State Innovation Grant Program: Massachusetts

Assabet River Watershed Permit (2002 Competition)

The State Innovation Grant Program

In 2002 EPA introduced the State Innovation Grant Program to support efforts led by state environmental agencies to test innovative approaches for achieving better environmental results and improved efficiency in permitting programs. Between 2002 and 2007, the State Innovation Grant program competition awarded over six million dollars to support 35 state projects that test permitting innovation for a variety of regulated entities including several small business sectors. A summary of the awards by year appears in the table below.

State Innovation Grant Program Statistics, 2002-2007

Competition Year	Proposals Submitted	Proposals Selected	Total Program Funding ($)
2002/2003	29	6	$618,000
2004	33	9	$1.425 Million
2005	26	7	$1.479 Million
2006	25	6	$1.243 Million
2007	17	7	$1.611 Million
Cumulative Total	130	35	$6.376 Million

"Innovation in Permitting" has been the theme of the State Innovation Grant competition since its inception. In the last three competition cycles states received awards for projects in the following three categories:

- **The Environmental Results Program (ERP)** is an innovative approach to improving environmental performance based on a system of the interlocking tools of compliance assistance, self-certification (sometimes, where permissible, in lieu of permitting), and statistically-based measurement to gauge the performance of an entire business sector. The program utilizes a multimedia approach to encourage small sources to achieve environmental compliance and pollution prevention. (See: http://www.epa.gov/permits/erp/)
- **Environmental Management System (EMS)** is a system involving a continual cycle of planning, implementing, reviewing and improving the processes and actions that an organization undertakes to meet its business and environmental goals. EMSs provide organizations of all types with a structured system and approach for managing environmental and regulatory responsibilities to improve overall environmental performance and stewardship. (See: www.epa.gov/ems/info/index.htm)
- **Performance Track** is a partnership that recognizes top environmental performance among participating US facilities of all types, sizes, and complexity, both public and private. (See: http://www.epa.gov/performancetrack/)

NCEI has provided awards also for projects testing watershed-based permitting, and for permit process streamlining in past competitions. For more information on the history of the programs, including information on solicitations, state proposals, and project awards, please see the EPA State Innovation Grants website at http://www.epa.gov/innovation/stategrants

Project Background:

In late 2002, the Massachusetts Department of Environmental Protection (MassDEP) reached a turning point in its efforts to restore the health of the Assabet River. The state had designated the river as a water body that should support fish and wildlife habitat, and allow swimming, fishing, and boating. However, the river did not meet the standards for this use because of pollution and excessive plant and algae growth choking the waterway. A primary contributor to Assabet River's poor water quality was the nutrient phosphorus, which originated from two main sources: effluent from Publicly Owned Treatment Works (POTWs) and sediments that had collected behind obsolete dams. The dams were built in the 1800s and early 1900s to power industrial mills, and although most of the mills no longer existed, the remaining dams stalled the river flow and created impoundments where phosphorus-laden sediments collected. In 2003, MassDEP received a State Innovation Grant (SIG) that helped them to develop an innovative approach to watershed permitting not only to regulate the four independently operated POTWs discharging into the river, but also to investigate the potential removal of sediment in the impoundments to reduce total phosphorus loading into the stream.

Project Description

With State Innovation Grant Funds, as well as state and local funds, MassDEP conducted research that was instrumental in understanding the sources of phosphorus pollution on the Assabet River. This enabled Massachusetts to work toward developing a cost effective watershed-based permitting approach. The effort had two major components:

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Sediment Modeling and Research

MassDEP researched sources of phosphorous pollution and potential strategies to address them by:

- Modeling a variety of phosphorous reduction strategies, including reducing discharges from point sources such as POTWs, removing sediments trapped behind dams, and removing dams altogether; and confirming the assumptions used in these models through additional research carried out by the United States Geological Survey (USGS); and

- Developing a detailed dam and sediment removal feasibility study scope of work that considered cost effective alternatives to achieve water quality standards.

As part of its research, the state modeled nutrient loading from the six impoundments along the Assabet River. These models determined that once point sources were reduced, the sediments in the dam impoundments accounted for much of the phosphorus pollution and that any strategy to improve water quality would have to address both sediments and POTWs.

Watershed Based Permit

Massachusetts' Watershed Based Permit was designed to include non-point source pollution controls and point source permitting at the POTWs. The permit would be implemented in two phases. Phase 1 of permit implementation required POTWs to reduce their phosphorous discharges and upgrade facilities so that they could achieve additional reductions in the future if necessary. Phase 2 (to be implemented in 2009) could require POTWs to meet more stringent limitations on phosphorus discharges if the towns and state elected not to remove sediments from behind the dams, or if the state or EPA developed new criteria for phosphorous reduction.

Massachusetts anticipated that the watershed-based permit would help reduce the amount of phosphorous in the river as a step toward meeting the designated use of the Assabet River.

Results

In May 2005, EPA and MassDEP issued discharge permits for the POTWs that provided for an 87 percent reduction of total phosphorous discharged during the five-year permit cycle. The implementation of the watershed-based permit represents an important intermediate outcome that will change POTW behavior and reduce pollution in the Assabet River.

In addition, the permit allows the towns to pursue the restoration of the Assabet River to a fishable and swimable body of water through the removal or inactivation of the many dams and sediment in the river. Through the combination of innovative watershed permits and community partnerships, that goal is much closer. This project has helped lay the foundation of a trustful regulatory and community relationship, and Massachusetts estimates that within the next 5 to 10 years it will achieve ecological restoration of the Assabet River.

Connection to EPA's Goals

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Project Contacts:

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