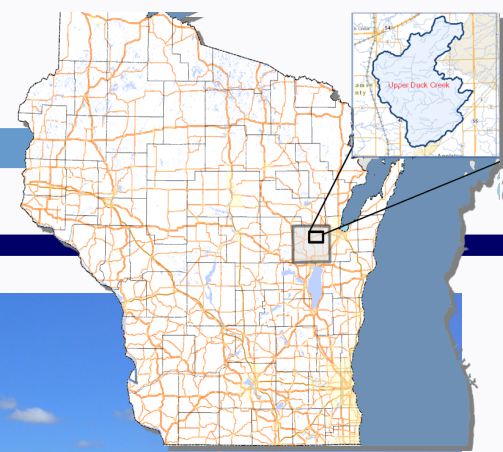


# Wisconsin Water Quality Handout

## Upper Duck Creek 2015 (EGAD 3200-2018-51)



### Watershed Details

Duck Creek in the upper portion of the watershed is predominantly agricultural. In 1996, a priority watershed plan was developed for the Duck, Apple, Ashwaubenon Creek watersheds, to address potential non-point sources of phosphorus and sediment.

Monthly water chemistry samples were collected by citizen monitoring volunteers from May to October. In addition, habitat, fish and macroinvertebrates surveys were conducted by the Wisconsin DNR at sites throughout the watershed to assess the physical and biological conditions of streams in the watershed.

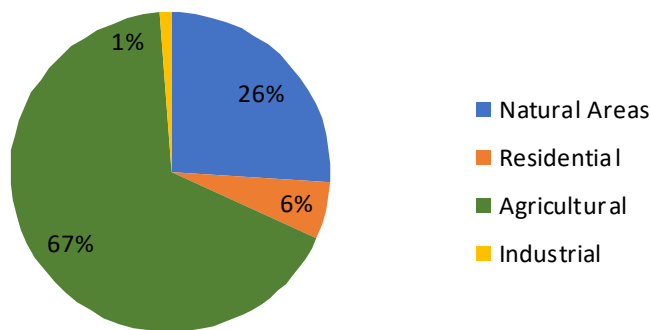


Duck Creek at Krueger Road.

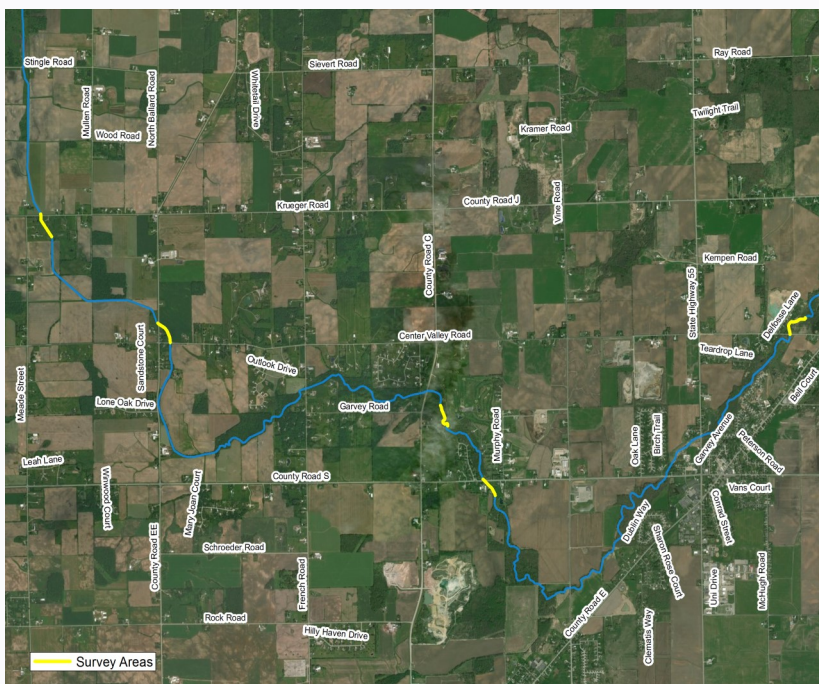
### Physical Habitat

Streams in the Upper Duck run through a heavily agricultural landscape. Habitat ratings ranged from fair to good. Hydraulic modifications such as ditching and straightening impact the bend ratios and the development of stream features such as riffle, runs, and pools. Fine sediments are dominant at all sites except CTH C where a few rock riffles and bedrock are present. Duck Creek at CTH S is an extensive pool habitat located within a low gradient depositional reach section of stream.

### Duck Creek Watershed Land Use



### Map Of Upper Duck Creek



### Chemical

Monthly growing season Total Phosphorus samples were collected at CTH S with a peak in July. Throughout the summer, concentrations consistently exceeded Wisconsin's Water Quality Standard of 0.075 mg/L.

### Biological

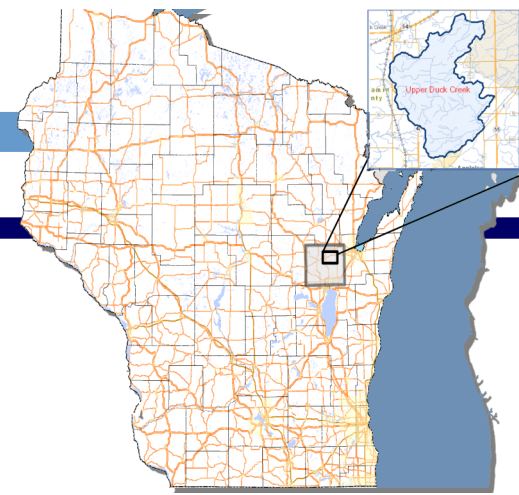
The five survey locations of the Upper Duck Creek had a total of 20 fish species. One species intolerant to environmental degradation (Rock Bass) was captured at Center Valley Road. Indexes of biological integrity (IBI) of fish data ranged from poor to excellent. One adult Northern Pike was captured at CTH S along with 26 Common Carp. Macroinvertebrate samples were collected at three locations and the Macroinvertebrate scores rated poor to fair indicating stressors to water quality conditions are present.

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# Wisconsin Water Quality Handout

## Upper Duck Creek 2015



### Management Recommendations

Hydrologic modifications and the lack of agricultural setbacks are two significant factors influencing water quality in the Upper Duck Creek watershed. Opportunities should be taken to create natural stream meanders and provide undisturbed vegetated buffers. Soil Health principles should be adopted to improve infiltration along with sediment and nutrient retention on agricultural lands in the watershed. As the communities of Appleton and Grand Chute sprawl, adequate planning should be taken to properly site storm water ponds, protect wetlands, and consider methods to slow storm water delivery to the streams.

Duck Creek at CTH S	May	Jun.	Jul.	Aug.	Sep.	Oct.	90% LCI-M*	WI WQ-STD
Total Phosphorus mg/L	0.0924	0.223	0.44	0.406	0.224	0.248	0.173	0.075

\*Wisconsin applies the lower 90% confidence interval around the median for Total Phosphorus impairment decisions.



Fish and Habitat Ratings			
Stream Site	Fish IBI	Habitat Rating	Macro invertebrate IBI
1 Duck Creek at Center Valley Rd	Good	Good	—
2 Duck Creek at Krueger Road	Poor	Good	Fair
3 Duck Creek at CTH EE	Good	Good	Poor
4 Duck Creek at CTH C	Good	Good	—
5 Duck Creek at CTH S	Fair	Fair	Fair

**Top Left:** Duck Creek at Center Valley Road.

**Middle Left:** Bedrock on Duck Creek below CTH C.

**Bottom Left:** Duck Creek above CTH S.

**Right:** Duck Creek above CTH EE

