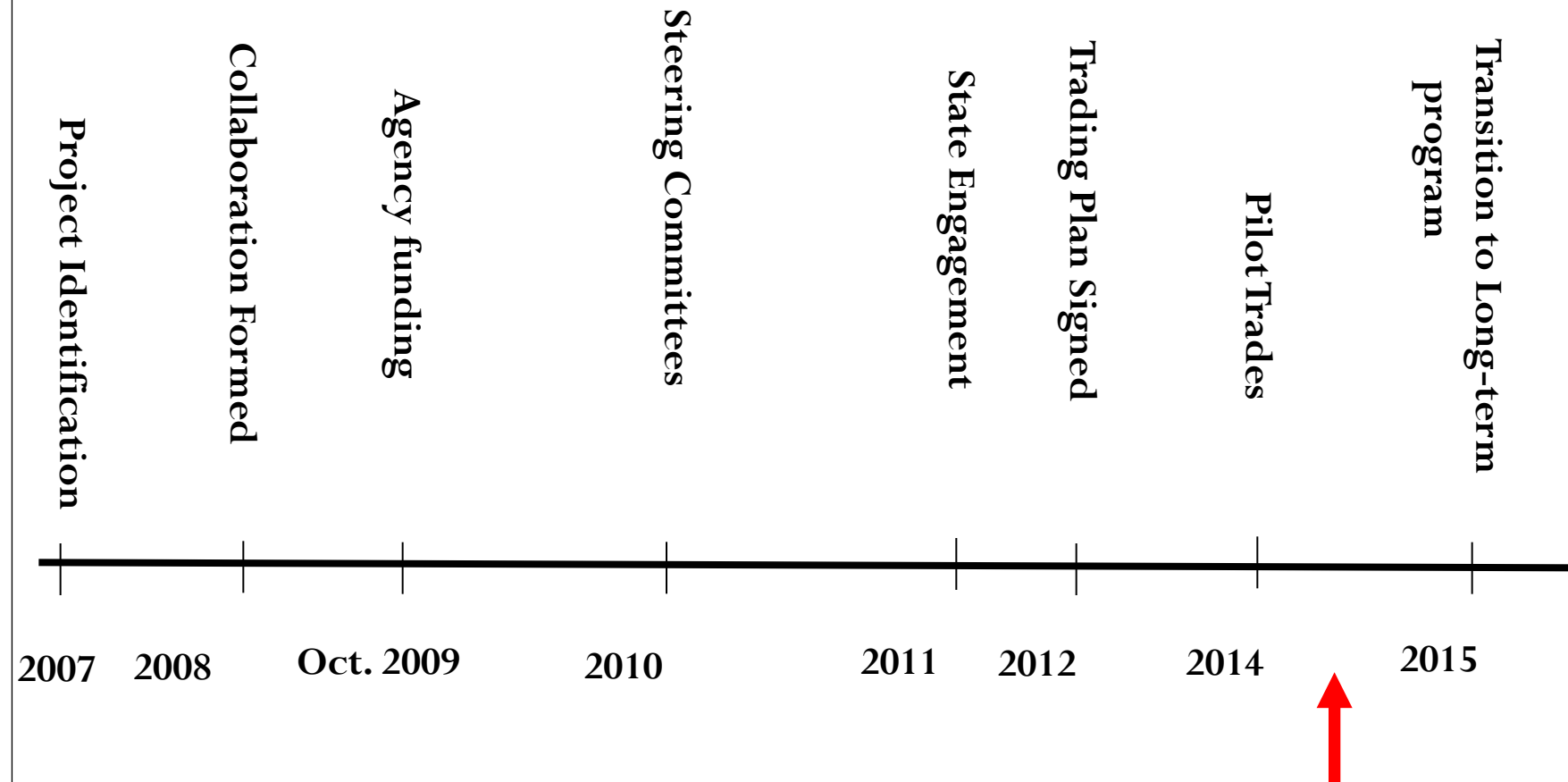


Nutrients Issues:

Agenda Items 19a and 19b

Nutrient Trading Project
Criteria Development
Gulf of Mexico Hypoxia Task Force

Project Schedule



Credit Trading Registry Operational

The screenshot displays the 'markit environmental registry' web application. The top navigation bar includes links for Store, Registry, BOAT, Dividends, Source, CDS & Bonds, RED, Loan Pricing, and Indices. A user is logged in as 'Ufe Test1'. The main navigation menu includes Home, All Units (selected), Projects/Issuances, RFI, Bids/Offers, User Admin, and Activity Log.

The 'Find Units By' sidebar on the left allows filtering by Project, Account, Name, Standard, Project Type, Unit Measurement, Unit Class, and Unit State. The main table lists trading units with columns for Project, Account, Vintage, Origin, Holdings, Measurement, and Status.

Project	Account	Vintage	Origin	Holdings	Measurement	Status
Angel Mounds	American Farmland Trust Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001275-01102012-30092013-2051-2060-MER-0-P	2012 - 2013	United States	10	lbs/year	RFI Listed
Angel Mounds	American Farmland Trust Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001275-01102012-30092013-2061-2310-MER-0-P	2012 - 2013	United States	250	lbs/year	RFI Listed
Angel Mounds	American Farmland Trust Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001275-01012012-31122012-4101-4134-MER-0-P	2012	United States	34	lbs/year	Active
Angel Mounds	American Farmland Trust Sub-Account Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001275-01102012-30092013-2556-2650-MER-0-P	2012 - 2013	United States	95	lbs/year	Active
Lexington Plain	American Farmland Trust Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001276-01102012-30092013-3301-4100-MER-0-P	2012 - 2013	United States	800	lbs/year	Active
Lexington Plain	American Farmland Trust Ohio River Basin Interstate Trading Program - Phosphorus reduction/removal ORB-BAW-US-100000000001276-01102012-30092013-3052-3250-MER-0-P	2012 - 2013	United States	199	lbs/year	Active
Lexington Plain	American Farmland Trust Ohio River Basin Interstate Trading Program - Phosphorus reduction/removal ORB-BAW-US-100000000001276-01102012-30092013-2951-2951-MER-0-P	2012 - 2013	United States	1	lbs/year	RFI Listed
Lexington Plain	American Farmland Trust Ohio River Basin Interstate Trading Program - Phosphorus reduction/removal ORB-BAW-US-100000000001276-01102012-30092013-2952-3051-MER-0-P	2012 - 2013	United States	100	lbs/year	Retired
Lexington Plain	American Farmland Trust Ohio River Basin Interstate Trading Program - Nitrogen reduction/removal ORB-BAW-US-100000000001276-01102012-30092013-3251-3300-MER-0-P	2012 - 2013	United States	50	lbs/year	Active

The bottom of the interface shows pagination: Page 1 of 1, and a status bar indicating 'Displaying 1 - 9 of 9'.

BMPs Installed

State	County	BMP	Estimated Total Project Cost	Farmer Cost Share	EPRI Cost Share	EPRI Cost Share %	TN Credits (5 years)	TP Credits (5 years)	TN + TP	Progress
IN	Ripley	hay conversion	\$ 1,400	\$ 350	\$ 1,050	75%	315	320	635	Complete
N	Ripley	hay conversion	\$ 1,000	\$ 250	\$ 750	75%	115	235	350	Complete
IN	Ripley	HUAP	\$ 43,514	\$ 33,514	\$ 10,000	23%	4040	910	4950	in progress
IN	Ripley	HUAP	\$ 18,051	\$ 9,051	\$ 9,000	50%	1805	405	2210	Complete
IN	Dearborn	HUAP	\$ 13,710	\$ 3,710	\$ 10,000	73%	3770	850	4620	Complete
IN	Ohio	HUAP	\$ 6,548	\$ 1,637	\$ 4,911	75%	1440	325	1765	Complete
IN	Ohio	HUAP	\$ 11,284	\$ 2,821	\$ 8,463	75%	3115	700	3815	Complete
IN	Ohio	HUAP	\$ 11,152	\$ 2,788	\$ 8,364	75%	2440	550	2990	Complete
IN	Wayne	Cover Crop	\$ 21,420	\$ 11,420	\$ 10,000	47%	5055	2525	7580	Complete
IN	Wayne	Cover Crop	\$ 16,000	\$ 6,000	\$ 10,000	63%	5040	2520	7560	Complete
IN	Switzerland	Cover Crop	\$ 18,375	\$ 8,375	\$ 10,000	54%	1035	520	1555	Complete
OH	Mahoning	Feedlot Runoff Controls	\$ 18,924	\$ 8,924	\$ 10,000	53%	2,745	655	3,400	Starting
OH	Mahoning	Feedlot Runoff Controls	\$ 32,680	\$ 22,680	\$ 10,000	31%	1,750	395	2,145	Starting
OH	Columbiana	Milkhouse Waste System	\$ 14,000	\$ 4,000	\$ 10,000	71%	2,535	1,260	3,795	Starting
OH	Columbiana	Milkhouse Waste System	\$ 14,000	\$ 4,000	\$ 10,000	71%	2,110	1,050	3,160	Starting

KY: 10 projects pending

Price per lb: \$1.32- \$6.43

March 11, 2014: First Transactions

9,000 Stewardship Credit Transacted – about 10% of credit pool



Transaction Details: Stewardship

- EPRI selling “Stewardship” credits. They cannot be used towards a permit obligation. Why buy??
 - Corporate Sustainability Reports
 - Public/stakeholder relations
 - “Practice” with the program
 - Flexible compliance schedules in the future
- Initial transactions are “over the counter”. Future transactions will be “auction”. First auction likely Sept ‘14.
- Credit Type: Stewardship (combined credit)



ELECTRIC POWER
RESEARCH INSTITUTE

9,000 credits purchased and retired

Clear Search:

Account Holders		Projects	Issuances / Listings	Holdings	Retired Credits				
Retirement Date	Vintage	Project	Account	Project Type	Retirement Quantity	Measurement	Type	Details	
06 Mar 2014	2013	IN-177-2013-111	AEP	Phosphorus Reduction	403	TP lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005902-01122012-30112013-183599.001-184002-MER-0-P									
06 Mar 2014	2013	IN-177-2013-111	AEP	Nitrogen Reduction	809	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005902-01122012-30112013-184103.001-184912-MER-0-P									
06 Mar 2014	2013	OH-029-2013-104	AEP	Nitrogen Reduction	338	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000006082-01122012-30112013-191270.001-191608-MER-0-P									
06 Mar 2014	2013	IN-115-2013-108	AEP	Nitrogen Reduction	91	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005550-01122012-30112013-177677.001-177768-MER-0-P									
06 Mar 2014	2013	IN-137-2013-105	AEP	Phosphorus Reduction	59	TP lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005898-01122012-30112013-180588.001-180647-MER-0-P									
06 Mar 2014	2013	IN-137-2013-102	Duke Energy	Phosphorus Reduction	22	TP lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005895-01122012-30112013-182758.001-182780-MER-0-P									
06 Mar 2014	2013	IN-115-2013-108	Duke Energy	Nitrogen Reduction	46	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005550-01122012-30112013-177768.001-177814-MER-0-P									
06 Mar 2014	2013	IN-137-2013-103	Duke Energy	Nitrogen Reduction	19	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005896-01122012-30112013-183237.001-183256-MER-0-P									
06 Mar 2014	2013	IN-029-2013-106	Duke Energy	Nitrogen Reduction	374	TN lbs/year	UNIT	View	
Serial No.: ORB-BAW-US-103000000005996-01122012-30112013-174927.001-175301-MER-0-P									

Making Headlines



2014 Speaking Engagements

NACD Annual Meeting

Ohio River Basin Fish Habitat Partnership

National Monitoring Conference

Gulf of Mexico Hypoxia Task Force

Confluence Water Symposium

International Water Association

WEFTEC

Congressional Interest

The Role of Water Quality Trading in Achieving Clean Water Objectives

2167 Rayburn House Office Building

Tuesday, March 25, 2014 02:00 | Contact: Contact Jim Billimoria 202-225-9446



[Summary of Subject Matter](#)

Witness List:

- Mr. Peter Tennant, Executive Director, Ohio River Valley Water Sanitation Commission; on behalf of the Ohio River Basin Trading Project and the Association of Clean Water Administrators | [Written Testimony](#)
- James J. Plett, Ph.D., Director of Water Quality Hampton Roads Sanitation District; on behalf of the National Association of Clean Water Agencies | [Written Testimony](#)
- Dr. Richard H. Moore Professor, School of Environment and Natural Resources, The Ohio State University; Executive

Questions?

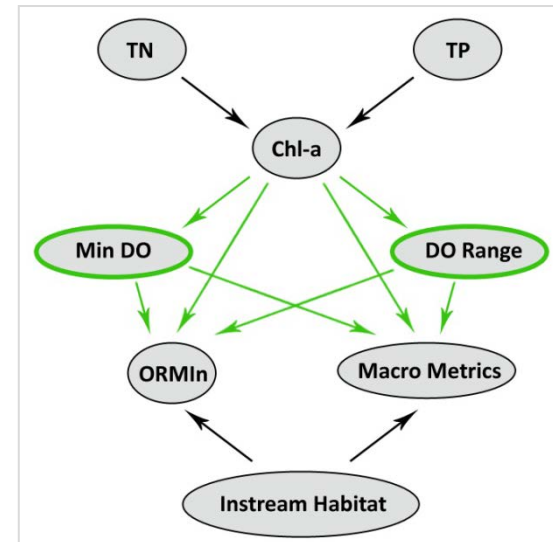
Nutrient Criteria Development

Current Algae/Nutrients Program

- Started in 1999 with 10 water plants (currently 7) sampling for algae
 - Goal to model T&O issues for water plants
- Added nutrients in 2000 to help with numeric nutrient criteria development
- 2002 Nutrient Criteria Development Plan:
 - ORSANCO intends to develop a cause and effect based relationship utilizing Ohio River data to develop nutrient criteria specific to the Ohio River. This will be accomplished by looking at both the causal and response variables associated with elevated nutrient levels to develop an effect-based approach that will correlate nutrient levels with measurable water quality or biological effects. By using this approach, ORSANCO's intent is to develop criteria that are protective of all designated uses of the Ohio River.
 - Public Water Supply
 - Contact Recreation
 - Warm Water Aquatic Life
- Currently looking to re-focus our efforts on numeric nutrient criteria development

New Approach – Aquatic Life Use

- Use quantile regression and change point analysis with macroinvertebrate metrics.
- Preliminary analysis indicates macroinvertebrate metrics are responsive to nutrients
- Conceptual model linking nutrients to macro metrics is missing one piece of data: continuous DO



ORSANCO's conceptual approach to nutrient criteria development modified from Qian & Miltner (2014, in prep)

Proposed Plan

- Currently ORSANCO biological programs sample 15 sites in 4 pools each year
- Collect nutrient and chlorophyll *a* samples upon setting and retrieving Hester-Dendy samplers
- Deploy Onset HOBO DO Dataloggers with each macro sample
- Collect data over 2 years to achieve an adequate sample size
- This plan takes advantage of current programs to minimize staff time and analytical costs.

Proposed Plan - Costs

- Costs
 - DO Dataloggers - \$70,000
 - Analytical (nutrients and chl.a) - \$6,000
 - Annual cost of \$6,000 after the first year
- Funding
 - Algae/nutrients program - \$21,000
 - WV SEP funds - \$35,000
- Cooperative agreement with COE for 37 macroinvertebrate samples saves \$32,000
- Needed First Year - \$76,000; available \$88,000
- Needed Year 2 - \$6,000; available \$21,000

Comments from USEPA-HQ

- Will we see low DO in the depths that we collect macroinvertebrates?
 - 2007 study of low DO in Smithland Pool
 - DO readings taken every 5 miles, 3 point cross-section, surface-middle-bottom (total of 45 readings at each depth)
 - 10% of surface samples were <5 mg/L
 - 20% of mid depth samples were <5 mg/L
- Will we see a DO range greater than 3 mg/L?
 - 3 years of continuous DO readings from Smithland and JT Myers L&D (July-Oct)
 - Smithland L&D had 339 days. 31 days with a range greater than 3 mg/L
 - JT Myers L&D had 347 days. 22 days with a range greater than 3 mg/L
- Don't give up on algae data

Next Steps

- Presented to the Monitoring Strategy Committee by conference call May 9
- Discussed potential changes with Water Users May 15
 - If endorsed by Technical Committee we will inform WUAC by letter
- If approved we could potentially start in 2014 sampling season
- We will continue analysis of current algae data using more advanced statistical methods
 - EPA support

Gulf of Mexico Hypoxia Task Force

Task Force meeting May 20-22 in Little Rock, Arkansas

Meeting Highlights

- New Action Plan (2013)
 - ORSANCO is now a full member of the Task Force
- Task Force signed an MOA with the Land Grant Universities
 - A formal proposal on how LGUs can assist by July 7, 2014.
 - Fill in Gaps in Science of BMPs
 - Strengthen educational programming
- Updating Goals
 - Original goal was 5,000 sq. km by 2015
 - New suggestions: Phased approach? Interim Goals?
 - Decision at Fall 2014 meeting
- Farm Bill:
 - National Water Quality Initiative
 - \$33Million for conservation including in-stream (edge of field) monitoring.
 - 15 NWQI watersheds in the Ohio Basin
 - Regional Conservation Partnership Program
 - \$400 Million for conservation