WATER QUALITY DEMONSTRATION TRADING PROJECT IN THE KALAMAZOO RIVER WATERSHED OF MICHIGAN

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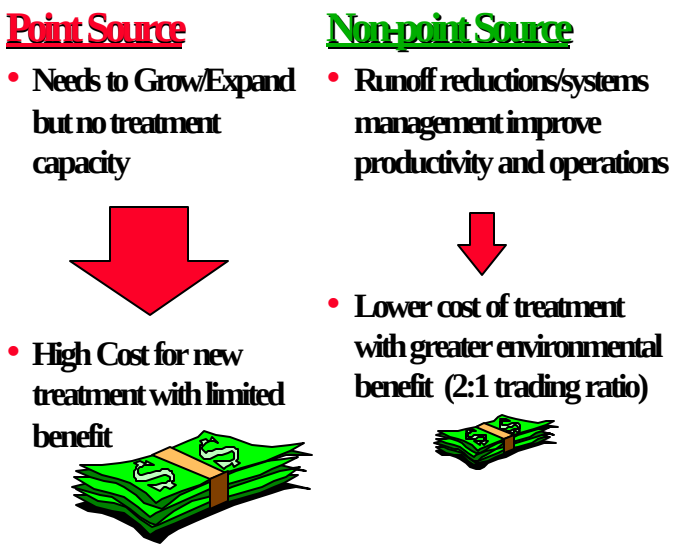
Project Costs: **$580,000 over 2 years**
(K&A: $250,000)

Date of Completion: **1997-2001**

This demonstration project targeted voluntary improvements in Kalamazoo River water quality which otherwise could not be achieved through the current command and control approach for point source dischargers. The overall project sought to identify and demonstrate the environmental and economic benefits of watershed-based nutrient (phosphorus) trading between point and non-point sources. Phosphorus is a nutrient which stimulates nuisance aquatic plant and algal growth in rivers and lakes. Such excessive growths impair water quality and the desired uses of these waterbodies. Phosphorus is found naturally in soils but is also associated with point source discharges of treated wastewater from municipalities and industries, as well as non-point sources such as urban stormwater and agricultural runoff. Presently, regulations within the Clean Water Act control the levels of phosphorus in wastewater discharges through permitting while non-point sources are largely unregulated because they originate from large areas and typically can not be managed through "end-of-pipe" controls (such as those for point source discharges).

Trading is therefore an opportunity to promote and provide incentives for optimizing point source controls of phosphorus while implementing voluntary reductions from non-point sources. This demonstration trade increased local public awareness and promoted collaborative, community-driven watershed management to improve water quality. It also identified policy issues and provided information vital to the design of the state of Michigan's water quality trading rules and now serves as the model for EPA's federal trading policy of 2003. Trading efforts continuing to be led by K&A have evolved into cross-program efforts at the federal level integration water quality, greenhouse gas, wetland and habitat improvements through market-base approaches.

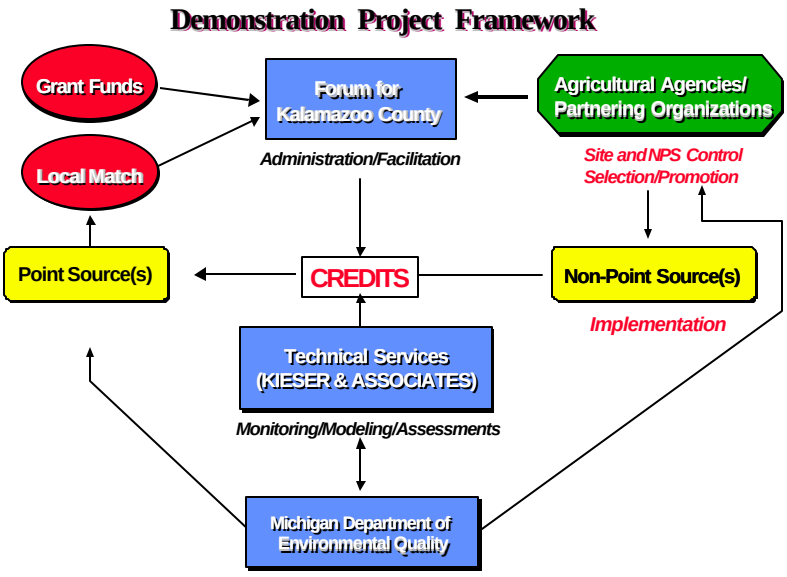


For the locally-led collaborative efforts, a project team was established for the Kalamazoo River Demonstration Trade. A Steering Committee and several Working Groups within the Committee were created to direct and implement this project. Participants on the project team included:

- The Forum for Kalamazoo County (non-profit administrator)
- Michigan Department of Environmental Quality/Surface Water Quality Divisions
- Michigan Department of Agriculture
- Michigan Farm Bureau
- Kalamazoo County Farm Bureau

- Kalamazoo Environmental Coalition
- Michigan Agricultural Stewardship Association
- Natural Resources Conservation Service
- Michigan Integrated Food and Farming Systems
- Kalamazoo Conservation District
- KIESER & ASSOCIATES (technical consultant)
- Crown Vantage Corporation
- The City of Kalamazoo
- Menasha Corporation
- Local agricultural producers

Funding for these was provided by the Kalamazoo Foundation's Sustainable Watershed Fund, the Water Environment Research Foundation (Alexandria, VA), the Great Lakes Protection Fund (Chicago, IL), the U.S. EPA and local industry match. Substantial in-kind services were provided by all of the above participants. Available funds were for project administration, implementation of non-point source controls to reduce phosphorus loading to the river, monitoring and verification of these reductions and documentation of the entire process. The close cooperation amongst participants on this project as well as local, state and federal agencies ensured that water quality improvements were achieved and that trading was compatible with the Clean Water Act through the development of the local trading framework.



This unique demonstration project implemented and monitored non-point source phosphorus loading reductions for a voluntary water quality trade between a point source and non-point source within a designated reach of the Kalamazoo River. These efforts focused on environmentally sound, economically viable and verifiable reductions in loadings of the nutrient, phosphorus. Such decreases were achieved by establishing non-point source pollution controls in selected areas of the watershed to generate reduction credits, greater than the amount needed by a point source. Control projects included: streambank improvements utilizing biostabilization techniques to provide erosion reductions; native prairie grass plantings as river buffers; agricultural sites involving whole farm planning efforts, elimination of erosion in animal holding areas, establishment of wetland treatment cells and riparian buffers. K&A was intimately involved in the design and construction oversight on these non-point source projects.

KIESER & ASSOCIATES responsibilities for all aspects of this project included: extensive in-field monitoring of phosphorus and sediment loading contributions from non-point source locations; monitoring of resultant contributions post-implementation of control techniques; modeling of surface water quality parameters and historical climatological information through the use of GIS-based data systems with the creation of new GIS systems as data and needs warranted; design and evaluation of phosphorus reduction controls proposed for each location; periodic public presentations of information to lay and technical groups throughout the project; leadership of the project Steering Committee, and; preparation of interim and final reports, publications and presentations.