

WATERSHED-BASED NUTRIENT TRADING

INTRODUCTION

Reducing the amount of nutrients that flow into the bays is an expensive endeavor. But, allowing the bays to remain polluted from nutrients also costs the community in terms of ecological resources and dollars. Elimination of nitrogen and phosphorus from point-source discharges may seem to be the easiest way to eliminate some of the problem. However, in the Nanticoke watershed, point sources (pipes that directly discharge into the waters) only account for 17% of the nitrogen and 39% of the phosphorus loading. Nonpoint source contributions of nutrients (runoff) make up the majority of the nutrient loading into the river and its tributaries. Controlling or regulating these nonpoint sources may be more effective at reducing nutrient levels in the bays and may be much less expensive. A nutrient-trading program may achieve the needed reduction in nitrogen and phosphorus.

DEFINITION

Nutrient trading is a way of allocating the total amount of pollutants that enter a waterbody. These trades can take place among point sources; between point and nonpoint sources; or, among nonpoint point sources.

Trading alters the pollutant reduction responsibilities between parties. Trading may be done such that Party A pays Party B to undertake a greater than required pollution reduction. The amount of Party B's reduction should offset (be equal to or greater than) the quantity of pollution reduction that A and B were required to implement before the trade. Thus, the same, or a greater, pollution reduction goal is met. These trades should occur within the same watershed and between sources in close proximity. Trading may also be accomplished through setting up "banks" where the nutrient reducing parties can sell their credits and parties requiring nutrient credits can purchase them. Many times purchasing ratios can be involved. These ratios are used when trades occur between point and nonpoint sources. The intent of these ratios are to ensure that the nutrient reduction achieved through nonpoint source use of best management practices offsets the continuing emissions at the point source.

AN EXAMPLE

Numbers for illustration purposes only:

A plant must reduce its loading of nitrogen by 10 pounds per day. It will cost them \$500,000 to remove that pollution discharge. They need to purchase 10 pounds of allocated nitrogen load, or 10 credits, to continue their existing operations.

Ten farmers in the area contribute 50 pounds of N per day, together. Each farmer has 5 pollution credits. Each farmer could eliminate 10 pounds of N per day by installing a new technology. This would cost \$20,000 per farm.

The plant could pay each farmer \$21,000 for one of their pollution credits, giving the farmers, the money to purchase and use the new technology. This would cost the plant \$210,000. The entire watershed would enjoy a reduction of 100 pounds of nitrogen per day due to the additional nutrient reductions achieved by implementing the farming technology. This is 90 pounds more per day than would have occurred without the trading (10 pounds from the plant). And, the transaction would cost \$290,000 less.

TRADING PRINCIPLES

In order for trading to work within the current legal framework, a series of eight principles (written by EPA) should be followed:

1. Trading Participants must meet applicable Clean Water Act (CWA) technology-based requirements.
2. Trades are consistent with water quality standards throughout a watershed. Anti-backsliding and other requirements at the local, state and federal level still apply as well. (*Anti-backsliding* means that the pollution must be reduced overall, not increased.)
3. Trades are developed within a Total Maximum Daily Load (TMDL) or equivalent analytical and management framework.
4. Trades occur in the context of current regulatory and enforcement mechanisms.
5. Trading boundaries generally coincide with watershed or water body segment boundaries, and trading areas are of a manageable size.
6. Trading will generally add to existing water quality monitoring since all parties require data.
7. Careful consideration is given to types of pollutants.
8. Stakeholder involvement and public participation are key components of trading.

ISSUES

- ☞ It does not make sense that a point source can trade for a pollution right from a non-point source where they use economic incentives and volunteerism to achieve pollution reduction because there is no enforcement mechanism.
- ☞ Requiring the use of technology-based standards may stifle innovation.
- ☞ If you require all parties to be using BMPs, then there would be no relief for any party through trading.
- ☞ Place the burden of proof that trading works on the party with initial burden of reducing the pollution.
- ☞ Pollution trading is flexible because managers can target areas for trading.
- ☞ Pollution trading is cost-effective.
- ☞ Trading allows for the opportunity to implement enhancement projects.
- ☞ The process of organizing a trading scheme identifies areas for trading and brings regulated and non-regulated communities together.
- ☞ Can point sources enforce nonpoint source polluters' actions?
- ☞ Should enforcement actions be taken against the party that traded the point sources if nonpoint sources do not comply?
- ☞ Can trading between point and non-point sources meet goals of CWA?

NANTICOKE WATERSHED

This fact sheet was prepared by the Delaware Department of Natural Resources and Environmental Control's Whole Basin Team, at the request of the Nanticoke Tributary Action Teams, for citizens and stakeholders interested in one of Delaware's most environmentally and economically attractive areas—the Nanticoke and its surrounding lands, surface and ground waters.

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