

Public Comments Received on 2006 Draft 303(d) List

March 22, 2006

Mr. Ken Edwardson
New Hampshire Department of Environmental Services
Water Management Bureau
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

Via Email and US Mail

RE: Comments on *Draft 2006 303(d) List of Impaired Surface Waters, NH*
Canobie Lake, Assessment Unit ID: NHLAK700061102
S E A Reference No.: 2004171.01-A

Dear Mr. Edwardson:

On behalf of the Town of Salem, S E A Consultants Inc., hereby submits for your consideration comments and data on the Draft 2006 303(d) List of Impaired Surface Waters with respect to Canobie Lake. On the Draft 2006 303(d) list, Canobie Lake has been listed as marginally impaired (category 5-M) for Aquatic Life Use Support due to low pH levels.

The comments and data submitted will demonstrate that, based on the 2006 Consolidated Listing and Assessment Methodology (CALM), Canobie Lake should be removed from the 303(d) list for impairment with respect to pH for Aquatic Life.

Evidence for Support of Aquatic Life Designated Use

According to the 2006 CALM, a waterbody will be listed as impaired according to the "10% Rule", which in general states that at least 10% of samples must violate water quality standards before a water body will be listed as impaired. Specifically, for Aquatic Life Use to be Fully Supported, and the sample size is greater than 10, then the 10% rule must be met, and no more than one violation of the Magnitude of Exceedance Criteria (MAGEXC) is allowed. For pH, Aquatic Life, the MAGEXC is a pH less than 5.5 or greater than pH 9.

We have submitted 454 pH sample measurements, which represent 279 independent sample points, for uploading to the NHDES Environmental Monitoring Database (EMD). The full data set has been submitted electronically to Andrew Cornwell at NHDES. When combined with the existing data in the EMD that we are aware of, there are 10 total water quality standard violations (3.5%) and no MAGEXC violations. Therefore, Canobie Lake is not impaired with respect to pH for the 2006 reporting period. The data is summarized below on Table 1.

Public Comments Received on 2006 Draft 303(d) List

Ken Edwardson
March 22, 2006
Page 2

Table 1: Summary of pH Data for Canobie Lake, 2000-2005

Project ID	Station	QA/ QC ?	Dates or Range of Data Set	Size of Data Set*	# WQS Violations pH < 6.5	# WQS Violations pH > 8	# of MAGEXC Violations (pH > 9 or pH < 5.5)
VLAP	Canobie Deep Spot	yes	Sept. 2002 June 2003 Aug. 2003 July 2004	4	2	0	0
NHDES Lake Trophic Survey	Canobie Deep Spot	yes	July 2000; Jan 2001	2	0	0	0
0009TMDL	Canobie Deep Spot; Intake	yes	July 2004 to December 2005	16	7	1	0
CWTF Routine Monitoring	Intake	yes		263	0	0	0
Total				285	9	1	0

VLAP: Volunteer Lakes Assessment Program

CWTF: Water Treatment Facility

WQS: NHDES Water Quality Standards

* Represents Independent Samples, as defined by the 2006 CALM

Data Sources and Quality Assurance

There are two Projects that generated the data submitted as part of this comment letter: 1) routine monitoring at the Town of Salem's Canobie Lake Water Treatment Facility (CWTF), and, 2) sampling conducted by S E A Consultants Inc. on behalf of the Town to provide data for a Total Maximum Daily Load study. The data generated by both of these projects is subject to quality assurance/quality control procedures including QA/QC plans and protocols, SOPs, and well trained samplers. According to the requirements of the CALM, the data generated by these projects should be considered of Good Quality sufficient to support the assessment of Canobie Lake. These two projects are described in more detail below.

Canobie Lake Water Treatment Facility Routine Monitoring: The licensed water treatment operators at the Town of Salem's CWTF take pH readings on the raw water coming from the lake intake twice daily during the week and once daily on weekends.

Public Comments Received on 2006 Draft 303(d) List

Ken Edwardson
March 22, 2006
Page 3

The QA/QC procedures in place are as follows:

- Staff: The licensed operators who take the measurements are trained in the use of the pH meter. They are current on their licenses and well trained and experienced with using the procedure and the equipment.
- Equipment: Orion 720A pH meter, serviced by Orion technicians annually. The meter is calibrated each day using fresh pH 7 buffer solution. Once each week, a two-point calibration is performed using pH 4 and pH 7 buffer. The measurements are performed in accordance with the equipment manufacturer's standard operating procedures (Thermo Electron Corporation, 2004). These procedures are also described in Attachment A (S E A SOP C-2).

TMDL Study, S E A Consultants: S E A Consultants has conducted six sampling cruises on Canobie Lake since July 2004. These sampling events have been performed by scientists and engineers under the direct supervision of a Principal Scientist with over five years of experience sampling in ponds and lakes. pH readings were collected at multiple depths (epilimnion, metalimnion, and hypolimnion) during each sampling date.

The QA/QC procedures in place are as follows:

- Quality Assurance Project Plan (QAPP): A QAPP has been prepared for this project and was submitted to NHDES (*Draft 2004 QAPP, Phase I Canobie Lake TMDL Study*). The QAPP details staff training requirements and field and instrument standard operating procedures (SOPs) that are followed during the project.
- Staff: The field staff who take the measurements are experienced engineers and scientists, trained in the use of the pH instruments.
- Equipment: YSI 600XLM Sonde. The meter is calibrated before each use and operated in accordance with the equipment manufacturer's standard operating procedures (YSI, 2004). These procedures are also described in Attachment B (S E A SOP C-1).

Additional Comments Related to pH

- The current pH water quality standard lower limit of 6.5 appears to be too strict. NHDES's own analysis of naturally occurring pH indicated that the 75th percentile for reference lakes was 5.6.
- The CALM should be modified to account for the fact that due to the natural decrease in dissolved oxygen with depth in stratified lakes, there is a natural decrease in pH. The CALM uses only the worst case value for a given sampling station and a given sampling day. Therefore, for sampling efforts that measure pH at multiple depths, a single reading near the bottom of the hypolimnion can falsely flag the entire water column as impaired.

Public Comments Received on 2006 Draft 303(d) List

Ken Edwardson
March 22, 2006
Page 4

We trust that the above information, along with the data we have submitted to the EMD, will be sufficient evidence to allow Canobie Lake to be removed from the Final 2006 303d List for impairment due to pH. Please don't hesitate to contact me if you have any questions or require additional information.

Respectfully yours,

S E A CONSULTANTS INC.

Anthony J. Zuena, P.E.

cc: Dr. Henry LaBranche, Manager, Town of Salem, NH
William Daly, Water Superintendent, Town of Salem NH
Kirsten N. Ryan, P.G., S E A Consultants
file

EA_clients\Salem NH\2004171.01 Canobie TMDL\correspondence\comments 2006 303d list.doc

Public Comments Received on 2006 Draft 303(d) List

March 23, 2006

Via Facsimile (603.271.7894)

Via Email (303dcomment@des.state.nh.us)

2006, 303(d) Comments
N.H. Department of Environmental Services
Watershed Management Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03301
Attn: Ken Edwardson

Dear Mr. Edwardson:

I am writing on behalf of the Conservation Law Foundation relative to the draft 2006 303(d) list. In particular, I am writing to comment on the Department of Environmental Services' (DES) draft decision to de-list the following water bodies:

- Penacook Lake, Concord (NHLAK7000060302-09)
- Harris Pond/Pennichuck Brook (NHLAK700061001-04-01)
- Bowers Pond (NHLAK700061001-04-02)
- Canobie Lake (NHLAK700061102-02)

Each of the above waters has been listed on the 303(d) list for impairments caused by "Excess Algal Growth." DES now proposes de-listing these waters on the ground that it no longer views the use of copper sulfate, for treatment purposes, to warrant listing. We object to the de-listing of these waters.

DES's decision to de-list the above waters is premised on its changed view relative to the use of copper sulfate for treatment. This analysis misses the mark. The fact that a waterbody *requires* treatment, rather than DES's characterization of the *treatment method*, is the proper determining factor in whether a water body should be listed as impaired on the 303(d) list. In other words, the excessive algae in the above water bodies – rather than DES's view of the method for treating associated taste and odor problems – requires continued listing of these waters.

The 303(d) list is a critically important tool for remedying the causes of water-body impairments. In the case of the above waters, the excess algal growth is likely related to nutrient loadings. Removing these waters from the list eliminates an important and

Public Comments Received on 2006 Draft 303(d) List

necessary impetus for addressing the nutrient loadings which are causing the excess algal growth. De-listing these waters on the simple basis that the *symptoms* of excessive nutrient inputs and algal growth can be treated is an ill-conceived decision that completely ignores the importance of watershed-based planning.

We urge DES to return the above-listed waters to the 303(d) list. Thank you for this opportunity to comment.

Very truly yours,

/s/ Thomas F. Irwin

Thomas F. Irwin,
Staff Attorney
Conservation Law Foundation

Public Comments Received on 2006 Draft 303(d) List

From: WESchro721@aol.com
Sent: Thursday, March 23, 2006 1:00 PM
To: 303d Comment
Cc: DICKHATA@aol.com; jeff.schloss@unh.edu
Subject: Comments on changed criteria
Dear Mr. Edwardson:

The Canobie Lake Protective Association would like to submit the following comment on the Draft 2006, 303(d) List of Impaired Surface Waters for New Hampshire. I would appreciate it if you would acknowledge receipt of this email.

We are troubled that Canobie Lake has been dropped from the list of impaired surface waters. It was listed in 2004. We understand the reason is that you have changed your criteria, and the fact that Canobie Lake has been treated several times in the past decade with copper sulfate to kill excess algae growth, is no longer a reason for listing.

We believe this change in criteria is a mistake. We believe it results from lobbying by municipal water authorities who do not want their customers to hear that their water source is an "impaired waterbody".

We believe when chemical treatments are needed to kill algae, or seaweed, or any other organisms, **the waterbody is impaired**. Steps should be taken to reverse the impairment, or limit further degradation. When the waterbody is declared to be impaired it focuses attention on the issue. It permits the town, or the state to take appropriate action. Conversely, when it's not considered to be impaired it's very hard to get the government to do anything.

In the case of Canobie Lake, we have been told by NHDES officials, that the most likely cause of excessive algae is phosphorus in the water. The town of Salem and the state could require that only low-phosphorus fertilizer be used in the watershed, and limit the addition of impervious surfaces (pavement). But now they won't have to, because the lake is officially "no longer impaired".

We urge you to continue to use the same criteria you did in 2004.

Thank you for the opportunity to comment.

Bill Schroeder

Phone/FAX: 603-898-6086
email: weschroeder@ieee.org
Vice President, Canobie Lake Protective Association

cc Jeffrey Schloss, chairman NH Lakes Association Water Quality Committee

Public Comments Received on 2006 Draft 303(d) List