



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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October 23, 1998

Ronald O. Brown, Vice President
Thomas Pond Improvement Association
PO Box 537
South Casco, ME 04077

RE: Thomas Pond Dam and Water Levels/Flow Releases

Dear Ron:

This is a follow-up to my September 25 site visit to Thomas Pond and the Thomas Pond Dam. I want to thank you for the boat tour of the pond; it was very informative (and the weather cooperated).

As agreed, I am going to discuss a number of issues that were raised during my visit, and I will be sending copies of this letter to everyone I met at the dam site.

Dam Ownership

Let me begin with a short review of the ownership of the Thomas Pond Dam. In 1983, the DEP became responsible for administering a state law requiring that the ownership of dams be registered with the state. No one claimed ownership of the Thomas Pond Dam and, as a result, the dam property became legally abandoned to state ownership on January 1, 1985. As required by law, the DEP then advertised to find a new owner for the dam. The Thomas Pond Improvement Association (TPIA) was the only party that submitted a petition to assume ownership of the dam. There then followed several years of discussions between the TPIA, the DEP and the abutting land owners regarding the physical dimensions of and access to the dam. The result of these discussions was an agreement under which (1) the dam would be defined to include only the concrete outlet structure and wingwalls, not the adjoining lawn areas, and (2) the abutting landowners would deed to the TPIA easements for the purposes of operating, repairing, maintaining and rebuilding the dam. On the basis of this agreement, in an Order dated April 25, 1990, the DEP awarded ownership of the Thomas Pond Dam to the TPIA, subject to a number of conditions.

I am enclosing a copy of the 1990 DEP Order. I will discuss the conditions of the Order relating to minimum flows and water levels later in this letter.

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Water Quality

I am enclosing a copy of the current DEP water quality report for Thomas Pond, which includes data from 1976 through 1997. According to this report, the water quality of the pond appears to be stable, and there is no evidence of any long-term trend of either improving or declining water quality. There is certainly no evidence that water quality has declined since the Thomas Pond Improvement Association took over ownership and operation of the dam in 1990.

I urge you to continue the Association's water quality monitoring effort. The DEP does not have the resources to monitor the water quality of the hundreds of lakes and ponds in Maine; as a result, most monitoring is done by lay people who are trained in proper data collection techniques. It often takes years for trends in water quality to show up amid weather-influenced changes in water quality from year-to-year. As a result, having a good long-term record of water quality is invaluable and irreplaceable.

Fisheries

I am enclosing a copy of the Maine Department of Inland Fisheries and Wildlife depth survey and fisheries report for Thomas Pond. Any questions you have about the existing populations of game fish in the pond and the effects of changes in water levels on these fish should be directed to a DIF&W Regional Fisheries Biologist, Gray Office (657-3259).

Loons and other Wildlife

Loons are very limited in the water level changes they will tolerate during nesting and egg incubation. It is not unusual for loons to fail to produce young in a given year, even on lakes that have no dams. In dealing with this problem at hydropower dams with large water level changes throughout the year, the best answer that biologists have found is to install artificial nesting platforms. For more information (and I think construction plans), contact Maine Audubon Society, PO Box 6009, Falmouth, ME 04105 (telephone: 781-2330).

Any other questions you have about the effects of changes in water levels on wildlife should be directed to a DIF&W Regional Wildlife Biologist, Gray Office (657-3258).

Erosion

I viewed the entire shoreline of the pond (except for the narrow channel down to the dam) from a boat. Much of the shoreline consists of sand beaches or natural rock rip rap and is well vegetated except directly in front of the numerous camps and year-round homes around the lake. I saw very little evidence of active erosion; in fact, of all the lakes

controlled by dams that I have investigated in 15 years, Thomas Pond has the least erosion I have seen anywhere.

That said, it is generally true that erosion is accelerated by high water levels. Among the direct causes of erosion when water levels are high are boat wakes, wind driven waves, and ice scouring. It is also generally true that increased erosion will result in increased levels of phosphorus in a lake, which can in turn lead to declining water quality.

As a rule, where the shoreline of a lake or pond is sensitive to erosion or flooding due to high water, water levels are often managed to try to limit how high the water level rises as a result of rainfall and snowmelt, especially in the spring.

There will always be a potential for shoreline erosion, regardless of how the outlet dam is managed (I have never seen a lake or pond with a dam that did not have at least some erosion). In such situations, it is up to the affected land owner to decide whether or not to protect his/her shoreline by planting vegetation or placing rip rap to stabilize an eroding area.

Minimum Flows

Condition 3 of the 1990 DEP Order awarding ownership of the dam to the TPIA requires that a minimum flow of 2.4 cubic feet per second (cfs) be maintained from the dam into Dingley Brook at all times.

The minimum flow of 2.4 cfs represents the Aquatic Base Flow (defined as the unregulated median August flow) for Dingley Brook based in the size of the drainage area that provides flow into Thomas Pond. The purpose of this minimum flow is to maintain a viable aquatic habitat in the brook between the dam and Sebago Lake. [To add a touch of reality, 2.4 cfs is a flow of about 1,100 gallons per minute.]

I understand that, in the past, the TPIA sought to maintain the required minimum flow by adding and removing stop logs at the dam as required to maintain a depth of 3 inches of water flowing out over the stop logs. This would provide a flow of about 2.5 cfs to Dingley Brook. However, unless the next stop log was removed in a timely manner as the pond level dropped, the required minimum flow would not be maintained. In addition, with 6-8 inch high stop logs, more water would necessarily be passed than was required whenever a stop log was first removed, thus causing the pond level to drop. Finally, it takes two people to add and remove each stop log.

I understand that the TPIA now uses the gate valve in the dam to pass the required minimum flow. The gate is currently kept permanently open to the amount that will pass 2.5 cfs at all times, based on information from the engineering firm that last rebuilt the dam. This results in water being released near the bottom of the dam, rather than being spilled over the stop logs.

The DEP is satisfied that the TPIA is now complying with the minimum flow requirement of the 1990 Order.

Let me close this discussion by trying to clear up some apparent confusion about what the minimum flow requirement means. The only flow requirement TPIA must meet in its operation of the dam is to pass at least 2.4 cfs through or over the dam at all times, regardless of the level of Thomas Pond. There is no maximum flow requirement; therefore, as far as DEP is concerned, flows can be as high as needed to control high water on Thomas Pond.

Water Levels

Condition 5 of the 1990 DEP Order awarding ownership of the dam to the TPIA reads as follows:

“The association shall develop a written Water Level Management Plan designating who is responsible for operating the dam and describing how the dam is to be operated under a variety of likely water level/meteorological conditions. The plan should be updated regularly as experience is gained in managing the water levels of Thomas Pond and Dingley Brook.”

The access easements from the abutting landowners to the TPIA contain the following provisions with respect to the management of the dam:

“The grantee [i.e., TPIA] further covenants to observe the Thomas Pond Management Plan attached hereto and made a part hereof in the operation of the Thomas Pond Dam in the immediate future. The grantors understand that with the exception of...[the] 2.4 cfs minimum flow requirement, the dam management plan may be changed over time in light of experience in implementation, evolving needs of the littoral proprietors of Thomas Pond and Tingley Brook, governmental regulation, the public interest and other future circumstances which the grantors and grantee cannot presently foresee.”

In the Thomas Pond Management Plan (undated) attached to the easements, the following objectives are established:

1. Maintain level of Thomas Pond at 17-20” below the concrete top of the dam as measured in the weir [stop log] slots.
2. Control spring pond levels in anticipation of spring rain and snow melt so as to prevent property flooding on the pond.
3. Control spring pond levels in such a way as to avoid excessive flow in Dingley Brook (that is, flows greater than 20 cfs).

4. Minimum flow over or through dam must be maintained at 2.4 cfs.
5. Control pond levels so as to protect the fishery and the loon population.

There is considerable confusion about what water level restrictions apply here, so let me as clear as possible. The DEP has not established any water level requirements for Thomas Pond. The DEP has only required that the TPIA operate the Thomas Pond Dam in accordance with a written Water Level Management Plan. It is the DEP's position that the management plan should be regularly reviewed and changed as deemed appropriate by the TPIA to meet the needs of lakefront property owners and affected natural resources.

The DEP can only set water levels for lakes and ponds through a public petition process. A minimum of 25% or 50, whichever is the smaller number, of the landowners on Thomas Pond or Dingley Brook must sign a petition to force a DEP water level hearing. After a hearing, the DEP will issue an order setting water levels and minimum flows. This order will be legally enforceable against the owner/operator of the dam. In making its decision, the DEP must consider the impact of water levels and flows on public access, public safety, fish and wildlife habitat, water quality, shoreline erosion, flooding, drinking water supplies, and power generation. Experience has shown that water level proceedings very often involve reaching a balance between competing interests and needs.

The DEP publishes a booklet on the petition process that I will send to anyone who requests it. There is no charge for the booklet; however, a filing fee of \$105.00 is required with a water level petition.

Let me make a copy of observations about the DEP water level petition and hearing process. First, once DEP makes a decision, the management of Thomas Pond will forever be under State control, and local control will be lost. Second, the DEP may balance competing interests differently than would the members of the TPIA, and may not set water levels where the petitioners want. For these reasons, I also encourage people to try to work out a settlement locally.

It is apparent that there are some differences of opinion among affected property owners as to how water levels should be managed on Thomas Pond. There are (as is often the case) some people who prefer the pond to be "full" at all times, and other people who prefer a lower water level. Some people's preferences are a result of perceived impacts on fish and wildlife and water quality; other preferences are based on access to and use of the pond for boating and swimming (both to encourage recreational use as well as to discourage it); still other preferences arise from remembered water levels from years past.

There is no one "right" answer to the question of how water levels should be managed on Thomas Pond. There is no law that says water levels must be managed to maintain boat access for all landowners, or to maintain water quality at any and all costs to other resources and uses, or to prevent erosion. So, if petitioned, the DEP will balance competing needs to the best of our ability, based on the evidence and opinions presented. I respectfully suggest that the TPIA can only do the same.

Likewise, there is no one model for a water level management plan that will work on every lake or pond. However, if the TPIA believes that it is appropriate to try to address the interests of both high water and low water advocates on the pond, I offer the following thoughts for your consideration:

- It is always easier to lower the water level than to raise it (you can always get water out of the pond, but you can't control how much water nature puts back in), and there is generally more water available in the spring than in the summer. So one way to balance competing water level interests is to establish a suitable "full pond" target level for the start of summer (say, Memorial Day), and a lower target level for the end of summer (say, Labor Day). The idea would then be to manage the pond to hit these water level targets whenever possible. This will in effect "split the difference" between high and low water interests, and would result in consistent water levels from year to year.
- If spring flooding/high water is an issue, a still lower level can be established for the fall prior to ice-in. The pond would then be managed to be as close as possible to this level until the following spring, when a refill of the pond to the spring target level would begin. In addition, a spring "maximum" level could be established. When this level is reached, all possible actions would be taken, including removing all stop logs, to bring the water level back down.
- The dam itself can be used to self-regulate the level of the pond. To do this, simply set the stop logs so that the top of the logs is at the current water level target. In this way, if it is dry, the stop logs serve to hold the pond level up while the gate valve passes the minimum flow. And when it rains, excess water automatically spills over the logs to bring the water level back down. And if it rains too much, more stop logs can be removed as needed if the water rises too much. And if the water level target goes up or down for the next season, you simply add/remove stop logs to match the new target.
- You can either manage flows in Dingley Brook to stay below a maximum amount, or you can manage water levels in Thomas Pond to stay below a maximum level. You can't do both.

Water level management is not "rocket science" but it does take some time and effort. Simply setting the stop logs once and walking away is not management.

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Odors

Several people have complained about an order of sewage in the mill pond between the natural outlet of the lake and the dam. Rotting vegetation will often smell, and is natural. If something smells like sewage (and not like rotten plants or "swamp gas"), then it probably is sewage. I recommend that you contact the local plumbing inspectors with the Towns of Casco and Raymond to conduct an investigation (called a sanitary survey) to see if anyone living along the mill pond has a failed septic system.

I hope I have covered all of the issues that were raised during my site visit. If you have any more questions, or want me to review and comment on any new water level management plan you might come up with, just let me know. My telephone number is 287-3901.

Sincerely,



Dana Paul Murch
Dams & Hydro Supervisor

Enclosures
\\thomas03

cc: Joseph Pappalardo
Warren Kelsey
Richard & Beverly Murch Hall
Lucille Griffin
Alan Cohen
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Richard Hunn
David Morton, Town of Casco
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