

ARKANSAS NUTRIENT CRITERIA DEVELOPMENT

EPA Region 6 Nutrient RTAG

Dallas, Texas

April 6, 2016

CRITERIA DEVELOPMENT MILESTONES

2015 Milestones

Revised Wadeable Stream Nutrient AM
Beaver Lake AM
Nutrient Trading Bill

2016 Milestones

NSTEPS Projects Completed
Revised ERW Study Design
HAB Workgroup



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

Extraordinary Ecoregion

NSTEPs

Analysis of Ozark Highlands Extraordinary Resource Waters Data for Arkansas under Nutrient Scientific Technical Exchange Partnership Support (N-STEPS)

Prepared for:

U.S. Environmental Protection Agency
Office of Science and Technology,
Health Ecological Criteria Division
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Prepared by:

Tetra Tech, Inc.
1 Park Drive, Suite 200
Research Triangle Park, NC 27709

January 4, 2015

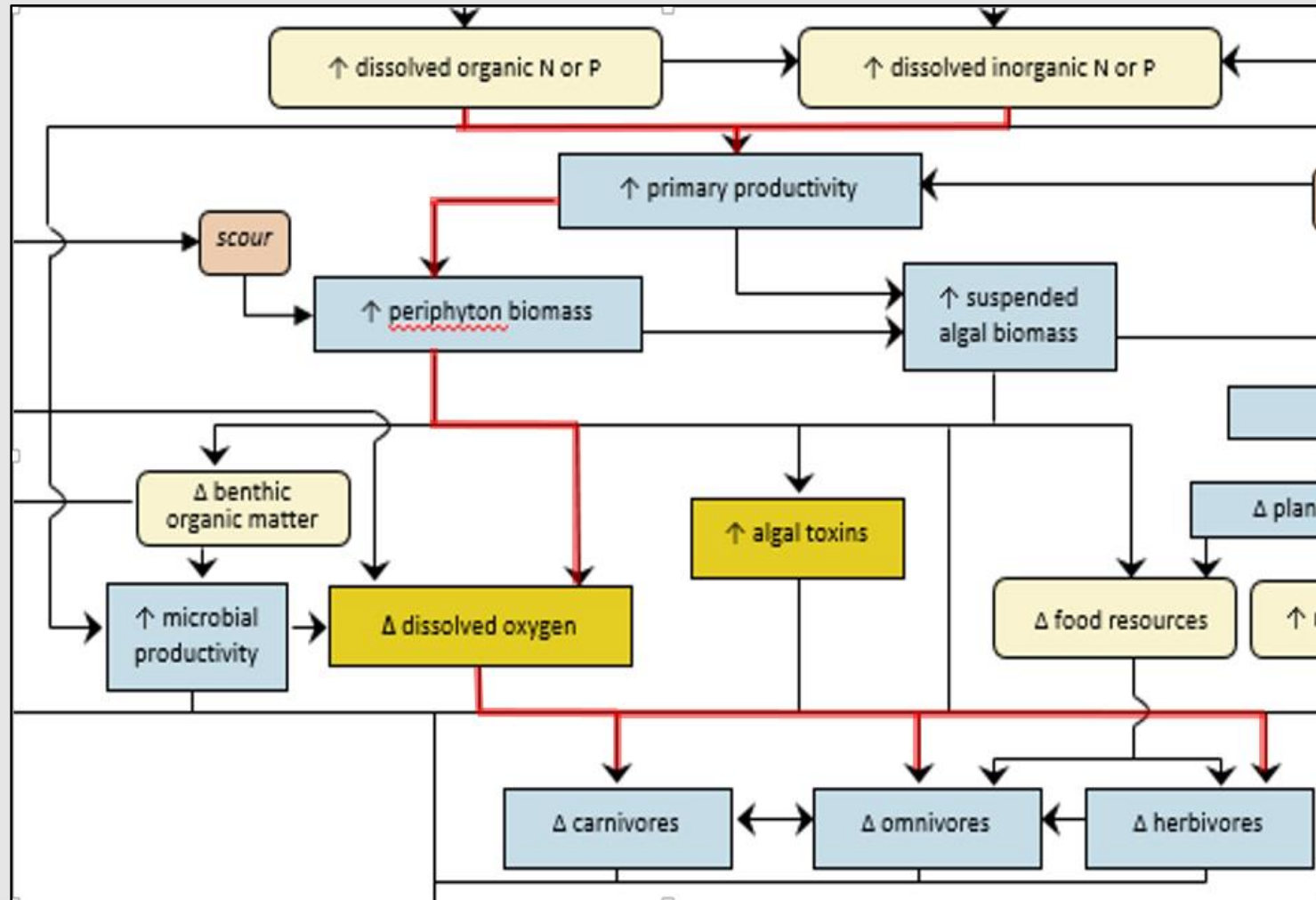


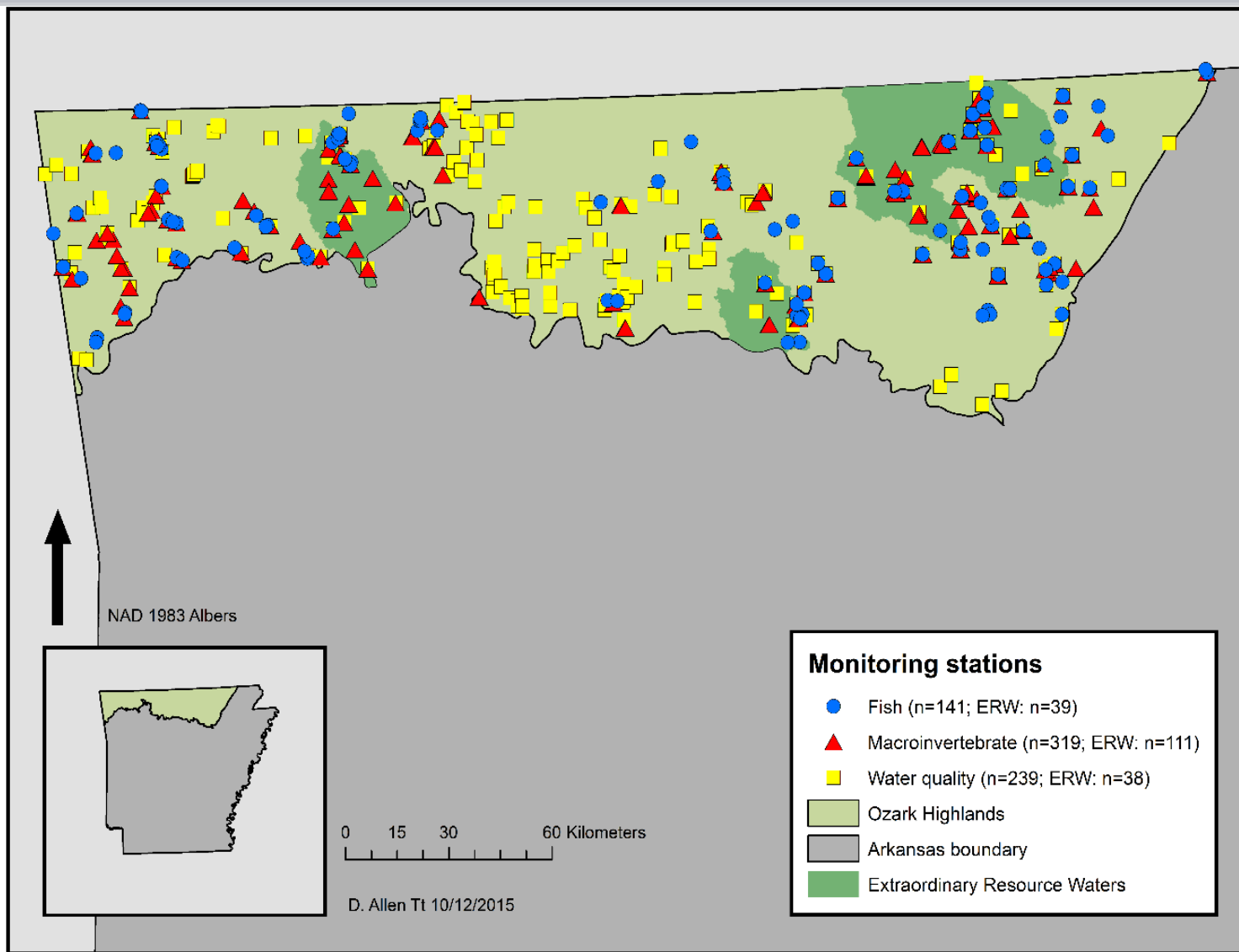
TETRA TECH, INC.

"To protect, en

all Arkansans."

Ozark ERW NSTEPs





Ozark ERW NSTEPs

Potentially Least-Disturbed (Reference)

Parameter	N	Geo Mean	10th percentile	25th percentile	Median	75th percentile	90th percentile
TN (mg/L)	89	0.198	0.087	0.108	0.159	0.264	0.390
TP (mg/L)	38	0.023	0.010	0.015	0.025	0.032	0.038

ERW

Parameter	N	Geo Mean	10th percentile	25th percentile	Median	75th percentile	90th percentile
TN (mg/L)	236	0.437	0.148	0.235	0.519	0.773	1.022
TP (mg/L)	61	0.046	0.026	0.034	0.042	0.061	0.08

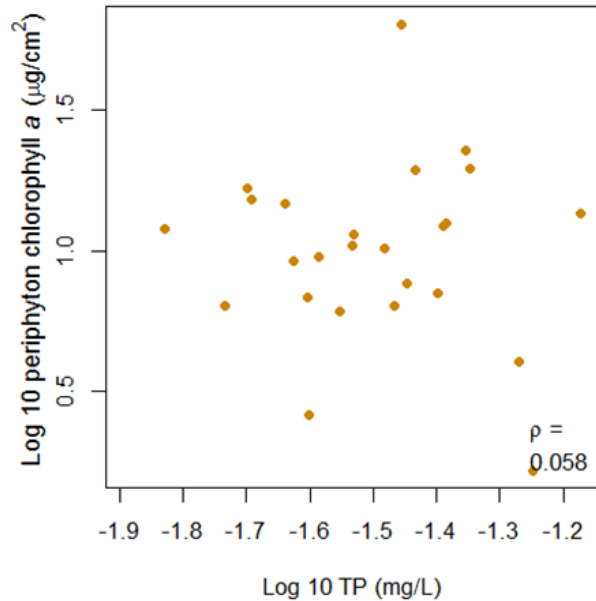
Ozark Highlands

Parameter	N	Geo Mean	10th percentile	25th percentile	Median	75th percentile	90th percentile
TN (mg/L)	1160	0.516	0.141	0.221	0.447	1.111	2.739
TP (mg/L)	305	0.037	0.009	0.024	0.041	0.066	0.10

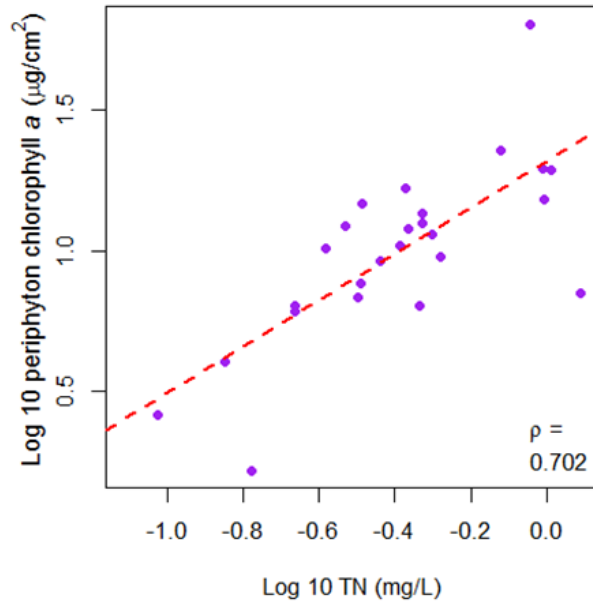


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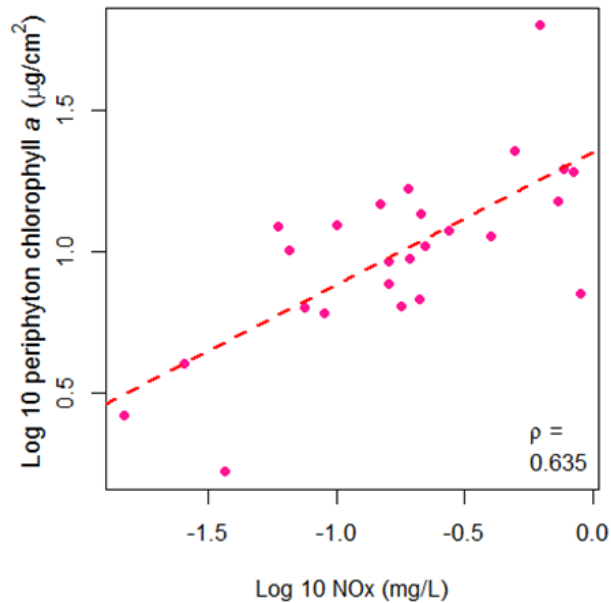
Log 10 total phosphorus (mg/L)



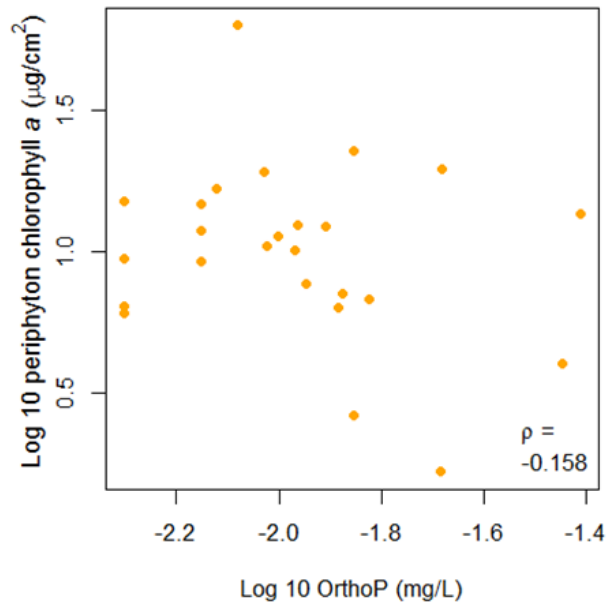
Log 10 total nitrogen (mg/L)

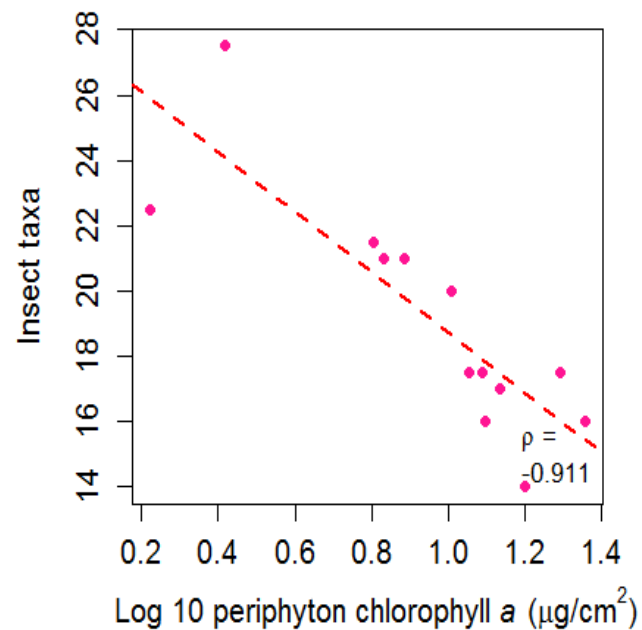
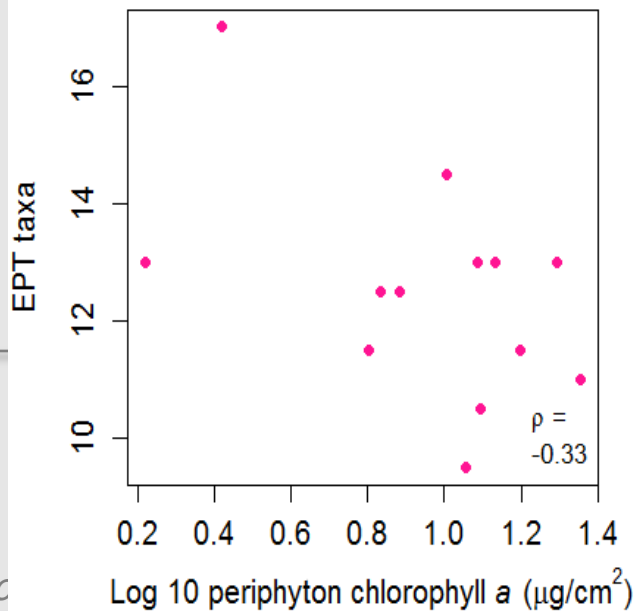
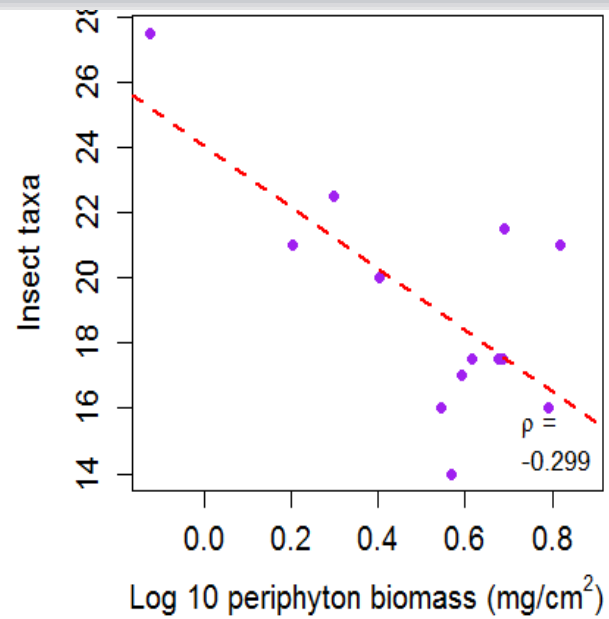
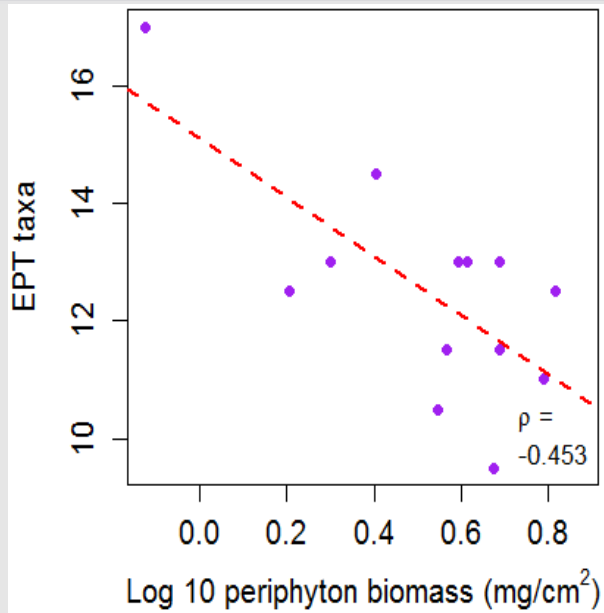


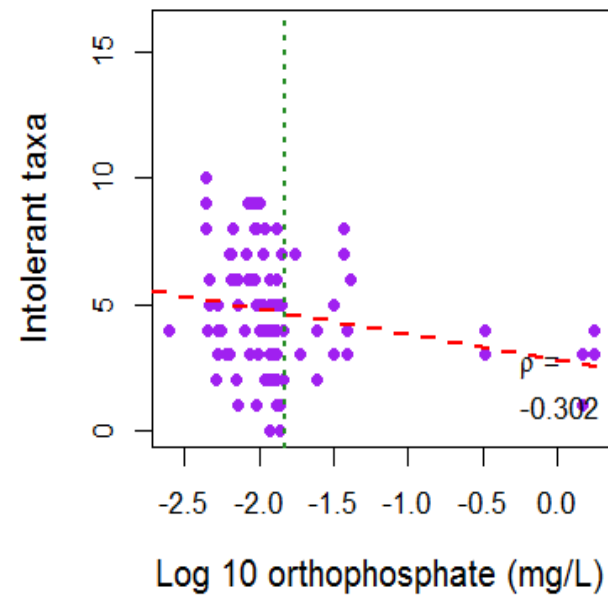
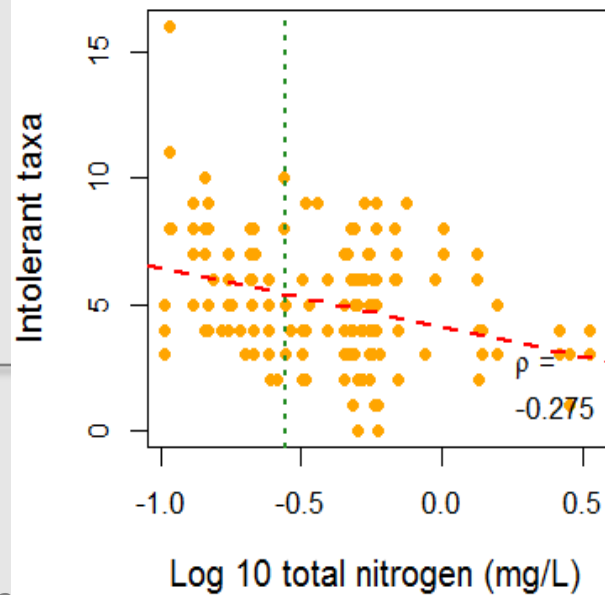
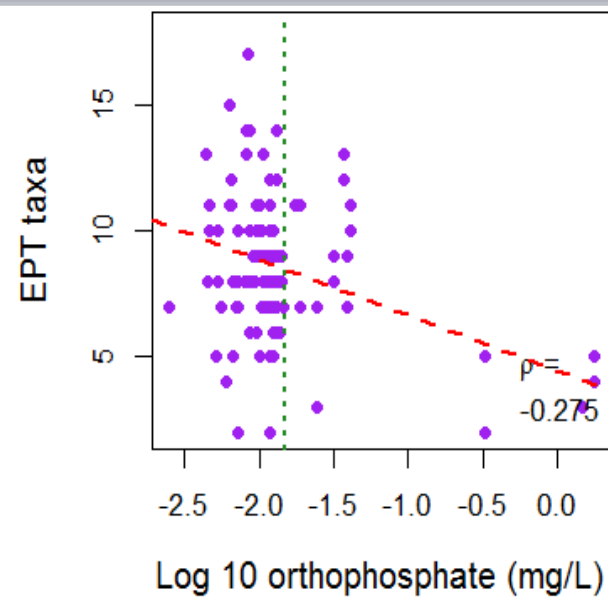
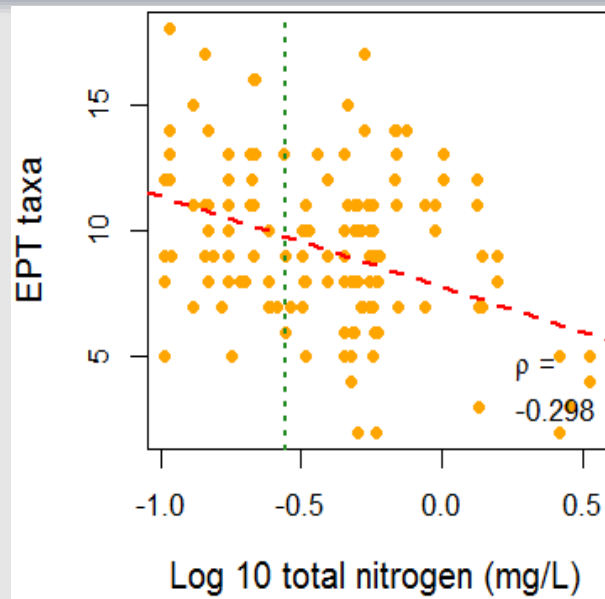
Log 10 nitrate-nitrite (mg/L)



Log 10 orthophosphate (mg/L)







Ozark ERW NSTEPs

- Nutrients in the Ozark Highlands ERWs are generally low;
- The streams appear to be relatively N limited; or at least periphyton response is convincingly stronger to TN and NO_x than TP or orthophosphate;
- Elevated periphyton does correlate with declines in some macroinvertebrate responses;
- Given these observations, an existing condition approach for the ERW region should be considered, whereby numeric targets are set that protect the existing condition.



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Ouachita ERW

Least-disturbed approach

~ 80 sites over two years





ARKANSAS HAB WORKGROUP

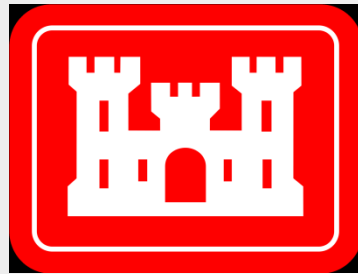


“We are a anarco-syndicous commune. We take it in turn, to act as sort of an officer for the week.”



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Arkansas HAB Workgroup



Where do we go from here?



Next Steps

- August 31, 2015 -----HAB Introduction
- November 9, 2015----Recreation/Source Water HAB monitoring
Law and Policy
- January 2016----- Data Availability/Modeling
CAW/BWD –Source Water
ADH Swim Beach Program
- April 2016-----Citizen Program Development
Develop Recreation/S.W. Monitoring Flow
Chart (based on assimilation of common
themes)
HAB Triggers
- June 2016-----skip
- July 2016-----AWRC Annual Conference/Workshop

Arkansas HAB Workgroup

Major points

- 1) Education - public awareness, public perception, how are we going to disseminate information, advisories, etc?
- 2) Funding for monitoring - Monitoring is going to be a must, how is this going to be funded/coordinated?
- 3) Standards/triggers--What are the triggers that are going to require an alert, advisory, swim beach closure, etc?
- 4) Communication - How are we going to communicate among groups HAB related information?

Next Steps

Regional HAB Workshop/Meeting

Arkansas Water Resource Center

Fayetteville, AR

July 21, 2016

escott@uark.edu

haggard@uark.edu