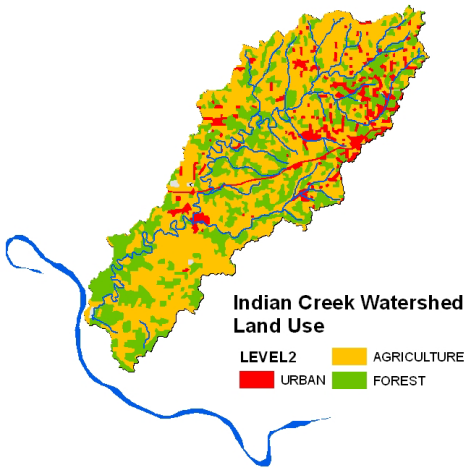
About the Indian Creek Watershed

Indian Creek is a 256-square-mile watershed located in southern Indiana. Towns include Georgetown, Greenville, Galena, Crandall, Lanesville and Corydon.

The watershed is about 48 miles long and 19 miles wide. The headwaters are located in the knobs of Clark and Floyd Counties. Indian Creek then flows through Harrison County to the Ohio River. Major tributaries include Corn Creek, Crandall Branch, Raccoon Branch, Brush Heap Creek and Little Indian Creek.

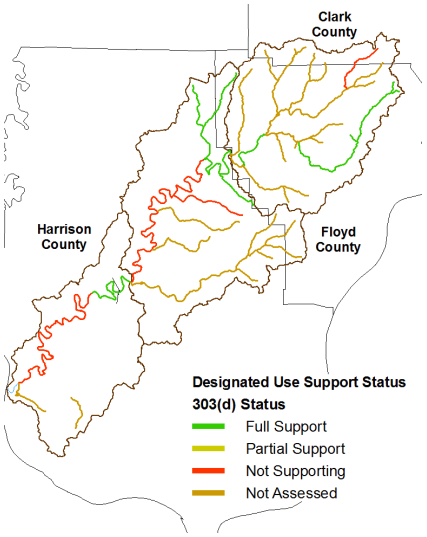
Land uses include agriculture (62%), forest (35%) and developed land (2.5%).



Indian Creek from the Floyd/Harrison County border to the Ohio River has been included on the Indiana Outstanding Rivers List due to its ecological importance.

Water Quality

The Indiana Department of Environmental Management (IDEM) monitored water quality in the Indian Creek watershed. IDEM compared the data to the State's Water Quality Standards to identify reaches with good water quality, those affected by pollution and those that need additional monitoring.



IDEM found that portions of Indian Creek and Crandall Branch have elevated levels of bacteria. Habitat and biological quality were impaired in Indian Creek and Little Indian Creek.

Through this project new monitoring data will be collected to evaluate water quality in the watershed. Results will be used to select watershed improvement and protection strategies.

Karst Features

The Indian Creek watershed includes many karst features such as caves, sinkholes and springs. Karst features are formed over centuries as rainwater dissolves limestone. Binkley Cave is an important karst feature in the watershed. At 22 miles long, it is the longest known cave in Indiana. Studies have indicated that Indian Creek feeds Binkley Cave, and the cave is connected to the Blue River.

Surface pollutants can travel underground rapidly in karst systems, where they can pollute wells. Protecting karst is important for safe water supplies. Through this project, sinkholes will be mapped and evaluated for possible pollution sources.

Watershed Goal

Foster economic development, preserve environmental quality and enhance the quality of life for all who live and work in the Indian Creek Watershed.

How can you get involved?

Visit our website

http://www.indiancreekwatershed.com/

Contact

Steve Hall, Watershed Coordinator
812-206-0100

What is a watershed?

A watershed is defined as an area of land that drains to a common point. A watershed is very much like a bowl; it has a ridge that defines its boundary and a valley that collects each drop of water that falls within its boundary.

Watersheds vary in size, and smaller watersheds exist within larger watersheds. A watershed can be a small area of land draining to a neighborhood pond or as large as the entire Mississippi River Basin.

Because we all live in a watershed, our individual and collective actions directly affect the quality of our watershed.

What is a watershed plan?

A watershed plan is a flexible framework for managing water quality and quantity within the watershed. Watershed boundaries rarely follow political boundaries. Thus, watershed planning creates a unique environment where multiple jurisdictions can work together to reduce duplication of effort and build on each other's resources and information to solve water-related problems. A multi-jurisdictional approach to addressing water quality issues often results in long-term cooperation and coordination among neighboring entities. Watershed plans identify strategies to address the most important issues currently facing the area and provide a mechanism to plan for the water resource needs of future generations.

Indian Creek Watershed Plan Subcommittee

The Harrison County Regional Sewer District formed the Indian Creek Watershed Plan Subcommittee.

Subcommittee Members

Daniel Lee, PE, Subcommittee Chair
Harrison County Regional Sewer District, & Tyson Foods

Anthony Combs
Harrison County Regional Sewer District & Harrison County Health Department

Gary Davis
Harrison County Council President

Ralph Schoen
Harrison County GIS

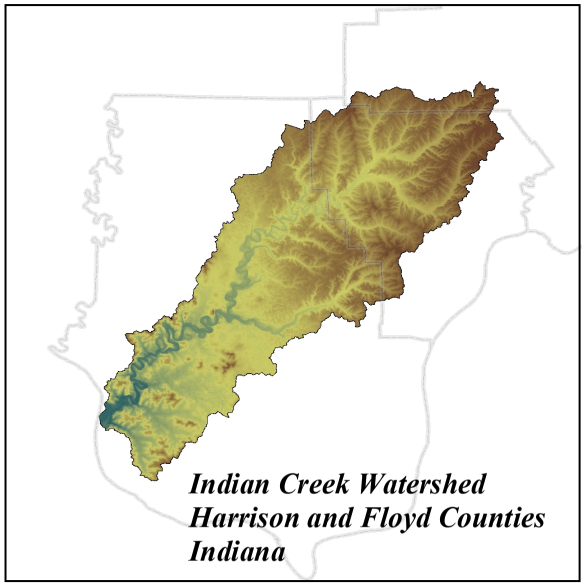
Tom Tucker
Harrison County Regional Sewer District

Eric Wise
Harrison County Planning Commission

Kevin Russell, PE
Harrison County Engineer

Don Lopp
Floyd County Planner

Indian Creek Watershed Plan



This project was funded by a Clean Water Act Section 205(j) grant from the US Environmental Protection Agency to the Indiana Department of Environmental Management to Harrison County, Indiana

Indian Creek Watershed

Press Release

September 29, 2006

For immediate release

Contact:
Dan Lee, Harrison County Regional Sewer District (812-738-5853) daniel.lee@tyson.com

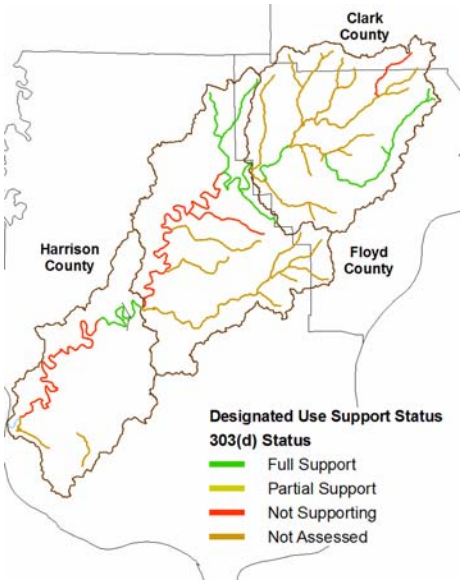
Harrison County receives grant to improve water quality
New Two-Year Project Targets Indian Creek Watershed

Corydon IN, September 22, 2006---improving water quality in the Indian Creek watershed will be the focus of a new 2-year study undertaken by the newly formed Harrison County Regional Sewer District (RSD). Through this USEPA grant-funded project, the RSD is developing a Watershed Management Plan for Indian Creek.

Indian Creek in Corydon.

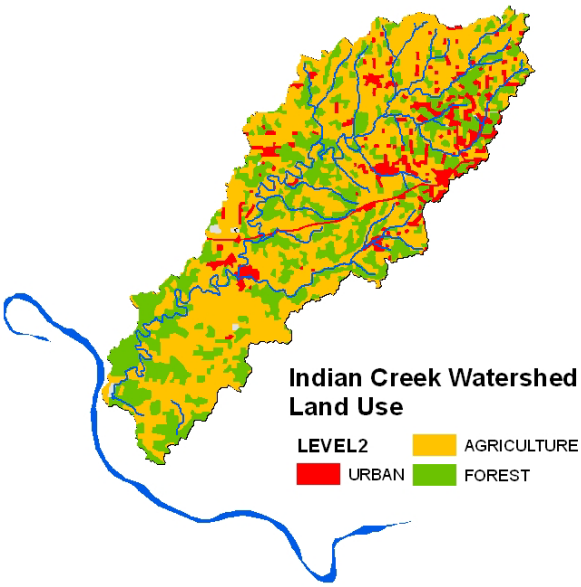
The RSD will develop a watershed management plan to provide a roadmap for protecting and improving water quality in Indian Creek. The plan will identify ways to address pollution and flooding for parts of Floyd and Harrison counties. The RSD formed the Indian Creek Watershed Subcommittee to oversee development of the Watershed Management Plan.

The project will create a resource library of water quality data, maps and other important information relevant to the watershed. In addition, project leaders will hold a series of community meetings to actively obtain input, comments and suggestions for the final watershed-based plan.



Dan Lee, Chair of the Indian Creek Watershed Subcommittee stated: “This project will produce a plan that consolidates past efforts and guides future activities to improve water quality throughout the Indian Creek watershed. The Indian Creek Watershed Management Plan grant will be a springboard to enhance future endeavors to improve Indian Creek for future generations. We are looking forward to community meetings with the public."

The Indian Creek Watershed drains portions of Floyd County and Harrison County before emptying into the Ohio River. Towns within the watershed include Greenville and Georgetown in Floyd County and Lanesville, Crandall and Corydon in Harrison County. Major tributaries to Indian Creek include Little Indian Creek, Thompson Creek, Richland Creek and Corn Creek in Floyd County, and Crandall Branch, Raccoon Branch, Brush Heap Creek and Little Indian Creek in Harrison County.



Over the past 20 years, developed land uses (i.e., commercial, industrial, residential) have increased and agricultural and forested land uses have decreased. This development has lead to increasing pressures on limited water resources and strained wastewater treatment facilities, as documented through water quality impairments. Based on state monitoring data, bacteria, siltation and low dissolved oxygen are affecting Indian Creek. Current indications are that septic systems, agricultural and urban runoff and loss of habitat are contributing to the impairments. The monitoring associated with the watershed plan development will help the RSD to better understand the pollution sources and how to manage them.

The southern portion of Indian Creek Watershed is characterized by sinkholes, springs and caves. In fact, the Indian Creek Watershed includes Indiana's largest cave system, Binkley Cave. The cave is home to bats, fish and insects that are uniquely adapted to cave habitats. Since pollutants can move rapidly from the surface to groundwater through sinkholes and caves, protecting karst systems will be an important component of the watershed plan. During the project, priority sinkhole locations will be mapped and the surrounding land uses will be characterized to identify potential pollution sources.

Tom Tucker, President, Harrison County Regional Sewer District, stated, "We believe that this watershed plan provides an opportunity for everyone to work together to maintain the wonderful quality of life that we have in Floyd and Harrison Counties, for ourselves and for our children and grandchildren."

The first community meeting is scheduled for Wednesday, October 18, 2-4 pm and will be held at the Harrison County Annex Building, 124 S. Mulberry St., Corydon. Additional information regarding this project and the meeting can be found at www.indiancreekwatershed.com or by contacting Steve Hall (shall@fmsm.com, 812-206-0100).

This work is funded by a grant from the U.S. Environmental Protection Agency under Section §205(j) of the Clean Water Act through the Indiana Department of Environmental Management to Harrison County.

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HARRISON COUNTY REGIONAL SEWER DISTRICT

INDIAN CREEK WATERSHED PLAN

PUBLIC MEETING

October 18, 2006 2:00 PM to 4:00 PM

Harrison County Annex Building, 124 S Mulberry Street, Corydon

MEETING SUMMARY- FINAL

1. Introduction to Watershed Planning

Steve Hall and Karen Schaffer presented an overview of watershed planning. Highlights included a discussion of the history of the watershed plan project. An interchange for Lanesville is being planned and is anticipated to spur economic growth and associated needs for wastewater and stormwater services. Over 20 public meetings were held, and issues of concern included anticipated stormwater regulatory requirements, flooding, drainage, karst, septic systems, wastewater. A key concern was not to let growth get ahead of infrastructure. A Feasibility Study was prepared and lead to the formation of the Harrison County Regional Sewer District. The goals of the Feasibility Study and the Regional District are to foster economic development, preserve environmental integrity and enhance quality of life. These goals are also the goals of the watershed plan.

The Lanesville Interchange will bisect the Indian Creek Watershed. Alignments are along Crandall Branch and Indian Creek, which are on the State's 303(d) List of Impaired Waterbodies for *e. coli* impairments. Federal and state regulations do not allow new or expanded discharges of listed pollutants into impaired waterbodies, and IDEM has the authority to deny wasteload allocation requests for these discharges. In addition, IDEM will develop Total Maximum Daily Loads (TMDLs) – water quality clean up plans - that regulate point and nonpoint discharges into the impaired streams. These requirements pose additional regulatory burden on the District, communities and citizens. In addition, other wastewater facilities are anticipated to expand as package plants are taken out of service, and sewer service areas expand. One of the key benefits of the watershed plan is to develop a locally-driven approach to address impairments before the regulatory approaches are imposed by IDEM.

2. Watershed Plan Approach

The Watershed Plan provides an approach to coordinate the expansions to address key infrastructure needs and positions the District and watershed communities to receive additional grants to implement strategies identified in the watershed plan and provide tangible products for water resource managers and land use planners. Grants can be pursued prior to publication of a final Watershed Plan. Examples of funding sources and projects include:

- Nonpoint Source Management (319h) – 80% of available funds are targeted toward implementation projects. An example project is a review of codes and ordinances by renowned land use planning professionals to improve subdivision regulations for stormwater management. In Northern Indian, a project is underway to use thermal and infrared photography to identify failing septic systems and form a septic management district.

- Stream Restoration/ Lake Shore Stabilization

- Agricultural Cost Shares for riparian buffers – projects have resulted in reduced need for stormwater infrastructure.

- Flooding – FEMA provides HMGP (Hazard Mitigation Grant Program) and PDM (Pre-Disaster Mitigation) grants to communities to study and build solutions to flooding problems.

Monitoring and Assessment

FMSM has reviewed IDEMs 1999-2005 water quality data. Findings thus far are highlighted below.

- The 2006 303(d) List of Impaired Waterbodies does not include impairments identified through monitoring conducted by IDEM in 2005. These data will be used to develop the 2008 303(d) List.

- Based on our review of 2005 *e. coli* data, additional listings are likely in segments currently identified as meeting designated uses.

- Elevated phosphorus has also been identified in the Indian Creek below Corydon, but since IDEM is using a guideline, rather than a water quality criterion to assess phosphorus, IDEM may not list this stream segment as being impaired for phosphorus.

- IDEM found low dissolved oxygen (DO) at the bottom of the watershed that may be caused by Ohio River backwater. Because of the way that IDEM delineates waterbody "segments", the low DO listing was applied to 17 miles of river. Through our monitoring program, we are evaluating this segment in 2 additional places. If DO is acceptable outside of the backwater area, we may work with IDEM to delist portions of this lower segment for DO.

- IDEM is developing a formal process to accept external data for the 303(d) List and initially considers our data "external". However, since we are using a QAPP that IDEM will approve and their laboratory of choice– Indiana State Department of Health (ISDH), the RSD may want to work with them to accept our data and delist segments that meet water quality standards based on our data. Otherwise, IDEM may want to do additional monitoring themselves.

- Our monitoring program will include segments that IDEM has not sampled. It is possible that new problems will be identified. While this is a concern, it is also necessary so that the problems can be addressed proactively.

3. Group Discussion

Flooding

- Flooding impacts facilities and production. The Tyson Foods facility was affected in the recent flooding event.

- Low head dams, the ford bridge and Little Indian Creek backwater are likely contributors and the problem is anticipated to worsen as the area develops.

- The system is very flashy, with floodwaters rising and receding very quickly. This may be attributed to high velocity runoff from local impervious surfaces.

- In the Blue River, agricultural buffers and stabilization projects have been implemented to mitigate flooding. Agricultural funding sources typically require significant match (up to 50%). Grants can be sought to offset the farmers match requirement.

- Contour practices can reduce agricultural runoff and soil erosion. These practices are common where rainfall is scarcer, but could be useful locally.

- FEMA HMGP and PDM grants are available to study the problem and build solutions. Data and documentation of the nature and extent of the flooding problem is critical to a successful application. Regional solutions can incorporate recreational uses such as linear parks along rivers. Lanesville has a series of parks that provide flood storage and recreational use.

- FEMA buy-outs for repetitive loss structures are also available. This has been used on 1-2 structures in Harrison County. Buy-outs compliment regional solutions by providing land.

- Floyd County involvement is very important since drainage from the knobs and developing areas is increasing. Floyd County is developing a stormwater utility that will provide a funding source for stormwater/drainage projects that could benefit Harrison County.

- The Watershed Plan should include a recommendation to identify possible flood control structures and locations.

Failing / Inadequate Septic Systems

- Failing septic systems are a problem, but are difficult to quantify. The dataset is new, complaint driven and typically arises from lack of percolation. Systems that are failing into karst features don't have percolation issues and are not being detected. Repairs can be triggered by failures or changes to the system such as expansions to handle home additions.

- New Salisbury and Laconia have more repair needs than Lanesville and Corydon.

- Projects to address this issue in other communities have included using GIS to analyze repair, failure and soils data and have resulted in identification of issues such as clay lenses and perched water tables that limit infiltration. Soil testing requirements were changed as a result.

- If septic systems failures are to be highlighted, it is important to bring solutions to homeowners. Some are not likely to have the financial means to repair failing systems.

- Some communities have implemented septic system districts that require routine inspections and pump-outs and repairs for failing systems. Fees are charged for the services, but are typically much lower than tie-on fees for sewage collection and monthly sewer bills. The RSD has the authority to address septic systems and septic education is a major charge for the RSD.

Other Issues

- Drainage is not well covered in Harrison County Ordinances

- A water quality problem – foaming – was identified in a Corn Creek cave stream near the Floyd County boundary. There is development in the area, served by septic systems that may be contributing. Existing data did not include these northern Harrison County karst features. This area could be examined further in the Sinkhole Inventory.

- The discussion so far has focused on problems, but preservation and protection are often less expensive and less onerous than remediation. Additional discussion on protection measures is needed.

4. Next Steps and Closing

- Although this was a good discussion, additional efforts to gain citizen involvement will be required in the future. Additional local advertising, non-Corydon location (e.g., Lanesville and other towns), evening time slot and refreshments were suggested as approaches to gain additional citizen involvement.

Culbertson Mansion Haunted House
Page 4

gbp

85th Year of Publication
Issue No. 47

Costume Carnival
Page 7

The Banner-Gazette

RECYCLED PAPER

Newsstand Price 25¢ | Circulation 16,638 | Wednesday, October 18, 2006 | http://www.gbpnews.com

and the public - the rest of the story.

New two-year project targets Indian Creek Watershed

Improving water quality in the Indian Creek watershed will be the focus on a new two-year study undertaken by the newly formed Harrison Count Regional Sewer District (RSD).

Through this USEPA grant-funded project, the RSD is developing a Watershed Management Plan for Indian Creek.

The RSD will develop a watershed managements plan to improve a roadmap for protecting and improving water quality in Indian Creek.

The plan will identify ways to address pollution and flooding for parts of Floyd and Harrison counties.

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The project will create a resource library of water quality data, maps and other important information relevant to the watershed.

In addition, projects leaders will hold a series of community meeting to actively obtain, comments and suggestions for the final water-shed-based plan.

Dan Lee, Chair of the Indian Creek Watershed Subcommittee states: "This project will produce a plan that consolidates past efforts and guides future activities to improve water quality throughout the Indian Creek Watershed.

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The first community meeting is scheduled for Wednesday, October 18 from 2-4 p.m. and will be held at the Harrison County Annex Building, 124 S. Mulberry street in Corydon.

For additional information regarding this project and the meeting please look at the following website www.indiancreekwatershed.com or by contacting Steve Hall at 812-206-0100.

Master Gardener training

If you have a strong interest in gardening and enjoy helping others, you are invited to enroll in the Purdue University Master Gardener training program. The Floyd County Office of the Purdue Extension will hold the 2007 Master Gardener training series on Monday afternoons from 1 to 4 p.m. beginning January 8, 2007 and continuing every Monday through March 26. The meetings will be held at the

Such services could include teaching planting and maintaining the Extension demonstration gardens, answering gardening questions from the public and more.

Training class size is limited and is based on receipt of completed application and deposit. Those accepted in the 2007 class must pay for material fees of $100 and a $25 deposit. The deposit will be refundable upon your completion of the

Help Protect Water Quality in Your Community

Indian Creek Watershed Management Plan

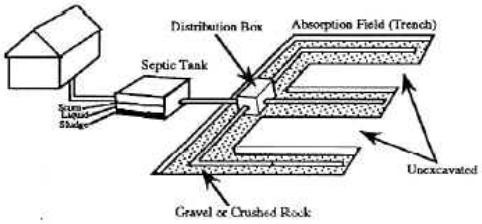
The Indian Creek watershed drains 256 square miles and includes approximately 176 miles of streams which flow to the southwest, eventually draining to the Ohio River. Towns in the watershed include Galena, Greenville and Georgetown in Floyd County and Lanesville, Crandall and Corydon in Harrison County.

A watershed management plan is being developed for Indian Creek by a Subcommittee of the Harrison County Sewer District. The watershed plan will include a description of water quality and quantity issues and identify strategies to address important issues. A strategy for measuring progress of implementation and changes in water quality and quantity will also be developed. One of the issues that has been identified in the watershed is elevated levels of bacteria, a common problem in Indiana and throughout the U.S. Elevated bacteria may come from wildlife, livestock, pets and/or malfunctioning septic systems as well as other sources.

The southern half of the Indian Creek Watershed is underlain with **karst** geology including Binkley Cave, the largest known cave in Indiana. Karst features include sinkholes, springs, and caves and underground channels. Contaminants near the surface can travel quickly into sinkholes, caves and groundwater without being broken down by soil. Therefore, water quality in this area is delicate and easily impacted. There are over 250 wells in the Indian Creek watershed used for drinking water and agricultural supplies, many in the karst region.

Septic systems need proper care and maintenance. Because of the identified problem with elevated bacteria, combined with karst geology, special attention is being paid to septic systems. Although septic systems can be a safe and effective way of treating wastewater, malfunctioning septic systems can contribute to the elevate bacteria levels in groundwater and surface water posing a threat to the environment and human health. Many households in Floyd and Harrison County use septic systems.

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. These components are typically buried near the home. The septic tank holds the wastewater long enough to allow solids to settle out and oil and grease to float to the surface. It also allows partial decomposition of the solid materials. The wastewater exits the septic tank and is discharged into the drainfield for further treatment



Conventional Septic System

by the soil. Microorganisms in the soil provide final treatment by removing bacteria, viruses, and nutrients.

Tips for Septic System Owners

- **Don't overload your septic system** – Fix leaking faucets and toilets and use water efficiently, space out laundry loads, Route surface water drainage away from leach field - Keep gutters and basement sump pumps from draining into or near your septic system.
- **Flush responsibly** – Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, etc. can clog and potentially damage septic system components.
- **Dispose of hazardous chemicals properly** – Flushing household chemicals, gasoline, oil, pesticides, antifreeze, or paint can slow or stop the biological treatment. Check with your local waste department for household hazardous waste pickup.
- **Regular Maintenance** – Have your tank pumped and inspected by a professional at least every 3 years or as recommended by the manufacturer.
- **Drainfield care** – Avoid driving or parking vehicles on your drainfield. Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the system. Do not apply manure or fertilizers over the drainfield.
- **Careful use of additives** – **Check** with your local health department before using additives since they do not eliminate the need for periodic pumping.

Ways to Know Your System in Not Functioning Properly

- Sewage surfacing over the lateral field
- Sewage backing up in the house or basement
- Mushy ground of greener grass in the area of the lateral field
- Slowly draining toilets or drains
- Sewage odors

More information

For more information regarding the Indian Creek Watershed Management Plan see www.indiancreekwatershed.com or contact Karen Schaffer at 812-206-0100.

For more information on septic systems contact: Floyd County Health Department at 812-948-4726 or http://www.floydcountyhealthdept-in.com/, Harrison County Health Department at 812-738-3237 or http://www.harrisoncountyhealth.com/index.htm or visit EPA's Septic Systems page at http://cfpub.epa.gov/owm/septic/homeowners.cfm#steps.

HARRISON COUNTY REGIONAL SEWER DISTRICT

INDIAN CREEK WATERSHED PLAN

PUBLIC MEETING

July 24, 2007 6:30 to 8:00 PM

Lanesville Jaycees Building

MEETING SUMMARY- DRAFT

1. Introduction to Watershed Planning

Steve Hall provided an explanation of the history of the project. RSD was formed to ensure poor water quality did not result from new development in Harrison County. Proximity to Louisville makes Harrison County an area posed for development. The proposed Lanesville corridor project north of I-64 near Lanesville is expected to be a center for new residential, commercial, and industrial development. Monitoring conducting under the watershed management plan will help to provide an understanding of baseline conditions prior to future development. The watershed plan is meant to focus on the most important issues and move forward to implement solutions. It will also help to address future water resource needs in Harrison County.

2. Draft Watershed Plan

Karen Schaffer, Watershed Coordinator gave a presentation explaining the tasks to be completed under the watershed plan and the progress made on chapters one and two.

Two of the main issues identified in the watershed are elevated bacteria and low dissolved oxygen. Indiana Department of Environmental Management sampled several locations in the watershed and the found many miles of streams to be impaired. Due to elevated bacteria, which are evident in IDEM sampling, 36.65 miles of streams are considered impaired for primary contact recreational use. Due to low dissolved oxygen (DO) and aquatic habitat scores given by IDEM, 20.89 miles of streams are considered impaired for aquatic life support.

So far one monitoring event has taken place under the Watershed Plan. *E.Coli* and flow were tested. The *E.Coli* results are not yet available from the lab. Very low flow readings were observed in the Watershed. Four of the 10 sites were observed as having 0 feet per second flow.

The sinkhole inventory is underway to map existing sinkholes. Using GIS analysis there are 14,687 possible sinkhole locations identified in the Harrison County portion of the Watershed.

3. Group Discussion

Meeting attendees discussed the following topics as they relate to Indian Creek:

- **Uses of Indian Creek:**
  - Aesthetic value
  - Recreation & Wading
  - Livestock crossing
  - Stormwater conveyance
  - Agricultural water supply
  - Indian Creek Greenway Trail
- **Water Quality Issues and Concerns:**
  - Water/ Stormwater Quality
    - Water runs red around development areas
  - Septic systems
    - State Department of Health does not approve mound septic systems although they may be a better option for a highly karst area
    - Straight pipes
    - May fail into karst systems providing little evidence from the surface
  - Stormwater quantity (Flooding)
    - We can not stop development, what can we do?
    - Can we really control floods?
    - Straightening of Indian Creek for rapid stormwater conveyance, which leads to further water quality and flooding problems
    - Erosion problems in the headwaters of Floyd County portion of the watershed effect Harrison County downstream
    - Bridge near Lanesville Jaycees building seems to be causing a flooding problem in the area because of restricted flow
    - Control of mosquito and pests in future retention/detention ponds
    - Some retention ponds will open up into karst

        - Lanesville drainage problem

- **Critical Areas for Water Quality:**
    - Upcoming meetings on stormwater ordinance with RSD and Harrison County Commissioners

- **Recommendations for Improvements or Enhancements:**
    - Stormwater quantity (flooding)
        - Create ponds on farms
        - RSD ordinance to control bridge placement (strategy to address flooding issues)
        - RSD has requested to view all new development plans to help insure smart development (no more water leaving site faster that than predevelopment)
        - Better controls for stormwater runoff needed
    - Septic systems
        - Public education on septic systems – key
        - More data on septic systems is needed
        - Septic system management district as used in Allen County to charge monthly fee for inspections, repair, and pump of septic systems
        - Research alternative septic systems
    - Water/ Stormwater Quality
        - Buffers for runoff should be used
        - Stabilize creek crossing areas with grasses
        - Cows should be kept out of the creeks
    - Overall
        - ID priorities to secure funding for implementation
        - Not all parcels are suitable for development in Harrison County; the Karst ordinance will help to control development in ill-suited areas

The following priorities were given for the Watershed Management Plan by the attendees using votes:

- Stormwater quantity (5 votes)

- Septic systems (5 votes)
- Water/ Stormwater Quality (4 votes)
- Karst issues (1 vote)

4. Next Steps and Closing

Next steps include completing water monitoring, assessing data, completing sinkhole inventory, continuing to hold Public Outreach Events, and producing Watershed Plan.

The Corydon Democrat
Corydon, Ind.
Community
October 10, 2007 Section B

Ross Schulz

Stacey Jarboe, left, and Sam Call, both of FMSM Engineers, test the waters by collecting samples of aquatic life of Indian Creek last month to determine the quality as part of the Indian Creek Watershed Management Plan. Prevalent in these waters are crayfish, clams, snails and minnows, along with many others.

10 sites part of Indian Creek watershed testing

By LINDSEY CORLEY
Staff Writer
lcorley@corydondemocrat.com

In planning for watershed management, testing the streams and determining water quality is an early step. Several engineers and a lead aquatic insect specialist sampled 10 sites last month within the Indian Creek watershed for just that reason, as part of the on-going Indian Creek Watershed Management Plan.

Stacey Jarboe, Steve Hall and Sam Call, all of Fuller, Mossbarger, Scott and May, the engineering firm in Jeffersonville behind the water management plan, spent most of Sept. 20 testing the waters in and near Harrison County. They were looking for three different things in their tests: chemical content, biologic communities and habitat assessments.

Chemicals in the water were tested through samples sent back to the lab. Biologic communities required a more hands-on approach, that's why Call was involved. Call is the lead aquatics insect specialist on the Indian Creek Watershed team. He has 25 years experience working with water issues in Kentucky and currently teaches at Bluegrass Community College in Lexington, Ky. Call said testing biologic communities can determine water quality in ways chemical testing cannot.

"Aquatic insects spend almost all their life in the water," Call said. "We get a general idea of water quality over time (by looking at them). The communities will show if it's been bad along the way."

A habitat assessment is just looking at the physical conditions of the stream to determine if those things have an impact. One obvious one in Indian Creek is the lack of shade over the water, which during summer months can elevate the temperatures of the water. Such hot water is a habitat that can be destructive to its inhabitants.

These tests, which will have results determined in about 60 days, will then be compared with a state database of information to see how they compare. In fact, some streams that the Indiana Dept. of Environmental Management has already assessed were chosen because of the information already known. That way, a comparison is "apples to apples," Hall explained. He also said they would be testing other streams to "fill in the gaps" of information.

Of the 10 sites tested, all were for water quality, chemicals or pollutants; testing for fish or bugs was also done at five of the sites.

Once the water quality information is completed, Hall said the next part of the Indian Creek Watershed Management Plan will be to make recommendations for protecting good areas and restoring areas in need, as well as planning and developing policies for growth that would help or maintain water quality.

The Nature Conservancy

Blue River News

Supporting the health and quality of Southern Indiana Ecosystems Issue 2, 2007

The Otter's Return to Indiana

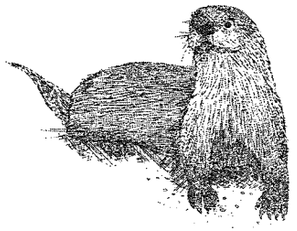
By Cassie Hauswald

Fun-loving, frisky, free-spirits of freshwater ...river otters personified. The fluid movement of a river otter embodies grace and hints at the power of this diving denizen of Indiana.

As a member of the weasel family, otters are mostly nocturnal with peak activity between midnight and dawn. Fish, crayfish, invertebrates, and small mammals make up a majority of the carnivore's diet. Otter's prefer slow-moving, clean water with plenty of small fish and ample cover. Often, beaver presence is mirrored by the appearance of otters that can use the beaver dens as cover. An otter's predatory prowess is a product of several adaptive features, including: valve-like nose and ear flaps that seal out water as it dives for several minutes, sensitive whiskers that help it to find slower-moving fish in murky water, and eyes situated atop its head so as to survey the water surface for danger while remaining unnoticed.

Ripples on the water's surface or a mud slide along a river bank are often the only clues to a river otter's presence. They shy away from humans and rightly so. Settlement of the Midwest coincided with the decline in otters as entire forests were converted to open farm ground and as early settlers realized the value of otters to the fur trade. Like all animals, otters are dependent upon a steady food supply and polluted water does not support healthy fish and aquatic invertebrates nor will it support a booming otter population. Occupying abandoned beaver dens, root wads of large streamside trees, and other equally messy tangles of vegetation, otters are most comfortable near water, preferring a forested corridor between rivers, lakes, and wetlands. As Indiana's stream corridors have slowly reforested and improvements in water quality have been made, the time was ripe for otter reintroductions.

After a 50 year absence, otters were re-introduced to 6 Indiana watersheds in the late 1990's with releases on Blue River occurring in February of 1999. Coincidentally, the summer of that year was one of the worst droughts on record in this area. Studies conducted on Blue River show that the many fish are still recovering from the drought of 1999 and with the follow-up drought of 2007 fish numbers can be expected to again show a decline. So while it is true that otters eat fish, the decline in some fish species over the past several years in Blue River is most likely due to the damaging 1999 drought.



Recently removed from the state's list of endangered animals, the river otter now occupies 65 Indiana counties. In southern Indiana, they have spread out to occur in all major watersheds. From 1995 to 2005, researchers with the Indiana Division of Fish and Wildlife conducted a study in which 1328 records of sightings, accidental

Continued on page 3

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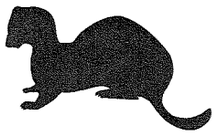

Don't forget to check out the new Rabbit Hash Trail

Some Volunteers/Contributors We'd Like to Thank

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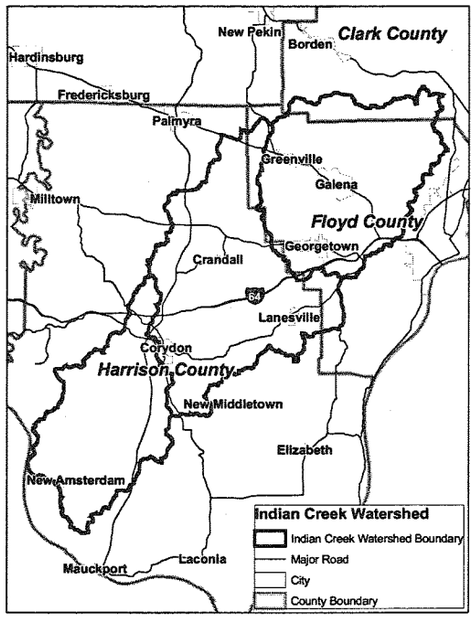
Protect Community Water Quality

Indian Creek Watershed Management Plan



The Indian Creek watershed drains 256 square miles and includes approximately 176 miles of streams which flow to the southwest, eventually draining to the Ohio River. There is evidence that water draining into Binkley Cave travels underground and surfaces in Blue River. Towns in the Indian Creek Watershed include Galena, Greenville, and Georgetown in Floyd County and Lanesville, Crandall, and Corydon in Harrison County.

A watershed management plan in being developed for Indian Creek by a subcommittee of the Harrison County Sewer District. The watershed plan will include a description of water quality and quantity issues and identify strategies to address important issues. A strategy for measuring progress of implementation and changes in water quality and quantity will also be developed. One of the issues identified in the watershed is elevated levels of bacteria, a common problem in Indiana and throughout the US. Elevated bacteria may come from wildlife, livestock, pets, and/or malfunctioning septic systems as well as other sources.

The southern half of the Indian Creek Watershed is underlain with karst geology including Binkley Cave, the largest known cave in Indiana. Karst features include sinkholes, springs, caves, and underground channels. Contaminants near the surface can travel quickly into sinkholes, caves, and groundwater without first being broken down by soil. Therefore, water quality in this area is delicate and easily impacted. There are over 250 wells in the Indian Creek watershed used for drinking water and agricultural supplies, many in the karst region.

Septic systems need proper care and maintenance. Because of the identified problem with elevated bacteria, combined with karst geology, special attention is being paid to septic systems. Although septic systems can be a safe and effective way of treating wastewater, malfunctioning septic systems can contribute to elevated bacteria levels in groundwater and surface water, posing a threat to the environment and human health. Many households in Floyd and Harrison County use septic systems.

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. These components are typically buried near the home. The septic tank holds the wastewater long enough to allow solids to settle out and oil and grease to float to the surface.

It also allows partial decomposition of the solid materials. The wastewater exits the septic tank and is discharged into the drainfield for further treatment by the soil. Microorganisms in the soil provide final treatment by removing bacteria, viruses and nutrients.

Tips for Septic System Owners

- **Don't overload your septic system** – Fix leaking faucets and toilets and use water efficiently, space out laundry loads, route surface water drainage away from leach field - keep gutters and basement sump pumps from draining into or near your septic system.
- **Flush responsibly** – Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, etc. can clog and potentially damage septic system components.
- **Dispose of hazardous chemicals properly** – Flushing household chemicals, gasoline, oil, pesticides, antifreeze, or paint can slow or stop the biological treatment. Check with your local waste department for household hazardous waste facilities.
- **Regular maintenance** – Have your tank pumped and inspected by a professional at least every 3 years or as recommended by the manufacturer.
- **Drainfield care** – Avoid driving or parking vehicles on your drainfield. Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the system. Do not apply manure or fertilizers over the drainfield.
- **Careful use of additives** – Check with your local health department before using additives since they do not eliminate the need for periodic pumping.

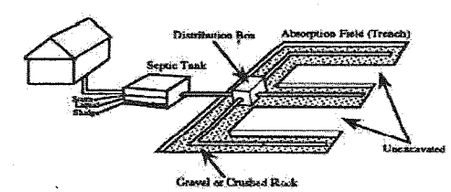
Ways to Know Your System in Not Functioning Properly

- Sewage surfacing over the lateral field
- Sewage backing up in the house or basement
- Mushy ground of greener grass in the area of the lateral field
- Slowly draining toilets or drains
- Sewage odors

More information

For more information regarding the Indian Creek Watershed Management Plan see www.indiancreekwatershed.com or contact Karen Schaffer at 812-206-0100.

For more information on septic systems contact:
Floyd County Health Dept at 812-948-4726 or http://www.floydcountyhealthdept-in.com Harrison County Health Dept at 812-738-3237 or http://www.harrisoncountyhealth.com
EPA at http://cfpub.epa.gov/owm/septic/homeowners.cfm#steps.



Conventional Septic System

Indian Creek Watershed

Press Release

January 25, 2008

Questions regarding publication details should be addressed to:

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For immediate release

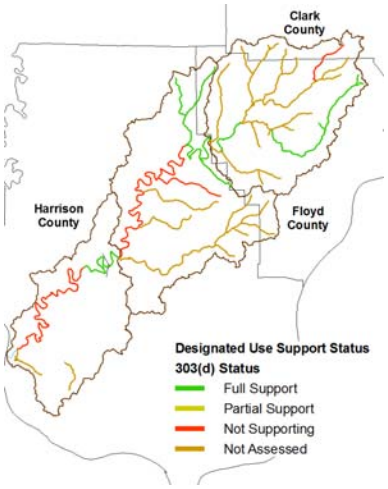
Indian Creek Watershed Management Plan Drafted
Community Input Meeting: February 5, 2008

The Harrison County Regional Sewer District (RSD) Indian Creek Subcommittee has drafted a plan to address key water quality issues in the Indian Creek Watershed. Community participation will play a crucial roll in implementing the changes needed to protect and improve the Indian Creek Watershed.

The RSD Indian Creek Subcommittee would like to invite citizens of Harrison, Floyd, and Clark Counties to attend the Indian Creek Community Meeting on Tuesday, February 05, 2008 from 7:00 to 8:30 PM at the Harrison County Annex Building, 124 S. Mulberry Street in Corydon, Indiana. Refreshments will be provided.

The meeting will focus on biological and water quality monitoring results and watershed management strategies. The evening will facilitate conversation and input regarding the Indian Creek Watershed Plan which is now in draft form. Input from the meeting will be used to finalize the plan, which will be submitted to Indiana Department of Environmental Management (IDEM) in March, 2008. The Watershed Plan will be a valuable tool to coordinate efforts and provide a timeline for steps needed to address the water quality and flooding issues.

The drainage area for the Indian Creek Watershed is 256 square miles. The Watershed drains portions of Floyd County, Harrison County, and Clark Counties before emptying into the Ohio River. Towns within the watershed include Greenville and Georgetown in Floyd County and Lanesville, Crandall and Corydon in Harrison County. Major tributaries to Indian Creek include Little Indian Creek, Thompson Creek, Richland Creek and Corn Creek in Floyd County, and Crandall Branch, Raccoon Branch, Brush Heap Creek and Little Indian Creek in Harrison County. A detailed map showing roads and impaired streams within the watershed is available at www.indiancreekwatershed.com.



IDEM monitoring results indicated that portions of the Indian Creek, Crandall Branch and Devils Backbone have elevated levels of bacteria. Habitat and biological quality were considered to be impaired in Little Indian Creek and Devils Backbone.

The Watershed is located in a karst region. Karst features include sinkholes, springs, caves and underground channels. Some of the water leaves the channel of Indian Creek travels though underground channel(s) reemerging at Harrison Spring in a separate watershed system. Due to these karst features, surface contaminants can travel quickly into sinkholes, caves and groundwater or can resurface in streams without being filtered and broken down by soils. Therefore, water quality in this area is delicate and easily impacted.

Goal: Foster economic development, preserve environmental quality and enhance the quality of life for all who live and work in the Indian Creek Watershed.

For additional information on the project visit www.indiancreekwatersed.com or contact Karen Schaffer, Watershed Coordinator, 812-206-0100; karen.schaffer@stantec.com.

This work is funded by a grant from the U.S. Environmental Protection Agency under Section §205(j) of the Clean Water Act through the Indiana Department of Environmental Management to Harrison County.

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HARRISON COUNTY REGIONAL SEWER DISTRICT (RSD)
INDIAN CREEK SUBCOMMITTEE

INDIAN CREEK WATERSHED PLAN

COMMUNITY MEETING

TUESDAY FEBRUARY 5, 2008

7:00PM—8:30PM

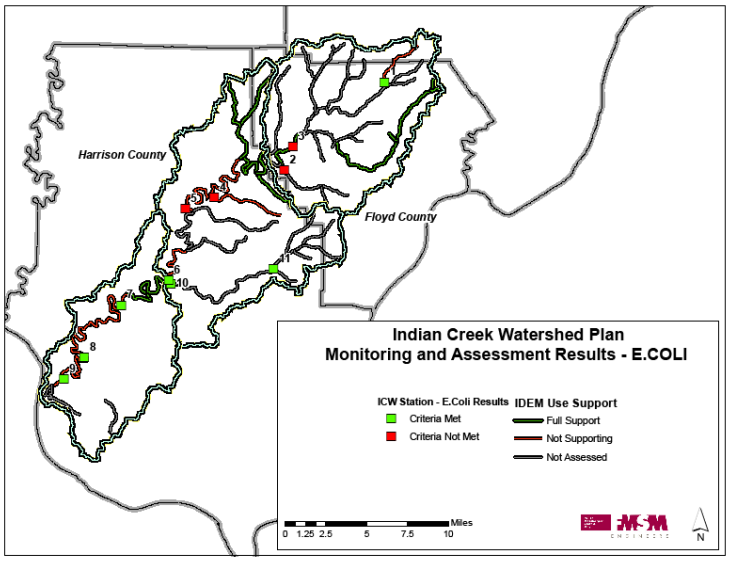
Harrison County Annex Building,
124 S Mulberry Street, Corydon, IN

Why a watershed plan?

To address water quality and quantity issues in the Indian Creek Watershed, including flooding and elevated bacteria.

Why should I get involved?

Your input is needed to help complete and implement the watershed plan.



- **Watershed Plan Approach Overview**
- **Monitoring Approach and Results**
- **Strategy and Implementation**
- **Group Discussion**
- **Next Steps and Closing**

"Foster economic development, preserve environmental quality and enhance the quality of life for all who live and work in the Indian Creek Watershed."

REFRESHMENTS PROVIDED

Karen Schaffer, Watershed Coordinator
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Visit us at
www.indiancreekwatershed.com

The Corydon Democrat

Accessed Website
Thu, Feb 14, 2008 02:04 PM

News
Issue of February 13, 2008

Hearings conclude on watershed plan

Lindsey Corley write the author

February 13, 2008 | 08:24 AM

In the third and final public meeting involving the Indian Creek Watershed Management Plan, Karen Schaffer, watershed coordinator, spent time with a group of citizens concerned about the future of the Indian Creek Watershed.

Schaffer first discussed results from water quality testing performed by the team from Stantec Consulting Services (formerly FMSM Engineers) last September. Ten sites were tested, and there was some overlap in areas monitored already by the Indiana Dept. of Environmental Management. Some areas, though, were completely new. Of those 10 monitored, some level of bacteria was found in four of the areas tested.

Schaffer said she and her team used a tool created by the Environmental Protection Agency called a Bacteria Indicator Tool, a spreadsheet tool used to estimate contribution of bacteria sources.

"We really honed in on bacteria problems," she said.

The results showed higher levels in western Harrison County and around lower Indian Creek. Septic system waste and potential water quality hazards due to failing systems were seen to have a greater potential for issues in Floyd County than in Harrison County. For cattle and other agricultural loadings, it was just the opposite, with the results being higher in Harrison County than in Floyd.

Dissolved oxygen content was also tested, and Schaffer said this was a good indicator of water quality as a whole.

"Actually, these looked pretty good," she said.

Only one site was designated as a problem with DO, Indian Creek above Lickford Bridge Road. IDEM had already tagged this particular site as a problem area due to the backwater from the Ohio River. Schaffer called this a "natural occurrence."

She admitted part of the testing was affected by the severe drought Harrison and Floyd counties experienced during the summer. When testing biotic integrity, or the number and kinds of insect life present in the water, two sites were unable to be tested at all.

"(There were) pretty stressed conditions out there," Schaffer said, due to the drought.

Schaffer also presented results of sinkhole testing to the audience, showing more than 14,000 possible sinkhole locations found in Harrison County and more than 150 combined found in Clark and Floyd counties.

Now, as the end of the grant for the Indian Creek Watershed Management Project is coming to a close, Schaffer also wanted to focus on goals, decisions and ways of measuring progress in the months and years to come. They want to finalize this iteration of the plan while knowing that in five or 10 years, it will be revamped, Schaffer said.

The management measures she and her team have identified are septic systems, agriculture, urban areas, karst geography, monitoring and assessment.

For septic systems, since so many local residents use them and there isn't a good database of where they are, Schaffer said she wants to find a "good pallatable, political way" to stop what could be a large problem later. That could include education workshops on how to keep the systems running cleanly and smoothly, and instating operation and maintenance requirements.

Agriculturally, since livestock waste could further impair the quality of the water, Schaffer and the audience members discussed plans like a watershed stewardship program and giving financial assistance to farmers to help create a buffer.

As for further monitoring and assessment, Schaffer said the final plan will be presented Feb. 29 to IDEM, and part of what they could begin to do is to apply for additional implementation funds for the improvements or enhancements recommended in the plan.

For more information regarding the Indian Creek Watershed Management Plan, log on to www.indiancreekwatershed.com.