

Frog Bayou Watershed Management Plan Stakeholder Meeting July 30, 2014



Agenda

- Why this meeting?
- Frog Bayou Watershed
- Watershed Approach
- Frog Bayou Watershed Management Plan
- Local Involvement in the Watershed
- Where Do We Go From Here?



Why this meeting?

- Increase your awareness and knowledge of local watersheds and water issues.
- Increase interest in local watershed efforts.
- Provide opportunities to become involved in local watershed efforts
- Improve and protect quality of local water resources
- To empower communities to address their locally-identified natural resource concerns

Frog Bayou Watershed

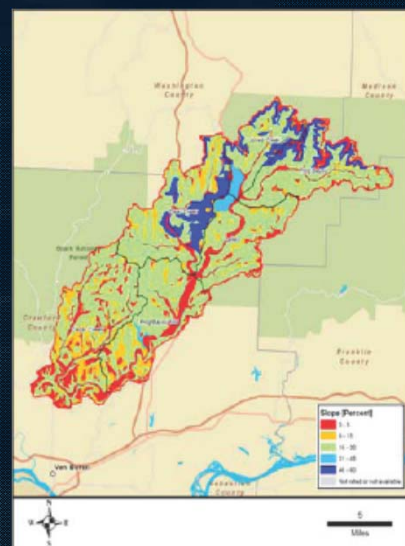
Arkansas Counties

Crawford

Washington

Madison

Franklin



Frog Bayou Watershed



Major Streams & Water Bodies

- Frog Bayou
- Jack Creek
- Jones Creek
- Cedar Creek
- Clear Creek
- Lake Fort Smith

Frog Bayou Watershed

- Frog Bayou Watershed is approximately 271 mi².
- The watershed drains directly into the Lake Fort Smith and ultimately into the Arkansas River.
- The watershed serves as a drinking water supply for approximately 200,000 people throughout the region.
- The two major land uses
 - Forest Land Use (77%)
 - Agriculture Land Use (16%)

Watershed Approach

The “**Watershed Approach**” is a decision-making process that involves all “stakeholders” of a watershed working together to address their local watershed concerns.

- “The watershed approach provides a framework to assess and manage water quality and water resources on a drainage basin (watershed) basis, focusing attention not just on point source discharges (industrial and municipal wastewater) and stream disturbances in the stream corridors, but also on the affects of anthropogenic (human based) land uses (agriculture, urban areas, etc) in the entire watershed on the waters in that watershed.”

Watershed Approach

Goals of this approach include:

- 1) Identify and prioritize water quality/quantity concerns in the watershed
- 2) Develop increased public awareness, education, and involvement
- 3) Coordinate efforts with other agencies, organizations, and stakeholders within the watershed
- 4) Measure success through monitoring and other data collection

Watershed Approach

Water Quality Improvement Projects

- Used to increase public awareness and education of water quality concerns
- Directly address water quality concerns
- Directly address pollution sources



Watershed Approach

- **4 major categories:**
 - 1) Outreach and education activities
 - 2) Watershed water quality assessment
 - 3) BMP Implementation
 - 4) Planning and development of watershed management plans



Watershed Approach

Outreach and Education Activities

- A major portion of any watershed management plan is awareness and education outreach programming.



Watershed Approach

- Programming focus: Engage local residents
 - Raise awareness of water quality issues
 - Educate the public on how they can make a difference through their actions
 - Collect measureable results and outcome indicators
 - Analyze results
 - Adjust programming appropriately.

Watershed Approach

Watershed Water Quality Assessment

- Conduct water quality assessment on waterways
- Evaluate the data to determine if the waterway is impaired
- If the waterway is impaired, establish goals for pollution reduction



Watershed Approach

Best Management Practices (BMPs)

- BMPs are structural and managerial practices and actions that can prevent water pollution or restore water health
 - Scientifically proven
 - Practical
 - Target specific sources of pollution



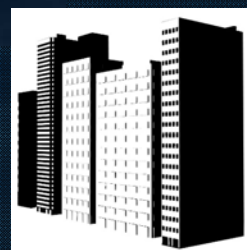
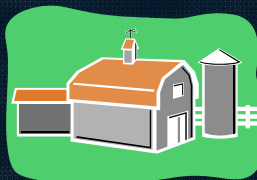
Watershed Approach

- BMPs are commonly used to address the broad spectrum of nonpoint source pollution
- Point source pollution sources are easily identifiable and already regulated (end of pipe pollution such as wastewater plants, industries, etc.)



Watershed Approach

- Types of BMPs include:
 - Agricultural
 - Urban
 - Forestry
 - Household



Watershed Approach

- Agricultural primary pollutants: nutrients, sediment, animal manure, salts and pesticide
- Urban primary pollutants: pathogens, toxic substances, nutrients, sediment and floatable trash
- Forestry primary pollutants: Sediment from improper silvicultural practices
- Household primary pollutants and sources: fertilizers, pesticides, hazardous wastes, pharmaceuticals, pet waste and litter

Watershed Approach

- BMPs can be free or costly depending on the materials and manpower needed.
- Watershed groups often apply for grants from state agencies or nonprofit groups to offset the cost of an BMP
 - EPA & ANRC have awarded grants to help with water quality monitoring or BMPs implementation in multiple watersheds in the state

Watershed Approach

- Best Management Practices (BMPs) are management strategies to reduce/control water quality concerns.
- Not all BMPs apply to every situation
- BMPs often require continued maintenance



Watershed Approach

Watershed Management Plans

- **Watershed Management Plans (WMPs)** are *community-driven* management plans developed using the watershed approach.



Watershed Approach

- **Solve complex water quality concerns**
 - Identify causes
 - Estimate pollutant loads
 - Describe actions needed
 - Estimate assistance needed
 - Inform/educate public
 - Schedule implementation of actions
 - Set successful measurable criteria
 - Adaptive management



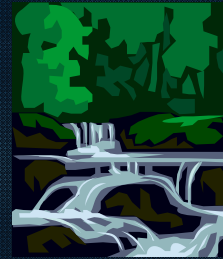
Frog Bayou Watershed Management Plan

- Protection of the watersheds that supply this water will reduce pollutants in the reservoir and can help reduce the cost of treating drinking water allowing the City to continue providing its users with affordable clean drinking water.



Frog Bayou Watershed Management Plan

- This WMP will be used to direct watershed protection activities and watershed restoration activities preformed by stakeholders with the ultimate goal being immediate reduction of pollutant loading and protection of the watershed and associated reservoir source water into the future.



Frog Bayou Watershed Management Plan

- Fort Smith has maintained an ongoing watershed monitoring program for several years. FSU staff conducts extensive water quality sampling and physicochemical analysis on a quarterly basis, under various flow regimes, at multiple creek stations in the watershed.
- Fort Smith staff completes annual bioassessments of the fish and macroinvertebrate community in key stream reaches (generally near water quality monitoring sites) in the watershed.

Frog Bayou Watershed Management Plan

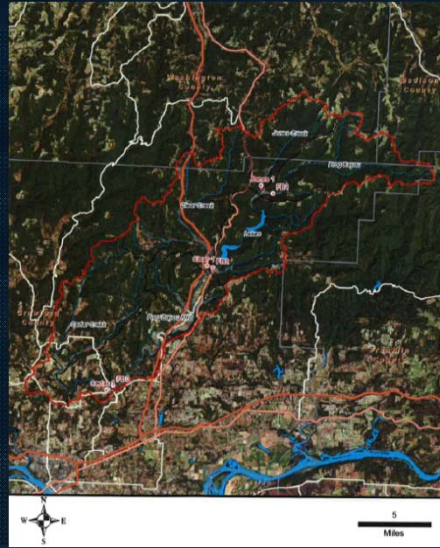
- This WMP has been developed based primarily on evaluation/analysis of existing watershed monitoring data collected by the FSU over the past several years then integrated with the existing water resource management documents and new data collected during this project to form a comprehensive WMP.

Frog Bayou Watershed Management Plan

- The WMP includes identification of critical sub-watersheds at a small scale (~12 digit HUC) and ranked implementation measures to reduce non-point source pollution loading from critical areas.

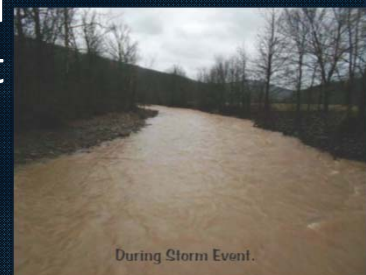


Frog Bayou Watershed Management Plan



Frog Bayou Watershed Management Plan

- In general, water quality during baseline flow events were good.
- However, storm water runoff events did produce moderate pollutant levels, that when coupled with high flow levels, are capable of significant pollutant loading from each sub-watershed.



Frog Bayou Watershed Management Plan

- Results of the Designated Use Assessment indicates no load reductions are required to meet Arkansas' general water quality standards.
- To proactively protect and improve the water quality in Lake Fort Smith, reductions in sediment and phosphorus loading (of approximately 10%) will be targeted in critical areas in an effort to ensure maintenance of that standard and to improve water quality entering Lake Fort Smith.

Local Involvement in the Watershed

- Watershed planning is a locally-driven effort to voluntarily address complex water quality problems that cross multiple jurisdictions.
- The goal is to protect unimpaired waterbodies from pollution threats and restore impaired, polluted waterbodies.



Local Involvement in the Watershed

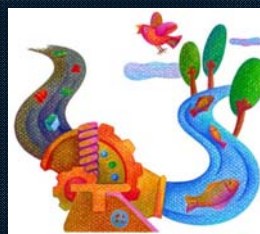
- **Citizen involvement is critical**
- Regulations alone won't solve or prevent all water quality problems.
- Big picture: water resources are important to community future and economic development.



Local Involvement in the Watershed

Stakeholders are people who could be affected by water quality impairments or by activities to improve water quality.

Anyone who lives, works, or plays in the watershed.



Local Involvement in the Watershed

Locally developed solutions allow residents to take into account unique social, economic and environmental circumstances of a community.

- Build trust and support
- Establish outcomes
- Share decisions and actions
- Enhance human capital
- Widen base of volunteer



Local Involvement in the Watershed

- Landowners
- Homeowners
- Residents
- Businesses and Industry
- City, County, State, and Federal Government & Agencies
- Water Suppliers
- Fishing groups, Hunting clubs, Nature groups...

The new Lake Fort Smith has a surface area of 1,400 acres and stores 27 billion gallons of water at capacity.

The 2002 Lake Fort Smith Dam.

Clean, reliable water is still the story of Frog Bayou. Whether to meet the needs of a growing city... or just for fun... water is the gift of the Ozarks.

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Lake Fort Smith's water quality

is protected by many people, including you.

Local Involvement in the Watershed



- An effective way for stakeholders to become involved and to make a difference.
- An effective way to manage, preserve, or protect water resources.

Local Involvement in the Watershed

Forming a Watershed Group such as...



Type of group does not matter:

- Watershed Associations
- Watershed Partnerships
- Watershed Alliances
- Watershed Coalitions
- Watershed Councils
- Watershed Friends

Local Involvement in the Watershed

- These groups are here to help to start watershed groups.



Agencies Already Protecting the Watershed



Where Do We Go From Here?



Special Thanks to...

- EPA
- ANRC (Tony Ramick & Dustin Rains)
- U of A Agri Public Policy Center (Kristin Higgins)
- Lake Fort Smith State Park (Ralph Donnangelo)
- GBMc & Associates (The Whole Staff)
- Fort Smith Watershed Management Team
- You, for being here.

