

Water Resources of the Koshkonong Creek and Mauneshia River Watersheds

Watershed Descriptions

Map of the two watersheds needed

The Koshkonong Creek-Mauneshia River watersheds are in northeastern Dane County. It is in the drumlin and wetland physiographic region of the glaciated part of south-central Wisconsin. This physiographic region can be described as having interconnected wetlands drained by sluggish streams and bounded by drumlins. This area was covered by the Green Bay ice lobe during the last glacial age. Depth of the glacial till is generally less than 100 feet¹. Drumlins, low elongated glacial till hills formed during the last great ice age 10,000 to 12,000 years ago, generally run northeast to southwest in the two watersheds. This area is in the DNR designated Southeast Glacial Plains Ecological Landscape². Historically, vegetation of the Southeast Glacial Plains consisted of a mix of prairie, oak savanna and maple-basswood forests. Wet-mesic prairies, southern sedge meadows, emergent shallow water marshes and occasional calcareous fens were found in low areas.

Base flow in streams in the watersheds is generally low and water temperatures are warm because groundwater recruitment is minimal³. Many of the named and tributary streams have been ditched and straightened and wetlands drained to facilitate draining for agriculture.

Landuse in the two watersheds is predominantly agricultural with dairying the major agricultural activity. The soils of northeastern Dane County are highly productive. The two primary soil associations are the Dodge-St. Charles-McHenry association and the Bavaria-Houghton-Dresden association. The drumlin slopes and tops have well-drained to very well-drained mineral soils. Soils of the low areas between drumlins range from somewhat poorly-drained and poorly drained wet mineral soils to very poorly drained organic soils such as Houghton muck. Principle crops of the watershed are corn, soybeans and alfalfa. Research in Wisconsin has shown that concentrations of phosphorus (P) and nitrogen (N) in streams increase as the percentage of agricultural land increases in the watershed⁴. This affects the quality of the biotic communities of the streams and of downstream receiving waters such as the Marshall Millpond, Lake Koshkonong and the Crawfish River.

The Upper Koshkonong Creek has seen significant population growth over the last 20 years resulting in the conversion of predominantly agricultural land to residential and commercial uses. Incorporated areas totally or partially in the watersheds are the City of Sun Prairie, and the

¹ Schultz, 1986.

² WDNR, 2006. <http://www.dnr.state.wi.us/landscapes/>

³ Dane County Regional Planning Commission, 1992.

⁴ Robertson, et.al., 2006.

villages of Cottage Grove, Marshall, Cambridge and Rock Springs. Table ____ below shows population changes of cities, villages and towns in the two watersheds.

Maunsha River Watershed

Maunsha watershed map

Maunsha River. The Maunsha River rises along the Dane-Columbia county line in northeastern Dane County. It flows southeasterly through the towns of Bristol, York and Medina into Jefferson County eventually emptying into the Crawfish River. The Maunsha River watershed drains about 88 square miles of primarily agricultural land in Dane County. The only incorporated community in the watershed is the Village of Marshall, whose wastewater treatment plant has a surface discharge to the river. Other streams in the watershed are Schumacher Creek, Spring Creek, and Stansky Creek. There are also several unnamed tributaries, most of which have been ditched and straightened for agricultural purposes. The ditching and straightening has resulted in the loss or conversion of wetlands, primarily to agricultural land.

Landuse in the Maunsha River watershed is predominately agricultural with 70% of its land in agriculture⁵. Corn and soybeans are the primary crops. Soils in the watershed range from well-drained to very well-drained soils on the drumlin hills to poorly-drained to very poorly drained wet mineral and organic soils in low areas between drumlins. Each of the three towns through which the Maunsha flows have shown reductions in erosion and soil loss since 1988⁶. However, soil erosion resulting in nutrient loading to the river and downstream waters is still a significant problem.

The Maunsha is a shallow meandering gradient river. Much of its length above Elder Lane has been ditched and straightened to facilitate and improve agricultural drainage. It has several unnamed channelized tributaries to it, particularly above the Marshall Millpond. The stream channel is natural and the gradient increases with occasional riffles between Elder Lane and the Deansville Marsh State Wildlife Area. The Maunsha has been ditched and straightened through the Deansville Marsh. There is a calcareous fen in the Deansville Fen State Natural Area that is assumed it provides some additional base flow to the river. There are other small springs in the watershed that provide additional limited baseflow⁷. The river meanders from Deansville Marsh to the Dane-Jefferson county line, passing through the Marshall Millpond.

⁵ Jones, 2008.

⁶ Dane County Land & Water Resources Department, 2008

⁷ Dane County Regional Planning Commission, 1988

A portion of the watershed from Deansville Marsh downstream is in the the DNR proposed Glacial Heritage Area⁸. The Maunsha is also listed as a water or "paddling" trail by Dane County⁹.

Maunsha River at Twin Lane Road



The 1992 Appendix B considered water quality of the Maunsha River to be generally good. It expressed a concern regarding the possibility of nighttime DO sags and low-flow conditions that could affect instream habitat and water quality¹⁰.

The Department of Natural Resources (DNR) has classified the Maunsha as Warm Water Sport Fishery (WWSF) stream that is not supporting its existing or potential use¹¹. Dane County has classified the Maunsha as a class I stream¹² with protection as its general management objective¹³. The DNR placed the Maunsha River on the state state's list of impaired waters¹⁴ in 1998. Phosphorus and sediment pollutants were thought to be causing dissolved oxygen (DO) and degraded habitat impairments in the river. The DNR is developing a Total Maximum Daily

⁸ WDNR, 2009.

⁹ For more information about Dane County water trails, go to the Capitol Water Trails webpage <http://www.capitolwatertrails.org/index.php>

¹⁰ See the DCRPC's 1992 Water Quality Plan Appendix B for a more detailed description of pre-1992 conditions.

¹¹ Johnson, 2002.

¹² Go to http://danedocs.countyofdane.com/webdocs/PDF/capd/WBC_web.pdf to find more information.

¹³ Dane County Regional Planning Commission, 2007.

¹⁴ Section 303 d of the Clean Water Act.

Load (TMDL)¹⁵ to address the water quality impairments of the Maunesha and other streams in the Rock River Basin. A target instream phosphorus level of 0.125 mg/l is being proposed¹⁶ for the Maunesha River and for other larger, low gradient streams in the Rock River basin. This level is significantly above the reference¹⁷, background or potential, P value for streams recommended by Robertson et.al. of 0.03-0.04 mg/l for wadeable streams, but it reflects the realities of such low gradient streams in agricultural areas.

The USGS conducted water chemistry monitoring at one Maunesha River station downstream of USH 151 in 2002 and 2006. The results did not indicate a DO impairment at this location. Twelve DO measurements were taken in the two years with the DO ranging between 6.2 to 12.7 mg/l, with an average DO of 7.75 mg/l. Monitoring for total P showed a range of 0.07-0.23 mg/l with a Total P average of 0.17 mg/l. Organic nitrogen levels have declined between 1992 and 2006 while total phosphorus levels have increased somewhat based on USGS data. Suspended sediment levels in the stream have also declined significantly between 1992-2006¹⁸.

The DNR has done fish and habitat monitoring on the Maunesha and some of its unnamed tributaries. Biotic index monitoring was done in 1998 at two locations, in the vicinity of Greenway Road, upstream of the Deansville Marsh, and at CTH TT downstream of the marsh. The Hilsenhoff biotic index¹⁹ scores were 4.69 and 6.83 respectively²⁰. Fish IBI was also done at these two sites in 1998. Those IBI scores were 4.27 and 3.98 respectively. These scores indicate better water quality about the Deansville Marsh than below the marsh. This can be explained by noting higher stream gradient and riffles between Elder Lane and Greenway Road upstream of the marsh. A 2005 intermittent-IBI done at Muller Road in the headwaters area indicated “fair” water quality conditions. IBI Monitoring was done in 2007 at an unnamed tributary at Greenway Road north of Deansville Marsh. Intermittent IBI monitoring at the Greenway Road Site indicated good water quality and habitat conditions.

WQ Data tables needed here or in appendix at end.

Spring Creek rises in the Town of Deerfield and flows north to join the Maunesha River below the Marshall Millpond. Monitoring done in 1988 indicated “fair” water quality. No recent monitoring or assessment has been done. The DNR has classified it as a warm water forge fishery (WWFF) stream.

¹⁵ For an explanation of Wisconsin’s TMDL program, to to <http://dnr.wi.gov/org/water/wm/wqs/303d/pdf/TMDLOverviewFactSheet.pdf>

¹⁶ WDNR, 2006.

¹⁷ A stream or other water body reflecting natural conditions with few impacts from human activities and which is representative of the highest level of support attainable in the basin or ecoregion.

¹⁸ From CARPC summary of USGS monitoring station data.

¹⁹ Hilsenhoff, 1987.

²⁰ Data from WDNR SWIMS Data Base, 2010.

Stransky Creek. Stransky Creek is a small ditched that joins the Maunsha just upstream of the Marshall Millpond. It is classified as limited forage fishery (LFF) stream by the DNR. The stream has a low base flow. IBI Monitoring done in 2007 at two locations on Stransky Creek. Conditions at the Stransky Creek sites ranged from fair to very poor based on IBI and habitat scores.

Stoney Brook. Stony Brook is a small stream that rises on the Dane-Jefferson flowing south then east into Jefferson County where it empties into the Maunsha River in the Waterloo State Wildlife Area in Dodge County. It has been channelized for most of its length in Dane County. It has very low baseflow in Dane County. Water quality and instream habitat suffer due to agricultural runoff carrying sediment and nutrients to the stream. It has been placed on the state's 303(d) impaired waters list due sedimentation adversely affecting habitat. It is included in the Rock River TMDL plan.

Mud Creek originates in Dane County, flows northeast into Dodge County, and enters the Crawfish River. Three of Mud Creek's ten miles are in Dane County. The stream is classified as a warm-water forage fishery, but nonpoint pollution and associated habitat and sedimentation issues keep it from being classified as a warm-water sport fishery.

Nolan Creek is a 5 mile long stream in Dane County supporting a forage fish population. It flows northeast into Dodge County joining the Crawfish River near Danville.

Summary. Water quality conditions in the Maunsha River watershed appear to be holding steady and perhaps improving slightly. Measured DO values are good. Measured total P, while still above the DNR target, have improved slightly. Runoff from farm fields carrying sediment and nutrients is still the major source of pollution. Increasing buffer widths, particularly along ditched sections and tributaries, may help reduce sediment and nutrient loading, although significant additional water quality and instream habitat improvements may be difficult to achieve. Maintaining a 120-foot continuous stream buffer²¹, natural vegetation or a combination of natural vegetation and forage or biomass crops²², can improve water quality and instream aquatic communities. Buffers may also increase stormwater infiltration, especially if planted to deep-rooting native prairie vegetation. Planting native trees on drumlin slopes may also encourage more infiltration needed to maintain stream baseflow.

If the number and intensity of warm weather storm events increases as predicted by some, water quality improvements already gained may be lost due to increased and more intense runoff events. No evaluation of what impacts removal of the Waterloo Millpond dam had on instream habitat, water quality and fisheries downstream of the Marshall Millpond dam have been done.

²¹ Weigel, et.al, 2005.

²² Weigel, 2003.

Koshkonong Creek Watershed

Watershed map here

The Koshkonong Creek watershed is in the drumlin and marsh physiographic region of Dane County. The creek and its tributaries drain approximately 138 square miles in the drumlin-marsh area of eastern Dane County. Base flow in streams is generally low with warm water temperature due to low groundwater base flow inputs. The watershed includes part or all of the City of Sun Prairie, City of Edgerton, the villages of Cottage Grove, Cambridge and Deerfield, a number of small rural subdivisions, and the towns of Sun Prairie, Cottage Grove, Medina, Deerfield, and Christiana. Other named streams in the watershed are Mud Creek near Deerfield and Saunders Creek near Albion.

Land use is primarily agricultural and a large percentage of original wetlands have been drained for this purpose. There are several active agricultural drainage districts in the Koshkonong Creek watershed. This wetland loss, coupled with stream ditching and widespread use of field tiles, allows significant nutrient loadings to reach the watershed streams and downstream receiving waters. Soil loss in the towns of Sun Prairie, Deerfield and Medina has declined significantly since 1988 and there have been small improvements for some water quality parameters²³. Even so, water quality and instream habitat are still severely affected by agricultural sediment and nutrient loading.

Soil Loss map from LCD's Land and Water Management Plan(?)

Increasing stormwater flow and pollutant loading from urbanizing parts of the watershed may be becoming a problem. The Sun Prairie and Cottage Grove areas have seen rapid urbanization in the past twenty years. (See Table ____). The increase in impervious surfaces has resulted in increased runoff to receiving waters. New development in Dane County must meet the erosion and stormwater management requirements of the county's Erosion Control and Stormwater Management Ordinance. The ordinance²⁴, enacted in 2006, was developed to protect the county's surface and groundwater and wetlands. Stormwater management practices at new developments must be designed to meet pre-development runoff rates and trap 5 micron and larger particles and prevent them from getting into surface waters²⁵. Infiltration of runoff is encouraged in order to try to maintain stream base flow and temperature. New developments are required to have stormwater detention and retention ponds to reduce runoff reaching surface waters. No comprehensive review of the performance of these measures to determine their actual effectiveness.

²³ Data from CARPC files.

²⁴ Chapter 14, Dane County Code of Ordinances

²⁵ Dane County Land and Water Resources Department, 2007.

Koshkonong Creek

Koshkonong Creek rises on the south and east edge of the City of Sun Prairie. It flows southerly about 42 miles, draining about 138 square miles in eastern Dane County before joining the Rock River at Lake Koshkonong in Rock County²⁶. The creek has a very low gradient, 3.8 feet/mile and is mostly channelized above Rockdale. Below Rockdale the stream has a flatter gradient of 1.9 feet/mile and flows in its natural channel. There is a generally high quality floodplain forest in its lower reaches.

Landuse is predominately agriculture except near Sun Prairie and Cottage Grove, both experiencing rapid urban development. A 2004 report by the Dane County Regional Planning Commission modeled the potential impact of groundwater withdrawal on Koshkonong Creek baseflow²⁷. The 2030 simulated baseflow near Bailey Road would be 0 cubic feet per second (cfs) compared with an estimated 2004 baseflow of 0.24 cfs. This shows a need for new developments above Ridge Road in the Town of Cottage Grove to have stormwater practices that maximize stormwater infiltration in order to maintain existing stream base flow.

Koshkonong Creek is classified as a “limited aquatic life” (LAL) stream from its headwaters to CTH T where the classification changes to WWSF. Flow is intermittent in its headwaters reach with industrial cooling water contributing the only flow above the Sun Prairie WWTP. Much of its length above USH 18 at Cambridge is channelized and has minimal stream buffer. The stream has natural limiting conditions such as a flat gradient, low base flow and warm temperatures. A large percentage of the original wetlands in the watershed have been drained. The combination of drained wetlands, drainage ditches, fertile soil and field tiles allow significant loading of sediment and nutrients to surface water. Dane County Land Conservation Department information shows significant soil loss reduction in the towns²⁸ through which the creek flows. This is an indication of improved farming practices taking place in the watershed.

The Sun Prairie wastewater treatment plant (WWTP) discharge treated effluent to Koshkonong Creek, making it an effluent dominated stream in its headwater reach. The stream also receives urban stormwater runoff from Sun Prairie and Cottage Grove. Sun Prairie is in the process of upgrading its wastewater facility, improving the quality of its treated effluent. Additional monitoring will be necessary to determine if these improvements improve water quality.

Instream ammonia levels measured by USGS have declined significantly since 1992 at both Bailey Road near Sun Prairie and at Rockdale. Total phosphorus and suspended sediment have also declined between 1992 and 2006. DNR rotational monitoring done in late 2009 and early

²⁶ Information from the Dane County DCiMap, an online geographic information system (GIS) <http://dcimap.co.dane.wi.us/dcimap/index.htm>

²⁷ Dane County Regional Planning Commission, 2004.

²⁸ See the Dane County Land and Resource Management Plan, 2008.

2010 at Jefferson CTH O just east of the Dane-Jefferson line, showed an average total P to be 0.115 mg/l. The total P values ranged from 0.073 mg/l to 0.214 mg/l. The average total P is slightly below the target in the Rock River TMDL.

The headwaters reach of Koshkong Creek does not exhibit good water quality. Fish-IBI and HBI monitoring²⁹ done in 2000 at Bailey Road downstream of the Sun Prairie WWTP, a channelized headwaters reach, indicated poor water quality conditions (HBI=7.9; IBI=1.19), due to very significant organic pollution. USGS did water chemistry monitoring downstream of the Sun Prairie facility in 1999, 2003 and 2007. The data shows an improvement in total P loading to Koshkonong Creek. The average total P in 1999 was 2.08 mg/l, while in 2007 it had dropped to 0.39 mg/l. The 2007 total P levels are significantly above the proposed TMDL total P goal for low gradient streams in the Rock River basin. One aquatic invasive species has been found in the creek, the rusty crayfish³⁰.

Koshkonong Creek at CTH N



Macroinvertebrate monitoring at CTH TT (WWSF reach) in 1997 and 2003 showed HBI values 5.39 and 6.08 respectively indicating “fair” water quality but with fairly significant organic pollution. Fish IBI scores at the same sites and dates (2.99 in 1997 and 4.11 in 2003) also

²⁹ All IBI monitoring data are from the DNR’s SWIMS data base.

³⁰ Go to <http://dnr.wi.gov/invasives/aquatic/> for more information on invasive species in Wisconsin.

indicated “fair” water quality conditions. Other biotic index monitoring on Koshkonong Creek in Dane County indicate similar water quality conditions. (See Table __. __, BI Monitoring data). Downstream of Rockdale, Koshkonong Creek becomes more sluggish and meanders within its floodplain. There is a dense floodplain forest buffer that prevents significant grass stabilization of the bank, leaving the bank susceptible to erosion. Woody debris clogs the stream in spots in its lower reaches in Dane County and on into Jefferson and Rock counties.

Dane County has proposed to establish a Koshkonong Creek Natural Resources Area stretching from the south edge of the City of Sun Prairie south to Interstate 94. The purpose would be flood mitigation, wetland restoration potential and future recreational opportunities (Dane County, 2009). Dane County’s park and recreation plan and the DNR’s Glacial Heritage Area plan suggest establishing a “paddling” trail on Koshkonong Creek if access were improved. The plan also proposes to provide more shore fishing opportunities along the creek³¹.

Koshkonong Creek and Rockdale Millpond

The Rockdale Dam on Koshkonong Creek formed an impoundment of about 72 acres³² with a maximum depth of 5 feet and an average depth of about one foot. It is estimated that the impoundment had accumulated about 287,000 cubic meters of sediment. By 2000, sedimentation had eliminated much of the water retention potential of the impoundment and had created a delta at the upstream end of the impoundment³³. The dam was in poor condition and was breached in 2000 draining the impoundment and exposing mud flats. The DNR hoped the dam removal would result in enhanced water quality and biological integrity of Koshkonong Creek, restore the creek to a riverine nature, restore gamefish migration and improve fish habitat³⁴. The creek has been re-establishing a channel in the impoundment bed since dam breaching and removal. A study by Doyle et.al. on channel adjustments following dam removal found that dam removal resulted in 1.) the significant export of fine sediment downstream, and 2.) the conversion of the impoundment from a sediment sink to a sediment source. The sediment export was heaviest during the 72 hours immediately following the breaching. However, the sedimentation did not have a major effect on stream morphology downstream of the dam due to limited reservoir erosion.

The breaching of the dam and subsequent export of sediment did have a significant effect on unionid mussels³⁵. Removal of the dam led to high mortality for mussels both within the former impoundment and in downstream reaches due to silt smothering them (downstream) or exposure in the de-watered impoundment. One rare species, *Quadrula pustulosa*, was lost from the mussel community. The draining of the millpond also exposed some seepage springs that had

³¹ WDNR, 2009.

³² Another estimate of the impoundment area is 104 acres. See Orr and Koenig, 2006.

³³ Doyle, et.al., 2003.

³⁴ WDNR, 2002.

³⁵ Suresh et.al., 2004.

some high quality wetlands plants species and these areas should not be disturbed. Water Action Volunteers have been monitoring three locations on Koshkonong Creek looking at DO, temperature, a simplified biotic index and simplified habitat rating. DO monitoring by WAV members showed one instance where DO was below full aquatic life (FAL) standards at 4.5 mg/l over a four year period between 2005-2009. Limited WAV biotic index monitoring indicated generally “fair” water quality at the sites³⁶.

One of the goals of the Rockdale dam removal was to restore the exposed impoundment bed to prairie and woodlands. The exposed impoundment bed was seeded with Canada wild-rye to provide some cover, and with some wetland species shortly after the drawdown and the following spring. The impoundment site had significant plant growth in the first growing season after dam removal. There was an increase in the number of plant species (30) between 2001 and 2004 with 18 of them being native to Wisconsin. However, reed canary grass (*Phalaris arundinacea*) became more prevalent, but not dominant, by 2004³⁷.

Koshkonong Creek Upstream of Rockdale Dam Site



Koshkonong Creek Summary. Water quality conditions in Koshkonong Creek have remained steady or improved slightly over the past 10 years based on biotic indices information. IBI and HBI data indicate “fair” water quality. USGS water chemistry indicate a small improvement

³⁶ See the Water Action Volunteer website <http://www.uwex.edu/erc/wavdb/>.

³⁷ Orr and Koenig, 2006.

since 1999, although nutrient loading is still high and significantly above the phosphorus goal set in the Rock River TMDL. Water quality problems still exist. An indication of continuing problems is a significant amount of filamentous algae and aquatic plant growth noted at the Ridge Road and West Ridge Road crossings in June of 2010³⁸. Additional improvements could occur with more aggressive stormwater management measures in and around Sun Prairie, Cottage Grove and Deerfield, implementation of more conservation farming practices such as no-till, and having wider stream buffers. Wetlands restoration and increasing buffer widths, particularly along ditched sections and tributaries, may help further reduce sediment and nutrient loading, although significant additional water quality and instream habitat improvements may be difficult to achieve. Maintaining a 120-foot continuous stream buffer natural vegetation or a combination of natural vegetation and forage or biomass crops can improve water quality and instream aquatic communities. Facilities and operational improvements at the Sun Prairie wastewater treatment plant may improve water quality conditions of Koshkonong above CTH T. However, if the number and intensity of warm weather storm events increases as predicted by some, improvements already gained may be lost.

Increasing urban stormwater runoff from developing areas will also affect instream conditions. Sun Prairie, Cottage Grove, and the towns abutting them need to require stormwater control measures that limit runoff and promote infiltration. A broad study is needed to assess current conditions in Koshkonong Creek upstream and downstream of the former Rockdale millpond to develop an evaluation report documenting the changes to fisheries, stream morphology, water quality, aquatic communities and instream habitat 10 years after the removal of the Rockdale Dam.

Mud Creek

Mud Creek is a major tributary to Koshkonong Creek. It rises in the town of Pleasant Springs and flows northeast to join Koshkonong Creek northeast of the Village of Deerfield. The Deerfield WWTP discharges treated effluent to Mud Creek via an effluent channel. Mud Creek's watershed is about 22 square miles and is predominately agricultural. The stream has a low gradient of about six feet/mile. Much of the stream has been ditched and wetlands drained for agriculture. Polluted agricultural runoff is considered the primary threat to existing water quality³⁹. There is no measured flow data for Mud Creek. A large stand of Angelica (*Angelica atropurpurea*) was observed near Hillcrest Road⁴⁰ indicating a groundwater seep or fen helping to maintain the stream's limited baseflow. Extreme fluctuations in flow have been observed after major runoff events indicating the effectiveness of the agricultural drainage systems.

³⁸ Steve Fix personal observation, 2010.

³⁹ Johnson, 2002.

⁴⁰ Steve Fix, Personal Observation, 2010.

The DNR re-classified Mud Creek to warm water forage fishery (WWFF) stream in 1988 indicating some water quality improvement. Intermittent stream fish IBI scores calculated from 1998 and 2004 monitoring at Hillcrest Road indicate excellent water quality conditions at that location.

Saunders Creek

Saunders Creek rises in southeast Dane County and flows 10 miles south to join the Rock River south of Edgerton. It is a meandering creek draining 36 miles of predominately agricultural lands. Parts of the creek have been ditched and wetlands drained in its watershed. Polluted runoff from pastures and barnyards and erosion from fields, exacerbated by the ditching, carry sediments to the stream, affecting water quality. Some remnant wet meadows between Edgerton and Albion and above Albion still exist, providing limited Northern pike spawning habitat wetlands. The DNR has classified the lower 5 miles of the stream as warm water sport fishery stream (WWSF), although sedimentation has probably has a significant impact on instream habitat and water quality. Fish monitoring done in 2003 at USH 51 in Rock County showed a fish assemblage dominated forage fish with few game fish. HBI and IBI monitoring done near Edgerton in 1998 indicated “fair” water quality at that location.

Unnamed Tributary to Koshkonong Creek (Goose Lake Trib)

The Goose Lake Trib is a small stream rises along the Dane-Jefferson county line in the Town of Medina and flows south to empty into Koshkonong Creek in the Town of Deerfield. It has been channelized over most of its length. The stream flows through the Goose Lake Wildlife Area. Monitoring done in 1998 at CTH BB on the downstream end of the wildlife area showed intermittent IBI showed “excellent” water quality conditions. Two pollution intolerant species and one species on the state’s Special Concern list⁴¹, the banded killifish, were found. Populations of the banded killifish has been documented to be in decline in southern Wisconsin⁴²

⁴¹ “Special Concern” is a state endangered and threatened category. It indicates rare species with small populations in Wisconsin or whose population is in decline. For a complete explanation and list of all species, go to <http://dnr.wi.gov/org/land/er/biodiversity/> .

⁴² Marshall et al., 2004.

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