

Presentation to the  
**Legislative Ag Chairs Summit**  
Clearwater Beach, FL - January 2015  
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**Missouri Agribusiness Association (MO-AG)**



*MO-AG President Steve Taylor addresses Missouri Legislators during the 2014 "State of Agriculture" event with Missouri Senate Agriculture Chairman Brian Munzlinger*

**General Background:**

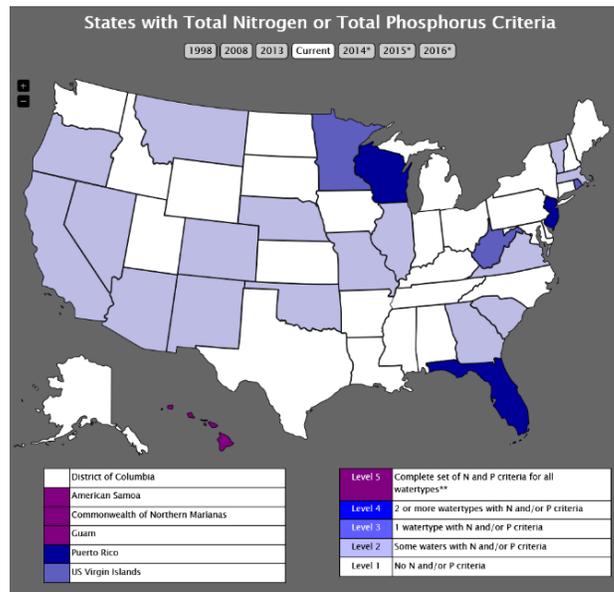
This paper provide the main points of my presentation and some reference material. I was asked to discuss “water quality policies that are working in the Midwest” in general and comment on programs and policies addressing nutrient runoff, specifically the Missouri and other nutrient loss reduction strategies and water quality trading strategies such as the Ohio River Basin Water Quality Trading Project. It is hard to generalize as to policies that are working in the Midwest. Each state is different in its agriculture, natural resources, environmental challenges, and politics. Thus, any one state might observe ideas to consider, but, not necessarily to copy without modifications. This presentation simply reviews just a few of these issues, facts, and ideas.

Nutrient runoff certainly has and will be a major issue significantly effecting those in agriculture and beyond in many states. An example is Florida’s 10+ years of legal and policy struggles over water quality standards. Another example is the current effort in Ohio to pass legislation mandating nutrient management practices. This Ohio legislation, which enjoys the support of most Ohio agriculture, would go so far as to allow hearsay evidence as a basis for search warrants authorizing authorities to enter a farm to search for evidence of failure to comply with nutrient managements practices ([CLICK HERE](#)).

MO-AG is affiliated with the Mid-America Croplife Association (MACA). MACA is a regional association covering 13 Midwest states and researches public issues related to crop production. MACA is a member of the Agricultural Nutrient Policy Council (ANPC). ANPC is simply a forum through which its members work together on policy, legal, and technical issues relating to nutrient uses and water quality. In 2013, ANPC sponsored a webinar which eventually resulted in the development of the white paper “Sound State-Level Clean Water Act Nutrient Policies that Work: What Can Agriculture Do?” The white paper can be found here ([CLICK HERE](#)). Excerpts from the white paper are used below.

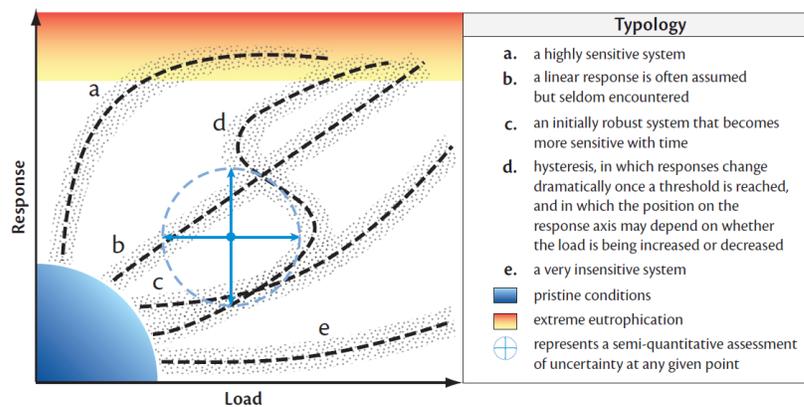
## Nutrient Policies Numeric Nutrient Criteria (NNC)

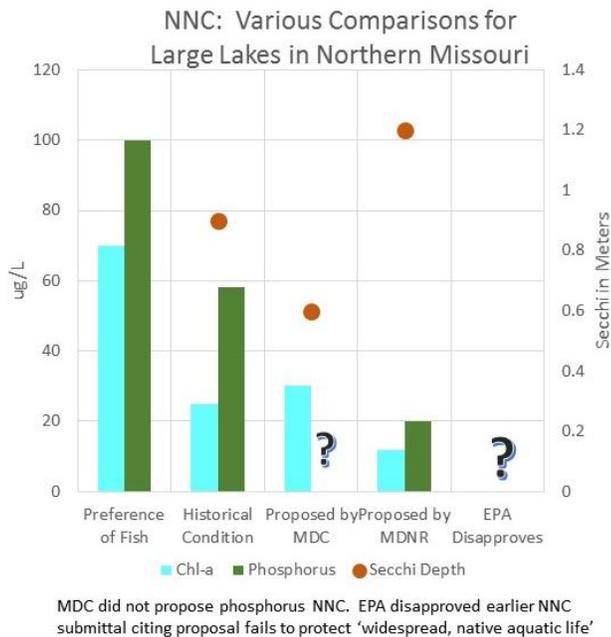
For over 20 years, EPA has encouraged states to adopt numeric nutrient criteria (NNC) into their water quality standards. As seen from EPA’s map to the right, no state has what EPA considers ‘completed criteria.’ Accurate NNCs are difficult and expensive to develop. Keep in mind that nutrients are necessary for life, and only become a ‘pollutant’ when levels are in excess. Some equate nutrient entering water to calories entering people. Too little can be harmful. Many variables come into play in determining the right level of nutrients and how any one particular water body responds to a nutrient load. As seen by the NOAA graphic below, with increased ‘response’ being towards harmful eutrophic conditions, some water bodies need very little while others need quite a lot of nutrient load to reach that undesired response.



EPA has advocated that NNCs be developed using a reference stream approach that is not specifically applicable to individual states and often results in unattainable NNCs. In 2011, EPA developed a ‘framework’ for state nutrient reductions. Expanding on this 2011 memo she wrote, EPA’s Nancy Stoner in Congressional testimony stated that “states need room to innovate and respond to local water quality needs. So a one-size-fits-all solution to nitrogen and phosphorous pollution is neither desirable nor necessary”. In the opinion of some environmental groups, the pace has been too slow and they have filed a lawsuit to compel EPA to set NNCs for states in the Mississippi River basin.

Figure 6.1. Conceptual model of a few possible eutrophication trajectories as a function of nutrient load.





Missouri is in the somewhat unique position of having NNCs submitted to and disapproved by EPA. Missouri continues to struggle to reach consensus on NNCs. The graph to the left shows data from Missouri’s Department of Conservation (MDC) regarding levels of phosphorus and chlorophyll (Chl-a) at which Missouri fish thrive with fish biomass and production increasing with increasing total phosphorus (TP) and Chl-a concentrations. Thus, this is displayed at the ‘preference of fish’. Sport fish harvest actually improves until Chl-a concentrations reach 70 µg/L. Also showed is the NNC proposed by MDC and Missouri Department of Natural Resources (MDNR). Missouri stakeholders have raised concerns that the proposed NNCs currently being considered are too low and unattainable. MDC and the University of Missouri staff have stated that NNCs acceptable to EPA would negatively affect sport fish populations within our lakes.

At this time, Iowa has opted not to set NNC stating a “one-size-fits-all approach” is not appropriate when every body of water is different (the same amount of phosphorus and Chl-a can be in two lakes and one will have a massive algae bloom while the other will not). If the issue is achieving less nutrients in water runoff, Iowa has indicated that the state's nutrient-reduction strategy is a higher priority.

**Nutrient Policies – Loss Reduction Strategies**

The 2008 Gulf Hypoxia Action Plan calls for Midwest states to develop strategies to reduce nutrient loading and the 2011 EPA memo (Stoner memo) provides a framework for nutrient reduction strategies. States are in various stages of completion of those strategies. This past September, Missouri completed a draft strategy for public comments ([CLICK HERE](#) for strategy & [CLICK HERE](#) for appendix). Missouri’s strategy calculates the effectiveness of each practice, the expected implementation rate, and calculates a reduction in nutrients. A relatively new watershed effort, the Our Missouri Waters (OMW), provides a framework for watershed scale planning for the strategy. For agriculture, in-field (4R nutrient management, cover crops, etc.) and edge of field (bioreactors, constructed wetlands, etc.) practices are promoted. The 4R program is simply using the **Right Source** of nutrients at the **Right Rate** and **Right Time** in the **Right Place** ([CLICK HERE](#)). One 4R goal includes collection of information from the agricultural fertilizer supply industry and farmers on fertilizer use patterns. To help implement its strategy, Missouri has a sales tax that provides over \$30 million per year for conservation practices that can address water quality issues. A \$0.50 per ton of fertilizer fee is currently being considered with a portion of this fee being retained by the University of Missouri to conduct basic research while funds would also be dedicated to field research and demonstration projects with monitoring of nutrients in surface water.

Illinois agriculture has provided leadership in nutrient loss reduction. The Illinois Council on Best Management Practices, including its ‘Keep It for the Crop’ program, highlights the 4Rs. The Illinois Nutrient Research and Education Council (NREC) was established by Illinois law in 2012 ([CLICK HERE](#)) and it directs a per ton of fertilizer fee to NREC, a private foundation held outside of state government and controlled by representatives of the ag industry. In 2013, NREC collected over \$3.7 million in fertilizer fees that were used for nutrient loss reduction efforts. The official Illinois nutrient loss reduction strategy is currently in draft form and available for public comment. Illinois is building upon current programs to better assess what is effective in reducing nutrient losses and correlating those programs to water quality monitoring results. The overall goal in Illinois is to reduce nitrogen losses by 200 million pounds and phosphorus losses by 18 million pounds by 2025. The 4R program is also a key implementation program for the strategy. Some question if there are activities in the Illinois strategy that may not be profitable for agriculture. ([CLICK HERE](#)).

Ohio’s nutrient loss reduction strategy was finalized in June 2013. A summary of Ohio’s various activities can be found here ([CLICK HERE](#)). In addition to the regulations in HB 490 mentioned above, other legislation includes SB 150 which required fertilizer applicators to become certified. Ohio has also developed a 4R certification program ([CLICK HERE](#)). The 4R Nutrient Stewardship Certification Program encourages agricultural retailers, service providers, and other certified professionals to adopt proven best practices (4Rs).

Iowa’s strategy was finalized over a year ago. Iowa State University led work identifying infield and edge-of-field practices. The Iowa Nutrient Research Center (NRC), based at Iowa State University, was created in 2013 with an initial appropriation of \$1.5M from the Iowa Legislature. The NRC received its second appropriation of \$1.375M during the 2014 Legislative session. NRC is to pursue science-based approaches evaluating current nutrient management practices and providing recommendations on implementing the practices. Also to assist in implementation, the Iowa Water Quality Initiative (WQI) was established during the 2013 legislative session. A direct appropriation of \$2.4M established the WQI. Also, a one-time appropriation of \$10M was made to the WQI with 70% designated to development of targeted watershed demonstration projects and 30% to support statewide initiatives. In addition to this funding, \$7M in one-time appropriations were made to the state cost-share program and \$3M of funding was provided to the Watershed Improvement Review Board, 50% of which was designated to directly to help implement nutrient reduction practices. Finally, Iowa Ag commodity groups have joined together in an effort called Iowa Agriculture Water Alliance with a primary goal of implementing Iowa’s nutrient loss reduction strategy ([CLICK HERE](#)).

### **Nutrient Policies – Water Quality Trading**

Water quality trading is a market-based approach to achieving water quality goals for nutrients that can allow permitted point source dischargers to purchase nutrient loss reductions from non-point sources such as farmers. Trading programs can take different forms, including point-to-point trades and point source to nonpoint source. There are very few examples of row-crop agriculture nutrient trading programs with an actual credit market. There are some point source to point source trading programs and some bilateral (two party) trading between point and non-points. States with a trading program, or significant program development, includes Connecticut, Minnesota, North Carolina, Ohio,

Pennsylvania, Virginia, California, Colorado, Oregon, Wisconsin, Idaho, Maryland, Michigan, and Montana. Several of these states have no significant trading occurring.



There is no federal water quality trading program. Many contend CWA does not authorize a federalized program and any trading program should be state-based. In 2006 and again in 2013, EPA and USDA signed partnership agreements. The 2013 Water Quality Trading Partnership is to help communicate elements of an effective nutrient trading program and to generate the best ideas from the two agencies about trading programs in general. It is not intended to generate a trading programs. According to EPA policy,

water trading programs can “facilitate implementation of TMDLs, reduce the costs of compliance with CWA regulations, establish incentives for voluntary reductions and promote watershed-based initiatives.”

The Ohio River Basin Water Quality Project ([CLICK HERE](#) for infographic and [CLICK HERE](#) for general information) is recognized for its credit market infrastructure and as the largest interstate water quality trading program. In 2014, the project began selling credits from farmers who had implemented conservation programs. The project could potentially create credit markets for 46 power plants, thousands of wastewater facilities and other industries, and nearly a quarter of a million farmers. By 2015, the project is expected to reduce nutrient loss to the Ohio River by 30,000 pounds of phosphorus and 66,000 pounds of nitrogen.

**This is What 66,000 lbs N Looks Like**

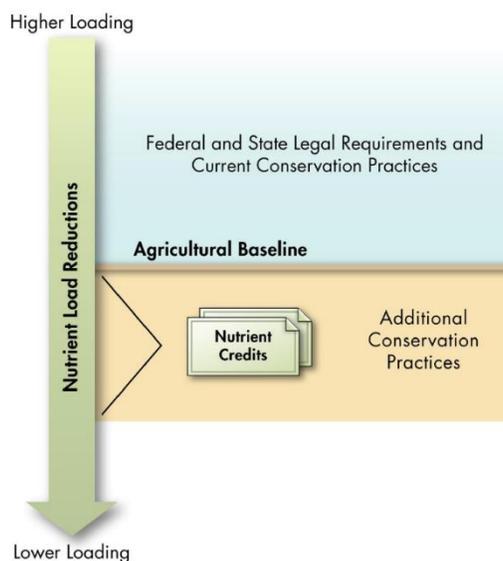


x 2!

= 2,950  
50-lb bags  
of fertilizer

Jessica Fox is the Program Manager for the Ohio River Basin trading program at the Electric Power Research Institute (independent, nonprofit organization). The graphic to the right and below are from Fox. Even with the initial success, Fox says that it is still to be determined whether trading in general can be ‘socially, ecologically, and economically viable.’

The National Water Quality Trading Alliance was recently formed to promote trading. The Alliance has promoted changes in federal regulations to make clear that states can implement trading programs to attain water quality standards ([CLICK HERE](#)). At about the same time as the Alliance was formed, the National Network on Water Quality Trading was formed ([CLICK HERE](#)). The Alliance testified at a March 2014 Congressional hearing that it is focused on policy and markets while the Network is focused on science and standards and that both are closely aligned and working together with EPA and USDA.



Challenges states may face when developing a trading program includes issues of uncertainty, size, and finding the right mix of incentives vs ‘stick’. Uncertainties include establishing a baseline for trades, determining ratios & margins of safety. The baseline is the point where ‘expected’ conservation stops and trades for conservation begins (see left). From the baseline, trades are made that must calculate ratios (i.e. 1.2 pounds non-point phosphorus for 1 pound point source) and margins of safety that figure into the ratio calculation. In a 2013 Congressional hearing, EPA argued for on-farm monitoring while other witnesses promoted watershed based monitoring to determine the success of trading programs. For more reading on the various uncertainties, refer to this paper from the World Resources Institute ([CLICK HERE](#)).

Many agree that size is an important factor in determining success of a trading program but there is not agreement as to what that size should be. Missouri proposes to develop all the tools, protocols and documentation required to support nutrient trading in order to establish at least a pilot trading system in the next five years. 8-digit HUC watersheds is the default size being considered. Trades will most likely have a period of five years, reflecting the permit cycle. Geosyntec Consultants received a Conservation Innovation Grants (CIG) to evaluate water quality trading in Missouri ([CLICK HERE](#)). The Missouri report states that “if the trading area is limited to upstream only, trading activity will be very limited and that opportunities for trading will significantly increase if trading is conducted on a watershed wide basis.

EPA officials have stated that “For the most part, trading programs must be confined to a single watershed, and trying to implement them on a broader scale poses a host of challenges.” Richard Moore is Executive Director of Ohio State University Environmental Sciences Network and manages a countywide trading project involving NPDES permits for the dairy industry in Ohio. Moore states “if the goal is water quality improvement in a given water body then increasing the scale of the trading operation will remove that focus.” Ohio’s Fox states that ‘trading programs should not be judged by the size of the watershed, but by their ability to improve previous water quality.’”

What motivates parties to develop and implement a trading program (carrots vs sticks)? One possible incentive for agriculture is direct economic gain from selling trading credits depending upon how those credits are priced and the direct and indirect costs. Regarding possible ‘sticks’, a March 2014 Congressional hearing focused on the question of whether a *voluntary* water quality trading program could be successful without a *regulatory* driver? Witnesses discussed roles for regulations ranging from changing EPA regulations to more specifically allow trading for meeting WQS to threats of TMDLs or other regulatory action. It has been stated that for trading to meet regulatory requirements, the structure needs to be in place to approve these actions as fulfilling regulatory requirements.

According to Wisconsin law, state and local governmental units are directly involved in a trading program and “play a somewhat modified role as brokers by using money received from credit users to reduce pollutant loads or provide cost-sharing ([CLICK HERE](#)). In 2013, Wisconsin SB 190 changed the permitting process and it was expected permit holders would expand the use of trading. That has not happened to the extent thought possible. Wisconsin Attorney Angela James has experience with WQS & trading involving point source as well as agricultural clients. To the serious consideration of further regulating Wisconsin agriculture, James has commented on the incredible diversity of agricultural entities (i.e soil, land, practices, business structure) and the lack of data. Barring regulatory enforcement, James says any trading opportunity must be evaluated in the context of the business case for farmer involvement.

### **Ag Certainty/Assurance/Certification**

There has been interest in certainty/assurance/certification programs in different parts of the country. In January 2012, the Minnesota Commissioner of Agriculture, alongside USDA Secretary Vilsack and EPA Administrator Jackson announced a Minnesota agricultural certainty MOU. Some concerns of agriculture were that producers were not given specifics regarding their “certainty”, the assumption of some that EPA would review and approve the program, and that NPS should attain Clean Water Act water quality standards. Since then, Minnesota has initiated certainty pilot projects in small watersheds but participation has been limited. Concerns remain regarding producers not being provided protection from court actions or the actions of the state legislature and concerns over issues of privacy of data and the effectiveness of the protections.

In September 2012, USDA-NRCS sent guidance to its State Conservationists that certainty programs, when properly designed with the input and support of state stakeholders, can provide states with additional, optional, tools to address state water quality concerns. Further, the guidance stated that USDA-NRCS would assist *states* with *their* programs and emphasized *state leadership* in any voluntary program.

The Michigan Agriculture Environmental Assurance Program (MAEAP) was codified in state law in 2011 (SB 122). MAEAP is to develop and implement an assurance program that targets all sizes of Michigan farms and all commodities ([CLICK HERE](#)). The program is to ensure that farmers are engaging in cost effective pollution prevention practices and working to comply with state and federal environmental regulations. \$5.7 million funding in FY14 for staff and grants for conservation work. Over 10,000 farms have participated with verified nutrient management plans on over 500,000 million acres, with many in the western Lake Erie Basin priority area.

## Summary Thoughts

The CWA, and resulting water quality standards, was built on the idea of “cooperative federalism” which is a system under which the federal and state governments share authority and responsibility. Since the passage of CWA, there has been times when cooperative federalism has been ‘strained’ with examples including EPA developing the Chesapeake Bay TMDL and Florida’s NNC. Legislation was filed in Congress to address this strain (Clean Water Cooperative Federalism Act of 2011). States should continue to expand their ability to operate under the CWA’s cooperative federalism model and adopt programs and nutrient management systems that protect water quality and that make sense to a particular state. As stated above, each state is different in its agriculture, natural resources, environmental challenges, and politics

Reducing nutrient losses to water runoff in order to improve water quality and improve agricultural profitability is one of the biggest challenges currently facing agriculture. There are examples of state nutrient loss reduction strategies and interesting new efforts such as water quality trading. With these as examples, individual states have to do the hard work to determine water quality policies that work in their particular state.