NARROWS CREEK & BARABOO RIVER WATERSHED (LW22)

This watershed lies entirely within Sauk County. It includes the portion of the Baraboo River from Reedsburg to the west edge of Baraboo. Smallmouth bass fishing is considered a valuable asset to the watershed. The overall population in the watershed for 2000 was estimated to be around 12,500 people. Population growth in the watershed over the last decade was fairly high.

Table 1: Growth in Municipalities in the Watershed

Municipality	*1990*	*2000*	*% Growth*
Lime Ridge	152	169	11.2%
Loganville	228	276	21.1%
North Freedom	591	649	9.8%
Reedsburg	5,834	7,827	34.2%
Rock Springs	432	425	-1.6%

The majority of the watershed is agricultural. Dairy farming is the dominant agricultural activity. Other major land cover in the watershed includes broad-leaf deciduous forest and grassland. There are a few wetland areas in the watershed.

Table 2: Land Cover in the Watershed

Land Cover	*Percent of Watershed*
Agriculture	48.9%
Forest (Total)	30.8%
Broad-Leaf Deciduous	*30.0%*
Coniferous	*0.8%*
Grassland	13.5%
Wetland (Total)	4.2%
Emergent/Wet Meadow	*2.3%*
Forested	*1.3%*
Lowland Shrub	*0.6%*
Development	1.6%
Other	1.2%

Watershed At A Glance

Drainage Area (m^2): 175.0

Total Stream Miles: 175.6

Trout Stream Miles: 4.0

Sport Fishery Miles: 73.6

Lakes: Seeley and Virginia

Exceptional/Outstanding Resource Waters: none

Municipalities: Reedsburg, North Freedom, Rock Springs, Loganville, Lime Ridge

Major Public Lands: none

Concerns and Issues:
- Nonpoint source pollution – sediment and nutrient delivery
- Hydrologic modification
- Lack of adequate in-stream habitat

Initiatives and Projects:
- Narrows Creek and Baraboo River Nonpoint Priority Watershed Project

The water quality and sport fisheries in the watershed are significantly affected by nonpoint sources of pollution. As a result, the watershed has been ranked as a high priority for nonpoint source pollution reduction. The primary sources of nonpoint pollution in the watershed are from barnyard runoff and manure spreading practices and manure storage in the watershed has occasionally been a problem. As a result of the significant impact of nonpoint source pollution on the watershed, the watershed was selected for a nonpoint source priority watershed project. The project is jointly sponsored by the WDNR, the Department of

Agriculture, Trade and Consumer Protection, and the Sauk County Land Conservation Department. Watershed nonpoint source appraisal monitoring was completed in 1990 and 1991 and a plan detailing water quality and water resources goals of the project was approved in October 1992. So far, there has been a very high participation rate in the Narrows Creek priority watershed program.

There are several permitted point source discharges in the watershed. The communities of Reedsburg, North Freedom, and Rock Springs discharge to the Baraboo River. The Hillpoint Sanitary District discharges to Hillpoint Creek and the Lime Ridge and Loganville facilities discharge to Narrows Creek. The Sauk County Health Care center discharges to a tributary of Narrows Creek. The one industrial discharge, Foremost Farms, discharges to the Baraboo River. WDNR conducted a point source assessment monitoring on Baraboo River above and below the point source discharges in the city to determine the assimilative capacity of the stream. Effluent limits have been calculated for Reedsburg and area industries based on this wasteload assimilation study. These limits have been included in the municipal and industrial WPDES permits.

The Lower Baraboo River 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. Other interesting communities in the watershed include:

- Dry cliff
- Hemlock relict
- Moist cliff
- Northern dry-mesic forest
- Pine barrens
- Pine relict
- Sand barrens
- Southern dry forest
- Southern dry-mesic forest
- Southern mesic forest
- Floodplain forest
- Stream—fast, soft, cold
- Wet-mesic prairie

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 3 species of beetles, 6 species of birds, 2 species of dragonflies, 1 species of fish, 1 species of mussel, 22 plant species, 1 species of snake, and 1 species of salamander. These plants and animals are also listed on the state's Natural Heritage Inventory (NHI).

STREAMS AND RIVERS IN THE WATERSHED

Baraboo River

Just over 33 miles of the Baraboo River are in this watershed. The river supports a warm water sport fishery, is a major tributary to the Wisconsin River and is important as a smallmouth bass fishery and a canoe trail. As a result of the habitat fragmentation and other problems caused by the dams on the river, the two miles of the river that flows through the City of Baraboo has been listed on the state's list of impaired water. The final dam was removed in October of 2001. The water quality and fishery of this up-stream portion of the river is expected to improve as a result of the dam removals. As a result, it is anticipated that this portion of the river will be able to be "de-listed." Monitoring has shown that the dam removal has helped to restore the river from shallow, sluggish impoundments to faster

moving, riverine habitat. This restoration has also had a positive impact on fish and macroinvertebrate communities. The WDNR plans to continue to monitor the river to track continued changes in the macroinvertebrate community and in-stream habitat.

The river receives discharges from Foremost Farms, North Freedom, Reedsburg, and Rock Springs in the watershed. A rare aquatic species has been found in the river in past surveys.

Copper Creek
Copper Creek is a seepage and spring fed tributary to the Baraboo River although the water warms considerably before reaching the river. The stream is shallow with little aquatic habitat and is affected by nonpoint source pollution. The stream supports a warm water forage fishery.

Ela Valley Creek
Ela Valley Creek is a very small tributary to Narrows Creek. The stream supports a warm water forage fish population. Due to the size of the stream it is easily influenced by nonpoint sources of pollution such as barnyard runoff and streambank pasturing. The creek has been know to have some problems with dissolved oxygen. Baseline monitoring was conducted on the stream in 2001.

Hillpoint Creek
Hillpoint Creek is a seepage fed tributary to the headwaters of Narrows Creek. Smallmouth bass have been known to migrate from Narrows Creek to Hillpoint Creek. These fish constitute the sport fishery of Hillpoint Creek. The creek has sufficient habitat to support the bass. The creek does have some problems with streambank and cropland sources of nonpoint source pollution. The creek receives discharge from the Hillpoint Sanitary District. Baseline monitoring was conducted on the stream in 2001.

Hoot Owl Creek
Little information is available for this creek.

Narrows Creek
Narrows Creek flows about 18 miles from its sources near Hillpoint and Lime Ridge to its junction with the Baraboo River at Rock Springs. The creek has been heavily impacted by agriculture, particularly dairy farming practices and experiences heavy bank erosion and siltation during periods of rapid rainfall. As late as the early 1970s it supported a respectable smallmouth bass fishery, which has since declined. Recently the watershed has received attention from a priority watershed project administered by the Sauk County Land Conservation Department (LCD). Now seven years into the project, which expires in 2004, 45% of the eligible landowners have signed up for improvement practices such as new barnyards, the stabilization of streambanks, and installation of grassed waterways, with about 50% of the jobs completed. To date 65% of the phosphorus removal goal has been met and 60% of the sediment removal goal has been achieved. In addition, a few watershed and stewardship easements have been purchased from landowners. This has allowed 160 acres of wetlands to be restored to date. Also WDNR fish management has conducted smallmouth bass habitat improvement on approximately 2 miles of Narrows Creek. Early evaluation

showed a 3-9 times increase in the bass population in one area compared to two control areas. With more streambank easement acquisition, more work can be accomplished. Fish analysis throughout the watershed typically ranks the stream as fair rating, which shows the need for further improvements. Low dissolved oxygen has been documented for short periods of time which probably reflects agricultural waste episodes. These have devastating consequences on aquatic life.

It is anticipated that with the ongoing removal of the last remaining dams on the Baraboo River, the Narrows Creek fishery will benefit from summer migrations, particularly of catfish, smallmouth bass and walleye species, which will utilize the habitat of Narrows Creek. Baseline monitoring was conducted on three tributaries to Narrows Creek in 2001. A rare aquatic species has been found in the creek in past surveys.

Narrows Creek receives discharges from the communities of Lime Ridge and Loganville. Sauk County Health Care discharges to a tributary of Narrows Creek.

Pine Creek
The creek is a small spring fed tributary to Skillet Creek. The creek supports a warm water forage fishery and data collected in 1998 determined the quality of the stream to be fair to good.

Seeley Creek
The upper 4 miles of Seeley Creek have been managed as stocked, trout water. Three of these miles are Class I and one mile is a Class II. The upper-most portion, until the mid 1980s, supported a little known, outstanding natural brown trout fishery. At that time the water level dropped drastically. Locals feel this decline is due to heavy blasting in a quarry near Rock Springs. Regardless, the water level decline was associated with a major reduction in this trout fishery. During the 90s wild brown trout adults were transferred into this area and successful natural reproduction is once again occurring. Active farming of much of the upper watershed has disappeared and restricted land use easements (i.e. pasturing, cropping, and logging) would now be appropriate on the surrounding land to preserve this “little gem.” Downstream drift of natural reproduction of the upper area should increase the fishery downstream around Highway W. Farther down, the stream is impounded to create the 49-acre Seeley Lake, a eutrophic, weedy impoundment that supports a warm water sport fishery.

Skillet Creek
Skillet Creek is a tributary to the Baraboo River. The creek supports a population of warm water forage fish. A fish survey conducted in 1998 indicated that the stream had fair water quality for warmwater fish.

Spring Valley Creek
Spring Valley Creek is a tributary to Narrows Creek. The creek is sandy and small pools have silted in. The creek supports a population of warmwater forage fish. The majority of the sub-watershed has been cultivated and overall, the creek has problems with nonpoint sources of pollution. Baseline monitoring was conducted on the stream in 2001.

LAKES IN THE WATERSHED

Seeley Lake
This 49-acre lake is an impoundment of Seeley Creek, just south of North Freedom. The lake was created to provide opportunities for sport fishing in the area. The Department of Natural Resources stocked the lake with northern pike, largemouth bass and bluegills. The lake experiences heavy nonpoint source pollution that has caused siltation. The impoundment is eutrophic as a result of this pollution and experiences excessive growth of weeds. The lake has also had problems with dissolved oxygen levels. Public access to the lake is available at a public boat ramp.

Lake Virginia
Virginia Lake is a 35-acre impoundment on a tributary to the Baraboo River located just east of Copper Creek. The lake was created by a real estate agency to promote private development in 1969. The lake contains largemouth bass and panfish. The lake experiences problems with aquatic plant management. To deal with this, the aquatic plants in the lake are harvested. There is a Lake Virginia Management District.

RECOMMENDATIONS (LW22)

- Baseline monitoring should be conducted on streams in the Narrows Creek watershed; specifically **Hillpoint Creek, Narrows Creek, Seeley Creek** and **Skillet Creek**.
- Upland best management practices should continue to be installed throughout the watershed to decrease the volume of nonpoint source pollution that reaches the surface waters.
- The small waterfall on **Skillet Creek** should be examined for restoration and/or tourism potential.
- More instream habitat work on should be conducted on **Narrows Creek**.
- Condition monitoring should be conducted on **Seeley Lake** to determine the health of the sport fishery.
- The **Baraboo River** and **Narrows Creek** should be surveyed to determine if rare aquatic elements previously found in the streams are still present.
- The two-mile stretch of the **Baraboo River** designated as "impaired" should be removed from the 303d list.
- Opportunities for canoeing on the **Baraboo River** should be improved.

WATERSHED MAP

Streams in the Narrows Creek and Baraboo River Watershed (LW22) Sauk County Area: 175 sq 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/ Unassessd	Data Level	Trend	Ref.*
										Source	Impact					
Baraboo River	1271100	28.8-62.4	WWSF	same	Part	WWSF	same	N	Y	NPS	HAB	NA	U		U	4, 5, 9
Copper Creek	1278400	6	WWFF	same	Part	DEF	same	N	N	NPS ,HM	HAB, TEMP	NA	M	B2	U	4, 5, 9, 11
Ela Valley Cr.	1277400	4	WWFF	same	Not	DEF	same	N	N	NPS , PSB, BY	HAB, DO	NA	M (2001)	B4, H2	U	4, 5, 9, 11
Hillpoint Creek	1277700	5	WWSF	same	Part	WWSF	same	N	N	NPS , PSB, SB, CL	HAB	NA	M (2001)	B4, H2	U	4, 5, 9, 11
Hoot Owl Creek	1275200	1	U	U	U	DEF	same	N	N			NA	M (1998)	B2	U	
Narrows Creek	1276400	23	WWSF	same	Part	WWSF	same	N	Y	NPS , PSB, SB, CL	HAB,DO	NA	M (1998)	B2	U	4, 5, 9, 11
Pine Creek	1274400	5	WWFF	same	Full	DEF	same	N	N	NPS	HAB	NA	M (1998)	B2	U	4, 5, 9, 11
Seeley Creek	1275300	0-12	WWSF	same	Part	DEF	same	N	N	NPS , HM	HAB, NUT, MIG, DO	NA	M	B2	U	4, 5, 9, 11, 14
		12-13	COLD II	same	Part	COLD II	same	N							U	
		13-16	COLD I	same	Full	COLD II	COLD I/ERW	N		BDAM	TEMP				I	
Skillet Creek	1274300	8	WWFF	same	Part	DEF	same	N	N	NPS	HAB	NA	M (1998)	B2	U	4, 5, 9, 11
Spring Valley Creek	1277200	3	WWFF	same	Part	DEF	same	N	N	NPS	HAB	NA	M (2001)	B4, H2	U	4, 5, 9, 11
Unnamed Trib to Narrows Creek (T12, R4E, S34)	1276800	0-0.8	LFF	same	Part	LFF	same	N	N	NPS	HAB	NA	M (2001)	B4, H2	U	5, 9, 11
		0.8-3.8	U	U	U	DEF	same	N							U	
Unnamed Trib to Narrows Creek		0-0.75	WWFF	same	Part	WWFF	same	N	N	NPS	HAB	NA	M (2001)	B4, H2	U	5, 9, 11
		0.75-2.5	LAL	same	Part	LAL	same	N							U	
Unnamed streams		64.7				DEF		N								

Total Stream Miles	175.6
COLD I	3
COLD II	1
WWSF	73.6
WWFF	26.75
LAL	1.75
LFF	0.8
U	68.7

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

Lakes in the Narrows Creek and Baraboo River Watershed (LW22) **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
Virginia Lake	1278700	Sauk	35	15	DN	Y	BR	X			DIST	54	PLAN	1	planning grant

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

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