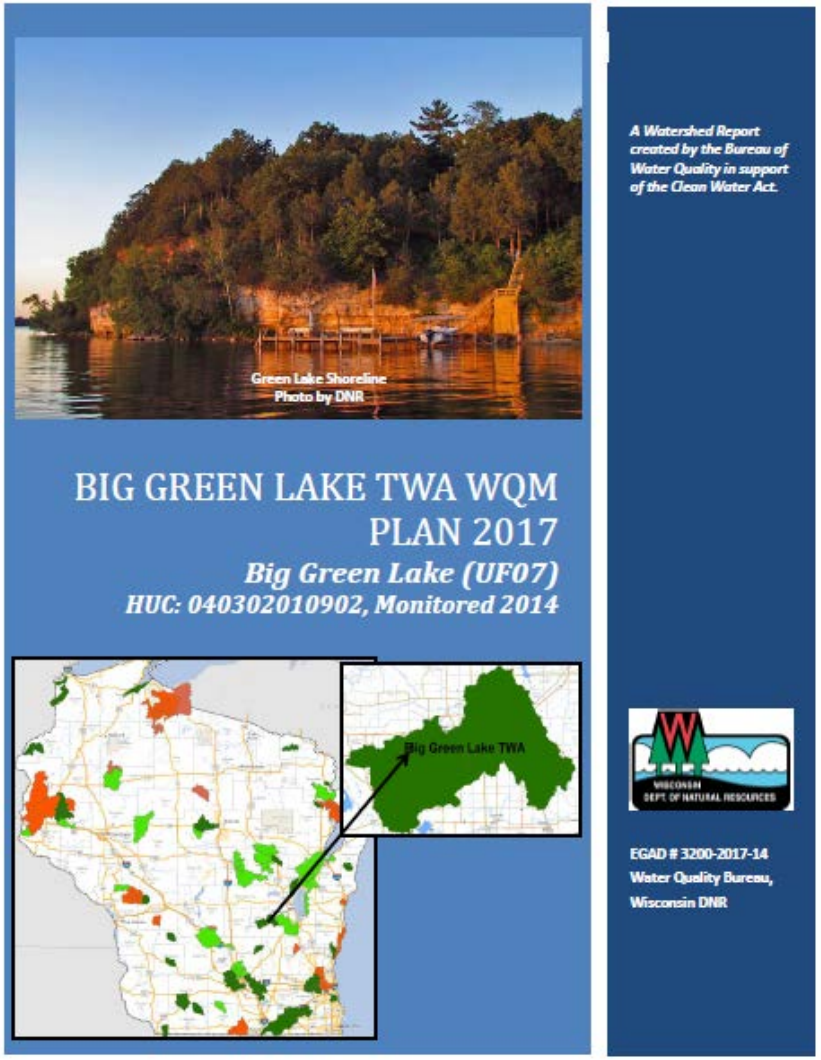
Big Green Lake TWA WQM Plan 2017

Big Green Lake (UF07)

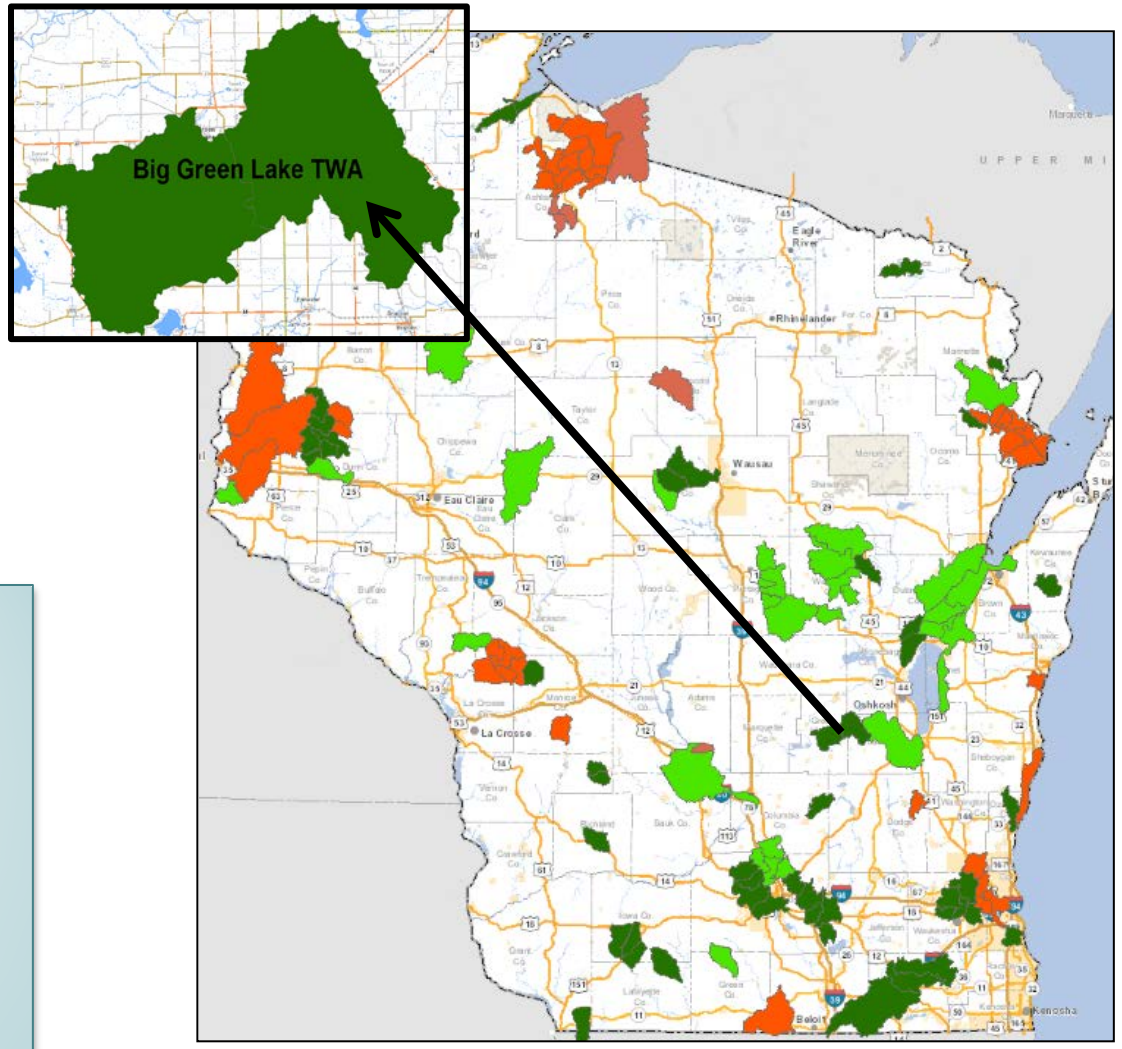


Dave Bolha, DNR Stream Biologist

Throughout the presentation when you see this symbol, put your cursor over the box to read more detail.

Project Location and Land Use

Land Use	Acres	% of Area
Agriculture	44,639.76	65.00%
Open Land and Water	10,665.47	15.53%
Forest	6,016.07	8.76%
Wetland	3,935.17	5.73%
Suburban	2,211.38	3.22%
Urban	597.49	0.87%
Grassland	556.28	0.81%
Barren	48.07	0.07%
Total Acres in Watershed	68,676.55	



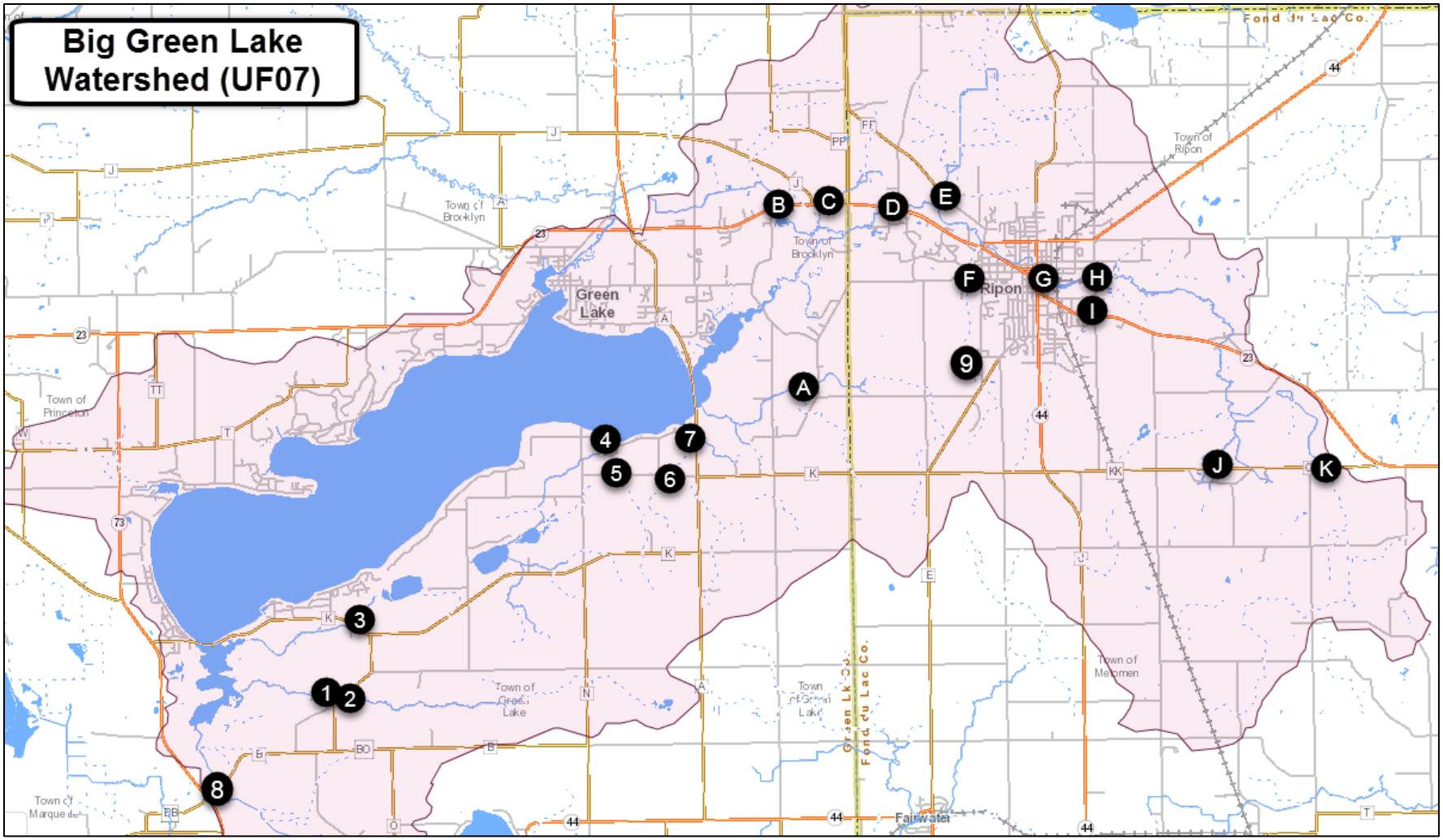
The majority of the land cover in the Big Green Lake Watershed is Agriculture (65%) followed by Open Land and Water (15.53%). Forest also covers a sizeable portion of the watershed (8.76%) followed by Wetlands, which constitute approximately five and three-quarters of the watershed. The last reasonably sized land cover is Suburban (3.22%).

Study Purpose

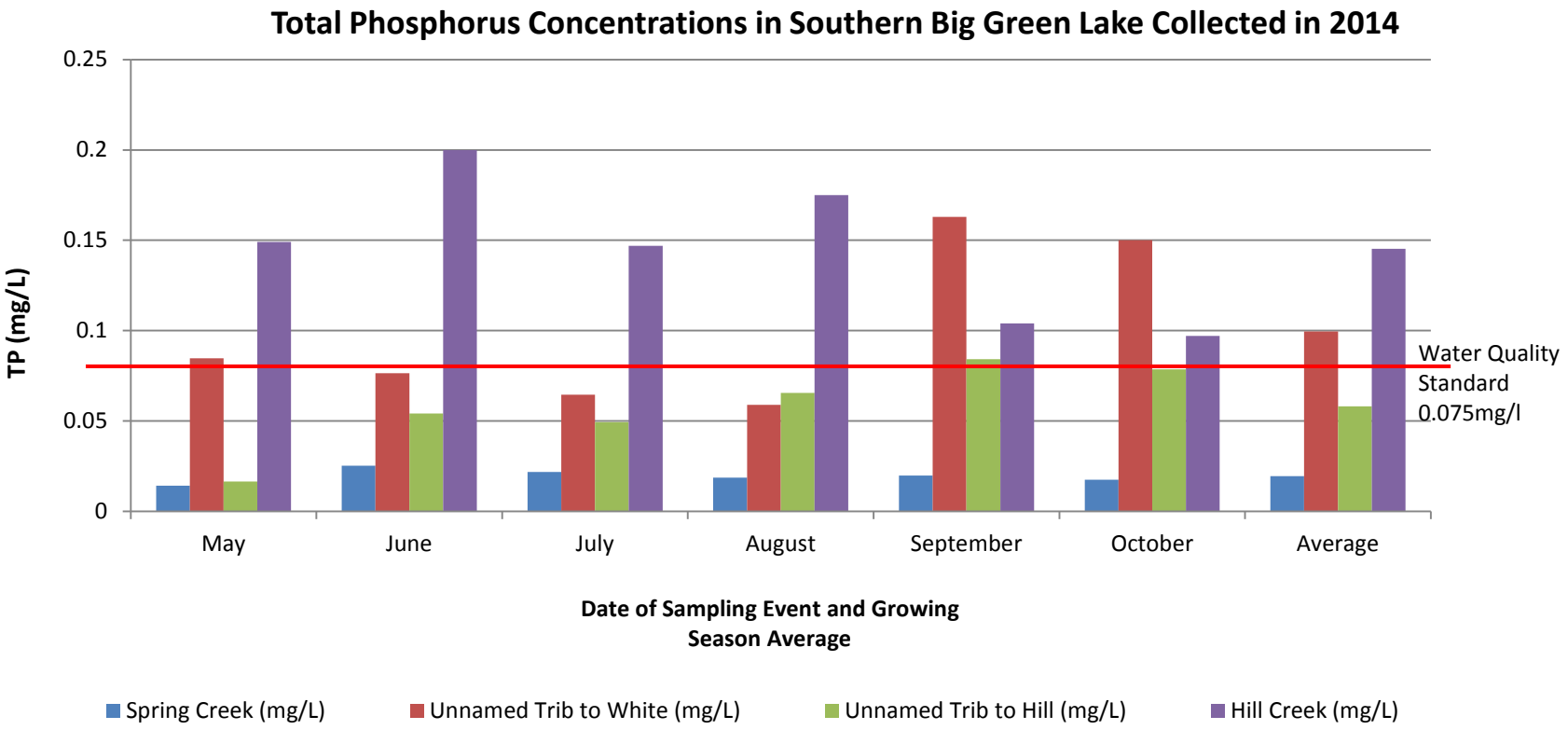
- This project gathered baseline water quality assessment data in the Big Green Lake Watershed with biological, inorganic chemistry and habitat surveys that provide valuable information for future comparison.
- This project filled data gaps from the 2011 Assessment Report of Hill, Roy, and Wuerches Creeks (Johnson et. al. 2011) (2011 Assessment). Together with the 2011 Assessment, the data collected in this project can be compared to future surveys to evaluate the effectiveness of Best Management Practices (BMPs) installed in the watershed.
- Parameters monitored: temperature, habitat surveys, wadeable fish surveys, macroinvertebrate surveys, and water chemistry.

Unstable banks in White Creek

Monitoring Stations

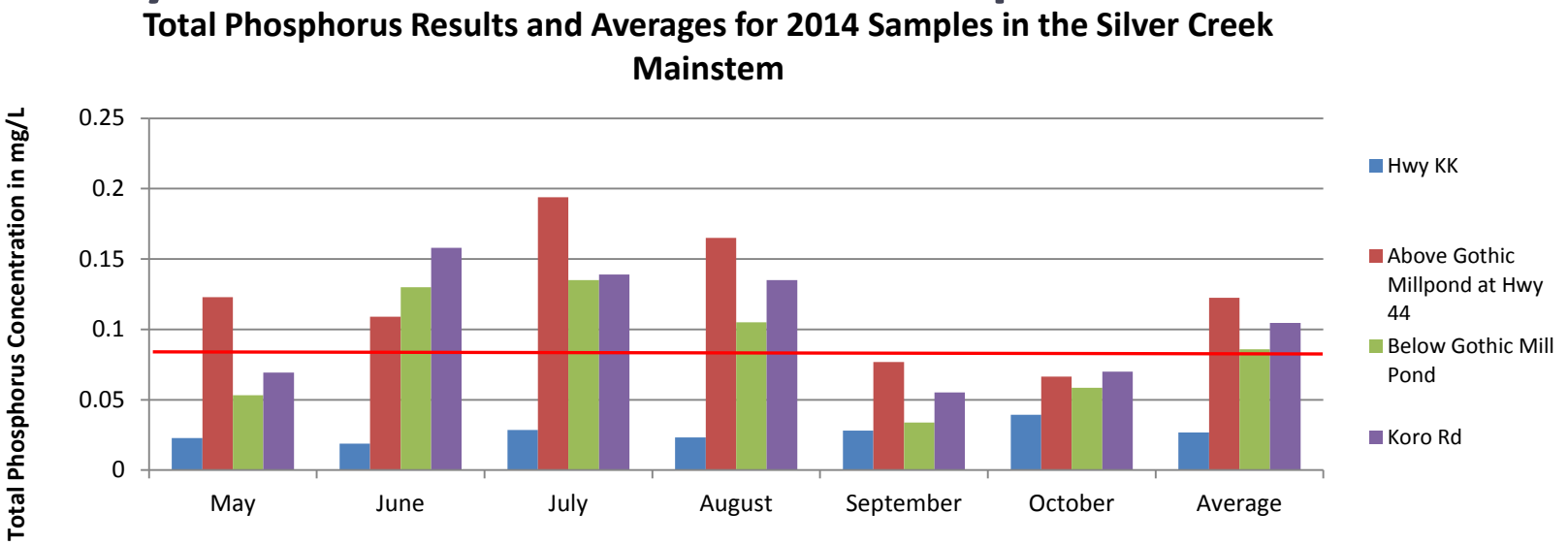


Study Results- Total Phosphorus

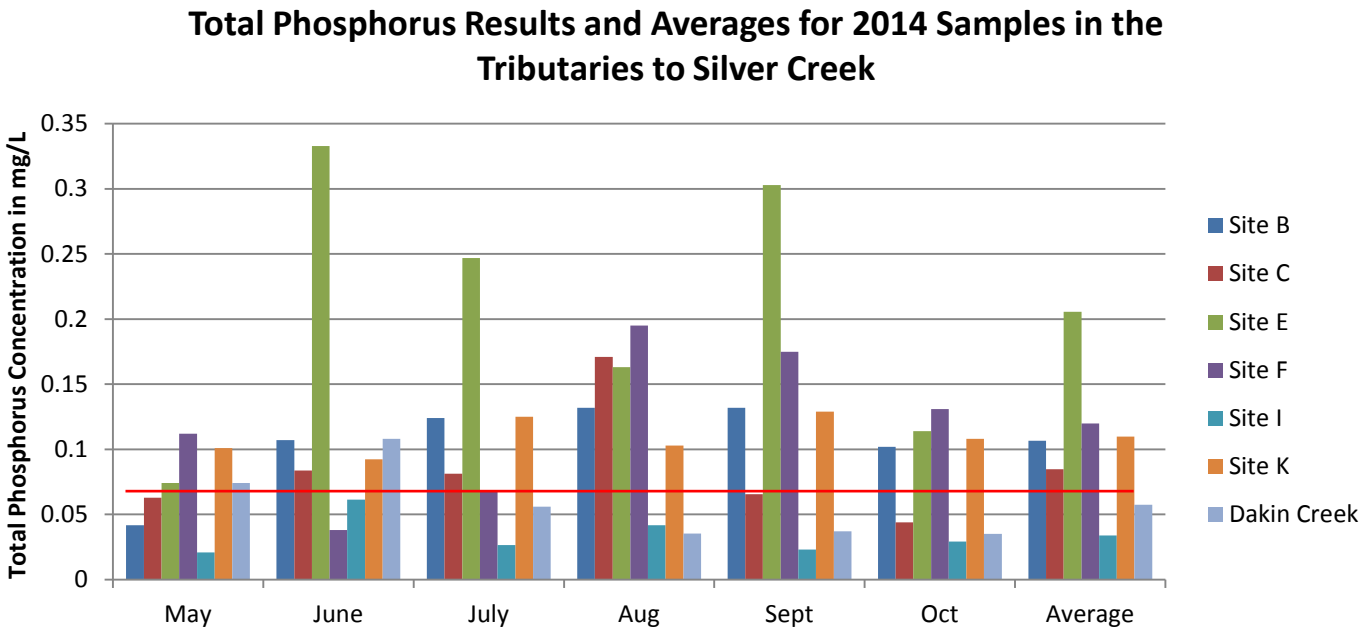


Two of the four creeks' samples in the Southern Big Green Lake watershed had an average TP concentration (mg/L) exceeding the NR 102 water quality criteria (WQC) for creeks and rivers of 0.075 mg/L

Study Results- Total Phosphorus

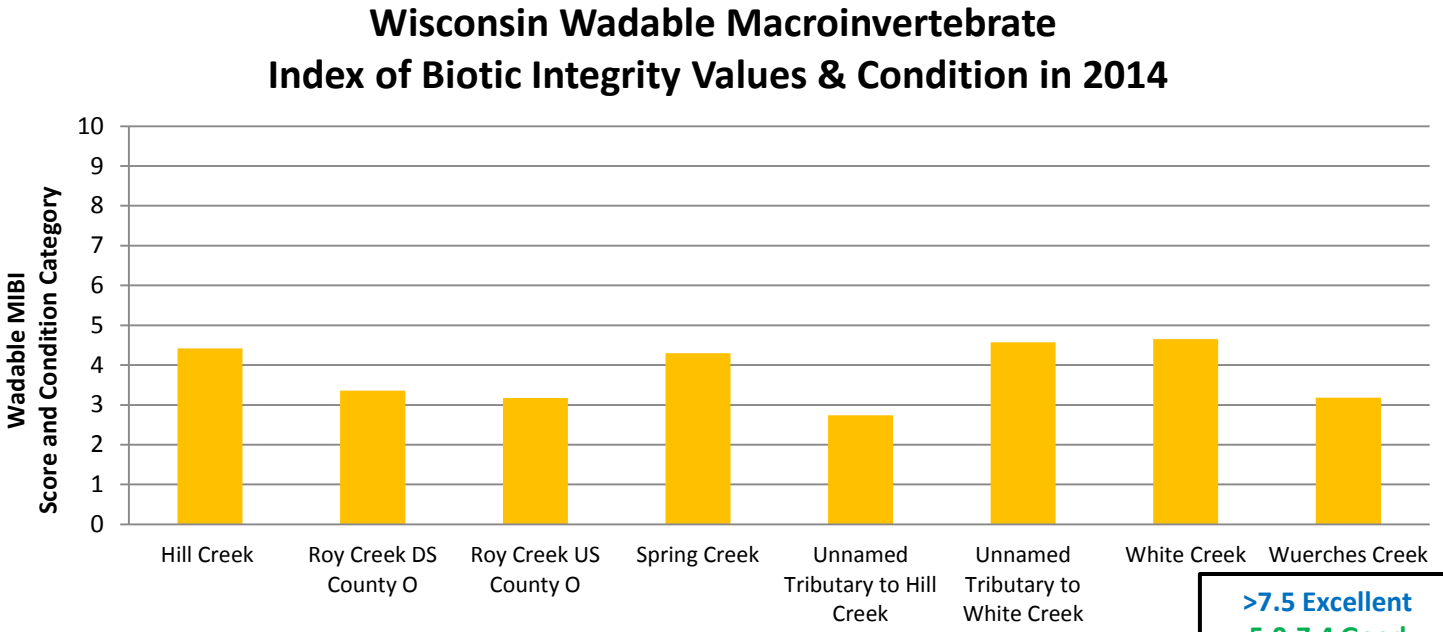


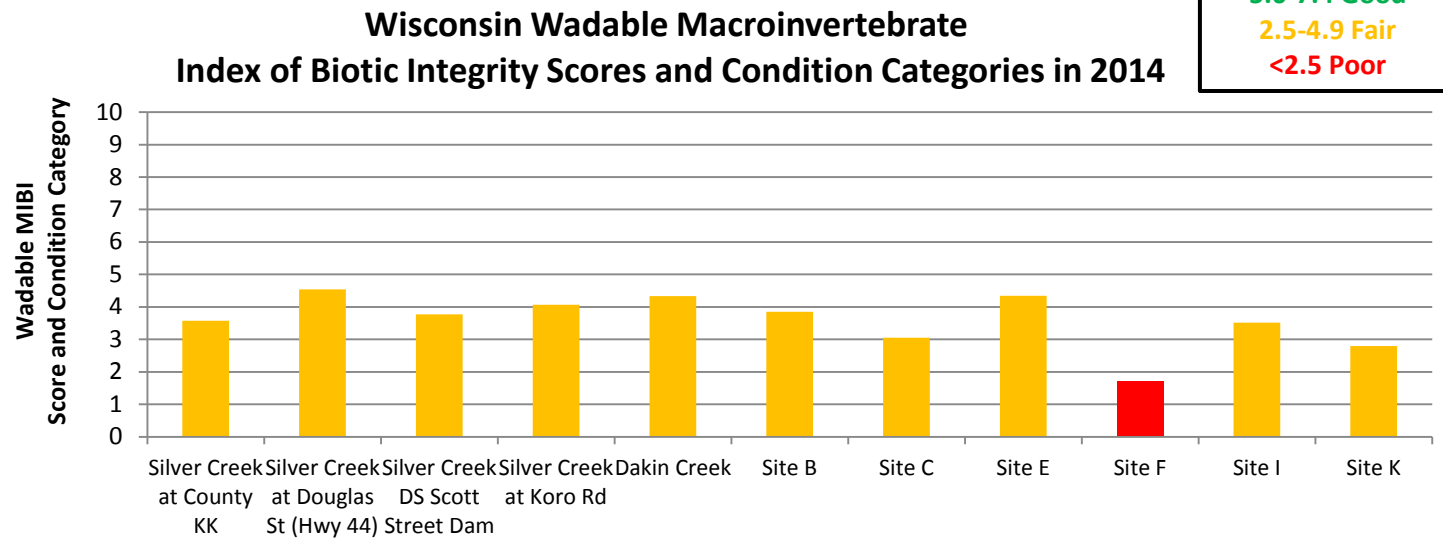
Eight of the 11 sites in the Silver Creek watershed had an average TP concentration (mg/L) exceeding the NR 102 WQC for creeks at 0.075 mg/L.



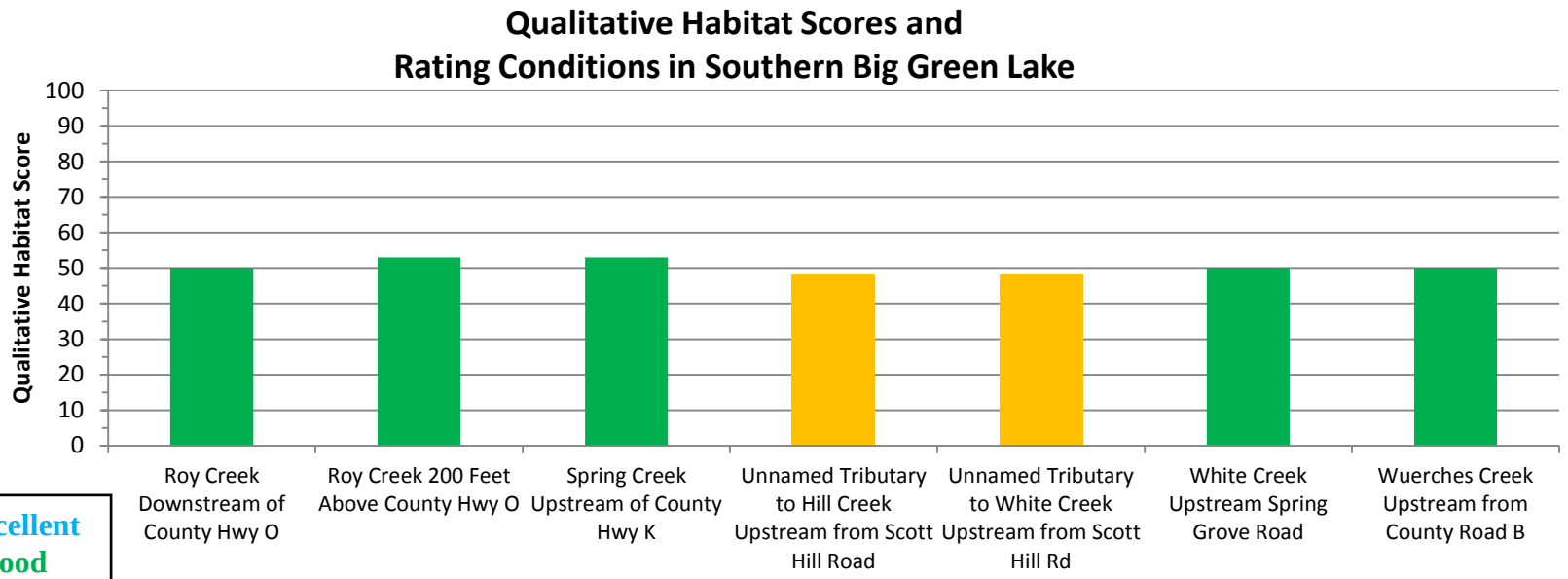
Study Results - Macroinvertebrate

All streams demonstrated a macroinvertebrate community significantly impacted by environmental degradation.

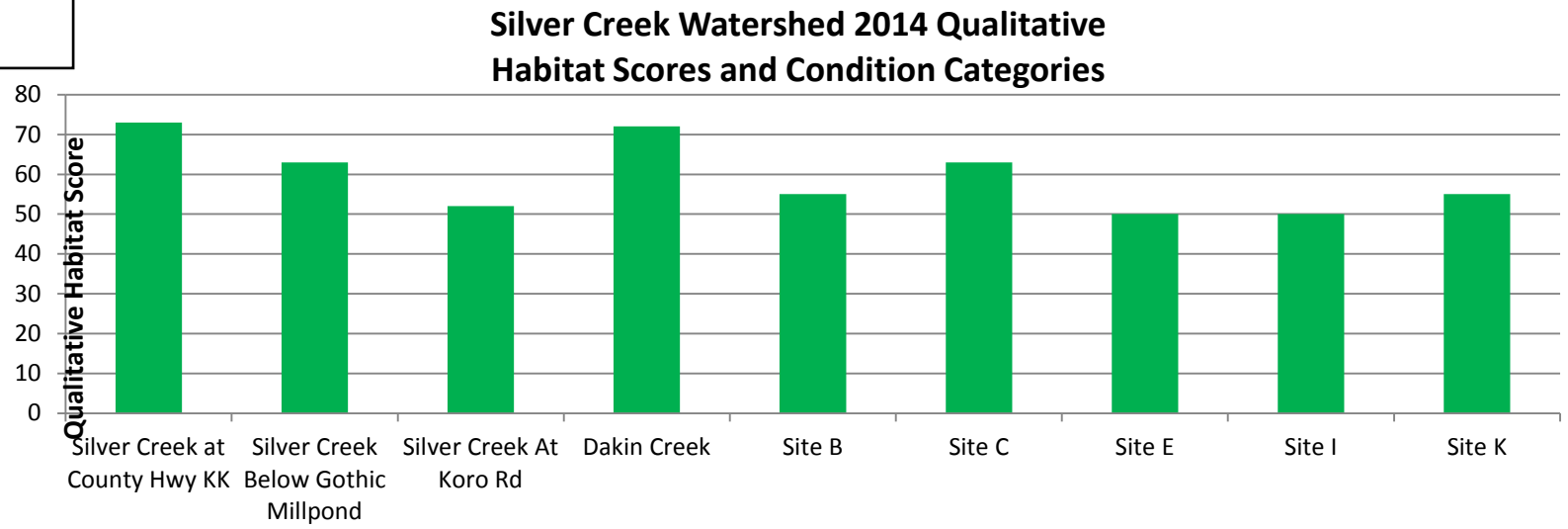




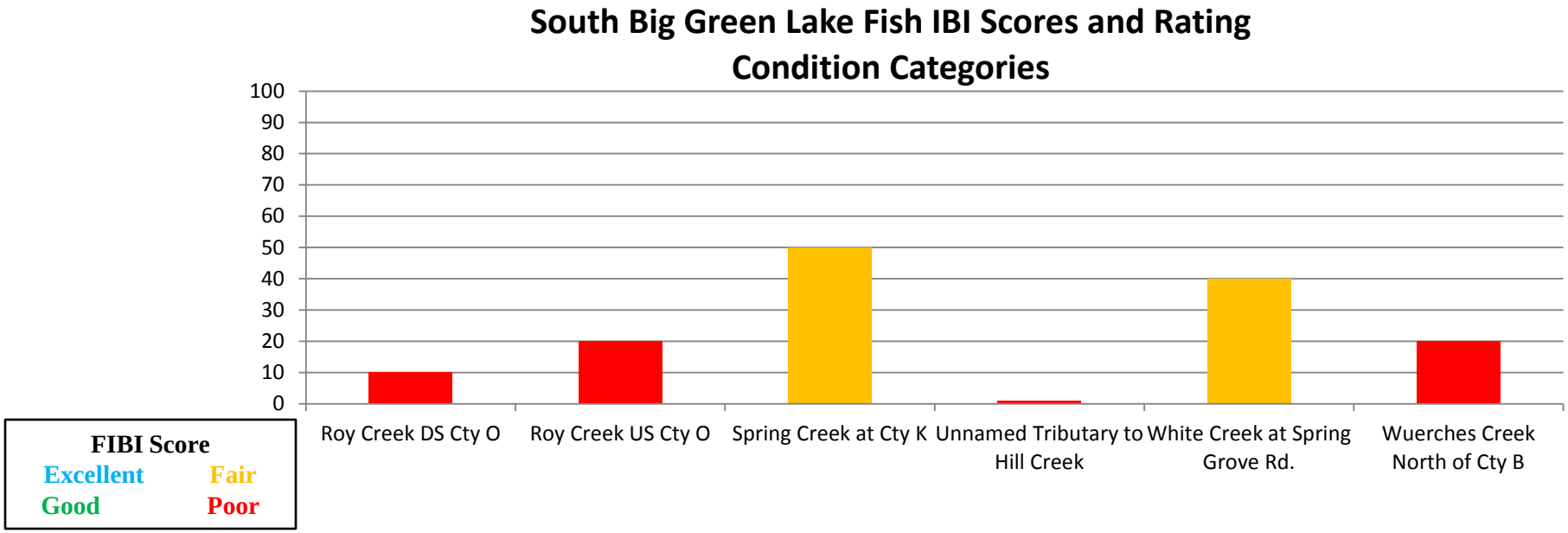
Survey Results – Habitat

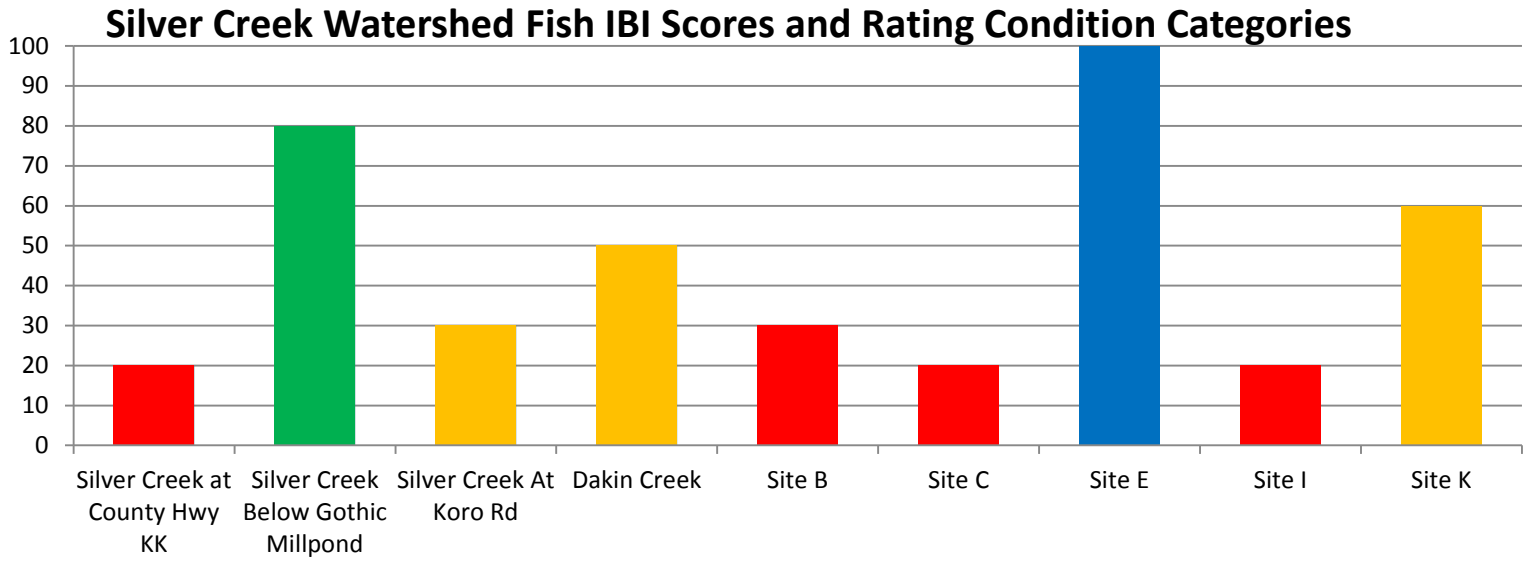


75-100 Excellent
50-74 Good
25-49 Fair
0-24 Poor

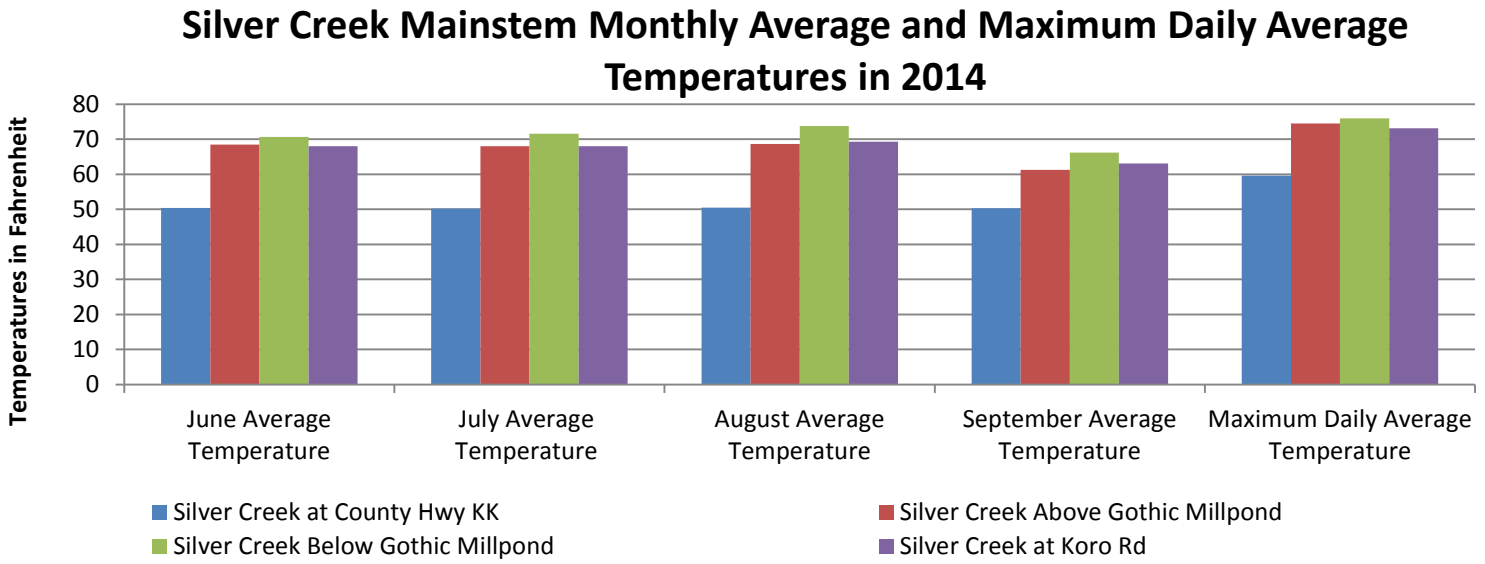


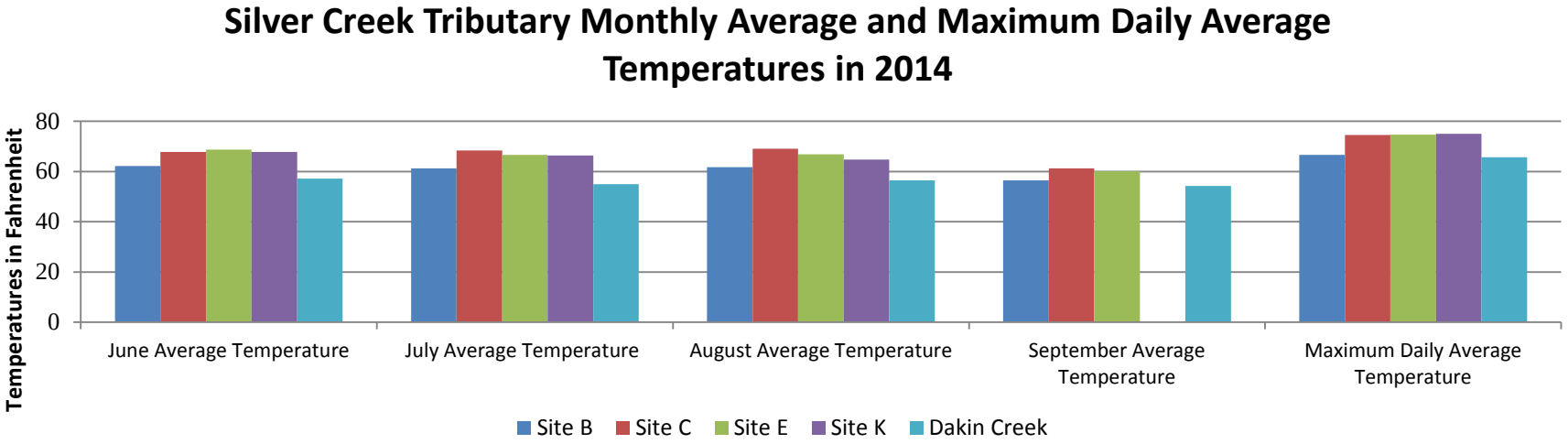
Study Results – Fish IBI





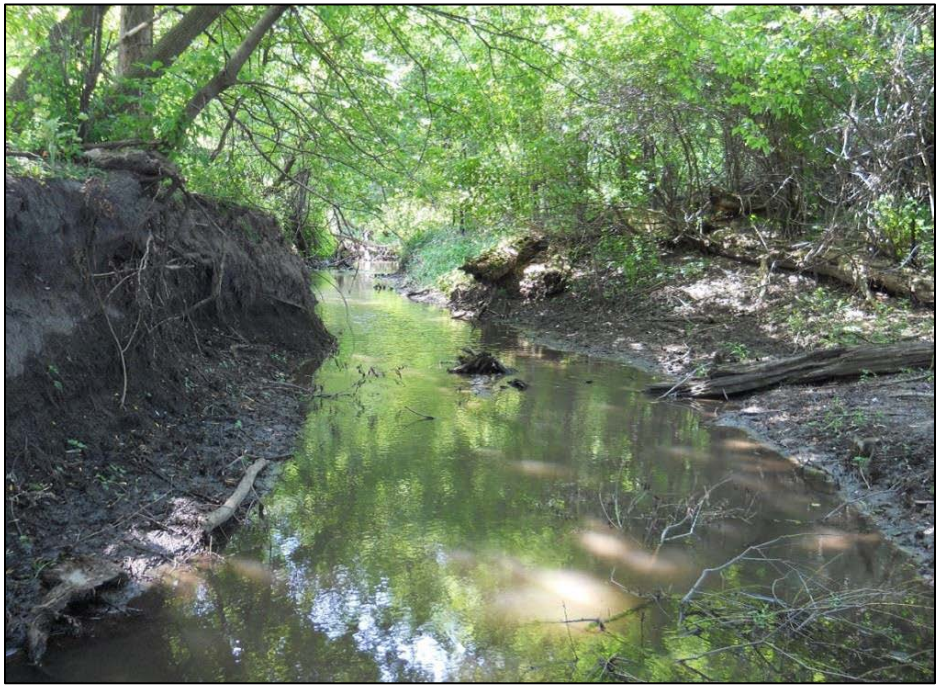
Study Results - Temperature





Management Priorities

- Encourage restoration of streambanks
- Reduce erosion
- Explore forested and native grass buffers compare to grassed buffers for nutrient reduction
- Collaborate with partners including: Green Lake County LCD, Green Lake Sanitary District, Green Lake Association, NRCS, and USGS



An example of an unstable bank on Roy Creek

Recommendations

- Add Hill Creek to Wisconsin's impaired waters list for phosphorus
- Restore unstable streambanks with partners
- Implement cover crops to reduce erosion
- Increase buffer widths in subwatersheds to decrease nutrient and sediment runoff
- Replace culverts to increase fish habitat

Unnamed Tributary to Silver Creek (WBIC 147900)
Facing Downstream of County Hwy KK.

For more information

- Contact:
  - Dave Bolha, Eastern District, Wisconsin DNR
  - (920) 424-7892
  - Link to the TWA WQM Plans website
  - Report Link