

ARKANSAS NUTRIENT REDUCTION STRATEGY GOAL SETTING AND TARGETING



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Overarching goals

- Reduce nutrient concentrations and subsequent loading
- Improve water quality for the benefit of Arkansans
- Provide guidance/information to organizations about activities related to nutrient management and reduction



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Arkansas Nutrient Reduction Strategy Update

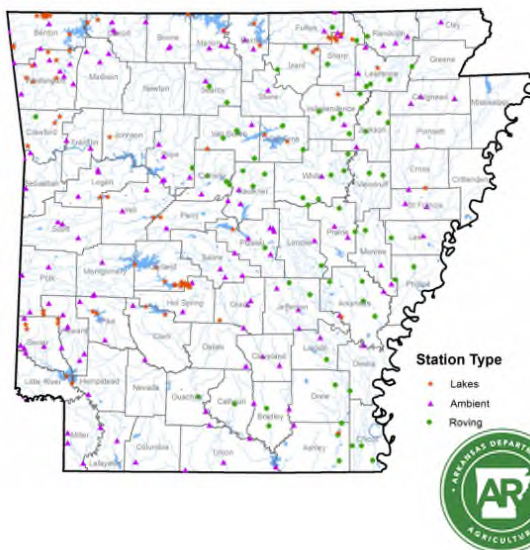
- Stakeholder Meetings (2018-2019)
- Method to Measure Success
- Targeted Nutrient Focus Watersheds
- Concentrate/Reallocate Resources
- Tool to Report NPS Nutrient Reductions



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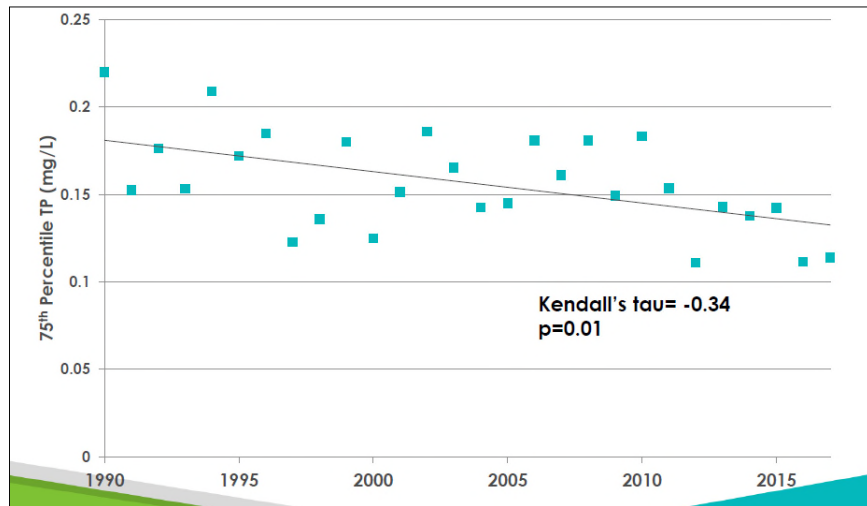
Measuring Success

- Arkansas will measure progress/success by analyzing the directional change of the 75% of all total nitrogen and total phosphorus concentration data within each 8-Digit HUC from 1990 to present



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HUC-08020303 Lower White



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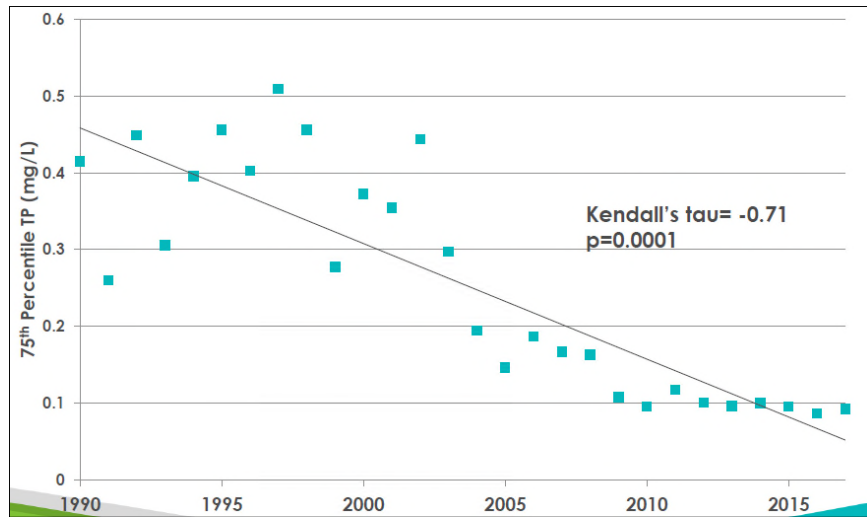
HUC-08020303 Lower White

- In 13 of 27 years (48), TP was lower than the previous year.
- Only, 11 of 27 (41%) years were lower than 1990
- Significant reduction from 1990 to present
- Overall Reduction

Year	75 th Percentile (mg/L)	% Change in 75 th Percentile
1990-1995	0.180	
1995-2000	0.161	-10.29
2000-2005	0.158	-2.36
2005-2010	0.177	12.57
2010-2015	0.151	-15.12
90-95:10-15	-	-19.47

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HUC – 11110103 Illinois



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Review of the Significant Trends for all 51 HUC-8 Watersheds

- 17 (33%) had significant ($p < 0.01$) decreases of total phosphorus since 1990
- 23 (45%) indicated a negative, non-significant trend
Kendall tau values ranged from 0.28 to -0.01
- 10 (20%) indicated a positive, non-significant trend
Kendal tau values ranged from 0.03 to 0.21
- 1 (2%) indicated a steady increase since 1990
Kendall tau (0.3), $p = 0.04$



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Targeted Nutrient Focus Watersheds

- Target based on site specific trends using ambient monitoring data/ flow data
 - Log-transform data
 - Flow adjust concentrations using locally weighted regression(LOESS)
 - Evaluate the flow adjusted using various statistical tests
- Four targeting categories
 - Nutrient Reduction Focus Watershed
 - Insufficient Data – High Priority Watershed
 - Insufficient Data – Low Priority Watershed
 - Nutrient Reduction Low Potential Watershed



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Implementation Strategy

- 319 Priority Watershed Designations
- Watershed Based Plans
- Water Quality Technicians – NMP Adoption
- CW RLF Nutrient Reduction Incentives
- NRCS NWQI Projects and Designations
- NRCS RCPP, CSP, AWEPEQIP, WRE Projects
- Nutrient Surplus Area Designations
- Point Source Monitoring and Reporting of Nutrients/Limits
- Sceptic Tank Replacement Grant/Loan Program
- Discovery Farm/Watershed
- Watershed Group Establishment and Support



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