

Watchin' the Wabash

A publication of the Upper Wabash River Basin Commission

Volume 2, Issue 2

August 2014

The Upper Wabash River Basin Commission meets every 2 months at 8:00 a.m. at the Wells Co. Government Annex 223 W. Washington St., Bluffton, IN.

UWRBC MEETING SCHEDULE
October 14, 2014
December 9, 2014
February 10, 2015

The UWRBC Steering Committee meets every 2 months at 12 noon at the USDA Service Center, 117 W. Harvest Rd., Bluffton, IN.

STEERING COMMITTEE MEETING SCHEDULE
September 23, 2014
November 25, 2014
January 27, 2015

The public is encouraged and welcome to attend.

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“De-Trash the Wabash” Saturday, September 13th Meet at Kehoe park at 12 noon



The clean-up will be from the Main Street bridge (SR 1) in Bluffton down river to the Gerber Bridge at CR 100 N.

Canoes will be used to navigate the river to collect debris. Volunteers should be prepared to get wet and muddy, so dress accordingly. Bring life vests, and gloves.

All volunteers must sign liability release. Anyone under 18 must have a signed parent permission form or be part of an organized group with adult supervision.

A t-shirt will be awarded to at least one volunteer for their collection efforts. Trash bags will be provided. For more information or to pre-register for the event, call Watershed Coordinator, Stacia Henderson at 260/273-0972.

Water Quality Monitoring ~Volunteer Opportunity~ Friday, September 12th ~ 1:00 p.m.

Hoosier Riverwatch water quality monitoring for the UWRBC Phase 2 project has been scheduled for Friday, September 12th at 1 p.m.

Volunteers work with the UWRBC Water Quality Consultant and Watershed Coordinator to collect Hoosier Riverwatch data at three monitoring locations; one each on the Rock Creek, Wabash River, and Eight Mile Creek.

Volunteers perform tests for dissolved oxygen, temperature, pH, nitrate-nitrite, orthophosphate, *E. coli*, turbidity, and flow. Volunteers will also collect macro invertebrates (water bugs) and conduct habitat evaluations at the three sites.

Monitoring activities are expected to take 1 - 1.5 hours per site. Volunteers can participate in monitoring activities at one site, or all sites, as available. To volunteer, contact Watershed Coordinator, Stacia Henderson at 260/273-0972.



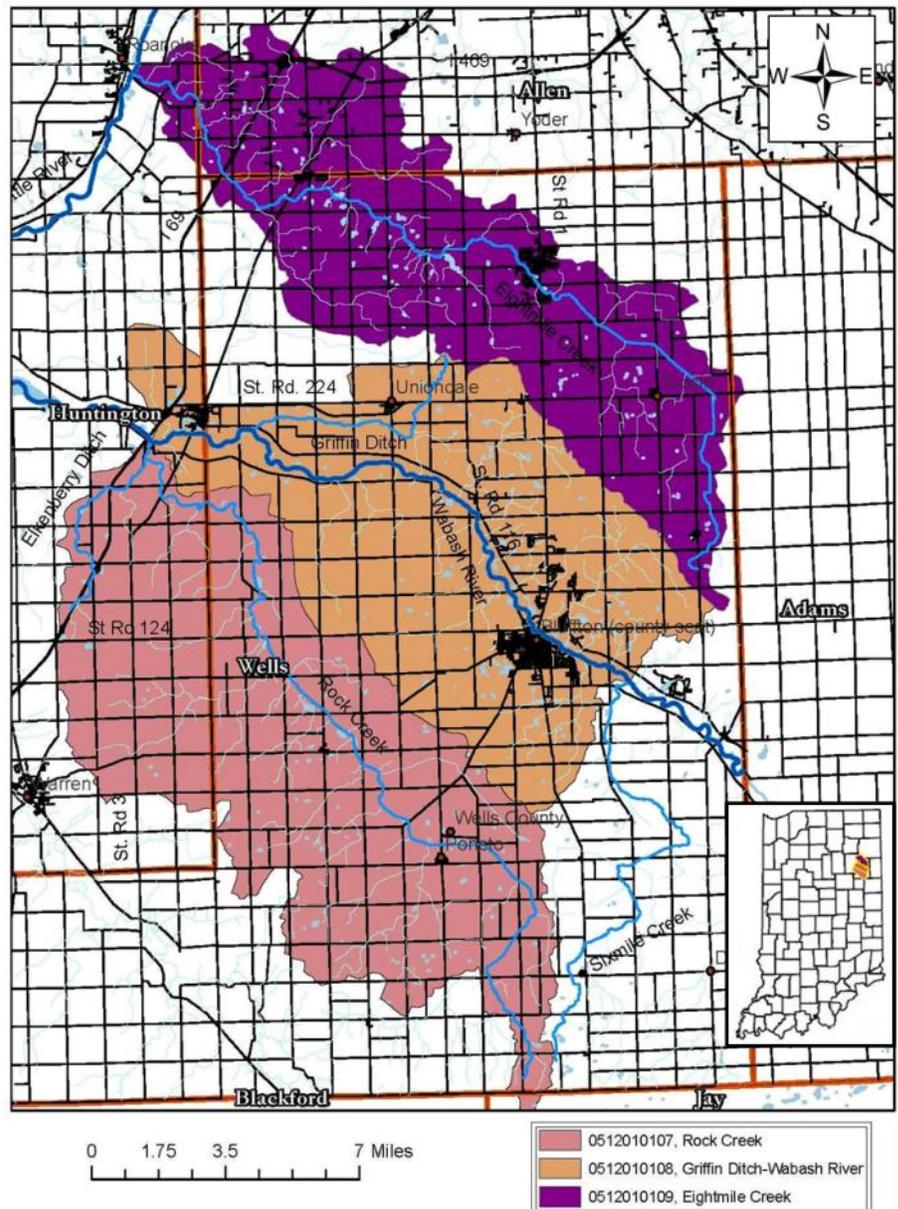
The Watershed Management Plan

The interest to prepare a Watershed Management Plan (WMP) for the Upper Wabash River basin stems from the known water quality problems in the watershed and the fact that these are common water quality problems facing many other rural watersheds throughout the State.

The UWRBC “Phase 2” Project includes the main stem of the Wabash River – Griffin Ditch (HUC: 0512010108), Rock Creek (HUC: 0512010107), and Eight Mile Creek (HUC: 0512010109) sub-watersheds located in Wells, Huntington and Allen counties.

The WMP is intended to benefit the communities in the watershed by helping to improve the environment through comprehensive water resource planning. This planning effort helps to ensure that current water quality issues are identified and provides a framework for addressing the natural resource concerns in the watershed. It is imperative that the planning process formulates a workable WMP that is sensitive to the values and desires of all members of the community and is developed with the input and support of a diverse cross-section of the community. Input from the farmer, homeowner, government administrator, elected official and others in the community helps to ensure that there is a balanced and equitable distribution of responsibility as well as benefits of clean water in the watershed.

Watershed planning is especially important to help prevent future water resource problems, preserve watershed functions, and ensure future environmental health. Everyone in a watershed is involved in watershed management, even if they are not aware of their contribution or impact.



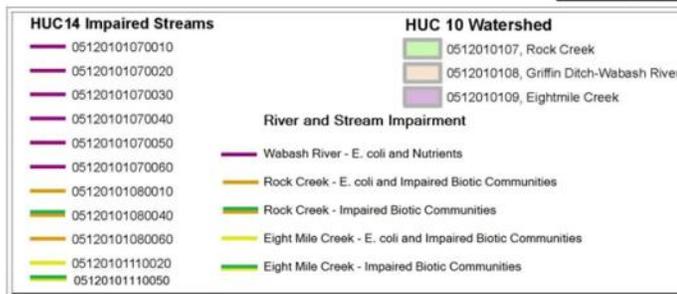
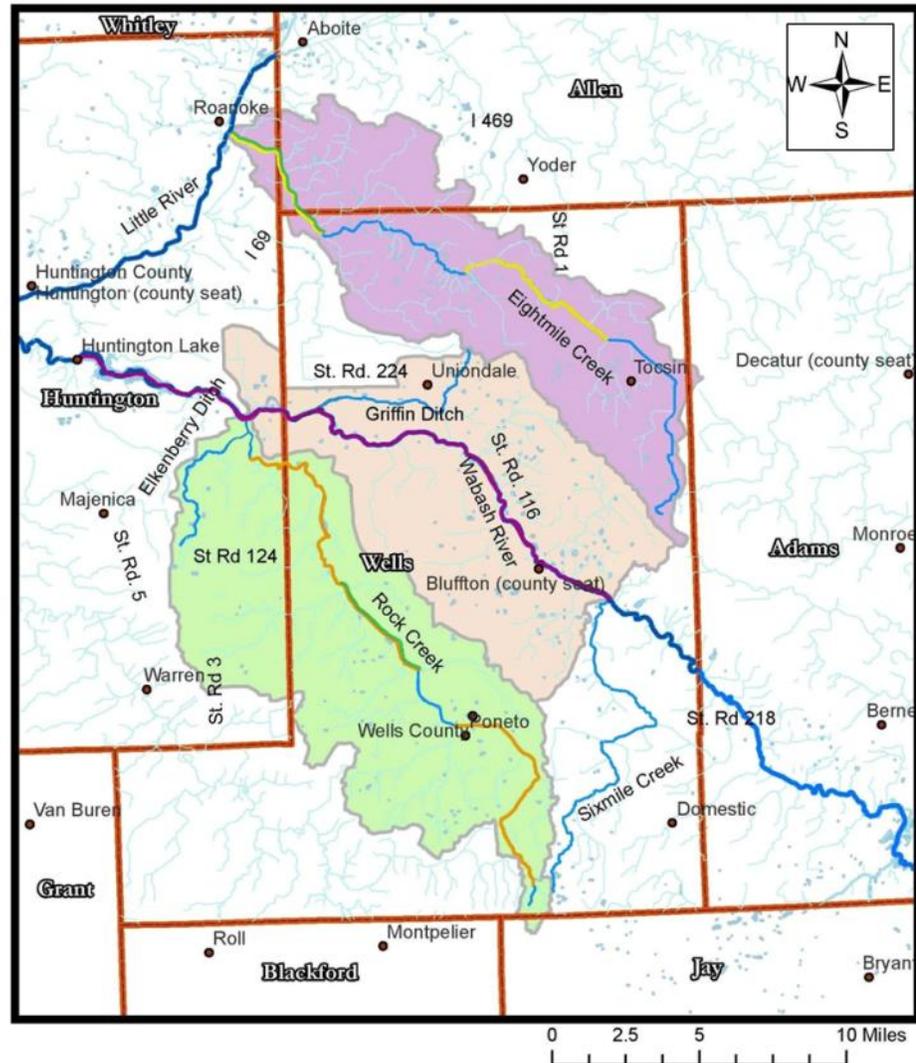
Over 43 miles of the streams within the watershed project area are on the IDEM 303(d) List Revised (12/28/12) for water quality impairments from nutrients, *E. coli*, and impaired biotic communities.

Agriculture is the primary land use in the Upper Wabash River Phase 2 watershed area. The nearly flat landscape and highly productive soils account for row crops being the largest agricultural commodity. Confined feeding operations (CFO's) are prevalent in the watershed, as well as smaller livestock operations and "hobby" farms.

Maintenance of open ditches and conversion of riparian areas and woodlands to row crops has resulted in losses of areas that would normally provide benefits for water quality improvement, flood protection, and wildlife habitat.

The watershed contains rural residential development and a number of small rural communities. Soils throughout the project area are unsuitable for individual on-site septic systems, and the unincorporated communities do not provide wastewater treatment.

Urbanized areas present different threats to water quality. Storm water runoff from the concentrated areas of rooftops, lawns, streets and roads, and parking lots all contribute to surface waters reaching the river and streams untreated and at a faster rate than under less developed conditions.



Citizens living, working, and playing in the watershed have proven to be valuable by providing both current and historical insight into the water quality issues in the watershed area. Public participation in the planning process continues to be encouraged and welcomed.

Problems, Potential Causes and Potential Sources

As part of the watershed planning process, an inventory of the watershed and existing water quality studies have been conducted. The assessment of this information has helped guide the identification of water quality problems, potential causes, and possible pollution sources in the watershed, and will help direct specifically targeted conservation actions to address each stakeholder concern.

Problems:	Potential Causes:	Potential Sources:
Restricted/redirected flow within the stream or river.	Log jams and debris in the river and streams. In-stream sand/silt bars. Loss of in-stream habitat.	Trees falling into the streams and river due to unstable banks. Diseased and dying trees falling into the streams and river. Lack of education to remove or anchor dead/dying trees. Lack of education to remove cut wood from the floodplain.
Sediment and increased levels of turbidity threatens the water quality health of the streams and river in the watershed.	Turbidity levels exceed the target established for fish and macro-invertebrate health. Silted and smothered substrates. Impaired biotic communities due to sediment. Sediment, organic matter and algae in the streams and river.	Channelization of streams; steep and caving banks. In-stream and stream bank erosion. Lack of forested buffers and grass filter strips on streams and river. Tillage to the edge of stream banks. Low adoption rates of conservation tillage. Lack of buffer areas at tile inlets. Removal of cropland buffer areas (fence rows and fence borders). Construction site (and road construction) erosion. Lack of wetlands and riparian areas.
Excess nutrients increase aquatic plants and algae.	Excess nutrients – Nitrogen and Phosphorous in the water. Nitrate and Total Nitrogen levels exceed state targets. Total Phosphorous levels exceed state targets.	Over application of fertilizer on cropland and residential areas. Limited use of soil testing and variable rate fertilizer applications. Lack of buffer areas at tile inlets. Increase of tile installation in watersheds. Removal of cropland buffer areas (fence rows and fence borders). Confined feeding operations located near streams and river. Animal waste runoff from land application, stockpiles and hobby farms. Lack of wetlands and riparian areas.
E. coli and other pathogens pose a health risk for recreational activities throughout the watersheds.	E. coli levels exceed state standard.	Lack of wastewater treatment in unincorporated communities. Failing on-site septic systems with severely limiting soils, and/or lack of maintenance. Outdated direct connect on-site septic systems. Animal waste runoff from land application, stockpiles and hobby farms. Abundance of animal waste generated and brought into the watershed. Municipal wastewater treatment plant sanitary sewer overflows.

Problems:	Potential Causes:	Potential Sources:
Competing land uses limit BMP implementation that would/could improve water quality.	Lack of appreciation for and understanding of environmental benefits versus financial benefits.	Lack of education to land users on the economic and environmental value of BMPs.
Individuals lack knowledge of BMPs, where they could/should be implemented, and how to fund practices.	Lack of education to land users, funders and the general public on the use of BMPs.	Lack of avenues to get the public to participate in educational activities. Limited community involvement in environmental activities.
Algae blooms in the river and streams threaten aquatic communities and can pose a human health risk.	Elevated dissolved oxygen saturation levels. Turbidity levels exceed the target established for fish and macro-invertebrate health. Algal blooms in the rivers and streams.	In-stream and stream bank erosion. Lack of forested buffers and grass filter strips on streams and river. Tillage to the edge of stream banks. Low adoption rates of conservation tillage. Lack of buffer areas at tile inlets. Construction site (and road construction) erosion. Over application of fertilizer on cropland and residential areas. Animal waste runoff from land application, stockpiles and hobby farms. Failing on-site septic systems with severely limiting soils, and/or lack of maintenance. Outdated direct connect on-site septic systems. Municipal wastewater treatment plant sanitary sewer overflows.
Increased surface and subsurface flow throughout the watersheds threatens water quality.	Wetlands drained and forests cleared. Loss of ponding areas in the watershed and floodplain storage. Lack for floodplain management. Increase of tile installation. Flooding along the river and streams.	Channelization of streams. Lack of forested buffers and grass filter strips on streams and river. Tillage to the edge of stream banks. Low adoption rates of conservation tillage. Lack of buffer areas at tile inlets. Increase of tile installation in watersheds. Removal of cropland buffer areas (fence rows and fence borders). Construction site (and road construction) erosion. Lack of wetlands and riparian areas.
General public's lack of understanding or sense of responsibility for how and why their actions impact water quality.	Lack of education to the public about their contribution to the health of the streams and river. Lack of understanding and appreciation for natural areas.	Lack of avenues to get the public to participate in educational activities. Lack of community involvement in activities to benefit the health of the watershed. Competition from other causes. Lack of stewardship for Mother Nature.

Water Quality Improvement Goals and Strategies

The UWRBC members, Steering Committee and local stakeholders will set water quality improvement goals and identify implementation strategies to address the water quality problems, potential causes and potential sources identified in the planning process. Public input is always welcome.

Water Quality Monitoring Results

The UWRBC conducts water quality monitoring at 15 sites in the project area; 4 on the Eight Mile Creek, 6 on the Wabash River, 4 on Rock Creek and 1 on Eikenberry Ditch (site 11), a tributary to the Rock Creek. Samples are collected monthly (as weather conditions allow) and the data is used to evaluate the health of the stream or river. Based on the water quality monitoring data to date; nutrients, *E. coli* and turbidity are all issues in the project area.

Rock Creek: Dissolved oxygen levels were above the state standard in 9 samples during 4 monitoring events; and dissolved oxygen saturation levels were elevated in 13 samples during 5 events. Both dissolved oxygen and saturation dipped below the minimum level for aquatic organism health on one occasion when it was noted that the water was tan/black in color and may be attributed to decaying organic matter or runoff of animal waste.



Site 10

Habitat evaluations noted bedrock and medium to large rocks on the stream bottom, but all sites were smothered or silted. Rock Creek has grass buffers and wooded riparian areas along the main channel, and site 10 is located in the J.E. Roush F&W area where the riparian area has been largely undisturbed; however turbidity levels in the stream have been over the target for the majority (55%) of the

samplings. Site 14 is extremely silted making it difficult to monitor. This raises the issue that turbidity may be from in-stream conditions or eroding stream banks at or under the water line, as undercut banks were noted at all sites.



Site 14



Site 13

Macro-invertebrates ranged from Fair to Excellent on the main channel of Rock Creek. Two types of native mussels were discovered at site 13, a snail bed is located downstream from site 10, and minnows and sunfish were observed during monitoring events. Eikenberry Ditch is very narrow and shallow during most of the summer months and heavily shaded with an abundance of organic matter which may account for the low level of macro-invertebrates at the site.

E. coli levels exceeded the state standard for full body contact (235 cfu/100 mL) in 10 samples out of a total of 33 samples collected, or 30% of the time. The predominance of agricultural activities combined with the number of rural residences with on-site septic systems can be attributed to high levels of nutrients and *E. coli* in the Rock Creek sub-watershed.

Wabash River—Griffin Ditch: Due to the size of the river, you would expect that the volume of water would dilute contaminants; but that does not appear to generally be the case. *E. coli* levels were above the state water quality standard 71% of the time (29 samples out of 41), suggesting that there are continuous inputs of *E. coli* along the entire length of the Wabash River. The majority of occurrences were at a time of normal to low flow during late fall and summer months. A high flow event yielded no test results over the water quality standard on the Wabash River; suggesting *E. coli* levels were diluted and resulted in all sites meeting the water quality standard on that date.

Total nitrogen and nitrates, as well as total phosphorous levels have been over the water quality targets throughout the monitoring period, particularly at site 5. It is believed that some of these nutrients are coming from human activities in the populated areas along the river, such as lawn care and urban runoff, but seasonal occurrences also point to agricultural activities and septic discharges.



Site 5

(Wabash River—Griffin Ditch Continued)

Turbidity measurements were over the target level for fish and macro-invertebrate health 96% of the time (49 samples out of 51). This is due to a combination of sediment, organic matter and algae present in the river. This is further supported by the dissolved oxygen saturation levels. They tend to be lower during the winter/spring season staying within the state standard; then rising to levels of super saturation during the summer/fall cycle. This suggests that those levels are affected by seasonal occurrences of plant and algae growth which is fueled by excessive nutrients.



Habitat evaluations on the Wabash River list the substrate as being large size rock and boulders with some bedrock locations, but all sites were silted and smothered with undercut banks. The riparian areas varied from medium to wide with a combination of forests, grasses, row crops, and urban areas. Site 6 scored the lowest on the evaluation due to siltation and erosion, narrow riparian areas, and man-made alterations at the site.



Macro-invertebrate sampling on the Wabash River sites ranked from Good to Excellent, except for site 6 that received a score of Poor. This site is downstream from the City of Bluffton and seems to be impacted the most by urban influences.

Eight Mile Creek: Turbidity measurements were above the target level 53% of the time throughout the monitoring period. Turbidity levels were elevated during both low flow and high flow periods. This would indicate that organic matter, as well as sediment in the stream is contributing to the stream degradation.



Nitrates and total phosphorous regularly exceeded the target levels. Due to the primary land use being agriculture, erosion and runoff from agricultural activities are believed to be the major contributor of these nutrients. The nitrogen levels at site 1 generally are lower than the other monitoring sites in the watershed and may be due to having a larger percentage of woodlands, grasslands, hay lands and conservation waterways than the remainder of the watershed area.

E. coli exceeded the state standard in 16 samples out of 29 total samples (55% of the time). All 4 Eight Mile Creek monitoring sites had the highest level of *E. coli* (between 400 cfu/100mL and 3800 cfu/100 mL and between 267 cfu/100 mL and 1833 cfu/100 mL) on 2 events that occurred at periods of normal flow. Due to the timing of these events, animal manure land applications and on-site septic systems are believed to be the cause.

Habitat evaluations and macro-invertebrate sampling on the Eight Mile Creek ranged lower overall from the other sub-watersheds. The substrate of the stream ranged from small fine material to larger rocks downstream. Silting of the substrate was noted along with undercut banks and shallow areas of cover. Many man-made changes have occurred to the entire length of the Eight Mile Creek and the riparian area ranges from narrow to medium width with adjacent cropland. Only sites 1 and 2 meet the standard to be considered conducive to warm water fauna, which contains more forest, shrub and wetland riparian areas. Site 2 scored the highest on the macro-invertebrate sampling earning a Good rating which may be due to the benefits of the 2-stage ditch at the monitoring site.

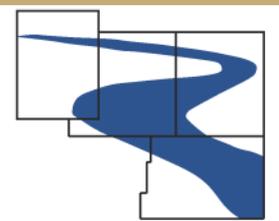


UPPER WABASH RIVER BASIN COMMISSION

117 W. Harvest Road
Bluffton, IN 46714

The Upper Wabash River
Basin Commission

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement number C600E72012 to the Indiana Department of Environmental Management. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.



A cooperation of local government established in 2001 under IC 14-30-4.
Huntington, Wells, Adams and Jay Counties

Cover Crop Field Day

Friday, September 19, 2014

9am to 1pm—Lunch following

Location of Demonstration Plot: 2750W 700N, Uniondale, IN

Please register by September 12, 2014 for Meal Count

Wells Co. SWCD, 117 West Harvest Road, Bluffton, IN 46714
Phone: (260) 824-0624 ext. 3 or lynne.huffman@in.nacdnet.com

Featured Speakers:

Dr. Hans Kok, CCSI Coordinator "Cover Crops"

Joe Nester, Owner, Nester Ag, LLC

Jeff Ulrey: Gypsoil Market Manager, Indiana -
"Using Gypsum to Enhance Soil Quality"

Andy Ambriole, owner, CCSeeder, Inc.



Lunch Sponsored by:



Why Cover Crops?

- Improve soil Health
- Increase organic matter
- Reduce soil erosion
- Reduce soil compaction
- Supply nitrogen
- Increase water infiltration
- Decrease run-off
- Suppress weeds
- Conserve soil moisture
- Reduce nitrate leeching
- Increase yields

Andy will be demonstrating seeding cover crops using his High-Boy air seeder as weather permits.

Demonstration Plot will have fifteen (15) types of cover crops planted after wheat harvest. Cover crops such as Oats, Flax, Sun Hemp, Hairy Vetch, Sorghum Sudangrass, Australian Winter Peas, Buckwheat, Sunflower, Rapeseed, Turnip, Radish, Crimson Clover, Annual Ryegrass, Cereal Rye, Oats/Radish mix will be on display.

We will be having a follow up field day in the spring to see the progress of the cover crop. At that time we will have a soil pit available for inspection.



Sponsored by:

Wells Co. SWCD in cooperation with
the Allen Co. SWCD, Huntington Co.
SWCD & Whitley Co. SWCD

All programs and services of the Soil & Water Conservation Districts and their partners are offered on a non-discriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

UWRBC Mission Statement

To provide regional leadership and promotion of flood prevention and control, soil and water conservation, and related resource management through a coordinated and comprehensive planning and implementing approach in which projects of the Commission will not adversely affect landowners within the watershed.

For more information contact:

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