

KENTUCKY NUTRIENT MANAGEMENT STRATEGY OUTLINE

I. Setting the stage.

1) Background\Introduction\Define the Problem.

Focus on developing state-specific strategies. Local reductions that will improve water quality in Kentucky watersheds, added benefit of improving downstream loading, Focus on an iterative approach. (mention Stoner memo and collaborative efforts with other states through Association of Clean Water Administrators, Gulf Hypoxia Task Force, Ohio River Sanitation Commission (ORSANCO))

2) Identify sources in Kentucky –

a) KPDES outfalls

- i) Municipal Wastewater Treatment Plants (WWTP)
- ii) Industry
- iii) Power plants
- iv) Municipal separate storm sewer system (MS4)
- v) Stormwater construction
- vi) Industrial stormwater
- vii) Privately owned wastewater treatment plants

b) NPS

- i) Atmospheric deposition
- ii) Urban non-MS4
- iii) Lawn maintenance (including golf courses)
- iv) Failing septic tanks
- v) Crop agriculture
- vi) Livestock and pasture agriculture

3) Kentucky Stakeholders:

- a. Introduction - Describe categories of stakeholders, Division approach to engagement, background of areas where have been engaged
- b. Center of Excellence <http://www.uky.edu/WaterResources/KCEWM/>
- c. Land Grant universities
 - i. Kentucky State University <http://www.kysu.edu/landGrant/>
 - ii. University of Kentucky <http://administration.ca.uky.edu/landgrants>

4) Current and Other Methods of Addressing Nutrients

- a. Discharge limits
- b. Planning process –
 - i. Facility plans
 - ii. Watershed Based Plans
 - iii. Continuous Planning Process – 303E

- c. Priority points for funding –
 - i. State Revolving Fund
 - ii. Priority waters – state cost-share
 - d. Ag Water Quality Act
 - e. Education – will be important. Include variety from individuals, website, Conservation officers, and all sectors. Raise public awareness and technical assistance to technical staff.
- 5) Policy
- a. Update of KY Nonpoint Source Management Plan to meet current standards
 - b. New MS4 permit in 2015
 - c. Nutrient limits in point sources
 - d. Nutrient Criteria Development/Nutrient Criteria Development Plan
 - e. Revision of 401KAR10:031, Section 1, Nutrient Narrative Criteria with revision to definition of “eutrophication” in 401KAR10:001 effective 5/31/13
 - f. Development of Nutrient Target methodology
 - g. Agriculture Water Quality Plan and compliance
- 6) Partnerships
- a. Participation on Hypoxia Task Force
 - b. Lower Mississippi Basin River Conservation Committee –
 - c. Natural Resources Conservation Service (NRCS)–
 - Mississippi River Basin Initiative - Kentucky Basins are the Lower Green, Licking, Red and Bayou De Chien-Mayfield
 - National Water Quality Initiative – Kentucky Basins are Bennettstown-Little River, Headwaters Hinkston Creek and Clarks Run
 - State Technical Committee
 - d. Division of Conservation – state cost share
 - e. US Geological Survey (USGS)
 - f. Agriculture Water Quality Authority
 - g. Governor’s Office of Agriculture Policy – innovative approaches and funding
 - h. Kentucky Agriculture Science Monitoring Committee (KASMC)
 - i. ORSANCO
- 7) On the ground installations –
- a. Ky Nutrient Management Plan/NRCS 590
 - b. 319 Projects – load reduction reporting, demo sites for Agriculture and Low Impact Design, stormwater
 - c. State Revolving Fund – enhanced treatment to remove nutrients.
 - d. Ohio River Water Quality Pilot Trading
 - e. Ag through NRCS and State Cost share, US Department of Agriculture programs

II Implementation

8) Assess and Prioritize Watersheds

a. Monitoring

- i. Elements of a State Monitoring and Assessment Strategy
- ii. Integrated Report
- iii. Pennyroyal Nutrient Study (2010)
- iv. Inner Bluegrass Nutrient Study (2013)
- v. Outer Bluegrass (2014)
- vi. Analysis of WWTP Discharge Monitoring Report data
- vii. Little River Monitoring Project (USGS)
- viii. Harmful Algal Bloom protocol
- ix. KASMC statewide Nutrient Monitoring project
- x. USGS National Stream Quality Accounting Network and National Water-Quality Assessment
- xi. USGS additional nutrient info page
- xii. ORSANCO

b. Targeting - Identify watersheds that are most likely to contribute to nitrogen and phosphorus loading (HUC 8 with HUC 12 targeted within)

- i. Update of KY Watershed Management Framework
- ii. Recovery Potential
- iii. SPARROW

c. Identify categorical sources in those

9) Develop Source-Specific Strategy for Nutrient Reduction

a. Some tools and approaches are statewide and others are specific to targeted watersheds or watersheds with nutrient impaired reaches.

b. Point source Kentucky Pollution Discharge Elimination System permits

i. Municipal and industrial WWTP

1. [Filtration](#)
2. [Chemical addition](#)
- ~~2-3.~~ [Retrofit of existing plant](#)
- ~~3-4.~~ [Biological Nutrient Removal](#)
- ~~4-5.~~ [Examples](#)

ii. [Privately owned package plants](#)

iii. [Regionalization](#)

~~iii.~~iv. [Kentucky No Discharge Operation Permits](#)

~~iv.~~v. [MS4/Urban](#)

- c. Agriculture
 - i. Agriculture Water Quality Authority (AWQA), Agriculture Water Quality Plans (AWQP) and inspections, corrective measures protocols, complaint response. Inspection of permitted facility.
 - ii. Stakeholder involvement (landowners, farmers, academia) – would need to meet with the farmers in watershed. Work with land grant university to help educate. Outreach during implementation and help with development of AWQP and nutrient management plans.
 - iii. Nutrient Management Planning info
 - iv. Nutrient Management Plan assistance
 - v. Watershed specific Best Management Practices for funding by state cost share under AWQA.
- d. Trading
- e. Other NPS
 - i. On-site\septic systems and other stormwater
<http://www2.ca.uky.edu/agc/pubs/agr/agr166/agr166.htm>
 - ii. Forestry
 - iii. Legacy – mostly sediments already in the system. Attached to these sediments is Phosphorus and gets remobilized.
- f. Education
 - i. NRCS
 - ii. Land Grant Universities, Extension offices
 - iii. Conservation Districts
 - iv. Demonstration projects –
 1. Low Impact Design
 2. Agriculture
 3. WWTP

10) Document and Verify Progress

- a. Document baselines
- b. Success Monitoring
- c. Reporting – EPA strategic reporting measures
 - i. SP10, 11 and 12
 - ii. WQ 10
 - iii. WQ 26
 - iv. Annual reporting of progress

11) Public Outreach and Stakeholder Involvement

- a. Stakeholder meetings
- b. Media campaign

Appendix – schedule for implementation of the above items

Appendix – AWQPlan and link to Act

Appendix – Stoner Memo

Appendix – NPS Management Plan