

Driftless Area Stream Master Plan Project Regional and Property Analysis EXECUTIVE SUMMARY

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Angling in southwestern Wisconsin’s Driftless Area is unquestionably one of the state’s premier outdoor experiences. Over the better part of a century, the Department of Natural Resources (DNR) has worked with a wide range of partners to help protect, restore, and manage the streams and rivers that flow through this unique landscape. Thanks to the efforts of fish biologists, fishing organizations and clubs and their tireless volunteers, farmers and landowners, businesses, and local governments, few places in the Midwest can rival the diversity and quality of fishing here.

The Department owns or holds easements on more than 35,000 acres along trout and smallmouth bass streams in the Driftless Area and is in the process of updating the management plan for these properties. To simplify and speed up the planning process, the Department is developing one master plan, called the Driftless Area Master Plan (DAMP), to cover all these properties. The plan will describe the habitat management and land protection goals, objectives, and strategies for these properties and chart a course for the future. The first step in the planning process is the drafting of this initial document, the Regional & Property Analysis (RPA).

The purpose of the RPA

The RPA presents background information about the DNR properties and the waters that flow through them. It focuses on information of primary interest to anglers: where the fish are, where the public access is located, and where the fish are likely to be in the future, given changing climate conditions. Information about habitats beyond the immediate stream corridors, recreation demand, the projected thermal resilience of streams, and other factors is also presented. The information in the RPA is the foundation from which the master plan will be developed.

The properties included in this plan are primarily owned by the Fisheries Management Program (state fishery areas as well as lands acquired through the “remnant” habitat program and the stream bank protection program). In addition, several properties along trout and bass waters that are owned and managed by the wildlife management or the state natural areas programs are also included.

The lands included in this master plan include those protected through both fee acquisition and easements. The DAMP will guide and prioritize the DNR’s habitat management actions (including in-stream restoration) and land acquisition efforts over the next 15 years.

How DNR applies science to planning

The Department has limited staff and financial resources and wants to ensure that its investments in stream restoration and maintenance have a high likelihood of supporting the desired species over the long term. Similarly, the DNR seeks to invest in public access where there is a high degree of confidence that populations of the desired fish species will be sustained over time.

The Fisheries Management Program uses electrofishing as a method to measure adult trout and bass abundance in Wisconsin streams. To evaluate the present-day quality of the sport fisheries found throughout the 94 watersheds in the Driftless Area, 6,737 electrofishing surveys were analyzed in the RPA.

The RPA also used two of the newest science-based stream models to help evaluate the suitability of current and future habitat conditions for brook trout, brown trout, and smallmouth bass. The first model, the Midwest Fish Habitat Partnership’s Driftless Area Restoration Effort (DARE) model, evaluates current habitat conditions.

Total acreage of DNR properties included in the

PLANNING REGION	Acres Currently Owned/Eased		
	Fee	Easement	Total
Baraboo	724	171	895
Black	6,959	737	7,696
Chippewa	4,796	1,220	6,016
Kickapoo	6,491	2,018	8,509
Kinnickinnic	1,694	220	1,914
Lower WI	5,459	1,712	7,171
Pecatonica	1,702	967	2,669
Platte	27	1,062	1,089
TOTAL	27,852	8,107	35,960

This model assesses the relative influence that different factors have in determining the likelihood that each of the species will be present or absent in a particular reach of stream. The computer model evaluated both natural habitat potential (i.e., things that people cannot influence), as well as the degree of human-induced land use stressors.

The potential impacts of long-term changing climate conditions are increasingly in the news. In particular, trout anglers and biologists have been at the forefront of assessing and projecting how warming temperatures and increasingly intensive storm events may impact trout abundance and distribution. The second model used in the RPA, which was developed by USGS and other Midwest scientists,

evaluates the impact of projected climate changes on future distributions of brook and brown trout and smallmouth bass. For each species, this model projects a future distribution, based on species-specific habitat needs, existing stream conditions and their thermal resilience, current fish distribution, and a series of predicted future climate scenarios.

Contemporary data on sport-fisheries performance, combined with habitat models which depict current and future fish species distributions, provides resource managers with spatially powerful tools. These science-based approaches enable managers to make wise investments of limited staff and financial resources.



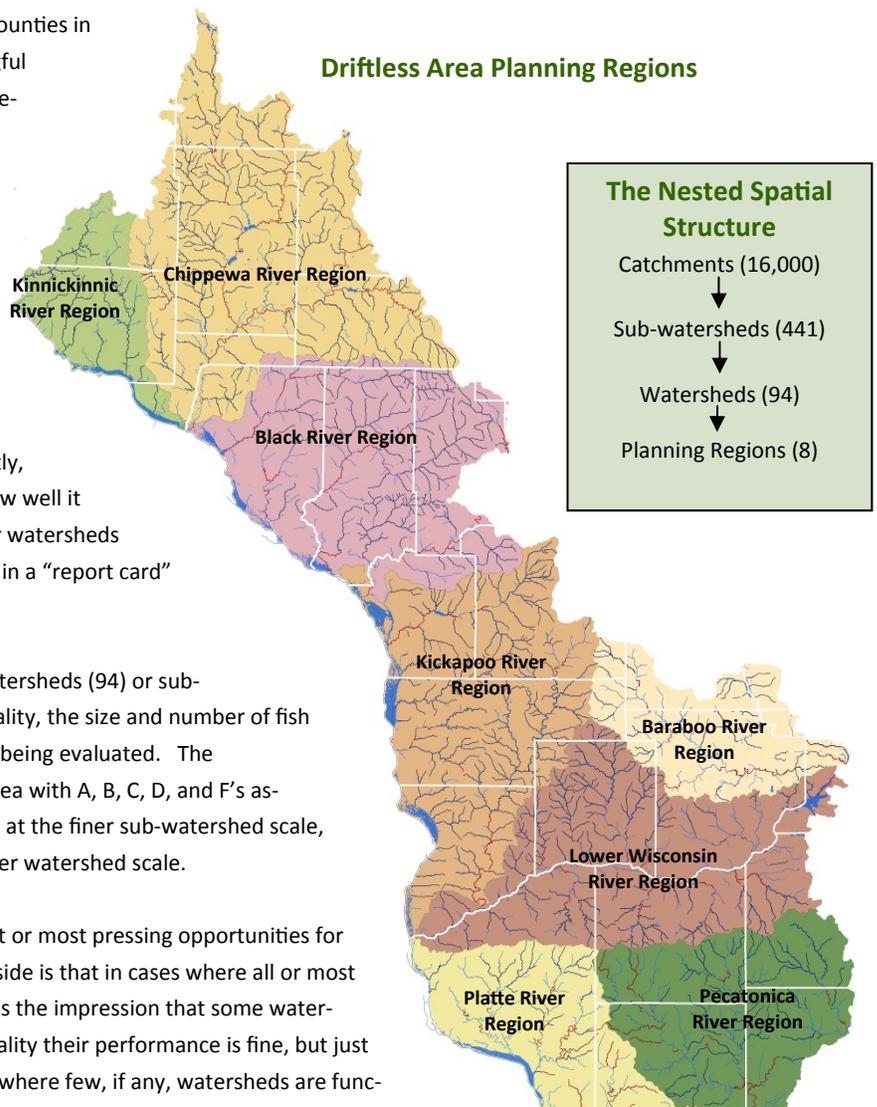
How the information is presented

The Driftless Area encompasses part or all of 23 counties in Wisconsin. To provide information at a meaningful scale, the Driftless Area is divided into eight Planning Regions that have similar types of aquatic and landscape features. Information for each Planning Region is presented by watershed and sub-watershed in a nested spatial structure. Sub-watersheds are comprised of catchments, which encompasses the land area that drains into each stream reach.

Information in this RPA ranges from fish abundance to habitat quality to human population density. In an effort to present the information simply and consistently, each watershed and sub-watershed is evaluated for how well it “performs” for a particular metric, relative to the other watersheds and sub-watersheds. These scores are then presented in a “report card” format.

Thus, the report card has “students,” which are the watersheds (94) or sub-watersheds (441) and “subjects,” which are habitat quality, the size and number of fish present, amount of public access, and the other topics being evaluated. The “students” are graded relative to the entire Driftless Area with A, B, C, D, and F’s assigned. The maps in the RPA depict assessment grades at the finer sub-watershed scale, while the tabular report card is presented at the broader watershed scale.

The benefit of this approach is that it identifies the best or most pressing opportunities for future management and protection efforts. The downside is that in cases where all or most of the “students” perform well, grading on a curve gives the impression that some watersheds or sub-watersheds are poor or failing when in reality their performance is fine, but just not as high as the other “students.” Similarly, in cases where few, if any, watersheds are functioning well, the best performers get high grades, despite poor performance.



Take home messages of the RPA: *General*

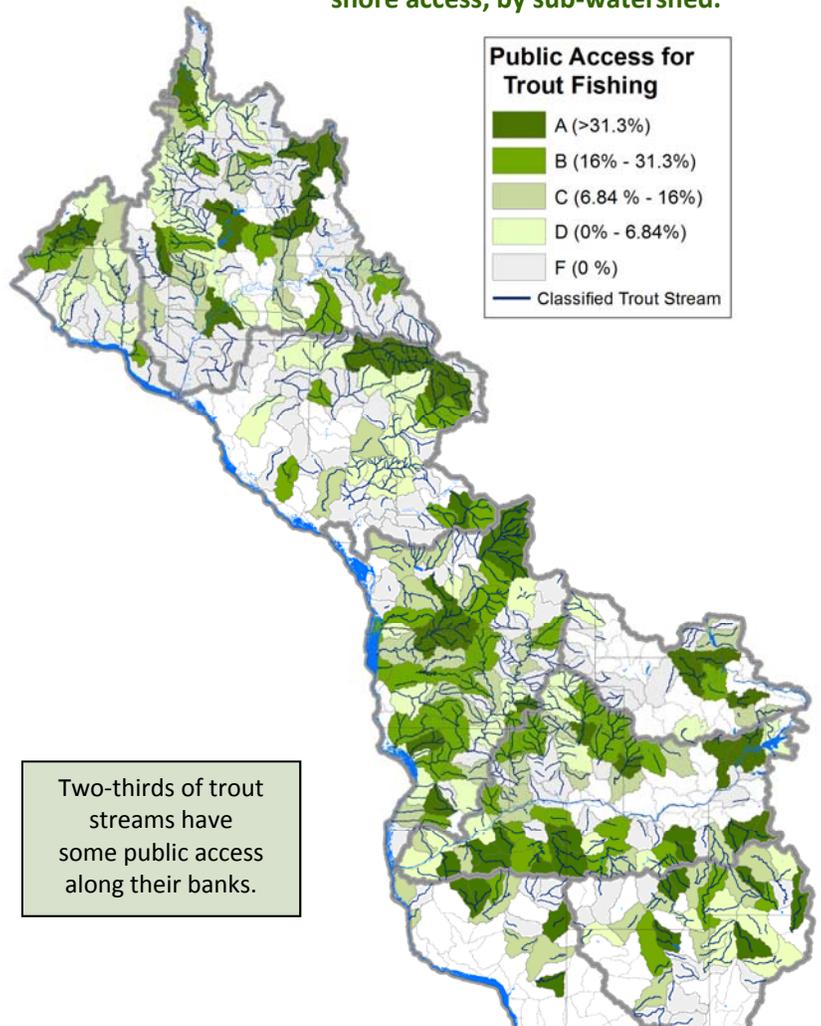
- The Driftless Area is home to the highest concentration of trout streams in the Midwest. Over the last several decades, thanks to significant improvements in land use practices and stream restoration efforts, these streams support more trout than most anglers have seen in their lifetimes.
- The Department, in close collaboration with Trout Unlimited, the Smallmouth Bass Alliance, local rod & gun clubs, county and local governments, NRCS and F&WS, and other organizations, have restored and maintained more than 300 miles of streams in the Driftless Area since 1970. This has led to significant increases in the number of fish present in these waters.
- The most restoration work has been completed in the Kickapoo River Region.
- The Driftless Area is home to several rare natural community types – including oak savanna and forests, dry prairies, wet prairies and sedge meadows, and floodplain forests. Several of the DNR properties in this master planning project have opportunities to manage and restore these and other important habitats.
- Trout streams or reaches of streams tend to be dominated by either brooks or browns – very few waters have similar-sized populations of both species.



Take home messages of the RPA: *Trout angling access*

- Public shoreline access for trout angling is patchily distributed across the Driftless Area – 6.5% of the sub-watersheds have over 50% of their trout stream miles in public ownership while for nearly a third of the 325 sub-watersheds with trout streams, the only public access is from roads and for anglers to “keep their feet wet.”
- The Department acquires both fee title property and easements along trout waters in the Driftless Area.
- The Driftless Area is “bookended” by the Twin Cities and Madison. More than 300,000 people live within a one-hour drive of over half the Driftless Area. As such, the highest quality streams – particularly those with public shore access – tend to be heavily fished, especially early in the season. Data on other recreational uses of the DNR properties are not available.

The percent of trout stream miles with public shore access, by sub-watershed.

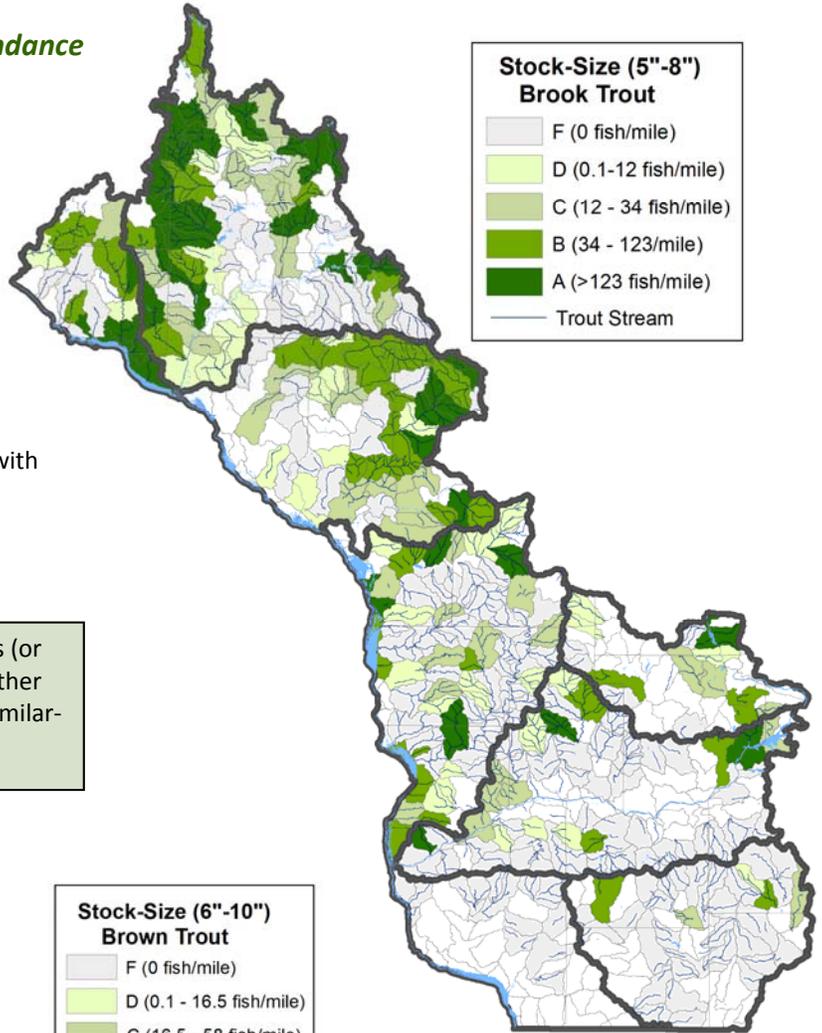


Wisconsin DNR

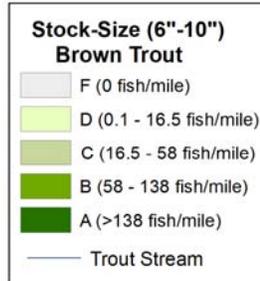
Take home messages of the RPA: Trout abundance

Brook Trout

- Brook trout is Wisconsin’s native trout species.
- Although found in every planning region, the highest population densities occur in the eastern Kinnickinnic River/western Chippewa River regions, the Black River Region, and in the Baraboo Hills.
- Brook trout tend to be found in headwater creeks with clean, cold water.

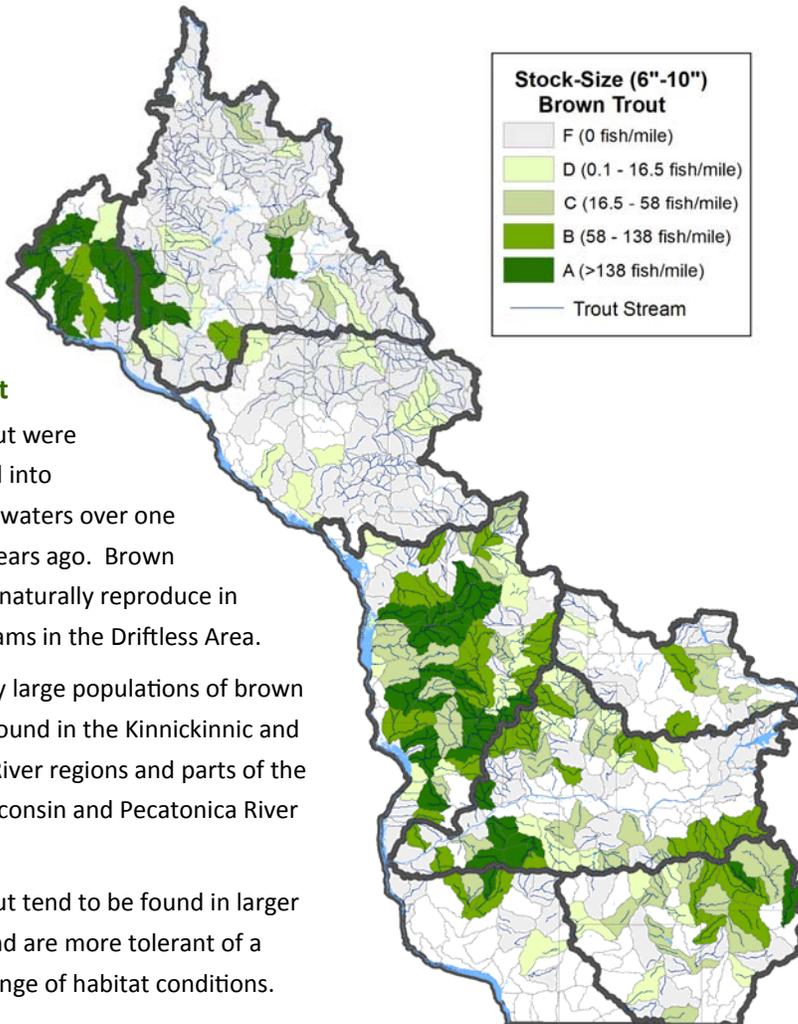


As can be seen in these two maps, trout streams (or sections of streams) tend to be dominated by either brook or brown trout—not many waters harbor similar-sized populations of both species.



Brown Trout

- Brown trout were introduced into Wisconsin waters over one hundred years ago. Brown trout now naturally reproduce in many streams in the Driftless Area.
- Particularly large populations of brown trout are found in the Kinnickinnic and Kickapoo River regions and parts of the Lower Wisconsin and Pecatonica River regions.
- Brown trout tend to be found in larger streams and are more tolerant of a broader range of habitat conditions.



In the RPA, fish sizes were classified as follows:

Brook Trout
 Stock-size = 5” up to 8”
 Quality-size = 8” up to 12”
 Memorable-size = 12” and above

Brown Trout
 Stock-size = 6” up to 10”
 Quality-size = 10” up to 15”
 Memorable-size = 15” and above

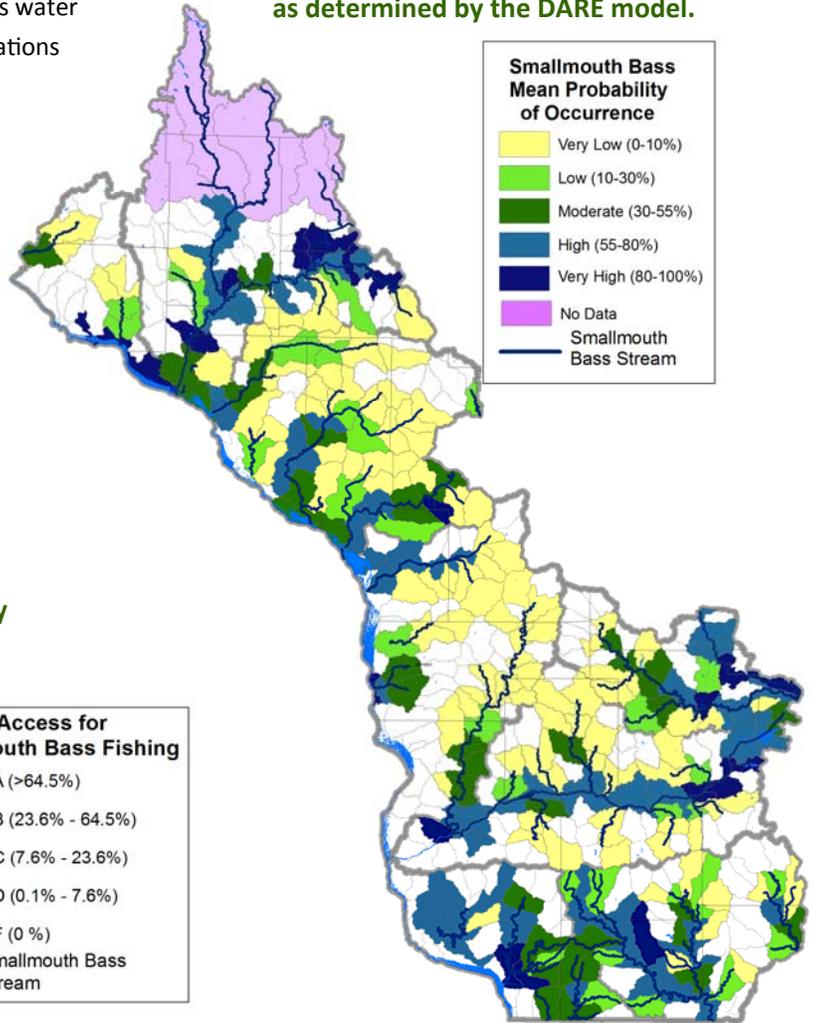
For maps of the distribution and abundance of quality and memorable trout, see pages 2-19 and 2-20 as well as the region chapters.



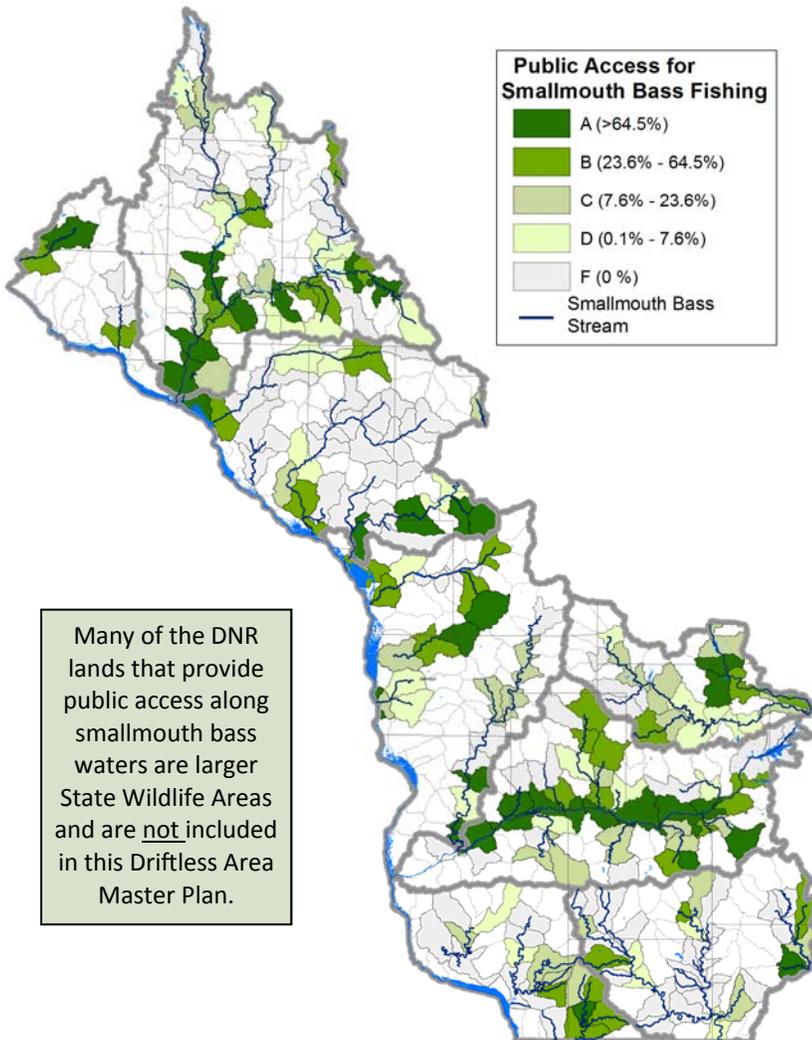
Take home messages of the RPA: *Smallmouth bass abundance and angling access*

- Smallmouth bass are found in all of the larger river systems in the Driftless Area (although data on their abundance and distribution is not available for many waters). As water quality has improved in many rivers, bass populations have responded well.
- Angling access is generally excellent along large rivers, especially the Lower Wisconsin River. Since many bass anglers fish from boats, well-spaced boat access sites are particularly important in providing adequate access.
- Smallmouth bass are piscivores (“fish eaters”) and, as such, naturally occur at lower densities than trout which are insectivores (“insect eaters”).

The probability that smallmouth bass occurs in each sub-watershed, as determined by the DARE model.



The percent of smallmouth bass stream and river miles with public shore access, by sub-watershed.

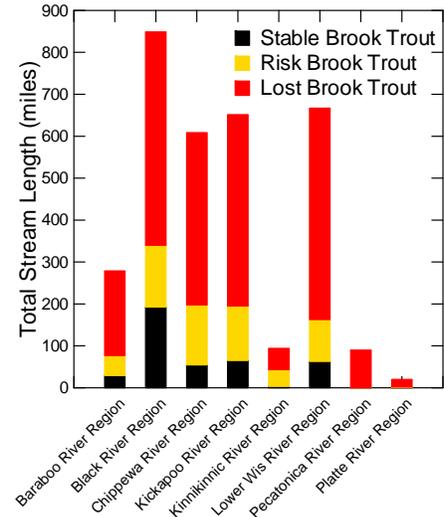
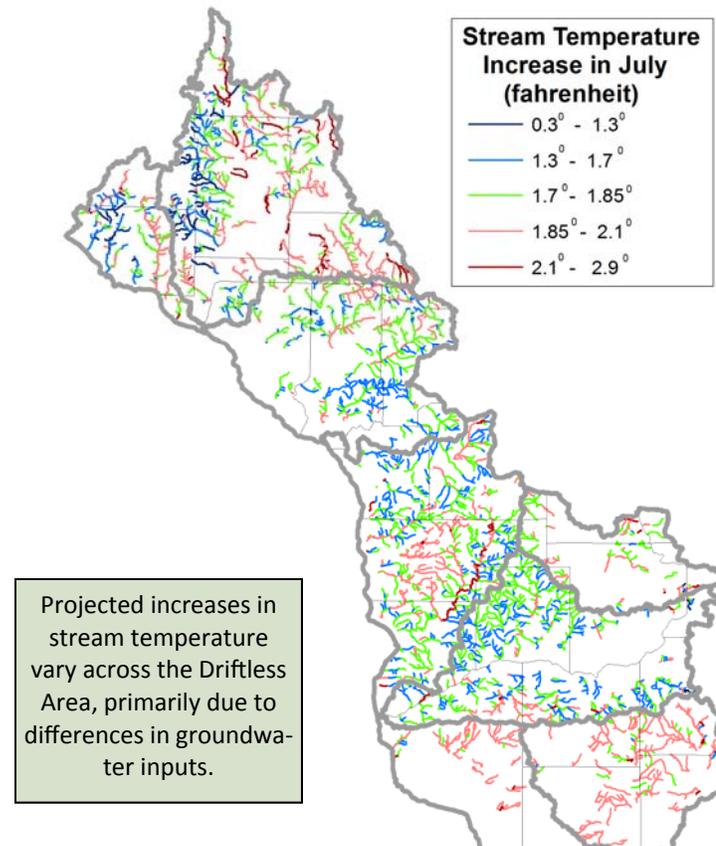


Many of the DNR lands that provide public access along smallmouth bass waters are larger State Wildlife Areas and are not included in this Driftless Area Master Plan.

DNR data on smallmouth bass distribution and abundance is incomplete. Instead of displaying the existing incomplete data, the above map shows the output of the DARE model, which takes into account a wide array of variables to determine the probability of smallmouth bass occurring in each sub-watershed.

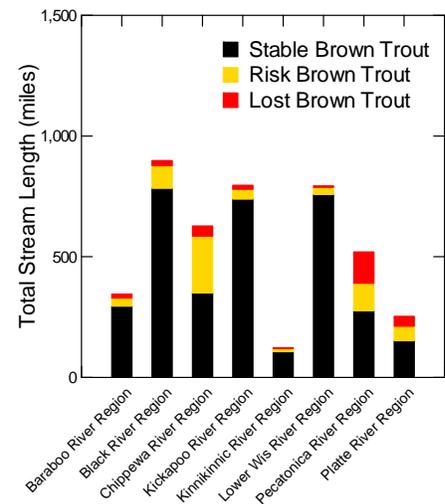
Take home messages of the RPA: *Climate change*

- All the streams and rivers of the Driftless Area are projected to warm by the middle of the century due to climate change, but most will continue to support trout.
- The thermal resilience of streams and rivers varies across the Driftless Area – some waters are projected to have July mean temperatures increase more than 2.5°F by the mid-century while others are projected to increase less than 1°F. A significant factor in this difference is the relative amounts of stream flow contributed by shallow and deep groundwater sources.
- As a result of climate change, models project a 75 percent reduction in the number of stream miles brook trout will occupy in the Driftless Area. Some areas are likely to remain as critical strongholds for brook trout, for example the Black River Region, and could be considered for future reserves.
- Brown trout are projected to be more resilient to climate changes than brook trout. For brown trout, fish distribution models project only a small reduction in their future distribution.
- Different stream and riparian management strategies may dampen the effects of climate change on trout.
- Only some waters that are projected to warm to the extent that they'll no longer support trout will become smallmouth bass waters. This is due, primarily, to the fact that smallmouth bass require larger bodies of water and because they occupy a higher trophic level.

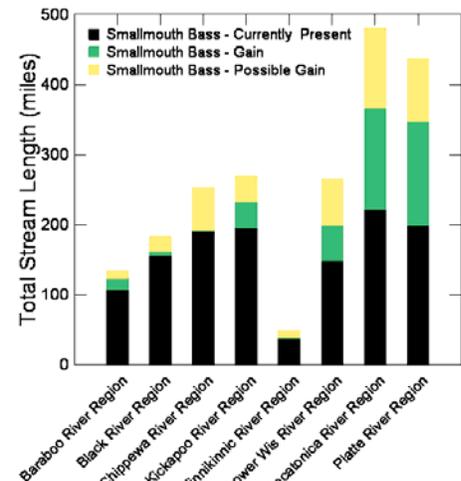


Climate change models project that brook trout populations may be reduced by 75% by mid-century ...

... while brown trout are projected to be only modestly affected.



Smallmouth bass are projected to expand their range in all the planning regions, with particularly large increases in the Lower Wisconsin River Region.



Kinnickinnic River Region Highlights

- ❖ The Kinnickinnic is the smallest of the Driftless Area planning regions and contains only six watersheds, five of which contain trout streams.
- ❖ Brook trout are most prevalent in the tributaries or headwater streams of the Kinnickinnic, Lake Pepin and Rush River watersheds.
- ❖ The best natural habitat for brook trout in the region is found in the Kinnickinnic River watershed; unfortunately, this watershed also contains high levels of land use stress.
- ❖ Fish distribution models incorporating climate change impacts project serious declines for brook trout in the Kinnickinnic River Region, most notably the Rush River system where over 80% of the occupied stream miles are projected to be lost.
- ❖ The Kinnickinnic River Region contains a concentration of sub-watersheds with very high brown trout densities. At nearly 550 fish/mile, the Kinnickinnic River watershed has the highest median catch rate for brown trout in the Driftless Area.
- ❖ Inland waters of the region have limited smallmouth bass habitat; as a result, bass fishing opportunities are nearly absent.
- ❖ The primary public property in the Kinnickinnic River Region is the Kinnickinnic River State Fishery area which encompasses 350 acres in fee and 155 in easement. There are also 853 acres in this watershed that were acquired under the Streambank Protection program.
- ❖ The Pine Creek Fishery Area consists of several hundred acres once owned by West Wisconsin Land Trust.
- ❖ The Kinnickinnic River watershed scores well for the amount of in-stream restoration and the amount of angling access. Much stream restoration work has been completed thanks to the efforts of many partner groups. The other watersheds have generally had little in-stream work completed.
- ❖ All the watersheds are within very easy access of the Twin Cities and provide quick day-trip opportunities for those residents, in addition to local anglers from Pierce and St. Croix counties. Publicly accessible lands along trout waters in the region are very heavily used. Given the large number of anglers within a one-hour drive of the region, all watersheds have poor public access relative to demand.

Kinnickinnic River Region Report Card

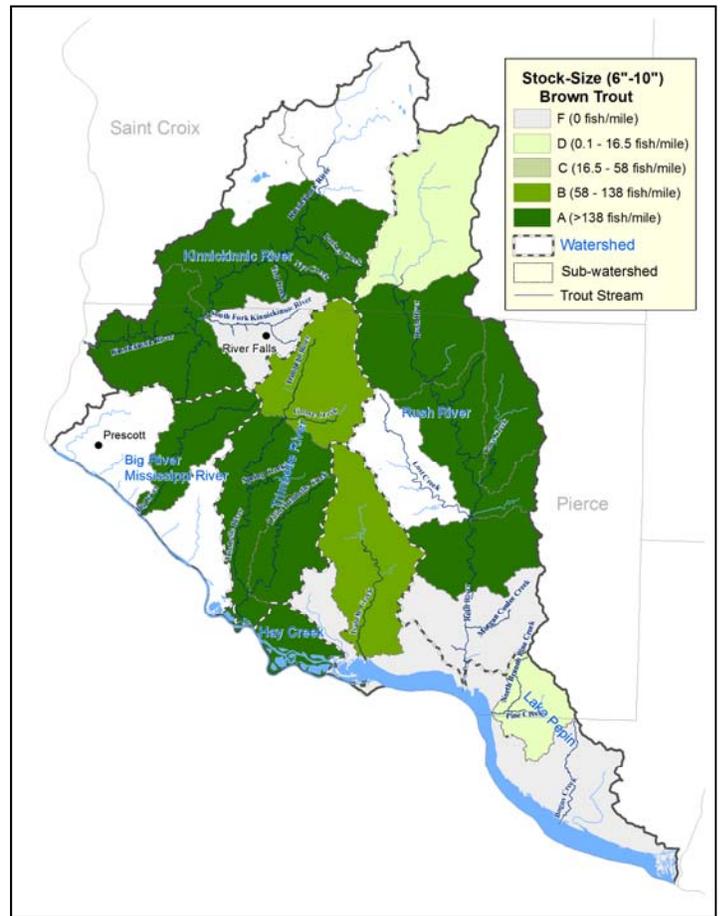
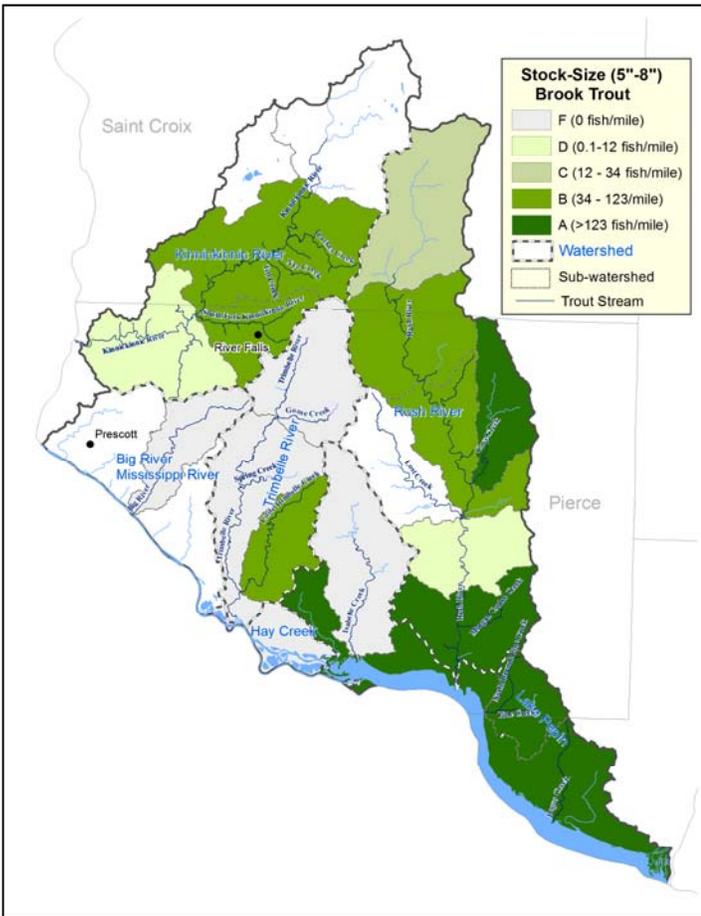
Grades show each watershed's place in the distribution of all Driftless Area watersheds.

- ❖ An **A** means the value is in the upper quartile (75%-100%) or upper quintile (80%-100%) of the distribution
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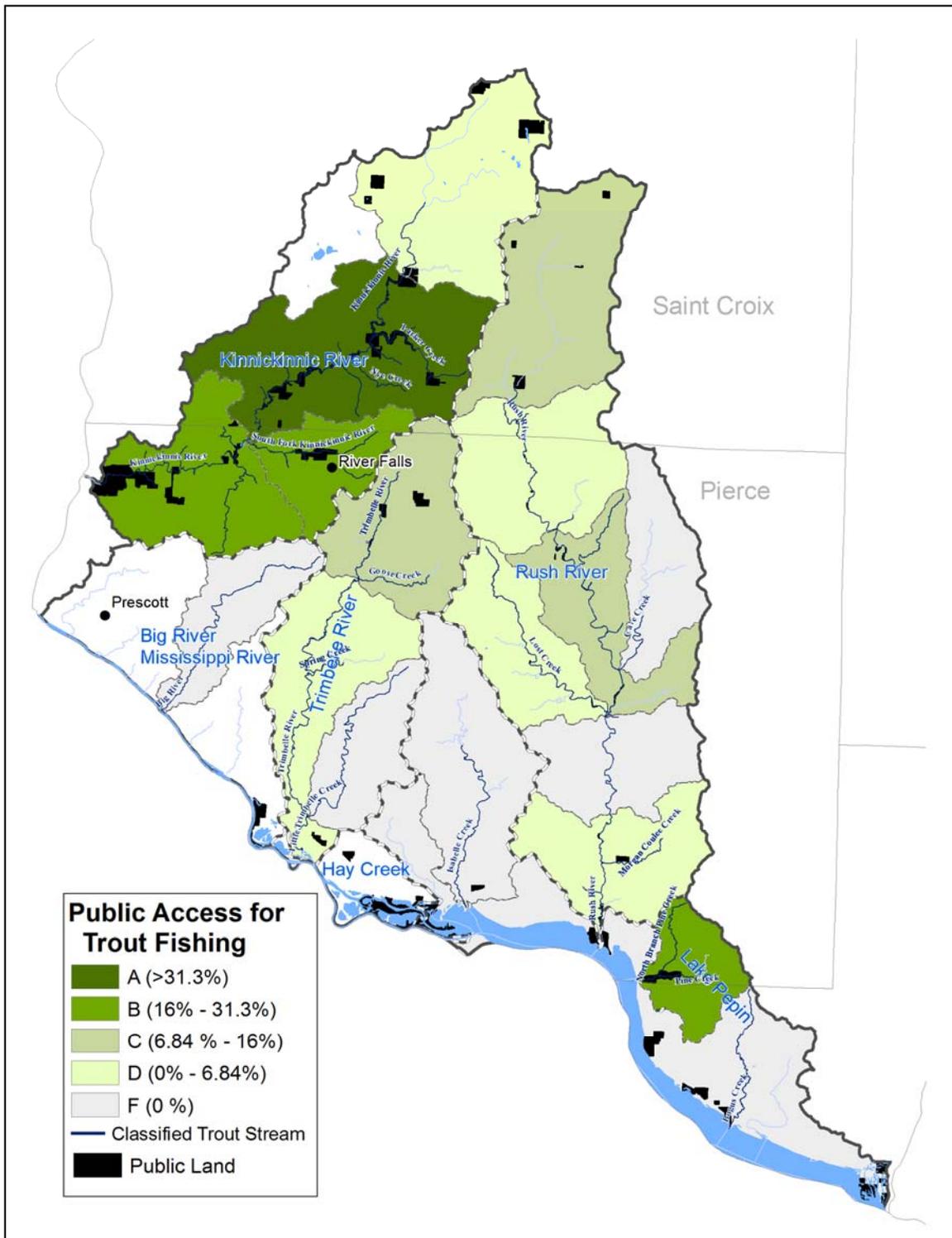
			Watersheds					
			Big River - Mississippi River	Hay Creek - Mississippi River	Kinnickinnic River	Lake Pepin	Rush River	Trimbelle River
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B	B	A	B	B	B
		Land Use Stress	D	D	D	C	C	C
	Sport Fishery Performance	Stock (5" up to 8")	F		B	A	B	F
		Quality (8" up to 12")	F		C	B	A	F
		Memorable (12" +)	F		F	F	F	F
	Projected resilience to climate change		C		C	B	C	B
Separator								
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B	D	D	B	B	B
		Land Use Stress	F	D	F	B	C	D
	Sport Fishery Performance	Stock (6" up to 10")	A		A	D	A	A
		Quality (10" up to 15")	B		A	C	A	A
		Memorable (15" +)	D		C	F	A	C
	Projected resilience to climate change		D		C	D	B	C
Separator								
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential			F	B	D	
		Land Use Stress			D	A	C	
	Sport Fishery Performance	Stock (8" up to 14")			F		D	
		Memorable (14" +)			F		F	
Projected gain from climate change		D		B	D	C	C	
Separator								
Trout Stream	Thermal stability of trout streams		A	-	C	C	C	A
	Total miles of stream restoration		F	-	B	F	C	C
Separator								
Recreation	Angling opportunities	Percent of trout stream miles with public access	F		A	C	D	D
		Percent of smallmouth bass stream miles with public access			A		C	
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	F	F	C	D	D	D



Kinnickinnic River Region Brook and Brown Trout Maps



Kinnickinnic River Region Public Access Map



Chippewa River Region Highlights

- ❖ The Chippewa River Region is large, with 16 watersheds. It is a very accessible region that is bisected by major highways and the interstate. The western portion of the region is within and one-hour drive of the Twin Cities and includes three of the top ten largest urban areas within Driftless Area: Eau Claire, Menominee, and Chippewa Falls. There is a lot of public land associated with the Chippewa River (state-owned) and the Eau Claire River (county-owned).
- ❖ Brook trout dominate the Chippewa River Region, particularly in the western and northern parts where a noticeable stream gradient exists. Eleven of the 16 watershed in the region support an average or better abundance of brook trout.
- ❖ The western portion of the Chippewa River Region contains a number of streams that are projected to retain much of their current thermal condition, providing habitat conditions suitable for brook trout into the future.
- ❖ In general, stream climate models show that trout streams on the eastern side are much more vulnerable to increasing stream temperatures by mid-century and will experience greater impacts from climate warming. Except for the Beaver Creek sub-watershed, brook trout are projected to be nearly extirpated in Eau Claire County.
- ❖ Although brown trout are more spotty in their distribution, the region holds excellent brown trout fisheries in Elk Creek, Plum Creek, Arkansaw, Bear, portions of Otter Creek and portions of Lowes Creek watersheds.
- ❖ Elk and Plum Creek watersheds are home to the most sympatric brook trout-brown trout populations in the Driftless Area.
- ❖ The Chippewa River Region holds the lowest of degree of public access for trout angling in the Driftless Area (less than 11%), despite having the second highest total miles of trout streams in the area. A **geographic mismatch** exists between the projected future trout fishery and current public access conditions. Many of the sub-watersheds that hold good public access are the same sub-watersheds that are most vulnerable to the effects of climate warming on thermal habitat and trout populations.
- ❖ Five of the 16 watersheds have very limited or no trout angling access. Bear Creek, South Fork of the Hay and Plum Creek watersheds all contain very good brook trout fisheries but with very limited angling access.
- ❖ The Chippewa River Region is among the best for the diversity of larger rivers that support smallmouth bass fisheries and contains the most miles of smallmouth bass-managed streams. The region includes the Hay, Red Cedar, Chippewa, and Eau Claire rivers.

Chippewa River Region Report Card

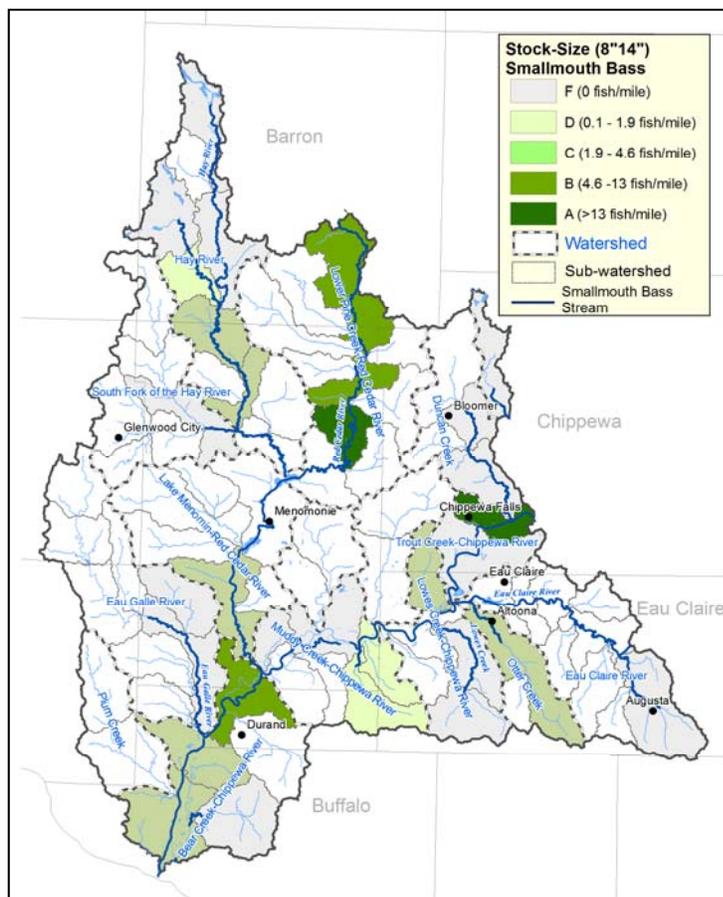
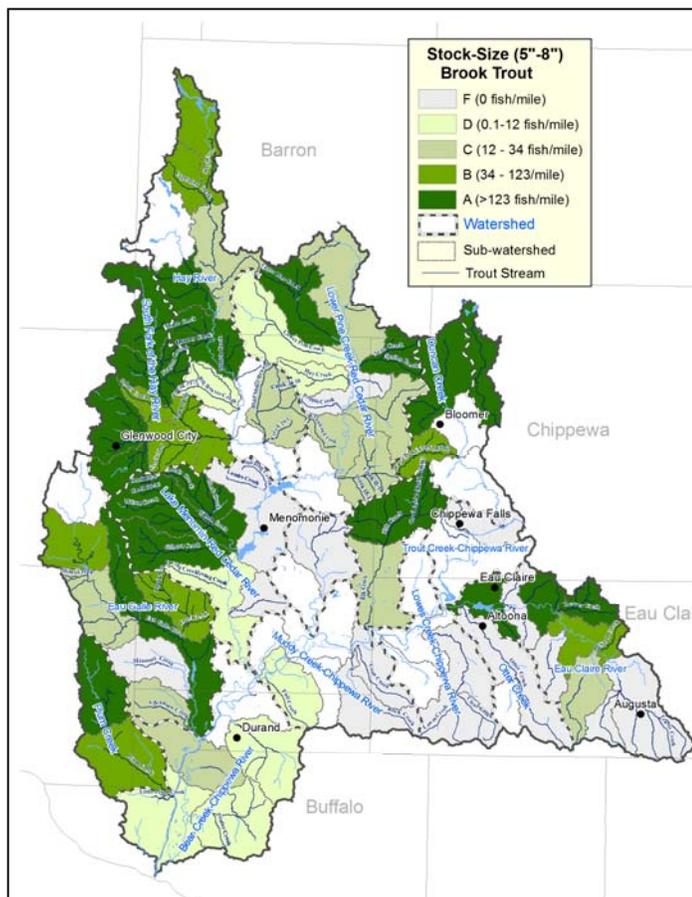
Grades show each watershed's place in the distribution of all Driftless Area watersheds.

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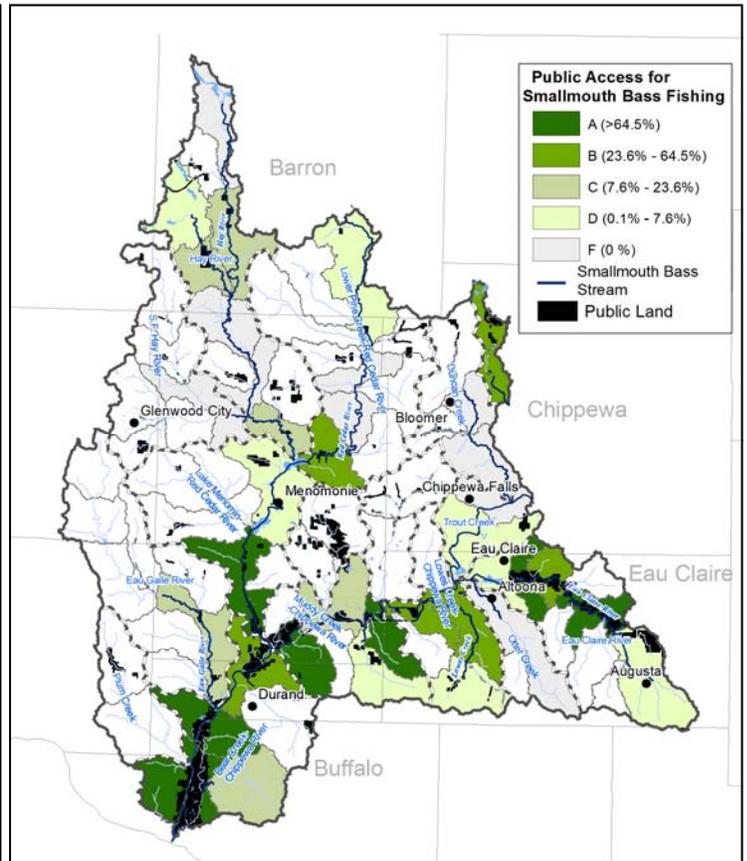
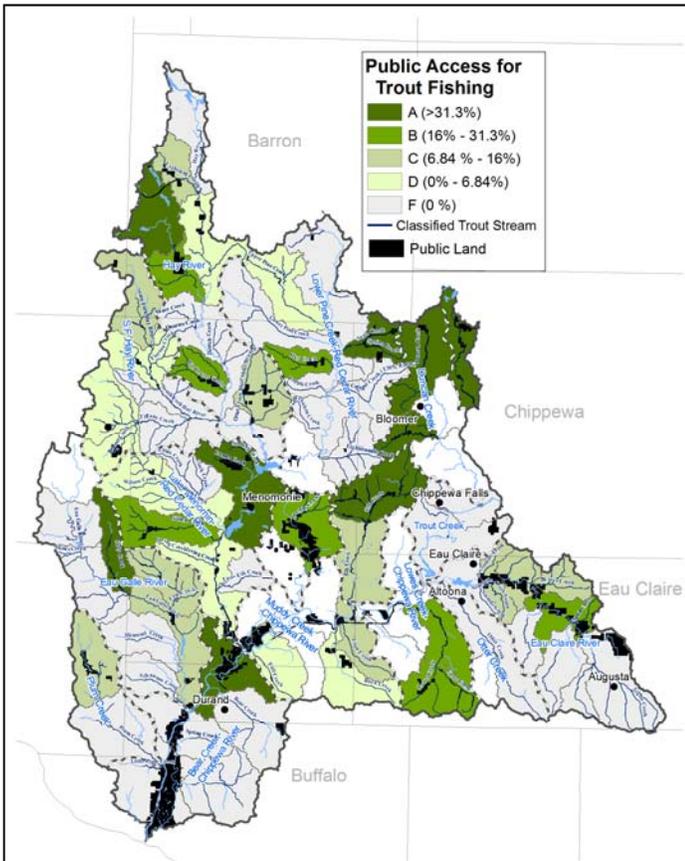
			Watersheds															
			Bear Creek - Chippewa River	Duncan Creek	Eau Claire River	Eau Galle River	Elk Creek	Fisher River - Chippewa	Hay River	Lake Menomish - Red Cedar R	Lower Pine Creek - Red Cedar	Lowes Creek - Chippewa River	Muddy Creek - Chip. R: Lower	Muddy Creek - Chip. R: Upper	Otter Creek	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	D	
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	D	
Small-mouth 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	D	
Trout Stream Habitat	Thermal stability 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



Chippewa River Region Brook Trout and Smallmouth Bass Maps



Chippewa River Region Public Access Maps



Black River Region Highlights

- ❖ The Black River Region along with its northern neighbors, the Kinnickinnic and Chippewa river regions, represent the heart of brook trout country in the Driftless Area. This region holds some of the best natural habitat and lowest land use stress for brook trout populations.
- ❖ Trout streams in the Black River Region are projected to be more resilient to the effects of global warming on brook trout, compared to all the planning regions in the Driftless Area. In fact, the Black River Region could act as a core “reserve” area for brook trout in the future.
- ❖ The Fleming Creek Watershed holds the most stream miles in the entire Driftless Area projected to be “stable” (40.8 miles) for brook trout. The contiguous Fleming Creek, Beaver Creek, and the Upper Trempealeau River watersheds, will likely be critical in future management of brook trout in Wisconsin.
- ❖ Streams of Black River Region have experienced little establishment of brown trout, which is beneficial to the existing brook trout population.
- ❖ Public access for trout fishing is excellent in the northeast (Halls Creek and Harvey/Buffalo watersheds) and southeast parts of the region (Fleming Creek watershed). Trout angling access is low-to-poor in most other areas. Public access is among the lowest of all the planning regions.
- ❖ Habitat conditions are best for smallmouth bass in the Black River and Lower Trempealeau River watersheds. These river reaches have greater average width, warmer water temperatures, and a greater diversity of forage fish species.
- ❖ Relatively good access exists in sub-watersheds where the best smallmouth bass populations are present. However, there is a gap in public access in the lower Black River - Fleming Creek sub-watershed.

Black River Region Report Card

Grades show each watershed's place in the distribution of all Driftless Area watersheds.

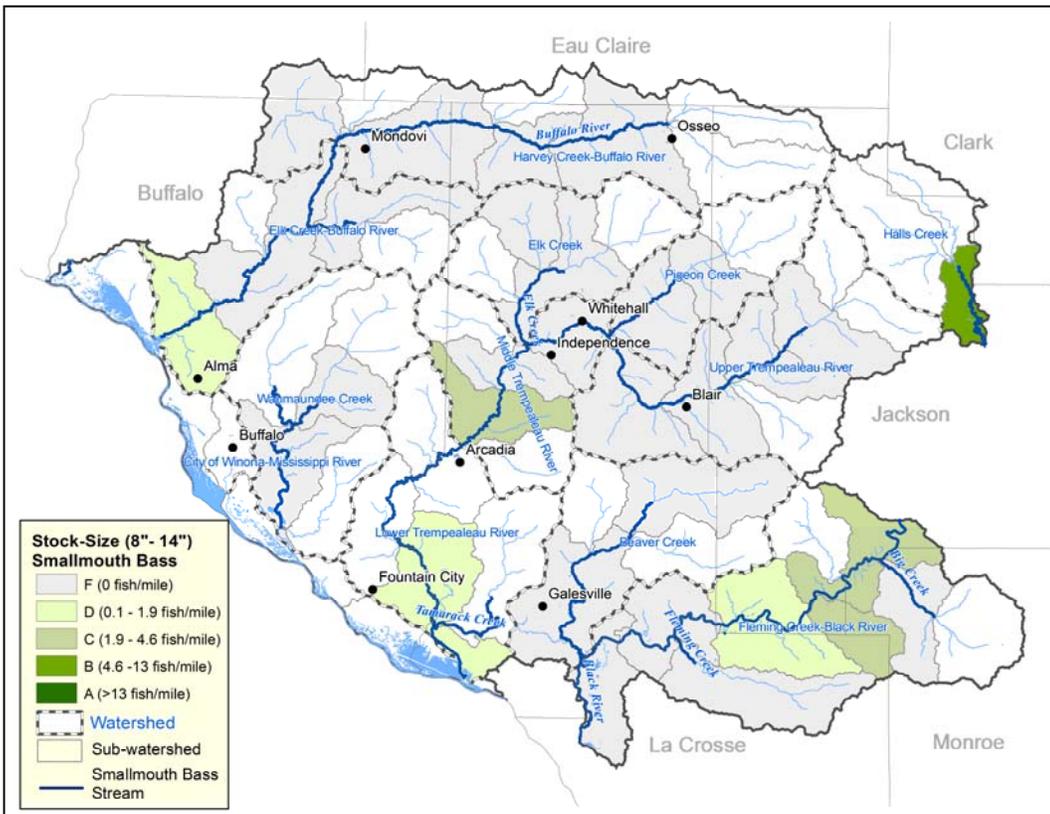
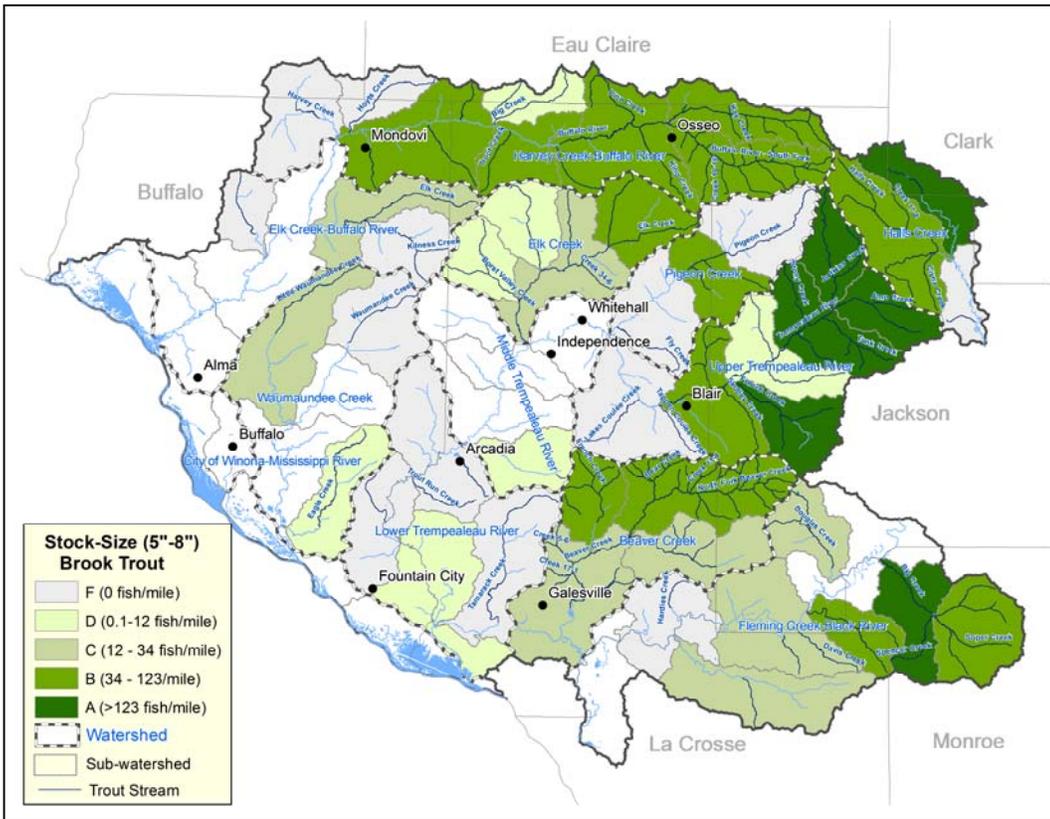
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- ❖ Blank cells indicate "not applicable."

Watersheds											
Beaver Creek	City of Winona - Mississippi R	Elk Creek	Elk Creek - Buffalo River	Fleming Creek - Black River	Halls Creek	Harvey Creek - Buffalo River	Lower Trempealeau River	Middle Trempealeau River	Pigeon Creek	Upper Trempealeau River	Waunundaee Creek

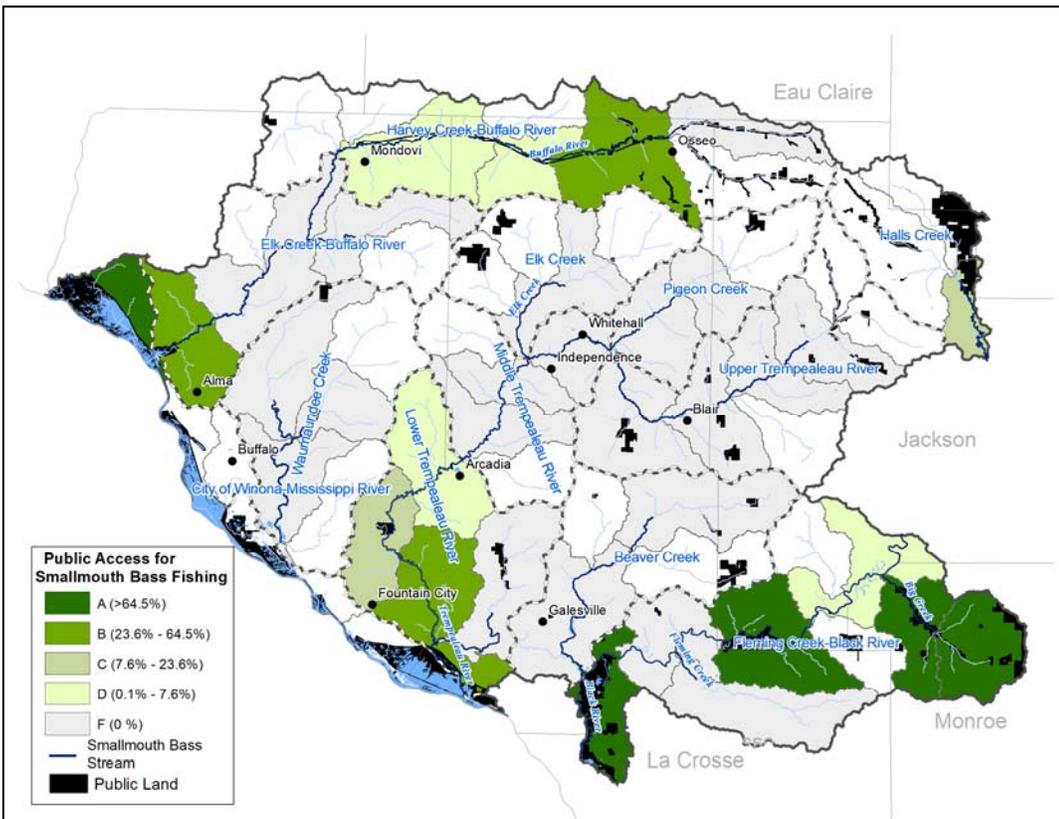
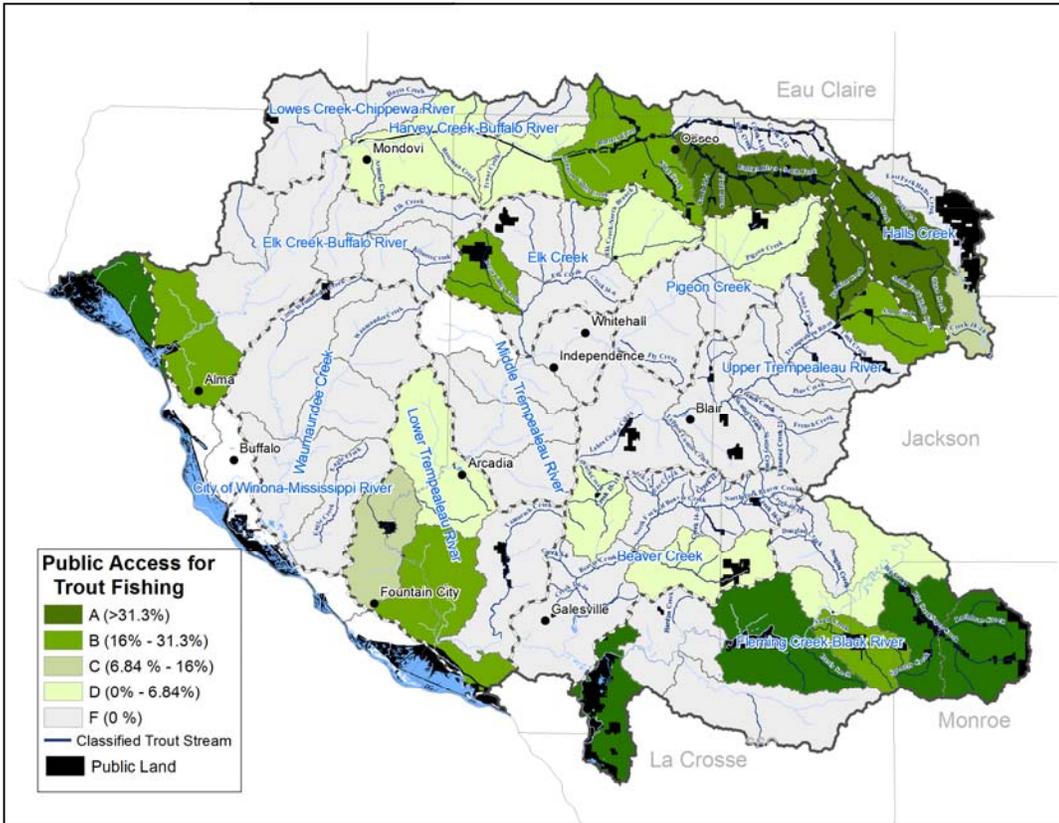
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B		B	B	C	A	A	C	B	A	A	B
		Land Use Stress	A		B	A	A	B	B	A	C	A	A	A
	Sport Fishery Performance	Stock (5" up to 8")	B		C	F	B	B	B	F	D	F	A	C
		Quality (8" up to 12")	B		A	A	C	F	B	D	C	C	C	B
		Memorable (12" +)	F		F	F	F	F	F	F	F	F	F	F
Projected resilience to climate change		A	C	A	A	A	B	A	A	B	A	A	A	A
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	D		F	B	F	F	F	D	D	F	F	A
		Land Use Stress	B		D	F	A	A	C	F	F	A	A	A
	Sport Fishery Performance	Stock (6" up to 10")	F		F	F	F	F	F	F	D	F	F	F
		Quality (10" up to 15")	F		F	F	F	F	F	F	F	F	F	F
		Memorable (15" +)	F		F	F	F	F	F	F	F	F	F	F
Projected resilience to climate change		A	D	A	A	A	C	A	A	A	B	A	A	A
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	D	C	F	C	A	F	F	A	C	F	D	D
		Land Use Stress	C	A	D	D	D	F	D	D	D	F	F	A
	Sport Fishery Performance	Stock (8" up to 14")	F		F	F	F	B	F	D	F	F	F	F
		Memorable (14" +)	F		F	F	F	F	F	D	F	F	F	F
Projected gain from climate change		C	D	D	D	C	D	C	B	D	B	C	B	B
Trout Stream Habitat	Thermal stability of trout streams		A		B	A	A	C	D	C		D	B	B
	Total miles of stream restoration		F		D	F	B	D	B	F	F	F	B	F
Recreation	Angling opportunities	Percent of trout stream miles with public access	D		D	F	B	A	A	C	F	D	C	D
		Percent of smallmouth bass stream miles with public access	F	A	F	D	B	C	B	C	F	F	F	F
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	C	D	C	D	A	A	A	B	F	D	B	D



Black River Region Brook and Brown Trout Maps



Black River Region Public Access Maps



Kickapoo River Region Highlights

- ❖ Most of the watersheds in the Kickapoo River Region hold a mix of brown and brook trout, but brown trout are more abundant.
- ❖ The Kickapoo River Region has the second highest catch rates for brown trout among the eight planning regions.
- ❖ Of the 15 watersheds in the Kickapoo Region, four hold among the highest densities of brown trout in the Driftless Area: the Bad Axe River, Coon Creek, Tainter Creek and the West Fork of the Kickapoo River.
- ❖ Inland waters of the region have limited smallmouth bass habitat and few smallmouth bass fisheries.
- ❖ Fishery Areas and fishing easements provide ample public access for trout angling opportunities, making this area of the state a destination for trout anglers.
- ❖ The brook trout watersheds most resilient to the effects of climate change are found in the northern and northeastern portions of the region: Lower La Crosse, Middle La Crosse, Upper La Crosse, Bear Creek, and West Fork of the Kickapoo River.
- ❖ The highest levels of land use stress on trout habitat are associated with the region's upland ridge (along Hwy 27) which runs from Norwalk in La Crosse County, southwest to Eastman in Crawford County.
- ❖ Rush Creek State Natural Area contains a diversity of habitats, is home to numerous rare plants and animals including "goat prairies," southern oak forest, floodplain forest and the spring-fed Rush Creek itself.
- ❖ Fort McCoy offers hunting, fishing, and trapping opportunities to the general public, although a permit is required. Fort McCoy has approximately 70 miles of coldwater streams and tributaries.

Kickapoo River Region Report Card

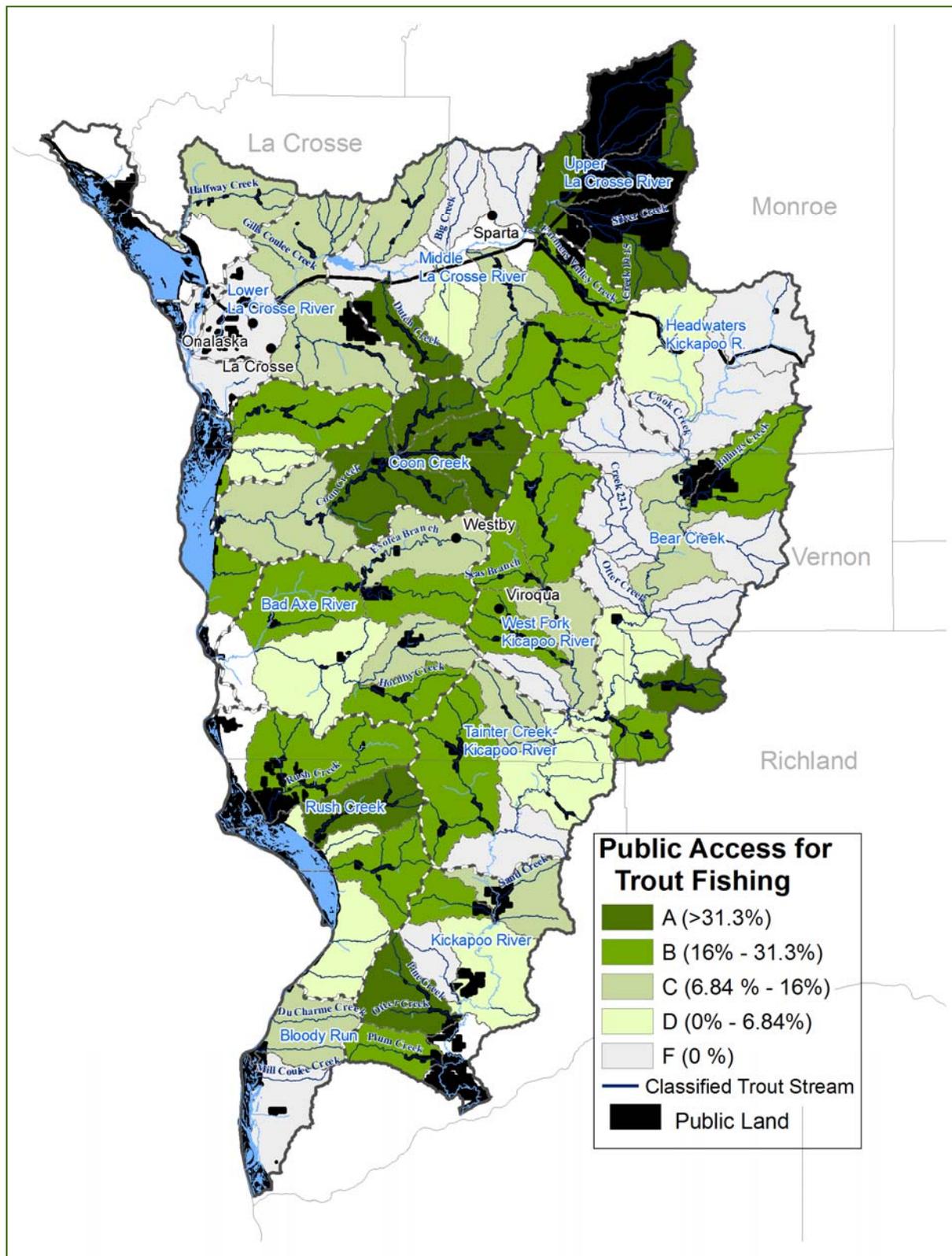
Grades show each watershed's place in the distribution of all Driftless Area watersheds.

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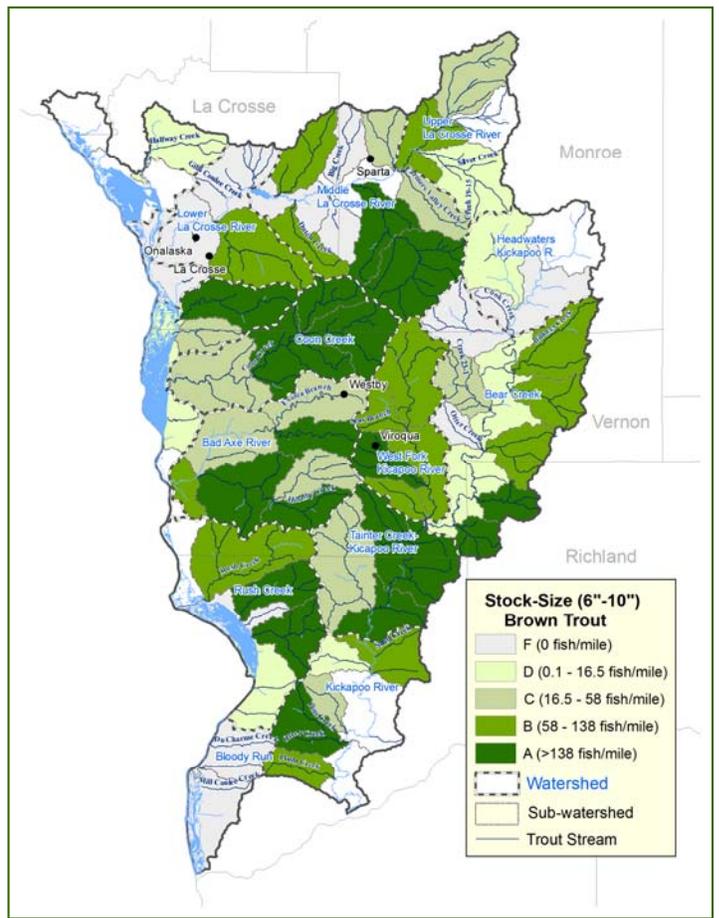
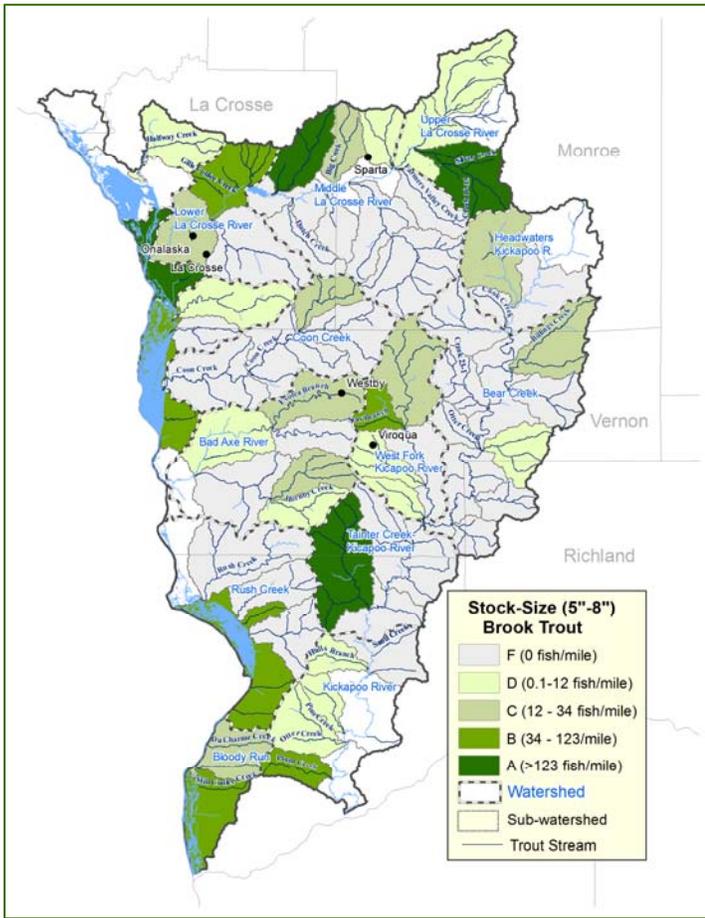
		Watersheds															
		Bad Axe River	Bear Creek - Kickapoo River	Bloody Run - Mississippi River	Coon Creek	Halfway Creek - Mississippi River	Headwaters Kickapoo River	Kickapoo River	Lower La Crosse River	Middle La Crosse River	Mormon Creek - Mississippi River	Pine Creek - Mississippi River	Rush Creek - Mississippi River	Tainter Creek - Kickapoo River	Upper La Crosse River	West Fork Kickapoo River	
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B	C	D	C	C	C	D	C	C	D	C	D	C	B	B
		Land Use Stress	D	B	A	B	A	C	A	A	A	B	C	A	B	A	C
	Sport Fishery Performance	Stock (5" up to 8")	D	F	B	F	D	F	D	C	F	C	A	F	F	D	C
		Quality (8" up to 12")	D	F	A	D	D	F	D	D	F	C	A	C	B	B	B
		Memorable (12" +)	F	F	A	F	F	F	F	F	F	F	F	F	F	F	F
Projected resilience to climate change		C	A	C	C	B	C	B	A	A	C		C	C	A	B	
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	A	A	D	A	B	B	B	A	B	A	A	D	A	F	A
		Land Use Stress	D	B	B	C	C	C	B	B	A	C	A	C	B	A	D
	Sport Fishery Performance	Stock (6" up to 10")	B	B	F	A	D	F	B	F	B	C	F	B	A	C	B
		Quality (10" up to 15")	A	B	F	A	C	F	B	F	C	C	F	B	B	C	A
		Memorable (15" +)	C	F	F	C	F	F	F	F	F	B	F	F	F	F	A
Projected resilience to climate change		A	A	D	A	C	A	C	B	A	C		B	B	B	B	
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	C	D		D	D	F	A	B	D	B			B	D	F
		Land Use Stress	A	B		B	A	C	A	F	F	A			C	F	B
	Sport Fishery Performance	Stock (8" up to 14")	C	F		F	F			C	F				F	F	F
		Memorable (14" +)	F	F		C	F			D	F				F	F	F
Projected gain from climate change		A	B	D	A	D	B	D	D	B	C	D	C	B	D	A	
Trout Stream Habitat	Thermal resilience of trout streams		D	B	A	C	B	C	B	A	A	A	B	C	B	D	
	Total miles of stream restoration		A	A	D	A	D	B	D	D	A	C	F	C	C	A	A
Recreation	Angling opportunities	Percent of trout stream miles with public access	C	C	C	A	B	D	B	C	B	B	F	B	B	A	B
		Percent of smallmouth bass stream miles with public access	D	C		B	A	F	A	B	C	A			F	B	C
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	B	B	B	A	C	D	A	B	B	B	F	A	A	A	B



Kickapoo River Region Public Access Map



Kickapoo River Region Brook and Brown Trout Maps



Baraboo River Region Highlights

- ❖ The Baraboo Region as a whole harbors a relatively equal mix of brook and brown trout. Individual stream reaches tend to be dominated by either brook or brown trout.
- ❖ Natural habitat for brook trout is highest in Devil's Lake and Dell Creek watersheds. There is good brook trout habitat in the streams that originate in or very near the Baraboo Hills (Rowley Creek, Boulder Creek, Leech Creek, and Harrison Creek).
- ❖ Devil's Lake and Dell Creek watersheds contain large tracts of public conservation lands which are subject to higher degrees of resource protection than other lands in the region. Over 90% of the DNR (public) and private conservation lands in the entire region are contained within these two watersheds allowing cold base flows, lower levels of land use stress and excellent trout habitat.
- ❖ Most of the brook trout populations are projected to be lost by the mid-century due to climate change. Remnant distributions of brook trout most resilient to the effects of climate warming are projected to be found in the Devil's Lake and Dells Creek watersheds.
- ❖ The majority of the brown trout waters in this region are projected to remain resilient to climate change.
- ❖ The highest quality natural habitat for smallmouth bass is located in the largest and warmest waters, mainly the Wisconsin and Baraboo Rivers. The Wisconsin River supports an outstanding smallmouth bass fishery, with sufficient depth, ample forage and fertile warm waters. The removal of dams along the Baraboo River has resulted in an excellent smallmouth bass fishery as well.
- ❖ Except for the Dell Creek watershed, public access to trout streams is lacking. Public access for smallmouth bass angling is much better. Unlike trout fishing, smallmouth bass anglers often fish from boats; numerous public boat launches are available along most bass waters.
- ❖ The Baraboo River planning region has the fewest acres of lands included in the DAMP (895 acres) and includes only one State Fishery Area (Hulburt Creek), one remnant habitat project, several hundred acres of stream bank protection (Narrows Creek) and 122 acres of scattered wildlife property.



Baraboo River Region Report Card

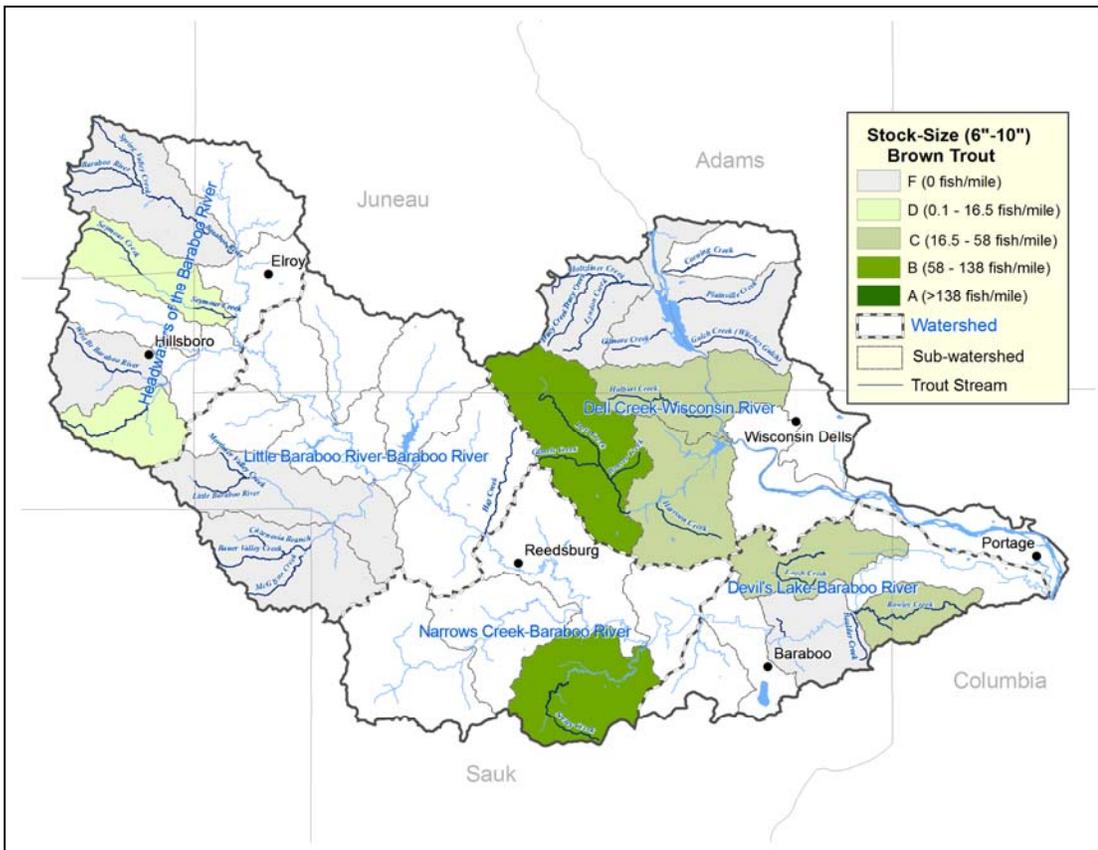
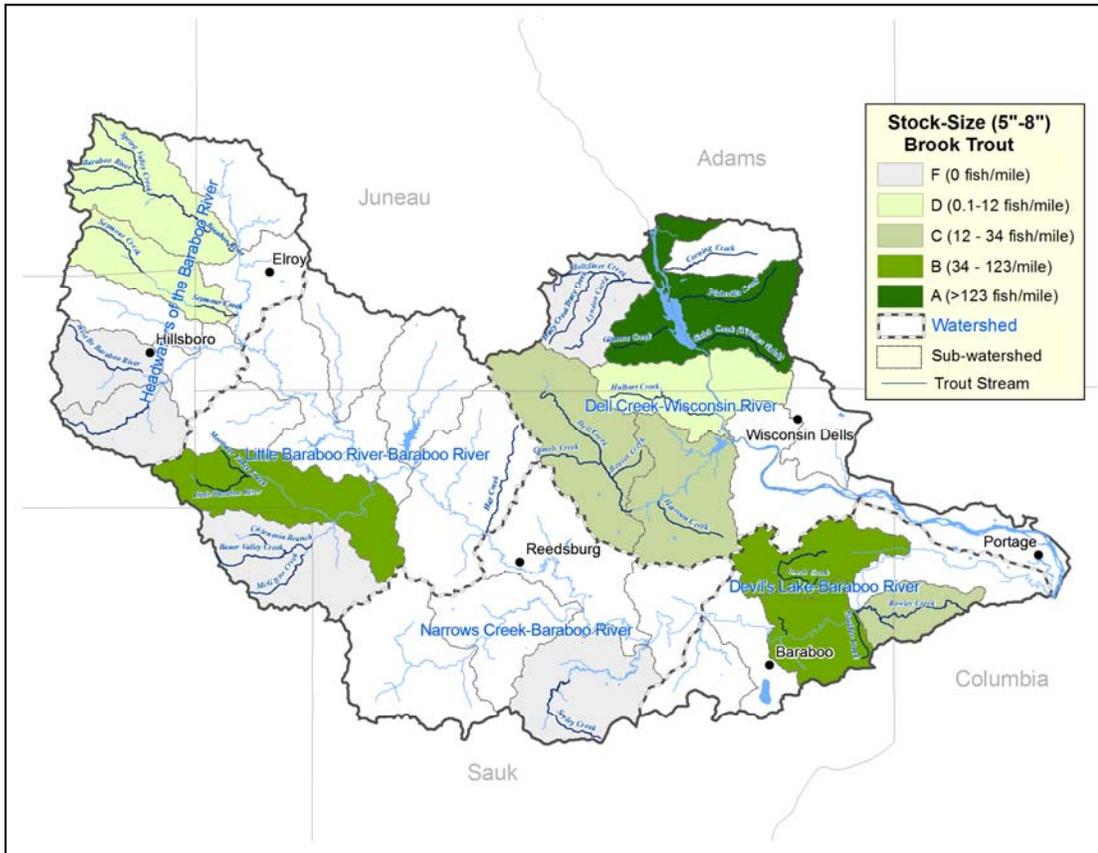
Grades show each watershed's place in the distribution of all Driftless Area watersheds.

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			Watersheds				
			Dell Creek - Wisconsin River	Devil's Lake - Baraboo River	Headwaters of the Baraboo River	Little Baraboo River - Baraboo R	Narrows Creek - Baraboo River
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B	A	B	C	C
		Land Use Stress	B	D	C	D	D
	Sport Fishery Performance	Stock (5" up to 8")	C	A	D	B	F
		Quality (8" up to 12")	B	D	D	B	F
		Memorable (12" +)	F	F	F	C	F
Projected resilience to climate change		B	A	B	B	B	
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	D	F	B	A	A
		Land Use Stress	A	C	F	F	B
	Sport Fishery Performance	Stock (6" up to 10")	C	C	D	F	A
		Quality (10" up to 15")	D	D	D	F	C
		Memorable (15" +)	F	F	F	F	F
Projected resilience to climate change		B	C	A	A	B	
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	A	B	D	C	B
		Land Use Stress	D	B	C	A	C
	Sport Fishery Performance	Stock (8" up to 14")	A	C		F	C
		Memorable (14" +)	B	F		F	C
Projected gain from climate change		C	C	C	C	A	
Trout Stream Habitat	Thermal resilience of trout streams		D	D	D	C	A
	Total miles of trout stream restoration		D	F	D	D	F
Recreation	Angling opportunities	Percent of trout stream miles with public access	B	B	D	F	D
		Percent of smallmouth bass stream miles with public access	B	C	D	C	C
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	B	C	D	C	C



Baraboo River Region Brook and Brown Trout Maps



Lower Wisconsin River Region Highlights

- ❖ The Lower Wisconsin River Region contains some of the most productive brown trout water in the Driftless Area. There is excellent natural habitat potential for brown trout throughout much of this region, as well as low land use stresses.
- ❖ Although heavily fished, abundant brown trout with excellent size-structure occur in Black Earth Creek and the Green River and Blue River systems.
- ❖ Importantly, these streams are generally expected to maintain much of their thermal regime and are predicted to support large populations of brown trout in the future, despite a warming climate.
- ❖ Although there are pockets of very good to excellent brook trout habitat here, the region generally has poor to fair brook trout fisheries. The high quality brook trout habitats and populations are in and around the Baraboo Hills and in the headwater creeks along the north-western side of the region in Richland County.
- ❖ Brook trout are projected to be negatively affected by climate change in the Lower Wisconsin Region, although several sub-watersheds are projected to retain significant miles of suitable habitat in the future.
- ❖ A substantial amount of stream restoration work has been completed in the region thanks to the efforts of many partner groups. There is good access scattered throughout the region; nearly all watersheds have some public access. Although there is substantial amount of public access along Black Earth Creek, it is one of the most heavily fished trout waters in the state and demand far exceeds public access availability here.
- ❖ Smallmouth bass fishing is exceptional in the Wisconsin River. Most of the river shoreline between Sauk City and Prairie du Chien is in public ownership and has ample boat access sites scattered throughout the Lower Wisconsin State Riverway and Lake Wisconsin. This region offers some of the state's premier smallmouth bass fishing.

Lower Wisconsin River Region Report Card

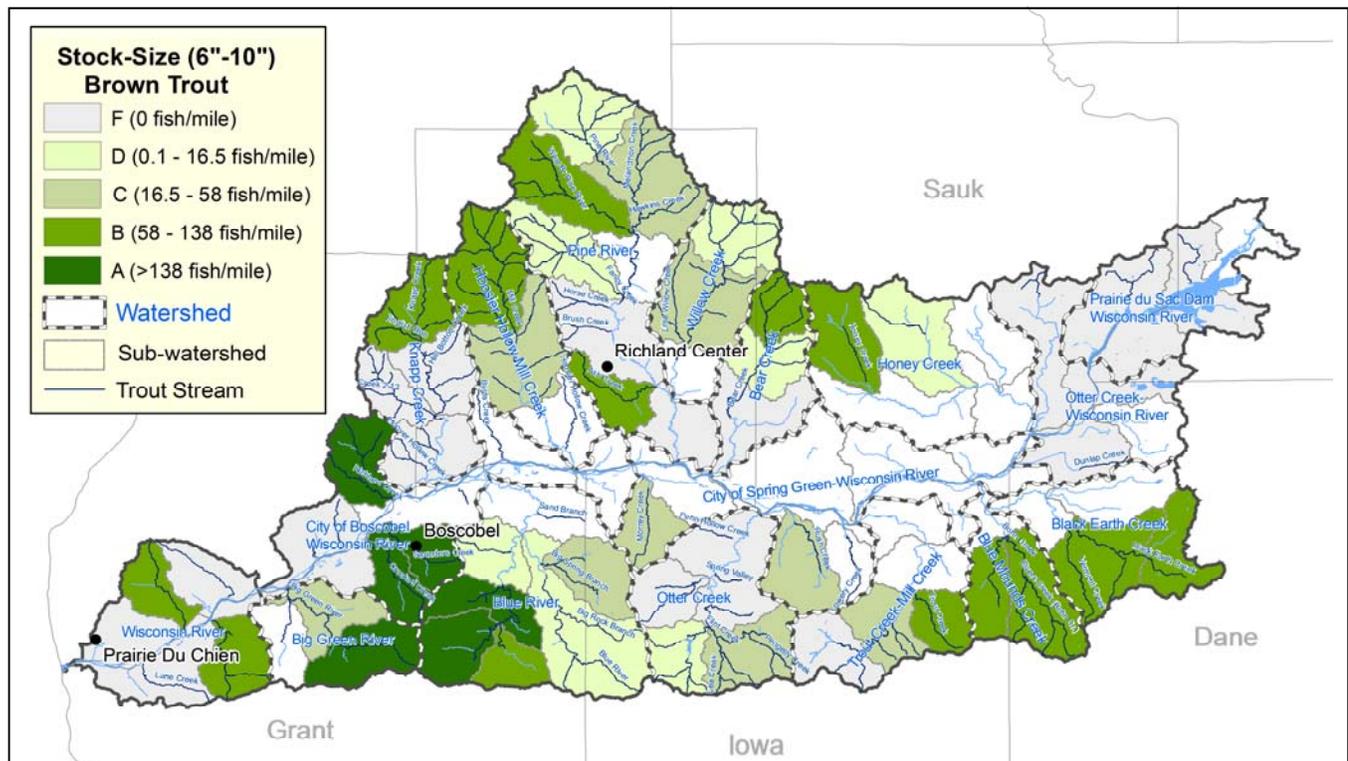
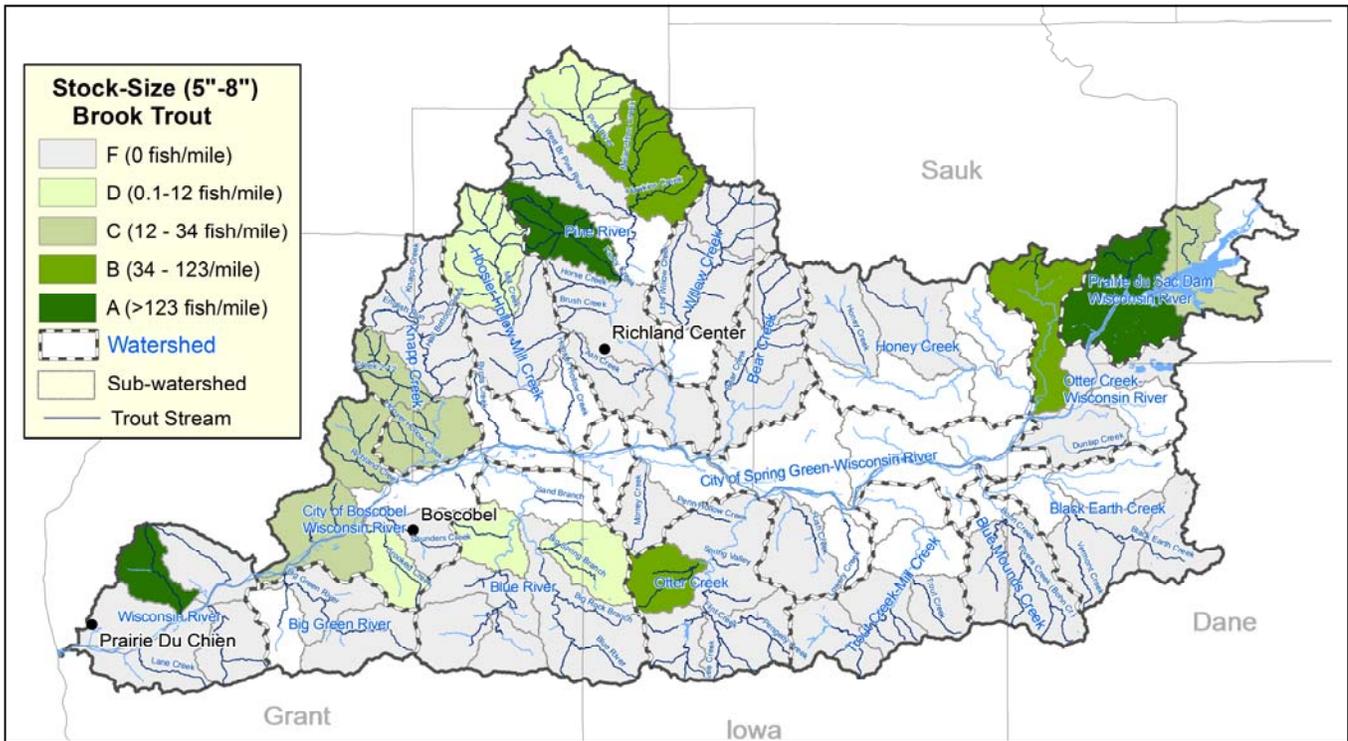
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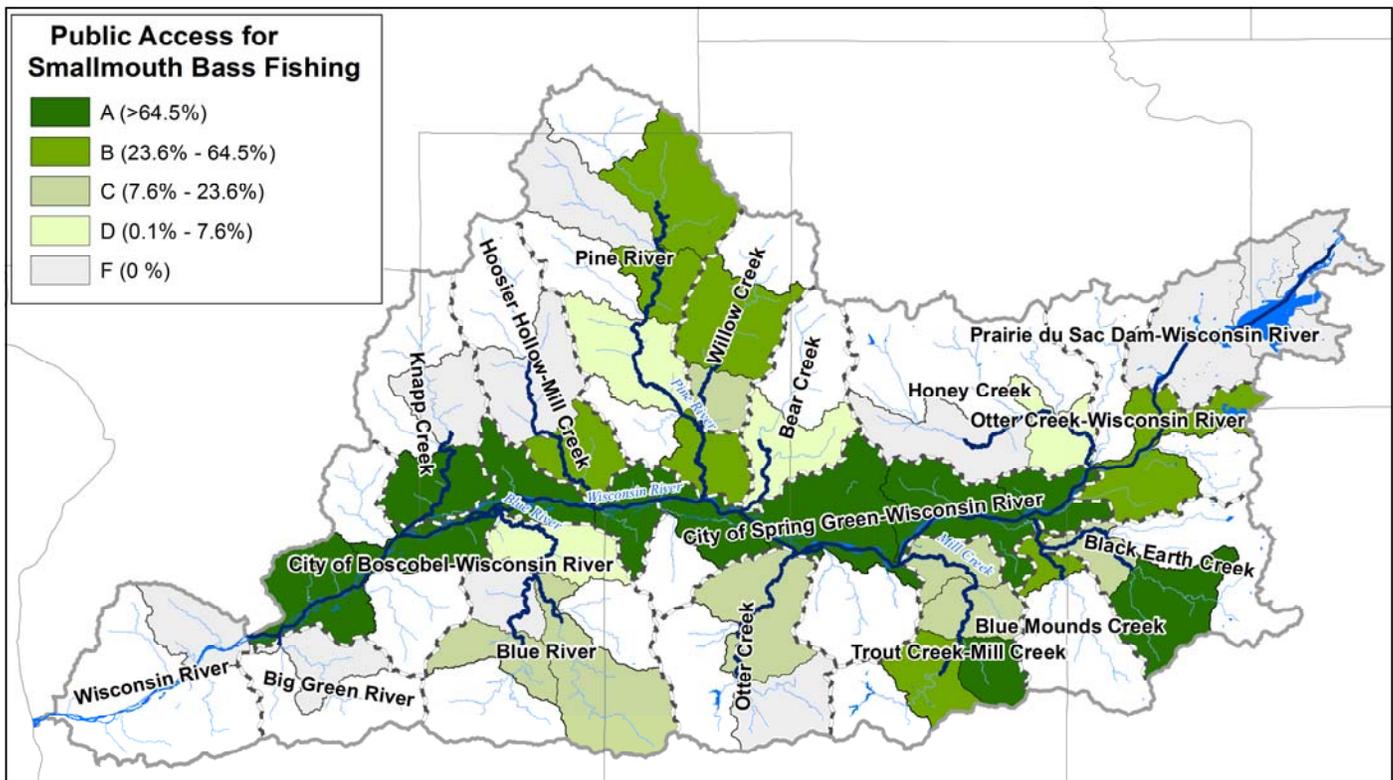
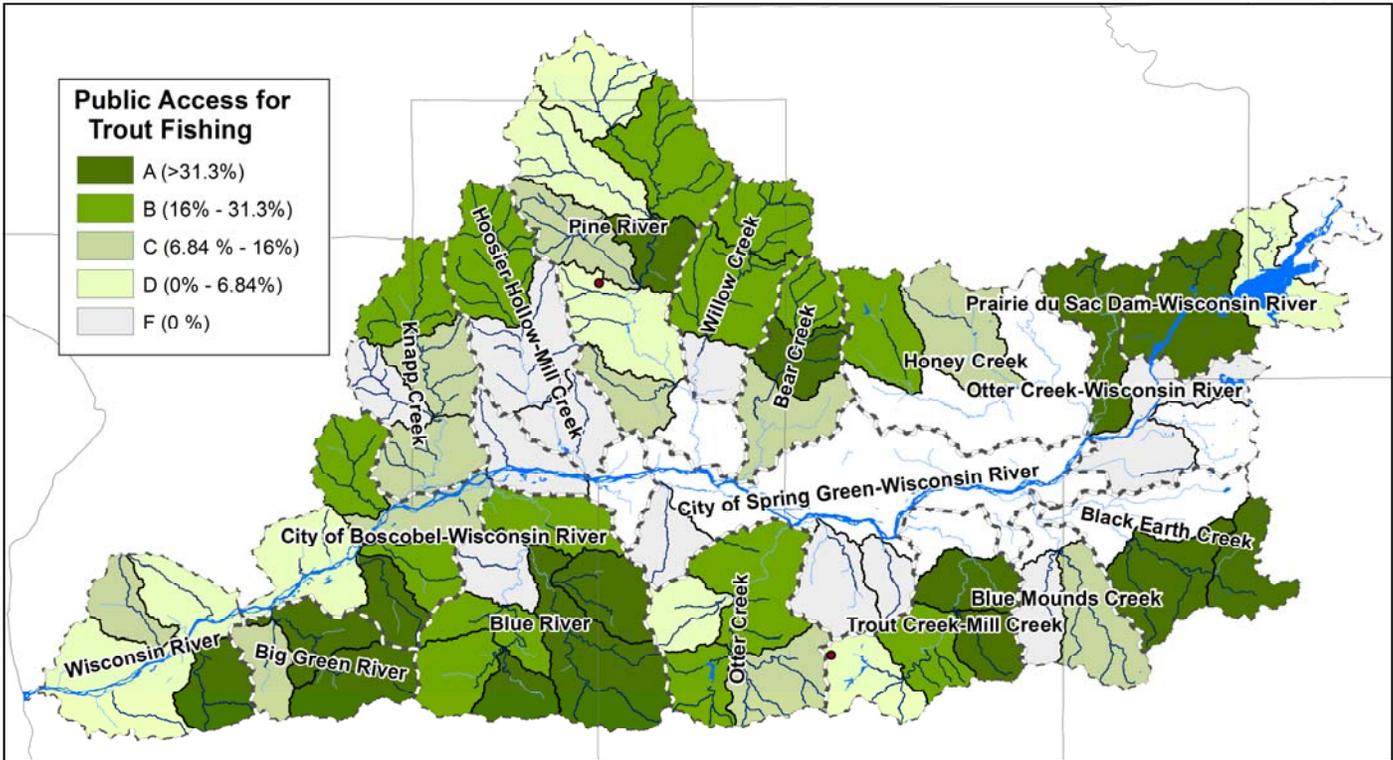
		Watersheds																	
		Bear Creek	Big Green River	Black Earth Creek	Blue Mounds Creek	Blue River	City of Boscobel - Wisconsin R	City of Spring Green - Wisconsin R	Honey Creek	Hoosier Hollow - Mill Creek	Knapp Creek	Other Creek	Other Creek - Wisconsin River	Pine River	Prairie du Sac Dam - Wisconsin R	Trout Creek - Mill Creek	Willow Creek	Wisconsin River	
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	C	F	C	D	D	D	D	C	D	D	D	A	D	A	D	D	D
		Land Use Stress	B	D	F	D	D	B	B	D	A	A	D	B	B	B	C	B	C
	Sport Fishery Performance	Stock (5" up to 8")	F	F	F	F	F	D	F	F	D	C	F	B	F	A	F	F	F
		Quality (8" up to 12")	F	F	F	F	D	F	F	F	F	C	F	D	F	A	F	F	F
		Memorable (12" +)	F	F	F	F	F	F	F	F	F	F	F	F	F	A	F	F	F
Projected resilience to climate change		B	C	C	B	B	B	A	C	C	B	B	B	A	C	A	C	C	
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	A	B	A	A	A	A	A	A	A	A	B	A	D	A	A	B	
		Land Use Stress	A	B	C	A	B	A	A	B	C	A	C	A	B	C	A	B	B
	Sport Fishery Performance	Stock (6" up to 10")	D	A	B	B	B	A	B	B	B	F	D	F	D	F	C	C	C
		Quality (10" up to 15")	C	A	B	A	B	B	B	C	C	F	F	F	F	F	D	F	D
		Memorable (15" +)	D	D	B	B	C	F	F	D	F	F	F	F	F	F	F	F	F
Projected resilience to climate change		C	D	B	C	A	C	B	A	B	B	A	C	A	D	B	B	C	
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	F	B	F	F	C	A	A	F	D	C	F	A	C	A	F	D	A
		Land Use Stress	D	B	B	B	C	C	B	C	A	C	A	F	D	B	C	D	B
	Sport Fishery Performance	Stock (8" up to 14")	F		B		F	F		F	F		F	F	B	F	A	F	
		Memorable (14" +)	F		A		F	F		F	F		F	F	F	F	F	F	
Projected gain from climate change		C	B	B	C	A	D	C	A	A	B	B	D	C	D	A	B	D	
Trout Stream Habitat	Thermal resilience of trout streams		B	D	A	A	B	A	A	A	B	A	B	A	B	C	B	B	B
	Total miles of stream restoration		C	A	A	F	A	C	F	D	B	C	B	F	D	C	B	B	C
Recreation	Angling opportunities	Percent of trout stream miles with public access	A	A	A	C	A	B	F	B	C	C	B	A	C	A	A	B	B
		Percent of smallmouth bass stream miles with public access	D	F	C	A	D	A	A	D	C	A	C	B	B	F	B	B	F
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a one-hour drive	B	A	C	C	A	A	B	D	A	A	B	C	B	C	C	A	A



Lower Wisconsin River Region Trout Maps



Lower Wisconsin River Region Public Access Maps



Platte River Region Highlights

- ❖ There is only a limited brook trout population in the Platte River Region. There is no established breeding population and as a result, the existing population is supplemented with stocked fish.
- ❖ Although the Platte River Region has the smallest number of trout stream miles of the eight planning regions, there are some healthy populations of brown trout found in headwater creeks. In particular, some of the streams in the Upper Grant River watershed host impressively large numbers of brown trout.
- ❖ Climate change is projected to have a devastating impact on brook trout in the Platte River Region and largely result in their extirpation from the region. However, despite not having an abundance of brown trout water, there are several watersheds in the region that are projected to remain thermally resilient for brown trout.
- ❖ The region has good to very good natural habitat potential for smallmouth bass and relatively little land use stress. Although there are some problems with polluted runoff from farm operations and residual lead and zinc mining waste, significant progress has been made over the last couple of decades addressing these issues in many watersheds. The result is outstanding overall conditions to support smallmouth bass in large numbers. Indeed, the region has 25% of all smallmouth bass stream habitat in Wisconsin.
- ❖ Although sizeable smallmouth bass populations are found in many of the Driftless Area's bigger rivers, more than any other part of the state, the Platte River Region has wadeable bass streams. The Grant, Platte, Little Platte, and Galena (Fever) rivers are big enough to have large bass populations and small enough for anglers to enjoy while wading, paddling a canoe, or walking the publicly-accessible shorelines.
- ❖ The distribution of smallmouth bass is projected to expand considerably in the coming decades due to warming stream temperatures. Although some waters higher in the watershed are projected to warm enough to meet the habitat needs of bass, most of these streams are not large enough to support adult fish and will likely be limited to serving as nursery waters.
- ❖ A modest amount of stream restoration has occurred in the region with the bulk of it in the Upper Grant River watershed, which includes Borah Creek and Rogers Branch. The Upper Grant and the Little Platte rivers have the most publicly-accessible trout streams in the region. The Galena River system has the most publicly-accessible bass waters with over 500 acres of narrow easements spread over miles of streams and rivers.
- ❖ Of the eight planning regions, the Platte has the least amount of Department-owned lands along trout and bass waters. Although the federal government holds over 12,000 acres along the Mississippi River in the region, there are no State Fishery Areas here and very little land has been protected through the state streambank protection program.

Platte River Region Report Card

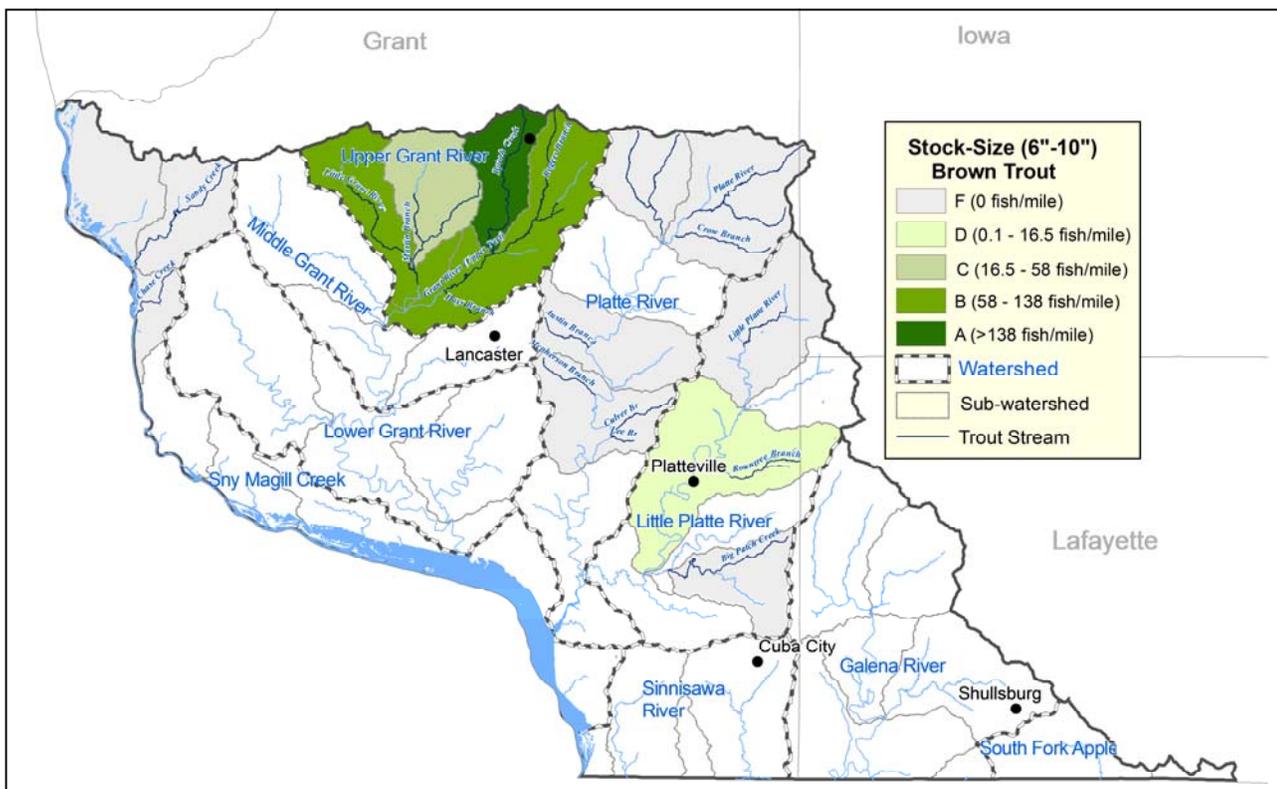
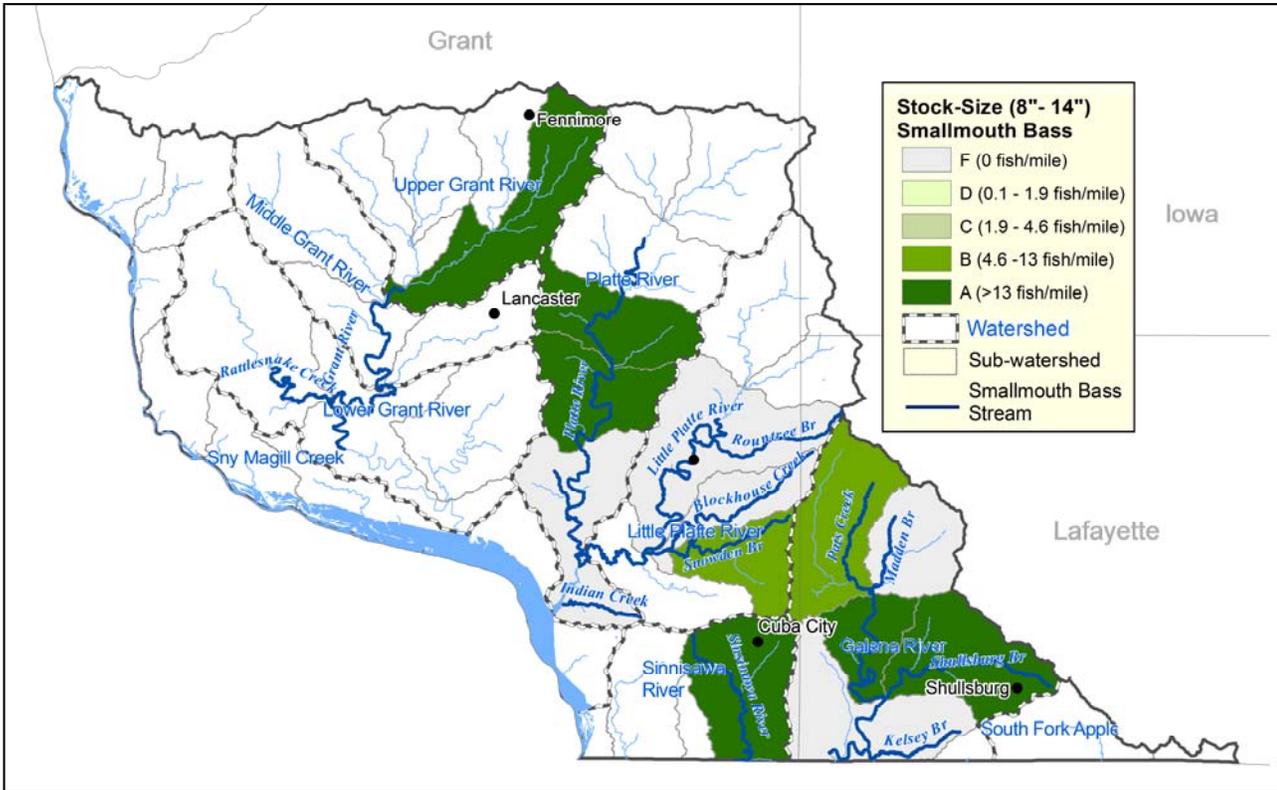
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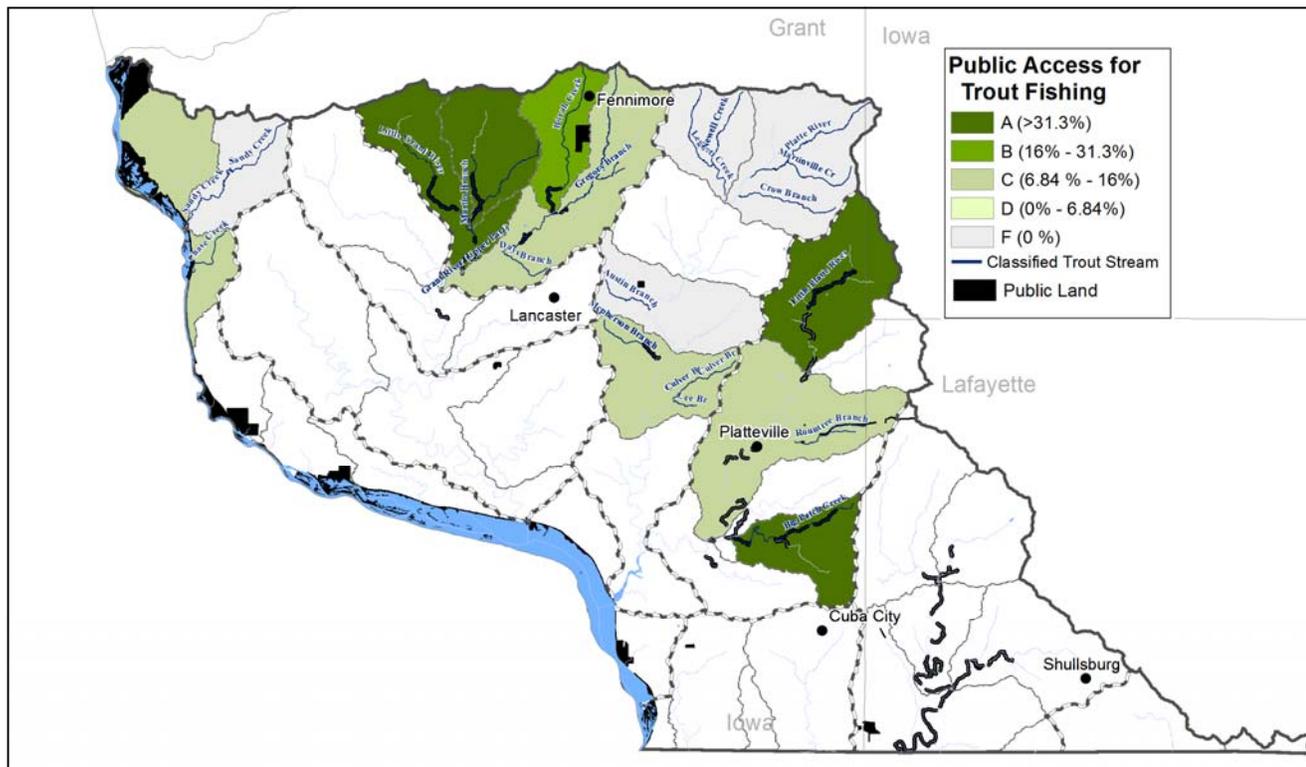
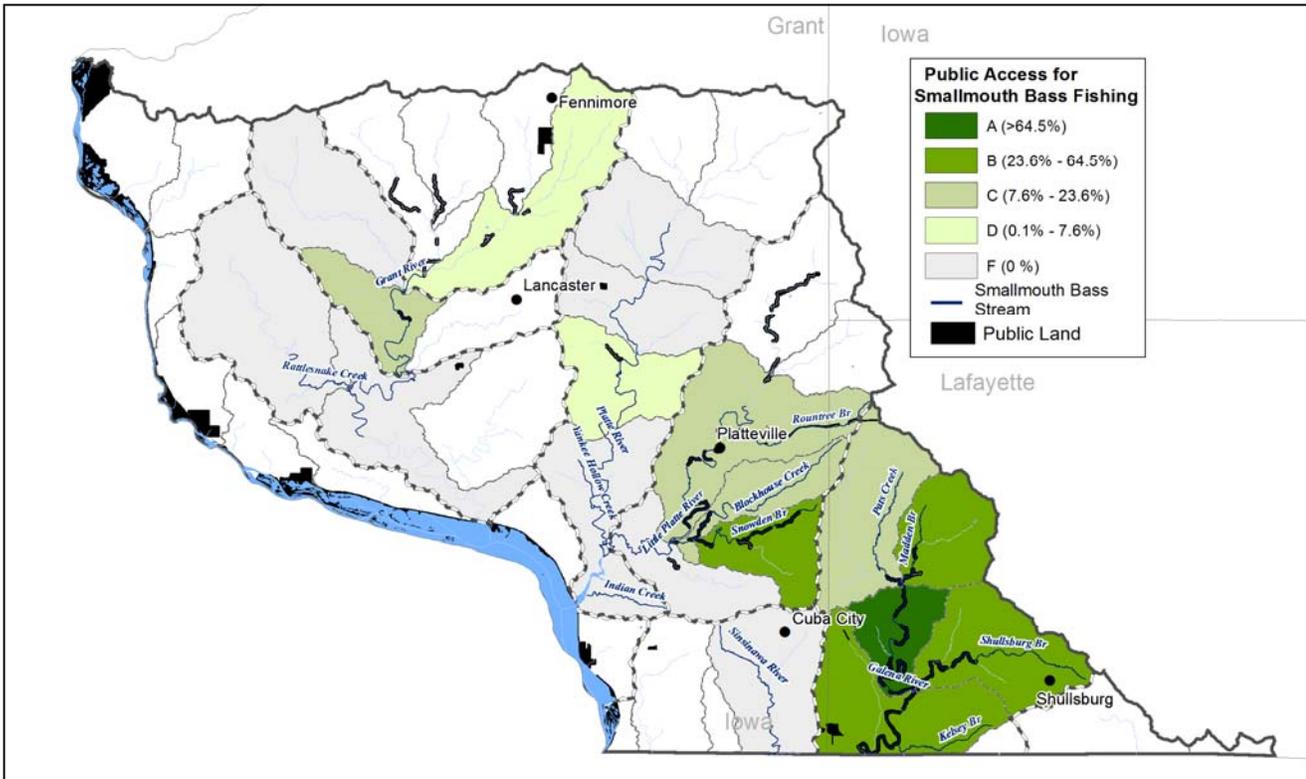
		Watersheds									
		Galena River	Little Platte River	Lower Grant River	Middle Grant River	Platte River	Sny Magill Creek - Mississippi R	Sinnisawa River - Mississippi R	South Fork Apple River	Upper Grant River	
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential		F			F	F			F
		Land Use Stress		F			F	F			F
	Sport Fishery Performance	Stock (5" up to 8")		F			F	F			F
		Quality (8" up to 12")		F			F	F			F
		Memorable (12" +)		F			F	F			F
Projected resilience to climate change		D		D	C	D		C		D	
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential		F			A	B			A
		Land Use Stress		F			F	D			F
	Sport Fishery Performance	Stock (6" up to 10")		F			F	F			B
		Quality (10" up to 15")		F			F	D			A
		Memorable (15" +)		F			F	F			A
Projected resilience to climate change		D	D	D	D	A	D	C		B	
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	B	B	B	C	B		B		C
		Land Use Stress	A	A	A	A	A		A		B
	Sport Fishery Performance	Stock (8" up to 14")	A	F			A		A		A
		Memorable (14" +)	B	F			F		C		A
	Projected gain from climate change		A	A	A	A	A	A	B	C	A
Trout Stream Habitat	Thermal resilience of trout streams			D			D	C			B
	Total miles of stream restoration			B			C	F			A
Recreation	Angling opportunities	Percent of trout stream miles with public access		A			D	D			B
		Percent of smallmouth bass stream miles with public access	A	B	F	C	D		F		D
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	A	B	F	D	D	F	D	F	A



Platte River Region Trout Maps



Platte River Region Public Access Maps



Pecatonica River Region Highlights

- ❖ This Pecatonica River Region is in close proximity to Madison and the streams with public access tend to receive heavy fishing pressure and use.
- ❖ The DNR properties are generally narrow and small. This, along with their locations and soil types, make them ill suited to accommodate most other recreational uses.
- ❖ The Pecatonica River Region lacks good quality natural habitat for brook trout, and coupled with high levels of land-use stress, provides unfavorable conditions for the occurrence of many brook trout. Brook trout occurrence is only predicted to occur in the Sugar River watershed.
- ❖ Models project that by the mid-century climate change will lead to the extirpation of brook trout in the Pecatonica River Region.
- ❖ Brown trout natural habitat potential is much better than for brook trout. The northern portion of the region has high quality natural habitat. Land use stress is more varied but still high in most areas.
- ❖ The most productive brown trout populations are in the northeastern portion of the region.
- ❖ Smallmouth bass natural habitat potential is high, especially in the lower reaches of the Pecatonica River and the Sugar River. Land use stress varies across the region, with higher stress occurring in the northern and western portions of the region.
- ❖ The highest densities of smallmouth bass occur in the large, warm rivers and the better waters also are tied to large wintering habitat, such as the Pecatonica and Sugar Rivers.
- ❖ The distribution of smallmouth bass is projected to expand due to climate change.

Pecatonica River Region Highlights

Grades show each watershed's place in the distribution of all Driftless Area watersheds.

- ❖ An **A** means the value is in the upper quartile (75%-100%) or upper quintile (80%-100%) of the distribution
- ❖ An **F** means the value is zero or is in the lowest quintile (0-20%) of the distribution.
- ❖ Blank cells indicate "not applicable."

			Watersheds													
			Ames Branch - Pecatonica River	Blue Mounds Branch	Dodge Branch	East Branch Pecatonica River	Headwaters Pecatonica River	Headwaters Sugar River	Honey Creek - Pecatonica River	Little Sugar River	Mineral Point Branch	Ridgeway Branch - E B Pecatonica	Sparford Creek - Pecatonica River	Stony Creek-Sugar River	West Branch Sugar River	Yellowstone River
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential	F	F	F	F	F	C	F	F	F	F	F	C	D	F
		Land Use Stress	F	F	F	F	D	F	F	F	F	D	F	F	F	F
	Sport Fishery Performance	Stock (5" up to 8")	F	F	F	F	F	F	F	F	C	F	F	C	D	F
		Quality (8" up to 12")	F	F	F	F	F	F	F	F	D	F	F	C	C	F
		Memorable (12" +)	F	F	F	F	F	F	F	F	B	F	F	D	F	F
	Projected resilience to climate change			D	D	D	D	D	D		D	D	D		D	D
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential	B	A	A	B	D	A	D	B	A	A	D	D	A	A
		Land Use Stress	F	B	F	D	F	F	D	D	F	B	F	D	D	D
	Sport Fishery Performance	Stock (6" up to 10")	F	B	C	D	D	C	D	C	C	D	D	A	A	C
		Quality (10" up to 15")	F	B	D	C	C	B	D	D	B	C	F	A	B	D
		Memorable (15" +)	F	B	F	F	F	A	F	F	F	F	F	B	B	F
	Projected resilience to climate change			D	C	D	B	D	D	C	B	C	C	D	C	C
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	B	D	F	B	C	D	A	C	C	C	B	C	D	C
		Land Use Stress	B	F	B	D	C	C	F	F	D	F	B	D	D	B
	Sport Fishery Performance	Stock (8" up to 14")	F	F	F	F	B	F	D	D	A	F	F	A		B
		Memorable (14" +)	F	F	F	F	F	F	F	D	A	F	F	A		F
	Projected gain from climate change			A	B	A	A	A	A	A	B	A	B	A	D	B
Trout Stream Habitat	Thermal stability of trout streams		B	D	D	C	C	D	A	D	C	D	D	C	D	A
	Total miles of trout stream restoration		F	A	B	F	F	F	F	F	F	F	D	F	A	D
Recreation	Angling opportunities	Percent of trout stream miles with public access	B	C	A	D	D	C	F	C	D	B	D	A	B	A
		Percent of smallmouth bass stream miles with public access	C	F	A	F	D	F	D	A	F	D	F	B	F	F
	Supply relative to demand		Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	C	C	C	D	D	D	D	C	D	C	D	C	B



Pecatonica River Region Trout Maps

