

Wisconsin Water Quality Handout

West Plum Creek 2015 (EGAD 3200-2018-78)



Watershed Details

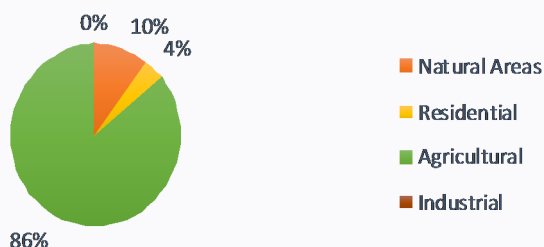
West Plum Creek in Outagamie/Brown County is a small sub-watershed portioned from the Plum Creek Watershed which has been identified as one of the highest contributors of phosphorus and sediment to the Lower Fox River. Land use surrounding West Plum Creek is predominantly agricultural. Overall this watershed is characterized to have 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.



Unnamed tributary to West Plum Creek at County Line Road.

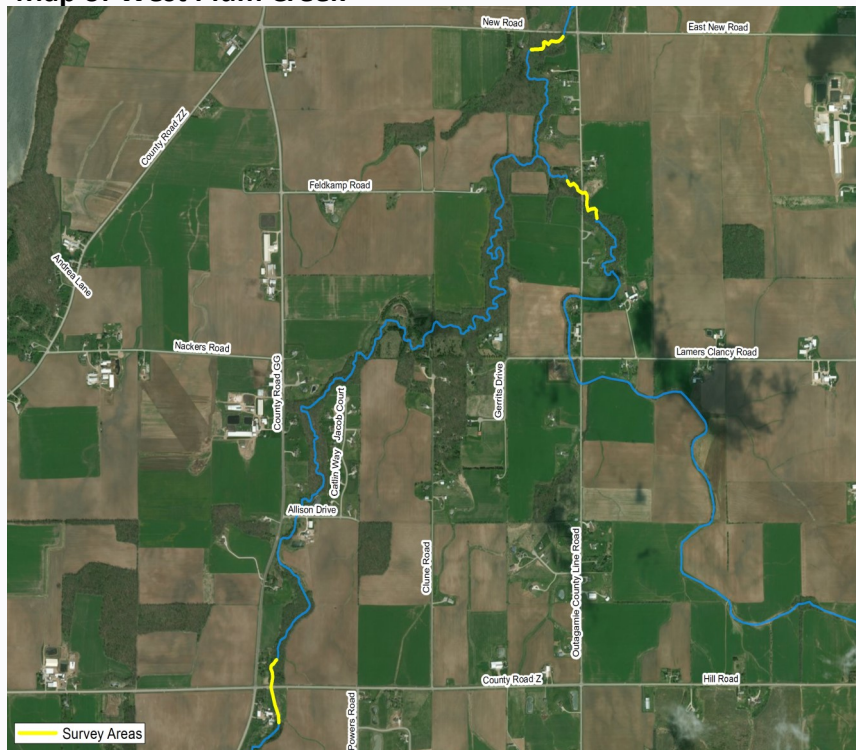
West Plum Creek Watershed Land Use



Physical Habitat

Streams in the West Plum have degraded buffers with lower quality tree species such as box elder and buckthorn with steep exposed banks, significant bank erosion, and little ground cover. Stream bed composition is heavily influenced by fine sediment with abundant silt and clay. Cover for fish is largely absent.

Map of West Plum Creek



Chemical

Total Phosphorous concentrations in West Plum were five times greater than Wisconsin's Water Quality Standard of 0.075 mg/L throughout 2015. Concentrations peaked at 35 times the standard in October.

Biological

The three survey locations of the West Plum had a total of 8 fish species, all of which are tolerant to environmental degradation. No gamefish were captured in surveys. Indexes of biological integrity (IBI) of fish data were calculated to be fair. Macroinvertebrate samples were collected at two of the locations and rated as poor and fair by the Macroinvertebrate IBI.

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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. The 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 soil loss and to increase distances between nutrient application and 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.

West Plum at New Road	May	Jun.	Jul.	Aug.	Sep.	Oct.	90% LCI-M*	WI WQ-STD
Total Phosphorus mg/L	0.409	0.696	1.33	0.549	0.593	2.6	0.548	0.075

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

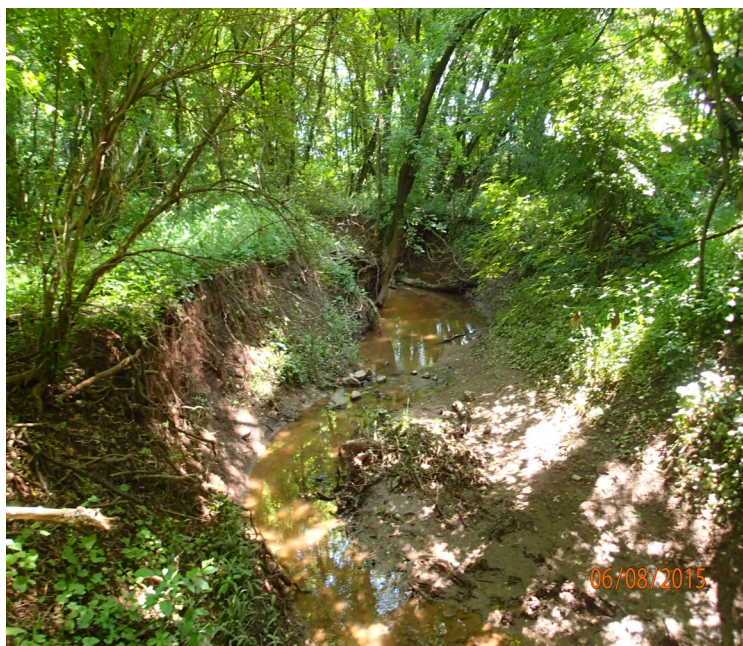


Fish and Habitat Ratings			
Stream Site	Fish IBI	Habitat Rating	Macroinvertebrate IBI
West Plum Creek at New Road	Fair	Fair	Poor
West Plum Creek at CTH Z	Fair	Fair	—
Unnamed Tributary to West Plum at County Line Road	Fair	Fair	Fair

Top: West Plum Creek at New Road.

Middle: West Plum Creek at New Road.

Bottom: West Plum Creek at New Road.



Above: West Plum Creek at CTH Z.