Beanblossom Creek Watershed Management Plan
Section 319 Final Report (ARN 80235)

Executive Summary

Monroe County Soil & Water Conservation District
17 January 2023 to 16 January 2026
Monroe County Soil & Water Conservation District & Sara Peel, Watershed Coordinator

Project Overview: The Monroe County SWCD and partners have actively committed to improving water quality in Beanblossom Creek for more than 30 years. In 2008, the Monroe SWCD and partners completed the Beanblossom Creek WMP following 2003 guidelines. Since this plan's completion, the SWCD and partners implemented targeted cost share programs across the watershed, hosted education and outreach programs targeting agricultural and urban residents and continued efforts to assess water quality in Beanblossom Creek and its tributaries. In 2010, the Monroe and Brown County SWCDs completed the Beanblossom Creek implementation project. Since the original plan's completion, a lot has changed in the Beanblossom Creek Watershed. With this in mind, the watershed management plan will be rewritten to follow the 2024 IDEM planning checklist and from which future efforts can be based. A steering committee including representatives from towns and counties within the watershed, environmental groups, natural resource professionals, agricultural and commercial sectors, and private citizens, was organized to work with the watershed coordinator to develop the watershed management plan. The main goals were to: 1) complete a watershed management plan; 2) develop and implement a water quality monitoring program aimed at showing change in water quality following implementation and 3) develop and implement an education and outreach program.

Watershed Management Plan: The Monroe County SWCD hired a watershed project coordinator who led development of a watershed management plan for the Beanblossom Creek Watershed. This plan was

guided by approximately 40 steering committee members representing governmental agencies, educational entities, community members, and producers.

Watershed stakeholders identified a multitude of problems within the Beanblossom Creek Watershed. They plan to implement water quality improvement projects in the following critical areas. By working in these areas, stakeholders hope to improve water quality within the Beanblossom Creek Watershed.

Project Goals:

- Reduce nitrate-nitrogen loading from 382,706 lb/year to 182,452 lb/year (52%) by 2054 and reduce total phosphorus loading from 84,942 lb/year to 14,596 lb/ year (83%) by 2054.
- Reduce total suspended solids loading from 28,035 t/year to 1,368 t/year (95%) by 2054.
- Reduce E. coli loading from 1.41E+15 to 1.94E+13 (99%) by 2054.
- Increase the current level of outreach to engage a 70% increase of individuals in the watershed within 30 years.
- Improve habitat (QHEI scores), floodplain connectivity and wetland and floodplain coverage increasing numbers from the planning baseline across the watershed within 30 years.

Education and Outreach: The Beanblossom Creek steering committee provided numerous opportunities for watershed stakeholders to learn about the Beanblossom Creek watershed; facilitated education-based events; and coordinated programs to recognize the opportunities and commitments made by businesses and individuals throughout the watershed. Public meetings, workshops, field days, and producer working group are just some of the activities used to educate our stakeholders.

Water Quality Monitoring: Collecting water quality data allowed the Beanblossom Creek Watershed steering committee to learn more about our watershed, prioritize water quality problem areas, and provide volunteers with monitoring opportunities while laying a foundation by which changes in water quality can be observed following implementation of best management practices.

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1. INTRODUCTION

The Monroe County SWCD and partners have actively committed to improving water quality in Beanblossom Creek for more than 30 years. In 2008, the Monroe SWCD and partners completed the Beanblossom Creek WMP following 2003 guidelines. Since this plan's completion, the SWCD and partners implemented targeted cost share programs across the watershed, hosted education and outreach programs targeting agricultural and urban residents and continued efforts to assess water quality in Beanblossom Creek and its tributaries. In 2010, the Monroe and Brown County SWCDs completed the Beanblossom Creek implementation project. Since the original plan's completion, a lot has changed in the Beanblossom Creek Watershed. With this in mind, the watershed management plan will be rewritten to follow the 2024 IDEM planning checklist and from which future efforts can be based.

With the last implementation project being conducted in 2010, a lot has changed in the Beanblossom Creek Watershed. With concerns still stemming from data found during the 2008 WMP, specifically relating to E.coli, it was established that more work was to be done. Based on these concerns, the Monroe County SWCD worked with partners throughout the watershed that might be interested in working with them to assess and improve water quality and quantity within the Beanblossom Creek Watershed. Identified potential stakeholders included: Brown and Monroe County SWCD and NRCS, Brown and Monroe County surveyors' offices, Brown and Monroe County Health Departments, City of Bloomington and Monroe County Parks, Monroe County and Indiana University MS4s, Brown and Monroe County Purdue Extension, Brown County Regional Sewer District, Lake Lemon Conservancy District, Monroe County Planning, Town of Elletsville, Town of Stinesville, Yellowwood State Forest, Morgan-Monroe State Forest and others. This group formed a Steering Committee, conducted windshield surveys of the watershed, and held several meetings open to the public in order to generate input in the development of a watershed management plan for the Beanblossom Creek Watershed.

The Beanblossom Creek Watershed (HUC 05120202010, Figure 1) covers portions of Monroe and Brown County and is divided into eight subwatersheds, each with their unique 12-digit HUC. Beanblossom Creek is a tributary of the White River and drains 192.6 square miles. The headwaters lie in the northern part of Brown County before flowing westward to Lake Lemon on the border of Monroe and Brown Counties. Beanblossom Creek leaves Lake Lemon and generally flows west to the confluence of the West Fork White River just south of Gosport, Indiana. The White River eventually drains to the Wabash River which later flows into the Ohio River. The Ohio River drains into the Mississippi River which ultimately spills into the Gulf of Mexico.

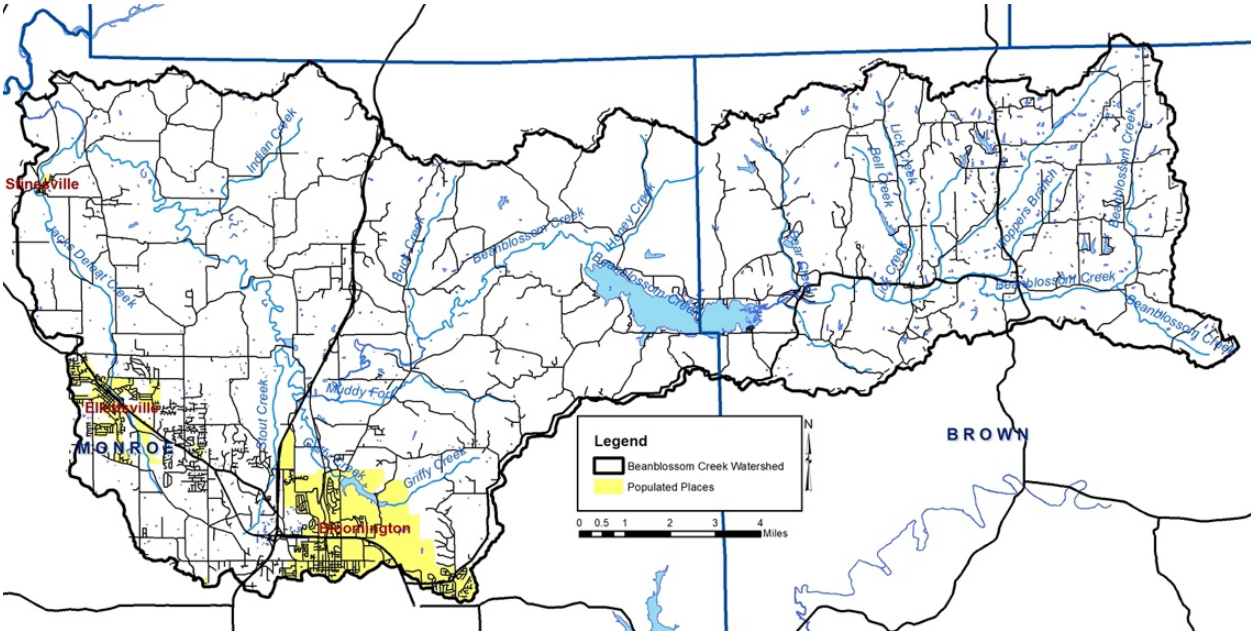

Figure 1. The Beanblossom Creek Watershed.

2. DOCUMENTATION OF COMPLETED TASKS

Task A: Produce a watershed management plan for the Beanblossom Creek Watershed that includes all elements listed in the State's *Watershed Management Plan Checklist* (updated 2009).

The Vermilion SWCD developed a watershed management plan in accordance with IDEM's *Watershed Management Plan Checklist Instructions, June 2009*. To begin this effort, SWCD staff and the Watershed Coordinator identified all potential partners and approached each entity about providing a representative to serve on the project's steering committee. Individuals representing the cities, towns, and counties within the watershed; environmental groups; natural resource and engineering professionals; and industrial and educational entities comprised the steering committee. In total, 40 individuals attended steering committee meetings. Meetings occurred April 4, June 6, and October 10, 2024, and February 3, April 28, June 2, August 4, and October 6, 2025. These individuals guided the planning effort; refined and grouped stakeholder concerns; identified draft goals; developed subcommittees to flesh out objectives and strategies for each goal; and reviewed all water quality data, loading calculations, and drafts of the watershed management plan. These individuals also served as a conduit of information about the planning effort and its future goals.

Stakeholder Concerns

Throughout the planning process, project stakeholders, the steering committee, and the general public detailed concerns for Beanblossom Creek, its tributaries, and the Beanblossom Creek Watershed. Public and committee meetings formed the primary mechanism for individual concerns to be recorded; however, concerns were also gathered at other education events. The committee and public's concerns voiced throughout the process are listed in Table 1. The order of concern listing does not reflect any prioritization by watershed stakeholders.

Table 1. Stakeholder concerns identified during public input sessions, steering committee meetings and via the watershed inventory process

Stakeholder Concerns
E. coli levels are elevated in Beanblossom Creek
Sources of E. coli – human and other (wildlife, campgrounds, recreation locations)
Septic use and maintenance
Livestock access to streams
Confined feeding operations
Unregulated, domestic livestock
Manure volume
Nutrient concerns
Algal blooms – Lake Lemon, Griffy Lake, University Lake
Sediment accumulation and dredging
Streambank erosion
Soil loss
Sediment erosion
Presence of highly erodible soils
Fish consumption
Low dissolved oxygen
Impaired biotic communities
Hydraulic processes – stream behavior, options for stabilization in the future
Streams are more flashy (hydrologic alteration)
Low flow/intermittent conditions present in watershed streams during drought
Habitat loss
Land conversion – development, wetland loss
Wetland loss
Wetland preservation and education
Stormwater impacts
Karst portions of the watershed
Forest management – improper use of BMPs, recreation impacts (foot traffic, trail riding, biking, ATVs)
Forest management
Improper use of forestry BMPs
Recreation impacts: Foot traffic, trail riding
Recreation impacts: Biking, ATVs
Timber management: logging, unregistered/uncertified loggers
Lowhead dam on Beanblossom Creek
Public awareness to lakeshore owners on small lakes
Source water concerns (small lakes and ponds are used for drinking water)
Lake Lemon, Griffey Lake have been back up drinking water source for City of Bloomington
- Are either currently a drinking water source?
- Does DNR recognize them as a drinking water source?

Stakeholder Concerns
- Monroe planning is considering adding an overlay around portions of Lake Lemon to add erosion protection
Legacy pollutants – abandoned or closed quarries, underground storage tanks (including leaking), voluntary remediation sites, industrial waste facilities
Closed landfill
Pharmaceutical concentrations – Brown RSD/BCHD have some data
Mercury
Metals
Railway/highway impacts and potential for contamination
Trash, illegal dumping, auto salvage yards
Pesticide use
Quarries
Invasive species (aquatic and terrestrial)

Geographic information system (GIS) data, watershed inventories, and historic and current water quality data were used to determine the severity and validity of stakeholder concerns. Mapping efforts are detailed in the watershed management plan and are not repeated in full detail herein. The majority of the Beanblossom Creek Watershed is covered by deciduous forest (66%) Nearly 12% of the watershed is mapped with pasture and hay land, while developed open space covers 6% of the watershed. Cultivated crops cover 5% of the watershed, while mixed forest covers nearly 4% of the area. Combined, grassland, open water, low, medium and high-density development, woody wetland, barren land, evergreen forest, shrub and emergency wetland represent less than 7% of the remaining land in the Beanblossom Creek Watershed. Highly erodible soils cover almost 91% of the watershed or 18.165.6 acres. Highly erodible soils are found throughout the watershed with no discernable pattern of location. All other soils are not rated as highly erodible. Nearly 19,734.6 acres or 98.3% of the watershed is covered by soils that are considered very limited for use in septic tank absorption fields. The small, remaining acres are not rated for septic usage. Tile drained soils are those soils located on cultivated cropland and classified as somewhat poorly, poorly, and very poorly drained.

The Beanblossom Creek Watershed was inventoried by watershed inventory volunteers and staff in the spring of 2024 Figure 2 details locations throughout the Beanblossom Creek Watershed where problems were identified. Much of the watershed is not visible from the road and additional assessments will be on-going; therefore, those identified in Figure 2 should not be considered exhaustive. Nearly 1.8 miles of streams possessed limited buffers, nearly 7.4 miles of streambank were eroded, and livestock had access to nearly 0.6 miles of streams. Note that these data are preliminary and additional inventory efforts will augment this map as the project moves forward.

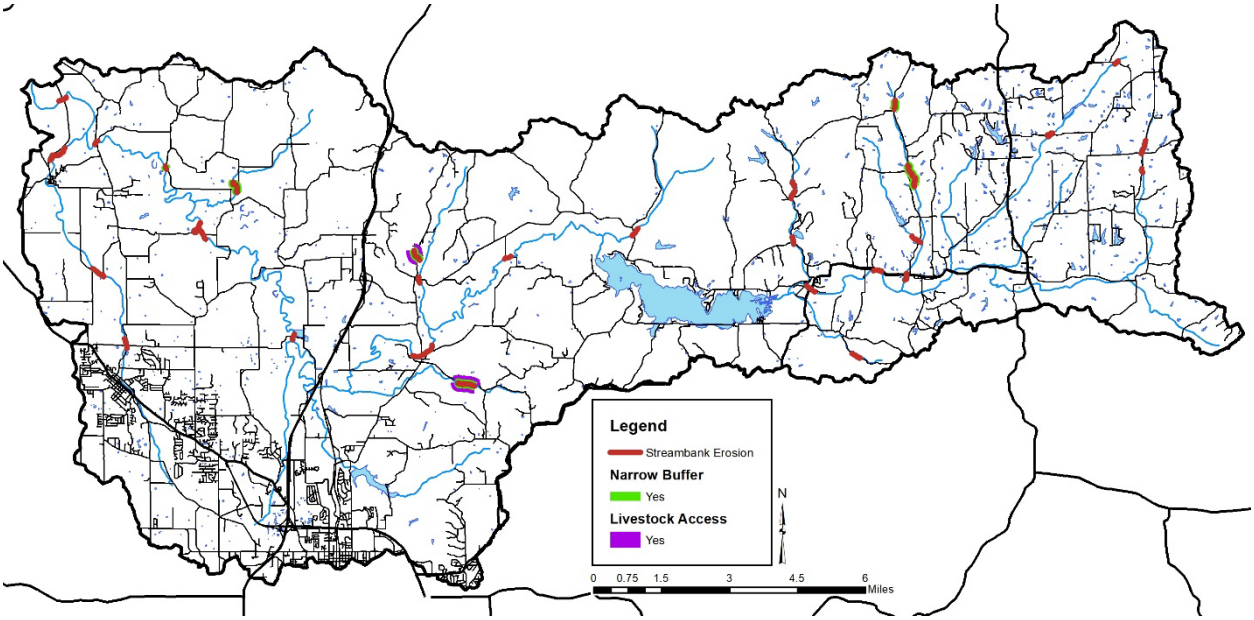

Figure 2. Stream-related watershed concerns identified during watershed inventory efforts.

Table 2. Water quality benchmarks used to assess water quality from historic and current water quality assessments.

Parameter	Water Quality Benchmark	Source
Dissolved oxygen	>4 mg/L	Indiana Administrative Code
pH	>6 or <9	Indiana Administrative Code
Temperature	Monthly standard	Indiana Administrative Code
Conductivity	<1050 mmhos/cm	Indiana Administrative Code
E. coli	<235 colonies/100 mL	Indiana Administrative Code
Nitrate-nitrogen	<1.5 mg/L	Dodds et al. (1998)
Ammonia-nitrogen	0.0 – 0.21 mg/L	Indiana Administrative Code
Total phosphorus	<0.08 mg/L	Dodds et al. (1998)
Orthophosphorus	<0.05 mg/L	Dunne and Leopold (1978)
Total suspended solids	<15 mg/L	Waters (1995)
Turbidity	<5.7 NTU	USEPA (2001)
Qualitative Habitat Evaluation Index	>51 points	IDEM (2008)
Index of Biotic Integrity	>36 points	IDEM (2008)
Macroinvertebrate Index of Biotic Integrity	>2.2 points (old) >36 points (new)	IDEM (2008)

A variety of water quality assessment projects have been completed within the Beanblossom Creek Watershed. Statewide assessments and listings include the impaired waterbodies assessment and fish consumption advisories. Additionally, the Indiana Department of Environmental Management (IDEM), Brown County Regional Sewer District, Monroe County Soil and Water Conservation District, Indiana University and Hoosier Riverwatch volunteers have all completed assessments within the watershed.

Based on historic data, Table 3 highlights those locations within the Beanblossom Creek Watershed where concentrations of these parameters measured higher than the target concentrations or those

locations where impaired waterbodies were identified by IDEM. Table 3 summarizes where historic samples were outside the target values and are grouped by subwatershed.

Table 3. Percent of samples historically collected in Beanblossom Creek subwatersheds which measured outside target values.

Subwatershed	Cond	DO	pH	TKN	Nitrate	OrthoP	TP	TSS	Turb	E. coli
North Fork (101)	7%	0%	0%	80%	89%	100%	33%	24%	58%	55%
Bear Creek (102)	3%	1%	0%	50%	63%	43%	9%	11%	78%	65%
Lake Lemon (103)	0%	0%	0%	--	100%	--	--	42%	69%	80%
Honey Creek (104)	0%	6%	0%	--	0%	0%	--	0%	100%	33%
Buck Creek (105)	0%	2%	3%	--	30%	28%	0%	11%	98%	31%
Stout Creek (106)	0%	0%	0%	67%	18%	13%	0%	53%	97%	90%
Indian Creek (107)	0%	10%	0%	82%	63%	100%	83%	52%	97%	63%
Jacks Defeat Creek (108)	0%	1%	0%	0%	47%	54%	100%	22%	93%	44%

Dissolved oxygen exceedances occurred historically across much of the watershed; however, none of the subwatershed DO levels exceeded state standards in 50% or more of collected samples. Indian Creek-Beanblossom Creek samples exceeded state standards in a relatively high volume of collected samples (10%) Conductivity exceedances occurred in 7% of North Fork Beanblossom Creek and 3% of Bear Creek-Beanblossom Creek samples while continuous data indicates conductivity exceedances are common in the Jacks Defeat Creek-Beanblossom Creek subwatershed. A limited number of pH exceedances occurred in the Beanblossom Creek Watershed historically with only Buck Creek-Beanblossom Creek (3% exceedance) possessing exceedances.

Historic nitrate-nitrogen concentrations exceeded target concentrations in all samples collected historically in the Lake Lemon-Beanblossom Creek subwatershed. Additionally, the North Fork Beanblossom Creek, Bear Creek-Beanblossom Creek and Indian Creek-Beanblossom Creek subwatersheds possessed nitrate-nitrogen concentrations which exceeded targets in more than 50% of samples collected. Total Kjeldahl nitrogen concentrations measured in the Indian Creek-Beanblossom Creek, North Fork Beanblossom Creek, Stout Creek-Beanblossom Creek and Bear Creek-Beanblossom Creek subwatersheds exceeded water quality targets in 50% of historic samples. Total phosphorus concentrations in the Jacks Defeat Creek-Beanblossom Creek and Indian Creek-Beanblossom Creek subwatersheds exceeded water quality targets in 50% or more of samples collected. Orthophosphorus concentrations were also elevated exceeding water quality targets in 50% or more of samples in the North Fork Beanblossom Creek, Indian Creek-Beanblossom Creek and Jacks Defeat Creek-Beanblossom Creek subwatersheds. TSS concentrations exceeded water quality targets in 50% of collected samples in the Stout Creek-Beanblossom Creek and Indian Creek-Beanblossom Creek subwatersheds. Turbidity levels exceeded water quality targets in 50% or more of collected samples in all subwatersheds and exceeded targets in more than 90% of samples collected in the Stout Creek-Beanblossom Creek, Lake Lemon-Beanblossom Creek, Bear Creek-Beanblossom Creek, Indian Creek-Beanblossom Creek and North Fork Beanblossom Creek subwatersheds historically. E. coli concentrations measured in the Stout Creek-Beanblossom Creek, Lake Lemon-Beanblossom Creek, Bear Creek-Beanblossom Creek, Indian Creek-Beanblossom Creek and North Fork Beanblossom Creek subwatersheds exceeded state standards in more than 50% of samples collected.

Figure 3 and Table 4 summarizes current samples which measured outside the target values during the current assessment. The Honey Creek-Beanblossom Creek subwatershed site exceeded dissolved

oxygen state standards in more than 50% of collected samples. Additionally, all subwatersheds except Stout Creek-Beanblossom Creek exceeded dissolved oxygen state standards in more than 20% of collected samples. No pH or conductivity concentrations exceeded targets in the Beanblossom Creek Watershed.

Table 4. Percent of samples collected by subwatershed in the Beanblossom Creek Watershed during the 2024-2025 sample collection which measured outside target values.

Subwatershed	DO	pH	Turb	Cond	TP	Nitrate	TN	TSS	Ecoli
North Fork (101)	29%	0%	17%	0%	4%	9%	33%	0%	58%
Bear Creek (102)	36%	0%	41%	0%	14%	9%	9%	5%	27%
Lake Lemon (103)	No data collected.								
Honey Creek (104)	58%	0%	75%	0%	8%	0%	0%	0%	0%
Buck Creek (105)	24%	0%	56%	0%	26%	0%	26%	21%	38%
Stout Creek (106)	17%	0%	75%	0%	58%	75%	92%	50%	33%
Indian Creek (107)	25%	0%	67%	0%	42%	50%	100%	58%	25%
Jacks Defeat Creek (108)	25%	0%	67%	0%	67%	67%	100%	50%	50%

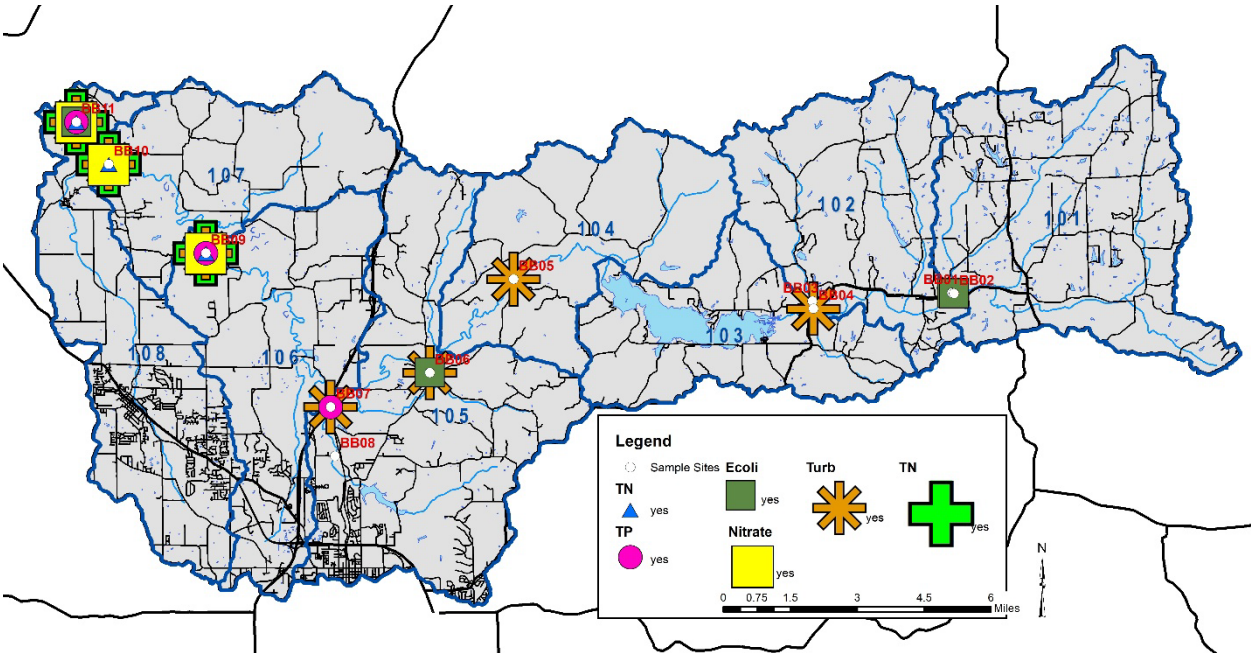

Figure 3. Beanblossom Creek Watershed sampling sites that exceed target values during the current sampling period.

Using data collected through the watershed inventory, stakeholder concerns detailed in Table 5 were evaluated to determine their validity and consequences to the Beanblossom Creek watershed. All of the identified concerns generated both from stakeholder input and through water quality and watershed inventory efforts are detailed in Table 5. The steering committee rated each concern as to whether it is supported by watershed-based data, what evidence does or does not support the concerns, whether the concern is quantifiable, whether it is in the scope of the watershed management plan, and if it is something on which the committee wants to focus. Nearly all concerns were quantifiable, and many were rated as being within the scope and items on which the committee wants to focus.

Table 5. Analysis of stakeholder concerns identified in the Little Blue River Watershed.

Concern	Supported by our data?	Evidence	Able to Quantify?	Outside Scope?	Group wants to focus on?
E. coli levels are elevated in Beanblossom Creek	Yes	21% of TSS, 27% of TP, 21% of nitrate, 44$% of TN and 36% of E. coli samples collected during the WMP monitoring exceed water quality targets. 43% of TSS, 83% of turbidity, 71% of TP, 35% of nitrate 51% of E. coli samples collected historically exceed water quality targets. 257 miles are impaired for E. coli, 12.1 miles are impaired for DO. 0.6 miles of livestock access identified, 7.4 miles of streambank erosion, 1.8 miles of narrow buffer. One CFO (795 cattle), 235+ unregulated animals identified. Estimated 32,752 t manure produced annually, 17,638 lb N, 8,816 lb P, 1.44E+15 col produced annually. Soils which are very limited for septic use cover 83% of the watershed. Dredging of Lake Lemon is on-going.	Yes	No	Yes
Sources of E. coli – human and other (wildlife, campgrounds, and recreation locations)					
Livestock access to streams	Yes		Yes	No	Yes
Confined feeding operations	Yes		Yes	No	Yes
Unregulated, domestic livestock	Yes		Yes	No	Yes
Manure volume	Yes		Yes	No	Yes
Septic use and maintenance	Yes		Yes	No	Education
Nutrient concerns	Yes		Yes	No	Yes
Sediment accumulation and dredging	Yes		Yes	No	Yes
Streambank erosion					
Soil loss					
Sediment erosion					
Presence of highly erodible soils	Yes	Highly erodible soils cover 91% of the watershed. Highly erodible soils are found throughout the watershed with lesser amounts along the mainstem of Beanblossom Creek in Monroe County.	Yes	No	Yes
Algal blooms – Lake Lemon, Griffy Lake, University Lake	Yes	The 2008 Beanblossom WMP notes the presence of toxic algae (2002, 2004, 2005) in various Lake Lemon water quality samples. Anecdotal information suggests that algal blooms occur in both Lake Lemon and Griffy Lake.	Yes	No	Yes Education ID & Treatment
Fish consumption	Yes		Yes	No	Education

Concern	Supported by our data?	Evidence	Able to Quantify?	Outside Scope?	Group wants to focus on?
Mercury		Consumption advisories for sensitive populations are in place Brown and Monroe County including specific species from Lake Lemon (bluegill, common carp, largemouth bass, redear sunfish) as well as species across both counties for sensitive populations. 35.7 miles of watershed streams (PCBs) and Griffy Lake (mercury) are listed as impaired for fish consumption.			
Low dissolved oxygen	Yes	Waterbodies are listed as impaired for impaired biotic communities (16.5 miles). DO: 35% of samples collected during WMP development and 17% of historic samples exceed water quality targets.	Yes	No	Yes
Impaired biotic communities	Yes		Yes	No	Yes
Hydraulic processes – stream behavior, options for stabilization in the future. Streams are more flashy (hydrologic alteration) Low flow/intermittent conditions present during drought	Yes	Soils drained by tile drains cover approximately 4% of the watershed. Nearly 45 miles of regulated tiles and drains are located in the watershed. 6% of the watershed is mapped as floodplain.	Yes	No	Yes
Habitat loss	Yes	Bloomington Park Board, The Nature Conservancy, Sycamore Land Trust, US Fish & Wildlife Service, DNR Forestry and Nature Preserves, Indiana University maintain, preserve and protect natural areas in the watershed.	Yes	No	Yes
Land conversion – development, wetland loss		6% of the watershed is mapped as floodplain. 4% of the watershed is mapped as wetlands. 488.7 acres are located on protected lands.			
Wetland loss					
Wetland preservation and education					

Concern	Supported by our data?	Evidence	Able to Quantify?	Outside Scope?	Group wants to focus on?
Stormwater impacts		9% of the watershed is in urban land uses. The BEQI noted that eroding streambanks and sediment carried in stormwater runoff is a major source of sediment and nutrients. The Beanblossom TMDL notes that unregulated stormwater runoff is a source of E. coli.			
Karst portions of the watershed	Yes	Nearly 3,573 acres of the watershed (3%) is covered by karst with 14 karst springs identified.	Yes	No	Yes
Forest management – improper use of BMPs recreation impacts (foot traffic, trail riding, biking, ATVs)	Yes	Forested land covers 71% of the watershed. In total, 66% of the watershed is 75% or more covered by forest canopy. The IDNR Forestry owns nearly 12,020 acres while US Fish and Wildlife own nearly 79 acres in the watershed. Maintenance and improper BMP use, recreation impacts and timber management needs have not been catalogued but are supported by anecdotal information.	Yes	No	Yes
Recreation impacts (ATVs)			Yes	No	Yes
Timber management – improper use of BMPs, logging, unregistered/ uncertified loggers			Yes	No	Yes
Lowhead dam on Beanblossom Creek	Yes	One lowhead dam is located on Beanblossom Creek upstream of SR 37. It measured 40 feet long, 5 feet high.	Yes	No	Yes
Public awareness to lakeshore owners on small lakes	Yes	Anecdotal evidence suggests that education of owners and residents of small lakes within the watershed is needed. Brown co entities have hosted small lake focused ed. More education is needed.	Yes	No	Yes
Source water concerns: Small lakes and ponds are used for drinking water	Yes	Source water protection is a process that aims to keep drinking water sources safe from contamination and overuse. It involves a variety of actions and activities to maintain, improve, or safeguard the quality and quantity of water sources. The current level of protection of small (private drinking water) and large waterbodies (back up, public drinking water) in the watershed is currently being investigated.	Yes	No	Yes
Lake Lemon, Griffy Lake have been back up drinking water source for City of Bloomington drinking water source?					

Concern	Supported by our data?	Evidence	Able to Quantify?	Outside Scope?	Group wants to focus on?
Legacy pollutants – abandoned or closed quarries, underground storage tanks (including leaking), voluntary remediation sites, industrial waste facilities	Yes	More than 11 industrial waste sites, 76 underground and 41 LUST facilities, 5 voluntary remediation 1sites, 2 solid waste site, 3 brownfields and 2 former SUPERFUND sites are located within the watershed. The landfill that is noted as closed is indeed closed, its impacts to local water quality have not been specifically investigated.	Yes	Yes	No
Metals					
Closed landfill					
Pharmaceutical concentrations	Yes	2019 BCHD data (17 streams, 1 lake) indicate seven of 20 pharmaceutical products were identified in Brown County waterbodies. Concentrations varied with some samples exceeding target water quality values.	Yes	No	Yes
Trash, illegal dumping, auto salvage yards	Yes	Long term dumping locations were mapped as part of the inventory; trash is present along watershed streams. Anecdotal evidence based on communication with stakeholders.	Yes	No	Yes
Pesticide use	Yes	NASS 2007 survey data suggest that 4.7 tons of atrazine and 5.2 tons of glyphosate are applied annually to Brown and Monroe County cropland.	Yes	No	Education
Quarries	Yes	IGWS mapped 52 abandoned mineral/industrial quarries (2001). Approximately 8 operational quarries are present in the watershed. Anecdotal information indicates that quarries follow non-standard regulation, discharge water from their property to watershed streams, that education of their staff on wastewater and process water outflows are needed.	Yes	No	Yes
Railway impacts and potential for contamination due to spills	Yes	The number of spills could not be identified. There are seven highway and train crossings over Beanblossom waterbodies.	Yes	No	Education
Invasive species (aquatic and terrestrial)	Yes	Aquatic and terrestrial invasive species are present across the watershed	Yes	No	Yes

Figure 4 details the critical and priority areas prioritized by the Beanblossom Creek steering committee to identify the highest priority subwatersheds, the steering committee decided to divide them into three tiers (high, medium and low priority), based on the number of parameters that were determined to be critical. The highest priority subwatersheds are those that were determined to be critical for three or more parameters of the four potential parameters (nutrients, sediment, *E. coli*, flooding). The medium priority subwatersheds are those that were determined to be critical for two of four potential parameters. The lowest priority subwatersheds were critical for one of four potential parameters.

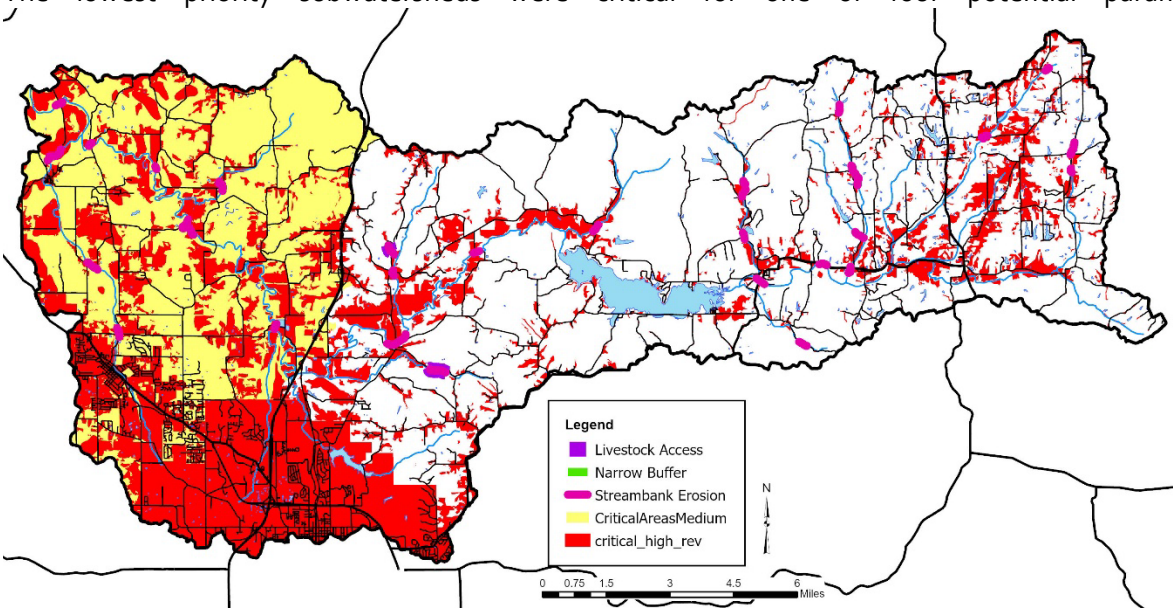

Figure 4. Critical and priority areas in the Beanblossom Creek Watershed.

Implementation efforts will target high priority critical areas first, followed by medium priority then low priority areas. It is anticipated that implementation efforts will be targeted in medium and low priority subwatersheds as part of EPA-funded implementation efforts only after implementation efforts are exhausted in higher priority areas. Implementation via other funding sources, via landowner interest in NRCS-based federal funding programs will occur as landowners are interested. The Beanblossom Creek stakeholder group will continue volunteer monitoring efforts to continue to assess the quality of these subwatersheds and identify any changes in water quality as they occur.

After setting initial goals, the steering committee reviewed the likelihood of meeting water quality targets based on these critical areas.

Reduce Nutrient Loading

Based on modeled data for the Beanblossom Creek Watershed, the committee set the following long-term goals: Reduce nitrate-nitrogen loading from 382,706 lb/year to 182,452 lb/year (52%) by 2056 and reduce total phosphorus loading from 84,942 lb/year to 14,596 lb/ year (83%) by 2056.

- Short term goal: Reduce total phosphorus inputs from 84,894 pounds per year to 61,493 pounds per year (28% reduction) and nitrate-nitrogen from 382,706 pounds per year to 315,955 pounds per year (17% reduction) in the Beanblossom Creek in 10 years (2036).
- Medium term goal: Reduce total phosphorus inputs from 61,493 pounds per year to 38,045 pounds per year (38% reduction) and nitrate-nitrogen from 315,955 pounds per year to 249,204 pounds per year (21% reduction) in the Beanblossom Creek in 10 years (2046).

- Long term goal: Reduce total phosphorus inputs from 38,045 pounds per year to 14,596 pounds per year (62% reduction) and nitrate-nitrogen from 249,204 pounds per year to 182,452 pounds per year (27% reduction) in Beanblossom Creek in 10 years (2056).

Table 6. Nitrate-nitrogen short, medium, and long-term goal calculations for prioritized critical areas in Beanblossom Creek.

Goal Timeframe	Current Load (lb/yr)	Load Reduction (lb/yr)	Target Load (lb/yr)	Percent Reduction
Short Term (10 years)	382,706.5	66,751.4	315,955.0	17%
Medium Term (20 years)	315,955.0	66,751.4	249,203.6	21%
Long Term (30 years)	249,203.6	66,751.4	182,452.2	27%

Table 7. Total phosphorus short, medium, and long-term goal calculations for prioritized critical areas in Beanblossom Creek.

Goal Timeframe	Current Load (lb/yr)	Load Reduction (lb/yr)	Target Load (lb/yr)	Percent Reduction
Short Term (10 years)	84,942.0	23,448.6	61,493.4	28%
Medium Term (20 years)	61,493.4	23,448.6	38,044.8	38%
Long Term (30 years)	38,044.8	23,448.6	14,596.2	62%

Reduce Sediment Loading

Based on modeled data for the Beanblossom Creek Watershed, the committee set the following long-term goal: reduce total phosphorus loading from 28,035 t/year to 1,368 t/year (95%) by 2056.

- Short term goal: Reduce total suspended solids inputs from 28,035 tons per year to 19,146 tons per year (32% reduction) in Beanblossom Creek in 10 years (2036).
- Medium term goal: Reduce total suspended solids inputs from 19,146 tons per year to 10,257 tons per year (46% reduction) in Beanblossom Creek in 10 years (2046).
- Long term goal: Reduce total suspended solids inputs from 10,257 tons per year to 1,368 tons per year (87% reduction) in Beanblossom Creek in 10 years (2056).

Table 8. Total suspended solids short, medium, and long-term goal calculations for prioritized critical areas in Beanblossom Creek.

Goal Timeframe	Current Load (t/yr)	Load Reduction (t/yr)	Target Load (t/yr)	Percent Reduction
Short Term (10 years)	28,034.5	8,888.7	19,145.8	32%
Medium Term (20 years)	19,145.8	8,888.7	10,257.1	46%
Long Term (30 years)	10,257.1	8,888.7	1,368.4	87%

Reduce *E. coli* Loading

Based on monitored current loading rates and modeled targets for the Beanblossom Creek Watershed, the committee set the following long-term goal: reduce E. coli loading from 1.41E+15 to 1.94E+13 (99%) by 2056.

- Short term goal: Reduce E. coli inputs from 1.41E+15 colonies per year to 9.50E+14 colonies per year (33% reduction) in Beanblossom Creek in 10 years (2036).
- Medium term goal: Reduce E. coli inputs from 9.50E+14 colonies per year to 4.85E+14 colonies per year (49% reduction) in Beanblossom Creek in 10 years (2046).
- Long term goal: Reduce E. coli inputs from 4.85+14 colonies per year to 1.94+13 colonies per year (96% reduction) in Beanblossom Creek in 10 years (2056).

Table 9. E. coli short, medium, and long-term goal calculations for prioritized critical areas in Beanblossom Creek.

Goal Timeframe	Current Load (lb/yr)	Load Reduction (lb/yr)	Target Load (lb/yr)	Percent Reduction
Short Term (10 years)	1.41E+15	4.65E+14	9.50E+14	33%
Medium Term (20 years)	9.50E+14	4.65E+14	4.85E+14	49%
Long Term (30 years)	4.85E+14	4.65E+14	1.94E+13	96%

Increase Public Awareness and Education

Long term: By 2056, 70% of watershed households will be informed about practices that can be implemented to positively impact Beanblossom Creek and no less than 25% of individuals living and farming in the watershed will be engaged in the project within 30 years.

Baseline in 2025 - Property owners: 15,102 parcel addresses; Producers: 158 based on DTN contact list.

Improve Habitat and Reduce Loss of Biodiversity

Improve habitat (QHEI scores), floodplain connectivity and wetland and floodplain coverage increasing numbers from the planning baseline across the watershed within 30 years.

Baseline in 2025 - Wetland acreage (NWI): 4,358 acres; floodplain land cover acreage: 14,451 acres.

Task B: Conduct a monitoring program to assist in the development of the watershed management plan.

The Beanblossom Creek Watershed Project implemented a one-year water quality monitoring program. The program included monthly water chemistry sample collection and one macroinvertebrate community and habitat assessment. The program is detailed below and in the Quality Assurance Project Plan for the Beanblossom Creek Watershed Management Plan approved on April 25, 2024. Sites sampled through this program are displayed in Figure 5. Sites sampled as part of the Beanblossom Creek Watershed Management Plan. Sample sites were selected based on watershed drainage and correspond with sites sampled by IDEM in the past. The monthly sampling regimen was enacted to create a baseline of water quality data.

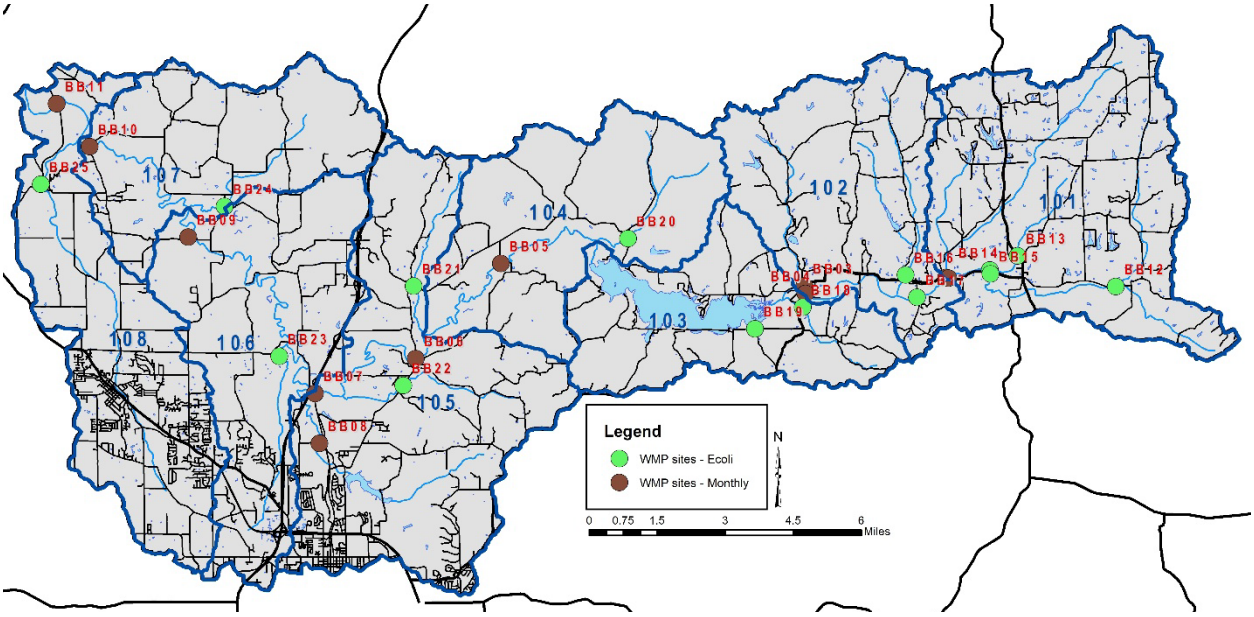

Figure 5. Sites sampled as part of the Beanblossom Creek Watershed Management Plan.

Stream Flow

Stream flow was calculated by scaling stream flow measured at the U.S. Geological Survey (USGS) stream gages to subwatershed drainage area during high flow events and measuring during high flow events. The North Fork Salt Creek stream gage near Nashville (USGS 03371650) was used for stream sites.

Field and Laboratory Chemistry Parameters

The Beanblossom Creek Watershed Project established 11 chemistry monitoring stations as part of the monitoring program. Dissolved oxygen, temperature, pH, turbidity, conductivity, ammonia nitrogen, nitrate-nitrogen, total nitrogen, total phosphorus, E. coli and total suspended solids were measured monthly at the sampling stations. An additional 14 sites were established where only E. coli was assessed for five weekly samplings from late May through June 2024 with the goal of calculating geometric means for E. coli data. Three sites were not sampled; therefore, E. coli was assessed at a total of 22 sites. Monthly sampling occurred from April 2024 through March 2025.

Biological Community and Habitat

The physical habitat at eleven of the sample sites was evaluated using the Qualitative Habitat Evaluation Index (QHEI). The Ohio EPA developed the QHEI for streams and rivers in Ohio (Rankin, 1989, 1995) and the IDEM adapted the QHEI for use in Indiana. Macroinvertebrate communities were assessed using the macroinvertebrate Index of Biotic Integrity (mIBI) with eleven sites assessed in the fall of 2024.

Field Chemistry Results

Temperatures measure approximately the same at each of the stream sites with seasonal changes in temperature creating major differences in temperature throughout the sampling period. Temperatures measured between -0.07 and 26.9 °C in all streams. The highest temperatures generally occurred during July and August assessments depending on riparian cover and stream depth present at each location.
Dissolved oxygen concentrations also display seasonal changes like those observed for temperature. Dissolved oxygen concentrations are opposite those measured for temperature. This is as expected as colder water holds more dissolved oxygen than warmer water; therefore, when water temperatures are

low, dissolved oxygen concentrations are high and vice versa. As such, the dissolved oxygen graph shows a general pattern where dissolved oxygen concentrations lower in summer. All streams display variation in dissolved oxygen concentration due to individual conditions present within each system. The lowest dissolved oxygen concentration occurred at Site 3 (Bear Creek at North Shore Drive) during September 2024 with a concentration of 0.85 mg/L. The highest dissolved oxygen concentration occurred at Site 4 (Beanblossom Creek at State Road 45) during February 2025 with a concentration of 16.75 mg/L. In total, 35% of samples (45 of 128) measured below the lower or above the higher dissolved oxygen state standard (4 mg/L and 12 mg/L, respectively).

Throughout the sampling period, pH remained in an acceptable range in all watershed streams. In total, of 128 samples, none exceeded the acceptable pH range of 6 to 9. No discernable pattern can be found in pH levels in any of the monitored streams. Elevated pH levels may be due to algal activities. . None of the 128 samples measured above state standards (1050 S/cm). The highest conductivity measured (617 S/cm) occurred at Site 8 (Griffy Creek at Bayless Road) in January 2025.

Turbidity varied greatly among the 11 sites with all sites exceeding target levels (5.7 NTU) during at least one sampling event. In total, 66 of 128 samples exceeded turbidity targets with nearly 52% of samples exceeding targets during the sampling period. The highest turbidity level occurred at Site 4 (Beanblossom Creek at SR 45) with a measurement of 1149 NTU in April. Eight sites possessed an average turbidity level greater than target levels of 5.7 NTU. Only Site 2 (Beanblossom Creek at SR 45), Site 3 (Bear Creek at North Shore Drive) and Site 8 (Griffy Creek at Bayless Road) possessed average turbidity measurements that measured below the target concentration. Site 4 (Beanblossom Creek at SR 45) possessed the highest median turbidity level (17.45 NTU). Site 6 (Beanblossom Creek at SR 37) and Site 7 (Beanblossom Creek at SR 37 Business) exceeded turbidity targets in 10 out of 11 samples.

Nitrate-nitrogen concentrations exceeded targets levels in 21% (27 of 128) of samples collected. Exceedances occurred at least once at five sites, Lick Creek (Site 1), Beanblossom Creek at SR 45 (Site 4), Beanblossom Creek at Woodland Road (Site 9), Beanblossom Creek at Bottom Road (Site 10) and Beanblossom Creek at Moon Road (Site 11), with concentrations generally highest during fall and winter. Site 9 (Beanblossom Creek at Woodland Road) possessed the greatest nitrate-nitrogen level with a measurement of 11.88 mg/L in September 2024. Site 9 (Beanblossom Creek at Woodland Road), Site 10 (Beanblossom Creek at Bottom Road) and Site 11 (Beanblossom Creek at Moon Road) possessed average nitrate-nitrogen concentration levels greater than the target of 1 mg/L. Site 9 (Beanblossom Creek at Woodland Road) possessed the greatest average concentration of 2.86 mg/L.

Total phosphorus concentrations exceed target concentrations in nearly 27% of samples collected (34 of 128; All sites exceeded total phosphorus targets at least once with the exception of Site 1 (Lick Creek at SR 45). Site 11 (Beanblossom Creek at Moon Road) possessed the greatest average total phosphorus level (0.12 mg/L) and the most occurrences of exceeding the target value. Site 4 (Beanblossom Creek at SR 45), Site 6 (Beanblossom Creek at SR 37), Site 7 (Beanblossom Creek at SR 37 business), Site 9 (Beanblossom Creek at Woodland Road) and Site 10 (Beanblossom Creek at Bottom Road) also possessed average total phosphorus concentrations greater than the level at which biological impairments occur (0.08 mg/L).

Total suspended solids (TSS) levels measured above target levels (15 mg/L) in 27 of 128 (21%) samples collected. Site 10 (Beanblossom Creek at Bottom Road) possessed the greatest number of exceedances. Site 7 (Beanblossom Creek at SR 37 Business) possessed the highest TSS measurement with 97.6 mg/L during May 2024. Site 7 (Beanblossom Creek at SR 37 Business), Site 9 (Beanblossom Creek at Woodland

Road), Site 10 (Beanblossom Creek at Bottom Road) and Site 11 (Beanblossom Creek at Moon Road) all possessed an average TSS level above the target level of 15 mg/L with Site 11 having the greatest average TSS level (18.9 mg/L).

E. coli concentrations from monthly sampling observed at Beanblossom Creek Watershed sample sites are shown in Figure 6**Error! Reference source not found.**. *E.* coli concentrations exceed state standards (235 col/100 mL) in 36% (46 of 128) of collected samples. Exceedances occurred at all sites at least once, with the exception of Site 5 (Beanblossom Creek at Shilo Road). Site 2 (Beanblossom Creek) possessed the greatest number of exceedances. Site 2 (Beanblossom Creek at SR 45) and Site 6 (Beanblossom Creek at SR 37) possessed average concentrations which measured higher than the state standard.

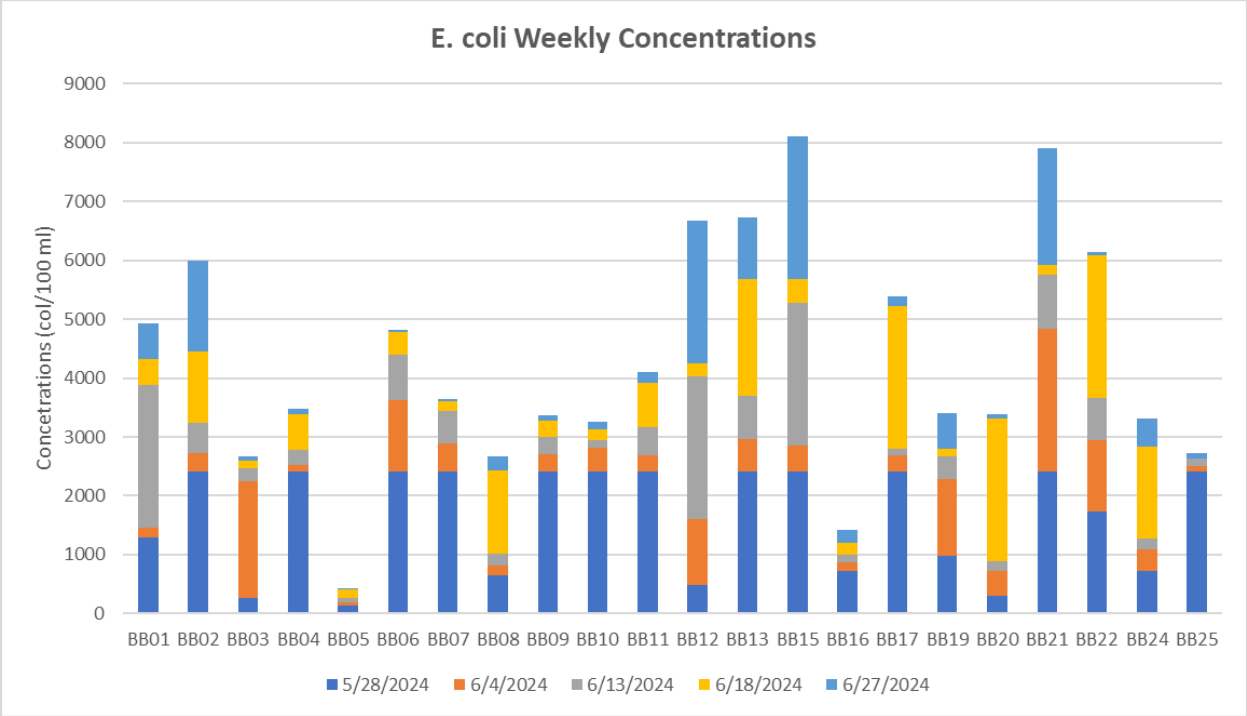

Figure 6. E. coli concentrations values from five weekly sampling events May 28 to June 27, 2024 at 22 Beanblossom Creek watershed sites.

Biological Community Results

Site 1 (Lick Creek at SR 45) and Site 3 (Bear Creek at North Shore Drive) supported the most diverse macroinvertebrate community with 14 and 13 families observed, respectively. Lick Creek (Site 1), Bear Creek (Site 3) and Griffy Creek at Bayless Road (Site 8) possessed the highest mIBI scores with all sites rating as fair. Site 1 (Lick Creek at SR 45), Site 3 (Bear Creek at North Shore Drive) and Site 9 (Beanblossom Creek at Woodland Road) also rated as fair. Site 10 (Beanblossom Creek at Bottom Road) rated as very poor. The remaining sites are rated as poor. Site 10 (Beanblossom Creek at Bottom Road) supported the least diverse community with six families observed and the lowest mIBI score (18). Additionally, Site 10 contained 22% tolerant taxa, with no intolerant taxa. This site had the lowest number of EPT taxa observed with only one family collected.

Habitat Assessment

Stream water quality and available habitat influence the quality of a biological community in a stream, and it is necessary to assess both factors when reviewing biological data. Each of the eleven sites were

sampled in the Beanblossom Creek Watershed during September 2024. Site 2 (Beanblossom Creek at SR 45), Site 4 (Beanblossom Creek at SR 45), Site 5 (Beanblossom Creek at Shilo Road), Site 7 (Beanblossom Creek at SR 37 business), Site 8 (Griffy Creek at Bayless Road), Site 9 and Site 11 (Beanblossom Creek at Moon Road) rate as good, while Site 1 (Lick Creek at SR 45) and Site 6 (Beanblossom Creek at SR 37) rate as fair and Site 3 (Bear Creek at North Shore Drive) and Site 10 (Beanblossom Creek at Bottom Road) rate as poor. Site 4 (Beanblossom Creek at SR 45) is characterized by stream substrate, channel morphology, riparian zone, pool/riffle development scores that contributed to a higher quality QHEI score. Site 3 (Bear Creek at North Shore Drive) and Site 10 (Beanblossom Creek at Bottom Road) both rated as very poor. Site 3 (Bear Creek at North Shore Drive) had no riffles, severe bank erosion and a narrow to very narrow riparian zone, while Site 10 (Beanblossom Creek at Bottom Road) possessed moderate to severe bank erosion, a narrow to moderate riparian zone, and lacked pool/riffle complexes.

Task C: Conduct an education and outreach program designed to bring about behavioral changes that will lead to reduction in nonpoint source pollution in the watershed.

The Beanblossom Creek Watershed Project developed an education program based on a combination of required grant-based elements and the needs and wants of the education committee and community partners. All efforts were led by the Beanblossom Creek steering committee. Public participation is necessary for the long-term success of any watershed planning and subsequent implementation effort. With this in mind, the Beanblossom Creek Watershed Project mixed hands-on, field activities with static, traditional information sources to provide a balanced education and outreach program to watershed stakeholders.

Educational Materials: Education and outreach materials were developed throughout the planning and implementation process. The Beanblossom Creek Project webpage (https://www.monroecoswcd.org/beanblossom-watershed-project.html) was created to focus on the Beanblossom Creek watershed project. The webpage provided up-to-date information on the status of the project, meeting and event dates, volunteer opportunities, and educational information. Updates occurred monthly at a minimum. Additionally, the site served as a clearinghouse for committee meeting information and documentation and report and educational material draft and final pieces. The website can be found at https://www.monroecoswcd.org/beanblossom-watershed-project.html.

A series of promotional fliers were developed for workshops and field days throughout the project. Copies of brochures, fliers, event promotional pieces and postcards are included in Appendix 1.

Hands-on Educational Activities: The Beanblossom Creek Project hosted five field days or workshops, one focused on cover crops on March 12, 2024, the Brown County Septic Summit on September 14 of 2024, two Women 4 the Land workshops: One focused on land forest management on May 17, 2024 and a second on wildlife habitat conservation on April 30, 2025 and invasive species removal training on June 20, 2025. They also hosted public meetings on March 19, 2024 and December 8, 2025.

Additionally, the Beanblossom Creek Project attended a number of community events to promote the project. The 2024 events included Brown County Ag Day Breakfast on March 2, Brown County Native Flowers & Insect Friends on April 1, the Monroe County Garden Fair on April 13, a Prescribed Fire Forum and Field Tour of Griffy Lake on April 13, the Bloomingfoods Co-Op Market Earth Fest on April 20, Brown County Earth Day on April 20, Childrens' Farm Fest on August 24, and Ellettsville Jacks Defeat Creek Cleanup on September 21. In 2025, they attended the Monroe County Annual Meeting on March 1, the Brown County Annual Meeting on March 24, the Monroe County Master Gardeners Spring Garden Show on April 12, and the Conservation Day at the Monroe County Fair on July 3, Fall native plant sale on

September 6, Cover crop information session on July 22, invasive plant workshop on July 25, Nature Daze on September 20, Hitz-Rhodehamel Fall Bird Walk on October 10, and a weed wrangle in Brown County on October 30.

Hoosier Riverwatch training was hosted on June 8, 2024 and again on August 17, 2025. Monitoring occurred at eight sites on February 9;March 6; April 17; May 16; June 20; July 8, 9 or 26; September 6 or 9; October 17 or 25; November 19, December 19, 2024 and January 26, 27 or 30; February 28, March 24 or 29; April 21; May 23 or 28; June 27 or 29; July 31; August 17; October 5; November 9; and December 12 or 22, 2025.

Press Releases and Newsletters: The Beanblossom Creek Project distributed nine newsletter articles or press releases to promote efforts associated or affiliated with the implementation and education program. Press releases were sent to each of the local newspapers, television and radio stations in Bloomington and Nashville. Additionally, information was posted on the project website and posted to partner Facebook pages. Finally, e-mail invitations and event notices were sent to individuals listed on the Beanblossom Creek Project email list and distributed through the SWCD email systems. Releases or newsletters were sent on February 22, March 1, April 2, and May 31, 2024; January 29, May 13, July 10, October 6, and November 3, 2025.

Meetings: The Beanblossom Creek Project steering committee gathered eight times: April 4, June 3, October 10, 2024; February 3, April 28, June 2, August 4, and October 6, 2025. During their meetings, the steering committee reviewed materials and plan drafts completed since the previous meeting and addressed questions or issues to complete the next section of the watershed management plan.

3. EVALUATION OF SUCCESS IN MEETING PLANNED OUTCOMES

Project Outcome I: Baseline water quality monitoring program complete. The Beanblossom Creek Project met the administrative, environmental and social outcomes as follows:
Dissolved oxygen, temperature, pH, turbidity, conductivity, nitrate-nitrogen, total phosphorus, E. coli and total suspended solids were measured monthly at the sampling stations. Monthly sampling occurred from April 2024 through March 2025.

- Macroinvertebrate and fish communities were assessed at sample sites in fall of 2024. mIBI, IBI and QHEI scores calculated.
- All data collection occurred as detailed in the approved QAPP and all data met required QA/QC protocols.

Project Outcome II: 10% of estimated 10,000 stakeholders educated about water quality and how actions can impact water quality. The Beanblossom Creek Project met the administrative, environmental and social outcomes as follows:

- A targeted education program was implemented from 2024 through 2025 including workshops, field days, local meetings, local events, hosting public meetings and more.
- The Beanblossom Creek Watershed Program released press releases and newsletters throughout the project.
- More than 650 individuals engaged with the project throughout 2024 and 2025 including tabling events, public meetings, workshops, field days and more.

Project Outcome III: Watershed management plan complete. The Beanblossom Creek Project met the administrative, environmental and social outcomes as follows:

- The Beanblossom Creek Watershed Management Plan was developed through the support of a 40-member steering committee.
- The committee represents a variety of watershed stakeholders whose participation was key in the plan's development and integral in its implementation.
- IDEM approved the Beanblossom Creek Watershed Management Plan in December 2025.

4. PARTNERSHIPS

The project maintained several partnerships as part of the planning and implementation process. Relationships with each of the counties' Purdue Extension office, Surveyors, SWCD and NRCS staff, and Area Plan Commission staff were also cultivated and maintained. These relationships will continue to serve us well in the future. Many of these entities served on our steering committee and provided public participants for key activities occurring as part of our effort. Their participation, public partner participation, time, and commitment to improving the Beanblossom Creek Watershed is invaluable. These relationships will be key in future activities occurring during cost-share program development and implementation. We anticipate using each of the partners described above to successfully implement our cost-share and education programs in the future.

5. LESSONS LEARNED: SUCCESSES AND FAILURES

Lesson 1: Watershed management is all about the people! Their interest is fickle – meaning you can catch it with one activity or event but may not hold it for long. Using that interest to its fullest ability is necessary to successfully engage individuals long-term. Thankfully, many of our partnerships enabled us to capitalize on relationships already in place throughout the watershed and build on these during the implementation phase.

Lesson 2: Partnerships are required for long-term success and development of these partnerships takes time. Each partner has something they can offer to the planning and education process and finding that niche is important for both short and long-term successes in managing water quality in the Beanblossom Creek. Likewise, we have something that we can offer each partner – finding that connection is a necessary part of each partnership.

Lesson 3: Volunteers make or break a project. Our successes during this project really hinge on volunteer input of both knowledge and time. Without their efforts, our plan would be just that – ours. Through their participation, volunteers gained interest in the Beanblossom Creek, its tributaries, and its watershed, pride in their accomplishments, and a sense of ownership of the plan, event, booth space, or water quality samples. Their awe and excitement will drive the success of this project into the future.

6. ONGOING AND FUTURE ACTIVITIES

The next steps for the project include starting implementation of the Beanblossom Creek Watershed Management Plan. Monroe SWCD, the project steering committee and other regional partners, will consider options for submitting implementation-focused grant applications for IDEM Section 319 funds, Mississippi River Basin Initiative Funds, DNR LARE, Clean Water Indiana and other funds. If funded, these grants would provide funds for a cost-share program to install BMPs, promotion of the cost-share program, and an education and outreach program. If the grant is awarded, the steering committee will develop a cost-share program that will include steps to meeting the goals and management strategies of this plan. The anticipated cost-share program will use a ranking system to fund applications that will

have the most impact in improving water quality. Factors such as location within watershed (priority areas), distance from streams, number of resource concerns addressed, and number of practices planned will be considered as part of the ranking process to further prioritize BMPs. It is anticipated that implementation efforts will target high priority critical areas and focus on the implementation of short-term goals.