

The Draft 2014 303(d) List Water Division



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Manager**

ADEQ

A R K A N S A S
Department of Environmental Quality

Clean Water Act Reporting Requirements

Water Quality Monitoring Report

Required by Section 305(b)

- Assessment of Rivers and Streams
- Assessment of Lakes and Reservoirs
- Assessment of Ground Waters
- Report on the water quality condition
- List of waterbodies not meeting water quality standards or designated uses (303(d) List)

What is the 303(d) List?

- List of waterbodies currently not
 - Supporting designated uses or
 - Attaining water quality standards
- ADEQ must submit a 303(d) list every 2 years
- For listed waters, ADEQ must, with EPA concurrence, develop water quality improvement strategies to reduce the input of the specific pollutant(s) that are restricting the waterbody use(s) in order to restore and protect the use(s).

TMDLs, Watershed Restoration Plans, NPDES

Permit Limits, additional monitoring

Section 303(c) of the Clean Water Act

- States are required to adopt water uses (Designated Uses) consistent with the Clean Water Act
- States are required to establish water quality standards for waterbodies
- Water quality standards define the goals for waterbodies in the state by designating uses for each waterbody and setting criteria necessary to protect the uses

Assessed Designated Uses Include

- Fish Consumption
- Fisheries (Aquatic Life)
- Primary Contact Recreation (Swimming)
- Secondary Contact Recreation (Wading)
- Domestic Water Supply (Drinking Water)
- Agriculture and Industrial Water Supply

Based on the designated uses, water quality criteria are established for each waterbody

Water Quality Criteria


EXAMPLES INCLUDE

- Numerical criteria, Regulation 2.504 for pH:
pH values for water in streams/lakes shall not be below 6.0 or above 9.0
- Narrative criteria, Regulation 2.509 for nutrients:
Nutrients – ‘Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use...’

History of 303(d) List in Arkansas

- ADEQ began documenting water quality conditions in the late 1960's
- Arkansas began reporting the conditions of the State's waters to EPA as a requirement of Section 305(b) of the Clean Water Act in the early 1970s
- ADEQ began officially submitting a 303(d) list in 1992

Inventory of Quality of **All** Waters of the State

- Requires Water Quality Monitoring Network
 - Adequate Magnitude?
 - Coverage of all waters
 - Frequency of sampling
 - Parameters to sample (physical, chemical, biological)
 - Conditions when sampling
 - Best Professional Judgment
 - Concentration of potential pollution activities
 - Perceived problem areas
- 

Inventory of Quality of All Waters of the State

Five Water Quality Monitoring Networks

- Ambient Water Quality Monitoring Network
 - Roving Stations Monitoring Network
 - Watershed Monitoring Network
 - Lakes Water Quality Monitoring Network
 - Groundwater Quality Monitoring Network
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Water Quality Monitoring Network

CHEMICAL ANALYSES

➤ Routine Analyses

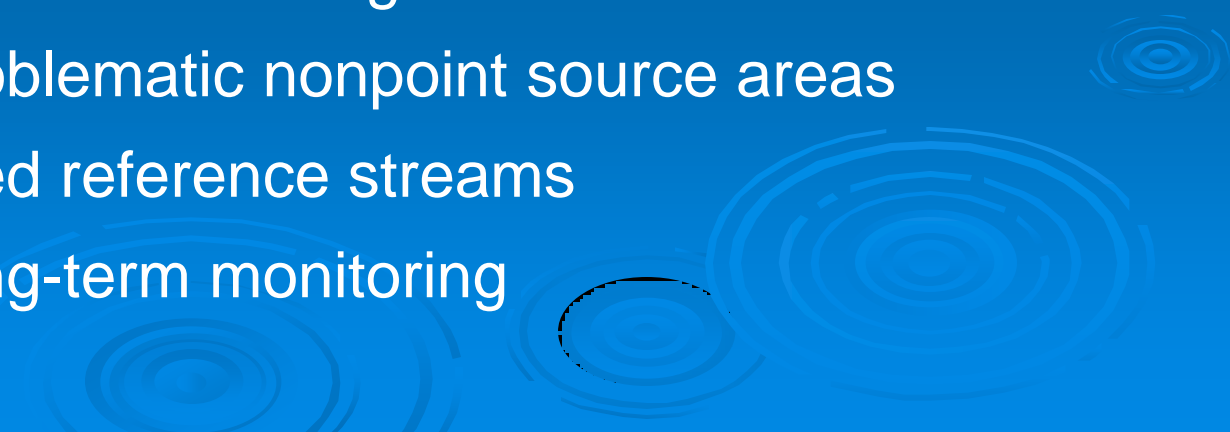
- Conventional parameters (pH, D.O., Temp.)
- Minerals (Cl, SO₄, TDS)
- Nutrients (forms of N and P)
- Heavy metals (Cu, Zn, Pb, etc.)
- Other associated ions (Na, Ca, K, etc.)

➤ Periodic Analyses

- Standard Pesticide Scan (approx. 40 compounds)
- Specialized chemical compounds


Water Quality Monitoring Network

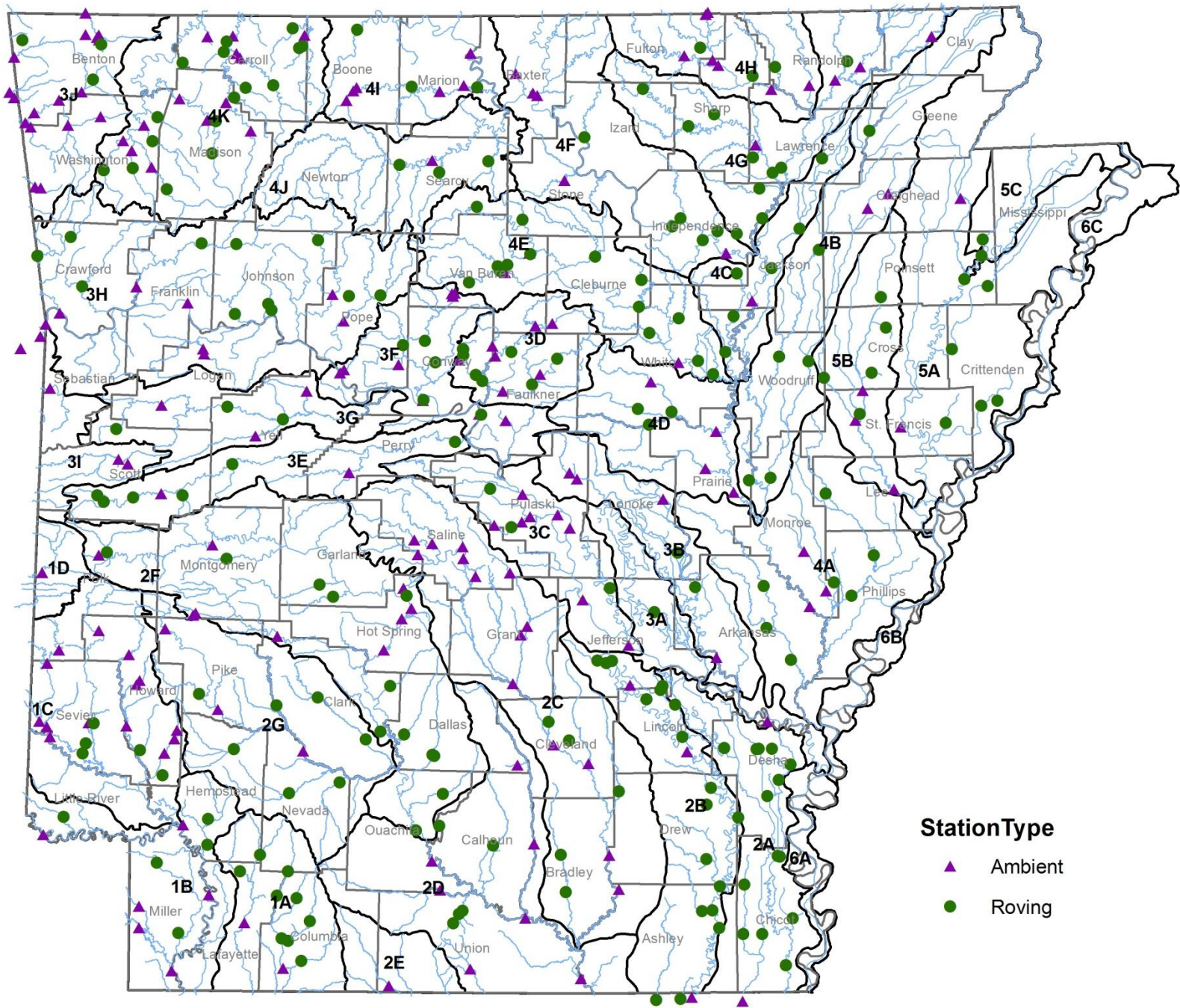
AMBIENT SURFACE WATER NETWORK

- Approximately 150 stations
 - Chemical parameters and flow (when available)
 - Sampled monthly for approximately 30-35 years
 - Monitoring objectives
 - Big river systems
 - Below point source discharges
 - Potentially problematic nonpoint source areas
 - Least-disturbed reference streams
 - Consistent long-term monitoring
- 

Water Quality Monitoring Network

ROVING SURFACE WATER NETWORK

- Waters with limited or no WQ Data
 - Approximately 200 stations
 - 1/4 stations sampled for two-year period
 - Sampled every 2 months
 - Ambient Network WQ parameters
 - Bacteria
 - Specialized chemical compounds
- 



Benton

Carroll

Boone

Marion

Fulton

Sharp

Randolph

Clay

Washington

Mason

Newton

Searcy

Izard

Lawrence

Greene

Calhoun

Mississippi

Crawford

Franklin

Johnson

Van Buren

Cleburne

Madison

Poinsett

Cross

St. Francis

Crittenden

Sebastian

Loban

Pope

Conway

Faulkner

Woodruff

Cross

Scott

Perry

3G

3E

3D

3C

3B

Montgomery

Garland

Saline

Pulaski

Sanoke

Prairie

Monroe

Lea

Sevier

Howard

Pike

Clark

Hot Spring

Gran

Jeffers

Arkansas

Little River

Hemphill

Nevada

Ouachita

Calhoun

Lincoln

DeSha

Miller

Columbia

2D

2E

Bradley

2B

2A

6A

Lafayette

Union

2E

2E

Ashley

2A

6A

6A

5C

6C

5B

5A

4A

6B

4H

4F

4G

4C

4D

4E

3F

3I

2F

3A

2C

1D

1C

4I

4J

4K

3J

3H

1B

2G

1A

2A

2B

2C

2D

2E

Water Quality Monitoring Network

WATERSHED MONITORING NETWORK

Macroinvertebrate Community

Watershed Based: 20 – 30 sites
Statewide: 100+ samples/year
Plus Routine Water Quality Analyses &
Flow




Fish Community

Watershed Based: 10 – 20 sites
Statewide: 30+ samples/year
Plus Routine Water Quality Analyses &
Flow

Water Quality Monitoring Network

LAKES AND RESERVOIRS

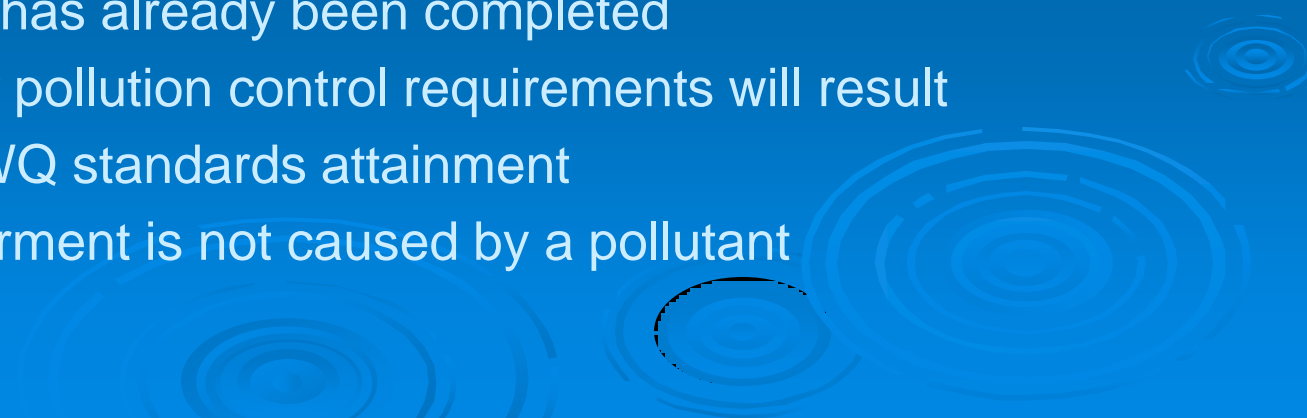
- 15 lakes sampled quarterly since 2011
 - Other lakes sampled regularly in order to:
 - Identify potential reference Lakes
 - Verify reference conditions
 - Collect adequate quantity of data
 - Develop improved water quality standards for lakes
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Ambient Groundwater Monitoring

- Approximately 250 stations
- Selected public and private wells, irrigation wells, industrial supply wells, and springs
- Ions, metals, nutrients, Total Organic Carbon
- Sampled triennially
- Monitoring objectives
 - Major aquifers across Arkansas
 - Document natural background conditions
 - Consistent long-term monitoring
 - Some pesticide/VOC sampling in shallow wells near sources

303(d) Report Listing Format

Five Assessment Categories of Waters

- 1 – All designated uses and water quality standards are met
 - 2 – Some uses and standards met, insufficient data to assess other uses
 - 3 – Insufficient data to assess any uses
 - 4 – Water impaired, does not require TMDL
 - 4a -TMDL has already been completed
 - 4b – Other pollution control requirements will result in WQ standards attainment
 - 4c – Impairment is not caused by a pollutant
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303(d) Report Listing Format

Five Categories of Waters (continued)

5 – Waters not meeting WQ Standards

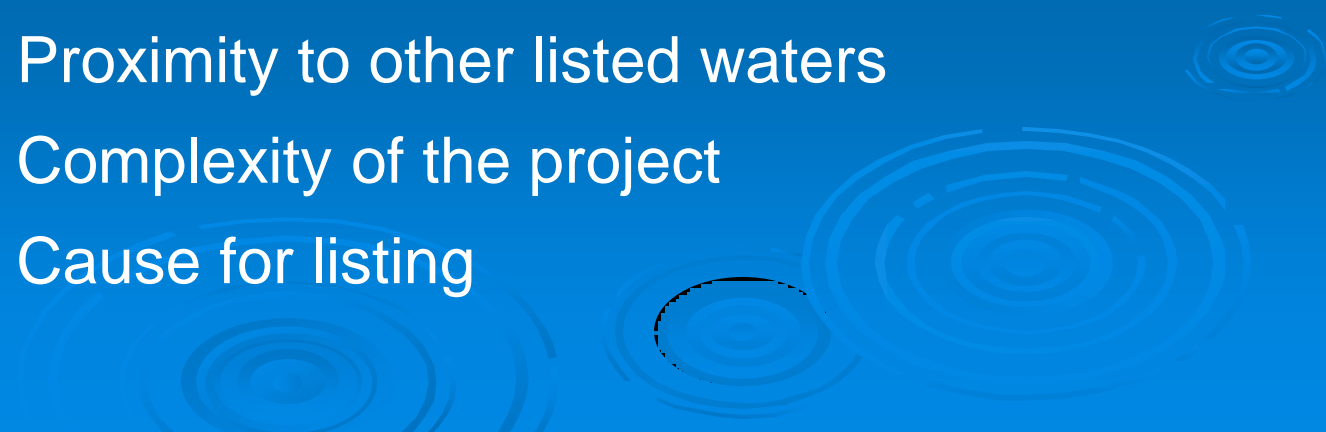
- High
 - Truly impaired, TMDL needed
- Medium
 - Adoption of new regulations or standards
 - Questionable data (QA/QC)
 - Data verification needed
 - Impairment caused by a point source
- Low
 - Impairment is naturally occurring
 - Segment added by EPA

Prioritization of Category 5 Waters

➤ Primary Factors

- Drinking Water Sources
- Extraordinary Resource Waters
- Ecologically Sensitive Waters

➤ Secondary Factors

- Proximity to other listed waters
 - Complexity of the project
 - Cause for listing
- 

Total Maximum Daily Load

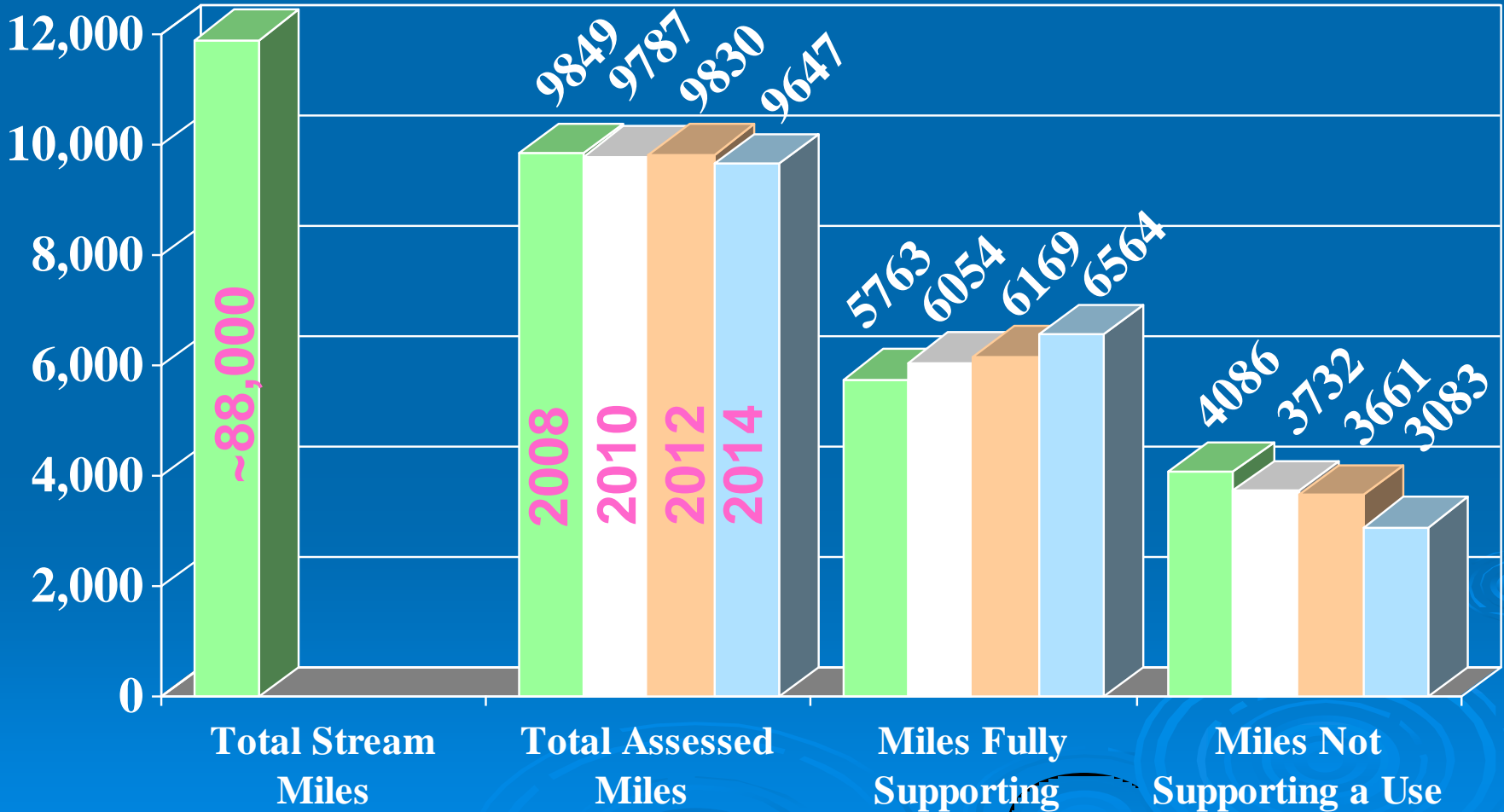
Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a specific pollutant that a waterbody can receive and still meet its water quality criteria and maintain its designated uses.

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$

TMDLs become the basis for effluent limitations and discharge permit limits.

WLA = Waste Load Allocation; LA = Load Allocation; MOS = Margin of Safety

Designated Use Support & Water Quality Standards Attainment




De-Listing of Waters

- Development of a TMDL
 - Implement control strategies other than a TMDL
 - Updated assessments indicate no known impairments
 - Improved delineation of impaired waterbodies
 - Revised water quality standards and assessment methodologies
- 


De-Listings from 2012 to 2014

134 Pollutant Pairs

- Minerals - Cl, SO₄, TDS (59)
 - Metals - Cu, Pb, Zn (32)
 - Turbidity (19)
 - pH (11)
 - Dissolved Oxygen (5)
 - Temperature (5)
 - Nutrients (1)
 - Pathogens (1)
- 

New Listings for 2014

104 Pollutant Pairs

- Minerals - Cl, SO₄, TDS (38)
 - Turbidity (22)
 - Dissolved Oxygen (19)
 - Metals - Cu, Se (12)
 - Temperature (8)
 - Pathogens (4)
 - pH (1)
- 

Updates since Public Notice

Designated Uses – Original

STREAM NAME	COUNTY	HUC	RCH	PLNG	MILES	MONITORING	Designated Use Not Supported						
				SEG		STATIONS	FC	FSH	PC	SC	DW	AI	
Red River	Hempstead	11140201	-011	1B	15.2	RED0046							X
Red River	Little River	11140106	-025	1B	8.0	e							X
Red River	Little River	11140106	-005	1B	25.3	RED0025							X
Red River	Little River	11140106	-003	1B	9.8	e							X
Red River	Little River	11140106	-001	1B	34.8	e							X
Red River	Miller	11140201	-007	1B	40.1	RED0045							X
Red River	Miller	11140201	-005	1B	12.0	e							X
Red River	Miller	11140201	-004	1B	4.0	e							X
Cove Creek	Hot Spring	8040102	-970	2F	7.8	OUA0100 OUA0159						X	X
Caney Creek	Cross	8020205	-901	5B	9.0	FRA0034							

Updates since Public Notice

Designated Uses – Updates

STREAM NAME	COUNTY	HUC	RCH	PLNG	MILES	MONITORING	Designated Use Not Supported					
				SEG		STATIONS	FC	FSH	PC	SC	DW	AI
Red River	Hempstead	11140201	-011	1B	15.2	RED0046		x				
Red River	Little River	11140106	-025	1B	8.0	e		x				
Red River	Little River	11140106	-005	1B	25.3	RED0025		x				
Red River	Little River	11140106	-003	1B	9.8	e		x				
Red River	Little River	11140106	-001	1B	34.8	e		x				
Red River	Miller	11140201	-007	1B	40.1	RED0045		x				
Red River	Miller	11140201	-005	1B	12.0	e		x				
Red River	Miller	11140201	-004	1B	4.0	e		x				
Cove Creek	Hot Spring	8040102	-970	2F	7.8	OUA0100 OUA0159		x				
Caney Creek	Cross	8020205	-901	5B	9.0	FRA0034		x				

Updates since Public Notice

Corrected Impairments – Updates

STREAM NAME	COUNTY	HUC	RCH	PLNG	MILES	MONITORING	Water Quality Standard Non-Attainment													
				SEG		STATIONS	DO	pH	Tm	Tb	Cl	SO4	TDS	PA	Cu	Pb	Zn	Other		
White River	Washington	11010001	-023	4K	6.2	WHI0052, UAA			x				x							
St. Francis River	Craighead, Poinsett	8020203	-014	5A	22.8	e							x							x

Public Participation

- 30 Day Comment Period
- Public Comment Period began:
Friday, January 31, 2014
- Public Comment Period ends:
Monday, March 3, 2014

All comments must be received by 4:30 p.m.
ImpairedWaters_Comments@adeq.state.ar.us

Arkansas Department of Environmental Quality

*"To protect, enhance, and restore
the natural environment for the
well-being of all Arkansans."*

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**Lee Creek
Natural Dam**

