



FOR THE ASSABET SUDBURY & CONCORD RIVERS

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November 17, 2017

Board of Selectmen  
Town of Acton  
472 Main Street  
Acton, MA 01720  
[bos@acton-ma.gov](mailto:bos@acton-ma.gov)

Re: Comments on Application for Modification of Special Permit Decision on Remand; Proposed Nagog Pond Water Treatment Plant; Special Permit #11/20/2015-459

Dear Board of Selectmen:

Thank you for the opportunity to comment on the Special Permit for the proposed construction of a water treatment plant at Nagog Pond by the Town of Concord. OARS is the watershed organization for the Sudbury-Assabet-Concord watershed, with over 750 members throughout the area. A non-profit organization founded in 1986, OARS works primarily through science-based advocacy and education to develop a scientific understanding of the causes of river degradation and works with communities to seek effective solutions. OARS monitors the water quality of our surface waters, including two sites on Nashoba Brook (Acton and Concord); reports are available on our website and are provided to the towns.

The Nagog Pond Water Treatment Plant project documents that have been submitted to date focus almost exclusively on the treatment plant construction and site disturbance. They contain very little information on the downstream impacts of Concord's plan to withdraw significantly more water from Nagog Pond which will be made possible by the construction of the treatment plant and a deeper water intake in Nagog Pond. Our main concern is the impact on the stream conditions in Nagog Brook, a state-designated Coldwater Fishery Resource (see Figure 1, below). Nagog Pond is the sole source headwater of Nagog Brook. Nagog Brook is wholly within the Town of Acton and is a valuable natural resource that deserves protection.

The Massachusetts Division of Fisheries and Wildlife designated the entirety of Nagog Brook as a Coldwater Fishery Resource as defined under Massachusetts regulations. Coldwater Fishery Resources are coldwater streams and rivers that are afforded special protection due to their unique ecological value, providing habitat for the most sensitive species of native fish, including native eastern brook trout. Mass. Division of Fisheries and Wildlife has identified wild eastern brook trout in Nagog Brook. Coldwater streams also have a high hydrological value, providing the clean, cool, and steady flow to surface waters—ponds, lakes and rivers—that is critical to their ecological viability and recreational and other uses. For this reason coldwater fishery resources are considered "Critical Areas" under the 401 Water Quality Certification (314 CMR 9.02), and afforded special protection under the Commonwealth's Rivers Protection Act, Wetlands Protection Act, and Water Management Act. Under the Massachusetts Surface Water Quality Standards' Antidegradation Provisions, coldwater fisheries are considered "existing uses" and cannot be degraded (314 CMR 4.04).

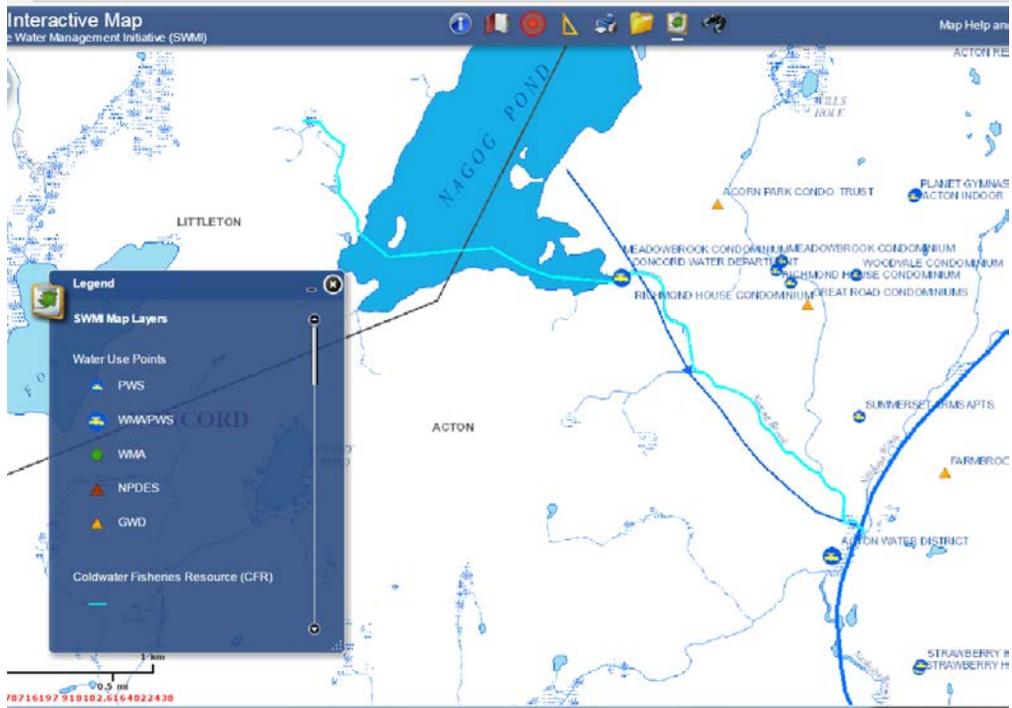


Fig. 1. Nagog Brook Coldwater Fishery Resource (MassDEP SWMI Viewer)



Fig. 2. Native eastern brook trout (*Salvelinus fontinalis*)

The release of warm water to a coldwater fishery is very damaging and must be avoided, and the contributions of cold water to the resource must be maintained for it to be viable. Based on available information, there is one outlet from the dam, and a small spillway to handle overflows. No information was provided in the project presentations about the flows released through the outlet, the elevation of the outlet, the rate and frequency of flow over the spillway, or the temperature of the releases. As a result we are not able to judge to what degree withdrawals from Nagog Pond affect streamflow and water quality in Nagog Brook. This streamflow will also affect flow in Nashoba Brook, and ultimately the Assabet River, a federally-designated Wild and Scenic River.

We do note, however, that the proposed volume of the withdrawal—stated at 0.8-1.0 million gallons per day (1.24-1.55 cfs) and legally allowed up to 1.5 mgd (2.33 cfs)—far exceed the streamflow measured in Nashoba Brook in the summer/fall months (see Figure 3, below, for 2015 (flow was even lower in 2016)).

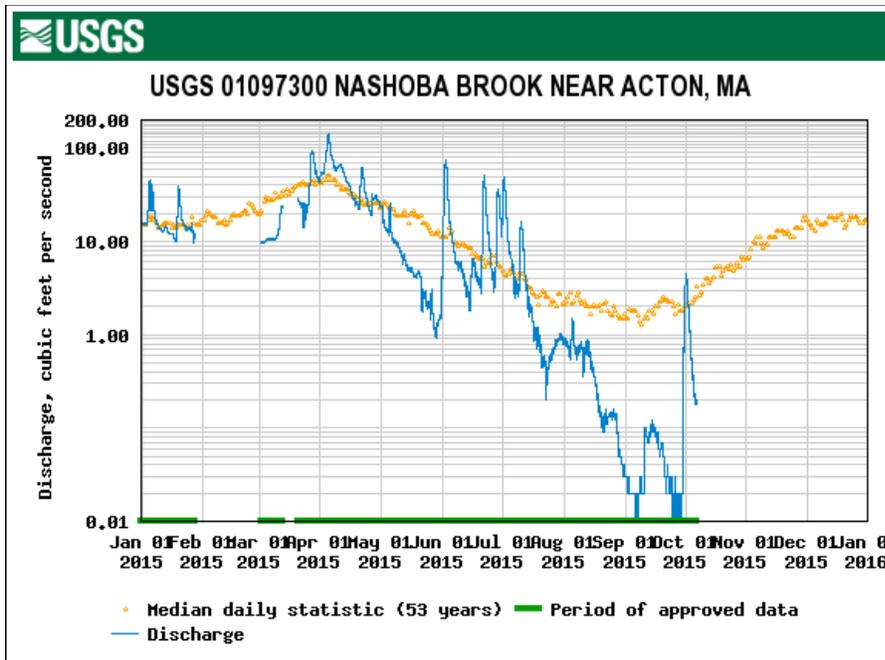


Fig. 3 USGS Nashoba Brook Gage data. Jan. 2015-Jan. 2016

The volume of water to be withdrawn should be looked at closely. Water that is withdrawn and diverted to water supply will not be available to flow in Nagog Brook. By their own account, Concord’s new treatment plant will result in more than tripling the amount of water currently withdrawn from Nagog Pond. This is water that will be unavailable to the already highly stressed Nagog/Nashoba Brook system. According to their *Public Water Supply Annual Statistical Report*, Concord only withdrew water from Nagog Pond during three months in 2014, June, July, and August, with an average withdrawal of 0.32 mgd; in 2011 they withdrew even less and only during the months of January, February, May, and July. A new treatment plant would vastly increase their use of this source—they expect to withdraw at least 0.8 mgd, possibly every month of the year, with peak periods up to 1.5 mgd.

Of particular concern are the expected withdrawals during peak need—the summertime when streams are naturally at their lowest flows and most vulnerable to loss of streamflow and base flow from groundwater. We could not find a description of the seasonality of these future withdrawals. The Concord DPW website states: “Depending on the season, all available production facilities may be called upon to satisfy system demands which fluctuate between 2 million gallons per day (MGD) during the winter months to over 5 MGD in the summer.” In contrast, the Water Needs Forecast prepared for Concord in 2015 by the Dept. of Conservation and Recreation, in preparation for their withdrawal permit application, showed a far smaller water need: 2.09 mgd by 2021; 2.10 mgd by 2026, and 2.11 mgd by 2031.



Fig. 4. Warner's Pond dam, Nashoba Brook in Concord (8/17/16)

Concord's proposed future withdrawals also exceed their unofficial estimate of the Firm Yield of Nagog Pond, given as 0.86 mgd (the official firm yield calculation will be done by DEP in the permit review process). Hence, it is reasonable to anticipate that if Concord withdraws significantly more water from Nagog Pond, as they propose, *the duration of the period for which there is no spill over the dam will be lengthened*, and this could affect fish habitat and fall spawning downstream. Without the data, however, it is not possible to understand the impacts, or for Concord to design a responsible withdrawal management plan that would protect the downstream water resources in Acton.

An even greater concern is that since Nagog Brook appears to be fed by groundwater during the summer and fall low-flow periods, and possibly by leaks and seeps around the dam, *any diminution of groundwater flow or seepage could have a major negative impact*. This could occur if Nagog Pond is drawn down further than it is currently, reducing the pressure on the groundwater that flows in the direction of the brook below the dam. It is clear from the application that the town of Concord fully intends to draw Nagog Pond down further than currently and will have the ability to do so. The new intake pipe will be extended into the deeper part of the pond and have two intakes, one above the other, at 200.7 feet and 210.7 feet elevation. The lower one, to be used "in the event of low water condition," is fully 25 feet below the spillway and 21.9 feet below the "Historic Low Water Level el. 222.6 feet (1966-1967)" (Application, Aug. 2016, Sheet C-6).

We would further like to register our concern about some of the arguments presented by the town of Concord in its appeal of the Board of Selectmen's decision on the Special Permit. We will focus on those pertaining to the threat to Nagog Brook and its Coldwater Fishery Resource, a "Critical Area". **In particular we reject the assertion that the requirement to collect scientific data to improve decision-making constitutes a violation of rights.**

We believe that the Monitoring Program specified in the Special Permit by the Acton Selectmen is **reasonable** and **essential** so that Concord can make sound management decisions that will protect the coldwater resource.

The Town of Concord made several misleading assertions in their Complaint to the Land Court regarding the Monitoring Program required by the Selectmen in Section 3.3.7 “Monitoring Program”. In paragraphs 61-74, Concord asserted that a program designed simply to collect data violated Concord’s right to withdraw water from Nagog Pond. The Monitoring Program’s objective is to “generate data that will enable Concord, the Acton Water District, Littleton and state regulatory agencies to better understand the relationship between Nagog Pond water withdrawal rates and water levels, Nagog Brook flow levels and rates...” They continued to confound the issue of monitoring in Nagog Brook *to protect the brook as a coldwater resource*, and monitoring to assess the impact of any streamflow changes on the Acton Water District’s well fields (Conant I & II). They further assert that the monitoring program was based on the opinions of lay persons that contradicted those of experts. However the cited GZA report on aquifer protection districts (1989) prepared by experts that was cited addresses the groundwater flow impacts on the above *wellfield*, but does not address the impacts on the viability of the *coldwater fishery resource* of Nagog Brook itself. These arguments should therefore be rejected as reasons for eliminating the Monitoring Program.

In order to target the Monitoring Program on the information needed to fulfill responsibility of both Acton and Concord to protect the Nagog Brook Coldwater Fishery Resource, **we urge the Board of Selectmen to modify Sec. 3.3.7.1 in the final Modified Special Permit to include:**

1. *A flow and temperature monitoring station on Nagog Brook below the Nagog Pond dam but above the confluence with Nashoba Brook.* There already exists a USGS gauging station on Nashoba Brook upstream of the confluence ([https://waterdata.usgs.gov/nwis/nwismap/?site\\_no=01097300&agency\\_cd=USGS](https://waterdata.usgs.gov/nwis/nwismap/?site_no=01097300&agency_cd=USGS)). The new monitoring site would provide information specifically on Nagog Brook. Temperature is the concern, so monitoring it directly would address that, and temperature would indirectly capture the unanswered questions about groundwater contribution. This should be installed in consultation with MassWildlife fisheries experts.
2. Year-round flow and temperature data collection using the above station. It is key that the monitoring commence well before the project work to establish baseline conditions.
3. Encourage the Town of Concord to use the Nashoba Brook USGS gage as the trigger to determine town-wide water conservation restrictions, unless stricter measures are voluntarily used (as they were in 2016).

It must be noted that due to the fact that this is a Registered (grandfathered) water source, the State’s ability to regulate water withdrawals to protect the environment is hampered. As a result, it is up to the towns of Acton and Concord to protect the coldwater fishery, recreation, wildlife habitat, or any other use of this stream and the streams and rivers into which it flows. Concord’s summer water use is very high compared with other communities, despite conservation efforts by the town. In 2014 it was literally double their winter use. Much of the added increment is non-essential outdoor water use. Given the predicted increase in frequency and duration of drought due to climate disruption--coupled with a growing population--finding effective ways to reduce water use during the summer must become a high priority for every community.

We believe that the residents of both Acton and Concord fundamentally support the protection of these sensitive environmental resources and the sustainable use of the region’s water resources for both people

and wildlife. Having sound environmental data is essential if our communities are to make decisions that will achieve these goals.

In summary, there are important questions to be asked and data to be collected to see that the coldwater fishery resources of Acton's Nagog Brook can be protected while Concord's water needs are met. The approval process for this project is one of the few places this can be done.

Thank you for the opportunity to comment on this Special Permit. Please don't hesitate to contact me if you have any questions.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'AJ', with a large, sweeping flourish extending to the left and underlining the text.

Alison Field-Juma  
Executive Director

cc: Tom Tidman, Acton Natural Resources  
Duane Levangie, MassDEP  
Todd Richards, MassWildlife