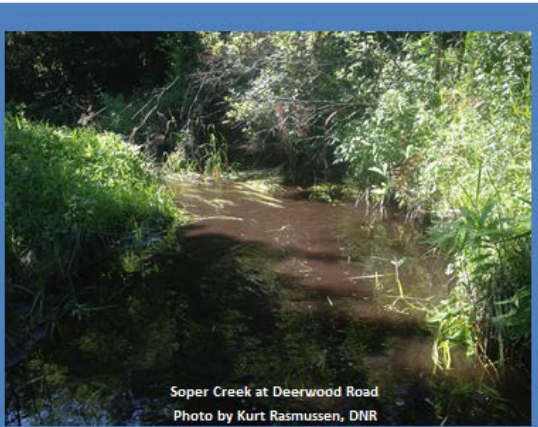
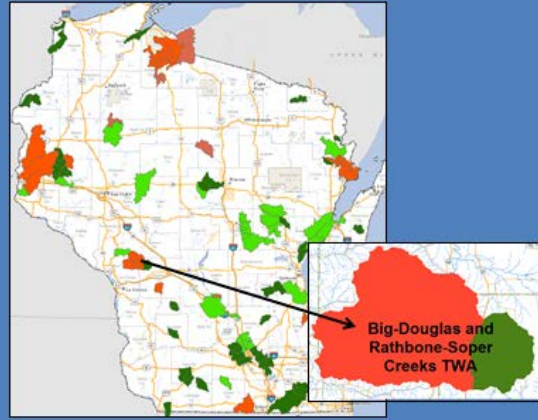


Big-Douglas and Rathbone- Soper Creeks TWA WQM Plan 2017, *Big and Douglas Creeks (BR03)*



BIG-DOUGLAS AND RATHBONE-SOPER CREEKS TWA WQM PLAN 2017
Big and Douglas Creeks (BR03)
HUC: 070400071201, Monitored 2014





A Watershed Report created by the Bureau of Water Quality in support of the Clean Water Act.



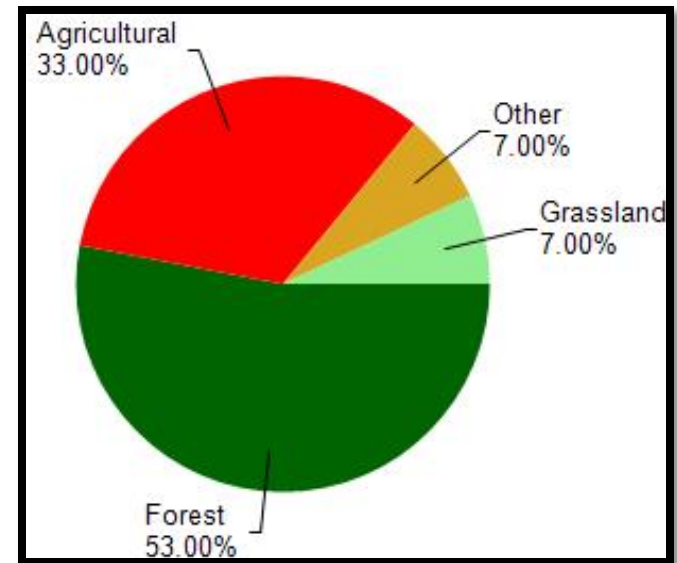
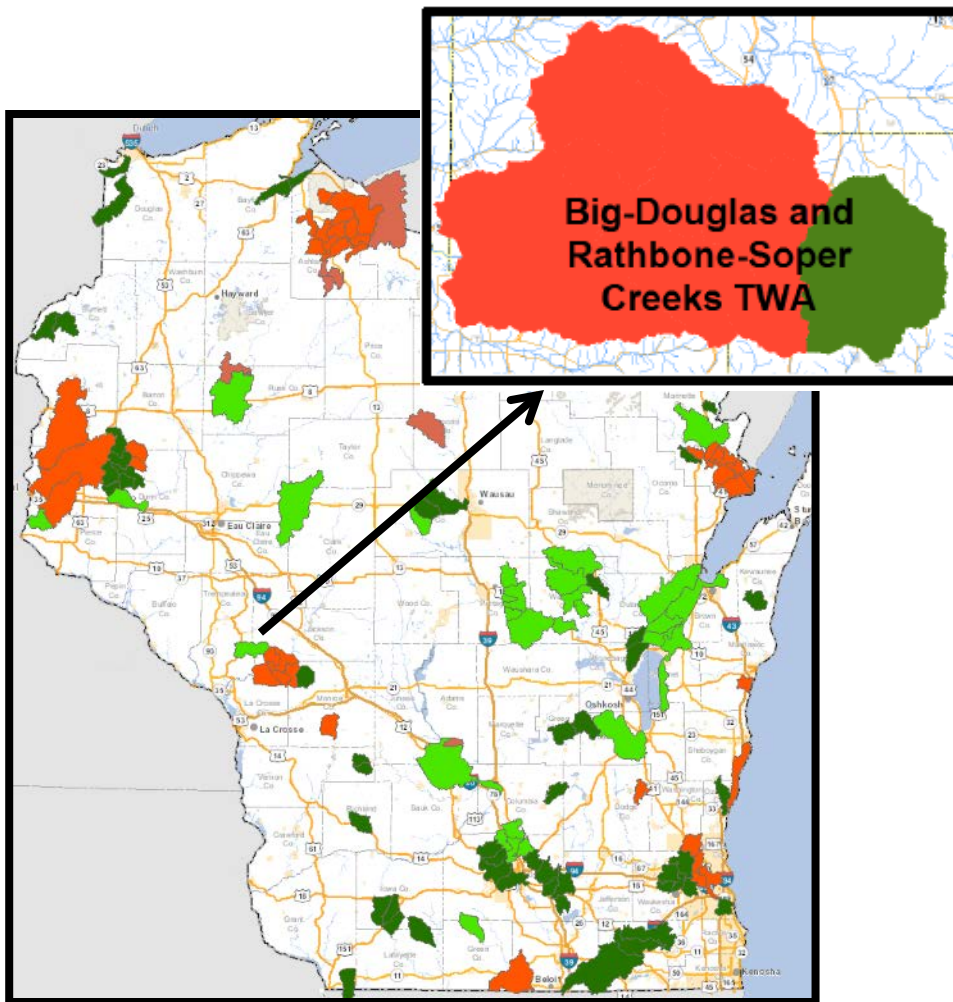
EGAD # 3200-2017-16
Water Quality Bureau,
Wisconsin DNR



Camille Bruhn, Stream Biologist, DNR

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

Project Location and Land Use



The Big and Douglas Creeks watershed is 210.33 mi². Land use in the watershed is primarily forest (53%), agricultural (33%) and a mix of grassland (7%) and other uses (7%) open land and water, wetlands, and suburban (Figure 2). This watershed has 375.17 stream miles, 473.57 lake acres and 7,564.97 wetland acres.

Study Purpose

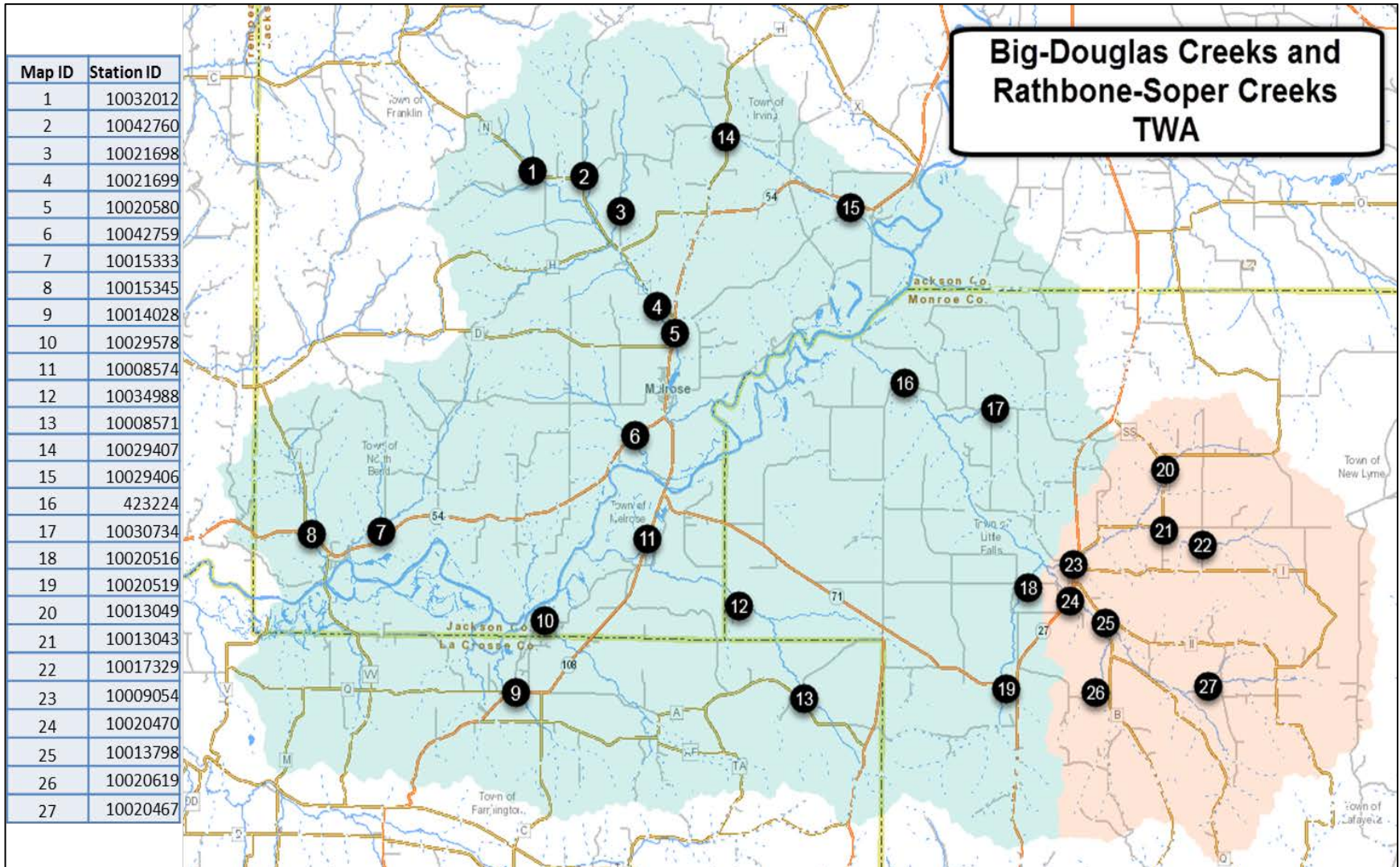
- The Rathbone and Soper HUC 12 subwatershed lies at the eastern end within the Big and Douglas Creeks watershed. This subwatershed was selected for evaluation due to stressed biological surveys.
- Nineteen sites were sampled throughout the Big-Douglas Creeks watershed, and an additional eight sites were selected in the Rathbone-Soper subwatershed specifically to get a more targeted assessment of this area.
- DNR monitored 8 sites in the Rathbone-Soper Creeks HUC12 and 19 sites in the Big-Douglas Creeks HUC10: Fish, Macroinvertebrates, water chemistry including phosphorus, nitrate, and TSS and qualitative habitat surveys



Site Selection and Study Design

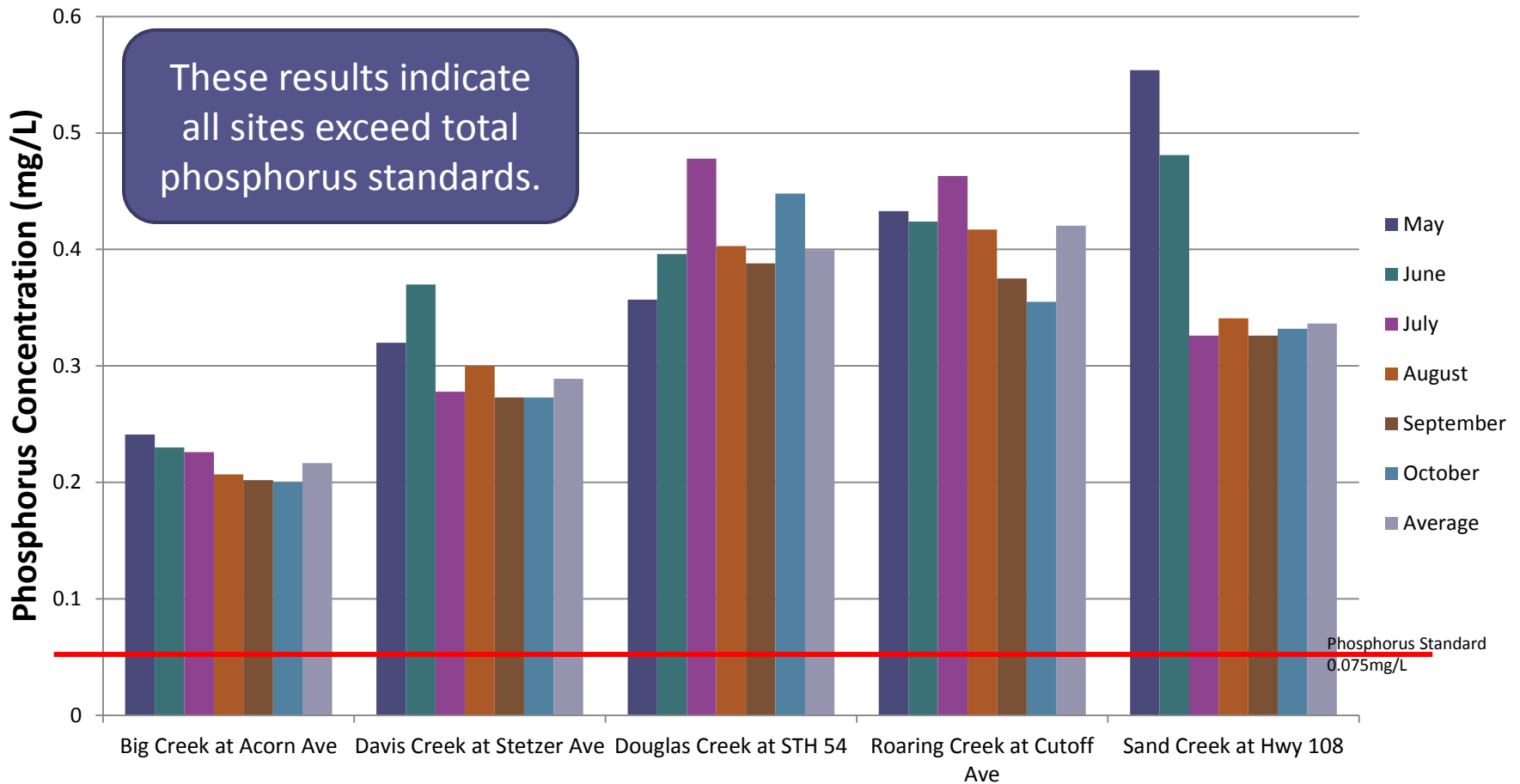
- The Rathbone-Soper TWA consisted of Fish Index of Biological Integrity (FIBI), Macroinvertebrate Index of Biological Integrity (MIBI) surveys, Hilsenhoff Biotic Index (HBI), total phosphorus (TP) samples, and qualitative habitat surveys conducted at 8 sites as well as at 19 sites within the Big-Douglas Creeks HUC 10 .
- Five of the HUC 10 and 2 of the HUC 12 sites had growing season phosphorus collected. There were six additional one-time grab phosphorus samples collected throughout the Rathbone-Soper Creeks HUC 12 watershed.
- One of the growing season phosphorus sites, the pour point of the HUC 12, also received six growing season TP samples, along with one time nitrogen series, total suspended solids and chloride samples.

Sampling Locations



Study Results – Phosphorus

Total Phosphorus Concentrations in the Big-Douglas Creeks Watershed

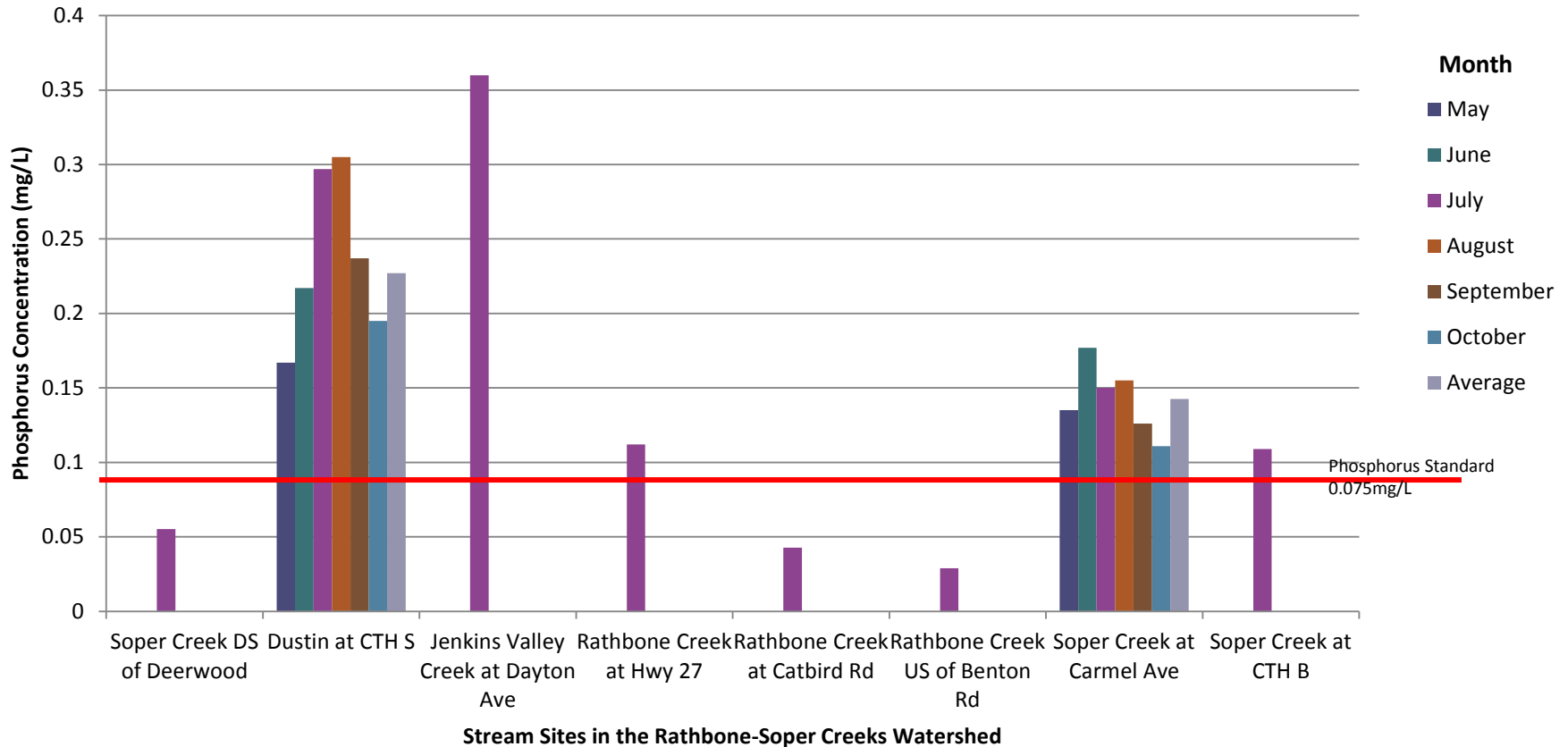


Stream sites in the Big-Douglas Creeks Watershed

Study Results – Phosphorus

These results indicate sites above the red line exceed water quality standards.

Total Phosphorus Concentrations in the Rathbone-Soper Creeks Watershed



Study Results – Natural Community

- All monitored streams in Rathbone-Soper Creeks HUC12 are modeled and verified coldwater or cool-cold headwaters or mainstem creeks.
- Most streams in the Big-Douglas HUC10 are modeled and verified coldwater or cool-cold headwater or mainstem streams.



Study Results – Macroinvertebrates and Habitat

- Sites in the Big-Douglas and Rathbone-Soper Creeks watersheds had macroinvertebrate IBI values ranging from “fair” to “excellent.”
- Habitat scores ranged from “poor” to “good,” with only one site in the Rathbone-Soper subwatershed having a rating of “excellent”.





Management Priorities

- Educate landowners on agricultural Best Management Practices (BMPs)
- Install BMPs throughout the watershed
- Prevent erosion of stream banks



Rathbone Creek downstream
from Catbird Road

Recommendations

Monitoring and Assessment Recommendations

- ✓ Phosphorus monitoring is important to determine stream health and condition and should be conducted as funding and volunteer efforts allow.
- ✓ Dustin Creek should be considered for listing in the next 303(d) cycle due to exceedances of the total phosphorus criteria.
- ✓ Rathbone and Jenkins Valley Creeks should have more phosphorus monitoring completed in order to determine if the phosphorus criteria is exceeded within those streams.
- ✓ Follow up monitoring should be completed on streams with poor IBI scores or lack of fish to further evaluate conditions.

Management Recommendations for DNR

- ✓ DNR should work on outreach efforts with landowners and County conservation staff to increase the size and condition of riparian areas in order to buffer stream systems, create fish habitat, and decrease the amount of fine sediments entering the streams.
- ✓ Habitat improvements could also be implemented on streams that have documented steep eroding banks if funding becomes available.
- ✓ Continue monitoring water quality parameters or coordinate for volunteers to monitor streams that may have high phosphorus levels that exceed statewide criteria.

Management Recommendations for External Partners

- ✓ Several stream sites throughout the Big-Douglas watershed and Rathbone-Soper subwatershed have banks that are highly eroded. Grant programs and funding opportunities to seek BMP support should be pursued as relevant in the future.
- ✓ Educating landowners on stream bank protection is a crucial factor in protecting stream resources and funds may be available for agricultural landowners to implement BMPs to help protect stream banks and reduce upland soil erosion.
- ✓ In areas with heavy grazing, managed grazing and rotational grazing could be implemented to protect riparian corridors. Other agricultural practices such as buffers, cover crops, no-till farming, and nutrient management plans could help reduce erosion and runoff to streams.
- ✓ Citizen volunteers can also help by monitoring streams for phosphorus concentrations to identify areas that may need more nutrient reduction practices.

For more information

Contact:

- Email: [Camille Bruhn](#)
- Link to [TWA WQM Plans website](#)
- Link to [Draft Report](#)