

Wisconsin Department of Natural Resources

2026 Stream Survey Report

Gudegast Creek, Oneida County



Photo Credit: Wisconsin DNR

Introduction and Objectives

Gudegast Creek is modeled as a cool-warm mainstem stream meandering 14 miles within the Pelican River watershed in southeastern Oneida County. The upper 5 miles of Gudegast creek flows from Stella Lake and is not designated trout water. The middle section of Gudegast Creek has 3.3 miles of class two trout water with reproduction levels that may not use all food and space. The middle section has 3.8 miles of class one trout water, having sufficient reproduction that use all resources. The lowest 1.9 miles flows into Moen Lake and is not designated trout water. The Wisconsin Department of Natural Resources (DNR) survey sought to describe trout population characteristics, assess the overall condition of the system and evaluate the appropriateness of the assigned trout classification in the areas designated as trout water.

Watershed Information

- **Waterbody code:** 1525200
- **Stream miles:** 14.0
- **Number of Class 1 miles:** 3.8
- **Number of Class 2 miles:** 3.3
- **Number of Class 3 miles:** 0.0

Regulations

- **Category:** Green
- **Daily bag and size limit:** 5 daily bag, no minimum length

Survey Method

- Stations were sampled according to DNR wadable streams monitoring protocol.
- Trout were counted and measured. Other species were counted allowing an Index of Biotic Integrity (IBI) score to be calculated.
- Metrics describing the trout population include average length, catch per unit effort (CPUE), length frequency and species richness.
- Qualitative fish habitat rating for streams < 10 meters was used to index riparian buffer, bank erosion, pool areas, width to depth, riffle areas and the amount of sediment.

Metric Descriptions

- **Catch per unit effort (CPUE)** is a method of quantifying fish population relative abundance. For all trout surveys, CPUE is quantified as the number of a given size class of trout captured per mile of stream. CPUE indexes are compared to other trout streams throughout Wisconsin by what percentile () they fall out in. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state. CPUE percentiles can also be used to categorize trout abundance as low density (<33rd percentile), moderate density (33rd - 66th percentile), high density (66th - 90th percentile) and very high density (>90th percentile).
- **Length frequency distribution** is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals.
- **Index of Biotic Integrity (IBI)** is a rating of environmental quality based on the fish assemblage. Scores of 90 - 100 indicate excellent stream quality, while scores less than 30 indicate poor stream quality. Our analysis utilizes the IBI for Wisconsin cool-warm streams.
- **Species richness** is a count of the number of unique species collected and an indication of system resiliency as more species indicates a system more capable of withstanding change or recovering from disturbance.
- **Fish Habitat rating** is a scoring of the relative quality and quantity of aquatic habitat available to support a healthy fish community. Scores of 75 - 100 indicate excellent fish habitat, while scores less than 20 indicate poor fish habitat. Our analysis utilizes the fish habitat rating for systems < 10 meters or > 10 meters depending on the mean stream width.

Table 1. Survey information from the sampling of Gudegast Creek in Oneida County during 2026. Stations go from upstream to downstream and include station upstream (US) and downstream (DS) of a road crossing separately.

STATION	GPS (START/FINISH)	DATE	STATION LENGTH (FT)	MEAN STREAM WIDTH (FT)	TEMPERATURE (° F)	GEAR	HABITAT SCORE	HABITAT STATUS	IBI SCORE	IBI RANK
<i>Spafford Rd (north crossing) US</i>	<i>45.71729, -89.23385/ 45.71813, -89.23373</i>	<i>7/13/2026</i>	<i>328</i>	<i>10</i>	<i>72</i>	<i>Backpack shocker</i>	<i>48</i>	<i>Fair</i>	<i>20</i>	<i>Poor</i>
<i>Spafford Rd (north crossing) DS</i>	<i>45.71588, -89.23383/ 45.71685, -89.23369</i>	<i>7/13/2026</i>	<i>720</i>	<i>15</i>	<i>72</i>	<i>Stream shocker</i>	<i>40</i>	<i>Fair</i>	<i>30</i>	<i>Fair</i>
<i>Section 9 Rd</i>	<i>45.70615, -89.24650/ 45.70704, -89.24497</i>	<i>7/13/2026</i>	<i>525</i>	<i>16</i>	<i>74</i>	<i>Stream shocker</i>	<i>53</i>	<i>Good</i>	<i>30</i>	<i>Fair</i>
<i>Spafford Rd (south crossing) US</i>	<i>45.69475, -89.26163/ 45.69560, -89.26006</i>	<i>7/14/2026</i>	<i>470</i>	<i>12</i>	<i>68</i>	<i>Stream shocker</i>	<i>53</i>	<i>Good</i>	<i>50</i>	<i>Good</i>
<i>Spafford Rd (south crossing) DS</i>	<i>45.69413, -89.26310/ 45.69434, -89.26188</i>	<i>7/14/2026</i>	<i>470</i>	<i>13</i>	<i>68</i>	<i>Stream shocker</i>	<i>53</i>	<i>Good</i>	<i>60</i>	<i>Good</i>

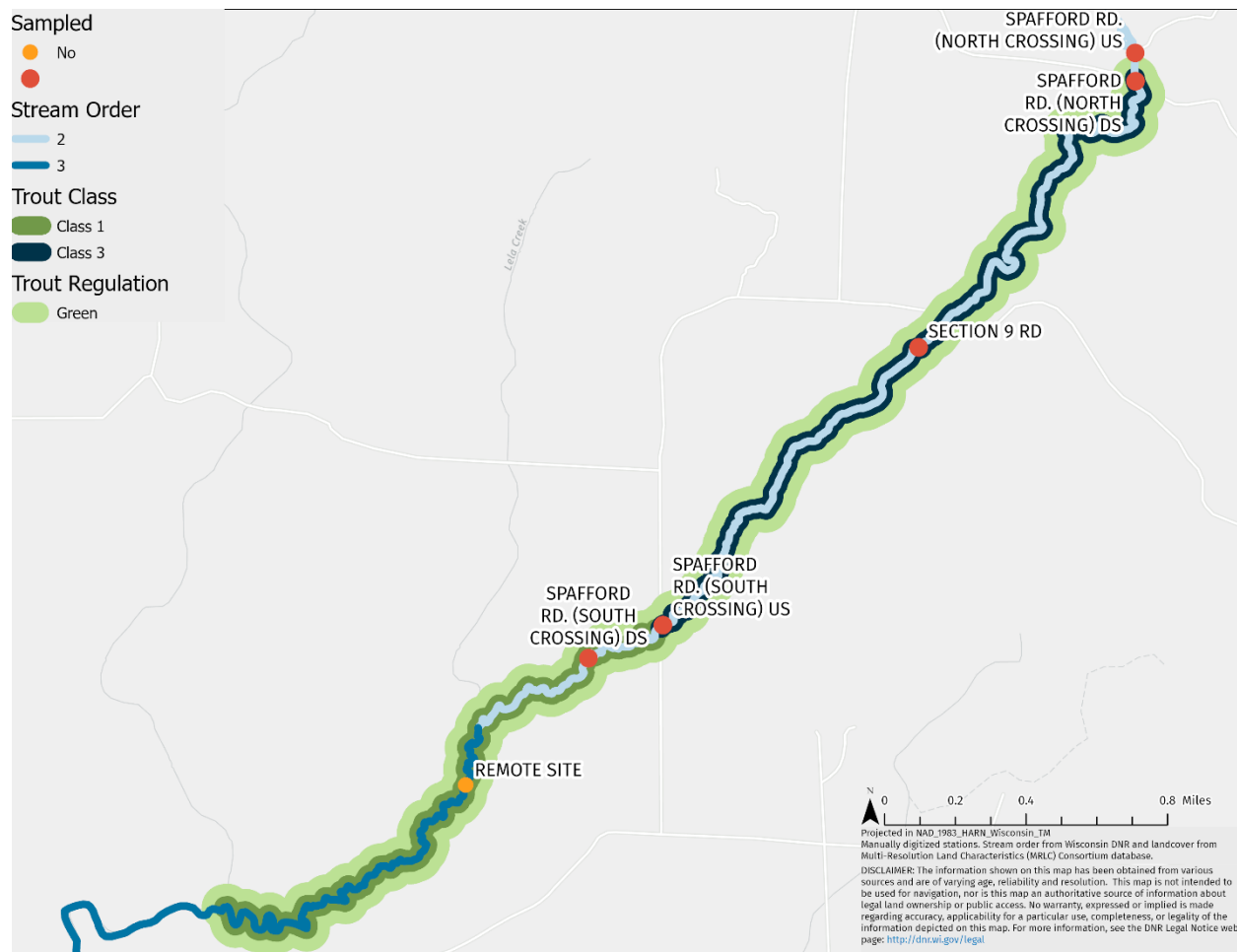


Figure 1. Survey stations throughout Gudegast Creek sampled in 2026 (red dots) and during previous years (orange dots). Areas in green indicate current trout regulation, while blue shading designates trout class of the areas. Blue stream segments illustrate stream order, ranging from 2nd-order headwater streams to 3rd-order stream reaches.

Fish Community

A fish community indicative of a cool-warm mainstem system represented by nine species representing coldwater, coolwater and warmwater species was found during the 2026 survey of Gudegast Creek. Central mudminnow was the most abundant fish species followed by creek chub, brook trout, white, sucker, western blacknose dace, largemouth bass, bluegill, mottled sculpin and golden shiner during the 2026 survey of Gudegast Creek. Species richness has been variable through time despite similar levels of effort among years (Figure 2) with IBI scores placing the system in poor to good overall condition (IBI 20-60).

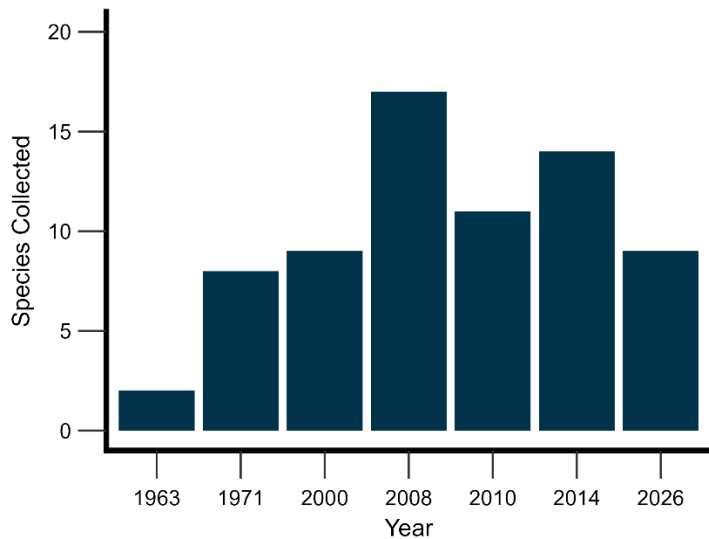


Figure 2. System-wide species richness across survey years in Gudegast Creek. Sampling effort varied by year, with five sites surveyed during 1963, 1971, 2008, 2010, 2026, four sites in 2014 and 1 in 2000.

Brook Trout

A system-wide catch rate of 43.8 brook trout per mile falls between the statewide 10th (22.9) and 25th (96.6) percentiles indicating a low abundance fishery exists.

Downstream catches of trout were higher than upstream (Table 2) and have been relatively consistent through time expect for the 2008 survey (Figure 3).

Mean length of brook trout was 6.0 inches in 2026 placing it 1.5 inches smaller than the statewide average (7.5 inches). The smaller size structure is common for Gudegast Creek with only 2014 having a mean length above the statewide average across 6 survey years dating back to 1970 (Figure 4).

Table 2. Brook Trout Catch metrics by each species caught within Rocky Run during the 2026 survey. Stations upstream (US) and downstream (DS) of a road crossing included separately.

Station	Number	Average Length (Inches)	Length Range (Inches)	Total CPUE	YOY CPUE	≥5" CPUE	≥8" CPUE	≥10" CPUE	≥12" CPUE
Spafford RD (north crossing) US	0	NA	NA	NA	NA	NA	NA	NA	NA
Spafford RD (north crossing) DS	0	NA	NA	NA	NA	NA	NA	NA	NA
Section 9 Rd	1	7.0	7.0	10	0	10	0	0	0
Spafford RD (south crossing) US	4	6.7	3.0-9.2	44.4	11.11	33.3	22.2	0	0
Spafford RD (south crossing) DS	16	5.8	2.1-9.9	177.8	66.7	111.1	44.4	0	0

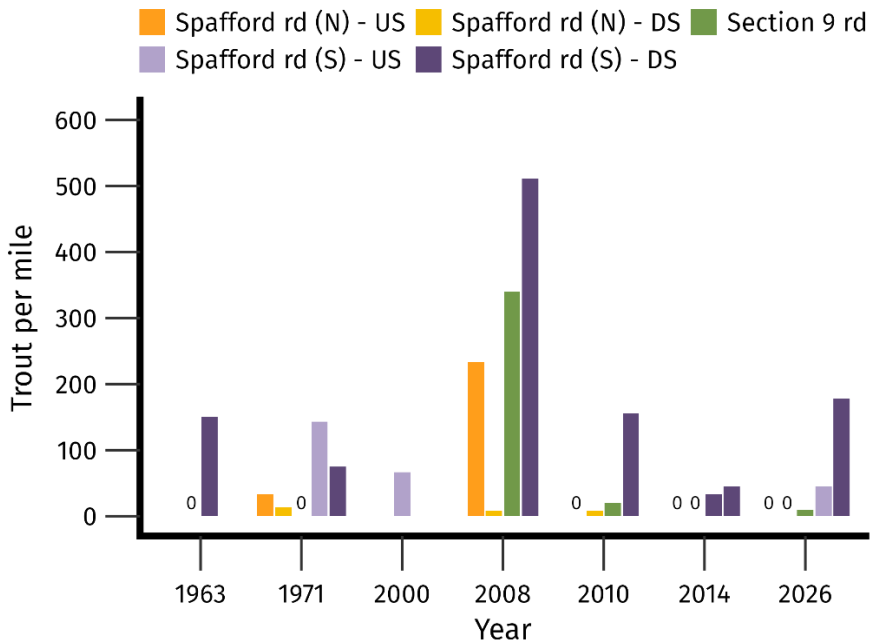


Figure 3. Catch per mile of brook trout across stations with Gudegast Creek through time. Station are plotted from upstream (Spafford N US) to downstream (Spafford S DS).

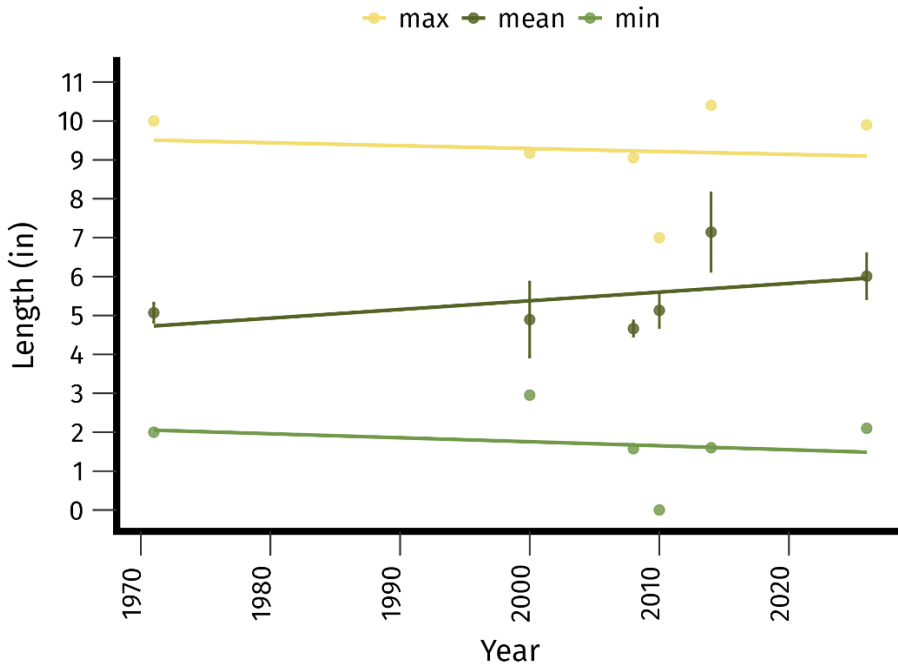


Figure 4. Total lengths (inches) of brook captured among survey years within Gudegast Creek. Error bars represent 1 standard error. Included is the maximum, mean, and minimum lengths of all brook trout captured within a year.

Summary

Gudegast Creek was stocked with brook trout from 1950 to 2012. Since stocking ceased, the population has remained relatively stable compared to previous surveys. The only year to demonstrate a potentially strong influence of stocking was in 2008 as elevated catch rates were found when surveyed shortly after stocking. Given consistent trout and ceasing of stocking, all of Gudegast could be considered for classification as class one trout water.

Aquatic habitat within Gudegast Creek was relatively uniform during the 2026 survey, featuring plentiful woody material throughout the run-like channel. A continuous tag alder corridor protects Gudegast Creek and likely helped it sustain its wide (>10 ft) and shallow (<1 ft) channel characteristics documented in the 1963 and 1971 surveys. However, this type of habitat is marginal for trout, likely placing it on the edge of their physiological tolerances leaving the population highly susceptible to habitat loss from environmental changes.

Beaver control within Gudegast Creek was initiated in 2008 with the goal of ensuring suitable aquatic habitat for brook trout remained. Effort resulted in 54 beavers and 70 dams being removed from Gudegast Creek. Environmental conditions in Gudegast Creek have remained at the margins of meeting the physiological tolerances of trout. The predicted warming and changing environments could lead to the system becoming unsuitable in the future even if beaver control remains. Other systems within Oneida County, such as Bearskin Creek and Noisy Creek, should be prioritized for beaver management efforts if resources become limited.

Expanding station spatial coverage of sampling sites to include upper and lower reaches Gudegast Creek would offer a more comprehensive, system-wide picture of the fish community ensuring appropriate water designations. Balance with the increased labor, time and costs with data need for appropriate management will need to be considered if sampling sites increase.

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