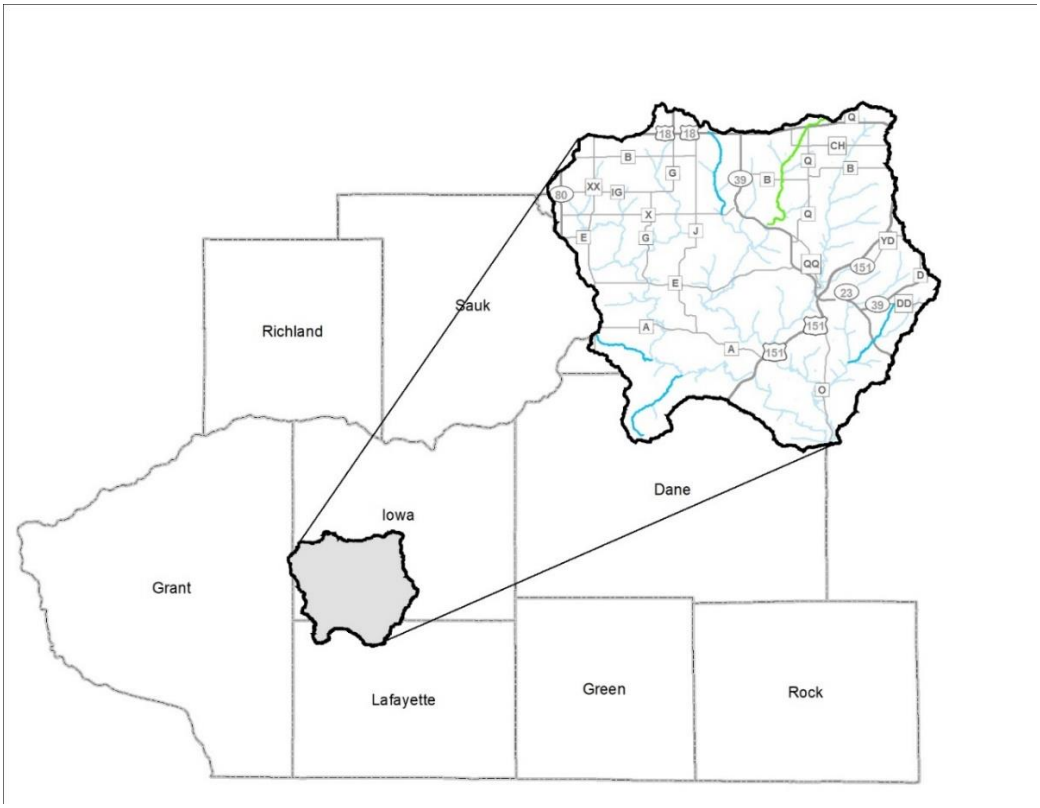
WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Trout Management And Status Report Of The Mineral Point Branch And Headwaters Pecatonica River Watersheds

Iowa and Lafayette Counties, Wisconsin 2020



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EXECUTIVE SUMMARY

Wisconsin Department of Natural Resources (DNR) staff conducted stream electrofishing surveys on classified coldwater tributary streams to the Mineral Point Branch and Pecatonica River. These classified streams included Laxey Creek, Sudan Branch, Rock Branch, Williams-Rewey Branch and Jones Branch, as well as a few unclassified streams.

Electrofishing surveys occurred at 17 sites from June 29 to July 29, 2020. Most of these classified tributaries are Class 2 trout waters, with the exception being Laxey Creek, which is a Class 1 trout water. The only stream currently stocked within these watersheds is Rock Branch, receiving 625 large fingerling Brown Trout every year. However, Sudan Branch, Jones Branch and Williams-Rewey Branch have been stocked in the recent past.

Overall, the classified trout waters in these watersheds contain low abundance trout populations. Brown Trout CPUE (catch per unit effort, in this case number per mile) was highest in the Rock Branch upstream of STH 23, where 556 total Brown Trout per mile were sampled. The site with the next highest CPUE was Brewery Creek near the recreational trail in Mineral Point, where 285 Brown Trout per mile were sampled. Site specific age-0 CPUE was highest in Rock Branch at site 106, where 225 Brown Trout (< 4 inches) per mile were captured, followed by Rock Branch upstream from Brecken Road, where crews captured 83 age-0 Brown Trout per mile. Yearling (4-7.9 inches) and adult (> 8 inches) Brown Trout were highest in Rock Branch at STH 23, where 90 and 241 fish per mile were captured, respectively.

Brook Trout were collected in four streams within these watersheds: Laxey Creek, Rock Branch, Sudan Branch and Williams-Rewey Branch. Laxey at County Farm Road contained the highest abundance of Brook Trout overall at 1,699 total Brook Trout per mile. Reproduction was highest in Laxey Creek at County Farm Road where CPUE was 524 age-0 (< 4 inches) fish per mile. Age-1 fish and adults were also highest at this site, sampling 741 yearlings (4-6.9 inches) per mile and 434 adults per mile. Except for Laxey Creek, Brook Trout populations within these watersheds are scarce and exhibit low densities when compared to statewide and Driftless area standards.

Management goals will focus on maintaining the Brown Trout fishery in Rock Branch, while reconnecting this population with Brewery Creek. This will include classification of Brewery Creek as a Class 2 stream and developing a stocking quota for Brewery Creek at the same rate as Rock Branch's 625 large fingerling Brown Trout per year. Stream connectivity is also a concern and should be a focus in Brewery Creek. This will include an assessment of a concrete barrier located at the 6th Street/Jackson Road crossing. This is critical for fish movement during the fall/winter when these fish are moving upstream to spawning grounds. DNR staff will also place focus on acquiring streambank easements throughout the Mineral Point Branch watershed.

This will include outreach along all approved waters, as well as expanding acquisition authority along Laxey Creek.

WATERSHED LOCATION

Mineral Point Branch Watershed, Iowa and Lafayette Counties
Headwaters Pecatonica River Watershed, Iowa and Lafayette Counties

PURPOSE OF SURVEY

- Assess natural reproduction and recruitment
- Assess trout stream classification
- Assess current status and abundance of trout populations
- Evaluate regulations

DATES OF FIELDWORK

June 29, 2020 – July 29, 2020

SPECIES SAMPLED

- Black Crappie
- Bluegill
- Brook Stickleback
- Brook Trout
- Brown Trout
- Central Stoneroller
- Common Shiner
- Creek Chub
- Fantail Darter
- Green Sunfish
- Hornyhead Chub
- Johnny Darter
- Mottled Sculpin
- Southern Redbelly Dace
- White Sucker

INTRODUCTION

The Mineral Point Branch and Pecatonica River are located within the Pecatonica River basin. This region, known as the Southwest Savanna, is part of the Driftless Area in Wisconsin. This region is characterized by a dolomite and sandstone dominated landscape with dendritic drainage (DNR 2021). Mineral Point Branch flows down into the Pecatonica River, before joining the Rock River in Illinois, and eventually ends up in the Mississippi River. The Mineral Point Branch and Pecatonica rivers are unclassified and considered warmwater; however, a few coldwater tributaries within these Hydrologic Unit Code 12 (HUC 12) watersheds contain populations of both Brook (*Salvelinus fontinalis*) and Brown Trout (*Salmo trutta*).

The Mineral Point Branch and Headwaters Pecatonica River watersheds contain coldwater tributaries that are Class 2 trout streams. Some of these tributaries contain natural reproduction and recruitment to the fishery while other waters are stocked. These classified streams include Laxey Creek, Sudan Branch and Rock Branch in the Mineral Point Branch watershed, and Williams-Rewey Branch and Jones Branch in the Headwaters Pecatonica River watershed.

Laxey Creek, historically known as Peddler Creek, is a small, 10-mile long tributary in the headwater region of the Mineral Point Branch that flows southwest before meeting up with Sudan Branch. This stream was unclassified water until recently. However, based on data collected during stream surveys, it was classified as a Class 1 trout stream on Jan. 1, 2021. This stream contains an excellent population of Brook Trout in the headwater and middle reaches, before transitioning to warmer water and likely Smallmouth Bass nursery habitat throughout the downstream portions. Spring impoundments, lack of canopy cover and extensive grazing and row cropping within the Laxey sub-watershed is likely contributing to increased temperatures and sediment loads to the lower reaches.

Sudan Branch is a tributary in the upper reaches of the watershed that flows 18 miles to the Southeast before reaching the confluence with Mineral Point Branch. The upper three miles are considered Class 2 trout water, before it transitions into a warmwater fish community downstream. Sudan Branch flows through grazed pastures for most of its length. These grazed banks of Sudan Branch are likely contributing sediment to the stream and should be addressed to reduce impacts to the streambanks, substrate and fishery.

Brewery Creek is a five-mile long unclassified stream that flows south before meeting up with Rock Branch, where they then become Furnace Branch. Brewery Creek has been severely impacted in the past and had been considered “biologically dead,” due to roaster piles (waste from mining activity) and contaminant issues. During the early 1990s, this stream was relocated away from the contaminated sites and metal concentrations subsequently declined dramatically (DNR 2017). Since this project,

both flora and fauna have been making a comeback with greater diversity. Issues with toxicity may continue to be a problem in Brewery Creek.

Rock Branch is a Class 2 trout fishery in the lower Mineral Point Branch watershed. This stream flows for three miles, where it then reaches Brewery Creek and becomes Furnace Branch. This stream has historically contained a mixed fishery with species that would classify it as a cool-warm waterbody (DNR 2017). Rock Branch, along with the unnamed tributary to Rock Branch, contain most of the streambank easements within this watershed, with easements located at two locations along Suthers Road. Easement acquisition is currently being pursued along these stream reaches with hopes of additional easement acquisition in the future.

Williams-Rewey Branch is one of the two classified trout streams in the headwaters Pecatonica River watershed. This four-mile-long stream is considered Class 2 trout water and has historically harbored low-abundance populations of both Brook and Brown Trout. There is no public access to the riparian area of the stream and only two road crossings provide access to this waterbody; therefore, fishing opportunities are limited.

Jones Branch is the other classified trout stream within the headwaters Pecatonica River watershed. This six-mile-long stream is also Class 2 water and has been known to support a limited Brown Trout fishery. Belmont Mound State Park is located at the headwaters of Jones Branch; however, there is no immediate public access to the riparian area. The only public access point to the waterbody is located near the lower reaches of Jones Branch at the Jericho Road crossing.

CURRENT STATUS

STOCKING

The only stream within the Mineral Point Branch with an active stocking quota is Rock Branch. Each year Rock Branch receives 625 large fingerling Brown Trout to supplement the fishery. However, other streams within these watersheds have been stocked recently. Since 2014, Jones Branch received an average of 564 small fingerling Brown Trout per year. Sudan Branch received 1,000 small fingerling Brook Trout in 2015 and 2200 in 2016. Sudan also received 572 Brown Trout in 2015. Williams-Rewey Branch also received an average of 1,367 small fingerling Brook Trout from 2014-2018.

REGULATIONS

The classified waters within these watersheds are managed under the county base regulation (Figure 2). This regulation allows anglers to harvest three trout of any species over eight inches.

HABITAT IMPROVEMENT

Habitat improvement work has been completed on Rock Branch, upstream from Suthers Road. The entire streambank easement (2,100 ft.) has been improved to increase fishability by sloping the streambanks and increase the amount of in-stream habitat for trout.

PUBLIC ACCESS

Public access to these classified waters is limited (Figure 3). Only a few easements exist on the Rock Branch and the unnamed tributary to Rock Branch. Both easement locations are accessible from Suthers Road. The upper reach of Laxey Creek is also accessible via the Bloomfield Prairie which is owned and co-managed by the Driftless Area Land Conservancy. Even though public access is currently limited within these watersheds, the authority to purchase easements is approved along Mineral Point Branch and many of its connected tributaries (Figure 3).

LAND USE

The Mineral Point Branch watershed covers approximately 110 square miles (DNR 2017). A total of approximately 12 miles are classified as trout waters. Land use practices in the Mineral Point Branch watershed consist of approximately 54% agriculture, 21% grassland, 6% forest cover, 4% industrial/residential and 15% other (Table 1).

The Headwaters Pecatonica River watershed, which contains both Williams-Rewey Branch and Jones Branch covers approximately 78 square miles (Stroud Water Research Center 2021). Approximately 10 miles of these streams are classified as trout waters. Land use practices within this watershed consists of approximately 62% cultivated crops, 23% pasture/hay, 9% forest and 6% other (Table 1).

WATERSHED SCALE ASSESSMENT

Understanding reproduction and recruitment is critical to managing trout populations. In Class 1 streams, as defined in NR 1.02, there is no need for stocking because there is adequate natural reproduction to maintain the fishery. In streams where there is insufficient natural reproduction and recruitment to maintain a fishable population but adequate survival of trout to adulthood, the department stocks fingerling trout. These are designated as Class 2 streams and the stocking is referred to as “put and grow.” Often, based on the life history strategy of trout, reproduction occurs in stream segments that differ from juvenile and adult habitat types. Natural reproduction is the presence of age-0 fish, which may be more variable in their catchability to electrofishing and may occur upstream in nursery habitats. Natural recruitment is defined by juvenile fish surviving to age-1. Documenting the lack of natural reproduction (young of the year trout) does not necessarily mean there is lack of natural recruitment.

METHODS

Summer stream sampling on both rotation (sampled at a six-year interval) and potential (thought to have trout, but previously unverified) sites spanned from June 29 – July 29 (Figure 1; Table 2). All 17 stream sites were surveyed with a backpack electrofishing unit. These are used on small streams that are typically shallow in nature. Tow behind stream shockers are larger electrofishing units that are used on larger waters that are also wadable. Due to COVID-19 and social distancing restrictions, tow barge electrofishing units were not used during surveys in 2020.

The number of sites varies depending on the stream segment length. One site is sampled on segments less than 1.5 miles, two sites on segments from 1.5-3 miles, and one site per three miles on segments greater than three miles. The length of stream site sampled is determined by stream width, with site length being 35 times the mean stream width on segments greater than 3 meters. On streams less than 3 meters wide, a minimum of 100 meters is sampled. All fish are collected on trend sites where gamefish, exotic species and threatened/endangered species are measured to total length. Only the first 200 fish are measured if large numbers of gamefish are encountered. Young-of-year are counted and a subsample of 50 fish are measured. All other fish are counted to conduct an index of biotic integrity (IBI). Other specifics can be found in the Fisheries Management Handbook Chapter 510 (Simonson 2015).

Water quality and habitat metrics were also collected at each survey site. Streamflow was calculated at one transect per site using a HACH FH950 handheld flow meter. Temperature, dissolved oxygen and specific conductivity were also measured using a handheld YSI Pro 2030 meter.

POPULATION ASSESSMENT

Once gamefish and other fish species have been collected, we computed the number of fish per mile (CPUE - catch per unit effort, in this case miles) based on the number of fish collected and the length of stream station sampled. This allows us to compare catch rates both within and among stream sites. Total CPUE, as well size specific-catch rates were calculated for age-0 fish (young-of-year, <4.0 inches), yearlings (4.0-7.9 inches for Brown Trout and 4.0-6.9 inches for Brook Trout), and adults (≥8 inches for Brown Trout and ≥7 inches for Brook Trout). Median values for size-specific trout CPUE metrics presented in several of the tables and figures in this paper were generated from summaries of DNR fishery surveys of Class 1 trout streams in the Driftless Area, as well as statewide from 2012-2021, where at least one trout was collected in the survey (surveys where the catch was zero were excluded; Table 3). We used these regional and statewide summaries to compare our stream-specific abundance data as low abundance (<35th percentile), medium (35th-65th percentile) and high (>65th percentile; Table 3).

RESULTS

Overall, 17 stream sites were sampled within the Mineral Point Branch and Headwaters Pecatonica River watersheds (Figure 1; Table 2). Data were compiled based on both individual stream site (Table 5; Table 6) and grouped based on stream segments. For segments that combined multiple stream sites, CPUE was averaged (Figure 4-11).

Reproduction of Brown Trout was observed in six of the 10 streams surveyed during the summer of 2020. Streams that didn't show any natural reproduction were the unnamed tributary to Mineral Point Branch, Laxey Creek, Sudan Branch and Williams-Rewey Branch. Of the streams that exhibited natural reproduction, the majority were considered low, with average reproduction below the 35th percentile for both Driftless and statewide standards (Figure 4). On average, Brewery Creek and Rock Branch had moderate rates of reproduction with 77 and 110 age-0 fish per mile respectively. The site with the highest observed natural reproduction was Rock Branch at STH 23, with 225 age-0 fish per mile captured (Table 5). Overall, reproduction of Brown Trout in the Mineral Point Branch watershed is considered low, with Rock Branch outperforming all other streams.

Brook Trout reproduction was also sporadic throughout the watershed and overall, very poor, with the exception of Laxey Creek. Only three streams showed signs of natural reproduction: Laxey Creek, Sudan Branch and Williams-Rewey Branch. All other streams lacked natural reproduction for Brook Trout. Of the three that contained age-0 fish, both Sudan Branch and Williams-Rewey were considered low based on Driftless Area and statewide standards (Table 3). However, Laxey Creek showed signs of exceptional reproduction with an average of 261 fish per mile based on the two sites surveyed. Laxey Creek at County Farm Road contained a high CPUE of age-0 Brook Trout, exhibiting 524 fish per mile (Figure 5; Table 6). This is well above both Driftless Area and statewide median values, and actually surpasses the 75th percentiles in each category (Table 3).

Recruitment of yearling Brown Trout in the Mineral Point Branch watershed was also low overall. The streams that contained yearling Brown Trout included the unnamed tributary to Brewery Creek, Brewery Creek, Sudan Branch and Rock Branch. However, all these streams were well below the 35th percentile for both Driftless Area and statewide standards. Rock Branch at STH 23 once again had the highest catch rate of yearling Brown Trout of all sites, with 90 yearling fish per mile captured. Overall, yearling recruitment of Brown Trout within these watersheds is considered poor.

Yearling Brook Trout in these watersheds was also very low. Only one stream surveyed contained yearling Brook Trout (Figure 7). Interestingly, Laxey Creek, the only stream that contained yearling Brook Trout, exhibited a high density when compared to both Driftless Area and statewide standards. Between the two sites surveyed, Laxey Creek averaged 370 yearling Brook Trout per mile. Once again, density was highest at the site upstream of County Farm Road, where survey crews

sampled 741 yearling Brook Trout per mile. This site also surpassed the 90th percentile when comparing to both the Driftless Area and statewide standards.

Adult Brown Trout in these watersheds was considered low overall. The same streams that contained age-0 Brown Trout, contained adult Brown Trout within these watersheds (Figure 8). These were all considered low, except for one stream. Rock Branch was the only stream to contain a site with an abundance of trout above the statewide median value. Otherwise, the average density of adult trout was considered low, at or below the 35th percentile for both standards. Preferred size Brown Trout were very similar with one site on Rock Branch exceeding the statewide median, while all other sites being considered low density (Figure 10; Table 5). Based on both Driftless Area and statewide standards, adult Brown Trout within the watersheds are lacking.

Adult Brook Trout on the other hand are thriving in streams where they exist. Adult Brook Trout were found in four streams throughout the watershed: Laxey Creek, Sudan Branch, Rock Branch and Williams-Rewey Branch. In both Laxey Creek and Sudan Branch, Brook Trout CPUEs exceeded both the Driftless Area and statewide medians, exhibiting an average of 255 and 167 adults per mile respectively. Williams-Rewey also came close to both these standards, with an average of 67 adults per mile. Preferred size Brook trout were also present in Laxey, Rock Branch and Williams-Rewey Branch (Figure 11). These preferred size fish exceeded both Driftless Area and statewide medians in Laxey and Williams-Rewey, with an average of 40 and 20 fish per mile respectively.

During this watershed assessment, several non-trout species were also collected. These included: Black Crappie (*Pomoxis nigromaculatus*), Bluegill (*Lepomis macrochirus*), Brook Stickleback (*Culaea inconstans*), Central Stoneroller (*Campostoma anomalum*), Common Shiner (*Luxilus cornutus*), Creek Chub (*Semotilus atromaculatus*), Fantail Darter (*Etheostoma flabellare*), Green Sunfish (*Lepomis cyanellus*), Hornyhead Chub (*Nocomis biguttatus*), Johnny Darter (*Etheostoma nigrum)*, Mottled Sculpin (*Cottus bairdii*), Southern Redbelly Dace (*Chrosomus erythrogaster*) and White Sucker (*Catostomus commersonii*).

DISCUSSION

Overall, the mixed Brook and Brown Trout fisheries in these watersheds are considered low density. The majority of the fisheries within these streams fall into the low-moderate category when assessing abundance. All streams surveyed, other than the unnamed tributary to Mineral Point Branch, exhibited either Brook or Brown Trout. Clearly, Brook Trout were thriving in Laxey Creek, while Brown Trout were doing exceptionally well in Rock Branch. Of all streams surveyed, Laxey Creek, Sudan Branch, Rock Branch and Brewery Creek are the only streams that present worthwhile fishing opportunities within the watersheds.

Staff encountered limitations while conducting the watershed evaluation during the summer of 2020, due to COVID-19. COVID-19 brought on several challenges to fisheries staff throughout the year and limited the ability for staff to conduct thorough surveys, especially when it came to surveying the mainstem streams. Fisheries staff were unable to use the large stream electrofishing barge to survey the larger waters due to social distancing measures. Therefore, only smaller sites that could be surveyed with a backpack stream electrofishing unit were assessed in 2020.

Brewery Creek and the unnamed tributary to Brewery Creek are unclassified trout waters within the Mineral Point Branch watershed, but had low abundance populations of Brown Trout, with natural reproduction and recruitment to the fishery, despite the last stocking event being Brook Trout in 1994. This is promising given the historical habitat issues in Brewery Creek and the restorations that occurred in the early 90s to mitigate the effects of nearby roaster piles, which tended to leach iron into the nearby waterbodies and degrade water quality (DNR 2017). Habitat surveys in 2020 also showed improvement, with cold water temperatures and good to excellent habitat in each of these streams (Table 4). Considering these results, Brewery Creek and the unnamed tributary to Brewery Creek should be classified as a Class 2 trout stream and managed for Brown Trout because the habitat appears to be suitable. Additionally, Brewery Creek should be stocked with Brown Trout to supplement this population and promote a moderate fishery.

As of Jan. 1, 2021, Laxey Creek was recently classified as a Class 1 trout fishery. Laxey proved to be one of the most productive streams in the watershed, especially regarding Brook Trout (Table 6). Laxey Creek Brook Trout exceeds both statewide and Driftless Area standards for all age and size classes of fish, and provides fishing opportunities for preferred size fish. Interestingly, this stream was only stocked with Brook Trout once in the mid-2000s and had not been surveyed since establishing the fishery. Laxey Creek is mostly surrounded by row crops and pastures in the headwater reaches with grasslands intermittently throughout, including a large managed prairie by Iowa County at the upper reaches that provides an excellent buffer. Habitat scores were in the good to excellent range despite the agricultural influence. Although the stream habitat surveys scored high, stream temperature increased quickly as Laxey approached STH 39 (Table 4). Given the productivity of this stream and the potential for degradation, habitat protection should be a focus for the banks of Laxey Creek and this stream should be targeted as a streambank easement eligible water during the next acquisition cycle.

Sudan Branch is a Class 2 trout fishery located in the headwaters of the Mineral Point Branch watershed. Only one survey was conducted on Sudan Branch in 2020 due to restrictions on sampling protocols by DNR staff. This survey produced very low numbers of both Brook and Brown Trout, with the greatest population densities being found in the adult Brook Trout category at 168 fish per mile. Sudan Branch has been stocked recently, but this stream has also been known to have water quality

issues related to iron mining in the past (Amrhein, personal communication). This may still be causing issues, given the low-density fishery, despite recent yearly stocking events. Unless significant changes are made regarding habitat and water quality, Sudan Branch will likely exhibit a marginal trout population going forward. We will continue to monitor Sudan Branch on a 6-year rotation and consider additional stocking efforts only if water quality improves in the future.

Rock Branch turned out to be one of the better Brown Trout fisheries within these watersheds. Reproduction averaged 110 fish per mile, with the site at STH 23 exhibiting 225 age-0 fish per mile. Recruitment to age-1 was low throughout Rock Branch, but adults showed densities that surpassed statewide median values at STH 23 (240 fish per mile). Despite this statistic, on average, Brown Trout in Rock Branch fell just shy of both statewide and Driftless Area median values in nearly all age/size class categories (Figure 4, Figure 6, Figure 8, Figure 10). Rock Branch at STH 23 proved to be the most productive with good natural reproduction and recruitment to adulthood. This is promising, given that stream surveys conducted in 2015 by water resource staff found only three Brown Trout total at STH 23 and Suthers Road. Considering that this stream has good potential for a Brown Trout fishery, angler access and good fishability along the banks, streambank easement acquisition should be a priority here. This stream is currently eligible for purchase; however, landowner interest in the DNR streambank easement program has been minimal. Given the good to excellent habitat scores, fishability and streambank easements along Rock Branch and its unnamed tributary, Rock Branch should continue to be stocked on a yearly basis to maintain one of the few trout fisheries within the Mineral Point Branch watershed.

Williams-Rewey Branch is one of the two small Class 2 trout streams in the headwaters-Pecatonica River watershed. These streams flow down to the Pecatonica, where they eventually meet up with Mineral Point Branch lower in the watershed. This stream has a low-density Brook Trout population with low reproduction at 35 YOY fish per mile on average. Recruitment to age-1 was not observed in this stream, although adults were sampled. The adult Brook Trout population was moderate and fell just below both statewide and Driftless Area medians at 68 fish per mile on average. Stream habitat was also below average with only fair to good habitat throughout. Not surprisingly, the headwaters of this stream are surrounded by row crops, with a transition to grazed and slightly wooded corridors downstream. Even though the stream lacks major overhead cover, stream temperatures were still cold during the summer with temperatures during surveys in the low 60s (Table 4). It seems that the in-stream habitat of Williams-Rewey may be limiting the Brook Trout population and should be assessed if future restoration efforts are pursued. Also, given that Williams-Rewey has been stocked from 2010-2018 with little success, we will not continue stocking Brook Trout until these other habitat related issues are addressed.

Jones Branch is the other small Class 2 fishery located in the headwaters-Pecatonica River watershed. This is the only stream that was surveyed in Lafayette County as part of this watershed rotation. Jones Branch only contained Brown Trout, and even then, it can hardly be considered a fishery. Jones Branch at Jericho Road had the most reproduction, with 55 age-0 fish per mile captured and no other age classes observed. The site surveyed downstream did not contain any age classes other than adult fish, and CPUE was very low at 14 fish per mile. Jones Branch also had some of the warmest temperatures observed at 66 and 68 degrees Fahrenheit at the two sites. Overall, Jones Branch contains a low-density trout population and isn't considered to provide good fishing opportunities for anglers. Given the lack of access, small size, and warm temperatures, we will continue passive management for trout in Jones Branch.

A few other streams within the Mineral Point Branch watershed were sampled as trout potential sites. The unnamed tributary to Mineral Point Branch exhibited cold temperatures and excellent habitat. However, this stream is likely too small and has no fishery potential given the lack of public access. Two other unnamed tributaries to Rock Branch were also surveyed. These sites both had good habitat ratings and cold temperatures yet were small with lower flows. Surveys did detect moderate reproduction in both tributaries, with a few adults sampled as well. However, these tributaries likely offer little in terms of stream habitat for age-1 and adult fish. It's likely that Brown Trout from Rock Branch may be utilizing these streams for reproduction purposes; however, these tributaries don't meet the standards for trout classification at this time.

All classified trout waters within both the Mineral Point Branch and headwaters Pecatonica River watersheds are managed under one single county base regulation, allowing for the harvest of three trout over 8 inches (Figure 2). Given the low-density nature of these populations, limited access for anglers and likely limited harvest, this regulation is providing the adequate protection for these populations. This allows these low-density populations to reproduce, if possible, and recruit to age- 1 and adulthood before potential exploitation. Therefore, this regulation will remain in place for all classified waters within these watersheds.

Even though most of the trout populations within these watersheds exhibited low-densities, habitat scored surprisingly well. Williams-Rewey Branch at Sandhill Road was the only site that received a fair designation for habitat. All other sites were considered good to excellent. The lower sites on Jones Branch, Laxey Creek and Rock Branch exhibited temperatures in the upper 60s but never topped 70 degrees Fahrenheit during our surveys. All the other sites were in the low 60s with a few sites demonstrating temps in the 50s (Table 4). One major habitat issue discovered during this evaluation was the fish impasse at the 6th Street/Jackson Road crossing of Brewery Creek. This barrier is likely prohibiting fish movement upstream, reducing the reproductive potential within the upper reaches of this stream. This concrete barrier should be assessed to determine if removal is possible. If removal is not

possible, alternate restoration methods should be implemented to provide opportunities for fish movement upstream.

MANAGEMENT RECOMMENDATIONS

1) **GOAL:** Provide fishing opportunities for Brown Trout in Brewery Creek.
   OBJECTIVE: Increase mean abundance of adult Brown Trout from low to a moderate density of 150 adult fish per mile. This target is based on moderate values for statewide standards.
   STRATEGY: Stock Brewery Creek at a rate of 625 large fingerling F2 Brown Trout as maintenance stocking events.
2) **Goal:** Maintain current Brown Trout population levels in Rock Branch.
   Objective: Maintain the current adult abundance at moderate levels based on statewide medians (112-342 adult fish/mile).
   Strategy: Continue stocking Rock Branch at a rate of 625 large fingerlings per year.
3) **Goal:** Provide fish passage opportunity on Brewery Creek, downstream of 6th Street/Jackson Street.
   Objective: Allow for movement of fish upstream and/or downstream of the concrete barrier.
   Strategy: Conduct site assessments with various DNR program staff to address the concrete barrier issue. If site can be restored, secure funding to allow passage of fish and return to natural stream state.
4) **GOAL**: Increase streambank easement mileage by one mile in Mineral Point Branch watershed.
   OBJECTIVE: Acquire authority to purchase streambank easements during the next streambank easement review cycle.
   STRATEGY: Expand streambank easement authority along Laxey Creek.

ADDITIONAL MANAGEMENT RECOMMENDATIONS

- Classify Brewery Creek to a Class 2 trout water during the classification cycle in the fall of 2022.
- Classify UNT to Brewery Creek (928700) to a Class 2 trout water during the classification cycle in the fall of 2022.

REFERENCES

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Table 1. Watershed and Land Cover Statistics in the Mineral Point Branch watershed and Headwaters-Pecatonica River watershed.

MINERAL POINT BRANCH WATERSHED

LAND COVER	PERCENT OF WATERSHED
Forest (total)	6
Agriculture	54
Grassland	21
Industrial/residential	4
Other	15

HEADWATERS-PECATONICA RIVER WATERSHED

LAND COVER	PERCENT OF WATERSHED
Forest	9
Cultivated Crops	62
Pasture/Hay	23
Other	6

Table 2. Sampling locations by stream and station.

STREAM	STATION NAME	STATION NUMBER	SAMPLING DATE	LAT.	LONG.
LAXEY CREEK	Laxey Creek (formerly Peddler Creek) at County Farm Rd	104	16-Jul-20	42.9600	-90.2204
LAXEY CREEK	Laxey Cr ~800M DS of CTH B	103	16-Jul-20	42.9336	-90.2345
SUDAN BR	Sudan Branch at Whitson Road	108	16-Jul-20	42.9459	-90.2913
UNNAMED SINGLE-LINE STREAM T5N-R2E-S36	Unnamed Trib (930800) ~800M DS Old Barreltown Rd	113	29-Jul-20	42.8803	-90.1772
UNNAMED SINGLE-LINE STREAM T4N-R3E-S6	Unnamed Trib (928700) ~1050M US Merry Christmas Ln	111	21-Jul-20	42.8603	-90.1592
UNNAMED SINGLE-LINE STREAM T4N-R3E-S6	Brewery Creek (East Branch) - Old Darlington Rd	110	21-Jul-20	42.8568	-90.1721
BREWERY CREEK	BREWERY CR. STATION 1 (N. OF STH 23)	101	14-Jul-20	42.8608	-90.1750
BREWERY CREEK	BREWERY CREEK NEAR RECREATIONAL TRAIL	102	14-Jul-20	42.8333	-90.1766
UNNAMED SINGLE-LINE STREAM T4N-R3E-S9	Unnamed Trib (928500) to Rock Br at Brecken Rd	112	14-Jul-20	42.8434	-90.1316
UNNAMED SINGLE-LINE STREAM T4N-R3E-S17	Unnamed Trib (928300) ~360M US Rock Br Suthers Rd	109	14-Jul-20	42.8201	-90.1684
ROCK BR	Rock Br US Brecken Rd	107	7-Jul-20	42.8435	-90.1454
ROCK BR	Rock Br - End Of Station 1 (STH 23)	106	7-Jul-20	42.8344	-90.1529
ROCK BR	ROCK BRANCH AT SUTHERS RD	105	14-Jul-20	42.8217	-90.1691
WILLIAMS-REWEY BR	WILLIAMS REWEY BRANCH AT BROMLEY ROAD	114	29-Jun-20	42.8285	-90.3634
WILLIAMS-REWEY BR	WILLIAMS REWEY BRANCH AT SANDHILL ROAD	115	30-Jun-20	42.8218	-90.3534
JONES BR	Jones Branch at Jericho Road	116	30-Jun-20	42.8011	-90.3344
JONES BR	Jones Branch ~ 4390ft DS Jericho Road	117	30-Jun-20	42.8071	-90.3307

Table 3. Statewide and Driftless Area CPUE (catch/mile) percentiles for Brook and Brown Trout populations. These values were summarized for Class 1 trout populations sampled from 2012-2021 where at least one trout was collected.

	STATEWIDE PERCENTILES			DRIFTLESS PERCENTILES		
	35TH	MEDIAN	65TH	35TH	MEDIAN	65TH
Brown						
<4 inches	58.1	119.3	247.5	71.1	136.1	256.1
4 to 8 inches	115	199.2	337.2	135.6	229.9	383.2
>8 inches	112.7	205.8	341.9	191.6	330.8	509.7
>12 inches	30.3	47.6	72	42.9	63.2	85.8
Brook						
<4 inches	72.4	145.3	241.4	68.6	128.7	209.2
4 to 8 inches	80.5	149.2	257.2	44.9	80.5	150.9
>7 inches	48.3	80.5	129.4	47.9	80.5	124
>10 inches	12.8	16.4	27.5	14.3	16.1	29.1

Table 4. Station metrics for Mineral Point Branch and classified tributaries.

STATION NAME	HABITAT RATING	TROUT CLASS	GEAR	STATION LENGTH (MILES)	MEAN STREAM WIDTH (M)	FLOW (CFS)	STREAM TEMP (°F)
Laxey Creek (formerly Peddler Creek) at County Farm Rd	Excellent	Class 2	Backpack	0.08	2.1	2.12	57
Laxey Cr ~800M DS of CTH B	Good	Class 1	Backpack	0.12	3	11.65	68
Sudan Branch at Whitson Road	Good	Class 2	Backpack	0.07	2	2.83	66
Unnamed Trib (930800) ~800M DS Old Barreltown Rd	Excellent	Unclassified	Backpack	0.06	1.2	1.41	59
Unnamed Trib (928700) ~1050M US Merry Christmas Ln	Good	Unclassified	Backpack	0.07	2.6	NA	65
Brewery Creek (East Branch) - Old Darlington Rd	Excellent	Unclassified	Backpack	0.11	4.6	4.94	62
BREWERY CR. STATION 1 (N. OF STH 23)	Good	Unclassified	Backpack	0.09	2	1.06	64
BREWERY CREEK NEAR RECREATIONAL TRAIL	Good	Unclassified	Backpack	0.12	2.6	11.65	66
Unnamed Trib (928500) to Rock Br at Brecken Rd	Good	Unclassified	Backpack	0.08	1.9	2.83	58
Unnamed Trib (928300) ~360M US Rock Br Suthers Rd	Good	Unclassified	Backpack	0.07	1.5	3.18	60
Rock Br US Brecken Rd	Good	Class 2	Backpack	0.07	1	1.77	67
Rock Br - End Of Station 1 (STH 23)	Excellent	Class 2	Backpack	0.07	1.7	5.30	62
ROCK BRANCH AT SUTHERS RD	Excellent	Class 2	Backpack	0.09	2.4	9.2	62
WILLIAMS REWEY BRANCH AT BROMLEY ROAD	Good	Class 2	Backpack	0.11	2.3	6.71	62
WILLIAMS REWEY BRANCH AT SANDHILL ROAD	Fair	Class 2	Backpack	0.09	1.9	9.89	63
Jones Branch at Jericho Road	Good	Class 2	Backpack	0.09	1.8	5.65	66
Jones Branch ~ 4390ft DS Jericho Road	Good	Class 2	Backpack	0.07	2.9	7.42	68

Table 5. Brown Trout CPUE by stream and station.

STREAM	STATION NAME	STATION NUMBER	CPUE (FISH/MILE)	BROWN <4	BROWN 4-7.9	BROWN ≥8	BROWN ≥12
Laxey Creek	Laxey Creek (formerly Peddler Creek) at County Farm Rd	104		0	0	0	0
Laxey Creek	Laxey Cr ~800M DS of CTH B	103		0	0	0	0
Sudan Branch	Sudan Branch at Whitson Road	108		0	13.9	0	0
Unnamed Tributary to Mineral Point Branch	Unnamed Trib (930800) ~800M DS Old Barreltown Rd	113		0	0	0	0
Unnamed Tributary to Brewery Creek	Unnamed Trib (928700) ~1050M US Merry Christmas Ln	111		0	0	0	0
Unnamed Tributary to Brewery Creek	Brewery Creek (East Branch) - Old Darlington Rd	110		69.9	34.9	61.2	26.2
Brewery Creek	BREWERY CR. STATION 1 (N. OF STH 23)	101		79.9	0	22.8	0
Brewery Creek	BREWERY CREEK NEAR RECREATIONAL TRAIL	102		75.8	50.6	160.1	33.7
Unnamed Tributary 1 to Rock Branch	Unnamed Trib (928500) to Rock Br at Brecken Rd	112		64.9	0	25.9	12.9
Unnamed Tributary 2 to Rock Branch	Unnamed Trib (928300) ~360M US Rock Br Suthers Rd	109		70.6	0	14.1	0
Rock Branch	Rock Br US Brecken Rd	107		83.2	0	0	0
Rock Branch	Rock Br - End Of Station 1 (STH 23)	106		225.6	90.2	240.6	45.1
Rock Branch	ROCK BRANCH AT SUTHERS RD	105		23.2	46.3	138.9	57.9
Williams-Rewey Branch	WILLIAMS REWEY BRANCH AT BROMLEY ROAD	114		0	0	0	0
Williams-Rewey Branch	WILLIAMS REWEY BRANCH AT SANDHILL ROAD	115		0	0	0	0
Jones Branch	Jones Branch at Jericho Road	116		55.1	0	0	0
Jones Branch	Jones Branch ~ 4390ft DS Jericho Road	117		0	0	14.2	14.2

Table 6. Brook Trout CPUE by stream and station.

STREAM	STATION NAME	STATION NUMBER	CPUE (FISH/MILE)	BROOK <4	BROOK 4-6.9	BROOK ≥7	BROOK ≥10
Laxey Creek	Laxey Creek (formerly Peddler Creek) at County Farm Rd	104		523.7	740.8	434.3	38.3
Laxey Creek	Laxey Cr ~800M DS of CTH B	103		0	0	75.8	42.1
Sudan Branch	Sudan Branch at Whitson Road	108		27.9	0	167.9	0
Unnamed Tributary to Mineral Point Branch	Unnamed Trib (930800) ~800M DS Old Barreltown Rd	113		0	0	0	0
Unnamed Tributary to Brewery Creek	Unnamed Trib (928700) ~1050M US Merry Christmas Ln	111		0	0	0	0
Unnamed Tributary to Brewery Creek	Brewery Creek (East Branch) - Old Darlington Rd	110		0	0	0	0
Brewery Creek	BREWERY CR. STATION 1 (N. OF STH 23)	101		0	0	0	0
Brewery Creek	BREWERY CREEK NEAR RECREATIONAL TRAIL	102		0	0	0	0
Unnamed Tributary 1 to Rock Branch	Unnamed Trib (928500) to Rock Br at Brecken Rd	112		0	0	0	0
Unnamed Tributary 2 to Rock Branch	Unnamed Trib (928300) ~360M US Rock Br Suthers Rd	109		0	0	0	0
Rock Branch	Rock Br US Brecken Rd	107		0	0	0	0
Rock Branch	Rock Br - End Of Station 1 (STH 23)	106		0	0	0	0
Rock Branch	ROCK BRANCH AT SUTHERS RD	105		0	0	23.2	11.6
Williams-Rewey Branch	WILLIAMS REWEY BRANCH AT BROMLEY ROAD	114		70.7	0	79.6	17.7
Williams-Rewey Branch	WILLIAMS REWEY BRANCH AT SANDHILL ROAD	115		0	0	55.8	22.4
Jones Branch	Jones Branch at Jericho Road	116		0	0	0	0
Jones Branch	Jones Branch ~ 4390ft DS Jericho Road	117		0	0	0	0

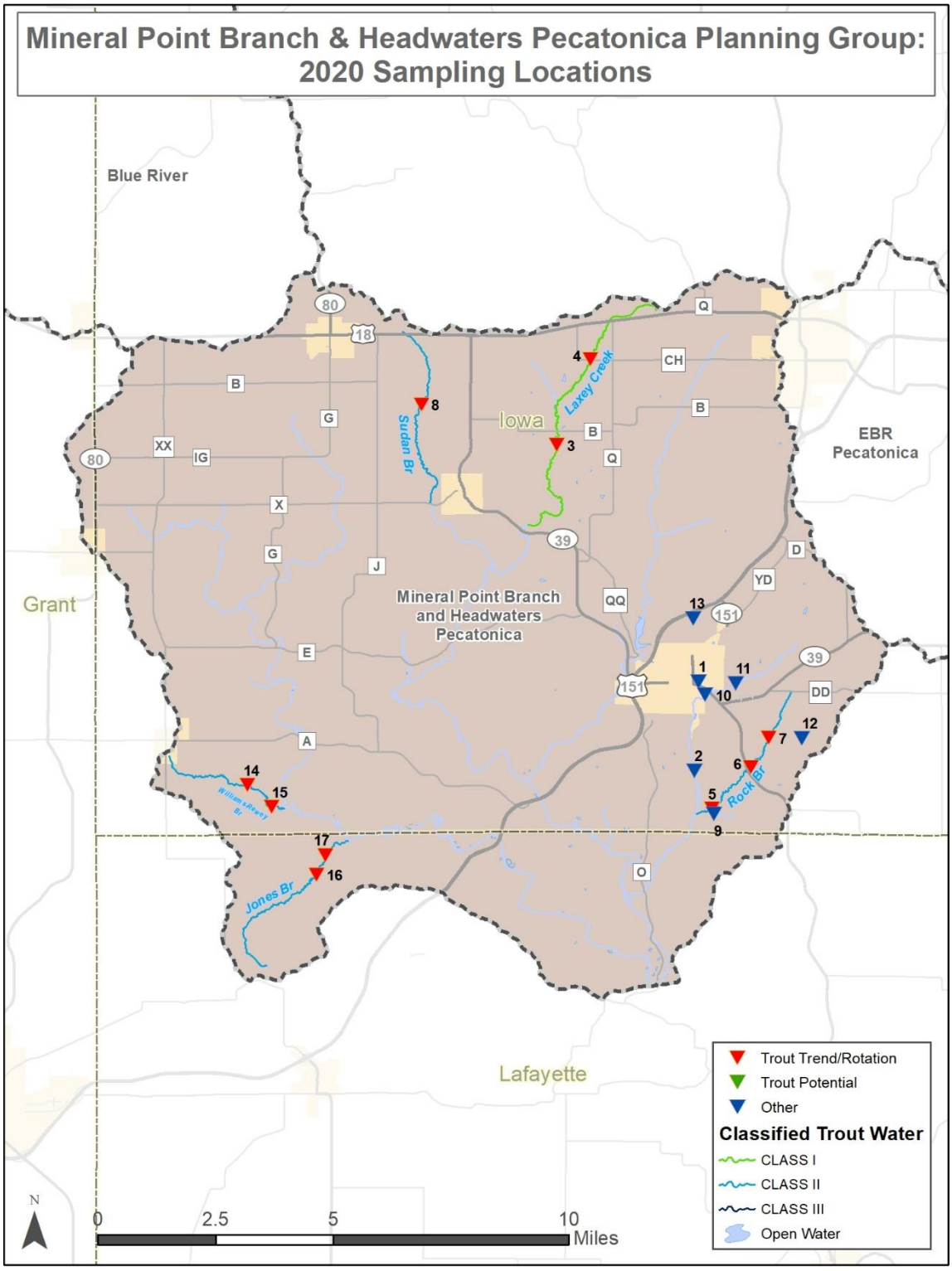

Figure 1. All sampled locations within the Mineral Point Branch and Headwaters-Pecatonica River watersheds in 2020.

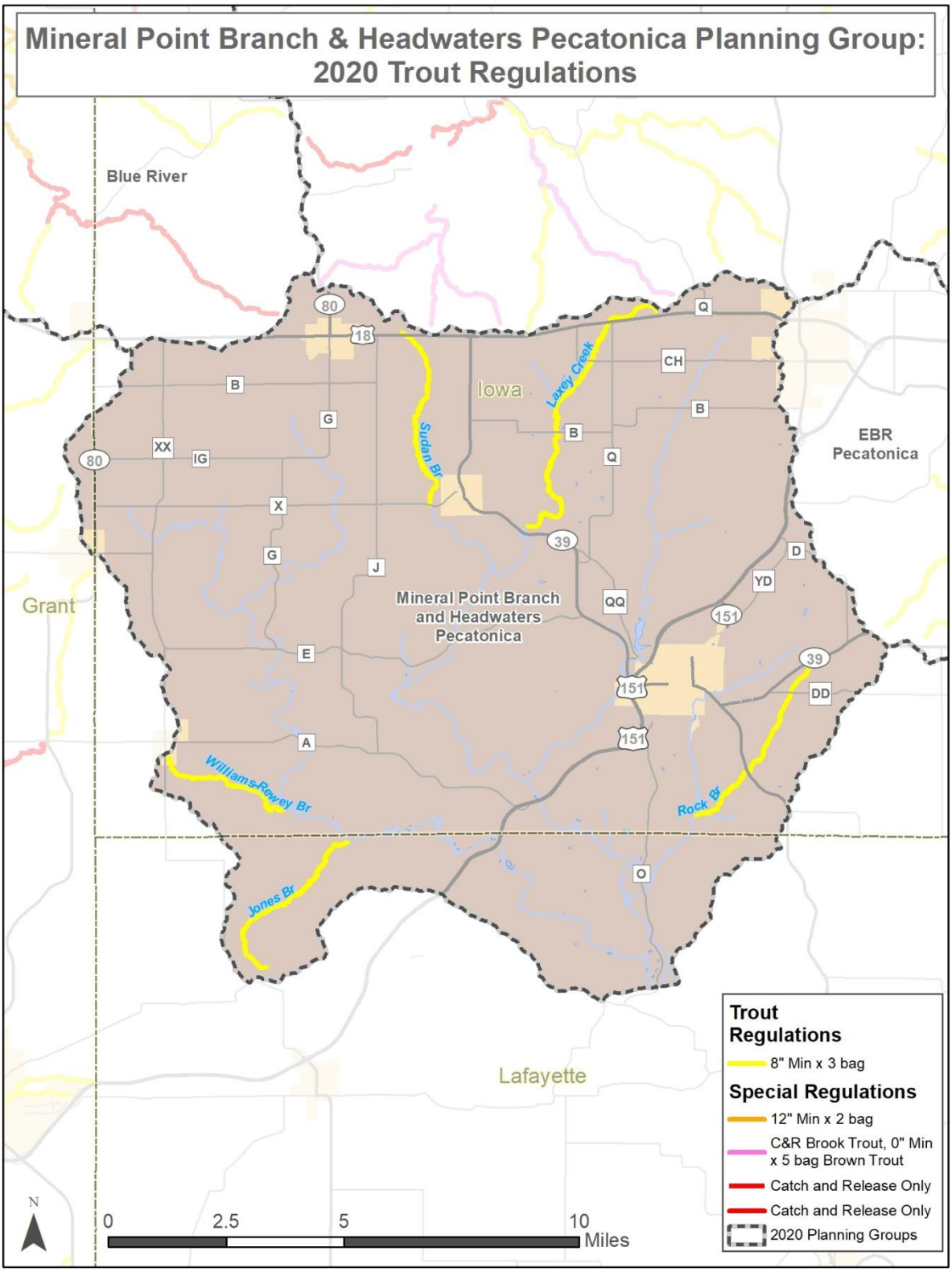

Figure 2. Trout regulation map within the Mineral Point Branch and Headwaters-Pecatonica River watersheds.

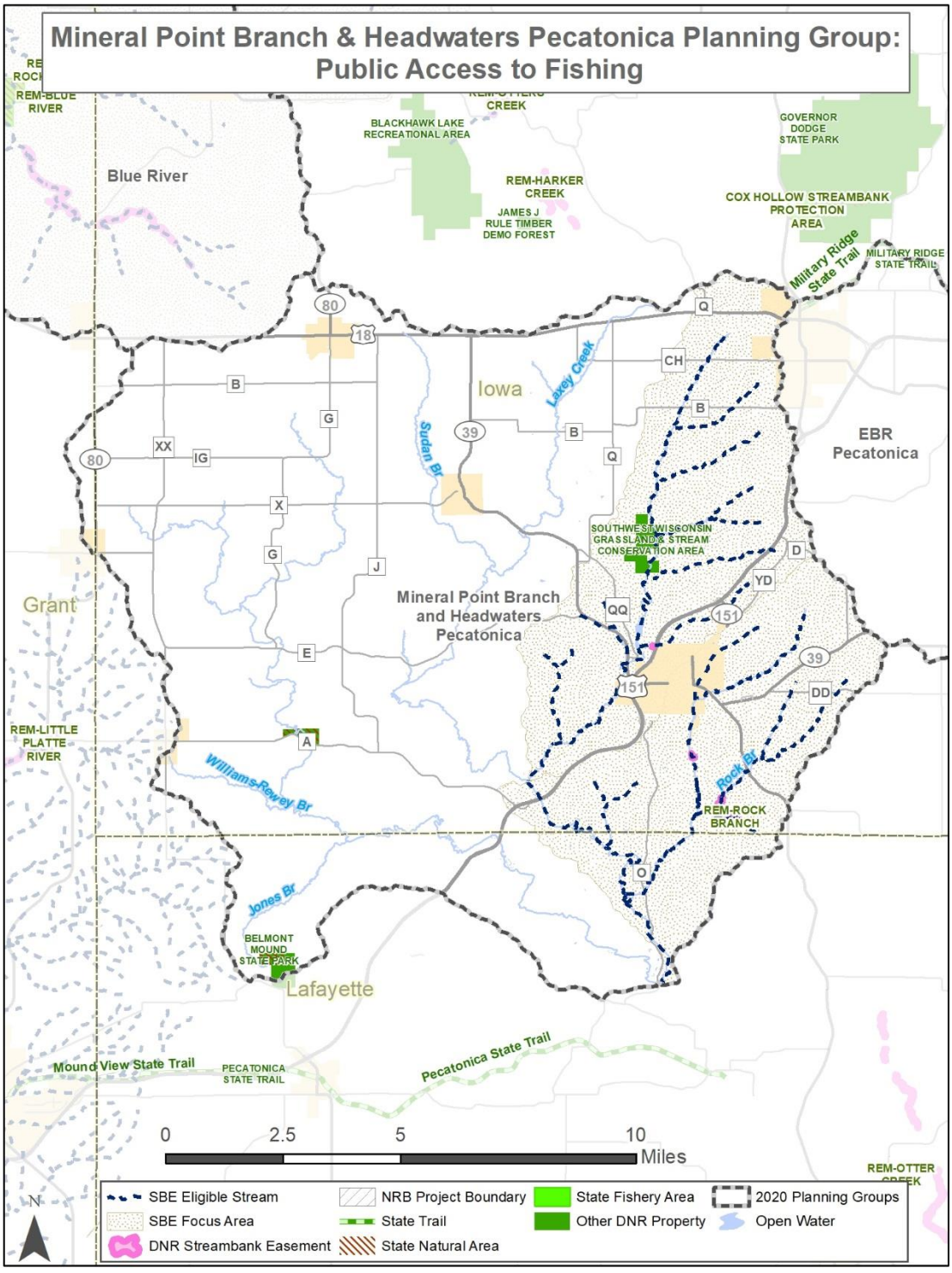

Figure 3. Current public access locations along Mineral Point Branch and Headwaters-Pecatonica River streams and their tributaries.

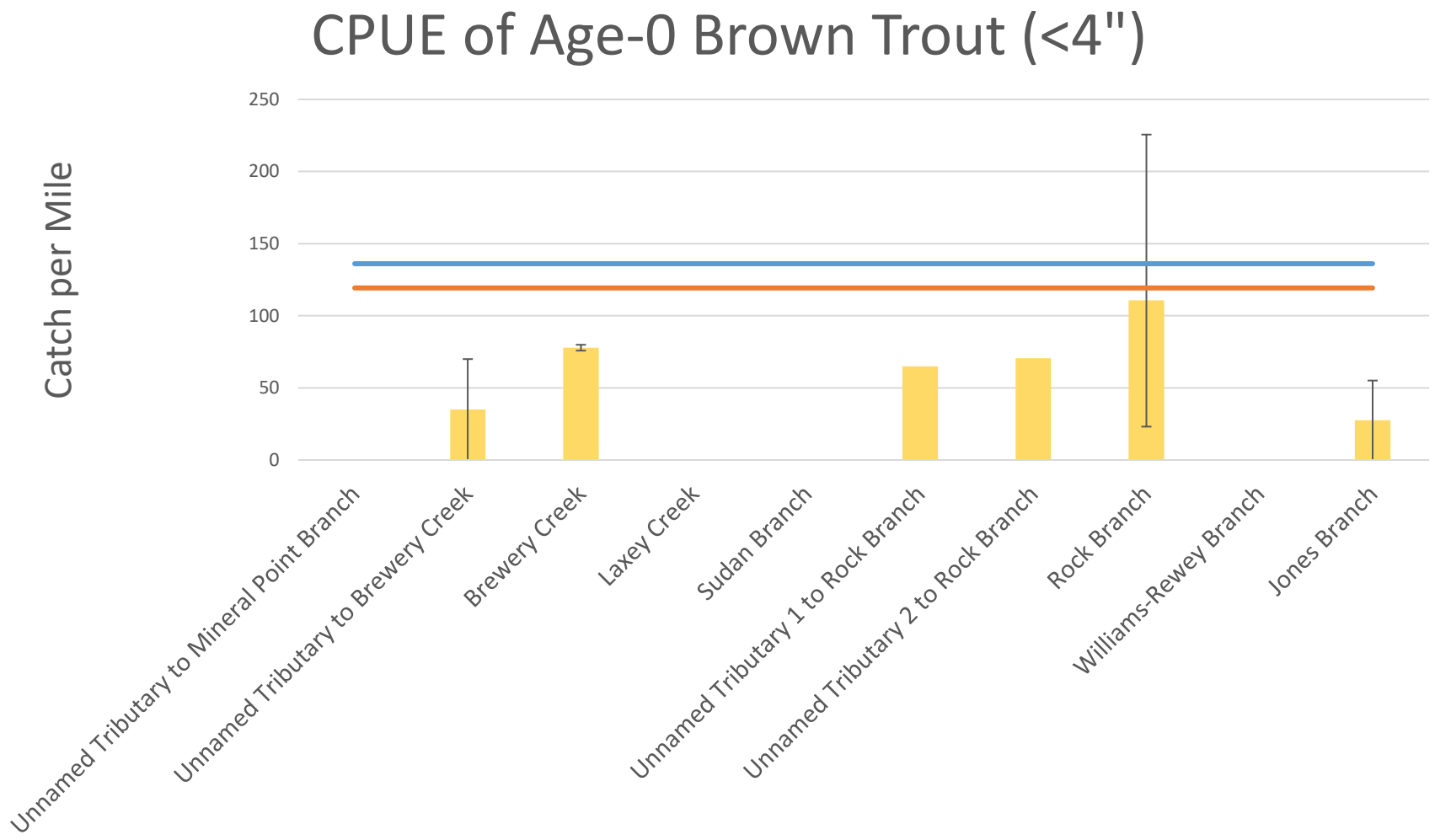

Figure 4. CPUE of age-0 Brown Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

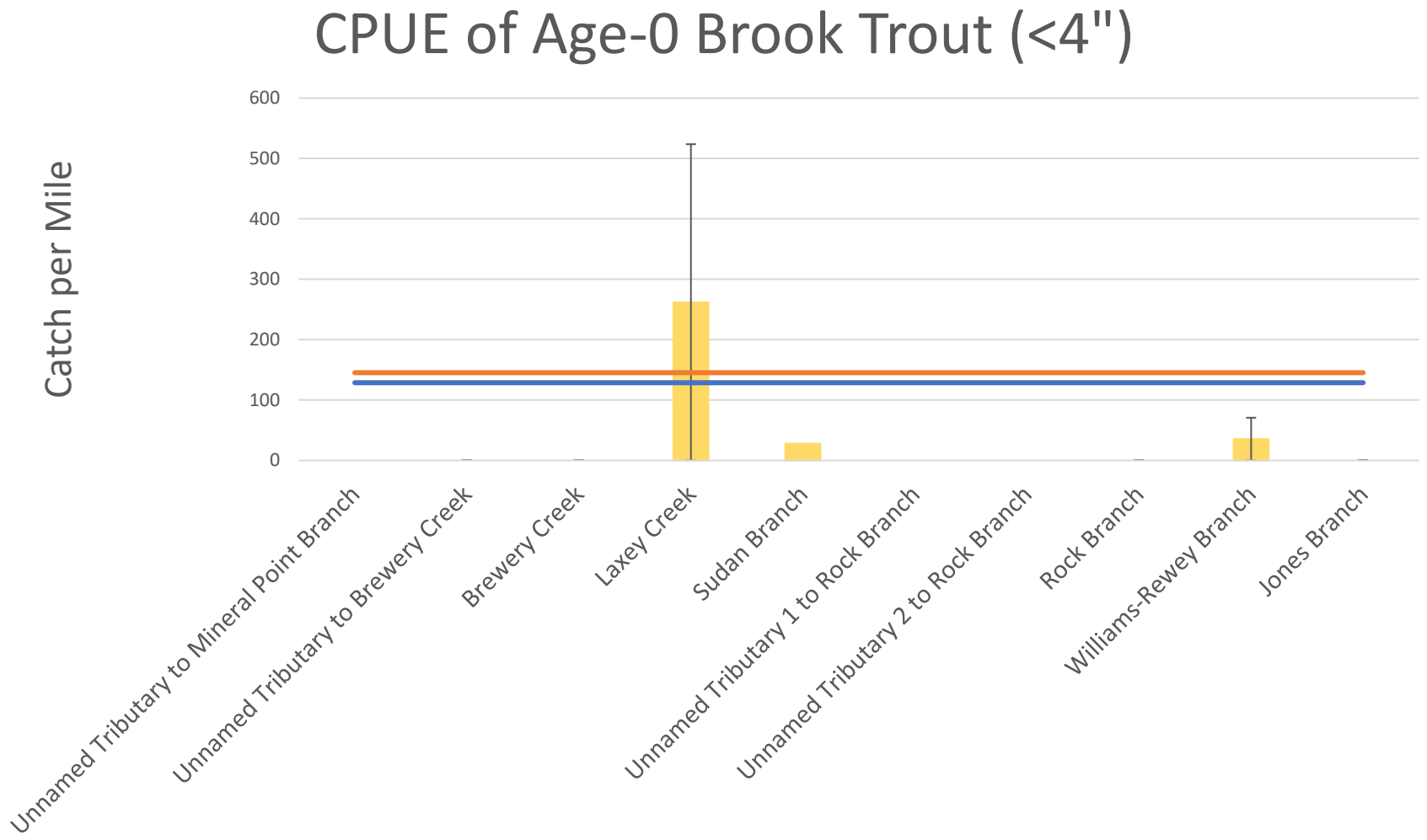

Figure 5. CPUE of age-0 Brook Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

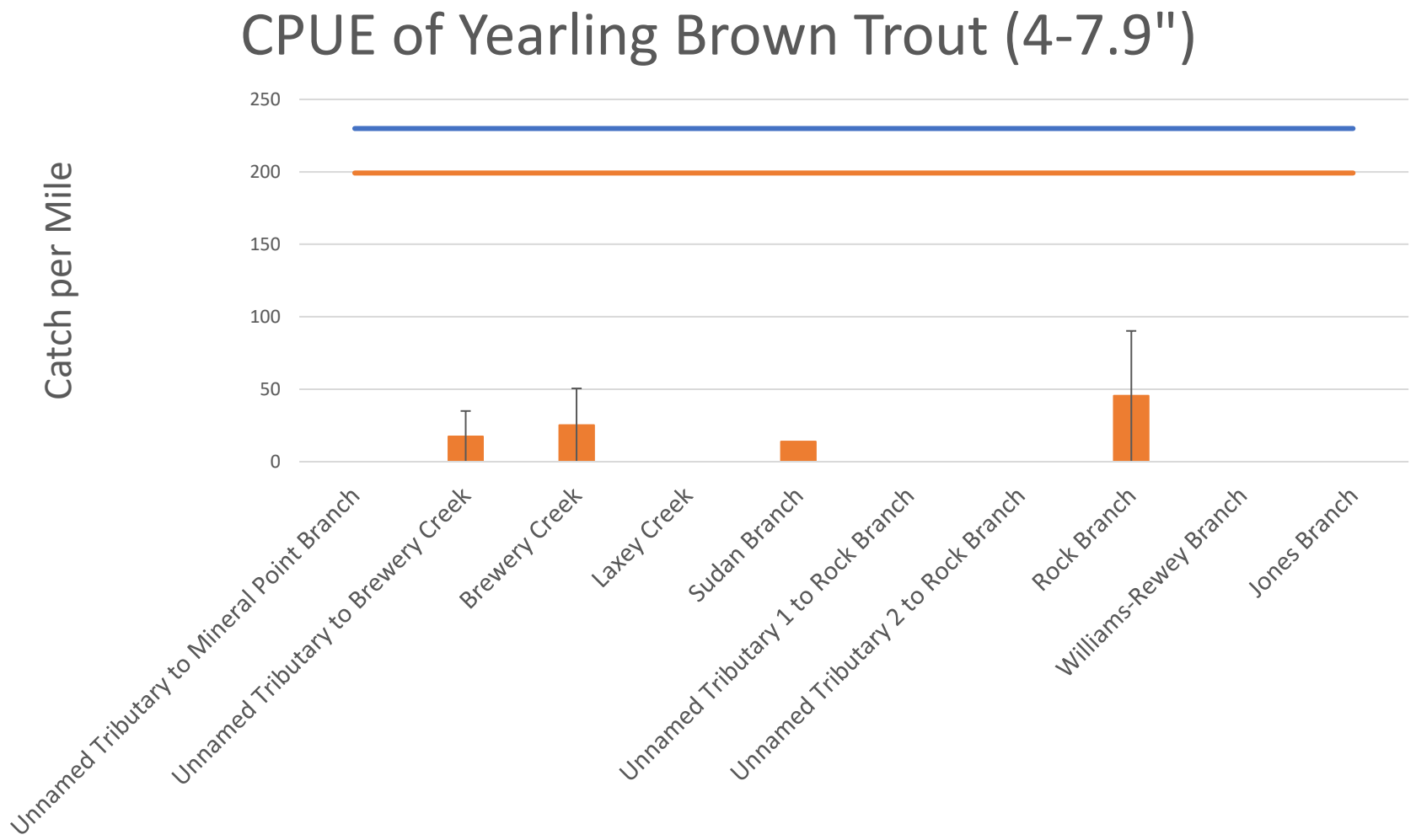

Figure 6. CPUE of yearling Brown Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

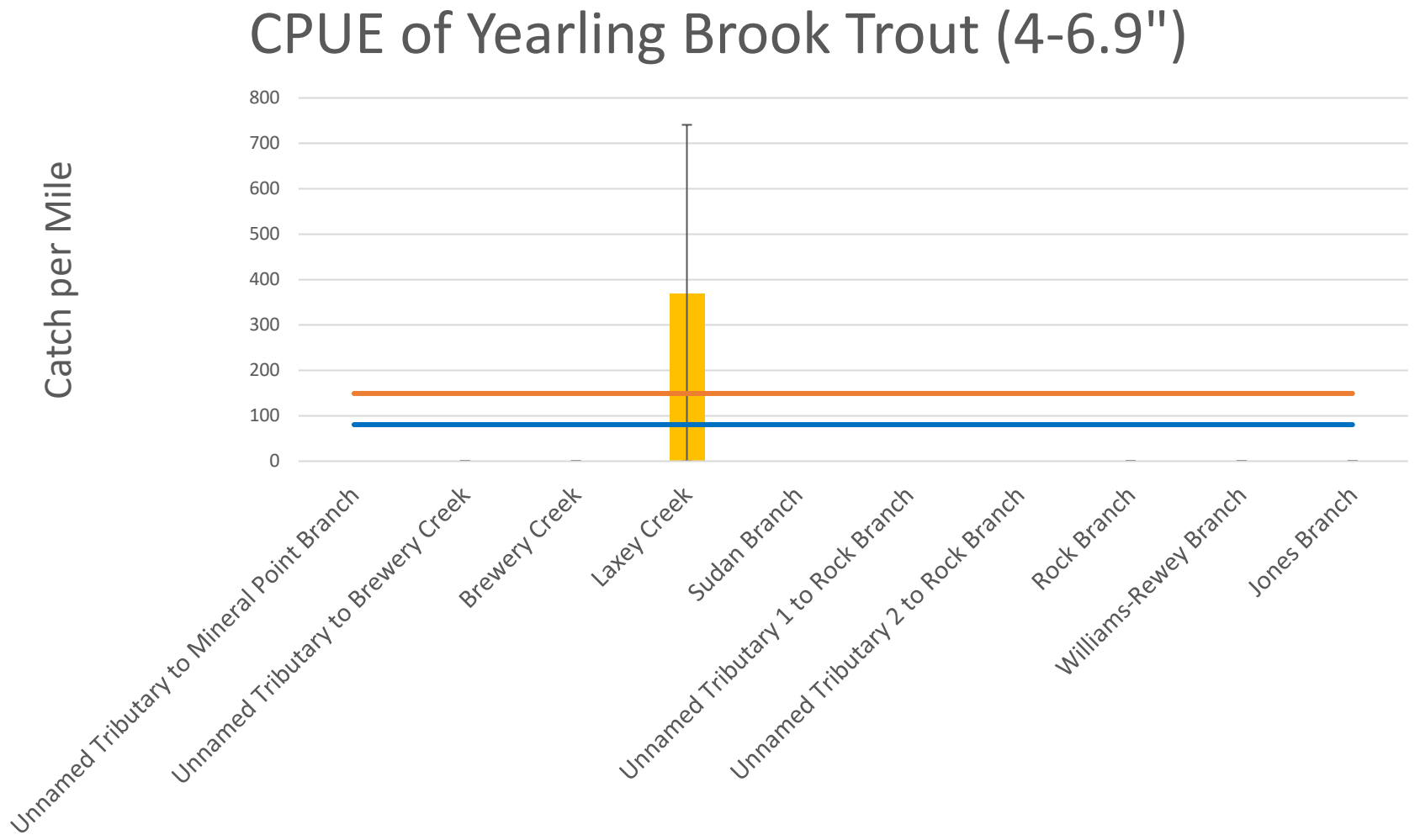

Figure 7. CPUE of yearling Brook Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

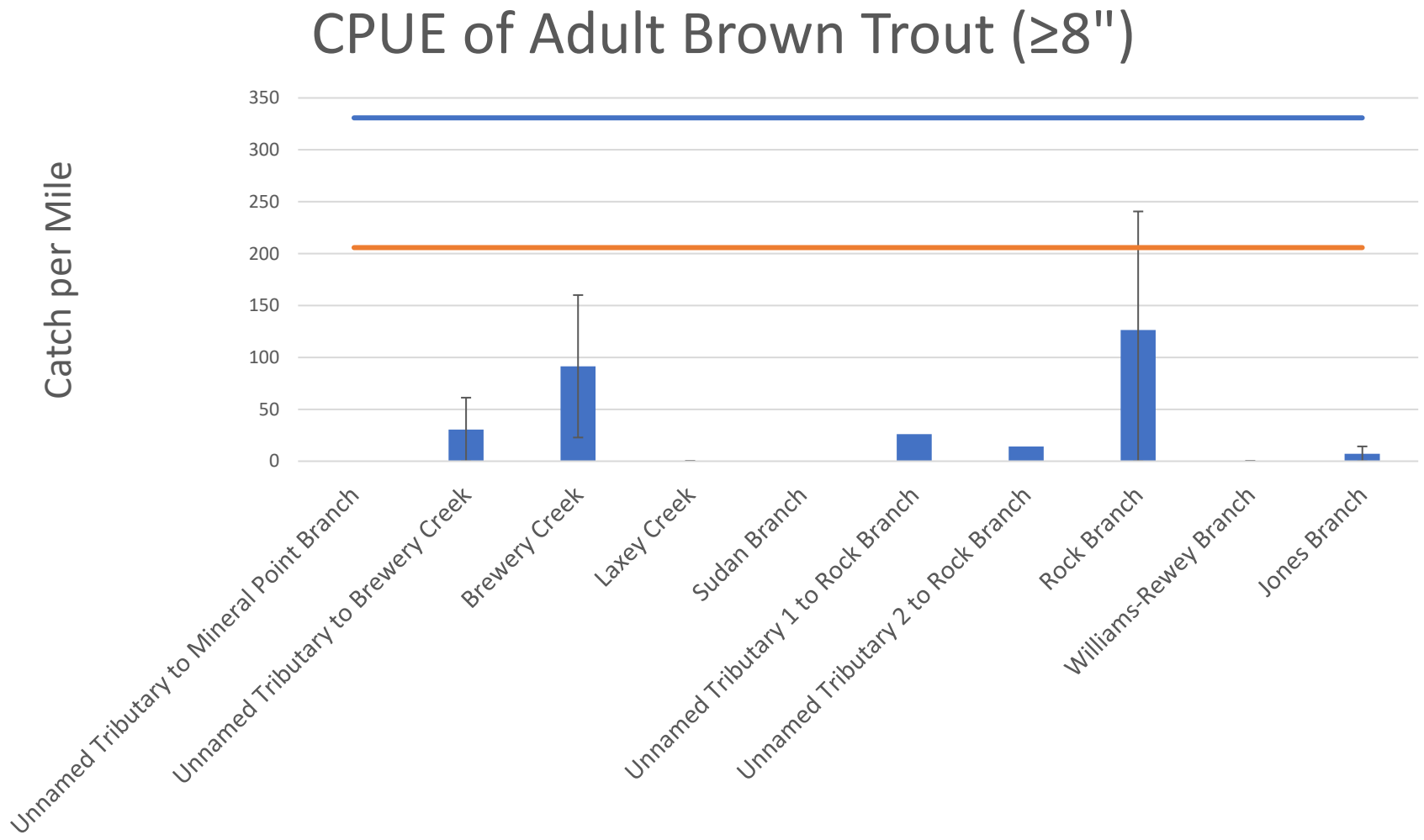

Figure 8. CPUE of adult Brown Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

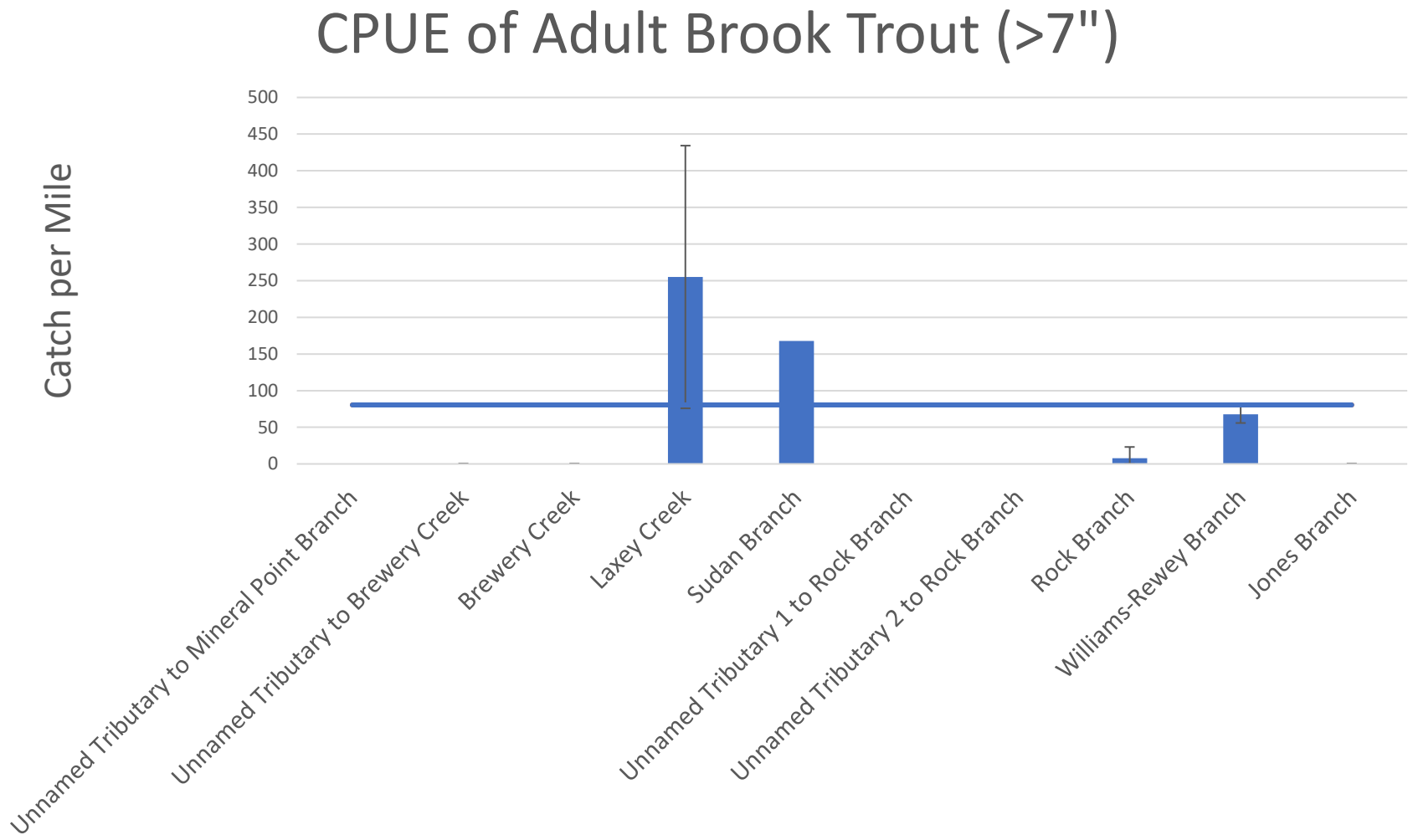

Figure 9. CPUE of adult Brook Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

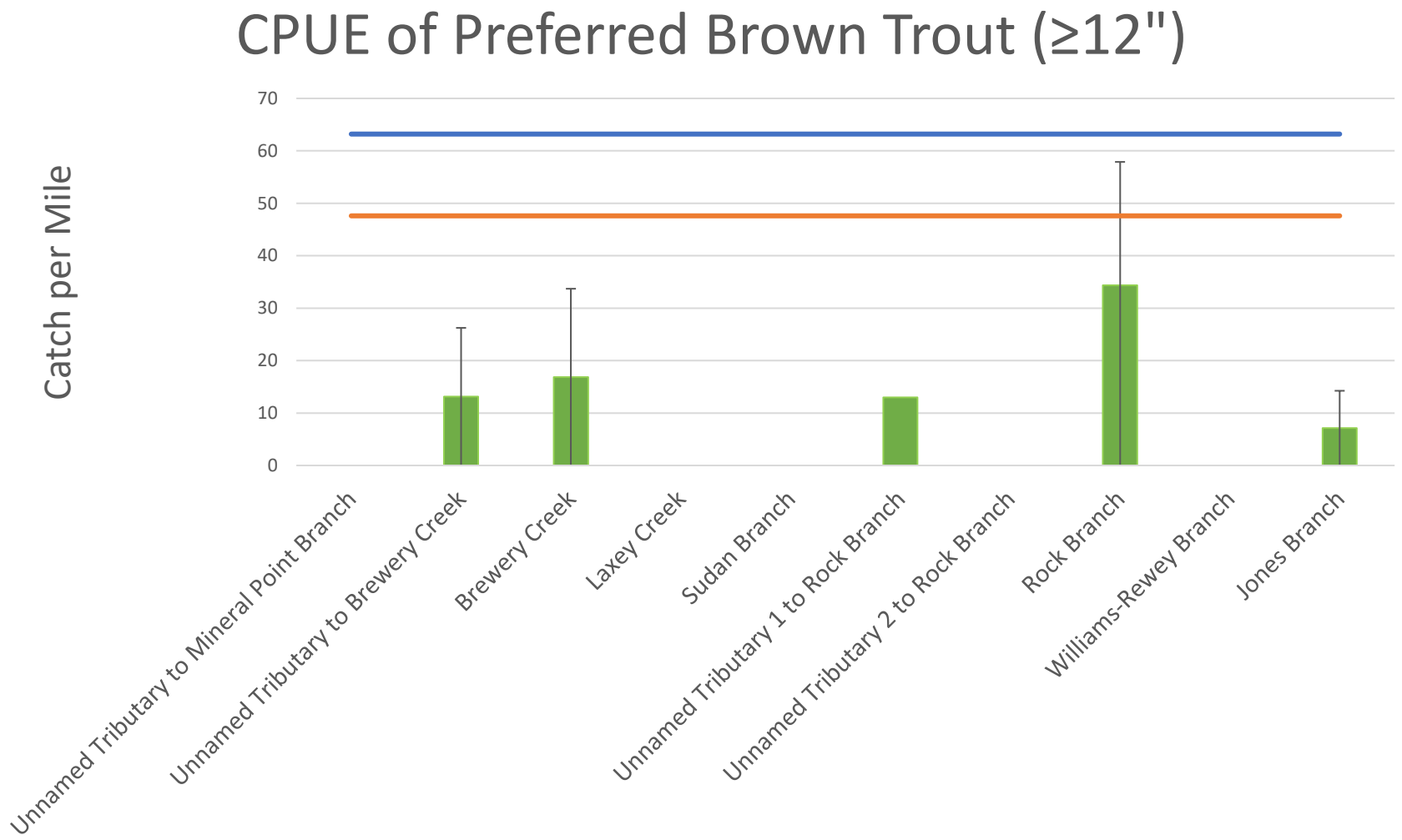

Figure 10. CPUE of preferred size Brown Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.

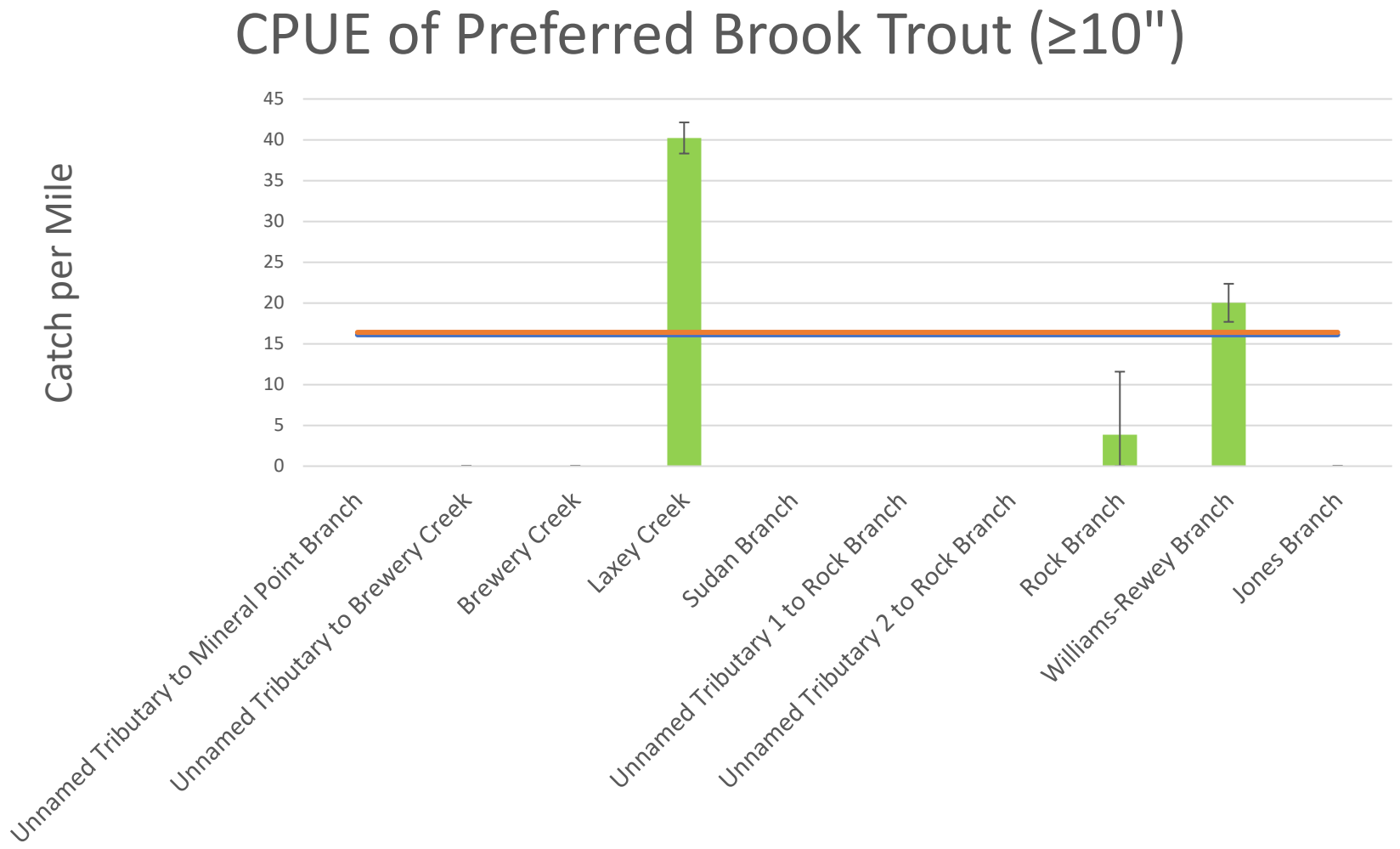

Figure 11. CPUE of preferred size Brook Trout in the Mineral Point Branch and Headwaters Pecatonica River watersheds. Blue line refers to the Driftless Area median while the orange line refers to the statewide median.