

# Fin Anomalies in Blacknose Dace (*Rhinichthys atratulus*) from Southern Minnesota

Melissa Markert

Biology Department  
Saint Mary's University of Minnesota  
Winona, MN 55987

Blacknose Dace (*Rhinichthys atratulus*) are common in the streams of Minnesota. Often they are found in pools of streams with rock or gravel substrates (Trial et al.1983). The purpose of this note is to report fin anomalies in Blacknose Dace collected in southern Minnesota. Although several anomalies have been reported in *Rhinichthys* species (Dawson and Heal, 1964, 1966, 1971a,b), none were reported for the Western Blacknose Dace.

## Materials and Methods

Four samples of fish have been collected since 1990 in Brush Creek in Faribault County, located a half mile west of Kiester in southern Minnesota (Table 1, p. 18) and three samples have been collected in 2001 in Falls Creek in Rice County, one mile east of Faribault (Table 1). Sampling was conducted by a team of two to three people using a backpack electrofisher over a distance of 70 to 245 meters. Blacknose Dace occurred in all samples (Table 1). One of the anomalous specimens was collected in Brush Creek on August 6, 2009. The 2009 sample covered a 75-meter reach upstream from 570<sup>th</sup> Avenue with total electrofishing time of 923 seconds. The first sample from Falls Creek with an anomalous dace covered 87 meters and was conducted on June 6, 2011 upstream of the foot bridge in Falls Creek Park off Minnesota State Highway 60 (no duration of sampling was recorded). The second collection of an anomalous dace in Falls Creek was over a distance of 245 meters in 1,904 seconds in the same location on August 4, 2011.

## Results

Nine species of fish were captured in the 2009 sample in Brush Creek, including 30 Blacknose Dace (Table 1). The anomalous Blacknose Dace was a male

in breeding colors when collected and was missing both pectoral fins and the dorsal fin (Figure 1, see p. 18). Although the anomalous dace was kept alive in captivity, it died after jumping out of its tank. The preserved specimen measured 76 mm in total length. At this length it was probably at least two years old (Becker, 1983).

The Falls Creek collection in June 2011 was a training sample and no fish data were collected. The anomalous dace was a male in breeding colors. The fish had a deformed pelvic fin (Figure 2). The fish was kept in captivity for a time but was not preserved after it died. The August sample of Falls Creek yielded seven species of fish, including 85 Blacknose Dace. A second anomalous dace with a similarly deformed pelvic fin was identified and recorded. The fish was not kept, however, and no length was recorded. A third sample of Falls Creek August 16, 2011 did not produce any anomalous dace, but 102 Blacknose Dace were collected.

## Discussion

Dawson and Heal's (1964, 1966, 1971 a,b) reviews of anomalies in fishes included several *Rhinichthys* species with fin deformities, including Longnose Dace (*R. cataractae*) and Speckled Dace (*R. osculus*), but there has not been any documentation of a Blacknose Dace missing both its pectoral and dorsal fins or having a single deformed pelvic fin. The cause of the missing fins is unknown, but there was no obvious sign of previous injury and the fish had apparently survived for some time in spite of lacking three fins. The two anomalous fish with deformed fins showed no obvious sign of injuries or impaired

(continued on Page 18)

condition. Because the deformity was present in more than one fish, it possibly is a genetic mutation.

**Acknowledgments**

Samples from Brush Creek were completed as part of the Minnesota Pollution Control Agency (MPCA) Minnesota River Assessment Program. The 2009 sample was collected with MPCA field biologist Aaron Onsrud. Samples in Falls Creek were conducted by the MPCA as part of the Intensive Watershed Monitoring Program. Collections were conducted by the South Biological Monitoring Unit. Samples from June were collected by the entire fish crew during a training day. The sample from August 4, 2011, was conducted by field biologists Melissa Markert and Tracy Merth. 🐟

*Melissa collected data for this paper as an intern with the Minnesota Pollution Control Agency while attending Saint Mary's University of Minnesota as an undergraduate student. Additional data were collected after her graduation while working as a summer Crew Leader with the MPCA. She has a degree in Environmental Biology. Currently, Melissa is working towards her Masters in GIS as part of the Resource Analysis program at Saint Mary's University. She is also working as a Fish Biologist with the MPCA where she is involved with the Intensive Watershed Monitoring Program.*

**Literature Cited**

Becker, G. C. 1983. *Fishes of Wisconsin*. University of Wisconsin Press, Madison, Wisconsin.  
 Dawson, C. E. and E. Heal. 1964. A bibliography of anomalies of fishes. *Gulf Research Reports* 1: 308-309.  
 Dawson C. E. and E. Heal. 1966. A bibliography of anomalies of fishes: Supplement 1. *Gulf Research Reports* 2: 169-176.  
 Dawson C. E. and Heal, Elizabeth. 1971. A bibliography of anomalies of fishes: Supplement 2. *Gulf Research Reports* 3: 215-239.  
 Trial, J. G., J. G. Stanley, M. Batcheller, G. Gebhart, O. E. Maughan, and P. C. Nelson. 1983. "Habitat suitability information: blacknose dace." U.S. Department of Interior, Fish and Wildlife Service FWS/OBS-82/10.41. 28 pp.



**Figure 1. Male Blacknose Dace with Missing Pectoral Fins and Dorsal Fin**



**Figure 2. Male Blacknose Dace with Deformed Pelvic Fins**

**Table 1. Blacknose Dace Capture Data**

Sample Date	Location	Number	Total Length		Wet Mass (g)	Total Species
			Min (mm)	Max (mm)		
8/13/1990	1	14	*	*	*	10
7/26/1995	1	31	50	105	183.5	11
8/6/2009	1	30	54	90	83	9
8/19/2009	1	38	*	*	*	9
6/6/2011	2	*	*	*	*	*
8/4/2011	2	85	62	97	482	7
8/16/2011	2	102	47	100	595	9