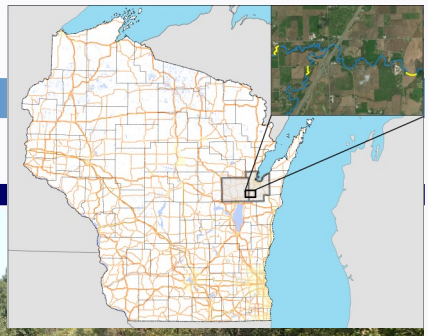
Wisconsin Water Quality Handout

Lower Apple Creek 2015 (EGAD 3200-2018-65)



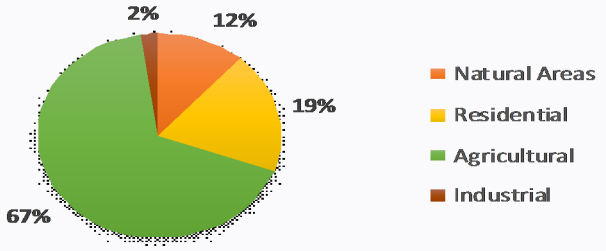
Watershed Details

The Apple Creek watershed in Outagamie/Brown County is primarily agricultural with mixed residential near the City of Appleton and flowing into the Fox River near Wrightstown. In 1996, a priority watershed plan was developed for the Duck, Apple, Ashwaubenon Creek watersheds to address potential nonpoint sources of phosphorus and sediment.

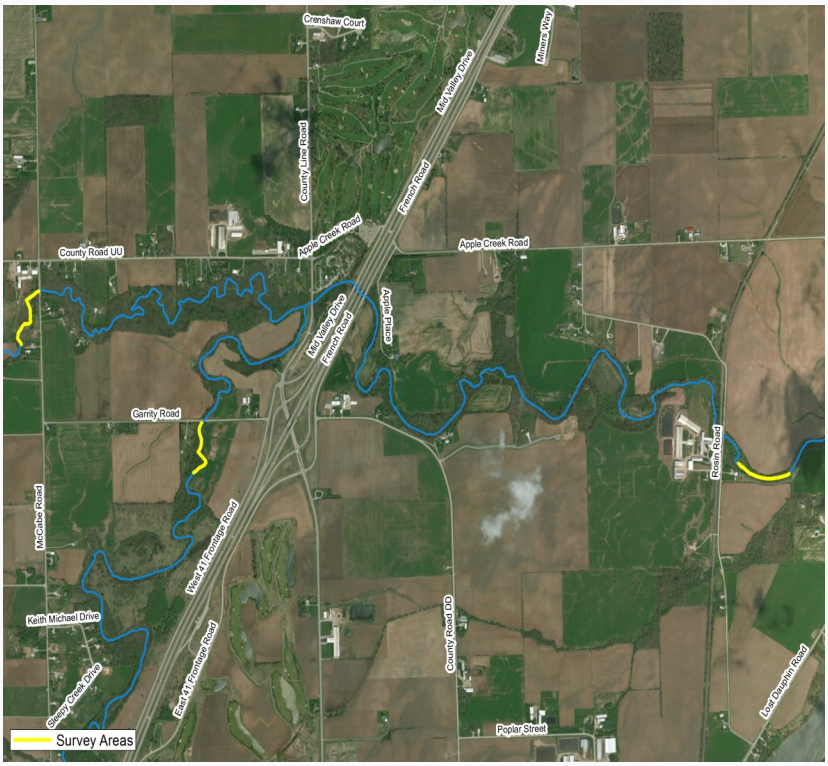
Monthly water chemistry samples were collected by citizen monitoring volunteers from May to October. In addition, habitat, fish and macroinvertebrates surveys were conducted by the Wisconsin DNR at sites throughout the watershed to assess the physical and biological conditions of streams in the watershed.

Electroshocking on Apple Creek at Rosin Road.

Apple Creek Watershed Land Use



Map Of Lower Apple Creek



Physical Habitat

Streams within Lower Apple Creek flow through a heavily agricultural landscape. Habitat ratings ranged from fair to good. Scores were impacted by the lack of pools and fish cover, accumulations of fine sediment, and areas of eroding banks.

Chemical

Total Phosphorus concentrations at Rosin Road exceeded Wisconsin's Water Quality Standard of 0.075 mg/L by 2.5-5 times during the growing season. Dissolved Phosphorous consisted of 50 - 80% of the Total Phosphorous concentrations.

Biological

The three survey locations of the Lower Apple had a total of 16 fish species, all of which are at least moderately tolerant to environmental degradation. Non-native, invasive Round Gobies are well established in this section.

Largemouth Bass was the only species of gamefish captured in the Lower Apple. Indexes of biological integrity (IBI) of fish data ranged from poor to good. Macroinvertebrate samples were collected at all three locations and were rated poor to fair by the Macroinvertebrate IBI.

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WISCONSIN DEPT. OF NATURAL RESOURCES

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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 losses 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 the 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. Providing a thinned tree canopy along the stream bank would allow establishment of native shrubs and grasses that would further help to stabilize exposed soil in the understory. Conservation practices to improve infiltration and significantly decrease dissolved phosphorous should be a high priority in this sub-watershed.

Apple Creek at Rosin Road	May	Jun.	Jul.	Aug.	Sep.	Oct.	90% LCI-M*	WI WQ-STD
Total Phosphorus mg/L	0.34	0.268	0.354	0.278	0.199	0.224	0.233	0.075
Orthophosphate DRP mg/L	0.16	0.18	0.27	0.201	0.139	0.182		
Total Suspended Sediment mg/L	61	4.4	11.4	17.4	8.75	7.80		

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

Top: Cows near Unnamed Tributary to Apple at McCabe Road.

Bottom: UNT to Apple at McCabe Road.

Fish and Habitat Ratings			
Stream Site	**Fish IBI**	**Habitat Rating**	**Macroinvertebrate IBI**
Apple Creek at Rosin Road	Good	Good	Poor
Apple Creek at Garrity Road	Good	Fair	Poor
Unnamed Tributary to Apple at McCabe Road	Poor	Good	Fair

Below: Apple Creek at Garrity Road.