

## Goodell Creek Stream Habitat Restoration Evaluation

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On September 11, 2019 Region 9 Fisheries staff conducted a trout stream survey at six sites along Goodell Creek, a tributary of Mansfield Creek, located in Cattaraugus County. DEC purchased a total of 1.02 miles of public fishing rights easements on this stream, which are broken up in three different sections. Extensive stream bank restoration was completed on one of these sections of the stream in 2011 by NYSDOT as part of required US Army Corps mitigation. Throughout the restored 2,000-foot reach, four 100-foot sections were sampled. The lower most and upper most sites were not a part of the restoration and therefore were used as “control” sites. The lower-most site was a 100-foot section randomly chosen from a 300-foot section just above the mouth, while each subsequent site began 300 feet above the previous one. This stream was sampled in 2009, 2012, 2014 and 2019. All sites sampled remained in the same location each year. Unfortunately, the US Army Corps placed restrictions on the NYSDOT while mitigating the stream. Due to the limited number of pools allowed to be added to the stream, there is minimal adult trout habitat and spawning habitat. A study was conducted in 2009 to determine the conditions prior to the restoration. However, due to a 100-year flood and subsequent channelization a month prior to sampling, we found few young-of-year (YOY) or adult trout.

Results from the 2011 restoration began to appear in 2012; YOY brown and rainbow trout abundance increased overall (Figure 1) along with adult brown trout (Figure 2). However, adult rainbow trout numbers declined slightly in the restoration sites (Figure 2). The successful reproduction in 2012 can also be contributed to near average flows throughout April and May. Throughout the winter and spring of 2014 there was extreme flooding which caused YOY brown and rainbow trout abundance to decrease significantly (Figure 1). However, there were an increased number of adult brown and rainbow trout in 2014 due to the increase in spawning in 2012 (Figure 2). Results of the 2019 survey showed that YOY brown trout abundance was the highest measured at the restoration sites (Figure 1). The number of YOY brown trout at the control sites has also increased to the second highest it's been since surveys began in 2009 (Figure 1). The abundance of YOY rainbow trout decreased and remains low to absent at the restoration and control sites (Figure 1); similar results were found for other Region 9 streams from 2016 to 2019. Abundance of adult brown and rainbow trout decreased from 2014 to 2019 (Figure 2). Also, it should be noted that the abundance of adult brown trout is higher at the control sites than restoration sites in 2019 (Figure 2). This is most likely due to the lack of adult trout habitat and spawning habitat added during the mitigation. It seems likely that if more pool habitat had been added there would be a higher reproductive success at this point. Although trout populations are generally higher than they were before the mitigation of the stream took place, they are not as high as they could be. It is unfortunate that the potential of this stream was not taken advantage of to create excellent trout fishing. Minor changes to angling regulations are expected for this stream, beginning in 2021, based on the 2020 state-wide Inland Trout Stream Management Plan.



Figure 1. Young-of-year (YOY) brown trout (BT) and rainbow trout (RT) abundance from 2009-2019 surveys at control and restoration sites. Error bars represent 95% confidence limits.

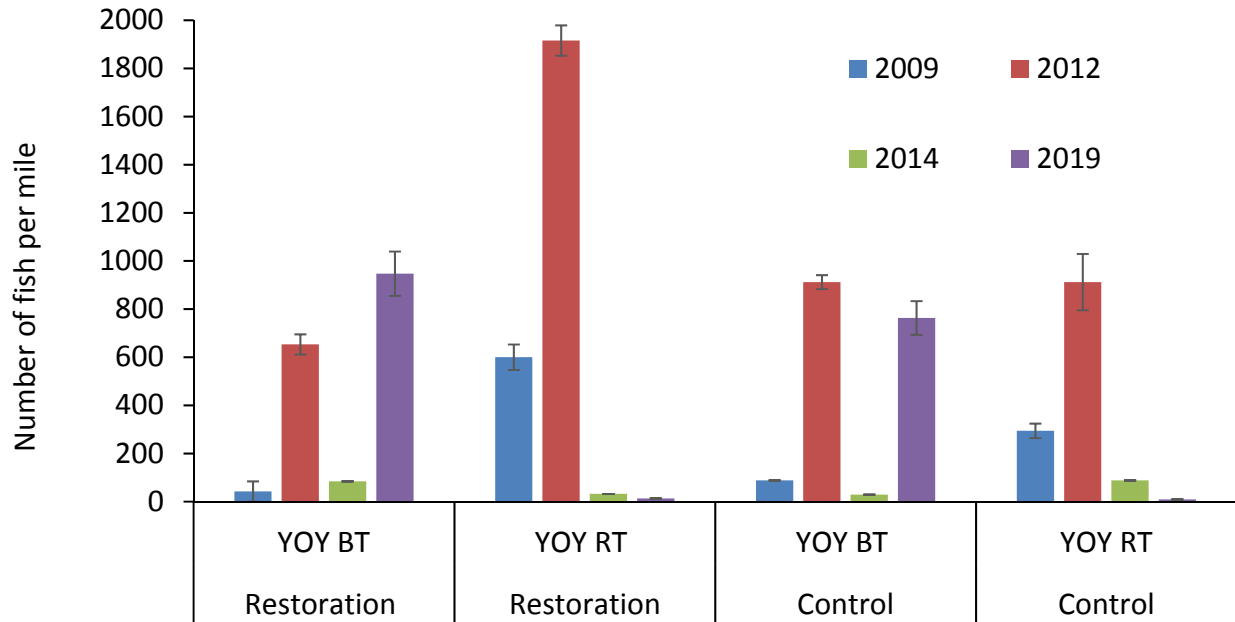


Figure 2. Adult (yearling and older) brown trout (BT) and rainbow trout (RT) abundance from 2009-2019 surveys at control and restorations sites. Error bars represent 95% confidence limits.

