

Taunton River Stewardship Plan

Taunton River Wild & Scenic River Study

July 2005



Prepared by:
Taunton Wild & Scenic River Study Committee
Southeastern Regional Planning & Economic
Development District
National Park Service, Northeast Region

Dear Friends of the Taunton River Watershed,

Shortly before his death, Representative Joseph Moakley wrote:

“I cannot think of another river in the Commonwealth of Massachusetts that captures the magnificence of New England better than the Taunton River.”

Those words helped to launch a four year, intensive study of the 40 mile long Taunton River corridor and many of its key tributaries. Hundreds of volunteers from the ten riverside communities and staff from local agencies combined their time and talents. We reviewed thousands of years of “records,” from bits and pieces of ancient tools and weapons to modern writings and scientific analyses. We spent thousands of hours in the watershed itself, meeting the people and plants and animals that somehow manage to co-exist, despite significant challenges. When we found gaps in our research, we figured out how to initiate additional studies to help us better understand this beautiful and complex area.

All that information rendered this **Taunton River Stewardship Plan**. Read it carefully. It is a chorus of all who have contributed to it, a living document, intended to guide our efforts to restore and preserve the Taunton River corridor. It is meant to change and grow as the needs to preserve the river corridor change and grow - there is also an opportunity for you to lend your voice as well.

We thank everyone—past, present and future—whose vision includes a vibrant Taunton River that binds our communities together in both spirit and action.

Members of the Taunton River Stewardship Council

Taunton Wild & Scenic River Study Committee

The following individuals participated on the committee as either town appointees or dedicated citizens.

Richard Ashcroft	Somerset
Alison Bowden	The Nature Conservancy
Frank Bibbins	Bridgewater
Lou Bousquet	Raynham
Ray Brierly	Raynham
Aria Brisette	Taunton
Jack Callahan	Fairhaven
Joe Callahan	Berkley
Patricia Casey	Fall River
Tricia Cassady	Natural Resources Trust of Bridgewater /Middleborough
Priscilla Chapman	Fall River
Rosemarie Correia	Middleborough
Steve Cote	Raynham
Steve Daniels	Dighton
Robert Davis	Taunton River Watershed Alliance
Kevin Desmairas	Freetown
Donna Desrosiers (spirit fox)	Dighton Intertribal Indian Council Appointee
Roger Desrosiers (gray fox)	Dighton Intertribal Indian Council Appointee
Katherine Doherty	Natural Resources Trust of Bridgewater/Bridgewater
Nancy Durfee	Somerset
George Estes	Intertribal Council Appointee
John Fitzgerald	Bridgewater
P. Burke Fountain	Raynham
David Garcia (Spirit Walker)	Spiritual Advisor Representing Native People
Ruth Geoffroy	Middleborough
Alex Houtzager	Berkley
Joan Kimball	Riverways Programs, Department of Fish and Game
Dan Lopes	Freetown
Scott MacFaden	Wildlands Trust of Southeastern Massachusetts
Bill Napolitano	SRPEDD
Maryan Nowak	Taunton
Francis Pereira	Middleborough
Joan Pierce	Department of Fish and Game
Doug Roberson	Halifax
Pat Rogers	Middleborough
James Ross	Raynham
Chris Simmons	Dighton
Jasmine Tanguay	Taunton
William Taylor	Middleborough
John Torgan	Save the Bay
John A. Traynor, III	Halifax
Cheryl Wall	Halifax
Tim Watts	Middleborough
Christina Wordell	Somerset

A special and sincere thanks to all of those who provided assistance to the study committee including town officials who provided master plans, ideas and input, citizens who came to public meetings, Stream Team volunteers, and agency experts who presented material to the Wild & Scenic study committee. This would not have happened without you. Your community and your river thank you.

Staff at the Southeastern Regional Planning and Economic Development District (SRPEDD)

Rachel Calabro
Nancy Durfee
Maisy McDarby-Stanovich
Bill Napolitano
Karen Porter

For further information on this plan and for general questions about the Taunton River Wild and Scenic Study, you may contact:

Bill Napolitano
SRPEDD
88 Broadway
Taunton, MA 02780
508-824-1367
bnap@srpedd.org

National Park Service

Jamie Fosburgh, National Park Service Rivers Program Manager

For questions about the Wild and Scenic Program, please contact:

National Park Service
WTSR Program Manager
Jamie Fosburgh
15 State Street
Boston, MA 02109-3572
617-223-5191
jamie_fosburgh@nps.gov

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INTRODUCTION

The Taunton Wild & Scenic River Stewardship Plan presents a vision and action strategy for the cooperative management and protection of the approximately 40 miles of the Taunton River in southeastern Massachusetts. It also presents a vision and associated management actions for the major tributary watersheds of the river and the upper reaches of Mount Hope Bay. The Plan was prepared as part of the Taunton Wild & Scenic River Study, authorized by Congress in 2000.

The study has been conducted by the Taunton Wild & Scenic River Study Committee in cooperation with the Southeastern Regional Planning and Economic Development District (SRPEDD) and the National Park Service. The Study Committee included members from the ten communities within the study area, the Commonwealth of Massachusetts' Riverways Programs, the Wildlands Trust of Southeastern Massachusetts, Natural Resources Trust of Bridgewater, The Nature Conservancy, Save the Bay, and the Taunton River Watershed Alliance. Funding and staff assistance were provided by the Northeast Regional Office of the National Park Service.



Segreganset River, Dighton *Rachel Calabro*

The plan is made up of eight sections plus an appendix section:

I. Background

This section provides background information on the watershed, the Wild and Scenic River Study, and the content of this Plan.

II. River Protection Framework & Philosophy

This section describes the goals of the study committee, the guiding principles that helped to form the plan and how the Wild & Scenic designation would affect the river, the tributary watersheds and those entities interested in protecting the Taunton River.

III. Organizational Structure

This section describes the organizational structure that is being proposed to oversee implementation of the plan.

IV. Geographic Area Covered By This Plan

This section describes the primary focus area, the tributary focus areas and their relationship to the potential Wild & Scenic river designation.

V. Management and Protection of Outstanding Resources

This section outlines the major management and protection strategies for the Taunton River. It includes examples of current management and protection, potential threats to the resources and an action strategy for each of the six outstanding resource values.

VI. Management of Water Quality, Water Quantity and Instream Flow

This section describes background on water quality and instream flow, potential threats and an action strategy for management.

VII. Wild & Scenic River Designation

This section describes in more detail the relationship of the proposed Wild & Scenic River designation to this plan and to the protection of the free-flowing character and identified Outstanding Resource Values of the Taunton River.

VIII. Tributary Surveys

This section outlines the results of eight tributary shoreline surveys, conducted by Stream Teams made up of volunteers, municipal officials and Wild & Scenic committee members with support from the Wild & Scenic study and the Massachusetts Riverways Program. These shoreline surveys provided baseline data and helped to identify in the tributaries the same outstanding values that were identified on the mainstem Taunton River. Management recommendations were developed from survey data and Stream Team action plans.

IX. References

Appendix A: Existing Protections: Local Zoning and State and Federal Programs

This section gives an overview of some of the important river and land protections that are in place in each of the municipalities in the study area, as well as state and federal regulations that pertain to river management.

Appendix B: Model Bylaws

This section provides examples of bylaws that are being used in the Taunton River corridor to protect natural resources.

Appendix C: Public Access

This section provides suggested public access sites and projects, as identified by the Commonwealth of Massachusetts' Public Access Board.

Appendix D: Letters from Towns

I. BACKGROUND

Taunton River Overview

The Taunton River is perhaps the most diverse and intact coastal riverine ecosystem in all of southern New England. The Taunton River is the only major coastal river in the region that is without a dam or obstruction over its entire length. The river is formed at the confluence of the Matfield and Town Rivers in Bridgewater and along with its extensive network of tributaries, drains an area of 562 square miles. It also is the largest freshwater contributor to the Narragansett Bay estuary in Rhode Island, part of the National Estuary Program.

The Taunton River travels through ten communities and over 40 miles to Mount Hope Bay. It is tidal for 18 miles from the bay, with saltwater intrusion ending at about the Dighton-Taunton line, 12 miles from the mouth. The landscape of the Taunton River watershed is the result of glacial deposition as shown in flat outwash plains, numerous wetlands and kettle ponds. Glacial Lake Taunton was created by the retreating glacier and eventually drained as the Taunton River. Clay deposits from this glacial lake have been used in modern times by the brick and clay industry. Numerous bogs and wetlands have also provided bog iron, important to early development and industry.

The width of undisturbed river corridor from the headwaters to the City of Taunton and the primary tributaries of the upper watershed ranges from approximately 2,000 feet to over one mile for approximately twenty-two meandering miles - an extraordinarily wild river in eastern Massachusetts. The river corridor's mix of large woodland areas (largely devoid of non-native species), vast tidal and non-tidal wetlands, and edge habitats, related to nearly 2,000 acres of prime agricultural land provides rich habitat diversity for a wide range of species.



Fox Cub, Lakeville *Tim Watts*

The remarkably intact quality of the river corridor results not only in outstanding wildlife habitat, but great scenic beauty and wonderful recreational opportunities such as hiking, canoeing and hunting. The fact that the Taunton River drops only 20 feet in elevation over its entire course makes it particularly appealing to paddlers. The Taunton also contributes greatly to what remains of the rural character of the communities through which it flows. Large stretches of pasture, woodland and meadow help to preserve rich historical and archaeological resources along the river. The Taunton River is directly tied to early contact between English settlers and Native People and with its major tributaries, shows many examples of early colonial industrial innovation including millworks and transportation.

Some of the outstanding attributes of the Taunton River corridor include:

- the longest undammed coastal river in New England
- over 154 species of birds and 45 species of fish, including the bald eagle and the globally rare endangered Atlantic sturgeon
- more than 360 identified plant species, including 3 globally rare species, Long's bittercress, Long's bulrush and Eaton's beggar ticks
- globally rare freshwater and brackish tidal marsh habitats
- economically important agricultural products including cranberries, blueberries, strawberries, pumpkins, Christmas trees, corn, and nursery products
- the largest alewife run in the state including the Nemasket River with headwaters at the Assawompset Ponds, the largest natural lakes in Massachusetts
- habitat for the globally rare bridle shiner and rainbow smelt; recently listed by NOAA as a species of concern
- the state designated Wampanoag Commemorative Canoe Passage, the ancient Native People's waterway from Massachusetts Bay in the east, to Mount Hope and Buzzards Bays in the south
- Wampanucket, located at the Assawompset Ponds in Middleborough; the location of one of the most significant Paleoindian depositions known in New England. This site contains evidence of dwellings dating from 12,000 – 8,000 years before present day
- the first four, five and six masted schooners were designed and/or registered in Taunton; the only seven-masted schooner to exist was also captained by a Tauntonian

- the first iron forge was set up on the Forge River in Raynham in 1652. This forge became the longest operating one of its kind in the country after more than 230 years in operation.
- iron fittings for the USS Monitor were forged in Bridgewater during the Civil War.
- historically important recreational activities including pleasure crafts, canoe launches and yacht clubs; resorts including amusement rides, dance pavilions and clambakes.
- current recreational activities including swimming, canoeing, sailing, motor boating, and fishing.

Wild and Scenic River Study

The Wild and Scenic River Study and the Taunton River Stewardship Plan represent the culmination of over seventeen years of local planning, stewardship



Right of Way Trail, Somerset *MariJoan Bull*

and advocacy efforts on the Taunton River. The current study has its roots in the 1988 Upper Taunton River Conservation and Management Plan. The 1988 plan was undertaken by a coalition of local citizens, in conjunction with the Southeastern Regional Planning and Economic Development District (SRPEDD), in an effort to preserve and protect the natural

resources in a 14.5 mile stretch of the Upper Taunton River from the Bridgewater-Middleborough-Raynham line to the Weir Village in Taunton. The group facilitating the 1988 plan and related public planning process evolved into the Taunton River Watershed Alliance (TRWA). One of the principal regional recommendations of the plan was to seek Wild and Scenic River status for the Taunton River.

In the mid-1990's, as a result of ongoing efforts to preserve riverfront lands along the Taunton River and its tributaries, the Taunton River Stewardship

Program (TRSP) was formally organized after months of meetings. An alliance of conservation agents and planners from the Bridgewater, Middleborough, Raynham and Halifax, TRSP worked with partners from the Massachusetts Division of Fisheries and Wildlife, the National Park Service (NPS) Rivers and Trails Conservation Assistance Program, SRPEDD, the Wildlands Trust of Southeastern Massachusetts, the Natural Resources Trust of Bridgewater and the TRWA. TRSP works to serve as a bridge for riverfront landowners and communities seeking workable, appropriate land conservation options for riverfront properties, and helps to raise public awareness and funding.

Concurrently, in the fall of 1997, a local group spearheaded by the Taunton Conservation Agent and SRPEDD, working with Congressman Joseph Moakley's office, prepared a nomination application for the Taunton River to President Clinton's new American Heritage Rivers Program. This program was created to recognize and designate ten (10) American Heritage Rivers for their importance to American culture and history. While the Taunton failed to gain American Heritage River status, the application did foster a sense of unity among the riverfront communities (who had all signed a "Declaration of Interdependence" on the Taunton River as a preamble to the American Heritage Rivers application). The application also created a great deal of public awareness and brought to light a wealth of environmental and historical information about the Taunton.



Historic Stone Bridge, Assonet Village, Freetown
Karen Porter

Following the American Heritage River effort, working with TRSP and the NPS, SRPEDD developed legislation to undertake a study of the Taunton River to determine whether or not the Upper Taunton River, from its headwaters in Bridgewater, to the Forge River in Raynham, met the criteria for federal Wild and Scenic River designation. Legislation was submitted and presented to Congress by the Massachusetts delegation of

Representatives Moakley, Frank and McGovern, and Senators Kerry and Kennedy. In October of 1999, Congressional hearings were held and testimony given on behalf of the Taunton River Study Bill. In October of 2000, President

Clinton signed the bill into law, authorizing funding to undertake the Taunton River Wild and Scenic River Study. In September, 2002, Congressional Representatives Frank, McGovern and Lynch in response to written petitions from all lower Taunton communities, wrote the National Park Service to formally request an extension of the study to include all of the Lower Taunton River, from the Taunton –Raynham line to the Mount Hope Bay at Fall River and Somerset, as part of the Wild and Scenic Study area. The Congressional request was accepted by the National Park Service, and following passage of the Federal FY03 budget, the study area was formally extended.

How This Plan Was Developed

This plan was developed through a public process facilitated by the Taunton River Wild and Scenic River Study Committee. The Committee consists of volunteers appointed by their respective Boards of Selectmen or Mayors and representatives from the National Park Service, the Massachusetts Riverways Program – Department of Fish and Game, the Wildlands Trust of Southeastern Massachusetts, The Nature Conservancy, Save the Bay, the Taunton River Watershed Alliance, SRPEDD, and the Natural Resources Trust of Bridgewater.

The Committee has held open meetings on a monthly basis since August of 2001. Special Topics meetings have been held periodically, employing outside experts/speakers, covering such topics as rare and endangered species habitats and natural resources of the Taunton River Corridor; cultural, historical and archaeological resources; agricultural resources; fisheries resources; recreational opportunities, and the resources of the Lower Taunton estuary. All of these special topic meetings were also open to the public. In February of 2004, the Committee also sponsored a regional river planning meeting (a charette) at the Bristol County Agricultural High School in Dighton. Citizens from all ten of the riverfront communities participating in the Wild and Scenic River Study attended the charette. The Committee solicited public comments on the resources of the river, threats to those resources, and potential remedies to problems on the river, which were recorded by members of the Committee during the charette.

Several Stream Teams were also started in conjunction with the Massachusetts Riverways Adopt-A-Stream Program to conduct Shoreline Surveys on major tributaries to the Taunton River. These surveys were designed to identify the same outstanding characteristics noted on the Taunton River and to come up with management recommendations and actions for the protection of these systems. Surveys were completed on eight tributary systems including the Matfield and Town Rivers, the Winnetuxet, Nemasket, Forge, Three Mile,

Segregansett and Assonet Rivers. A survey of the Taunton River from Cherry Street to Weir Park in Taunton was conducted during the annual TRWA paddle, and a survey was done in 2003 of the Taunton River shoreline in Somerset along with Labor in Vain Brook. See section eight for a discussion of the tributary systems.



Battleship Massachusetts, Fall River *Greg Guimond*

Knowledge of the river and tributaries was also enhanced by studies funded through the Wild & Scenic committee. As of spring 2004, the committee had appropriated over \$60,000 for a number of different studies and programs, including: a synthesis of water quality data for the Taunton River undertaken by the Watershed Access Lab at Bridgewater State College; a small tributary macro-invertebrate study undertaken

by Fred SaintOurs of Umass Boston, completion of the Heritage Landscape Inventory for the Wild & Scenic River corridor communities, facilitated through Jessica Rowcroft, Preservation Planner with the Department of Conservation and Recreation, a stream monitoring project conducted in conjunction with the state's Riverways Program and Bridgewater State College, and a Stream Team implementation grants program for local advocacy and restoration projects. The committee has also partnered with SMAST, out of Umass Dartmouth, to set up stream gauges and monitoring sites along the Taunton River and its major tributaries under the auspices of a grant from the Department of Environmental Protection.

The Committee has used the information obtained at all of its public meetings, special topics meetings and the charette, in conjunction with study, research and interviews, to form the basis of the content and recommendations of the Taunton River Stewardship Plan.

II. RIVER PROTECTION FRAMEWORK & PHILOSOPHY

Overarching Goals

The following goals were adopted by the Taunton Wild & Scenic River Study Committee and serve as the foundation for this Taunton River Stewardship Plan:

- *To understand, preserve and restore the Taunton River corridor as an intact river ecosystem and regional resource.*
- *To develop a strong coalition of municipalities, citizens, non-profits and agencies for planning and implementing public education, land-use, recreation and conservation strategies for the Taunton River.*
- *To secure designation of the Taunton River as a National Wild and Scenic River*

Resource Based Goals

In addition to the three overarching goals cited above, the Stewardship Plan is driven by the objective of protecting and enhancing the “***Outstanding Resource Values***” identified for the Taunton River during the study process:

- **Agriculture**
- **Ecology and Biological Diversity**
- **Estuary**
- **Fisheries**
- **History and Archaeology**
- **Recreation**

Each of these resource values is represented in a separate chapter of the Stewardship Plan which lays out background, threats, goals/objectives, opportunities, success stories, and proposed action strategies.

Stewardship Approach

The successful implementation of this Stewardship Plan and the achievement of its goals will be based upon the willing participation of partners at all levels – from the individual landowner to the community to non-profit and agency partners. To facilitate this, the Plan proposes the creation of a ***Taunton River Stewardship Council*** that would serve as the central coordinating/facilitating body for implementation of the Stewardship Plan. This Council will be modeled

after other Wild & Scenic River Councils including the SuAsCo River Stewardship Council and the Westfield River Wild & Scenic Advisory Committee, both active in Massachusetts.

Wild and Scenic River Designation

The Taunton Wild & Scenic River Study Committee believes that designation of the Taunton River as a component of the national Wild & Scenic Rivers System is a critical step in the fulfillment of the goals and resource objectives that have been defined for the River. The designation would:

1. Officially recognize the Taunton River as a resource of national significance;
2. Establish the federal government, through the National Park Service, as a partner in the implementation of this Plan;
3. Provide opportunity for federal funding to implement the action strategies of the Plan and support the operations of the proposed Taunton River Stewardship Council;
4. Protect the Taunton from potentially harmful federal water resource development projects that could threaten the outstanding resource values of the River.

If designated a Wild & Scenic River by the United States Congress, this plan would serve as the “Comprehensive Management Plan” required for all National Wild & Scenic Rivers. The effects of Wild & Scenic River designation are more fully described in Chapter VII of this Plan.



Marsh at Broad Cove, Dighton *Rachel Calabro*

III. ORGANIZATIONAL STRUCTURE

Taunton River Stewardship Council

Purpose

The purpose of the Taunton River Stewardship Council (Council) is to promote the long-term protection of the river by 1) bringing together on a regular basis various parties responsible for river management; 2) facilitating agreements and coordination among them; 3) providing a focus and a forum for all river interests to discuss and make recommendations regarding issues of concern; and 4) coordinating implementation of the Taunton River Stewardship Plan.

The Council will continue the efforts of the Study Committee to create a participatory and cooperative management framework. The Council will ensure that there is communication among all partners in the protection of the Taunton River, and will provide a forum for discussion of river issues, priorities and proposed actions.

The Council will be the principal entity devoted to the implementation of the Taunton River Stewardship Plan, and will establish priorities, workplans, action plans and similar strategies to advance implementation of the Plan.

Advisory Function

The Council will work to complement and support the roles and activities of partners working in the Taunton River Watershed. It will not have a regulatory role, but will act on an advisory basis to existing entities that have management or regulatory authority on the river, including the individual member entities of the Council.

The Council may undertake projects directly or sponsor projects in partnership with its individual member entities & partners.

Responsibilities

The Taunton River Stewardship Council will have the following responsibilities:

- Meet on a regular basis with all meetings open to the public.

-
- Develop annual action plans/workplans based on the Taunton River Stewardship Plan and priorities set by the Council.
 - Report annually to the member institutions of the Council on Council activities, accomplishments, plans, etc.
 - Advise the National Park Service, the Commonwealth of Massachusetts, communities and other entities on issues and concerns related to the Taunton River.
 - Periodically review the plan and consider revisions and updates as appropriate.

Membership

Core membership: The following entities will constitute the core membership of the Stewardship Council.

- Town of Bridgewater
- Town of Halifax
- Town of Middleborough
- Town of Raynham
- City of Taunton
- Town of Berkley
- Town of Freetown
- Town of Dighton
- Town of Somerset
- City of Fall River
- Commonwealth of Massachusetts
- National Park Service
- SRPEDD
- Wildlands Trust of Southeastern Massachusetts
- Natural Resources Trust of Bridgewater
- Taunton River Watershed Alliance (TRWA)
- Save the Bay
- The Nature Conservancy
- The Council Oak Wampanoags, Massachusetts

Appointments

Each member entity will be encouraged to appoint one representative and one alternate. Appointments shall be made by each institution as appropriate, expected to be as follows, Boards of Selectmen (Towns); City Council (Taunton, Fall River); Regional Director or designee (National Park Service); Governor or designee (Commonwealth); Boards of Directors or designee(non-profits). In the case of a ***designee*** making an appointment, the authority under which the designee has acted shall be reported to the Council.

Suggested Appointees

Suggested appointees would include members of local government boards, riverfront landowners, local experts about a specific outstanding resource, and those who would provide active committee representation.

Additional members:

Membership may be changed to include other interests based on the following provisions:

- Interested parties may be added to the Council if they request membership and are approved by a 2/3 majority of the existing members.
- Representatives of any new member institutions will be appointed by the governing body of that institution or an appropriate designee.

Procedures

Decision Making

The Council will endeavor to act by consensus whenever possible and will be governed by the open meeting laws of Massachusetts. Formal votes may be taken from time to time at the discretion of the Chair or by request of any member. A formal vote will require a 2/3 majority of Council members to be approved.

Officers

The Council shall elect a Chair and a Vice-Chair. Other officers may be elected by vote of the Council, such as Treasurer and Secretary.

Bylaws

The Council may choose to develop detailed by-laws that expand upon the administrative provisions of this Plan. Such expanded by-laws shall be consistent with the intent and provisions of this Plan.

Revision of the Plan

The Council shall conduct a thorough review of the Plan and its recommendations at least every five years. If and when the Council determines that meaningful annual action plans cannot be developed consistent with the parameters of the existing plan, the Council should undertake a formal, public revision.

Funding/Staff

National Park Service Support



Historic Photo of the Taunton Green

It is anticipated that the National Park Service will provide a basic level of staff support and funding to the Council and its operations through the National Wild and Scenic River Designation, dependant upon congressional appropriations. This support may be directly from the NPS, or the NPS may enter into Cooperative

Agreements with members of the Council, as was done during the Study through SRPEDD, to provide such funding and staff support. (note: it is not anticipated that the NPS could enter into Cooperative Agreements with the Council as an entity, as it lacks the sufficient legal foundation)

There will be no annual dues or other financial contribution required of Council members. Members appointed by communities will not be expected to contribute financially, nor will any member receive funding from the Council for travel or time reimbursement.

IV. GEOGRAPHIC AREA COVERED BY THIS PLAN

Primary Focus Area

The primary focus area covered by this Plan is the mainstem of the Taunton River within the communities of Bridgewater, Halifax, Middleborough, Raynham, Taunton, Berkley, Freetown, Dighton, Somerset, and Fall River. This includes all of the Taunton River and a portion of Mt. Hope Bay. For planning purposes only, the Study Committee focused its mapping and resource investigations within a half-mile wide corridor of the mainstem however, this corridor does not have any particular significance to the Plan or its implementation.

Tributary Focus Areas

Taunton River tributaries within the ten (10) cited communities are also considered essential to the Plan and the achievement of river protection/restoration goals. Eight of these tributaries have been studied by volunteer Stream Teams in some detail as a part of the Taunton W&SR Study; these are the Town, Matfield, Winnetuxet, Nemasket, Forge, Three Mile, Assonet, and Segregansett Rivers. Each of these tributaries within the ten communities is considered a full participant in the Plan, and is eligible for staff assistance, funding and other support as a participant.

In addition, there are many smaller tributaries of the Taunton or the eight listed tributaries that are crucial to the health and well being of the Taunton and its “Outstanding Resource Values.” Projects or initiatives related to these additional tributaries shall also be considered eligible for all benefits/participation in the Plan and the Council.

Taunton River Watershed

Projects outside of the ten Taunton River communities shall not generally be the focus of the Council and the Plan. However, by formal vote, the Council may choose to devote resources to projects/initiatives within the larger Taunton River Watershed.

Relationship to the Wild and Scenic Designation Area

It is recognized that not all of these areas will receive formal designation as a Wild and Scenic River, for example, none of the tributary areas are proposed for designation at this time. However, the scope of the Stewardship Plan shall be considered as stated above, regardless of what segment or segments may eventually receive Wild & Scenic River status.

V. MANAGEMENT AND PROTECTION OF OUTSTANDING RESOURCES:

Agriculture

The fertile soils of the Taunton River's post-glacial landscape helped to make this watershed one of the earliest and largest settlement areas for the early Native People. The corridor's deep, mineral rich soils sustained large populations for thousands of years, and they remain fertile and productive today. Since colonial settlement, agriculture has been part of what defines the character of communities in the corridor.



Hanson Farm, Bridgewater *Rachel Calabro*

Settlers learned from the Native People the time-honored technique of using river herring as fertilizer and the important triad of corn, beans and squash. Today there is still a significant amount of acreage in agricultural use within the Taunton River corridor. These properties provide not only a source of food, nursery, and other agricultural products to the region, but also help to maintain the scenic character of the river corridor, both from the roadways and the river. In addition, several of these agricultural parcels include significant stretches of riverfront, including wetlands, floodplain forest, riffle areas in the river and important agricultural soils.

Agricultural Lands

Several of the larger agricultural parcels in the Taunton River Corridor, such as the Haseotes land in Bridgewater and Halifax, the Massachusetts Correctional Institution in Bridgewater and the Bertarelli Farm in Middleborough encompass close to three linear miles of river frontage on the Taunton River. Properties such as these help to maintain the intact quality of the river corridor that makes it unique and ecologically outstanding. These large areas of open field also provide important wildlife habitat for local, rare and migratory species.

While approximately 2537 acres of the Taunton River Corridor study area are currently reported as agricultural land, there has been a loss of over 1,200 acres (28%) of the agricultural land in the corridor since 1971. Land currently in agricultural production within the study area includes cropland, (predominantly vegetables, some fruits and berries and dairy) pastureland, cranberry bog, tree farm, orchard, and open land.

Economic Value

Objectives

1. **Protect Agricultural Landscapes and Working Farms** for future generations
2. **Promote and Support Local Farms and their Markets** to retain agriculture in the corridor.
3. **Promote Ecologically Sensitive Agricultural Practices** to manage runoff and conserve habitats.

The economic value of agriculture in Massachusetts cannot be overlooked or underestimated. Massachusetts ranks fourth in the U.S. for farmland value at \$6,450 per acre. The state also ranks fourth for net farm income per acre at \$327 per acre and has no fewer than 17 farm crops ranked in the top 20 nationally, many of which are found on farms within the corridor, including: cranberries (2), wild blueberries (3), pumpkins (12), strawberries (18), Christmas trees (16), sweet corn (18), and nursery stock/greenhouse product (19).

Supporting Agriculture in the Watershed

Massachusetts is also a leader in secondary school level agricultural education. Three of the nation's four agricultural high schools are located in Massachusetts. The Bristol County Agricultural High School is located within the Wild & Scenic River Corridor, along the banks of the Taunton River in Dighton. Southeastern Massachusetts is also the only



Farmers Market, Weir Village, Taunton *Marijoan Bull*

region in the state to have local Agricultural Commissions. These local commissions, one of which is located in the Town of Middleborough, are a model for other areas of the state and help to open up communication with town boards and land protection organizations for farmland protection.

Action Strategies

Protect Agricultural Landscapes and Working Farms

- Provide viable alternatives to farmers to keep their land in agricultural use.
- Protect the state-owned Old State Farm agricultural and forested lands on Summer Street and the North Hay Field area on Flagg Street in Bridgewater and preserve the land for continued agricultural use and passive recreation.
- Use the Community Preservation Act, Agricultural Preservation Restrictions and other state and federal programs to protect agricultural land as open space.
- Support Executive Order 193, which requires a no net loss of agriculture on public lands.

Promote and Support Local Farms and their markets

- Support the creation of local Agricultural Commissions.
- Train local boards, inspectors and zoning enforcement officers on agricultural exemptions and normal agricultural practices in order to better meet the needs of farmers.
- Stimulate interest among colleges in agricultural research, alternative farming practices and markets.
- Provide the community and local students with education on farming and agricultural practices so that they understand the importance and significance of these activities.

Threats to Agricultural Resources

- Development is the biggest threat to agricultural land and farming.
- Much of the prime agricultural land with deep topsoil has already been converted into residential developments.
- Farming remains a low profile activity in local communities and farms and farm businesses do not have a voice in town politics.
- There is a need to find a new generation of farmers to continue agricultural use of land.
- Farmers need better access to information about grant programs, assistance and business development.

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- Provide farmers with access to information about the workings of local government and the advantages of having farmers serve on local boards.
 - Create increased market demand and accessibility to locally grown products through the development and promotion of farmers markets and roadside stands (Middleborough Open Space Plan, 1998)
 - Establish community supported agriculture (CSAs) and community farms within the watershed, working with local schools and colleges.
 - Increase the use of signage to attract tourists to local agricultural products and activities.
 - Work with supermarket chains to add more locally grown produce and value-added farm products to their shelves.
 - Encourage partnerships with Bristol County Agricultural High School, the Future Farmers of America and 4H clubs to promote farming in the watershed.
 - Develop a funding structure that will allow the Bristol County Agricultural High School to open its museum on a regular basis to the community and school children.



Cows, Middleborough *Rachel Calabro*

Promote Ecologically Sensitive Agricultural Practices

- Encourage agricultural best management practices at farms for waste management and runoff.
- Provide training and funding for Integrated Pest Management (IPM) and encourage its use.
- Encourage farms to participate in local, federal, and state farm planning and conservation programs.
- Promote education in organic farming at schools such as the Bristol County Agricultural High School.

State Programs: Massachusetts Department of Agricultural Resources

Agricultural Preservation Restriction (APR) Program: This is a voluntary program intended to offer a non-development alternative to farmers with important agricultural lands. The program offers to pay farmers the difference between the fair market value and the agricultural value of their farmland in exchange for a permanent deed restriction that precludes any use that will impact agricultural viability.

Southeastern Massachusetts Agricultural Partnership

The SEMAP helps agricultural enterprises by identifying grower needs, facilitating access to business management tools and support services and encouraging supporting entrepreneurship. It also provides technical assistance and support services to agricultural businesses for marketing and outreach, financial management and professional development. SEMAP has produced a buy local campaign and a Harvest Handbook with more than 200 retail farms listed, and has, in the past, organized a “Tours des Farms” bicycle tour of regional farms which included cooking demonstrations using local farm products.

Chapter 61A: This program allows agricultural land to be taxed at actual use value rather than its development potential. Landowners participate in this program for a fixed period of time, after which the land is taxed at the full value. If the property is sold while it is in Chapter 61A, the landowner must pay the full amount of taxes that would have been paid up to that time. The town also has the first right of refusal to acquire the property at market value.

Farm Viability Enhancement Program: This state technical assistance program that works with farmers to provide a business plan for their operation. Farmers that sign a short-term non-development covenant can receive from \$20,000 for a 5-year covenant up to \$60,000 for large farms with a 10-year covenant.

Agricultural Business Training Program: This program provides an opportunity for farmers to master basic business principles, with additional technical service.

Local Programs: Town Agricultural Commissions

Town Agricultural Commissions help town officials develop a working relationship with farmers and identify farmer's needs, issues and concerns. They are also designed to help farmers by informing them of state and federal programs, business planning support programs and opening communication with town boards and environmental organizations. Town Agricultural Commissions establish town funds for farmland protection, participate in town right of first refusal decisions when Chapter 61 properties become available, and develop relationships with land protection organizations to leverage funds for farmland protection. The Town of Middleborough has established an Agricultural Commission (the only other Agricultural Commissions in the Commonwealth are in Westport, Dartmouth, Plympton and Rehoboth).



Pumpkins, Bridgewater Rachel Calabro

Federal Programs: United States Department of Agriculture

Environmental Quality Incentive Program (EQIP): This program provides technical and financial assistance to landowners and operators of crop or livestock farms for planning and designing Best Management Practices that protect the soil, air and water, increase soil productivity, enable care for farm animals, and manage waste produced on the farm.

Wildlife Habitat Incentive Program (WHIP): Technical and financial assistance is provided through this program for landowners who want to voluntarily improve wildlife habitat or restore ecosystems on their property.

Wetland Reserve Program (WRP): This program provides assistance for the purchase of temporary or permanent easements on farmed wetlands for water supply protection and wildlife habitat and helps to restore farmed wetlands for wildlife habitat.

Ecology and Biological Diversity

The Taunton River is one of the most intact ecosystems in New England and many of its habitats and species are ranked as global conservation targets. This unfragmented habitat from headwaters to the bay is regionally significant and hosts species found nowhere else in Massachusetts.

Rare Habitats and Plants

The ecosystems of the Taunton River are rich and varied. The corridor supports 31 distinct wildlife habitats, and is inhabited by 3 globally rare plants. Rare natural communities include red maple and Atlantic white cedar swamps which often contain vernal pools, critical habitat for rare reptiles and amphibians. Hessel's hairstreak, a globally rare butterfly, lives only in white cedar swamps. This watershed is also home to the Water willow stem-borer moth, a species endemic to Southeastern Massachusetts' wetlands. This is the state's only species that is found nowhere else on earth.

Globally rare plants in the watershed include Long's bulrush, Long's bitter-cress and Eaton's beggar-ticks. State listed rare species include pale green orchis, variable sedge and Plymouth gentian. Large regionally significant examples of freshwater and brackish tidal marshes are located in the oxbow area in Raynham and at the confluence of the Three Mile and Taunton Rivers. These areas are a high priority for protection.



Boyden Wildlife Refuge, Three Mile River, Taunton *Rachel Calabro*



Winnetuxet River, Halifax *Rachel Calabro*

Reptiles and Amphibians

The corridor is home to seven rare reptiles and amphibians. Twenty eight species of reptiles and amphibians can be found along the river corridor, including several state listed rare species. The upper river supports one of the largest concentrations of spotted turtles in the state. Other rare species include the four-toed salamander, wood turtle, Blandings turtle, Eastern box turtle and Eastern diamondback terrapin. Vernal pools, specialized habitats for wood frogs, spotted salamanders and fairy shrimp are relatively common along the floodplains of the Taunton River and its tributaries.

Objectives:

1. **Increase Public Awareness** of the biological diversity and intact ecology of the Taunton River ecosystem.
2. **Protect Water Quality and Natural Flow** regimes critical to long-term viability of aquatic biodiversity.
3. **Prevent Fragmentation** of riparian corridors, floodplains, and contiguous upland habitat blocks.
4. **Prevent Invasive Species** from displacing native communities of plants and animals.

Birds

The corridor is home to 12 rare bird species. The marsh segments of the Taunton River support high concentrations of marsh nesting birds, including kingfishers, osprey and several species of herons. Endangered birds have been recorded including the American bittern, king rail and pied billed grebe. Agricultural

areas along the river provide important grassland bird habitat that is declining across the state. Species that depend on this habitat include the endangered upland sandpiper and the endangered northern harrier. Two rare owls, barn owl (Special Concern) and long-eared owl (Special Concern), have been reported breeding in woods and open fields in Middleborough. In total, 154 species of birds were documented during the 1997 breeding season. Unbroken forest patches, also an important habitat along the Taunton River supports many common forest birds as well as sharp-shinned and Coopers hawk, both species of Special Concern.

Mammals

River otter, mink, gray fox and deer all are active along the river corridor. River otters are relatively large and secretive animals; their presence is an indicator of the extent and quality of riparian habitats. In addition, harbor seals are often seen in the Taunton River and its tributary streams, following herring and other prey species upriver.



Seal on the Nemasket River
Photo by Anne Dutra

Resident Aquatic Species and Freshwater Mussels

The river supports seven species of freshwater mussels, including three species listed as state species of Special Concern (Eastern pondmussel, tidewater mucket, and triangle floater). Rare mussels have been documented in Bridgewater and from 495 through Raynham. Mussels are also found on the tributaries, particularly in the Three Mile River. Rare dragonflies present in the Taunton River watershed include comet darter and Kennedy's emerald.

Action Strategy

Increase Public Awareness

- Work with Conservation Commissions, Planning and Zoning Boards, developers, watershed associations and Stream Teams to promote understanding of the importance of riparian buffers and ecological diversity.
- Educate landowners and the public about their roles in protecting the river; water conservation, pollution prevention, and habitat protection.
- Promote Biodiversity Days and other citizen-led ecology initiatives.

Threats to Ecological Resources

- Poorly planned development and transportation infrastructure within the Wild & Scenic corridor and the watershed as a whole is the greatest threat to the river ecosystem.
- Loss and fragmentation of forest habitats, as well as incremental degradation of riverfront areas threaten long-term ecosystem health.
- Increasing human demands for water will worsen flow alteration in tributary streams and ultimately impact the Taunton River itself, diminishing habitat quality for fish and other aquatic life.
- Point and nonpoint source pollution (runoff) degrade water quality in the tributaries and mainstem.
- Increasing areas of impervious surfaces such as roads and rooftops degrades stream habitat by increasing “flashy” flood events and sources of pollution and raising water temperatures.
- Invasive plant species threaten to reduce diversity in tidal marshes and other wetlands along the river.
- Industrial discharges and sediment toxicity from historic sources limit recovery of fisheries and shellfish habitats in the estuary.
- While not a direct threat, the public’s limited awareness of the river’s ecological value hinders the development of a comprehensive and coordinated protection and management effort.

Protect Water Quality and Natural Flow

- Create a comprehensive water management plan for the Taunton River watershed.
- Create a water budget for the Taunton River watershed that takes in to account human and ecosystem needs.
- Create an implementation plan for water use and distribution in the watershed.
- Use water conservation strategies as the first line of defense in protecting flow
 - Promote yard care practices that increase use of native plantings, decrease use of chemical pesticides and fertilizers, and reduce demand for summer lawn watering.
 - Protect existing wells through zoning, land purchase and other techniques to reduce or avoid new withdrawals from rivers and streams.

Protect Riparian Corridors, Rare and Endangered species and Prevent Habitat Fragmentation

- Create a comprehensive growth management plan for the Taunton River watershed.
 - Develop a coordinated regional conservation strategy to identify and protect priority parcels
- Enforce the Wetlands Protection Act and the River Protection Act, to protect the riparian corridor
- Encourage passage of the Community Preservation Act to raise funds for protection of key ecological priorities.
- Encourage passage of local growth management bylaws such as transfers of development rights, cluster zoning, and other innovative approaches
- Encourage the designation of targeted growth areas and protection areas within the watershed
 - Integrate Living Waters, Biomap, and other biodiversity information into municipal Master Plans and Open Space Plans.

Prevent Invasive Species

- Increase and/or maintain tidal flushing to salt marsh habitats in the Assonet River and other tributaries and coves in the Taunton River estuary.
- Prevent runoff from altering salinity in sensitive salt marsh habitats.
- Prevent erosion and other disturbance of banks.



Purple Loosestrife Photo by www.Invasivespecies.gov

Local Programs: Land Acquisition Funds

The Town of Somerset established a land acquisition fund by town vote after the sale of a town property to a grocery store chain. It has enabled the town to act quickly when opportunities to preserve land become available. Dighton has also established a fund for land purchases.

State Programs: Areas of Critical Environmental Concern

Areas of Critical Environmental Concern (ACECs) are designated by the Massachusetts Department of Conservation and Recreation (DCR) for their unique and significant resources. All federal, state and local agencies as well as private parties must submit development plans to the DCR to ensure that activities that would impact the ACEC are carried out in a way that would protect natural resources. A section of the Three Mile River is being proposed as an ACEC because of its habitat values as well as historical resources. The Three Mile River has one of the state's largest Silver Maple floodplain forests and the only sizeable example in the area. The river and its corridor provide habitat for a variety of wildlife and several rare and endangered species. It is also an important warm water fishery and is rich in culture and history. There are sites of early industrial and Native People located within the proposed ACEC, and three of them are included on the National Register of Historic Places. Portions of the Hockomock Swamp ACEC are also located within the study corridor.

National Programs: The Nature Conservancy

The Taunton River watershed lies within the North Atlantic Coast (NAC) ecoregion, which encompasses the coastal areas of nine states from Delaware to Maine. The Taunton River and six tributaries were chosen by the Conservancy during the NAC aquatic ecoregional planning process in 2002 for their remarkable condition and concentration of ecoregional target species and communities. Ecoregional plans identify *portfolio sites* that need to be protected to conserve the native biodiversity of the region. The objective of the freshwater analysis was to identify the most intact and functional stream networks to represent the full variety of freshwater diversity present.

The Taunton River is a unique geomorphic type, based on modeling of geology, gradient, elevation, and landforms. The longest undammed coastal river in New England, the Taunton River supports large, high quality examples of globally rare brackish and freshwater tidal marshes. Hockomock Swamp is the largest freshwater wetland complex in southern New England, providing high quality habitat for numerous rare birds, reptiles, amphibians, invertebrates, and wetland plants. In total, the watershed is home to forty-two ecoregional target species (species that are declining, disjunct, or otherwise vulnerable at the ecoregional scale). This area is important not only for its rarities, but also for the quality and quantity of habitat it provides to more common species such as river otter and alewife.

Estuary

The Taunton River estuary is regionally important for its recreational, scenic and ecological values. It is a remarkably healthy and intact coastal ecosystem, with tidal influence extending through Dighton and into Taunton, 18 miles from Mount Hope Bay. The extensive estuary resources of the Taunton River system make it significant as nursery habitat for juvenile fish and shellfish, and as habitat for anadromous fish (fish that spend their adult life in the ocean and migrate into rivers to spawn). The Taunton River is part of the larger Narragansett Bay watershed and it contributes a significant portion of the Bay's fresh water. Narragansett Bay is a nationally significant resource, designated under EPA's National Estuary Program as well as the National Estuarine Research Reserve Program.



Taunton River Estuary, Somerset *Greg Guimond*

Objectives

1. **Promote a Bi-State Narragansett Bay Vision** that works to preserve the Taunton River as the most ecologically intact subwatershed of Narragansett Bay.
2. **Protect Intact Estuary Habitats** of the Taunton River and Mt. Hope Bay, including freshwater and brackish tidal marshes, salt marshes and riparian habitats.
3. **Restore Degraded Habitats and Species Communities** including eelgrass beds, saltmarshes, shellfish beds, nursery and spawning areas.
4. **Promote Recreational Access and Waterfront Revitalization** in concert with community goals and habitat sustainability.

Marsh Habitats

The Taunton River is unique in Massachusetts because it is free of dams along its entire mainstem. The natural flow regime of this river allows tidal influence to extend well beyond the reach of salt water, creating globally rare freshwater tidal marshes. The size and quality of the salt marsh system in the Taunton River Estuary is also regionally important.

The Assonet River in Freetown and Berkley has one of the largest contiguous areas of salt marsh in the entire Narragansett Bay estuary. Tidal restrictions, fresh water runoff and sedimentation have changed the composition of some of the Taunton's salt marshes, favoring invasive plants. *Phragmites* has increasingly spread through marshes where tidal flushing is limited and where fresh water runoff has decreased salinity.

Fishery Habitats

The Taunton River estuary also contains critical fisheries habitats, especially shellfish habitat and nursery habitat for winter flounder and tautog. The estuary is designated Essential Fish Habitat by the National Marine Fisheries Service for 14 species of fish and shellfish. Winter flounder larvae are threatened by entrainment in the intake systems of industrial facilities and by activities such as dredging that disturb sediment on the bottom of the river. Eel grass habitats, also important for juvenile fish, have been lost in the estuary largely due to excess nutrient pollution.



Paynes Cove, Assonet Bay Shores, Freetown
Rachel Calabro

Anadromous fish also use the Taunton River estuary and freshwater resources for spawning and juvenile development. The rare Atlantic sturgeon has been documented in the lower river, but it is unclear whether reproduction is taking place. Rainbow smelt, listed by NOAA as a “species of concern” in 2004, spawn in both the Assonet and Segreganset Rivers. Multiple tributaries support millions of

river herring that make their way through the estuary each spring to spawn in freshwater.

The Taunton River once hosted an American shad fishery as well, but numbers have remained low despite restoration efforts. Habitat for shad is present in the upper tributaries of the Taunton River, especially in the Matfield River, where a shad weir was located until the early part of the 20th century. The lower Taunton River supported a commercial shad fishery for over 200 years, until the fish

became commercially extinct by 1913. Flow stress and water quality impacts such as low dissolved oxygen, thermal pollution and nutrients are most likely limiting the restoration of the shad fishery. Restoration success for anadromous fish has also been limited by dams and other obstructions that restrict fish from their native tributary habitats.

Shellfish

The excellent habitat and abundant shellfish resources of the lower Taunton River once supported a thriving industry. The river was the mainstay of the Commonwealth's oyster fishery from the mid 1800s until its closure in 1907. Before its closure, 38,000 bushels of oysters per year were harvested along with countless bushels of quahogs and soft shelled clams.

Too contaminated for human consumption today, these shellfish beds still support abundant oysters and quahogs that are a seed source for other areas of the Bay. In 1985, the Division of Marine Fisheries permitted the relay of nearly 12,000 bushels of oysters to other towns for depuration. Based on recent observations by the Division, the oyster population is estimated to be more than 20,000 bushels.

Scallops were also harvested in the past, but they have since disappeared from the river, likely due to a combination of pollution and loss of eelgrass beds.

The Division of Marine Fisheries has designated this area as "Significant Shellfish Habitat", which is protected under the state Wetlands Protection Act.

Threats to Estuary Resources

- Industrial uses in the estuary, especially power plants, are causing failure of groundfish stocks through heated discharges and entrainment (trapping) of larval fish and other organisms.
- Further development of energy facilities, shipping and other port development without consideration for the resources of the Taunton River estuary will continue to cause environmental and safety hazards.
- High nutrient (nitrogen and phosphorus) and bacteria levels in the estuary lead to water quality and habitat degradation, diminishing the fishery and biodiversity resources.
- Freshwater allocation and management upstream may prevent adequate inputs into the estuary.
- Runoff from polluted sites is causing water quality and habitat degradation in the estuary.
- Tidal restrictions and freshwater runoff degrade saltmarsh habitat and encourage invasive species.

Blue crabs are also abundant in the estuary, as are fiddler crabs and other crustaceans. Other shellfish resources include horseshoe crabs, channeled whelk and mussels. Horseshoe crabs, whose eggs provide a critical food source for migrating shore birds, are believed to be declining region wide. Save the Bay has begun an effort to count and monitor these ancient creatures to document the condition of the local population.

Action Strategies

Promote a Bi-State Narragansett Bay Vision

- Continue to work closely with Rhode Island to provide funding and resources recognizing the importance of the Taunton River to the health of Narragansett Bay.
- Incorporate the Narragansett Bay Estuary Program into restoration and education strategies.

Bi-State Projects: Narragansett Bay Watershed Action Grants

An interstate Narragansett Bay Watershed Action Grant Program was established in 2002. In the first round, \$122,600 was awarded and an additional \$77,000 in local matching funds was leveraged. A total of four projects were funded including GIS mapping for communities in the Taunton River Basin and synthesis and dissemination of sediment data from across the Bay and up into the estuary.

Protect Intact Estuary Habitats

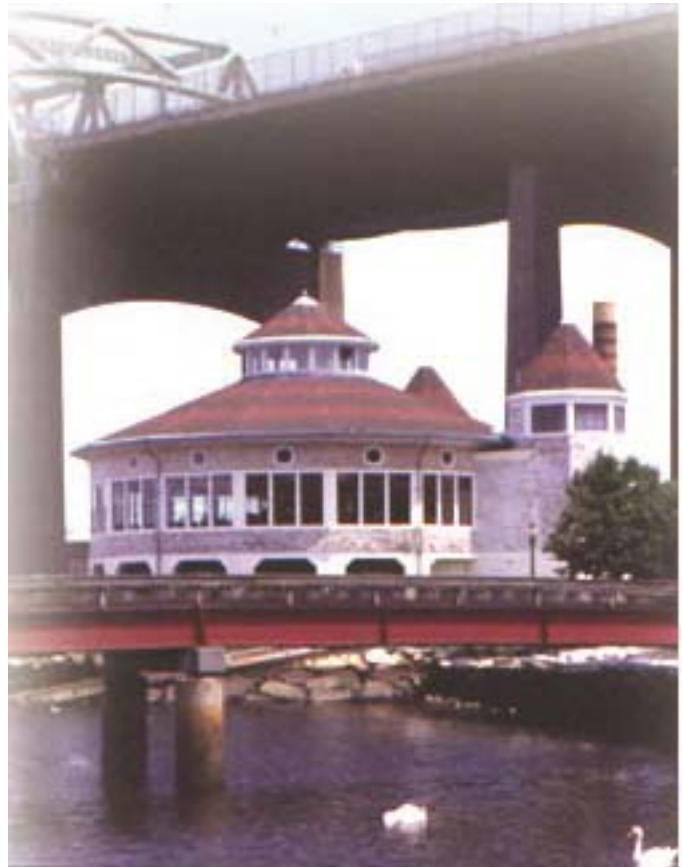
- Preserve and restore salt marsh systems in the estuary through maintenance of shoreline buffers and by limiting runoff.
- Educate homeowners about shoreline buffer restoration and proper buffer maintenance.
- Educate the public about the importance of horseshoe crabs so that they are not destroyed or prevented from laying eggs.
- Educate the public about important estuary species such as anadromous fish, shellfish and harbor seals so that they will work for their preservation.

Restore Degraded Habitats and Ecological Communities

- Support strengthening the NPDES permit for Brayton Point power plant to prevent thermal pollution and entrainment of larval fish.
- Monitor nutrient levels in the estuary and support remediation of point source and non-point source pollution.
- Address priority stormwater improvements on a municipal level and educate residents about pollution prevention.
- Address septic system pollution issues in the Assonet River estuary.
- Pursue recommendations listed in the Division of Marine Fisheries anadromous fisheries report for restoration of anadromous fish runs (see fisheries section).
- Restore tidal flushing to degraded salt marshes through elimination of tidal restrictions (see sidebar).

Promote Recreational Access and Waterfront Revitalization

- Encourage and support public participation on all plans to place added industrial infrastructure along the shores of the lower Taunton River.
- Support recreation by emphasizing community boating, canoeing and fishing on the lower river.
- Protect and restore the commercial and recreational fishery by restoring water quality, limiting thermal pollution and protecting adequate fresh water contributions to the estuary.



Carousel at Fall River Heritage State Park, Fall River
Greg Guimond

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- Oppose new industrial activities that would damage natural resources of national significance or interfere with recreational uses of the river.
 - Create waterfront plans that would stimulate recreation, tourism and local economic activity.

Local Projects: Labor in Vain Brook Salt Marsh Restoration

The Town of Somerset in partnership with the Massachusetts Riverways Program and the Office of Coastal Zone Management Wetlands Restoration Program is working on a project to eliminate tidal restrictions along Labor in Vain Brook in Somerset. This project will help to restore the tidal creek and salt marsh habitat. Stormwater inputs to the marsh and to the upper watershed will also be assessed during the project. This project was identified as a priority by the Southeastern Regional Planning and Economical Development District through roadway and stormwater assessments and by the town in their recently completed Open Space and Recreation Plan. Labor in Vain Brook is also listed in the Mount Hope Bay Tidal Restriction Atlas.



Culvert over Labor in Vain Brook,
Somerset Brian Graber

Fisheries

The Taunton River is the longest undammed coastal river in New England and provides excellent habitat for all life stages of fish. The estuary is particularly valued for its nursery habitat for fish such as winter flounder and tautog, as well as for its large anadromous fish runs, particularly river herring.



Alewife Swimming Upstream *Tim Watts*

Currently, dams limit or eliminate access to spawning habitats on some tributaries, but there is huge potential for restoration of species such as herring, shad and rainbow smelt through selective dam removal. Coldwater fishery habitats are also present on some Taunton River tributaries, providing rare habitat niches in this low gradient watershed. Other important fisheries habitats include riffles, oxbows, fresh and salt water marshes and native aquatic vegetation beds. The Taunton River supports about 45 species of fish and many species of shellfish.

Anadromous Fisheries

Within the Taunton River corridor and its significant tributaries, 17 streams contain anadromous and catadromous fish including alewife, blueback herring, American eel, American shad, hickory shad, gizzard shad, rainbow smelt, white perch, striped bass and the endangered Atlantic sturgeon. The Taunton River is the second largest watershed in Massachusetts and is home to the region's largest herring run. Fish from the herring run on the Nemasket River are used for restoration projects in other parts of the state and have been shipped as far away as Michigan. The herring fishery is managed locally by herring commissions in Middleborough and Bridgewater/West Bridgewater. These commissions manage fish ladders that provide passage around the dams on the Nemasket and Town Rivers and manage permits for taking fish.

Many species of migratory fish have shown evidence of decline regionwide, and in some cases rangewide, in recent years. American eels, catadromous fish that spawn in the Sargasso Sea and migrate into rivers to feed and grow for 20 years or more, show evidence of severe declines. Exclusion from large areas of

freshwater habitats by dams, and excessive mortality caused by passage through turbines at hydroelectric dams, over-fishing, and parasitic infections are believed to be responsible for this trend. Tim Watts of Middleborough and his brother Doug Watts researched the eel's plight and submitted a petition in November 2004 to add American eels to the Federal Endangered Species list. The petition is currently under review.

Atlantic sturgeon received a Federal status review in 1998; that review concluded that listing under the Endangered Species Act was not warranted at the time, but the species was retained on the candidate list and is listed by NMFS as a species of concern. Rainbow smelt was listed as a species of concern in 2004 in response to data indicating that numbers are down significantly, at least in southern New England. The quantity of accessible freshwater habitat and the absence of deadly hydroelectric dams from the entire watershed make the Taunton River critical habitat for these threatened migratory fish.

Objectives

1. **Ensure Natural Flow Regimes** to support the full life cycle of both resident and anadromous fish.
2. **Ensure Healthy Water Quality** and protect temperature and dissolved oxygen regimes, and remediate pollution sources such as excess nutrients, pathogens, turbidity, and contaminated sediments
3. **Restore Anadromous Fish Populations** in tributary systems currently blocked to fish migration by dams and/or poor water quality
4. **Protect Rare Coldwater Habitats** on tributary streams.
5. **Protect and Restore Rare Species Populations** such as rainbow smelt, Atlantic sturgeon and Eastern pond mussel.

Warmwater Fisheries

In addition to anadromous fish, the watershed hosts many species of riverine fish (those that require flowing conditions all or part of their lives), habitat generalists, (those fish that can live in either rivers or ponds) and “estuarine wanderers” that move back and forth between the estuary and freshwater habitats. Striped bass, bluefish, weakfish, white perch, Atlantic menhaden, tautog, winter flounder, American eel, northern kingfish, northern scup, and Atlantic tomcod are the species often caught in the estuary. Threatened with extinction 25 years ago, striped bass are now abundant and popular with anglers. The most popular spots for striper fishing are under the Brightman Street

Bridge, at the former site of the Slades Ferry Bridge and at various wharves along the river.

Coldwater Fisheries

The Taunton River watershed is also home to several coldwater fishery streams, inhabited by native brook trout and other coldwater species. Trout are also among a large number of species that have historically been stocked into Taunton River tributaries and ponds in the watershed.

Foraging and Nursery Habitat

Threats to Fisheries Resources

- Low flow in tributaries is resulting in low dissolved oxygen, dry reaches and temperature stress for many fish species.
- Loss of buffers on the river and its tributaries endanger habitat for fish and shellfish.
- Increasing development of the watershed is resulting in a decrease in water quality in the tributaries and mainstem and siltation of spawning habitat.
- Dams on several tributaries prevent fish from reaching spawning areas.
- Industrial activity and contaminated sediments have polluted shellfish beds in the lower estuary.
- Heated discharges and entrainment from power plants have reduced populations of winter flounder and other groundfish.



Coldwater Tributary to the Taunton River, Berkley *Rachel Calabro*

The Taunton River is extremely important in providing foraging, nursery and migratory habitat for many species of fish, which are a vital link in the food web. The huge river herring run on the Nemasket River represents a particular bounty for other animals. Striped bass travel far upriver after the herring, which are also eaten by birds such as ospreys, bald eagles, cormorants and great blue herons that rely on the spring fish runs to feed their chicks. Harbor seals, mink and river otters also feast during the spring and fall migrations.

In addition to spawning habitat for anadromous species, extensive wetlands and oxbows provide nursery and foraging habitat for resident species. The estuary is highly valued for its nursery habitat for winter flounder and for shellfish.

Shellfish

Shellfish resources in the river include quahogs, soft-shelled clams, channeled whelk, oysters and mussels. Blue crabs and horseshoe crabs are also common in the estuary. The river supports seven types of freshwater mussels (the second largest number and concentration in the state) and oysters renowned for their size and quality. Although the beds are currently closed to harvest, the oyster population is estimated at over 20,000 bushels.

Action Strategies:

Ensure Natural Flow Regimes

- Water conservation, reduced impervious surfaces, reduced inflow and infiltration into wastewater systems and local groundwater recharge are the major tools to use to preserve water supply and avoid new water withdrawals.
- Promote water conservation and stormwater recharge including minimizing lawn watering and planting native species.
- Conduct field studies to determine flow rates in tributary systems (currently being conducted with Stream Teams and the River Instream Flow Stewards).
- Create a comprehensive water management plan for the Taunton River watershed (see ecology section).

Ensure Healthy Water Quality

- Whenever possible use techniques to reduce impervious surfaces and stormwater discharges by promoting low impact development techniques (see water quality section).
- Protect and restore streamside buffers and bordering wetlands to combat non point source pollution including nutrients, sediment and heated runoff.
- Support limits on discharges of nutrients (phosphorus and nitrogen) to the river from sewage treatment plants and other permitted discharges.
- Enact and enforce bylaws to keep stormwater onsite so that post construction runoff does not exceed pre-construction runoff.
- Control excess sedimentation by enforcing best management practices at construction sites and controlling runoff of road sand.

Restore Anadromous Fish Populations

- Protect habitats including instream flow for all the life stages of fish – spawning, juvenile stages, migration, feeding, etc.
- Evaluate a sustainable water level and flow for the Nemasket River with emphasis on the anadromous fish run and work toward restoring summer flow. (Middleborough Open Space Plan, 1998)
- Restore connections to spawning areas by removing barriers to fish passage such as unwanted dams or improperly sized culverts or by installing fish ladders on tributary streams (work with Massachusetts Riverways Program to inventory and evaluate culverts and other barriers to fish passage).
- Pursue recommendations listed in the Division of Marine Fisheries anadromous fisheries report, including the following:
 - Investigate the feasibility of removing the remaining portion of the Plymouth Street Dam in Bridgewater to facilitate fish passage into the Town and Matfield Rivers and to remove hazards to recreational paddling.



Alewives Entering the
Nemasket River Fish Ladder
Tim Watts

- Investigate feasibility of the removal of the remains of the Cotton Carver Gin Mill Dam below Route 106 on the Satucket River and restore a natural stream channel.
- Reassess the dams on the Assonet River to restore natural stream habitat and to facilitate spawning of anadromous fish including rainbow smelt.
- Finalize installation of the fish ladders on the Three Mile River.



Fishladder at Oliver Mills Park,
Middleborough Rachel Calabro

Protect Coldwater Habitats

- Create an inventory of coldwater streams in the watershed.
- Protect flow to small spring fed headwater streams.
- Protect forested buffers to provide shading and temperature control to small tributary streams.
- Protect priority parcels in coldwater watersheds to support overall watershed functions.
- Selectively remove unnecessary dams where impoundments are warming temperatures in potential cold-water habitats to maintain connectivity with habitat for different life stages.

Protect and Restore Rare Species Populations

- Integrate maps of core habitats and supporting landscape areas from the Natural Heritage and Endangered Species Program's *Living Waters* and *Biomap* into municipal Master Plans and Open Space and Recreation plans.
- Continue to document and study the habitat needs of rare and endangered species.

Local Programs:
Middleborough-Lakeville Herring Fishery Commission

Today, the Nemasket River is one of the most productive warm water fisheries in southeastern Massachusetts and part of what fisheries experts consider the region's most significant alewife run. Since official counts began in 1996, an average of over one million fish per year have made the run. This is a remarkable number, particularly in light of the fact that the run was commercially exploited almost to depletion in the late 1950's. Local naturalists and environmental groups have worked with the Middleborough-Lakeville Herring Fishery Commission and the Division of Marine Fisheries to monitor the spawning run, manage fish ladders (which assist the movement of the fish), and monitor stream levels and flows (this is particularly important in periods of drought as the fry can become trapped in Assawompset Pond due low water levels in the shoreline and stream areas).

History and Archaeology



Historic Shipbuilding Site at Titicut, Bridgewater
Marijoan Bull

The Taunton River supports rich and diverse historical and archaeological resources spanning more than 10,000 years. Of particular significance are the following types of resources:

Use and Culture by Native People

Archaeologists have long known of the heavy use made of the “Great River” called Tetequet by Native People. The Taunton River and its environs provided a wide range of rich natural resources to support a sizeable prehistoric population. Some of the most important sites are in the Bridgewater and Middleborough area of the Taunton River, where a number of large, multi- component sites containing a high volume of artifacts and a diversity of features have been found. These sites include the Titicut, Fort Hill, Taylor Farm, and Seaver Farm sites. The Assawompset Pond cluster of archeological sites located at Wapanucket in Middleborough is the location of one of the most significant Paleo Indian (12,000-8000 B.P.) sites known in southern New England. This site has an archaic village component including post mold patterns of dwelling houses and ceremonial lodges.



Bifurcated Spear Points from the Early Archaic Period (9000 to 8000 B.P.) found in the Titicut Area of Middleborough *Bill Taylor*

Objectives

1. **Increase Public Awareness** of the historical and archaeological resources of the Taunton River and its tributaries.
2. **Inventory and Document** historical and archaeological resources of the Taunton River and its tributaries.
3. **Seek Protection** for threatened sites and areas of highest archeological sensitivity.
4. **Support Local Planning** efforts to manage development in a way that is compatible with resource identification, preservation and public education objectives.

Along the lower reaches of the Taunton River in later prehistoric times, the Pocassets were the dominant Wampanoag tribe. Their territory included Freetown, Fall River, Somerset, Swansea and Tiverton Rhode Island. Campsites of Native People have been discovered near the Brightman Street Bridge, along the Quequechan River, on the shore of South Watuppa Pond, and at Assonet Neck. The

principal village site was in Somerset, at the village of Shawomet. The camps would have been used for fishing, hunting and shellfish gathering.

Historical evidence of the culture of Native People and use of the river includes records and examples of stone and wooden fish weirs. Historical records indicate that the first settlers were taught about the use of these fishing places by Native People, and both herring and shad were harvested in great quantity from the beginning of colonial settlement. One large fish weir was set up at the site of present day Weir Village in Taunton, and annual harvests were carried out on the Mill River as well. There are historical records of a shad weir on the Matfield River, along with weirs on the Nemasket River. Fish were dried and preserved for the coming year, and were used as fertilizer during spring planting.

Colonial & Early Industrial Development of Tributaries

Tributaries of the Taunton River were ideally suited to colonial and early industrial development, as the streams and rivers provided power sources for mills, forges and other industrial pursuits and the Taunton River itself provided excellent opportunity to transport goods to market. The Mill River in Taunton, The Quequechan River in Fall River and the Forge River

State Programs: Community Preservation Act

The Community Preservation Act allows towns and cities to place a surcharge of up to 3% on the property tax levy for the purposes of historic preservation, affordable housing and open space protection. The state provides a matching fund for money raised through local taxes. While establishment of this fund will cost the average homeowner less than \$50/year, it will bring in significant amounts of state funding to help preserve important town resources including historical and archaeological sites.

in Raynham are only a few examples of this early mill development which pervaded nearly all major Taunton tributaries. Generally, each community set up a grist mill to grind grain and corn, a saw mill to cut lumber, a fulling mill to process cloth, and a blacksmith or iron forge that provided the parts for tools, plows and other household implements. In the 1650's, bog iron was discovered in the local riverbeds. Throughout the 17th, 18th and 19th centuries, iron related industries grew prosperous in the Taunton area including: shovels, nails, tacks, rivets, eyelets, stoves, tools, locomotives, anchors and textile machinery. Other metal related industries began to appear as more metal smiths arrived with 19th century immigration. Copper, brass and bronze works prospered in Taunton. Jewelry began to be manufactured locally; the first silversmith appeared in the 1760's, and Taunton was known for a time as "Silver City".

Local Example: Taunton Weir Village Redevelopment

The Weir Economic Industrial Revitalization (WEIR) Corporation, a local Community Development Corporation (CDC) which started out as a community group, has partnered with the City of Taunton to revitalize the Weir Village area of Taunton. The project will redevelop historic mill buildings on the banks of the Taunton for mixed-use housing and commerce. The project will increase access to the Taunton River and provide open space for the community. The Weir Village is 72% low and moderate income and 15% minority. The building rehabilitation is being handled by a limited partnership formed by the WEIR Corporation, which has secured low-income and historic building tax credits; as well as brownfield cleanup money. Money is also being contributed by the City of Taunton from a pilot grant awarded by the U.S. EPA.

The Fall River Textile Industry

The Quequechan River provided power for mills and with a stream bed of granite, consistent flow and several natural falls, mills lined the banks and were often built right over the stream with the water wheels set in the stream bed. The water rights for the river were owned by descendents of the Borden family, who had gained ownership of the entire stream by 1714. This combination, along with Fall River's location on the Taunton River and its moderate climate, made the river perfect for textile manufacturing.

The first textile mills in the city were created with local capital from families in surrounding towns which had made their fortune in the shipping business and in trade with the West Indies and Southern colonies. Fall River had an advantage in its location because it was below Cape Cod and therefore was

convenient to cloth markets in New York. Also, coal could be delivered by water directly to the mills. Fall River's mild temperatures and high humidity also contributed to the fine quality of cloth produced in the mills. In 1860, Fall River surpassed Lowell as the largest textile producing center in the United States.

Historical Development Patterns: The Village Structure

The towns and cities in the low-lying Taunton River corridor formed small village clusters centered on upland areas surrounded by wetlands. These villages were connected by a network of roads and became centers of farming, commercial and residential activity. Each village had its own name and many are preserved today. Protecting this historic village structure is an important element to future land use planning. Village greens, historic buildings and crossroads often identify these village centers.

Threats to Historical Resources

- There is a lack of knowledge and recognition of historical sites along the river and the tributaries.
- Many archaeological resources are not well identified and could be compromised by large projects, soil removal, disturbance, as well as by small projects and disturbances such as sign posts, benches and trampling.
- Local village centers may lose their specific character without specific zoning changes that allow for mixed uses.
- Loss of such structures as the Berkley-Dighton Bridge will mean loss of historical identity.

Shipbuilding & Commerce



Historic Post Card of Pottersville Wharf on the Taunton River in Somerset

Between 1700 and 1900, more money was invested in shipping than in any other industry on the Taunton. The first four-masted schooner ever built was registered in Taunton; the first five-masted schooner was designed by a Tauntonian in 1898. The first six-masted schooner, built in 1900, was of Taunton registry.

In 1902, the first and only seven-masted schooner to exist was built, with a captain from Taunton. Between 1870 and 1900, over 100 vessels were registered in Taunton. Many of them were large and could not navigate all the way up the river to the piers at Weir Village. They anchored at Somerset or Dighton, and their cargos were loaded onto barges that were towed upriver. Somerset was also a center for shipbuilding. After the Revolutionary War, 97 vessels were registered in Somerset and 48 of them were built there. Shipbuilding reached its peak in the 1850s when 171 ships named Somerset as a home port. So much trade occurred on the river that Dighton had its own Customs House.

Traveling on the Taunton River

In early days of settlement, colonists also used the river for transportation and crossed the river using local ferry services. Henry Brightman and William Slade both ferried passengers between Fall River and Somerset near the current site of the Brightman Street Bridge. In 1828, the first steamboat was used on the river to travel between Newport, Rhode Island and Fall River. The Fall River Line began in 1846 with two steamboats that ran from Fall River to New York City.



Historic Photo of Slades Ferry Bridge with Trolly

The Taunton as a Victorian Resort Destination

The Taunton River was home to major resorts in Dighton and Assonet at the turn of the 19th century. These resorts featured amusement rides, picnic areas, dance pavilions and clambakes. In the later part of that century, the Taunton River hosted canoe houses and yacht clubs in Dighton, Fall River and Taunton.

Action Strategies

Increase Public Awareness of Historical and Archaeological Resources

- Promote local river history and events that celebrate town character.
- Build a local river history curriculum in the schools at all grade levels.
- Develop a “local history week” or other regional celebration of local history that includes the Taunton River.
- Continue using the historic markers of the Taunton Heritage River Program to interpret historical sites along the river.
- Participate in powow’s and support programs that celebrate the culture of Native People.

Inventory and Document Historical and Archaeological Resources

- Identify areas of significant and moderate sensitivity for archaeological artifacts.
- Identify historic resources along the river through local survey efforts and participation in the Heritage Landscape Program (ongoing)

Seek Protection of Areas with High Significance

- Work with land trusts and Historic Commissions to preserve key lands and landscapes.
- Encourage passage of the Community Preservation Act to raise funds for protection of key parcels and historic areas.
- Work with the National Park Service to ensure that historic and scenic bridge features are replicated during repair or redesign and ensure that unnecessary bridge construction is avoided (including the Berkley-Dighton Bridge which was built in 1986 and is the oldest of two remaining swing bridges in the state.)
- Use a demolition delay by-law to allow extra time to determine alternatives for preservation of historic properties, and educate the public about its use and application (this is in use in Middleborough and Somerset).
- Work regionally to protect historic resources through preservation and tourism strategies.

Support Local Planning Efforts

- Ensure that zoning bylaws protect areas of significant and moderate archaeological sensitivity and require no-build areas and due diligence.
- Develop a model by-law for earth removal that includes a depth trigger for archaeology.
- Involve earth removal boards and historical commissions in development decisions.

Local Example: Middleborough Historic Preservation Planning Efforts

Priority sites for protection were identified in the 1989 Middleborough Historic Preservation Plan. In addition, the Historic Commission has prepared an inventory of the town's historic resources, including about 400 properties and numerous archaeological sites. The Commission has also prepared a predictive map showing the sensitivity for archaeological and historical artifacts within town.



Middleborough Town Hall, Middleborough
Greg Guimond

- Create Residential/Business zoning for village centers to match current conditions using mixed commercial/residential uses including second floor residential units and multi-family dwellings (Middleborough Master Plan, 2001).
- Develop local historic districts to add protection to village centers and landscapes (The City of Taunton has 2 historic districts)

State Programs: Self Help

Self Help funding is available through the State's Division of Conservation Services for municipalities that have an approved and up to date Open Space and Recreation Plan. The Self-Help program was established in 1961 to assist municipal conservation commissions acquiring land for natural resource and passive outdoor recreation purposes. Access by the public for passive recreational purposes is required. This program will pay for the purchase of property or for a conservation restriction. Towns apply for funding through a yearly grant round. This program has been used successfully by towns in the corridor including most recently the Town of Bridgewater which used Self Help funds to protect several historical sites including the Titicut Conservation Area on the Taunton River as well as sites on the Town River. The Natural Resources Trust of Bridgewater used a grant from the Taunton Heritage River program to commission management plans for these properties.

<http://www.state.ma.us/envir/dcs/selfhelp/default.htm>

Recreation and Scenery

The Taunton River and its tributaries offer outstanding recreational opportunities, both on the water and along the shoreline where trails and parks allow for enjoyment of the scenic and natural beauty of the river. Access to and awareness of these resources and opportunities is still relatively limited, and is a major focus of the Taunton River Stewardship Plan.



Paddling on the Taunton River, Dighton
Rachel Calabro

Citizens throughout the watershed take pride in this resource. It is where they go for an afternoon of hiking, bird watching or canoeing, to show off their towns to visiting guests, for family picnics and outings, and simply to “get away from it all.” The following are major recreational themes/opportunities characteristic of the Taunton and its major tributaries:



Sailing on the Taunton River, Somerset
Greg Guimond

Boating and Swimming

Above the city of Taunton, the river meanders through a narrow corridor and offers excellent opportunities for paddlers. Paddlers are able to put in and take out boats at several points along the river, although some of these sites present difficult access (narrow paths, steep slopes and parking issues). The most commonly used access points are located next to bridges. Day-trippers

have opportunities to rent canoes and kayaks in several locations. Larger boats are seen on the wider tidal sections of the river including sailboats and all sizes of motor boats. Private yacht clubs are located in several communities, and a public community sailing center is located at Heritage State Park in Fall River where students can learn to sail and race small boats. Beaches such as Pierce's Beach in Somerset offer swimming opportunities, and many people swim along the shores of the lower Taunton River and in the Assonet River estuary. Boat ramps are located in Dighton at Pleasant Street and in Somerset at Village Waterfront Park. This park also offers handicapped accessibility.

Fishing & Shellfishing

Objectives

1. **Preserve the Scenic Beauty** of the Taunton River and its tributaries
2. **Ensure Stream Flow and Water Quality** sufficient to support fishing, swimming, boating and related recreational opportunities (see Stream Flow and Water Quality Chapter for details and action strategies)
3. **Protect Connected Open Spaces** in the Taunton River corridor as an opportunity for diverse recreational activities
4. **Provide Quality Access** to the Taunton River and related tributary and corridor resources
5. **Increase Public Awareness** and appreciation of the Taunton and tributaries through access, field based education, and interpretation programs.

On the lower river, sportfishing is a popular activity. Boats can be launched at several boat ramps and fishing is also popular from many of the wharves along the river as well as under the Brightman Street Bridge. On the lower river, the primary sportfish are striped bass and bluefish, while in the middle and upper river largemouth bass is popular. Winter flounder was once one of the most popular species for anglers, but taking this fish from the river is now prohibited, due to its extremely low population level.

Experiencing Natural Heritage and Biological Diversity

As paddlers travel down the Taunton River, they are likely to see large areas of intact flood plain forest, an unusual habitat type in Massachusetts. Otters, great blue herons, osprey, bald eagles, songbirds and an occasional great horned owl can be spotted along the river, signs that the water quality is improving and the vegetative habitat is healthy and intact. Harbor seals spend much of the winter on the river, and are spotted along many local beaches and rocky shores.

Scenic Beauty

The riverbanks of the upper Taunton River have remained naturally vegetated with a wide buffer in many places.

Through a coordinated effort by the Commonwealth, local towns, private landowners and local and regional land trusts, the riverfront and a dense buffer of vegetation (up to



Historic Berkley-Dighton Bridge, Berkely/Dighton
Joan Kimball

Threats to Recreational Resources

- Water quality and stream flow are threatened by increasing development in the watershed, water withdrawals, and a variety of pollution sources.
- Polluted sediments and depletion of fisheries have led to closing of fishing opportunities (winter flounder) and shellfish beds.
- Lack of quality access sites to the river and tributaries reduces the availability of river resources for public enjoyment.
- Lack of public awareness of the special values, sites and opportunities associated with the river threatens those resources as development and planning moves forward.
- Lack of funding for open space and special site protection may result in the loss of key scenic vistas, cultural resource sites, and dispersed recreational opportunities in the corridor.

2,000 ft. deep in areas) have been preserved. Paddlers enjoy seeing several working farms along the river that have been protected forever through the Commonwealth's Agricultural Preservation Restriction program. The wide tidal estuary provides beautiful scenic vistas over saltmarsh and open water and can be seen from

trails, parks, local roads and scenic bridges such as the beautiful Berkley-Dighton Bridge, the oldest swing bridge in the state.

Cultural & Recreational Sites

Signs and kiosks along the river and tributaries invite travelers to stop at key points to enjoy the river's beauty and learn about the region's rich history. Several of these signs were designed for the Taunton Heritage River Program, which works to provide interpretation of the many historic, cultural and ecological features in the watershed. Several recreational sites have been preserved along the tributaries, the mainstem river and the in the estuary. These town and state owned conservation and recreation areas provide riverfront trails, camping, recreational opportunities and scenic views. Some of the areas include Tuckerwood Conservation Area, Wyman Meadow Conservation Area and Camp Titicut in Bridgewater, Taunton River Wildlife Management Area and Fort Hill in Middleborough, the Taunton Conservation Commission's Boyden Wildlife Refuge, Dighton Rock State Park in Berkley, Village Waterfront Park and Pierce's Beach in Somerset, and Heritage State Park in Fall River which hosts the Battleship Massachusetts and is a major tourist draw.

Action Strategies

Preserve Scenic Beauty

- Maintain the natural beauty of river views through enforcement of the Wetlands Protection Act's riverfront protection standards and educational efforts.
- Strengthen Open Space Residential bylaws to support protection of open field and vistas through preservation of trees, stone walls and fields. (Currently Bridgewater, Dighton, Fall River, Middleborough, Raynham, Somerset and Taunton have open space or cluster provisions, but these could be strengthened).
- On the lower river, work with commercial and industrial users to develop public access and scenic vista areas on their properties (for example J&J Marina was required to offer a scenic viewing area through Chapter 91).
- Use the Heritage Landscape Inventory to identify and protect critical viewsheds, both from the river and adjacent roads.

-
- Designate Scenic Roads and Byways along the river (Summer Street where it crosses the Taunton River at Wooded Bridge along the Bridgewater/Middleborough line is a designated Scenic Road).

Protect Connected Open Spaces

- Encourage appropriate public access to existing and future protected open space as a means of continuing and improving public recreational opportunities.
- Acquire easements, conservation restrictions, or transfers of land that will provide opportunities for the public to walk the shoreline, and that will preserve the intact ecological qualities of the corridor.

Provide Quality Access

- Develop/improve canoe and car top launches where appropriate and provide safe launching areas with parking and controls against erosion and runoff to the river (see Appendix C for an inventory and evaluation of potential access sites on the mainstem

State Programs: Taunton Heritage River Program

The Taunton River was designated as the first Massachusetts Heritage River for its prominent role in the history, culture, recreation and economy of its corridor communities. A recreational map of the Taunton River corridor was created by the Taunton Heritage River Program to highlight parks, boat launch areas, museums and other recreational opportunities. A grants program funded informational kiosks throughout the watershed, as well as a park plan for the town of Bridgewater's public parks.

Taunton completed for the Wild and Scenic Study by the Public Access Board).

- Include the lower river in the Public Access Board inventory and assessment of potential access sites.
- Utilize the local, state and federal coalition of the Taunton River Stewardship Council to ensure that access and scenic issues are incorporated into bridge and roadway projects in the corridor.
- Develop suitable areas for fishing and boating access that are wheel chair accessible (such as Waterfront Park in Somerset). Not all sites will be suitable for this sort of access.

- Provide multi-use trails for hiking, horseback riding and skiing, including use of the abandoned Conrail Line (see the Broad Cove example below).
- Encourage municipalities to undertake a high profile land protection or recreation projects such as a town park, bike path or trail to generate excitement about river protection and recreation (for example, the Taunton Heritage River Program funded a Parks Plan for the Town of Bridgewater).

Increase Public Awareness

- Partner with local groups such as Green Futures in Fall River and Save the Bay in Rhode Island to offer tour boat rides of the Taunton River that include information on history, archeology and ecology.
- Work with Fall River Heritage State Park to offer interpretive programs about the Taunton River.



Taunton River Heritage Kiosks at Weir Village, Taunton *Tim Lockett*

State Programs: Dighton Rock State Park

Dighton Rock is a large boulder that has mysterious markings engraved on its surface. The rock was raised out of the river and now has a building over it, housing Dighton Rock Museum. The engravings are most likely from several time periods and have not been deciphered, remaining a mystery. This park offers picnic areas along the river as well as hiking trails. There is also a boat launch at this park, which is being added to the Massachusetts Public Access Board program. Access to the rock and to the park are limited, and more can be done to publicize this recreational opportunity.

- Promote public displays of local river history within permanent spaces such as museums and historical society libraries.
- Develop a funding structure that will allow the Natural History Center at Bristol County Agricultural High School to again offer interpretive programs to the public and to increase use of the museum as an interpretive center.

-
- Work with Bristol County Agricultural School to develop programs that integrate tourism and hospitality with agriculture, river recreation and other rural activities through continued use of their Natural History Center.



Dighton Rock State Park, Berkley
Greg Guimond

- Work with the Department of Conservation and Recreation and the Friends of Dighton Rock to provide better access to Dighton Rock State Park and museum (see inset above).
- Support and continue the Taunton Heritage River Program (see inset above).
- Develop kiosks at town parks that provide education material and recreation information about the Taunton River (the Wild & Scenic Committee supported creation of a kiosk at Johnson's Pond in Raynham which was built by an Eagle Scout and Boy Scout Troup – a direct result of the Forge River Shoreline Stream Team).

Local Projects: Broad Cove Trail

The Somerset Conservation Agent has been working with the Massachusetts Greenways and Trails Planning Program and the Somerset Highway Department to develop a trail link from the old Somerset-Swansea on-road bikeway system to a proposed walkway at Broad Cove. The proposed walkway design was funded through a DCR Greenways and Trails grant. Plans call for a parking lot off of the local road (that is part of the on-road bike system) and a boardwalk extending for one-half mile around Broad Cove. When complete, this walkway will provide a point of destination for bicyclists and pedestrians throughout the region. Somerset is seeking Transportation Enhancement funds in order to complete the project.



Rail Line Right of Way at Broad Cove,
Dighton/Somerset Line *Rachel Calabro*

VI. MANAGEMENT OF WATER QUALITY, QUANTITY AND INSTREAM FLOW

Water quality and quantity are integral to maintaining the outstanding values of the Taunton Wild & Scenic River. Without good water quality and sufficient stream flow, many of our restoration goals for fisheries, wildlife and habitats will be unattainable. For example, thermal pollution, low dissolved oxygen and low flow are some of the current threats to fisheries restoration. There are many signs of improvement as well, including the return of harbor seals, bald eagles and osprey, predators that signal the renewed health of our waterways.



Stream gage on Nemasket River,
Middleborough RIFLS Program

The overall health of the Taunton River has greatly improved in the past thirty years. Once considered toxic as a result of its use and abuse as an industrial and commercial river, water quality in the Taunton River has improved with the passage of strict environmental regulations and the disappearance from its banks of many of the sources of pollution. The legacy of these past polluters lies buried in the sediments from the upper stretches of the river all the way down to Mount Hope Bay. The tangible, physical signs of improvement, such as the presence of predators and healthier macroinvertebrate communities, all point towards steady recovery of the river. These signs of improvement should not, however, be taken as an excuse to become complacent in regards to the water quality, quantity or need for stewardship in the Taunton River corridor.

High levels of nutrients and pathogens, excessive plant growth and low dissolved oxygen have placed several sections of the Taunton River and its tributaries on the state list of impaired waters under section 303(d) of the Clean Water Act. The Taunton River is designated as a Class B warm water fishery by the Commonwealth of Massachusetts, which means that it should meet the state's dissolved oxygen, temperature, pH, and pathogen criteria for primary and secondary contact recreation (this is often called a "fishable and swimmable")

standard). In reality, portions of the river and many of its tributaries often do not meet their designated uses, especially after storm events.

Objectives

- 1. Increase Public Awareness** of the critical importance of adequate stream flow and water quality to the continued enjoyment of the Taunton River as an outstanding resource of regional, state and national significance.
- 2. Ensure Sufficient Water Quality and Stream Flow** to protect and enhance the long-term viability of the outstanding resources of the Taunton River and Narragansett Bay.
- 3. Support Local Planning** in the ten corridor communities to avoid point and non-point pollution problems and retain natural stream flow.

The majority of the nutrient and pathogen load to the Taunton River comes from sewage treatment plant discharges, which degrade water quality and cause closure of shellfish beds in the lower river. Currently, the largest sewage treatment plant is the Brockton Waste Water Treatment Plant, which discharges an average of 21 million gallons per day of treated wastewater to the Salisbury Plain River, a tributary to the Matfield River. This discharge constitutes 8,400% of the ten year low flow in the Salisbury Plain River and 15% of the average

annual flow downstream in the Taunton River. Brockton's wastewater discharge is thus a large part of the reason that both the Salisbury Plain and Matfield Rivers are on the 303(d) list for pathogens.

Although Massachusetts has no water quality criteria for sediments, nutrients, or stream flow, all of these parameters play vital roles in the health of the river. Non-point source runoff is a major source of sediment, nutrients and pathogens, especially from the urbanized areas of Brockton, Taunton and Fall River. Tributary systems such as the Winnetuxet River, Nemasket River and Forge River are also threatened by non-point source pollution from increased runoff. Stormwater runoff from impervious surfaces in these subwatersheds also contributes to high flows during storm events and reduces groundwater recharge. Because groundwater sustains stream flow between storm events, reductions in groundwater recharge can cause declines in stream flow, particularly during late summer when flows are naturally lowest and most vulnerable to depletion. Species that have evolved with reliance on natural stream flows may not be able to feed, reproduce, or even survive some unnaturally low flows.

Threats to Water Quality, Quantity and Instream Flow

- Additional demand on water supply caused by increasing development and human population could cause flow alteration in the Taunton River as well as the tributary systems, altering habitat.
- There is a lack of funding for stormwater improvements and maintenance of existing systems.
- Several communities have reduced their municipal staff such as planners and conservation agents, leaving them with outdated or inadequate zoning.
- Extension of sewers, while protecting against water quality degradation may invite added development to sensitive areas.
- New percolation rates or other changes to Title 5 septic system rules could open up new previously undevelopable land to development.
- Discharges from municipal wastewater treatment plants create water quality problems in the Taunton River.
- Salting and sanding of roads is adding additional pollutants and sedimentation to the river.
- The BFI landfill in Fall River is unlined in parts and is leaching contaminants to Mothers Brook, a tributary to the Taunton River.
- Contaminated sediments remain in many parts of the river, particularly in the estuary.
- Thermal pollution from heated power plant discharges has degraded water quality in the estuary.

Monthly water quality monitoring conducted by the Taunton River Watershed Alliance (TRWA) since 1991 has shown that both nitrogen and phosphorus levels in the Taunton River and its tributaries have been quite high during the summer months. A large percentage of this pollution has been shown to come from the Matfield River. Water quality monitoring conducted by the Bridgewater State College Watershed Access Lab during the summer of 2004 confirms that the Town, Matfield and Nemasket Rivers all had excessive nutrient loading due to wastewater treatment plant discharges.

In the Taunton River system, phosphorus is the limiting nutrient for plant growth in fresh water, while nitrogen is the limiting factor in the estuary. Excessive plant growth caused by elevated nutrient levels lowers the dissolved oxygen content due to plant decay and respiration and limits the aquatic life that can survive in the river.

Monitoring by the watershed access lab has also detected several occurrences of low dissolved

oxygen (DO) levels where DO dropped below the Massachusetts Class B warm water fishery minimum of 5.0 mg/L. Most of these low DO events occurred on four different tributaries of the upper river during low flows (TRWA monitoring report, 1999-2000). Repeated or prolonged periods of depressed DO concentrations can stress aquatic life and may lead to changes in biological

community structure as species intolerant of pollution and stress migrate away or die.

Other river reaches on the state's impaired list include the following, although many reaches have not yet been assessed:

- The Taunton River from the Route 24 bridge in Taunton to the Berkley Bridge (pathogens);
- The Taunton River below the Berkley Bridge to mouth of the river (pathogens and organic enrichment/low dissolved oxygen)
- The Assonet River from the Route 24 Bridge in Freetown to confluence with the Taunton River (pathogens).

Rivers with unnatural stream flow regimes are not necessarily listed on the state's list of impaired waters, unless low stream flows result in elevated temperatures, lowered dissolved oxygen levels, or a concentration of pathogens. The state's Water Resources Commission maintains a separate list of "High Stress Basins", which includes the Segreganset River in Dighton (a United States Geological Survey stream gauge has provided data for this location); high stress basins have unusually low stream flow per square mile of watershed compared to other rivers in the state. Unfortunately, many rivers remain unassessed due to a lack of data.

The Massachusetts Riverways Program maintains a list of observations of low stream flow episodes called the Low Flow Inventory (including several tributaries and headwaters of the Taunton River. In some cases, low flows are caused by water supply withdrawals for communities outside the watershed. For instance, Stump Brook in Halifax suffers from altered stream flows because water is withdrawn from its source, Monponsett Pond, and transferred to Silver Lake in Kingston, which serves as the water supply for the City of Brockton. In other cases, the water is used within the watershed, but the point of withdrawal is directly connected to the river. This is the case on the Canoe River, where severely reduced stream flow resulted in extremely warm water and freshwater mussel kills near the Norton Town well downstream of the Newlands Street Bridge in 1999. One hundred yards downstream, the water began to flow again, indicating that the problem was limited to the area near the well. Observers noted dead mussels and many mussel tracks indicating that the mussels were stressed by the low flow and high temperature conditions, although the stream appeared to have good habitat. This area has in the past harbored several rare freshwater mussel species including triangle floater (*Alasmidonta undulata*), Eastern pondmussel (*Ligumia nasuta*), and the Federally endangered dwarf wedgemussel (*Alasmidonta heterodon*).

Other stream flow problems have not yet been investigated and may be caused by a combination of water withdrawals, lack of groundwater recharge due to land development, and/or the transfer of water or wastewater out of the watershed:

- Fall Brook, Taunton – dry in 2002;
- Muddy Cove Brook, Taunton – dry in 2002;
- Sally Richmond Brook in Dighton - dry in 2002;
- Nemasket River headwaters in Middleborough - dry in 1997.

Additionally, a study by the United States Geological Survey (Ries 1999) suggested that the following streams be investigated for potential stream flow alterations because their flow regimes did not correlate well with other nearby streams:

- Trout Brook at Brockton;
- Poor Meadow Brook at South Hanson;
- Robbins Pond outlet near East Bridgewater;
- Queset Brook at North Easton.

Action Strategies

Increase Public Awareness

- Use municipal hazardous waste collection days to educate residents about the importance of proper disposal (Raynham Open Space Plan).
- Educate residents about the impact to water quality from the use of pesticides and fertilizers through partnerships with municipalities and watershed groups.
- Educate the public about routine septic system maintenance and/or require proof of maintenance records through partnerships with municipalities and watershed groups (Taunton Master Plan).
- Increase awareness about the importance of stream side buffers, ecological landscaping and water conservation.
- Promote public involvement and comment in permitting processes throughout the watershed.
- Support Stream Teams in their education and outreach efforts and in implementing projects from their action plans.

Ensure Sufficient Water Quality and Stream Flow

- Retain the natural flow regime as much as possible by protecting seasonal fluctuations in flow in the Taunton River, its tributaries and headwater streams.
- Use Water Management Act permits and other opportunities to restore stream flow to areas that have low flow problems.
- Support nitrogen and phosphorus limits in the water quality standards for Massachusetts.
- Encourage fixing inflow and infiltration before looking for additional water supplies.
- Any construction activities along the river should comply with 401 water quality standards and should maintain consistency with Massachusetts Coastal Zone Management policies.
- Ensure that all major NPDES permits are current and in compliance and that all minor permits are updated.

Support Local Planning : Promote a comprehensive, watershed based approach to management of growth, water supply, and wastewater treatment/disposal

- Promote municipal adoption of stormwater and erosion control regulations that include requirements for lot coverage, minimum percent open space and maximum percent impervious surface and strengthen site plan review to ensure that all water protection regulations are met (Raynham Open Space Plan).
- Limit impervious surfaces wherever possible through the use of natural drainage, reduction of building footprints and parking lot area, use of grass swales and parking lot islands, use of porous pavement and protection of pre-development vegetation (Raynham Open Space Plan).
- Promote bylaws that incorporate low impact development and require new development and redevelopment to limit stormwater flow to current or predevelopment levels.
- Require an impact evaluation for any extension of new infrastructure to address the impacts to potential development. Define growth boundaries through limitations on infrastructure development including water and sewer connection moratoria (Middleborough Master Plan, 2001).

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- Consider adoption of a Resource Protection Overlay Zone which would include wetlands and other related overlapping resources such as river frontage, ponds frontage, habitat areas, vernal pools and ACECs. Development near or within these areas would be subject to site plan review (Raynham Open Space Plan).
 - Explore alternatives to sodium chloride for road salting, use salt more judiciously or designate no salting areas near sensitive waterways.
 - Encourage passage of bylaws that strengthen Title 5 septic regulations (Halifax and Dighton have retained their percolation rates at 30 minutes per inch).

VII. Wild and Scenic River Designation

This chapter discusses the proposed Wild and Scenic River designation and its relationship to this Taunton River Stewardship Plan and Taunton River Stewardship Council.



“Partnership” Wild and Scenic Rivers

The National Park Service currently manages three congressionally designated “Partnership” Wild and Scenic Rivers in New England. These are the Farmington River in CT, the Sudbury, Assabet & Concord Rivers in MA, and the Lamprey River in NH. The designation proposal for the Taunton River is modeled on these precedents and the local-state-federal partnerships upon which they are based.

The National Park Service and US Congress recognize these as a distinct application of the Wild and Scenic Rivers Act, typified by the following characteristics:

- Little or no federal land ownership, and no federal acquisition associated with the Wild and Scenic River designation.
- A locally supported Management Plan is developed during the study process (in this case, the Taunton River Stewardship Plan) and is referenced in the designating legislation as “the Plan” by which the river will be managed.
- Implementation of the Plan after designation is overseen by a locally-based advisory committee (the proposed Taunton River Stewardship Council) which advocates for the river and its Outstanding Values.
- They are considered “affiliated areas” of the National Park System, rather than “Units” of the National Park System due to the lack of federal land owned and managed by the NPS.

More information about “Partnership Wild and Scenic Rivers” can be found on the following web site (www.nps.gov/pwsr), or by contacting the National Park Service.

From the Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (PL 90-542) lays out the basic tenets and purposes which are fundamental to all designated rivers, whether managed through a Partnership model, as Units of the Park System, or by other state or federal agencies.

Purposes

“It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.....”

Section 10

Section 10(a) states that *“each component of the national wild & scenic rivers system shall be administered in such a manner as to protect and enhance the values which caused it to be included in the said system...Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.”*

Section 7

Section 7 of the Wild & Scenic Rivers Act specifies that *“no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration.”* It also prohibits new hydroelectric development on designated Wild & Scenic River areas.

Effects of a Wild and Scenic River Designation

The collective effects of the legislative mandates of the Wild and Scenic Rivers Act are to establish:

- A general federal policy to protect and enhance the values for which a river was designated.
- A specific mandate that no federally assisted “water resource development project” shall be allowed that would have a “direct and adverse” impact upon those values. The National Park Service is charged with ensuring such federal consistency.

National Park Service Role

The National Park Service will represent the Secretary of the Interior in fulfilling the legislative mandates of the Wild and Scenic Rivers Act. The NPS will review any proposed, federally assisted water resource development project for consistency in protecting and enhancing the values for which the Taunton River is designated as a component of the Wild and Scenic Rivers System.

The National Park Service accomplishes this review through existing regulatory schemes, such as federal permitting under the Clean Water Act by the US Army Corps of Engineers or US Environmental Protection Agency, and through the required project review processes of the NEPA, under which federal agencies must conduct environmental impact reviews (Environmental Assessments; Environmental Impact Statements) of proposed federal actions.

There are no new permits associated with the designation.

What Wild and Scenic Designation will Not Do

Designation itself would only effect federally licensed or assisted water resource projects that would impact the river's outstanding values. Other types of development would continue to be regulated by local and state land use laws.

Designation will not rezone private land or change property rights. Land use controls on private land are solely a matter of state and local jurisdiction. Any changes to local or state zoning regulations stimulated by the designation would

only occur through existing procedures at the town or state levels. Wild & Scenic designation also does not give the federal government any authority to infringe on an individual's privacy or property rights. Landowners are under no obligation to provide access to their property, even if they have decided to grant a conservation easement.

Role of the Taunton River Stewardship Plan

The Taunton River Stewardship Plan would serve as the Comprehensive Management Plan required of all congressionally designated Wild and Scenic Rivers. When evaluating proposed water resource development projects, the National Park Service would specifically consider the goals, objectives and standards contained in the Plan, and will base its determinations on the degree to which proposed projects are consistent with that Plan and its stated purpose of preserving and enhancing the values for which the Taunton is designated.

The Plan will also establish the basis for federal technical and financial assistance to the Taunton River under the Wild and Scenic Rivers Act.

Role of the Taunton River Stewardship Council

The Taunton River Stewardship Council will serve as the principal partner of the National Park Service in implementing and overseeing the Wild and Scenic River designation. The National Park Service will implement its responsibilities regarding Wild and Scenic River management in consultation and coordination with the Council.

All expenditures of any federal appropriations resulting from designation will be coordinated and reviewed with the Council. The Council will assist in establishing priorities and implementation strategies based upon the Plan and upon consideration of opportunities to leverage federal assistance through partnerships with communities, member institutions of the Council, and other partners.

In implementing its review of proposed, federally assisted water resource development projects, the National Park Service will coordinate with the Council and consider the input of the Council in making its determinations. The National Park Service may also seek the input of other agencies, entities and

individuals as appropriate, and must ultimately make an independent professional judgment.

Technical and Financial Support for Implementing the Designation/Plan

The ability of the National Park Service to provide technical and financial assistance toward implementation of the Taunton River Stewardship Plan is dependant upon congressional appropriations. In Fiscal Year 2004, the congressional appropriation for management of Partnership Wild and Scenic Rivers was \$900,000, divided among 7 rivers. These funds are utilized by the National Park Service to fund staff support, technical assistance and project “seed” funds to assist in Plan implementation.

Cooperative Agreements

The Wild and Scenic Rivers Act authorizes the National Park Service to enter into Cooperative Agreements with state and local governments and non-governmental entities in furtherance of river protection activities. This has proven to be a most useful tool to accomplish cooperative planning, research and conservation on other Partnership W&SR’s, and it is anticipated that Cooperative Agreements will be utilized on the Taunton if designated.

Cooperative Agreements allow the National Park Service to transfer federal funds to local partners to accomplish specified goals and projects – often by matching non-federal dollars and/or in-kind project contributions.

The most likely partners for Cooperative Agreements on the Taunton would be members of the Taunton River Stewardship Council. Prior to entering into any such agreement with a member of the Council, the National Park Service will coordinate and seek the advice and support of the Council as a whole.

VIII. TAUNTON RIVER SUBWATERSHEDS: SURVEYS OF MAJOR TRIBUTARIES

Overview

The tributaries to the Taunton River provided rich natural resources for Native People and Colonial Settlers, and still provide rich agricultural soils, rare and pristine habitats and wonderful recreational opportunities for today. Native People set up fish weirs on tributary systems, farmed and managed the land for hunting and gathering. Large settlements were located at the confluence of the tributaries and the Taunton River, which was used as a transportation corridor between coastal and inland villages.

The Taunton River tributaries also provided an ideal location for colonial and industrial development because they provided a power source for mills, and the surrounding wetlands provided resources such as clay for bricks and bog iron for tools. Shortly after European colonization, mills were set up along the tributaries with each community building a grist mill to grind grain and corn, a saw mill to cut lumber, a fulling mill to process cloth, and a blacksmith or iron forge to provide the parts for tools, plows and other household implements. The Taunton River was used as a transportation corridor, moving goods from the tributaries to ports such as Taunton and Fall River. Taunton, Dighton, Berkley, Somerset, Freetown and Fall River all became important shipping areas, with merchants working to bring goods to market.

As a result of this early industrial use, the tributary systems show signs of habitat impairment from dams and shoreline development, but they also provide rich historical resources that preserve the early days of American industry. The tributaries contain many rare and pristine habitats, rare species and cold-water fisheries. The state's largest anadromous fish run is still maintained on the Nemasket River. Recreational opportunities are abundant and many properties have been protected by local municipalities, lands trusts and state agencies.

Shoreline Surveys

The tributary systems of the Taunton River share many of the same outstanding characteristics that make the mainstem of the river suitable for designation as a Wild & Scenic River. Eight of these major tributaries (the Matfield River, Town River, Winnetuxet River, Nemasket River, Forge River, Three Mile River, Segreganset River and Assonet River) were studied through the formation of local volunteer groups (Stream Teams) that conducted visual Shoreline Surveys

of each river. The tributaries were surveyed using methods and protocols from the Massachusetts Riverways Adopt-A-Stream Program in the Department of Fish and Game, which was closely involved in the formation, training and facilitation of each tributary team. Adopt-A-Stream Program staff worked with three Wild & Scenic River Shoreline Survey coordinators who established Stream Teams to conduct visual assessments of the rivers and identify outstanding characteristics in the tributary river communities.

The tributary Shoreline Surveys involved many people from each community including conservation commission members, planners, town administrators, local advocates, local land trust members, river abutters, sportsmen, eagle scouts, college students and professors, and concerned citizens. It was also the intent of the Shoreline Survey process to bring these different groups together around a common issue – the rivers and their protection. We are focused on empowering community members so that they will play a larger role in shaping solutions to the identified threats and will raise the level of awareness about these rivers in their local community.

The management of the tributary systems will have a great effect on protection of the mainstem Taunton River, and many of the threats are similar. While sections V and VI of this document describe the comprehensive strategies to protect wild and scenic values throughout the watershed, the strategies that follow in this section relate to site-specific actions needed on individual tributaries in order to protect or restore ecological functions, aesthetic values, and river access for education and recreation.

New development, larger residential populations and road runoff are increasing the nutrient and bacteria levels in all the tributary systems. As a result, increasing weed growth is threatening biodiversity and fisheries habitat. Increased water use is depleting seasonal flows necessary for ecosystem health. The use of all terrain vehicles (ATVs) is threatening bank habitat and causing disturbance to forested areas on both public and private land.

There is also a general lack of awareness in the tributary communities about the outstanding resource values and the ability to use the river for recreation. There is also a lack of safe access areas for passive recreational uses like fishing, wildlife viewing, etc. There are few canoe launch areas that provide parking and safe access to the rivers, as well as few that provide handicapped access. A summary of each tributary survey is included below. Full Shoreline Survey reports are available from the Southeast Regional Planning and Economic Development District.

Matfield River, East Bridgewater and West Bridgewater:



Matfield River at High St, Bridgewater
Rachel Calabro

The Matfield River begins with the Salisbury Plain River, and forms the headwaters of the Taunton River along with the Satucket and Town Rivers. It is fairly wide and flat through its lower stretches, and is heavily wooded, with little development along its banks. The Matfield River suffers water quality impacts from the Brockton Wastewater Treatment Facility discharge as well as from large volumes of runoff from the City of Brockton. A large percentage of impervious area in the upper watershed, coupled with stormwater runoff and historic manipulation of the stream channel have caused the Matfield River to display undercut and erosional banks for much of its length. Although the stream banks are wooded, exposed roots, fallen trees and heavy sediment loads were identified along the river during the Shoreline Survey.

Monthly water quality monitoring conducted by the Taunton River Watershed Alliance (TRWA) since 1991 and by the Bridgewater State College Watershed Access lab has shown that both nitrogen and phosphorus levels in the Taunton River and its tributaries have been quite high during the summer months. Overnight sampling of the Matfield River at High Street, the Town River at Hayward Street and the Taunton River at Titicut Street in 1999 confirmed that 78-87% of soluble reactive phosphorus comes from the Matfield River (TRWA monitoring report, 1999-2000). Similarly, the study found that the Matfield River also contributes 88-92% of the nitrate nitrogen entering the upper Taunton River. In the Taunton River system, phosphorus is the limiting nutrient for plant growth in fresh water, while nitrogen is the limiting factor in the estuary. Excessive plant growth caused by elevated nutrient levels lowers the dissolved oxygen content due to plant decay and respiration and limits the aquatic life that can survive in the river.

Biological sampling conducted in 2001 by the Department of Environmental Protection found that the Salisbury Plain River below the Brockton Wastewater Treatment Plant is only 33-38% comparable in species diversity to a relatively unimpacted reference station in the watershed, even though this river reach provides very high quality habitat. Pollution sensitive organisms were virtually absent from this section, suggesting an oxygen stressed community. This indicates that water quality limits the biological potential of this stream section (John Fiorentino, Department of Environmental Protection. Technical Memorandum TM-62-4. Taunton River Watershed 2001 Biological Assessment).

The Matfield River and its tributaries once supported a diverse population of both anadromous and freshwater fish. Alewives once spawned in Robbins Pond on the Satucket River, and both shad and blueback herring found good habitat in the pool and riffle runs on the Matfield River. Beaver Brook and the Salisbury Plain River were once home to native brook trout. Trout Brook, a tributary to the Salisbury Plain still maintains cold water suitable for trout. Removal of a breached dam on the Satucket River and improvement of water quality in the Matfield River would provide good restoration potential for both anadromous and freshwater species in this river.

Some issues identified in the Shoreline Survey include:

- Bank erosion has caused a significant amount of fallen trees and woody debris in the stream, making paddling difficult.
- Sewage odors and chlorine odors have been observed as a result of discharges from Brockton Wastewater Treatment Facility.
- The open space plans for East and West Bridgewater need to be updated for the towns to qualify for Self Help funds.
- Town officials need to be educated about the need to preserve land and importance of riverfront land.

Management Recommendations:

- Evaluate potential public access sites for canoe launching.
- Develop alternatives for canoe passage at the dam at Paper Mill Village on Plymouth St./Rt 104 in Bridgewater to connect the tributaries to the main stem of the Taunton River.

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- Recruit members for the open space committees in both East and West Bridgewater and work with them to evaluate riverfront land and parcel ownership.
 - Update the open space plans for both East and West Bridgewater.
 - Educate town officials about the importance of riverfront land and the need to protect it.
 - Protect historic buildings and artifacts at the Iron Works and create more interpretive signage for the park.
 - Submit comments from the Stream Team to the EPA on the NPDES permit for the Brockton wastewater plant and advocate for better management and treatment.
 - Continue to monitor water quality and flow in the Matfield River.

Town River, West Bridgewater and Bridgewater:

The headwaters of the Town River, like those of the Forge River, are located in the Hockomock Swamp Area of Critical Environmental Concern (ACEC). This ACEC is comprised of the largest vegetated freshwater wetland system in the Commonwealth. It is the location of at least thirteen rare and endangered species, with archeological sites that are known to span a period of 9,000 years. The swamp is a vast area of wetlands and floodplains that are connected with an underground system of medium and high-yield aquifers. The ACEC spans 16,950 acres across six communities, with about 5,000 acres owned by the Division of Fisheries and Wildlife.



Town River at Hayward St, Bridgewater
Rachel Calabro

Lake Nippenicket, the headwaters of the Town River represents a large potential spawning habitat for alewife. A joint Town River fishery committee has been set up with West Bridgewater and Bridgewater for the protection of herring and other spawning fish. Fish ladders operate at two dams along the Town River, at Iron Works Park and at War Memorial Park.

Several riverfront parks have been protected by the Towns of West Bridgewater and Bridgewater along the Town River corridor. Management plans were written for these parks with funding from the Taunton Heritage River Program. The corridor is also part of the Bay Circuit Trail System and connects to the Wampanoag Commemorative Canoe Trail.

War Memorial Park:

War Memorial Park is the site of the first inland settlement of Old Bridgewater. The first grist mill was built in 1662, and several other mills followed including a blacksmith shop, saw mill, carding mill and fulling mill. This park has over 350 years of history, including Pulpit Rock where Rev. James Keith preached the first sermon to the parishioners of the First Church of Bridgewater in 1663; a 1774 canal, double clapper bridge and triple arch bridge over the Town River; and a canal built in 1827 with the remaining foundations of massive foundries operated by the Ames Shovel Company and the Ames dam at the original diversion of the Town River. The Ames Shovel Company was the first producer of shovels in quantity in the U.S., and they were used across the country. The area was redesigned as a park under the Works Progress Administration by local resident Eveline Johnson during the Depression.

Iron Works Park:

The Town of Bridgewater acquired this site as part of a larger gift of land when Bridgewater Iron Works was closed. It includes 1,350 feet of frontage on the Town River. The site contains the remains of one of the old iron works buildings and a pond that was part of the canal system. A dam at this location requires a canoe portage through the park. There is a fish ladder at the dam for fish passage.

In 1694, the first mill was built on this site to provide a saw and grist mill catering to local farmers. Because the surrounding areas are rich in bog iron, an iron works was soon developed during the early 1700's. Bog iron ore contains about 30%-50% useable iron, created by the interaction of decaying vegetation above iron rich clays with slowly moving water. By 1875 the mill complex ranked as the largest iron company in New England, covering over 70 acres, including worker housing and other support buildings. The Iron Works was chosen for the construction of iron fittings for the USS Monitor and the USS Constitution during the Civil War. It also produced large rendering pots for whale oil for the whaling industry. The plant went through several owners, fell into disrepair and finally closed in 1988. The area is on the National Register of

Historic Places, and the town has worked hard to preserve the area and remove any hazards from the site.

Stiles and Hart Conservation Area:

This 75-acre site was an agricultural fairground with a grand exhibition hall from c1820-1875. From 1895 until the Hurricane of 1938, bricks were made at this location. Clay mining continued at the site until after World War II. Many ponds and piles of defective bricks are still present on the property. The area provides wildlife habitat with vernal pools, ponds and a riparian corridor along the Town River.

Tuckerwood Conservation Area:

Tuckerwood Conservation Area is a wooded wetland area that has over 2000 feet of river frontage, many vernal pools and other wildlife habitat. It is surrounded by residential development, and was historically used for farming. Some trails exist on the property and it is used by walkers and all-terrain vehicles.

References:

Interpreting War Memorial Park, Walter Cudnohufsky Associates, Joan S. Rockwell Associates, December, 2002
Iron Works Park Management Plan and Handbook, Mass Audubon Ecological Extension Service, April 2003
Stiles & Hart Conservation Area Management Plan and Handbook, Natures Refuge Landscape Design, August 2002
Tuckerwood Conservation Area Management Plan and Handbook, Natures Refuge Landscape Design, October, 2002

Management Recommendations:

- Create educational material to educate the public about the river and develop a brochure that connects the municipal and state owned properties to the Bay Circuit Trail System and the Wampanoag Commemorative Canoe Trail.
- Develop educational signage for launching areas and parklands interpreting the history and ecology of the river.
- Improve existing canoe access sites to limit erosion and create new access where appropriate.

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- Conduct cleanups at bridge areas and campsites to collect trash and debris.
 - Encourage runoff improvements for agriculture, golf course, bridges, parking lots and other sites along the river.
 - Investigate pipe discharge from stormdrains and other pipes identified during the shoreline survey.
 - Utilize former highway barn driveway on Spring Street as an off-road access to the Town River. This area would offer convenient parking and canoe access to downtown area, and could be further designed to include a pedestrian bridge over the Town River to the Stiles & Hart Conservation Area.

Winnetuxet River, Halifax:

The Winnetuxet River in Halifax is pristine and wild for much of its length. There are few residences or other structures to be seen from the river. Many sections are impenetrable, due to dense growth of buttonbush and other riparian shrubs, as well as downed trees. Wildlife is abundant on the river.



Several important open space parcels on the river include the Randall/Hilliard Preserve and the Striar Conservancy, Town land on Wood Street and the Wildlands Trust property south of Thompson St, also a gift of the Striar family. The Striar Conservancy is open to the public with trails and passive recreation, and is owned and managed by the Wildlands Trust of Southeastern Massachusetts. This property has some of the richest wildlife habitat in the Taunton watershed and includes four state-listed rare species (bridle shiner, cooper's hawk, Mystic Valley amphipod, and the spotted turtle).

Winnetuxet River at Rt 105, Halifax
Rachel Calabro

32% of the Town's land area is under chapter 61, 61A or 61B. The town should examine these properties closely to determine when and how to exercise the right of first refusal for acquisition of ecologically important areas.

Some issues identified in the Shoreline Survey include:

- There are no official canoe access points or fishing access to the river. Access at bridge crossings is steep and dangerous. The best canoeing is from Route 105 downstream to the Taunton River, and upstream from East Street into Plympton.
- There are no Town owned passive recreational facilities located near the Winnetuxet River.
- The river was impassable in several places due to an abundance of buttonbush indicating that flow is likely very low for periods of time.
- There is potential for several properties to be developed soon if they are not protected. This includes the Cumberland Farms land near Walnut St. and Route 105.

Management Recommendations:

- Designate a public access site along the lower Winnetuxet River near Route 105 or Pratt Street with adequate parking and safe launching.
- Develop passive recreation such as trails and walkways at a town owned site along the Winnetuxet River.
- Determine the status of the Open Space Committee and reactivate this group.
- Investigate creative options for land protection such as deed restrictions or purchase of undevelopable portions of lots, and begin discussions with landowners at key properties.
- Analyze properties in the Chapter 61A/61B program for future right of first refusal decisions.
- Create river crossing signs to identify the river throughout town.
- Investigate changes in flow through long term photo documentation at selected locations or through the use of stream gauges and/or by looking at macroinvertebrates in the river.

Nemasket River, Middleborough

The Nemasket River begins at the outlet of Assawompset Pond. This pond is the largest natural body of fresh water in the state, and provides the state's largest alewife spawning habitat. This complex includes Assawompset, Great Quittacas, Little Quittacas, Long Pond and Pocksha Pond. The water from these ponds is used by the City of Taunton, the City of New Bedford, and the City of Fall River for drinking water. The City of New Bedford owns most of the land surrounding the pond system, however there are still many unprotected parcels. The City of New Bedford also controls the outlet structure at the headwaters of the Nemasket River, and manipulates water flow to the point where the headwaters are often dry in summer months, creating an issue for outward migration of juvenile herring. The first lawsuit against New Bedford for this manipulation was presented in 1903 by Middleborough on behalf of the Municipal Light Commission which generated electricity from the flow of the Nemasket River.

The Nemasket River is connected to the Wampanoag Canoe Passage, which unites the south shore of Massachusetts Bay to Mount Hope and Buzzards Bays. *Namasket* (Nemasket) meaning "place of fish" originally referred to the area of Middleborough and Lakeville. The river was used by Native People for seasonal fishing, hunting and berry gathering. An archaic village structure at the mouth of Assawompsett Pond dates back to 2300 BP. Today, the spring spawning run of alewife and blueback herring up the Nemasket River into the Assawompset Ponds tops one million fish and is the most important fish run in Massachusetts.

Muttock Hill, located along the river, was also a settlement for Native People until it was sold in 1734. At this time, the remaining villagers moved to Titicut on the Taunton River. This site was the location of a burial ground as well as the location of a fish weir constructed of willow bark, rushes and grass. When the land at Muttock was sold, a dam was built in the place of the fish weir and a



Nemasket River at Murdock St,
Middleborough Rachel Calabro

petition for a slitting mill was presented. The petition for Oliver's Mill was granted only after provisions for passage of fish were provided. Today, Oliver Mills Park provides access to the river and preserves the history of the river.

During the 1870's, a sidewheeler operated on the Nemasket River. This river boat was used for private parties and for tours of the Nemasket River, taking passengers into Assawompset Pond. The first boat was 40 feet long and could hold up to 40 passengers. A second boat, the *Assawompsett*, was about 60 feet long and had a hinged smokestack which could be lowered to allow passage under bridges. These boats operated until the City of Taunton was authorized to build a gatehouse across the mouth of the pond in 1875 and to use the lake for water supply.

Some issues identified in the Shoreline Survey include:

- Weed growth below the Assawompset Pond dam is diminishing the quality of fish habitat.
- Low flow is often observed below the dam when water is held back in the pond.
- There are several perennial tributaries that do not show up on USGS quad maps and are therefore not considered to be under jurisdiction of the Conservation Commission during development decisions.
- Questions were raised about the effect on streams of withdrawal and discharge permits for agricultural lands including cranberry bogs.
- The Plymouth Street Bridge has been closed for years and the town has no money to fix it. The "Bridge Closed" signs continually end up in the river.

Management Recommendations:

- Encourage the use of Pratt Farm for environmental education by the schools in the community.
- Provide trail access from the new Middle School.



Ruins at Oliver Mill Park, Middleborough
Rachel Calabro

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- Publish an annual town directory detailing educational and recreational programs available and outdoor recreation areas open to the public.
 - Designate safe access at either side of Wareham Street for canoe portage.
 - Develop a town canoe launch at either Murdock St. or Plymouth St.
 - Locate, map and name perennial streams that are not shown on USGS quad maps and make sure that the Conservation Commission uses accurate and up to date maps for decision making.
 - Conduct a cleanup of specific areas where debris was found.

Forge River, Raynham:

Raynham is rich in wetland and surface water resources. There are three major swamps that provide rare species habitat and hold important archeological sites. Pine Swamp, which is largely owned by the town, includes a cedar swamp and an old railway right of way. Several town wells are located in this wetland.

Dead and Titicut Swamps, at the headwaters of the Forge River, are home to several rare species and are part of the larger Hockomock Swamp Area of Critical Environmental Concern (ACEC), the largest vegetated freshwater wetland system in the Commonwealth.

The swamp also acts as a huge reservoir for both regional flood storage and water supply for Raynham and West Bridgewater. Also located within the ACEC are Lake Nippennicket, Gushee Pond, Hewitts Pond, and Nunkets Pond. Several of the impoundments along the Forge River serve as recreational resources for the town, but restrict fish migration due to the presence of dams. Fishways at Kings Pond and Johnsons Ponds would provide an additional 20 acres of spawning area. A small dam is also present behind the Town Recreation Department near Route 104.



Forge River at Rt 44, Raynham
Rachel Calabro

Routes of Native People that would have provided access to Lake Nippenickett and other wetland areas are also in the Forge River watershed. A route along Fowling Pond was used extensively and is rumored to be a favorite hunting ground of Metacom (King Phillip). During the colonial period, Leonard Ironworks was established using iron ore from local bogs. This ironworks was the longest continuously operating one of its kind in America and helped start an iron producing region that included Taunton, Norton, Easton and Mansfield. The iron works closed in 1883 after operating continuously for more than 230 years.

Borden Colony, the location of Raynham's recreation complex, is the largest contiguous Agricultural Preservation Restriction parcel in Southeastern Massachusetts. Part of this land is leased to farmers and is still in agricultural use. It also contains an historic poor farm and hiking trails.

Some issues identified in the Shoreline Survey include:

- The Forge River's potential spawning habitat is not being used because of a lack of fish passage at dams.
- Road runoff and nutrient runoff from residences and septic systems is causing weed growth in impoundments.
- Feeding of waterfowl has greatly increased the Canada goose population and is causing nutrient and bacteria issues.
- Several dams are in need of repair
- The heavily developed area near Route 44 is vulnerable to contamination
- There is a perceived lack of public awareness in town about the river and associated natural resources.
- Litter from restaurants along Route 44 and illegal dumping along the tributaries has increased the amount of trash and debris in the Forge River.

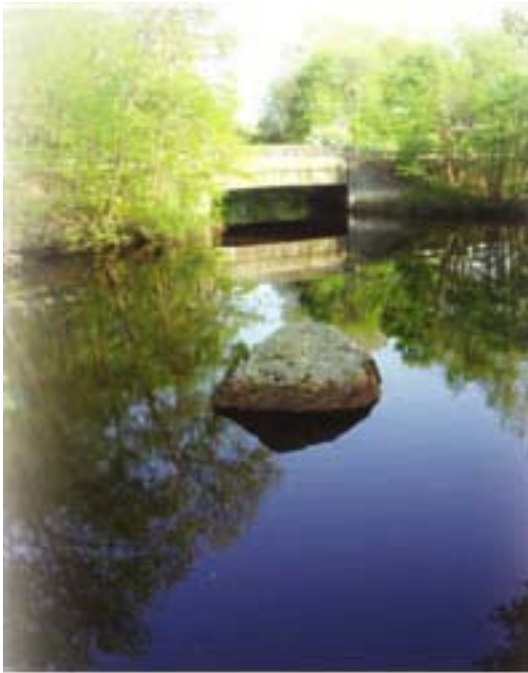


Kiosk at Johnson Pond Park, Raynham
Rachel Calabro

Management Recommendations:

- Develop a town canoe launch and outdoor classroom at Gushee Pond.
- Develop a handicapped access site at Hewitt Pond conservation area.
- Assess dams at Kings and Hewitt Ponds for maintenance and safety issues. There is some erosion of the concrete structure and embankment. The Department of Conservation and Recreation Dam Safety office recommended that they be maintained or removed.
- Look at fish passage options at dams, especially Kings Pond and Johnson Pond and the small dam located behind the Recreation Department.
- Set up a fisheries commission for Raynham.
- Set up a local land trust for Raynham to work on protection of open space.
- Create an educational kiosk as a scout project for Johnson Pond Park (completed in Fall, 2004).
- Put together a packet of educational material for river abutters including information about riverfront buffers, landscaping practices and the rare species and special habitats of the Forge River.
- Improve and develop trail options at Borden Colony APR land.
- Enlist support from the fast food restaurants along Route 44 in cleaning up litter using Highway Department bags.

Three Mile River, Taunton and Dighton:



Three Mile River at Rt 138, Dighton
Rachel Calabro

The Three Mile River flows eight miles from the confluence of the Rumford and Wading Rivers in Norton through Taunton and Dighton to the Taunton River. The Three Mile River has been nominated as a candidate for an Area of Critical Environmental Concern because of its outstanding ecological diversity and natural resources. One of the state's best examples of a silver maple floodplain forest is located on the river, along with many undeveloped uplands and riverbanks. The Taunton Conservation Commission's Boyden Wildlife Refuge provides opportunities for walking along the river and viewing osprey and other wildlife. The river is home to one of the best warm water fisheries and more than half a dozen rare and endangered species of both plants and animals.

Over one thousand acres along the Three Mile River have been protected by municipal and state government and local conservation organizations. Native People's sites are located along the river as well as sites of colonial development and industrial use. Three sites along the proposed ACEC are included on the National Register of Historic Places. The river provides many opportunities for boating and fishing, especially along the lower tidal sections of the river. The Taunton municipal golf course is also located along the river, near the silver maple floodplain forest.

The lower section of the Three Mile River is home to rare freshwater mussels, and has some of the watershed's largest snapping turtles. Fish ladders are present at two of the dams located on the lower river, for anadromous river herring.

Some issues identified in the Shoreline Survey include:

- There are several areas where access could be improved for canoes and kayaks.
- There is no warning system for the Mount Hope Dam, making it hazardous for paddlers.
- There is a general lack of knowledge about the resources of the Three Mile River and its history in the community.
- Areas of trash were identified near businesses along Route 44.

Management Recommendations:

- Use public access cable to show educational videos about issues such as septic tanks, landscaping, and stormwater.
- Organize a cleanup of the area near Route 44.
- Follow plans for creation of local access points and work toward greater use of the river by recreational paddlers.
- Work with dam owners to provide a floating barrier across the top of the Mount Hope Dam in Taunton.
- Support designation of portions of the river as an ACEC.

Segreganset River, Dighton:

The Segreganset River is tidal in its lower reaches. It has a small population of alewives which spawn in an impoundment created by the Town of Somerset for their pumping station. This pumping station provides water to Somerset Reservoir where it is stored for treatment and consumption. The first dam on the Segreganset River, owned by the Town of Somerset, has a functioning fish ladder. Past this first obstruction, habitat is blocked to anadromous fish. Smelt eggs have been observed below the first dam, and historically this river would have provided smelt, blueback herring and possibly shad habitat.



Segreganset River at Elm St, Dighton
Rachel Calabro

The Segreganset River has core habitat for the rare bridal shiner and is stocked with trout by the Massachusetts Division of Fish and Wildlife.

Somerset and Dighton were critical areas for native peoples, and one of the most sacred sites, the site of the Council Oak, is still used for ceremonial purposes today. King Philip held council under this oak tree, and the Dighton charter was signed at this site. Several historic mill sites also remain along the Segreganset River, including the Briggs family mill which made tools, picks and shovels. Sawmills, a cotton mill, a flaxseed oil plant, a tannery, tack factories, gristmills and blacksmith shops were also present along the river in the 1800's.

Some issues identified in the Shoreline Survey include:

- Several historical sites on the river should be highlighted.
- River crossing signs should be installed to highlight the Segreganset River
- Not many residents know that the Segreganset is 75% of Somerset's water supply and that Dighton also has wells along the river which cause stress to the river system.
- There is a perceived lack of local knowledge about the outstanding resource values of the river.

Management Recommendations:

- Provide educational opportunities for landowners to learn better maintenance practices on their property.
- Create signage for historical sites and along the river.
- Promote land protection efforts along the river.
- Continue to monitor rare species, flow and fisheries populations along the river.

Assonet River, Berkley and Freetown:

Assonet Neck in Berkley was historically a camp for Native People, used primarily for its proximity to shellfish resources. Several campsites have been identified by archeologists in Berkley, and records show that settlement of the town by European colonists was delayed due to conflicts with the native population. Berkley was abandoned by the colonists during King Phillips War because of its vulnerability to attack. The town remains the smallest in Bristol County and is mostly residential with little commercial business or other infrastructure. In Freetown, Assonet Village hosts historic properties and a local park with canoe launching facilities.



Assonet River, Assonet Village, Freetown
Rachel Calabro

Currently, the only access to the water in Berkley is at Dighton Rock State Park and at an area near Conspiracy Island into the Taunton River. In Freetown, access to the river is available at Jeffrey Lane and Hathaway Park.

The Assonet River has a remarkably intact coastal salt marsh system, and contains the largest contiguous salt marsh in the Narragansett Bay estuary. The river supports a small smelt population, and has potential for further restoration of smelt habitat. Three dams on the river block fish passage, and two of them are in very poor condition. This river represents the best habitat for smelt spawning in the watershed, and removal of these structures could greatly support their restoration. Rattlesnake Brook, a tributary to the Assonet River also has excellent habitat and supports a cold water fishery in its upper reaches where it is bordered by the Freetown State Forest. There are also several historic sites in Freetown including historic cemeteries and mill sites.

Some issues identified in the Shoreline Survey include:

- Increasing development in the estuary has resulted in septic tank problems, increasing runoff and clearing of riverbanks.
- Many homeowners are building large docks near the channel with increasingly larger boats.

-
- Boaters often flush their bilge tanks into the river, creating oil slicks and other problems.
 - A fly ash dump along the river should continue to be monitored for its potential to contaminate the river.
 - The town owned conservation area at Porter Pastures has been neglected and a lack of signage discourages use of this area as a canoe launch and recreational area.
 - Several historical sites including cemeteries have been neglected and should be highlighted for their historical values.
 - The shoreline along the industrial park property that is partially occupied by a Stop & Shop distribution center is in danger of further development. This area contains historical sites of Native People and could provide potential for shoreline recreation.

Management Recommendations:

- Investigate ownership of dams along the river, and evaluate their status.
- Provide education to landowners about management practices for septic system tanks and riverfront land.
- Work with owners of the industrial park to provide shoreline access and protect open space.
- Determine current monitoring efforts for the fly ash dump.
- Work with the Town of Freetown to establish signage for Porter Pastures and conduct a trash cleanup at the site.
- Update the Freetown Open Space Plan.

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Appendix A:

Local Zoning and State and Federal Programs for
Protection of Outstanding Values in the Taunton
Wild & Scenic River Corridor

Appendix A: Local Zoning and State and Federal Programs for Protection of Outstanding Values in the Taunton Wild & Scenic River Corridor

The following zoning and bylaw matrix provides examples of specific measures that municipalities within the Wild & Scenic Corridor are currently using to protect the Outstanding Resources of the Taunton River. A discussion of some of these measures is below, followed by a list of State and Federal programs related to the protection of the Taunton River.

A. Local Zoning and Bylaws

Floodplains:

The National Flood Insurance Program requires communities that wish to make their residents eligible for federally-subsidized flood insurance to require that new construction within the floodplain is designed with all habitable areas above the 100-year flood level, and that associated utilities are “floodproofed”. Many towns require only a base flood elevation and floodproofing, while others require a special permit or virtually prohibit new building within the floodplain. Berkley and Fall River are the only municipalities without floodplain zoning.

Development in the floodplain can cause incremental increases in the extent of the 100-year floodplain, further increasing the likelihood of eventual catastrophic property losses. It also results in the loss of floodplain-related resources such as wildlife habitat and scenic values.

Open Space Districts/Cluster Zoning:

Cluster zoning allows for the concentration of allowable density into a reduced portion of a site through reductions in lot size and frontage. The remaining portion of the site is preserved as open space through deed restrictions or by giving it to the town. Cluster zoning is also used to reduce the length of roadway and the amount of impervious surface within a development. Freetown, Berkley and Halifax do not currently have cluster zoning bylaws. Most of the other towns allow cluster development with special permits, while Middleborough and Raynham have established specific overlay districts where cluster development is allowed.

Halifax has an open space zoning district which prohibits most business and industrial uses, allows public and agricultural uses by right and residential uses by special permit. Fall River also has an Open Space Recreational District which allows only recreational uses in addition to its cluster bylaw.

Water Resources Protections:

Water Resource Protection Overlay Districts are often used to protect a public well, wellfield or surface water reservoir. These districts protect drinking water from being contaminated by hazardous materials and other waste. Most of the land use restrictions cover zones I (400 foot radius from a well), II (areas that have aquifer contribution) and III (recharge areas) and place controls on stormwater runoff, uses and activities within those zones. The most restrictive district is in Raynham, where no development is allowed in zones I and II, and only by special permit in zone III. Somerset and Fall River also have overlay districts specifically for surface water reservoir areas. Both municipalities require a no net increase in surface water discharge from new development and other site design constraints. Freetown and Berkley have no public water supply.

Wetlands Protection Districts and Bylaws:

A wetlands overlay district is used to require a setback of buildings and septic systems from the edge of a wetland, pond, stream or river or to prohibit new construction and/or filling, draining, excavation, dredging or removal of material from a wetland area. The buffer provides habitat value and allows for filtration of runoff. Bridgewater, Middleborough and Raynham have such zoning districts. Raynham has prohibited all development within its Wetlands District in order to protect sensitive habitats.

Halifax has a special wetlands bylaw which expands the protected values under the Massachusetts Wetlands Protection Act to include wildlife habitat, recreation, air and noise pollution and aesthetics. It requires a permit for work which can be refused if there will be an adverse effect to the protected values. Dighton has a setback requirement in its general zoning bylaw.

Soil Conservation and Land Clearing:

Taunton, Berkley and Dighton have bylaws that cover earth removal, excavation or tree removal. Dighton also has an erosion control bylaw that requires a permit for slopes greater than 15%. The earth removal bylaw requires a special permit for the removal of more than 50 cubic yards of material in one year. In Berkley, a special permit is given if land contours will change over two feet. Taunton's bylaw encourages preservation of trees and requires a permit for any tree cutting, land clearing or excavation. Taunton also has landscaping requirements for development including planting and maintaining trees.

Phasing and Building Limits:

Several communities have used phased growth and building permit limits to allow time to make decisions about infrastructure and open space as development progresses. For example, Halifax limits building permits to no more than 40 permits per year; no more than 6 permits per applicant over 12 months and 10 permits per project over 24 months. Dighton, Berkley, Taunton and Raynham also have similar limits.

Transfer of Development Rights:

Transfer of Development Rights bylaws are used to direct growth away from ecologically sensitive or historically important sites by moving development rights on a property by deed, easement or other legal instrument to another parcel that is in an area with infrastructure to accommodate additional development. This means that the new property can be developed at the combined density of both pieces of land, while the other remains open space. Raynham currently has a Transfer of Development Rights bylaw.

Demolition Delay:

A Demolition Delay bylaw is used to allow municipalities time to buy historic properties before they are demolished. It generally allows six months for negotiating the purchase of an historic building. The City of Taunton has included structures over 50 years old, those that have historical significance and those that are located within 150 feet of an historic district in this bylaw. Middleborough and Somerset also have a six month delay for historic structures.

Site Plan Review:

Site plan review creates a process for review of an overall site development plan of by-right multi-family, commercial and industrial developments. Site plan review can alter the location and or design of a proposal but cannot prohibit the project.

Site Plan Approval:

Site plan approval is similar to site plan review, but a higher level of authority is given in which projects can be approved, modified or denied by way of the special permit process allowed under the State Zoning Law.

Zoning Districts and Other Controls

	Flood Hazard Overlay District	Conservancy District/Open Space District/Farm and Forest District	Aquifer and Well Protection/ Water Resources Protection District	Wetlands Protection District	Historic District	Other Zoning Controls
Bridge-water	Base flood elevation must be obtained and floodproofing requirements met in 100 year flood zone	no	Covers zones I (400 foot radius), II (Aquifer contribution) and III (recharge areas), places controls on stormwater runoff, uses and activities	Wetland buffer requirement	no	-Percent of lot as Open Space -Minimum contiguous upland -Minimum setback from wetlands -Site Plan Approval
Halifax	Controls on fill, encroachment and construction in 100 year flood zone	Prohibits most business and industrial; Public and agricultural uses by right, housing by special permit	Includes zones I and II; not III	no	no	
Middle-borough	Includes controls on filling and grading, regulation of infrastructure in 100 year flood zone	Allows for smaller lot sizes and revises setbacks and frontage (cluster development)	Covers both watersheds and recharge areas; restricts lot size, limits on site disturbance and setbacks	Inland Wetlands District	no	-Percent of lot as upland -Site Plan Review

	Flood Hazard Overlay District	Conservancy District/Open Space District/Farm and Forest District	Aquifer and Well Protection/ Water Resources Protection District	Wetlands Protection District	Historic District	Other Zoning Controls
Raynham	Special permit required for any development in 100 year flood zone	Farm and Forest District allows for agriculture and non-profit use, as well as one family detached home	Development prohibited in Zone I; Zone II and III by special permit	All development prohibited in Wetland District	no	-Percent of lot as upland -Site Plan Approval
Taunton	No structures permitted in 100 year flood zone; residential development must be cluster	no	Covers Zones I, II and III, with limits on most activities and uses	no	Commission controls appearance and architecture of all structures. Includes downtown area and parts of Summer, Spring and Dean St	-Percent of lot as upland -Site Plan Review -Landscaping requirements
Freetown	Base flood elevation must be obtained and floodproofing requirements met in 100 year flood zone	no	no	no	no	-Percent of lot as upland
Berkley	no	no	no	no	no	-Site plan review -Percent of lot as upland
Dighton	Base flood elevation must be obtained and floodproofing requirements met in 100 year flood zone	no	Covers Zones I, II and III, prohibits or requires special permit for most uses	no	no	-Site plan review

	Flood Hazard Overlay District	Conservancy District/Open Space District/Farm and Forest District	Aquifer and Well Protection/ Water Resources Protection District	Wetlands Protection District	Historic District	Other Zoning Controls
Somerset	In FEMA V zone, construction must be landward of mean high tide. In A zone, base flood elevation must be obtained and floodproofing met	no	<p>Watershed Protection District includes drainage area for Somerset Reservoir, requires special permit for residential development</p> <p>Water Resources Protection District requires special permit for any building; no septic systems or basements allowed; amount of stormwater runoff must not exceed amount that occurred when site was in natural state.</p>	no	no	
Fall River	no	Open Space Recreational District allows only recreational uses	<p>Water resources district allows only water supply structures and recreation</p> <p>Watershed and Water Supply Protection District with requirements for no net increase in surface water runoff and other site design requirements including soil erosion and sediment control</p>	no	no	

Zoning Bylaws

	Building Permit Limitation/ Subdivision Phasing	Wetland Bylaws	Open Space Cluster Subdivision	Transfer Development Rights	Community Preservation Act	Demolition Delay	Soil Conservation/ Land Clearing and Grading
Bridge-water	no	no	Allows for cluster development in residential areas with special permit	no	no	no	no
Halifax	No more than 40 permits per year; no more than 6 permits per applicant over 12 months and 10 permits per project over 24 months.	-Expands protected values to include wildlife habitat, recreation, air and noise pollution and aesthetics -Requires a permit for work which can be refused if there will be an adverse effect	no	no	no	no	no
Middle-borough	no	no	Allows for smaller lot sizes and revises setbacks and frontage in Open Space District	no	no	Allows up to six months for negotiations and alternatives to loss of historic structures	no

	Building Permit Limitation/ Subdivision Phasing	Wetland Bylaws	Open Space Cluster Subdivision	Transfer Development Rights	Community Preservation Act	Demolition Delay	Soil Conservation/ Land Clearing and Grading
Raynham	Maximum number of building permits for dwelling units is 24 per fiscal year (expired on June 30, 2003) No more than seven permits per year per subdivision	no	Allows for cluster developments with special permit in Farm and Forest District or Residential A district	yes	no	no	no
Taunton	Phased growth requiring building permits to be issued based on a percentage of the total number of units.	Adopted in 2003	Allows for cluster development in residential areas with special permit	no	Adopted in 2003	Covers all buildings over 50 years of age, with historic significance or located within 150 feet from an Historic District	Requires permit for any tree cutting, land clearing or excavation; encourages preservation of trees
Freetown	no	no	no	no	no	no	No
Berkley	No more than 10 building permits may be granted to one owner/ developer in one year.	no	no	no	no	no	Soil Conservation Board which issues permit for earth removal that changes land contours over 2 feet.

	Building Permit Limitation/ Subdivision Phasing	Wetland Bylaws	Open Space Cluster Subdivision	Transfer Development Rights	Community Preservation Act	Demolition Delay	Soil Conservation/ Land Clearing and Grading
Dighton	Subdivisions containing 8 or more units shall not be developed at a rate greater than 8 lots or 10% of total number of lots in any year.	no	Allows for cluster development in residential areas with special permit	no	no	no	Erosion control bylaw requires special permit for slopes 15% or greater, controls land clearing Earth removal bylaw requires special permit for the removal of more than 50 cubic yards of material in one year.
Somerset	no	no	Allows for cluster development in residential areas with special permit	no	no	no	no
Fall River	no	no	Allows for cluster development in residential areas with special permit	no	no	no	no

B. State and Federal Programs that relate to the management of Outstanding Resources in the Taunton Wild & Scenic River Corridor

State Regulations/Programs

Massachusetts Clean Water Act:

This act is the state version of the Federal Clean Water Act and requires the state to establish water quality standards that provide goals and designated uses for different classes of water bodies, and to establish criteria that must be met for attainment of those standards. An anti-degradation policy requires the state to designate “outstanding resource” waters and to protect the existing uses of a waterbody by restricting point sources and seeking improvement of degraded waters. Section 402 of the Federal Clean Water Act establishes the “National Pollution Discharge Elimination System” (NPDES), requiring permits for all point source discharges as well as stormwater discharges from construction sites over one acre and municipalities of certain population densities.

Massachusetts Wetlands Protection Act:

This act seeks to protect the public interest in the natural functions of wetlands, water bodies and floodplains, including flood storage, storm damage protection, wildlife habitat, prevention of pollution and fisheries protection. Such functions are preserved and promoted by limiting the human alteration of wetland resources areas, including water bodies, banks, bordering vegetated wetlands, the 100-year floodplain and vernal pools, and of lands within 100 feet of these resource areas. The act is enforced locally by the Conservation Commission. Local bylaws may add additional requirements and protections.

Rivers Protection Act:

As part of the Wetlands Protection Act, this act defines a riverfront protection area for land within 200 feet of the annual high water line of perennial rivers and streams. Projects must meet performance standards that require that there are no significant adverse impacts to the riverfront area and there are no substantially equivalent economic alternatives to the proposed work.

Chapter 91 Public Waterfront Act:

This waterways licensing law was first created in 1866 and is the oldest of its kind in the nation. It regulates activities in both inland and coastal areas such as great ponds, navigable rivers and streams, tidelands and historically filled tidelands. This law uses the public trust doctrine to preserve the public's right to fish, fowl and navigate in the intertidal area between high and low water marks and along certain navigable rivers and streams. Licenses or permits are required from DEP for structures such as docks, pilings, and moorings or for activities taking place on filled tidelands or seaward of the present mean high water line.

Title 5 of the State Environmental Code:

This provision prohibits the siting of a new septic system's leaching field within 50 feet of a watercourse. It also establishes required percolation rates for soils that will be used as septic leaching fields. Some towns have increased these requirements through local zoning. This code is enforced locally by the Boards of Health.

Massachusetts Environmental Policy Act (MEPA):

MEPA requires Massachusetts government to evaluate and allow for public discussion of the potentially harmful environmental impacts of a proposed project in advance so that government decision makers can make informed choices about whether and how a project should proceed. It also requires that alternatives to proposed projects be considered. MEPA is not a permitting process but it helps permitting agencies ensure that a project meets regulatory requirements. Projects are subject to MEPA review if they require agency action, financial assistance or permits and if they meet certain thresholds, including being part of an Area of Critical Environmental Concern (ACEC).

Environmental Impact Reports (EIRs) are automatically required if there are large impacts (e.g. alteration of one or more acres of bordering vegetative wetlands or withdrawal of 2,500,000 gals/day of water from a surface water source.)

Water Management Act:

The Water Management Act requires a permit from the Department of Environmental Protection for any new or increased withdrawal of surface or ground water greater than 100,000 gallons per day. DEP must consider whether the applicant had adequately addressed alternatives, has implemented

conservation measures and has involved the public in education. The act is designed to ensure that a watershed's safe yield is maintained and that needs are met for public water supply, water quality, waste assimilation, flood management, water-based recreation, wildlife habitat, agriculture and fish and wildlife.

Interbasin Transfer Act:

The Interbasin Transfer Act was established to encourage the maintenance of adequate flows within a given watershed by requiring the implementation of conservation measures and the use of alternative in-basin sources of supply before interbasin transfers are permitted. Interbasin transfers involve moving drinking water or wastewater from the watershed of origin to another watershed. This law also requires that reasonable instream flow in the donor basin be maintained.

Massachusetts Department of Agricultural Resources

Agricultural Preservation Restriction (APR) Program:

This is a voluntary program intended to offer a non-development alternative to farmers with important agricultural lands. The program offers to pay farmers the difference between the fair market value and the agricultural value of their farmland in exchange for a permanent deed restriction that precludes any use that will impact agricultural viability.

Farm Viability Enhancement Program:

This State technical assistance program that works with farmers to provide a business plan for their operation. Farmers that sign a short-term non-development covenant can receive \$20,000 for a 5-year covenant up to \$60,000 for large farms with a 10-year covenant.

Agricultural Business Training Program:

This program provides an opportunity for farmers to master basic business principles, with additional technical service.

Chapter 61, 61A and 61B:

This program allows forest, agricultural and recreational land to be taxed at actual use value rather than its development potential. Landowners participate in this program for a fixed period of time, after which the land is taxed at the full value. If the property is sold while it is in protection, the landowner would owe the full amount of taxes that would have been paid up to that time. The town also has the first right of refusal to acquire the property at market value.

Community Preservation Act (CPA):

The Community Preservation Act allows communities to create a local Community Preservation Fund through a surcharge of up to 3% on the real estate tax levy. The act also creates a significant state matching fund of more than \$25 million annually, to serve as an incentive to communities to take advantage of this legislation. Once adopted locally by ballot referendum, the Act requires at least 10% of the monies raised to be distributed to each of three categories: historic preservation, open space protection, and low and moderate income housing, allowing the community flexibility to distribute the other 70% of the money between any of these three categories.

The Act also stipulates that a Community Preservation Committee (CPC) composed of 5-9 members representing various boards in the community should recommend to the community's legislative body how to spend the Community Preservation funds. Each CPC brings together a wide range of community groups, town boards and agencies to put together proposals for Town Meeting or City Council vote. These projects often leverage considerable funds from private donations and matching grants to support their community preservation goals.

Massachusetts Historical Commission:

MHC can require the filing of a Public Notification Form to determine if a project is a significant risk to a cultural resource. Public Notification Forms are required if federal or state money is involved, or if there is an Army Corps of Engineers permit. They can require more information when reviewing permits and can require mitigation.

Areas of Critical Environmental Concern (ACEC):

ACECs are areas with unique natural resources that are designated by the state for the protection of marine and aquatic productivity, surface and groundwater quality, habitat values, storm damage prevention or flood control, historic and archeological resources, scenic and recreational resources, and other natural resources. All federal, state and local agencies as well as private parties must submit development plans to the Department of Conservation and Recreation to ensure that activities which would impact the ACEC are carried out in a way that would protect natural resources. Municipal boards and commissions are encouraged to implement local regulations and actions to protect and sustain ACEC areas.

Priority Sites of Rare Species Habitat:

This represents estimations of the most important natural communities and state-listed rare species habitats in Massachusetts. These habitats are based on rare species population records (maintained by the Natural Heritage & Endangered Species Program's Biological and Conservation Data System database). Program scientists draw estimated habitats by analyzing population records, species habitat requirements and available information about the landscape. Habitat sites are selected for biodiversity significance. Significance is determined by the global and state rarity of the species or communities present, as well as the quality of those species populations or communities. There are five levels of significance: outstanding, very high, high, moderate, and of general biodiversity interest. Priority sites are not afforded any protection by the state government, but the rare species that reside in these habitats are protected by the Massachusetts Endangered Species Act.

Biomap and Living Waters:

The Natural Heritage and Endangered Species Program used its extensive database of over 7,000 records including 22 years of records of plants, animals and natural communities to select and map "Core Habitat Areas" that represent the most viable examples of natural communities and habitat for rare plant and animal species in Massachusetts. These maps also include the "Supporting Natural Landscapes", which include buffers around the core areas, connectivity between core areas, and large undeveloped and roadless patches. While this creates no added regulatory protection of these habitat areas, the BioMap and Living Waters Core Habitat and Surrounding Natural Landscape areas can be used by towns to create conservation priorities and can be worked into existing

Open Space and Recreation plans. Many areas of Core Habitat can be protected by small entities such as towns or lands trusts, while larger areas may need to be protected by partnerships between agencies, town and private interests.

Federal Regulations/Programs

Clean Water Act:

The Federal Clean Water Act works with the Massachusetts Clean Water Act to restrict point source discharges to the Taunton River and its tributaries through the NPDES program that requires permitting, treatment and monitoring of all municipal and industrial discharges. In addition, the act requires permitting for municipal stormwater discharges in communities above a certain population density. Section 404 of the act requires that any project that would discharge dredged or fill material into the river must receive a permit from the Army Corps of Engineers.

National Flood Insurance Program (NFIP):

This program provides landowners in participating communities with federally subsidized flood insurance. As part of participation, municipalities must restrict building in the 100-year floodplain and create a flood zone overlay district.

National Environmental Policy Act (NEPA):

Much like MEPA, NEPA requires an Environmental Impact Assessment and public review for all projects that are federally assisted or permitted.

Rivers and Harbors Act:

This act requires any obstruction in or over “navigable waters” to receive a permit from the Army Corps of Engineers. Permits are evaluated for a project’s effect on navigation and ecology.

National Wild & Scenic Rivers Act:

This act protects designated rivers and those under study from any federally licensed dam, diversion, channelization, hydroelectric facility or other water resource development project that would have a direct and adverse effect on the river’s free flowing condition or its nationally significant resources.

United States Department of Agriculture

Environmental Quality Incentive Program (EQUIP):

This program provides technical and financial assistance to landowners and operators of crop or livestock farms for planning and designing Best Management Practices that protect the soil, air and water, increase soil productivity, enable care for farm animals, and manage waste produced on the farm.

Wildlife Habitat Incentive Program (WHIP):

This program provides technical and financial assistance for landowners who want to voluntarily improve wildlife habitat or restore ecosystems on their property.

Wetland Reserve Program (WRP):

This program provides assistance for the purchase of temporary or permanent easements on farmed wetlands for water supply protection and wildlife habitat and will help to restore farmed wetlands for wildlife habitat.

Appendix B:

Model Zoning Bylaws and Regulations for the
Protection of Outstanding Values in the Taunton
Wild & Scenic River Corridor

MODEL BOARD OF HEALTH REGULATIONS PERTAINING TO DRAINAGE STRUCTURES IN SUBDIVISION

Purpose: The purpose of these regulations is to protect the Town's water quality and quantity and to ensure that the project's drainage system is designed to meet DEP Stormwater Regulations and Policies and to have no measurable or significant impact as to existing vegetation, topography, wetlands and other natural or man-made features.

1. Criteria: The applicant shall review best available drainage system for the appropriate application on the proposed development site. Natural features such as soil type, slope, vegetation cover, water table etc. shall be considered a major determinant of the development suitability of the site. Drainage plans shall be developed in consultation with the Board of Health and/or its representatives with the following objectives and criteria in mind:

- 1.1 Protection of water quality
- 1.2 Public safety
- 1.3 Enhancement of and connection to natural drainage systems including streams, floodplains, and associated wetlands.
- 1.4 Minimizing of long term maintenance and/or reconstruction obligations to ensure the natural operation of the system and conserve manpower, energy and fiscal resources.
- 1.5 Attractive ness of the plan, minimizing disruption to existing features, and blending with surrounding terrain.
- 1.6 Minimize the drainage impacts on abutters property by maintaining a zero net increase in the rate of runoff from the proposed development

2. Performance Standards:

2.1 The applicant must demonstrate to the satisfaction of the _____ Conservation Commission that the post-development runoff of the project meet the requirements of M.G.L.A., Chapter 131, Sec. 40, the Wetlands Protection Regulations (310 CMR 10.00) promulgated by the Department of Environmental Quality Engineering and any of its own regulations. The Board of Health may, at its option, not approve a subdivisions drainage plan until an order of conditions has been issued by the Conservation Commission.

2.2 Drainage outfalls shall be designed in conformance with section V of these regulations and shall further provide rip-rapped aprons in accordance with typical details shown in the Appendix. There shall be a minimum of 20 feet of vegetation swale before the property line and above the high water line of any stream, swamp, wetlands or other body of water. As with other drainage structures, detention areas shall have a positive outfall and connection to an existing water body.

2.3 If any drainage including associated easements are located on a building lot, the area occupied by these structures and associated easement shall be used to satisfy no more than 20% of the minimum lot size required by the zoning by-laws and further providing that the remaining 80% of the lot is contiguous buildable area i.e. not encumbered by wetlands or flood plain.

2.4 The stormwater drainage system shall be designed and constructed to comply with Department of Environmental Protection (DEP) Stormwater Management Regulations and Policies for pollutant removal and groundwater infiltration.”

3. Design Standard – Detention Basins:

3.1 Detention/retention basin shall be designed by a Registered Civil Engineer. A separate landscaping plan shall be designed by the Registered Landscape Architect. Preliminary plans shall be submitted at least 30 days prior to submission of the definitive plan and reviewed by the Board of Health, Highway Surveyor, and Conservation Commission Agent. To the extent possible, the plans should incorporate the natural terrain and vegetation.

3.2 Sample Designs:

As an aid to applicants, the following sample designs are a part of these regulations:

- Figure:
1. Typical Detention Basin
 2. Dike Detail
 3. Outlet Control Structure
 4. Spillway Detail
 5. Silt Trap Swale Section
 6. Typical

These samples are meant to illustrate the various design standards listed below.

3.3 Location: Detention basins may be located a minimum of fifty feet from wetlands with written approval from the Conservation Commission.

3.4 Topography Disturbances:

Detention - basin design shall minimize earthwork. Existing topographic features shall be allowed to remain so far as possible. Disturbance of existing Vegetation shall be kept to a minimum.

3.5 The bottom elevation of detention basins shall be least two feet above the maximum groundwater level. The bottom elevation of all leaching structures and retention basins shall be at least four feet above the maximum groundwater level. The maximum groundwater level shall be determined using the data compiled by the 'U.S. Geological Survey Water Resources Division for wells located in abutting towns and the City of Taunton.' Using the date and water depth determined through actual site of the proposed structures, a correlation between the site data and paralleling abutting community well data will be made. Using the maximum groundwater level for the well of record, a maximum water level for the proposed site will be interpolated. The assumptions and interpolated information used to derive the maximum groundwater level shall be well documented and included in the drainage calculations.

3.6 Dike Construction:

The material used for dike construction shall be specified and a cross-section detail provided. The dike, when completed, must be able to support the weight of any mechanized/motorized equipment which is necessary for the maintenance of the basin.

- i. A fifteen foot wide processed stone roadway (6" deep) shall be placed at the top of all dikes.
- ii. A one-foot wide minimum freeboard shall be provided between the top of the drainage basins and the 100-year storm event elevation.
- iii. The survey information of the proposed centerline of all basins shall be provided on the plans with clear ties to two existing or proposed permanent bounds. The as-builts for these structures shall provide information on the actual surveyed centerline of the constructed structures.

3.7 Outlet Structures:

For simplified maintenance, a concrete outlet structure with a slotted-overflow T weir and a reinforced-concrete pipe discharge shall be provided. In addition to controlling runoff, the outlet structure shall be designed to prevent debris from plugging the pipe. Details of the outlet structure shall be included with the plans.

3.8 Emergency Spillway:

An emergency spillway across the dike shall be provided for all detention and retention basins. The purpose of this emergency spillway is to provide a controlled release of runoff from the basins beyond the capacity of the structure or should flow through the outlet become obstructed. Spillways shall be constructed of properly sized stone carefully placed and hand chinked. Spillway details shall be on the plans. The engineer shall also review the downstream channel from any spillway to determine the potential for causing damage to other properties and especially where there is possibility for the loss or injury to people. The results of this review shall be included with the drainage calculations.

Leaching structures shall be provided with an emergency overflow to allow for controlled releases wherever possible.

3.9 Silt-Traps, etc.:

Where storm-water drains discharge into a basin, silt-trap swales shall be provided to localize sedimentation. In addition, a stone-lined channel(s) shall be constructed from the discharge point(s) to the outlet structure. The purpose of the channel is to provide a flow-patch for runoff, especially from storms which produce small runoff volumes and to provide scouring action to clean the outlet structure.

An adequately sized pre-cast concrete settling tank (similar to a septic tank with a minimum of three baffles and three access ports) shall be placed prior to entering any underground detention or leaching systems. This tank shall be placed to allow for easy access to perform periodic maintenance.

3.10 Side Slopes and Depth of Basins:

Side Slopes at detention basins shall be no steeper than 4:1 for the dike and 5:1 for excavated sloped.

The maximum depth of any basin to be constructed as a part of a drainage system as governed under these regulations shall be four feet. This four feet includes the required freeboard.

3.11 Riprap shall be placed at the downstream ends of all pipes (inflow, outlet, etc), the size and amount to be determined by the flow-rate.

3.12 Easements:

i. Drainage easements shall be provided to include all detention basins and appurtenant structures. For basins with 5:1 side slopes the minimum easement shall be twenty feet from the top of the slope. A 4:1 slope will require 25-foot easement. In addition, there shall be an access easement to all basins and appurtenant structures from the nearest public way. Said access easement shall have a minimum width of twenty feet. If necessary to prevent vandalism, a lockable gate should be provided.

ii. The use of easements shall be limited to detention basins and structures only. Leaching structures and retention basins shall be given to the Town under a deed which provided access from a public way. These parcels shall be identified as "Town Drainage Parcel". Wherever leaching structures or retention basins as proposed, reserved area shall be provided (similar to a household septic system) within the deeded area. This area shall be of sufficient size to construct a replacement structure for the existing retention/leaching drainage structures proposed for the project without encumbering the area of existing drainage structure. A thirty foot vegetated buffer zone shall be provided around all above ground drainage structures within these parcels. The area for this buffer zone shall also be considered in the reserve areas to be provided.

3.13 Waiver of Standards:

Board of Health may waive any of above design standards under the following conditions:

- i. The proposed basin is located entirely on private property under one ownership or
- ii. The applicant demonstrates, through a preponderance of the creditable evidence, that waiving a specific design standard will reduce environmental damage.

However, the Board is not obligated to waive design standards, regardless of circumstances.

4. Construction Standards-Detention, Retention and Leaching Structures.

4.1 Design

The proposed site for any drainage structures shall be inspected by the appropriate geotechnical exploration method to determine the groundwater level. The explorations shall extend a minimum of ten feet below the proposed depth of the bottom of the basin unless bedrock is encountered. This data will be used along with data on file from existing recording wells throughout the region to interpolate a maximum groundwater level for the site.

Wherever a retention or leaching structure is proposed, adequate perk test observed by the Board of Health's designated representative shall be performed at the proposed depth of the bottom of the drainage structure. The design for these structures shall be based on the determined perk rate plus an additional 2 minutes per inch (i.e. if a perk rate of 4 minutes per inch was determined in the field, a design perk rate of 6 minutes per inch will be used to design). Wherever the design perk rate is determined to be greater than 8 minutes per inch (before the required 2 minutes per inch adjustment), the use of a retention or leaching structure will not be allowed, without exception.

Using the TR-55 method, the amount of pre-and-post – construction runoff shall be determined and the basins sized accordingly. All drainage structures shall be designed for the both a 25-year and 100 year storm event. Leaching and retention structures shall be designed to be empties as soon as possible after a 100-year storm event but in no case shall this period exceed 150 hours (6.25 days) after a 100 year storm event.

4.2 Erosion Control:

A separate plan showing all control measures to be used to minimize erosion and siltation shall be submitted. These measures shall be sufficient to prevent off-site (abutting properties, public lands, all waterways) erosion and siltation.

4.3 Construction:

Prior to start on the drainage system, adequate erosion control measures shall be in place to minimize siltation to the new drainage system and to the abutting properties prior to the establishment of the final vegetation cover for the entire development and the construction of the drainage

system. Flows to new an existing leaching and retention structures shall be diverted to a temporary drainage basin until the Highway Surveyor or his/her designated representative determines that the drainage area is adequately paved and the vegetation cover is sufficiently established to allow connection into the final drainage structures.

4.4 Testing of Fills:

Materials to be used for any dike sections or for backfill for leaching and retention structure shall be adequately described noting the specific requirements of the material. The required compaction of this material shall specified by the designer. The fill used in connection with any drainage structure shall be clean fill, containing no trash, refuse, rubbish, or debris, including, without limiting the generality of the foregoing, lumber, bricks, plaster, wires, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing. The permittee's shall have necessary tests performed by a qualified engineer at any source (s) of fill to assure that no contaminants are present in any fill, including on-site materials, must be given in writing by the _____ Board of Health. A registered professional engineer shall certify that the construction of all drainage facilities are in conformance with the approved project plans. The same engineer shall also certify the as-built drawings for the drainage structures.

4.5 Storm Drains:

- i. All final out-falls within or serving the subdivision shall extend to a natural waterway, or to drainage easements or pipe system s leading to waterway, and such pipe shall have a capacity of 25% greater than required by calculations. Provisions shall be made for disposal of surface water intercepted or collected by the system in such a manner that no flow is conducted over Town ways or over that land of others unless a drainage easement is obtained or unless such flow, in essentially the same quantity, previously existed in the same location.
- ii. A headwall with wing walls shall be provided at the outfall end of all drains. Use of preformed flared end section for this purpose are also acceptable.
- iii. All outfall pipe openings must be covered with a metal gate. No drainage outfall shall discharge below the high water line of a swamp, stream, or body of water. High water shall mean the elevation as shown on the U.S. Department of Housing and Urban Development, Flood

Insurance Rate Map as most recently amended, or, the elevation as determined by the _____ Conservation Administrator. Whereas the latter determination is the more site specific, it shall supercede the F.I.R. Map in the event of any conflict.

iv. Pipe outfalls shall be located along side or rear lot lines, one hundred feet down grade from any dwelling.

MODEL RIGHT TO FARM BY-LAW

Section 1 Legislative Purpose and Intent

The purpose and intent of this By-law is to state with emphasis the Right to Farm accorded to all citizens of the Commonwealth under Article 97, of the Constitution, and all state statutes and regulations there under including but not limited to Massachusetts General Laws Chapter 40A, Section 3, Paragraph 1; Chapter 90, Section 9, Chapter 111, Section 125A and Chapter 128 Section 1A. We the citizens of [Farm-Town] restate and republish these rights pursuant to the Town's authority conferred by Article 89 of the Articles of Amendment of the Massachusetts Constitution, ("Home Rule Amendment").

This General By-law encourages the pursuit of agriculture, promotes agriculture-based economic opportunities, and protects farmlands within the Town of [Farm-Town] by allowing agricultural uses and related activities to function with minimal conflict with abutters and Town agencies. This By-law shall apply to all jurisdictional areas within the Town.

Section 2 Definitions

The word "farm" shall include any parcel or contiguous parcels of land, or water bodies used for the primary purpose of commercial agriculture, or accessory thereto.

The words "farming" or "agriculture" or their derivatives shall include, but not be limited to the following:

- farming in all its branches and the cultivation and tillage of the soil;
- dairying;
- production, cultivation, growing, and harvesting of any agricultural, aquacultural, floricultural, viticultural, or horticultural commodities;
- growing and harvesting of forest products upon forest land, and any other forestry or lumbering operations;
- raising of livestock including horses;
- keeping of horses as a commercial enterprise; and

-
- keeping and raising of poultry, swine, cattle, ratites (such as emus, ostriches and rheas) and camelids (such as llamas and camels), and other domesticated animals for food and other agricultural purposes, including bees and fur-bearing animals.

“Farming” shall encompass activities including, but not limited to, the following:

- operation and transportation of slow-moving farm equipment over roads within the Town;
- control of pests, including, but not limited to, insects , weeds, predators and disease organism of plants and animals;
- application of manure, fertilizers and pesticides;
- conducting agriculture-related educational and farm-based recreational activities, including agri-tourism, provided that the activities are related to marketing the agricultural output or services of the farm;
- processing and packaging of the agricultural output of the farm and the operation of a farmer's market or farm stand including signage thereto;
- maintenance, repair, or storage of seasonal equipment, or apparatus owned or leased by the farm owner or manager used expressly for the purpose of propagation, processing, management, or sale of the agricultural products; and
- on-farm relocation of earth and the clearing of ground for farming operations.

Section 3 Right To Farm Declaration

The Right to Farm is hereby recognized to exist within the Town of [Farm-Town]. The above-described agricultural activities may occur on holidays, weekdays, and weekends by night or day and shall include the attendant incidental noise, odors, dust, and fumes associated with normally accepted agricultural practices. It is hereby determined that whatever impact may be caused to others through the normal practice of agriculture is more than offset by the benefits of farming to the neighborhood, community, and society in general. The benefits and protections of this By-law are intended to apply exclusively to those commercial agricultural and farming operations and activities conducted in accordance with generally accepted agricultural practices. Moreover, nothing in this Right To Farm By-law shall be deemed as acquiring any

interest in land, or as imposing any land use regulation, which is properly the subject of state statute, regulation, or local zoning law.

Section 4 Disclosure Notification

Not later than 21 days after the purchase and sale contract is entered into, or prior to the sale or exchange of real property if no purchase and sale agreement exists, for the purchase or exchange of real property, or prior to the acquisition of a leasehold interest or other possessory interest in real property, located in the Town of [Farm-Town], the landowner shall present the buyer or occupant with a disclosure notification which states the following:

“It is the policy of this community to conserve, protect and encourage the maintenance and improvement of agricultural land for the production of food, and other agricultural products, and also for its natural and ecological value. This disclosure notification is to inform buyers or occupants that

the property they are about to acquire or occupy lies within a town where farming activities occur. Such farming activities may include, but are not limited to, activities that cause noise, dust and odors. Buyers or occupants are also informed that the location of property within the Town may be impacted by commercial agricultural operations including the ability to access water services for such property under certain circumstances.”

A copy of the disclosure notification shall be given on a form prepared by the Town and shall be signed by the landowner prior to the sale, purchase, exchange or occupancy of such real property. A copy of the disclosure notification must be filed with the Board of Selectmen or its designee prior to the sale, purchase, exchange or occupancy of such real property. In addition to the above, a copy of this disclosure notification shall be provided by the Town to landowners each fiscal year by mail.

A violation of Section 4 shall be subject to a fine of \$300 and shall be enforced by the Board of Selectmen or its designee. The Town is authorized to enforce Section 4 under the non-criminal disposition provision of G.L. c. 40, § 21D.

Section 5 Resolution of Disputes

[Applicable only in communities that have Agricultural Commissions.]

Any person who seeks to complain about the operation of a farm may, notwithstanding pursuing any other available remedy, file a grievance with the Select Board, the Zoning Enforcement Officer, or the Board of Health, depending upon the nature of the grievance. The filing of the grievance does not suspend the time within which to pursue any other available remedies that the aggrieved may have. The Zoning Enforcement Officer or Select Board may forward a copy of the grievance to the Agricultural Commission or its agent, which shall review and facilitate the resolution of the grievance, and report its recommendations to the referring Town authority within an agreed upon time frame.

The Board of Health, except in cases of imminent danger or public health risk, may forward a copy of the grievance to the Agricultural Commission or its agent, which shall review and facilitate the resolution of the grievance, and report its recommendations to the Board of Health within an agreed upon time frame.

Section 6 Severability Clause

If any part of this By-law is for any reason held to be unconstitutional or invalid, such decision shall not affect the remainder of this By-law. The Town of [Farm- Town] hereby declares the provisions of this By-law to be severable.

Article 17: Transfer of Development Rights

17.1 Purpose and Intent:

This bylaw enables the transfer of development potential from one parcel to another. The transfer of development rights (TDR) makes it possible to greatly restrict or even prohibit development entirely in one area called the Preservation Area and transfer those rights to another area called the Receiving Area where there are little or no impediments to higher density, such as an area serviced by public water and sewer. The density is transferred from a "sending" parcel to a "receiving" parcel.

By creating receiving parcels as markets for the sale of unused development rights in the sending parcels, TDR program encourages the maintenance of low-density land uses, open spaces, historical features, critical environmental resources, and other sensitive features of the designated sending parcels. When the owner of a sending parcel sells development rights to the owner of a receiving parcel, the purchaser thereby increases the development rights beyond otherwise permissible limits.

In this manner, local governments can protect a variety of sensitive features while providing a mechanism to compensate any perceived diminution in land development potential. The TDR program is consistent with the Raynham Master Plan to further the conservation and preservation of natural and undeveloped areas, wildlife, flora, and habitats for endangered species; the preservation of coastal resources including aquaculture; protection of ground water, surface water, as well as other natural resources; balanced economic growth; the provision of adequate capital facilities, including transportation, water supply, and solid, sanitary, and hazardous waste disposal facilities; the coordination of the provision of adequate capital facilities with the achievement of other goals; the development of an adequate supply of affordable housing; and the preservation of historical, cultural, archaeological, architectural, and recreational values.

17.2 Definitions

Development Rights: Rights to develop a single-family house lot, expressed as the maximum number of lots permissible on a designated sending parcel or parcels under the applicable zoning and subdivision rules and regulations in effect on the date of the transfer of development rights. Development rights (house lots) are computed on a one for-one-basis. Determination of the

maximum number of development rights (house lots) available for transfer shall be made by the Special Permit Granting Authority (Planning Board).

Transfer of Development Rights (TDR): A development right (house lot) can be transferred from a sending parcel(s) to a receiving area. A "receiving area" is defined as a residential subdivision. Development rights can be transferred to multiple parcels, if multiple parcels are under consideration for a residential subdivision in order to increase the number of house lots for said development. The density of said development would be increased above existing zoning requirements in order to accommodate the transferred development rights.

Sending Parcel(s): A parcel or parcels of land determined by the Planning Board to be of special importance to remain in a natural state because of its visual prominence, potential vista impairment, ecological significance, fragility, special importance as farmland, its value for recreation, future Town water supply, or because it is important to the Town's Open Space Plan and/or Town's Master Plan. The sending parcel or parcels must be residentially zoned from which development rights may be transferred.

Receiving Area: A previously approved subdivision serviced by Town water or sewer, which can support the increased development and complies with the most recently amended Zoning Bylaws and Planning Board Rules and Regulations. A receiving area can also be a pending conventional subdivision that can support the increased development and complies with the most recently amended Zoning Bylaws and Planning Board Rules and Regulations.

17.3 Determination of Development Rights

(a) To establish the development rights available for transfer, the SPGA may require the applicant for residentially zoned land to submit a preliminary plan or a more detailed subdivision plan, as defined by the Planning Board's subdivision rules and regulations, to illustrate the number of lots or dwelling units.

(b) Development rights may be transferred at a rate expressed as the maximum number of lots permissible on a designated sending parcel or parcels under the applicable zoning and subdivision rules and regulations in effect on the date of the transfer of development rights.

(c) The lot must comply with all existing density limitations imposed by the Raynham Zoning Bylaws as well as those that may be imposed as a condition of a special permit and effective at the time of application for approval of the proposed development.

(d) The credited land must not be wetlands as defined in MGL 131 Section 40 or be used to satisfy lot area requirements for any other development.

17.4 Permanent Development Restrictions

Any lot or lots deemed to meet the standard of qualifying for a transfer must be permanently restricted from future development by way of a conservation restriction in accordance with Massachusetts General Law Chapter 184, Section 31-33 as most recently amended. Such restriction shall be submitted to the Planning Board prior to approval of the project and recorded at the Registry of Deeds/Land Court prior to the conveyance of any building lot.

A management plan may be required by the Planning Board, which describes how existing woods, fields, meadows or other natural areas shall be maintained in accordance with good conservation practices. Upon receipt of a special permit for development where such special permit is conditional upon the voluntary, permanent restriction of development rights, the land owner in the Receiving Area shall not receive any building permits until all documents described in this bylaw have been recorded in the appropriate Registry of Deeds.

17.5 Receiving Area

(a) An approved or proposed residential subdivision that is capable of supporting additional development. Town water and sewer must service the subdivision. The lot sizes for the receiving area cannot be less than one-half of the minimum requirements in Article Five: Intensity of Use Regulations; however, the lots sizes for the receiving can vary provided they are not less than half of the minimum requirements in Article Five: Intensity of Use Regulations.

(b) The Special Permit is not effective until the purchased development rights from the sending parcel or parcels are under a conservation restriction.

17.6 Title Recordation, Tax Assessment, and Restriction of Development Rights

(a) All instruments implementing the transfer of development rights shall be recorded in the manner of a deed in the Registry of Deeds of the jurisdiction for both sending and receiving parcels. The instrument evidencing such TDRs shall specify the map and lot number of the sending parcel(s) and the map and lot of the receiving parcel(s).

(b) The clerk of the Registry of Deeds shall transmit to the applicable town assessor(s) for both the sending parcel(s) and receiving parcel(s) all pertinent information required by such assessor to value, assess and tax the respective parcels at their fair market value as enhanced or diminished by the TDRs.

(c) The record owner of the sending parcel shall, within forty-five (45) days of receipt of a special permit authorizing TDRs, record at the Registry of Deeds a Conservation Restriction as defined by G.L. c. 184 §§31-33 running in favor of the Town prohibiting, in perpetuity, the construction, placement, or expansion of any new or existing structure or other development on said sending parcel. Evidence of said recording shall be transmitted to the Planning Board of the town in which the restriction has been placed, indicating the date of recording and deed book and page number at which the recording can be located. The grant of the special permit to transfer development rights shall be conditioned upon such restriction, and no special permit for a transfer of development rights shall be effective until the restriction noted above has been recorded at the Registry of Deeds.

17.6 Severability

If a court of competent jurisdiction holds any provision of this bylaw invalid, the remainder of the bylaw shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections of this bylaw shall not affect the validity of the remainder of the Town's zoning bylaw.

Cape Cod Commission Model Bylaws and Regulations Model Wetlands and Wildlife Habitat Bylaw and Regulation

Background

Barnstable County contains extensive areas of both fresh water and coastal wetlands. These areas include red maple swamps, Atlantic white cedar swamps, bogs, fresh and salt marshes, and wet meadows. One out of every four acres on Cape Cod is wetland. These wetland resources are important to both the environment and the economy of Cape Cod.

They provide important natural functions including ground water recharge, attenuation of pollutants, and wildlife and fisheries habitat, and they are a significant destination for residents and visitors seeking outdoor recreation opportunities including beaches, bird watching opportunities, fishing and other water sports. Wetland areas are also important for shellfishing, cranberry production and other resource-related industries on Cape Cod.

In addition, wetlands and waterbodies and their buffer areas are often areas which have a high likelihood of possessing archeological significance.

Most towns on Cape Cod have enacted non-zoning ("home rule") wetlands bylaws to further protection of local wetlands resources beyond that provided for in the Massachusetts Wetlands Protection Act. Many towns have also adopted local wetlands regulations pursuant to these bylaws.

Because there is so much variety among these bylaws and regulations and because the Massachusetts Association of Conservation Commissions has published a "model" wetlands protection bylaw, the Cape Cod Commission focused its efforts on creating a model bylaw and regulation language to assist towns achieve consistency with provisions included in the Regional Policy Plan.

These include: protection of isolated wetlands and vernal pools, limiting wetland alteration and replication, charging fees for consultants to assist with project review, and protecting wetland buffer areas. Also included is a sample wildlife habitat protection bylaw. Communities considering a complete rewrite of their local wetlands bylaw may want to consult the MACC model for other useful procedural language.

In many cases, amendments to local wetlands bylaws will be needed to insert these provisions. This is accomplished by majority vote at town meeting. A public hearing on these bylaw amendments is not required to be held prior to town meeting although the Conservation Commission may wish to hold one.

The bylaw will be reviewed by the Attorney General's office once it has passed, but becomes effective immediately. Wetlands bylaws generally specify the process for adoption and amendment of local bylaw regulations. This is most often accomplished simply by vote of the Conservation Commission at a public meeting, usually after a public hearing on the proposed regulations. Communities differ on philosophy with regard to what information should be included in bylaws versus regulations. This model contains recommendations for the content of each, but these can be reworked based on local preference.

Addition of these provisions to local wetlands bylaws and regulations will help communities better protect Cape Cod's sensitive wetland resources as well as demonstrate that the local bylaw is more protective than state law. In DeGrace v. Conservation Commission of Harwich, 31 Mass. App. Ct. 132 (1991), the Massachusetts Appeals Court refused to honor a local bylaw which mirrored the state law, saying the local legislation was pointless unless it went further than the minimum set by the state law.

Please note that the model bylaw and regulation language provided below differs in organization from the other model bylaws prepared by the Cape Cod Commission. The language that follows allows towns to "pick and choose" individual bylaw and regulation provisions for incorporation as stand alone provisions to existing wetland and wildlife habitat bylaws and regulations.

I. Protection of Vernal Pools /Isolated Wetlands

Commentary: Many of the Cape's wetlands occur as isolated kettle holes that do not meet the size thresholds for protection in the Wetlands Protection Act and do not border on other water bodies. The Regional Policy Plan encourages communities to protect all wetlands greater than 500 sq. ft. in area whether they border on waterbodies or not. Many of these isolated areas are also vernal pools which serve important wildlife habitat functions.

There is virtually no protection for the vast numbers of vernal pools located outside the boundaries of wetland resource areas. In addition, vernal pools that are not certified by the Massachusetts Natural Heritage and Endangered Species Program do not receive protection under the Wetlands Protection Act. The local wetlands bylaw should give the Conservation Commission authority to protect isolated wetlands and vernal pools in its "Jurisdiction" section regardless of size,

location, or certification. Based on this bylaw language, regulations can provide further definition of these areas as well as enumerate performance standards for their protection.

A. Bylaw language

Jurisdiction: Except as permitted by the Conservation Commission or as provided in this bylaw, no person shall commence to remove, fill, dredge, build upon, degrade, discharge into, or otherwise alter the following resource areas: any freshwater or coastal wetlands; marshes; wet meadows; bogs; swamps; vernal pools; banks; reservoirs; lakes; ponds of any size; rivers; streams; creeks; beaches; dunes; estuaries; the ocean; lands under water bodies; lands subject to flooding or inundation by groundwater or surface water; lands subject to tidal action, coastal storm flowage, or flooding; and lands abutting any of the aforesaid resource areas (collectively the "resource areas protected by this bylaw"). Said resource areas shall be protected whether or not they border surface waters.

B. Regulation Language

B.1 Definitions:

The term "vernal pool" shall refer to a seasonal fresh water body contained in a confined basin depression that holds water for a minimum of two consecutive months in most years, is free of adult fish populations, and provides breeding habitat for amphibians and invertebrates and other important habitat. Vernal pools include those areas mapped and certified by the Massachusetts Natural Heritage and Endangered Species Program as well as those areas identified in the field as eligible for certification by a professional wildlife biologist or other expert.

The term "freshwater wetlands" shall include all wetlands whether or not they border on a waterbody. For the purposes of this bylaw, all bordering vegetated wetlands, as well as all isolated vegetated wetlands encompassing at least 500 sq. ft. in area, shall be protected.

B.2 Performance Standards:

- a) No project shall be permitted which will have an adverse effect on a vernal pool or any naturally vegetated land area within 350' of a vernal pool by altering topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way as will result in any short-term or long-term adverse effect upon the vernal pool. No diversion of any new stormwater runoff into the vernal pool shall be permitted. The 350' buffer may be reduced in size where the applicant can demonstrate to the satisfaction of the Conservation Commission that a narrower buffer will adequately protect the vernal pool and its associated habitat. However, this buffer shall not be less than 100'.
- b) No alteration of any isolated vegetated wetland shall be permitted. No alteration of any area within 100' of any isolated vegetated wetland shall be permitted except as described below (see Section B below).

Note: The town of Mashpee has a detailed discussion of isolated wetlands in its wetland regulations. This includes definitions, boundary, critical characteristics and presumption of significance, and performance standards. A similar section is included for vernal pools.

II. Wetland Buffers/Expansion of Conservation Commission Jurisdiction Beyond 100'

Commentary: The Wetlands Protection Act does not provide direct protection for buffer areas surrounding wetlands that provide important functions, including mitigating stormwater impacts, sedimentation and erosion control, removing nutrients, and recharging groundwater. Research has documented the increase in nitrogen and phosphorus loading to wetlands as adjacent watershed areas are cleared of vegetation. Buffer areas play an important role in minimizing impacts of adjacent land uses and separating them from wetlands. Buffer areas also have important wildlife habitat value.

In order to provide protection for wetland buffer areas, the "Jurisdiction" language contained in Section 01.0 above, includes "lands abutting... resource areas." In addition, the following bylaw language is recommended. The case of Fafard v. Conservation Commission of Reading 41 Mass. App. Ct. 565 makes it clear that if a Commission wants to protect buffer areas the bylaw should provide authorization for it to do so. Commissions may expand their jurisdiction beyond 100' where appropriate by inserting language within the bylaw establishing such authorization.

For example, Commissions may want to expand their jurisdiction to protect land along rivers to mirror or expand upon the protection offered to the 200' Riverfront Area in recent amendments to the Wetlands Protection Act and regulations. Other areas that a town might consider for expanded jurisdiction include, but are not limited to extremely sensitive areas such as: land within 350' of vernal pools, land within 300' of coastal plain ponds, land within 300' of wetlands designated as estimated habitat for rare species by the Massachusetts Natural Heritage and Endangered Species Program and lands within Areas of Critical Environmental Concern (ACECs).

A. Bylaw language

Lands within 200 feet¹ of rivers, ponds and lakes, and lands within 100 feet of other resource areas, are presumed important to the protection of these resources because activities undertaken in close proximity to resource areas have a high likelihood of adverse impact to these resources, either immediately, as a consequence of construction, or over time, as a consequence of daily operation or existence of the activities. These adverse impacts from construction and use can include, without limitation, erosion, siltation, loss of groundwater recharge, poor water quality, and loss of wildlife habitat. The Commission therefore may require that the applicant

maintain a strip of continuous, undisturbed vegetative cover within this area, unless the applicant demonstrates to the satisfaction of the Commission that the area or part of it may be disturbed without harm to the values protected by the bylaw.

In the review of areas within 200 feet of rivers and streams, and within 100 feet of other resource areas, no permit issued hereunder shall permit any activities unless the applicant, in addition to meeting the otherwise applicable requirements of this bylaw, has proved by a preponderance of the evidence that 1) there is no technically demonstrated feasible alternative to the project with less adverse effects and that 2) such activities, including proposed mitigation measures, will have no significant adverse impact on the areas or values protected by this bylaw. The closer an activity is proposed to a resource area, the more scrutiny will be given to the potential impacts of a proposed project.

Any activity proposed or undertaken outside of the resource areas protected by this bylaw, as specified above, shall not be subject to jurisdiction of the Conservation Commission unless in the judgment of the Conservation Commission, said activity will result or has resulted in the alteration of a resource area protected by this Bylaw. "

B. Regulation Language

B.1 Presumption: Where a proposed activity involves work within 200 *feet* of [resource area]; the Commission shall presume that such area is significant to the interests specified in the Bylaw. This presumption is rebuttable upon clear and convincing evidence that the buffer area does not play a role in the protection of said interests (wetland values) protected by the Bylaw.

B.2 Performance Standards: No activity which will result in the alteration of land within 200 *feet* of [resource area] shall be permitted by the Conservation Commission with the following exceptions:

-
- a) planting of native vegetation or habitat management techniques designed to enhance the wetland values protected by the Bylaw;
 - b) construction and maintenance of unpaved pedestrian access paths not more than 4' in width;
 - c) maintenance of existing structures, utilities, stormwater management structures and paved areas;
 - d) construction and maintenance of water dependent structures and uses;
 - e) vista pruning and removal of dead and diseased vegetation consistent with Conservation Commission standards;
 - f) construction of new utility lines where the proposed route is the best environmental alternative;
 - g) septic system maintenance and, if a system has failed, repair/replacement meeting state/local standards where the maximum feasible buffer is maintained;
 - h) construction of accessory structures/uses associated with lawfully existing single family houses where the Conservation Commission finds that alternatives outside the buffer area are not available; the size and impacts of the proposed structure/use have been minimized; and the structure/use is located as far from the resource as possible;

i) Where a buffer area is already altered such that the required buffer cannot be provided without removal of structures and/or pavement, this requirement may be modified by the Conservation Commission provided that it finds that the proposed alteration will not increase adverse impacts on that specific portion of the buffer area or associated wetland and that there is no technically demonstrated feasible construction alternative;

j) Where a lot is located entirely within buffer area, the Commission may permit activities within the buffer area when the applicant has demonstrated that the proposed work has been designed to minimize impacts to the buffer area. As mitigation, the Commission may require the applicant to plant or maintain a naturally vegetated buffer of the maximum feasible width given the size, topography, and configuration of the lot.

III. Wetland Alteration/"Replication"

Commentary: The Wetlands Protection Act currently bans filling and alteration of salt marshes, but no similar protection is provided for inland wetlands. An unlimited amount of wetland may be filled to provide access to upland portions of a site. In addition, the Act permits alteration of up to 5000 sq. ft. of wetlands if the wetlands are "replicated" elsewhere on the site. However, numerous studies have suggested that wetland replication (conversion of upland to manmade wetland) does not adequately replace the complex natural functions and productivity provided by the altered natural wetlands. The preface to the Wetlands Protection Act regulations also recognizes that the functions served by vegetated wetlands cannot be replicated in their totality by engineering means. In response, the Regional Policy Plan prohibits the alteration of wetlands in most

circumstances and does not recognize replication as an acceptable form of mitigation.

A. Bylaw Language

Alteration of resource areas protected by this bylaw shall not be permitted except that the Conservation Commission is authorized to permit, in its discretion, wetland alteration necessary for water dependent uses, public projects, or the construction and maintenance of utilities. Where such alteration is unavoidable, it shall be minimized and the Conservation Commission shall require mitigation sufficient to ensure the protection of the wetland values in this Bylaw. In order to promote the wetland values and interests of this bylaw, no wetland alteration shall be mitigated by or compensated for in any way by the creation of a substitute or artificial freshwater wetland, coastal wetland, marsh, meadow, bog, swamp, pond or any land subject to tidal action, coastal storm flowage or flooding.

B. Regulation Language

Pursuant to the Wetlands Bylaw, the Conservation Commission will not permit wetland alteration except in the following circumstances:

- water dependent uses and structures;
- construction of new utilities and operation and maintenance of existing utility lines;
- public projects

In all cases where wetland alteration is permitted, the Conservation Commission must find that there is no feasible alternative to the proposed construction, that the amount of wetland alteration is the minimum necessary to accomplish the goals of the project , and that acceptable mitigation has been provided to foster the values and interests protected by the Wetlands Bylaw. Acceptable mitigation includes: permanent protection of wetlands and buffer areas on-site or off-site by conservation restriction or donation in fee; or other methods which, in the opinion of the Conservation

Commission, will sufficiently enhance wetland protection in the Town of _____ to compensate for the proposed wetland alteration.

IV. Consulting Fees

Commentary: Many communities desire to assess applicants for the cost of professional review of proposed plans, since this cost is often not covered by application fees and can vary widely based on the type of project proposed. Consulting fees must be authorized by a local bylaw before they can be assessed by a community. The town must clearly specify what these fees can be used for, how they are assessed, and what the maximum fee can be. Any unexpended portions must be returned to the applicant, although a portion could be retained during a monitoring period. Revolving funds must be separately authorized by a vote of town meeting and reauthorized annually.

MACC recommends the following language: "Will the Town hereby accept the provisions of G.L. Ch. 44, Section 53E 1/2 for purposes of administering the consultant fee provision of the Wetlands Protection Bylaw, and further that the Conservation Commission may expend same without appropriation for expenses reasonably related to its duties and responsibilities as provided above; that expenditures from same shall not exceed [\$ amount] in Fiscal Year _____; that the Conservation Commission will report to the next annual town meeting on receipts and expenditures of the revolving fund; that any balance in the revolving funds shall revert to surplus revenue unless otherwise voted by town meeting; and that the revolving fund in order to continue in existence need be reauthorized by each subsequent annual town meeting."

A. Bylaw language

"Upon receipt of a Notice of Intent or Request for Determination of Applicability, the Commission is authorized to require an applicant to pay a fee for the reasonable costs and expenses borne by the Commission for specific expert engineering and other consultant services deemed necessary by the Commission to come to a final decision on the application. The fee is called the "consultant fee." The specific consultant services may include, but are not limited to, performing or verifying the accuracy of resource area survey and delineation; analyzing resource area functions and values, including wildlife habitat evaluations, hydrogeologic and drainage analysis; and researching environmental or land use law.

The Commission may require the payment of the consultant fee at any point in its deliberations prior to a final decision. If a revolving fund for consultant expenses is authorized by town meeting, or by any general or special law, the applicant's fee shall be put into such revolving fund, and the Commission may draw upon that fund for specific consultant services approved by the Commission at one of its public meetings. Any unused portion of the consultant fee shall be returned to the applicant unless the Commission decides at a public meeting that additional services will be required.

The exercise of discretion by the Commission in making its determination to require the payment of a consultant fee shall be based upon its reasonable finding that additional information acquirable only through outside consultants would be necessary for the making of an objective decision. Any applicant aggrieved by the imposition of, or size of, the consultant fee, or any act related thereto, may appeal according to the provisions of the Massachusetts General Laws.

The maximum consultant fee charged to reimburse the Commission for reasonable costs and expenses shall be according to the following schedule:

Project Cost	Maximum Fee
Up to \$100,000	\$500
\$100,001 - \$500,000	\$2500
\$500,001 - \$1,000,000	\$5000
\$1,000,001 - \$1,500,001	\$7500
\$1,500,001-\$2,000,000	\$10,000

Each additional \$500,000 project cost increment (over \$2,000,000) shall be charged an additional \$2,500 maximum fee per increment.

The project cost means the estimated, entire cost of the project including, but not limited to, building construction, site preparation, landscaping, and all site improvements. The consultant fee shall be paid pro rata for the portion of the project cost applicable to those activities within resource areas protected by this bylaw including wetland buffer areas. The project shall not be segmented to avoid being subject to the consultant fee. The applicant shall submit estimated project costs at the Commission's

request, but the lack of such estimated project costs shall not avoid the payment of the consultant fee.

B. Regulation Language

Upon a determination by the Conservation Commission that consultant fees are necessary for a proposed project, the Conservation Commission shall request the applicant to provide a statement regarding the total project cost.

The Conservation Commission shall request a written estimate from a qualified consultant(s) of its choosing as to the cost of providing the request services. Said estimate shall be provided to the applicant and the applicant shall forthwith transmit a check for the amount of the review, provided it does not exceed the amount specified by the bylaw.

The Conservation Commission's consultant shall not begin work until payment is made by the applicant. Once the review is completed, the Commission shall release any unexpended funds to the applicant. If the actual charges are more than the estimated charges, the applicant will be required to pay the additional cost (up to the maximum specified in the bylaw) prior to authorization of further work and prior to rendering of the Commission's decision.

All consultants are retained and supervised by the Conservation Commission. All requests for meetings, site visits, reports, and questions of the consultant shall be routed through the Conservation Commission or Administrator unless the Commission authorizes the Consultant to work directly with the applicant to resolve project-related issues. A copy of all consultant reports shall be provided by the Commission to the applicant in a timely manner.

V. Variances

Commentary: In some circumstances it may be helpful for a Conservation Commission to have a variance process in place. Two examples are suggested here.

A. Bylaw Language (variances from Bylaw standards)

The Conservation Commission may, in its discretion, grant variances from the specific requirements of these regulations

pursuant to this Section. The Conservation Commission may grant a variance from these regulations when an overriding public interest is demonstrated or when it is necessary to avoid so restricting the use of the property as to constitute an unconstitutional taking without compensation pursuant to the Massachusetts or United States Constitution(s).

The intent of this section is to ensure that reasonable use may be made of such property; however, the extent of use shall be limited in so far as is necessary to protect the resource(s) of interest, and to ensure that there is no foreseeable danger to the public health or safety. In all cases, the burden of proof shall be on the applicant to demonstrate maximum feasible compliance with the requirements of this Bylaw and regulations. The Conservation Commission may require mitigation to offset adverse impacts to resource areas protected by this Bylaw.

B. Regulation Language (waivers from standards in regulations and variances from Bylaw standards)

The Commission may waive the application of any performance standard herein when it finds, after opportunity for a hearing that:

- a) there are no reasonable conditions or alternatives that would allow the project to proceed in compliance with these regulations;
- b) mitigating measures are proposed that will allow the project to be conditioned so as to contribute to the protection of the resource values identified in the Wetlands Bylaw; and
- c) that the project is necessary to accommodate an overriding public interest or that it is necessary to avoid a decision that so restricts the use of property as to constitute an unconstitutional taking without compensation.

VI. Procedure

A request for a variance or waiver shall be made in writing and shall include, at a minimum, the following information:

- a) a description of the alternatives explored that would allow the project to proceed in compliance with the performance standards in these regulations and an explanation of why each is not feasible;
- b) a description of the mitigating measures to be used to contribute to the protection of the resource area values identified in the Wetlands Bylaw.
- c) evidence that an overriding public interest is associated with the project which justifies modifying one or more performance standards in these regulations, or evidence that the decision regarding the permit application would so restrict the use of the land that it constitutes an unconstitutional taking without compensation.
- d) in the event a taking claim is being made, the following additional information shall be submitted:
 - 1. documentation that the subject property is legally and/or equitably owned by the applicant, including the date of acquisition. Also, identification of all property in contiguous ownership, including contiguous properties in which the Applicant has a present, future or past fee interest or beneficial interest and documentation of the assessed value of the said contiguous property.
 - 2. documentation of the assessed value of the property subject to regulation as well as documentation of acquisition costs, proceeds received to date, expected proceeds (including copies of purchase and sales agreements, expenditures, and any other financial and economic data relevant to the waiver/variance request.

3. documentation of the value of the loss alleged to result from compliance with the relevant performance standards from which a waiver/variance is sought.

e) The request for waiver/variance shall be sent to the Commission by certified mail or hand delivered and a copy thereof shall at the same time be sent by certified mail or hand delivered to any other parties in interest.

Upon receipt of a request for a waiver/variance, the Commission shall within 21 days select a hearing officer to conduct the hearing and report to the Commission their findings relative to the request. The applicant shall pay for the services of the hearing officer.

f) Within 21 days of receiving the report of the hearing officer, the Commission shall issue a decision as to whether to grant the waiver/variance request. Such decision shall set forth the findings as required herein.

VII. Habitat Protection

Background

There are a variety of mechanisms to protect plant and wildlife habitat at the local level. Habitat protection occurs at two different scales: landscape level habitat protection and site-specific habitat protection.

At the landscape scale, planning is an important component of a habitat protection program. Towns should identify important wildlife travel corridors and large areas of unfragmented woodlands. The Regional Policy Plan's Significant Natural Resource areas map can serve as a starting point for communities to identify important habitat protection areas.

Once these areas are identified, towns can protect habitat at the landscape level through a variety of mechanisms including: land acquisition programs; adoption of cluster bylaws that contain design standards for open space that foster wildlife corridors and protection of unfragmented habitat; revision of zoning bylaws to limit uses and/or density in sensitive areas; adoption of wildlife corridor bylaws that protect important wildlife migration areas; and adoption of bylaws and regulations designed to minimize clearing and grading and encourage the planting of native vegetation.

Site-specific habitat protection occurs as specific development proposals are being reviewed. Communities can use a variety of tools at this scale including: a

special permit and subdivision regulation requirement for a plant and wildlife habitat evaluation prior to development to identify the most critical areas within a site (the Cape Cod Commission has examples of such requirements); an assessment of the impacts of the project and proposed mitigation; requirements for vegetated buffers adjacent to wetlands and other critical habitats; landscaping requirements, revegetation and site restoration requirements; and minimizing perimeter fencing that could block the movement of wildlife (generally fencing, if not open or split rail style, should be less than 40" in height and set 10-12" off the ground).

Habitat protection also requires community education since many adverse impacts to wildlife habitat occur from pets, dumping yard debris, fencing and other impacts that are difficult to address through bylaws or enforcement.

Habitat protection often falls through the cracks in many communities because no single board or committee has responsibility for addressing this issue during the development review process. Conservation Commissions have the authority under the Wetlands Protection Act to preserve wildlife habitat as it relates only to wetland resource areas (and the 100' buffer) under their jurisdiction, but absent a local bylaw that specifies others they do not have any authority in upland areas. In addition, state law provides for protection of rare species, but there is no protection for the more common, yet important species of flora and fauna and their habitat.

The Town of Falmouth has adopted a Habitat Protection Bylaw as a Zoning Overlay District. Excerpts from the Falmouth bylaw are included below:

A. Purpose: Given that an enumerated purpose of zoning is the conservation of natural resources and that wildlife is a valued natural resource in Falmouth and finding that the Commonwealth of Massachusetts has established the importance of protecting wildlife through numerous laws, and finding that Falmouth has a significant stock of wildlife which moves through a large, defined area of town, and further finding that development under zoning can be designed to co-exist with the wildlife and important habitat areas, the purpose of this Bylaw is to establish and protect permanent and contiguous corridors and special areas for the feeding, breeding and normal home range movement of wildlife through the defined habitat areas.

B. Applicability: All uses of land within the Wildlife Overlay District as shown on the Official Zoning Map shall be subject to the requirements of these sections. This includes:

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1. All subdivisions and divisions of land;
 2. All special permits;
 3. All site plan reviews;
 4. As-of-right construction if it involves an area of disturbance greater than one-fourth acre or movement of material totaling more than 2,000 cubic yards.

C. Procedure

C.1 Upon submittal to a local board of plans for development, all plans subject to this section shall be referred to the Natural Resources Department.

C.2 Within thirty-five days of such referral, the Natural Resources Department shall file a recommendation with the reviewing agency. This time may be extended at the request of the applicant. These recommendations shall be considered prior to the final decision of the agency, and all restrictions to the property added by the reviewing agency as a result shall be shown on the final approved plan.

C.3 All areas on the plan set aside for protection of wildlife habitat shall be permanently protected as open space by the town or a nonprofit conservation trust or shall be subject to a permanent conservation restriction consistent with MGL Ch. 184, Section 31-33.

D. Standards

D.1 For those sites within mapped Wildlife Migration areas, the following standards shall apply:

D.1.1 Subdivisions which total more than 5 acres in the AGA, AGB, RA, PU, and RB Zones and more than 20 acres in the AGAA and RAA Zones shall submit to the Planning Board a preliminary cluster subdivision plan. The Planning

Board shall encourage the submittal of a cluster-type definitive subdivision in accordance with the [cluster bylaw] if it facilitates that purpose of this Article.

D.1.2 The applicant shall establish contiguous corridors with a minimum three-hundred-foot width across the subject site and to adjacent parcels and corridors. Corridors less than three hundred feet in width may only be allowed upon a finding by the reviewing agency that the purpose of this Bylaw is not compromised and the proper mitigating measures are provided.

D.1.3 Fencing or any structural barrier to wildlife movement within corridors shall be prohibited.

D.1.4 The applicant shall ensure that drainage from roadways is diverted away from depressed areas that may be used as shelter for wildlife.

D.1.5 Natural, indigenous vegetation shall be encouraged or enhanced by the project. Disturbed areas shall be revegetated as rapidly as possible within a time required by the reviewing agency.

D.1.6 Dramatic changes in topography shall be discouraged and the footprint of disturbed areas shall be limited.

¹ Note that numbers in italics may be varied and are included here as an example.

Cluster Bylaw (Cluster Housing)

In order to permit maximum flexibility for developing land for single family housing, and to encourage the preservation of open space and promote the more efficient use of the land in harmony with its natural features, tracts of land consisting of eight (8) acres or more in the following districts; R 80, R 40 and RR 40, shall be made available for cluster housing subject to the requirements of this Section.

To afford the Town of Mattapoisett ample assurance that such developments will enhance the amenities of the neighborhoods in which they occur, and the Town as a whole, Cluster Housing may be constructed by filing a cluster subdivision plan under the subdivision control law, M.G.L., Ch. 41, Sec. 81k-81GG with the Planning Board as hereinafter defined.

1. Statement of Purpose

Cluster residential housing shall be designed to achieve the following goals:

- a. To encourage the more efficient use of land in harmony with its natural features;
- b. To encourage creativity in the design of developments through a carefully controlled process;
- c. To encourage a less sprawling form of development, a shorter network of streets and utilities, more economical development of land with less consumption of open space;
- d. To preserve permanently, natural topography and wooded areas within developed areas, and to preserve usable open space and recreation facilities close to home;
- e. To provide an efficient procedure to ensure appropriate high quality design and site planning to enhance the neighborhoods in which they occur and the Town as a whole;

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- f. To promote diverse housing at a variety of costs, and in particular housing types that meets the needs of the Town's aging population.
 - g. To support alternative residential development that has a positive impact on the community and incorporates unique public benefits.
 - h. To ensure that alternative residential development is compatible with surrounding land uses and that the impacts on public services will not exceed conventional residential development.

2. Filing of Application

Each application for a cluster subdivision shall be filed with the Planning Board in accordance with the provisions of Section VII.B.2, with a copy filed forthwith with the Town Clerk. The application for a cluster subdivision shall be accompanied by a preliminary plan showing the dimensions and area of lots as they might be established under conventional zoning. Submissions shall be governed by the Planning Board's Rules and Regulations for the Subdivision of Land, by the zoning requirements for cluster subdivision contained in this by-law and by such other regulations governing cluster development as may be adopted and amended from time to time.

A pre-application meeting with the Planning Board prior to formal submission of the application is recommended.

3. Contents of Applications

Said application and plan shall be prepared in accordance with the of the Rules and Regulations of the Planning Board Governing the Subdivision of Land and shall include:

- a. The number of dwellings which could be constructed under this By-Law by means of a conventional subdivision plan, considering the whole tract, exclusive of waterbodies and land prohibited from development by legally enforceable restrictions, easements, or covenants and excluding areas not suitable for development such as wetlands or steep slopes.

b. An analysis of the site, including wetlands, slopes, soil conditions, areas within the 100 year flood plain or velocity zone, trees over eight (8) inches diameter and such other natural features as the Planning Board may request.

c. A description of the neighborhood in which the tract lies, including utilities and other public facilities, and the impact of the proposed plan upon them.

d. Evaluation of the open space proposed within the cluster, with respect to size, shape, location, natural resource value, relationship to Mattapoisett Growth Management and Land Use Plan, Mattapoisett Open Space and Recreation Plan as they are from time to time adopted, and accessibility by residents of the Town and of the cluster.

e. Location, bulk and height of all proposed buildings with design characteristics such as: building material, architectural style, scale and massing relative to abutting structures, interior layouts, streets, site and building landscaping.

f. Such additional information as may be required to enable the Planning Board to make the findings required under this section

4. Review by other Boards

The review of a cluster subdivision shall follow the requirements as identified in Chapter III, Procedure submission and approval of plans, of the Mattapoisett Subdivision Rules and Regulations.

5. Public Hearing

The Planning Board shall hold a public hearing under this section in conformity with the provisions of G.L. c.40A, s.9

6. Uses and Density

a. Uses - The permitted uses in the Cluster Housing may include single family homes on separate lots and open space subject to the restrictions of Section H.15.

b. Density - The base number of units shall be determined by showing on a preliminary subdivision plan the total number of lots that could be obtained from the tract by utilizing a conventional subdivision plan in accordance with the Rules and Regulations of the Planning Board Governing the Subdivision of Land. Wetlands, as defined under the Wetlands Protection Act, water bodies, and any land otherwise prohibited from development by local By-Law or regulation shall not be included in the overall area when calculating density. The burden of proof shall be upon the applicant in determining the allowable number of units.

Where the site proposed for Cluster Housing includes more than one (1) ownership and/or lies in more than one (1) district, the number of units allowed shall be calculated as above for each district and summed to give an overall allowable density total without respect to allowable sub-totals by district or ownership areas.

c. Density Bonus - A Cluster subdivision can increase the base density of the development up to a maximum density bonus of 25%, if the following objectives/requirements are met:

- i. Two (2) additional units for each acre of open space land preserved that exceeds the 40% minimum.
- ii. One (1) additional unit for each affordable unit.

An additional Density Bonus of (10%) may be requested through a special permit application with the Planning Board .

iii. The land area to be preserved as open space is of exceptional resource value, because of special habitat, fragile terrain, scenic importance, historic or agricultural value, critical public recreational need, or other distinguishing quality, or the open space area exceeds 50% of the total property, or the development provides a significant public benefit in the form of public infrastructure or special facility provision including, but not limited to:

improvements as may be identified in Mattapoissett's Growth Management and Land Use Plan and/or Capital Improvement Plan, bikeways, walking trails, sidewalks, playgrounds, playfields, other active public recreation facilities, and sewer or water line extensions that service more than the proposed development.

iv. The Planning Board finds that the additional density will not be a burden on public facilities;

v. The Planning Board finds, after consultation with the Board of Health, that the additional density will not threaten the quality of ground or surface waters; and

7. Dimensional Requirement

a. The total area of the tract to be developed shall not be less than eight (8) acres.

b. The following minimum dimensional regulations shall apply in lieu of those identified in Section VI:

Minimum lot area 15,000 sq. ft.

Minimum lot frontage 100 ft.*

Minimum front yard setback 25 ft.

Minimum side and rear yard setback 10 ft.

Maximum lot coverage 25%

Maximum building height 35 ft.

(FN *)A lot with frontage on tidal water or the non-tidal portions of the Mattapoisett River shall have a minimum shore frontage of 150 feet measured in a straight line between the point of the intersection of the side lot lines with the shore at normal high water elevation.

c. The minimum width of common open space shall be thirty (30) feet.

8. Lots

a. Each building lot shall contain a site which, subject to the approval of the Board of Health, may be suitable for an on-site septic disposal system, or will be served by a public sewer. The requirement for an on-site system may be waived where the Board of Health approves a variance for a clustered leeching field serving more than one (1) home;

b. Each lot shall be of a size and shape as shall provide a building site which shall be in harmony with the natural terrain and other features of the site.

c. The front, side and rear yards of each lot shall be shown on the plan by dashed lines indicating the area within which a building may be built.

d. Wherever possible, new lots in a cluster development shall front on newly created streets serving the cluster rather than the existing street system from which the cluster takes its access. A development which shows all lots clustered on an existing Town street and with all of the interior land dedicated to open space, generally will not be approved unless unusual conditions of the land apply.

9. Design Standards

a. The housing shall provide for an effective and unified treatment of the development possibilities of the project site making appropriate provision for the preservation of natural features and amenities of the site and the surrounding areas wherever possible.

b. The housing shall be planned and developed to harmonize with any existing or proposed development in the area surrounding the project site wherever possible.

c. All housing shall be arranged so as to preserve visual and audible privacy between adjacent houses wherever possible.

10. Landscape Design Standards

a. Whenever possible, existing trees and vegetation shall be preserved and integrated into the landscape design plan.

b. Whenever possible, the existing terrain shall be preserved and earth moving shall be kept to a minimum.

c. Suitable indigenous shrubs and other plant material may be used for screening. Lands used for buffers may be maintained as common open space or as private open space subject to a deed restriction.

d. Wherever possible existing trees and vegetation along the Town's existing street system shall be preserved with the only intrusions being the rights-of-way for new streets.

e. Negative visual impacts of the development, if any, shall be adequately screened from adjacent properties and nearby streets by landscaping and other site plan techniques.

11. Circulation System

There shall be an adequate, safe and convenient arrangement of roadways and driveways. Wherever possible, access driveways to individual lots shall be off the interior street system rather than the existing major roadway system of the Town.

12. Common Open Space

a. Provision shall be made so that at least forty (40) percent of the land area shall be open space and that the open space shall include all land not dedicated to roads or lots. The open space is intended to provide an open natural area for the active and passive recreation use and visual enjoyment of the occupants of the residential development, and in some cases, for residents of the adjacent neighborhood and the public generally. Of this open space, at least 60% must be useable -upland area with well drained soils that is suitable for recreational use.

b. Areas which are considered by the Planning Board as marginal or unsuitable for building, such as floodplains, wetlands, water areas, steep slopes, highly erodible or poorly drained soils, areas of very shallow bedrock, or of very high water table shall not be counted towards the common open space.

c. To the maximum extent possible, the open space provided shall be consistent with the open space and trails system proposals of the Mattapoissett Growth Management and Land Use Plan and the Mattapoissett Open Space and Recreation Plan as they are from time to time adopted.

d. Open space may be utilized as natural courses for disposal for storm drainage on the sites, but can not be used to meet the above requirement for useable land area. No conditions are allowed which

are likely to cause erosion or flooding of any structures.

e. Such open space may be in one (1) or more parcels of a size and shape appropriate for its intended use as determined by the Planning Board.

f. The common open space shall increase visual amenities for residents of the development and residents of the adjacent neighborhoods.

g. The common open space should be readily accessible to those it is designed to serve, whether the residents of the cluster development or the general public.

13. Ownership of Common Open Space

The open space, and such other facilities as may be held in common, shall be conveyed in one (1) of the following manners, and determined by the Planning Board:

a. Land to be used by Residents of the Cluster Housing to a corporation or trust comprising a Homeowners Association whose membership includes the owners of all lots contained in the tract. The developer shall include in the deed to the owners of individual lots, beneficial rights in said open space, and shall grant a conservation restriction to the Town of Mattapoisett over such land pursuant to G.L. c.184, s.31 - 33, to insure that such land be kept in an open and natural state and not built upon for residential use or developed for accessory uses such as parking or roadways. This restriction shall be enforceable by the Town in any proceeding authorized by G.L. c.184, s.33. In addition, the developer shall be responsible for the maintenance of the common land and any other facilities to be held in common until such time as the Homeowners Association assumes such responsibility. In order to ensure that the Association will properly maintain the land deeded to it under this section, the developer shall cause to be recorded at the Plymouth County Registry of Deeds a Declaration of Covenants and restrictions which shall, at a minimum, provide for the following:

1) mandatory membership in an established Homeowners Association as a requirement of ownership of any lot in the tract;

2) provision for maintenance assessments of all lots in order that the open space is maintained in a condition suitable for the uses approved by the Homeowners Association. Failure to pay such assessment shall create a lien on the property assessed, enforceable by either the Homeowners Association or the owner of any lot;

3) provision which, so far as possible under existing law, will ensure that the restrictions placed on the use of land will not terminate by operation of law.

b. Land to be Made Accessible to the General Public to a non-profit organization such as the Mattapoissett Land Trust, the principal purpose of which is the conservation of open space, the developer or charity shall grant a conservation restriction as set out above. If the non-profit organization ceases to exist as a legal entity, all lands conveyed under this section shall revert to the Town of Mattapoissett.

or

To the Town of Mattapoissett for park or open space use, subject to acceptance by the Town for management by an agency of the Town, with covenants insuring that it be maintained as open space.

14. Use of Open Space

Subject to the provisions of Section H.14, the open space may be used for recreational purposes including walking and riding trails, golf courses, tennis courts, gardens and swimming pools. The Planning Board may permit open space owned by a Homeowners Association to be used for individual septic systems, or community (cluster) septic systems if it, and the Board of Health, are convinced that proper safeguards exist for proper management of a communally owned system. Land area used for septic systems can not be used to meet the above requirement for useable land area.

In all cases, a perpetual restriction of the type described in G.L. c.184, s.31 (including future amendments thereto and corresponding provisions of future laws) running to or enforceable by the Town shall be recorded in respect to such land. Such restriction shall provide that the common open space shall be retained in perpetuity for one or more of the following uses: conservation, recreation, open space or park. Such restriction shall be in such form and substance as the Planning Board shall prescribe and may contain such additional restrictions on development and use of the common open space as the Planning Board may deem appropriate.

15. Further Conditions

No lot shown on a plan for which a permit is granted under this section may be further subdivided, and a note to this effect shall be shown on the plan. Subsequent to granting the permit, the Planning Board may permit minor adjustments of lot lines within the cluster, that do not result in the creation of additional lots. However, any change in overall density, street layout, or open space layout will require further hearings.

- a. No Certificate of Occupancy shall be issued by the Building Inspector until he has certified to the Planning Board that the roadway, drainage and premises have been built in accordance with the plan approved by the Planning Board hereunder.
- b. The Planning Board may impose other conditions, safeguards, limitation on time and use, as it deems reasonable to achieve the stated purposes of this section.

Appendix C:

Public Access Board Report



Commonwealth of Massachusetts
Department of Fisheries, Wildlife & Environmental Law Enforcement

Public Access Board

1440 Soldiers Field Road • Brighton, Massachusetts 02135
(617) 727-1843 • FAX (617) 727-7214

John P. Sheppard, Director

October 9, 2002

Mr. Patrick E. Rogers, Team Leader
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative
20 Riverside Drive
Lakeville, Massachusetts 02347

Re: Taunton River Watershed

Dear Mr. Rogers:

On behalf of the Public Access Board (PAB), thank you for taking the time to accompany me on site visits along the Taunton River. This letter report is a summary of the sites visited and an evaluation of the potential to be developed as PAB cartop boat access.

The sites were evaluated based upon the following criteria (see Tables 1 and 2):

- The site (land) and water body must be publicly owned;
- There must be a demonstrated recreational need for the project;
- The site must have a safe access into and out of the water;
- The site must have or have the potential for adequate parking;
- The site must have a responsive municipal managing authority to maintain the site (a party willing to enter into a Land Management Agreement); and
- The project must be consistent with the mission of DFWELE.

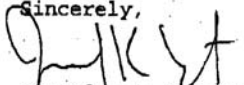
Based upon the site inspections and the information reviewed, the PAB has short-listed two (2) sites for potential development:

- the site located on Summer Street at the bridge in Bridgewater, MA; and
- the site located at Weir Park in Taunton, MA.

Any additional information regarding these sites would be helpful in moving the process along.

Please feel free to contact Director John Sheppard or myself at (617) 727-1843 if you have any questions. Thank you again for your interest and support in the PAB; we look forward to working with you.

Sincerely,



Jennifer K. Wright
Civil Engineer

cc: John P. Sheppard, Director
Anthony Stella, P.E., Conservation Engineer
File

TABLE 1 - LIST OF SITES
POTENTIAL CARTOP PUBLIC ACCESS
VISITED ON OCTOBER 1, 2002
TAUNTON RIVER

	Site Location (ID)	Municipality	Inspected October 1, 2002
1	Cherry Street at new bridge	Bridgewater and Halifax	yes
2	Auburn Street closed off to public use - no bridge	Bridgewater and Middleborough	yes
3	Summer Street at the bridge	Bridgewater and Middleborough	yes
4	Titicut Street at the bridge	Bridgewater and Middleborough	yes
5	Route 18/28 at the bridge	Bridgewater and Middleborough	yes
6	Plymouth Street at the bridge	Bridgewater and Middleborough	yes
7	Vernon Street at the bridge	Bridgewater and Middleborough	yes
8	Titicut Reservation dirt roadway	Raynham	yes
9	Route 44 at the bridge	Raynham and Taunton	yes
10	South St. East at the bridge	Raynham and Taunton	yes
11	Weir Park E. Water Street	Taunton	yes

TABLE 2 - EVALUATION OF SITES
POTENTIAL CARTOP PUBLIC ACCESS
VISITED ON OCTOBER 1, 2002
TAUNTON RIVER

Location (ID)	Publicly Owned Land	Recreational Need	Safe Access		Available Parking	Managing Authority
Biddewater, Massachusetts						
			Into Water	Out of Water		
Cherry Street at new bridge	no (MHD easement)	yes informal fishing and cartop	no	no	no (road only)	to be determined
Auburn Street closed off to public use - no bridge	yes (road only)	no existing public use	no	no	yes (road only)	to be determined
Summer Street at the bridge	yes Commonwealth of Massachusetts	yes informal existing access	yes	yes	yes	to be determined land use agreement
Titicut Street at the bridge	yes Commonwealth of Massachusetts	no informal access <1 mile	no	no	no	to be determined
Route 18/28 at the bridge	yes Commonwealth of Massachusetts	no	no	no	no	to be determined
Plymouth Street at the bridge	no	no	no	no	no	to be determined
Vernon Street at the bridge	no	no	no	no	no	to be determined

TABLE 2 - EVALUATION OF SITES
POTENTIAL CARTOP PUBLIC ACCESS
VISITED ON OCTOBER 1, 2002
TAUNTON RIVER

Site Location (ID)	Publicly Owned Land	Recreational Need	Safe Access			Available Parking	Managing Authority
			Into Water	Out of Water	Cartop		
Cherry Street at new bridge	no (MHD easement)	yes informal fishing and cartop	no	no		no (road only)	to be determined
Middleborough, Massachusetts							
Auburn Street closed off to public use - no bridge	yes (road only)	no existing public use	no	no		yes (road only)	to be determined
Bummer Street at the bridge	no	no	no	no		no	to be determined
Triticut Street at the bridge	no	no informal access <1 mile	no	no		no	to be determined
Route 18/28 at the bridge	no	no	no	no		no	to be determined
Plymouth Street at the bridge	no	no	no	no		no	to be determined
Vernon Street at the bridge	no	no	no	no		no	to be determined

TABLE 2 - EVALUATION OF SITES
POTENTIAL CARTOP PUBLIC ACCESS
VISITED ON OCTOBER 1, 2002
TAUNTON RIVER

Site Location (ID)	Publicly Owned Land	Recreational Need	Safe Access		Available Parking	Managing Authority
			Info Water	Put of Water		
Tiltcut Reservation dirt roadway	yes	no existing public use	no	no	no	to be determined
Route 44 at the bridge	no	yes informal cartop	no	no	no	to be determined
South St. East at the bridge	no	yes informal fishing	no	no	no	to be determined
Taunton, Massachusetts						
Route 44 at the bridge	no	yes informal : cartop	no	no	no	to be determined
South St. East at the bridge	no	yes informal fishing	no	no	no	to be determined
Weir Park E. Water Street	yes City of Taunton	yes formal cartop and trailer access	yes	yes	yes	to be determined land use agreement

Appendix D: Letters From Towns

Coastal Institute
Narragansett Bay Campus
University of Rhode Island
Narragansett, RI 02882

**R.I. BAYS, RIVERS &
WATERSHEDS
COORDINATION TEAM**

Tel 401.874.6233
Fax 401.874.6899

www.ci.uri.edu/ribayteam

July 27, 2005

Ms. Rachel Calabro
Southeastern Regional Planning and Economic Development District
88 Broadway
Taunton, MA 02780

Dear Ms. Calabro,

I am writing this letter on behalf of the seven directors of Rhode Island state agencies and organizations who are members of the Rhode Island Bays, Rivers and Watersheds Coordination Team – a collaborative effort to work together on solutions for our waters and watersheds lands. Upon reviewing the work you and your partners have done to create a Taunton River Stewardship Plan and to collectively organize local groups and governments, the Team wishes to express its support for the Taunton River application for Wild and Scenic River designation.

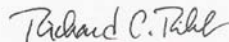
The underlying principles of Wild and Scenic designation are in synch with the goals identified for the R.I. Bays, Rivers and Watersheds Coordination Team: to keep designated rivers free flowing; to protect outstanding natural and cultural values; to allow existing uses of rivers to continue where they do not conflict with river protection; and to build partnerships among landowners, river users, tribal nations, and all levels of government. These principles have proven to be key factors of success in many watershed protection efforts and in the Taunton watershed you have done a great job coalescing grassroots and political energy around them.

The Wild and Scenic Rivers designation process has brought together people from across the watershed to identify problems and solutions and to recognize the natural and cultural values that define what it means to live in the Taunton River watershed. Awareness of the river system and the benefits it brings has been raised in the minds of the public and policy-makers.

It is our hope that the designation will encourage basin-wide management that crosses political boundaries and helps better protect not only the Taunton watershed but the waters and coastal watersheds draining to Narragansett Bay.

The grassroots energy and effort displayed in your watershed has been truly impressive and provides an inspiration for all people who care for our rivers, lands and bays. The R.I. Bays, Rivers & Watersheds Coordination Team wishes to strongly endorse the Taunton River watershed's application for Wild & Scenic River designation and we urge the federal government to move swiftly to accept and approve this proposal. Wild and Scenic designation of the Taunton River will provide benefits across the region for generations to come.

Sincerely,



Richard Ribb, Acting Chair

R.I. Rivers Council, R.I. Water Resources Board, Narragansett Bay Commission, R.I. Dept. of Environmental Management,
R.I. Coastal Resources Management Council, R.I. Statewide Planning Program, R.I. Economic Development Corporation

Dighton Inter-Tribal Indian Council
P.O. Box 49
Raynham, MA. 02767-0049

Subject: Letter of Support
Taunton Wild and Scenic River Project

13 July 2005

To Whom it May Concern:

As a non-profit Native American council, we are chartered to provide a format that allows the native community the opportunity to express their native culture and beliefs to both the surrounding non-native communities and each other. It is through this channel that we are able to honor the values and teachings of our elders and bring the new generations these teachings and values that will help guide them into their coming days.

One of our greatest teachings, is that all things are connected and what is done to one ultimately affects all, sometimes for generations to come. It is in this light, that this council is both heartened and hopeful that the current request to have the Taunton River designated a nationally protected river, will go forward and become a rich heritage that our children's children may enjoy. What we as a people and a nation do today, becomes our legacy in our children's eyes. This affects not only the two-legged people, but also the swimmers, the green growing things, the four-leggeds, the wingeds, and crawling things, the waters, the winds, and the earth. These things which have no voice to raise on their own are our obligation to speak for, so that we may live in harmony on this creation.

Thank you for the honor of allowing me to speak for my people, as they have asked me to do. This seed for the future has been planted in the good ground and all it requires now is good clean living water.

Sincerely,



Gordon Two Bears Stands
Elected Chief
Dighton Inter-tribal Indian Council

Pocasset Wampanoag Tribe



July 1, 2005

The Pocasset Wampanoag Tribe would like to add their voice to those who would like to protect the Taunton River. The Pocasset, once the largest Native group within the Wampanoag Nation, was situated on either side of the Taunton River. They resided from the mouth of the Bay up River to Middleborough. It is our firm desire that this River have a wild and scenic designation to promote awareness and education. We would support action strategies to enhance its value.

Pocasset Wampanoag Tribal Council,
Chief Edward Page

Chief Edward Page



The Somerset Yacht Club, Inc

Est. 1948

June 2005

Dear Taunton River Stewardship Committee;

At the last meeting of the Somerset Yacht Club held on 16 June 2005 we were told that nine out of ten communities along the Taunton River had voted in favor of preserving the Taunton River as a National Historic Wild and Scenic River.

As a club we realize the importance of the Taunton River as a regional resource to agriculture, fisheries, recreation and scenery just to mention a few of its outstanding values. Therefore, we would like to offer you our heartfelt thanks, appreciation and support for all your hard work in making this possible.

Sincerely yours,

Stanley J. Saladyga, Jr.

Stanley J. Saladyga, Jr.
Secretary
Somerset Yacht Club



Town of Somerset
Conservation Commission

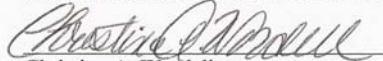
July 11, 2005

Taunton River Wild & Scenic Designation Committee
C/o Bill Napolitano
SRPEDD
88 Broadway
Taunton, MA 02780

Dear Committee Members,

I am pleased to inform you that on May 16, 2005 the annual town meeting for the Town of Somerset was held, at which time article 28, to see if the Town would endorse the Taunton River Stewardship Plan and seek a Wild and Scenic River Designation of the Taunton River by the United States Congress, was unanimously passed.

Sincerely,
Town of Somerset Conservation commission



Christina A. Wordell, secretary



JACQUELINE A. BROWN, CMC
TOWN CLERK

Town of Freetown
OFFICE OF THE TOWN CLERK
3 NORTH MAIN STREET
P. O. BOX 438
ASSONET, MA 02702

TEL: 508-644-2203
FAX: 508-644-9826
TOWNCLERK@TOWN.FREETOWN.MA.US

July 6, 2005

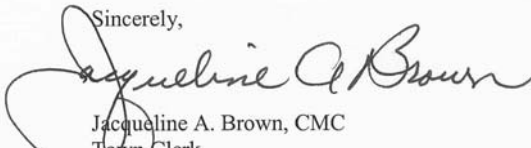
SRPEDD
C/o Bill Napolitano
88 Broadway
Taunton, MA 02780

Dear Mr. Napolitano,

This is to certify that the following vote was taken at the Freetown Annual Town Meeting held on June 6, 2005:

ARTICLE 28: To see if the Town will vote to endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic River Study Committee, together with its recommendation to seek Wild and Scenic River designation through act of the United States Congress. Submitted by the Board of Selectmen. Requires Majority Vote. Finance Committee recommends. Motion made and seconded to accept the article. So voted unanimously.

Sincerely,


Jacqueline A. Brown, CMC
Town Clerk





Eileen S. Gates
Town Clerk

Town of Middleborough
Office of the Town Clerk
Savings Bank Building 20 Centre Street
Middleborough, Massachusetts 02346-2250
508-946-2415

August 8, 2005

To Whom It May Concern:

I do hereby certify that the following vote was taken at the July 11, 2005, adjourned session of the June 6, 2005, Annual Town Meeting, at which a quorum was declared by the Moderator:

ARTICLE 30: Voted by a majority vote to endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic River Study Committee, together with the recommendation to seek Wild & Scenic River designation through an act of the United States Congress.

Very truly yours,


Town Clerk



Ronald R. Adams

Town of Bridgewater

*Office of the
Town Clerk*

*64 Central Square
Bridgewater, Massachusetts 02324
(508) 697-0922*



*(508) 697-0921
Fax (508) 697-0941
clerk@bridgewaterma.org*

June 22, 2005

William Napolitano
Principal Environment Planner
Southeastern Regional Planning & Economic Dev.
88 Broadway
Taunton, MA 02780

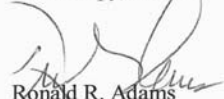
Dear Mr. Napolitano:

This is to certify that the following article was unanimously voted at the Annual Town Meeting held on Monday, May 2, 2005:

ARTICLE 8. It was unanimously voted that the Town endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic Study Committee, together with its recommendation to seek Wild and Scenic River designation through act of the United States Congress.

Unanimous

A true copy, Attest:


Ronald R. Adams
Town Clerk

www.bridgewaterma.org



BOARD OF SELECTMEN

TOWN OF SOMERSET

MASSACHUSETTS

02726

TOWN OFFICE BUILDING - WOOD AND COUNTY STREETS

TELEPHONE (508) 646-2800



March 30, 2005

Taunton River Wild & Scenic River Study Committee
c/o Bill Napolitano
SRPEDD
88 Broadway
Taunton, MA 02780

Dear Members:

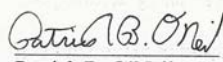
The Somerset Board of Selectmen would like to commend and congratulate you on your efforts to designate the Taunton River as a Wild and Scenic River under the Wild and Scenic Rivers Act. Because the Taunton River is one of the most intact ecosystems in all of New England, the unfragmented habitat and natural estuary are regionally significant. It is imperative to protect this outstanding resource.

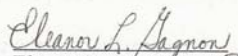
The Taunton River has the second largest watershed in Massachusetts. Funding generated from this designation would benefit the entire region. Fragmentation of riparian corridors, floodplains, and continuous upland habitat blocks must be prevented, as well as the spread of invasive species which could displace our native communities of plants and animals. Funds could be used to ensure water quality, protect cold water habitats and restore rare species and anadromous fish populations.

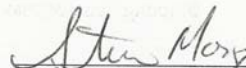
As a result of this study, we are addressing tidal restrictions in Somerset along the Taunton River at Labor in Vain Brook to improve the biodiversity of our unique marsh system.

The Somerset Board of Selectmen is pleased to endorse the Taunton River Stewardship Plan.

Sincerely,
THE SOMERSET BOARD OF SELECTMEN


Patrick B. O'Neil
Chairman


Eleanor L. Gagnon


Steven Moniz



City Clerk's Office
City of Taunton,

15 Summer Street
Massachusetts 02780, U. S. A.
Telephone 508 821-1024
Fax 508 821-1098

Rose Marie Blackwell
City Clerk

Johanna Faria
Assistant City Clerk

May 27, 2005

Congressman Barney Frank
Jones Building
29 Broadway
Taunton, MA 02789

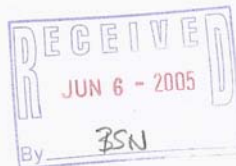
Dear Congressman Frank:

At a regular meeting of the Municipal Council held on May 24, 2005, the Municipal Council went on record endorsing the Taunton River Stewardship Plan by the Taunton Wild & Scenic River Study Committee together with its recommendation seek wild & scenic river designation through the enactment of the United State Congress.

Your attention to this matter is appreciated.

Respectfully,

Rose Marie Blackwell
Rose Marie Blackwell
On Behalf of the Municipal Council





TOWN OF RAYNHAM
SELECTMEN AND BOARD OF HEALTH
53 ORCHARD STREET
RAYNHAM, MASSACHUSETTS 02767
TEL.#: (508) 824-2707
Board of Health: (508) 824-2766
FAX#: (508) 823-1812

www.town.raynham.ma.us

June 13, 2005

Jim Ross, Chairman
Taunton River Wild & Scenic Committee
C/O SRPEDD
88 Broadway
Taunton, MA 02780

Re: Taunton River Stewardship Plan

Dear Mr. Ross:

At the November 16, 2004 Town Meeting, residents of Raynham voted unanimously to adopt the Taunton River Stewardship Plan and recommend to Congress that the Taunton River be included in Federal Wild & Scenic Riverway Program.

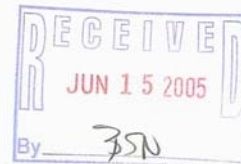
The Taunton River is and has always been vital to the Town of Raynham in so many ways. From an historical, agricultural and biological perspective, the Taunton River is of unequalled value to Raynham. It has important biodiversity and ecological value. It is a source of recreation for boaters, birders, fishermen and others. And it has great scenic value.

We are hopeful that Congress will designate the Taunton River as Wild and Scenic.

Very truly yours,

Randall A. Buckner
Town Administrator

RAB/s



City of Fall River, *In City Council*

BE IT RESOLVED, that the City Council of Fall River hereby supports the recommendation for designation of the Taunton River as a Wild and Scenic River through act of the United States Congress, with the southern boundary of this designation defined as the south side of the Braga Bridge, and

BE IT FURTHER RESOLVED, that the City Council endorses the Taunton River Stewardship Plan developed by the Taunton Wild and Scenic River Study Committee.

In City Council Mat 10, 2005
Adopted, 9 yeas

Approved May 20, 2005
Edward M. Lambert, Jr., Mayor

A true copy. Attest:

Carol A. Chleau

City Clerk



Town of Dighton, Massachusetts

TOWN CLERK, TREASURER AND COLLECTOR

979 Somerset Avenue, Dighton, MA 02715
Telephone (508) 669-5411

Susana Medeiros

I, Susana Medeiros, duly appointed Clerk of the Town of Dighton, Massachusetts, hereby certify that the following is a true copy of an extract from the minutes of the Annual Town Meeting duly called and held on June 6, 2005:

ARTICLE 18. VOTED: On motion of James Digits that the Town will endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic Study Committee, together with its recommendation to seek Wild and Scenic River designation through act of the United States Congress.

Witness my hand and the seal of the Town of Dighton this 6th day of July 2005.

ATTEST:

Susana Medeiros
Susana Medeiros



CAROLYN AWALT
1 NORTH MAIN STREET
BERKLEY, MASS. 02779

TOWN OF BERKLEY

MASSACHUSETTS

Office of
TOWN CLERK - TREASURER

July 6, 2005

Bill Napolitano
SRPEDD
88 Broadway
Taunton, MA 02780

Dear Mr. Napolitano:

As duly qualified Town Clerk of the Town of Berkley, I hereby certify the following action taken June 6, 2005 at the annual Town Meeting.

Article 32: Voted: That the Town endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic Study Committee, together with its recommendation to seek Wild and Scenic River designation through act of the United States Congress.

A true copy of record,
ATTEST:

Carolyn Awalt,
Town Clerk



OFFICE OF THE TOWN CLERK
TOWN OF HALIFAX
499 Plymouth Street
Halifax, MA 02338

As Town Clerk for the Town of Halifax, I certify that the following Article was voted upon at the duly notified Annual Town Meeting held on May 9, 2005.

ARTICLE 28 Voted to endorse the Taunton River Stewardship Plan developed by the Taunton River Wild & Scenic Study Committee together with its recommendations to seek Wild & Scenic River designation through an act of the United States Congress.

Proposed by the Board of Selectmen (T Garron)

Passed Unanimously

Attest: Marcia K. Cole
Marcia K Cole, Town Clerk



OFFICE OF
SELECTMEN
TELEPHONE (508) 946-8803
FAX (508) 946-0112

Town of Lakeville

Town Office Building
346 Bedford Street
Lakeville, MA 02347



December 2, 2004

Taunton Wild & Scenic River Study Committee
c/o Bill Napolitano
SRPEDD
88 Broadway
Taunton, MA 02780

Dear Members,


The Lakeville Board of Selectmen would like to commend and congratulate you on your efforts to designate the Taunton River as a Wild & Scenic River under the Wild & Scenic Rivers Act. Because the Taunton River is one of the most intact ecosystems in all of New England, the unfragmented habitat and natural estuary are regionally significant. It is imperative to protect this outstanding resource.

The Taunton River has the second largest watershed in Massachusetts. Funding generated from this designation would benefit the entire region. Fragmentation of riparian corridors, floodplains, and contiguous upland habitat blocks must be prevented, as well as, the spread of invasive species which could displace our native communities of plants and animals. Funds could be used to ensure water quality, protect cold water habitats and restore rare species and anadromous fish populations.


We were especially impressed with the Action Strategy. Recognizing that public awareness is vital as we struggle to protect our water resources, Lakeville held its first *Biodiversity Day* event this year at Ted Williams Camp. We hope to expand the event and continue to celebrate biodiversity every year.

The Lakeville Board of Selectmen is pleased to endorse the Taunton River Stewardship Plan.

Sincerely,


Gerald R. White, Chairman


Chawner Hurd


Richard F. LaCamera



SAVING THE LAST GREAT PLACES ON EARTH

Massachusetts Chapter

205 Portland Street, Suite 400

Boston, MA 02114-1708

617.227.7017/Voice • 617.227.7688/Fax

May 18, 2005

Taunton Wild and Scenic River Study Committee
88 Broadway
Taunton, MA 02780

Re: National Wild and Scenic River Designation for the Taunton River

Dear Committee Members:

The Nature Conservancy enthusiastically supports Wild and Scenic designation for the Taunton River, and offers the following comments on the ecological importance of the River.

The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. With the help of public and private partners and 28,000 members, The Conservancy has protected more than 23,000 acres of land and water in Massachusetts.

The Taunton River watershed lies within the North Atlantic Coast (NAC) ecoregion, which encompasses the coastal areas of nine states from Delaware to Maine. The Taunton River and six tributary streams were chosen by the Conservancy during the NAC aquatic ecoregional planning process in 2002 for their remarkable condition and concentration of ecoregionally significant species and natural communities. Ecoregional plans identify *portfolio sites* that need to be protected to conserve the native biodiversity of the region. The objective of the freshwater analysis was to identify the most intact and functional stream networks and lake/pond ecosystems to represent the full variety of freshwater diversity present.

The Taunton River is a unique geomorphic type, based on modeling of geology, gradient, elevation, and landforms. The Taunton River is the longest undammed coastal river in New England, with tidal influence reaching nearly 20 miles inland. This extent of tidal influence maintains large, high quality examples of brackish and freshwater tidal marshes, both globally rare community types. Hockomock Swamp is the largest freshwater wetland complex in southern New England, providing high quality habitat for numerous rare birds, reptiles, amphibians, invertebrates, and wetland plants. In total, the watershed is home to forty-two ecoregional target species (species that are declining, disjunct, or otherwise vulnerable at the ecoregional scale), and sixty-eight State listed rare species. This area is important not only for its rarities, but also for the quality and quantity of habitat it provides to more common species. The Taunton basin hosts the largest spawning population of river herring in southern New England and populations of environmentally sensitive species such as river otters and freshwater mussels.

Due to its ecological importance and sensitivity, the Taunton River deserves recognition and protection as a resource of national significance. The Nature Conservancy looks forward to working with the Wild and Scenic River Stewardship Committee to implement the Taunton River Stewardship Plan.

Sincerely,

Alison A. Bowden
Aquatic Ecologist



June 8, 2005

Jim Ross, Chairman
Taunton River Wild & Scenic Study Committee
c/o SERPEDD
88 Broadway
Taunton, MA 02780

Re: **National Wild and Scenic River Designation for the Taunton River**

Dear Mr. Ross and Committee members:

Mass Audubon supports the proposed designation of the Taunton River as a Wild and Scenic River. The mission of Mass Audubon is to protect the nature of Massachusetts for the benefit of people and wildlife. The proposed Wild and Scenic designation would provide opportunities to improve protection of the Taunton River through implementation of the comprehensive Stewardship Plan. We applaud the work of the Committee in developing this Plan over the past several years.

The Taunton River and associated watershed contains many exemplary physical, ecological, and historic attributes worthy of recognition and protection. The Taunton River Watershed is the second largest watershed in Massachusetts and is an extraordinarily intact and ecologically diverse coastal river. It is the largest undammed river in New England. Large expanses of land adjacent to the river are undeveloped and mostly forested, with relatively little invasive species present. The river supports populations of several anadromous fish including the largest herring run in the state, as well as coldwater fisheries in the headwaters. The river corridor has 31 distinct habitat types including globally significant Atlantic White Cedar Swamps. It is home to 68 state-listed rare species including 3 globally rare plants. The largest freshwater wetland (Hockomock Swamp) and some of the largest naturally occurring lakes (Assowomsett Ponds Complex) in Massachusetts are located in the Taunton watershed. The watershed contains large areas of both protected and unprotected BioMap habitats. The river and its tributaries also provide many opportunities for canoeing and other recreational uses, and the corridor contains numerous sites of historic or archeological importance.

Mass Audubon is directly invested in the Taunton watershed through several properties that we own and manage for ecological values. These include the nearly 1,000-acre Assonet Cedar Swamp Wildlife Sanctuary in Lakeville and Freetown, and the 257-acre Stump Brook Wildlife Sanctuary located in the headwaters of the Taunton basin, in the towns of Hanson and Halifax. Both properties contain rare Atlantic White Cedar Swamp and are important wildlife habitats. Mass Audubon also is involved in



education, advocacy, and land protection activities in the watershed and surrounding region. We support various actions recommended in the Stewardship Plan, such as passage of the Community Preservation Act and adoption of Open Space Residential Subdivision bylaws in watershed communities.

The watershed is located in a "sprawl frontier" where low density housing development is consuming land at a rapid rate, as shown in Mass Audubon's publication, *Losing Ground: At What Cost*. The Stewardship Plan recognizes that emerging development patterns threaten the river and associated resources. Improved zoning and land protection initiatives are needed to direct growth in ways that minimize impacts to the river and associated resources while meeting regional housing and economic development needs. The Wild and Scenic designation will help build public awareness of the river and threats to its integrity, and will garner support for available solutions as outlined in the Stewardship Plan.

We hope that Congress will approve this designation expeditiously, and we look forward to working with the diverse members of the Wild and Scenic Committee and other interested parties to support implementation of the Stewardship Plan.

Sincerely,

A handwritten signature in blue ink, appearing to read "John J. Clarke", is written over the typed name and title.

John J. Clarke
Director of Advocacy

HISTORICAL COMMISSION

TOWN of SOMERSET MASSACHUSETTS

140 Wood Street
Somerset, MA 02726
(508) 678-2318

Co-chairwomen
Sheila Weinberg
Virginia Jackson

April 23, 2005

Board of Selectmen

This letter is to inform the board of selectmen of the Historical Commission's support of the Taunton River Wild and Scenic River project.

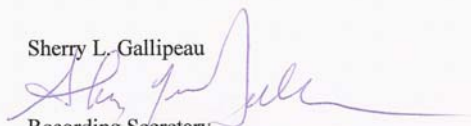
We would ask that the board of selectmen and Congress endorse the Taunton River Stewardship Plan developed by the Taunton River Wild and Scenic Study Committee, in their efforts to secure a designation for the Taunton River as a National Wild and Scenic River.

We believe this designation would insure the preservation of the Taunton River corridor as an intact river ecosystem and regional resource.

Thank you for your attention to this matter and your support of this project.

Respectfully submitted,

Sherry L. Gallipeau



Recording Secretary
Somerset Historical Commission



Town of Somerset
Conservation Commission

March 25, 2005



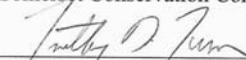
The Honorable Speaker of the House of Representative
Washington, DC

Re: Congressional Designation of the Taunton River of Massachusetts as a "Wild and
Scenic River"

Dear Mr. Speaker,

The town of Somerset Massachusetts Conservation Commission hereby respectfully
requests that the Congress of the United States designate the Taunton River as a "Wild
and Scenic River" of the United States.

Sincerely yours,
Somerset Conservation Commission



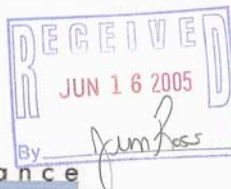
Timothy Turner, Chairman

cc: Commission
SRPEDD

caw




Matthew H. Talbot
Christina A. Wood, Secretary



**Watershed Action Alliance
of Southeastern Massachusetts**



PO Box 73, Kingston, MA 02364

www.watershedaction.org

**Watershed groups united to protect water and natural resources
in Southeastern Massachusetts**

June 15, 2005

Southeast Regional Planning & Economic Development District
ATTN: Jim Ross, Chairman
Taunton River Wild & Scenic Study Committee
88 Broadway
Taunton, Massachusetts 02780

Dear Mr. Ross:

The Watershed Action Alliance of Southeastern Massachusetts, a coalition of eleven river protection organizations, strongly endorses the designation of the Taunton River as a Wild & Scenic River of the United States. WAA expressly endorses the "Taunton River Stewardship Plan" to address the critical needs of the river and be the guiding plan as stakeholders proceed to preserve and enhance the Taunton.

Our members cooperate to protect and restore the watersheds of Southeastern Massachusetts. In Southeastern Massachusetts, the threat is now critical. While our region contains vast areas of forest, agricultural land, and unique ecosystems, there is an extremely narrow window for action. The impact of accelerated development is especially hard on rivers and wetlands because impervious surfaces of pavement and buildings change the natural patterns of stormwater recharge. The door is closing for preservation of a unique landscape.

We believe that designation of the Taunton will enhance the efforts of our members the Taunton River Watershed Alliance and Save the Bay - Narragansett Bay and other interested conservation partners to successfully restore and preserve the natural resources of the River.

The Taunton has many extremely important natural resources long its main stem, as has been well documented in the Stewardship Plan and previous research. In particular, we would like to focus attention on the Taunton's role as the major freshwater supply to Narragansett Bay and as a critical habitat for many species of fish, shellfish and other species.

The Taunton estuary is the nursery habitat for many resident and migratory fish, shellfish and other ocean-living species. Anadromous species such as the American shad, alewife, blue back herring and rainbow smelt, and catadromous species such as the American eel spend significant periods of their reproductive and/or life cycle in tidal and freshwater streams and rivers. These precious habitats are fragile and face pollution from everything that occurs near the river: residential and municipal wastewater treatment systems; the dirty runoff from roads and parking lots; and the

incremental filling of wetlands. These developments cause changes in water quality, water temperature, and seasonal flow that have harmful effects on life in the river.

The Taunton River also features unusual freshwater tidal marshes — areas dominated by fresh river water, although influenced by the tide, where a delicate saline balance is maintained since the River has no dams on its main stem. These globally rare tidal freshwater marshes contain species such as Sweet Flag, Wild Rice, Cat-tail and Climbing Hempweed and are a priority for protection.

Stewardship of the Taunton must look, from a watershed perspective, at the many impacts of development not only adjacent to the river corridor, but also to the upland of the shoreline. In particular, the increasing amount of impervious surface in the basin is reducing the natural recharge of wetlands and underground aquifers. Rapid runoff also sends unfiltered storm water into the river and reduces base flow at critical dry periods.

We also need to focus attention on the impact of the many public and private wells. WAA urges communities to consider the cumulative impact of private wells on our shared water sources when planning for future water supplies. If private wells become contaminated or run dry in the summer, these users may one day connect to the municipal water supplies. Irrigation systems - whether public or private, at a home or an office park - should be designed and used in the most efficient manner so that the impact to resources is reduced. The Stewardship Plan will assist communities to develop effective zoning and by-laws for water management, land management, and the design and construction of public infrastructure.

WAA's overarching goal is to improve the long-term stewardship of our rivers. We recommend that Congress designate the Taunton River a Wild & Scenic River and accept the Taunton River Stewardship Plan as an important step to the long-term protection of this incredible natural resource.

Sincerely,



Susan P. Speers, Coordinator

About WAA: The mission of the Watershed Action Alliance is to achieve its members' goals of protecting and restoring the watersheds of Southeastern Massachusetts through strategic collaboration. The Watershed Action Alliance strengthens the individual and collective capacity its member groups, enabling them to be more effective watershed advocates. www.watershedaction.org

WAA members participating in this comment:

Samantha Woods, North & South Rivers Watershed Association, Norwell, and Weir River Watershed Association, Hull

Taber Keally, Neponset River Watershed Association, Canton

Pine duBois, Jones River Watershed Association, Kingston

Robert W. Davis, Taunton River Watershed Alliance, Bridgewater

Ed Russell, Six Ponds Improvement Association, Plymouth

Jodi Purdy-Quinlan, Fore River Watershed Association, Weymouth

Tom Burbank, Back River Watershed Association, Hingham

John Torgan, Save The Bay - Narragansett Bay, Providence, Rhode Island

CC: Jamie Fosburgh, National Park Service, Boston
Bill Napolitano, SRPEDD