April 16, 1997

Ms. Leslie O'Shea
319 RFR Coordinator
Department of Environmental Protection
627 Main St., 2nd Floor
Worcester, MA 01608

Dear Ms. O'Shea:

Enclosed please find a response to DEP's Request for Responses under Clean Water Act Section 319 as a means to advancing the goals of the Massachusetts Watershed Initiative and Non-point Source Pollution Program.

The Buzzards Bay Project National Estuary Program is proposing to develop a comprehensive watershed management plan to assist owners of cranberry bogs in the Buzzards Bay watershed. We will specially target those bog owners in the watershed who do not have the means of impounding water on bogs after pesticide applications as required to meet state and federal pesticide regulations.

The Buzzards Bay drainage basin is unique among Massachusetts watersheds as it was the first part of the state to develop a comprehensive watershed based management plan. The Buzzards Bay Comprehensive Conservation and Management Plan (CCMP) was completed by the Buzzards Bay Project and signed by Governor Weld in 1991 and the US EPA. Since that time, the BBP has been working to implement the CCMP through a municipal grant program and technical assistance to municipalities on a wide range of nonpoint source and resource protection issues.

In many parts of the Buzzards Bay watershed, cranberry bogs are a dominant landscape feature, with the potential of affecting water quality and habitat through fertilizer and pesticide runoff. Normally routine best management practices by bog operators are effective at minimizing transport of these contaminants from the bogs, but approximately 10% of the bogs in the Buzzards Bay area have a river or stream running through the bog, with no means of preventing runoff of fertilizer and pesticide applications into streams and ponds. The pesticide issue is a particularly serious one because state and federal pesticide laws require adherence to pesticide manufacture application requirements. In most instances these pesticides are required to be impounded from 1 to 5 days before release into surface waters to prevent toxicity to aquatic life. These requirements are impossible to meet for those bogs where a stream or river runs through and is part of the bog. Enforcement of these regulations by state and federal agencies has not occurred because of the scope of this problem.

The Buzzards Bay Project proposes to work closely with the Cranberry Growers Association, municipal conservation commissions, individual bog operators, USDA Natural Resource Conservation Service, and the Massachusetts Department of Environmental Protection to identify cranberry bogs where water impoundment is not now possible. After we have inventoried areas for management action, we propose to work with the owners to consider the feasibility of various engineering designs for isolating these bogs from the adjoining surface waters. In many instances, the Buzzards Bay Project will facilitate the preparation of engineering plans by municipalities and USDA-NRCS for specific bogs as demonstration projects.

The funding the Buzzards Bay Project receives from DEP will be matched by both Massachusetts Environmental Trust Funds and Town of Falmouth in kind and cash match as part of a demonstration project on a town owned cranberry bog. This bog is probably one of the largest unconfined stream-bog systems in Massachusetts and will be an excellent model and water quality demonstration project.

As part of the Commonwealth of Massachusetts, the Buzzards Bay Project is committed to meeting the MBE and WBE hiring goals outlined in the RFR, and these expenditures are detailed in our budget. Because the Buzzards Bay Project has applied for and received Section 319 funds, you have all relevant supporting materials on file.

It is our hope that DEP views this proposal favorably. Please do not hesitate to contact me with any questions you may have.

Sincerely,

Joseph E. Costa, PhD.
Executive Director

Buzzards Bay
Cranberry Bog Management Initiative

Submitted To Request for Responses
Department of Environmental Protection
CWA Section 319, Non-point Source Pollution Program

April 16, 1997

Submitted By

Buzzards Bay Project
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Project Abstract

The Buzzards Bay Project proposes to develop a comprehensive watershed management plan to assist owners of cranberry bogs in the Buzzards Bay watershed. We will especially target those bog owners in the watershed who do not have the means of impounding water on bogs after pesticide applications as required to meet state and federal pesticide regulations. This is one of the most serious economic and environmental issues facing the Cranberry Industry in Massachusetts--and an issue that has also confounded state and federal regulators.

In many parts of the Buzzards Bay watershed, cranberry bogs are a dominant landscape feature, with the potential of affecting water quality and habitat through fertilizer and pesticide runoff. Normally routine best management practices by bog operators are effective at minimizing transport of these contaminants from the bogs, but approximately 10% of the bogs in the Buzzards Bay area have a river or stream running through the bog, with no means of preventing runoff of fertilizer and pesticide applications into streams and ponds. The pesticide issue is a particularly serious one because state and federal pesticide laws require adherence to pesticide manufacture application requirements. In most instances these pesticides are required to be impounded from 1 to 5 days before release into surface waters to prevent toxicity to aquatic life. These requirements are impossible to meet for those bogs where a stream or river runs through and is part of the bog. Enforcement of these regulations by state and federal agencies has not occurred because of the scope of this problem.

The Buzzards Bay Project will focus its inventory and management recommendation on bogs within the 12 communities that make up the Buzzards Bay watershed. Two sites will be used as demonstration sites. One site which we have already selected as a demonstration site is a cranberry bog owned by the Town of Falmouth's Conservation Commission. This particular bog complex has more than 6000 feet of river passing through it, making it the largest stream-in-bog site in the state.

Introduction

The Buzzards Bay Project, part of the National Estuary Program and a unit of the Massachusetts Coastal Zone Management Office, was created by the US Environmental Protection Agency in 1987 to develop a Comprehensive Plan to restore and preserve the Bay's water quality and natural resources. Four years later the Buzzards Bay Comprehensive Conservation and Management Plan (CCMP), a blueprint for the protection of the Bay, was completed and approved by Governor Weld and US EPA Administrator Reilly. This plan was the first whole watershed approach to natural resource protection planning in Massachusetts and the first on the east coast. Today, the Buzzards Bay Project is working to make the recommended actions contained in the CCMP a reality by providing technical and funding assistance to watershed municipalities on a wide variety of nonpoint source and resource protection issues.

Implementation of the CCMP has involved the Buzzards Bay Project in high priority stormwater remediation, nitrogen planning, alternative septic system design, herring restoration, and land use planning projects around the Bay. Significant progress has been made in many areas, but the prevention of runoff of fertilizer and pesticides from selected agricultural sites has remained problematic. Of particular interest to managers and the public in many parts of the Buzzards Bay watershed are cranberry bogs, which are often the dominant landscape feature.

The importance of these cranberry bogs cannot be overstated. In Massachusetts, more than 14,000 acres of land is in cranberry production. Much of this bog acreage can be found in the Buzzards Bay watershed. Massachusetts is also the leading world producer of cranberries. In 1992 for example, agricultural yield was approximately 1.9 million barrels, or 42% of world production. Nearly seven

thousand people are directly employed by growers in Massachusetts, and the cranberry production and processing industry contributes more than 20,000 jobs and $1.2 billion into the state's. It is no wonder that the cranberry is sometimes described as the "Red Pearl" of Massachusetts.

Unfortunately, with this industry have also come some environmental impacts. While the industry has made great strides in protecting groundwater resources, water quality and habitat through agricultural best management practices and integrated pest management, a small fraction of mostly older bogs are contiguous with streams, ponds, and wetlands. In general, normal routine best management practices by bog operators are effective at minimizing transport nutrients and pesticides from bogs, but in approximately 10% of the bogs in this area, a river or stream running through the bog prevents the bog operator from impounding water. These bogs represent a serious challenge for bog operators and regulators alike. In many cases, these streams are also runs for anadramous fish, and reports of fish kills and other environmental impacts alleged against the industry are most often related to these bogs where impoundment of water is physically impossible. Agricultural best management practices used at these sites like use of half-head spray irrigators are believed to have only marginal effectiveness. These sites will be the focus of this initiative.

In bogs where there is no practical means of preventing runoff of fertilizers and pesticides into streams and ponds, there is the potential for degrading water quality and wetland habitat. The pesticide issue is a particularly serious one because state and federal pesticide laws require adherence to pesticide manufacture application requirements. In most instances these pesticides are required to be impounded on the bogs from 1 to 5 days before release into surface waters to prevent toxicity to aquatic life. These requirements are impossible to meet for those bogs where a stream or river runs through and is part of the bog. Enforcement of these regulations by state and federal agencies has not occurred because of the magnitude of the problem. It is clear a management solution must be found to this problem.

The Buzzards Bay Project proposes to work closely with the Cranberry Growers Association, municipal Conservation Commissions, individual bog operators, USDA Natural Resource Conservation Service, and the Massachusetts Department of Environmental Protection to identify cranberry bogs where water impoundment is not now possible. After we have inventoried areas for management action, we will conduct preliminary investigations to identify potential management options, then we propose to work with the owners to consider the feasibility of various engineering designs or other management options for isolating these bogs from the adjoining surface waters. In the process we will identify areas where anadramous fish run improvements could also be achieved. Thus we propose to develop a basin-wide site specific blueprint for management action.

Among the solutions that are commonly considered in solving this problem include:

- Construction of bypass canals in upland or perimeters of bogs. After fertilizer and pesticide applications, stream flow is routed around the bogs for 1 to 5 days.

- Construction of two low flow dikes along streams passing through bogs.

- Construction of dikes between bogs and ponds.

- Using biological, physical and organic methods for cranberry cultivation (often resulting however in lower crop yields).

In many instances, the Buzzards Bay Project will facilitate the preparation of engineering plans by municipalities and USDA-NRCS for specific bogs as demonstration projects. The funding the Buzzards Bay Project receives from EOEA will be used to leverage federal dollars for implementation. These federal dollars will be used to match EOEA funds.

The Buzzards Bay Project will convene a Watershed Committee composed of representatives of the cranberry industry, municipal conservation commissions, state and federal regulators, and citizen groups to address this basin-wide issue. This group will set basin wide goals and management priorities to remediate cranberry bog sites, and to target federal grant awards obtained by the Buzzards Bay Project on this issue. The staff and resources of the Buzzards Bay Project make our organization uniquely suited to addressing the broad spectrum of natural resource issues relating to pesticide and nutrient release from cranberry bogs. In addition, our position within the Coastal Zone Management Office allows for easy coordination with state and federal agencies, and to tap into technical staff in coastal geology, dredging issues, and harbor planning.

Demonstration Sites

The Buzzards Bay Project will focus its inventory and management recommendation on bogs within the 12 communities that make up the Buzzards Bay watershed. Two sites will be used as demonstration sites. One site which we have already selected as a demonstration site is a cranberry bog owned by the Town of Falmouth's Conservation Commission. This particular bog complex has more than 6000 feet of river passing through it, making it the largest stream-in-bog site in the state. What is ideal about this bog is that not only is it publicly owned, but the Conservation Commission collects $70,000 per year through its lease of which some could be used to implement the designs prepared through this initiative. The Conservation Commission's principal goal is of course the protection of wetlands, wildlife, and water quality and is very interested in participating in this initiative, and doing what is necessary to minimize potential health and environmental impacts from this publicly owned bog. Massachusetts Environmental Trust funds to the Town of Falmouth would also help finance the demonstration project.

The Falmouth Bog is an important demonstration site for another reason. The town-owned bog has recently been impacted by an Ethylene Dibromide (EDB) plume from the Massachusetts military reservation. The Town of Falmouth, the Secretary of Massachusetts' Executive Office of Environmental Affairs, and the EPA Region I have all insisted or required the military to provide treatment of the plume pumped by the cranberry bogs well and irrigation system. The military has agreed and is installing such a filtration system. Given the amount of to taxpayer dollars being invested into this bog, and given the stance taken by the agencies in protecting it, it is untenable to allow this bog to be perceived as a pollution source in a coastal watershed.

The second demonstration site of a private bog will be selected at a later date. These two demonstration sites will be a model for other bogs in the watershed and throughout the state.

Budget and work tasks

Implementation of this program will require $70,000 of non-local funds. The success of this program will have state wide applications. Tasks and budget breakdown are as follows:

Task 1. Inventory and prepare maps of all Cranberry Bog areas requiring management action (staff and intern, $10,000)

Task 2. Development of management options and report summaries for each Cranberry Bog identified in the study. The management options will be based on USDA-NRCS and cranberry grower recommendations and reviewed by the Watershed Committee for this project (staff $12,000)

Task 3. Preparation of detailed engineering designs and plans for remediation BMP's for two priority remediation sites (contractual, $20,000; a MBE or WBE firm will be

selected)

Task 4. Communication and technology transfer (total = $6,000). This includes a color printed report with maps (200 copies) which will be prepared and distributed ($4,000; a MBE will be selected from the state contract blanket). Other costs include copying, phone, printer supplies, etc.

Task 5. Implementation of demonstration projects, and technology transfer. Total is $80,000. (DEP's share = $25,000, Town of Falmouth Conservation Commission match, $40,000 local, $15,000 Massachusetts Environmental Trust).

Total Project Cost= $128,000; Match = $55,000 (43%)