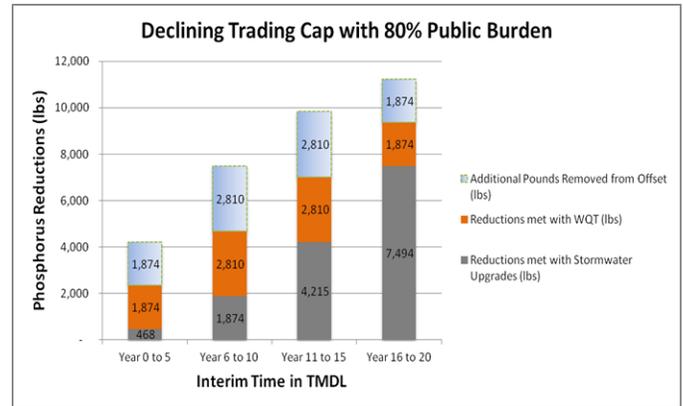


Assessing Market-based Approaches for Phosphorus Reductions in the Vermont Portion of the Lake Champlain Basin

To help support the Vermont Department of Environmental Conservation (DEC) in assessing market-based options for meeting Lake Champlain phosphorus TMDL allocations, the Project Team of Kieser & Associates, LLC and Tetra Tech, Inc. (Tt) was selected amongst a national competition. Through the feasibility analysis and market study, including pilot project analysis, K&A determined that not all of the conditions needed to support a viable phosphorus credit market were met in the Lake Champlain Basin. These shortfalls principally focused on loose regulatory drivers on MS4s to stimulate water quality trading that would in turn, dictate to the size of a potential market suited for simplified trading exchange strategies (e.g., bilateral trading), or more sophisticated market frameworks (such as a clearinghouse). The developed land sector was considered as the primary market buyer driven by a Waste Load Allocation (WLA) under the Draft Lake Champlain Phosphorus TMDL. Agriculture was considered the seller of credits in the context of required reductions by the Load Allocation (LA) of the TMDL, as well as recent state legislation for agriculture that complicated baselines for credit generation. Beyond trading, analyses also evaluated how select WQT-like strategies might be applied to effectuate lower implementation costs for the agricultural sector.

K&A's efforts demonstrated that Vermont could achieve substantial cost savings with a market-based approach when stormwater phosphorus reduction costs for developed lands are high, and when a high percentage of total required stormwater reduction burden is assumed by public sources. Cost savings with market-based approaches diminish with a lower public burden for stormwater controls and lower stormwater phosphorus control costs. Phased baselines for Ag, and a declining cap for trading buyers via 5-year permit cycles matched both WLA and LA 20-year TMDL goals. The volume of potential trades coupled with the projected costs for market-based program development suggested a bilateral water quality trading program for



the Lake Champlain Basin might be beneficial. Such trading, however, would be predicated on case-by-case circumstances where there were high cost differentials between potential buyers and sellers. Highly urbanized areas would most likely experience such differentials. New state permit requirements could expand the number of state regulated stormwater sources thereby increasing phosphorus credit demand. In addition, select WWTFs with high costs for WLA compliance may also wish to enter into such a market. In these instances, Lake Champlain Basin stakeholders and sources may be justified to consider developing a more complex trading system such as a clearinghouse. Though as this study demonstrated, additional costs to develop and administer a more complex trading program were not justified. And regardless of water quality trading program viability, it was recommended that the Lake Champlain Basin stakeholders also consider the use of a clearinghouse-like reverse auction mechanisms to help optimize conservation payments to producers and achieve more cost-efficient implementation. Follow-up elements for a second phase of trading program development for enabling legislation were recommended to DEC.

Contact:

Ms. Kari Dolan
Ecosystem Restoration Program Manager, VT DEC
1 National Life Drive
Montpelier, VT 05620-3522
802-490-6113
kari.dolan@state.vt.us

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