



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 1  
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BOSTON, MASSACHUSETTS 02114-2023

August 30, 2007

**RECEIVED**  
SEP 07 2007  
DEPARTMENT OF  
ENVIRONMENTAL SERVICES

Harry T. Stewart, P.E., Director  
New Hampshire Department of Environmental Services  
Water Division  
6 Hazen Drive, Box 95  
Concord, New Hampshire 03302-0095

Re: 2006 Section 303(d) List

Dear Mr. Stewart:

Thank you for submitting New Hampshire's 2006 §303(d) list of water quality limited segments. In accordance with §303(d) of the Clean Water Act (CWA) and 40 CFR §130.7, the U.S. Environmental Protection Agency (EPA) has conducted a complete review of the State's list, including all supporting documentation. Based on this review, EPA has determined that New Hampshire's 2006 §303(d) list meets the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations. Therefore, by this order, EPA hereby approves the State's list, submitted electronically on March 31, 2006.

Thank you for your hard work in developing the 2006 §303(d) list. My staff and I look forward to continuing our work with NHDES to implement the requirements under §303(d) of the CWA. If you have any questions or need additional information please contact Steve Silva at 617-918-1561 or Al Basile at 617-918-1599.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen S. Perkins".

Stephen S. Perkins, Director  
Office of Ecosystem Protection

Enclosure

cc: NH DES: Paul Currier, Gregg Comstock  
EPA: Steve Silva, Ann Williams, Al Basile

## **EPA Review of New Hampshire's 2006 Section 303(d) List**

### **I. INTRODUCTION**

EPA has conducted a complete review of New Hampshire's 2006 Section 303(d) list and supporting documentation. Based on this review, EPA has determined that New Hampshire's list of water quality limited segments (WQLSs) still requiring TMDLs, meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby approves New Hampshire's 2006 Section 303(d) list. The statutory and regulatory requirements, and EPA's review of New Hampshire's compliance with each requirement, are described in detail below.

### **II. STATUTORY AND REGULATORY BACKGROUND**

#### **Identification of Water Quality Limited Segments for Inclusion on the 303(d) List**

Section 303(d)(1) of the Act directs States to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by State or local authority, and (3) other pollution control requirements required by State, local, or federal authority. See 40 CFR Section 130.7(b)(1).

#### **Consideration of Existing and Readily Available Water Quality-Related Data and Information**

In developing Section 303(d) lists, States are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA. See 40 CFR §130.7(b)(5). In addition to these minimum categories, States are required to consider any other data and information that is existing and readily available.

EPA's Guidance for 2006 Assessment, Listing and Reporting Requirements describes categories or water quality related data and information that may be existing and readily available. See Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act – EPA Office of Water—July 29, 2005. While States are required to evaluate all existing and readily available water quality-related data and information, States may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring States to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR §130.7(b)(6) require States to include as part of their submissions to EPA documentation to support decisions to rely or not rely on particular data and information and decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region.

### **Priority Ranking**

EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) of the Act that States establish a priority ranking for listed waters. The regulations at 40 CFR §130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See Section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that States establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and State or national policies and priorities. See 57 FR 33040, 33045 (July 24, 1992), and EPA's Guidance for 2006 Assessment, Listing and Reporting Requirements.

### **III. ANALYSIS OF NEW HAMPSHIRE'S SUBMISSION**

EPA has reviewed the State's submission, submitted electronically on March 31, 2006 [hardcopy submittal received on May 2, 2006]. The submittal package included the following components:

1. State of New Hampshire 2006 303(d) List;
2. List of waters/impairments being delisted from New Hampshire's 2004 303(d) List;
3. New Hampshire's 2006 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology (CALM);

4. Response to Public Comments dated March 31, 2006; and
5. Follow-up questions and answers for a number of waters where insufficient information was provided to justify proposed delistings.

### **Public Participation**

New Hampshire conducted a public participation process in which it provided the public the opportunity to review and comment on the 2006 draft Section 303(d) list. A public comment period was opened upon the release of the draft list on February 23, 2006 and was closed on March 23, 2006. EPA concludes that New Hampshire's public participation process was consistent with its Continuing Planning Process (CPP), and that New Hampshire provided sufficient public notice and opportunities for public involvement and response.

The final submittal took into account suggested changes to the draft list from interested parties. The New Hampshire Department of Environmental Services (NHDES) prepared a "Response to Comments" document which lists each comment and the State's response. EPA reviewed New Hampshire's responses and concludes that NHDES adequately responded to the comments.

### **Identification of Waters and Consideration of Existing and Readily Available Water Quality-Related Data and Information**

EPA has reviewed the State's submission, and has concluded that the State developed its Section 303(d) list in compliance with Section 303(d) of the Act and 40 CFR §130.7. EPA's review is based on its analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

New Hampshire used the NHDES assessment databases to develop its 2006 303(d) list. The same databases were used to assist in the preparation of the biennial 305(b) report. Both the 303(d) and 305(b) reports were submitted to EPA as an integrated report for 2006. In July of 2005, the State issued a request for data from outside sources. This request was sent to more than 20 organizations and was also posted on the NHDES website for the general public. Information received from outside sources was assessed in accordance with the States assessment methodology. In the development of the 2006 §303(d) list, New Hampshire began with its existing EPA approved 2004 §303(d) list and relied on new water quality assessments (i.e., post-2004) to update the list accordingly. New Hampshire believes that information pertaining to impairment status must be well substantiated, preferably with actual monitoring data, for it to be used in §303(d) listing.

EPA has reviewed New Hampshire's description of the data and information it considered, and its methodology for identifying waters. EPA concludes that the State properly assembled and evaluated all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 CFR §130.7(b)(5).

In addition, the State provided a rationale for not relying on particular and readily available water quality-related data and information as a basis for listing waters. Beginning with the 1998 list and continuing through the 2006 listing process, New Hampshire chose not to list waters where the only information regarding water quality was unsubstantiated anecdotal information (e.g., citizen complaint). New Hampshire analyzed relevant data and information for each water body in the State in deciding whether there was sufficient, reliable data to support listing. The regulations require states to "assemble and evaluate" all relevant water quality related data and information, and New Hampshire did so for each of its waterbodies. The regulations permit states to decide not to use any particular data and information as a basis for listing, provided they have a reasonable rationale in doing so. New Hampshire's decision not to use unsubstantiated anecdotal information is reasonable in light of the uncertainty about the reliability of such information. Moreover, it is reasonable for New Hampshire to decide to focus its listing and TMDL development resources on waters where water quality impairments are well-documented, rather than on waters with only unreliable water quality information. As additional waters are assessed, EPA expects New Hampshire would add waters to its list where such assessments show water quality standards are not being met.

In certain cases, New Hampshire included waters on the 2006 303(d) list based solely on evaluative information when it had confidence that an impairment exists. For example, as all waters are covered under the statewide fish consumption advisory due to elevated levels of mercury in fish tissue, all waters were included by reference on the list as impaired by mercury.

In developing the 2006 303(d) list, New Hampshire used data older than five years of age if waters had previously been listed as threatened or impaired, even though data older than five years is considered "evaluative" information under EPA's Section 305(b) guidance. For waters not previously listed, New Hampshire considered only data that were five years old or less for rivers, streams impoundments, estuaries, and ocean waters, and 10 years old or less for lakes and ponds.

The State concluded that the use of data older than five years for waters previously listed (provided that it met all other data requirements stipulated in the assessment methodology) is reasonable in order to prevent removal of waters from a threatened or impaired category. In addition, NHDES has found that the water quality of many lakes and ponds does not change dramatically with time due to their large volume and longer retention times (on the order of years); therefore, use of 10-year-old data is believed to provide a reasonably accurate assessment of water quality conditions for these waterbodies. EPA believes this conclusion is reasonable, and it is consistent with EPA regulations for States to decide to list waters based on data older than five years. The regulations require States to consider all available data, and to use it unless they provide a reasonable rationale for not doing so.

Waters were not added to the 2006 §303(d) list where limited information might indicate a possible impairment but it was determined to be insufficient (usually not well documented) for the purpose of listing on the §303(d) list. For each assessment unit not listed, where information indicated that an impairment due to a pollutant may exist, but available information was determined to be insufficient to support a §303(d) listing, the waterbodies were not included on the §303(d) list. Instead, they

were included in a separate category on the Integrated Report for waters in need of further assessment.

In summary, New Hampshire considered the most recent §305(b) assessments, as required by EPA's regulations, and used information obtained primarily through monitoring as the basis for adding water quality impairments to the 2006 303(d) list. A total of 1776 unique water quality impairments, 6986 including mercury, appear on the final 2006 303(d) list. A "unique" water quality impairment is a pollutant/assessment unit combination; there is commonly more than one pollutant associated with an impairment in a given assessment unit. A total of 140 water quality impairments that appeared on the 2004 303(d) list no longer appear on the 2006 303(d) list. These impairments were removed from the list for a variety of reasons (i.e., TMDL completed, listed in error/insufficient information, other control mechanisms in place, or fully supporting). Even though some impairments were removed between 2004 and 2006, the total universe of water quality impairments has increased from 913 (6102 with mercury) to 1776 (6986 with mercury). These additions were largely due to new data that was assessed, the addition of assessment units, and revisions to New Hampshire's Consolidated Assessment and Listing Methodology (CALM).

### **Priority Ranking**

As described in its methodology, New Hampshire established a priority ranking for listed waters by considering: 1) the presence of public health issues, 2) natural/outstanding resource waters, 3) threat to federally threatened or endangered species, 4) public interest, 5) available resources, 6) administrative or legal factors (i.e., NPDES program support or court order), and 7) the likelihood of implementation after the TMDL has been completed.

Individual priority rankings for listed waters are presented as the date shown on the 303(d) list which indicates when the TMDL is expected to be completed. EPA finds that the waterbody prioritization and targeting method used by New Hampshire is reasonable and sufficient for purposes of Section 303(d). The State properly took into account the severity of pollution and the uses to be made of listed waters, as well as other relevant factors described above. EPA acknowledges that the schedule of TMDL completion establishes a meaningful priority ranking system.

### **Waters which are not listed on New Hampshire's 2006 §303(d) List**

A total of 140 water quality impairments, encompassing 136 assessment units, that appeared on New Hampshire's 2004 303(d) list, no longer appear on the 2006 303(d) list. EPA requested that the State provide a rationale for its decision not to include previously listed waters. As discussed below, the State provided sufficient justification in the TMDL package itself or in later responses to questions from EPA. The State has agreed to retain on the 303(d) list four assessment units that had been proposed for delisting, because there is not yet adequate justification to remove these waters. These include a single assessment unit for Beaver Brook, Shields Brook and Ayers Brook where the listing is for pH; Ore Hill Brook where the listing is for Al, Cu, Pb, Zn, and pH; Bass Beach where the listing is for e. coli; and a single assessment unit on the Merrimack River [NHIMP70006802-04]

where the listing is for e. coli. For the remaining waters that New Hampshire has proposed for delisting, the State has demonstrated, to EPA's satisfaction, good cause for not listing these waters, as provided in 40 CFR §130.7(b)(6)(iv). The following is New Hampshire's rationale for these delistings.

1. NHDES moved seven AU's to fully supporting (Category 2) for E. coli. All are identified as fully supporting for primary and secondary recreation except the Cochecho River, which is supporting secondary contact recreation but is still listed as impaired for primary contact recreation.

Assessment Unit	Sample information
Chocura Lake - Town Beach [NHLAK600020604-01-03] – No historical data above SSMC	In 44 samples on this beach the median E. coli concentration was 3 cts/100mL, with a minimum of 0 and maximum of 45 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. There were no SSMC exceedences.
Waukean Lake - Town Beach [NHLAK700020108-02-03]	<p>In 47 samples on this beach the median E. coli concentration was 2 cts/100mL, with a minimum of 0 and maximum of 121 cts/100mL. That maximum was on 6/28/2000. The two subsequent sample dates in 2000 revealed 7/3/2000 (1 beach left and 2 beach right cts/100mL). 8/8/2000 (2 beach left and 0 beach right cts/100mL).</p> <p>In the subsequent 26 samples covering 2001, 2002, 2003, 2004, and 2005 there has never been a sample over 34 cts/100mL and the median concentration is 1.5 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 121 value from 6/28/2000. Weight of evidence tells us that this beach supports primary contact recreation.</p>
Winnepesaukee - Carry Beach [NHLAK700020110-02-08]	<p>In 71 samples on this beach the median E. coli concentration was 3 cts/100mL, with a minimum of 0 and maximum of 105 cts/100mL. That maximum occurred on 8/8/2000 and was measured at the right side of the beach. On that same date the beach center measurement was 6 cts/100mL and the beach left measurement was 2 cts/100mL.</p> <p>In the subsequent 36 samples covering 2001, 2002, 2003, 2004, and 2005 there has never been a sample over 57 cts/100mL and the median concentration is 4 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88</p>

Assessment Unit	Sample information
	<p>cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 105 value from 6/28/2000. Weight of evidence tells us that this beach supports primary contact recreation.</p>
<p>Saco River - Smith Easton Rec. Area #2 [NHRIV600020304-10-02]</p>	<p>In 22 samples on this beach the median E. coli concentration was 9 cts/100mL, with a minimum of 2 and maximum of 24 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. There were no SSMC exceedences.</p>
<p>Cocheco River - inaccurately listed for secondary contact rec. in the past; continues to be listed for primary contact rec. - [NHRIV600030603-01]</p>	<p>In 55 samples on this riverine assessment unit the median E. coli concentration was 150 cts/100mL, with a minimum of 10 and maximum of 2000 cts/100mL. The freshwater secondary contact recreation single sample maximum criteria (SSMC) is 2030 cts/100mL. There were no SSMC exceedences.</p> <p>This AU continues to be listed for primary contact recreation.</p>
<p>Lamprey River [NHRIV600030709-09]</p>	<p>In the 3 samples on this riverine assessment unit the median E. coli concentration was 40 cts/100mL, with a minimum of 20 and maximum of 140 cts/100mL. The freshwater primary contact recreation single sample maximum criteria (SSMC) is 406 cts/100mL. There were no SSMC exceedences using the newer dataset.</p> <p>With regards to the older data (which we incorrectly used to list the waterbody in 2002) there were 3 samples with a median E. coli concentration of 20 cts/100mL, a minimum of 20 and maximum of 30 cts/100mL. There were no SSMC exceedences in the old data.</p>
<p>Ashuelot River [NHRIV802010403-19]</p>	<p>In the 18 samples on this riverine assessment unit the median E. coli concentration was 58 cts/100mL, with a minimum of 5 and maximum of 330 cts/100mL. The freshwater primary contact recreation single sample maximum criteria (SSMC) is 406 cts/100mL. There were no SSMC exceedences in the newer dataset.</p>

For each of the segments described above, EPA agrees that NHDES has a reasonable basis for

removing them from Category 5. For all but two of the segments, the sampling data are all below the applicable E. coli criteria. For the remaining two segments, there was one single sample exceedence in each segment in 2000, but all subsequent sampling results were below criteria. Taken as a whole, the data support the conclusion that the waters are in attainment.

2. NHDES moved seven AU's to fully supporting (Category 2) for pH because of a new assessment method.

Baxter Lake  
Wicwas Lake  
Norway Pond  
Kezar Lake  
Camp Fatima Beach  
Warren Lake, Alstead  
Ashuelot Pond, Washington

NHDES explained that it “has in the past and continues to use an apparent color value of 30 cpu to separate naturally acidic lakes from acid lakes caused by man-made inputs. Absent other sources that could significantly impact pH, low pH exceedences in waters with apparent color measurements greater than 30 cpu were considered to be due to natural sources such as natural tannic and humic acids in the water. In previous assessments, only summer epilimnetic or upper water column sample results were used to assess pH and color for lakes. A new process for reviewing data was initiated for the 2006 assessments that allowed for all depths and all seasons to be sampled. Utilizing the new method, it was determined that the above lakes were naturally acidic as indicated by apparent color values exceeding 30 cpu.”

EPA believes that the State’s approach is a reasonable interpretation of its water quality standards because the 2006 evaluation included more comprehensive data that revealed evidence that the lakes were naturally acidic.

3. NHDES moved one AU to fully supporting (Category 2) for pH because of unreliable data.

Otter Brook

New Hampshire Volunteer Lake Assessment Program data from Station OTTGREI on Otter Brook was used in the 2002 assessments to list this site. NHDES explained that it was unable to determine the exact location of data collected from that station (because that station ID was being used in different years by different volunteers to represent different locations) from year to year. Therefore the State considered the data to be unreliable and did not use it in the assessment for 2006. Two additional and reliable VLAP stations (OTTGREO and ZEPGREO) were sampled in 2000 and 2001. At those two stations ten pH samples were collected with readings ranging from 6.71 to 7.29. The ten samples at OTTGREO and ZEPGREO meet New Hampshire’s water quality criteria for pH.

EPA concludes that it was reasonable for NHDES to base its listing decision on the data taken from reliable and identifiable sampling stations in the segment and not to rely on data from unclear sampling locations.

4. NHDES moved four drinking water supply assessment units to fully supporting (Category 2) for the drinking water use. All four waters were listed for excess algal growth because of the use of copper sulfate in the source water.

Penacook Lake  
Harris Pond/Pennichuck Brook  
Bowers Pond  
Canobie Lake, Windham

The State's rationale is as follows: "According to RSA 485-A:8, I and II, Class A and B surface waters shall be "acceptable for water supply uses after adequate treatment." The statute does not say that such waters shall be acceptable for water supply uses after conventional treatment, as implied in New Hampshire's 2004 CALM. New Hampshire believes that copper sulfate is a common form of treatment used by many water suppliers to control taste and odor problems and, therefore, meets the definition of "adequate treatment" to make waters acceptable for water supply uses. Consequently, use of copper sulfate to control taste and odor problems in water supplies is not considered a violation of water quality standards."

EPA requested additional information on these waters for aquatic life and contact recreation uses, and the State provided the information presented below. After careful consideration, EPA has concluded that infrequent use of copper sulfate does not automatically indicate that a drinking water use is impaired. However, use of copper sulfate is an indicator of excess algal growth and thus both aquatic life and contact recreation uses should be assessed. Further, the use of copper sulfate in the ambient environment, although important for many drinking water supplies, is toxic to aquatic life and thus may result in impairments to the aquatic life use. In summary, EPA concurs that the drinking water use can be removed from the 303(d) list in this case, however, both the aquatic life and contact recreation uses should be fully evaluated in these waters.

<b>Assessment Unit</b>	<b>Aquatic Life Use</b>	<b>Primary Contact Recreation</b>	<b>Copper Sulfate Treatments in 2005/2006</b>
Penacook Lake (NHLAK700060302-09)	Use Level Support – Insufficient information/Potentially attaining standards <ul style="list-style-type: none"> <li>• Chloride - Insufficient information/Potentially attaining standards</li> <li>• Dissolved Oxygen (% saturation) - Insufficient information/Potentially attaining standards</li> <li>• Dissolved Oxygen (mg/L) - Insufficient information/Potentially attaining standards</li> <li>• pH – Fully Supporting</li> </ul>	Use Level Support – Insufficient information/Potentially attaining standards <ul style="list-style-type: none"> <li>• E. Coli – Fully Supporting</li> <li>• Chlorophyll a - Insufficient information/Potentially attaining standards</li> </ul>	One June 30, 2005,  None in 2006
Harris Pond/ Pennichuck Brook (NHLAK700061001-04-01)	Not Assessed / No Data	Cyanobacteria hepatotoxic microcystins 5-m	None in 2005 None in 2006
Bowers Pond (NHLAK700061001-04-02)	Not Assessed / No Data	Not Assessed / No Data	None in 2005 None in 2006

Assessment Unit	Aquatic Life Use	Primary Contact Recreation	Copper Sulfate Treatments in 2005/2006
Canobie Lake, Windham (NHLAK700061102-02)	Use Level Support – Insufficient information/Potentially attaining standards <ul style="list-style-type: none"> <li>• Chloride - Insufficient information/Potentially attaining standards</li> <li>• Dissolved Oxygen (% saturation) - Insufficient information/Potentially not attaining standards</li> <li>• Dissolved Oxygen (mg/L) - Insufficient information/Potentially attaining standards</li> <li>• Iron - Insufficient information/Potentially attaining standards</li> <li>• pH – Fully Supporting</li> </ul>	Use Level Support – Insufficient information/Potentially attaining standards <ul style="list-style-type: none"> <li>• Chlorophyll a - Insufficient information/Potentially attaining standards</li> </ul>	None in 2005 None in 2006

5. NHDES moved three AU's to fully supporting (Category 2) for dissolved oxygen (% saturation) as this parameter was listed in error in 2004. Dissolved oxygen impairment does exist but should be, and is, presented as DO-PPM and not % saturation. So, all three assessment units were delisted for DO-% saturation, but remain on the list for DO-PPM.

Squamscott River  
 South Mill Pond  
 Pemigewasset River

6. NHDES moved one AU to fully supporting (Category 2) for sedimentation/siltation.

Middle Brook Canal, Lake Winnepesaukee

NHDES explained that the basis for listing of this man-made channel in a cove on Lake Winnepesaukee had been impairment of Secondary Contact Recreation, Indicator 3, Obstructions to Boating (Navigation), due to sedimentation. The Canal was experiencing problems at lake full pool with entering and leaving the channel, obstructions in traveled lanes, and disturbance of the channel bottom when people started their boats. A number of steps were taken to address the issue, including dredging to a depth of 5.5 feet within the channel; portions of the nearby roads were re-crowned and/or paved to reduce sediment runoff; paved roads are

swept each spring; larger volume culverts were installed to reduce flow velocity; and no-wake buoys, and a cement boat ramp were installed. Achievement of the 5.5 foot depth throughout the canal was documented in the Middlesbrook Canal Dredging Project, Final Report prepared by the Balmoral Improvement Association (July 21, 2004).

NHDES explained that full support of the use is attained when, “Navigational channels normally used for boating have not been unintentionally filled in as a result of human activity such that passage of boats is now obstructed.” The residents of Middle Brook Canal performed a survey after completion of the dredging and scored the canal for various questions from 1=not satisfied to 5=very satisfied. On the question of “disturb bottom when starting boat” the average score was 4.35, “obstructions reduced or alleviated” scored 4.56, “easier navigation” scored 4.65, “easier passing other boats in the canal” scored 4.64, and “overall satisfaction” scored 4.75.

In view of the activities that were completed and the results of the survey, EPA agrees with NHDES that Secondary Contact Recreation is no longer impaired for Obstructions to Boating (Navigation) by Sediment Deposits and should be removed from the 303(d) list for this impairment.

7. NHDES moved one AU to fully supporting (Category 2) for benthic macroinvertebrate bioassessment based upon a revised Index of Biotic Integrity (IBI) for 2006. Revised IBI more accurately reflects conditions for NH.

#### Churchill Brook

This waterbody was originally listed as impaired based on an evaluation using a benthic index of biological indicators (IBI) that had been developed by Karen Blocksom, EPA, Ecological Exposure Research Division, National Exposure Research Laboratory (Cincinnati) in January 2004. NHDES subsequently modified the IBI to take account for natural variation within and between reference sites, which the original IBI did not address. Using the revised IBI, NHDES has concluded that the brook is, in fact, in attainment.

EPA concludes that the delisting in this case was reasonable, based on the application of a revised IBI that was adjusted based on actual data of natural variability at thirty sites within the State.

8. NHDES moved 8 AU's to Category 4a on the 303(d) list for bacteria – TMDL completed and approved.

Hampton Falls River

Browns River

Hunts Island Creek

Mill Creek

Blackwater River

Hampton/Seabrook Harbor [NHES600031004-08-03]

Hampton/Seabrook Harbor [NHES600031004-09-03]

Seabrook Harbor Beach

9. NHDES moved 79 AU's to Category 4a on the 303(d) list for pH – TMDL completed and approved.

Knowles Pond  
Corser Pond  
Sweat Pond  
Sawyer Pond  
Carter Pond  
Flat Mountain Pond  
White Lake  
Conner Pond  
Ivanhoe Lake  
Bow Lake  
Ayers Pond  
Phillips Pond  
Black Pond  
Lonesome Lake  
Russell Pond  
East Pond  
Peaked Hill Pond  
Wachipauka Pond  
Derby Pond  
Stinson Lake  
Camp Happy T Ranch Beach  
Loon Lake  
Greeley Pond  
Black Mountain Pond  
Hall Pond  
Spectacle Pond  
Town Beach - Waukegan Lake  
Carry Beach - Lake Winnepesaukee  
Gilmore Pond  
Thorndike Pond  
Camp Wa-Klo Beach  
Camp Wanocksett Beach  
Frost Pond  
Harrisville Pond  
Nubanusit Lake  
Skatutakee Lake  
Gregg Lake  
Camp Chenoa Beach  
Island Pond

Solitude Lake  
Cold Pond  
Suncook Pond  
Jeness Pond  
Long Pond  
Northwood Lake  
Camp Wah-Tut-Ca Beach  
Pleasant Lake  
Pratt Pond  
Darrah Pond  
Bog Pond  
Echo Lake  
Constance Lake  
Armington Lake  
Camp Walt Whitman Beach  
Cole Pond  
Halfmile Pond  
Chalk Pond  
Dutchman Pond  
Ledge Pond  
Long Pond  
Millen Pond  
Sand Pond  
Cole Spring Pond  
Center Pond  
Granite Lake  
Dublin Pond  
Silver Lake  
Rockwood Pond  
Stone Pond  
Pecker Pond  
Camp Toah Nipi Beach  
Monomonac Lake  
Camp Monomonac Beach  
Laurel Lake  
Camp Fleur De Lis Beach  
Cass Pond  
Camp Takodah Beach  
May Pond  
Rockwood Pond

10. NHDES moved two AU's to Category 4b (control mechanism in place) for bacteria where cause of impairment is illicit connections. As NHDES explained below, an Administrative Order is in place in both cases.

Androscoggin River [NHIMP400010606-03]

Androscoggin River [NHRIV400010606-10]

“Androscoggin River and Impoundment (NHRIV400010606-10 & NHIMP400010606-03). The administrative order that covers these two assessment units is NHDES Administrative Order 91-16, ‘Elimination of Dry Weather Discharges’. The Order specifies that:

1. On or before October 1, 1991, complete a sanitary survey to identify all untreated discharges of wastewater and the buildings causing said discharges.
2. Concurrent with the sanitary survey, eliminate the seven known discharges by November 1, 1991.
3. Take appropriate steps to eliminate improper discharges as they are located during the sanitary survey.

On March 5, 1999 the department was notified by the City of Berlin that the last of approximately 300 cross connection had been tied into the proper sewer line. These waters only remain impaired while awaiting confirmation sampling by the state.”

EPA agrees it is reasonable to place these segments in Category 4b because of the combination of the explicit order to eliminate dry weather discharges and the fact that all of the improper cross connections have been eliminated.

11. NHDES moved 11 AU's to Category 3 (Insufficient information) – data needs to be collected to determine if standards are being attained.

**Bellamy River** – enterococcus; [sewage pump station repaired – new data needed to confirm attainment].

**Great Bay** – fecal coliform; [NHEST600030904-02]; shellfishing safety zone; listing based on administrative closure; no data indicating violations.

**Great Bay** – fecal coliform; [NHEST600030904-03]; shellfishing safety zone; listing based on administrative closure; no data indicating violations.

**Lower Sagamore Creek** – enterococcus; [failing septic replaced, new data needed to confirm attainment].

**Kimball Pond, Hopkinton Town Beach** – e. coli; [pond no longer exists, dam collapsed].

**Blodgett Brook** – e. coli; [no data on AU, originally listed in error].

**Beaver Brook** – e. coli; originally listed in error – no sampling stations on this AU.

**South Branch Ashuelot River** – e. coli; originally listed in error by using data from a different AU.

**Flat Meadow Brook** – pH; originally listed in error. According to NHDES, it has been determined that the sampling and naming of tributaries to Northwood Lake along Rte 4 is inconsistent to the

extent that it is not possible to determine from the metadata provided where a given sample was collected.

**Pickering Brook** – metals (As, Cd, Pb, Zn); originally listed in error. Additional information/analysis is needed to determine if criteria are being met.

Arsenic – All samples on Pickering Brook were Non-detects. No impairment determinations are made based upon non-detects.

Cadmium – All samples on Pickering Brook were Non-detects. No impairment determinations are made based upon non-detects.

Lead – Two of 7 samples were > chronic criteria, however, both samples were collected on the same day. This would be considered as a single exceedence. For chronic criteria, EPA recommends that a 4-day average should not be exceeded more than once in a 3-year period (USEPA. 1991. Technical Support Document for Water Quality-based Toxics Control. USEPA, Washington, D.C.)

Zinc – All detects were < acute and chronic criteria.

**Unnamed Brook to Pennichuck Brook (Boire Fields)** – e. coli; originally listed in error.

NHDES explained the following: “This AU was originally listed in 2002. At that time NHDES would ask the staff within DES that did illicit detection work for a list of sites with high bacteria levels. Pipes flowing into “Boire field Brook” (i.e. Unnamed Brook to Pennichuck Brook) were identified as having high bacteria and the AU was listed as impaired. In ongoing efforts to reign [sic] in anecdotal information and document the physical data basis for assessments NHDES found that the Biore Field Brook Subwatershed Project (12/31/2001, Nashua Regional Planning Comm.) used an upper detection limit for E. coli of 200 cts/100mL (col/100mL on their datasheets). The detection limit of 200 cts/100mL is well below the class B single sample maximum criteria of 406 cts/100mL and there was insufficient information to calculate a geometric mean. In the Biore Field Brook case the pipe samples should have been treated as 200 cts/100mL and not violations of the class B criteria.”

EPA concludes that NHDES has provided a reasonable rationale for delisting the water identified above because there was no actual water quality data that indicated that the criteria exceeded the single sample maximum of 406 cts/100 mL and there was insufficient information to calculate a geometric mean.

12. NHDES moved 12 additional AU's to Category 3 (Insufficient information). Detailed information requested by EPA is presented below. For the following 12 waters, EPA concludes that NHDES has provided a reasonable assessment for delisting because recent data collected on these waters indicates that standards are being attained, but more information is needed for confirmation. Thus, the waters are appropriately being moved to Category 3 (Insufficient Information).

Assessment Unit	Beach?	Additional Information	SSMC Exceedences?
<b>Phillips Pond, Town Beach – e. coli</b> (NHLAK600030802-03-02)	Y	<p>In 44 samples on this beach the median E. coli concentration was 8 cts/100mL, with a minimum of 0 and maximum of 152 cts/100mL. That maximum was on 7/10/2001. The two subsequent sample dates in 2001 revealed 7/16/2001 (2 beach left and 33 beach right cts/100mL). 8/13/2001 (2 beach left and 1 beach right cts/100mL).</p> <p>In the subsequent 22 samples covering 2002, 2003, 2004, and 2005 there has never been a sample over 76 cts/100mL and the median concentration is 6 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 152 value from 7/10/2001.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2001. 44 samples total.
<b>Lake Winnepesaukee, Brewster Beach – e. coli</b> (NHLAK700020110-02-09)	Y	<p>In 70 samples on this beach the median E. coli concentration was 6.5 cts/100mL, with a minimum of 0 and maximum of 170 cts/100mL. That maximum was on 8/8/2000. The two subsequent sample dates in 2000 revealed 16 cts/100mL at beach left and 15 cts/100mL at beach right.</p> <p>In the subsequent 38 samples covering 2001, 2002, 2003, 2004, and 2005 there has never been a sample over 70 cts/100mL and the median concentration is 6 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 170 value from 8/8/2000.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2000. 70 samples total.

Assessment Unit	Beach?	Additional Information	SSMC Exceedences?
<b>Opechee Lake, Bond Beach – e. coli</b> (NHLAK700020201-06-02)	Y	<p>In 40 samples on this beach the median E. coli concentration was 2 cts/100mL, with a minimum of 0 and maximum of 164 cts/100mL. That maximum was on 7/24/2000. On that date the second sample from the site was 0 cts/100mL. There were no subsequent sample dates in 2000.</p> <p>In the subsequent 24 samples covering 2001, 2002, 2003, 2004, and 2005 there has never been a sample over 36 cts/100mL and the median concentration is 2 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 164 value from 7/24/2000.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2000. 40 samples total.
<b>MacDowell Reservoir Beach – e. coli</b> (NHLAK700030103-06-02)	Y	<p>In 82 samples on this beach the median E. coli concentration was 4.5 cts/100mL, with a minimum of 0 and maximum of 100 cts/100mL. That maximum was on 5/28/2003. Subsequent sample dates in 2003 ranged from 2 – 34 cts/100mL.</p> <p>In the subsequent 78 samples covering 2003, 2004, and 2005 there has never been a sample over 54 cts/100mL and the median concentration is 4 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 100 value from 5/28/2003.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2003. 82 samples total.

Assessment Unit	Beach?	Additional Information	SSMC Exceedences?
<b>Island Pond; Sanborn Shore Acres – e. coli</b> (NHLAK700061101-01-03)	Y	<p>In 32 samples on this beach the median E. coli concentration was 2 cts/100mL, with a minimum of 0 and maximum of 119 cts/100mL. That maximum was on 7/7/2003. Subsequent sample dates in 2003 were; 1,2,3 &amp; 4 cts/100mL.</p> <p>In the subsequent 14 samples covering 2003, 2004, and 2005 there has never been a sample over 71 cts/100mL and the median concentration is 2.5 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 119 value from 7/7/2003.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2003. 32 samples total.
<b>Angle Pond – e. coli;</b> [originally listed in error] (NHLAK700061403-01-02)	Y	<p>In 36 samples on this beach the median E. coli concentration was 12 cts/100mL, with a minimum of 1 and maximum of 100 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. That maximum occurred at beach left on 8/11/2005. On the same date the beach right sample was 6 cts/100mL.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2005. 36 samples total.
<b>Town Beach, Country Pond – e. coli</b> (NHLAK700061403-03-02)	Y	<p>In 47 samples on this beach the median E. coli concentration was 7 cts/100mL, with a minimum of 0 and maximum of 110 cts/100mL. That maximum was on 7/30/2002.</p> <p>In the subsequent 18 samples covering 2003, 2004, and 2005 there has never been a sample over 49 cts/100mL and the median concentration is 2 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 110 value from 7/30/2002.</p> <p>E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).</p>	One in 2003. 47 samples total.

Assessment Unit	Beach?	Additional Information	SSMC Exceedences?
<b>Kolemook Lake, Town Beach – e. coli</b> (NHLAK801060401-08-02)	Y	In 42 samples on this beach the median E. coli concentration was 2 cts/100mL, with a minimum of 0 and maximum of 200 cts/100mL. That maximum was on 8/13/2002. On 8/13/2002 the second sample concentration was 0 cts/100mL In the subsequent 16 samples covering 2003, 2004, and 2005 there has never been a sample over 6 cts/100mL and the median concentration is 1 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 200 value from 8/13/2002. E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).	One in 2002. 42 samples total.
<b>Sunapee Lake, Depot Beach – e. coli</b> (NHLAK801060402-05-06)	Y	In 55 samples on this beach the median E. coli concentration was 4 cts/100mL, with a minimum of 0 and maximum of 193 cts/100mL. That maximum was on 7/3/2001. On 7/3/2001 the second and third sample concentrations were 9 & 9 cts/100mL In the subsequent 26 samples covering 2002, 2003, 2004, and 2005 there has never been a sample over 20 cts/100mL and the median concentration is 3 cts/100mL. The freshwater beach single sample maximum criteria (SSMC) is 88 cts/100mL. Many of the subsequent samples were collected under the same conditions as the single 193 value from 7/3/2001. E. coli is reported as 3-PNS (Insufficient information/ Potentially not attaining standards).	One in 2001. 55 samples total.

Assessment Unit	Beach?	Additional Information	Sample information
<b>Sugar River – e. coli;</b> [listed in error in 2002] (NHIMP801060407-04)	N	The original listing (2002) was based on a single bacteria sample of 730 cts/100mL taken on 8/18/1999. This AU has been listed as insufficient information for E. coli back in 2002. Since under New Hampshire's 2006 CALM we can give more detailed assessment categories at the parameter level the correction to the 2002 listing for E. coli was assessed as 3-PNS (Insufficient information/	One Exceedence.

Assessment Unit	Beach?	Additional Information	Sample information
		Potentially not attaining standards) in the 2006 report.	
<b>Little River – e. coli</b> [originally listed in error] (NHRIV600030804-11)	N	The original listing (2002) was based on a single geometric mean of 137 cts/100mL. All of the samples to calculate that geometric mean were collected on the same day, 8/20/1999. The single samples that fed the geometric mean were 60, 160, and 270 cts/100mL, all which are well below the 406 cts/100mL criteria for a Class B water. Calculation of a geometric mean without at least two separate sampling dates is considered insufficient information. Under New Hampshire's 2006 CALM we can give more detailed assessment categories at the parameter level. AU will be reported as 3-PNS (Insufficient information/ Potentially not attaining standards).	No exceedances.
<b>Merrimack River, PWS, W/CWF, Amoskeag Dam Bypass – e. coli;</b> originally listed in error (NHRIV700060803-14-01)	N	This Assessment unit covers the bypass reach of the Amoskeg dam. There is no current or historic bacteria data for this assessment unit. New Hampshire lists assessment units that receive CSO discharges as impaired due to E. coli. The original listing was a mistake that occurred when trying to figure out the relationship between CSO's outfall locations and assessment unit start and end points. There is no reason that anyone would have sampled this reach for E.coli. There are no CSOs that discharge directly to this reach. There are no known illicit discharges to this reach. Under New Hampshire's 2006 CALM we can give more detailed assessment categories at the parameter level. Consequentially, this assessment unit is now reported as 3-ND (Insufficient information/ No Data) for E. coli.	No exceedances. No Samples.

### **Waters impaired by nonpoint sources of pollution**

The State properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and EPA guidance. Section 303(d) lists are to include all WQLSs still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. In 'Pronsolino v. Marcus,' the District Court for Northern District of California held that Section 303(d) of the Clean Water Act authorizes EPA to identify and establish total maximum daily loads for waters impaired by nonpoint sources. Pronsolino v. Marcus, 91 F. Supp. 2d 1337, 1347 (N.D.Ca. 2000). This decision was affirmed by the 9th Circuit court of appeals

in Pronsolino v. Nasti, 291 F.3d 1123 (9th Cir. 2002). See also EPA's Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act – EPA Office of Water—July 29, 2005.