



WATER RESOURCES RESEARCH GRANT PROPOSAL

Title: The Feasibility Of Cost Sharing In Nonpoint Source Pollution Control

Duration: 9/97 to 8/98

Federal Funds Requested: \$17,672.00

Non-federal Matching Funds: \$36,337.33

Principal Investigators:

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Congressional District: 2

Statement of Critical Regional and State Water Quality Problem:

Nonpoint source pollution (NPS pollution) continues to take a toll on the public health, ecological integrity, and economic prosperity of communities in the Northeast. Classic examples of NPS pollution damages are present in and around Greenwich Bay, Rhode Island, where fecal coliform bacteria and nitrates from septic systems are responsible in part for:

- Seasonal closures of a \$4 million per year shellfishing industry in Greenwich Bay,
- Damages to the natural ecosystem of Greenwich Bay, and
- Potential contamination of the Hunt River aquifer which is currently used as a public drinking water source.

Poorly functioning septic systems are also likely to have impacted the salt pond area on Rhode Island's southern coast line (e.g., Greenhill and Tinstom ponds).

Cost-effective mitigation of NPS pollution may require area and technology specific abatement, but property owners targeted for septic system improvements are unlikely to accept the full financial burden of those improvements. Cost sharing has been used by state and national agencies to distribute the financial burden (e.g., Warwick currently provides grants and loans for failing septic system repairs). Rhode Island law enables communities to establish wastewater management districts which give cities and towns the right to raise funds through local fees, and these fees can be viewed as a means of reallocating costs of septic system improvements. Cost sharing can be a critical part of

cost-effective NPS pollution control policy, but there are no procedures for evaluating and designing optimal and acceptable cost share allocations.

Statement of Results and Benefits:

The results of this study will provide a useful decision making tool for implementing and financing cost-minimizing NPS pollution control strategies in a variety of communities facing the need to protect groundwater and surface water quality. The analytical framework will also fill a gap in the environmental management literature regarding the implementation of cost sharing programs.

The models developed and applied in this study will facilitate the design and implementation of future financing programs (e.g., cost share ratios) for septic system improvements in communities facing costly solutions to NPS pollution. Questions such as:

"Can we achieve a specified water quality protection goal, given a set of fiscal and socioeconomic conditions"

can be addressed using the analytical framework developed and applied in this study. Decision makers at the state and city levels will gain a better understanding of the feasibility of imposing local wastewater management district fees on property owners. The results will also provide preliminary estimates of the benefits associated with environmental awareness and NPS pollution information campaigns. Though the applications in this study focus on residential wastewater, the modeling framework will be capable of addressing cost allocation issues for a variety of NPS control programs including agricultural runoff.