



**Instream Flow Pilot Program
Preliminary IPUOCR List**

**WMPAAC Meeting
April 23, 2004**

What is an IPUOCR?

- **IPU** – Instream Protected Uses listed in RSA 483:9-c,I
- **OC** – Outstanding Characteristics listed in RSA 483:1
- **R** – Resources listed in RSA 483:6,IV,(a)
- Designated Uses under the Clean Water Act cited in NHDES CALM
- Put it all together and get **IPUOCR**

Process for IPUOCR development

- Research documents to identify IPUOCRs
 - The consultant will research applicable files, records and studies, and may need to conduct structured interviews with local watershed authorities to develop information about the specific IPUOCR entities, their river location, and their dependence on river flow conditions.
 - The consultant will present an annotated list of the IPUOCR entities to both advisory committees for their review and comment. The list will identify and briefly describe the IPUOCR entities, and if known, their location within the DR.
- On-stream survey for IPUOCRs
- The consultant will document this information completely in a draft IPUOCR report.

Instream Public Uses

- ***Env-Ws 1905.02 Protected Instream Flow Study. The protected instream flow study shall: . . . (c) For each segment, identify and catalog all instream public uses on the designated river listed under RSA 483:9-c.I***
- include the state's interests in surface waters, including, but not limited to, navigation; recreation; fishing; storage; conservation; maintenance and enhancement of aquatic and fish life; fish and wildlife habitat; wildlife; the protection of water quality and public health; pollution abatement; aesthetic beauty; and hydroelectric energy production

Outstanding Characteristics

- *Env-Ws 1905.02 Protected Instream Flow Study. The protected instream flow study shall: . . . (b) For each segment, identify and catalog outstanding characteristics listed under RSA 483:1*
- including recreational, fisheries, wildlife, environmental, cultural, historical, archaeological, scientific, ecological, aesthetic, community significance, agricultural, and public water supply so that these valued characteristics shall endure as part of the river uses to be enjoyed by New Hampshire people

Resources

- ***Env-Ws 1905.02 Protected Instream Flow Study. The protected instream flow study shall: . . . (d) For each segment, identify and catalog all resources for which the river or segment is designated pursuant to RSA 483:6 IV a***
- Whether the river, or segment or segments of such river, contain or represent either a significant statewide or local example of one or more of the following: (1) Scenic or recreational resource. (2) Open space or natural resource. (3) Fisheries, wildlife, vegetation, and rare species or habitat. (4) Cultural, historical, or archaeological resource. (5) Hydrological or geological resource. (6) Water quality. (7) Scientific resource. (8) Community resource. (9) Current and projected withdrawals, discharges, or both, by public utilities and commercial or industrial users.

Designated Uses under the federal Clean Water Act

- Aquatic Life
- Fish Consumption
- Shellfish Consumption
- Drinking Water Supply
- Primary Contact Recreation (i.e., swimming)
- Secondary Contact Recreation
- Wildlife

IPUOCR Definitions

- IPUOCR Definitions document is on the website.
- Some IPUOCRs were defined from Nomination Guidance.
- Designated Uses were defined from the NHDES Consolidated Assessment and Listing Methodology.
- Remaining were defined by the WMB.

Souhegan-specific information



Preliminary IPUOCR List

NHDES has compiled a preliminary list of IPUOCR entities for the Souhegan River DR available under the Souhegan page at the [Protected Instream Flow](#) link.

Sources

- Souhegan River Nomination - May 1999
- NH OSP statewide recreation inventory 1998
- Souhegan River Watershed Report NHDES May 1997
- WMPA town officials
- Natural Heritage Bureau (DRED)
- NH Archaeological Inventory; NH Div. of Historical Resources, State Archeologist Robert Boisvert
- USGS (Report Number 91-4177)
- NHDES Watershed Management Bureau (Designated Uses)

Souhegan River Watershed Management Planning Area



Legend

 Souhegan Designated Reach

Political Boundaries

 State boundary

 County boundary

 Town boundary



4 0 4 8 Miles



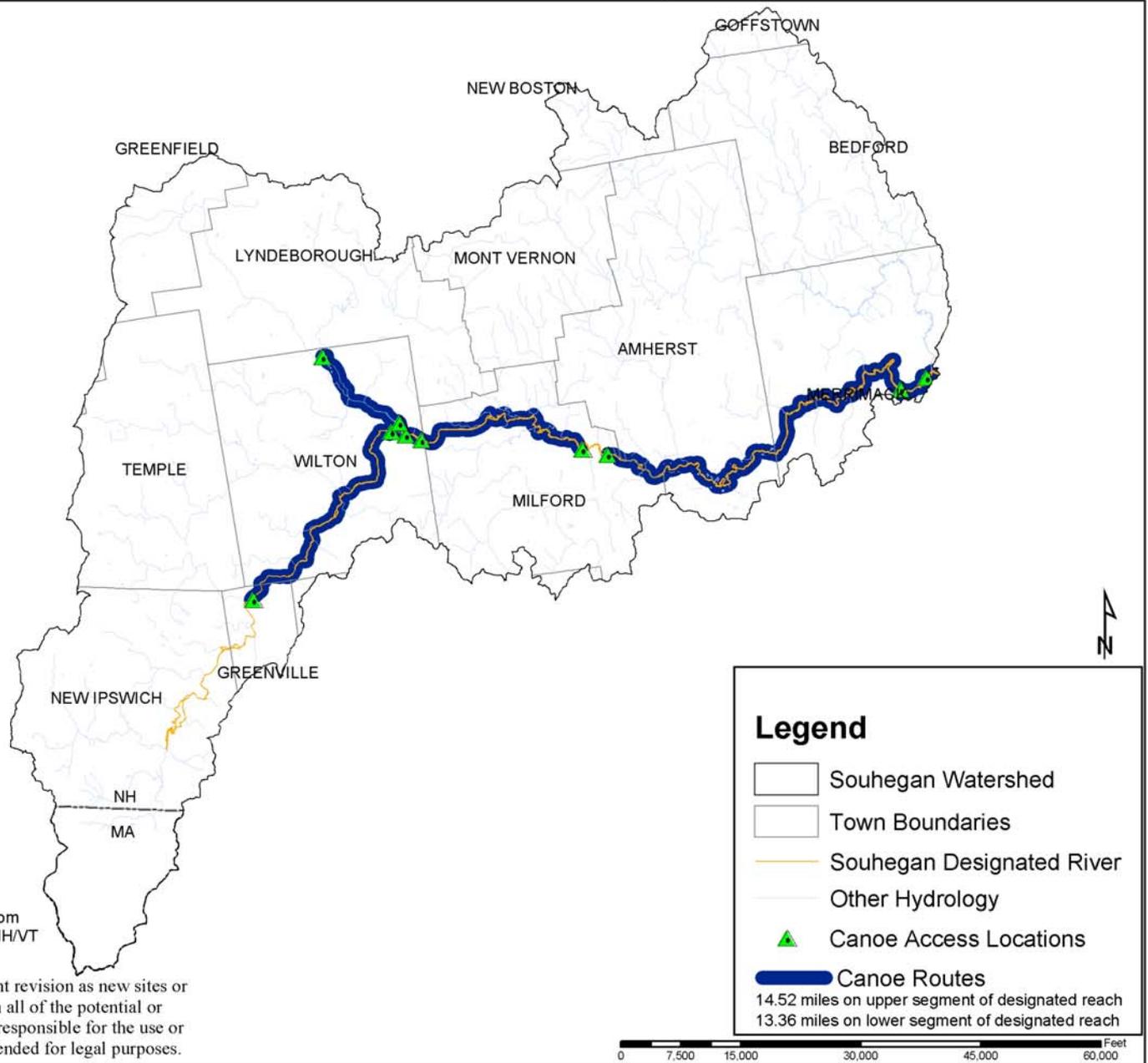
Navigation

- Navigation means use of the river for non-recreational, transportation purposes.

Recreation or Recreational Resource

- Recreational use or resource means use of the river for swimming, boating or significant shoreland recreation, including, but not limited to, hiking, camping, picnicking, and bird watching.

Canoe Access Points and Routes - Souhegan River



Canoe routes and access points digitized from Appalachian Mountain Club - River Guide NH/VT 2nd Edition, 1989.

The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes.

Fish habitat

- Fish habitat means regions that are important to the survival of fish populations. Such regions include, but are not limited to, aquatic life spawning beds and feeding areas, freshwater wetlands or riparian habitat, and saltwater wetlands associated with estuarine systems.

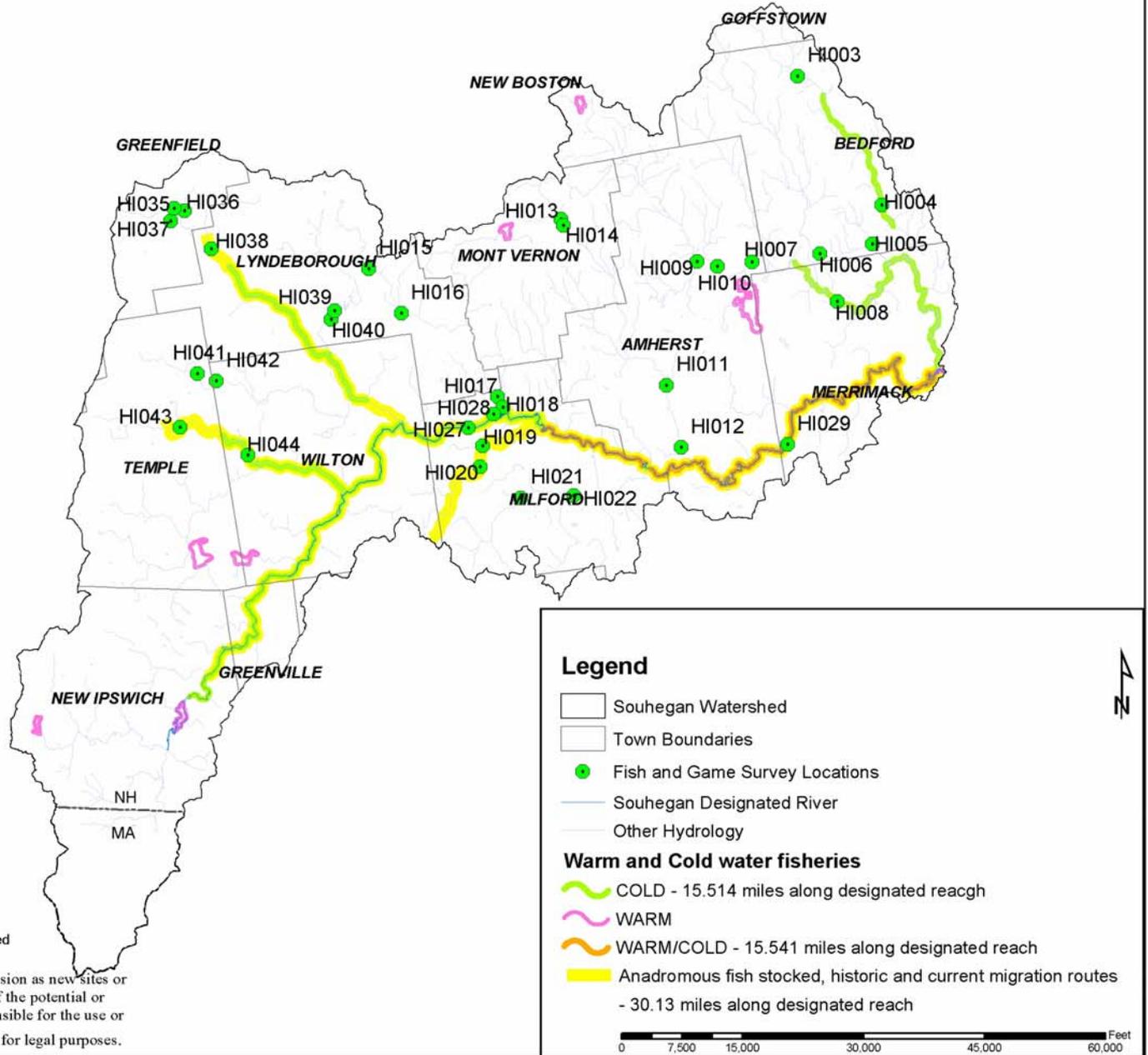
Fishing or Fisheries

- Fishing and Fisheries means recreational and commercial uses of the river for fishing identified by the presence of fish that are caught for recreation or commercial use.

Maintenance and enhancement of aquatic and fish life

- Maintenance and enhancement of aquatic and fish life means the web of aquatic species that make up a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

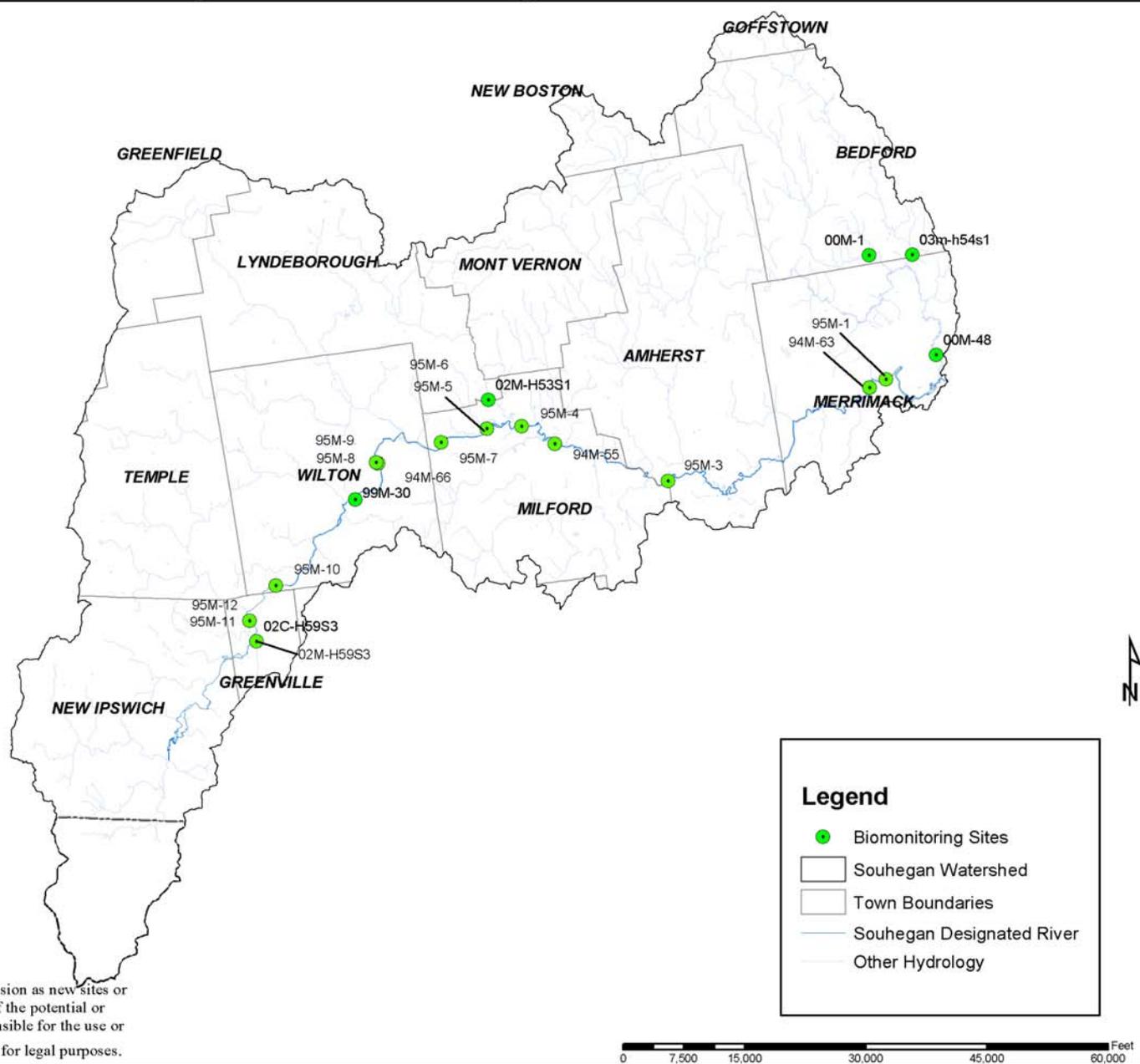
Fish Habitat Conditions - Souhegan River WMPA



Source: Fish and Game Survey Locations provided by NH F&G - July 1995

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Biomonitoring Locations - Souhegan River WMPA



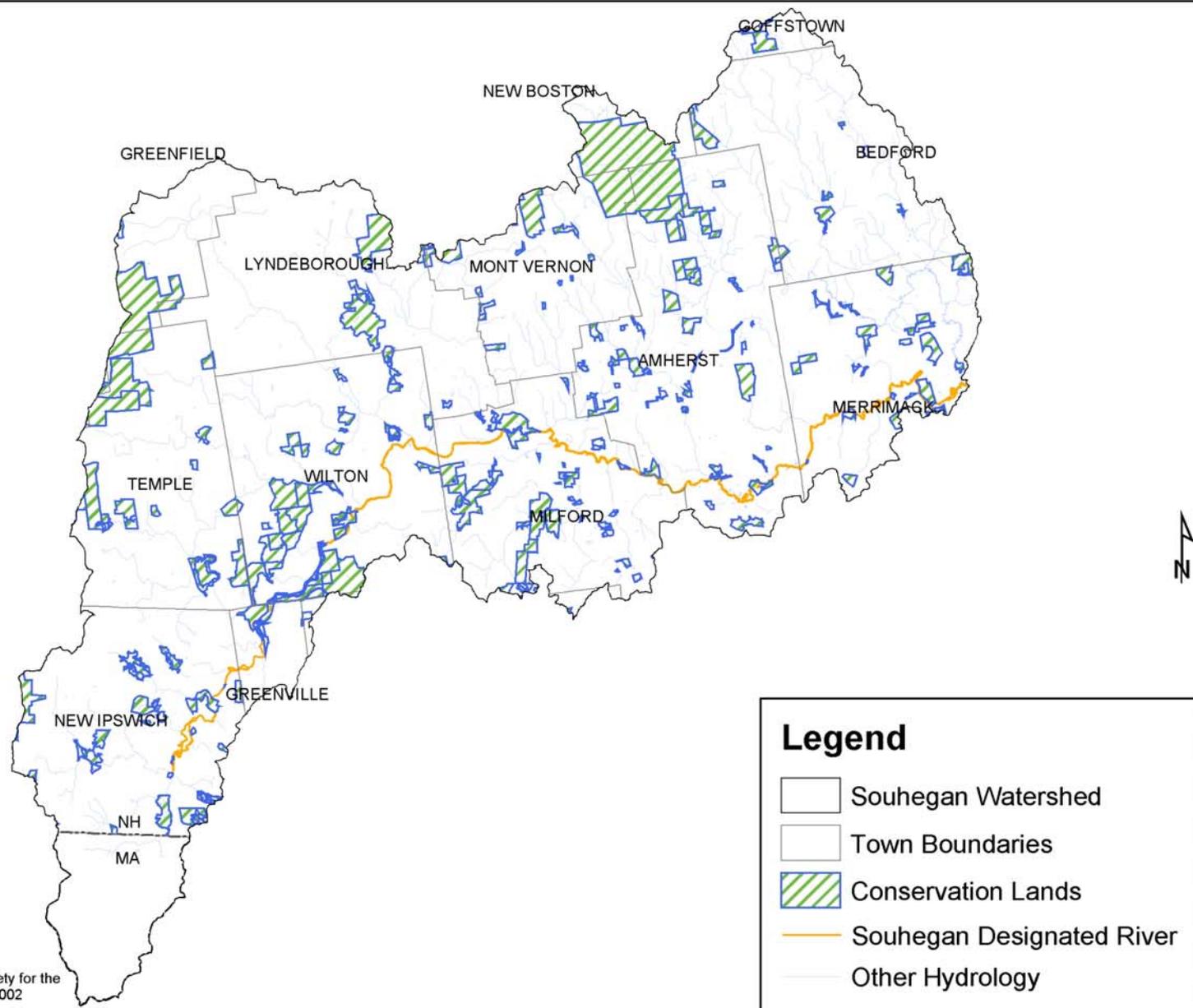
Source: NHDES 1994-2002

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Open space resource

- Open space means flow-dependent, characteristics of open space including, but not be limited to, national forest lands, state parks and forests, municipal parks, and conservation easements. There may be little or no flow-related issues concerning maintenance of open space.

Conservation Lands - Souhegan River WMPA



Source: Conservation Land provided by Society for the Protection of NH Forests and GRANIT- Oct 2002

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0 7,500 15,000 30,000 45,000 60,000 Feet

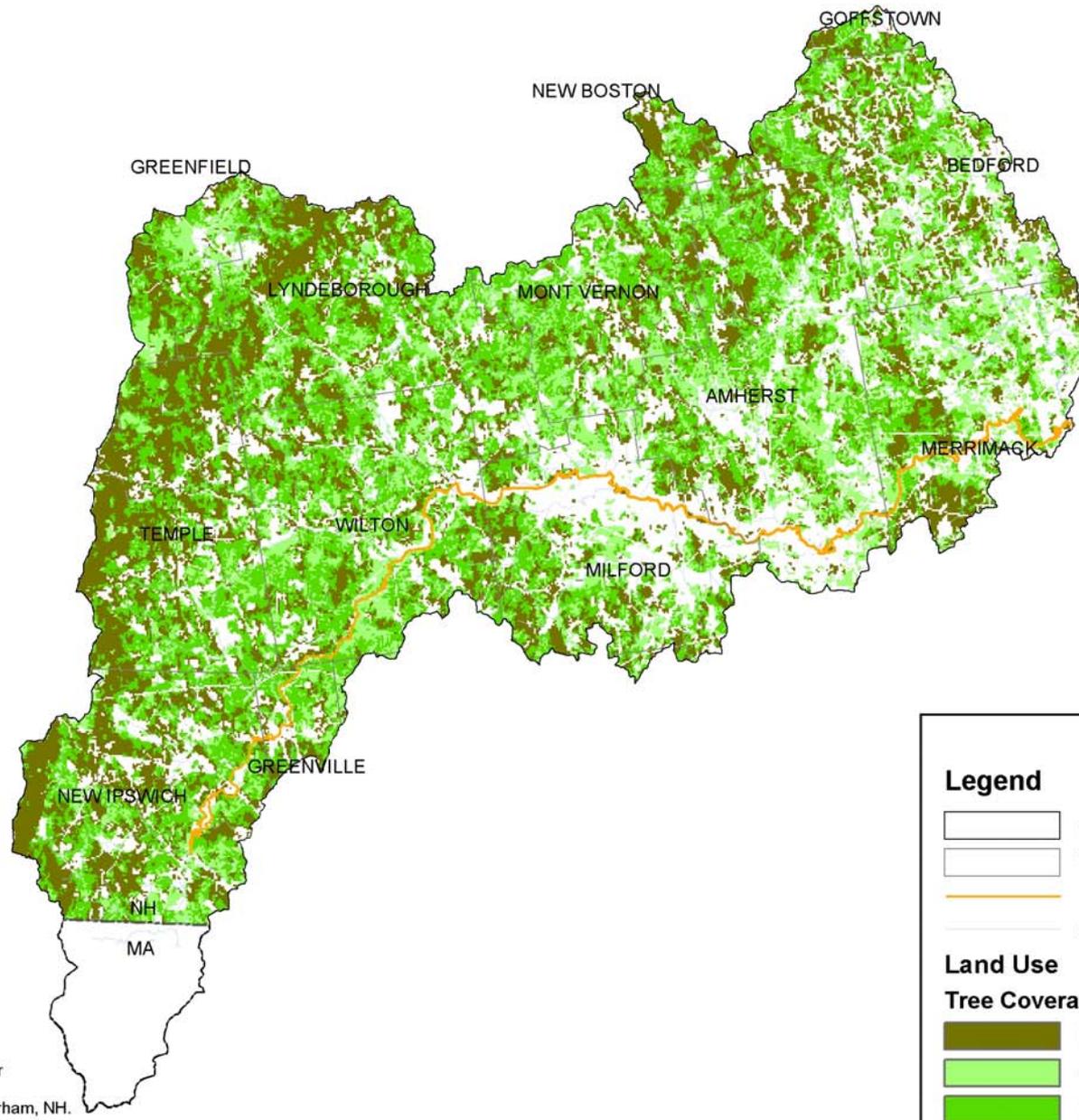
Wildlife or Wildlife habitat

- Wildlife for this purpose shall mean species that rely on flow and flow to regions, including, but are not limited to, waterfowl breeding or wintering areas, freshwater wetlands or riparian habitat, and saltwater wetlands associated with estuarine systems.
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Natural resource

- Natural resource means geologic, wildlife, endangered or threatened animals, wildlife habitat, wildlife travel corridor, vegetation/natural communities, fish resources, aquatic habitat for fish populations, a fishery that relies on natural reproduction or a stocking program, anadromous fish or a restoration effort, Class A waters or water quality equal to Class A or a Class B water or water quality equal to Class B, open space, natural flow characteristics. This category should only be invoked where the resource does not fit into another category.

Land Use - Tree Cover - Souhegan River WMPA



Source: Land cover from 1990-1999 30-meter resolution Landsat TM imagery, classified by Complex Systems Research Center, UNH Durham, NH.

The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or

Rare species or habitat

- Rare species are identified by lists of plants and animals or fish available from NHI and by the nomination papers. Rare habitats are habitats that support rare species or are rare ecosystems.

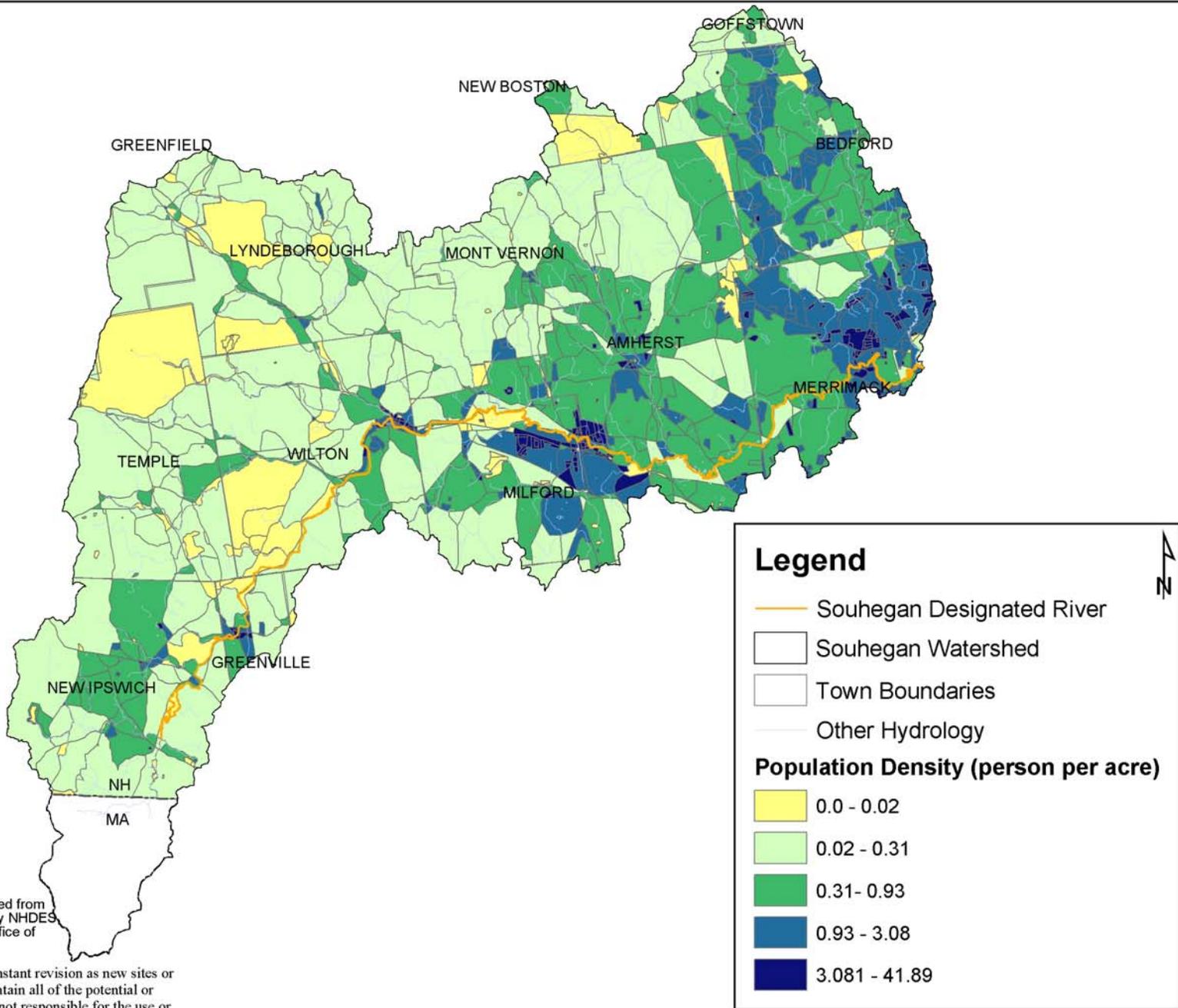
NH Natural Heritage Bureau
Known occurrences of rare species and
exemplary natural communities in the
Souhegan watershed, NH

- Invertebrate species (5)
- Natural community (10)
- Plant species (10)
- Vertebrate species (9)

Vegetation

- Vegetation means native, flow-dependent species

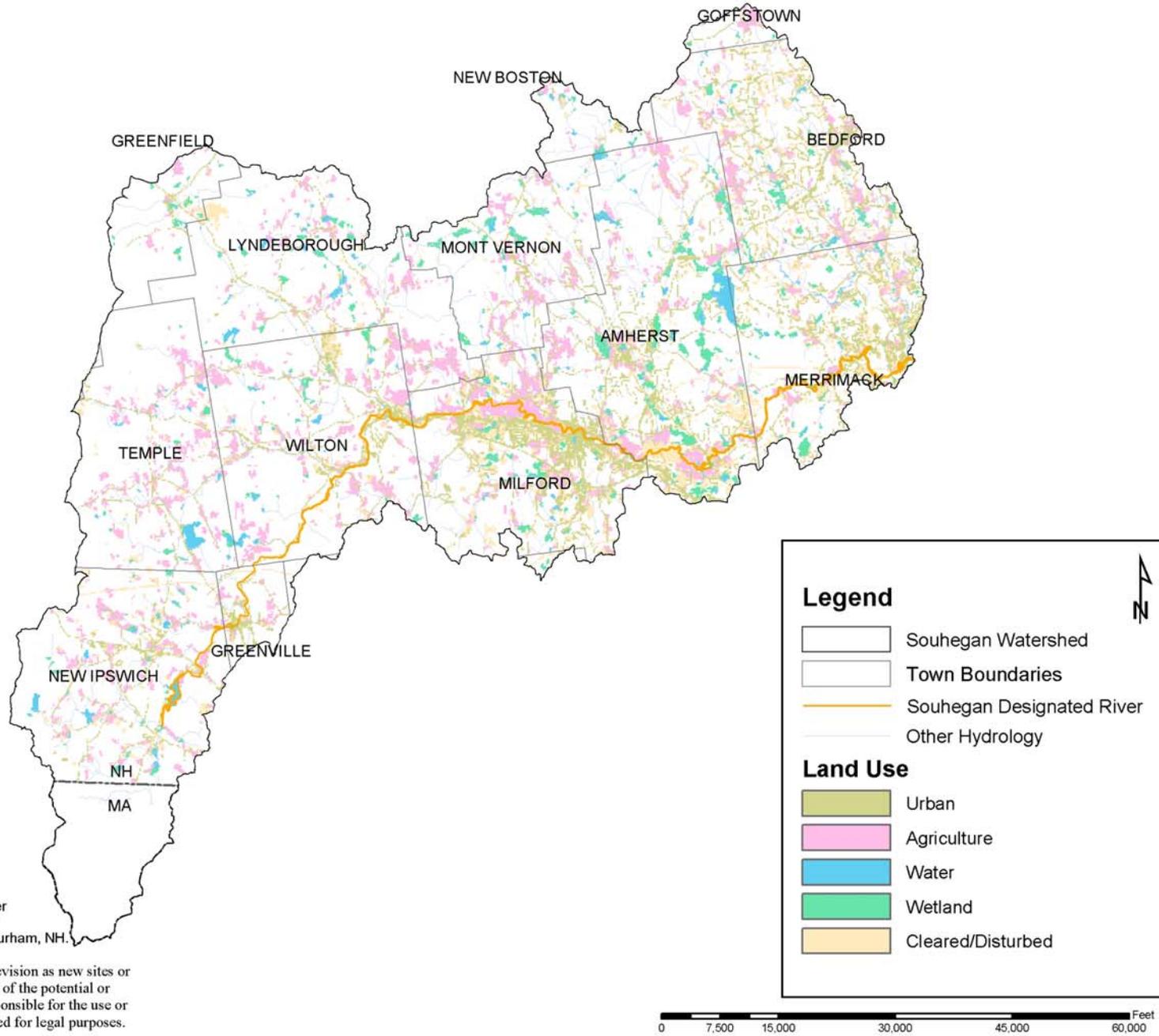
Population Density - Souhegan River WMPA



Source: 2000 Census linework obtained from Geography Network and processed by NHDES. 2000 Census data provided by NH Office of State Planning.

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Land Use - Souhegan River WMPA



Source: Land cover from 1990-1999 30-meter resolution Landsat TM imagery, classified by Complex Systems Research Center, UNH Durham, NH.

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Cultural or Cultural resource

- Cultural resources or characteristics mean on-going river corridor management planning effort or other local efforts to protect or manage the river, the existence of a riverside park or other public area, or community support for riverfront revitalization as demonstrated by acts such as the filing of a petition, establishment of a municipal committee or citizen group, or fundraising activities.

Historical resource or Archaeological or Historical

- Flow-dependent issues are unlikely.
- ??? Department should change this interpretation???

Community significance or Community resource

- Community river resource means a natural, managed, cultural, or recreational resource or use thereof associated with a river that is recognized by local residents or a municipal document accepted by the municipality, such as a master plan or a water resource management plan, as being important to a community adjacent to a river. "Recognized by local residents" for the purposes of this definition means that there are community projects, activities or events based on the river or its corridor such as river clean-ups, canoe races, or a riverfest. Community significance shall not include hydroelectric power generation.

Ecological

- Ecology is a natural ecological community as determined by the NH Natural Heritage Inventory.

Aesthetic beauty or Scenic resource

- Scenic sites shall include, but not be limited to, designated viewing areas, scenic vistas, and overlooks.

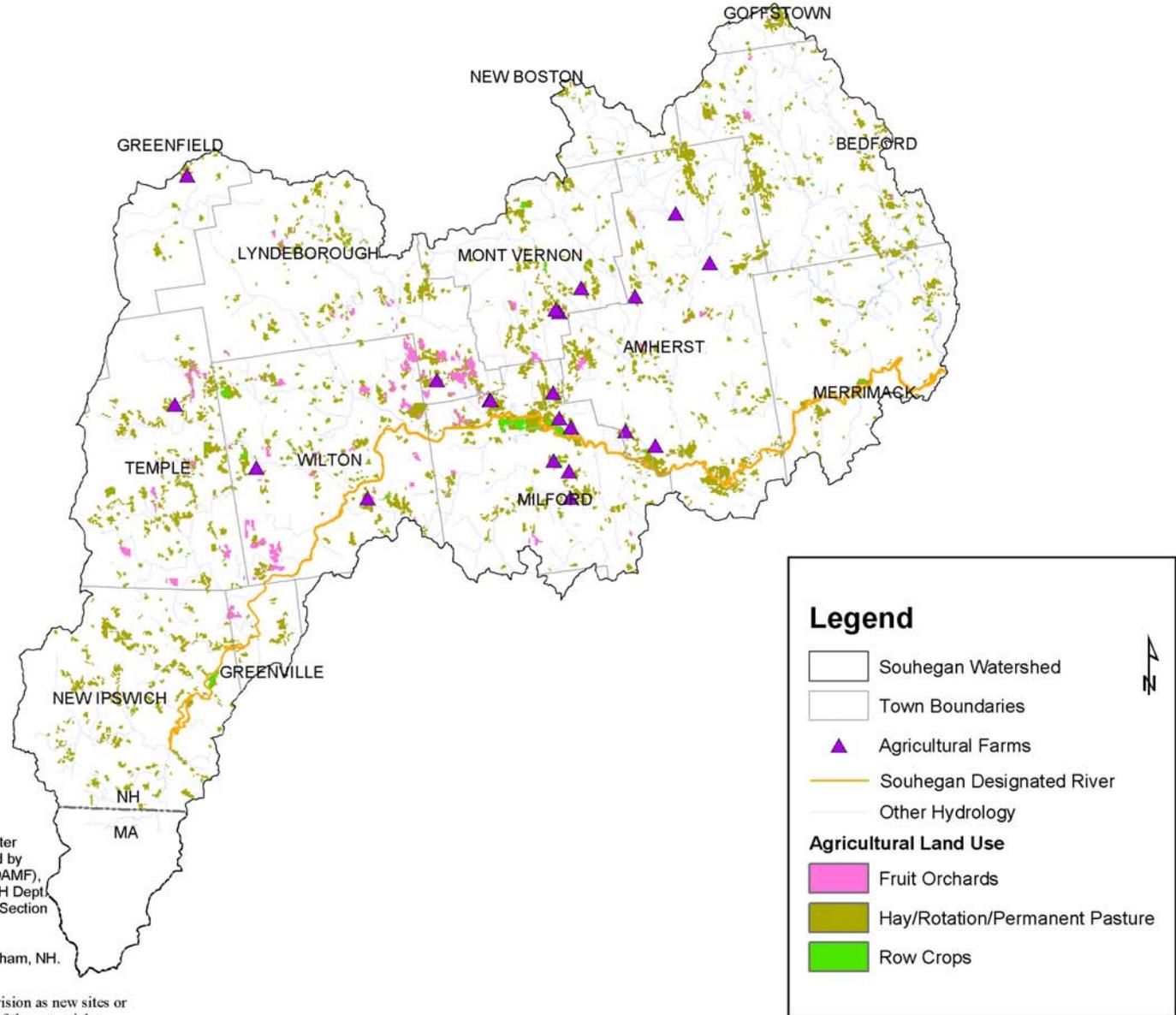
Environmental and Conservation

- Flow-dependent issues not included in other categories are unlikely.

Agricultural

- Agriculture as defined by RSA 21:34:a.

Agricultural Land in Production (1990-1999) - Souhegan River



Source: Agricultural Farms digitized by the Water Supply Engineering Bureau from data provided by NH Dept. of Agriculture, Markets & Food (NHDAMF), Rockingham County Conservation District & NH Dept. of Health & Human Services -Dairy Sanitation Section Land cover from 1990-1999 30-meter resolution Landsat TM imagery, classified by Complex Systems Research Center, UNH Durham, NH.

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0 7,500 15,000 30,000 45,000 60,000 Feet

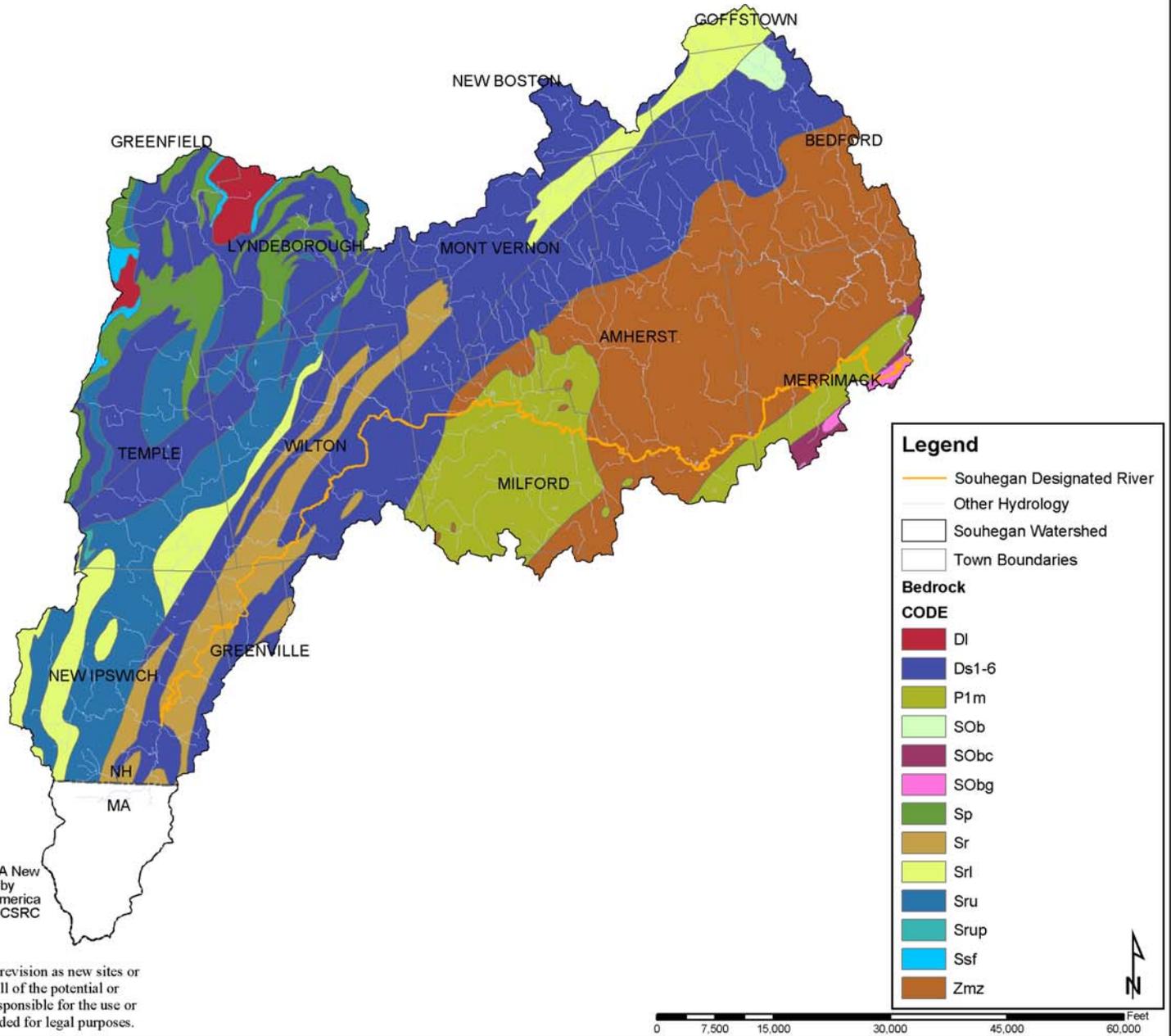
Scientific or Scientific resource

- It is not clear what is desired to be protected by this item.

Geological resource

- A geologic resource meaning a national, regional, state, or local geologic resource as determined by the state geologist or as listed in a national or state resource assessment. Flow-dependent issues are unlikely.

Bedrock Geology - Souhegan River WMPA



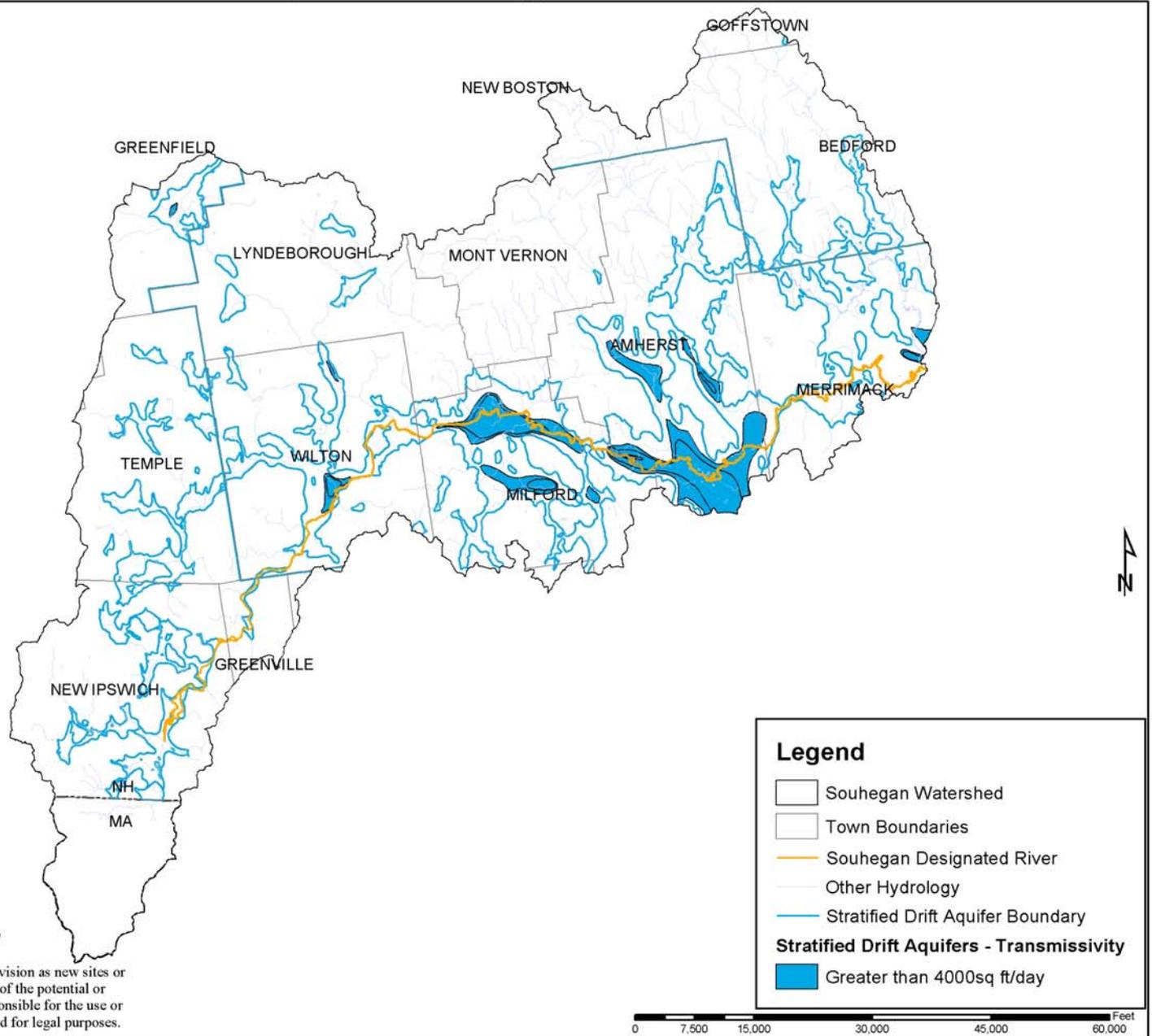
Source: Bedrock geology automated from A New Bedrock Geologic Map of New Hampshire by Lyons et al., 1991, Geological Society of America Abstracts with Programs. - October 1998 CSRC revisions by USGS, Reston, VA

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Hydrological resource

- Hydrologic resource means natural flow characteristics meaning the river is free-flowing, such that the river is 100 percent free-flowing with no man-made dams, diversions, or other modifications which affect the river's natural flow or the river is largely free-flowing without characteristics of impoundment excluding low dams, diversion works and other minor modifications.

Stratified Drift Aquifers - Souhegan River WMPA



Source: Stratified drift aquifer data provided by US Geological Survey

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Protection of water quality and public health

- Water quality and public health are the flow-dependent characteristics that maintain water quality of the river including, but not limited to and the maintenance of chemical and physical water quality parameters that support designated and existing uses. Identify water quality as Class A or Class B.

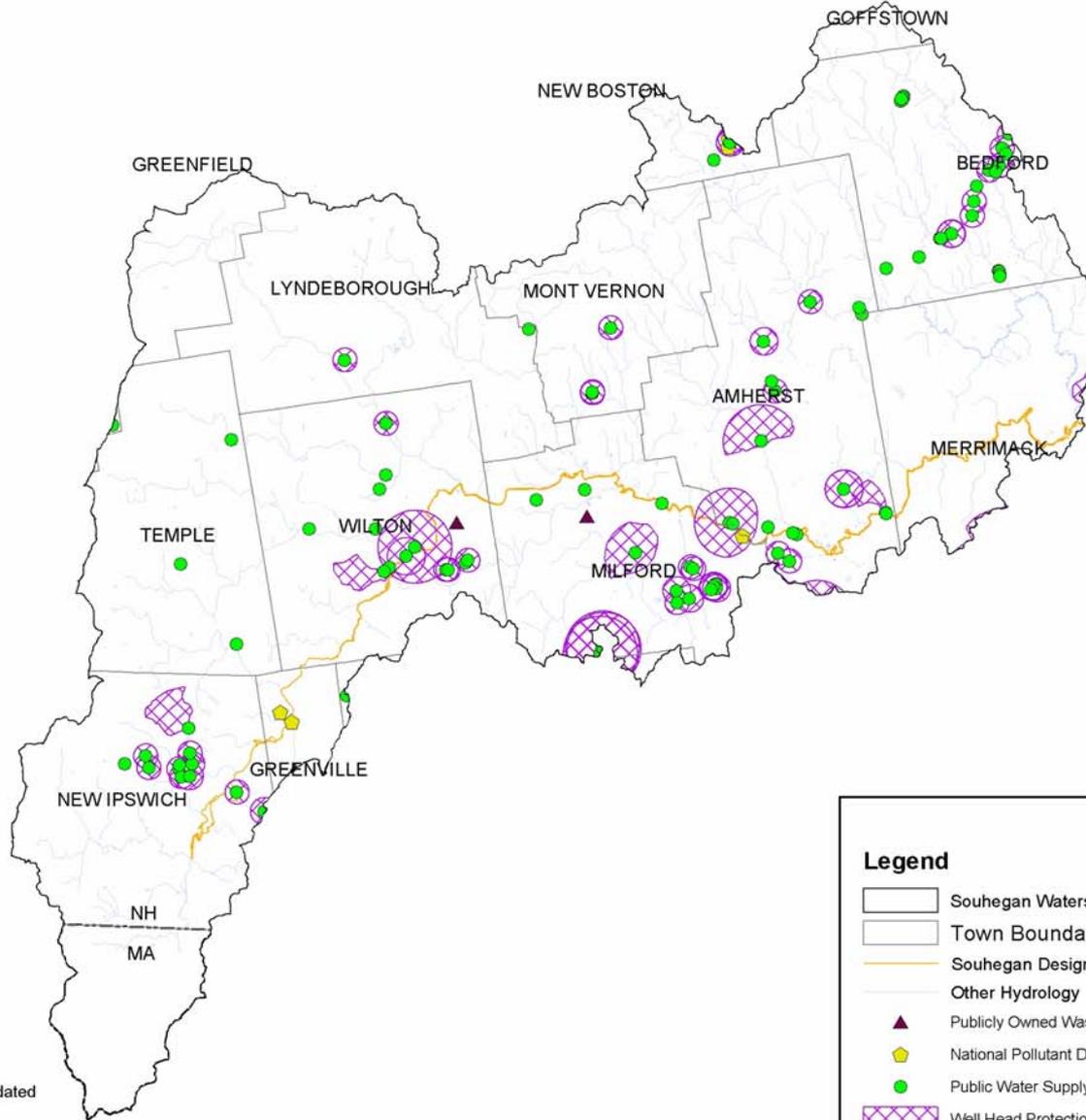
Public water supply

- A public water supply is an existing source of public drinking water that meets the Department's description of a public water system as stated in Env-Ws 302.02 Definitions. "Public water system" means a "public water system" as defined in RSA 485:I-a,XV, namely "a system for the provision to the public of piped water for human consumption, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. The identification of all potential water supplies is beyond the scope of this project and should be clearly stated as such in the PISF report.

Pollution abatement

- Pollution abatement includes wastewater treatment facilities or industrial treatment facilities and aspects of flow affecting assumptions of flow for dilution and dispersal of waste in mixing zones and the rivers overall capacity to mitigate natural and non-point source contamination.

Public Water Supply, POTW, and NPDES Sites - Souhegan River WMPA



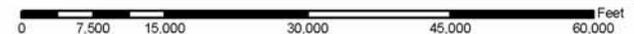
Source: NHDES - POTW 1994, WHPA - updated quarterly, NPDES - updated monthly

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Legend

-  Souhegan Watershed
-  Town Boundaries
-  Souhegan Designated River
-  Other Hydrology
-  Publicly Owned Wastewater Treatment Works
-  National Pollutant Discharge Elimination System Outfalls
-  Public Water Supply
-  Well Head Protection Area

Entire Watershed is within a surface source water protection area

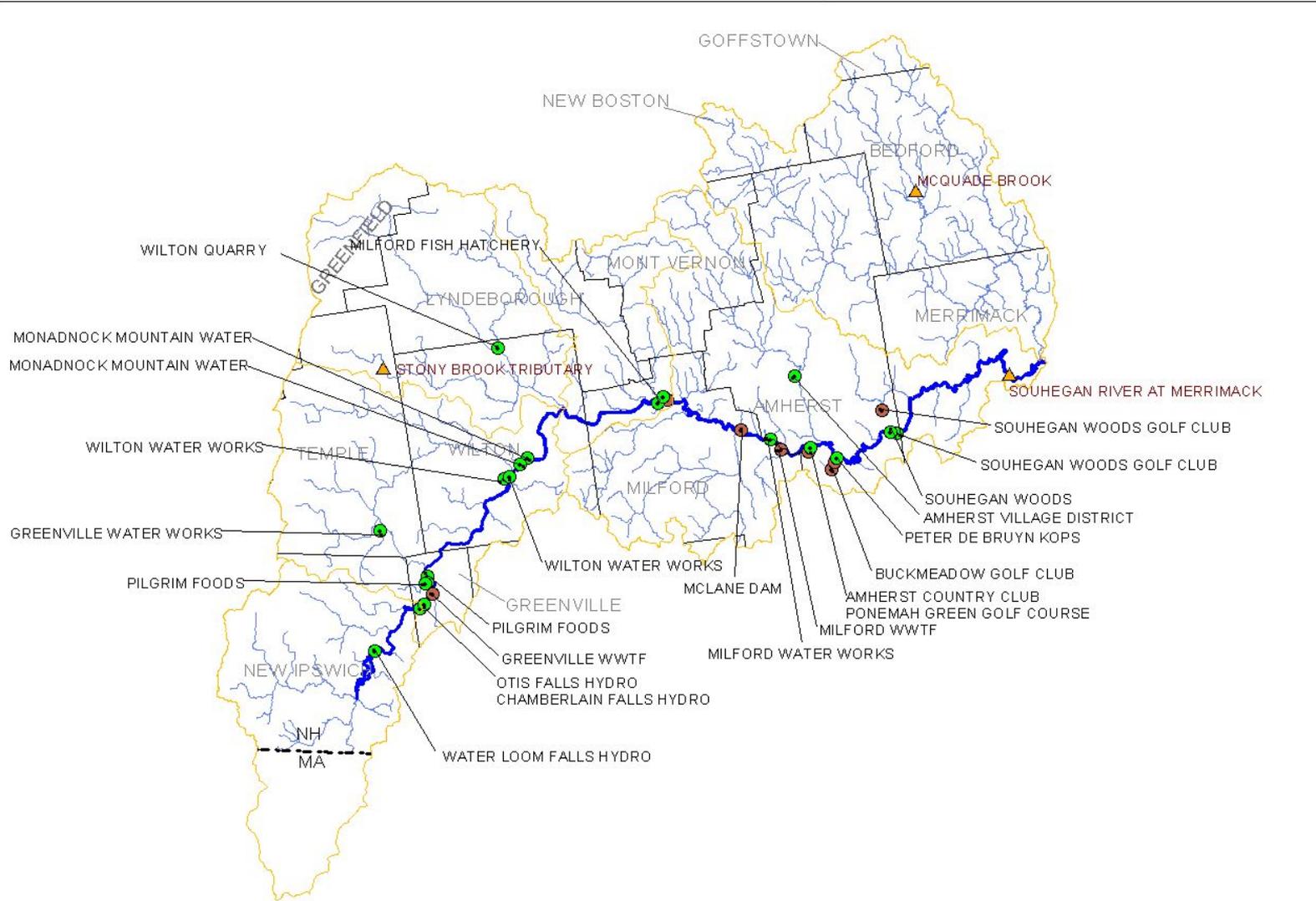


Souhegan Affected Water User Facilities: Source and Discharge Locations

Legend

Souhegan Water Users

- Source
- Discharge
- ▲ Stream Gages
- Designated Reach
- Hydrology
- State boundary
- Town boundary
- Souhegan WMPA



The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. Water users database last updated January 2004.

Map produced January 22, 2004

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0 1 2 3 4 Miles

Souhegan WMPA AWUs

| AFFECTED WATER USERS OF THE SOUHEGAN WMPA | | |
|--|---------------------------------|--|
| USERID | USERNAME | FACILITY |
| 20190 | AMHERST COUNTRY CLUB | AMHERST COUNTRY CLUB |
| 20206 | BUCKMEADOW GOLF CLUB | BUCKMEADOW GOLF CLUB |
| 20047 | GREENVILLE TOWN | GREENVILLE WATER WORKS |
| 20086 | GREENVILLE WWTF | WASTE WATER TREAT PLANT |
| 20230, 20228 and 20229 | GREENWOOD ALDEN T | CHAMBERLAIN FALLS HYDRO, WATER LOOM FALLS HYDRO and OTIS FALLS |
| 20100 | MILFORD WATER WORKS and WWTF | MILFORD WATER WORKS and WASTE WATER TREAT PLANT |
| 20621 | MONADNOCK MOUNTAIN SPRING | MONADNOCK MOUNTAIN WATER |
| 20218 | NH FISH & GAME | MILFORD FISH HATCHERY |
| 20000 and 20659 | PENNICHUCK WATER WORKS | AMHERST VILLAGE DISTRICT and SOUHEGAN WOODS |
| 20383 | PETER DE BRUYN KOPS | PETER DE BRUYN KOPS |
| 20281 | PIKE INDUSTRIES | WILTON QUARRY |
| 20681 | PILGRIM FOODS | PILGRIM FOODS |
| 20624 | PONEMAH GREEN GOLF COURSE | PONEMAH GREEN GOLF COURSE |
| 20523 | SOUHEGAN WOODS GOLF CLUB | SOUHEGAN WOODS GOLF CLUB |
| 20065 | WILTON WATER WORKS | WILTON WATER WORKS |

Hydroelectric energy production

- Hydroelectric energy production is an existing hydroelectric facility on any classification of designated river, or a former hydroelectric facility site that has been unused for fewer than six years on a Rural or Rural-Community river. The description of potential site of hydroelectric facilities on Community rivers is beyond the scope of this project and should be clearly stated as such in the PISF report.

Storage

- Storage means the natural or man-made attributes of a river for water storage. Only Community Rivers are subject to new dam construction.

Souhegan WMPA ADOs

| AFFECTED DAM OWNERS OF THE SOUHEGAN WMPA | | |
|---|---------------------------------|-------------------------------|
| DAMCODE | OWNER | NAME |
| 007.09 | FREESTYLE FARM LLC | VIJVERHOF POND DAM |
| 175.09 | MR ALDEN T GREENWOOD | WATERLOOM POND DAM |
| 147.17 | MR DAVID E BLACKMER | BURTON POND DAM |
| 175.23 | MR DAVID SOMERO | WHEELER POND DAM |
| 147.31 | MR HERMON S SWARTZ | SWARTZ POND DAM |
| 007.15 | MR MELIO RICCITELLI | DREAM LAKE DAM |
| 147.28 | NH WATER DIVISION | SOUHEGAN SITE 8 DAM |
| 147.36 | NH WATER DIVISION | SOUHEGAN SITE 8 CEMETARY DIKE |
| 147.37 | NH WATER DIVISION | SOUHEGAN SITE 8 SOUTH DIKE |
| 254.34 | NH WATER DIVISION | SOUHEGAN RIVER SITE 33 DAM |
| 254.30 | NH WATER DIVISION | SOUHEGAN RIVER SITE 15 DAM |
| 234.11 | NH WATER DIVISION | SOUHEGAN RIVER SITE 12ASOUTH |
| 175.20 | NH WATER DIVISION | SOUHEGAN RIVER SITE 13 DAM |
| 175.21 | NH WATER DIVISION | SOUHEGAN RIVER SITE 35 DAM |
| 175.19 | NH WATER DIVISION | SOUHEGAN RIVER SITE 19 DAM |
| 234.16 | NH WATER DIVISION | SOUHEGAN RIVER SITE 12A NORTH |
| 156.01 | PENNICHUCK WATER WORKS | MERRIMACK VILLAGE DAM |
| 175.03 | PRATT POND ASSOCIATION | PRATT POND DAM |
| 007.04 | RANDALL AND KIMBERLY COOPER | LINCOLN POND DAM |
| 159.04 | TOWN OF MILFORD | OSGOOD POND DAM |
| 254.05 | TOWN OF WILTON | STONEY BROOK DAM |
| 254.09 | TOWN OF WILTON | NEW WILTON RESERVOIR DAM |
| 007.01 | US AIR FORCE STATION NEW BOSTON | JOE ENGLISH POND DAM |

Designated Uses under the federal Clean Water Act

- Aquatic Life Waters that provide suitable chemical and physical conditions for supporting a balanced, integrated and adaptive community of aquatic organisms. Applicable to all surface waters.
- Fish Consumption Waters that support fish free from contamination at levels that pose a human health risk to consumers. Applicable to all surface waters.

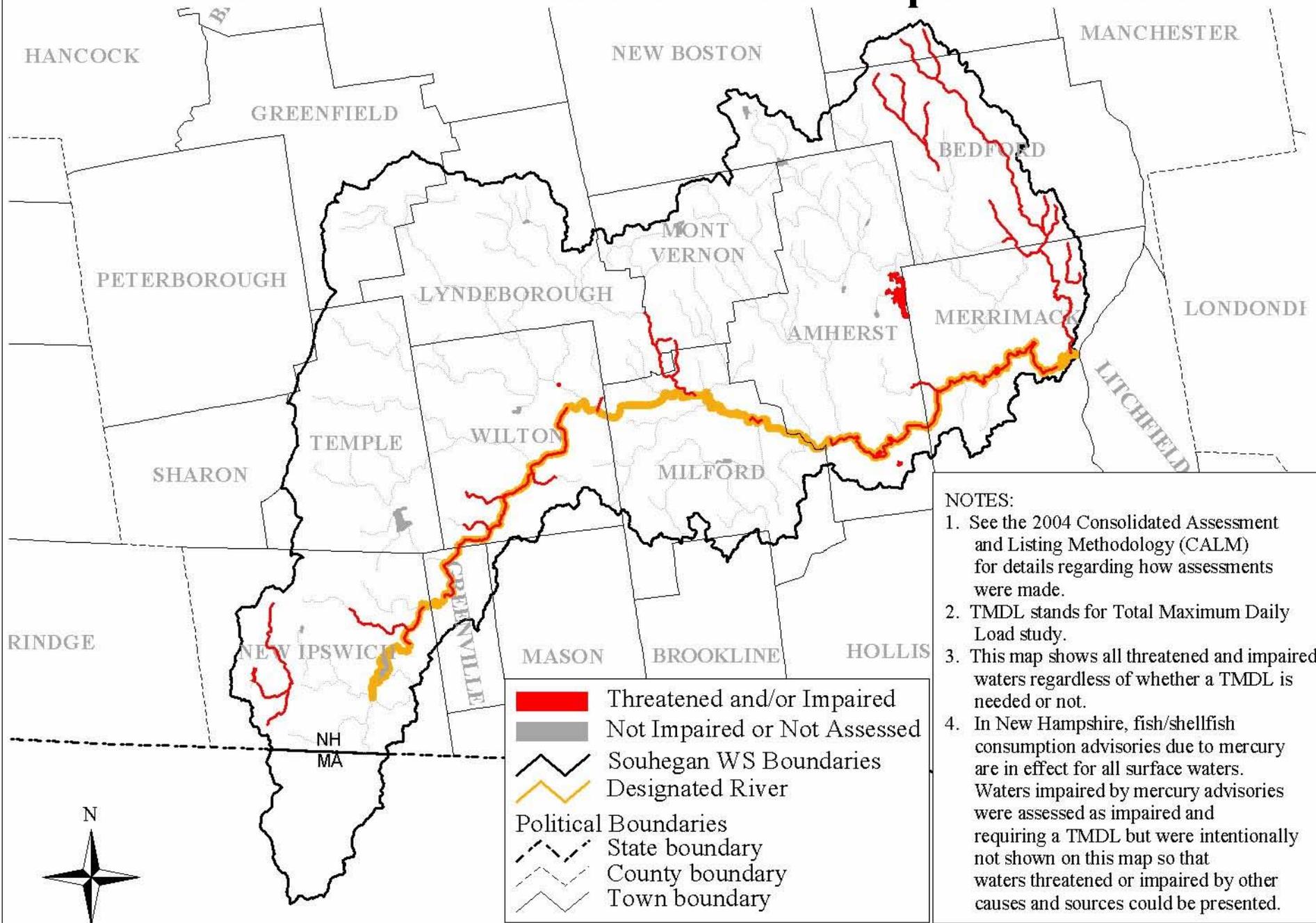
Designated Uses (continued)

- Wildlife Waters that provide suitable physical and chemical conditions in the water and the riparian corridor to support wildlife as well as aquatic life. Applicable to all surface waters.
- Drinking Water Supply Waters that with conventional treatment will be suitable for human intake and meet state/federal drinking water regulations. Applicable to all fresh surface waters.

Designated Uses (continued again)

- Primary Contact Recreation (i.e., swimming)
Waters suitable for recreational uses that require or are likely to result in full body contact and/or incidental ingestion of water. Applicable to all surface waters.
- Secondary Contact Recreation Waters that support recreational uses that involve minor contact with the water. Applicable to all surface waters.

Final 2004: All Threatened and/or Impaired Waters



NOTES:

1. See the 2004 Consolidated Assessment and Listing Methodology (CALM) for details regarding how assessments were made.
2. TMDL stands for Total Maximum Daily Load study.
3. This map shows all threatened and impaired waters regardless of whether a TMDL is needed or not.
4. In New Hampshire, fish/shellfish consumption advisories due to mercury are in effect for all surface waters. Waters impaired by mercury advisories were assessed as impaired and requiring a TMDL but were intentionally not shown on this map so that waters threatened or impaired by other causes and sources could be presented.

| | |
|---|------------------------------|
|  | Threatened and/or Impaired |
|  | Not Impaired or Not Assessed |
|  | Souhegan WS Boundaries |
|  | Designated River |
| Political Boundaries | |
|  | State boundary |
|  | County boundary |
|  | Town boundary |

2 0 2 4 6 8 10 Miles

