

Wisconsin Water Quality Handout

Dutchman Creek 2015 (EGAD 3200-2018-63)



Watershed Details

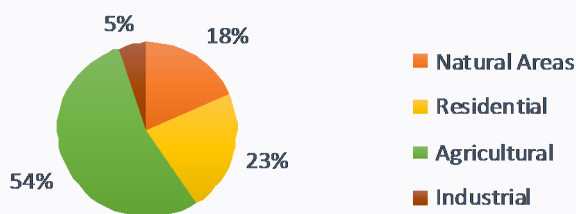
The Dutchman Creek watershed in Outagamie/Brown County is predominantly agricultural in the upper reaches of the stream converting to residential and urban in the lower reaches prior to draining into the Fox River. In 1996, a priority watershed plan was developed for the Duck, Apple, Ashwaubenon Creek watersheds to address potential non-point sources of phosphorus and sediment.

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



Dutchman Creek upstream Overland Road.

Dutchman Watershed Land Use



Physical Habitat

Habitat within the Dutchman Creek survey areas were rated fair at all three sites regardless of its location within agricultural or urban land use. Pools and riffles were largely absent and habitat was monotonous. Fine sediments dominated the substrate composition and fish cover was largely absent. Hydraulic modifications have played a significant role in habitat degradation.

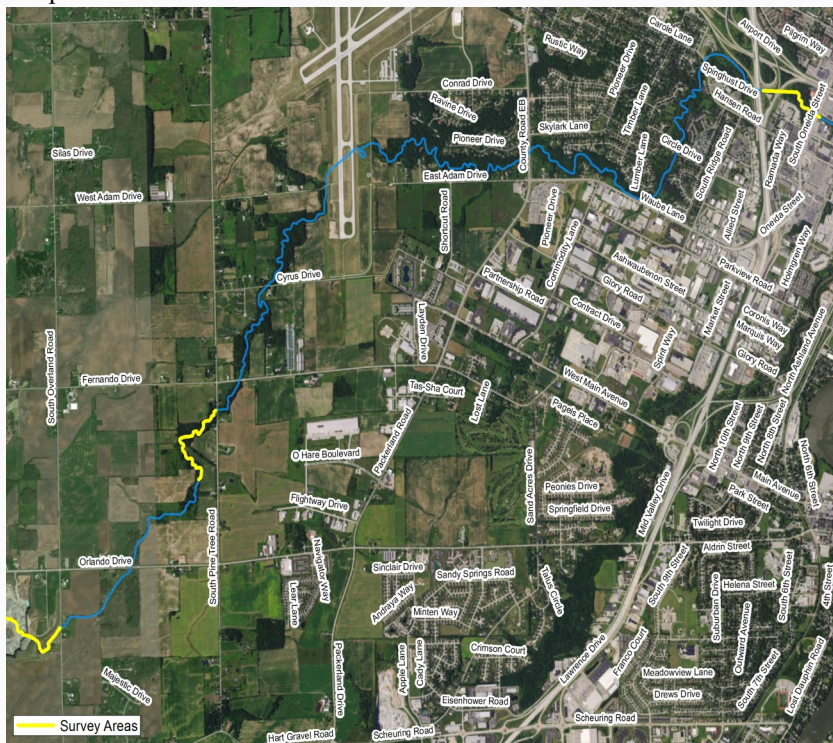
Chemical

Total Phosphorus concentrations at Oneida Street were consistently high all months sampled and exceeded Wisconsin's Water Quality Standard of 0.075 mg/L. Dissolved Phosphorous accounted for a high percentage of the overall Total Phosphorous concentration.

Biological

The three survey locations had a total of 17 fish species. All of which are at least moderately tolerant to environmental degradation. Non-native invasive Round Gobies are well established at Oneida Street. Two species of gamefish were captured, Northern Pike and Largemouth Bass. Indexes of biological integrity (IBI) of fish data ranged from fair to excellent. Macroinvertebrate samples were collected at two locations and the Macroinvertebrate IBI scores rated as poor which indicate signs of water quality stressors that led to a degraded macroinvertebrate community.

Map Of Dutchman Creek



Andrew Hudak
 Water Resources Biologist
 Phone: (920) 662-5117
Andrew.hudak@wisconsin.gov



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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. Construction site erosion control needs to be properly planned and maintained to adequately prevent erosion and soil loss 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. Additionally, vegetative buffer widths should be expanded to prevent soils losses and increase distance of nutrient application in proximity to waterways. Conservation practices to address dissolved phosphorous should be a high priority in this sub watershed. Where possible, reconstruction of meandering stream with natural features should be a priority to increase habitat diversity within the stream.

Dutchman Creek at Oneida Street	May	Jun.	Jul.	Aug.	Sep.	Oct.	90% LCI-M*	WI WQ-STD
2014 Total Phosphorus mg/L	0.126	0.286	0.24	0.205	0.126	0.103	0.132	0.075
2015 Total Phosphorus mg/L	0.547	0.231	0.306	—	—	—	0.210	0.075
Orthophosphate DRP mg/L	0.084	0.176	0.193	—	—	—		
Total Suspended Sediment mg/L	75.3	15.0	153	—	—	—		

*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
Dutchman Creek at Oneida Street	Excellent	Fair	Poor
Dutchman Creek at Pine Tree Road	Fair	Fair	Poor
Dutchman Creek at Overland Road	Poor	Fair	—



Debris on Dutchman Creek downstream Overland Road.



Dutchman Creek on Pine Tree Road.



Channelized Dutchman Creek downstream Oneida Street.