

Wisconsin Water Quality Handout

Middle Duck Creek 2015 (EGAD 3200-2018-71)



Watershed Details

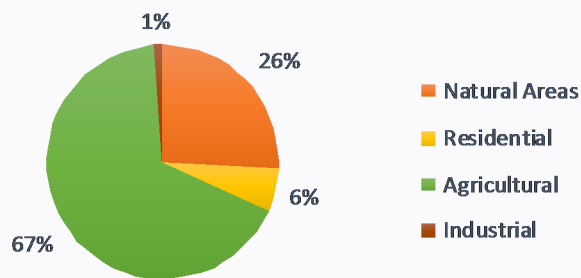
The Duck Creek watershed is predominantly agricultural in the upper regions and becomes residential and urban near the mouth in Green Bay. In 1996, a priority watershed plan was developed for the Duck, Apple, Ashwaubenon Creek watersheds, to address potential non-point sources of phosphorus and sediment.

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 Seminary Road.

Duck Creek Watershed Land Use



Physical Habitat

Streams in Middle Duck Creek run through a heavily agricultural landscape. The stream corridors are still relatively intact and disturbances are minimal. Habitat ratings ranged from fair to good. The streams lack pool habitat and fine sediment generally dominates the sites. There are a few well developed riffle-run sequences but overall cover for fish is poor.

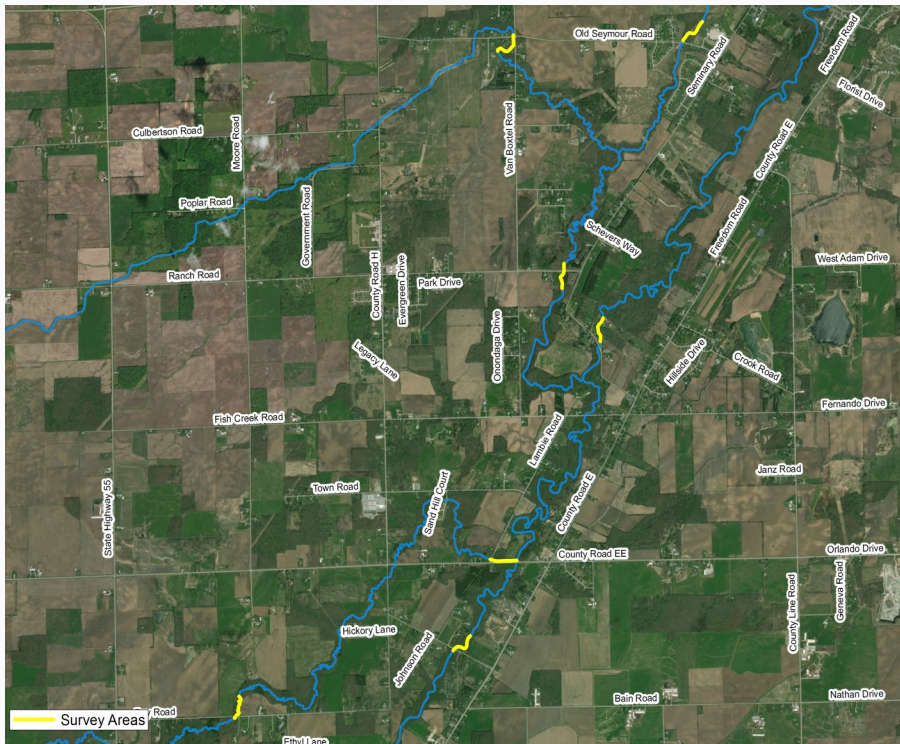
Chemical

Monthly growing season Total Phosphorus samples were collected upstream 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 seven survey locations of the Middle Duck had a total of 16 fish species. The Redside Dace, which were captured at Tip Road, are intolerant to environmental degradation and are a special concern species. Indexes of biological integrity (IBI) of fish data ranged from poor to good. Macroinvertebrate samples were collected at all seven locations and rated poor to good on the Macroinvertebrate IBI.

Map Of Middle Duck Creek



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Management Recommendations

Soil Health principles should be adopted to improve infiltration along with sediment and nutrient retention on agricultural lands in the watershed. Land use alterations within the riparian buffers should continue to be avoided. As demand for urban development between Green Bay and the Fox Valley continue, construction site erosion control needs to be properly planned and maintained to adequately prevent soil erosion during events. Urban storm water best management practices should continue to properly site treatment ponds and consider additional infiltration practices to reduce the rate of storm water delivery to streams. Re-establishment of adequate vegetative buffers along stream corridors could include the removal of undesirable species such as box elder and buckthorn allowing for the management of more desirable tree species and a diverse understory.

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.



Top: UNT to Duck Creek at Lambie Road.

Middle: UNT to Duck Creek above Old Seymour Road (E).

Bottom: UNT to Duck Creek at Ray Road.



Fish and Habitat Ratings			
Stream Site	Fish IBI	Habitat Rating	Macro invertebrate IBI
Duck Creek at Tip Road	Good	Fair	Fair
Duck Creek at Seminary Road	Fair	Fair	Fair
UNT to Duck Creek at Lambie Road	Fair	Good	Poor
UNT to Duck Creek at Ranch Road	Good	Fair	Good
UNT to Duck Creek at Ray Road	Good	Fair	Fair
UNT to Duck Creek at Old Seymour Road (M)	Poor	Fair	Poor
UNT to Duck Creek at Old Seymour Road (E)	Excellent	Good	Good



Chinese Mystery Snails control a riffle above Old Seymour Road (M).