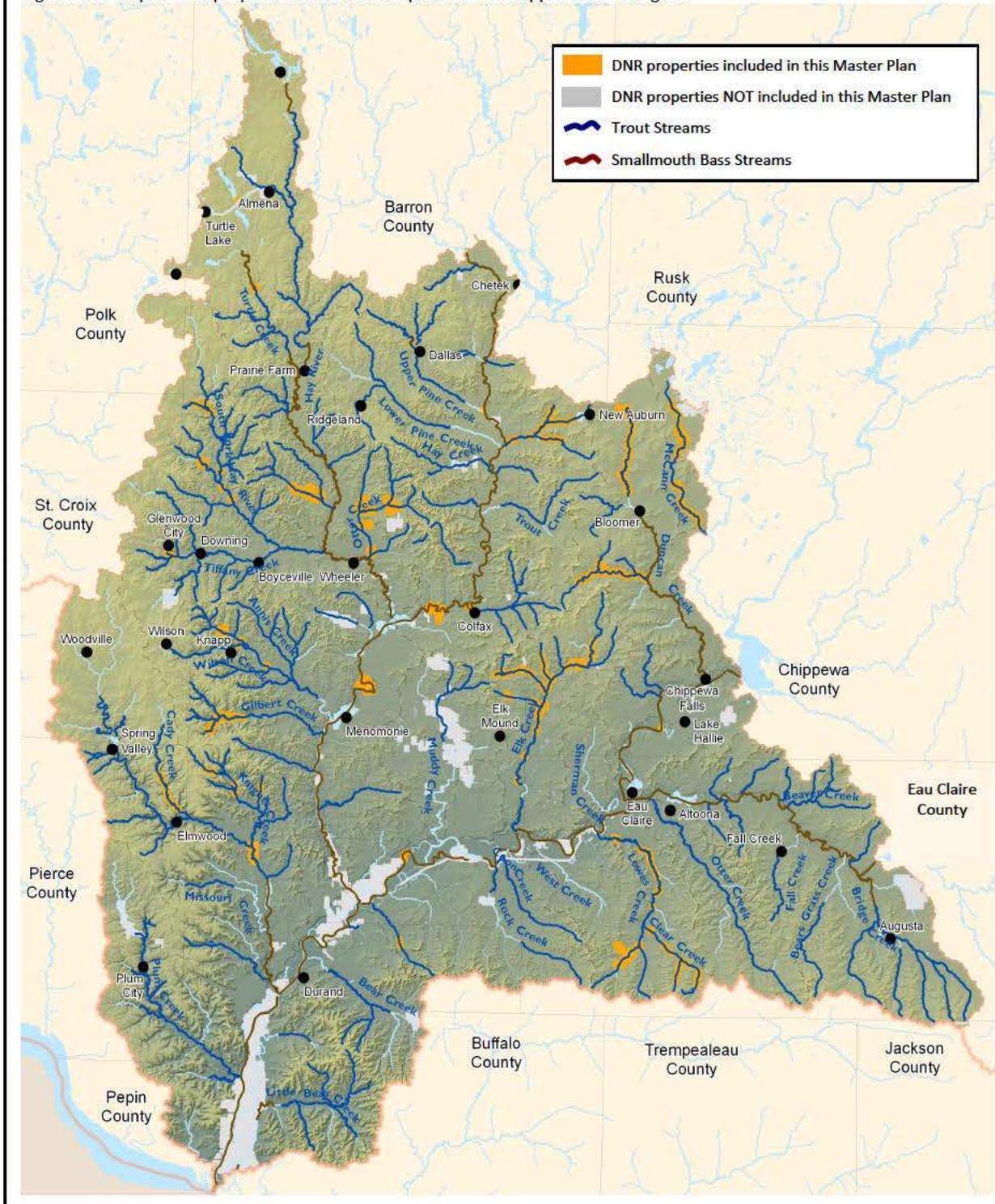


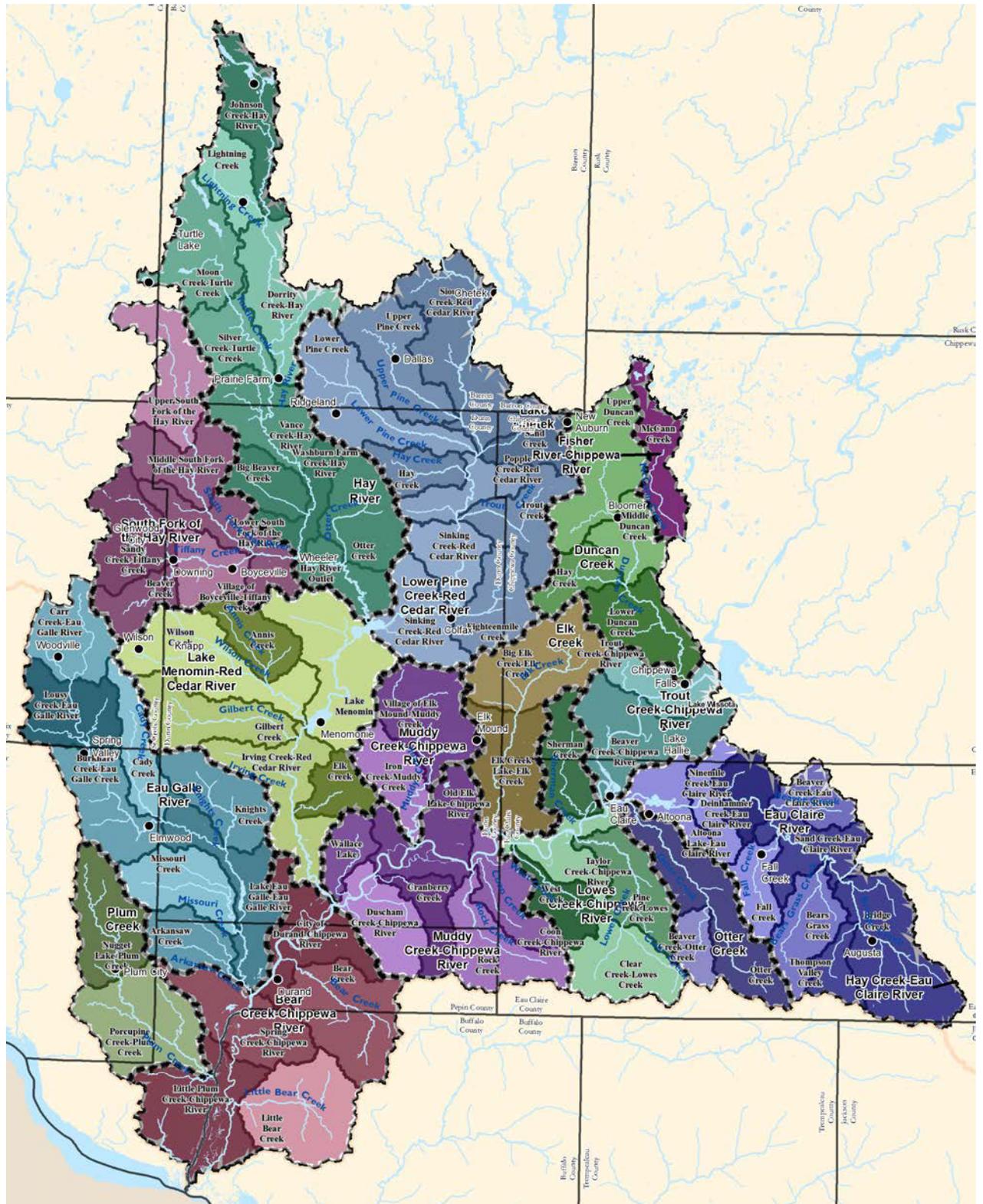
CHAPTER 4: CHIPPEWA RIVER REGION

Figure 4.1: Map of DNR properties in the master plan for the Chippewa River Region.



Note: Most of the properties included in this master planning process are narrow strips along trout and smallmouth bass waters and cannot be seen at the scale of this map. To enable readers to see the properties, their boundaries have been significantly exaggerated.

Figure 4.2: Watersheds (HUC 10) and Sub-Watersheds (HUC 12) of the Chippewa River Region.



1. OVERVIEW

a) Physical Environment

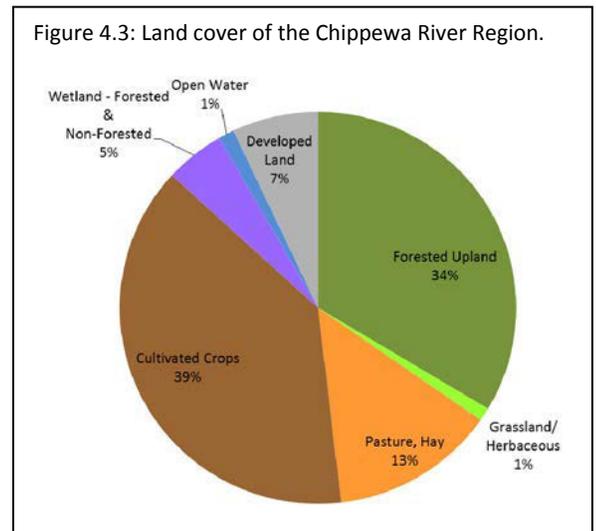
The Chippewa River Region contains both classic “driftless” features as well as glaciated portions. Although the northern and eastern lobe of this region was covered during the Wisconsin Glaciation, its topography, land cover, streams and rivers, and land use patterns are similar to the rest of the Driftless Area.

This region is dominated by Cambrian sandstone hills (in many places capped by dolostone) of varying degrees of steepness that are dissected by narrow valleys. Valley floors are typically filled with outwash. Upland areas often have windblown loess soils of varying thicknesses, up to 10 feet deep near the Mississippi River valley. The Chippewa River flows through a wide floodplain of sandy and loamy alluvial soils. As with the Wisconsin and Black rivers, during the Late Wisconsin glaciation the Chippewa River carried large quantities of meltwater along with enormous loads of outwash sand and gravel. As a result, the floodplain is significantly larger than the current river would normally form.

b) Land Cover and Use

Like other regions in the Driftless Area, the Chippewa River Region is a mix of cropland, forests, grasslands and wetlands (Figure 4.3). Most of the agricultural land is confined to the sand plains east of Menomonie, on valley floors and upland areas. Over the past decade, an increasing amount of land is being used for sand mining, irrigated agricultural lands and confined animal facilities. Many lands formerly enrolled in conservation programs have been converted back into farmland as a result of high corn and soybean prices. Development pressure has decreased somewhat with the recent downturn in the economy; however, the close proximity of the Eau Claire/Chippewa Falls and Menomonie metro areas will likely provide strong demand for small rural residential development in and near prime surface waters.

Most forests are managed to provide timber products ranging from firewood to sawtimber, however some grazing does still occur on forested hillsides in the region. Wetland and floodplain complexes on large rivers and streams are more numerous in this region when compared to other parts of the Driftless Area.



c) Terrestrial Habitats

Common natural community types found in this region include southern dry, dry-mesic, and mesic forests, floodplain forest, emergent marsh, and dry cliff. Less common to rare natural communities include moist cliff, shrub-car, southern sedge meadow, dry prairie, oak opening, and oak barrens. This region is especially noteworthy for floodplain forest, dry prairie, and oak opening opportunities. High quality natural communities of Driftless Area study stream properties can be found in Appendix C. of the “Rapid Ecological Assessment for Driftless Area Stream.” (Appendix 2).

d) Aquatic habitats

Along with the Wisconsin and Black rivers, the Chippewa River is among the Upper Midwest's most ecologically important large river systems because of the wealth of aquatic life it supports, the many excellent examples of native vegetation (aquatic, wetland, and upland) that are associated with the river corridor, and the numerous populations of rare species that are found here. The Red Cedar and Eau Claire Rivers are major tributaries to the Chippewa River and drain most of the western, northern and eastern portion of the Chippewa River Region. Numerous small trout streams feed this drainage area and provide for a high number of coldwater resources in a small geographic area.

Note: Detailed descriptions of the sport fishery can be found in the next section. A more complete discussion of the aquatic features and water management goals can be found in the watershed basin reports developed by the DNR.¹

e) Threatened, Endangered, and Special Concern Species

To date, there are 8 known rare species that occur within the study stream properties of this region including: 1 bird, 3 fish, 1 reptile, 2 invertebrates, and 1 plant. Of these, 3 are state-Threatened and 5 are special concern. For a complete list of these species by property see in Appendix C of the "Rapid Ecological Assessment for Driftless Area Streams." For an explanation of the state and global ranks, as well as state status, see Appendix A of the "Rapid Ecological Assessment for Driftless Area Streams" (Appendix 2).

f) Invasive Species and Other Species of Management Concern

Asian carp are likely to invade the southern portion of this region in the future. Direct access from the Mississippi River is present on the Chippewa and Eau Claire rivers upstream to Eau Claire and the Red Cedar River upstream to Menomonie. In addition larger sized tributary streams such as lower Eau Galle River could also be impacted by Asian carp. Exotic and invasive vegetation such as reed canary grass, tag alder, and box elder are currently a problem along our waterways, making access and fishing sometimes difficult. Buckthorn continues to invade the region and no doubt will cause future management problems.

g) Social and Recreation Issues

On fee title lands, fishing, hunting and trapping are the primary recreational uses. Other nature-based activities such as hiking, geocaching and wildlife observation also occur. On easement areas, fishing is the primary use allowed; however, a modest number of recent streambank easements also allow for public hiking and wildlife observation.

Although some other minor recreational uses compatible with angling occur on some of the properties included in this master plan (e.g., dog walking, bird watching, and geocaching), the size, shape, and soils of most properties restrict their recreational potential. Further, lands on which the Department has acquired a fishing access easement often do not allow other recreational uses due to the specific terms of the easement. On some of the parcels that the Department owns, the agency has entered into land use agreements with local clubs that allow snowmobiling on designated trails. Canoeing and tubing on the Lower Red Cedar and Chippewa rivers is popular; however, at this time there appear to be no reported user conflicts with the angling community.

¹ Watershed Basin Reports are posted on the DNR's web (dnr.wi.gov); search for "basins."

h) Cultural Resources

Archaeological sites representing all of the recognized prehistoric culture periods are found throughout the region, from Paleo-Indian (10,000-8,000 BC), through Archaic (8,000-500 BC), Woodland (500 BC-1000 AD), and Oneota (1000-1650 AD). Associated sites include Native American camps, villages, burial mounds, rock art, shell middens, and others. Animal-shaped effigy mounds are virtually non-existent in the region.

Historic period sites (ca. 1650-present) include farmsteads, mines, dams, logging camps, cemeteries, and fur trade-era sites. The area's towns and rural roads are dotted with numerous historic homes, businesses, bridges, and other early structures, many used continuously to this day.

Whether populated by ancient Indian people or more recent arrivals, the area's numerous archaeological sites and historic structures reflect a lengthy record of settlement and intensive utilization of the diverse water, mineral, plant, animal, and other resources found in the Chippewa River region.

2. PUBLICLY ACCESSIBLE LANDS in the CHIPPEWA RIVER REGION

a) DNR and other public and private conservation lands²

i) *By Watershed and sub-watershed (acres):*

	Properties included in this Master Plan												TOTAL			
	Fisheries Management Program										Wildlife Program	End. Resources Program		TOTAL for properties included in this Master Plan	Other DNR Lands	Other Public & Private Conservation Lands**
	State Fishery Areas		Remnant Program		Streambank Protection		Scattered Habitat		Other*							
Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease							
Duncan Creek	349	315	0	0	0	0	0	0	0	0	0	0	664			664
Hay Creek	108	195														303
Upper Duncan Creek	241	120														361
Bear Creek-Chippewa River	0	0	0	0	0	0	0	0	0	0	0	0	0	15,677	327	16,005
Bear Creek															531	531
City of Durand-Chippewa River															2,622	2,622
Little Bear Creek															14	14
Little Plum Creek-Chip. River															10,129	327
Spring Creek-Chippewa River															2,381	2,381
Eau Claire River	0	0	0	0	0	0	0	0	0	0	0	0	0	2,024	7,515	9,540
Bridge Creek															2,021	717
Deinhammer Cr.-Eau Claire R.																1,757
Fall Creek																76
Bears Grass Creek																54
Sand Creek-Eau Claire River																3,008
Beaver Creek-Eau Claire River																244
Ninemile Creek-Eau Claire R.															3	1,518
Altoona Lake-Eau Claire River																141
Eau Galle River	0	0	0	0	0	103	0	0	0	0	246	0	348	431	0	779
Cady Creek						55										55
Lake Eau Galle-Eau Galle River											233				431	664
Knights Creek						48					13					60
Elk Creek	284	216	27	50	0	36	0	0	0	0	0	0	613	0	0	613
Big Elk Creek-Elk Creek	224	204	27	50		36										541
Elk Creek Lake - Elk Creek	60	12														73
Fisher River-Chippewa River	319	107	0	0	0	0	0	0	0	0	0	0	426	0	0	426
McCann Creek	319	107														426
Hay River	39	0	81	0	0	0	0	0	0	0	1,215	0	1,335	0	0	1,335
Big Beaver Creek											571					571
Moon Creek-Turtle Creek	24															24
Otter Creek			81								644					725
Silver Creek-Turtle Creek	15															15

² Watersheds and sub-watersheds without any DNR lands are not listed.

Properties included in this Master Plan																
Fisheries Management Program											Wildlife Program	End. Resources Program	TOTAL for properties included in this Master Plan	Other DNR Lands	Other Public & Private Conservation Lands	TOTAL
State Fishery Areas		Remnant Program		Streambank Protection		Scattered Habitat		Other*								
Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease							
Lake Menomin-Red Cedar R.																
	28	0	273	0	0	28	228	0	0	0	45	0	602	2,149	0	2,751
			165			18	97				45			2		326
														1,276		1,276
			108			10	5							1		124
	28	0					126							871		1,025
Lower Pine Creek-Red Cedar R.																
	215	102	10	54	0	12	0	0	0	0	0	181	574	2	0	576
	215	102		36										1		354
			1													
			7	18								181		1		207
			2			12										
Lowes Creek-Chippewa River																
	0	0	17	0	275	146	70	0	0	0	0	0	507	596	106	1,209
			17		275	62	70									424
														53		53
														539	106	645
						83								4		87
Muddy Creek-Chip. R-Upper																
	0	0	0	0	0	0	0	0	0	0	0	0	0	4,884	530	5,414
														4,319	404	4,723
														566	126	691
Muddy Creek-Chip. R-Lower																
	0	0	0	0	0	13	0	0	0	5	0	0	18	4,525	479	5,021
						13								1,859		1,872
														12		12
														274	479	752
														886		886
														548		548
										5				945		950
Otter Creek																
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
															5	5
Plum Creek																
	0	0	0	0	0	0	0	0	749	0	0	0	749	79	0	828
									749					79		828
South Fork of the Hay River																
	106	0	0	17	0	18	0	0	0	0	40	0	181	0	0	181
	106										40					146
						18										18
				17												17
Trout Creek-Chippewa River																
	0	0	0	0	0	0	0	0	2	0	0	0	2	512	0	514
									2					512		514
TOTAL																
	1,340	740	408	121	275	355	298	0	751	5	1,546	181	6,016	30,880	8,962	45,861

* Includes nonpoint easements, wetland mitigation sites, watershed management projects, public access sites, gift lands, and rearing stations.

** Includes conservation lands owned and eased by federal agencies, counties, private conservation groups and other similar organizations, as described in the Protected Areas Database housed in the Conservation Biology Institute (<http://databasin.org/protected-center/features/PAD-US-CBI>).

ii) By DNR Property (acres):

Chippewa River Region		Fee	Easement	Total
Fish Management Program		4,289		
State Fishery Areas				
BOLEN CREEK FISHERY AREA	106	-	106	
DUNCAN CREEK FISHERY AREA	241	120	360	
ELK CREEK FISHERY AREA	284	216	499	
HAY CREEK FISHERY AREA	108	195	303	
LAKE MENOMIN FISHERY AREA	28	0	28	
MCCANN CREEK FISHERY AREA	319	107	426	
SAND CREEK FISHERY AREA	215	102	317	
TURTLE CREEK FISHERY AREA	39	-	39	
Remnant Habitat Projects				
REM-CLEAR CREEK	17	-	17	
REM-ELK CREEK	27	50	77	
REM-GILBERT CREEK	165	-	165	
REM-OTTER CREEK (Dunn Co)	81	-	81	
REM-RED CEDAR RIVER PUBLIC ACCESS	9	18	27	
REM-SAND CREEK	-	36	36	
REM-SOUTH FORK HAY RIVER	-	10	10	
REM-TORGERSON CREEK	-	7	7	
REM-WILSON CREEK	108	-	108	
Stream Bank Protection	275	355	630	
Other*	1,048	5	1,054	
Natural Areas Program		181		
STATEWIDE NATURAL AREA	181	-	181	
Wildlife Management Program		1,310		
OTTER CREEK WILDLIFE AREA (Dunn Co)	237	-	237	
Scattered Habitat, Statewide Habitat, Scattered Forest, and Extensive Habitat lands	1,310	-	1,310	
Total	4,796	1,220	6,016	

* Includes nonpoint easements, scattered habitat lands, wetland mitigation, watershed management projects, public access sites, and rearing stations.

b) Habitat management of DNR lands.

i) In-stream management

Several techniques are used to protect, maintain and restore stream habitat within this region. Stream bank fencing is common on many easement areas within the major fishery areas. Fencing is installed to exclude cattle and agricultural practices from the immediate riparian corridor and create a vegetative buffer. In wooded areas with an established vegetative border stream bank brushing is conducted to reduce undesirable woody vegetation growth such as tag alder and box elder and return stream corridors into a more desirable state of larger canopy trees with a wetland or grassy understory.

Intensive stream habitat restoration activities are common on many streams in the region, consisting of bank stabilization using rock rip/rap at the toe of the slope and then re-sloping stream banks in an effort to reduce bank erosion and improve flood flow capacity of waters. Pool areas are created or enhanced by incorporating rock vortex weirs or log plunge structures. Overhead cover such as LUNKER structures, rootwads, trees and boulders are incorporated as needed to provide security and resting cover for fish. Spawning areas are also typically enhanced by incorporating spawning substrate where appropriate. Beaver control is conducted annually on a very limited number of high priority trout waters in an effort to minimize thermal impacts, siltation issues and fish barriers associated with beaver activity.

A more complete discussion of the goals and management strategies for in-stream habitat and the riparian corridor can be found in Chapter 2.

ii) "Backland" habitat management.

Given the scale limitations of available geospatial land cover data, it is not feasible to accurately describe the land cover in most of the Department's land holdings that are small and narrow. As such, the following section simply lists the general habitat types that are present on the properties in the Chippewa River Region that are covered in this master plan and their approximate coverage, which are based on property managers' estimates.

Habitats Present	Approx. Coverage
Prairies, grasslands, and oak opening (savanna) habitats	5%
Wetlands (inc. lowland forests)	75%
Forests (upland)	15%
Agricultural lands	5%
	100%

These habitats are managed following the strategies described in Chapter II.4, unless noted below.

iii) Description of any unique management strategies/techniques/goals used in this region.

Intensive stream habitat restoration is needed on most streams in this region due to the severity of bank erosion and deposition along the valley floor. However, on streams in the northern and north eastern portion of this region recent stream restoration activities have been less intensive mainly because habitat conditions are not as degraded when compared to streams further south in the region. Recent less-intensive habitat activities have attempted to minimize the use of riprap and instead have focused on channel excavation and narrowing in an effort to improve channel depth and flow. Pool habitat has also been enhanced by simply incorporating rock weirs and log cover structures in riffle areas and associated downstream pool areas.

iv) Description of areas of special management interest in this region.

Primary Sites.

None were identified in the Rapid Ecological Assessment (see Appendix 2).

State Natural Areas

The following State Natural Area is part of this Master Plan:

Red Cedar River Savanna SNA

Located on sand islands and terraces within the Red Cedar River floodplain, Red Cedar River Savanna features a unique dry savanna on riverine sand and gravel deposits. A mosaic of natural features is present on this river island including pine-oak savanna, patches of barrens, backwater sloughs, open sand and gravel bars, and floodplain forest. Jack pine and bur oak are scattered throughout the openings and dominate the eastern portion of the island while a canopy of white pine, swamp white oak, and green ash dominate the island's western side. The ground layer is diverse and contains at least 27 savanna indicator plant species including prairie brome, silky wild rye, New Jersey tea, woodland thistle, goat's rue, Canada hawkweed, and fringed puccoon. An abundance of prairie dropseed is also present indicating a lack of intensive past grazing. Numerous prairie species are also present and include big bluestem, little bluestem, June grass, side-oats grama, sky-blue aster, wild bergamot, white prairie clover, and leadplant. Near the center of the island is an area of old oxbow lakes surrounded by a narrow fringe of silver maple. Around the periphery are gravel deposits with early successional vegetation including wild rye, switchgrass, and numerous sedges. Red Cedar River is owned by the DNR and was designated a State Natural Area in 2005.

c) Recreation facilities in this region.

See Appendix 3.

d) Other issues and challenges in this region.

Intensive agriculture presents the greatest challenge for cold water stream resources here. Extensive ditching and channel straightening in the 1950s has severely damaged the Missouri and Arkansas sub-watersheds located in the Eau Galle River watershed. Other small ditching projects especially in headwater brook trout streams can be found across the Chippewa River Region. Agriculture is the primary land use in the region and as grain prices rise, forested, marginal or set-aside lands have been converted back to intensive row cropping reducing stream buffers, reducing infiltration and accelerating runoff. As the farm economy improves, farmers are better able to afford infrastructure improvements. As an example, applications for high capacity wells for center pivot irrigation are on the rise in Dunn, Chippewa, Eau Claire, and Pepin counties. In addition, there are rural areas with good farmland that contain concentrations of large dairy operations. Animal waste issues have been problematic in the Little Bear Creek sub-watershed.

Recently there has been a dramatic increase in the number of frac sand mines, particularly in the Chippewa River Region. Potential problems associated with sand mining operations include: contamination of ground water, decreased stream flows from high capacity wells, and increased sedimentation due to runoff from open mines and stormwater ponds, increased stream temperatures, and impacts to fish and invertebrates. For a more complete discussion see Chapter 2.

There are some challenges to smallmouth bass streams here, such as the Upper Red Cedar River. First, residential developments can detract from the appearance of a wild and scenic river. Second, due to the large agricultural watershed within which it sits, the upper Red Cedar River periodically suffers from excessive phosphorus loads. This results in nuisance levels of aquatic vegetation and diurnal swings in oxygen levels that have the potential to impair aquatic life.

3. Report Card for the Trout and Smallmouth Bass Streams of the Chippewa River Region

Figure 4.4: Overview report card of the Chippewa River Region.

Grade methods are detailed in Chapter 2. Grades show each watershed's place in the distribution of all Driftless watersheds. An **A** means the value is in the upper quartile (75%-100%) or upper quintile (80%-100%) of the distribution, whereas an **F** means the value is zero or is in the lowest quintile (0-20%) of the distribution. Blank cells indicate "not applicable."

			Watersheds															
			Bear Creek - Chippewa River	Duncan Creek	Eau Claire River	Eau Galle River	Elk Creek	Fisher River - Chippewa	Hay River	Lake Menomin - Red Cedar R	Lower Pine Creek - Red Cedar	Lowses Creek - Chippewa River	Muddy Creek - Chip. R: Lower	Muddy Creek - Chip. R: Upper	Otter Creek (Eau Claire Co)	Plum Creek	South Fork of the Hay	Trout Creek - Chippewa River
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B		A	A	A			A		A	A	A	A	A		A
		Land Use Stress	B		D	C	D			B		D	C	B	D	C		C
	Sport Fishery Performance	Stock (5" up to 8")	D	A	C	B	A	A	B	A	C	F	F	F	F	A	A	F
		Quality (8" up to 12")	A	B	F	A	B	A	C	A	C	F	F	F	F	A	A	F
		Memorable (12" +)	B	F	F	F	F	A	F	F	F	F	F	F	F	C	F	F
	Projected resilience to climate change			A	D	B	A	D		A	A	B	C	C	D	D	B	A
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B		F	D	D			F		F	F	D	F	B		F
		Land Use Stress	D		B	C	D			D		B	A	C	C	D		C
	Sport Fishery Performance	Stock (6" up to 10")	F	F	F	F	A	F	F	F	F	C	F	F	D	A	F	F
		Quality (10" up to 15")	F	D	F	F	A	F	F	F	F	D	F	F	C	A	F	F
		Memorable (15" +)	F	F	F	F	C	F	F	F	F	D	F	F	F	A	F	F
	Projected resilience to climate change			B	D	C	A	D		B	B	B	C	B	D	D	C	A
Smallmouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	A		A	D				A		A	A		F			A
		Land Use Stress	B		D	C				F		F	F		F			D
	Sport Fishery Performance	Stock (8" up to 14")	C	F	F	F		F	D	C	B	F	D		C		F	B
		Memorable (14" +)	C	F	F	F		F	F	F	B	F	F		F		F	B
	Projected gain from climate change			B	D	C	C	C	B	C	C	D	B	D	D	B	B	C
Trout Stream Habitat	Thermal resilience of trout streams		A	D	C	B	B	A	C	C	D	C	D		C	D	C	B
	Total miles of stream restoration		F	F	F	B	F	F	F	C	F	F	F	F	F	F	F	F
Recreation	Angling opportunities	Percent of trout stream miles with public access	D	A	D	C	A	A	C	C	C	A	B	C	F	D	D	F
		Percent of smallmouth bass stream miles with public access	A	F	B	C		A	D	A	D	B	B		F		F	D
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	A	A	B	C	A	A	B	B	B	A	C	B	F	D	D	D

a) Brook Trout

i) Stream Health and Habitat Quality

Figure 4.5 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (bottom panel) for brook trout in the region. The northern portion of the Chippewa River Region was not included in the Midwest Fish Habitat Partnership's Driftless Area Restoration Effort (DARE) habitat modeling work and as a result these data outputs are not available for about half the region (the purple area).

Natural Habitat Potential

The Chippewa River Region, along with the Black River, Kinnickinnic River, and portions of the Kickapoo River regions represent the heart of brook trout country in the Driftless Area (Figures 2.11 and 4.5). In the sub-watersheds where natural habitat quality data are available, potential natural habitat quality for brook trout is good to excellent through most of the region. The best natural habitat potential lies in Trout, Fall, Beaver Creek-Otter, Otter (Eau Claire Co.), Big Elk, Ninemile, Dienhammer, Lousy and Cady Creeks. The lowest brook trout natural habitat values are present in Little Bear and Little Plum Creek sub-watersheds.

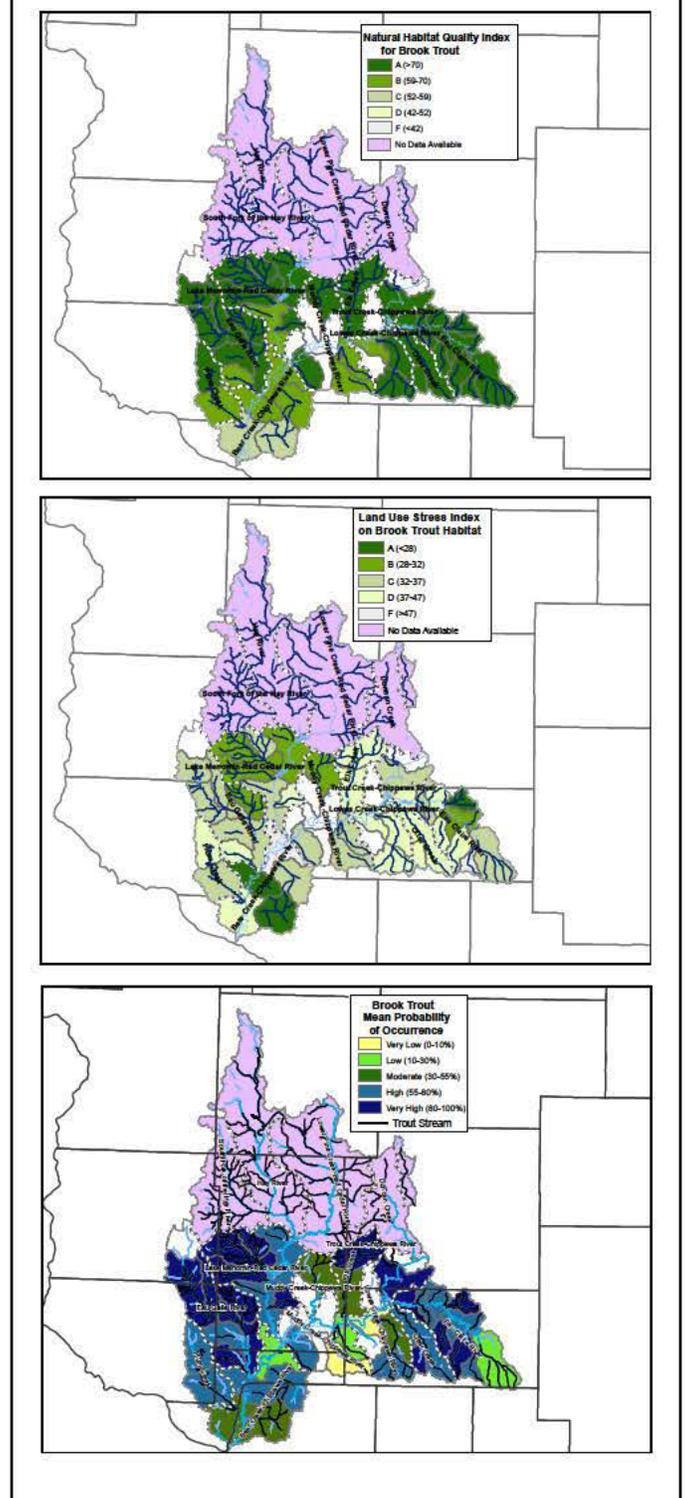
Land Use Stress

Existing data indicate land use stressors for brook trout are generally modest to high. The areas with the least stress include the Little Bear and Spring Creek sub-watersheds in Pepin and Buffalo counties as well as the Beaver Creek watershed in eastern Eau Claire County. Knights, Gilbert, Annis, Muddy and Wilson Creeks in Dunn County also showed lower land use stressors than other sub-watersheds in the region.

Probability of Occurrence

Despite the moderate to high levels of land use stress in much of the region, the model projects that brook trout have a high to very high probability of occurring in most sub-watersheds. The areas where brook trout are projected to have only a very low probability of occurrence are in western Eau Claire and eastern Pepin counties.

Figure 4.5: Potential natural habitat quality, current level of land use stress, and probability of occurrence for brook trout in the Chippewa River Region.



ii) Sport Fishery Performance

As can be seen in Figure 4.6, brook trout are the most common trout species in the region. In fact, the Duncan Creek and the Fisher River-Chippewa River watersheds have the highest median brook trout catch rates in the Driftless Area. The results for the Fisher River-Chippewa River watershed in the bar chart (showing a median catch rate of nearly 1000 fish/mile) are influenced by the fact that only one sub-watershed –McCann Creek – is included in the master plan.

As can be seen in the maps on the following page (Figure 4.7), stock and quality sized brook trout are most abundant in western watersheds of the region as well as the far north and northeastern portion of the region. More specifically, Upper Duncan Creek sub-watershed has the highest stock sized brook trout density in the region followed by McCann, Cady, Beaver, Upper South Fork of the Hay River and Sand Creek sub-watersheds. The southern and eastern portion of the region has the lowest brook trout abundance values. Quality sized brook trout abundance is highest in Cady Creek sub-watershed followed by the Nugget Lake-Plum Creek, Lake Eau Galle-Eau Galle River, McCann Creek and Upper South Fork of the Hay River sub-watersheds. Memorable sized brook trout are highest in the Spring Creek-Chippewa River, Beaver Creek, Cady Creek and McCann Creek sub-watersheds.

Figure 4.6: Brook and brown trout abundance in the Chippewa River Region.

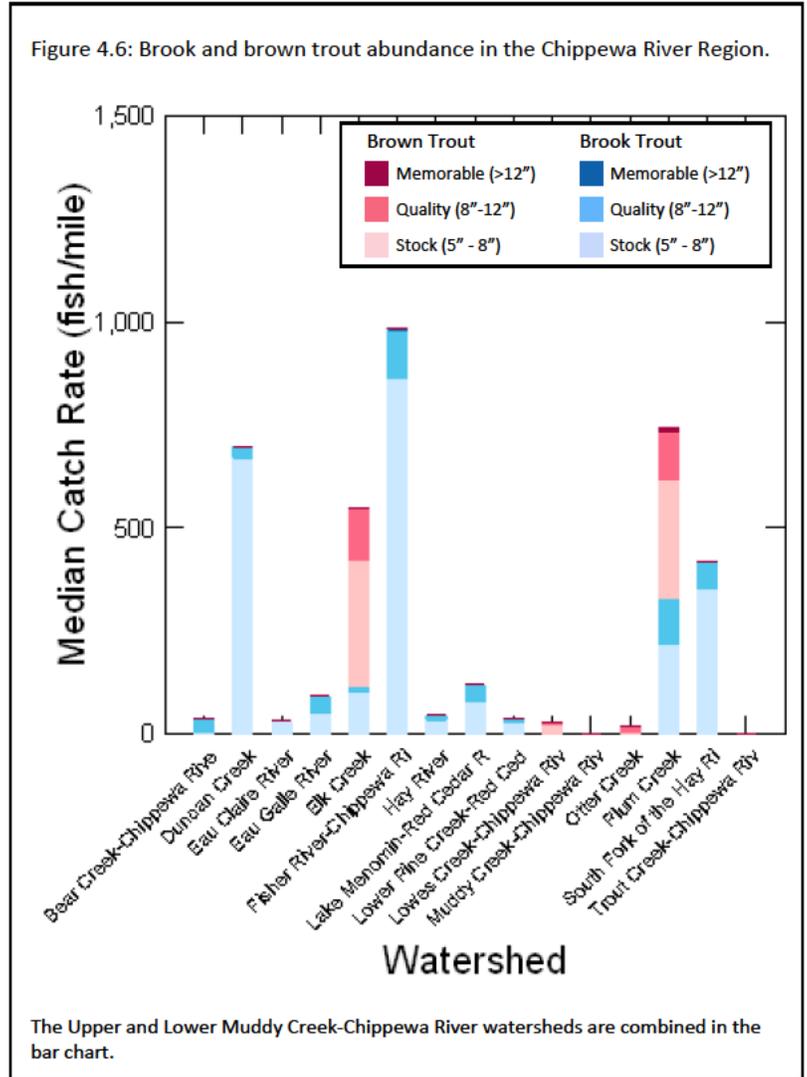
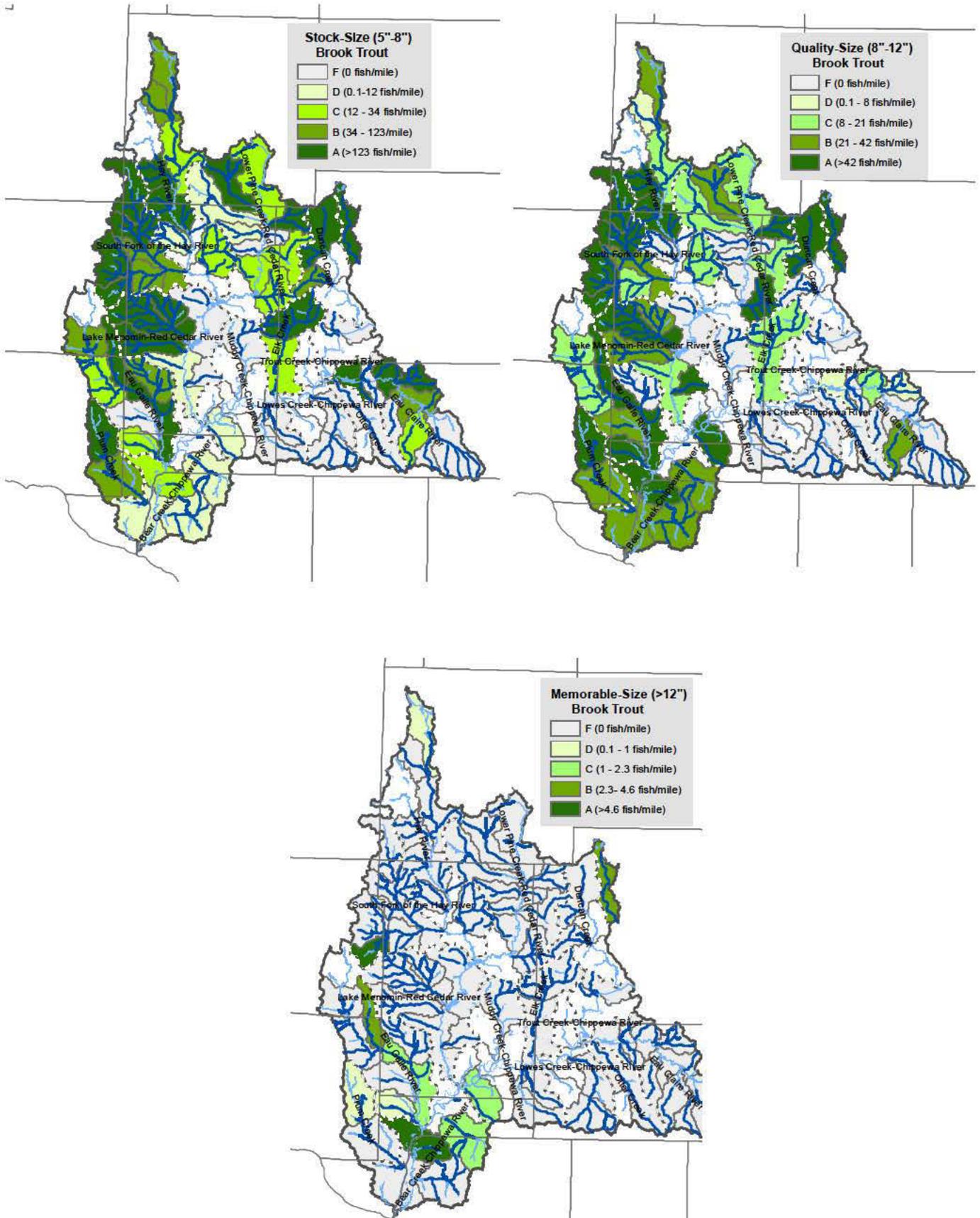


Figure 4.7: Brook trout density – stock, quality, and memorable-size fish.

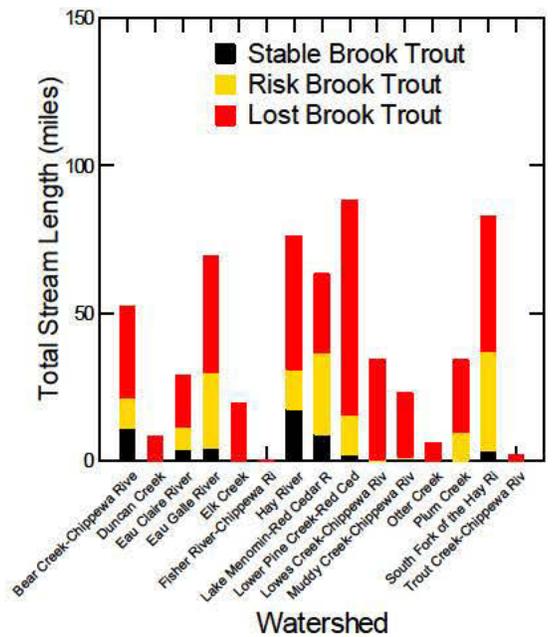


iii) Projected Resilience of Brook Trout to Climate Change

The fish distribution models that incorporate climate change project that much of the current distribution of brook trout is at risk or likely to be lost by the middle of the century (Figure 4.8). It is likely that some of these waters will convert to brown trout dominance. The resilience values mapped in Figure 4.9 represent an estimate of the total amount of stream miles in each sub-watershed that brook trout are projected to occupy during the mid-century. Watersheds west of the Red Cedar River are projected to be more resilient to brook trout loss than those in the eastern part of the region (Figure 4.9). The Bear Creek, Hay River, and Lake Menomin watersheds are projected to retain the most brook trout stream miles.

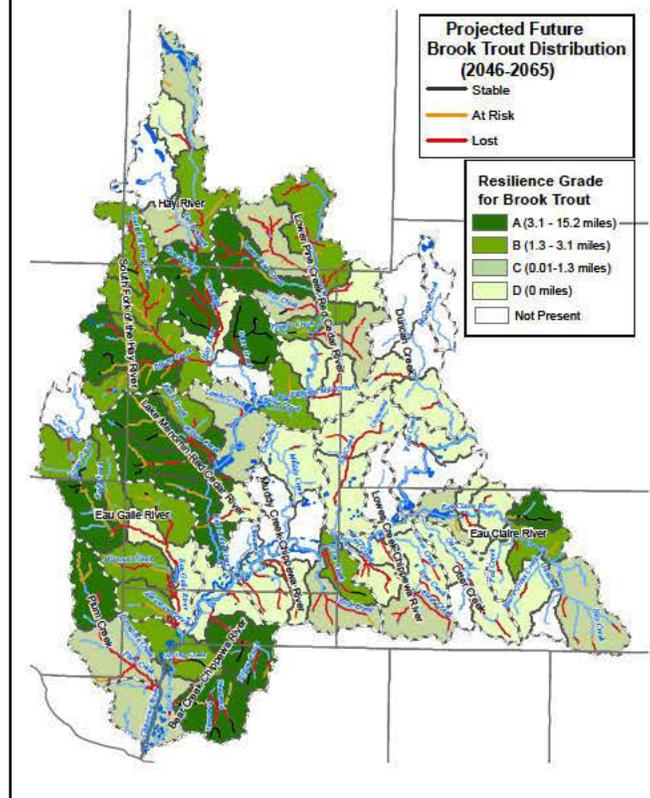
Examples of high quality brook trout fisheries that appear to be at risk include Dority, Silver, Vance, Wilson, Gilbert and Cady creeks. Waters east of the Red Cedar and Chippewa rivers are projected to lose brook trout entirely with the exception of Beaver Creek in far eastern Eau Claire County and a few isolated spring tributaries in the Bear and Little Bear Creek sub-watersheds. As is true throughout the Driftless Area, the summing of stream miles and associated grades for each sub-watershed may obscure individual streams or reaches where brook trout are projected to remain.

Figure 4.8: Projected climate effects on future brook trout distribution in the Chippewa River Region (2046 to 2065).



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

Figure 4.9: Projected future brook trout distribution and resilience in the Chippewa River Region.



b) Brown Trout

i) Stream Health and Habitat Quality

Figure 4.10 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (bottom panel) for brown trout in the region. The northern portion of the Chippewa River Region was not included in Midwest Fish Habitat Partnership's Driftless Area Restoration Effort (DARE) habitat modeling work, and as a result, these data outputs are not available for about half the region (the purple area).

Natural Habitat Potential

Natural habitat potential for brown trout is poor for much of the region. The best habitat potential is in the southwestern quarter of the region (Nugget Lake-Plum Creek, Arkansaw and Spring Creek sub-watersheds) and is likely a function of the greater levels of forest cover here.

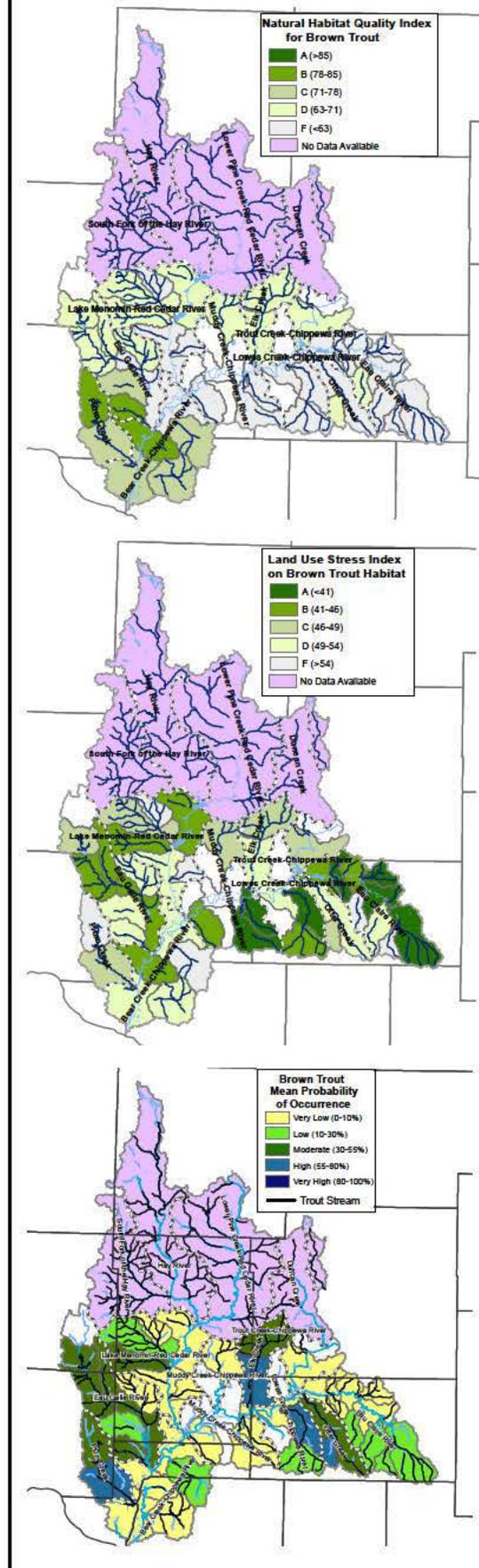
Land Use Stress

Land use stressors for brown trout are lowest in eastern and southern Eau Claire County. More specifically, land use stressor data indicate that Beaver, Bridge, Ninemile, Sand-Eau Claire, Lowes, Coon and Rock Creek sub-watersheds had the lowest land use stress values in the region. Land use impacts are generally less here because it is more heavily forested and due to the large amount of wetlands.

Probability of Occurrence

Combining the differing levels of natural habitat potential and land use stress, brown trout are projected to occur in pockets, with the highest probabilities in the Beaver Creek, Pine/Lowes Creek, Elk Creek Lake, and Porcupine/Plum Creek sub-watersheds. Interestingly, the Spring Creek sub-watershed (located in the Bear Creek watershed) has relatively good habitat potential and low land use stress, but is modeled to have a very low probability of occurring here. And, in fact, stream sampling data indicate that no brown trout occur in Spring Creek.

Figure 4.10: Potential natural habitat quality, current level of land use stress, and probability of occurrence for brown trout in the Chippewa River Region.

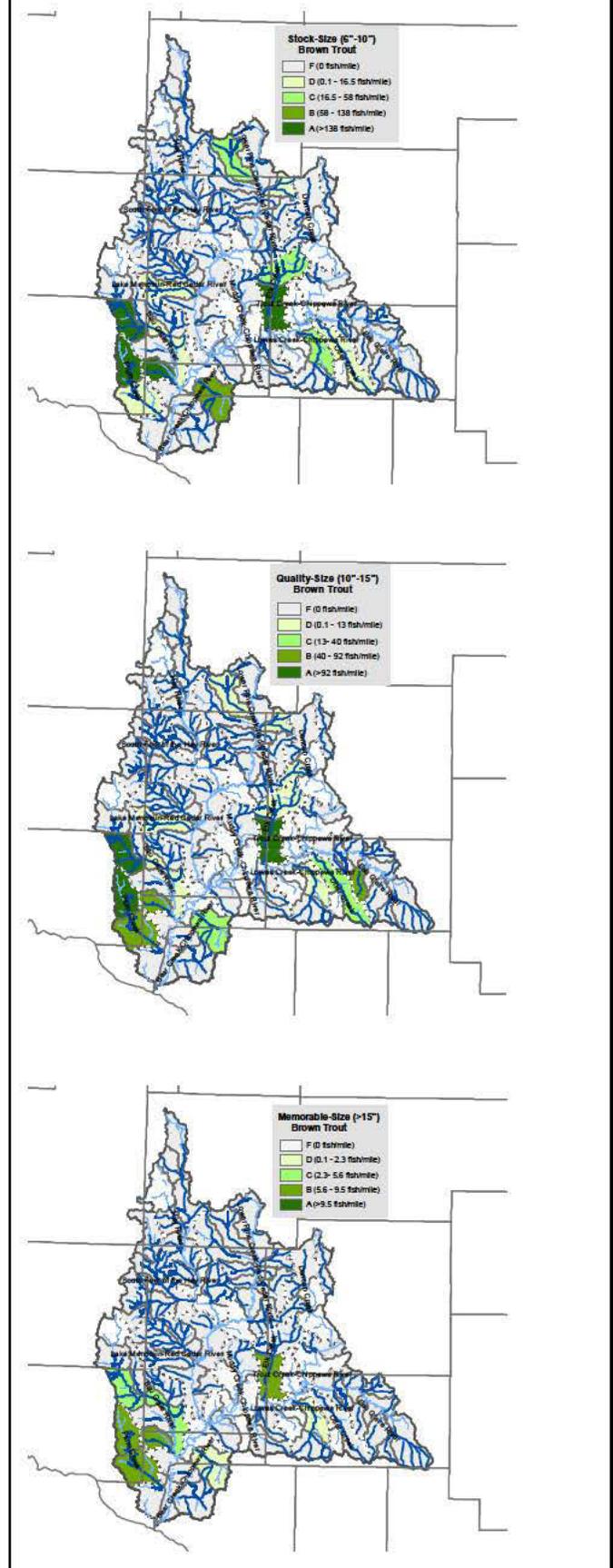


ii) Sport Fishery Performance

As can be seen in Figure 4.11, many streams in the region do not contain brown trout. Where brown trout are present, stock sized brown trout were highest on Nugget Lake- Plum Creek, followed by Elk Creek Lake-Elk Creek, Burkhart Creek-Eau Galle River Arkansaw Creek and Bear Creek sub-watersheds. Quality sized brown trout abundance was highest at Elk Creek Lake-Elk Creek, Nugget Lake-Plum Creek, Burkhart Creek-Eau Galle River, Arkansaw Creek, Bear Creek and Otter Creek sub-watersheds. Memorable sized brown trout followed a similar trend as stock and quality sized trout with Porcupine Creek-Plum Creek ranking the highest followed by Nugget Lake-Plum Creek, Elk Creek-Elk Creek Lake, Arkansaw Creek, Burkhart Creek-Eau Galle River, Lake Eau Galle-Eau Galle, Bear Creek and Pine-Lowes Creek sub-watersheds.

Although the map showing the sub-watersheds with the highest probability of brown trout occurrence mostly aligns with the maps showing the density of brown trout, some differences can be seen. The first difference is that many of these waters were historically stocked and managed with brown trout. Over time brown trout naturally reproduced where once they had only been stocked (Nugget Lake-Plum Creek, Elk Creek Lake-Elk Creek and Upper Pine Creek). It is likely if brown trout were not present, brook trout would be more dominate in these waters. Second, several of these streams are thermally marginal for brook trout and brown trout tend to be the dominate salmonid in these situations. Arkansaw Creek, Bear Creek, Pine-Lowes Creek and Burkhart-Eau Galle River sub-watersheds are representative of this scenario.

Figure 4.11: Brown trout density – stock, quality, and memorable-size fish.

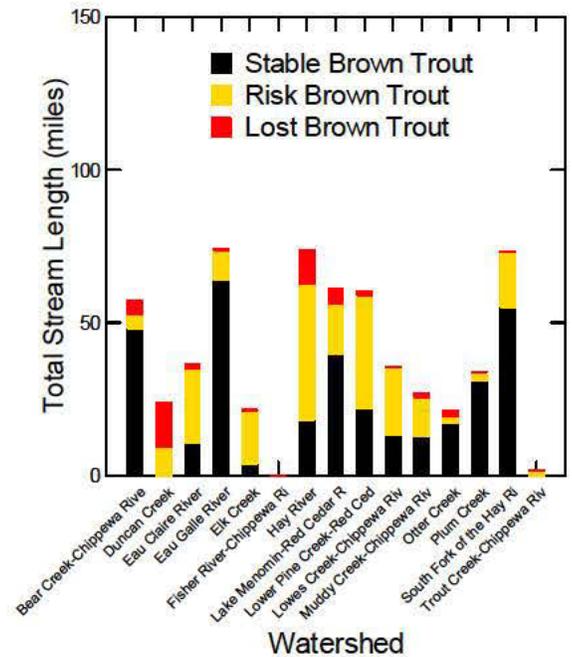


iii) *Projected Resilience of Brown Trout to Climate Change*

Based on the fish distribution model that incorporates climate change, future brown trout distribution is projected to be strong in the western and southern portions of the region. More specifically, Wilson Creek, Porcupine Creek-Plum Creek, Little Bear Creek, Bear Creek, Otter Creek and Lake Eau Galle-Eau Galle River as well as lower and middle south fork of the Hay River sub-watersheds are projected to be the most resilient for brown trout loss in regards to climate change.

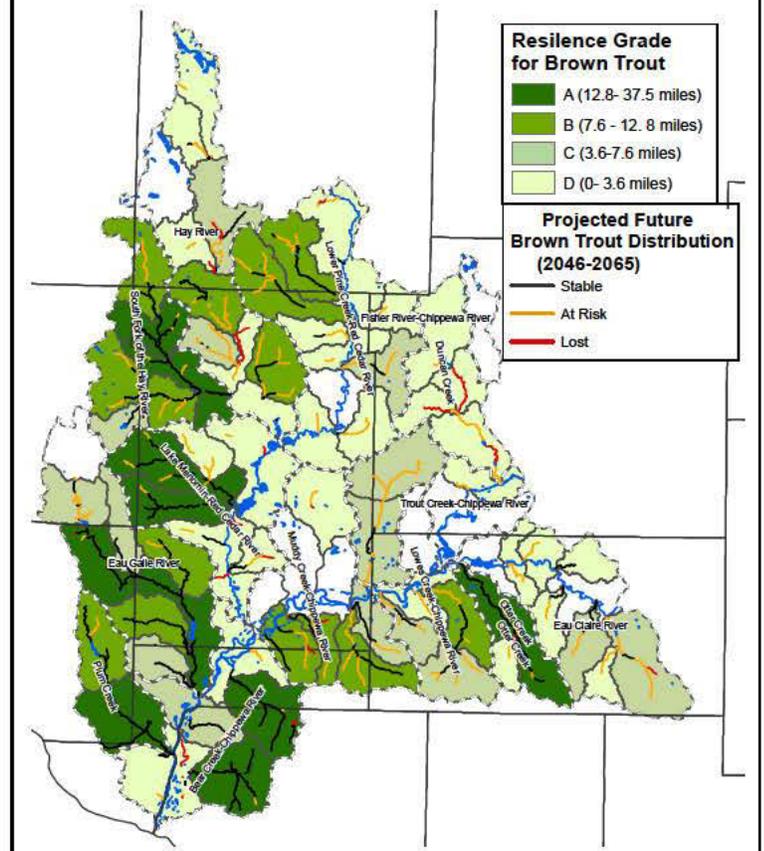
At the other end of the spectrum, the Duncan Creek, Eau Claire River, Elk Creek, Hay River and Lower Pine Creek watersheds are projected to see a significant portion of their brown trout distribution lost. Losses are projected to be quite severe in eastern Dunn and eastern Eau Claire counties, and throughout Chippewa County.

Figure 4.12: Projected climate effects on future brook trout distribution in the Chippewa River Region (2046 to 2065).



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

Figure 4.13: Projected future brown trout distribution and resilience in the Chippewa River Region.



c) Smallmouth Bass

i) Stream Health and Habitat Quality

Figure 4.14 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (bottom panel) for smallmouth bass in the region. The northern portion of the Chippewa River Region was not included in the Midwest Fish Habitat Partnership's Driftless Area Restoration Effort (DARE) habitat modeling work and, as a result, these data outputs are not available for about half the region (the purple area).

Natural Habitat Potential

Natural habitat quality for smallmouth bass is very high along the Chippewa, Red Cedar, and Eau Claire rivers; in fact these sub-watersheds have some of the highest values for natural habitat potential for smallmouth bass in the Driftless Area. The river corridors are relatively undisturbed.

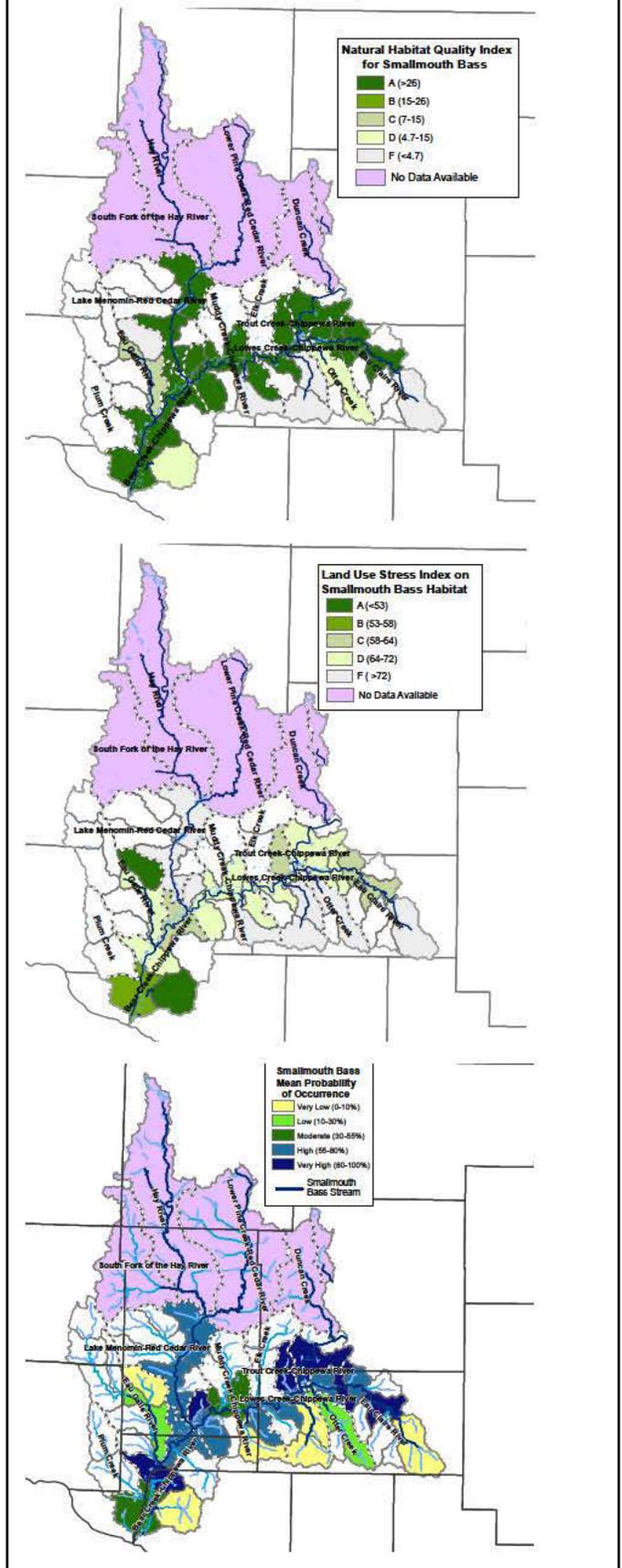
Land Use Stress

Although they have high natural habitat potential, most of the sub-watersheds that harbor smallmouth bass streams and rivers also suffer from high levels of land use stress. Despite the relatively wild nature of the floodplains along the Chippewa and Eau Claire rivers, the associated sub-watersheds are largely farmed or developed, which increases their land use stress ratings.

Probability of Occurrence

Interestingly, the Chippewa River Region has about an equal amount of sub-watersheds with the range from very high to very low probability of occurrences for smallmouth bass. The highest probabilities of occurrence are associated with the mainstems of the Chippewa, Red Cedar, and Eau Claire rivers.

Figure 4.14: Potential natural habitat quality, current level of land use stress, and probability of occurrence for smallmouth bass in the Chippewa River Region.

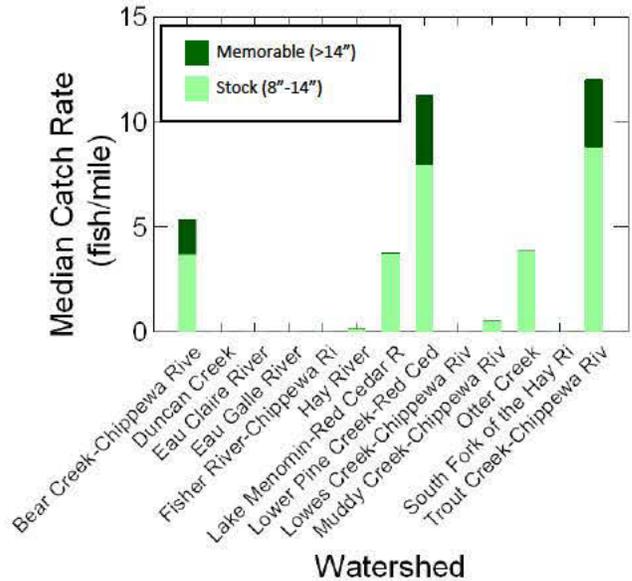


ii) Sport Fishery Performance

As can be seen in Figures 4.15 and 4.16, memorable sized smallmouth bass abundance is highest on the Chippewa River downstream of Chippewa Falls as well as the Upper Red Cedar and Hay Rivers in southern Barron and northern Dunn County. In addition, memorable sized smallmouth bass was high on the Chippewa River near Durand.

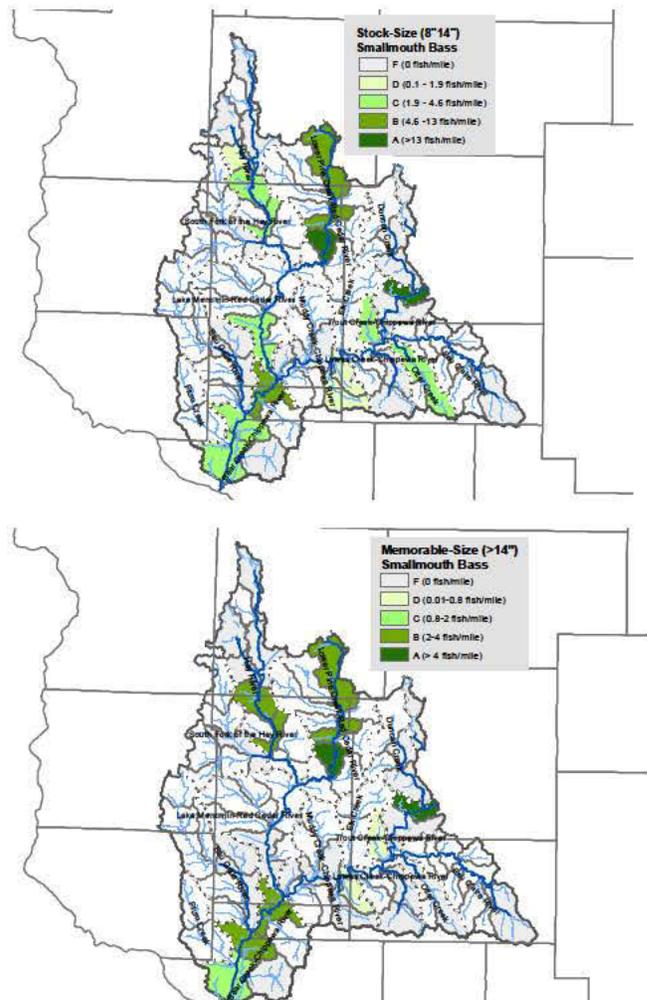
The Eau Claire River system does not indicate high levels of memorable smallmouth bass; however, the river is nearly impossible to sample and good field data for this river are lacking. Therefore this analysis likely under represents what is actually present.

Figure 4.15: Smallmouth bass abundance in the Chippewa River Region.



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

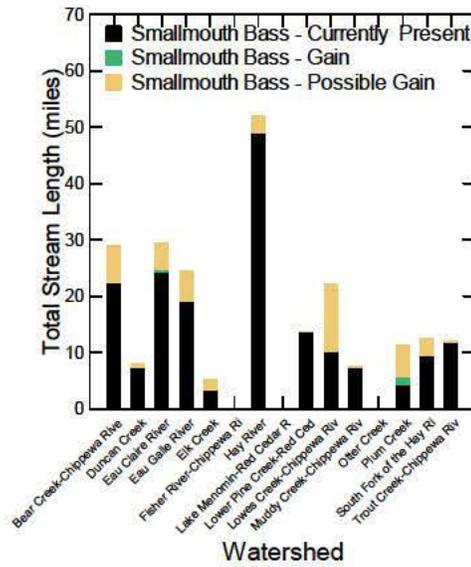
Figure 4.16: Smallmouth bass density – stock and memorable-size fish.



iii) *Projected Gains of Smallmouth Bass to Climate Change*

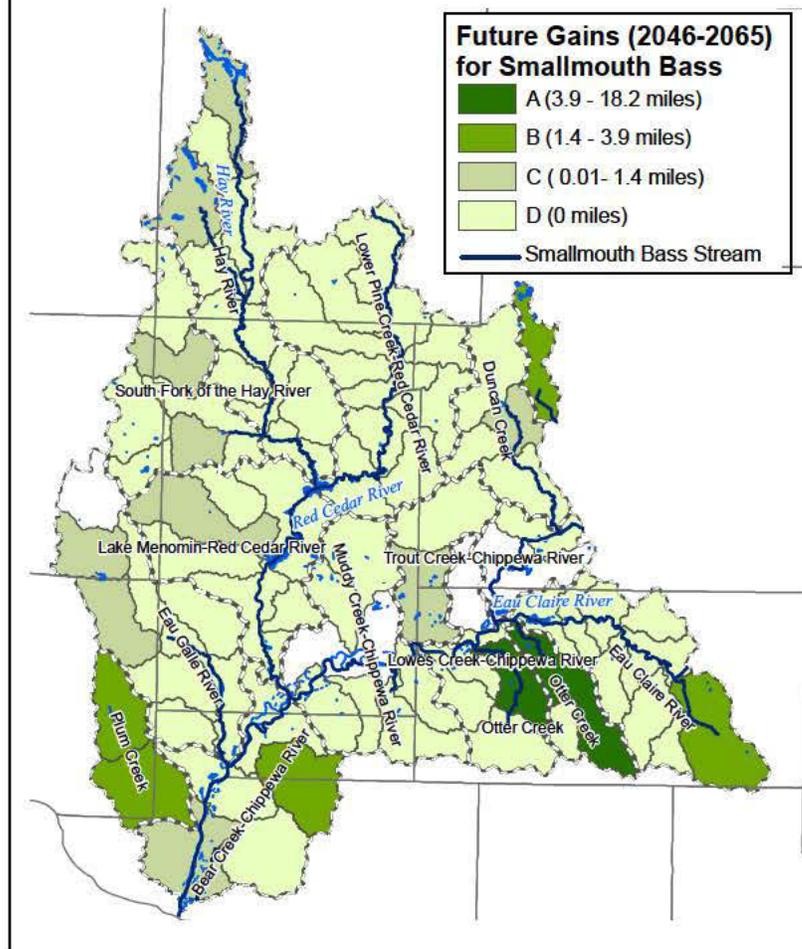
The fish distribution model that incorporates climate change projects that smallmouth bass are likely only to see a small gain in their distribution in the region by the middle of the century (Figures 4.17 and 4.18). This is likely due to both the current extent of their population as well as the limited number of larger streams that currently are not suitable habitat for smallmouth bass due to temperature regimes. Lower Lowes and Otter Creeks appear to be the most likely to see some form of conversion to smallmouth dominance over time.

Figure 4.17: Projected climate effects on future smallmouth bass distribution in the Chippewa River Region (2046 to 2065).



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

Figure 4.18: Projected future smallmouth bass distribution and resilience in the Chippewa River Region.



d) Trout Stream Thermal Habitat

Trout streams of the Chippewa River Region are now mostly dominated by cold thermal habitat (Figure 4.19). By the mid-century trout stream thermal habitats will warm to the point where cold transition rather than cold will dominate. Across the region 44% of the total trout stream miles will shift to the next warmer thermal class.

As can be seen in Figure 4.19, thermal class data indicates that most western and northern sub-watersheds are more thermally resilient than those on the eastern side of the region. More specifically, Little Bear, Spring, Bears Grass, Sand-Eau Claire, Arkansaw, Cady, Missouri, Johnson/Hay River, Moon/Turtle, Gilbert, Duscham and Trout Creek sub-watersheds are projected to be the thermally most resilient waters in the Region. Other thermally resilient sub-watersheds are: Bear, Little Plum, Beaver/Eau Claire, Dienhammer, Ninemile, Eau Galle, lower Elk, McCann, Big Beaver, Otter/Hay, Vance, Elk Creek, Wilson, Popple, Sand,

Figure 4.19: Projected future* and current thermal classes of trout streams in the Chippewa River Region.

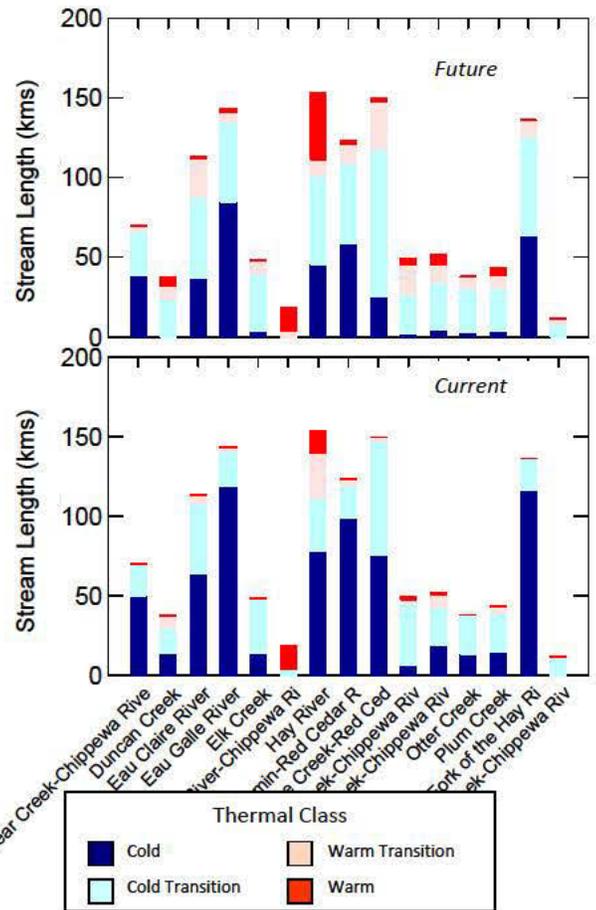
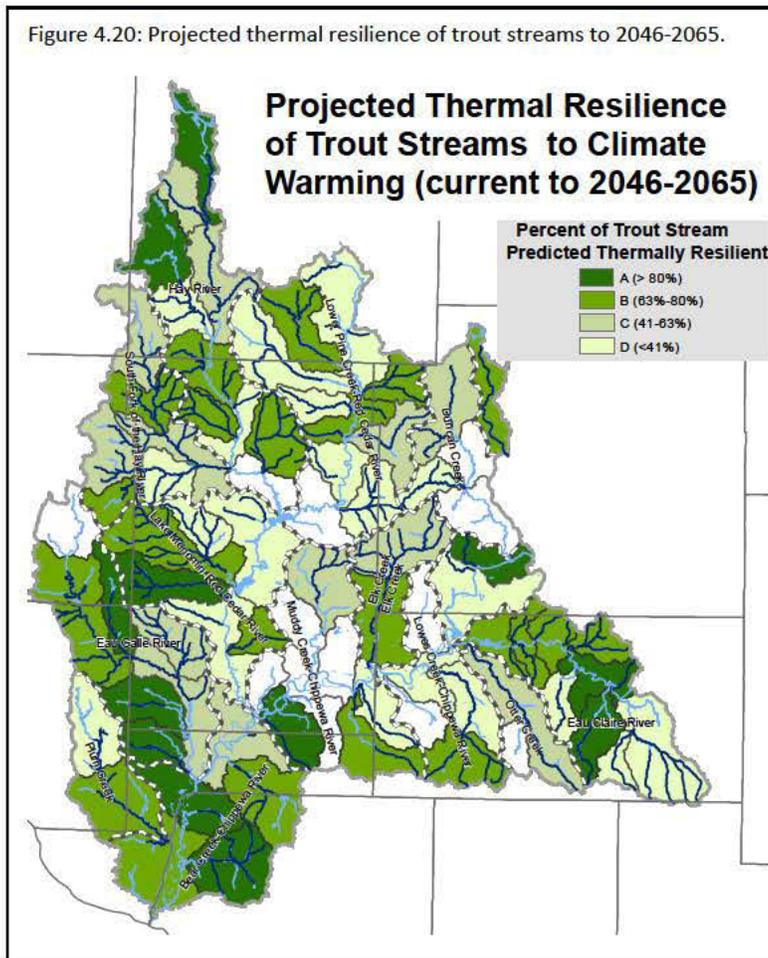


Figure 4.20: Projected thermal resilience of trout streams to 2046-2065.



* Time period of 2046 to 2065.

** The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar charts.

Upper Pine, Clear/Lowes, Rock, Porcupine, Beaver and Middle South Fork of the Hay River.

Moreover, thermal resilience patterns observed across the region corroborate the projected effects of climate warming on the future trout distributions shown in figures 4.9 and 4.13.

e) Trout Stream Restoration

Stream restoration work has the potential to offset some of the negative effects of climate change and land use impacts on trout habitat. As can be seen in Figures 4.21 and 4.22, a significant amount of work has been completed in the Eau Galle River watershed, mostly along the Eau Galle River and Cady and Arkansaw creeks.

In addition to the data shown, considerable stream restoration activities have occurred on many streams in the northern part of the region where data are not available or were completed after 2006. Recent trout habitat restoration projects have occurred on Turtle, Tiffany, Elk, Wilson, Gilbert, Plum, Trout, McCann, Hay, Sand, Bear and Duncan creeks.

Figure 4.21: Miles of trout habitat work completed from 1970 to 2006 in the Chippewa River Region.

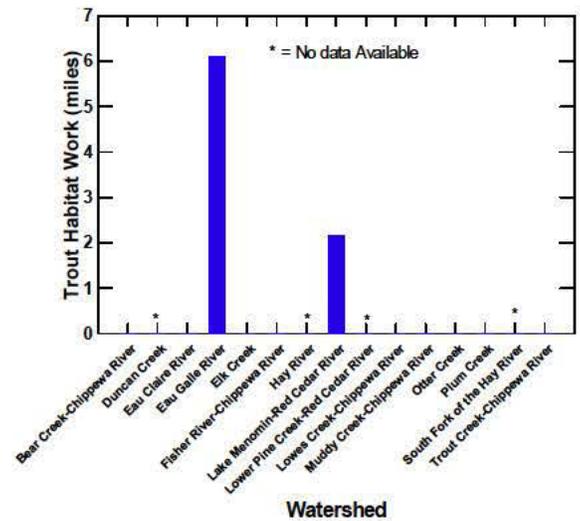
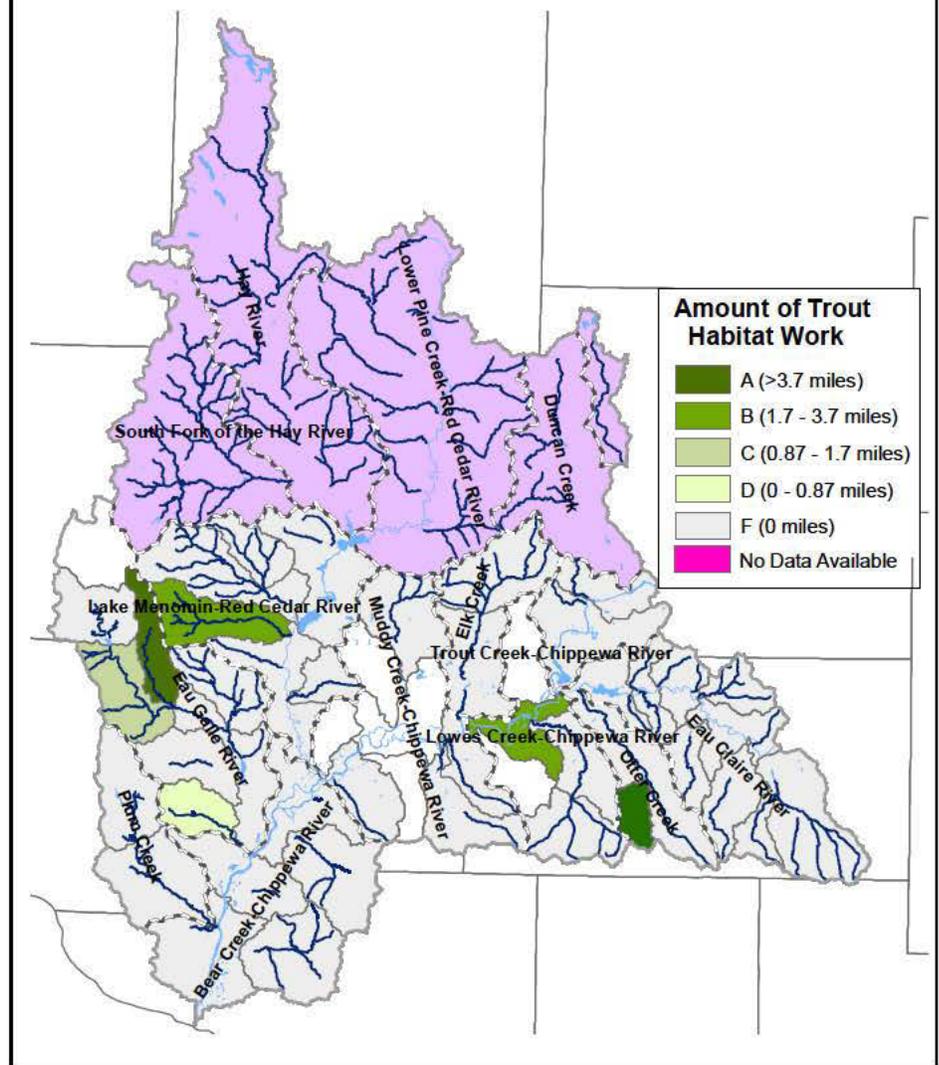


Figure 4.22: Relative amount of trout habitat work completed from 1970 to 2006 in the Chippewa River Region.



f) Recreation Opportunities

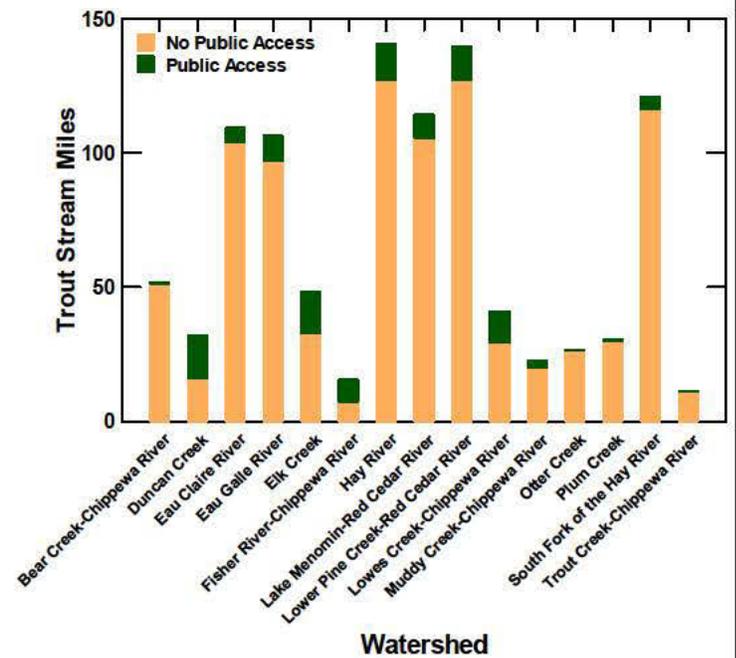
i) Trout angling opportunities

From the perspective of the entire Driftless Area, the Chippewa River Region holds the least amount of public access for trout angling at 10.7% of the total trout stream miles (Figure 2.38). Within the region, public recreational access for trout streams is highest in the northern and eastern portions of the region (Figures 4.23 and 4.24). Five major state fisheries areas are present here (McCann, Duncan, Sand, Hay and Elk creeks) and most of the riparian corridor is in fee title or easement ownership. Other areas with high public access include the Cady, Fall and Turtle Creek sub-watersheds.

The remaining sub-watersheds have very little public access for fishing. In most cases, town roads provide the majority of access to streams in this region. Five of the 16 watersheds possess no to very limited trout angling access. Bear Creek, South Fork of the Hay, and Plum Creek watersheds all contain very good brook trout fisheries with very limited angling access.

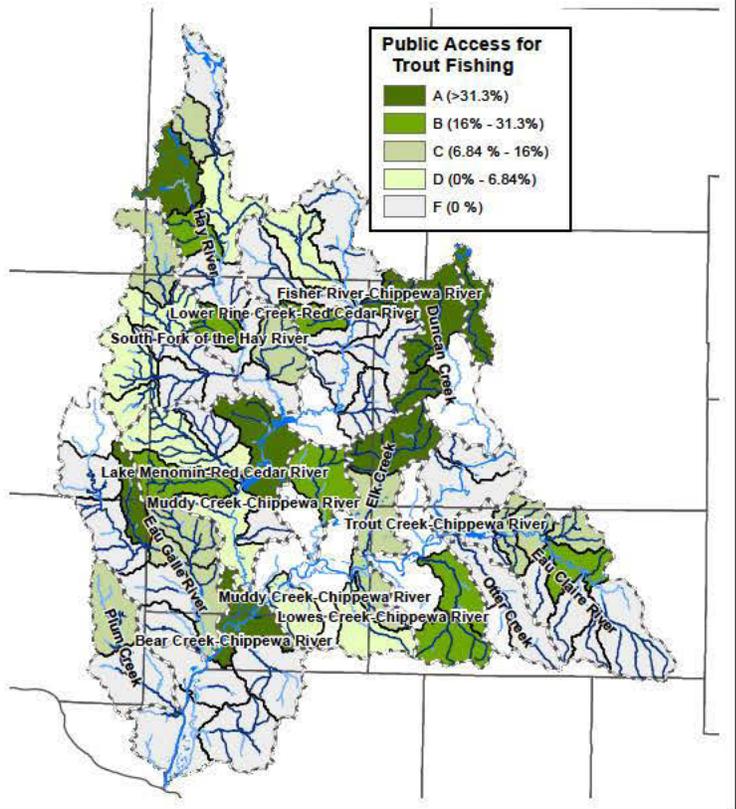
A geographic mismatch exists between the fate of the region’s trout fishery to climate change and contemporary public access conditions. Many of the sub-watersheds that hold good public access are also the same sub-watersheds that are most vulnerable to the effects of climate change on thermal habitat and trout populations (Figures 4.9, 4.13, and 4.24).

Figure 4.23: Miles of trout streams that are publicly-accessible for angling in the Chippewa River Region.



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

Figure 4.24: Percent of the miles of trout streams in the Chippewa River Region that are publicly-accessible.



ii) Smallmouth bass angling opportunities

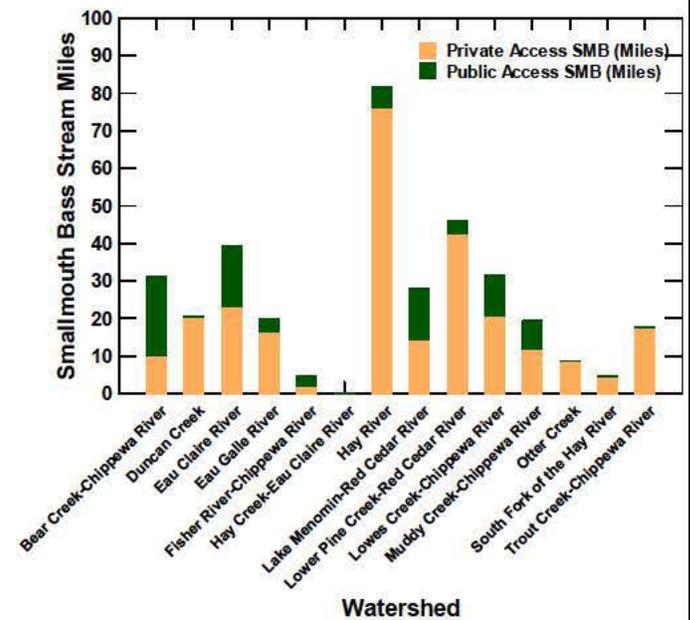
As can be seen in Figures 4.25 and 4.26, this region has high values for quality smallmouth bass fishing; however, public access is limited in some watersheds. Public recreational opportunities for smallmouth bass fishing are highest on the Chippewa River downstream of Eau Claire, on the Red Cedar River downstream of Menomonie and on the Eau Claire River in eastern Eau Claire County. Most of this area is located in the Lower Chippewa River State Natural Area and the Eau Claire County Forest. It should be noted that there is a lack of public access on the Upper Hay and Upper Red Cedar Rivers in southern Barron and northern Dunn County.

While lands open to public access may be scarce in some areas, the majority of the smallmouth bass water is accessible by watercraft. A variety of town, county or state boat accesses are available approximately every 5 to 10 miles along most major rivers here.

iii) Other recreation opportunities

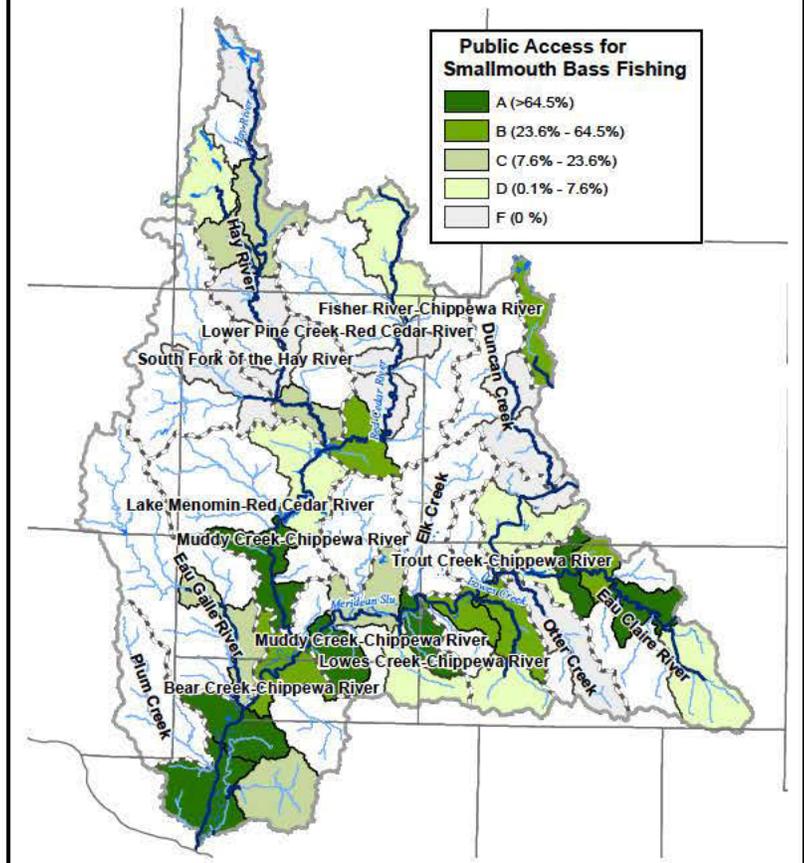
As with much of the rest of the Driftless Area, in addition to fishing, popular recreation activities in the Chippewa River Region include hunting, wildlife watching, boating, and camping. In particular, the Chippewa River corridor and the many large public land holdings there draw significant numbers of visitors.

Figure 4.25: Miles of smallmouth bass streams that are publicly-accessible for angling in the Chippewa River Region.



The Upper and Lower Muddy Creek-Chippewa River watersheds are combined in the bar chart.

Figure 4.26: Percent of miles of smallmouth bass streams in Chippewa River Region that are publicly-accessible.



iv) Recreation demand and supply

Eau Claire, Chippewa Falls and Menomonie are the main population centers within the region. The Twin Cities metro area is just west of the region and is within a one-hour drive of most of the western watersheds in this region. The influence of this large population center can be seen in Figure 4.27.

Several of the largest Department-owned shore angling opportunities for trout are in areas of the region where relatively few people live within a one hour drive. Examples include: McCann Creek, Duncan Creek, Sand Creek, Elk Creek, and Lowes/Clear Creek fishery areas. As a result, these sub-watersheds have a relatively large amount of publicly-accessible fishing opportunities (Figure 4.28). Similarly, the Department's large land holdings associated with the Lower Chippewa River State Natural Area result in a high relative abundance of angling opportunities in the Bear Creek-Chippewa River watershed.

There are relatively few angling opportunities along the western side of the region, which over 700,000 people can reach in a one hour drive (Figure 4.29). Given the number of high quality streams (supporting some of the region's best brook trout populations) that occur here, there may be opportunities to provide high quality angling experiences in the South Fork of the Hay River and the Lake Menomin-Red Cedar River watersheds.

Figure 4.27: Population within a one-hour drive of sub-watersheds in the Chippewa River Region.

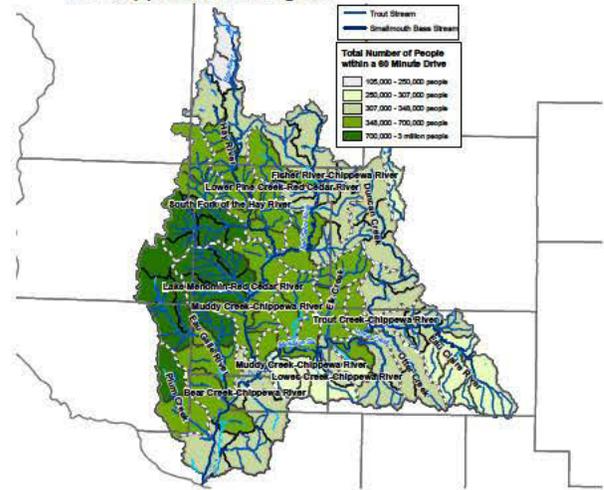


Figure 4.28: Publicly-accessible miles of trout and smallmouth bass streams per 100,000 people within a one-hour drive of watersheds in the Chippewa River Region.

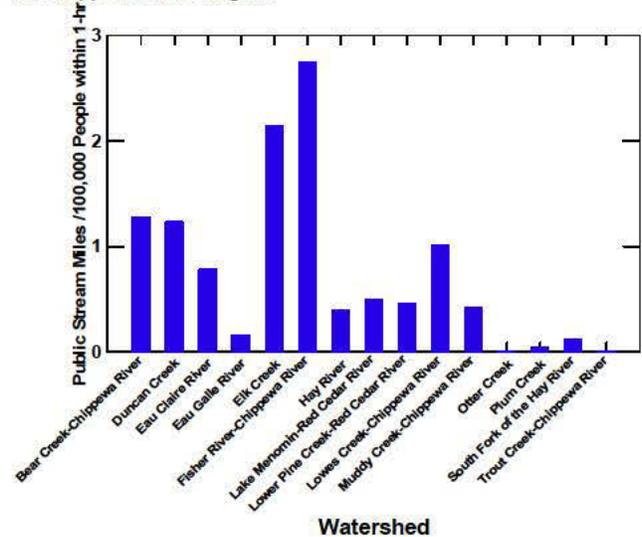
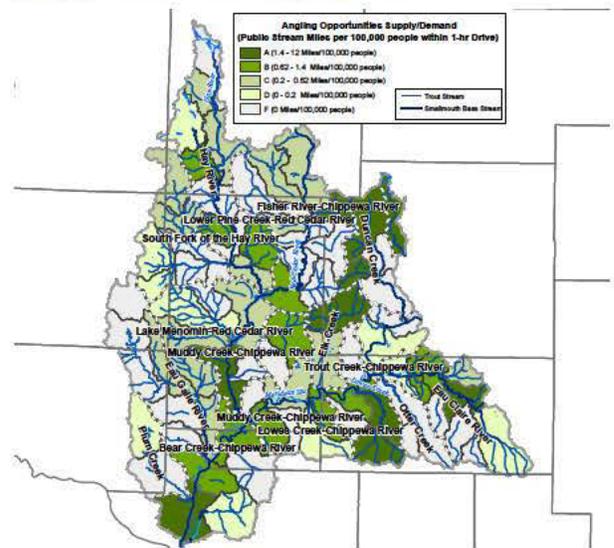


Figure 4.29: Supply of publicly-accessible trout and smallmouth bass stream miles per 100,000 people within a one-hour drive of sub-watersheds in the Chippewa River Region.



4. The Watersheds

Bear Creek – Chippewa River

This watershed covers part of the lower Chippewa River from the confluence of the Red Cedar River in southern Dunn County to the Mississippi River. It flows through a large wooded floodplain with heavily wooded and scenic bluffs in the background. The river is extremely wide and sandy throughout this reach. The Chippewa has a highly diverse sport and nongame fishery including smallmouth bass, walleye and catfish. Public access is limited to three locations along the waterway and remote float trips are available here. Angler use is common in the vicinity of Durand. Downstream of Durand, the river flows through a major wildlife area, the Tiffany Bottoms Wildlife Area.

A number of thermally-challenged moderate to small streams drain the heavily wooded, eastern coulees and ridges intermixed with farmland and an occasional wetland. There are two primary trout streams, Bear and Little Bear creeks, in the watershed that drain directly into the Chippewa River. The watershed also has about seven small classified tributaries along with many small warm water streams. Named streams include Spring, Newton Valley (Shoe), Weisenbeck Valley, North Branch of Little Bear and Center creeks.

For the most part, the trout streams are low density Class II water with several requiring stocking to support sport fisheries. The majority of streams suffer from weak spring flow, heavy flooding and bank erosion, and are plagued by fine sediment which limit natural reproduction and adult fish habitat. Intensive row crop and dairy farming on the hills, plateaus and valley floors presents difficulties managing highly erodible soils, water and liquid manure applications. Fish kills have reoccurred in the Little Bear Creek watershed.

While high quality trout streams in the area are limited, angler groups in the Durand area actively promote conservation of soil, water and coldwater fisheries with local, state and federal partnerships. Interests primarily lie in one of the best streams in Pepin County, Bear Creek, where natural and stocked populations for brook and brown trout provide low to moderate trout densities and a quality sport fish experience. To a lesser extent some interest occurs in the middle and upper portions of Little Bear Creek and the North Branch. Currently, Bear Creek is undergoing its second habitat restoration project.

Eau Claire River

This watershed covers the east central portion of Eau Claire County and drains into the Eau Claire River. Streams north of the Eau Claire River in this watershed are generally soft water streams that are heavily wooded and dominated by sandy bottoms, which limits in-stream habitat potential. However, thermal regimes are generally good. Beaver Creek is the best-known trout stream in this region and provides good fishing for brook trout, although the stream is small and angling can be difficult. Other named streams in this northern region are Pine, Dienhammer, Ninemile North and Sevenmile creeks. Similar to Beaver Creek, these streams are not stocked and provide native brook trout. Their small size limits use by anglers.

Streams in the southern portion of this watershed originate on the divide of the Eau Claire and Buffalo River watersheds and flow northward to the Eau Claire River. Named streams are Bridge, Travis, Hay, Diamond Valley, Thompson Valley, First Trestle, Bears Grass, Fall, Nine Mile and Six Mile creeks. These small streams are slightly harder but their habitat is very degraded with active bank erosion and a large in-stream sediment load present. In addition, box elder growth and riparian grazing is heavy along some stream corridors which further degrades bank integrity and fuels the streambank erosion and sedimentation problem. Forested areas along these streams are mainly limited to only the steeper slopes of adjoining hillsides. Bears Grass Creek was recently upgraded to Class II brook trout water with natural reproduction occurring at a low level. Bridge Creek is the largest stream in this

area and has a modest stocked brown trout fishery with an occasional large fish caught from time to time; thermal regimes are marginal. Major impoundments are present on both Bridge and Fall Creeks and thermally degrade coldwater regimes on these two systems.

The mainstem of the Eau Claire River is considered to be excellent smallmouth bass water and provides above average fishing for other desirable warmwater sport fish such as walleye, northern pike and muskellunge. Eau Claire County currently owns a large portion of the Eau Claire River frontage throughout this watershed providing excellent float trip experiences and shore fishing opportunities for anglers.

Duncan Creek

Duncan Creek starts in a large wetland complex near the village New Auburn and flows southward. An extensive state fishery area consisting of 7.8 miles of stream bank easement and 245 acres of fee title land is present on Upper Duncan Creek. This area harbors some of the best brook trout fishing in Wisconsin. Management activities have consisted of acquiring streambank easements and installing fence to exclude cattle and agriculture practices from the immediate stream corridor.

In the city of Bloomer, an impoundment (Lake Como) warms the water and turns the stream into a warmwater fishery. As the stream flows south of Bloomer, groundwater input increases and several tributary streams - such as the Hay, Little Hay and Tilden creeks - contribute additional coldwater input into middle Duncan Creek. This middle section of Duncan Creek was recently classified as Class II trout water. Trout densities are low but forage is abundant and large trout are present. Downstream of Tilden, the fishery again changes and three additional impoundments are present (Tilden Flowage, Glen Loch Dam and the Star Mill Dam) which again warms the water. The lower portion of Duncan Creek is considered a warmwater fishery; however, there could be pockets of coldwater from spring seeps that enter and provide refuge areas for trout that may be present. The lowermost section of Duncan Creek, just before it drains into the Chippewa River in Chippewa Falls, provides angling opportunities for smallmouth bass, walleye and other warmwater fishes.

Como Creek and its tributary, North Fork of Como Creek, enter Duncan Creek at Lake Como. Both streams are small Class I brook trout waters and angling is difficult due to extensive tag alder and reed canary growth.

Hay Creek is a Class 1 brook and brown trout stream that enters into Duncan Creek downstream of Bloomer. An extensive state fishery area covering 6.8 miles of streambank easement and 94 acres of fee title land is present. Similar to Duncan Creek, primary management has been streambank easements and fencing to exclude cattle and other agriculture practices from the immediate riparian corridor. Tag alder growth is heavy and reed canary grass is present in nuisance levels throughout the fishery area which degrades stream habitat and angling opportunity. Several older habitat restoration projects have been completed on Hay Creek but no major restoration has occurred in several decades.

Eau Galle River

The Eau Galle River forms from a series of agricultural dry runs, wetlands and wood lots in southeast St. Croix County before becoming as Class III trout stream. Two very small Class I and II brook trout streams, Lousy and French Creek, enter the Eau Galle River just upstream of the Corp of Engineers, Lake George Reservoir (126 acre) flood control project. The upper Eau Galle is dependent on stocking legal size trout to provide a fishery. Coldwater temperature regimes are weak and flooding is an issue. There is a limited amount of public access available through the Corp of Engineers' lands. Lousy Creek is very cold and has an abundant self-sustaining brook trout population. The stream flows through a small wooded coulee and registered trout farm. Access and adult

trout habitat is limited. French Creek has a weak thermal regime, low flow and floods often. Fishery potential is very limited.

Downstream of the reservoir, the Eau Galle flows south into a large coulee in Pierce County where it becomes Class II trout water for over 10 miles. The sport fishery is supported by annual stocking of large and small fingerling brown trout. The river corridor is composed of steeply wooded hillsides, small crop fields and pasture. The Eau Galle is a large stream which suffers from a weak thermal regime near the reservoir and over grazing and severe bank erosion in and near Elmwood. However, parts of the Eau Galle in this area provide some of the best trout fishing the stream has to offer. The Eau Galle is locally known for its low to moderately dense brown trout fishery. It also has the potential to produce quality and trophy sized brown trout. Low densities of brook trout can be found throughout this stretch. There is no public access on this section, but some road access is available. Fishing activity is spotty and light. Between the Village of Spring Valley and Elmwood, four small Class I and II brook trout streams enter including Burkhart, Mines and Porter Creeks. No public access is available on these tributaries; however, there is some isolated fishing of the large holes in the streams. Burkhart Creek is very small, high gradient stream which drains the Village of Spring Valley. It is subject to urban runoff issues. Mines Creek drains agricultural land, contains a fish barrier and is ditched on the lower end. Porter Creek is 0.6 miles long, has severe bank erosion, however brook trout are abundant in the headwater spring. Some interest in stream restoration exists among Elmwood residents.

At the Village of Elmwood, the Eau Galle banks east before entering Dunn County. It flows about 10 miles before entering Lake Eau Galle. The stream flows through a large agricultural valley with steep wooded hillsides. The stream is plagued by fine sediments; however, stream thermal regimes are strongest here. Fishing pressure is light and access is limited to a couple of road crossings. From the north, 6.8 mile Class I, Cady Creek enters the Eau Galle. The stream originates mostly in farmland and flows into a wooded and very scenic coulee. Cady Creek is an outstanding, self-sustaining brook trout stream, one of the best in the state. It is popular among anglers seeking a quality brook trout fishing experience. The state currently owns four stream bank easements on the stream and approximately two miles of stream corridor has been restored. Brush and tall vegetation restrict fishing in some locations during the summer months. Brown trout have begun to invade the lower reaches. Cady Creek remains subject to flooding and limestone mining in the headwaters has been problematic in the past.

As the Eau Galle flows into Dunn County, Knights Creek, a Class II brook trout stream which drains southwest Dunn County, enters. Knights Creek has two named tributaries, the North and West Branches and five unnamed tributaries all of which are Class I and II brook trout streams. Knight Creek and its tributaries contain mostly low to moderate densities of wild brook trout. Flooding, bank erosion and fine sediments limit its fishery potential. In the past, Knights Creek and its tributaries were very popular among trout anglers, however the small streams today are difficult to fish and are less appealing to today's anglers. The DNR currently owns five stream bank easements scattered throughout the watershed.

Before the Eau Galle River enters Lake Eau Galle, a 351 acre shallow hydro-power impoundment, Hay Creek (Class II brook trout stream) enters this section of river. The Hay has a remnant population of brook trout and is plagued by fine sediments. Fishability is questionable and there has been no interest in this resource.

Downstream of the impoundment, the Eau Galle River becomes warm water for seven miles before entering the Chippewa River. It supports a small population of warm water sport fish including bass, catfish, walleye and pike. This resource is primarily noted for spring spawning runs of various species. No public access is available other than by public road crossing.

Both the Missouri and Arkansas sub-watersheds join the Eau Galle in this area. The Missouri is a poor Class III trout stream. Arkansas Creek supports low to moderate densities of brook and brown trout. A small unnamed tributary supports an isolated self-sustaining brook trout population. Much of the Missouri and Arkansas drainages are cool/warm water streams, ditched for efficient row cropping. There is little or no interest in Missouri Creek; however, the main stem of Arkansas Creek is known to produce low to moderate densities of quality sized brook and brown trout. The stream is dependent on stocking to support a sport fishery and public access is limited to town roads and a village park. Quality trout fishing opportunities are limited in Pepin County and there has been some interest by local clubs and organizations in the area. Several habitat and bank improvement projects were recently conducted on the stream.

Elk Creek

Elk Creek originates in southwestern Chippewa County and flows southward into Eau Claire and Dunn Counties. An impoundment is present in Dunn County and separates the stream into Upper and Lower Elk Creeks. Upper Elk Creek is a Class I brown and brook trout stream and harbors some of the best brown trout fishing in western Wisconsin. Big Elk Creek is Class I named tributary and harbors mainly brook trout with brown trout becoming more numerous as you near its mouth with Elk Creek. Numerous small un-named spring tributary streams feed and drain into Upper Elk Creek and provide critical spawning and nursery habitat for trout. With Elk Creek's close proximity to Eau Claire it receives considerable angling interest from the public. An extensive fishery area is present on this portion of Elk Creek consisting of 14.1 miles of streambank easement and 330 acres of fee title lands. Similar to other state fishery areas in the region the main management activities have been acquiring streambank easements and installing fencing to exclude cattle and other agriculture practices from the immediate riparian corridor. In addition, numerous large scale stream habitat restoration projects have occurred on Elk Creek over time and the fish community has responded well to this restoration work. Tag alder growth is heavy and reed canary grass is at nuisance levels at most headwater and many main stem locations.

Downstream of the Elk Lake Dam, brown trout are still present in moderate levels. The fish community downstream of Elk Creek Lake is much more diverse with many species that are present in the Chippewa River such as smallmouth bass, walleye, muskellunge, sucker and various minnows species found throughout this reach as well. With the increase in species diversity and forage, larger brown trout are found in modest levels in this stretch of Elk Creek.

Fisher River – Chippewa River

McCann Creek is a Class I native brook trout stream and starts in a wetland complex just south of Round Lake and flows southward to O'Neil Creek. Fish densities are slightly lower than nearby Duncan Creek. However, larger brook trout are present in McCann Creek likely from lower densities and a more diverse forage base. A state fishery area is established along the entire length of McCann Creek consisting of 6.9 miles of streambank easement and 320 acres of fee title lands. Main management activities have been acquiring streambank easements and installing fencing to exclude cattle and agriculture practices from the immediate riparian corridor. Extensive stream habitat restoration activities have occurred on McCann Creek over time, however no restoration work has occurred within the past decade. Tag alder growth is heavy and reed canary is at nuisance levels throughout most of the stream corridor.

Hay River

The Hay River originates at the outflow of Beaver Dam Lake, in northwest Barron County. The Hay River consists of a warmwater fish community immediately downstream of the dam of Beaver Dam Lake. However, the Hay River begins to receive coldwater inputs as it winds through the agricultural-dominated landscape of central

Barron County. Spring influences vary throughout this stretch of the Hay River. As such, brook trout numbers do as well, but it is considered a Class II water through this stretch.

Lightning Creek is a small first-order stream; the headwaters are northwest of Almena. The stream flows southeast through an agricultural landscape until the confluence with the Hay River. The stream receives considerable runoff. The middle reach of the stream flows through a lower gradient area and becomes a warmwater marsh. Lightning Creek is considered a Class II stream for brook trout. Fishing access is limited to road crossings and fishing can be difficult due to small stream size, and heavy tag alder and reed canary growth.

Doritty Creek is a Class I trout stream in southern Barron County. It is a first-order stream that originates west of Hillsdale and flows southwest into the Hay River. The stream meanders through a largely wooded area, but the uplands are primarily agricultural. Anglers can access Doritty Creek through Barron County public land and additional road crossings. Fishing can be difficult due to tag alder and box elder growth. Doritty Creek contains some of the highest densities of brook trout for the area. Trout densities are higher in the middle to lower reaches of the stream where the stream cuts down through the valley and receives more groundwater input near Prairie Farm and the Hay River. Doritty Creek is an important tributary to the Hay River and has the potential for larger brook and brown trout towards the mouth of the Hay River.

The outflow from Lower Turtle Lake, in western Barron County, forms the headwaters of Turtle Creek. It has a warmwater fish community in the upper reaches, then transitions to a coldwater fishery below its confluence with Moon Creek. Turtle Creek is a Class II trout stream for brook and brown trout. The lower end of Turtle Creek resumes to more of a warmwater fish community before the confluence with the Hay River near Prairie Farm. Anglers have access to Turtle Creek through the county-owned Silver Creek Forest and the Turtle Creek Fishery area. Extensive habitat work has been conducted on the Barron County Forest land. Anglers will find rock weirs, plunge pools, current deflectors, cover rocks, bank covers, and several shore fishing stations and also a handicapped fishing pier. This stream has excellent fishing accessibility and receives considerable pressure through the county forest land. Trout populations are supplemented by stocking.

Silver Creek and Jones Creek, both Class I trout waters, are tributary streams of Turtle Creek. Silver Creek is a first-order stream located in southern Barron County, northwest of Prairie Farm. The stream flows east and drains into the Hay River. Silver Creek is a Class I brook trout stream. Brook trout numbers are high throughout this small stream. There is a large tract of Barron County Forest land that anglers can use to access the lower half of this stream. Jones Creek is a small Class I brook trout stream in southwest Barron County. It has good numbers of brook trout. The stream meanders through a forested area before entering Turtle Creek, just up from Prairie Farm.

The lower portion of the mainstem of the Hay River in southern Barron County returns to a warmwater fish community near Prairie Farm, largely due to the influence of the Prairie Farm Flowage. The fish community remains a warmwater community below the dam and into Dunn County.

The headwaters of Vance Creek are in southern Barron County. It is considered a Class I trout stream in the upper reaches, then flows into Dunn County and transitions into a Class II stream. Brook trout are abundant throughout the Barron County stretch. Although there is a high density of brook trout, there is still a respectable size structure with a few larger individuals. Fishing can be difficult due to small stream size, and the high density of box elder, tag alder and reed canary growth.

The Hay River flows south through north central Dunn County for over 20 miles before entering Tainter Lake. For the most part it is considered a warm water stream. Upstream of the confluence of the South Fork, the stream is smaller and supports a limited sport fishery for smallmouth bass, walleye, northern pike and an occasional musky. Trout can be found in low densities throughout, especially near the mouths of small brook trout streams. This section of stream flows through farmland intermixed with woodlands and contains a series of pool, riffle and run habitat similar to high quality trout streams, but somewhat too small for significant populations of warm water game fish to develop. Bank erosion is common near CTH N.

Downstream of the South Fork, the Hay River is much larger and the warm water sport fishery becomes much more abundant as one approaches Tainter Lake. The habitat becomes a deeper run and the stream has a high sand load. Trees and debris provide fish habitat. There is little residential development on the Hay River. Angler use is light and local in nature. Sucker fishing has been popular in the Wheeler area. Access is limited to a few public roads, the Village of Wheeler town park and a public access at the confluence of Tainter Lake. Fishing by canoe or small boat is possible downstream from Wheeler, but difficult upstream due to downed trees and limited flow.

Near the Dunn County line, four named Class II trout streams enter the Hay River including Vance, Deutch, Washburn Farm and Big Beaver Creeks. Big Beaver also has several unnamed classified tributaries and one named tributary, Little Beaver Creek. The streams flow through a mix of farm and woodland. Much of Big and Little Beaver creeks flow through large wetland complexes. Most of these streams are small, low density or remnant Class II brook trout water. The headwaters of Beaver Creek, which originates in hilly country, is Class I brook trout water for a mile. The best trout water in the area is Class I and II portions of Vance Creek which contains a mix of brook and brown trout. The streams are often shallow, sandy and overgrown with vegetation which limits angling.

The Otter Creek (Dunn Co.) sub-watershed enters the Hay River near Wheeler and drains north central Dunn County. The sub-watershed drains a mix of farm, woodland and wetland. Otter Creek has three branches, Little Otter, Blairmore Branch and the East Branch, and four unnamed tributaries. These streams generally are small and brushy and have low or remnant brook trout populations, most of which are found in the headwaters. The lower section of Otter Creek is Class III brook trout water and the remaining streams and tributaries are Class II brook trout water. Lower Otter is stocked to provide a fishery. Public lands managed as Fish and Wildlife Areas are scattered throughout the sub-watershed. Angling is light and most of the focus is on legal size stocked brook trout in the lower reaches of Otter Creek. Wetlands, weak thermal regimes, fine sediments and beaver dams limit trout abundance in the Otter Creek system.

Lake Menomin – Red Cedar River

The Red Cedar River is a medium-size warm water river that passes through agricultural and wooded lands of central Dunn County. This section covers waters from the mouth of the Hay River Bay in Tainter Lake downstream to the confluence of the Chippewa River. Tainter Lake is a fertile hydropower reservoir which empties into Lake Menomin, a fertile hydropower reservoir in the City of Menomonie. From Lake Menomin, the Red Cedar is free flowing for approximately 12 miles. This section is referred to as the Lower Red Cedar River and contains moderate populations of smallmouth bass and catfish, and low populations of walleye and pike. A few shovelnose and lake sturgeon are also present in the area. This section also contains an abundant population of the endangered blue sucker, a small population of endangered crystal darter and other threatened species.

Poor water quality in the river and reservoirs are caused by excessive phosphorus levels and heavy algal blooms which pass downstream during the warm water seasons. Despite poor water quality, recreation on the river is common and there are three public boat landings along with a city park available for access. Canoeing and tubing

are popular in the summer months and fishing on the Red Cedar within the City of Menomonie is common throughout the ice free months. Several opportunities exist for day long float trips.

A number of trout streams enter the Red Cedar River, most of which drain the wooded hills and valleys in eastern St. Croix and western Dunn counties before flowing east through agricultural lands. Lambs and Sinking creeks are small, brushy Class II brook trout streams that flow primarily through a large wetlands and the Lambs Creek Wildlife Area. The streams contain a remnant population of brook trout near the headwaters; downstream, temperature regimes shift toward warm water. There is little to no sport fish interest in these streams.

Wilson Creek is a large, cold water stream with many cold water tributaries, most of which is part of the Wilson Creek Streambank Protection Area. Wilson Creek's headwaters are an important Class I brook and brown trout stream in Dunn County. The wider, lower Class II reaches have severe bank erosion and are plagued by fine sediments. Stocking is needed to support a sport fishery. Trout angling is light but has great potential. There is much interest in the restoration of Wilson Creek by local conservation organizations. The state currently owns five easements and one fee title parcel on Wilson Creek and the North Branch near the Village of Knapp. The first in-stream habitat project was completed in 2012 with other projects planned in the near future. Wilson Creek has six named coldwater tributaries including Annis, Clack, Crosby, Rush, Hay and the North Branch of Wilson Creek. In addition there are seven unnamed tributaries. Most of the named and unnamed tributaries are small, Class II brook trout waters with moderate to low densities of self-sustaining brook trout. Habitat is often poor because of excessive bank erosion, heavy box elder infestations and fine sediments in the streambed. Road access is plentiful on these tributary streams but they are difficult to fish due to brush, grass or lack of pool habitat. Wilson Creek's sub-watershed contains sands suitable for fracking and an active frac sand mine is found in the headwaters area.

Gilbert Creek is another large, cold water stream with many cold water tributaries, most of which is part of the Gilbert Creek Streambank Protection Area. Gilbert Creek's headwaters are also an important Class I and II brook and brown trout stream in Dunn County. The wider, middle to lower Class II reaches have severe bank erosion, heavy box elder infestations and are plagued by fine sediments. Stocking is needed to support a sport fishery. Trout angling is moderate to light, however the potential is greater. There is much interest in the restoration of Gilbert Creek by local conservation organizations. The state currently owns several easements and two large fee title parcels on Gilbert Creek and the South Branch near CTH N, CTH Q and STH 29. Trout Unlimited also holds an easement on the North Branch. To date four in-stream habitat improvement projects have been completed recently with other projects planned in the near future. Gilbert Creek has three coldwater branches including the South, Middle and North Branch most of which are Class I trout water. Both unnamed tributaries are also Class I waters. Most of the named and unnamed tributaries are small streams with moderate to high densities of self-sustaining brook trout. Adult habitat is often poor because of excessive bank erosion, grazing and fines in the streambed. Beaver dams are problematic in various locations. Road access is plentiful on these tributary streams but they are difficult to fish due to brush, grass or lack of pool habitat.

In the southern portion of the watershed there are two named Class II brook trout streams that enter the Lower Red Cedar River. Both Irving and Little Elk Creek drain farmland interspersed with woodland. Both streams are small, less accessible streams with severe bank erosion and abundant fines. Brook trout populations are low. There is no public land and little or no interest in these streams.

Lower Pine Creek – Red Cedar River

The Red Cedar River is a medium-sized, highly important smallmouth bass stream which passes through this watershed near Chetek in Barron County and flows south through northern Dunn County, where it enters Tainter Lake. The Red Cedar River flows through farmland intermixed with woodland. Most of the corridor is wooded floodplain with little residential development. Excessive phosphorus loads promote in-stream vegetation and

diurnal oxygen swings. Angling is most popular in the spring and early summer before in-stream vegetation become overly abundant. There are local or state owned boat landings about every 5 to 10 miles of river. Small boats and canoes are used on 4 to 8 hour floats trips. Most anglers fish for smallmouth bass, walleye and northern pike. Spawning runs from Tainter Lake occur annually.

Brown Creek is a small stream that originates south of Barron and flows east until it enters the Red Cedar River just south of the Village of Cameron. Brown Creek is a Class I trout stream for Brook trout. Most of the watershed for this small stream is in agriculture. Accessibility is restricted to road crossings, and the reed canary grass and tag alder make fishing difficult.

Sioux Creek is a small stream that flows through and open-canopy agriculture area and enters the Red Cedar River just east of Dallas. This stream has a warmwater fish community, and is mainly comprised of warmwater minnow species. Gamefish may be found only on the lowermost reach of the stream

Upper Pine Creek originates in southern Barron County south of Hillsdale. The stream flows southeast to the confluence with the Red Cedar River, just over the Barron-Dunn county line. The stream is one of the tributaries of the Dallas Flowage. Upper Pine Creek is considered Class I trout water upstream of the flowage. The density for both brook and brown trout are typically high through this stretch of the stream. The North Branch of the Upper Pine and the East Branch of the Upper Pine are two other tributaries to the Dallas Flowage that enter on the east side of the flowage. Both the North and East branches of the Upper Pine are Class I brook trout water. There are high densities of brook trout in both of the two stretches; however, access is difficult due to the reed canary grass and tag alder. Downstream of the Dallas flowage the stream is considered Class II trout water and numbers for both trout species decreases, but size structure tends to improve. Fishing can be difficult due to tag alder and reed canary grass.

Lower Pine Creek originates in southern Barron County east of Prairie Farm. It flows into Dunn County before its confluence with the Red Cedar River. Spring Creek and the South Fork of Lower Pine Creek are tributaries of Lower Pine Creek. The Barron County portion of Lower Pine Creek is considered Class II trout water. There is little in the way of public fishing access through this portion of the stream. Fishing access is limited to road crossings. The density of brook trout is fairly low, but with good size structure. Few brown trout are found through the Barron County portion.

The South Fork of Lower Pine and Spring Creek drain agricultural and woodland in southern Barron and northern Dunn County. Spring Creek originates west of Dallas and flows south to Lower Pine Creek. The South Fork of Lower Pine Creek originates near Ridgeland and enters Lower Pine Creek, in southern Barron County. These streams are low density Class II or III brook trout water. Pine Creek near Ridgeland is stocked with legal sized brook trout to provide fishing opportunities in the Ridgeland area. Most of the headwaters are small, brushy and not very desirable as fishing destinations. Near the county line, stream width improves as does fishability; however, warm water temperatures limit this area to Class III water. Fishing pressure is light and mostly occurs in the spring. Road crossing are common but no public land is available for access.

Sand Creek is a Class I brook and brown trout stream. The stream originates west of New Auburn and flows westward to the Red Cedar River. Forested hillsides are common in this watershed and agriculture is present along the wider valley floors. Recent sand mining interests have targeted several hillsides in this watershed for exploration. Spring Brook, also a Class I brook trout stream, is the only named tributary to Sand Creek. A State Fishery Area is present on both waters consisting of 8.4 miles of streambank easement and 213 acres of fee title lands. Management activities have consisted of acquiring stream bank easements and installing fence to exclude

cattle and agriculture practices from the immediate stream corridor. Sand Creek and Spring Brook are primarily brook trout waters in the upper reaches however the lower portions of Sand Creek is mainly dominated by brown trout with larger-than-average sized fish present at certain times of the year. Tag alder growth is heavy and reed canary is at nuisance levels throughout most of the stream corridor.

Bronken, Popple and Hay Creek and its tributary flow east to the Red Cedar River. These streams drain the wooded hills, agricultural and wetlands northeast of Colfax to Ridgeland. All are small Class II brook trout streams with remnant to low densities of wild brook trout. Much of the lower ends are wetlands that transition the cold water headwaters to warm water systems. The streams are difficult to fish and there is little angler interest in these marginal streams.

Beaver, Trout, Running Valley and Eighteen Mile Creek and their five tributaries are all small Class I and II brook trout streams that start in western Chippewa County and flow westward into the Red Cedar River in eastern Dunn County. All streams in this watershed start out in forested ridges; as the valleys widen, agriculture increases in occurrence. Similar to Sand Creek, sand mining interests have targeted several hillsides in this region and more are likely in the future. Tag alder and box elder growth is heavy and reed canary is at nuisance levels throughout most of the stream corridor.

Lowes Creek – Chippewa River

Lowes Creek is a Class II brook and brown trout stream and originates in southern Eau Claire County on the north slope of the divide between the Chippewa and Buffalo River Valleys. The stream flows northward and empties into the Chippewa River near the City of Eau Claire. Named tributary streams are Graham, Kelly, Pine Willow, and Clear Creeks. Trout densities are generally low and stocking is necessary to provide good fishing for brown trout; however, native brook trout can be found in Lowes Creek mainly downstream of the mouth of Clear Creek. Larger brown and brook trout are present in Lowes Creek mainly from low densities and a good forage base. Habitat conditions are poor from excessive bank erosion and a heavy sand bedload. A state fishery area is present on Lowes Creek consisting of 5.0 miles of streambank easements and 346 acres of fee title lands. In addition, 4.1 miles of stream bank easements are present on Clear Creek.

Taylor, West and Sherman Creeks are tributaries to the Chippewa River. None are classified as trout water and they are currently managed as forage fisheries.

Muddy Creek – Chippewa River: Lower

Rock, Little Rock, Cranberry, Duscham, Pinch, Coon, and Fall Creeks drain the northern slope of the Chippewa and Buffalo River divide and flow northward into the Chippewa River. Streams in this region start in forested hillsides; however, the valley floors widen considerably and agriculture is fairly intensive throughout the mainstem reaches of these systems. Wetland complexes are also common along the stream corridors. Of all the streams in this portion of the watershed, Fall Creek is the best stream and is classified as Class II brook trout stream with moderate densities of stocked and natural reproducing brook trout. Fall Creek has 0.7 miles of streambank easement present. The remaining streams are marginal Class II or unclassified water that suffer from poor thermals and heavy sediment loads. Tag alder and box elder growth is heavy along most stream corridors and reed canary growth is a management concern.

Muddy Creek – Chippewa River: Upper

Muddy Creek originates from a series of small classified and unclassified tributaries in the heavily wooded Hoffman Hills Recreation Area and the wetlands northwest of Elk Mound. Row crop agriculture is intense especially to the south and several wetlands and tributaries have been ditched to facilitate farming. The headwaters of Muddy

Creek and its tributaries are small, low to moderate density Class II brook trout streams with little or no fishing pressure. South of Interstate 94, Muddy Creek and Iron Creek are warm water streams.

Otter Creek (Eau Claire Co.)

Otter Creek originates on the divide between the Eau Claire and Buffalo River drainages and flows northward towards the City of Eau Claire where it drains into the Eau Claire River. The valley floor is very wide along Otter Creek and agriculture is present in moderate levels throughout the watershed. Forested areas are limited to the hillsides, the immediate riparian area or small woodlands. Otter Creek was upgraded to Class II brown trout water in 2012. Recent fishery surveys have shown brown trout natural reproduction in portions of the stream as well as several year classes of brown trout in the population; however, densities are relatively low. Similar to Lowes Creek, above average sized brown trout are present mainly due to lower densities and an ample forage base. Considering Otter Creek's close proximity to Eau Claire, its larger size and recent upgrade to Class II trout status, local interest has been growing from user groups who want to explore securing public access for fishing and stream habitat restoration work. Bank erosion is heavy along most portions of Otter Creek and a heavy sand bedload is present and stream restoration activities are warranted.

Plum Creek

Plum Creek is an outstanding brook and brown trout stream found near Plum City. It originates from two warm water streams, Plum and Rock Elm Creek, in south eastern Pierce County farmland. These streams flow south into Nugget Lake which is a flood control reservoir with a 40 foot head. Several unnamed Class II tributaries join Plum Creek a short distance below the dam to form Class I Plum Creek. It then flows south through an extensive coulee for over 11 miles where it becomes Class II trout water in Pepin County. The Class I portion passes through an intensively farmed and grazed valley floor, the Village of Plum City and large scale forested hillsides. Numerous classified (I & II) coldwater springs enter throughout this section. The main stem of Plum Creek is a moderate-sized stream with a high trout population and excellent quality. Bank erosion and high nutrient loads somewhat degrade habitat throughout this stretch. It has had a history of fish kills from manure runoff. It is popular with trout anglers both locally and as far away as the Twin Cities. This section has been identified as an important resource worthy of long term protection and is part of the Plum Creek Streambank Protection Area. Shortages of staff time and funding have delayed implementation of acquisition activities on this stream. Access is currently limited to public roads, a village park and county easements within the Village of Plum City.

Plum Creek in Pepin County is a Class II brook and brown trout water. It has three named tributaries, Elk, Porcupine and Little Plum Creek, two of which are low density, Class II brook trout water. These streams are small and difficult to fish and there is little interest in these waters. The main stem of Plum Creek is large and flows east through large wooded hills intermixed with farmland. The stream bed carries a heavy sand load, water temperatures are excellent and downed trees provide cover. The lower Plum Creek trout fishery can be defined as low density but high quality. There is moderate interest in this stream, yet travel distance limits fishing pressure. Access is confined to several town roads.

South Fork of the Hay River

The South Fork of the Hay River is a large trout stream with six named tributaries including Tiffany, Johns, Bolen, Flayton, Torgerson and Connors creeks. The South Fork originates in southwest Barron County and flows south for over 24 miles before entering the Hay River near Boyceville. The headwaters drain wooded hills and coulees interspersed with farmland. The headwaters of the South Fork are Class I brook trout water and are probably the best fishable brook trout waters in Dunn and Barron County. The South Fork contains high trout densities and provides quality fishing opportunities. It is a popular stream with moderate fishing pressure. The state owns

several remnant parcels which abut Greytown Park in Dunn County and Barron County holds a number of conservation easements.

This area should receive further consideration as a fishery area. The middle to lower reaches are Class II trout water and are stocked to provide a sport fishery. Wild brook trout are present in low densities and some stocked yearling brook trout survive to produce memorable size brook trout. This section passes through floodplain forest and cropped valley floors. The streambed is mostly sand, fallen trees provide most of the fish habitat, and water temperatures become less suitable for trout as it flows toward the Hay River. Stocking legal size trout has historically attracted many anglers during the month of May, then fishing pressure drops off. Road crossings provide stream access and there is one remnant Wildlife Management Area parking lot upstream of Boyceville.

Near the Dunn-Barron county line, several Class I feeder creeks enter the South Fork. Both Connors and Torgerson Creek have high densities of self-sustaining brook trout. However, fishing is difficult due to small stream width and brush. Several unnamed Class II streams also enter the South Fork in this area and contain low to remnant brook trout populations. These tributaries are often infested with beaver dams.

In the vicinity of Connersville, three Class II brook trout streams enter the main stem of the South Fork. Flayton and its tributaries contain low densities of native brook trout. Wetlands in the lower stretch impair thermal regimes. The stream is small and brushy with little to no fishing pressure. Bolen Creek is stocked with legal sized brook trout. Fishing pressure is common by bridge holes during May. The creek and its tributary are currently classified as Class II trout water; however, recent surveys indicate Bolen Creek has become Class I trout water. Bolen Creek lies within the Bolen Creek Fishery Area, although the state currently owns only one parcel. Historically, Bolen Creek was a popular fishing destination but today's anglers are less willing to fish small, brushy streams. Bolen Creek overall lacks good adult fish habitat in the form of pools and suffers from wide sandy stretches and beaver dams. Johns Creek is a small Class II brook trout water. It contains low to moderate brook trout densities. The headwaters have severe bank erosion and the lower half of the stream is ditched for agriculture. There is little to no interest in the stream and access is limited to a few road crossings.

Near the Village of Boyceville a major cold water tributary enters the South Fork. Tiffany Creek flows east 15 miles from a series of cold water tributaries in the north eastern wooded ridges and coulees of St. Croix County through agricultural plains to the confluence with the South Fork. Tiffany Creek has five named cold water tributaries and numerous unnamed tributaries. Near the Villages of Glenwood City and Downing; Tiffany, Beaver, Sandy, Blue and South Tiffany Creeks join to form the main stem. These tributaries and their springs are mostly small, Class I brook trout streams with moderate to high populations of wild brook trout. Beaver Creek and the headwater of Tiffany Creek are most popular. Angler use is light and access is available by town or county roads. Most of these tributaries have limited adult fish habitat but anglers seeking out the larger pools are rewarded with quality size brook trout. Beaver are occasionally a problem. The headwaters of Tiffany and part of Beaver Creek have been ditched. Secondary issues include urban issues in Glenwood City, fine sediments and streambank erosion. Tiffany Creek lies within the Tiffany Creek Streambank Protection Area.

State ownership is limited to one large easement which abuts the county fairgrounds. Part of this ditched section of stream was restored recently and more work is planned. As Tiffany Creek flows into Dunn County the stream becomes Class II brook trout water with low to moderate densities. Fishing pressure and interest is light. Access is available by town roads and in the Village of Boyceville's town park. Tiffany Creek is plagued by bank erosion and fine sediment. Industrial discharges have been a problem in the past.

Trout Creek – Chippewa River

This small watershed harbors two Class I brook trout streams, Trout and Beaver creeks, which flow into the mainstem of the Chippewa River. Trout Creek is the larger of the two streams and receives most of the angling interest. Recently habitat restoration work occurred on a section of Trout Creek via a Trout Unlimited Streambank Easement; however, access to both streams is limited.