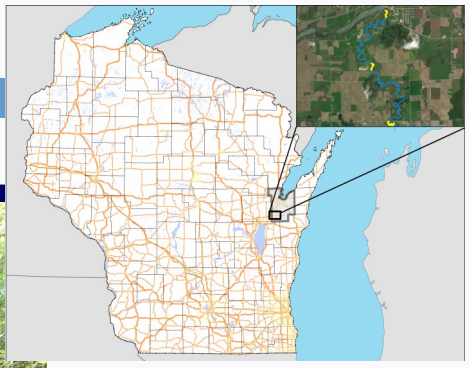
Wisconsin Water Quality Handout



Lower Plum Creek 2015 (EGAD 3200-2018-68)

Watershed Details

Plum Creek in Brown County is heavily influenced by non-point sources of pollution prior to its confluence of the Fox River in Wrightstown. Plum Creek has been identified as one of the highest contributors of phosphorus and sediment to the Lower Fox River. Overall this watershed is characterized by poor aquatic life and habitat. A Nine Key Element Plan was enacted in the summer of 2015 to continue to address non-point sources of pollution in the watershed.

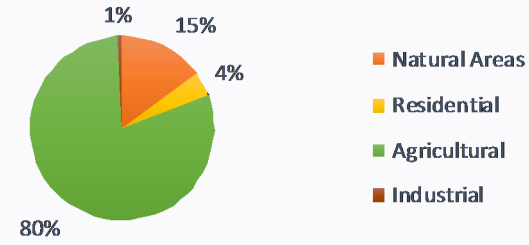
Monthly water chemistry samples were collected by citizen monitoring volunteers from May to October. In addition, habitat, fish and macroinvertebrates surveys were conducted by the Wisconsin DNR at sites throughout the watershed to assess the physical and biological conditions of streams in the watershed.

Meter stick along banks on Plum Creek at CTH ZZ.

Physical Habitat

The three survey areas of the Lower Plum have wide forested buffers with lower quality tree species on steep exposed slopes with sparse understory. Habitat ratings ranged from fair to good and scores were better than expected based on undisturbed buffer widths. Habitat ratings in these streams are impacted by fine sediment, bank erosion, and lack of fish cover.

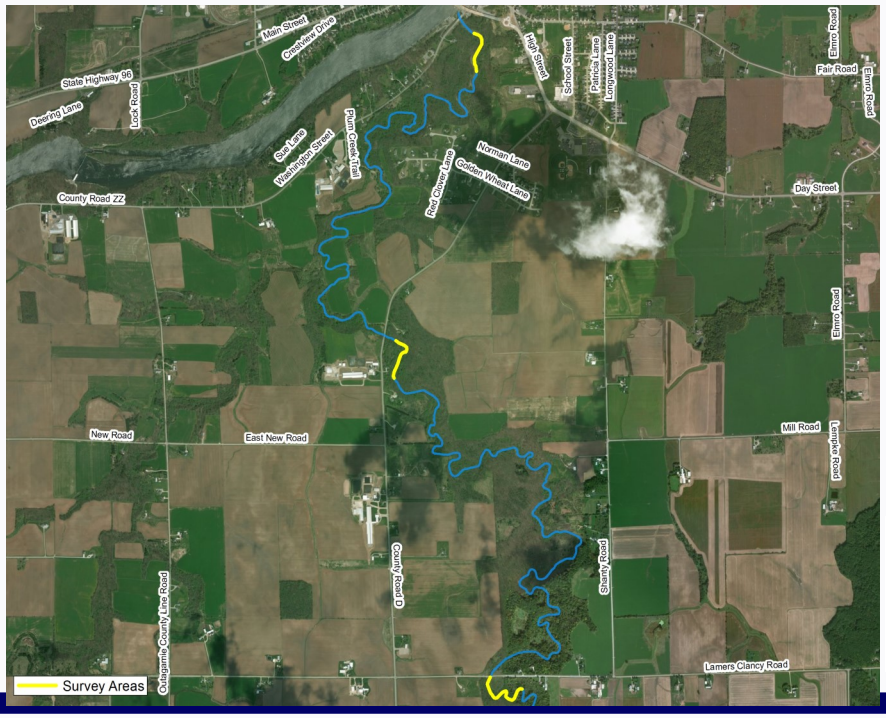
Plum Creek Watershed Land Use



Chemical

Total Phosphorus concentrations at CTH ZZ were consistently high when compared to Wisconsin's Water Quality Standard of 0.075 mg/L. Future water chemistry monitoring will be conducted slightly upstream to eliminate likely effects from the close proximity of the Fox River.

Map Of Lower Plum Creek



Biological

The three survey locations of the Lower Plum had a total of 23 fish species, all of which are tolerant to environmental degradation. Non-native invasive Round Goby were well established in Plum Creek at CTH ZZ. Largemouth Bass, Walleye, and Channel Catfish were gamefish captured at CTH ZZ. Indexes of biological integrity (IBI) of fish data ranged from fair to excellent. The excellent rating at CTH ZZ is likely a result of the proximity to the Fox River and increase species diversity. Macroinvertebrate samples were collected at all three of the locations and rated poor to fair by the Macroinvertebrate IBI scale.

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WISCONSIN DEPT. OF NATURAL RESOURCES

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Lower Plum Creek 2015

Management Recommendations

Soil Health principles throughout the watershed 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 soil loss during storm events. Urban storm water best management practices should continue to properly site treatment ponds and consider 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 healthy understory. Additionally, vegetative buffer widths should be expanded to prevent soil loss and increase the distances between where nutrient application occurs and the proximity to waterways. Areas of significant bank erosion and failures exist. Focused efforts to stabilize banks through a strategic approach should be enacted to prevent hard armoring in a small parcel by parcel approach.

Plum Creek at CTH ZZ	May	Jun.	Jul.	Aug.	Sep.	Oct.	90% LCI-M*	WI WQ – STD
Total Phosphorus (mg/L)	0.16	0.125	0.105	0.204	0.16	0.141	0.127	0.075
Orthophosphate (mg/L)	0.0733	0.0282	0.0078	0.0085	0.0304	0.0631		
Suspended Sediment (mg/L)	25.7	25.3	14.5	37	27.5	18.4		

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

Top: Algal bloom in Plum Creek at CTH ZZ.

Bottom: Plum Creek at CTH D.

Right: Plum Creek at Lamers-Clancy.

Fish and Habitat Ratings			
Stream Site	**Fish IBI**	**Habitat Rating**	**Macroinvertebrate IBI**
Plum Creek at CTH ZZ	Excellent	Fair	Fair
Plum Creek at CTH D	Fair	Good	Poor
Plum Creek at Lamers-Clancy Road	Fair	Good	Fair