Big Green Lake TWA WQM Plan 2017

Big Green Lake (UF07)

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

Big Green Lake Watershed (UF07)
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

Total Phosphorus Results and Averages for 2014 Samples in the Silver Creek Mainstem

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.
All streams demonstrated a macroinvertebrate community significantly impacted by environmental degradation.
Survey Results – Habitat

Qualitative Habitat Scores and Rating Conditions in Southern Big Green Lake

Silver Creek Watershed 2014 Qualitative Habitat Scores and Condition Categories

75-100 Excellent
50-74 Good
25-49 Fair
0-24 Poor
Study Results – Fish IBI

**South Big Green Lake Fish IBI Scores and Rating**

**Condition Categories**

- Excellent
- Fair
- Good
- Poor

**Silver Creek Watershed Fish IBI Scores and Rating**

**Condition Categories**

- Excellent
- Fair
- Good
- Poor
Study Results - Temperature

Silver Creek Mainstem Monthly Average and Maximum Daily Average Temperatures in 2014

Silver Creek Tributary Monthly Average and Maximum Daily Average Temperatures in 2014
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
For more information

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