

September 18, 2002

Jack Quirk
Thomas Pond Improvement Association
79 Thomas Pond Terrace
Raymond, ME 04071

RE: Thomas Pond Dam and Flow Releases

Dear Jack:

I understand that the Thomas Pond Improvement Association is still attempting to pass the required 2.4 cfs out of Thomas Pond but that you are receiving complaints about low water levels on the pond. You have asked me for any information on the derivation of the 2.4 cfs flow number.

According to my records, 2.4 cfs is the Aquatic Base Flow for Dingley Brook based on US Fish & Wildlife Service guidance. Let me provide some information about this flow:

- Aquatic Base Flow (or ABF, for short) is defined as the median unregulated August flow in a stream. This flow is intended to preserve the natural aquatic ecosystem. In the absence of actual stream flow records, ABF is calculated as the flow equal to 0.5 cubic feet per second per square mile of drainage area. So, for Dingley Brook, with a drainage area of 4.8 square miles, the calculated ABF is 2.4 cfs.
- Please note that, by definition (median being the mid-point of all flows), flows are naturally lower than ABF 50% of the time in August (August is used because this is generally the lowest-flow month of the year). Therefore, maintaining a flow of at least ABF all the time from any dam will result in more water being released from the dam than is flowing into the dam during dry seasons. As a result, pond levels will drop, even beyond the drop that would naturally occur due to evaporation.

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- Research in Maine since the US Fish & Wildlife Service adopted their ABF definition in 1982 has revealed that the 0.5 cubic feet per second per square mile of drainage area overstates the natural median August flow in Maine and other states in the northeast. This is especially true in streams with small drainage areas, like Dingley Brook. The more accurate calculation is 0.33 cubic feet per second per square mile of drainage area. For Dingley Brook, this would be 1.6 cfs.
- Finally, stream flows in Maine during much of the last two summers have been as low as they have ever been. 2001 was the driest year on record in Maine (we have records for the last 107 years). This year, we had the driest August on record, so inflow to ponds and streams was low to non-existent. In addition, groundwater levels continue to drop in much of the state, so there is less groundwater getting to ponds and streams (this is what people often refer to as "springs" in a pond or stream). As a result, streams flows are even lower than normal—in fact, over the last two years, DEP has observed perennial streams that either had no flowing water (only standing pools) or were completely dry (which only happens once every 50 or 100 years).

I have no doubt that, under natural conditions and with no dam at the outlet of Thomas Pond, Dingley Brook would have been completely dry this summer.

The DEP does not object to a flow of less than 2.4 cfs being released from Thomas Pond during drought conditions. The DEP has agreed to reduce the required flows from many dams in the State over the past two summers in an attempt to keep water in our lakes and ponds. In many cases, we cut the flow in half (the equivalent of 0.25 cfs per square mile of drainage area). For Dingley Brook, this would be equal to a flow of 1.2 cfs.

I hope this information is helpful. I am taking the liberty of copying this letter to Alan Cohen. Please call me at 287-7784 if you have any questions.

Sincerely,

Dana Paul Murch
Dams & Hydro Supervisor

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cc: Alan Cohen