

## **Conservation Learning Lab – Preliminary Data Analysis**

### Water Quality Monitoring

Selected sites were instrumented with automated samplers and a combination of velocity area meters, and stage recorders for close interval sampling, flow measurement and flow separation. To address the need for close interval sampling during high flow periods, daily composite samples were collected at outflow from each of the four watersheds when temperatures are sufficiently above freezing to allow automated samplers to function properly (about 8 months out of each year). In addition, approximately weekly grab samples will be collected year round from wetland inflows and outflows. Samples are preserved by acidification with sulfuric acid and analyzed for total nitrogen, nitrate, organic and ammonia N (calculated by difference in total nitrogen and nitrate), total phosphorous and total reactive phosphorous. Nutrient concentrations and flow data will be used to calculate mass nutrient load from the contributing watersheds

As part of the Conservation Learning Labs project water quality monitoring was conducted in two watersheds in Story county and two watersheds in Floyd county. One watershed in each county has additional conservation practices implemented since the fall of 2017 (treatment watersheds). An additional site in Story County and one in Floyd County serve as comparison locations (control) where no practices are implemented or at least where no active work is ongoing to get producers to implement practices. Over the course of the project we are evaluating whether there is a difference in the delivery of nutrients from the watersheds in locations. This monitoring is made possible in part due to support of the CREP wetland monitoring.

Annual summary of nitrate-N and total phosphorus flow-weighted concentrations and loads are summarized in the figures. This summary includes data through 2019. Flow monitoring is continuing to occur in 2020 as there a need to monitor over a longer period of time under different weather conditions that would include drain flow, nutrient concentration and load, and cover crop growth. It is important to note that since we are working at a watershed scale there is bound to be a lag time between management changes and resulting changes in water quality. As such, this is another important factor why additional years of monitoring occur on these sites. It is also critical to note that cover crop growing conditions have limited cover crop growth in the springs of the post implementation period. This would reduce the impact of cover crops. To help in explaining potential difference in the control and treatment watersheds we will begin working to collect nutrient and crop management information in the control watersheds.







