GENERAL ELECTRIC / HOUSATONIC RIVER NATURAL RESOURCE RESTORATION

MASSACHUSETTS HOUSATONIC RIVER WATERSHED RESTORATION PROGRAM FINAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

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FOR:
MASSACHUSETTS SUBCOUNCIL,
HOUSATONIC RIVER NATURAL RESOURCE TRUSTEES

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Cover Photo: River Through Trees, obtained online at <acad.bryant.edu/~langlois/ecology/waterindex.html>

ACRONYMS

BRPC	Berkshire Regional Planning Commission
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
C.F.R	Code of Federal Regulations
C.M.R.	Code of Massachusetts Regulations
cms	cubic meters per second
CRP	Community-Based Restoration Program
CTDEP	Connecticut Department of Environmental Protection
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EOEA	Executive Office of Environmental Affairs
FONSI	Finding of No Significant Impact
GE	General Electric
HEA	Habitat Equivalency Analysis
HRR	Housatonic River Restoration, Inc.
HVA	Housatonic Valley Association
MADEP	Massachusetts Department of Environmental Protection
MEPA	Massachusetts Environmental Policy Act
MA SubCouncil	Massachusetts SubCouncil
M.G.L.	Massachusetts General Laws
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NRD	Natural Resource Damages

NRDA	Natural Resource Damages Assessment
PCBs	Polychlorinated biphenyls
PCS	Permit Compliance System
PEA	Programmatic Environmental Assessment
ppm	parts per million
Restoration Program	Massachusetts Housatonic River Watershed Restoration Program
RP	Restoration Plan
RPS	Restoration Planning Strategy
RPSP	Restoration Project Selection Procedure
TMDL	Total Maximum Daily Load
Trustee Council	Housatonic River Natural Resource Trustees
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Service
USFWS	U.S. Fish and Wildlife Service
WTF	Wastewater Treatment Facility

1.0 INTRODUCTION

This Programmatic Environmental Assessment (PEA) examines alternatives for implementing a compensatory restoration program in the Massachusetts portion of the Housatonic River watershed (hereinafter referred to as the Massachusetts Housatonic River Watershed Restoration Program or simply Restoration Program). Compensatory restoration projects are projects that restore, rehabilitate, replace, and/or acquire the equivalent of injured natural resources and/or the services provided by those resources.

The National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA) require that federal and state agencies, respectively, consider the environmental and socioeconomic implications of major decisions or actions associated with program implementation. Further, agencies must ensure that the public (i.e., citizens, organizations, other agencies) are consulted on the formulation of programs and policies that may affect them.

The Preferred Alternative examined here is a restoration program featuring a mix of restoration approaches, including aquatic restoration, wildlife/terrestrial restoration, enhancement of recreational opportunities, and education/outreach initiatives. A mix of restoration approaches will allow the greatest degree of flexibility in the project selection process and will ensure the greatest environmental and socioeconomic benefits. This PEA compares the preferred, blended restoration alternative with alternatives that focus on a single restoration approach, as well as with a no-action alternative in which no restoration is implemented with natural resource damages (NRD) funds.

This document is organized as follows:

- **Chapter 1** provides a brief background on the site and introduces the Housatonic River Natural Resource Trustees (Trustee Council) and the Massachusetts SubCouncil (MA SubCouncil).
- **Chapter 2** discusses the NEPA and Natural Resource Damages Assessment (NRDA) provisions that require an Environmental Assessment (EA) and explains the rationale for developing a PEA.
- **Chapter 3** describes the biological and socioeconomic environment that would be affected by the Restoration Program in Massachusetts.
- **Chapter 4** describes the alternatives for implementing the Restoration Program.
- **Chapter 5** analyzes the potential environmental and socioeconomic impacts of the alternatives and examines the cumulative impacts of the Restoration Program when considered in the context of other conservation and regulatory efforts.

1.1 BACKGROUND

The upper portion of the Housatonic River watershed is located in western Massachusetts. The main stem of the Housatonic River begins in Pittsfield at the confluence of the East and West Branches of the Housatonic River. From this point, the river flows south for approximately 120

miles through Connecticut to Long Island Sound. In Massachusetts, the entire Housatonic drainage basin is in Berkshire County; 18 towns and one city are located wholly or at least one-third in the Housatonic River watershed. The upper third of the watershed is urbanized, with Pittsfield serving as the core city. The remaining two-thirds of the watershed are rural in character and largely forested (EOEA, 2003).

Human uses of the riparian areas in the Housatonic River watershed include industrial activity, agricultural production, recreation, and wildlife management. Historically, industrial uses (e.g., paper mills and technology manufacturers) along the river contributed to excessive pollution. These industrial users dammed the river, affecting its hydrologic regime, and disposed of industrial waste in the river (EOEA, 2003).

General Electric (GE) owned and operated a 254-acre facility in Pittsfield, Massachusetts where polychlorinated biphenyls (PCBs) were used in the manufacture of electrical transformers from the late 1930s to the late 1970s. During this time period, the GE facility released PCBs to the Housatonic River and Silver Lake in Pittsfield. In addition, a number of former oxbows were straightened and filled to alleviate flooding, and subsequently have been found to contain PCB-contaminated soils and fill. The U.S. Environmental Protection Agency (USEPA) is investigating the full extent of PCB contamination in the river, floodplain, and adjacent properties, and assessing the risks to humans and ecological receptors.

The NRDA provisions under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, as amended, 42 U.S.C. § 9601 *et seq*.) and the Clean Water Act (CWA, 33 U.S.C. §§ 1251-1376) allow natural resource trustees to bring claims against responsible parties to recover monies and take action to restore, replace, or acquire the equivalent of natural resources that have been injured by hazardous substances.

The Trustee Council for the GE/Housatonic River case consists of the Commonwealth of Massachusetts Executive Office of Environmental Affairs (EOEA); the State of Connecticut Department of Environmental Protection (CTDEP); the U.S. Department of the Interior (acting through the U.S. Fish and Wildlife Service [USFWS]); and the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce (NOAA).

On October 7, 1999, the USEPA; the U.S. Department of Justice; the Massachusetts Department of Environmental Protection (MADEP), Office of the Attorney General and the EOEA; the CTDEP and Office of the Attorney General; the U.S. Department of the Interior; the NOAA; the City of Pittsfield; the Pittsfield Economic Development Authority; and GE reached a comprehensive agreement concerning the cleanup of GE's Pittsfield facility, certain off-site properties, and the Housatonic River, and concerning compensation for NRD.

The comprehensive agreement was lodged with the U.S. District Court of Massachusetts, Springfield, Massachusetts, and approved on October 27, 2000. The full text of the

comprehensive agreement is contained in a Consent Decree (CD) and is available on the USEPA GE/Housatonic River cleanup website (www.epa.gov/region01/ge/cleanupagreement.html).

1.2 HOUSATONIC RIVER WATERSHED RESTORATION EFFORT

In January 2002, a Memorandum of Agreement was executed among the U.S. Department of the Interior, NOAA, EOEA, and CTDEP to ensure the coordinated handling of Trustee activities relating to cleanup, remediation, and restoration activities in the Massachusetts and Connecticut portions of the Housatonic River environment.

The USEPA and MADEP will administer primary restoration (cleanup) activities in the Massachusetts portion of the river, with oversight of certain activities by the Trustee Council. The primary restoration activities will focus on the GE facility (including soil and groundwater remediation), the Housatonic River, Silver Lake, Unkamet Brook, and associated wetlands and floodplains. The USEPA and the CTDEP will administer cleanup activities, if any, in the Connecticut portion of the river. For some of the contaminated areas, the USEPA, MADEP, and CTDEP are still working to identify appropriate cleanup actions. Details about primary restoration actions can be found on the USEPA GE/Housatonic River cleanup web site (www.epa.gov/region01/ge/cleanup/gerra.html [*see* "Part 1: Cleanup of Contaminated Areas"]).

There are several components to the compensatory restoration portion of the settlement.[1] A summary of these components is outlined in the Restoration Planning Strategy (RPS) (Woodlot and IEc, 2005a).

Compensatory restoration activities will be funded with $15.5 million that was provided to the Trustee Council in the settlement with GE. The Trustee Council has agreed to split this amount evenly between the Massachusetts and Connecticut portions of the Housatonic River watershed. The Massachusetts portion ($7.75 million plus interest) will be managed by the MA SubCouncil. These monies will be used to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources and/or the services[2] they provide, in accordance with CERCLA NRDA

[1] GE will perform or fund several compensatory restoration activities in tandem with the primary restoration effort. These activities will include various habitat and recreational enhancements, establishment of riparian buffers, wetlands creation, and wetlands protection (Woodlot and IEc, 2005a). This document does not address the potential impacts of these actions.

[2] The term "services" in this document means the physical and biological functions performed by the resource including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource. 43 C.F.R. § 11.14(nn). "Services" includes provision of habitat, food, and other needs of biological resources, recreation, other products or services used by humans, flood control, ground water recharge, waste assimilation, and other such functions that may be provided by natural resources. 43 C.F.R. § 11.71(e).

regulations that guide the allocation and expenditure of NRD recoveries for restoration[3] activities. 43 C.F.R. §§ 11.81-11.82 and 11.93.

The MA SubCouncil, which is responsible for authorizing the expenditure of NRD monies allocated to Massachusetts, currently consists of the following members:

- Dale Young, EOEA (voting member, State Trustee)
- Veronica Varela, USFWS (voting member, Federal Trustee)
- Rachel Fletcher, currently of Housatonic River Restoration, Inc. (HRR) (ex-officio member)
- Tim Gray, currently of Housatonic River Initiative (ex-officio member)
- Dean Tagliaferro, USEPA (non–voting advisor)

The RPS (Woodlot and IEc, 2005a) provides additional information on the project background. The Restoration Project Selection Procedure (RPSP) (Woodlot and IEc, 2005b) provides the procedural framework for the solicitation, evaluation, and selection of compensatory restoration projects for the Massachusetts portion of the Housatonic River Watershed. The first project solicitation round is scheduled to be posted in 2005; subsequent rounds will take place over the course of the next several years.

Compensatory restoration planning for the Connecticut portion of the Housatonic River will be managed by the Trustee SubCouncil for Connecticut. NEPA compliance documentation for the Connecticut portion will be completed independent of this PEA. Information on the Connecticut SubCouncil and its restoration planning progress can be found on the Connecticut SubCouncil's website (http://projects.pirnie.com/housatonicriver/).

2.0 PURPOSE AND NEED

The purpose of the Housatonic River Watershed Restoration Program is to provide compensatory restoration for natural resource injuries associated with environmental contamination from the GE facility in Pittsfield, Massachusetts. Such compensatory restoration will be achieved through the restoration, rehabilitation, replacement and/or acquisition of natural resources equivalent to those injured and/or of the services those resources provided. The need for the restoration

[3] The term "restoration" in this document encompasses all listed means of achieving benefits to injured natural resources and the services they provide (i.e., restoration, rehabilitation, replacement, and acquisition of their equivalent).

project arises from the fact that cleanup actions, although they should successfully prevent or minimize future natural resource injuries, will not adequately compensate for losses incurred between the start of contamination and the completion of cleanup ("interim losses").

This chapter examines three specific topics related to the purpose and need for a Restoration Program:

- The statutory and regulatory context is discussed, including the general NRDA framework and relevant NEPA provisions.
- The environmental rationale for the Restoration Program is considered, based on a review of injuries to the Housatonic River system.
- The goals of a PEA and the advantage of this approach are presented relative to the development of individual EAs for each restoration project.

2.1 STATUTORY AND REGULATORY BASIS FOR RESTORATION PROGRAM

The Restoration Program is being developed consistent with the CERCLA, as amended, 42 U.S.C. § 9601 *et seq*., the CWA, 33 U.S.C. §§ 1251-1376, and the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, M.G.L. ch. 21E. Pursuant to CERCLA, NRDA regulations have been promulgated by the U.S. Department of the Interior, 43 C.F.R. § 11, to supplement the procedures established under the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. § 300.

The NRDA regulations authorize natural resource trustees to assess damages to natural resources resulting from a discharge of oil or a release of a hazardous substance covered under CERCLA or the CWA. Restoration actions are designed to: (1) restore lost natural resources and the services they provide, accelerating natural recovery processes; and (2) compensate the public for interim losses that will not be addressed by cleanup actions.

CERCLA authorizes states, federally recognized tribes, and certain federal agencies to act as natural resource trustees on behalf of the public. The natural resource trustees can bring claims against responsible parties for damages in order to restore, replace, rehabilitate, or acquire the equivalent of natural resources that have been injured or lost by the release of hazardous substances. Natural resources are broadly defined as including land, fish, wildlife, other biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any state or local government, any foreign government, or any Indian tribe.

2.2 NEPA AND THE RATIONALE FOR A PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

This PEA is designed to support the Restoration Program in Massachusetts and to satisfy some of the fundamental requirements under the NEPA (as amended. 42 U.S.C. §§ 4321, *et seq*., 40 C.F.R. §§ 1500-1508) as well as similar requirements under the MEPA.

NEPA was enacted to establish a national policy for the protection of the environment. It covers federal agency actions that have the potential to affect the quality of the human environment. Federal agencies are obligated to comply with NEPA regulations adopted by the Council on Environmental Quality (CEQ). These regulations outline the responsibilities of federal agencies under NEPA and provide specific procedures for preparing environmental documentation to comply with NEPA.

Generally, federal agencies begin the NEPA planning process by preparing an EA to determine whether an action will have a significant effect on the quality of the human environment. 40 C.F.R. § 1508.27. After a period of public review and comment, federal agencies review the comments and determine whether the proposed action could significantly affect the environment. If the impacts are not considered significant, a Finding of No Significant Impact (FONSI) is issued. If a FONSI cannot be reached, then an Environmental Impact Statement (EIS) may be prepared and published according to NEPA guidelines. An EIS evaluates potential impacts of proposed alternatives in greater detail than an EA.

This PEA addresses NEPA compliance at the program level, as opposed to the specific restoration project level. As stated in USFWS's NEPA guidance, "A programmatic document can be an effective means for addressing broad cumulative issues and impacts. These documents can address a group of different actions occurring in the same place…" (USFWS, 2003). A PEA approach is conducive to the Restoration Program in several ways. It is anticipated that most, if not all, of the restoration projects to be administered by the MA SubCouncil will be implemented in a single geographic area (i.e., the Massachusetts portion of the Housatonic River watershed). It is also anticipated that many of the projects will involve similar restoration methods and techniques, the impacts of which can be readily assessed at a programmatic level.

The MA SubCouncil has developed the RPSP that lays out the process for soliciting, evaluating, and selecting individual restoration projects (Woodlot and IEc, 2005b). That document establishes the format and content of submissions from parties soliciting funds for restoration projects. Among the requirements, applicants are asked to complete NEPA checklists that help identify potential environmental and socioeconomic impacts of the project. If non-negligible impacts are expected, the applicant is asked to develop a brief narrative describing the impacts and the steps taken to reduce the severity of the project's impacts. Following each solicitation funding round, the resulting round-specific Restoration Plan (RP) will be accompanied by a brief NEPA compliance document that builds off this PEA and demonstrates how NEPA requirements have been met.

This PEA and the RPSP document work together to achieve efficient NEPA compliance in the following ways:

- The approach should preclude the need to generate full EAs for each restoration project while including the evaluation of environmental and socioeconomic impacts into the process of evaluating and selecting projects.

- The process should provide the MA SubCouncil and USFWS NEPA staff the flexibility to determine whether individual projects warrant a more detailed analysis through an EIS or a more detailed EA.
- The PEA complements and facilitates the MA SubCouncil's plan to disburse funding in several project solicitation rounds. By considering groups of projects together within each funding round, the funding process will help avoid counterproductive interactions between projects and ensure that a cross-section of restoration approaches is selected. Consistent with this process, this PEA considers cumulative impacts of multiple restoration projects, impacts that might be overlooked if individual EAs were developed for each project.
- Finally, the PEA will inform the public and other governmental agencies of the overall goals of the Housatonic restoration effort. Similarly, the overall project application and selection approach can enhance opportunities for public participation, which is a key objective of the NEPA process.

There is substantial precedent for restoration management agencies using the PEA approach in contexts analogous to the Housatonic restoration effort. For instance, NOAA developed a PEA to consider the impacts of its Community-Based Restoration Program (CRP) (NOAA, 2002). Like the Housatonic program, the CRP is intended to fund and manage a variety of restoration initiatives affecting different habitat types. Other NRDA trustees have also developed PEAs addressing the impacts of general restoration activities rather than impacts of specific projects. For instance, the Fox River/Green Bay EA focused on a Preferred Alternative that called for terrestrial, aquatic, fishery, and human use enhancement projects to be selected by the trustees (USFWS, 2002). Likewise, the Montrose Settlements Restoration Program Draft RP/PEIS (Montrose, 2005) selected a Preferred Alternative that includes a diverse cross section of restoration actions.

The MEPA includes requirements that parallel and complement those of NEPA. MEPA and the associated regulations, 301 CMR § 11.00, "provide meaningful opportunities for public review of the potential environmental impacts of Projects for which Agency Action is required, and to assist each Agency in using…all feasible means to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable."[4] This PEA was developed in coordination with staff in the Commonwealth's MEPA Office. Consistent with these discussions, notice of this PEA's availability will be posted in the Environmental Monitor, which provides public information on projects under review by the MEPA Office. If any projects selected under the Restoration Program exceed MEPA's impact thresholds and require state agency permits during

[4] 301 CMR § 11.01, General Provisions, online at http://www.mass.gov/envir/mepa/thirdlevelpages/meparegulations/ 301cmr1101.htm.

project implementation, a separate filing of an Environmental Notification Form will be required of the applicant (*see* 301 CMR § 11.10).

3.0 AFFECTED ENVIRONMENT

This chapter briefly describes the biological and socioeconomic environment in which a Restoration Program would be implemented. The purpose is to define the current conditions in the Housatonic River watershed and provide a foundation for assessing the impacts of the alternatives considered.

The majority of the content of this chapter is drawn from the following reports.

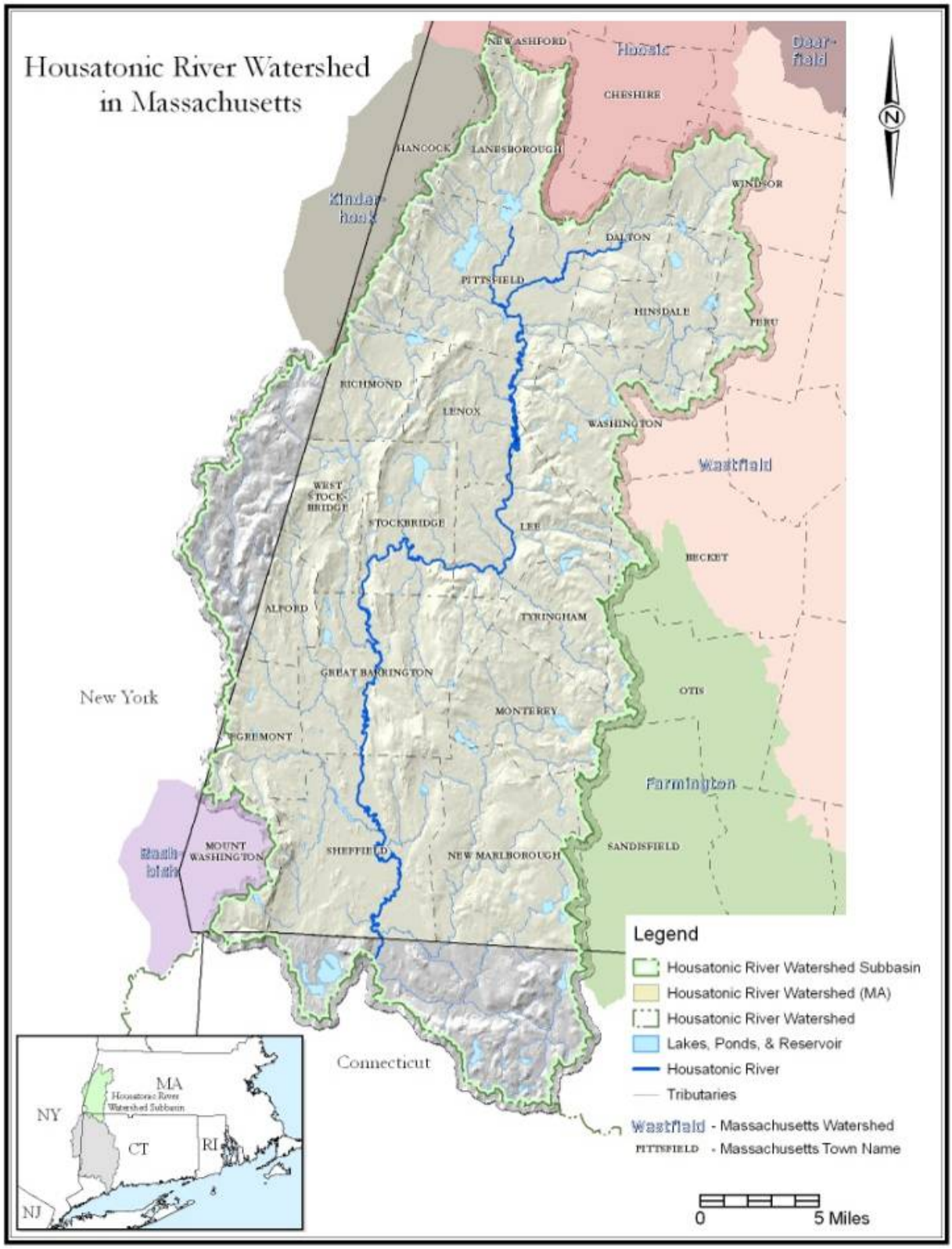
- *Ecological Characterization of the Housatonic River* (Woodlot, 2002a). This report represents the most recent, comprehensive study of the biological environment surrounding the Housatonic River and focuses on the river reach from Pittsfield to Lee, Massachusetts. It was prepared for the USEPA.
- *Ecological Characterization of the Housatonic River Downstream of Woods Pond*, (Woodlot, 2002b). This report characterizes the biological environment from Lee, Massachusetts to southern Connecticut. It was also prepared for the USEPA.
- *Housatonic River 5-Year Watershed Action Plan* (EOEA, 2003).

Readers who are interested in greater detail on the biological and socioeconomic features of the Housatonic River watershed may wish to consult these sources.

3.1 BIOLOGICAL ENVIRONMENT

The Massachusetts portion of the Housatonic River watershed is located in the southwestern region of the Commonwealth and is bordered by the watersheds of the Hudson River to the north, the Westfield River to the northeast, and the Farmington River to the southeast. Located in Berkshire County, the main stem of the Housatonic River begins at the confluence of the East and West Branches in Pittsfield, Massachusetts. From this point, the river flows south for approximately 120 miles before discharging into Long Island Sound in Connecticut. Major tributaries of the Housatonic River in Massachusetts include the Williams, Green, and Konkapot Rivers, and Hubbard Brook. Exhibit 3-1 provides a map of the Housatonic River watershed in Massachusetts.

Exhibit 3-1
HOUSATONIC RIVER WATERSHED IN MASSACHUSETTS



Source: EOEA, 2005.

The Housatonic River watershed features a prolific biological community with 117 rare plant and 33 rare animal species, as well as the occurrence of 18 significant natural communities. Most of the undeveloped landscape in the Housatonic watershed is forested, except where disturbance or permanent flooding (i.e., river channel and backwater slough) inhibit tree growth. Portions of the watershed have been cleared for various purposes, primarily agriculture, residences, and various rights-of-way (e.g., roads, railroads, power lines).

3.1.1 Hydrology

The Housatonic River watershed exhibits diverse hydrology, including swift streams, a meandering river, productive aquifers, extensive wetlands, and 119 lakes and ponds. Because of the varied topography of Berkshire County, ponds, peatlands, and marshes are abundant. An estimated three percent of the county is considered to be occupied by palustrine communities (i.e., wetlands not associated with rivers, lakes, or tidal waterbodies).

The average flow in the upper Housatonic (above Woods Pond) at the U.S. Geological Survey (USGS) stream gaging station in Coltsville, Massachusetts is 3.02 cubic meters per second (cms [USGS, 2005]), based on a period of record from 1937 through 2001. At the USGS stream gaging station in Great Barrington, Massachusetts downstream from Woods Pond, the average flow is 14.9 cms (USGS, 2005), based on a period of record from 1914 through 2003. These flows may be affected by industrial and municipal withdrawals and discharges. Municipal treatment plants (particularly the Pittsfield Wastewater Treatment Facility [WTF]) add up to 0.6 cms of wastewater flow to the river, while industrial plants that are located throughout the watershed contribute up to 0.7 cms.

The calcareous bedrock in the Housatonic Valley is the principal aquifer for the region, and its composition influences the groundwater quality. Groundwater from this aquifer generally contains high concentrations of calcium and magnesium compared to water in other rock types, resulting in moderately hard to very hard water (i.e., a neutral pH and relatively high concentration of dissolved solids). Regional groundwater in the Housatonic groundwater basin originates in upland areas, the geology of which adds to the groundwater's neutral pH and high nutrient content, enhancing the rich soil conditions present along the river and floodplain areas.

3.1.2 Plant and Wildlife Species

Surveys of the natural communities within the Housatonic River watershed indicate that forested areas are dominated by species such as red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), bur oak (*Quercus macrocarpa*), silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), and basswood (*Tilia americana*). Low-gradient stream reaches typically have abundant aquatic plants while surrounding palustrine areas feature inundated wetlands dominated by grasses and herbs; shallow marshlands with less diverse vegetation; and hydric shrublands. Analyses conducted for USEPA's ecological characterization identified 20 plants of state conservation concern that are known or thought to occur in the upper portion of the watershed while a separate inventory developed for the Great Barrington Open Space Plan identified 23 additional species of concern. These are summarized in Exhibit 3-2.

Wildlife in the Housatonic River watershed includes a diverse collection of macroinvertebrates, fish, reptiles, amphibians, birds, and mammals. Aquatic macroinvertebrates include several species of mussels; numerous dragonfly species (97 species documented in Berkshire County); and crustaceans, arthropods, mollusks, annelids, roundworms, and flatworms living in vernal pools. Terrestrial invertebrates include various earthworms, slugs, and snails.

Approximately 41 species of fish have been recorded in the Massachusetts reach of the Housatonic River since the 1940s. In the river reach from Pittsfield to Lee, dominant fish species include white sucker (*Catostomus commersoni*), largemouth bass (*Micropterus salmoides salmoides*), yellow perch (*Perca flavescens*), bluegill (*Lepomis macrochirus*), and common carp (*Cyprinus Carpio*). No federal- or state-listed rare, threatened, or endangered fish species have been recorded in this reach of the Housatonic River. However, the bridle shiner (*Notropis bifrenatus*), longnose sucker (*Catostomus catostomus*), and burbot (*Lota lota*) are state-listed as a conservation concern and occur in the lower portion of the Housatonic in Massachusetts.

Field surveys in the portion of the watershed from Pittsfield to Lee reveal a number of reptile and amphibian species. Existing habitat may support 13 snake species and seven turtle species; of these, two species of snake (garter snake [*Thamnophis sirtalis sirtalis*] and northern water snake [*Nerodia sipedon sipedon*]) and three turtle species (common snapping turtle [*Chelydra s. serpentine*], painted turtle [*Chrysemys picta picta*], and wood turtle [*Clemmys insculpta*]) were observed in the survey. Fourteen of the 19 amphibians identified as potentially occurring in the study area were confirmed. The most common species include wood frogs (*Rana sylvatica*), leopard frogs (*Rana pipiens*), green frogs (*Rana clamitans*), bullfrogs (*Rana catesbeiana*), red spotted newts (*Notophthalmus viridescens*), and spotted salamanders (*Ambystoma maculatum*). Nine species listed by the Massachusetts Natural Heritage and Endangered Species Program may occur in the region (Exhibit 3-3). The bog turtle (*Clemmys muhlenbergii*) is also listed as threatened under the federal Endangered Species Act. There are no federally-listed threatened or endangered amphibians in the Massachusetts portion of the Housatonic River watershed.

The Housatonic River watershed supports a diverse assemblage of birds, largely due to the abundance of large, open aquatic habitats surrounded by forested and scrub-shrub habitats. A study of the region from Pittsfield to Lee identified 173 potential species, of which nearly 80 percent were confirmed in field investigations. Of the potential species, 122 are passerines (songbirds and forest birds), 19 are raptors (hawks and owls), and 32 are water birds (wading, marsh, and shore birds, waterfowl, and gulls). There are 19 bird species that occur in, or may occur in, the Massachusetts portion of the Housatonic River watershed and are protected under the Massachusetts Endangered Species Act (Exhibit 3-4). Bald eagles (*Haliaeetus leucocephalus*) are also listed as threatened under the federal Endangered Species Act.

Exhibit 3-2
SUMMARY OF RARE PLANTS DOCUMENTED IN HOUSATONIC RIVER REGION

Common Name	Latin Name	State Status[1]	Year First Observed	Number of Sites	Town(s)
black maple	*Acer nigrum*	SC	1999	1	Pittsfield, Great Barrington
foxtail sedge	*Carex alopecoidea*	E	1998	1	Lenox, Great Barrington
Gray's sedge	*Carex grayi*	T	1998	1	Lenox
early blue cohosh	*Caulophyllum giganteum*	WL	2000	3	Pittsfield, Lee, Washington
hemlock-parsley	*Conioselinum chinense*	SC	1998	1	Lenox
mudflat spikesedge	*Eleocharis intermedia*	SC	1998	3	Pittsfield, Lenox
downy wild-rye	*Elymus villosus*	T	2000	1	Pittsfield
variegated scouring-rush	*Equisetum variegatum*	WL	1998	3	Pittsfield, Washington
fringed gentian	*Gentianopsis crinita*	WL	2000	1	Sheffield
bur oak	*Quercus macrocarpa*	SC	1998	1	Lenox
bristly crowfoot	*Ranunculus pensylvanicus*	T	1999	1	Lenox
eastern black currant	*Ribes americanum*	WL	1998	7	Pittsfield, Lenox
wapato	*Sagittaria cuneata*	E	1998	3	Lenox, Great Barrington
hoary willow	*Salix candida*	WL	2000	1	Washington
autumn willow	*Salix serissima*	WL	1999	1	Sheffield
cluster sanicle	*Sanicula odorata*	T	2000	1	Lenox
hard-stem bulrush	*Schoenoplectus acutus*	WL	2000	1	Hinsdale
oblong bulrush	*Schoenoplectus acutus* X *S. tabernaemontanii*	NA	2000	2	Washington-Hinsdale, Pittsfield
pendulus bulrush	*Scirpus pendulus*	SC	1999	3	Lenox, Washington
crooked-stem aster	*Symphyotrichum prenanthoides*	SC	1998	1	Lenox, Great Barrington

[1] State status explanation: E=endangered; T=threatened; SC=special concern; WL=watch list.
Sources: Woodlot, 2002a; Smith *et al.*, 2005.

Exhibit 3-3
RARE AMPHIBIANS AND REPTILES IN THE MASSACHUSETTS PORTION OF THE HOUSATONIC RIVER

Common Name	Latin Name	State Status
Spotted Turtle	*Clemmys guttata*	Special Concern
Wood Turtle	*Clemmys insculpta*	Special Concern
Bog Turtle	*Clemmys muhlenbergii*	Endangered
Eastern Box Turtle	*Terrapene carolina*	Special Concern
Jefferson salamander	*Ambystoma jeffersonianum*	Special Concern
Blue-Spotted salamander	*Ambystoma laterale*	Special Concern
Marbled salamander	*Ambystoma opacum*	Threatened
Spring salamander	*Gyrinophilus porphyriticus*	Special Concern
Four-toed salamander	*Hemidactylium scutatum*	Special Concern

Exhibit 3-4
RARE BIRDS IN THE MASSACHUSETTS PORTION OF THE HOUSATONIC RIVER

Common Name	Latin Name	State Status
American bittern	*Botaurus lentiginosus*	Endangered
Least bittern	*Ixobrychus exilis*	Endangered
Pied-billed grebe	*Podilymbus podiceps*	Endangered
Bald eagle	*Haliaeetus leucocephalus*	Endangered
Peregrine falcon	*Falco perigrinus*	Endangered
Northern harrier	*Circus cyaneus*	Threatened
Sharp-shinned hawk	*Accipiter striatus*	Special Concern
Barn owl	*Tyto alba*	Special Concern
Long-eared owl	*Asio otus*	Special Concern
Common moorhen	*Gallinula chloropus*	Special Concern
King rail	*Rallus elegans*	Threatened
Northern parula	*Parula americana*	Threatened
Blackpoll warbler	*Dendroica striata*	Special Concern
Mourning warbler	*Oporornis philadelphia*	Special Concern
Golden-winged warbler	*Vermivora chrysoptera*	Endangered
Sedge wren	*Cistothorus platensis*	Endangered
Grasshopper sparrow	*Ammodramus savannarum*	Threatened
Henslow's sparrow	*Ammodramus henslowii*	Endangered
Vesper sparrow	*Pooecetes gramineus*	Threatened

A three-year field survey (from 1998 to 2000) documented 42 mammal species in the Housatonic region, with an additional 10 species likely to occur but not verified. The most common species included white-footed mice (*Peromyscus leucopus*), meadow voles (*Microtus pennsylvanicus*), short-tailed shrews (*Blarina brevicauda*), little brown bats (*Myotis lucifugus*), cottontails (*Sylvilagus floridanus*), gray squirrels (*Sciurus carolinensis*), raccoons (*Procyon lotor*), red fox (*Vulpes vulpes*), coyotes (*Canis latrans*), and white-tailed deer (*Odocoileus virginianus*), all of which were observed in forested and non-forested habitats as well as riverine, shoreline, wetland,

upland, and developed habitats. Researchers also observed other species that utilize primarily riverine and wetland habitats, such as muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), river otter (*Lutra canadensis*), and mink (*Mustela vison*). There are five rare species of mammals in, or likely to occur in, the Massachusetts watershed of the Housatonic River (Exhibit 3-5).

Exhibit 3-5
THREATENED AND ENDANGERED MAMMALS IN THE MASSACHUSETTS PORTION OF THE HOUSATONIC RIVER

Common Name	Latin Name	State Status	Federal Status
Water shrew	*Sorex palustris*	Special Concern	n/a
Small-footed myotis	*Myotis leibii*	Special Concern	n/a
Southern bog lemming	*Synaptomys cooperi*	Special Concern	n/a
Indiana bat	*Myotis sodalis*	Endangered	Endangered
New England cottontail	*Sylvilvagus transitionalis*	n/a	Under review for listing

3.1.3 Ecological Stressors

3.1.3.1 Injuries Associated with GE Facility[5]

GE began its Pittsfield, Massachusetts operations in 1903. Three manufacturing divisions have operated at the GE facility (Transformer, Ordnance, and Plastics). The 254-acre plant was historically a major user of PCBs and has been identified as a source of PCBs found in sediments and floodplain soils within the Housatonic River watershed in Massachusetts. According to GE, releases of PCBs entered wastewater and stormwater systems from the facility and were subsequently conveyed to the East Branch of the Housatonic River and to Silver Lake from 1932 through 1977. In addition, former oxbows along the river in Pittsfield were filled with material that was later discovered to contain PCBs and other hazardous substances.

Measured PCB concentrations (prior to remediation) varied across different areas:

- In the first half-mile downstream of the GE facility (on the East Branch of the Housatonic), the average surficial (0 to 1-foot depth) sediment PCB concentration was 54.8 parts per million (ppm), and average concentration of PCBs in the top three feet of riverbank soils was 56 ppm.[6] This area was remediated in 2002.
- In the next 1.5-mile reach of the river (extending to the confluence of the East and West Branches), the average concentration of PCBs in surficial sediments (0 to1-foot depth) is 21 ppm and the average concentration of PCBs in sediments at all depths is 29 ppm. For riverbank soils, the average concentration of PCBs in the top foot is approximately 23 ppm and the average concentration of PCBs in the top three feet is 40 ppm. This area is the focus of current cleanup operations established as part of the October 2000 CD.

[5] This section is based on information provided by the USEPA at http://www.epa.gov/region01/ge/sitehistory.html.
[6] Regulators have not established explicit levels of concern for PCBs in sediment. However, the MADEP reportable concentration for PCBs in soil is 2 ppm (MADEP, 1995a). Likewise, the state policy for dredged sediment reuse/disposal establishes a maximum concentration of 2 ppm for landfill disposal (MADEP, 1995b).

- In the Rest of River (beginning at the confluence of the East and West Branches), PCB concentrations in surface sediment average 21 ppm. In the Woods Pond area, an average of 31 ppm is present in surficial sediments.

Additional studies have characterized contamination in other environmental media:

- The maximum concentration detected in surface floodplain soil upstream of Woods Pond is 874 ppm, with an average of 17 ppm.
- Soil samples from a capped area on the Allendale School property exceeded 2 ppm and were remediated in a 1999 removal action.
- Additional soil samples are being collected at a number of locations in the former oxbow areas and in the Housatonic River floodplain.
- Extensive fish tissue sampling between 1998 and 2000 revealed average PCB concentrations ranging from roughly 25 mg/kg to 190 mg/kg, depending on the river reach and fish species.[7]
- Concentrations of PCBs in breast tissue (skin on) from river birds averaged 7.1 mg/kg wet weight and liver tissue averaged 10.6 mg/kg.

The Trustee Council has assessed how PCB contamination has affected services associated with natural resources in the Housatonic River watershed. One key category of services comprises various human uses of the river and related resources. First, the Trustee Council estimated natural resource damages for lost recreational fishing and boating opportunities associated with posted fish consumption advisories. In addition, they considered the potential for damages associated with lost or diminished hunting and trapping opportunities, and wildlife viewing/general outdoor recreation opportunities. Specifically, the Trustee Council assessed the potential for fewer recreational trips being taken to the Housatonic River and the potential for a reduction in the value of those trips that are taken. The release of PCBs to the Housatonic River and its floodplain was also determined to have resulted in a reduction in the passive use value of the river's environment, including a loss in the aesthetic values held by the public for the river. Preliminary results suggested that economic recreational fishing and boating losses are in the tens of millions of dollars (present value in 1996 dollars), with substantially greater potential passive use value losses. The Trustee Council also considered but did not implement analytic approaches to evaluate injury and damages to groundwater, as well as the increased cost of development along the river and its floodplain due to the presence of PCBs (IEc, 1997 and 1998).

In addition, the Trustee Council examined ecological service losses associated with PCBs in the Housatonic River watershed's ecological environment. First, the Trustee Council assessed injuries by analyzing observed or estimated PCB concentrations in several indicator species associated with major trophic levels in the Housatonic environment. The analysis then translated the species concentrations into corresponding percentage service reductions. The analysis also applied habitat equivalency analysis (HEA) to characterize ecological service losses. HEA is a

[7] The U.S. Food and Drug Administration has established PCB tolerance levels (i.e., levels of concern) of 2 mg/kg for fish and 3mg/kg for poultry and waterfowl (ATSDR, 2000).

method for identifying appropriate levels of compensation for past and future ecological service losses through provision of additional similar services in the future. Based on the HEA, the Trustees' preliminary conclusions identified substantial percentage losses of services associated with in-stream and floodplain indicator species and recommended compensatory acreage of roughly 12,000 acres of comparable habitat.

3.1.3.2 Other Ecological Stressors

While the GE facility is a significant source of pollution in the Housatonic River watershed, other factors have also affected water resources within the watershed. First, a variety of point source dischargers (i.e., permitted outfalls from industrial and municipal facilities) affect water quality in the watershed. Exhibit 3-6 lists the facilities with active or recent permits.

As an example of ongoing resource planning within the Housatonic River watershed in Massachusetts, outreach performed as part of the plan developed by the HRR identified a variety of other water quality concerns in the watershed including pesticide and fertilizer runoff from agricultural land; management of household hazardous waste; indirect discharges from septic systems and landfills; pesticide runoff from railroad beds; and abandoned industrial facilities (HRR, 1999 and 2003).[8]

In addition to river-based pollution, lakes and ponds in the Housatonic watershed face advancing eutrophication problems associated with nutrient pollution. The most common side effect of increasing nutrient levels in these lakes is excessive weed growth, especially milfoils (*Myriophvllum*) and pondweeds (*Potamogeton).* Studies indicate that phosphorous is the limiting nutrient for plant growth in freshwater; therefore, management techniques often focus on reductions of phosphorous inputs into lakes with excessive weed growth. Most phosphorous enters lakes in the watershed via tributary streams and through internal recycling of phosphorous once adsorbed to sediments. Likely phosphorus sources include septic systems and stormwater runoff from developed land.

As a result of this combination of stressors, water quality assessments conducted by MADEP have identified a range of impacts to rivers, brooks, lakes and ponds in the Housatonic River watershed. These assessments, required by Section 305(b) of the CWA, evaluate waters for their ability to support designated uses as defined by the Commonwealth's surface water quality standards found at 314 C.M.R. § 4.00. These uses include aquatic life support, fish and shellfish consumption, drinking water supply, and primary contact (e.g., swimming) and secondary contact (e.g., boating) recreation (EOEA, 2004). Where possible, the causes and sources of impaired uses are identified in the water quality assessment.

[8] HRR is a non-profit organization that advocates for the HRR Plan to the Natural Resource Trustees on behalf of citizens of Berkshire County. HRR is funded by the USEPA, the Massachusetts Environmental Trust, the Berkshire Taconic Community Foundation, the Berkshire Environmental Fund, and a "Communities Connected by Water" grant from the EOEA.

Exhibit 3-6
ACTIVE OR RECENTLY PERMITTED WASTEWATER DISCHARGES IN MASSACHUSETTS HOUSATONIC BASIN

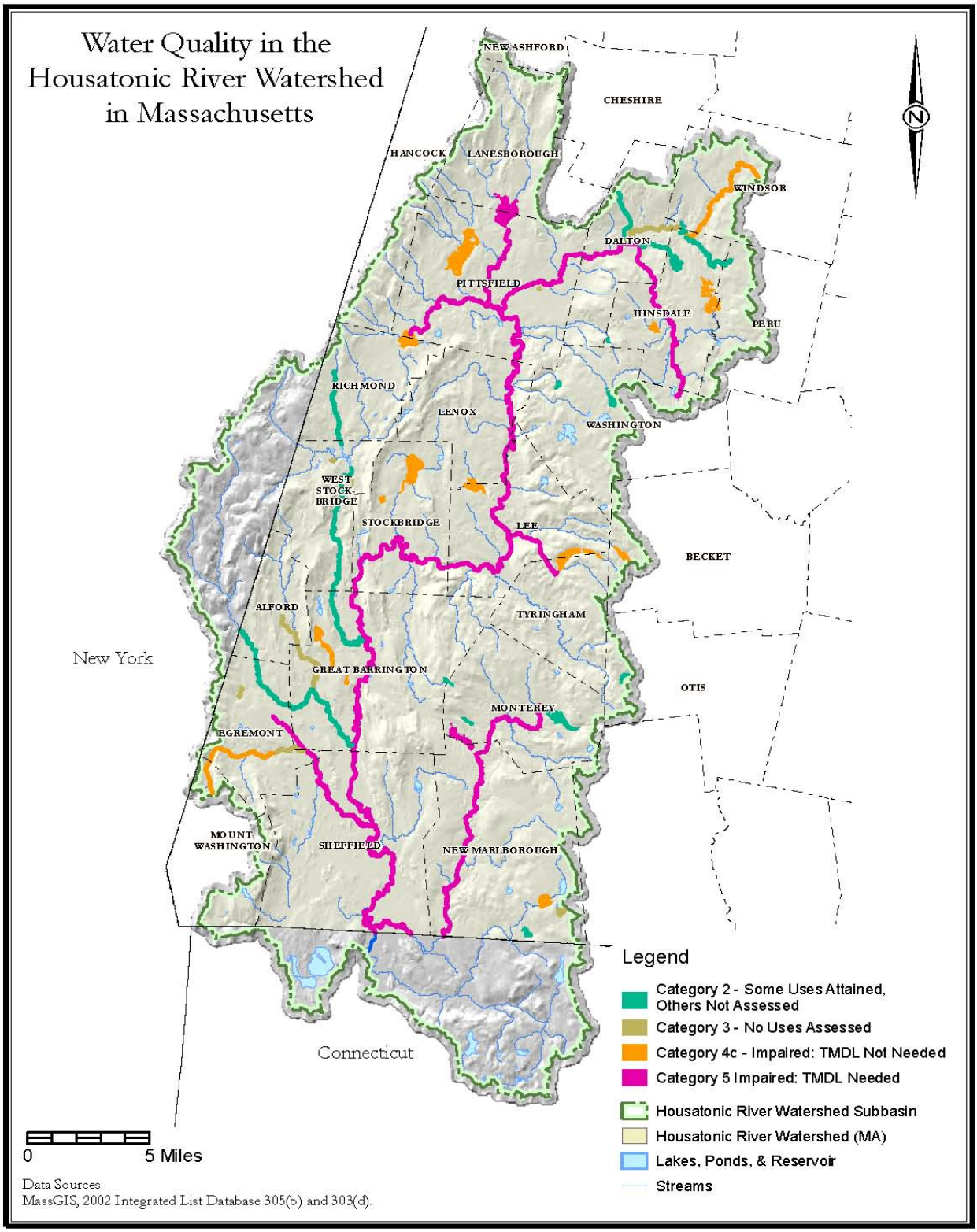
Town*	Facility Name	Permit Status**	Sector/Description
Dalton, MA	Crane & Co., Inc.	Expired Nov. 2004	Paper Mill
Great Barrington, MA	Great Barrington WTF	Expired July 2005	Municipal Wastewater Treatment
Pittsfield, MA	Pittsfield WTF	Expires Dec. 2005	Municipal Wastewater Treatment
Hinsdale, MA	Belmont Reservoir Filter Plant	Expires Nov. 2005	Water Supply/Treatment
Lee, MA	MW Custom Papers	Expired Nov. 2004	Paper Mill
Lee, MA	Schweitzer Mauduit, International, Inc.	Expired July 2005	Paper Mill
Lee, MA	Lee WTF	Expires Nov. 2005	Municipal Wastewater Treatment
Lenox, MA	Lenox Cent WTF	Expired Jan. 2005	Municipal Wastewater Treatment
Lenox, MA	Root Reservoir WTF	Expires Nov. 2005	Water Supply/Treatment
Stockbridge, MA	Stockbridge WTF	Expires Sept. 2009	Sewerage System/Wastewater Treatment

Source: USEPA's Permit Compliance System (PCS), obtained online at http://www.epa.gov/enviro/html/pcs/pcs_overview.html, May 2005.
* The online PCS database was searched by town. This table includes facilities located in Massachusetts towns that are entirely or partially within the Housatonic River watershed.
** PCS data are current as of May 2005. Only facilities for which PCS provides permit status information are included. The Pittsfield GE facility is not listed because the discharge permit expired in February 1997; however, GE is currently in the process of renewing its permit for the facility.

Section 303(d) of the CWA requires states to identify certain waterbodies that are not expected to meet surface water quality standards and to prioritize and schedule them for the development of a total maximum daily load (TMDL). A TMDL is a rigorous study and implementation plan with the goal of attaining and maintaining water quality standards on a specific waterbody (EOEA, 2004).

Exhibit 3-7 illustrates the quality of assessed waterbodies in the Housatonic River watershed. Several waterbodies, including the entire length of the Housatonic River, are on the Massachusetts 303(d) list of impaired waters and are in need of a TMDL. Exhibit 3-8 provides a summary of water quality conditions of rivers and brooks. Exhibit 3-9 provides a summary of water quality conditions in lakes and ponds in the watershed. Both tables are organized by assessment categories, as defined on the map in Exhibit 3-7.

Exhibit 3-7
WATER QUALITY IN THE HOUSATONIC RIVER WATERSHED IN MASSACHUSETTS



Source: EOEA, 2005.

Exhibit 3-8
WATER QUALITY ASSESSMENT OF RIVERS AND BROOKS IN MASSACHUSETTS HOUSATONIC WATERSHED

Category	Waterbody	Length (miles)	Segment Description	Impairment
Category 2	Anthony Brook	2.4	Outlet of Anthony Pond, Dalton to the confluence with Wahconah Falls Brook, Dalton. Miles 2.4-0.0	
Category 2	Cady Brook	3.5	Source to the Windsor Reservoir, Hinsdale. Miles 3.5-0.0	
Category 2	Cleveland Brook	2.3	Headwaters, outlet of Cleveland Brook Reservoir, Hinsdale to the confluence with East Branch Housatonic River, Dalton. Miles 2.3-0.0	
Category 2	Furnace Brook	3.7	Headwaters south of Route 295 (Canaan Road), Richmond to inlet Mud Ponds, West Stockbridge.	
Category 2	Green River	9.8	Alford, Massachusetts/Hillsdale, New York border southwest of Route 71 to confluence with the Housatonic River in Great Barrington.	
Category 2	Williams River	10	Source, outlet Shaker Mill Pond, West Stockbridge to confluence with Housatonic River, Great Barrington. Miles 10.0-0.0	
Category 3	Seekonk Brook	4.6	Outlet of small impoundment east of West Road, Alford to confluence with Green River, Great Barrington.	
Category 3	Unnamed Tributary	1.5	Outlet of Mill Pond, South Egremont to confluence with Hubbard Brook, Egremont. (Miles 1.2 - 0.0)	
Category 3	Wahconah Falls Brook	2.7	Outlet of Windsor Reservoir, Windsor to the confluence with East Branch Housatonic River, Dalton. Miles 2.7-0.0	
Category 4c	Karner Brook	4.2	From source, Mt. Washington to the inlet of Mill Pond, South Egremont. Miles 4.2-0.0	Flow alteration
Category 4c	Long Pond Brook	1.8	Outlet Long Pond, Great Barrington to the confluence with Seekonk Brook, Great Barrington. Miles 1.8-0.0	Flow alteration
Category 4c	Windsor Brook	5.6	From source, southeast of Fobes Hill (west of Savory Hollow Road), Windsor to the Windsor Reservoir, Hinsdale. Miles 5.6-0.0	Flow alteration
Category 5	East Branch Housatonic River	9	Outlet Muddy Pond, Washington to outlet Center Pond, Dalton. Miles 69.0-60.0	Priority organics

Category	Waterbody	Length (miles)	Segment Description	Impairment
Category 5	East Branch Housatonic River	7.9	Crane Paper Company, outlet Center Pond, Dalton to confluence with Housatonic River, Pittsfield.	Cause Unknown Unknown toxicity Priority organics Pathogens
Category 5	Goose Pond Brook	2.3	Outlet Goose Pond, Tyringham to confluence with Housatonic River, Lee. Miles 2.3-0.0	Pathogens
Category 5	Housatonic River	11.3	Confluence of Southwest Branch Housatonic River and West Branch Housatonic River, Pittsfield to outlet to outlet Woods Pond, Lee/Lenox.	Priority organics Pathogens Turbidity
Category 5	Housatonic River	20	Outlet Woods Pond, Lee/Lenox to Risingdale Impoundment Dam, Great Barrington (village of Risingdale).	Unknown toxicity Priority organics Thermal modifications Pathogens Turbidity
Category 5	Housatonic River	22.5	Outlet Risingdale Impoundment, Great Barrington to Connecticut state line, Sheffield.	Priority organics Pathogens Taste, odor and color
Category 5	Hubbard Brook	9.4	Source in Egremont, northwest of Townhouse Hill Road to the confluence with Housatonic River, Sheffield. Miles 9.4-0.0	Pathogens
Category 5	Konkapot River	15.9	Outlet of Brewer Lake, Monterey to the Connecticut border, New Marlborough.	Metals
Category 5	Konkapot River	2.8	Connecticut/Massachusetts border, to the confluence with the Housatonic River, Sheffield.	Metals Organic enrichment - Low DO Pathogens
Category 5	Southwest Branch Housatonic River	5.8	Headwaters, outlet Richmond Pond, to confluence West Branch Housatonic River, Pittsfield.	Cause Unknown Siltation Other habitat alterations
Category 5	West Branch Housatonic River	4.1	Headwaters, outlet Pontoosuc Lake to confluence Southwest Branch Housatonic River (forming headwaters Housatonic River), Pittsfield.	Priority organics Siltation Other habitat alterations Pathogens
Source: EOEA, 2005. MADEP 2002 Integrated List of Waters (305(b)/303(d)). Updated January 2005. Online at http://www.mass.gov/mgis/wbs2002htm.				

Exhibit 3-9
WATER QUALITY ASSESSMENT OF LAKES AND PONDS IN MASSACHUSETTS HOUSATONIC WATERSHED

Category	Waterbody	Size (acres)	Municipality	Impairment
Category 2	Ashley Lake	111	Washington	
Category 2	Benedict Pond	35	Great Barrington/Monterey	
Category 2	Cleveland Brook Reservoir	145	Hinsdale	
Category 2	Cookson Pond	67	New Marlborough	
Category 2	Farnham Reservoir	42	Washington	
Category 2	Hayes Pond	53	Otis	
Category 2	Lake Garfield	262	Monterey	
Category 2	Stevens Pond	30	Monterey	
Category 2	Upper Sackett Reservoir	20	Hinsdale	
Category 2	Windsor Reservoir	62	Hinsdale/Windsor	
Category 3	Card Pond	12	West Stockbridge	
Category 3	Crane Lake	28	West Stockbridge	
Category 3	East Indies Pond	69	New Marlborough	
Category 3	Goodrich Pond	13	Pittsfield	
Category 3	Mill Pond	107	Sheffield	
Category 3	Mill Pond	20	Egremont	
Category 3	Prospect Lake	55.1	Egremont	
Category 4c	Ashmere Lake	217	Hinsdale	Exotic species
Category 4c	Goose Pond	225	Lee/Tyringham	Exotic species
Category 4c	Greenwater Pond	88	Becket	Exotic species
Category 4c	Lake Averic	38	Stockbridge	Exotic species
Category 4c	Laurel Lake	165	Lee/Lenox	Exotic species
Category 4c	Long Pond	113	Great Barrington	Exotic species
Category 4c	Mansfield Pond	25	Great Barrington	Exotic species
Category 4c	Onota Lake	617	Pittsfield	Exotic species
Category 4c	Plunkett Reservoir	73	Hinsdale	Exotic species
Category 4c	Richmond Pond	218	Richmond/Pittsfield	Exotic species
Category 4c	Stockbridge Bowl	382	Stockbridge	Exotic species
Category 4c	Thousand Acre Pond	155	New Marlborough	Exotic species
Category 4c	Upper Goose Pond	45	Lee/Tyringham	Exotic species
Category 5	Center Pond	30	Dalton	Priority organics
Category 5	Lake Buel	194	Monterey/New Marlborough	Nutrients Exotic species
Category 5	Pontoosuc Lake	467	Lanesborough/Pittsfield	Metals Exotic species
Category 5	Risingdale Impoundment	43	Great Barrington	Priority organics
Category 5	Woods Pond	122	Lenox/Lee	Priority organics Noxious aquatic plants Turbidity

Source: EOEA, 2005. MADEP 2002 Integrated List of Waters (305(b)/303(d)).
Updated January 2005. Online at http://www.mass.gov/mgis/wbs2002htm.

In addition to factors affecting water quality, other ecological stressors affect terrestrial and riparian habitat in the watershed. Residential and commercial development continues to diminish the quality and abundance of wildlife habitat. While the population of Berkshire County has decreased in the last decade (see below), the number of housing units has grown from about 64,300 to 66,600, with at least some of this trend attributable to construction of vacation and retirement homes.[9] Likewise, invasive species such as purple loosestrife (*Lythrum salicaria*) and other non-native plants crowd out native plants that provide forage for waterfowl and other wildlife.

3.2 SOCIOECONOMIC ENVIRONMENT

3.2.1 History

Native Americans were present in the Housatonic River region prior to European settlement. Two small groups of Mahican Native Americans were known to subsist along the Housatonic River in the early 1700s and as recently as 1735 (Weatherbee, 1996). They primarily used the alluvial plain for hunting and agriculture. In 1763, all Native Americans residing in the current Great Barrington area were moved to a mission established in Stockbridge (Southern Berkshire Chamber of Commerce, 2001). Shortly after that time, several local towns (e.g., Pittsfield, Great Barrington, Sheffield) were incorporated and European settlers began to influence the landscape.

Settlement of present-day Berkshire County progressed in the late 1700s and early 1800s. The forest products industry and summer vacation season brought people to western Massachusetts towns in the 1800s. Paper mills, blast furnaces, wool factories, and grist mills were important industries in the mid to late 1800s, all of which relied on timber or river resources for material stock and power. The influx of summer visitors into Berkshire County, primarily after the Civil War, led to swelling seasonal populations and home construction to accommodate the temporary residents.

European settlement brought rapid land clearing to Berkshire County. In addition to clearing land for crop production, local industries began to affect the surrounding forests in the 19th century. Sawmills, tanneries, railroads and their engines, iron furnaces, and lime kilns all required trees for everyday operation (Weatherbee, 1996). Farm abandonment and reforestation, in the form of both natural and planted trees, began to shape the landscape of Berkshire County in the early part of the 20th century. Industrial users also greatly affected water quality in the Housatonic and its tributaries; dams affected the hydrologic regime and industrial waste discharges continued well into the 20th century.

[9] Berkshire County is second only to Cape Cod (Barnstable County) in terms of the percentage of homes occupied by persons 65 and older in Massachusetts (U.S. Census Bureau, 2000).

3.2.2 Modern Socioeconomic Features

3.2.2.1 Population

Eighteen towns and one city in Berkshire County are located wholly or at least one-third in the Housatonic River watershed: Alford, Dalton, Egremont, Great Barrington, Hinsdale, Lanesborough, Lee, Lenox, Monterey, New Marlborough, Peru, Pittsfield, Richmond, Sheffield, Stockbridge, Tyringham, Washington, West Stockbridge, and Windsor. With a population of 45,793, Pittsfield is the largest city, accounting for roughly one-third of the population in Berkshire County in 2000.

Both Pittsfield and Berkshire County as a whole have seen a decrease in population over the last decade. Specifically, Pittsfield's population declined 6.1 percent from 1990 to 2000 while Berkshire County's population declined 3.2 percent in the same period. In general, Berkshire County has seen population decreasing in the last 30 years; the number of residents fell from a high of about 149,000 in 1970 to about 133,000 in 2000. Farm abandonment, loss of manufacturing jobs, and general migration to other population centers are cited as contributing factors.

3.2.2.2 Land Use

The upper third of the Housatonic River watershed, including Pittsfield, is urbanized, while the remaining two-thirds of the watershed are rural in character and largely forested. Current land uses in the watershed include industrial, agricultural, residential, and recreation/wildlife management. In Pittsfield, Lenox, and Lee, the river is used primarily as a natural area, with much of the area contained in the Housatonic River Valley State Wildlife Management Area. This management area extends along a 5.6-mile reach of the river from the confluence of the East and West Branches of the Housatonic River to Woods Pond. This area is primarily used by outdoor recreation enthusiasts; hunting, fishing, and paddling are primary activities observed in the wildlife management area. Horseback riding, running, and birding are also popular pursuits.

3.2.2.3 Economy

Exhibit 3-10 compares Massachusetts, Berkshire County, and the City of Pittsfield on several dimensions that characterize the status and structure of the economy. Several patterns are noteworthy:

- The economy of the Housatonic River watershed was once heavily dependent upon manufacturing and timber harvesting, and the loss of jobs in these sectors still appears to affect economic well being.[10] The median income in the region, particularly in Pittsfield, is lower than in Massachusetts as a whole. Likewise, the unemployment rate is somewhat higher, especially in Pittsfield. Finally, the percent of families living below the poverty line in Pittsfield is significantly higher than in the County or in Massachusetts overall.

[10] Employment in the manufacturing sector has decreased from 8,450 jobs in 1998 to 7,289 jobs in 2002, a drop of almost 14 percent.

- Based on employment patterns, the economy of the Housatonic River watershed has much in common with Massachusetts overall. For instance, the relative importance of major sectors such as manufacturing and education/health is similar for all three geographic regions.
- The relatively higher concentration of jobs in the agriculture/forestry and entertainment/recreation sectors is consistent with the rural character of Berkshire County.
- To some extent, jobs in the Housatonic River watershed are concentrated in lower-paying sectors such as retail trade and the accommodations industry (with less employment in the financial, profession, and scientific sectors). Relatively heavy employment in these sectors is at least partially responsible for the lower median income in the region.

Exhibit 3-10
ECONOMIC CHARACTERISTICS OF MASSACHUSETTS, BERKSHIRE COUNTY, AND CITY OF PITTSFIELD

Parameter	Massachusetts	Berkshire County	Pittsfield
Median Income	$50,502	$39,047	$35,655
Unemployment Rate	3.0%	3.3%	3.7%
Percent of Families in Poverty	6.7%	6.5%	8.9%
Percent Employment in Major Sectors			
Agriculture, forestry, fishing and hunting, and mining	0.4	1.1	0.7
Construction	5.5	6.6	6.0
Manufacturing	12.8	12.9	12.8
Wholesale trade	3.3	2.1	2.2
Retail trade	11.2	12.8	14.2
Transportation and warehousing, and utilities	4.2	2.8	2.9
Information	3.7	2.8	2.7
Finance, insurance, real estate, and rental and leasing	8.2	5.2	5.7
Professional, scientific, management, administrative, and waste management services	11.6	7.1	7.3
Educational, health and social services	23.7	27.7	26.8
Arts, entertainment, recreation, accommodation and food services	6.8	10.1	9.3
Other services (except public administration)	4.4	5.1	5.0
Public administration	4.3	3.5	4.4

Source: Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3, obtained online at http://factfinder.census.gov.

4.0 ALTERNATIVES

Consistent with the nature and scope of the natural resource injuries in the Housatonic River watershed, the potential restoration actions are also diverse. The alternatives considered in this PEA reflect a broad array of possible restoration approaches. This chapter briefly describes four different categories of restoration approaches, each of which is presented as an alternative for addressing injuries in the Housatonic River watershed. A final, Preferred Alternative is presented, under which a blend of restoration approaches would be implemented.

4.1 NO-ACTION ALTERNATIVE (ALTERNATIVE 1)

The No-Action Alternative, required by NEPA regulations, is included to examine expected conditions if restoration is not pursued.[11] This alternative considers how environmental quality would change if cleanup is performed in accordance with the CD, but Trustee-funded restoration activities under the NRD settlement with GE are not undertaken. The No-Action Alternative allows for the fact that restoration in the Housatonic River watershed may occur under other funding and authorities. As such, the No-Action Alternative is the baseline against which other actions can be compared. In addition, the No-Action Alternative identifies the time period necessary to achieve compensation for interim losses of natural resources and/or services *in the absence* of implementing compensatory restoration projects under the Restoration Program. Restoration alternatives can then be evaluated based on whether compensation may be achieved more quickly than under the No-Action Alternative.

4.2 INDIVIDUAL RESTORATION APPROACHES (ALTERNATIVES 2 THROUGH 5)

This PEA is structured to be consistent with the ongoing selection of restoration projects to be funded by the MA SubCouncil. The project selection process recognizes four Restoration Priority Categories, each of which this PEA considers as a separate alternative:

- **Alternative 2: Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat** – Under this alternative, restoration would focus on providing benefits to fish, amphibians, aquatic reptiles, and other aquatic organisms, and their habitat. Restoration activities under this category would include, but not be limited to, projects intended to restore aquatic biological resources directly or enhance the habitats of these resources (e.g., water quality improvements).
- **Alternative 3: Restoration, Rehabilitation, Enhancement, or Acquisition of Wildlife Resources and Habitat** – Under this alternative, restoration would focus on avian species, mammals, and terrestrial reptiles that use the Housatonic River watershed and that have been demonstrably injured by the contamination. Restoration activities under this category would include, but not be limited to,

[11] See NEPA regulations, 40 C.F.R. § 1502.14(d).

projects that restore wildlife resources directly or enhance the habitats of these resources (e.g., riparian habitat enhancements).

- **Alternative 4: Restoration, Rehabilitation, or Enhancement of Recreational Uses** – Under this alternative, restoration would focus on improving human recreational uses of the Housatonic River environment. Projects could include enhancement of recreational fisheries, improvement to recreational boating access, and enhancement of wildlife/nature viewing opportunities.
- **Alternative 5: Environmental Education and Outreach** – Under this alternative, restoration would focus on projects that inform, educate, or otherwise influence the public regarding issues that affect the health of the Housatonic River environment. The projects would instill understanding and appreciation for the environment in order to encourage human behaviors consistent with the goal of sustaining the quality of the Housatonic River watershed, its injured natural resources, and/or the services provided by those resources.

4.3 BLENDED RESTORATION APPROACH (PREFERRED ALTERNATIVE 6)

Because of the diverse resources affected by PCB contamination, a final alternative considered in this PEA is a restoration program that includes a combination of all the restoration approaches described in Alternatives 2 through 5 (i.e., aquatic restoration, terrestrial restoration, recreational enhancement, and environmental education). Alternative 6 would enable the MA SubCouncil to fulfill its goal of restoring a broad range of benefits to various injured natural resources and services.

4.4 POTENTIAL ACTIONS

Because the MA SubCouncil plans to solicit restoration projects and ideas from the public in the near future, this PEA defines alternatives broadly. However, existing research provides a good indicator of specific restoration projects that may be pursued under the Restoration Program. Specifically, HRR recently conducted a river restoration plan using a collaborative, multi-stakeholder process (HRR, 1999 and 2003). The HRR Plan presents a variety of specific restoration recommendations that may be indicative of the type of restoration projects that will be proposed to receive NRD funding. Likewise, EOEA developed its 5-Year Watershed Plan (EOEA, 2003) for the Housatonic using an outreach approach that solicited extensive stakeholder involvement. Exhibit 4-1 incorporates recommendations from these sources as well as additional input provided by the MA SubCouncil during the drafting of this PEA. These options are grouped according to the most appropriate Restoration Priority Categories, which parallel Alternatives 2 through 5. The actions listed are intended to encompass the suite of projects that could be funded under the Restoration Program; however, applicants for restoration funding are not strictly limited to the actions listed and alternative proposals will be considered.

Exhibit 4-1
POTENTIAL ACTIVITIES FOR THE MASSACHUSETTS HOUSATONIC RIVER WATERSHED RESTORATION PROGRAM

Alternative	Sample Activities
Alternative 2: Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat	1. Restore native fish species through selective stocking. 2. Implement "smart growth" demonstration projects that protect/benefit aquatic natural resources (e.g., through reduced non-point pollution and water use). 3. Acquire land or easements to protect water quality and quantity. 4. Control exotic species in wetlands and surface water bodies. 5. Reduce non-point source pollution through installation of best management practices on agricultural or other lands. 6. Install fish passage at dams and other stream barriers (e.g., culverts). 7. Implement selective dam removal to provide fish passage and/or improve water quality. 8. Install in-stream aquatic habitat enhancements. 9. Implement bank stabilization projects in areas with high erosion potential due to anthropogenic actions. 10. Restore/enhance wetlands.
Alternative 3: Restoration, Rehabilitation, Enhancement, or Acquisition of Wildlife Resources and Habitat	1. Acquire land or purchase easements to protect/provide/enhance wildlife habitat. 2. Reduce non-native and invasive species. 3. Restore/enhance native upland habitat. 4. Create vegetative buffers to control agricultural and other runoff. 5. Stock native mammalian species such as mink and otter. In particular, reintroduce threatened/endangered species.
Alternative 4: Restoration, Rehabilitation, or Enhancement of Recreational Uses	1. Design, implement, and maintain a network of boating access sites along the river. 2. Implement selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river. 3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing. 4. Enhance handicap access to the river. 5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history related to natural resources. 6. Construct or improve boat launches and build parking for boaters and anglers. 7. Improve road access to recreation areas.
Alternative 5: Environmental Education and Outreach	1. Develop and deliver educational curricula that enable recipients to implement ecological restoration, resource conservation, or environmental protection. 2. Develop and distribute guides that promote natural resource conservation and environmental protection. 3. Provide technical assistance to organizations focused on ecological restoration, resource conservation, or environmental protection. 4. Support community-based environmental monitoring efforts.

5.0 IMPACTS OF ALTERNATIVES

NEPA regulations require that implementing agencies comparatively examine the environmental impacts of alternative actions, define key issues and differences, and provide a clear basis for the Preferred Alternative based on anticipated environmental consequences. 40 C.F.R. § 1502.14. This chapter first discusses the likely impacts of the No-Action Alternative and then considers the impacts of the individual restoration approaches (Alternatives 2 through 5). The impacts of the Preferred Alternative are then examined, including the cumulative impacts of the Restoration Program when combined with other actions and trends in the Housatonic River watershed.

5.1 IMPACTS OF NO-ACTION ALTERNATIVE (ALTERNATIVE 1)

Under the No-Action Alternative, cleanup would occur in accordance with the CD, but no Trustee-funded restoration projects would be implemented through the Housatonic River NRD settlement with GE. The result would be to forego environmental improvements associated with restored aquatic and wildlife resources; the quality of life improvements associated with improved recreational access; and the social benefits associated with environmental education and outreach.

It is possible that restoration may be performed under other authorities, such as state and federal programs focused on water quality, fish, and wildlife habitat and land protection. These efforts are discussed in greater detail as part of the cumulative effects analysis presented later in this chapter. However, implementation of these projects is contingent upon securing adequate funding; therefore, the implementation of any of these projects is uncertain.

In the No-Action scenario, the watershed would continue to be influenced by a variety of ongoing ecological stressors, including development, industrial point source discharges, agricultural non-point source discharges, and other factors. The absence of Trustee-funded restoration activity under the No-Action Alternative therefore implies lower environmental quality within the region. It should be noted that some of the resources targeted for restoration may recover naturally. However, this recovery would be slow and may fall short of conditions achieved through more active restoration efforts.

Although the No-Action Alternative provides a useful reference point for characterizing the impact of the remaining alternatives, it is not a legally viable option. Under CERCLA, the Trustee Council has recovered natural resource damages from GE. The damage assessment regulations state that "monies that constitute the damage claim amount shall be paid out of the account…only for those actions described in the Restoration Plan…" 43 C.F.R. § 11.92(c). Hence, the MA SubCouncil is legally obligated to pursue a restoration program under the terms of the settlement agreement.

5.2 IMPACTS OF ALTERNATIVES 2 THROUGH 5

As introduced in Chapter 4, Alternatives 2 through 5 align with the Restoration Priority Categories presented in the RPSP (Woodlot and IEc, 2005b), each representing a broad category of restoration. Exhibits 5-1 and 5-2 summarize the general anticipated impacts of these alternatives on the biological and socioeconomic environment, characterizing the impacts qualitatively for a variety of criteria.

The anticipated environmental impacts of the alternatives are largely positive, as would be expected for restoration projects.[12] However, restoration projects can have negative impacts. It is anticipated that these negative impacts would be project-specific, localized, and short-term in nature. For instance, a particular riverside trail may cause increased erosion, although such impacts could be minimized with proper design features. Likewise, the removal of a particular dam could cause short-term increases in turbidity, although such impacts could be reduced with the proper construction sequence. There are a variety of impact criteria for which no environmental impact is anticipated; for example, installation of fish passage structures (Alternative 2) is not likely to affect groundwater or air quality.

The anticipated socioeconomic impacts also are generally neutral or positive. Most notably, restoration would likely enhance residents' and visitors' enjoyment of the natural environment, through general aesthetic improvement and creation of recreational opportunities. Enhanced recreational opportunities also generate expenditures (e.g., by anglers and boaters) and stimulate tourism-related sectors of the local economy such as retail and hospitality (e.g., hotels and restaurants). Some socioeconomic impacts are uncertain and depend on the specific nature of the restoration project. For instance, placing land in conservation could have a positive impact on the value of adjacent residential development and a subsequent positive effect on property tax revenue. Alternatively, placing the land in conservation may preclude future development and decrease long-term tax revenue potential.

To better illustrate the potential impacts of the alternatives, Exhibits 5-3 through 5-6 examine specific restoration activities that might be funded under the Restoration Program (as introduced in Exhibit 4-1). Each table focuses on activities relevant to a particular alternative, characterizing both the environmental and socioeconomic impacts.[13]

[12] Note that we consider impacts relative to current conditions as well as future trends. For example, land conservation is expected to have positive implications for wildlife because future development could otherwise degrade habitat. In addition, note that the assessment of impacts assumes adherence to sound design and best management practices for all projects. The MA SubCouncil may oversee project implementation to verify that such practices are applied.

[13] The tables address only Alternatives 2 through 5. Alternative 6, representing a mix of all restoration strategies, would entail a cross section of the impacts considered for Alternatives 2 through 5, affording the flexibility to avoid negative impacts associated with particular activities.

Project applicants will be asked to further consider these types of impacts in their proposed project submissions. The MA SubCouncil will ask applicants to include NEPA checklists (*see* Appendix 1) and supplemental written information organized around the same impact criteria included in these tables. Therefore, although a project with adverse net impacts could be proposed, the selection process will likely eliminate such a project from consideration.

Exhibit 5-1
SUMMARY OF ENVIRONMENTAL IMPACTS BY ALTERNATIVE

Attribute	Alternative 1: No-Action Alternative	Alternative 2: Aquatic Restoration	Alternative 3: Wildlife Restoration	Alternative 4: Recreational Access Enhancement	Alternative 5: Education and Outreach	Alternative 6: Blend of Restoration Approaches
Instream flow impacts	Continued low flows in some areas	Potential improvements in instream flows	No impact	No impact	No direct impact; may facilitate beneficial human behavior	Potential positive impact
Surface water quality impacts	Continue current degradation; further degradation possible	Likely improvements	Likely improvements through land acquisition and conservation	Potential short-term negative impacts during construction	No direct impact; may facilitate beneficial human behavior	Positive net impact
Sediment quality impacts	Continue current degraded state	Likely improvements	No impact	No impact	No direct impact; may facilitate beneficial human behavior	Positive or no impact
Soil quality impacts	No impact	No impact	Potential improvements through land acquisition and conservation	No impact	No direct impact; may facilitate beneficial human behavior	Potential positive impact
Groundwater quality impacts	Continue threats to groundwater quality	Potential positive impact	Potential improvements through land acquisition and conservation	No impact	No direct impact; may facilitate beneficial human behavior	Potential positive impact
Wetlands quality and services (e.g., flood control)	Continue trend of wetland loss	Likely improvements	Potential improvements through land acquisition and conservation	Potential localized negative impact due to wetland filling	No direct impact; may facilitate beneficial human behavior	Positive net impact
Diversity and abundance of aquatic species	Continue negative impacts and habitat loss	Likely improvements	Potential positive impacts through shoreline restoration and conservation	Potential localized negative impacts due to wetland filling and human activity	No direct impact; may facilitate beneficial human behavior	Positive net impact
Diversity and abundance of terrestrial wildlife species	Continue negative impacts and habitat loss	Potential improvements for river species such as beaver and muskrat	Likely improvements through land acquisition and conservation	Potential localized negative impacts due to human activity	No direct impact; may facilitate beneficial human behavior	Positive net impact
Diversity of terrestrial plant communities	Continue negative impacts	No impact	Likely improvements through land acquisition and conservation	Potential localized negative impact due to human activity	No direct impact; may facilitate beneficial human behavior	Positive net impact
Air quality impacts	No impact	No impact	No impact	Potential localized and short-term negative impacts during construction	No direct impact; may facilitate beneficial human behavior	Potential short-term negative impacts during construction; no impact in long term

Exhibit 5-2
SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Attribute	Alternative 1: No-Action Alternative	Alternative 2: Aquatic Restoration	Alternative 3: Wildlife Restoration	Alternative 4: Recreational Access Enhancement	Alternative 5: Education and Outreach	Alternative 6: Blend of Restoration Approaches
Impacts on minority or low income populations	No impact	No impact	No impact	No impact	No impact	No impact
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact	No impact	No impact
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	Continue community concern over health and environment	Potential positive impact	Potential positive impact	Potential positive impact	Likely positive impact	Potential positive impact
Impacts on aesthetics	Continue community concern over natural resource quality	Likely positive impact	Likely positive impact	Positive or negative results possible; varies by project	No direct impact; may facilitate beneficial human behavior	Likely positive net impact
Impacts on public health or safety	Continue baseline risk to health and safety	Potential positive impact	Potential positive impact	Potential positive impact	No direct impact; may facilitate beneficial human behavior	Potential positive impact
Impacts on recreational activity and/or expenditures	No recreational improvements	Potential positive impact	Potential positive impact	Positive impact	No direct impact; may facilitate water quality improvements and enhance recreational opportunities	Likely positive impact
Impacts on historical or archaeological sites	Continue threats to cultural sites	Potential positive impact	Potential positive impact	Positive or negative impacts possible; varies by activity	No direct impact; may enhance awareness of history/heritage	Likely positive net impact
Impacts on water supply and water use	Continue baseline threats to drinking water resources	Potential positive impact	Potential positive impact	No impact	No direct impact; may facilitate water quality improvements and drinking water conservation	Potential positive impact
Impact on subsistence activity (e.g., subsistence hunting)	No impact	Potential positive impact	Potential positive impact	No impact	No direct impact; may facilitate water quality improvements and	Potential positive impact

Exhibit 5-2
SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Attribute	Alternative 1: No-Action Alternative	Alternative 2: Aquatic Restoration	Alternative 3: Wildlife Restoration	Alternative 4: Recreational Access Enhancement	Alternative 5: Education and Outreach	Alternative 6: Blend of Restoration Approaches
					habitat conservation	
Nuisance impacts (e.g., noise, dust, glare, odor)	No impact	No impact	No impact	Potential short-term, localized negative impacts during construction or long-run impacts from human activity	No direct impact	Potential negative impact
Short-term commercial economic impact of restoration action (e.g., construction jobs)	No impact	Potential positive impact	Potential positive impact	Potential positive impact	No direct impact	Potential positive impact
Long-term impact on wastewater dischargers	No impact	Potential negative impact (e.g., increased treatment costs)	No impact	No impact	No direct impact	Potential negative impact
Impacts on existing resource-based industries (e.g., forestry, agriculture)	No impact	Positive or negative impacts possible; varies by project	Positive or negative impacts possible; varies by project	Positive or negative impacts possible; varies by project	No direct impact	Positive or negative impacts possible; varies by project
Impacts on property values, development, or property taxes	No impact	Potential positive impact	Positive or negative localized impacts possible; varies by project	Positive or negative localized impacts possible; varies by project	No direct impact	Positive or negative results possible; varies by project
Impacts on power generation and energy availability	No impact	Potential negative impact (e.g., dam removal)	No impact	No impact	No direct impact	Potential negative impact

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	1. Restore native fish species through selective stocking	**2. Implement "smart growth" demonstration projects that protect/benefit aquatic natural resources, e.g., through reduced non-point pollution and water use**	**3. Acquire land or easements to protect water quality and quantity**	**4. Eradicate exotic species from wetlands and surface water bodies**	**5. Reduce non-point source pollution through installation of best management practices on agricultural and other lands**
Environmental Impacts					
Instream flow impacts	No impact	Potential benefits to stream flows (e.g., through improved groundwater recharge)	Potential benefits to stream flows (e.g., through improved groundwater recharge)	No impact	No impact
Surface water quality impacts	No impact	Potential positive impact	Potential positive impact from reduced development and associated non-point pollution	Potential positive or negative (e.g., turbidity increase) impacts on water quality, depending on specific exotic species	Potential positive impact
Sediment quality impacts	No impact	Potential positive impact	No impact	No impact	Potential positive impact
Soil quality impacts	No impact	Potential positive impact through reduced erosion	Potential positive impact through reduced erosion	No impact	Potential positive impact through reduced erosion
Groundwater quality impacts	No impact	Potentially reduce risk of groundwater contamination	Potentially reduce risk of groundwater contamination	No impact	Potentially reduce risk of groundwater contamination
Wetlands quality and services (e.g., flood control)	No impact	Reduced filling of wetlands; associated conservation of wetland functions	Reduced filling of wetlands; associated conservation of wetland functions	Possible wetland benefits (e.g., improved nutrient cycling) depending on specific exotic species	Potential positive impact (e.g., retirement of marginally productive land)
Diversity and abundance of aquatic species	Positive impact	Potential positive impact through water quality improvements	Habitat conserved for wetland-dependent species	Possible benefits through reduced crowding of native species	Potential positive impact through water quality improvements
Diversity and abundance of terrestrial wildlife species	Potential habitat improvement for piscivorous birds and mammals	Potential habitat improvement for terrestrial species feeding on fish, amphibians, and aquatic plants	Habitat potentially conserved for array of terrestrial species, including mammals, birds, and reptiles	Potential habitat improvement for terrestrial species feeding on fish, amphibians, and aquatic plants	Potential habitat improvement for terrestrial species feeding on fish, amphibians, and aquatic plants

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	1. Restore native fish species through selective stocking	**2. Implement "smart growth" demonstration projects that protect/benefit aquatic natural resources, e.g., through reduced non-point pollution and water use**	**3. Acquire land or easements to protect water quality and quantity**	**4. Eradicate exotic species from wetlands and surface water bodies**	**5. Reduce non-point source pollution through installation of best management practices on agricultural and other lands**
Diversity of terrestrial plant communities	No impact	No impact	Conservation of native plant species	Potentially prevent spread of exotic wetland species to terrestrial areas	Potential positive impact (e.g., vegetative buffers)
Air quality impacts	No impact	No impact	No impact	No impact	No impact
Socioeconomic Impacts					
Impacts on minority or low income populations	No impact	No impact	No impact	No impact	No impact
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact	No impact
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	No impact	Potential positive impact through collaboration and stewardship	Potential positive impact through collaboration and stewardship	Potential positive impact depending on species- and project-specific features	No impact
Impacts on aesthetics	No impact	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	No impact
Impacts on public health or safety	No impact	Potential positive impact (e.g., reduced swimming-related illness risk)	Potential positive impact (e.g., reduced swimming-related illness risk)	Potential positive impact	Potential positive impact (e.g., reduced swimming-related illness risk)
Impacts on recreational activity and/or expenditures	Positive impact through improved recreational fishing	Potential positive impact depending on site-specific features	Potential improvement depending on site-specific features	Potential short-term negative impact (e.g., water contact restrictions); potential longer-term positive impact depending on species- and site-specific features	Potential positive impact depending on site-specific features

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	1. Restore native fish species through selective stocking	**2. Implement "smart growth" demonstration projects that protect/benefit aquatic natural resources, e.g., through reduced non-point pollution and water use**	**3. Acquire land or easements to protect water quality and quantity**	**4. Eradicate exotic species from wetlands and surface water bodies**	**5. Reduce non-point source pollution through installation of best management practices on agricultural and other lands**
Impacts on historical or archaeological sites	No impact	No impact	Potential positive or negative impact depending on site-specific features	No impact	No impact
Impacts on water supply and water use	No impact	Potential conservation of drinking water quality	Potential conservation of drinking water quality	No impact	Potential conservation of drinking water quality
Impact on subsistence activity (e.g., subsistence hunting)	Potential positive impact (e.g., subsistence fishing improvements)	Potential positive impact (e.g., subsistence fishing improvements)	Potential positive impact (e.g., subsistence fishing improvements)	Potential positive impact (e.g., subsistence fishing improvements)	Potential positive impact (e.g., subsistence fishing improvements)
Nuisance impacts (e.g., noise, dust, odor)	No impact	No impact	No impact	No impact	No impact
Short-term commercial economic impact of restoration action (e.g., construction jobs)	No impact	No impact	No impact	No impact	No impact
Long-term impact on wastewater dischargers	No impact	No impact	No impact	No impact	No impact
Impacts on existing resource-based industries (e.g., forestry, agriculture)	No impact	No impact	Potential positive or negative impact (e.g., forestry) depending on site-specific features	Potential positive impact depending on site-specific features	Potential production cost increase for farmers and/or reduction in cultivated land
Impacts on property values, development, or property taxes	No impact	Potential positive or negative impact depending on site-specific features	Potential positive or negative impact depending on site-specific features	No impact	No impact
Impacts on power generation and energy availability	No impact	No impact	No impact	No impact	No impact

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	6. Install fish passage at dams and other stream barriers (e.g. culverts)	**7. Selective dam removal to provide fish passage and/or improve water quality**	**8. Install in-stream aquatic habitat enhancements**	**9. Implement bank stabilization projects in areas with high erosion potential due to anthropogenic actions**	**10. Restore/enhance wetlands**
Environmental Impacts					
Instream flow impacts	No impact	Potential stream flow enhancement	No impact	No impact	No impact
Surface water quality impacts	No impact	Potential positive impact (e.g., temperature reduction)	No impact	Positive impact	Potential positive impact (e.g., through improved runoff filtration)
Sediment quality impacts	No impact	Potential negative impacts through re-suspension and transport of contaminated sediment	No impact	Potential positive impact	Potential positive impact (e.g., through improved runoff filtration)
Soil quality impacts	No impact	No impact	No impact	Potential positive impact	No impact
Groundwater quality impacts	No impact	No impact	No impact	No impact	No impact
Wetlands quality and services (e.g., flood control)	No impact	Potential wetland enhancement through increased shallow water area	No impact	Potential positive impact	Potential positive impact
Diversity and abundance of aquatic species	Positive impact from improved fish habitat to support larger and more diverse fish populations	Positive impact	Potential positive impact	Potential positive impact	Potential positive impact
Diversity and abundance of terrestrial wildlife species	Potential habitat improvement for piscivorous birds and mammals	Potential habitat improvement for terrestrial species feeding on fish, amphibians, and aquatic plants	Potential habitat improvement for terrestrial species feeding on fish, amphibians, and aquatic plants	No impact	Potential positive impact for terrestrial species feeding on fish, amphibians, and aquatic plants
Diversity of terrestrial plant communities	No impact	No impact	No impact	No impact	No impact

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	6. Install fish passage at dams and other stream barriers (e.g. culverts)	**7. Selective dam removal to provide fish passage and/or improve water quality**	**8. Install in-stream aquatic habitat enhancements**	**9. Implement bank stabilization projects in areas with high erosion potential due to anthropogenic actions**	**10. Restore/enhance wetlands**
Air quality impacts	No impact	No impact	No impact	No impact	No impact
Socioeconomic Impacts					
Impacts on minority or low income populations	No impact	No impact	No impact	No impact	No impact
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact	No impact
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	No impact	No impact	No impact	No impact	No impact
Impacts on aesthetics	No impact	Potential positive impact (e.g., more natural river appearance)	No impact	Potential positive impact (e.g., improved water clarity)	No impact
Impacts on public health or safety	No impact	Potential positive impact on swimming/boating safety	No impact	No impact	No impact
Impacts on recreational activity and/or expenditures	Potential positive impact on fishing	Potential positive impact on fishing	Potential positive impact on fishing	Potential positive impact on fishing	Potential positive impact (e.g., bird watching, hunting)
Impacts on historical or archaeological sites	Potential negative impact if modify historic dam	Potential negative impact if remove historic structures	No impact	No impact	No impact
Impacts on water supply and water use	No impact	Potential positive impact through water quality and quantity improvement	No impact	Potential positive impact through water quality improvement	Potential positive impact through water quality protection
Impact on subsistence activity (e.g., subsistence hunting)	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features

Exhibit 5-3
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 2

	Possible Activities Under Alternative 2 (Restoration, Rehabilitation, Enhancement, or Acquisition of Aquatic Biological Resources and Habitat)				
	6. Install fish passage at dams and other stream barriers (e.g. culverts)	**7. Selective dam removal to provide fish passage and/or improve water quality**	**8. Install in-stream aquatic habitat enhancements**	**9. Implement bank stabilization projects in areas with high erosion potential due to anthropogenic actions**	**10. Restore/enhance wetlands**
Nuisance impacts (e.g., noise, dust, odor)	Potential short term negative impacts during construction	Potential short term negative impacts during dam removal	No impact	Potential short term negative impacts during construction	Potential short term negative impacts during construction
Short-term commercial economic impact of restoration action (e.g., construction jobs)	Potential positive impact	Potential positive impact	No impact	Potential positive impact	Potential positive impact
Long-term impact on wastewater dischargers	No impact	No impact	No impact	No impact	No impact
Impacts on existing resource-based industries (e.g., forestry, agriculture)	No impact	No impact	No impact	No impact	Potential negative impact depending on site-specific features
Impacts on property values, development, or property taxes	No impact	No impact	No impact	No impact	Potential positive impact on value of adjacent properties (e.g., improved aesthetics)
Impacts on power generation and energy availability	No impact	Potential negative impact on hydropower generation capacity	No impact	No impact	No impact

Exhibit 5-4
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 3

	Possible Activities Under Alternative 3 (Restoration, Rehabilitation, Enhancement, or Acquisition of Wildlife Resources and Habitat)				
	1. Acquire land or purchase easements to protect/provide/enhance wildlife habitat	**2. Reduce non-native and invasive species**	**3. Restore/enhance native upland habitat**	**4. Create vegetative buffers to control agricultural and other runoff**	**5. Stock native mammalian species such as mink and otter. In particular, reintroduce threatened/endangered species**
Environmental Impacts					
Instream flow impacts	No impact	No impact	No impact	No impact	No impact
Surface water quality impacts	Potential positive impact	No impact	No impact	Positive impact	No impact
Sediment quality impacts	No impact	No impact	No impact	Potential positive impact	No impact
Soil quality impacts	Potential positive impact	Potential positive impact	Potential positive impact	Potential positive impact through reduced erosion	No impact
Groundwater quality impacts	Potential positive impact	No impact	No impact	Potential positive impact	No impact
Wetlands quality and services (e.g., flood control)	Potential positive impact	Potential positive impact (e.g., loosestrife)	No impact	Potential positive impact	No impact
Diversity and abundance of aquatic species	Potential positive impact	Potential positive impact	No impact	Potential positive impact	No impact
Diversity and abundance of terrestrial wildlife species	Positive impact	Positive impact	Positive impact	Positive impact	Positive impact
Diversity of terrestrial plant communities	Positive impact	Positive impact	Positive impact	Positive impact	No impact
Air quality impacts	No impact	No impact	No impact	No impact	No impact
Socioeconomic Impacts					
Impacts on minority or low income populations	No impact	No impact	No impact	No impact	No impact
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact	No impact

Exhibit 5-4
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 3

	Possible Activities Under Alternative 3 (Restoration, Rehabilitation, Enhancement, or Acquisition of Wildlife Resources and Habitat)				
	1. Acquire land or purchase easements to protect/provide/enhance wildlife habitat	**2. Reduce non-native and invasive species**	**3. Restore/enhance native upland habitat**	**4. Create vegetative buffers to control agricultural and other runoff**	**5. Stock native mammalian species such as mink and otter. In particular, reintroduce threatened/endangered species**
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	Potential positive impact	Potential positive impact	Potential positive impact	Potential positive impact	Potential positive impact
Impacts on aesthetics	Potential positive impact depending on site-specific features	No impact	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	No impact
Impacts on public health or safety	No impact	No impact	No impact	No impact	No impact
Impacts on recreational activity and/or expenditures	Potential positive impact depending on site-specific features	No impact	Potential positive impact depending on site-specific features	Potential positive impact through water quality improvements	Potential improvement depending on site-specific features
Impacts on historical or archaeological sites	Potential positive impact depending on site-specific features	No impact	No impact	No impact	No impact
Impacts on water supply and water use	Potential conservation of drinking water quality	No impact	No impact	Potential conservation of drinking water quality	No impact
Impact on subsistence activity (e.g., subsistence hunting)	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive impact through water quality improvements	Potential positive impact depending on site-specific features
Nuisance impacts (e.g., noise, dust, odor)	No impact	No impact	No impact	No impact	No impact
Short-term commercial economic impact of restoration action (e.g., construction jobs)	No impact	No impact	No impact	No impact	No impact
Long-term impact on wastewater dischargers	No impact	No impact	No impact	No impact	No impact

Exhibit 5-4
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 3

	Possible Activities Under Alternative 3 (Restoration, Rehabilitation, Enhancement, or Acquisition of Wildlife Resources and Habitat)				
	1. Acquire land or purchase easements to protect/provide/enhance wildlife habitat	**2. Reduce non-native and invasive species**	**3. Restore/enhance native upland habitat**	**4. Create vegetative buffers to control agricultural and other runoff**	**5. Stock native mammalian species such as mink and otter. In particular, reintroduce threatened/endangered species**
Impacts on existing resource-based industries (e.g., forestry, agriculture)	Potential positive or negative impact depending on site-specific features	Potential positive impact depending on site-specific features	Potential positive or negative impact depending on site-specific features	Potential reduction in cultivated land	No impact on current activities; may enable trapping
Impacts on property values, development, or property taxes	Potential positive or negative impact depending on site-specific features	Potential positive impact on property values	Potential positive or negative impact depending on site-specific features	No impact	No impact
Impacts on power generation and energy availability	No impact	No impact	No impact	No impact	No impact

Exhibit 5-5
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 4

	Possible Activities Under Alternative 4 (Restoration, Rehabilitation, or Enhancement of Recreational Uses)						
	1. Design, implement, and maintain a network of boating access sites along the river	**2. Selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river**	**3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing**	**4. Enhance handicap access to the river**	**5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history**	**6. Construct or improve boat launches and build parking for boaters and anglers**	**7. Improve road access to recreation areas**
Environmental Impacts							
Instream flow impacts	No impact	Potential positive impact	No impact	No impact	No impact	No impact	No impact
Surface water quality impacts	No impact	No impact	No impact	No impact	No impact	Potential negative impacts in access areas, e.g., parking lot runoff	No impact
Sediment quality impacts	No impact	No impact	No impact	No impact	No impact	Potential negative impacts in access areas, e.g., parking lot runoff	No impact
Soil quality impacts	No impact	No impact	Potential increased erosion from foot/bike traffic	No impact	Potential increased erosion from foot/bike traffic	Potential increased erosion from foot traffic	No impact
Groundwater quality impacts	No impact	No impact	No impact	No impact	No impact	No impact	No impact
Wetlands quality and services (e.g., flood control)	No impact	No impact	No impact	No impact	No impact	Potential negative impact from wetlands filling	Potential negative impact from wetlands filling

Exhibit 5-5
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 4

	Possible Activities Under Alternative 4 (Restoration, Rehabilitation, or Enhancement of Recreational Uses)						
	1. Design, implement, and maintain a network of boating access sites along the river	**2. Selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river**	**3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing**	**4. Enhance handicap access to the river**	**5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history**	**6. Construct or improve boat launches and build parking for boaters and anglers**	**7. Improve road access to recreation areas**
Diversity and abundance of aquatic species	Potential negative impact in access areas	No impact	No impact	No impact	No impact	Potential negative impact in access areas	No impact
Diversity and abundance of terrestrial wildlife species	Potential minor negative impacts from human activity	No impact	Potential negative impacts from habitat fragmentation and human activity	No impact	Potential negative impacts from habitat fragmentation and human activity	Potential negative impacts from habitat fragmentation and human activity	Potential negative impacts from habitat fragmentation and traffic
Diversity of terrestrial plant communities	Minor negative impact from land clearing	No impact	Potential negative impacts from land clearing	No impact	Potential negative impacts from land clearing	Potential negative impact from land clearing	Negative impacts from land clearing
Air quality impacts	No impact	No impact	Potential short-term negative impacts during construction	No impact	Potential short-term negative impacts during construction	Potential short-term negative impacts during construction	Potential negative impacts during construction; localized impact from auto emissions
Socioeconomic Impacts							
Impacts on minority or low income populations	No impact	No impact	No impact	No impact	No impact	No impact	No impact

Exhibit 5-5
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 4

	Possible Activities Under Alternative 4 (Restoration, Rehabilitation, or Enhancement of Recreational Uses)						
	1. Design, implement, and maintain a network of boating access sites along the river	**2. Selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river**	**3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing**	**4. Enhance handicap access to the river**	**5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history**	**6. Construct or improve boat launches and build parking for boaters and anglers**	**7. Improve road access to recreation areas**
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact	No impact	No impact	No impact
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	Potential positive impact	No impact	Potential positive impact	Potential positive impact	Positive impact	No impact	No impact
Impacts on aesthetics	Potential positive or negative impacts depending on site-specific features	Potential positive impact	Positive impact	No impact	Potential positive impact	Potential negative impacts (e.g., boat traffic, shoreline disturbance)	Potential negative impacts (e.g., shoreline disturbance)
Impacts on public health or safety	Potential positive impact (e.g., safer boat access)	Potential positive impact (boating safety)	No impact	Potential positive impact	No impact	Potential positive impact (e.g., safer boat access)	No impact

Exhibit 5-5
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 4

	Possible Activities Under Alternative 4 (Restoration, Rehabilitation, or Enhancement of Recreational Uses)						
	1. Design, implement, and maintain a network of boating access sites along the river	**2. Selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river**	**3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing**	**4. Enhance handicap access to the river**	**5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history**	**6. Construct or improve boat launches and build parking for boaters and anglers**	**7. Improve road access to recreation areas**
Impacts on recreational activity and/or expenditures	Positive impact	Positive impact	Positive impact	Positive impact	Positive impact	Positive impact	Positive impact
Impacts on historical or archaeological sites	Potential positive or negative impact depending on site-specific features	No impact	Potential positive or negative impact depending on site-specific features	No impact	Potential positive or negative impact depending on site-specific features	Potential negative impact depending on site-specific features	Potential negative impact depending on site-specific features
Impacts on water supply and water use	No impact	No impact	No impact	No impact	No impact	No impact	No impact
Impact on subsistence activity (e.g., subsistence hunting)	Potential negative impact depending on site-specific features	No impact	No impact	No impact	No impact	No impact	No impact
Nuisance impacts (e.g., noise, dust, odor)	Potential negative impacts from increased boating	No impact	No impact	No impact	No impact	Potential negative impacts from increased boating	Potential negative impacts from increased traffic

Exhibit 5-5
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 4

	Possible Activities Under Alternative 4 (Restoration, Rehabilitation, or Enhancement of Recreational Uses)						
	1. Design, implement, and maintain a network of boating access sites along the river	**2. Selective removal or relocation of trees, debris, and other objects that pose a safety hazard or aesthetic impediment to paddlers, visitors, or wildlife on or along the river**	**3. Develop a riverside greenway that accommodates hiking, picnicking, biking, and/or wildlife viewing**	**4. Enhance handicap access to the river**	**5. Design, implement, maintain, and promote a Historic Housatonic River Trail highlighting significant and interesting aspects of the river's history**	**6. Construct or improve boat launches and build parking for boaters and anglers**	**7. Improve road access to recreation areas**
Short-term commercial economic impact of restoration action (e.g., construction jobs)	Potential positive impact	No impact	Potential positive impact	No impact	Potential positive impact	Potential positive impact	Potential positive impact
Long-term impact on wastewater dischargers	No impact	No impact	No impact	No impact	No impact	No impact	No impact
Impacts on existing resource-based industries (e.g., forestry, agriculture)	No impact	No impact	No impact	No impact	No impact	No impact	Potential positive or negative impacts
Impacts on property values, development, or property taxes	Potential positive impact depending on site-specific features	No impact	Potential positive impact depending on site-specific features	No impact	Potential positive impact depending on site-specific features	Potential positive or negative impact depending on site-specific features	Potential positive or negative impact depending on site-specific features
Impacts on power generation and energy availability	No impact	No impact	No impact	No impact	No impact	No impact	No impact

Exhibit 5-6
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 5

	Possible Activities Under Alternative 5 (Environmental Education and Outreach)			
	1. Develop and deliver educational curricula that enable recipients to implement ecological restoration, resource conservation, or environmental protection	**2. Develop and distribute guides that promote natural resource conservation and environmental protection**	**3. Provide technical assistance to organizations focused on ecological restoration, resource conservation, or environmental protection**	**4. Support community-based environmental monitoring efforts focused on natural resource restoration projects.**
Environmental Impacts				
Instream flow impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Surface water quality impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Sediment quality impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Soil quality impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Groundwater quality impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Wetlands quality and services (e.g., flood control)	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Diversity and abundance of aquatic species	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Diversity and abundance of terrestrial wildlife species	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Diversity of terrestrial plant communities	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Air quality impacts	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	Positive impact
Socioeconomic Impacts				
Impacts on minority or low income populations	No impact	No impact	No impact	No impact

Exhibit 5-6
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 5

	Possible Activities Under Alternative 5 (Environmental Education and Outreach)			
	1. Develop and deliver educational curricula that enable recipients to implement ecological restoration, resource conservation, or environmental protection	**2. Develop and distribute guides that promote natural resource conservation and environmental protection**	**3. Provide technical assistance to organizations focused on ecological restoration, resource conservation, or environmental protection**	**4. Support community-based environmental monitoring efforts focused on natural resource restoration projects.**
Impacts on local demographic features (e.g., population, racial diversity)	No impact	No impact	No impact	No impact
Impacts on local sense of community, local collaboration, or public understanding of environmental issues	Positive impact	Positive impact	Positive impact	Positive impact
Impacts on aesthetics	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Impacts on public health or safety	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may facilitate beneficial human behavior	No direct impact; may help evaluate and refine restoration efforts
Impacts on recreational activity and/or expenditures	No direct impact; may facilitate water quality improvements and enhance recreational opportunities	No direct impact; may facilitate water quality improvements and enhance recreational opportunities	No direct impact; may facilitate water quality improvements and enhance recreational opportunities	No direct impact; may help evaluate and refine restoration efforts
Impacts on historical or archaeological sites	No direct impact; may enhance awareness of history/heritage	No direct impact; may enhance awareness of history/heritage	No direct impact; may enhance awareness of history/heritage	No direct impact; may help evaluate and refine restoration efforts
Impacts on water supply and water use	No direct impact; may facilitate water quality improvements and drinking water conservation	No direct impact; may facilitate water quality improvements and drinking water conservation	No direct impact; may facilitate water quality improvements and drinking water conservation	No direct impact; may help evaluate and refine restoration efforts
Impact on subsistence activity (e.g., subsistence hunting)	No direct impact; may facilitate water quality improvements and habitat conservation	No direct impact; may facilitate water quality improvements and habitat conservation	No direct impact; may facilitate water quality improvements and habitat conservation	No direct impact; may help evaluate and refine restoration efforts
Nuisance impacts (e.g., noise, dust, odor)	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts

Exhibit 5-6
PRELIMINARY ASSESSMENT OF IMPACTS ASSOCIATED WITH POTENTIAL ACTIVITIES UNDER ALTERNATIVE 5

	Possible Activities Under Alternative 5 (Environmental Education and Outreach)			
	1. Develop and deliver educational curricula that enable recipients to implement ecological restoration, resource conservation, or environmental protection	**2. Develop and distribute guides that promote natural resource conservation and environmental protection**	**3. Provide technical assistance to organizations focused on ecological restoration, resource conservation, or environmental protection**	**4. Support community-based environmental monitoring efforts focused on natural resource restoration projects.**
Short-term commercial economic impact of restoration action (e.g., construction jobs)	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts
Long-term impact on wastewater dischargers	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts
Impacts on existing resource-based industries (e.g., forestry, agriculture)	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts
Impacts on property values, development, or property taxes	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts
Impacts on power generation and energy availability	No direct impact	No direct impact	No direct impact	No direct impact; may help evaluate and refine restoration efforts

5.3 IMPACTS OF PREFERRED ALTERNATIVE (ALTERNATIVE 6)

The Preferred Alternative provides a blend of the restoration approaches in Alternatives 2 through 5 (i.e., aquatic restoration, wildlife/terrestrial restoration, recreational access enhancement, and education/outreach). Exhibits 5-1 and 5-2 address Alternative 6 and demonstrate the advantages of the Preferred Alternative. By providing a general mix of restoration approaches, Alternative 6 maximizes the opportunity to realize positive net impacts across the Restoration Program. For instance, while a particular recreational access project may result in some minor, localized negative environmental impacts, these effects would likely be offset and surpassed by positive impacts from habitat restoration and education initiatives. In this way, Alternative 6 allows the MA SubCouncil to select a suite of restoration projects that are complementary and that achieve the greatest net benefit for the watershed.

5.4 CUMULATIVE IMPACTS OF ALTERNATIVES

In the regulations implementing NEPA, the CEQ defines cumulative impacts as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. To assess cumulative impacts, this section focuses on how the Preferred Alternative would combine with other factors, both positive and negative, to influence the environmental quality of the Housatonic River watershed.[14]

5.4.1 Positive Factors Affecting Housatonic Watershed

The discovery of PCB contamination in the Housatonic River watershed greatly heightened environmental awareness in the watershed. A variety of research and conservation efforts are complete or underway in the region and, if adequately funded through other sources, could continue to proceed independently of the Restoration Program that is addressed in this PEA. Although it is difficult to identify these efforts exhaustively, the EOEA's 5-Year Watershed Action Plan (EOEA, 2003) highlights the following:

- The HRR Plan was developed based upon a collaborative process that included all conservation interests in the watershed (both public and private).
- The Berkshire Regional Planning Commission (BRPC) completed a Non-point Source Pollution Assessment as well as a Stormwater Assessment and Mitigation Project at five lakes and ponds.
- MADEP completed a Water Quality Assessment.
- The Housatonic Valley Association (HVA) stream teams have completed four shoreline surveys and segment reports.
- HVA, HRR, and BRPC have implemented a Community Watershed Initiative.

[14] To avoid a redundant discussion of each individual alternative, and because Alternative 6 represents a combination of all the individual restoration categories, the cumulative impacts discussion focuses only on the Preferred Alternative.

Efforts under the blended restoration program (Alternative 6) would be structured to complement and enhance these pre-existing initiatives.

In addition, restoration efforts could occur in the context of state and federal regulatory and conservation programs if the requisite state, federal, or private funding is available. A partial list of such programs includes the following:

- Wetland filling is regulated through permit programs operated by the U.S. Army Corps of Engineers (Sections 10 and 404). In accordance with "no net loss of wetlands" policies, activities causing impacts may require mitigation that includes restoration activities.
- A variety of other federal programs provides for the conservation of wetlands; for instance, the Department of Agriculture's Natural Resource Conservation Service (NRCS) Wetland Reserve Program pays farmers to retire marginally productive crop land.
- Massachusetts implements wetland restoration and conservation programs with funds obtained from Section 104(b)(3) Wetlands Program Development Grants.
- Other federal habitat conservation programs include the NRCS Conservation Reserve Program, the NRCS Wildlife Habitat Incentive Program, and the USFWS Partners for Fish and Wildlife Program.
- USEPA administers grants under Section 319 of the CWA to fund state non-point source control efforts. The grants cover technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific projects.
- Massachusetts implements various programs with funds obtained from Section 106 CWA Water Pollution Control Program Grants.
- Numerous non-profit organizations (e.g., the HVA, the Massachusetts Audubon Society) purchase and manage land in the Housatonic watershed for recreation and open space conservation.

These and other programs collectively work to improve environmental quality in the Housatonic River watershed. Alternative 6 would complement these efforts and increase the cumulative benefits yielded.

5.4.2 Negative Factors Affecting Housatonic River Watershed

The Affected Environment section (Chapter 3) discusses the various ecological stressors and socioeconomic forces affecting the Housatonic River watershed. The discussion highlights residential and commercial development as a factor in the loss of wildlife habitat as well as development as a source of non-point water pollution. Other ecological stressors include industrial and municipal point sources, non-point pollution related to agriculture, abandoned industrial facilities, and invasive plant species. These factors would likely persist to some degree under Alternative 6; however, the Restoration Program would help mitigate their impacts.

Major adverse socioeconomic forces in the region include loss of manufacturing and farming jobs; a decrease in population, especially in Pittsfield; and intense resident concern with the public health implications of PCB contamination. Alternative 6 is unlikely to have a major impact on job losses and emigration. As noted, however, socioeconomic benefits in the form of aesthetic improvements, enhanced sense of community, improved public health and safety, and recreational enjoyment (and associated commercial expenditures) may result from the proposed Restoration Program.

5.4.3 Cumulative Impacts of Restoration Program

Restoration under Alternative 6 would be structured to complement existing conservation and regulatory efforts and would incrementally assist in addressing the negative environmental and socioeconomic forces discussed above. First, aquatic restoration, land conservation, improved control of point and non-point pollution sources, and other efforts would help counteract factors negatively affecting water quality and wildlife habitat. Second, commercial activity associated with increased recreation would help to partially offset job losses in traditional sectors such as manufacturing and farming. Affected industries would likely include hotels, restaurants, guide services, and retail. Finally, public knowledge of and participation in restoration efforts can enhance the public's understanding of public health risks.

In summary, the Restoration Program would have a positive cumulative effect on the environment of the Housatonic River watershed. In particular, Alternative 6 (the Preferred Alternative) would be most beneficial, since the inherent flexibility for project selection would allow the Trustee Council to effectively fill in the gaps in the myriad conservation and regulatory efforts that currently exist in the region. In addition, the MA SubCouncil will consider and strive to minimize negative cumulative impacts from projects implemented under the Restoration Program.

6.0 REFERENCES

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8.0 RESPONSE TO PUBLIC COMMENTS

The MA SubCouncil issued a Public Notice of Availability for the draft PEA in the Federal Register on November 1, 2005. The draft PEA was also made available on the MA SubCouncil's website, and a press release announcing the availability was sent to local news media in western Massachusetts. The MA SubCouncil held an informal public meeting on December 13, 2005 at the Lenox Town Hall in Lenox, MA, to discuss the draft document and respond to questions and comments from the public. Written public comments were accepted until December 1, 2005. This deadline was extended to December 20, 2005. No public comments were received.

APPENDIX 1

Potential Environmental and Socioeconomic Impacts Checklist

The MA SubCouncil will review the information provided and determine whether further information is required.

CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: _____
Applicant: _____

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Comments	Mitigation Required*	Permit or Approval Required**
Environmental	Air quality impacts							
	Instream flow impacts							
	Surface water quality impacts							
	Sediment quality impacts							
	Soil quality impacts							
	Groundwater quality impacts							
	Wetlands quality and services (e.g., flood control)							
	Diversity and abundance of aquatic species							
	Diversity and abundance of terrestrial wildlife species							
	Diversity of plant communities							
	Other:							
	Other:							

The MA SubCouncil will review the information provided and determine whether further information is required.

CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: _____
Applicant: _____

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Comments	Mitigation Required*	Permit or Approval Required**
Social	Impacts on minority or low income populations							
	Impacts on local sense of community and well being							
	Impacts on aesthetics							
	Impacts on public health or safety							
	Impacts on recreational activity							
	Impacts to Native American Trust Resources							
	Impacts on non-Tribal cultural sites (e.g., sites listed or eligible for listing to the National Register of Historic Places)							
	Impacts on education (e.g., naturalist curricula)							
	Impacts on local partnerships and collaborative efforts							
	Impacts on availability and quality of drinking water							
	Impact on subsistence activity (e.g., subsistence hunting)							
	Nuisance impacts (e.g., noise, dust, glare, odor)							
	Other:							
	Other:							

The MA SubCouncil will review the information provided and determine whether further information is required.

CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: _____
Applicant: _____

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Comments	Mitigation Required*	Permit or Approval Required**
Economic	Short-term commercial economic impact of restoration action (e.g., construction jobs)							
	Impacts on property values							
	Impacts on recreational expenditures and related businesses							
	Impacts on existing resource-based industries (e.g., forestry, agriculture)							
	Impacts on commercial water users							
	Impacts on river-based commercial navigation							
	Impact on wastewater dischargers							
	Other:							
	Other:							

* Requires narrative discussion; see instructions in text.
** List and description of permits required; see instructions in text.

Examples of Environmental Impacts (not a comprehensive list):

- **Air quality impacts**: Project may increase the potential for release of pollutants to ambient air, via direct emissions or re-suspension of soil and/or dust, including short-term releases from construction vehicles, etc.
- **Instream flow impacts**: Project may increase or decrease river flow, either intermittently or over long periods of time, thereby affecting aquatic life.
- **Surface water quality impacts**: Pollutants may be released to surface water via point or non-point sources. Includes conventional pollutants (e.g., nutrients), sediments (e.g., turbidity), and toxic pollutants (e.g., metals). Beneficial impacts may occur if project reduces pollutant loadings (e.g., wetland filtration of runoff).
- **Sediment quality impacts**: Project may affect concentrations of pollutants found in riverbed and bank sediments.
- **Soil quality impacts**: Project may affect the concentration of pollutants in soils or the potential for soils to erode.
- **Groundwater quality impacts**: Project may affect the quantity or quality of groundwater resources (e.g., leaching of pollutants to groundwater).
- **Wetlands quality and services**: Project may influence the ability of wetlands to provide key functions and services, including habitat for wildlife, nutrient removal, flood control, and erosion control.
- **Diversity and abundance of aquatic species**: Project may influence the population and diversity of fish, shellfish, amphibians, and other aquatic wildlife. If relevant, discussion should highlight beneficial or adverse effects on rare, threatened, or endangered species.
- **Diversity and abundance of birds and terrestrial wildlife species**: Project may influence the population and diversity of wildlife (mammals, reptiles, invertebrates, birds) dependent upon rivers and riparian areas. For instance, a land acquisition project may conserve streamside habitat used by mink and river otter. If relevant, discussion should highlight beneficial or adverse effects on rare, threatened, or endangered species.
- **Diversity of plant communities**: Project influences the number of aquatic or terrestrial plant species. Discussion should highlight beneficial or adverse effects on rare, threatened, or endangered species.

Examples of Social Impacts (not a comprehensive list):

- **Impacts on minority or low income populations**: Project may affect the quality of life (e.g., health, income) of minority or low income populations living near the project site.
- **Impacts on local sense of community and well being**: Project may influence relationships between social groups in the community and affect the harmony and security enjoyed by residents. For example, a project may adversely affect the local sense of community if it raises property-rights issues and creates conflict between longtime residents and new residents.
- **Impacts on public health or safety**: Project may influence the safety of individuals who access the site. For instance, trail improvements may improve safety in a popular hiking area.
- **Impacts on recreational activity**: Project may influence the types, amount, and quality of recreational activity that the site can accommodate. For example, a land acquisition may include construction of a boating ramp, improving access for boaters and anglers. Likewise, a wetland restoration may attract species of interest to birders.
- **Impacts on aesthetics**: Project may influence residents' and visitors' general enjoyment of the site, separate from recreational use. For instance, a land conservation effort may preserve scenic vistas or similar viewsheds.
- **Impacts to Native American Trust Resources**: Project may affect the existence, quality, or accessibility of Native American resources such as fishing resources, burial grounds, and other sacred sites.
- **Impacts on non-Tribal cultural sites**: Project may affect the existence, quality, or accessibility of culturally significant sites such as National Historic Sites or state historic sites.
- **Impacts on education**: Project may affect the general public's understanding of the natural world such as the installation of interpretive signs at the site of a restored wetland or a place-based river curriculum instituted in schools.
- **Impacts on local partnerships and collaborative efforts**: Project may affect the degree of coordination between individuals and organizations, potentially influencing the efficiency of community-based environmental protection efforts. For instance, two watershed associations may collaborate on a regional project and share data and staff resources.
- **Impacts on availability and quality of drinking water**: Project may influence surface and groundwater resource quality, affecting whether the resources are suitable for private or public drinking water supplies.
- **Impact on subsistence activity**: Project may influence local individuals or families who rely on hunting or fishing activity for sustenance.
- **Nuisance impacts**: Project may affect the quality of the human environment in the short and/or long term by influencing dust and noise levels, odors, glare, etc.

Examples of Economic Impacts (not a comprehensive list):

- **Short-term commercial economic impact of restoration action**: Project may affect employment or income of individuals and businesses during the construction stages. For instance, a trail building project may provide work for local landscaping or construction firms.
- **Impacts on recreational expenditures and related businesses**: Through impacts on recreation and tourism, project may increase or decrease spending at local businesses. Affected businesses potentially include guide services, bait and tackle shops, sporting goods stores, hotels, grocery stores, and gas stations.
- **Impacts on existing resource-based industries**: Project may influence revenue and employment in resource-based industries such as agriculture and forestry. For instance, a conservation effort may introduce sustainable forestry practices in combination with recreational enhancements.
- **Impacts on commercial water users**: Project may affect local businesses' ability to use river water for production. For instance, a flow-enhancement project may limit the amount of cooling water that can be withdrawn by an up-stream power plant.
- **Impacts on property values**: Project may influence the market price of land or structures located near the project site, affecting the wealth of property owners. For example, a land conservation effort may enhance the value of abutting residences.
- **Impacts on river-based commercial navigation**: Project may affect the ability of cargo or ferry vessels to navigate safely. For example, a dam removal project may eliminate a small ferry crossing on a river.
- **Impacts on wastewater dischargers:** Project may affect the cost of treating and discharging wastewater. For example, improved water quality may decrease the cost of phosphorous removal for industrial and municipal treatment facilities.

APPENDIX 2

Finding of No Significant Impact

UNITED STATES FISH & WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of the Final Programmatic Environmental Assessment for the Massachusetts Housatonic River Watershed Restoration Program:

____ is a categorical exclusion as provided by 516 DM 6 Appendix 1 and 516 DM 6, Appendix 1. No further documentation will therefore be made.

XX_ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

____ is found to have significant effects, and therefore further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

____ is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

Final Programmatic Environmental Assessment for the Massachusetts Housatonic River Watershed Restoration Program

Region 5 NRDAR Coordinator — Date 5/21/07

Region 5 NEPA Coordinator — Date 5/22/07

Acting

Regional Director/DOI Authorized Official — Date 5/24/07

FINDING OF NO SIGNIFICANT IMPACT

FINAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR THE MASSACHUSETTS HOUSATONIC RIVER WATERSHED RESTORATION PROGRAM

The U.S. Department of the Interior and the Commonwealth of Massachusetts have completed a Final Programmatic Environmental Assessment (PEA) that identifies a multi-year, multi-phased restoration program that will restore, replace, and/or acquire the equivalent of the natural resources injured, destroyed, or lost as a result of contamination in the Housatonic River watershed originating from the General Electric facility in Pittsfield, Massachusetts. The proposed restoration program will protect and/or improve fish and wildlife habitat, enhance recreational uses of river natural resources, and provide environmental education to generate environmental stewards for the Housatonic watershed in Massachusetts.

The public was notified on November 1, 2005 of the availability of the Draft PEA for review and comment in the Federal Register (Volume 70, Number 210). The Natural Resource Trustee SubCouncil for Massachusetts conducted a public information meeting in the affected area of the watershed on December 13, 2005 at the Lenox Town Hall in Lenox, MA, to discuss the draft document and respond to questions and comments from the public. Written public comments were accepted until December 1, 2005. This deadline was extended to December 20, 2005. During the public comment period of 50 days, no comments were received.

Based on a review and evaluation of the information contained in the Final PEA, I have determined that the proposed actions do not constitute a major federal action which would significantly affect the quality of the human environment within the meaning of Section 102 (2)(c) of the National Environmental Policy Act (NEPA) of 1969. Accordingly, the preparation of an environmental impact statement on the proposed action is not required. I note that the subject restoration program will seek project proposals from the public via several public solicitations, and a draft Restoration Plan will be developed and issued for public comment based on each solicitation. In the event that projects proposed in these Restoration Plans require additional NEPA alternatives analyses or NEPA documentation to supplement the analysis performed in the Final PEA, the Restoration Plan will include such supplemental information and will take the form of a Restoration Plan/Supplemental Environmental Assessment.

Regional Director/DOI Authorized Official Acting

5-24-07