## **CORRESPONDENCE/MEMORANDUM**

DATE:	4/28/2025	FILE REF: NA
TO:	Mike Polkinghorn, Limit Calculator; Laura Gerold, Compliance Engineer	
FROM:	Eric Evensen, Stream Biologist; Kristi Minahan, Water Quality Standards; I Limit Calculator Coordinator	Diane Figiel,
SUBJECT:	Belgioioso-Denmark, Unnamed Tributary 1 (WBIC 5020041) and Unnamed (WBIC 5019923) to Devil's River (WBIC 89900), Brown County	1 Tributary 2

#### **Overview of issue**

In preparation for reissuance of the Belgioioso-Denmark permit, staff were requested to do a site visit to determine the appropriate stream classifications for the receiving waters. Belgioioso-Denmark is a continuous industrial discharger, with an actual annual average flow of 0.48 MGD (0.74 cfs).

The immediate receiving water is an Unnamed Tributary (Segment 1; WBIC 5020041). This flows into a second Unnamed Tributary (Segment 2, WBIC 5019923), which then flows into Devil's River (WBIC 89900). Devil's River flows ~4.6 miles to West Twin River (WBIC 87000), which is a Class II Trout Stream for 1.31 miles; therefore this portion of West Twin River has a Coldwater Designated Use.

The facility's previous permit limits were based on Limited Aquatic Life (LAL) for 6 miles downstream to the confluence with Devil's River, with downstream protection limits for phosphorus and ammonia for Devil's River. However, none of these waterbody segments are listed in ch. NR 104, Wis. Adm. Code, as Limited Aquatic Life (LAL) or Limited Forage Fish (LFF). A 2015 memo from Jim Schmidt indicated that the two unnamed tributaries were being treated as LAL and Devil's River as LFF, but the justification was unclear. More recent fish survey data from 2013, 2019, 2021 and 2024 in the two unnamed tributaries indicated the immediate and downstream receiving waters support diverse warmwater forage fish assemblages.

The main objective of this site visit was to determine the appropriate stream classification for the immediate and downstream waters.

#### Summary of previous classification info & recommendations

- Segment 1 (most upstream): Unnamed Tributary 1 (WBIC 5020041) for ~0.7 miles from outfall to confluence with Segment 2.
  - *Currently codified designated use:* Not listed as LAL or LFF in ch. NR 104, and not classified as Trout water, so defaults to a Warmwater use
  - Classification used for previous permit issuance: LAL
  - *Previous stream class recommendations:* A 11/17/2019 letter from DNR to the facility recommended Warmwater Sport Fish/Warmwater Forage Fish based on the 2019 data collected.
  - o Modeled Natural Community: Macroinvertebrate
  - *New recommended Natural Community and Designated Use:* Cool-Warm Headwater Natural Community and Warmwater Forage Fish Designated Use
- Segment 2: Unnamed Tributary 2 (WBIC 5019923) for ~6 miles to confluence with Devil's River
  - *Currently codified designated use:* Not listed as LAL or LFF in ch. NR 104, and not classified as Trout water, so defaults to a Warmwater use
  - Classification used for previous permit issuance: LAL



- *Previous stream class recommendations:* A 11/17/2019 letter from DNR to the facility recommended Warmwater Sport Fish/Warmwater Forage Fish based on the 2019 data collected.
- o Modeled Natural Community: Cool-Warm Headwater
- New recommended NC & DU: Cool-Warm Headwater NC and Warmwater Forage Fish DU
- Segment 3: Devil's River (WBIC 89900) for ~4.6 miles from Seg. 2 to confluence with West Twin River
  - *Currently codified designated use:* Not listed as LAL or LFF in ch. NR 104, and not classified as Trout water, so defaults to a Warmwater use
  - o Classification used for previous permit issuance: Warmwater Sport Fish
  - o Previous stream class recommendations: 2015 Schmidt memo indicated LFF
  - *Modeled Natural Community:* Cool-Warm Headwater NC
  - New recommended NC & DU: This segment was not evaluated during this site visit. A 2002 fish survey downstream of the confluence with Seg. 2 near Pleasant Rd. indicated at Cool-Warm Headwater NC, which would be a Warmwater DU.
- Segment 4: West Twin River (WBIC 87000)
  - *Currently codified designated use:* This is a Class II Trout water for 1.31 mi, so it has a Coldwater Des. Use.
  - Classification used for previous permit issuance: Was not used.
  - o Previous stream class recommendations: NA
  - o Modeled Natural Community: Cool-Warm Mainstem NC
  - New recommended NC & DU: This segment was not evaluated during this site visit.

#### Site observations and habitat survey results

#### • Segment 1: Unnamed Tributary 1 (WBIC 5020041)

- On July 12, 2024, Eric Evensen (myself), Andrew Hudak and Claire Hetzel conducted a receiving water determination for Belgioioso Denmark Facility. Segment 1 was accessed via the Hwy NN road crossing. Unnamed Tributary (WBIC 5020041) is a 1-3 meter wide stream with a well-defined streambed and bank. The stream channel displayed characteristics of being artificially straightened in the past which did lead to some limitations in habitat diversity but suitable habitat for fish was observed throughout Segment 1. Streambed substrate consists mostly of silt and clay, but gravel and hard clay riffles are present in sections of segment 1. Some sections of the stream were lined with the wetland plant species Water Plantain providing habitat and erosion protection. A qualitative habitat survey was completed following the fish survey. The habitat survey resulted in a score of 48 which is rated as FAIR.
- Prior to completing a fish survey water temperature was 26.7°C, dissolved oxygen was 7.11 mg/L, conductivity was 2,953 μS/cm and pH was 8.13, collected using a calibrated multiparameter probe. Water clarity was greater than 122 cm. Due to high conductivity within the stream electrofishing effectiveness was limited with fish observed avoiding capture.

#### • Segment 2: Unnamed Tributary 2 (WBIC 5019923)

On July 12, 2024, the receiving water determination continued downstream where segment 2 was accessed at the R Kane Lane crossing. Unnamed Tributary (WBIC 5019923) is a 2-4 meter wide stream with a well-defined streambed and bank. Streambed substrate consists of a combination of silt, clay, gravel and cobble with significant large woody debris for fish habitat. It is a meandering stream with deeper bends and contains a substantial riparian buffer for most of its length. Streambank erosion was limited to areas of high energy. A qualitative habitat survey was completed following the fish survey. The habitat survey resulted in a score of 68 which is rated as Good.

Prior to completing a fish survey water temperature was 21.7°C, dissolved oxygen was 3.01 mg/L, conductivity was still elevated at 1,998 μS/cm and pH was 7.97, collected using a calibrated multiparameter probe. Water clarity was greater than 122 cm.

#### Site overview map



Map 1. Belgioioso-Denmark's outfall and Segments 1 to 4. (Surface Water Data Viewer, 2025)

**Map 2.** Aerial photo of Belgioioso-Denmark; red circle indicates the actual outfall location (note: disregard the multiple black triangles from the Surface Water Data Viewer layer). (Surface Water Data Viewer, 2025)



**Map 3.** Ariel map showing location of fish survey data and photo locations. (Surface Water Data Viewer, 2025)



#### Fish survey results

#### Segment 1: Unnamed Tributary 1 (WBIC 5020041):

Segment 1 fish surveys were completed using a high conductivity backpack shocker unit recommended for use when conductivity is over 700  $\mu$ S/cm but its effectiveness is reduced in extremely elevated conductivity conditions. Due to the high conductivity within Segment 1 electrofishing effectiveness was limited on the 2024 and 2021 surveys. Conductivity at the time of the 2024 survey was 2,953  $\mu$ S/cm. During the 2024 fish survey additional fish were observed, of the same species listed below, but they avoided capture. Even with additional individuals of the same species, the score would be expected to be in the Poor category.

#### Unnamed Tributary to Devils River 125m downstream of Hwy NN - July 12, 2024

Fish Species – Common Name	Fish Count
Brook Stickleback	14
Central Mudminnow	6

Small Stream IBI Score – 20 Poor (Note: low catch due to high conductivity which resulted in an undercount of the numbers of fish present)

Unnamed Tributary	to Devils River	: 125m downstream	of Hwy NN - M	ay 18.	2021
-			-1		

	iii of 110 j 101 100 j 103
Fish Species – Common Name	Fish Count
Central Mudminnow	26
Creek Chub	2

Small Stream IBI Score -0 Poor (Note: low catch due to high conductivity which resulted in an undercount of the numbers of fish present)

#### Unnamed Tributary to Devils River 10m upstream of CTH X - September 26, 2019

Fish Species – Common Name	Fish Count
Central Mudminnow	225
Brook Stickleback	5
Pearl Dace	4
Fathead Minnow	12
Green Sunfish	1
Creek Chub	1

Small Stream IBI Score – 60 Fair

#### Segment 2: Unnamed Tributary 2 (WBIC 5019923):

Segment 2 fish surveys were completed using a towable barge shocking unit. The barge unit is better suited for high conductivity waters. Conductivity at the time of the 2024 survey was  $1,998 \mu$ S/cm.

Fish Species – Common Name	Fish Count
Creek Chub	76
Green Sunfish	8
Brook Stickleback	144
White Sucker	24
Fathead Minnow	24
Southern Redbelly Dace	18
Central Mudminnow	115
Black Bullhead	2
Pearl Dace	1
Western Blacknose Dace	2
Johnny Darter	5
Common Shiner	3

Unnamed Tributary to Devil's River upstream 10m at R Kane Lane – July 12, 2024

Small Stream IBI Score – 90 Good

Unnamed Tributary to Devil's River 145m downstream of Church Rd.– July 8, 2013 WBIC 5019923 has been modeled and confirmed as a cool-warm headwater stream, which would fit within the WWFF designation.

Common Name	Fish Count
Central Mudminnow	146
Creek Chub	110
White Sucker	28
Fathead Minnow	19
Green Sunfish	26
Yellow Bullhead	1
Brook Stickleback	31
Southern Redbelly Dace	1

Small Stream IBI Score - 70 Good

#### **Discussion and Designated Use Recommendations**

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

#### • Segment 1: Unnamed Tributary 1 (WBIC 5020041)

Unnamed Tributary 1 (WBIC 5020041) originates from a private pond/wetland complex, agricultural grassed waterways and ditches west of the Belgioioso facility. Downstream of Hwy NN the stream displays characteristics of perennial flow with a defined bed and bank (see photos 1-3). Large sections of segment 1 have stream widths of 1-2 meters but in riffle areas it widens to roughly 3 meters. Streambank erosion is low in segment 1 but erosion concerns are present just downstream of Hwy NN on the north bank. Fish habitat is somewhat limited likely due to stream straightening in the past but suitable habitat for fish was observed throughout Segment 1,

including some riffles and pools that would provide good fish habitat year round. A quantitative habitat survey was completed in 2024 downstream of Hwy NN that scored 48 which is rated as FAIR.

- During three fish surveys completed in segment 1 since 2019 dissolved oxygen has never dropped below 4.17 mg/L, showing the stream's capability of supporting warmwater forage fish species. A fish survey completed downstream of Hwy NN in 2024 collected 20 individuals of two different species. High conductivity was measured within the stream during the electrofishing survey drastically reducing sampling effectiveness. Many more individuals were observed than were collected in the sampling effort (of the same species that were captured). An electrofishing survey within the Unnamed Tributary in 2019 captured 248 individuals of six different fish species providing further evidence of the stream's potential.
- Segment 1 contains sufficient water flow, water temperatures and dissolved oxygen levels to support a warmwater forage fish community year round.
- Due to factors listed above and additional fish surveys completed since 2019 Unnamed Tributary (WBIC 5020041) from outfall to Segment 2 has been assigned as a Cool-Warm Headwater natural community capable of supporting Warmwater Forage Fish.
  - Limited Aquatic Life would not be appropriate because there is an existing fish community. While there was a 2015 memo from Jim Schmidt, limit calculator, suggesting LAL based on roadside photos, that was from when the stream was receiving non-contact cooling water only, prior to construction of the wastewater treatment facility for process wastewater (which had previously been handled via spray irrigation). Addition of year-round effluent flows has created additional fish habitat that now supports a fish community.
  - Limited Forage Fish would not be appropriate because of the demonstrated capacity to support a more diverse warmwater forage fish community, based on the 2019 fish survey, fair habitat rating, and sufficient flows, temperature and dissolved oxygen.

#### • Segment 2: Unnamed Tributary 2 (WBIC 5019923)

- Unnamed Tributary 2 (WBIC 5019923) flows through an agriculture dominated watershed. Some reaches of the segment 2 have likely been influenced by humans while other sections include a meandering stream with intact buffers. Upstream of R Kane Lane the stream is 2-3 meters wide with areas widening to 4 meters (photos 4-8). Diverse habitats were present with riffles, runs and pools represented. The stream also contained deep outside bends and a considerable amount of course woody debris providing valuable fish habitat. A quantitative habitat survey was completed upstream of R Kane Lane in 2024 that scored 68 which is rated as GOOD.
- A fish survey completed upstream of R Kane Lane in 2024 collected 422 individuals of 12 different species. Of the 12 fish species observed eight were tolerant while four were in the intermediate tolerance guild. Similar results were observed in 2013 at the Church Road crossing on Segment 2 where 362 individuals of eight species were captured. Both fish surveys from 2013 and 2024 resulted in IBI scores in the GOOD quality category.
- Based on the above factors, Unnamed Tributary 2 (WBIC 5019923) to the confluence with Devil's River has been assigned as a Cool-Warm Headwater natural community with an existing Warmwater Forage Fish community and Designated Use.

#### Are code changes and/or a Use Attainability Analysis needed?

Segments 1 and 2 both are recommended to be assigned a Warmwater Forage Fish designated use. Neither segment is currently in ch. NR 104 so no code update is needed to remove any previous use in ch. NR 104. A use attainability analysis is not needed.

Attachments: Photos, NC Verification Reports, Habitat survey

### Segment 1: Unnamed Tributary 1 (WBIC 5020041)



Photo 1: Unnamed Tributary (WBIC 5020041) downstream of County Road NN. E. Evensen 7/8/24



Photo 2: Unnamed Tributary (WBIC 5020041) downstream of County Road NN. E. Evensen 7/8/24



Photo 3: Unnamed Tributary (WBIC 5020041) downstream of County Road NN. E. Evensen 7/8/24

Segment 2: Unnamed Tributary 2 (WBIC 5019923)



Photo 4: Unnamed Tributary (WBIC 5019923) upstream of R Kane Lane. E. Evensen 7/8/24



Photo 5: Unnamed Tributary (WBIC 5019923) upstream of R Kane Lane. E. Evensen 7/8/24



Photo 6: Unnamed Tributary (WBIC 5019923) upstream of R Kane Lane. E. Evensen 7/8/24



Photo 7: Unnamed Tributary (WBIC 5019923) upstream of R Kane Lane. E. Evensen 7/8/24



Photo 8: Unnamed Tributary (WBIC 5019923) upstream of R Kane Lane. E. Evensen 7/8/24

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

Form 3600-532A (R 6/07)

Page 1 of 2

Instructions:	Bold fields must be completed.	Record all measurements in metric units.
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Station Summary												
Stream Name					Waterbody	/ ID C	Code	SWIMS S	itation ID	FH D	ataba	ise ID
Unname	d WBIC	5020	041		50200	241		10050	1481			
Date (MMDDYYYY)	Station Nar	ne										
07122024		Hwy	NИ									
Latitude - Longitude D	etermination	Method L	Jsed								Dati	um Used
SWDV											<u> </u>	
Start Latitude	Start Longi	tude	End	Latitude		End L	ongitude	3	County	y		
44.3601	-87.8	357							B	rown		
Water Characteristics		1										
Time (24-hr clock)	Air Temperatur	e (C)	Water	r Temperatu	re (C)	Con	ductivity	/ (µs/cm)		Transp	arenc	y (cm)
1145				26.7			Za	153			122	. t
Dissolved Oxygen (mg/l)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Dk	ssolved	Oxygen %	Saturation			рН				
7.11				89.4					8.1.	3		
Flow (m <sup>3</sup> /sec)	Water Level (	check one	- meas	ure distanc	e if Åbove o	r Belo	w Norn	nai):	Nater Cla	rity:		
	Normal	Below	r:	(m	) 🗌 Abo	ve:		(m)	Clear	🗌 Tur	bid	Stained
Channel and Basin Ch	aracteristics											
Mean Stream Width (m	)				Station	Leng	th (m)					
	2.5					105	5					
Channel Condition: (check one)	Natural	> 20-y Chanr	/ear-old nelizatio	מי	10- to 20 Channel	-year- zation	old I	$\Box_{ch}^{<1}$	0-year-old annelizatlor	n 🗆	] Con	crete Channel
Percent Channelization	1 Sinuosity			Gradient (m	ı/km)		Stream	Order		Basin Are	a (kn	1 <sup>2</sup> )
- 90		1.41		(	0.3%			ł			2.7	5

Comments / Notes

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

Form 3600-532A (R 6/07)

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Rating Item	Excellent	Good	Fair	Poor	Score
Riparian Buffer Width (m) Width of contiguous undisturbed land uses; meadow, shrubs, woodland, wetland, exposed	Riparian zone well protected; buffer wide ( > 10.0 m )	Riparian zone protected, but buffer width moderate ( 5.0 - 10.0 m )	Riparian zone moderately disturbed, buffer narrow ( 1.0 - 4.9 m )	Most of the riparian zone disturbed, buffer very narrow or absent ( < 1.0 m )	
rock	15	(10)	5	0	10
Bank Erosion Width of bare soil on bank, along transects	No significant bank erosion; < 0.20 m of bank is bare soil	Limited erosion; 0.20 - 0.50 m of bank is bare soil	Moderate erosion; 0.51 - 1.0 m of bank is bare soll	Extensive erosion; > 1.0 m of bank is bare soil	
	15	(10)	5	Ó	
Pool Area % of stream length in pools	Pools common; wide, deep, slow velocity habitat, balanced by other habitats; 40 to 60% of station	Pools present; not frequent or over- abundant; 30 to 39% or 61 to 70% of station	Pools present, but either rare or overly dominant, few other habitats present; 10 to 29% or 71 to 90% of station	Pools either absent or dominant, not balanced by other habitats; < 10% or > 90% of station	. 3
	10	7	(3)	0	
Width:Depth Ratio Average stream width divided by average thalweg depth in runs and paole	Streams very deep and narrow; width/depth ≤ 7	Stream relatively deep and narrow; width/depth 8-15	Stream moderately deep and narrow; width/depth 16-25	Stream relatively wide and shallow; width/depth > 25	5
	15	10	(5)	0	
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	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14	Habitat diversity low; occasional riffles or bends, ratio 15 to 25	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25	5
	15	10	(5)	0	
Fine Sediments % of the substrate that is < 2 mm (sand, silt, or clay)	Fines rare or absent, < 10% of the stream bed	Fines present but limited, generally in stream margins or pools; 10 to 20% of stream bed	Fines common in mid-channel areas, present in riffles and extensive in pools; 21 to 60%	Fines extensive in all habitats; > 60% of stream bed covered	
	15	(10)	5	0	( ~~~~
<b>Cover for Fish</b> % of the stream area vith cover	Cover/shelter for fish abundant; > 15% of stream	Cover common, but not extensive; 10 - 15% of stream	Occasional cover, limited to one or two areas; 5 - 9% of stream	Cover rare or absent; limited to < 5% of stream	5
	. 15	10	5	0	
				Total Score	48

State of Wisconsin Department of Natural Resources dnr.wi.gov Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Page 1 of 2

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

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Station Summary										
Stream Name					Waterbody	D Code	e SWIMS	Station ID	FH Database IL	)
Unna	imed	WBIC	5019	1923	50199	23	1003	8471		
Date (MMDDYYYY)	Station	Name								
07122024		R Kan	<u>, Lan</u>	e						
Latitude - Longitude [	Determina	tion Method	Used						Datum U	lsed
SWDV										
Start Latitude	Start Lo	ongitude	End	Latitude	E	nd Longi	tude	County	<b>v</b> _	
44.34953	-8	1.87413	l.						Brown	
Water Characteristics										
Time (24-hr clock)	Air Temper	rature (C)	Water	r Temperatı	ire (C)	Conduc	tivity (μs/cm)		Transparency (cn	1)
1025				21.7		١	1998		122+	
Dissolved Oxygen (mg/l)	L	1	Dissolved	Oxygen %	Saturation		pH	- 0 -		
3.01				34.5	•			191		
Flow (m³/sec)	Water Le	vel (check or	ie - meas	ure distanc	e if Above or	Below N	lormal):	Water Cla	rity:	
	Norm	nal Belo	ow:	(m	) Above	):	(m)	K Clear		Stained
Channel and Basin Cl	naracteris	tics						an st		
Mean Stream Width (n	n)	· · · · · · · · · · · · · · · · · · ·	•		Station L	ength (	m)			
3.5	5				12	2				
Channel Condition: (check one)		> 20 Cha	)-year-old innelizatio		10- to 20-) Channeliz	/ear-old atlon	□ć	10-year-old hannelizatior	n Concrete	Channel
Percent Channelizatio	n Sinuos	ity		Gradient (n	n/km)	Stre	am Order		Basin Area (km²)	
- 10		1.4		0	.18%		2		8,66	

Comments / Notes

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

Form 3600-532A (R 6/07)

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

3m

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# Natural Community Verification Report

Waterbody Name (WBIC): UNNAMED SINGLE-LINE STREAM T22N-R22E-S19 (5020041)

Swims Station ID: 10059481

Species

Survey Sequence Number: 515103093

Fish captured

**BROOK STICKLEBACK** 

CENTRAL MUDMINNOW

This NC Verification Report was run on UNT to Devils River 125m DS of Hwy NN, (10059481), located in BROWN County with fish Survey Sequence Number 515103093 sampled on December 7, 2024. The Natural Community for this station was verified by Eric Evensen on March 3, 2025.

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

Count

14

6



entages
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Thermal	Percent.Indiv.	Size	Percent.Indiv.	Tolerance	Percent.Indiv.
Coldwater	0	Small	100	Intolerant	0
Transitional	100	Medium	0	Intermediate	0
Warmwater	0	Large	0	Tolerant	100

## Survey location



## Warm Transition Headwater Guild Test

Proportion of Individuals



### Comments from WR Biologist:

This survey did not collect 25 individuals due to extremely elevated conductivity at the time of the survey. Additional individuals, of the same species, were observed during the survey but avoided capture. Additional fish surveys from 2019 and 2021 assisted in the confirmation of the Warm Transition Headwater natural community.

# Natural Community Verification Report

Waterbody Name (WBIC): UNNAMED SINGLE-LINE STREAM T21N-R22E-S9 (5019923)

Swims Station ID: 10038471

Survey Sequence Number: 515103094

This NC Verification Report was run on Unnamed Tributary to Devils Creek US 10m at R Kane Road, (10038471), located in BROWN County with fish Survey Sequence Number 515103094 sampled on December 7, 2024. The Natural Community for this station was verified by Eric Evensen on February 24, 2025.

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

Species	Count
BLACK BULLHEAD	2
BROOK STICKLEBACK	144
CENTRAL MUDMINNOW	115
COMMON SHINER	3
CREEK CHUB	76
FATHEAD MINNOW	24
GREEN SUNFISH	8
JOHNNY DARTER	5
PEARL DACE	1
SOUTHERN REDBELLY DACE	18
WESTERN BLACKNOSE DACE	2
WHITE SUCKER	24

Fish captured

Survey location



#### Guild percentages

Thermal	Percent.Indiv.	Size	Percent.Indiv.	Tolerance	Percent.Indiv.
Coldwater	0	Small	92	Intolerant	0
Transitional	87	Medium	8	Intermediate	6
Warmwater	13	Large	0	Tolerant	94



## Warm Transition Headwater Guild Test

Proportion of Individuals



## Comments from WR Biologist:

While two tolerance tests did fail all additional data and sites support Warm Transition Headwater designation.