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DEPARTMENT OF
ENVIRONMENTAL SERVICES

September 7, 2011

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

Re: 2010 303(d) List

Dear Mr. Stewart:

Thank you for submitting New Hampshire's 2010 §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 2010 §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 April 1, 2010.

Thank you for your hard work in developing the 2010 §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 Toby Stover at 617-918-1604.

Sincerely,

Stephen S. Perkins, Director
Office of Ecosystem Protection

Enclosure

cc: NHDES: Ted Diers, Gregg Comstock, Ken Edwardson
EPA: Steve Silva, Ann Williams, Greg Dain

EPA REVIEW OF NEW HAMPSHIRE'S 2010 SECTION 303(d) LIST

INTRODUCTION

EPA has conducted a complete review of New Hampshire's 2010 Section 303(d) list, supporting documentation and other information and, based on this review, EPA has determined that New Hampshire's list of water quality limited segments (WQLSs) still requiring total maximum daily loads (TMDLs) meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA implementing regulations. Therefore, by this order, EPA hereby approves New Hampshire's 2010 final Section 303(d) list, included as part of the *2010 State of New Hampshire Integrated Water Quality Report pursuant to Sections 305(b) and 303(d) of the Federal Clean Water Act.* The final Integrated Water Quality Report (IR) was submitted to EPA on April 1, 2010. 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 Section 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 §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 non-attainment 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 2006 Integrated Report Guidance describes categories of water quality-related data and information that may be existing and readily available. See EPA's May 5th, 2009 memorandum on *Information Concerning 2010 Clean Water Act Sections 303(d), 305 (b), and 314 Integrated Reporting and Listing Decisions* which recommended that the 2010 integrated water quality reports follow the *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305 (b) and 314 of the Clean Water Act* (2006 Integrated Report Guidance (IRG)) issued July 29, 2005 (available at http://www.epa.gov/owow/tmdl/2006 IRG/) as supplemented by the October 12, 2006 memo and attachments and the May 5, 2009 memo and attachments. All guidance, memoranda and attachments may be found at: http://www.epa.gov/owow/tmdl/guidance.html. 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 EPA.

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 2006 Integrated Report Guidance and the 2006 and 2009 memoranda and attachments.

III. ANALYSIS OF NEW HAMPSHIRE'S SUBMISSION

On April 1, 2010, the New Hampshire Department of Environmental Services (NH DES) submitted to EPA as part of the State's 2010 IR a final 2010 Section 303(d) list, along with the State's responses to public comments received on the State's draft Section 303(d) list. The State's Section 303(d) list submittal included the following specific components:

1. State of New Hampshire's 2010 Section 303(d) List;

2. A list of waters / impairments being removed from New Hampshire's Section 303(d) list;

3. New Hampshire's 2010 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology (CALM); and

4. New Hampshire's Response to Public Comments, dated April 1, 2010.

New Hampshire's Section 303(d) list contains water segments for which available data and/or other information indicates that a water segment is not meeting water quality standards because it is impaired or threatened by one or more pollutants for one or more designated uses, and for which a Total Maximum Daily Load (TMDL) is therefore required to be established. EPA's regulations at 40 CFR §130.7 require EPA to review and approve, or disapprove, a state's Section 303(d) list.

Pursuant to EPA's Integrated Report Guidance related to assessment and listing of waters pursuant to Sections 305(b) and 303(d) of the CWA, states list their waters in one or more of five categories, depending on the status of each water body's attainment of water quality standards. Category 5 corresponds to the Section 303(d) list. Category 4 is comprised of waters that are not meeting water quality standards, but for which a TMDL need not be established due to one of three reasons. Category 4A contains waters for which a TMDL has already been established and approved by EPA. Category 4B includes waters for which a "functionally equivalent" control action has been developed and is being implemented, i.e., an impairment caused by a pollutant is being addressed through other pollution control requirements. Category 4C contains waters that are not attaining water quality standards due to pollution that is not associated with a pollutant. Although waters in Category 4 are not on the Section 303(d) list, EPA reviews a state's Category 4 list to ensure that the waters are categorized appropriately and do not, in fact, belong on the Section 303(d) list. NH DES included waters in Category 4 with its 2010 submission to EPA.

Public Participation

New Hampshire conducted a public participation process, in which it provided the public an opportunity to review and comment on the State's draft 2010 Section 303 (d) list. A public comment period was opened upon the release of the draft list on February 19, 2010 and was closed on March 22, 2010. The NH DES posted its draft list on the Department's website, and mailed notices to approximately 30 organizations and agencies. NH DES received a total of six comments, of which three were from cities in New Hampshire, two were from organizations, and one was internal to NH DES.

1. The City of Concord requested that Penacook Lake be removed from New Hampshire's 2010 Section 303(d) list due to additional sampling data provided by the City which, the City claimed, supported the City's position that Penacook Lake meets applicable water quality criteria for pH. After reviewing the data, NH DES determined that they were of sufficient quality for inclusion in the 2010 cycle assessment of Penacook Lake. The data demonstrated

that excursions from applicable water quality criteria, in this case pH values less than 6.5, only occurred in 6.1% of the samples taken. These excursions from the pH standard occurred in the limited time period between 1/10/09 and 4/10/09 and have not occurred since. Additionally, all of the excursions were between pH 6.3 and pH 6.4, only slight deviations from the applicable water quality criteria. Accordingly, NH DES removed Penacook Lake from its 2010 Section 303(d) list.

EPA has reviewed the new data and, based upon the lack of any excursions since April 2009, the limited period of time during which those excursions occurred, the small percentage of samples showing excursions, and the fact that the excursions were all only slight deviations of applicable water quality criteria, EPA concurs with the NH DES's decision not to include Penacook Lake on New Hampshire's 2010 Section 303(d) list.

2. NH DES included Lake Massabesic on the Section 303(d) list for two reasons: impairment of the aquatic life designated use due to low dissolved oxygen, and impairment of the primary contact recreation designated use due to the presence of cyanobacteria hepatotoxic microcystin (a toxic algal bloom). The City of Manchester requested that the primary contact recreation designated use description be changed to 'drinking water supply after adequate treatment' to reflect the fact that primary contact recreation is prohibited in the lake because it is a water supply.

In its response to Manchester's comments, NH DES explained that, pursuant to RSA 485-A:8 of New Hampshire's statutes and Env-Wq 1700 et. seq. of New Hampshire's surface water quality regulations, six designated uses apply to all of New Hampshire's fresh surface waters, including the Lake. The six designated uses are: 1) aquatic life; 2) fish consumption; 3) drinking water supply after adequate treatment; 4) primary contact recreation (i.e., swimming); 5) secondary contact recreation; and 6) wildlife. The water quality necessary to support all of these designated uses must be attained regardless of whether there are administrative restrictions on the uses (such as a prohibition against swimming in a water used for public water supply).

NH DES also explained that in the Section 303(d) list, only the impaired designated uses are identified. Lake Massabesic is impaired for aquatic life and for primary contact recreation, but is considered to be fully supporting its "drinking water supply after adequate treatment" designated use.

Accordingly, NH DES did not make any changes to its 2010 Section 303(d) list for Lake Massabesic based on the City's comment. For the reasons identified above, EPA concurs with NH DES's decision.[1]

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[1] To the extent that the City's comment also intended to be a request to change the use designation for the Lake, we agree with NH DES that the Section 303(d) listing process is not the appropriate forum for changing designated uses. The process for changing use designations (as opposed to assessing water segments' impairment status under Section 303(d)), is set forth in Env-Wq 1709 of New Hampshire's surface water quality regulations. Among other requirements, a Use Attainability Analysis (UAA) must be conducted as described in 40 CFR Part 131.

3. NH DES received two separate comments from the Connecticut River Joint Commissions regarding two different segments of the Connecticut River.

The first comment relates to segment NHLAK801040402-03 and asks why NH DES listed the segment as impaired due to *E. coli* bacteria when "only one sampling event" from sampling that occurred in 2008 and 2009 showed impairment for primary contact recreation use. NH DES did not make any change to its Section 303(d) list based on that comment because, as NH DES explains in its response to public comments, the geometric mean value of the relevant sampling data (165.1 cts/100mL), obtained during the summer critical period in 2008, exceeded the *E. Coli* geometric mean criterion (126 cts/100mL) applicable to the protection of primary contact recreation use (i.e., swimming). EPA has reviewed the relevant data and concurs with NH DES's decision to leave segment NHLAK801040402-03 on its 2010 Section 303(d) list.

The second comment raised by the Connecticut River Joint Commissions related to segment NHRIV801060302-05 of the Connecticut River. The comment asked why the water segment "does not appear on the [2010] list of waters removed from the 2008 list" in light of the fact that "water quality monitoring . . . designed to test impairment [of this water segment] for recreation, turned up no concerns." NH DES made no changes to its 2010 Section 303(d) list based on that comment. Contrary to the Connecticut River Joint Commissions' assertion, the segment in question was not listed on New Hampshire's 2008 Section 303(d) list of threatened or impaired waters for which a TMDL must be established. Rather, in 2008, and again in 2010, the segment has been included by New Hampshire in Category 4B, which, as described above, contains waters which are impaired but for which no TMDL is required because other required control measures are expected to result in the attainment of an applicable water quality standard in a reasonable period of time. The basis for placement of that water segment in Category 4B was an EPA administrative order issued to the City of Lebanon in June 2000 (the June 2000 AO). The June 2000 AO required the City to upgrade its sewer system and thereby eliminate CSOs that discharge into the Connecticut River. More specifically, the June 2000 AO directed the City to eliminate discharges from six of its CSOs by December 2008, and to eliminate the discharge from a seventh CSO by December 31, 2012. Once each of those CSOs is separated from the City's sewer system, it is reasonable to believe that the above-referenced river segment will cease to be impaired for *E. coli* bacteria. EPA has verified that the City is on schedule to eliminate the CSOs as required by the AO, and is also performing routine maintenance on the system to ensure optimal performance. Based on the requirements of the June 2000 AO, and the City's ongoing upgrades pursuant to the AO, EPA continues to believe that inclusion of this segment in Category 4B is appropriate.

4. NH DES received a comment from the Center for Biological Diversity ("CBD") suggesting that all ocean assessment units within the waters of New Hampshire should be listed as impaired or threatened for pH due to increasing acidification of ocean waters resulting from increased uptake of atmospheric carbon dioxide. NH DES explained that it reviewed available data, including that submitted by CBD, and found no evidence of local impairment of aquatic life due to ocean acidification in New Hampshire waters. NH DES also explained that it is not aware of any modeling results or data that suggest that the ocean waters of New Hampshire will exceed standards for pH by the next listing cycle. In the absence of specific data showing either violations of the existing marine pH criteria or

impairment of New Hampshire biota due to altered pH, EPA finds NH DES's omission of ocean acidification from its Section 303(d) list to be appropriate.

As discussed in EPA's recent 2012 Listing Guidance related to Ocean Acidification (at: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/oa_memo_nov2010.cfm), EPA recommends that for future lists, States with marine waters (such as NH) include as part of their routine IR data request, a provision that solicits existing and readily available water quality-related data and information, including modeling and other non-site-specific data, for marine pH and natural background conditions. Also as stated in the guidance, currently EPA believes that not enough information is available to develop ocean acidification-related carbon TMDLs, and is deferring development of TMDL guidance related to ocean acidification listings until more information becomes available in the future.

5. The City of Portsmouth objected to the designation of certain assessment units within the Great Bay Estuary and the Piscataqua River as impaired for nitrogen and light attenuation. The City also contends that NH DES listed those assessment units without complying with applicable administrative procedures and without reasonable scientific support.

The City asserts that the Section 303(d) list determination constitutes rulemaking subject to the State's Administrative Procedure Act and that NH DES failed to follow the applicable requirements for rulemaking. NH DES explained that it followed its normal procedures for developing the Section 303(d) list, including providing public notice of and accepting comments on both the Consolidated Assessment and Listing Methodology (CALM) and the draft Section 303(d) list. EPA agrees with NH DES that it developed the Section 303(d) list consistent with EPA's regulations. Nothing in the CWA or in EPA's implementing regulations requires Section 303(d) lists to be developed as rules.[2]

NH DES responded to the City's comments about the lack of reasonable scientific support for the State's listing of the assessment units in question by referring the City to the State's June 2009 report related to numeric nutrient criteria for the Great Bay Estuary, and noted that the report addresses the science-based comments raised by the City and its consultants. EPA has reviewed NH DES's decision to identify assessment units within the Great Bay Estuary and the Piscataqua River on the 2010 §303(d) list as being impaired for nitrogen and light attenuation and believes it was reasonable and supported by sound science. We note that these waters were first included on the State's 2008 §303(d) list (as amended in August, 2009) as being impaired for nitrogen and light attenuation.[3] NH DES used many sources of scientific information in determining that nitrogen is causing water quality violations in Great Bay (sources summarized at: http://des.nh.gov/organization/divisions/water/wmb/coastal/great-bay-estuary.htm). These sources include published scientific literature and guidance documents, as well as a substantial body of Estuary-specific data such as nitrogen, chlorophyll a, and dissolved oxygen concentrations; light attenuation (water clarity) measurements; macroalgae growth and coverage; and current and historic eelgrass densities and coverage. The eelgrass loss has been well-

[2] We defer to the State on its interpretation of what is required pursuant to state law.

[3] Please refer to:
http://des.nh.gov/organization/divisions/water/wmb/swqa/2008/documents/20090814_transmittal_to_epa.pdf
http://des.nh.gov/organization/divisions/water/wmb/swqa/2008/documents/20090813_303d_list_update.pdf.

documented and constitutes a violation of the State's narrative criteria for Biological and Aquatic Community Integrity (Env-Wq 1703.19). EPA agrees with NH DES's determination that the weight of evidence supports the conclusion that excess nitrogen, and the indirect effect of decreased light availability, is causing or contributing to this aquatic life impairment in the segments so listed.

Since the original listing in 2009, additional support for NH DES's conclusions can be found in the June 2010 peer review of the June 2009 numeric nutrient criteria report referenced above, by two independent reviewers (faculty members from Cornell University and University of Maryland respectively) who are experts in the field of estuarine science.[4] Both reviewers noted the thoroughness and depth of analysis that NH DES performed on the eight years of collected data. They also noted that multiple approaches for analyzing the data were employed and that the conclusions drawn were based on sound science and are well supported by scientific literature and reasoning. NH DES has also provided a summary of the cause and effect relationship between nitrogen and eelgrass, along with supporting literature citations, in its December 2010 "Appendix B" to the numeric nutrient criteria report.

Based on all of the readily available information and data relied upon by NH DES, EPA believes that the continued inclusion of certain segments of Great Bay Estuary and the Piscataqua River on the §303(d) list as impaired for nitrogen and light attenuation is reasonable and consistent with EPA's regulations.

6. NH DES received a comment from a NH DES employee asserting that relevant sediment toxicity data from the "Final Draft Feasibility Study 1340B - Interstate 95 Bridge over the Taylor River (NHDOT No. 120/121 and Taylor River Dam (NH DES No. 106.08/.09) Hampton Falls, Hampton, NH [July 24, 2009]" was not used to assess the Taylor River Refuge Pond. The commenter added that the water body should be included on New Hampshire's 2010 Section 303(d) list.

NH DES responded to the comment by stating that the referenced data was not considered in preparing New Hampshire's draft 2010 Section 303(d) list because the data were unavailable when NH DES requested data relevant to its Section 303(d) list, on September 11, 2009. After reviewing the data, NH DES added the Taylor River Impoundment (NHLAK600031003-02) and the Rice Impoundment (NHIMP600031003-19) of the Taylor River to New Hampshire's 2010 Section 303(d) list for metals, pesticides and semi-volatile organic compounds. EPA has reviewed the data in question and concurs with New Hampshire's decision to list these water segments on its 2010 Section 303(d) list.

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

[4] http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/20100629-peer-review.pdf

readily available water quality-related data and information and reasonably identified waters required to be listed.

New Hampshire used the NH DES assessment database to develop its 2010 Section 303(d) list. The same database was used to assist in the preparation of the biennial Section 305(b) report. As indicated earlier, both the Section 303(d) list and Section 305(b) report were submitted to EPA as part of the State's 2010 IR. NH DES provides ongoing notice on its website to request data from outside sources. Information received from outside sources was assessed in accordance with the State's assessment methodology. In the development of the 2010 Section 303(d) list, New Hampshire began with its existing EPA-approved 2008 Section 303(d) list and relied on new water quality assessments (i.e., post-2008) 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 Section 303(d) listing.

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 Section 303(d) list which indicates when the TMDL is expected to be completed. EPA finds that the water body 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.

Waters which are not listed on New Hampshire's 2010 Section 303(d) List

EPA requested that the State provide a rationale for its decision not to include certain newly identified waters (item 1 below) and previously listed waters on its 2010 Section 303(d) list. Included in the documentation provided to EPA was a July 21, 2011 response by the State to certain specific follow-up questions EPA asked after reviewing the State's initial Section 303(d) list submission. As discussed below, the State has demonstrated, to EPA's satisfaction, good cause for not listing the following waters, as provided in 40 CFR § 130.7(b)(6)(iv):

1. **New AUIDs Covered by the New England Regional Mercury TMDL (3,622)**

   For the 2010 assessment, NH DES moved their assessment units (AU) from the 1: 100,000 to 1: 24,000 mapping scale for hydrography units. This scale is linked to the National Hydrography Dataset (NHD) which is used by EPA. The difference in scales

resulted in an additional 3,622 assessment units. This new group of assessment units was included in Category 4A due to the fact that all freshwater assessment units in New Hampshire are covered by the 2007 Mercury TMDL. All freshwater assessment units in New Hampshire are considered impaired for fish consumption due to atmospheric deposition of mercury. EPA concludes that this is the appropriate course of action for these new assessment units. The increased resolution of this mapping scale will provide better assessment and monitoring for the future, as well as making use of the same dataset that EPA uses. In the interest of space all 3,622 units are not listed here individually.

2. Erroneous Metals Listing

Three assessment units (Wildcat Brook, NHRIV600020104-03; Saco River, NHRIV600020304-01-01; and Ossipee River, NHRIV600020901-10) were erroneously included on New Hampshire's Section 303(d) list in 2006 and 2008 for impairment due to lead. NH DES explained that the samples taken for those assessment units had lead values that were reported as being below the analytical detection limit (DL). The listing error arose when New Hampshire's Assessment Database automatically converted the values to 0.5 μg/L, which is ½ of the DL. The 0.5 μg/L value exceeds the chronic water quality criteria for lead (which, depending on the hardness, ranges from 0.12 to 0.27 μg/l for these segments). As a result, the segments were listed as impaired. This listing was erroneous, because when results of samples are reported below the analytical detection limit, the actual value is not known. When the DL is above the applicable criterion, this means that the samples cannot be relied upon for a determination of either attainment or nonattainment.

NH DES has moved the affected assessment units from the Section 303(d) list into Category 3 (insufficient information). EPA concurs that the original listing was erroneous for the reasons discussed above, and that removal of the segments from the 303(d) list and placement in Category 3 due to insufficient information is appropriate.

3. Maxwell Pond -- Dissolved Oxygen

Maxwell Pond was an impoundment of Black Brook in Manchester that was impaired for aquatic life based on dissolved oxygen levels and dissolved oxygen saturation. In 2009, the dam was removed and Black Brook was restored to a free flowing tributary of the Merrimack River. The removal of the dam was intended to restore dissolved oxygen levels to Black Brook that would support aquatic life. Sampling was conducted at the former site of the dam, as well as upstream and downstream of the former dam site during conditions that would be most limiting for dissolved oxygen. All samples collected in 2009 demonstrated that dissolved oxygen levels and dissolved oxygen saturation are capable of fully supporting aquatic life in Black Brook. EPA concludes that the removal of the dam, combined with the data results showing dissolved oxygen concentration and saturation values that meet criteria in the new free flowing stretch of Black Brook, justify removal of Maxwell Pond from the Section 303(d) list.

4. Wildcat Brook/Thorn Brook -- Chloride

Wildcat Brook was listed in 2008 as impaired for aquatic life due to chloride levels. As a result of the mapping scale change from 1:100,000 to 1:24,000, NH DES determined that the stream which was originally identified as Wildcat Brook is actually Thorn Brook. The impaired designation for Wildcat Brook due to chloride has been transferred to Thorn Brook. EPA concurs with this decision to transfer the designation to the correct assessment unit.

5. Nash Stream -- Benthic-Macroinvertebrate Bioassessment

Nash Stream was listed in 2006 and 2008 as impaired for aquatic life (benthic-macroinvertebrate community) use based on a rock basket sample taken in 2002. That sample scored a 48.2 on the State's benthic index of biological integrity (B-IBI), which is a numeric expression of biological health used to assess aquatic life use support. The sample's score was less than the biological integrity threshold of 60.12 which applies to Nash Stream. The stream was sampled again in 2004 and scored a 70.9, which is above the applicable threshold.

NH DES explained that two factors are likely causes of the low score in 2002 and the higher score in 2004 (which indicated that the aquatic life use designation was being attained). First, in 2002, a high flow event (11x median for the date) occurred during the beginning of the period of time when the rock basket sample was deployed in Nash Stream. That high flow event may have caused scouring of the stream channel, resulting in the loss of macroinvertebrates from the rock basket. In contrast to that 2002 high flow event, there were no similar high flow events during the 2004 sampling period.

In addition, the 2002 sample was pulled from the stream on July 31st, which is outside the index period for which the B-IBI was developed. In other words, the sample was collected during a period that does not correspond to the period for which the index was developed and calibrated. In contrast, the 2004 sample was pulled on September 27th, which NH DES describes as a "near ideal representation of the deployment period" relevant to the B-IBI index. The 2002 sample was deployed as a result of a request from another state agency to sample the area prior to construction of an ATV trail. Due to the truncated sampling period, NH DES believes it should not have included the 2002 sample in its database. Based on the most recent score, NH DES removed Nash Stream from the 2010 Section 303(d) list and placed it into Category 2 (Full Support). Given that the 2002 sample was not representative, and that the 2004 sample was representative and was well above the B-IBI threshold for aquatic life use support, EPA concurs with the decision to de-list Nash Stream.

6. Erroneous Chlorophyll a listing on Primary Contact Recreation

Adder Pond was listed in 2008 for impairment of the primary contact recreation designated use, due to high levels of chlorophyll a (exceeding the <15 μg/L target that

NH DES uses to interpret its narrative general water quality criteria (Env-Wq 1703.03(1)(c) and (e)). In 2010, NH DES removed Adder Pond from the Section 303(d) list, and placed it in Category 3 (insufficient information to make a listing decision).

The State explained that the original listing was based on an erroneous interpretation of certain chlorophyll a data obtained during two sampling events, in July and August 2007. Instead of averaging the chlorophyll a values obtained at different depths in the pond on each sampling date, NH DES listed Adder Pond based on the highest chlorophyll a value in each dataset (24.7μg/L and 35.7μg/L, respectively).

Subsequently, NH DES determined that the appropriate method for determining whether the primary contact recreational use is impaired is to evaluate the overall color of the water within swimmable depths by averaging all the chlorophyll a values obtained at depths within the upper four meters. See response to Question 4 in NH DES's July 21, 2011 submission. EPA agrees that averaging chlorophyll a values – rather than looking at the single highest value – is reasonable for this purpose.

For the 2007 sampling events, the average value of chlorophyll a samples taken at depths within four meters is below 15 μg/L for the July dataset, and above 15 μg/L for the August dataset. A more recent sampling event in 2009 yielded an average value of less than 15 μg/L, for chlorophyll a samples taken at depths within four meters. Given that the original basis for listing was incorrect, and the inconclusive nature of the remaining data, the Region agrees that moving Adder Pond from the Section 303(d) list to Category 3 (insufficient information to make a listing decision) is reasonable.

7. Dissolved Oxygen in Great Bay

Dissolved oxygen in Great Bay is monitored continuously at 15 minute intervals from April to December by a datasonde deployed in the central area of Great Bay proper (0.65 km northwest of Nannie Island) at the following coordinates: 43.072222 N latitude -70.869444 W longitude. The results from this monitoring device apply to all seven assessment units of the bay because the dissolved oxygen is evenly distributed throughout the bay. Removal of the DO impairment for all seven assessment units from the 2010 impaired list is based on data from 2006-08, which did not have any dissolved oxygen measurements below the minimum dissolved oxygen criterion of 5 mg/L for the entire three year period. The original listing in 2008 was based on three measurements in 2004 of DO concentrations below 4.5 mg/L. Environmental conditions with regard to ocean temperatures and rainfall in 2007 were similar to conditions in 2004, which reinforces the conclusion that the impairment originally identified in 2004 no longer exists. EPA concurs with the decision to remove DO impairments for all seven assessment units from the Section 303(d) list based on the more recent data which demonstrates attainment of the dissolved oxygen criterion.

8. Dissolved Oxygen in South Mill Pond

Dissolved oxygen in South Mill Pond is monitored on a monthly basis from April to October at two stations; high tide and low tide. South Mill Pond was originally listed in 2006 for multiple dissolved oxygen measurements that were below the minimum dissolved oxygen criterion of 5.0 mg/l. For the 2010 assessment, data from 2004-08 were used in the analysis. During this time period, there was only one violation of the minimum 5.0 mg/L criterion (out of 136 samples). NH DES explained that this particular reading (0.7 mg/L) appeared to be the result of a clerical error because it was unusually low, and additional samples were taken from the same station at different times on the same day and they were well above the criterion (10.5 and 8.7 mg/L). It is also the opinion of NH DES that the dissolved oxygen in South Mill Pond has improved over the years due to the installation of a tide gate that was designed to improve the flushing rate of South Mill Pond to help mitigate the dissolved oxygen violations. EPA concurs with the decision to de-list South Mill Pond at this time based on four years of monitoring data, the strong likelihood that the one data point <5 mg/L was an error, and the construction of the tidal gate.

9. I-93 Chloride TMDLs

Four brook sections along the I-93 corridor have been removed from the Section 303(d) list and added to the Category 4A (TMDL complete) list for 2010. These water bodies are impaired due to high levels of chloride that are causing impairment to aquatic life. In 2009, chloride TMDLs were prepared and approved for these four following assessment units: NHRIV700061102-18, NHRIV700061102-23, NHRIV700061203-16, and NHRIV700061204-01. EPA concurs that it is appropriate and consistent with EPA's above-referenced listing guidance to move these assessment units to Category 4A.

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. Nastri, 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.