

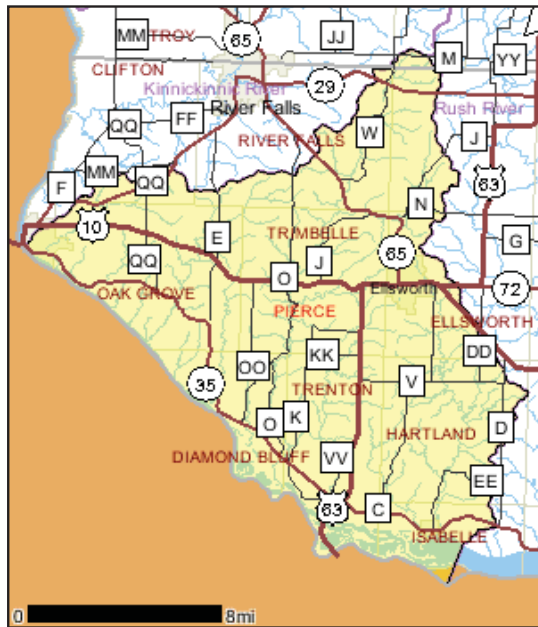
2011 Water Quality Management Plan Update

Lower Chippewa Basin, Wisconsin

December 2011

The Trimbelle River and Isabelle Creek Watershed drains 221 square miles in Pierce County. The character of this watershed has changed dramatically from pre-settlement times to the present. Forested acreage was dramatically reduced from 96% to less than one-quarter of the watershed area. As in the Rush River Watershed, increased runoff rates have led to reduced infiltration of precipitation and thus decreased stream habitat and increased water temperatures. Historic forest cover contributed to greater rates of infiltration, allowing greater spring flow to streams.

This watershed contains almost 63 miles of trout streams, some of which are either threatened or could be improved. There are no lakes in this watershed, except for backwaters found along the Mississippi River.



Map 1: Trimbelle River and Isabelle Creek Watershed



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Watershed Details

Population and Land Use

Land use in the Trimbelle River and Isabelle Creek Watershed is dominated by agriculture with 61% of land devoted to farmland. Only a quarter of the watershed’s area remains under forest cover. Open water, wetlands, and suburban areas encompass most of the remaining area in the watershed with eight percent, three percent, and two percent, respectively. Grasslands make up one-half of a percent of the watershed’s total area, while urban land use is minimal with only about one-quarter of a percent.

Table 1: Trimbelle River and Isabelle Creek Watershed Land Use

Land Use	Acres	Percent of Area
Agriculture	87,113.62	61.37%
Forest	35,091.46	24.72%
Open Water & Open Space	11,563.64	8.15%
Wetland	3,991.77	2.81%
Suburban	3,163.34	2.23%
Grassland	686.53	0.48%
Urban	324.92	0.23%
Barren	21.79	0.02%
Total Acres in Watershed	141,957.08	

Hydrology

Streams within the Trimbelle River and Isabelle Creek watershed have changed dramatically over the past century. Most streams during pre-settlement conditions likely contained self-sustaining native brook trout fisheries. During the early European settlement period, this region saw some logging for timber production and small dam building from milling operations. Following the logging and mill dam era, in the early and mid 1900's, intensive agricultural practices and severe flooding degraded stream habitat conditions and the health of the native coldwater fish communities. Flash floods have always been a problem on streams in west central Wisconsin due to the steep topography. Flooding conditions likely still impact stream resources, but they are not considered a main limiting factor because other streams within west central Wisconsin experience similar flood events and support very healthy coldwater fish communities. Within the past decade many streams in western Wisconsin have been improving. Changes in land use practices along with the installation of Best Management Practices (BMPs) in this portion of the state appear to be aiding in the recovery of coldwater fish communities.

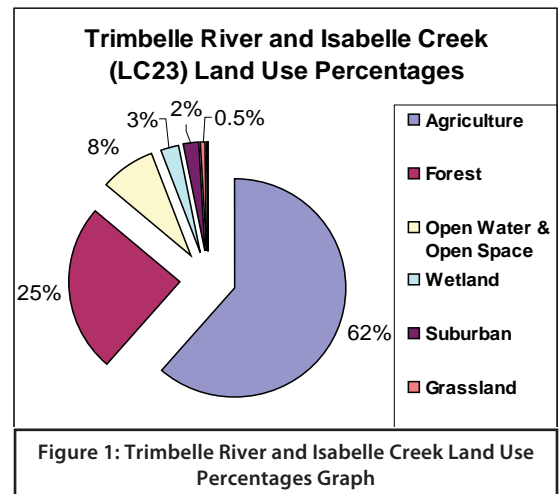
Ecological Landscapes

The Trimbelle River and Isabelle Creek Watershed is located in two Ecological Landscapes: the Western Coulee and Ridges and the Western Prairie.

The Western Coulee and Ridges Ecological Landscape in southwestern and west central Wisconsin is characterized by its highly eroded, driftless topography and relatively extensive forested landscape. Soils are silt loams (loess) and sandy loams over sandstone residuum over dolomite. Several large rivers including the Wisconsin, Mississippi, Chippewa, Kickapoo, and Black flow through or border this ecological landscape.

Historical vegetation consisted of southern hardwood forests, oak savanna, scattered prairies, and floodplain forests and marshes along the major rivers. With Euro-American settlement, most of the land on ridgetops and valley bottoms was cleared of oak savanna, prairie, and level forest for agriculture. The steep slopes between valley bottom and ridgetop, unsuitable for raising crops, grew into oak-dominated forests after the ubiquitous pre-settlement wildfires were suppressed. Current vegetation is a mix of forest (40%), agriculture, and grassland with some wetlands in the river valleys. The primary forest cover is oak-hickory (51%) dominated by oak species and shagbark hickory. Maple-basswood forests (28%), dominated by basswood and sugar and red maple, are common in areas that were not subjected to repeated pre-settlement wildfires. Bottomland hardwoods (10%) are common in the valley bottoms of major rivers and are dominated by silver maple, ashes, elms, cottonwood, and red maple. Relict conifer forests including white pine, hemlock, and yellow birch are a rarer natural community in the cooler, steep, north-facing slope microclimates.

The Western Prairie Ecological Landscape is located on the far western edge of the state just south of the Tension Zone; it contains the only true representative prairie potholes in the state. It is characterized by its glaciated, rolling topography and a primarily open landscape with rich prairie soils and pothole lakes, ponds, and wet depressions, except for forested areas along the St. Croix River. The climate and growing season are favorable for agricultural crops. Sandstone underlies a mosaic of soils. Silty loams, which



can be shallow and stony, cover most of the area. Alluvial sands and peats are found in stream valleys.

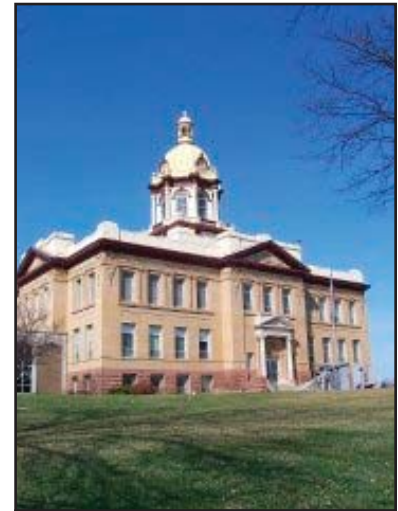
Historic vegetation was comprised of dry to mesic prairie grasses in the rolling areas and wet prairies in the broad depressions. Open oak savannas and barrens were found on the hilly topography, with small inclusions of sugar maple-basswood forest in small steep sites. Prairie pothole type wetlands were mainly found in St. Croix and Polk counties. Barrens were found along the river terraces of the St. Croix River. Almost half of the current vegetation is agricultural crops and almost a third of the area is grasslands, with smaller areas of open water, open wetlands, and urban areas. The major forest types are maple-basswood and oak-hickory, with smaller amounts of lowland hardwoods and lowland conifer.

Historical Note

The Village of Ellsworth with a population of approximately 3,200 people is located in the geographical center of Pierce County, in the Trimbelle River and Isabelle Creek Watershed. As the county seat for Pierce County, it is the hub of county activity with the presence of the county courthouse modeled after the Wisconsin State Capitol building. In 1984, the former governor, Anthony S. Earl, proclaimed Ellsworth the Cheese Curd Capitol of Wisconsin.

Ellsworth's first settler, Anthony Huddleston along with C.B. Bruce, E. M. Bruce, Wilson Kinney, and their families, built homes and set up businesses and by 1857 the Town of Perry was well established. Perry was later renamed Ellsworth, after Civil War Colonel, Elmer E. Ellsworth.

Ellsworth was platted as a village in 1862 and incorporated under the laws of Wisconsin in 1887. In 1885 the Omaha Railroad established a depot one mile east of Ellsworth and the community of East Ellsworth was formed. Ellsworth and East Ellsworth operated independently from one another for some time, now they function as one village.



Ellsworth County Courthouse

Watershed Condition

Overall Condition

There are over 66 miles of trout waters in the Trimbelle River and Isabelle Creek Watershed, including a five-and-a-half-mile stretch of the Big River classified as a Class I trout stream and a three-mile segment of Isabelle Creek, which is considered a Class III trout stream. All of the remaining trout streams are classified as Class II, including sections of Big and Trimbelle rivers and Trimbelle, Little Trimbelle, Spring, and Goose creeks. Over thirty miles of Exceptional Resource Waters exist within the watershed, with the vast majority of those miles occurring along the Trimbelle River (25 miles) and a minority along Big River. Wetlands account for over 3,850 acres in the watershed.

According to the WDNR's Register of Waterbodies (ROW) database, there are over 794 miles of streams and rivers in the Trimbelle River and Isabelle Creek Watershed; about 108 miles of which have been entered into the WDNR's assessment database. Of these 108 miles, over 56% are meeting Fish and Aquatic Life uses and are specified as in "good" condition. The condition of the remaining stream miles is not known or documented.

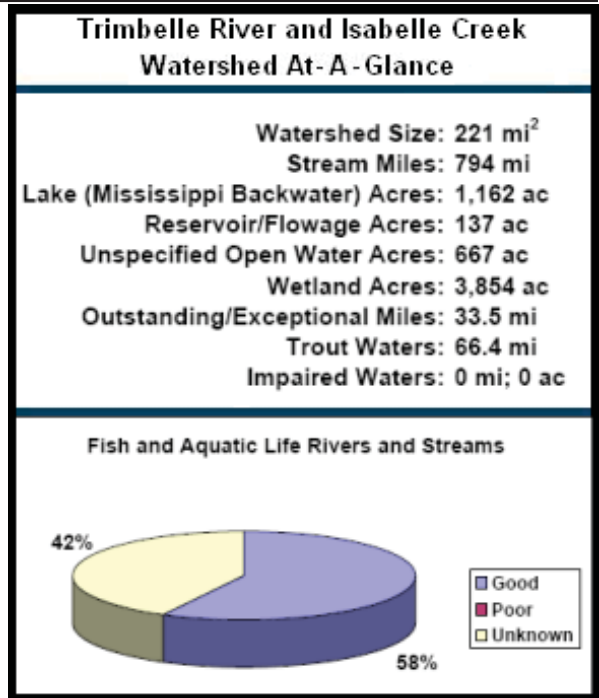


Figure 2: Trimbelle River and Isabelle Creek WAG

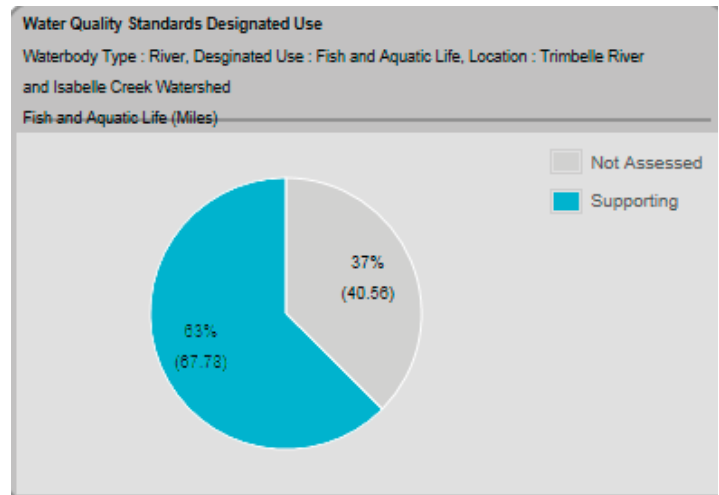
Additional uses for which the waters are evaluated include Fish Consumption, General Uses, Public Health and Welfare, and Recreation. As Table 2 shows, these uses have not been directly assessed for the watershed. However, a general fish advisory for potential presence of mercury is in place for all waters of the state.

Use	Fully Supporting	Supporting	Not Assessed	Total Size
Fish Consumption			108.34	108.34
Fish and Aquatic Life	14	46.97	47.37	108.34
General			108.34	108.34
Public Health and Welfare			108.34	108.34
Recreation			108.34	108.34

River and Stream Condition

Most streams in the watershed are classified as either cold or cool cold based on the natural community model. Headwaters of larger stream and smaller first order streams in the watershed are typically dry run channels. These dry runs are ephemeral in nature meaning flow is present following large runoff events. The length of dry channel is dependent on annual precipitation and corresponding groundwater inputs. During wet weather periods segments of these dry runs maintain streamflow as a result of groundwater inputs. If streamflow persists long enough and connects to a perennial downstream waterbody, aquatic life can establish while water is present. During dry years these same areas can lack water and aquatic life.

Overall, streams are supporting fish and aquatic life use (63% supporting, 37% not assessed). However streams that have been monitored show impacts including elevated water temperatures, bank erosion, sedimentation from agricultural lands, and lack of in-stream habitat. Historically, soil erosion from agricultural fields deposit substantial amounts of sediment in streambeds (Pierce County Land and Water Plan 2006).



Big River

Big River is an 11-mile-long stream that discharges directly to a Mississippi River backwater. The lower five miles are designated as a Class I trout stream and Exceptional Resource Water (ERW). The next three miles are designated as Class II trout water and the classification for the remaining three miles is unknown. The upper three miles are dry run. Biological data indicates the stream is in good condition and is one of the healthier streams in the watershed. A fish collection in 2005 resulted in a cold water fish index of biological integrity (fIBI) score of good (60) which indicates good water quality and habitat conditions in this stream. Macroinvertebrate sampling October 2013 indicates “good” condition. The upstream portions of the river indicate mixed conditions: te station at Big River at CTH 0, Mile 11 to 12.71, sampled in October 2010 indicates poor condition.

Big River is part of the Oak Grove Subwatershed. In 1985, this subwatershed had the highest average annual cropland erosion rate in the Pierce County at a level of 7.4 tons/acre/year. A watershed project in this area from 1985 through 1993 placed many acres into conservation tillage, contour farming, and grade stabilization practices. The Land Conservation Department reported in 2006 that the erosion rate in the Oak Grove subwatershed was 2.5 tons/acre/year (Pierce County Land and Water Plan, 2006). These practices reduced upland erosion and a positive effect by reducing sedimentation to streams.

Goose Creek

Goose Creek is a four-mile-long tributary to the Trimbelle River. Fish Management classified the stream in 2002 as a Class II trout fishery. Cold water fIBI collected in 2005 indicates the stream is in fair condition (40).

Isabelle Creek

Isabelle Creek is a tributary to the Mississippi River. The stream drainage originates north of Ellsworth; however, the channel is dry. The City of Ellsworth and the Ellsworth Creamery discharge treated effluent to the dry run channel of Isabelle Creek. The stream has multiple classifications. The stream is classified in NR 104 as Limited Aquatic Life (LAL) and Limited Forage Fish (LFF) variance waters from the outfalls downstream to County Highway V. This classification was put into code during the late 1970's. Fish Management classified the stream in 2002 as Class III trout water from a significant spring source 1.5 miles upstream from County Highway V downstream three miles. Historically this reach was not classified as trout water but recent data indicated a put-and-take trout fishery could exist. The Limited Forage Fish classification in NR 104 from the spring input downstream to County Highway V should be removed from NR 104 in recognition of the recent Class III fishery designation. The lower seven miles are classified as Class II trout water.

Isabelle Creek generally supports its designated uses and the most recent intermittent fIBI collected from in the LFF segment had a good score (80). The Isabelle Creek watershed had the highest upland soil erosion rates in Pierce County (Pierce County Land and Water Plan, 2006). Soil erosion from cropfields leads to sedimentation in streams and impacts water quality and stream habitat. Macroinvertebrate samples in 2011 and 2013 indicate generally good water quality with samples upstream of mile 8.5 fair to poor. These areas should be monitored more closely.

Little Trimbelle Creek

Little Trimbelle Creek is designated as a Class II trout water and is a tributary of the Trimbelle River. The upper stream drainage consists of ephemeral channels that flow following spring runoff and rain events. Groundwater inputs increase moving downstream and fishery data indicates the stream is in good condition (cold water fIBI scores of 70 and 80) and mIBI value indicating excellent condition in 2011.

Spring Creek

Spring Creek was designated as a Class II trout stream in 2002. The stream is a tributary to the Upper Trimbelle River. The upper stream drainage consists of ephemeral channels and groundwater inputs increase moving downstream. Fishery data indicates the stream is in fair condition (cold water fIBI score 30).

Trimbelle River

The Trimbelle River is a tributary to the Mississippi River and is the largest stream in the watershed. The entire stream is designated as an Exceptional Resource Water (ERW) and Class II trout stream. Fishery data indicates the lower stream reaches are in fair condition and upper reaches are good. Approximately the upper six miles of stream are dry. Macroinvertebrate data from 2011 indicate good to fair conditions in the lower miles of the stream (0 - 14); the upper reaches of the stream indicate good to fair condition, reflecting impacts from sedimentation, lack of in-stream habitat and elevated water temperatures.

Erosion from streambanks and upland cropfields are sources of sediment to the Trimbelle River. Historically, the watershed was mostly forested, but now over 60% of the land use is agriculture and only 25% is forested. The conversion of land use from forest to agriculture deposited substantial amounts of sediment into stream valleys. Sedimentation impacts aquatic life by creating wide and shallow stream channels, reducing cover for fish and burying fish spawning and aquatic insect habitat. Trimbelle River water temperatures are warmer than temperatures found in other high quality trout streams. The wide and shallow stream channel promotes warmer temperatures through solar radiation. Cold water temperatures are essential to cold organisms like trout and mottled sculpin.

Wind River

Wind River's natural community isn't currently defined but fish collection data indicates that this river can support a health cold water aquatic community (cold water fIBI score 50).

Lake Health

The WDNR's ROW database shows that there are over 1,162 acres of Mississippi River backwaters in the Trimbelle River and Isabelle Creek Watershed, including Dead Slough, Goose Lake, Mud Lake, Lily Pond, and 92 acres of Lake Pepin. Reservoirs and flowages, including Gantenbein Lake, total 137 acres and unspecified open water accounts for another 667 acres within the watershed. Approximately 1,584 acres of riverine backwaters, two and a half acres of impoundments, and less than one acre of lakes are entered into the state's assessment database. No lakes, impoundments, or riverine

backwaters in the watershed have been assessed for fish and aquatic life use or any other use.

Gantenbein Lake

Gantenbein Lake is a hard water drainage impoundment, located within the Mississippi River flood plain. This lake and lakes 19-15, 30-1, 30-11, 30-13, 30-15, and 30-16, are joined by dredge cuts. Water from the Mississippi River enters the system above Lock and Dam No. 3 and re-enters the river below the lock and dam. A water control structure is at the outlet of Lake 30-15. The normal water level fluctuation is 18 inches with the lakes being drawn down during winter, spring, and summer months and raised in the fall to flood vegetation. During the fall, all of these lakes appear as one large lake. With the exception of Lake 30-11, which has part of its shoreline owned by the federal government, the land around all of the lake is owned by a private hunting club and the area is managed for waterfowl. The water in Gantenbein Lake is alkaline and has a medium brown color and low transparency. Fish are brought in by flood waters, but its shallow depth and management suggests that it is a winterkill lake.

Wetland Health



Forested Wetlands (Photo courtesy of WDNR)

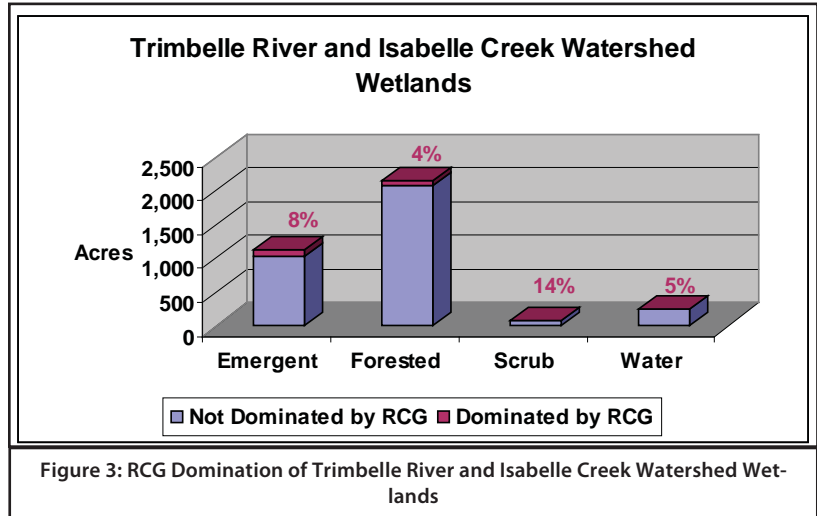


Figure 3: RCG Domination of Trimbelle River and Isabelle Creek Watershed Wetlands

Wetland Status

The Trimbelle River and Isabelle Creek Watershed is located in central Pierce County and runs slightly into St. Croix County. An estimated two percent of the current land uses in the watershed are wetlands. Currently, about 35% of the original wetlands in the watershed are estimated to exist. Of these wetlands, the majority are forested wetlands (59%), which include bogs and forested floodplain complexes characterized by trees 20 feet or more in height, such as tamarack, white cedar, black spruce, elm, black ash, green ash, and silver maple. Another 31% of wetlands in the watershed are emergent wetlands, which include marshes and wet meadows.

Wetland Condition

Little is known about the condition of the remaining wetlands but estimates of reed canary grass (RCG) infestations, an opportunistic aquatic invasive wetland plant, into different wetland types has been estimated based on satellite imagery. This information shows that reed canary grass dominates eight percent of the existing emergent wetlands and four percent of the remaining forested wetlands (See Figure 3). Reed canary grass domination inhibits successful establishment of native wetland species.

Wetland Restorability

Of the 6,791 acres of estimated lost wetlands in the watershed, the vast majority (97%) are considered potentially restorable based on modeled data, including soil types, land use, and land cover (Chris Smith, DNR, 2009).

Groundwater

The following groundwater information is for Pierce County (from Protecting Wisconsin's Groundwater through Comprehensive Planning website, <http://wi.water.usgs.gov/gwcomp/>), which roughly approximates to the Trimbelle River and Isabelle Creek Watershed. Bay City and Prescott are the only municipal water systems within the Trimbelle River and Isabelle Creek Watershed to have wellhead protection plans in place. Both cities also have wellhead protection ordinances

in effect. Furthermore, Pierce County has adopted an animal waste management ordinance.

From 1979 to 2005, total water use in Pierce County has increased slightly from about 4.2 million gallons per day to about 4.7 million gallons per day. The increase in total water use over this period is due primarily to increases in irrigation and industrial uses. The proportion of county water use supplied by groundwater has been consistently greater than 97% during the period 1979 to 2005.

Private Wells

Eighty-five percent of 379 private well samples collected in Pierce County from 1990 to 2006 met the health-based drinking water limit for nitrate-nitrogen. Land use affects nitrate concentrations in groundwater. An analysis of over 35,000 Wisconsin drinking water samples found that drinking water from private wells was three times more likely to be unsafe to drink due to high nitrate in agricultural areas than in forested areas. High nitrate levels were also more common in sandy areas where the soil is more permeable. In Wisconsin’s groundwater, 80% of nitrate inputs originate from manure spreading, agricultural fertilizers, and legume cropping systems.

A 2002 study estimated that 52% of private drinking water wells in the region of Wisconsin that includes Pierce County contained a detectable level of an herbicide or herbicide metabolite. Pesticides occur in groundwater more commonly in agricultural regions, but can occur anywhere pesticides are stored or applied. A total of 2,410 acres of land in Pierce County are in atrazine prohibition areas. Nine out of 10 private well samples collected in Pierce County met the health standard for arsenic.

Potential Sources of Contamination

There are no Concentrated Animal Feeding Operations (CAFOs) in the Trimbelle River and Isabelle Creek Watershed; nor are there any licensed landfills or Superfund sites within the watershed.

WDNR’s Remediation and Redevelopment (RR) Program oversees the investigation and cleanup of environmental contamination and the redevelopment of contaminated properties. The RR Program provides information about contaminated properties and other activities related to the investigation and cleanup of contaminated soil or groundwater in Wisconsin through its Bureau for Remediation and Redevelopment Tracking System (BRRTS) database (WDNR 2010e).

The database shows that there are five sites in the Trimbelle River and Isabelle Creek Watershed that are classified as “open”, meaning “contamination has affected soil, groundwater, or more and the environmental investigation and cleanup need to begin or are underway.” These sites include two Leaking Underground Storage Tank (LUST) sites and three Environmental Repair (ERP) sites. A summary of these sites is included in the table below.

Table 3: Open-status Bureau for Remediation and Redevelopment Tracking System (BRRTS) sites in the Trimbelle River & Isabelle Creek Watershed

WDNR BRRTS #	Site Name, Location	Start Date	Activity Type	Remediation Activities	Waste Activities	Substance
248547315	Precision Ag Services LLC., Ellsworth	05/15/2003	ERP	2	0	Unspecified (Activity Transferred to DATCP)
348109589	Russ LLE SSUR Co., Hager City	08/22/1996	LUST	1	0	Jet fuel; Gasoline - Unleaded and Leaded (Petroleum)
248547295	Deiss And Nugent Feed Co., Ellsworth	11/03/1993	ERP	3	0	Unspecified (Activity Transferred to DATCP)
248000408	Brickner Oil Co. - Bulk Facility, Ellsworth	08/26/1993	ERP	1	0	Unspecified soil contamination
348000386	Vickers Oil Former, Ellsworth	08/13/1990	LUST	1	0	Gasoline - Unleaded and Leaded (Petroleum)

The Petroleum Environmental Cleanup Fund Award (PECFA) program was created in response to enactment of federal regulations requiring release prevention from underground storage tanks and cleanup of existing contamination from those tanks. PECFA is a reimbursement program returning a portion of incurred remedial cleanup costs to owners of eligible petroleum product systems, including home heating oil systems. As of May 31, 2007, \$5,119,926 has been reimbursed by the Petroleum Environmental Cleanup Fund Award (PECFA) program to clean up 64 petroleum-contam-

inated sites in Pierce County. This equates to \$130 per county resident, which is less than the statewide average of \$264 per resident.

Point and Nonpoint Pollution

The Trimbelle River and Isabelle Creek Watershed is listed as a high priority overall for nonpoint source (NPS) pollution due to its listing as a high priority for groundwater and stream NPS pollution.

Waters of Note

Trout Waters

Class I trout streams are high quality trout waters that have sufficient natural reproduction to sustain populations of wild trout, at or near carry capacity. Consequently, streams in this category require no stocking of hatchery trout. These streams or stream sections are often small and may contain small or slow-growing trout, especially in the headwaters. Class II trout streams may have some natural reproduction, but not enough to utilize available food and space. Therefore, stocking is required to maintain a desirable sport fishery. These streams have good survival and carryover of adult trout, often producing some fish larger than average size. Class III trout waters are marginal trout habitat with no natural reproduction occurring. They require annual stocking of trout to provide trout fishing. Generally, there is no carryover of trout from one year to the next (<http://dnr.wi.gov/fish/species/trout/streamclassification.html>).

There are over 66 miles of trout waters in the Trimbelle River and Isabelle Creek Watershed, including a 5.5-mile stretch of the Big River classified as a Class I trout stream and a three-mile segment of Isabelle Creek, which is considered a Class III trout stream. All of the remaining trout streams are classified as Class II, including sections of Big and Trimbelle rivers and Trimbelle, Little Trimbelle, Spring, and Goose creeks. The table below lists the waterbodies and stream segments (starting from the mouth at mile 0) where these trout waters can be found.

WADRS ID	Waterbody Name	WBIC	Start Mile	End Mile	Trout Class	Trout ID
16336	Big River	2447600	0	5.5	CLASS I	1301
16337	Big River	2447600	5.5	8.1	CLASS II	2634
1470015	Big River	2447600	8.1	11	CLASS II	2634
1470038	Big River	2447600	11	12.71	CLASS II	2634
16334	Goose Creek	2447300	0	3.87	CLASS II	1300 (2008-112)
1470493	Isabelle Creek	2445000	0	2.9	CLASS II	2630
1470534	Isabelle Creek	2445000	2.9	6.4	CLASS II	2630
16326	Isabelle Creek	2445000	6.4	7	CLASS II	2630
1470611	Isabelle Creek	2445000	7	8.5	CLASS III	2630
3883474	Isabelle Creek	2445000	8.5	10	CLASS III	null
16331	Little Trimbelle Creek	2447100	0	5.3	CLASS II	2632
16332	Little Trimbelle Creek	2447100	5.3	9	CLASS II	2632
1471782	Little Trimbelle Creek	2447100	9	12.16	CLASS II	2632
16333	Spring Creek	2447200	0	2.6	CLASS II	2633
16329	Trimbelle River	2447000	0	14	CLASS II	null
1470245	Trimbelle River	2447000	14	20	CLASS II	2631
16330	Trimbelle River	2447000	20	21.13	CLASS II	2631
1470344	Trimbelle River	2447000	21.13	25.1	CLASS II	2631

Outstanding and Exceptional Resource Waters

Wisconsin has designated many of the state's highest quality waters as Outstanding Resource Waters (ORWs) or Exceptional Resource Waters (ERWs). Waters designated as ORW or ERW are surface waters which provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities. ORW and ERW status identifies waters that the State of Wisconsin has determined warrant additional protection from the effects of pollution. These designations are intended to meet federal Clean Water Act obligations requiring Wisconsin to adopt an "antidegradation" policy that is designed to prevent any lowering of water quality, especially in those waters having significant ecological or cultural value.

Outstanding Resource Waters (ORWs) typically do not have any point sources discharging pollutants directly to the water (for instance, no industrial sources or municipal sewage treatment plants), though they may receive runoff from nonpoint sources. New discharges may be permitted only if their effluent quality is equal to or better than the background water quality of that waterway at all times. No increases of pollutant levels are allowed. If a waterbody has existing point sources at the time of designation, it is more likely to be designated as an Exceptional Resource Water (ERW). Like ORWs, dischargers to ERW waters are required to maintain background water quality levels; however, exceptions can be made for certain situations when an increase of pollutant loading to an ERW is warranted because human health would otherwise be compromised (<http://dnr.wi.gov/org/water/wm/wqs/orwerw/>).

Over thirty miles of Exceptional Resource Waters (ERW) exist within the watershed, with the vast majority of those miles occurring along the Trimbelle River (25 miles) and a minority along Big River.

WADRS ID	Waterbody Name	WBIC	ORW/ERW	ORW/ERW ID	Start Mile	End Mile	Code Reference
16336	Big River	2447600	ERW	701	0	5.5	102.11(1)(d)26
1470015	Big River	2447600	ERW	null	8.1	11	null
16329	Trimbelle River	2447000	ERW	700	0	14	102.11(1)(d)26
1470245	Trimbelle River	2447000	ERW	700	14	20	102.11(1)(d)26
16330	Trimbelle River	2447000	ERW	700	20	21.13	102.11(1)(d)26
1470344	Trimbelle River	2447000	ERW	700	21.13	25.1	102.11(1)(d)26

Impaired Waters

There are no waterbodies listed as impaired within the watershed.

Fish Consumption

Wisconsin's fish consumption advisory is based on the work of public health, water quality and fisheries experts from eight Great Lakes states. Based on the best available scientific evidence, these scientists determined how much fish is safe to eat over a lifetime based on the amount of contaminants found in the fish and how those contaminants affect human health. Advisories are based on concentrations of the following contaminants along with angler habits, fishing regulations, and other factors. Pools 3 and 4 of the Mississippi River have had a specific fish consumption advisory in effect for polychlorinated biphenyls (PCBs) and perfluorooctanesulfonic acid (PFOs) since 2009.

Studies indicate that people exposed to PCBs are at greater risk for a variety of health problems. Infants and children of women who have eaten a lot of contaminated fish may have lower birth weights and be delayed in physical development and learning. PCBs may affect reproductive function and the immune system and are also associated with cancer risk. Once eaten, PCBs are stored in body fat for many years.

Aquatic Invasive Species

Zebra mussels have been verified and vouchered in Pepin Lake and the Mississippi River since 1991. Curly-leaf pond-

weed has also been documented in Pepin Lake since 2006.

Database Key	Name	Bio. Common Name	Status	Start Date	WBIC
24	Lake Pepin	Zebra Mussel	Verified and Vouchered	01/01/1991	731800
25	Mississippi River	Zebra Mussel	Verified and Vouchered	01/01/1991	721000
34926321	Lake Pepin	Curly-leaf Pondweed	Verified and Vouchered	12/30/2006	731800

Species of Special Concern

The following table contains federally-listed Threatened, Endangered, Proposed, and Candidate species found in Pierce County, in which the Trimbelle River and Isabelle Creek Watershed is located. A full list of special concern plants and animals for this watershed can be found on the state’s Natural Heritage Inventory (NHI).

Species	Status	Habitat	Taxa
Higgins eye pearlymussel (<i>Lampsilis higginsii</i>)	Endangered	St. Croix River, Mississippi River, Lower Wisconsin River	Mussel
Spectaclecase (<i>Cumberlandia monodonta</i>)	Proposed as Endangered	Chippewa, Mississippi, and St. Croix Rivers	Mussel
Prairie bush-clover (<i>Lespedeza leptostachya</i>)	Threatened	Dry to mesic prairies with gravelly soil areas	Plant

State Natural and Wildlife Areas

Pierce County Islands Wildlife Area

Pierce County Islands Wildlife Area is located one mile west of Bay City on the Mississippi River between Highway 63 and Bay City. Access is by river.

Trenton Bluff Prairie

Trenton Bluff Prairie consists of two separate dry prairies situated on steep Mississippi River sandstone bluffs capped by massive limestone cliffs. They are some of the best prairie remaining in the region. The western unit has two prairie openings separated by a wooded draw while the steeper eastern portion is much steeper and contains open cliff grading quickly into shrubby oak woods. The bluff summit rises some 300 feet above the flat, sandy river terrace below with vertical cliffs exposing the bedrock layers showing dolomite limestone atop the basal sandstone. Dominant grasses include Indian grass, little blue-stem, big blue-stem, side-oats grama, and needle grass. Located near the far western edge of the state, the prairie contains several Great Plains species at their eastern range limit here: foothill bladder-pod (*Lesquerella ludoviciana*), prairie sage-wort (*Artemisia frigida*), ground plum (*Astragalus crassicaarpus*), plains muhly (*Muhlenbergia cuspidata*), and prairie larkspur (*Delphinium carolinianum*). The state-threatened prairie thistle (*Cirsium hillii*) is also found here. The upper cliff area has numerous outcrop crevices that harbor several interesting fern species including slender lip fern and smooth cliff brake. Animal species of concern include the state-endangered peregrine falcon (*Falco peregrinus*), bullsnake (*Pituophis melanoleucus*), hognose snake (*Heterodon platyrhinos*), and two butterfly species, olive hairstreak (*Callophrys gryneus*) and Reakert’s blue (*Hemiargus isola*). Trenton Bluff Prairie is owned by the DNR and was designated a State Natural Area in 1977.

Watershed Actions

Grants and Projects

Grants in 2009 through 2012 include runoff management projects and shoreland management ordinance for St. Croix County.

Monitoring

Lakes Baseline and Trends Monitoring

River Monitoring to comply with Clean Water Act implementation - water quality standards: use designations, criterion, permit issuance and compliance, assessments, and impaired waters management.

Fisheries projects include a wide variety of "baseline" monitoring and targeted fieldwork to gain specific knowledge related to Wisconsin's fish communities.

In close cooperation with UW Extension and Wisconsin Sea Grant, education efforts focus on working with resource professionals and citizens statewide to teach boaters, anglers, and other water users how to prevent transporting aquatic invasive species when moving their boats. Additional initiatives include monitoring and control programs.



Fish Shocking on the North Fork of the Bad Axe La Crosse River. WDNR Photo.

Volunteer Monitoring

The Citizen Lake Monitoring Network, the core of the Wisconsin Lakes Partnership, involves over 1,000 citizen volunteers statewide. The goals are to collect high quality data, to educate and empower volunteers, and to share this data and knowledge. Volunteers measure water clarity, using the Secchi Disk method, as an indicator of water quality. This information is then used to determine the lakes trophic state. Volunteers may also collect chemistry, temperature, and dissolved oxygen data, as well as identify and map plants, watch for the first appearance of Eurasian water-milfoil near boat landings, or alert officials about zebra mussel invasions on Wisconsin lakes.

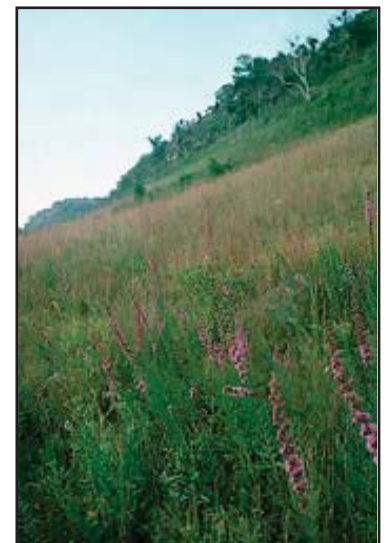
Monitoring work in this watershed consists of lake monitoring and surveys for water quality, aquatic plants, aquatic invasive species, and ice observations.

Basin/Watershed Partners

Partners in this watershed are the Pierce County Land and Water Conservation Department, the Trimbelle Rod and Gun Club, and the Kiap-TU-Wish Chapter of Trout Unlimited.

Recommendations

- The nonpoint source priority watershed selection committee should consider the Trimbelle River and Isabelle Creek Watershed a high priority for selection as a priority watershed project under the Wisconsin Nonpoint Source Water Pollution Abatement Program (Type B).
- District WRM should conduct a water quality standards review on the portion of Isabelle Creek headwater classified as a variance water, including macroinvertebrate sampling at Highway V (Type B).
- District Wastewater Management should include a private well survey and a sinkhole inspection in the next issuance of the city of Ellsworth WPDES permit (Type 4).
- WRM should conduct stream classification monitoring of Goose Creek (Type B)
- WDNR regional staff should continue to encourage communities to develop wellhead protection plans in the entire basin.



Trenton Bluff Prairie, Photo by Thomas Meyer (WDNR photo)

- Work toward eliminating stream bank erosion and other sources of stream sedimentation that would reduce bedload and improve fish habitat.
- Reduce damage from over grazing.
- Restore trout habitat using standard restoration techniques especially on the Trimbelle River.

Contributors

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Trimbelle River, Wisconsin.

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Wisconsin DNR's mission involves preserving, protecting, and restoring natural resources. Watershed Planning provides a strategic review of water condition to enhance awareness, partnership outreach, and the quality of natural resource management.

Trimbelle River and Isabelle Creek Watershed