



## Lake Singletary Watershed Association

P.O. Box 332 • Sutton, MA 01590

[www.lakesingletary.org](http://www.lakesingletary.org)

March 23, 2017

Secretary of Energy and Environmental Affairs, Matthew A. Beaton  
Executive Office of Energy and Environmental Affairs (EEA)  
Attn: MEPA Office  
Paige Czepiga, EEA No. 15642  
100 Cambridge Street, Suite 900  
Boston MA 02114

Dear Secretary Beaton,

On behalf of the membership of the Lake Singletary Watershed Association, I am submitting comments on EEA No. 15642, the Merrill Pond Wildlife Management Dam Removal and Rehabilitation Projects.

While we understand that the dams in the Merrill Pond Wildlife Management area need to be addressed, we are concerned about the effects of this project as currently proposed on water bodies in the watershed immediately downstream of the Merrill Ponds, especially Lake Singletary. For the most part, the impacts of the project on the critically related areas downstream were not assessed. We request that you require full assessment of impacts to downstream resources and development of proposals for their avoidance or mitigation in the scope that you will define for the next stage of this process.

Some, but certainly not all of the specific potential impacts which we believe should be evaluated and avoided or mitigated with project design changes are explained here.

**Removal of Upstream Storage Capacity** A number of concerns relate to the removal of upstream water storage capacity that will result from the removal of dams in the MPWMA. The EENF does not address the impacts to Lake Singletary and other downstream bodies that depend on the storage currently provided by the upstream dams, in particular by the Welsh Pond Dam.

1. Annually, the Town of Millbury coordinates with the LSWA in its operation of the Singletary dam to drawdown the lake in the fall in order to control invasive species of aquatic plants and to refill it in the late winter/early spring. The primary source of water for spring refill is stored snow melt and rainfall in Welsh Pond. There was no assessment to show that spring refill can be accomplished, especially in dry years, if upstream dams are removed. Nor was there an assessment of impacts that would occur if refill is not accomplished. Aside from the recreational and quality of life impacts, the environmental impacts that should be considered are elimination of seasonal habitat for aquatic and avian species that live and reproduce in or on the lake.

2. Similarly, we would like the proponent to evaluate how the removal of upstream dams impacts the maintenance of safe water levels in Lake Singletary and other immediately downstream impoundments during the driest late summer, early fall months. Some of the impacts that might be expected from insufficient late season water levels are excessive weed growth and algal blooms and related impacts to species that use this habitat. In addition, we are concerned about the impact on recreational uses such as fishing, boating and swimming.

3. A few private wells serving homes on the lake are very shallow and residents have lost their water supply when the lake level has fallen too low. Evaluation of this risk and mitigations for it should be part of the evaluation. (The Association has data it would be glad to provide for most of the wells and septic systems surrounding the lake.)

In addition, the Singletary dam is operated to fill Round Pond; this pond is between Lake Singletary and Brierly Pond, because it provides water for fire suppression to an adjacent mill building. Although it is a secondary risk, mill fires have been known to cause significant environmental damage to adjacent waterways and their species as well as to be the source of extensive areas of deposition of ash, metals, and other waste materials that become airborne during intense fires.

4. With the removal of upstream storage capacity, particularly in Welsh Pond, we are very concerned that, in the spring, Lake Singletary will be relied on to provide storage capacity, i.e. keep water levels low, for flood control and flow modulation at the expense of refilling the lake to optimum levels. The result may be inability to accomplish refill and resulting impacts like those mentioned above and others. We request that this dynamic be fully evaluated and that mitigations be proposed.

5. Similarly, we are concerned that with elimination of upstream storage capacity, Lake Singletary will also be vulnerable to overflow during significant rain events. The emergency spillway at the dam is not sized to alleviate additional pressure from storm runoff and flooding from the entire upstream watershed. If the lake water level rises too high, impacts that would be expected are: septic systems are compromised and lake water is contaminated, shorelines erode and carry excess nutrients into the lake, habitats are inundated. We request that these

impacts be evaluated and mitigations proposed. Perhaps one mitigation should be the reconstruction of the emergency spillway.

**Nutrient Contamination** Although the Merrill Pond sediments were analyzed for heavy metals and other pollutants, nutrient levels were not determined. Excess nutrients are of primary concern in many water bodies in Massachusetts, this one included. Over the years, there has been a significant amount of public and private investment, including thousands of dollars in state grants, to understand and control this issue in this watershed.

6. The failure to develop information on specific nutrient pollutants existing in the project area sediments means that “a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed,” has not been provided, although it is required by the MEPA regulations.

7. Furthermore, the EENF has not evaluated the impact of the proposed project on Lake Singletary’s nutrient budget and associated environmental impacts nor does it propose mitigations.

8. Studies that the LSWA has contracted, suggest that the Merrill Ponds trap and absorb nutrients before they get to Lake Singletary. How will eliminating four of the Merrill Ponds diminish this absorptive capacity upstream in the watershed? Surely this has the potential to increase weed growth and algal blooms in Lake Singletary and other downstream impoundments. The Association and the Towns of Millbury and Sutton spend thousands of dollars every year to control weed growth and algal blooms. What mitigations are proposed for this?

9. The EENF explains that the sediments that will be mobilized with upstream dam removal are expected to come to rest in the lower elevations of the former Welsh Pond. An evaluation of the storm events that could mobilize and flush nutrients into Lake Singletary has not been done. The March 12, 2017 supplemental information acknowledges the negative impact of downstream migration of nutrients in sedimentation, but does not assess this potential environmental impact or propose comprehensive mitigation measures.

We request that avoidance of nutrient contamination of Lake Singletary be a project review criterion of utmost importance. The regulations require that the “planning and design of the Project use all feasible means to avoid potential environmental impacts.” It seems to us that “all feasible means” would necessitate the rehabilitation of Welsh Pond Dam rather than removing it and replacing it with a culvert through which sediments may travel freely in high flows. The project should be designed to avoid this avenue for harm. Mitigations have not been proposed for transport of contaminated sediment into Lake Singletary, which seems to us a certainty with the current proposal.

10. Similarly, even though the EENF explains measures that will be taken during construction to avoid nutrient release, what monitoring will be done to document nutrient contamination of the lake, if it should occur, and what mitigations are proposed should the measures to prevent it fail?

11. With respect to the sediment analysis that was conducted for the EENF, VOC (acetone) was detected in sediments behind three of the four dams where samples were taken. These results are dismissed as a common laboratory contaminant and therefore, no impacts are expected to occur. Were the samples rerun in order to rule out laboratory contamination? This gives us concern about the integrity of the sampling results overall. We request that sampling and analysis be repeated for VOC when sampling for nutrients is conducted.

**Mitigation** The EENF proposes very little in the way of mitigation for the serious actual and potential environmental impacts of the project. The primary discussion of mitigation for environmental impacts found at part 4.3.3 in the original EENF asserts that the project will provide mitigation *in situ*, by restoring natural processes and replacing lower value resources with higher value riverine systems. This proposal is woefully insufficient. In the discussion above, we mention many of the areas we request there be mitigations proposed for environmental impacts.

**Project Costs** We believe that a less costly design for rehabilitating the Welsh Pond Dam is feasible and should be evaluated as an alternative due to the potential negative effects of its removal on Lake Singletary. Its removal has been presented as the most cost effective and expeditious solution to the problem; however, the costs of mitigating the environmental damage that may occur under the current proposal have not been included. Removing the dam, rather than rehabilitating it increases the potential for irreparable harm that could be caused to Lake Singletary, a significant and valuable natural resource of the Commonwealth.

**Decision Allowing a Single EIR** We respectfully submit that the EENF has not met the standard needed to allow a Single EIR. As explained above, a detailed baseline has not been provided. We do not have sufficient information about the contaminants of concern in sediments behind the dams that are to be removed. In addition, the analysis does very little to consider the downstream impacts of the project; in this way too, the baseline information is significantly lacking. Many of the potential impacts we are concerned about could be avoided or significantly diminished if Welsh Pond dam were rehabilitated rather than removed. It is not clear that all feasible means for avoiding impacts have been demonstrated. In particular, if a less costly design for the rehabilitation of the Welsh Pond dam could be developed, it may be feasible to avoid many of the impacts about which we have concerns.

**Public Involvement** The Town of Millbury and the Blackstone Heritage Corridor are public parties that have an interest in this project and who did not receive notification of the project. These parties should be included in the public process for the project.

The research and studies of Lake Singletary that the Association has contracted over the years are posted on our website at [www.lakesingletary.org](http://www.lakesingletary.org). If there is any other information about the lake that the Association can provide you, please let me know.

Thank you very much for this opportunity to comment.

Sincerely yours,

Paul Kawolis, President  
Lake Singletary Watershed Association

Enclosures:  
Background on Lake Singletary and the Watershed Association  
March 21, 2017, letter from Geosyntec

## About Lake Singletary and the Watershed Association

The Lake Singletary Watershed Association (LSWA), founded in 1982, is a 501(c)(3) volunteer organization consisting primarily of local residents and recreational users. The Association has been dedicated to our mission of protecting and preserving Lake Singletary and the watershed. The bulk of our funding comes from membership dues and volunteer efforts, and is supplemented by state, local & government grants.

The lake itself is a 330-acre Great Pond located in the towns of Sutton and Millbury. The main inlet (Welsh Pond) is located at West Sutton Road in Sutton. The outlet, Singletary Stream, is at Harris Avenue in Millbury. The watershed continues to flow southeasterly through Millbury before joining the Blackstone River. The six mile long shoreline supports approximately 163 households, with a frequently used, free, public boat ramp in Millbury and a lovely town beach and recreation complex (Marion's Camp) in Sutton. Many of the households on the lake depend on well water, which, dependent on property size and date of installation, can be quite close to the lake.

Although those are the Lake's basic statistics, what this fails to convey is what a lovely and pristine lake this is. The LSWA has been performing water testing for over 20 years including total phosphorus, dissolved oxygen, alkalinity, and chlorophyll-a. Our 22 years of Secchi measurements indicate average water clarity extending over 11 feet, with the last five year average at 12.5 feet.

Wildlife thrives here. We are hosts to six immature and two mature Bald Eagles, not to mention numerous duck species, turtles, deer, otters, fox, snakes and more. The lake also is home to Marion's Camp, a 25.48-acre natural resource that the town of Sutton purchased and is restoring for recreational use. This property includes a town beach utilized by local residents and non-residents. Marion's Camp is also host to several triathlons and used for distance swimming training by MRA Multisports. The master plan can be viewed here [http://www.suttonma.org/Pages/SuttonMA\\_Planning/proj/marionphase.pdf](http://www.suttonma.org/Pages/SuttonMA_Planning/proj/marionphase.pdf).

MassWildlife surveys found the lake is home to Largemouth Bass, Smallmouth Bass, Yellow Perch, White Perch, Black Crappie, Bluegill, Pumpkinseed, Chain Pickerel, Yellow Bullhead, Brown Bullhead, White Sucker, Golden Shiner, and landlocked Alewife. Lake Singletary is also stocked each spring with trout and is the site for 10-12 fishing tournaments each summer.

The Lake is also used extensively for water sports, including swimming (long and short distant), kayaking, paddle boarding, sailing and motor-boating among the list. When the lake is frozen, it is used for ice fishing (including tournaments), skating, cross county skiing, snowmobiles and ATV's. All of this activity and wildlife is dependent on the health of the watershed.

Over the years, the organization has collected data and has worked with professional lake managers who have agreed that Lake Singletary is a uniquely valuable resource that deserves protection.

21 March 2017

Page Czepiga  
Environmental Analyst, MEPA Office  
Executive Office of Energy and Environmental Affairs  
100 Cambridge Street, Suite 900| Boston, MA 02114Subject:

Re: Merrill Pond Wildlife Management Area; Dam Removal and Rehabilitation Projects  
EEA#15642

Dear Ms. Czepiga:

This letter is submitted by Geosyntec Consultants, Inc. (Geosyntec) on behalf of the Lake Singletary Watershed Association (LSWA) regarding the above referenced project which has been submitted to MEPA for ENF review.

On behalf of the LSWA, Geosyntec prepared the *Lake Singletary Trophic Status Model and Management Plan* in 2014. This study included a review of issues related to potential removal of dams within the Merrill Pond Wildlife Management Area (referred to in the report as the Stockwell Ponds), as summarized below.

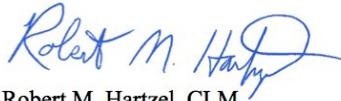
The Merrill Pond Wildlife Management Area (MPWMA) is comprised of a series of small, shallow impoundments and associated emergent wetlands along Singletary Brook, the primary tributary to Lake Singletary. Singletary Brook flows through these ponds from south to north towards the lake. Currently, the ponds and wetlands are slowing and storing incoming water, allowing for sediment and nutrients to settle in particulate form and be removed from the water that ultimately discharges to Lake Singletary. This type of wetland/impoundment system can typically play an important role in protecting the water quality of downstream receiving waters. For this reason, the design of many drinking water reservoirs includes a series of smaller upstream impoundments, each providing settling and pollutant removal and allowing for progressively improved water quality as water flows to the final reservoir.

The ponds within the MPWMA and their associated wetlands are likely lined with a layer of nutrient rich sediment that, in the event of dam removal, would be exposed to the surface and subject to erosive forces. This may cause a high temporary pulse of phosphorus-rich sediment to the lake for up to several years until a new equilibrium is reached. Additionally, due to the effects of internal loading, the presence of a large quantity of fresh sediment to the bottom of Lake Singletary could potentially compound the severity of any late-summer algal blooms. Without a detailed study of the sediment chemistry, hydrology, and hydraulics of these ponds, the effects of the proposed dam removals are difficult to estimate. However, recent studies of nutrient dynamics following dam removal provide some findings that could be applicable to Lake Singletary and the MPWMA Ponds. These studies, which generally indicate that dam removal may have a negative impact on Lake Singletary by increasing nutrient and sediment export, are summarized below.

- *Bushaw-Newton, K., J. Ashley, et al. (2001). "The Manatawny Creek Dam removal: Biogeochemical processes and sediment contaminants."*: This study examined the effects of a small dam removal in southeastern PA. This study found no significant difference in nutrient loading before and after the dam removal.
- *Stanley, E. and M. Doyle (2001). "Phosphorus transport before and after dam removal from a nutrient-rich creek in southern Wisconsin."*: This study examined water quality impacts of dam removal from a stream that was impacted by agricultural uses. The study found that when the dam was in place, phosphorus concentrations downstream of the dam were reduced by 10-30%. After dam removal, downstream phosphorus concentrations were significantly elevated, primarily due to the migration of nutrient-rich sediments.
- *Ahearn, D. S. and R. A. Dahlgren (2005). "Sediment and nutrient dynamics following a low-head dam removal at Murphy Creek, California."*: This study found that, after a dam removal, phosphorus export from the impoundment area occurred primarily during large storm events. The area typically acted as a phosphorus sink during periods of low flow.
- *Muskopf, S. A. (2007). The effect of beaver (*Castor canadensis*) dam removal on total phosphorus concentration in Taylor Creek and Wetland."*: This study addressed the effect of beaver dams in the vicinity of Lake Tahoe. The study found that phosphorus concentrations after the dam removal were approximately 25% higher.
- *Riggsbee, J. A., R. Wetzel, et al. (2012). "Physical and plant community controls on nitrogen and phosphorus leaching from impounded riverine wetlands following dam removal."*: This study investigated a dam removal in North Carolina and found significant levels of nutrient export from the exposed sediments post-removal. The study also determined that stabilization of the sediments with vegetation was not an effective means to prevent nutrient export.

Although the proposed dam removals are likely to provide in-stream ecological benefits, it is also critically important to ensure that the project is designed to avoid and mitigate impacts to Lake Singletary, as required under the Massachusetts Wetlands Protection Act. As such, we believe that the project should provide an assessment of sediment chemistry, hydrology, and hydraulics of these ponds and the potential for sediment/nutrient export to Lake Singletary following the proposed dam removals. Depending on the findings of such an investigation, the project should also include a detailed mitigation plan to address any associated impacts to Lake Singletary.

Sincerely,



Robert M. Hartzel, CLM  
Principal

Copies to: Paul Kawolis, LSWA