>Emergent/Wet Meadow</i>	<i>3.4%</i>
<i>Forested</i>	<i>2.8%</i>
<i>Lowland Shrub</i>	<i>0.4%</i>
Open Water	1.6%
Development	1.2%

The major known water quality problem in the watershed is from nonpoint source pollution. The increasing siltation of streams is significant and Honey Creek discharges a large amount of sediment to the Wisconsin River. In addition, some streams in the watershed have had problems as a result of manure discharged nearby. Overall, the watershed is ranked as a medium priority with respect to nonpoint source pollution. Overall water quality in the watershed is poor and most of the tributaries to Honey Creek are considered warm water forage fisheries.

Watershed At A Glance

Drainage Area (m²): 234.0

Total Stream Miles: 187.2

Trout Stream Miles: 17.0

Sport Fishery Miles: 36.0

Lakes: White Mound Lake, Leland Millpond

Exceptional/Outstanding Resource Waters: Otter Creek

Municipalities: Sauk City, Prairie du Sac, Plain

Major Public Lands:

- ◆ Cassel Prairie Unit of LWSR
- ◆ White Mound County Park
- ◆ Natural Bridge State Park

Concerns and Issues:

- ◆ Nonpoint source pollution
- ◆ Stream ditching
- ◆ Impoundments
- ◆ Atrazine

Initiatives and Projects:

- ◆ Wild trout reintroduction
- ◆ Baraboo Hills project including forest management and habitat protection
- ◆ USGS Gauging Station

Several portions of the watershed lie within an atrazine prohibition area. One area lies just north of the East Branch of Honey Creek in Honey Creek and Sumpter townships. The East Branch Honey Creek runs through the middle of another atrazine prohibition area located in the Honey Creek Township. One final prohibition area lies on the Wisconsin River floodplain in Troy Township. These areas indicate that elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils are permeable which has allowed atrazine to reach groundwater in some locations. See Appendix B.

There are two municipal discharges in the basin. The village of Plain discharges to a tributary of Honey Creek. The Sauk-Prairie Sewerage Commission discharges to groundwater. There are three industrial discharges; Cedar Grove Cheese discharges to Honey Creek and Maize N Bacon and WZZ Flats, Inc. discharge to groundwater.

The Honey Creek Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), kept by the Bureau of Endangered Resources. These communities include:

- ◆ Cedar glade
- ◆ Dry cliff
- ◆ Dry prairie
- ◆ Hemlock relict
- ◆ Moist cliff
- ◆ Northern dry-mesic forest
- ◆ Sand barrens
- ◆ Southern dry forest
- ◆ Southern dry-mesic forest
- ◆ Southern mesic forest
- ◆ Alder thicket
- ◆ Emergent aquatic
- ◆ Ephemeral pond
- ◆ Floodplain forest
- ◆ Forested seep
- ◆ Northern wet forest
- ◆ Shrub-carr
- ◆ Southern sedge meadow
- ◆ Springs and spring runs, hard
- ◆ Stream, fast, soft and cold

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 1 species of beetle, 10 species of birds, 4 species of butterflies, 4 species of dragonflies, 17 species of fish, 1 species of frog, 9 species of mussels, 48 plant species, 4 species of snakes, 3 species of mammals 1 species of leafhopper, 2 species of caddisfly, 1 species of salamander and 1 species of stonefly. These plants and animals are also listed on the state's Natural Heritage Inventory (NHI).

The Cassel Prairie Unit of the Lower Wisconsin State Riverway is in this watershed. The unit is located just west of Sauk City and consists of 400 acres of public land that can be used for birdwatching, fishing, and prairie aesthetics. White Mound County Park is also found in the watershed. The park is 1,092 acres of state owned land and offers camping, hiking, birdwatching, fishing. Natural Bridge State Park is also located in this watershed.

STREAMS IN THE HONEY CREEK WATERSHED

East Branch Honey Creek

The East Branch of Honey Creek is a spring and seepage fed tributary to Honey Creek. The stream is currently considered a warm water forage fishery, although the stream historically was able to support a trout population. The degradation of the creek can be attributed to

straightening and siltation. Occasionally, larger sport fish such as mall walleyes, smallmouth bass and rock bass may move into the creeks lower reaches from Honey Creek.

Honey Creek

Honey Creek is a Class II trout stream for about 6 miles from Willow Road up to County Highway GG. Downstream from these trout waters, Honey Creek flows an additional 26 miles and supports a warm water sport fishery, and the seasonal migration of gamefish from the Wisconsin River during the summer. All of the tributaries that flow into Honey Creek are considered warm water fisheries. A rare aquatic species has been found in the creek in past surveys.

The creek has been affected by hydrologic modification. The upper reaches of the main branch of Honey Creek above the Village of Plain, and Shannahan Valley Creek, were dammed in 1970, forming the 104-acre White Mound Lake. This structure was built for flood and erosion control. This impoundment now supports a warm water fishery instead of a cold water fishery. The stream is also influenced by intense agricultural activities that take place adjacent to the stream and are suspected of causing habitat and water quality problems. Stream straightening, cattle trampling streambanks and subsequent bank erosion, cultivated fields up to the edge of Honey Creek and its tributaries, and wetland drainage have resulted in sedimentation problems in the stream. The most obvious example of this is the silt and sediment delta forming in the Wisconsin River at the mouth of Honey Creek. Manure handling and storage problems also exist on or near Honey Creek. In addition, Honey Creek receives industrial discharge from a cheese factory.

Fish surveys to determine the health of the stream downstream from the impoundment have found the stream to be poor, reflecting the warm water temperature that result from the impoundment and the impacts of agricultural land use. With a recent conversion of the discharge of White Mound Lake from a top (warmwater) to bottom (coldwater) draw, stream temperatures downstream to Plain have become more favorable for trout. A summer 2000 survey even found significant brown trout reproduction in one area of the stream. With easement purchases to eliminate cropping and grazing next to the stream and instream habitat improvement, this stretch of stream has potential for trout management again. (See White Mound Lake)

Muskrat Run

Limited information is available for this stream.

North Branch Honey Creek

This stream joins Honey Creek near the community of Witwen. The creek has been impounded to form the Leland Mill Pond. The North Branch of Honey Creek above the pond is identified as 4 miles of Class II trout water. Overall, however, the stream is heavily impacted by agricultural use in the watershed and experiences many of the same problems as Honey Creek. In addition, the creek has some problems with manure spills and it is likely that there are other barnyard and manure handling problems on or near the creek. Acquisition of the stream corridor and instream habitat improvement would benefit this area.

Otter Creek

The headwaters of Otter Creek are in a heavily wooded area of the Baraboo Hills, part of the driftless, or unglaciated, area of the state. Because much of the surrounding land is protected, the upper two to three miles of the creek are exceptionally pristine for this part of the state. This reach of Otter was one of the streams used to develop the Hilsenhoff Biotic Index for evaluating water quality because of the stream's exceptional water quality and the diversity of insect life in and around the stream. Approximately three miles are Class I trout waters and an outstanding resource water (ORW). The stream has a rock rubble substrate that supports a native brook trout fishery. Below the trout water, the stream leaves the driftless area and flows through Sauk Prairie, a lacustrine and outwash plain. The character of the stream changes as does adjacent land use activities. Cropland and bank erosion are habitat and water quality problems. Portions of the lower reaches of the stream dry up occasionally, and the heavy use of groundwater for agricultural irrigation is thought to be the cause. Otter Creek has been ranked as a high priority for nonpoint source pollution reduction. A rare aquatic species has been found in the creek in past surveys.

Shannahan Valley Creek

Shannahan Valley Creek is a spring and seepage fed tributary to Honey Creek. Shannahan Valley Creek was impounded in 1970 to control flood waters and soil erosion. This impoundment helped create White Mound Lake that is owned by Sauk County. The stream although once considered a cold water stream, currently supports a warm water forage fishery. A limited sport fishery may exist in the impounded section of the stream.

Sugar Grove Valley Creek

The creek is a spring fed tributary to Honey Creek. The stream has been extensively straightened and has problems with sedimentation and a lack of instream habitat. The stream is a warm water forage fishery, although it was managed for brown trout at one time.

Wilson Creek

Wilson Creek is a seepage fed stream that is tributary to the Wisconsin River. The creek has problems with nonpoint source pollution, especially during heavy precipitation. The stream has not previously been considered to be a trout stream but it has recently been recommended that the stream be upgraded to a Class II trout stream.

Wisconsin River

This watershed is adjacent to a portion of the Wisconsin River. There are USGS gauging stations on two tributaries near Prairie du Sac. For more information on the Wisconsin River, see page 90.

LAKES IN THE HONEY CREEK WATERSHED

Leland Millpond

The millpond is approximately 14 acres with a maximum depth of 8 feet. The impoundment was created in 1948 by damming the North Branch of Honey Creek. The average depth of the pond is has been decreasing as a result of instream siltation. In addition, the pond has some

problems with aquatic vegetation growth in the summer as a result of the high fertility. The pond frequently experiences some winterkill.

White Mound Lake

White Mound Lake is a 104-acre impoundment of a branch of Honey Creek in Sauk County. The lake is a major recreation resource in Sauk County and has suffered from water quality problems thought to be linked to nonpoint source pollution in the 4,474-acre watershed. White Mound Lake is one of four small impoundments that the Department of Natural Resources monitored from 1999 through 2000.

Monitoring has found that many problems in the lake and stream are the result of the impoundment. The water quality problems are mostly attributed to nonpoint sources of pollution from the watershed. This nonpoint pollution contributes to the high nutrient loading in the lake and monitoring has found that White Mound Lake has organically rich bottom sediments. This high level of nutrients causes the lake to be eutrophic. As a result, White Mound Lake tends to have problems with algae growth. Algae growth and high nutrient load is not only a problem in the lake, however. The stream, both upstream and downstream of the lake, also experiences high algal production. Temperature and dissolved oxygen levels are also affected by the impoundment. Low dissolved oxygen levels have also been found which can also be linked to increased nutrient loading and algal production in the lake and the creek. Impoundments also warm the water and negatively affect the macroinvertebrate community.

In an attempt to rid the lake of some of its nutrients, the impoundment at White Mound Lake has been restructured with a hypolimnetic discharge. The discharge is designed to try to maintain cooler temperatures downstream. At White Mound Lake, monitoring has found that this discharge has increased algal growth as a result of the discharge of the nutrient rich lake water. In addition, the discharge water has been likened to untreated wastewater and is described to have a dark septic color and a strong odor.

RECOMMENDATIONS (LW16)

- ◆ A brief qualitative aquatic plant survey on **White Mound Lake** is needed to determine the nature of aquatic plant growth in the lake.
- ◆ The impact of small impoundments on **Honey Creek** and **Shannanhan Valley Creek** should be continued to be monitored to find ways to modify the structure to improve water temperature and water quality.
- ◆ Cropping and grazing should be reduced and in-stream habitat should be improved along the portion of **Honey Creek** that contains naturally reproducing population of brown trout and the potential for trout management.
- ◆ Streambank and in-stream habitat improvement is needed along the **North Branch of Honey Creek**.

- ◆ **Otter Creek** should be considered for selection as a nonpoint source pollution reduction project through a program such as the TRM grant program.
- ◆ Baseline monitoring should be conducted on **Honey Creek, Otter Creek** and **Wilson Creek**.
- ◆ **Honey Creek, and Otter Creek** should be surveyed to determine if rare aquatic elements previously found in the streams are still present.
- ◆ Evaluate the effect of improper waste disposal on the creeks in the watershed.

WATERSHED MAP

Streams in the Honey Creek Watershed (LW16)

Sauk County

Area: 234 square miles

Stream Name	WBIC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/ Evaluated/ Unassessed	Data Level	Trend	Ref.*
										Source	Impact					
E. Br. Honey Cr.	1254200	11	WWFF	same	Part	DEF	same	N	N	NPS	HAB	NR	U		U	5, 9
Honey Creek	1253900	0-25.4	WWSF	same	Part	WWSF	same	N	Y	CL,PSB, SB	HAB	M	M (1993, 2000)	P1, B2	U	4, 5, 6, 11, 14, 15, 16, 19
		25.4-26.5	WWSF	same	Part	DEF	same	N		HM	HAB, TEMP				U	
		26.5-32.5	COLD II	same	Part	COLD II (26.5-30.7)	COLD II (30.7-32.5)	N							I	
		32.5-35	COLD	same	Part	DEF	same	N							U	
Muskkrat Run	1252400	1	U	U	U	DEF	same	N	N			NR	U		U	
N. Br. Honey Cr.	1255600	0-9	WWSF	same	Full	DEF	same	N	N	BY, CL, PSB, SB, HM	HAB	M	M	B2	U	5, 14, 16, 19
		9-13	COLD II	same	Part	COLD II	same	N							U	
		13-16	COLD	same	Part	DEF	same	N							U	
Otter Creek	1258400	0-17	WWFF	same	Part	DEF	same	N	Y	CL, PSB, NPS, HM	HAB	NR	E (1993)	P1	U	5, 9, 10, 11, 14, 15, 19
		17-20	COLD I	same	Full	COLD III/ORW	COLD I	N				H			I	
		20-21	COLD	same	Full	ORW	same	N							U	
		0-1	WWFF	same	Part	DEF	same	N	N	HM	HAB	NR	E	P1	U	5, 6
Shannah Valley Cr.	1257900	1-1.5	WWSF	same	Part	DEF	same	N							U	
		1.5-2	COLD	COLD II	Part	DEF	same	N							U	
		6	U	U	U	DEF	same	N	N			NR	U		U	
Sugar Grove Val. Cr.	1257200	0-0.4	LFF	same	Full	LFF	same	N	N			NR	U		U	16
		0.4-5	U	U	U	DEF	same	N							U	
Unnamed Trib to Honey Creek (T9NR4E,4)	1257100	2.2	U	U	U	DEF	same	N	N			L	U		U	11, 16
		84				DEF										
Unnamed Streams		84				DEF										
Total Stream Miles		187.2														
COLD		7														
COLD I		3														
COLD II		14														
WWSF		36														
WWFF		29														
LFF		0.4														
U		97.8														

***The numbers in this column refer to the References found in the corresponding Watershed Narrative. See Appendix J: "How to Read the Stream Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.**

Lakes in the Honey Creek Watershed (LW16)

Sauk County

Lake Name	WBIC	County	Surface Area (Acres)	Max Depth	Lake Type	Winterkill	Access	SH	Hg	MAC	LMO	TSI	Lake Plan or Prot	P Sens	Comments
Long Lake T08N R02E	1236600	Sauk/Rich	48	10	DG	N	BR			EW				2	
White Mound Lake	1258100	Sauk	104	16	DG	N	BF, P		R	EWM			PLAN	2	

See Appendix K: "How to Read the Lake Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.

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