

AN INDUSTRY IN A BIND

DEFINITION

Current TMDL regulations demand that all point sources of nutrient pollution to the Inland Bays be eliminated. If left unchanged, this regulation may force industries along the waters of the Inland Bays to leave the area in order to avoid the increased operating costs. Many industries may have chosen to locate along the bays because of the salt used in their processes, such as a plant that dyes fabric.

WATER QUALITY IMPACTS & TYPICAL LOADINGS

A *theoretical* plant, BlueDay, discharged an average of 0.9 pounds of phosphorus per day in 1999 and less than 0.2 pounds of ammonia per day. The average Total Nitrogen discharge, calculated from quarterly monitoring reports from October 1994 until April 1999, was approximately 10 pounds of nitrogen per day.

MANAGEMENT TECHNIQUES & TYPICAL REDUCTIONS

Land Application

Apply the discharge to land after using reverse osmosis to remove salt from the wastewater. This would remove the entire nutrient loading from the plant—11 pounds per day of the more than 5000 pounds per day entering the Inland Bays.

Use nutrient trading

BlueDay could pay other nutrient sources to reduce their nutrient output in a quantity greater than the BlueDay plant is required to reduce. For example, BlueDay could pay for having 120 to 150 septic systems retrofitted with nutrient reducing technologies at a cost of \$480,000 to \$900,000. The idea would be for BlueDay to be responsible for reducing nutrient flow into the Bays by more than 10 pounds per day in order to maintain their wastewater discharge.

TYPICAL COSTS

Land Application

Options for point source removal and alternative disposal methods for BlueDay's processing wastewater are prohibitively expensive. Removal of the point source discharge would likely force BlueDay to move its operations out of the watershed. Thus costing the community in agriculture investment dollars, jobs, and tax revenue. BlueDay's local agriculture investment is \$2.5 million annually. BlueDay's operation currently employs 650 people, with a total annual payroll of over \$7 million.

Nutrient Trading

Nutrient trading would cost BlueDay significantly less than requiring the removal of their discharge. They would pay other parties for their reduction of nutrient loading into the bays—a reduction larger than the removal of BlueDay's discharge would achieve. Nutrient trading would also have administrative expenses.

IMPLEMENTATION ISSUES

Fabric-processing wastewater is naturally low in nutrients, so low that the wastewater biology has been diagnosed at times as being nutrient deficient.

Land Application

Land application of the effluent would cause soil degradation and have an adverse impact on groundwater due to the quantity of salt in the wastewater. This salt could be removed by reverse osmosis. However, reverse osmosis would cost millions in equipment and millions in changing the production process. Twenty percent of the flow rate treated by the reverse osmosis process becomes a waste stream concentrate of 22 million gallons per year. The disposal of this concentrate would then cost additional monies.

Nutrient Trading

In order for a pollution-trading scheme to work, reduction in nutrients should be measurable. Responsibility for achieving the nutrient reduction should lay with the permitted party—in this case, BlueDay. The trades should be for nutrient reductions not already addressed under various pollution-control strategies. (*For more information, see NUTRIENT TRADING fact sheet.*)

INLAND BAYS 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 Inland Bays Tributary Action Teams, for citizens and stakeholders interested in one of Delaware's most environmentally and economically attractive areas—the Inland Bays and its surrounding lands, surface and ground waters.

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