

Hartland Natural Resource Inventory

October 2007



Upper Falls Brook, Fred Jones

**Prepared by
Farmington River Watershed Association**



**For the Plan of Conservation and Development Ad Hoc
Committee of the Town of Hartland**

HARTLAND NATURAL RESOURCE INVENTORY

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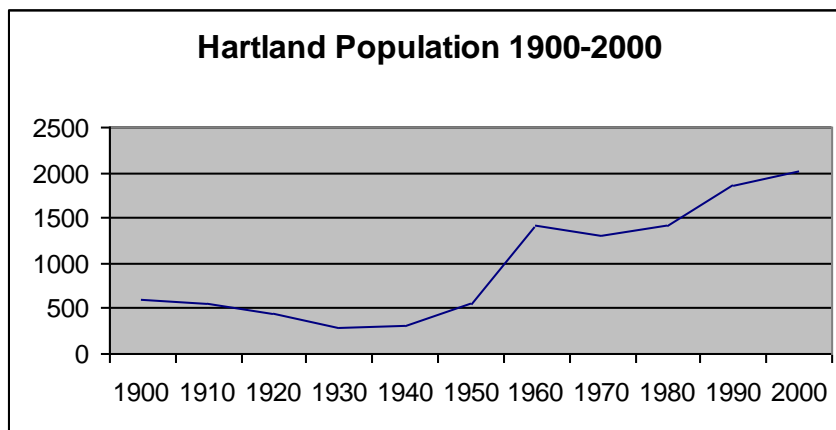
Established in 1953, the Farmington River Watershed Association (FRWA) is a 501 (c)(3) non-profit organization created to encourage the restoration and conservation of the natural resources of the 81 mile long Farmington River and its 609 square mile Watershed. FRWA's website is www.frwa.org.

Farmington River Watershed Association, 749 Hopmeadow Street, Simsbury, Connecticut 06070
(860) 658-4442 (860) 651-7519 fax www.frwa.org

Introduction

In December, 2006 the Farmington River Coordinating Committee (FRCC) began working with the Plan of Conservation and Development Ad Hoc Committee of the Town of Hartland and the Hartland Land Trust to prepare a Natural Resources Inventory (NRI). The goal of the project (which will be included in the revised Plan of Development) is two-fold. To create a baseline inventory of the town's natural resources and to be used as a tool in land use and open space planning activities including the support of the town's goals of natural resource conservation and economic development.

The 1992 Plan of Development for the Town of Hartland noted that the town is fortunate to enjoy extensive natural resource areas in an unspoiled and protected condition. In a 2006 town-wide survey, access to natural resources was among the top three most important services or aspects of the town. In the same survey 82% said that Hartland should pursue a policy of slow or no growth. The 1992 Town Plan encouraged the improvement of the local economy, job opportunities, and tax base in a form that is compatible with the Town's rural character, its water resources and the limitations of its road and utility systems.¹ Hartland is one of the state's most rural communities, with a Year 2000 census population of 2,012, a 154 person increase from 1990. Though much of the region west of Hartford has experienced intense growth over the past few decades, Hartland still enjoys much of the same rural character it had in 1950.



The Farmington River Watershed Association (FRWA) is a community-based organization devoted to protecting the 81-mile Farmington River and its 609 square-mile watershed. As the leading advocate for the Farmington River, the FRWA works with state and local governments, water utilities, industry, and citizens of the 33 watershed towns in Connecticut and Massachusetts. FRWA works diligently to promote an understanding among its 1,200 members and the citizens of the Watershed through delivering research, education, and advocacy programs at local, regional, state, and national levels.

Funding for this NRI has been provided by the Farmington River Coordinating Committee (FRCC). FRCC was formed when the Upper Farmington River was designated as a federal Wild and Scenic River in 1994. Five towns are represented on FRCC's Board – Barkhamsted, Canton, Colebrook, Hartland, and New Hartford. The Committee meets monthly to implement the Upper Farmington River Management Plan, and to bring major river stakeholders together on a regular basis to stimulate cooperation and coordination on river-related issues. The FRCC website is www.farmingtonriver.org.

¹ Town of Hartland, *Plan of Development, 1992*.

II. Hartland Natural Resource Inventory - Project Overview

A very difficult challenge facing rural communities today is how best to direct growth and development in a way that is compatible with protecting a community's natural resources. The first step in addressing this challenge is to analyze the existing natural resources in the town and any existing plans to change land uses.

This Natural Resources Inventory² is a summarization, in map form, of Hartland's natural resources and the current natural resource management structure. The maps express the existing state of a community's natural resource base, and help identify areas that are of critical concern for natural resource conservation, as well as areas that are most appropriate for development. The resource inventory is completed in a Geographic Information Systems (GIS) environment. GIS assembles, stores, and manipulates geographic (spatial) data and can analyze the data for conservation and planning purposes. Municipalities and natural resource conservation groups are increasingly turning to GIS as the tool for developing resource studies because of its flexibility and power in adding, manipulating and analyzing data.

It is important to reiterate the NRI can be used not only to identify appropriate areas for protection in a community, but also appropriate areas for development based on their natural resource features. The purpose of the process is to establish an information baseline that can empower local decision makers with the data they need to make informed decisions regarding development and natural resource management issues.

Note on Data Accuracy:

The GIS data used in this report comes from many different sources (notably the CT DEP, FRWA, the Town of Hartland, the MDC, and Planimetrics) and therefore has different levels of accuracy. It should be considered appropriate for town level planning exercises, but may not be adequate for parcel level analysis. Some of the data is general in nature, and some provides significant detail. It will be important to field verify any information used in an actual decision making process. As the availability of GIS data grows and improves it will be a relatively simple process to update and improve this document.



Northern view from Hogback/Goodwin Dam, Fred Jones

² Methodology for the Natural Resources Inventory adapted from *Manual of Mapping Techniques* by C. James Gibbons of the College of Agriculture and Natural Resources, University of Connecticut, Storrs.
Hartland Natural Resource Inventory, October, 2007

III. Maps and Descriptions

1) Farmington River Watershed including Hartland

This map depicts the 33 towns stretching across the 609 square-mile Farmington River Watershed. Hartland is located in the north central part of the Farmington River Watershed.

2) Topography

Hartland lies in the western highlands of Connecticut, an area that has the highest elevations in the state (the highest point being roughly 2,100ft at Bear Mtn. in Salisbury). The microclimate caused by elevation and atmospheric moisture produces hot, humid summers with sometimes very violent thunderstorms (even tornadoes), and long cold winters with heavy snowfall. The topography also makes this part of the state very beautiful, and holds an interesting array of plant and animal life. **Source: U.S. Geological Survey.**

The following map of the topography shows the elevations throughout Hartland with 10' contour lines. Topography is simply the elevation of the land above sea level. The closer the contour lines are to each other the steeper the slope, and the farther contour lines are from each other, the flatter the slope.

3) Slopes

Slope is distinguished from topography into a separate category because slope is a relative measure of one elevation or a series of elevations to another. Math students will recall that slope is “rise over run” and is typically a description of the incline, decline, gradient, or grade of the land. The slopes depicted on this map are derived from digital elevation models and show slopes in increments of 0-10%, 10-15%, 15-25%, and greater than 25%. The higher the percentage slope, the steeper the land is. Areas with a slope of 25% and greater are typically considered dangerous areas to develop. **Source: CT Department of Environmental Protection.**

4) Parcels & Zoning

Hartland's base parcel map was digitized by the Metropolitan District Commission (MDC) and was generously supplied for the use of this study. Hartland's zones were calculated and digitized from the Town's zoning regulations. There are only two zones in the town: Business and Residential, with residential making up the majority of the town's area (over 99%). **Source: Town of Hartland; Metropolitan District Commission.**

5) Subregional Drainage Basins

There are eight sub-watershed basins in Hartland: Farmington River; East Branch of the Farmington River; Hubbard Brook; Salmon Brook; West Branch Salmon Brook; Sandy Brook, Slocum Brook, and Valley Brook. Based on topography, the water from these sub-basins drains from springs, creeks, ponds, and wetlands into the larger tributaries. **Source: CT Department of Environmental Protection.**

6) Wetlands and Floodplains

In Connecticut, wetlands are officially designated by soil type. The wetlands map shows wetland locations as established through the U.S. Dept. of Agriculture's Natural Resource Conservation Service (NRCS) soils information. The NRCS notes "The soil data set is not designed for use as a primary regulatory tool in permitting or citing decisions, but may be used as a reference source. This is public information and may be interpreted by organizations, agencies, units of government, or others based on needs; however, they are responsible for the appropriate application." In addition it is noted "The depicted soil boundaries, interpretations, and analysis derived from them do not eliminate the need for onsite sampling, testing, and detailed study of specific sites for intensive uses. Thus, these data and their interpretations are intended for planning purposes only." This data indicates that 9% of town has wetland soils as defined by the town's wetland definition. **Source: U.S. Dept. of Agriculture, Natural Resource Conservation Service Soils data 1995**

7) Water Quality, Dams, Leachate, Wastewater, & Sewage Discharge

This map reflects a host of information related to the quality of Hartland's surface and groundwater features. Data includes:

- a. **Water Quality Classification** - Section 303 of the Federal Clean Water Act requires states to adopt water quality standards and classifications for both surface and groundwater. Each classification is based on certain standards and the waterbodies' ability to support certain uses such as drinking, boating and swimming. Water Quality Standards set an overall policy for the Department of Environmental Protection in accordance with Section 22a-426 of the General Statutes. The pertinent parts of the water quality standards and criteria can be found in Appendix 2. **Source: CT DEP**
- b. **Dams** – While dams can be beneficial for flood control and hydropower production they also can limit fish and energy passage up and down river and stream systems. The CT DEP lists 11 dams present in the town of Hartland. Further study should be done to assess the impact and utility of the dams to determine if opportunities exist to improve aquatic habitat. Appendix 3 provides a list of the dams. **Source: CT DEP**
- c. **Leachate & Wastewater Discharge, and Sewage Treatment** – There are five points of known water quality contamination in town. Appendix 3 provides a list of the sites. **Source: CT DEP with additions by FRWA.**

8) Potential Groundwater

Potential groundwater supply refers to areas of surficial materials (generally soils overlaying geological features) that show characteristics of supplying groundwater. These areas are deposits of "stratified drift" left by the last glacial period, which ended roughly 12,000 years ago. These surficial material deposits are of various sized clay, silt, sand and gravel, which allows for groundwater recharge through the increased pore space in the materials. They also can play an important role in providing surface water flow. In general, the coarser the material, the greater ability the material has to store groundwater due to the increase in spaces between the coarse materials. As the map depicts, the lowest yield areas are sand, while the highest yield areas are the much coarser grained gravel, which has larger pore space and can hold and transmit water at higher volumes. Hartland possesses only a few areas of surficial materials that have an established groundwater source potential, or a possible future groundwater source potential for public water supply needs. Such availability of groundwater for drinking water supply must be assessed in the context of the impacts to hydrologically connected

and surface water areas. Any such proposed withdrawals of over 50,000 gallons per day are regulated under Connecticut General Statute Diversion Law. **Source: CT DEP 1992.**

9) FEMA Flood Zone

The areas of special flood hazard are identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the Town of Hartland, Connecticut", with accompanying maps. These areas of town are those that would be inundated by a 100-yr. flood, or a large flood with the probability of occurring once every one hundred years. This study is referenced by the Town's zoning regulations³ with the purpose of "promoting the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- a. To protect human life and health;
- b. To minimize expenditure of public money for costly flood control projects;
- c. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- d. To minimize prolonged business interruption;
- e. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- f. To help maintain a stable tax base by providing for the special use and development of areas of special flood hazard so as to minimize future flood blight areas;
- g. To insure that potential buyers are notified that property is in an area of special flood hazard; and
- h. To insure that those who occupy the areas of special flood hazard assume responsibility for their actions."

The Flood Insurance Study is on file at the Office of the Town Clerk, Town of Hartland.
Source: Flood Insurance Study for the Town of Hartland.

10) Open Space

Open space is land that remains in its natural state or is used for farming or forestry, or a body of water or watercourse that remains in its natural state. It is not developed for residential, commercial or government use. Open space lands make up approximately 76% of Hartland. The two primary owners of Hartland open space are the Metropolitan District Commission and the Connecticut Department of Environmental Protection. Almost all of this land is considered to be committed open space (permanently protected), with only a portion considered to be uncommitted (open, but not protected) as Class III MDC property (see Appendix 1 for a description of water company land classifications), or as open space as classified for tax purposes by the Town of Hartland. Most municipal parcels and nonprofit owned parcels are considered to be "committed open space" and consist of land owned by the Town of Hartland, churches and cemeteries, and the New England Forestry Foundation. The bulk of the uncommitted open space in Hartland is owned by the Hartland Pond Corp, is contained in right-of-ways owned by electric utilities such as Northeast Utilities and the Tennessee Valley Authority, or is private land assessed as open space for tax purposes (490 land).

Source: Town of Hartland 2006 Grand List, FRWA.

³ Article VI, Section 3, Town of Colebrook Zoning Regulations.
Hartland Natural Resource Inventory, October, 2007

11) Natural Diversity Database & Potential Vernal Pools

The Natural Diversity Database is a list of endangered, threatened and special concern species that is maintained by the CT DEP. Specific information about species location and type is not distributed by the DEP with this layer, but such information can be received by special request from the DEP. This is why the map includes large circular “blobs” rather than specific locations of sensitive species. However, this map includes more specific information for “potential vernal pools”. In general, vernal pools are wetlands that are typically wet during the spring and dry up during the summer. Vernal pools are critical habitats for species such as wood frogs and mole salamanders. The dots on the map are called “potential vernal pools” because they are the result of aerial survey analysis completed by a wetlands scientist, Ed Pawlak of CT Ecosystems, Inc. Because these potential vernal pools were located based upon aerial surveys rather than in-the-field analysis, we can only call these areas “potential vernal pools.” **Source: CT DEP, CT Ecosystems, Inc., FRWA.**

12) Land Use

The land use information used for this map is from the most recent valuation of location and unique identifying number, and then tagged with its current land use. **Source: 2006 Hartland Grand List, Planimetrics.**

13) Development Constraints

Development constraints are defined by areas that include at least one of the following constraints:

- The area is already committed open space;
- The area includes wetlands;
- The area includes slopes over 25%; and/or
- The land is already developed.

Because of the topography, water resources, and ownership patterns in Hartland, development is constrained on over 70% of Hartland’s total town area.

Source: FRWA.



Falls Brook, Fred Jones

Appendix #1

Watershed Land Classifications

Class I Land: A legal definition of those lands owned by a water company that are within 250 feet of a reservoir used for public drinking water supply, within 100 feet of its tributary, or within 200 feet of a public water supply well.

Class II Land: A legal definition of lands that are within the public drinking water supply watershed but are not included in Class I, or are completely off the drinking water supply watershed but within 150 feet of a storage reservoir and the tributaries which directly enter it.

Class III: A legal definition of lands that are off the water supply watershed and beyond 150 feet of a storage reservoir and the tributaries which directly enter it.

An Ounce of Prevention: Land Conservation and the Protection of Connecticut's Water Quality. 1998. The Trust For Public Land.
Conn. Gen. Stat. 25-37c.



Front Yard Moose, Gail DiMaggio

Appendix #2

Summary of the Water Quality Standards and Classifications

In Brief

The [Water Quality Standards and Criteria](#) (WQS) (PDF, 450KB) are an important element in Connecticut's clean water program. The WQS set an overall policy for management of Connecticut's surface and groundwaters in accordance with the directives provided by Section 22a-426 of the General Statutes and Section 303 of the Federal Clean Water Act.

The WQS have several purposes; they are to:

- provide guidance about existing water quality in the state as well as DEP's goals for maintaining or improving that quality;
- indicate the general types of discharges allowed;
- ensure the segregation of drinking water supplies from waters used for waste assimilation;
- show areas of conflict between usages, and areas where ground and surface waters are degraded;
- provide the standards for toxicity consideration to protect aquatic life;
- provide a framework for the establishment of priorities for pollution abatement, dispensation of State funding, remediation goals; and finally;
- provide clear guidance for location decisions for business and industry as well as other economic developments.

The WQS do not stand alone as a regulatory means of protecting public health and the environment. These standards are integrally related to, and applied by DEP simultaneously with, other statutory and regulatory requirements governing water and waste management. As an example of how these pieces fit together, the following may be of assistance.

- Section 22a-430 of the General Statutes allows and sets procedures for the permitting of discharges of treated wastewaters to the waters of the State.
- The WQS set forth the types of wastewater that can be discharged in various classifications in order to meet statutory goals. In addition, the WQS provide the guiding principles concerning waste assimilation, aquatic toxicity and the goals for receiving waters.
- If the type of discharge is allowed, then the details of application procedures and requirements for treatment, monitoring and reporting of the specific discharge are provided by Sections 22a-430-1 through 4 of the Regulations of Connecticut State Agencies.

THREE FUNDAMENTAL ELEMENTS

Element One. First, the *water quality standards* describe DEP's general policies and goals for maintaining or restoring specified levels of quality for each classification. The Standards describe discharges to ground and surface water consistent with DEP's goals for each classification. The Standards also define the concept of a *zone of influence* for such discharges; this concept is covered in more detail below. Other key provisions of the standards include policies for protecting ground and surface water whose actual quality exceeds that quality associated with its classification. These policies are known as the *anti-degradation principles*. There are also policies and procedures that define the methods by which DEP may alter an assigned classification. The Standards also include important appendices which provide guidance on anti-degradation, definitions, lake trophic classifications, bathing water standards and numerical criteria for aquatic toxicity.

Element Two. The second element is the *water quality criteria* which: (i), describes the uses DEP has designated as appropriate for each water quality classification, and, (ii), establishes narrative and numerical factors used by DEP to determine whether goals established in the standards are being met.

Criteria are divided into groups with surface fresh waters having the designations AA, A, B, C, and D. Saline waters are assigned classes SA, SB, SC and SD. It should be noted that C, D, SC, and SD are **never** acceptable goals; these classifications reflect certain problems, usually a distinct and difficult situation.

Element Three. *Classifications* and the *classification maps* are the third element. Classifications are assigned to surface and groundwater in all areas of the state. These assignments are based on both the use or potential use of such waters as well as on their known or presumed quality. The individual water quality classifications are described in more detail below.

WATER QUALITY CLASSIFICATIONS

Classifications are shown on water quality classification maps. In cases where the actual quality of groundwater does not meet the assigned classifications criteria, the water quality classification maps reflect that fact by means of color coding or a split designation on older maps, such as GA/GB, indicating that the existing groundwater quality in the subject area may be GB quality but the goal is the higher GA criteria.

Significantly, over 90% of the State is classified at the highest levels of protection, as suitable for drinking without treatment. A little more than 6% of the land area is classified as GB, indicating historically urbanized areas. A very small area of the State is classified as GC, having demonstrated hydrogeologic characteristics suited for waste disposal.

Inland surface water classifications.

Class AA

Designated uses: existing or proposed drinking water supply, fish and wildlife habitat, recreational use (may be restricted,) agricultural and industrial supply.

Discharge restricted to: discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges.

Class A

Designated uses: potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.

Discharge restricted to: same as allowed in AA.

Class B

Designated uses: recreational use: fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation.

Discharge restricted to: same as allowed in A and cooling waters, discharges from industrial and municipal wastewater treatment facilities (providing Best Available Treatment and Best Management Practices are applied), and other discharges subject to the provisions of section 22a-430 CGS

Class C

Indicates unacceptable quality, the goal is Class B or Class A. Designated uses: same as for B. One or more of the class B uses is not fully supported due to problems that can and will be corrected by normal DEP programs. A good example is the intermittent water quality problems caused by combined sewer overflows.

Discharges restricted to: same as for Classes B or A .

Class D

Indicates unacceptable quality, the goal is Class B or Class A. Designated uses: same as for B. One or more of the designated uses for class B is not fully supported due to an intractable or very difficult pollution problem. An example is the PCB contaminated bottom sediments in the Housatonic River.

Discharges restricted to: same as for Classes B or A.

Coastal and Marine Surface Waters.

Class SA

Designated uses: marine fish, shellfish and wildlife habitat, shell fish harvesting for direct human consumption, recreation and all other legitimate uses including navigation.

Discharge restricted to: same as for AA or A surface waters.

Class SB

Designated uses: marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation.

Discharge restricted to: same as for B surface waters.

Classes SC or SD

Indicates unacceptable quality, the goal is Class SB or Class SA. Designated uses: same as for Classes C or D surface waters

Discharge restricted to: same as for Classes C or D surface waters

Groundwater Classifications.

Class GAA

Designated uses: existing or potential public supply of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies.

Discharges limited to: treated domestic sewage, certain agricultural wastes, certain water treatment wastewaters.

Class GA

Designated uses: existing private and potential public or private supplies of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies.

Discharge restricted to: as for GAA and discharge from septage treatment facilities subject to stringent treatment and discharge requirements, and other wastes of natural origin that easily biodegrade and present no threat to groundwater.

Class GB

Designated uses: industrial process water and cooling waters; baseflow for hydraulically connected surface water bodies; presumed not suitable for human consumption without treatment.

Discharge restricted to: same as for A (Note; same treatment standards apply), certain other biodegradable wastewaters subject to soil attenuation.

Class GC

Designated uses: assimilation of discharge authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes. As an example a lined landfill for disposal of ash residue from a resource recovery facility. The GC hydrogeology and setting provides the safest back up in case of technological failure.

Discharge restricted to: potential discharges from certain waste facilities subject to extraordinary permitting requirements.

STANDARDS ADOPTION AND PUBLIC PARTICIPATION

Section 22a-426 of the General Statutes provides specific procedures for the adoption of all portions of the WQS. The Statute provides that any revision of the standards, criteria or classification map be subject to public notice requirements and a public hearing. Notice is printed in the Connecticut Law Journal, in newspapers of general circulation in the affected areas and is sent certified to the chief executive officer of any affected municipality.

DEP is currently (1997) revising all classification maps so they can be computer reproduced through the Geographic Information System (GIS). This will allow for better public access to this information, as well as remote station reproduction.

Additional Information:

For additional information, contact staff at the Bureau of Water Management: (860) 424-3020.

Appendix #3 Dams, Leachate, & Wastewater Discharge Sites

Dams In Hartland (named)

STILLMAN ROAD POND DAM
HOWELLS POND DAM
HARTLAND POND DAM
EMMONS POND DAM
TUNXIS STATE FOREST POND DAM
FOSTERS POND DAM
GOODWIN/HOGBACK DAM
CAMP ALICE MERRITT DAM
HAYES ROAD POND DAM
MILLER POND DAM

Leachate and Wastewater Discharge Sites

SEPTAGE LAGOON
SALT STORAGE -PRT CV
SALT STORAGE
LANDFILL
LANDFILL

Source: CT DEP



Frozen wetland in Hartland, Fred Jones