

Session 5B: Climate Change and Water Quality

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Case Studies in Voluntary Approaches to Improving Surface Water Quality: *Leveraging the Emerging Carbon Market and Changing Corporate Purchasing Habits*

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Currently, regulatory programs are not achieving all the necessary reductions to minimize ecosystem impacts in the Great Lakes Region. However, a substantial opportunity exists to reduce pollution burdens through increased investment in conservation practices that sequester carbon dioxide, reduce sedimentation, nutrient loading and fuel use and Environmentally Preferable Purchasing (EPP) practices that prevent or minimize the release of toxins in to surface waters. By promoting these conservation practices and EPP at a greater scale, we expect there to be meaningful environmental and economic benefits.

In 2005, the Great Lakes Protection Fund (GLPF) funded a project by the non-profit Delta Institute. The objective of Delta's project was two-fold.

First, we sought to quantify the ecosystem benefits to surface water quality from the implementation of conservation practices by using the emerging market for carbon offset credits as a financial incentive. Through the Michigan Conservation and Climate Initiative (MCCI), Delta enrolled 28,475 acres of conservation tillage and continuous grass plantings and 845 acres from afforestation projects, yielded 39,500 metric tons of credits for the years 2006 and 2007. These credits were sold on the Chicago Climate Exchange, generating \$168,256 for the enrolled farmers and landowners. To quantify the ecosystem benefits from these practices, Delta created a unique analysis mechanism. Using published literature as a guide, Delta established Ecosystem Benefit Factors to quantify increases in carbon sequestration and the reductions in soil erosion, fuel use and nutrient loading. Then Delta established a baseline scenario - using the ecosystem benefit factors - as if all enrolled lands were conventionally tilled. We used this baseline scenario as a point of comparison with the enrolled conservation practices to quantify the benefits of conservation practices. Within the St. Joseph River Watershed in Michigan for example, Delta estimated that implementation of these conservation practices reduced soil erosion 90%, diesel fuel consumption 53%, nitrogen 37% and phosphorous 43%, when compared to the transaction baseline. Over the entire watershed, these conservation practices have resulted in reduced soil erosion, fuel consumption, nitrogen and phosphorus, while increasing carbon sequestration and wildlife habitat.

Secondly, we sought to quantify the ecosystem benefits from the implementation of Environmentally Preferable Purchasing (EPP) practices in the Lower Grand River Watershed which prevent or minimize the release of toxins into surface waters. This project idea originated in 2006 when a group of stakeholders wanted to develop voluntary, pro-active programs to ameliorate local watershed impairments, such as toxics loading, waste minimization, stormwater discharges and discharges to local wastewater treatment facilities. Environmentally Preferable Purchasing was identified by the meeting attendees as a strategy that would result in measurable reductions of toxics and other pollutants to the watershed. From this initial idea, the West Michigan Sustainable Purchasing Consortium (WMSPC) was borne.

The purpose of the WMSPC is to identify and purchase products and services that have a reduced environmental impact as compared to similar, conventional products and to spur economic opportunities for companies interested in manufacturing or supplying sustainable products. The primary objective of the Consortium is to consolidate the purchasing power of its member organizations for the purpose of reducing or eliminating toxicity, specifically long-term persistent toxicity, and improving conditions for achieving a healthy community through conservation of natural resources, improved surface water quality and reduced waste generation. The Consortium is developing purchasing contracts for alternative chemical de-icers and janitorial products, where many products contain compounds, such as alkylphenol ethoxylates (APEs) that are either known or are emerging contaminants of concern to the Great Lakes. To quantify the ecosystem benefits, we will develop a baseline of the products being currently purchased by consortium members based estimated purchasing volume, product specifications, and impairments. Then, we will identify alternative products that, when purchased and used, will have a reduced impact on the ecosystem as compared to the products currently in use by consortium members. We will establish metrics for each product purchased, which will include measures of ecosystem and human health impairments associated with the compounds found in the products currently being purchased by the consortium members. Finally using the established metrics, the volume information will be used to calculate the ecosystem benefits from the transaction. At the end of each project year, we will estimate the load of toxic compounds removed from the Great Lakes system based on the reported purchasing practices.

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