DESIGNATION OF PORTIONS OF THE TOWN OF BOURNE

AS THE

BOURNE BACK RIVER AND HEADWATER WETLANDS AREA OF CRITICAL ENVIRONMENTAL CONCERN

WITH SUPPORTING FINDINGS

Following an extensive formal review required by the regulations of the Executive Office of Environmental Affairs at 301 CMR 12.00, including nomination review, research, meetings, and evaluation of all public comments, I, the Secretary of Environmental Affairs, hereby designate portions of the Town of Bourne encompassing the Back River estuarine system, including the headwater wetlands, and Mashnee Island Dike and waters of Phinney's Harbor adjacent thereto, as an Area of Critical Environmental Concern (ACEC). I take this action pursuant to the authority granted me under Massachusetts General Law c. 21A, s. 2(7).

I also hereby find that the coastal wetland resource areas included in the Bourne Back River ACEC are significant to the protection of groundwater and public water supplies, the prevention of pollution, flood control, the prevention of storm damage, the protection of land containing shellfish, fisheries, and wildlife habitat; those public interests defined in the Wetlands Protection Act (MGL c. 131, s. 40; 310 CMR 10.00).

I. Boundary of the Bourne Back River ACEC

Upon review of the boundaries as recommended in the nomination letter subsequent recommendations made in testimony received, and EOEA agency review, the final boundaries generally include the wetland resource areas, and a 100 foot buffer zone around those areas, within the Back River estuarine system, including upstream freshwater wetlands within the drainage basin, and Mashnee Island Dike and waters of Phinney's Harbor adjacent thereto. The wetland resource areas subject to this designation are those as delineated on Maps H-138, H-139, J-3, and J-4 of the Wetlands Restriction Program (MGL Chapter 130, Section 105, and MGL Chapter 131, Section 40A), or any Wetlands Restriction Map drawn by the DEQE, Division of Wetlands and Waterways Regulation, which may be drawn from time to time to replace or supersede the above referenced maps.

The area containing the wetland resources subject to this designation is generally the Back River watershed, and associated downstream tidal areas, and has been be delineated as follows. The word "boundary" is used below to describe the delineation of the watershed area. Only the above referenced wetland resource areas, and associated 100 foot buffer zones, are subject to the ACEC designation. Beginning at a point where Route 28 intersects with Clay Pond Road, the watershed boundary follows in a westerly direction along Clay Pond Road, Beach Street, and Worcester Street. From the end of Worcester Street, the boundary further extends in a westerly direction across Phinney's Harbor to a point at the end of Mashnee Island Dike defined by the extension of Hammel Road to the

eastern shore of the Dike. From this point the boundary continues in a westerly direction along Hammel Road to the western shore of the Dike where it proceeds in a northeasterly direction along the thread of the shoreline, at Mean High Water (MHW), to the northeasterly end of the Dike. At the point on the northeasterly end of the Dike where the MHW line is nearest to Mashnee Road, the boundary continues along Mashnee Road in a northeasterly direction until it intersects with Presidents Road, runs along this road in a southeasterly direction until it intersects with Shore Road, where it continues again in a northeasterly direction along Shore Road to the intersection with Waterhouse Road, where it continues in a southeasterly direction until it intersects with Route 28, which it follows until the point of beginning.

II. Designation of the Resources of the Bourne Back River ACEC

In my letter of acceptance of the nomination of the Bourne Back River as an ACEC, I indicated that our evaluation indicated that it met the minimum threshold for consideration. The nomination letter and supporting documentation clearly lists the quantity and quality of the resources present. The presence of these critical resources, and their relatively undisturbed nature, clearly indicate their value to the region and the state.

III. Procedures Leading to ACEC Designation

On July 26, 1988, a letter of nomination, signed by members of the Bourne Conservation Commission, pursuant to 301 CMR 12.05(1)(b), was received by my office. After preliminary consultation with my Coastal Zone Management staff and the collection of additional supporting information, the nomination was formally accepted by letter on December 22, 1989, and the review process was begun.

Notice of the acceptance of the nomination and of an informational meeting and a public hearing was published in the Cape Cod Times and in the Massachusetts Environmental Monitor on January 13, 1989. A number of informational articles appeared in the local and regional newspapers.

In addition to the many public meetings held by the nominating committee during the preparation of the nomination and its local review, an informational meeting for the general public was held on February 7, 1989. The public hearing was held on February 14, 1989. Written and oral testimony was received from numerous individuals and organizations and is on file at the MCZM office.

IV. Discussion of Factors Specified in Sections 12.09 of the EOEA Regulations

In the review process leading to the decision on a nominated area, the Secretary must consider the factors specified in Section 12.09 of the EOEA regulations. As stated in these regulations, the factors need not be weighed equally, nor must all of these factors be present for an area to be designated. While the more factors an area contains the more likely its designation, the strong presence of even a single factor may be sufficient for designation.

Based on the information in the nomination letter, presented at the public hearing, and through written comments, and on the research of my staff, I find the following factors relevant to the designated ACEC:

Quality of the Natural Characteristics

The Bourne Back River system possesses outstanding natural resource attributes. Although there has been significant development in the region, Bourne Back River has not yet experienced significant degradation from this activity, though the warning signs are evident. Most of the marshes, tidal flats and freshwater wetlands, with the exception of those in agricultural use, are unaltered and undeveloped, allowing them to function at their maximum capacity as habitat areas, nursery and spawning areas, and, in the case of barrier beaches, for the purposes of storm damage prevention. The area contains at least three state-listed rare and endangered species, including osprey, spotted turtle, and diamondback terrapin.

Productivity

The high productivity of estuarine/saltmarsh ecosystems has been well documented in the scientific literature. The plant growth within the marsh is exported by the tides and ultimately incorporated into the marine food web. The protected, shallow waters of the estuary act to a nursery to shellfish and finfish and the relatively high water quality of the tributaries and headwaters provide spawning sites for anadromous fishes. The diverse benthic population supported by the marshes, estuary and tidal flats is also extremely important as a food source for migratory and resident shorebirds and waterfowl. The system, including the headwater wetland areas, supports a wide variety of shellfish, finfish, amphibians, reptiles, birds, and mammals, within an extraordinary spectrum of habitat types.

Irreversibility of Impact

Changes in the salinity regime of estuaries may eliminate or substantially alter the broad mixing zone important as a nursery for juvenile fishes and shellfish. Both coastal development, which changes the runoff characteristics of the adjacent upland, and dredging of channels within the marsh, which may lead to overdrainage of watersheds, saltwater intrusion into groundwater, and disrupt nutrient inputs, can act to irreversibly alter estuarine ecosystems such as Bourne Back River.

As an area of moderately-intense residential development, with one major residential development within the watershed in the planning stages, groundwater quality may be threatened by the cumulative effects of this activity.

Threats to Public Health through Inappropriate Use

As noted in the nomination, portions of the designated area are used for public shellfish harvesting. Inappropriate discharges, either direct or indirect, into this system could have public health repercussions through contamination of these shellfish. Salt marshes are valuable for their ability to remove contaminants from adjacent waters. Disruptions of this function of the marsh could also have detrimental effects on the quality of the harvested shellfish. The high quality of the waters within the designated ACEC also makes the areas safe for water contact activities.

Imminence of Threat to Resources

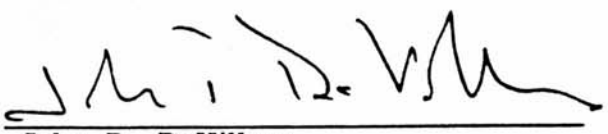
Cape Cod, in the past decades, has been under ever increasing development pressure, with this trend likely to continue into the next decade. These development activities pose potential threats to the areas included in the designated area. The incremental effect of construction along the edges of marshes and waterways has been shown to be problematic. Run-off from roadways and landscaped areas can bring increased levels of nutrients to the aquatic system resulting in eutrophication, possible algal blooms, and the resultant lowering of oxygen levels in the water to the detriment of marine organisms. Run-off can also carry pathogens (often indicated by elevated counts of coliform bacteria), oil and gasoline residues, and other contaminants. Even properly designed, installed, and maintained septic systems can allow leaching of nutrients into marshes and waterways in levels which cannot be easily assimilated, while failing systems can discharge raw sewage into directly into surface waters. Despite laws and regulations to the contrary, construction along marshes and waterways can also bring incremental filling over time. It is hoped that this designation will serve to focus attention on the value and sensitivity of the area and will serve as a guide for future development proposals.

Economic Benefits

This area has intrinsic values related to the region's economic stability. Cape Cod's, and Bourne's, economy is based on fishing, tourism, and retirement industries. The fisheries are supported through the healthy and productive marsh and estuarine systems and serve a regional recreational, and commercial fin and shellfish industry. People come to Cape Cod communities, either to visit or to live, for its unspoiled beauty, recreational opportunities, and quality of life. Tourism is supported through the waterfront vistas, the historical significance, and the recreational facilities of the public beaches. The retirement community is attracted to the region because of the serenity of the landscape and the relatively untouched nature of the environment. Any alteration of the area that results in a decrease in its productivity, attractiveness and use carries a potential for adverse economic impact.

Supporting Factors

There has been virtually unanimous agreement on the appropriateness of the designation among local residents, environmental groups, and Boards and Commissions from the affected towns. There has also been support from State Legislators. The Town has taken steps to protect their natural resources and have indicated that the ACEC designation will be an important part of planning and protection policies. It is therefore my strong feeling that Bourne Back River is very appropriate for designation as an Area of Critical Environmental Concern.



John P. DeVillars
Secretary

4/24/89
Date