

Lake Anasagunticook

Water Level Management Plan

Revised September 5, 2012

Revised May 1, 2013

The purpose of this plan is to explain how the Anasagunticook Lake Dam will be operated.

October 15th to Ice-In (Fall Drawdown Period)

On or about October 15th, the Dam gates will be gradually opened to draw the lake down to its natural water level of approximately elevation 398 feet above sea level. The drawdown will occur as gradually and consistently as possible with the goal of being complete by ice-in.

Ice-In to Ice-Out (Winter Period)

After the fall drawdown is completed, the Dam gates will be left open and lifted clear of the water. This will ensure the gates do not freeze in place during the winter and will preserve the flood control capacity of the lake during the winter months and into the spring runoff season. The lake will rise above and fall back to its natural level during this period as a result of rainfall and snow melt.

Ice-Out to June 1st (Spring re-fill Period)

On or about April 15th but after the ice is completely clear of the lake, two of the three gates will be closed. On or about May 1st but after the Canton Sewer spring discharge is complete, the remaining gate will be closed in order to start re-filling the lake to its spring level of 402.5 above sea level. During this period it may be necessary to open as many gates as may be required to maintain the target level and reduce the threat of possible flooding.

June 30th to October 15th (Summer/Fall period)

During this time period the water level of the lake will be managed as close as possible to the target level of 402.5 above sea level. In order to do this it may be necessary to raise and lower gates, before, during, and after any potential rainfall in order to try and avoid any lake flooding or downstream flooding.

Daily Operation

The dam will be checked daily and the following recorded in the dam log: rainfall in the previous 24 hr period, the distance each gate is open if any and the lake elevation as measured on the stream gage on the east abutment of the dam.

The forecasted rainfall will be monitored at the National Weather Service website for Canton, Maine (i.e., www.weather.gov). When rain is forecast within the next three days the expected lake elevation in three days will be calculated as the lake elevation today plus 0.2 ft/in of expected rain. If the three-day expected lake elevation is above 403 MSL, take the difference between the three-day expected lake elevation and 403 MSL. This is the amount the lake should be drawn down leading up to and during the storm. Take the desired drawdown amount in feet and divide by 0.6 to find the amount the gates should be opened in feet. If the three-day expected lake elevation is below 403.0 MSL no gates need to be opened.

For example, if the lake elevation today is 402.6 MSL and 6" of rain are predicted over the next three days, the expected elevation in three days is $402.6 + 6(0.2) = 403.8$ MSL. The lake level would need to be lowered $403.8 - 403.0 = 0.8$ ft over the next three days to ensure the lake does not rise much above 403.0 MSL. One gate open 12" will lower the lake elevation without rain by 0.2 ft in one day or 0.6 ft in three days. Since the target is to lower the elevation 0.8 ft in three days one gate would be opened $0.8 / 0.6 = 1.3$ ft = 16". The process would be repeated the next day and any adjustment made based on changes in the forecast, rainfall and lake elevation.

a. Lake Elevation Today	402.6 ft MSL
b. 3-Day Expected Rainfall	6.0 inches
c. (Line b x 0.2)	1.2 ft
d. 3-Day Expected Lake Elevation (Line a + Line c)	403.8 ft MSL
e. Drawdown Target (Line d – 403.0)	0.8 ft
f. Gate Open Distance (Line e/0.60)	1.3 ft = 16"

The objective is to avoid sustained elevations above 403 MSL because the steel flashboards on the dam are designed to fail and discharge the whole lake volume if the lake elevation exceeds 404 MSL. If the flashboards fail, downstream flow and lake elevation cannot be managed.

When discharging, the downstream flow in Whitney Brook should be kept below 18" below the top of the culvert under Bixby Rd except in emergency situations where the lake elevation exceeds 403.5 MSL.