CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 4/18/2025 FILE REF: NA

TO: Nicole Krueger, Limit Calculator; Nick Lent, Compliance Engineer

FROM: Rachel Sabre, Stream Biologist; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator

SUBJECT: Village of Sharon, Little Turtle Creek (WBIC 791700), Walworth County

Overview of issue

In preparation for reissuance of the Village of Sharon WWTF's permit, staff were requested to do a site visit to determine the appropriate stream classifications for the receiving waters. Sharon is a continuous discharger, with an annual average design flow of 0.257 MGD (0.398 cfs).

The immediate receiving water is Little Turtle Creek (Segment 1). Little Turtle Creek is an Exceptional Resource Water for the portion that is in Rock County (Segment 2). The facility's previous permit limits were based on LAL for Segment 1, with downstream protection limits for ammonia and phosphorus for Segment 2. The permit prior to July 1, 2020 considered Segment 2 to be LFF from the Rock/Walworth county line to Turtle Creek. However, the permit limits were changed to be based on warm water sport fish in 2020 after an extensive review of the stream system showed a quality fish community.

The main objectives of this site visit were to document the fish data and the existing/attainable fish community in order to document the appropriate stream classification for the immediate receiving water and to support removal of the LAL code listing under Table 4 row 23.

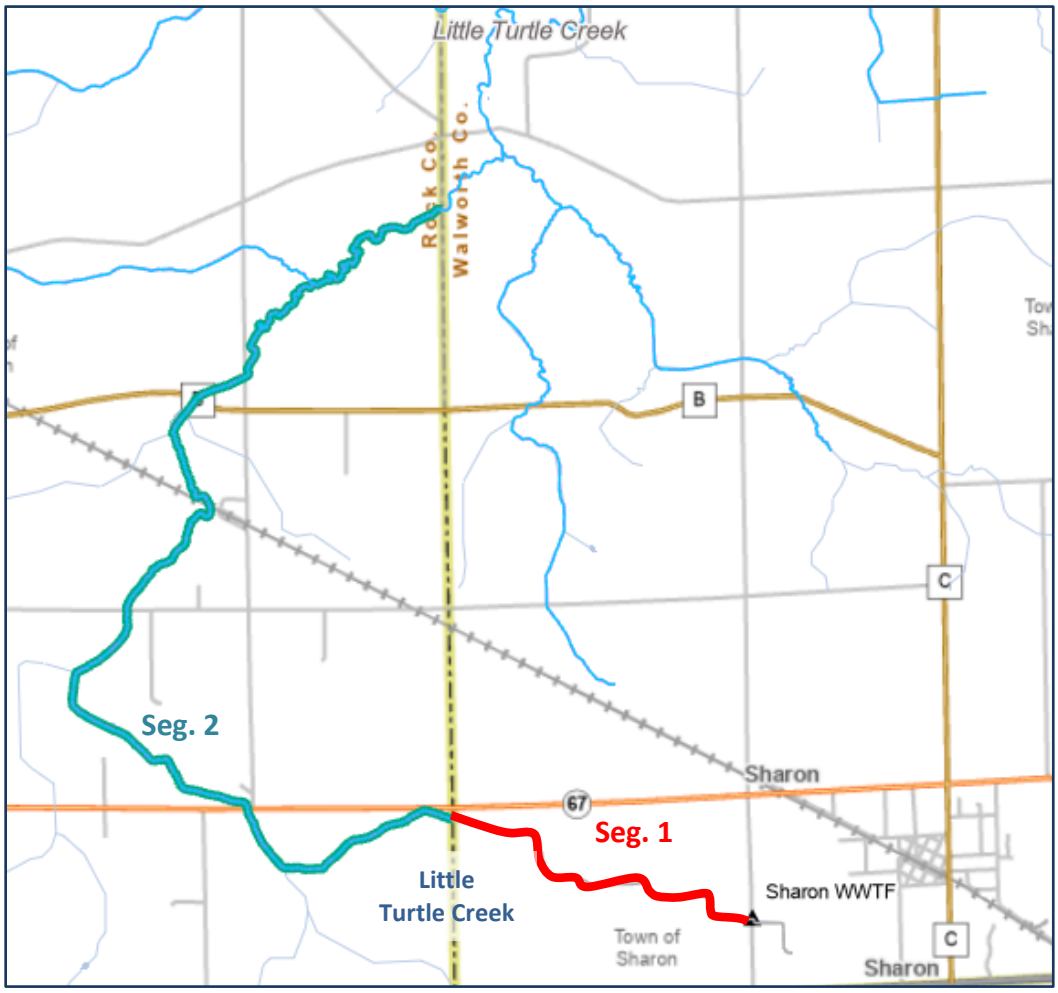
23.	Little Turtle River (Sharon)	Little Turtle River from Sharon STP downstream to Rock-Walworth County line	Noncontinuous	II

Summary of recommendations

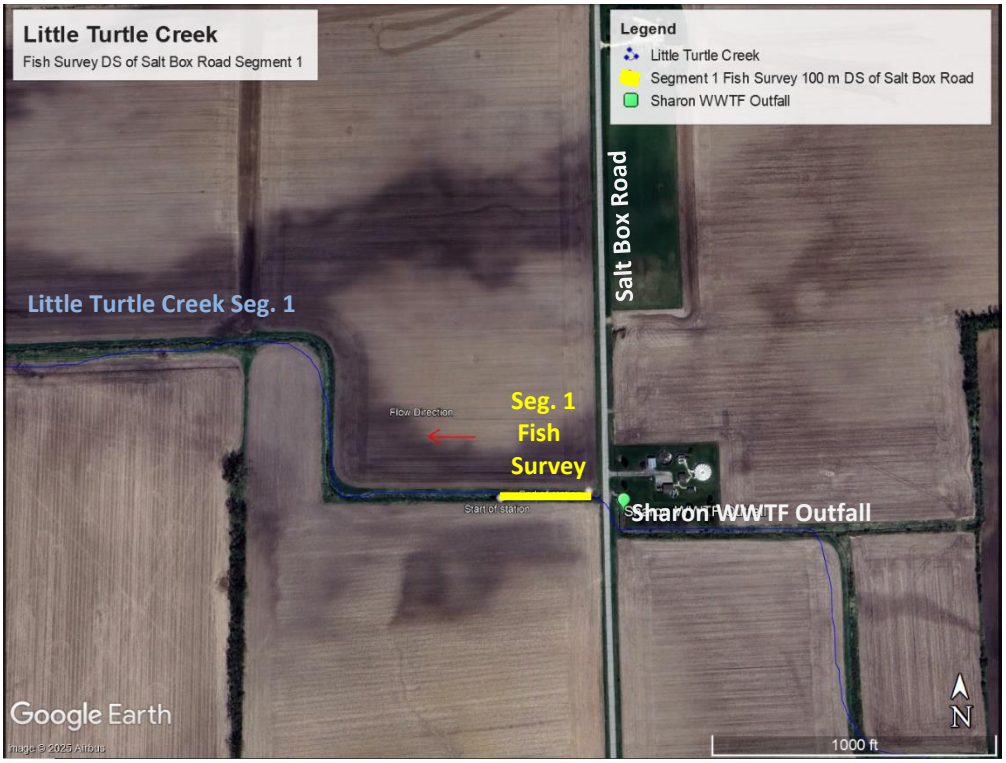
- **Segment 1 (most upstream): Little Turtle Creek from Sharon STP to Rock-Walworth County Line**
  - *Codified designated use:* Listed as LAL in ch. NR 104 from Sharon STP downstream to Rock-Walworth County Line (as Little Turtle River).
  - *Classification used for previous permit issuance:* LAL
  - *Previous stream class recommendations:* Proposed in 2003 to remain as LAL
  - *Modeled Natural Community:* Cool-Cold Headwater
  - *New recommended Natural Community and Designated Use:* Cool-Warm Headwater NC; Warmwater DU
- **Segment 2: Little Turtle Creek in Rock County**
  - *Codified designated use:* Listed in ch. NR 102 as an Exceptional Resource Water
  - *Classification used for previous permit issuance:* Warm Water Sport Fish Community
  - *Previous stream class recommendations:* None
  - *Modeled Natural Community:* Cool-Cold Headwater
  - *New recommended NC & DU:* Cool-Warm Headwater NC and Warmwater DU

Site overview map

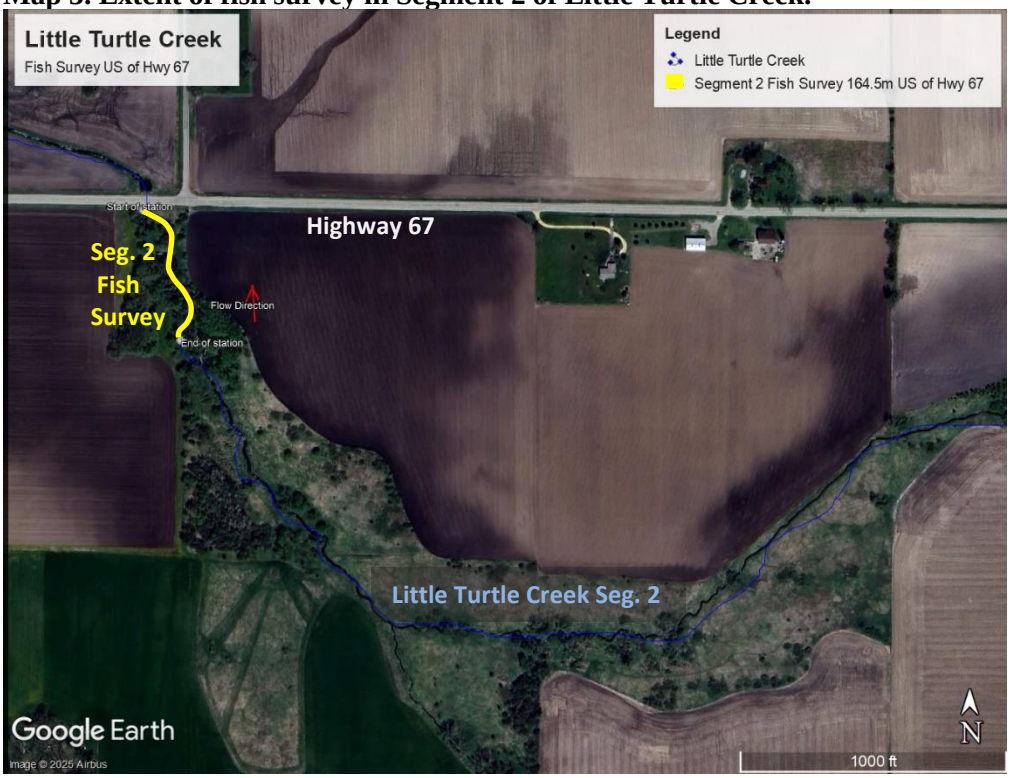
Map 1. Little Turtle Creek Segments 1 (red) and 2 (teal). (from Surface Water Data Viewer)



Map 2. Extent of fish survey in Segment 1 of Little Turtle Creek.



Map 3. Extent of fish survey in Segment 2 of Little Turtle Creek.



Site observations and habitat survey results

- **Segment 1: (most upstream): Little Turtle Creek from Sharon WWTF to Rock-Walworth County Line**

  - Segment 1 originates upstream of Sharon WWTF outfall to the southeast, then heads west under Salt Box Road. The culvert has created a small pool area below the culvert inverts. The stream channel is historically dredged and straightened. The mean stream width is 3.8m wide and most of the channel was filled with emergent reed canary grass leaving a small open water corridor. The average water depth of the 100-meter fish station was 0.82m (10 inches) deep. The substrate of the channel was mostly dominated with soft organic sediments and some sand, but did have a few areas of gravel substrate.
  - Instantaneous water quality measurements were taken as follows at 10:14am on 7/31/2024:
    - At the culvert: Temperature: 16.9C, DO: 7.07 mg/L, DO % Sat: 73.7, Spec Cond: 760, Transparency: 110cm, clarity- clear
  - A qualitative habitat survey for streams less than 10m wide was completed for this station. The score was 50 which is in the Good condition category.

- **Segment 2: Little Turtle Creek in Rock County**

  - Segment 2 flows generally west into Rock County from Walworth County, it then converges with an unnamed second order tributary and flows north before crossing under Hwy 67. A survey was conducted as part of a Targeted Watershed Assessment in 2017 by Rachel Sabre and other Department staff within the Turtle Creek HUC 10 Watershed.
  - Instantaneous water quality measurements were taken as follows at 1:12pm on 8/8/2017:
    - At the Hwy 67 culvert: Temperature: 16.87C, DO: 10.04 mg/L, DO % Sat: 106.1, Spec Cond: 755.9, Transparency: 120cm, clarity- clear, pH: 7.5, Flow 0.063m3/s
  - A qualitative habitat survey for streams less than 10m wide was completed for this station. The score was 52 which is in the Good condition category.
  - Macroinvertebrates were collected on 10/17/2017 and had a MIBI score of 5.29, in the Good condition category.

Fish survey results

- **Segment 1:**
  - An electrofishing survey was conducted on 7/31/2024 at SWIMs station # 10059262 for fish survey sequence # 515103772 using a backpack unit for a 100m segment in the 3.8m wide stream corridor. To avoid disturbing the fish and fine sediments, we walked adjacent to the stream measuring 100m downstream of the culvert then entered the water before starting the upstream pass survey. During this catch per effort survey, which took 22 minutes, a total of 90 fish were captured, ID'd and then released.
  - Survey results:

Brook Stickleback	60
White Sucker	4
Common Shiner	14
Creek Chub	10
Fathead Minnow	2

  - This stream is modeled as a Cool-Cold Headwater stream. The fish data collected was inputted into the Small & Intermittent Streams IBI Calculator and scored 60, which is Fair for the Cool-Cold Headwater stream condition category. A natural community verification was run for the

fish survey site and the stream was verified as being a Cool-Warm Headwater instead of the modeled Cool-Cold Headwater. This falls into a Warmwater Designated Use category.

- **Segment 2:**
  - An electrofishing survey was conducted on 8/24/17 at SWIMs station #10010960 for fish survey sequence #515084791 using a tow barge unit for a 164.5m station in the 4.7m wide corridor. We started the survey at the Hwy 67 culvert and conducted a catch per effort survey for an upstream survey pass. During the survey, which took 33 minutes to electrofish, a total of 617 fish (16 species including 1 state special concern species) were captured, ID and released.
  - Survey Results:

BIGMOUTH SHINER	172
BLUNTNOSE MINNOW	37
BROOK STICKLEBACK	11
CENTRAL STONEROLLER	52
COMMON SHINER	82
CREEK CHUB	116
FANTAIL DARTER	16
FATHEAD MINNOW	1
GREEN SUNFISH	11
HORNYHEAD CHUB	13
JOHNNY DARTER	7
LEAST DARTER	1 (species of special concern)
RAINBOW DARTER	4
SOUTHERN REDBELLY DACE	68
WESTERN BLACKNOSE DACE	6
WHITE SUCKER	20

  - The stream is a second order stream, modeled as a Cool-Cold Headwater in this segment. After running the natural community verification process, the stream does not match with it modeled natural community of a Cool-Cold Headwater but does verify as Cool-Warm Mainstem natural community. The fish data collected was inputted into Cool-Cold and Cool-Warm IBI calculator and scored 100 which is Excellent for Cool-Warm Mainstem stream. This falls into a Warmwater Designated Use category.

Discussion and Designated Use Recommendations

Note: Recommendations from this site visit are shown at the top of this memo.

- As a result of the surveys completed on 7/31/2024 for Segment 1 for Little Turtle Creek downstream of Salt Box Road (WBIC 791700) for fish, water quality, and habitat, this segment would be a warmwater designated use as there is an existing Cool-Warm Headwater natural community present. Although the fish survey scored Fair for a Cool-Warm Headwater stream, the stream still scored good for habitat and had water conditions that were very good during the site visit as dissolved oxygen levels were at 7.07 mg/L, stream temps were 62.4 F, the turbidity tube reading was at 110, and the water was clear.
  - The listing of LAL in ch. NR 104 is inappropriate for Segment 1, because there is an existing fish community present. The LAL listing should be removed from code.
  - The LFF category would also not be appropriate for Seg. 1 because the existing fish community is of fair quality (i.e. supporting a full fish and aquatic life use) and the habitat is in the Good category.
- I was able to run a natural community verification for the Segment 1 fish survey and verified that the modeled natural community of Cool-Cold Headwater should be replaced with Cool-Warm Headwater. See attached natural community verification report.

- As a result of the surveys completed on 8/8/2017 for Segment 2 for Little Turtle Creek upstream of Hwy 67 (WBIC 791700) for fish, water quality, flow, and habitat, this segment would be a warmwater designated use as it is a Cool-Warm Mainstem natural community. The fish survey scored excellent with a total of 16 fish species including 1 state special concern species (Least Darter). The flow the day of the survey was around 2.2 cfs and the habitat condition score of 52 was good; it could improve with its fine sediment and erosion score. The water quality the day of the visit was in very good condition with the dissolved oxygen over 10 mg/L and temperatures at 60 F which is cool for August midday. The water clarity was also clear, at 120 cm transparency.
    - Segment 2 is currently supporting a full fish and aquatic life community with an Excellent fish IBI score and a Good habitat score. Therefore neither LAL nor LFF would not be appropriate for this segment.
- A natural community verification was done for the Segment 2 fish survey and verified that the natural community should be Cool-Warm Mainstem instead of the modeled Cool-Cold Headwater. See attached natural community verification report.

Are code changes needed?

A code change is needed to remove the LAL listing for segment 1 from ch. NR 104, Table 4, row 23.

Attachments

- Salt Box Road Fish IBI Calculator Results PDF
- Hwy 67 Fish IBI Calculator Results PDF
- Fish and Habitat survey documents for Salt Box Road Site PDF
- Fish, Flow and Habitat survey documents for Hwy 67 Site PDF
- NC Verification Report for Salt Box Road Site PDF
- NC Verification Report for Hwy 67 Site PDF

Little Turtle Creek at Salt Box Road, Small Stream IBI Calculator Results

IBI Calculator for Small & Intermittent Warmwater Streams - WI (Lyons 2006) and Use Designation Guidelines Calculations

(revision 2/7/2006)

Sample Date	7/31/2024
SITE	Little Turtle Creek DS Salt Box Rd
PERSONNEL	Rachel Sabre and Breanna Crane

MATRIX	VALUE	SCORE
total # of fish	90	n/a
total # of native species	5	10
total # of intolerant species	0	0
total # of minnow species	3	20
total # of headwater species	0	0
Catch per 100 m of all fish minus tolerant spp	14	10
Catch per 100 m of brook stickleback	60	20
total # of tolerant fish	76	n/a
total # of omnivores	6	n/a
total # of insectivores	74	n/a
total # of top carnivores	0	n/a
total # of simple lithophils	18	n/a
	subtotal	60
total # of DELT fish	0	
Raw IBI score =		60
IBI score adjusted to 0-100 range if necessary		60
IBI SCORE =		**60**

Equipment Type =	Back Pack
Stream width (m) =	3.8
Ln stream width (m) =	1.34
Distance shocked (m)=	100
Watershed area upstream of fish station (km^2)=	11.9
Gradient (m/km)=	
Small tsream IBI if:	> 4 km^2
	<40 km^2
	<11 km^2 if gradient > 10 m/km

% of tolerant spp.	84
% of omnivorous spp.	7
% of insevtivores	82
% of carnivores	0
% of simple lithophilous	20
% DELT	0
total catch per 100 m	90
tolerant species per 100 m	76
Catch per 100 m of all fish minus tolerant spp	14
Catch per 100 m of brook stickleback	60

Biotic Integrity Rating **FAIR**

Notes

# of fish **Fish species**

FAL Use Designation Guidance - Existing Use Summary Data		
Total # of game-fish species with more than 2 individuals per 100m.	0	
Total # of DO tolerant fish	62	
Total # of DO tolerant fish per 100 meter stream length	62	
% forage fish belonging to spp. that are tolerant to low DO	69	%
Total # of fish tolerant to disturbed habitat	14	
Total # of fish tolerant to disturbed habitat per 100m. stream length	14	
% of fish species that are tolerant to disturbed habitats	16	%
% of DO fish AND tolerant to disturbed habitat fish spp.	85	%
Total # of DO tolerant species =	2	
Total # of Disturbed habitat species =	2	
Total # of fish species collected =	5	
Total # of fish collected =	90	
Steam length shocked (m) =	100	

Intolerant Fish Species Waters		
Total number of intolerant fish =	0	
Percent of individuals listed as intolerant fish species =	0	%
IBI intolerant fish metric score =	0	
Total number of intolerant fish species =	0	

Stenothermal Coolwater Fish Species		
Total # of coolwater fish species	0	
Total # of coolwater fish	0	
% of coolwater fish =	0	%
Summer maximum daily mean temperature =		oC

Stenothermal Coldwater Fish Species		
Total # of coldwater fish species	1	
Total # of coldwater fish	60	
% of coldwater fish =	67	%
Total # of coldwater fish species without stickleback	0	
Total # of coldwater fish without stickleback	0	
% of coldwater fish without stickleback =	0	%

Macroinvertebrates		
Date collected (mm/dd/yyyy)		
Overall sample HBI score and rating =		
Toal # of taxa with HBI tolerance values <=5.00 =		
Toal # of taxa with HBI tolerance values >5.00 & <=8.00 =		
Toal # of taxa with HBI tolerance values >8.00 =		
Total # of taxa without HBI tolerance values =		
Total # of organsims counted =		
Estimated percent sorted =		%
% of macroinvertebrates with HBI Tol. Values <=5.00 =	#DIV/0!	%
% of macroinvertebrates with HBI Tol. Values >5.00 &<=8.00 =	#DIV/0!	%
% of macroinvertebrates with HBI Tol. Values >8.00 =	#DIV/0!	%

Little Turtle Creek at Hwy 67. Cool Cold and Cool Warm IBI Calculator Results (continued on next page)

Sample Date = 8/8/2017	Personnel = Sabre, Cox, Helker, Olson
Stream and Site Description/I.D. = Little Turtle Creek At Hwy 67	Additional Field Measures = Transparency 120, pH7.5, h20 temp 16.85C, Cond; 755, Flow 35.3 cfs, DO 10.04mg/L,Sat 106.1%

METRIC	VALUE	SCORE
TOTAL NUMBER OF SPECIES	16	n.a.
TOTAL NUMBER OF FISH	617	0-100
COOL-COLD TRANSITION IBI		
Number of intolerant fish species	2	20
Number of darter, madtom and sculpin species	4	20
Number of coolwater species	5	20
% tolerant species (% of individuals as tolerant species)	33	20
% as generalist feeding individuals	20	20
Cool - Cold IBI Score =		100
Biotic Integrity Rating =	EXCELLENT	
COOL-WARM TRANSITION IBI		
Number of intolerant species	2	20
Number of native minnow species	9	20
Number of benthic invertivore species	4	20
% as tolerant individuals	33	20
% as omnivore individuals	9	20
Cool - Warm IBI Score =		100
Biotic Integrity Rating =	EXCELLENT	

Convert Acres to	Kilometers^2
	0.0

MSW (m) =	4.7	
Distance sampled (m) =	164.5	
Watershed size (km^2) =	21.8	> 200 km^2 = large
Latitude (e.g. 44.6 N) =	42.5	> 44.6 N = north
Sample Area (m^2) =	773.15	MSW x Distance sampled

Key in or download fish common name and numbers from FH database, copy and paste into worksheet starting at A28, and corresponding number captured at B28. Fish common name input is not case sensitive. Using VLOOKUP the spreadsheet then fills the appropriate number over to the appropriate AB cell.

Fish Common Name	Number	Individual per Unit Area (m^2)		Total Catch/Unit Area (m^2)
BIGMOUTH SHINER	172	0.2225		0.80
BLUNTNOSE MINNOW	37	0.0479		
BROOK STICKLEBACK	11	0.0142		
CENTRAL STONEROLLER	52	0.0673		
COMMON SHINER	82	0.1061		
CREEK CHUB	116	0.1500		
FANTAIL DARTER	16	0.0207		
FATHEAD MINNOW	1	0.0013		
GREEN SUNFISH	11	0.0142		
HORNYHEAD CHUB	13	0.0168		
JOHNNY DARTER	7	0.0091		
LEAST DARTER	1	0.0013		
RAINBOW DARTER	4	0.0052		
SOUTHERN REDBELLY DACE	68	0.0880		
WESTERN BLACKNOSE DACE	6	0.0078		
WHITE SUCKER	20	0.0259		
		0.0000		

			TAXA				
	Individuals	Species	Catostomidae Species	Round Sucker Species	Darter Species	Introduced/Exotic Species	Sunfish Species
TOTALS	617	16	1	0	4	0	1
PERCENT OF TOTAL			6	0	25	0	6
LAMPREY							
CHESNUT LAMPREY	0						
CHESNUT LAMPREY (AMMOCOETE)	0						
NORTHERN BROOK LAMPREY	0						
NORTHERN BROOK LAMPREY (AMMOCOETE)	0						
SOUTHERN BROOK LAMPREY	0						
SOUTHERN BROOK LAMPREY (AMMOCOETE)	0						
SILVER LAMPREY	0						
SILVER LAMPREY (AMMOCOETE)	0						
AMERICAN BROOK LAMPREY	0						
AMERICAN BROOK LAMPREY (AMMOCOETE)	0						
SEA LAMPREY	0						
SEA LAMPREY (AMMOCOETE)	0						
STURGEON							
LAKE STURGEON	0						
SHOVELNOSE STURGEON	0						
PADDLEFISH							

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
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COMPLETED

Wadable Stream Fish Assessment

Form 3600-230 (R 7/15)

Instructions: Bold fields must be completed.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
White Tail Creek	791700	10059262	515163772

Date (MMDDYYY)	Station Name
07312024	DS of S & H Rock Rd.

Latitude - Longitude Determination Method Used	Datum Used

Start Latitude	Start Longitude	End Latitude	End Longitude	County
				Bo Walworth

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
1014	79°F	16.9	760	110

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH
7.07	73.7	

Flow (m³/sec)	Water Level (check one - measure distance if Above or Below Normal):	Water Clarity:
	○ Normal ○ Below: _____ (m) ◉ Above: 0.1 (m)	◉ Clear ○ Turbid ○ Stained

Channel and Basin Characteristics

Channel Condition: (check one) ○ Natural ◉ > 20-year-old Channelization ○ 10- to 20-year-old Channelization ○ < 10-year-old Channelization ○ Concrete Channel

Mean Stream Width (m)	Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
3.8				1	

Sampling Description

Sampling Type (check one): ◉ CPE ○ Depletion ○ Mark-Recapture ○ Other - Specify: _____

Station Length (m)	Start Time (24-hr clock)	Finish Time (24-hr clock)
100		

Type of Pass (check one): ◉ Upstream Only ○ Upstream, then Downstream ○ Other - Specify:

Gear Description

Gear (indicate number of each type used): Number of Anodes per Unit

X Backpack Shockers _____ Stream Shockers _____ Mini-Boom Shockers 1

Current Type:	Volts	Amps	Rate	Duty
○ AC ○ DC ◉ DCP	12	2.5	60	20

# of Dippers	Dip Net Mesh Size (inches) and Type (bar, Ace, Delta, etc.)
1	0.125

Person(s) Who Collected Data (Full Names)
R. Sabre B. Crane

Comments / Notes (continue on the back of this sheet if necessary)
pH meter not working

(90)

Wadable Stream Fish Assessment

Form 3600-230 (R 7/15)

Catch Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	Date (YYYY MM DD)
Little Turtle Creek @ Salt Box Rd	91700	10059262	20240731

Pass Number	Time (24-hr clock) Start	Time (24-hr clock) End	Time (24-hr clock) Start	Time (24-hr clock) End	Total Time (min.)	Pass Direction
1	1038	1100			22	(●) Up ( ) Down

Species	Number Caught	Weight (g) Tare	Weight (g) Gross	Weight (g) Total	Number w/ DELT	Number of Mortalities	Number of Vouchers	Number Marked	Number Recaptured	Lab Check # ID
Brook Stickleback (50)	50									
White Sucker (4)	4									
Common Shiner (14)	14									
Creek chub (10)	10									
Fat head Minn... (2)	2									

Comments / Notes

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COMPLETED

Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Instructions: **Bold** fields must be completed. Record all measurements in metric units.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
Little Turtle Creek	791700	10059262	515103772

Date (MMDDYYYY)	Station Name
07312024	DS of Salt Box Rd

Latitude - Longitude Determination Method Used	Datum Used

Start Latitude	Start Longitude	End Latitude	End Longitude	County
				Walworth

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
1014	79°F	16.9	760	110

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH
7.07	73.7	—

Flow (m³/sec): —

Water Level (check one - measure distance if Above or Below Normal): ☐ Normal ☐ Below: _____ (m) ☒ Above: 0.1 (m)

Water Clarity: ☒ Clear ☐ Turbid ☐ Stained

Channel and Basin Characteristics

Mean Stream Width (m)	Station Length (m)
3.8 ~~4.0~~	100m

Channel Condition: (check one) ☐ Natural ☐ > 20-year-old Channelization ☐ 10- to 20-year-old Channelization ☐ < 10-year-old Channelization ☐ Concrete Channel

Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
			1	

Comments / Notes

Little Turtle @ South Box Road

Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Rating Item	Excellent	Good	Fair	Poor	Score
Riparian Buffer Width (m) Width of contiguous undisturbed land uses; meadow, shrubs, woodland, wetland, exposed rock	Riparian zone well protected; buffer wide (> 10.0 m) 15	Riparian zone protected, but buffer width moderate (5.0 - 10.0 m) 10	Riparian zone moderately disturbed, buffer narrow (1.0 - 4.9 m) 5	Most of the riparian zone disturbed, buffer very narrow or absent (< 1.0 m) 0	10
Bank Erosion Width of bare soil on bank, along transects	No significant bank erosion; < 0.20 m of bank is bare soil 15	Limited erosion; 0.20 - 0.50 m of bank is bare soil 10	Moderate erosion; 0.51 - 1.0 m of bank is bare soil 5	Extensive erosion; > 1.0 m of bank is bare soil 0	15
Pool Area % of stream length in pools	Pools common; wide, deep, slow velocity habitat, balanced by other habitats; 40 to 60% of station 10	Pools present; not frequent or over-abundant; 30 to 39% or 61 to 70% of station 7	Pools present, but either rare or overly dominant, few other habitats present; 10 to 29% or 71 to 90% of station 3	Pools either absent or dominant, not balanced by other habitats; < 10% or > 90% of station 0	0
Width:Depth Ratio Average stream width divided by average thalweg depth in runs and pools	Streams very deep and narrow; width/depth ≤ 7 15	Stream relatively deep and narrow; width/depth 8-15 10	Stream moderately deep and narrow; width/depth 16-25 5	Stream relatively wide and shallow; width/depth > 25 0	10
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 15	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 10	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 5	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	0
Fine Sediments % of the substrate that is < 2 mm (sand, silt, or clay)	Fines rare or absent, < 10% of the stream bed 15	Fines present but limited, generally in stream margins or pools; 10 to 20% of stream bed 10	Fines common in mid-channel areas, present in riffles and extensive in pools; 21 to 60% 5	Fines extensive in all habitats; > 60% of stream bed covered 0	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; > 15% of stream 15	Cover common, but not extensive; 10 - 15% of stream 10	Occasional cover, limited to one or two areas; 5 - 9% of stream 5	Cover rare or absent; limited to < 5% of stream 0	15
				Total Score	50

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ENTERED
SWIMS + FMDB
09/28/2017 EC

Wadable Stream Fish Assessment

Form 3600-230 (R 7/15)

Instructions: Bold fields must be completed.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
Little Turtle @ 67	791700	10010960	815084791

Date (MMDDYYY)	Station Name
08082017	Little Turtle @ HWY 67

Latitude - Longitude Determination Method Used	Datum Used
GPS	NAD83

Start Latitude	Start Longitude	End Latitude	End Longitude	County
42.50627	-88.796684	42.505339	-88.796087	Walworth

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
13:02		16.85	755.9	120

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH
10.04	106.1	7.50

Flow (m³/sec)	Water Level (check one - measure distance if Above or Below Normal):	Water Clarity:
.063	⊘ Normal ○ Below: _____ (m) ○ Above: _____ (m)	⊘ Clear ○ Turbid ○ Stained

Channel and Basin Characteristics

Channel Condition: (check one) ⊘ Natural ○ > 20-year-old Channelization ○ 10- to 20-year-old Channelization ○ < 10-year-old Channelization ○ Concrete Channel

Mean Stream Width (m)	Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
4.7	0	1.13	.15	2	21.8

Sampling Description

Sampling Type (check one): ○ CPE ○ Depletion ○ Mark-Recapture ○ Other - Specify: _____

Station Length (m)	Start Time (24-hr clock)	Finish Time (24-hr clock)
164.5	1312	1345

Type of Pass (check one): ⊘ Upstream Only ○ Upstream, then Downstream ○ Other - Specify:

Gear Description

Gear (indicate number of each type used): _____ Backpack Shockers 1 Stream Shockers _____ Mini-Boom Shockers

Number of Anodes per Unit 2

Current Type:	Volts	Amps	Rate	Duty
⊘ AC ○ DC ○ DCP	150	6		

# of Dippers	Dip Net Mesh Size (inches) and Type (bar, Ace, Delta, etc.)
2	.125

Person(s) Who Collected Data (Full Names)
Sabre, Helker, Olson, Cox

Comments / Notes (continue on the back of this sheet if necessary)

TDS: .4836

Checked 12/8/17

Wadable Stream Fish Assessment
Form 3600-230 (R 7/15)

Catch Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	Date (YYYY MM DD)
Little Turtle @ Hwy 67	791700	10010960.	2017 08 08

Pass Number	Time (24-hr clock) Start:	End:	Time (24-hr clock) Start:	End:	Total Time (min.)	Pass Direction:
	1312	1345			33	◉ Up ○ Down

Species		Number Caught	Weight (g) Tare	Gross	Total	Number w/ DELT	Number of Mortalities	Number of Vouchers	Number Marked	Number Recaptured	Lab Check # ID
Common Shiner	82	15, 17, 3, 7,	3, 3, 4,	2, 8,	2, 4, 2, 1,	9, 2					
Bigmouth	172	9, 7, 3, 20,	4, 5, 9,	19, 10,	15, 5, 2,	6, 2, 7	1, 20, 5,	2, 8, 3			
Creek Chub	116	|||| |||| ||||	|||| ||||	|||| ||||	|||| |||| ||||	||||	|||| ||||	|||| |||| ||||	||||	|||| |||| ||||	|||| |
Southern Redbelly	68	|||| |||| |||| ||||	|||| ||||	|||| ||||	|||| ||||	|||| ||||	|||| ||				
Bluntnose Min...	37	|||| |||| |||| ||||	|||| ||||	|||| ||							
Green Sunfish	11	|||| |||| |									
Stoneroller	52	|||| |||| ||||	|||| |||| ||||	|||| ||||	|||| |||| ||						
White Sucker	20	|||| |||| ||||	||||								
Brook Stickleback	11	|||| |||| |									
Fathead Minnow	1	|									
Blacknose Dace	6	|||| |									
Least Darter	1	|									
Hornyhead Chub	13	|||| |||| |||									
Johnny Darter	7	|||| ||									
Fantail Darter	16	|||| |||| |||| |									
Rainbow Darter	4	||||									

Comments / Notes

Note: 4 creek chubs had delt tumors on dorsal fin origin

16 spp.

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

ENTERED
SWIMS + FMDB
09/28/2017 EC

Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Instructions: **Bold** fields must be completed. Record all measurements in metric units.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
L. Turtle @ 67	791700	10010960	128624

Date (MMDDYYYY)	Station Name
08082017	Little Turtle @ Hwy 67

Latitude - Longitude Determination Method Used	Datum Used
GPS	NAD83

Start Latitude	Start Longitude	End Latitude	End Longitude	County
42.50627	-88.796684	—	—	Walworth

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
1302	—	16.85	755.9	120

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH	
10.04	106.1	7.5	TDS=.4836

Flow (m³/sec): .063

Water Level (check one - measure distance if Above or Below Normal): [X] Normal [ ] Below: _____ (m) [ ] Above: _____ (m)

Water Clarity: [ ] Clear [X] Turbid [ ] Stained

Channel and Basin Characteristics

Mean Stream Width (m)	Station Length (m)
4.7	164.5

Channel Condition: (check one) [X] Natural [ ] > 20-year-old Channelization [ ] 10- to 20-year-old Channelization [ ] < 10-year-old Channelization [ ] Concrete Channel

Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
0	1.13	.15	2	21.8

Comments / Notes 15.2 ft Stream width

	depth	flow
0.0	0	0
0.75	0.3	0.21
1.5	0.3	0.14
2.25	0.45	0.11
3.0	0.55	0.32
3.75	0.6	0.37
4.5	0.7	0.48
5.25	0.7	0.33
6.0	0.8	0.39
6.75	0.8	0.54
7.5	0.8	0.46
8.25	0.85	0.44
9.0	0.8	0.49
9.75	0.9	0.54
10.5	0.9	0.59
11.25	0.95	0.63
12.0	0.9	0.57
12.75	0.9	0.48
13.5	0.9	0.27
14.25	0.7	0.19
15.0	0.5	0.13

L, Hurth creek @ Hwy 67

Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Rating Item	Excellent	Good	Fair	Poor	Score
Riparian Buffer Width (m) Width of contiguous undisturbed land uses; meadow, shrubs, woodland, wetland, exposed rock	Riparian zone well protected; buffer wide (> 10.0 m) 15	Riparian zone protected, but buffer width moderate (5.0 - 10.0 m) 10	Riparian zone moderately disturbed, buffer narrow (1.0 - 4.9 m) 5	Most of the riparian zone disturbed, buffer very narrow or absent (< 1.0 m) 0	10
Bank Erosion Width of bare soil on bank, along transects	No significant bank erosion; < 0.20 m of bank is bare soil 15	Limited erosion; 0.20 - 0.50 m of bank is bare soil 10	Moderate erosion; 0.51 - 1.0 m of bank is bare soil 5	Extensive erosion; > 1.0 m of bank is bare soil 0	0
Pool Area % of stream length in pools	Pools common; wide, deep, slow velocity habitat, balanced by other habitats; 40 to 60% of station 10	Pools present; not frequent or over-abundant; 30 to 39% or 61 to 70% of station 7	Pools present, but either rare or overly dominant, few other habitats present; 10 to 29% or 71 to 90% of station 3	Pools either absent or dominant, not balanced by other habitats; < 10% or > 90% of station 0	7
Width:Depth Ratio Average stream width divided by average thalweg depth in runs and pools	Streams very deep and narrow; width/depth ≤ 7 15	Stream relatively deep and narrow; width/depth 8-15 10	Stream moderately deep and narrow; width/depth 16-25 5	Stream relatively wide and shallow; width/depth > 25 0	10
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 15	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 10	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 5	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	15
Fine Sediments % of the substrate that is < 2 mm (sand, silt, or clay)	Fines rare or absent, < 10% of the stream bed 15	Fines present but limited, generally in stream margins or pools; 10 to 20% of stream bed 10	Fines common in mid-channel areas, present in riffles and extensive in pools; 21 to 60% 5	Fines extensive in all habitats; > 60% of stream bed covered 0	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; > 15% of stream 15	Cover common, but not extensive; 10 - 15% of stream 10	Occasional cover, limited to one or two areas; 5 - 9% of stream 5	Cover rare or absent; limited to < 5% of stream 0	10
				Total Score	52

Natural Community Verification Report

Waterbody Name (WBIC): LITTLE TURTLE CREEK (791700)

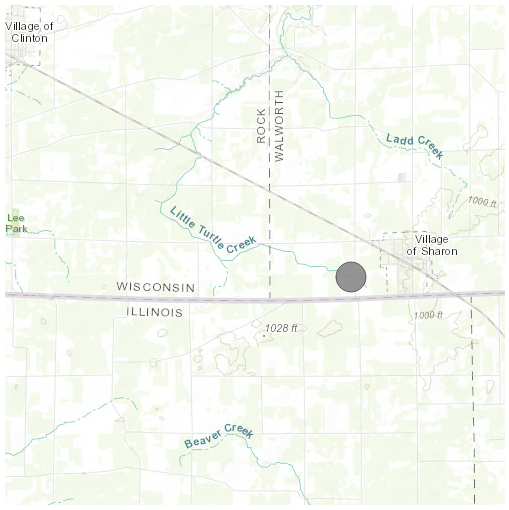
Swims Station ID: 10059262

Survey Sequence Number: 515103772

This NC Verification Report was run on Little Turtle Creek DS Salt Box Road, (10059262), located in WALWORTH County with fish Survey Sequence Number 515103772 sampled on July 31, 2024. The Natural Community for this station was verified by Rachel Sabre on April 14, 2025.

The Natural Community was modeled *Cold Transition Headwater* and is now Verified as *Warm Transition Headwater* .

Survey location

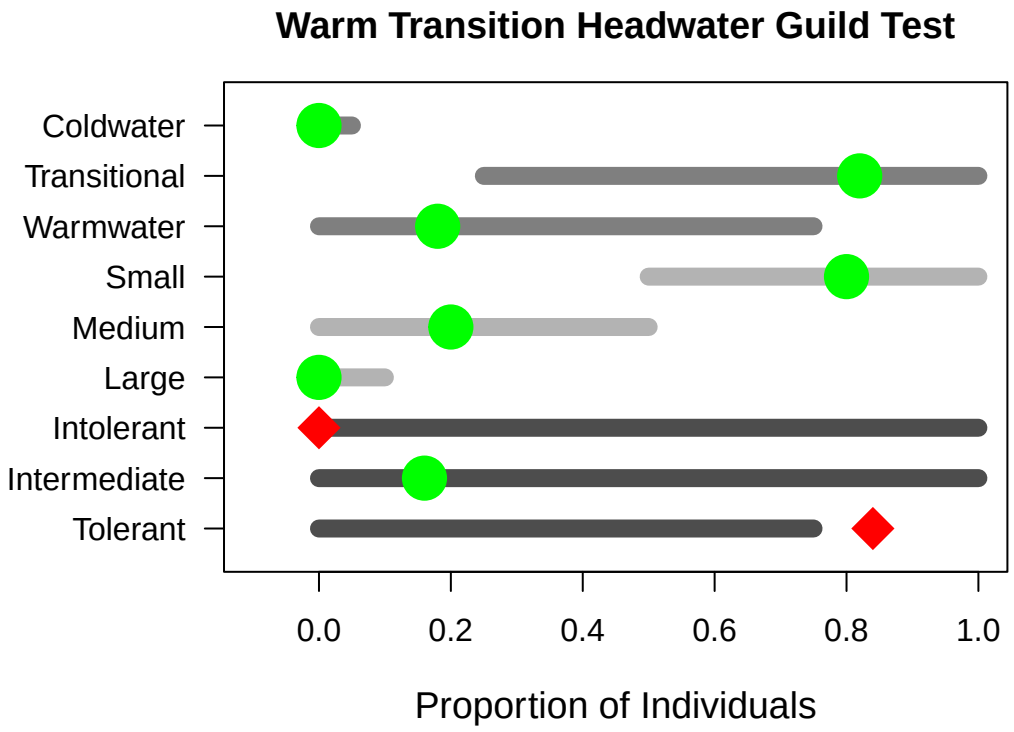


Fish captured

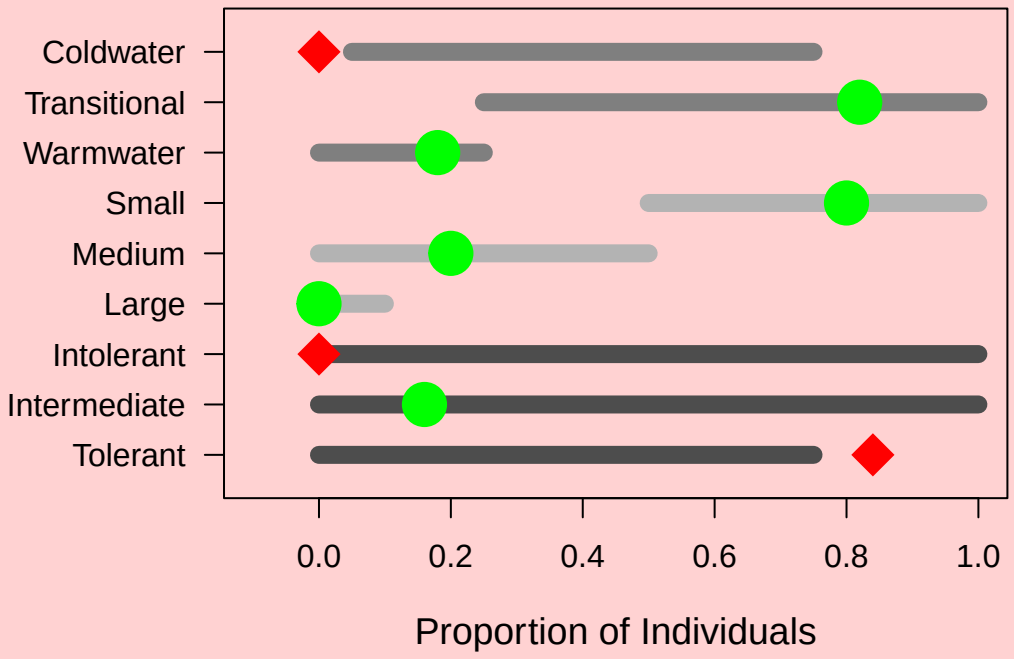
Species	Count
BROOK STICKLEBACK	60
COMMON SHINER	14
CREEK CHUB	10
FATHEAD MINNOW	2
WHITE SUCKER	4

Guild percentages

Thermal	Percent.Indiv.	Size	Percent.Indiv.	Tolerance	Percent.Indiv.
Coldwater	0	Small	80	Intolerant	0
Transitional	82	Medium	20	Intermediate	16
Warmwater	18	Large	0	Tolerant	84



The NC shown below was considered but NOT selected



Comments from WR Biologist:

Tolerance tests are not met with in either NC. except there are no Coldwater species, more aligns with cool-warm community

Natural Community Verification Report

Waterbody Name (WBIC): LITTLE TURTLE CREEK (791700)

Swims Station ID: 10010960

Survey Sequence Number: 515084791

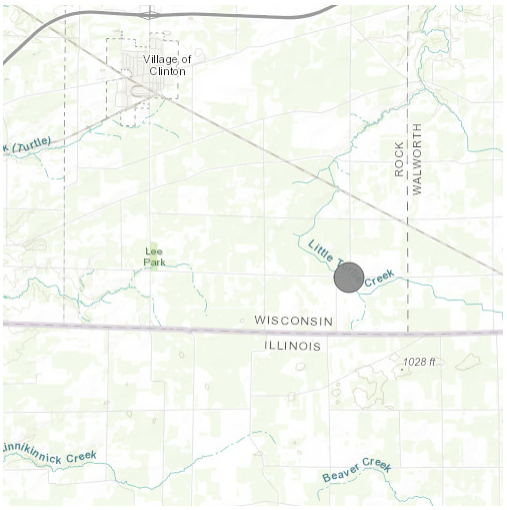
This NC Verification Report was run on Little Turtle Creek - Upstream Hwy 67, (10010960), located in ROCK County with fish Survey Sequence Number 515084791 sampled on August 8, 2017. The Natural Community for this station was verified by Rachel Sabre on April 14, 2025.

The Natural Community was modeled *Cold Transition Headwater* and is now Verified as *Warm Transition Mainstem* .

Fish captured

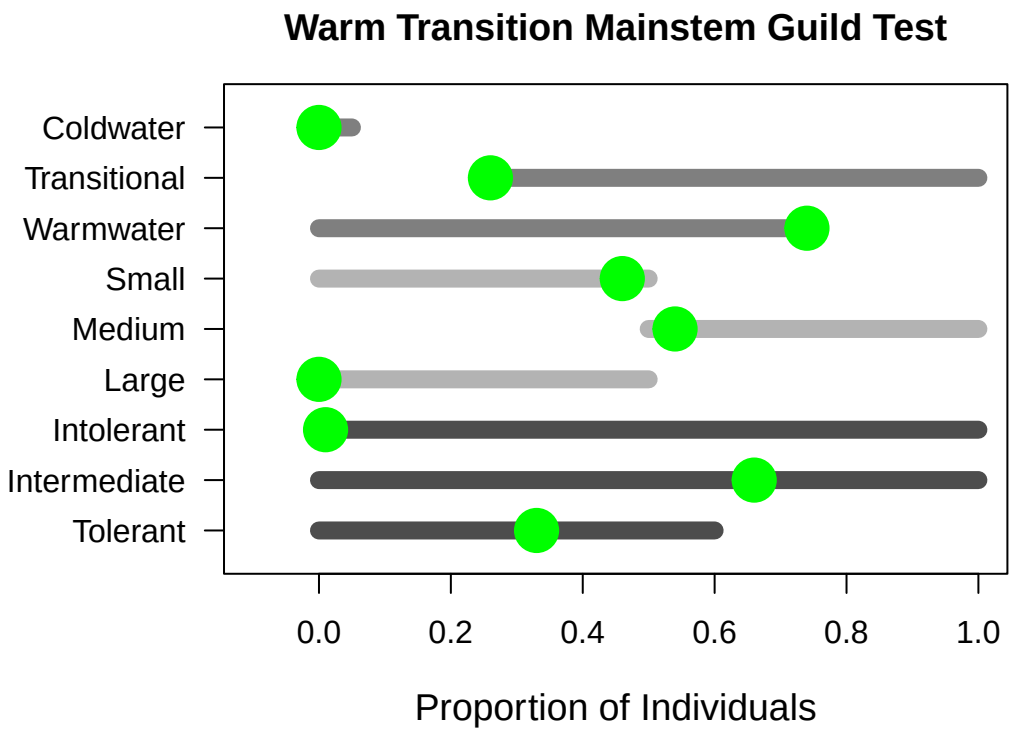
Species	Count
BIGMOUTH SHINER	172
BLUNTNOSE MINNOW	37
BROOK STICKLEBACK	11
CENTRAL STONEROLLER	52
COMMON SHINER	82
CREEK CHUB	116
FANTAIL DARTER	16
FATHEAD MINNOW	1
GREEN SUNFISH	11
HORNYHEAD CHUB	13
JOHNNY DARTER	7
LEAST DARTER	1
RAINBOW DARTER	4
SOUTHERN REDBELLY DACE	68
WESTERN BLACKNOSE DACE	6
WHITE SUCKER	20

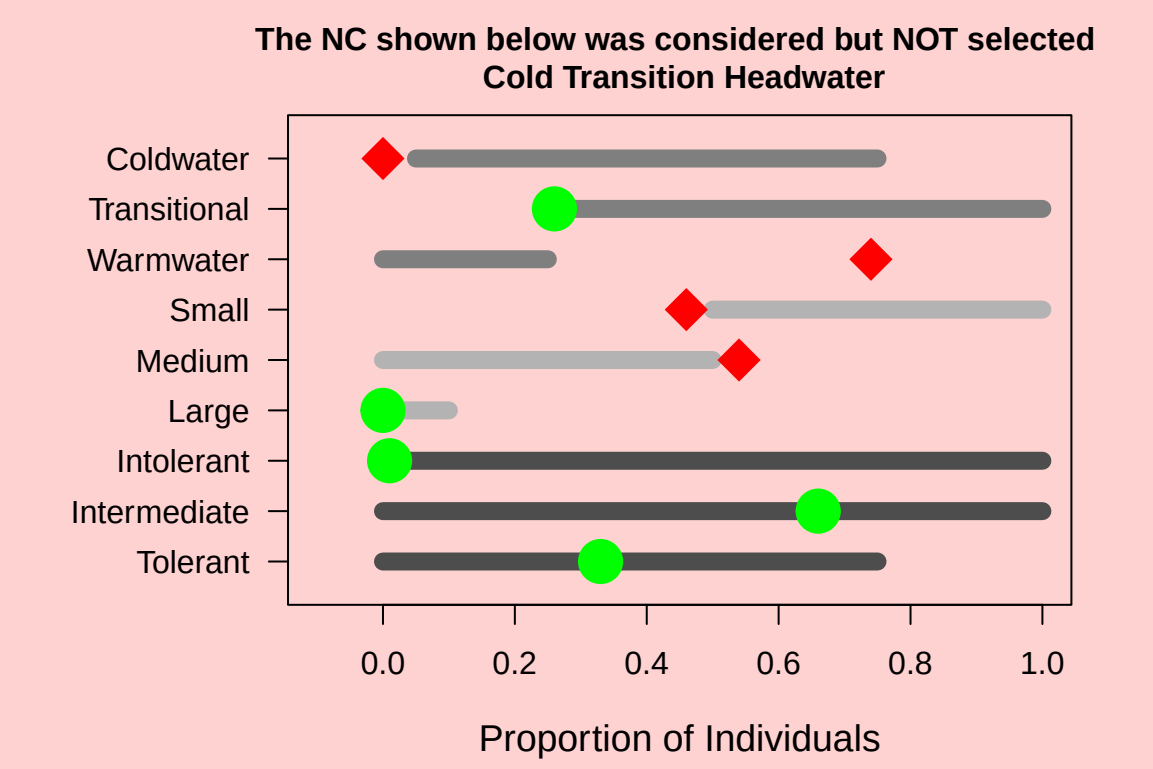
Survey location



Guild percentages

Thermal	Percent.Indiv.	Size	Percent.Indiv.	Tolerance	Percent.Indiv.
Coldwater	0	Small	46	Intolerant	1
Transitional	26	Medium	54	Intermediate	66
Warmwater	74	Large	0	Tolerant	33





Comments from WR Biologist:

There were larger rain events in 2017 however fish surveys in Little Turtle Creek upstream are very consistent with this site as well. This site is more consistent with mainstem system vs a headwater. Guild tests confirm it is a cool-warm mainstem rather than cool-cold mainstem natural community. Upstream sites also verify as cool-warm mainstem NC.