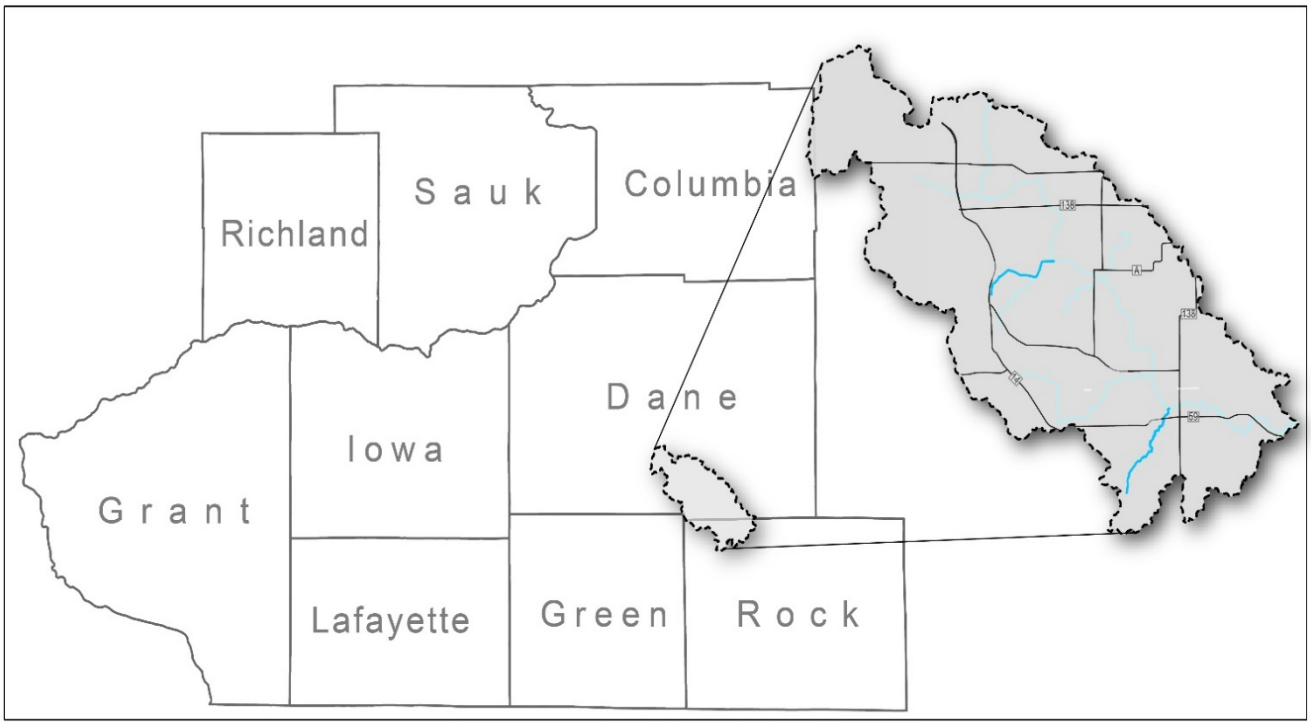
WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Trout Stream Management And Status Report Of The Badfish Creek Watershed

Dane and Rock Counties, Wisconsin 2022



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Executive Summary

The streams in the Badfish Creek watershed detailed in this report include Badfish Creek, Oregon Branch, Rutland Branch (sometimes referred to Anthony Branch), Frog Pond Creek, Spring Creek, unnamed waterbody identification code (hereafter WBIC) 800500, unnamed WBIC 800600 and unnamed WBIC 800800. Rutland Branch and Spring Creek are classified trout water, while Badfish Creek, Oregon Branch, Frog Pond Creek and the three unnamed tributaries are unclassified.

Rutland Branch and Spring Creek are the only streams that are stocked on an annual basis. Rutland Branch receives large fingerling and adult brook trout, while Spring Creek receives large fingerling brown trout.

Streams (16 stations) were surveyed in 2022 using single pass stream electrofishing following the suspension of stocking to assess natural recruitment and natural reproduction. We found fishable populations, no evidence of natural recruitment and low abundances of adult trout in the watershed.

No adjustments in the trout classifications are needed at this time. Class II waters of Spring Creek and Rutland Branch are appropriate as are the remaining six unclassified stream designations. The general countywide regulation of 8 inch minimum, 3 daily bag limit for trout will remain in place for these streams as well.

An ongoing threat to the coldwater habitat in this region is intensive agricultural land use resulting in degraded stream habitat and reduced trout abundances. With the exception of Spring Creek, the entire watershed has been straightened and ditched, resulting in wide, shallow streams largely devoid of fish habitat. The highest performing areas of the watershed are Spring Creek and Rutland Branch near the confluence with Badfish Creek. Stream bank easement outreach and habitat improvement projects should focus on areas where investments are likely to yield returns in the form of increased angling opportunities.

Major management recommendations highlighted in this report include increase young-of-year (YOY) recruitment and adult abundances in Rutland Branch, conduct targeted habitat improvement projects to the extent feasible with partner organizations and maintain the county base regulation of 8 inch minimum length limit, three fish daily bag limit.

ACKNOWLEDGEMENTS
Data collection for the 2022 surveys were completed by DNR staff Josh Jonet, Mitchell Trow and Dan Oele. Bryce Linden contributed watershed maps. David Rowe, Tim Simonson and Jake Kolanowski provided feedback and edits for this report.

WATERSHED LOCATION
Badfish Creek, Oregon Branch, Rutland Branch (sometimes referred to Anthony Branch), Frog Pond Creek, Spring Creek, unnamed waterbody identification code (hereafter WBIC) 800500, unnamed WBIC 800600 and unnamed WBIC 800800.

PURPOSE OF SURVEY
DNR baseline trout rotation and trout potential surveys
Assess trout stream classification
Assess natural reproduction and recruitment
Assess current trout population abundance

DATES OF FIELDWORK
June 9 - July 21, 2022

SPECIES SAMPLED
All fish encountered were collected and recorded including black bullhead, bluegill, bluntnose minnow, brook stickleback, brown trout, channel catfish, common carp, common shiner, creek chub, fathead minnow, freshwater drum, green sunfish, hornyhead chub, johnny darter, largemouth bass, mottled sculpin, northern hogsucker, northern pike, sauger, shorthead redhorse, spottail shiner, stonecat, walleye, western blacknose dace, white sucker and yellow bullhead.

Introduction

SUMMARY OF THE WATERSHED
Badfish Creek is formed at the confluence of Rutland Branch and Oregon Branch in southern Dane County and flows 12.3 miles southeast where it joins the Yahara River in Rock County. Rutland Branch originates in wetlands within the Anthony Branch Stream Bank Protection property near the intersection of U.S. Highway 14 and County Highway A. It flows east 2.59 miles to join Badfish Creek. The headwaters of Oregon Branch begin in the village of Oregon and flow east, then south across State Highway 138 for a total of 4.74 miles until it meets Badfish Creek. Frog Pond Creek zigzags across the Dane-Rock County border for 7 miles before joining Badfish Creek south of Old Stage Road. Spring Creek is a 3.43 mile tributary of Badfish which originates in Rock County and flows north across State Highway 59. WBIC 800500 is an unnamed

tributary of Badfish Creek near the east end of County Highway A. WBIC 800600 crosses Lake Kegonsa Road and is adjacent to WBIC 800500 across the banks of Badfish Creek. WBIC 800800 is the unnamed tributary to Oregon Branch and is the primary flow path for Madison Metropolitan Sewer District's (MMSD) treated effluent discharge to the system.

Badfish Creek is located in the Yahara River and Lake Kegonsa watershed, which is 126.33 mi^2. Land use in the watershed is primarily agricultural (54.90%), grassland (10.70%) and a mix of wetland (10.30%) and other uses (24.20%). This watershed has 145.73 stream miles, 3,600.04 lake acres and 6,832.19 wetland acres.

CURRENT STATUS AND MANAGEMENT HISTORY

Class I trout streams are those with high quality habitat with sufficient levels of natural reproduction to sustain the fishery and no stocking required. Class II streams are those in which some natural reproduction occurs but not enough to utilize all available food and space, and stocking is required to maintain a desirable fishery. Class II streams are those in which trout habitat is marginal with no natural reproduction occurring and require stocking of catchable-size trout to provide a fishing opportunity for trout. Rutland Branch and Spring Creek are Class II trout waters; all others are unclassified (Figure 1). Rutland Branch had been stocked regularly with brook trout until 2019 (Table 1). Spring Creek has been stocked regularly with yearling brown trout since 1981.

REGULATIONS

The trout streams in this assessment are regulated under the standard countywide 8 inch minimum, 3 fish daily bag limit for trout (Figure 2).

HABITAT IMPROVEMENT

There have not been any Wisconsin Department of Natural Resources (DNR) stream habitat projects in this watershed.

PUBLIC ACCESS

The best public access is along DNR owned lands associated with the Anthony Branch Stream Bank Protection Area and the Badfish Creek Wildlife Area (Figure 3). Spring Creek also has leased public lands through the DNR Voluntary Public Access (VPA) Program near State Highway 59.

Methods

Understanding the natural reproduction capacity and recruitment of a stream is critical to managing trout populations. In our fishery assessments, natural recruitment is defined by juvenile fish surviving to age-1. Natural reproduction is the presence of age-0 fish (young-of-year, YOY), but this is difficult to accurately assess

since their vulnerability to electrofishing gear is more variable than larger-sized fish. Additionally, YOY are not evenly distributed since they often occur upstream in nursery habitats and migrate downstream to adult and juvenile habitats later in life. Therefore, documenting the lack of natural reproduction does not mean there is a necessarily a complete lack of natural recruitment.

To assess recruitment to age-1, all stocking of fingerling trout was suspended the year prior to these surveys. Our assumption was that all yearling (age-1) trout are from natural recruitment somewhere in the watershed, and all YOY (age-0) trout are from natural reproduction. If previous stocking occurred, age-2 and older fish are assumed to be from mixed sources. High levels of natural reproduction, natural recruitment and several age classes without stocking are indicative of self-sustaining Class I waters. An absence or low abundance of YOY and/or yearling trout, coupled with an abundance of adult trout from prior stocking events, is indicative of Class II waters. Marginal waters where only stocked fish survive during early spring and summer with limited carry-over and no reproduction are Class III.

DNR surveyed five stations in Badfish Creek, one in Oregon Branch, three in Rutland Branch, two in Frog Pond Creek, two in Spring Creek and one each in unnamed WBICs 800500, 800600 and 800800 (Figure 1, map of sample locations). All stream sites were surveyed with either a tow behind barge stream shocking unit or backpack electrofishing unit.

The number of fish sampling sites in a particular stream was based on the length of stream following DNR Fish Management Handbook protocols. One sampling site is required for stream segments less than 1.5 miles, two sites for stream segments 1.5-3 miles and one site every three miles on long rivers (minimum 3 sites). The length of each fish survey at a particular site is determined by stream width: thirty-five times the mean stream width on segments greater than 3 meters and 100 meters minimum for streams less than 3 meters wide.

For each sampling site, catch-per-unit-effort (CPUE) was calculated by dividing the number of fish collected by the length of the survey, yielding an estimate of number of trout per mile. This procedure allows for straightforward analyses of catch rates within and among stream sites as well as standardized regional and statewide comparisons. Fish length data were analyzed by size classes and age groups of interest, including the number of age-0 young-of-year (YOY), age-1 yearlings and adult trout (age-2+). YOY are fish less than 4 inches in length, yearlings are between 4 and 7.9 inches for brown trout and adults are considered greater than 8 inches for brown trout. Preferred-sized fish are often of special interest to anglers and are fish greater than 12 inches for brown trout.

All fish species were collected and counted; total length (nearest tenth of an inch) of each trout was measured. The coldwater index of biotic integrity (IBI) score (0-100) was computed for each station. For added context, catch rates of mottled sculpin

(intolerant of poor water quality and a coldwater indicator species) and white sucker (tolerant of poor water quality and warmer water indicator species) were also evaluated as a proxy for long-term water temperature and habitat condition at each survey station. DNR Fisheries Management Handbook chapter 510 details each of the sampling protocols in greater detail. All fish were returned to the stream.

Water quality and habitat metrics were also collected at each survey site. Streamflow (cubic feet per second, CFS) was calculated at one cross-sectional transect at each site using a HACH FH950 handheld flow meter. Temperature, dissolved oxygen, specific conductivity and pH are also measured using a handheld YSI Pro 2030 meter. Stream habitat metrics were collected using a DNR qualitative habitat rating form. For streams less than 10 m wide, ratings included riparian buffer width, bank erosion, pool area, width: depth ratio, riffle: riffle or bend: bend ratio, fine sediments and cover for fish. For streams greater than 10 m wide, ratings include bank stability, maximum thalweg depth, riffle: riffle or bend: bend ratio, rocky substrate and cover for fish. All data is recorded digitally using weatherproof handheld Toughbook™ tablet and a custom software application.

Results

Brown trout were observed in nine of the 16 stations sampled, but CPUEs across all size classes were below Southeast Wisconsin Till Plains and Statewide median values (Figure 1, Table 2, Table 5). YOY brown trout (natural reproduction) were absent in all surveys, but yearlings and adult-sized fish were present in some reaches of Rutland Branch and Spring Creek (Figures 4-6). Adult brown trout were also present in Badfish Creek and Oregon Branch but in very low numbers.

A total of 20 brown trout were observed in Rutland Branch, with two of the three sites having trout. The County Road A site had the highest total CPUE in Rutland Branch at 116 fish per mile, which is still well below regional benchmarks. The average size of brown trout collected in Rutland Branch was 8.34 inches. No brook trout were collected.

A total of 16 brown trout were observed in Spring Creek, with trout being found at both sites. The Highway 59 site, located upstream from the confluence with Badfish Creek, had the highest total CPUE in Spring Creek at 179 fish per mile, which is well below regional benchmarks. The average size of brown trout collected in Spring Creek was 8.14 inches.

Coldwater indicator species like mottled sculpin were found in Rutland Branch, Frog Pond Creek and Spring Creek, with the highest abundances recorded in Spring Creek at the confluence with Badfish Creek. White suckers were observed in Badfish Creek, Oregon Branch, Spring Creek and unnamed WBIC 800800, with the highest abundances at Badfish Creek at County Highway A (Table 4).

COLDWATER INDEX OF BIOTIC INTEGRITY SCORES AND HABITAT QUALITY

Median coldwater IBI score across all sites was very low (10 out of 100); the average score was 18. The average qualitative habitat rating for the watershed was 50 (out of 100). Average riparian buffer scores were good (11 out of 15). Bank erosion scores were acceptable, but nearly all stations had some erosion issues (range 0-15 out of 15; average 9). Adequate habitats defined as pool area were poor, with a median score of 3.5 and maximum score of 10 (out of 15). Median scores for other physical habitat metrics showed similar degraded patterns including width: depth ratio (8 out of 15), riffle habitat (10 out of 15) and fine sediments present (5 out of 15). Scores for fish cover were adequate with an average score (10.5 out of 15). The average temperature across all stations was 65° F (ranged 57° F to 76° F). Average stream flow was 18.0 CFS (ranged 0.24 – 75.22 CFS) with an average width of 6.7 meters (Table 3).

Discussion

Rutland Branch and Spring Creek are Class II trout streams in the watershed that can provide modest angling opportunities in certain reaches. Badfish Creek and Oregon Branch contained trout, but abundance was too low to expect decent angling in most reaches. No trout were observed in Frog Pond Creek or in any of the three unnamed tributaries.

With the exception of Spring Creek, the entire watershed has been straightened and ditched, resulting in wide, shallow streams largely devoid of fish habitat. The temperature of Badfish Creek was too warm to support trout in great abundance year-round. Rather, we observed warmwater fishes like walleye, sauger, freshwater drum, common carp and yellow bullhead that would not be present in coldwater trout streams. The few brown trout observed in Badfish Creek were likely migrants from Spring Creek and Rutland Branch looking for new habitat and food sources. Oregon Branch was similar to Badfish Creek in that it is largely straightened, ditched and too wide and shallow, but it did contain a few trout. With ample warm water forage, Badfish Creek and Oregon Branch have been known to produce some large brown trout, though not in high enough abundance to warrant upgrading to Class II trout waters at this time.

The two unnamed tributaries to Badfish Creek (WBIC 800500 and WBIC 800600) surveyed as trout potential sites did have adequate temperature profiles to support trout, but lacked physical habitats (e.g., depth and cover) and were thermally isolated to small reaches. Unnamed WBIC 800800 is part of the MMSD effluent discharge system and had temperature profiles typically capable of supporting more trout than observed. However, it was too shallow, wide and lacked habitat features to support trout. Any trout that spawn or seek refuge in the colder waters of these tributaries do not have suitable habitats to fulfill all phases of their life cycle (e.g., spawning, nursery and adult habitats).

Frog Pond Creek is a small, shallow tributary with marginal scores for habitat, flow and temperature, and no trout were observed. Though the headwaters were protected by large swaths within United States Fish and Wildlife Service lands, the lands in the lower reaches are managed with intensive agriculture. This includes cattle with open access to many reaches of the stream, resulting in degraded water quality and poor stream bank integrity. This stream may be able to support increased trout abundances, but with no public access apart from road crossings we have no plans to stock fish or initiate habitat improvement projects in this unclassified trout water at this time.

The highest performing areas of the watershed were Spring Creek and Rutland Branch near the confluence with Badfish Creek. The coldwater inputs of Spring Creek hold a modest number of trout, but the stream is capable of supporting increased trout abundances. Rutland Branch benefits from an excellent riparian buffer, with wetlands and springs within the DNR owned Anthony Branch Stream Bank Protection Area lands surrounding the entire stream corridor. Though well-buffered and protected from runoff, the stream is too wide and shallow, often only ankle deep from bank to bank. With cold water as an important prerequisite, the habitat could be improved and would likely result in increased trout abundances in these two streams.

With cold water, good public access and an existing trout population, Rutland Branch near County Highway A is a good candidate for investment of Trout Stamp funds to increase angling opportunities in the watershed. A major restoration project for improved habitat would include placing the stream back into its original channel (or mimic meanders). Careful placement of boulders would create narrow pinch points and diversify flow patterns, which would create more available habitat for trout to utilize. Installing features like brush bundles would provide much needed habitat complexity while improving the width: depth ratio. Adult trout would benefit from adding large, downed wood, which provides preferred habitats in deeper areas with overhead cover and easy access to food resources. Bank sloping in actively eroded banks would reduce the amount of nutrients and sediment entering the creeks. With the entire DNR property within the mapped wetland boundary, much of the work would likely need to be completed during the coldest winter months.

A wetland restoration project is planned on the Anthony Branch DNR Streambank Protection Area near County Highway A that will remove drain tiles to restore wildlife habitat for ducks and other waterfowl. Restored wetlands improve infiltration and decrease sedimentation, which should improve water quality for trout in Rutland Branch.

Regular stocking of large fingerling brook trout (and some adults) in Rutland Branch have not provided any angling opportunities. Prior to this field investigation, brook trout stocking was suspended in 2020, and no brook trout were detected in our 2022

surveys suggesting survival was minimal. Future surveys should focus on assessing the fish communities in unnamed WBIC 801100 to Rutland Branch within the DNR lands south of County Highway A. If this stream has the proper habitat and thermal requirements, it is plausible that stocked brook trout or brown trout would survive in this small stream. Instead of brook trout, adult brown trout were found at County Highway A station with catch rates that provided a fishable population (>50 per mile). Large fingerling brown trout will be stocked along the publicly accessible DNR lands along County Highway A to try to increase trout abundances in this stream. However, it is likely habitat improvement projects are necessary to create a self-sustaining fishery.

Spring Creek would benefit from much of the same habitat prescriptions to improve bank health and increase trout habitat. However, since no permanent public access features currently exist outside of two road crossings, we have no plans to initiate habitat improvement projects here at this time. Temporary leased public lands exist along Spring Creek near State Highway 59 through the DNR Voluntary Public Access (VPA) Program. Spring Creek is eligible for the DNR Stream Bank Easement Program so future easement outreach should focus on areas along VPA lands. If increased interest in fishing easements from riparian landowners leads to substantial public interest in these waters, it may lead to more interest in improving the fishery in the future.

No evidence of brown trout reproduction was found in Spring Creek during our 2022 surveys; however, Spring Creek has shown evidence of successful brown trout reproduction as recently as 2016. Stocking of large fingerling brown trout will continue, but stocking efficacy will be evaluated in the next survey rotation to see if stocking leads to increased brown trout numbers and successful reproduction. Additionally, stocking could provide a potential fishing opportunity in Spring Creek along VPA public lands in rural Rock County, an area where trout fishing opportunity is limited.

Our fieldwork and analyses revealed that no adjustments in trout classifications are recommended. Class II waters of Spring Creek and Rutland Branch are appropriate, as are the remaining six unclassified stream designations for the 2022 watershed assessment. The general county-wide regulation of 8 inch minimum, 3 daily bag limit for trout will remain in place for these streams as well.

In addition to physical habitat stressors caused by urban and agricultural pressures, along with climate change, invasive species like New Zealand mudsnails continue to colonize Wisconsin’s trout streams. Research and monitoring is underway to determine any impacts new invaders like mudsnails pose to trout fisheries and the ecology of streams. Anglers, paddlers and other recreational enthusiasts need to be mindful of transporting these organisms between waterways when recreating. Freezing gear or robust disinfecting protocols (Virkon™, steam, freeze) are the best ways to be sure your gear is free of aquatic invasive species between trips.

Management Recommendations

Recommendation 1

1) **Goal** – Increase brown trout natural recruitment in Rutland Branch.
2) **Objective** – Increase YOY trout (>4 inches) CPUE >100/mile (statewide median is 119 per mile).
3) **Strategy** – Collaborate with conservation organizations and utilize Trout Stamp funds to conduct trout habitat improvement projects designed to increase spawning habitat along publicly accessible streambank frontage near County Highway A crossing.

Recommendation 2

1) **Goal** – Increase angling opportunities for adult brown trout in Rutland Branch.
2) **Objective** – Increase adult trout (>8 inches) CPUE >200/mile (statewide median is 206 per mile).
3) **Strategies**
    a) Collaborate with conservation organizations and utilize Trout Stamp funds to conduct trout habitat improvement projects designed to increase adult habitats along publicly accessible streambank frontage along County Highway A crossing.
    b) Stock large fingerling brown trout.

Recommendation 3

1) **Goal** – Increase angling opportunities for adult brown trout in Spring Creek.
2) **Objective** – Increase adult trout (>8 inches) CPUE >200/mile (statewide median is 206 per mile).
3) **Strategy** – Stock large fingerling brown trout on temporary public access lands along State Highway 59 near Cooksville.

Recommendation 4

1) **Goal** – To extent feasible, increase public access to trout streams in rural Rock County.
2) **Objective** – Acquire 1 mile of new public fishing easements from interested landowners along Spring Creek.
3) **Strategy** – Send Streambank Easement outreach materials to eligible landowners.

Tables and Figures

Table 1. DNR trout stocking in Badfish Creek Watershed, 2016-2021.

Stream	Species	Age	2016	2017	2018	2019	2020	2021
Rutland Branch	Brook	Large Fingerling	800	400	300	693		
		Adult		100				
Spring Creek	Brown	Large Fingerling	390	910	418	380	500	

Table 2. Brown trout catch rates for the Badfish Creek watershed during the 2022 assessment. Catch Per Unit Effort (CPUE) is number of fish per mile. Values shown in red indicate catch rate below statewide median CPUE.

Stream	Station (ID)	N	Mean Length (In)	<4" YOY CPUE	4-8" Yearling CPUE	>8" Adult CPUE	>12" Preferred CPUE	Total CPUE
Badfish Creek	**Stream Average**	**2**	**12.62**	**0.00**	**0.00**	**8.53**	**2.64**	**9.62**
	HWY A (226)	3	11.20	0.00	0.00	10.91	0.00	16.37
	Old Stone Rd. (224)	5	11.48	0.00	0.00	17.12	3.42	17.12
	HWY 138 (232)	3	15.47	0.00	0.00	14.63	9.75	14.63
	Riley Rd. (231)	0	0.00	0.00	0.00	0.00	0.00	0.00
	Casey Rd. (233)	0	0.00	0.00	0.00	0.00	0.00	0.00
Oregon Branch	Sunrise Rd. (222)	1	13.00	0.00	0.00	5.96	5.96	5.96
Rutland Branch	**Stream Average**	**7**	**8.34**	**0.00**	**40.53**	**22.01**	**2.75**	**62.53**
	Waterman Rd. (223)	6	6.57	0.00	72.06	0.00	0.00	72.06
	Near Parking Access (230)	0	0.00	0.00	0.00	0.00	0.00	0.00
	HWY A (228)	14	9.09	0.00	49.52	66.02	8.25	115.54
Frog Pond Creek	**Stream Average**	**0**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Union-Dane Rd. (235)	0	0.00	0.00	0.00	0.00	0.00	0.00
	Franklin Rd. (229)	0	0.00	0.00	0.00	0.00	0.00	0.00
Spring Creek	**Stream Average**	**8**	**8.14**	**0.00**	**47.47**	**47.68**	**5.96**	**95.16**
	East Union Rd. (236)	1	7.60	0.00	11.50	0.00	0.00	11.50
	Upstream of Confluence (234)	15	8.68	0.00	83.45	95.37	11.92	178.82
Unnamed WBIC 800500	HWY A (219)	0	0.00	0.00	0.00	0.00	0.00	0.00
Unnamed WBIC 800600	Lake Kegonsa Rd. (227)	0	0.00	0.00	0.00	0.00	0.00	0.00
Unnamed WBIC 800800	Rutland-Dunn Townline Rd (221)	0	0.00	0.00	0.00	0.00	0.00	0.00
Statewide Median CPUE				**119**	**199**	**206**	**48**	**537**
SE Wisconsin Till Plains Median CPUE				**113**	**239**	**183**	**57**	**559**

Table 3. Coldwater index of biotic integrity (IBI) scores, temperature, flow (CFS; cubic feet per second), stream width and qualitative habitat ratings for the Badfish Creek watershed.

Stream	Station (ID)	IBI	Temperature (°F)	Mean Stream Width (meters)	Flow (CFS)	Habitat Score
Badfish Creek	HWY A (226)	0	66.8	13	64.98	28
	Old Stone Rd. (224)	20	68.8	13.2	62.51	53
	HWY 138 (232)	10	71.5	15.3	68.86	60
	Riley Rd. (231)	10	69.6			
	Casey Rd. (233)	10	76.6	16	75.22	68
Oregon Branch	Sunrise Rd. (222)	10	62.9	10	6.35	32
Rutland Branch	Waterman Rd. (223)	60	57.7	3.7	0.25	35
	Near Parking Access (230)	No Fish	62.8	3.8	7.10	55
	HWY A (228)	70	57.0	4	3.17	53
Frog Pond Creek	Union-Dane Rd. (235)	0	61.1	1.7	1.41	48
	Franklin Rd. (229)	30	60.5	2	1.06	77
Spring Creek	East Union Rd. (236)	30	63.5	1.2	1.77	63
	Upstream of Confluence (234)	30	66.1	3.4	3.53	75
Unnamed WBIC 800500	HWY A (219)	0	61.1	2.2	0.71	33
Unnamed WBIC 800600	Lake Kegonsa Rd. (227)	10	59.6	2	1.03	28
Unnamed WBIC 800800	Rutland-Dunn Townline Rd (221)	0	64.0	9.3	35.21	50

Table 4. Total catch rates (CPUE; number per mile) for mottled sculpin and white sucker, coldwater index of biotic integrity (IBI) scores and predicted stream natural community categories for the Badfish Creek Watershed.

Stream	Station (ID)	Coldwater IBI Score	Natural Community Prediction	Mottled Sculpin CPUE	White Sucker CPUE
Badfish Creek	HWY A (226)	0	Cool-Warm Mainstem	0.00	708.11
	Old Stone Rd. (224)	20	Cool-Warm Mainstem	0.00	414.32
	HWY 138 (232)	10	Cool-Warm Mainstem	0.00	497.43
	Riley Rd. (231)	10	Cool-Warm Mainstem	0.00	434.52
	Casey Rd. (233)	10	Cool-Warm Mainstem	0.00	113.83
Oregon Branch	Rutting Rd. (225)	0	Cool-Warm Mainstem	0.00	166.30
	Sunrise Rd. (222)	10	Cool-Warm Mainstem	0.00	202.66
Rutland Branch	Waterman Rd. (223)	60	Coldwater	0.00	0.00
	Near Parking Access (230)	No Fish	Coldwater	0.00	0.00
	HWY A (228)	70	Cool-Cold Headwater	107.29	0.00
Frog Pond Creek	Union-Dane Rd. (235)	0	Cool-Warm Headwater	0.00	0.00
	Franklin Rd. (229)	30	Cool-Warm Headwater	241.41	0.00
Spring Creek	East Union Rd. (236)	30	Coldwater	172.43	0.00
	Upstream of Confluence (234)	30	Coldwater	369.55	119.21
Unnamed WBIC 800500	HWY A (219)	0	Cool-Cold Headwater	0.00	0.00
Unnamed WBIC 800600	Lake Kegonsa Rd. (227)	10	Cool-Warm Headwater	0.00	0.00
Unnamed WBIC 800800	Rutland-Dunn Townline Rd (221)	0	Cool-Warm Mainstem	0.00	251.06

Table 5. Brown trout CPUE (number per mile) percentile breakdown for fishery surveys conducted on Class II trout streams in the Southeast (SE) Wisconsin Till Plains region and statewide where at least one trout was collected, 2012-2021.

	CPUE TOTAL	(All sizes)	CPUE AGE-0	(<4.0 “)	CPUE AGE-1	(4.0-7.9 “)	CPUE ADULT	(≥ 8 “)	CPUE PREFERRED	(≥12 “)
PERCENTILE	SE Glacial Till Plain	Statewide	SE Glacial Till Plain	Statewide	SE Glacial Till Plain	Statewide	SE Glacial Till Plain	Statewide	SE Glacial Till Plain	Statewide
10	172.4	39.7	14.3	12.5	48.3	21	48.3	18.9	13.8	10.6
25	291.2	178.4	34.5	32.2	114.4	70.6	96.6	63.8	26.3	20.3
35	377.2	305.9	64.4	58.1	160.9	115	131.5	112.7	32.2	30.3
50 (median)	558.5	537.3	112.7	119.3	239.1	199.2	183.0	205.8	56.5	47.6
65	846.7	880.6	263.3	247.5	324.6	337.2	275.5	341.9	84.3	72
75	1042.2	1241.7	356.4	402.1	419.4	482.8	400.4	479.2	93.3	91.4
90	1739.5	2203.1	708.1	933.5	651.1	836.6	682.8	864.5	134.3	156.5

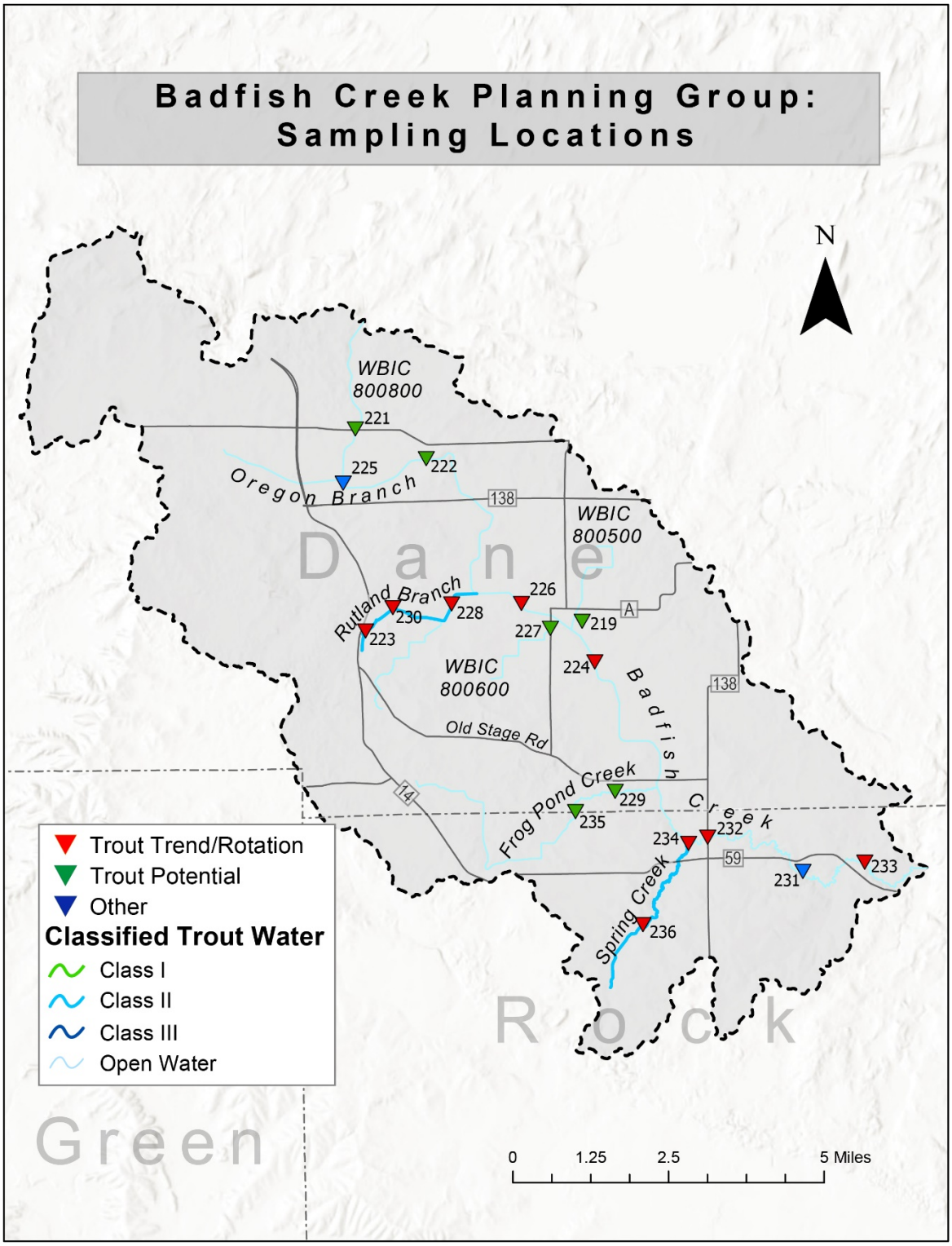

Figure 1. Stream classifications and fishery assessment survey sites within the Badfish Creek Watershed.

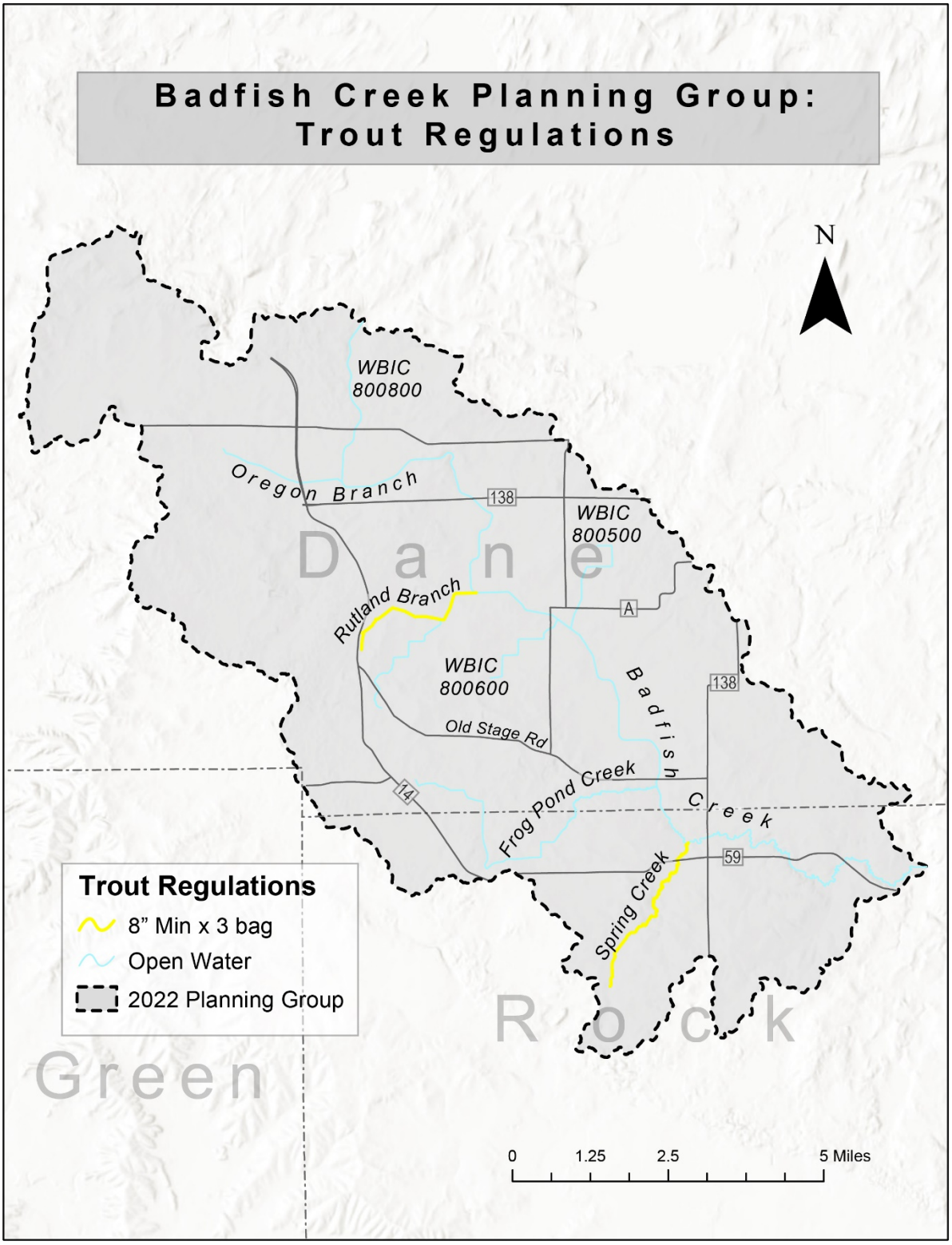

Figure 2. Badfish Creek watershed is regulated by the county base regulation of 8 inch minimum, 3 daily bag limit for trout.

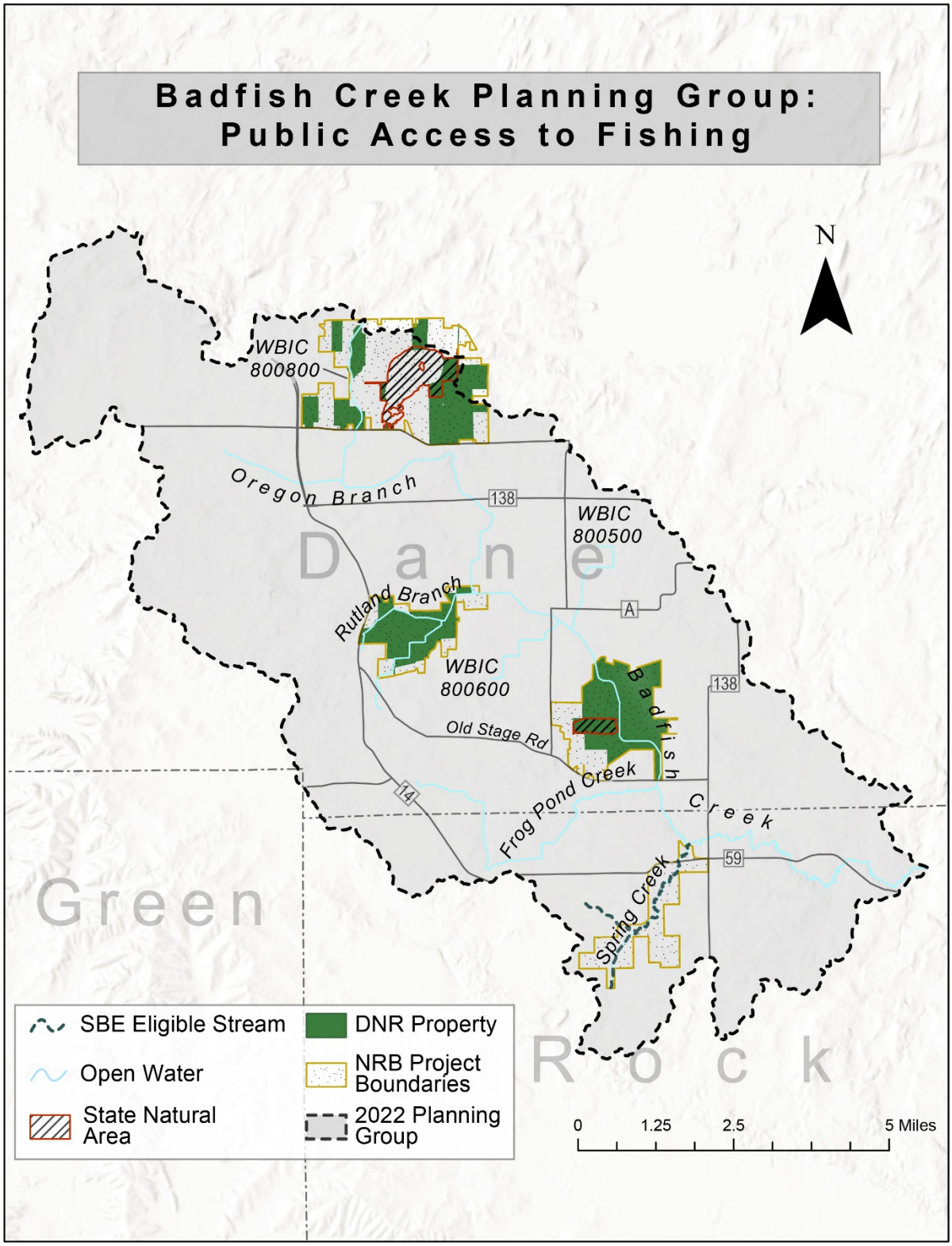

Figure 3. Badfish Creek Watershed public access points and DNR Stream Bank Easement program eligible waters.

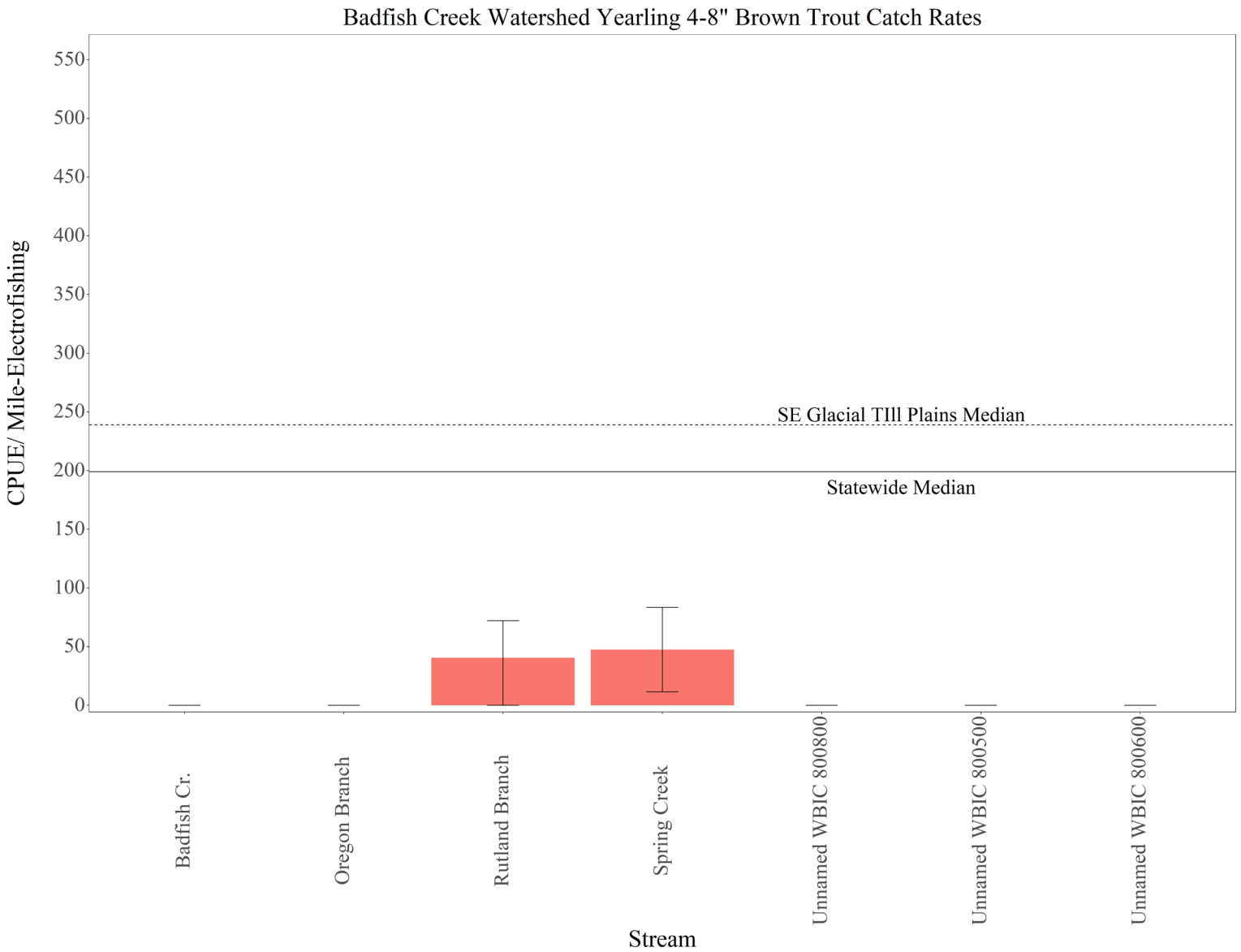

Figure 4. Average yearling brown trout (>4 & <8 inches) catch rates (CPUE) across all survey sites for each stream. Error bars represent minimum and maximum catch rates observed in the survey for each stream.

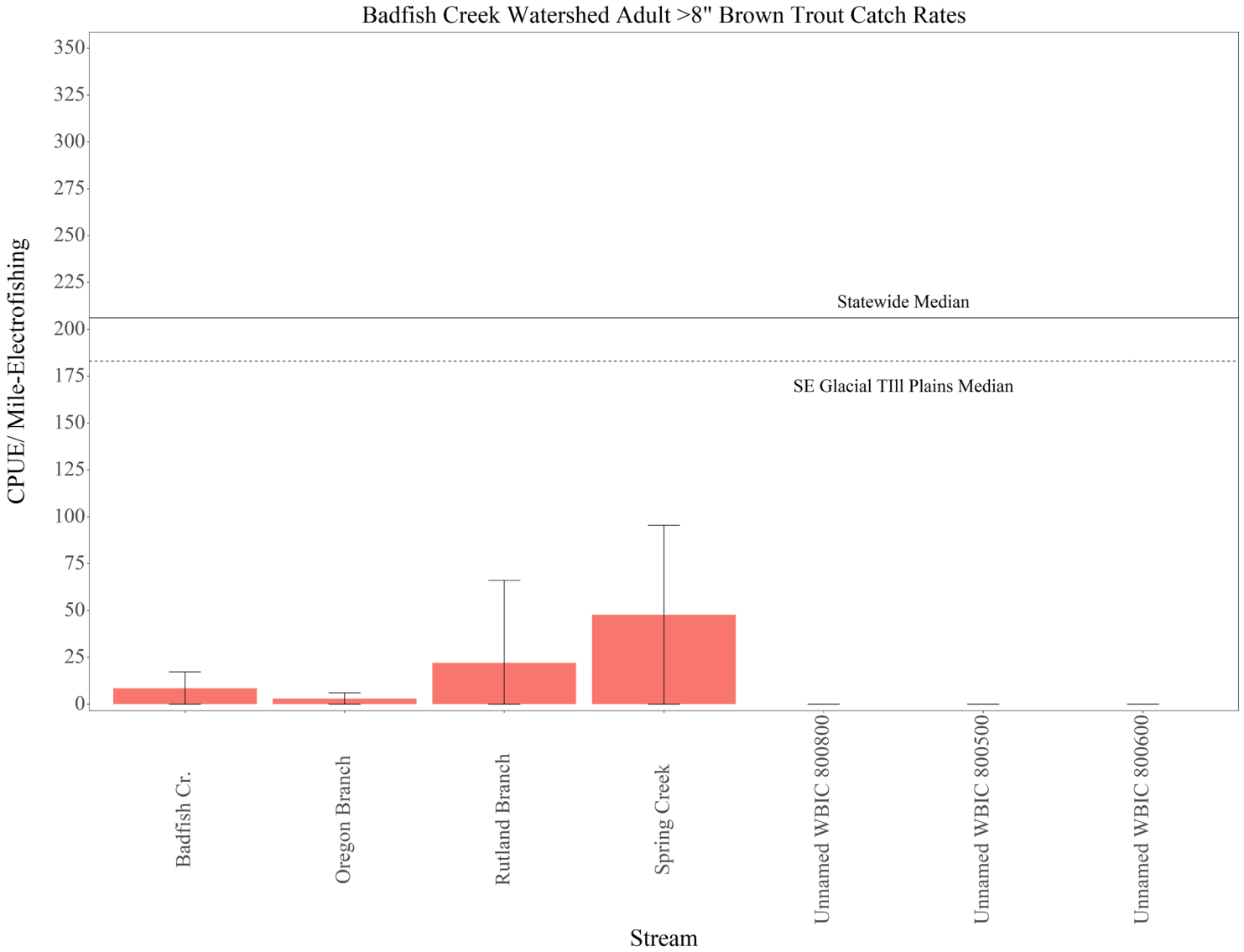

Figure 5. Average adult brown trout (>8 inches) catch rates (CPUE) across all survey sites for each stream. Error bars represent minimum and maximum catch rates observed in the survey for each stream.

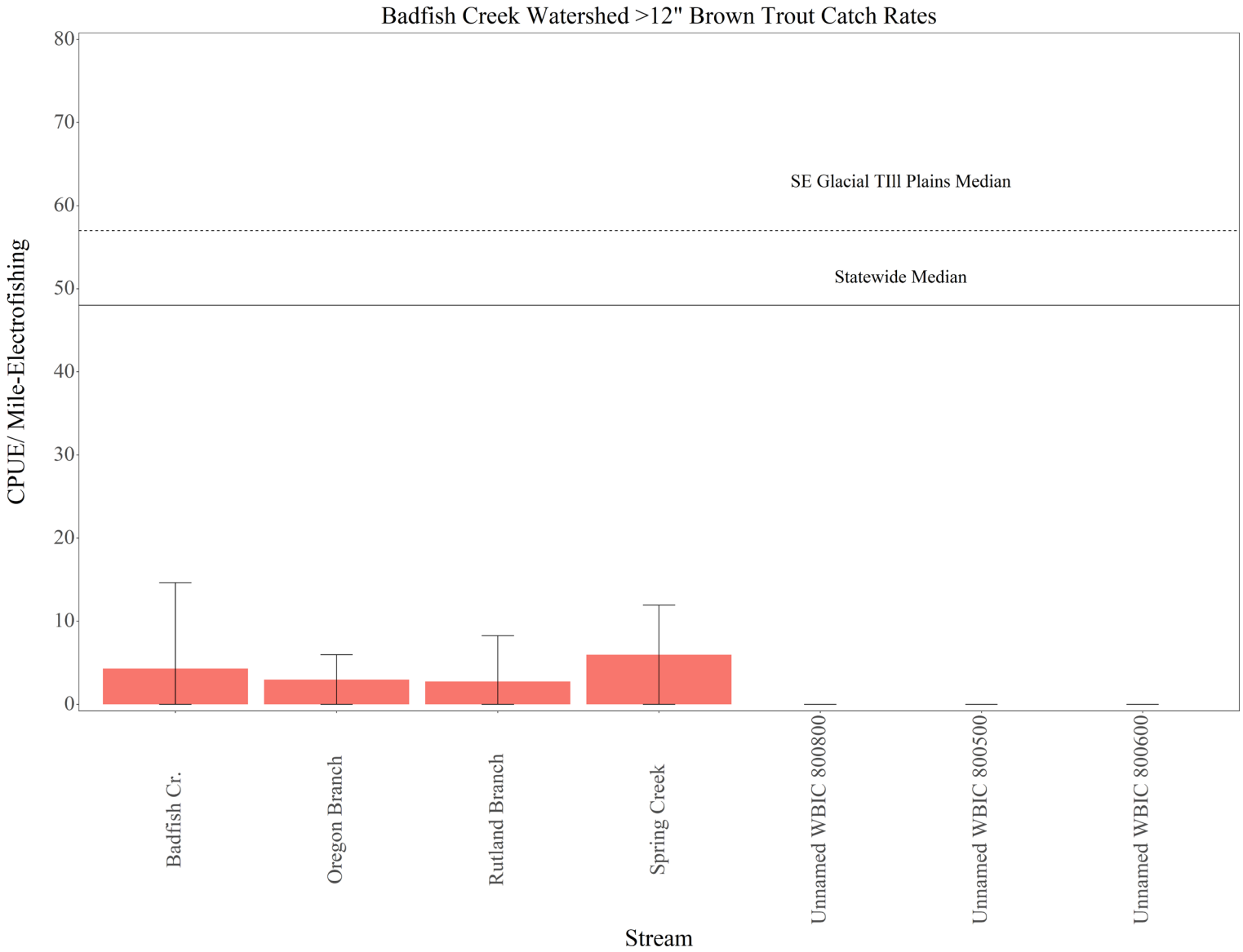

Figure 6. Average preferred size brown trout (>12 inches) catch rates (CPUE) across all survey sites for each stream. Error bars represent minimum and maximum catch rates observed in the survey for each stream.