

The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner



*Celebrating 25 Years of Protecting
New Hampshire's Environment*

February 2, 2012

The Honorable Bob Odell, Chairman
Energy and Natural Resources Committee
Room 102, Legislative Office Building
Concord, NH 03301

RE: SB 388, setting the natural mean high water mark of Silver Lake in Belmont and Tilton

Dear Chairman Odell:

Thank you for the opportunity to comment on SB 388, which would set the natural mean high water mark (NMHWM) of Silver Lake at elevation 465. It is the understanding of the Department of Environmental Services (DES) that the objective of the bill is to establish the boundary line between the land constituting the lake bed of Silver Lake, which is held in public trust by the State of New Hampshire, and the land that is privately owned. DES is concerned that the elevation to be established under the bill may not be supported by physical evidence.

Silver Lake is a Great Pond under RSA 271-20. As such, the lake bed below the elevation of the NMHWM is held by the State of New Hampshire in trust for the public. For natural freshwater bodies like Silver Lake, the natural mean or ordinary high water elevation is the elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence on the landscape, such as a clear, natural line impressed on the immediate bank, shelving, changes in the character of soil, changes in natural vegetation from predominantly aquatic to predominantly terrestrial, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. The elevation of 465, proposed in the bill as the NMHWM for Silver Lake, is not consistent with this definition as it is approximately the average elevation of Silver Lake. The level of Silver Lake exceeds this elevation approximately 38% of the time.

Silver Lake is located on the Winnepesaukee River, downstream of both Lakes Winnepesaukee and Winnisquam, as shown in Attachment 1. There is no dam at the outlet of Silver Lake, and the water level of the lake is a function of the flow in the Winnepesaukee River, which flows into and out of the lake. Attachment 2 shows the correlation between the flow in the river and the level of the lake. The determination of the NMHWM must be based on the natural, unaltered condition of the lake. At Silver Lake the determination of the NMHWM is complicated by the fact that the flow into Silver Lake and the level of the lake is largely influenced by the operation of the upstream dams that impound Lake Winnisquam and Lake Winnepesaukee (Lochmere and Lakeport Dams) which have altered the natural flow patterns into Silver Lake since the time that they were constructed 100 to 160 years ago.

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The extent to which the operation of these dams affect the flow into Silver Lake is illustrated by the operational charts for Lake Winnepesaukee. Attachment 3 is the Lake Winnepesaukee operational chart for 2011. The graph in the middle of the chart shows the inflow into Lake Winnepesaukee, in red, and the outflow from Lakeport Dam into the Winnepesaukee River, in green. As shown in the graph, the peak inflow into Lake Winnepesaukee last year was over 4,000 cubic feet per second (cfs), but the dam was operated to hold back that flood flow and release a lower, non-damaging flow rate downstream. Accordingly, the peak outflow from Lakeport Dam into the Winnepesaukee River was less than 2,000 cfs. In the natural state, without the dams and their associated flood control operations, the flows into and levels of Silver Lake would be far higher than experienced with the dams operating.

DES records indicate that since the late 1980's the State of New Hampshire has maintained that the NMHWM at Silver Lake is elevation 468, which is 3 feet higher than the elevation proposed in the bill. In 2005, the question about the NMHWM took on a renewed concern among many property owners around the lake because, under the Comprehensive Shoreland Protection Act (CSPA), renamed the Shoreland Water Quality Protection Act, (SWQPA) through changes enacted in 2011, the NMHWM was the "reference line" for fresh water bodies, like Silver Lake, from which a protective buffer zone was measured. Shoreland activities are restricted in this buffer zone. In June 2005, DES received a petition from the abutters of Silver Lake, requesting review of the NMHWM determination for the lake. In response, DES performed an investigation that included hydrologic analyses of the lake as well as site visits to collect physical evidence of the NMHWM along the shoreline of the lake, including vegetation, shelving of the shoreline, and waterline evidence on shoreline structures. Based on the results of that investigation, DES issued a decision in May of 2008 establishing elevation 468 as the NMHWM for Silver Lake for the purpose of establishing the reference line under the CSPA (now SWQPA). The General Court had amended the CSPA effective September 13, 2009 after this decision. The amendments, among other things, removed the NMHWM determination as the basis for establishing the reference line for jurisdictional purposes, thereby rendering DES's NMHWM determination moot.

A determination of the NMHWM for the purpose of establishing the boundary between private property and public trust land around Silver Lake must be based on physical evidence of the mean high water level before the flows into the lake were altered by construction and operation of the upstream dams. Recently, property owners around Silver Lake have provided DES photographs of stumps of trees in the lakebed of Lake Winnisquam that were inundated when the dam was constructed in 1910. These trees provide evidence of the natural shoreline just upstream of Silver Lake, before Lochmere Dam was constructed, and could be used to reevaluate the NMHWM of Silver Lake. These tree stumps can be exposed if Lake Winnisquam is drawdown, and DES proposes to evaluate this evidence in detail during the next biannual drawdown of the lake, which is scheduled to occur in the fall of 2012.

When DES's evaluation is complete, its findings may not be consistent with the NMHWM that is proposed to be established under HB 388. For that reason, DES prefers that the bill be retained until after its evaluation is completed in the fall of 2012.

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Thank you for the opportunity to comment on this bill. Please contact Jim Gallagher, Dam Bureau Administrator, at 271-1961 or james.gallagher@des.nh.gov, or me at 271-2958 or thomas.burack@des.nh.gov if you have any questions or need additional information.

Sincerely,



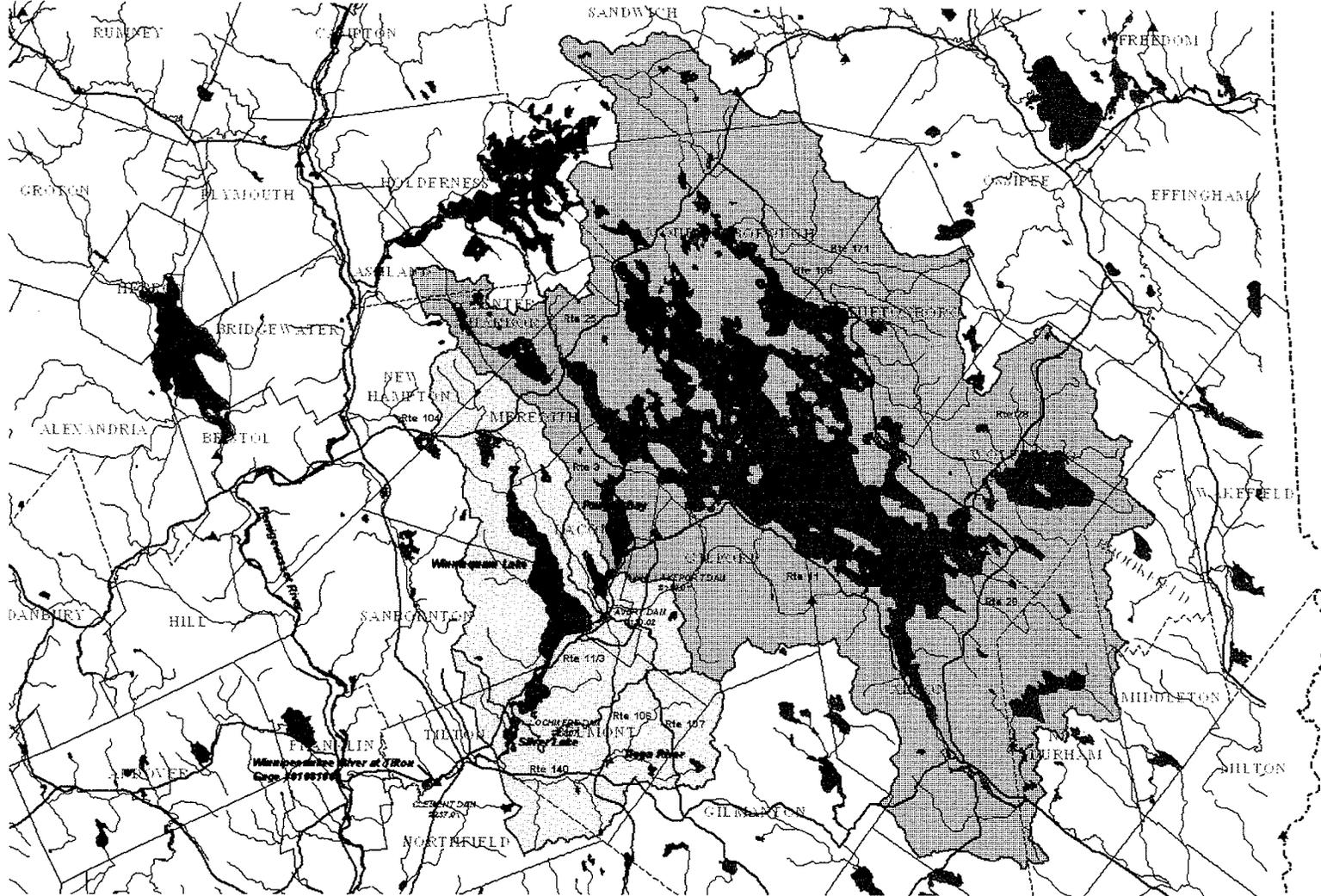
Thomas S. Burack
Commissioner

Attachments

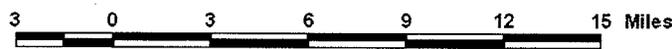
cc: Senator James Forsythe
Senator Andy Sanborn
Senator Jeb Bradley
Representative Dennis H. Fields
Representative Elaine B. Swinford
Representative Guy Comtois
Representative Robert J. Malone



Silver Lake Watershed

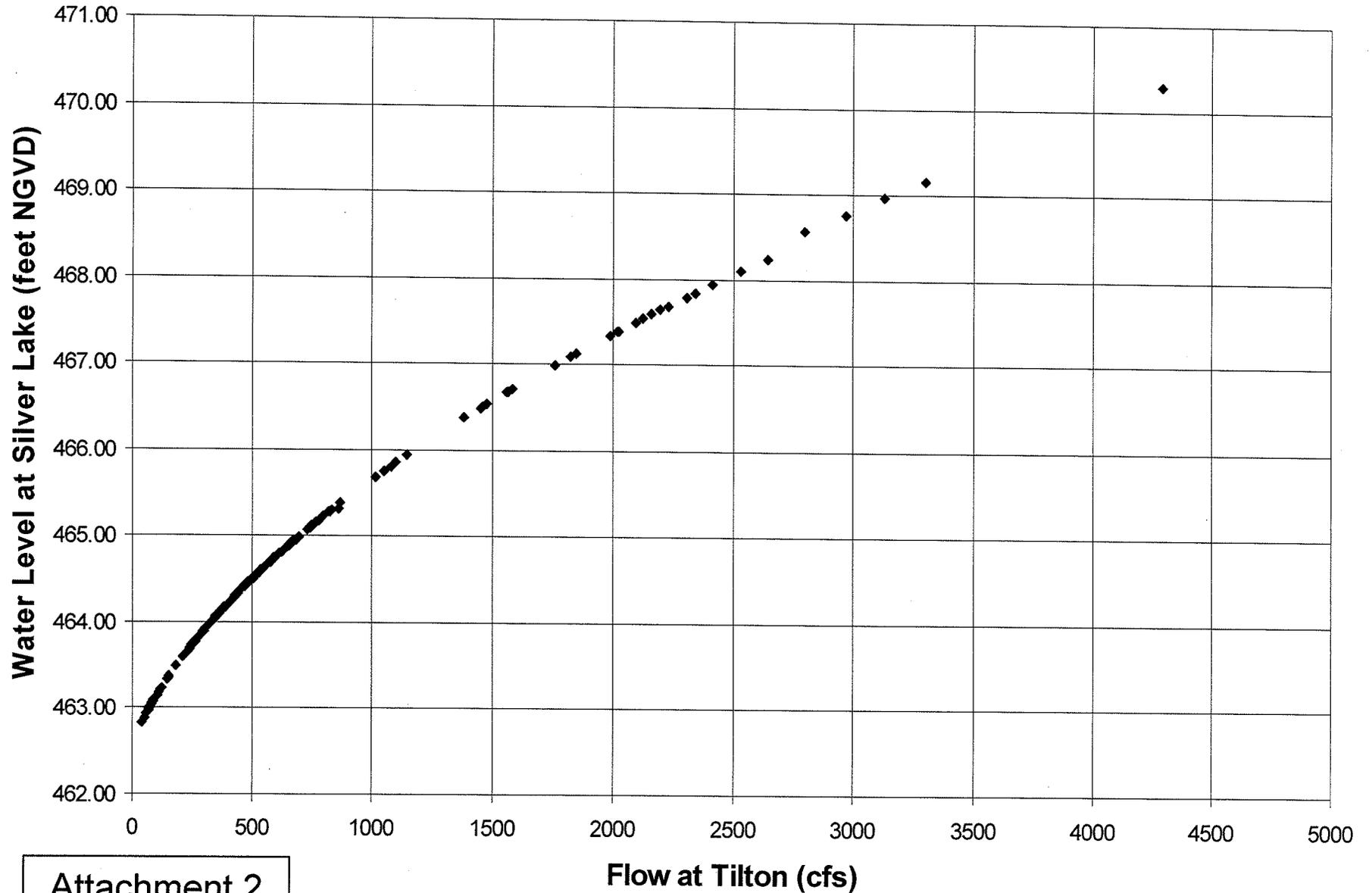


- ▲ Gaging Stations
- Dams
- Political Boundaries
 - State boundary
 - County boundary
 - Town boundary
- Text Town Names
- ROADS
 - PRIMARY ROADS
 - SECONDARY ROADS
- STREAMS
- LAKES
- Lake Winnepesaukee Drainage Area
- Silver Lake
- Sub Drainage Area



Attachment 1

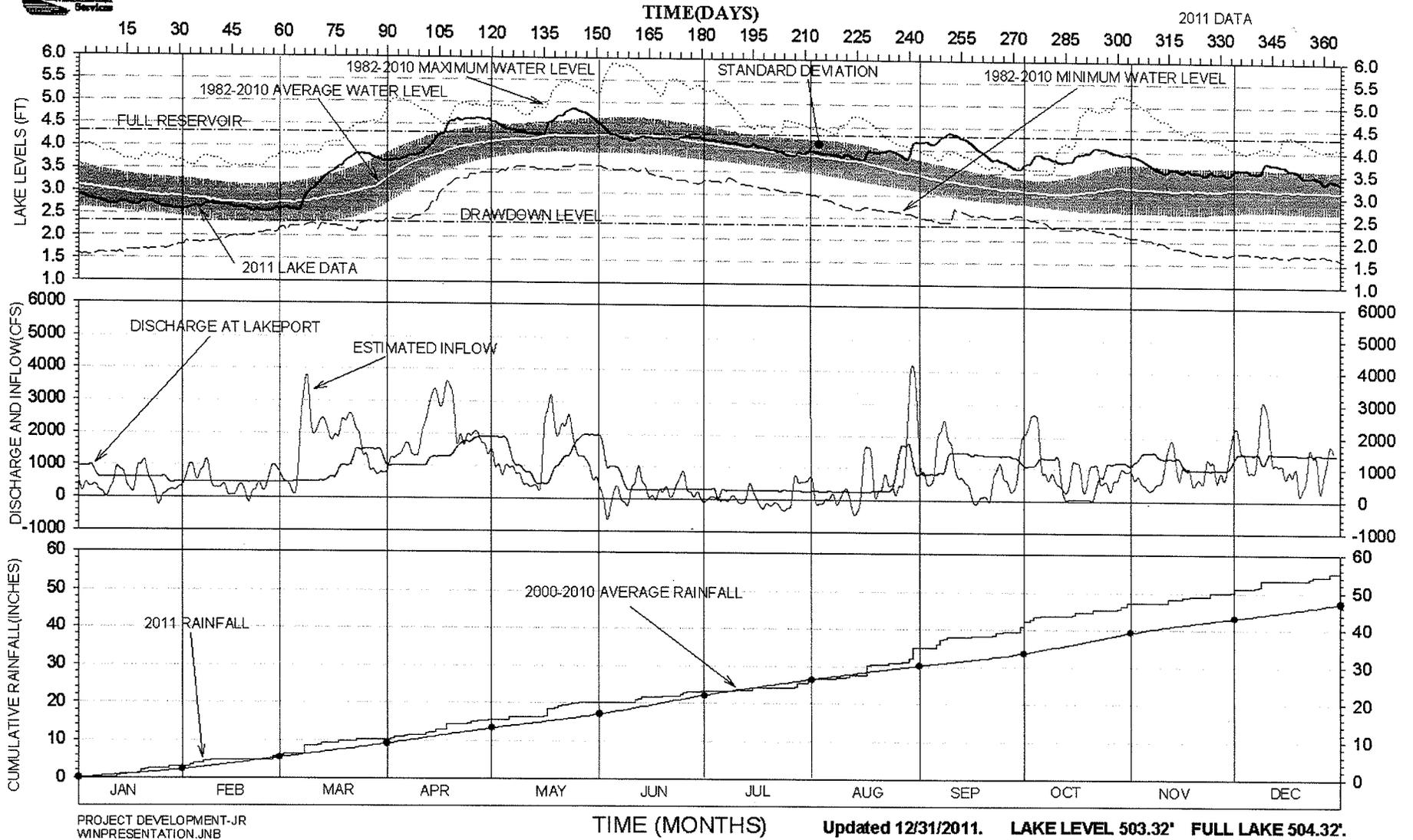
Correlation of Flow of Winnepesaukee River at Tilton with Water Level at Silver Lake



Attachment 2



LAKE WINNIPESAUKEE LAKE LEVEL DATA



Attachment 3