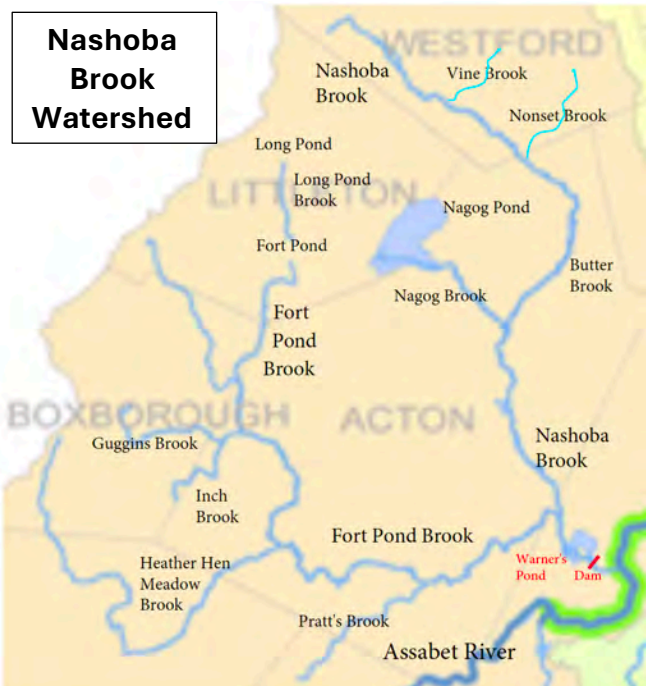
WARNER'S POND DAM AND NASHOBA BROOK

Frequently Asked Questions

WHAT'S THE PROBLEM WITH WARNER'S POND?

WHERE DOES THE WATER IN NASHOBA BROOK COME FROM? Approximately 47-square-mile watershed 95% of which is located outside of Concord in Acton, Boxborough, Carlisle, Littleton, Stow, and Westford. Two tributaries that flow into the pond, Nashoba Brook and Fort Pond Brook, merge just upstream of the pond inlet on the western shore and then feed into the Assabet River.



IMPACT OF WARNERS POND ON THE NASHOBA BROOK WATERSHED

1. ADVANCED STATE OF EUTROPHICATION: Excessive aquatic plant growth fueled by excess nutrients with deep nutrient-rich sediments.

2. WHAT IS THE IMPACT OF EUTROPHICATION? Loss of recreational activities. Degraded habitat for native fish, loss of biodiversity, as the pond gets shallower, and the water gets warmer.

3. WHAT IS THE IMPACT OF DAMS? Dams exacerbate eutrophication by slowing the natural flow of streams and rivers trapping nutrients and sediments from up stream. Water behind the dam heats up driving out native cold-water fish. Warner's Pond increases the water temperature in Nashoba Brook and then flows into the Assabet River.

4. INVASIVE SPECIES: Dams can create conditions for invasive plants that thrive in slow-moving systems such as water chestnut, fanwort, and variable water milfoil - all abundant in Warner's Pond.

5. DAMS BLOCK THE FREE FLOW OF SILT AND SAND: The silt, sand, and gravel are needed to maintain the riverbanks, the natural riverbed, and aquatic wildlife habitat. Dams also block sand from reaching ocean beaches resulting in increased erosion when longshore sediment transport is reduced.

6. WHAT HAS BEEN DONE TO CONTROL INVASIVES SPECIES? Mechanical harvesting, hand-pulling (water chestnut), hydro-raking and herbicides treatment have been undertaken but with only short-term benefits.

WHY DAM REMOVAL?

7. WHY IS DAM REMOVAL BEING CONSIDERED? Dam removal was proposed as an alternative that would provide an enduring solution to the eutrophication, reduce flood and other risks to public safety, remove the economic and public safety liability associated with maintaining the dam, and restore the ecological health of Nashoba Brook.

Table 1-1. Project Goals

Ecological	Goal 1	Enhance habitat for native fish and wildlife
	Goal 2	Manage aquatic invasive species
	Goal 3	Improve water quality
Recreational	Goal 4	Enhance recreational infrastructure and accessibility
	Goal 5	Increase opportunities for paddle craft use and recreational fishing
	Goal 6	Provide water-based recreational opportunities at Gerow Park
Community	Goal 7	Enhance climate resilience
	Goal 8	Protect public safety
	Goal 9	Minimize long-term operation and maintenance costs

8. WHAT ABOUT DREDGING? Dredging is expensive and had been pursued for only 6 acres of the 48-acre pond. Dredging would have to be repeated over time, with ongoing maintenance and liability of the dam and its flood risks for Concord with Climate related increased rainfall intensity. Dredging would not provide nearly as many recreational, ecological and resiliency benefits as dam removal.

9. COULD THE EXPOSED LAND BE DEVELOPED AFTER DAM REMOVAL? The town has made it very clear that any newly exposed land will still be within the deeded boundaries of Warner's Pond and is protected as conservation land.

BENEFITS OF DAM REMOVAL

10. WILL MIGRATORY FISH ACTUALLY RETURN? Other dam removal projects in New England show a rapid return of migratory fish once a dam is removed. When the Talbot Mills dam in Billerica is removed (planned for 2025), there will be only two dams between the mouth of Nashoba Brook and the ocean, one in Lawrence and one in Lowell. Both have fish passage. In recent years, the fish lift at the Lawrence dam in the Merrimack River has passed as many as 450,000 river herring and 90,000 shad in a single season. There is currently a fishway at the Centennial Island dam on the Concord River in Lowell and work is underway to design a "rock ramp" natural fishway that will improve upstream fish passage effectiveness. Other migratory anadromous fish include Alewife, American Eel and Lamprey all important for improving fresh water and saltwater fisheries.

The Concord River has been identified by both federal and state fisheries agencies as one of the best possible places in the Merrimack watershed to remove a dam for the benefit of restoring migratory fish. To help quicken the pace of restoration, the U.S. Fish and Wildlife Service and Mass. Division of Marine Fisheries have been transporting spawning herring and shad from the Essex Dam on the Merrimack River in Lawrence to suitable areas in the SuAsCo watershed. Offspring of these fish should imprint on the rivers and navigate their return in three to five years as adults.

11. FRESH WATER MUSSEL MIGRATIONS Fresh water mussels filter 10 – 15 gallons of water per day helping to clean the water in the Nashoba Brook and downstream in the Assabet and Concord rivers. The freshwater mussels grow appendages that look like insects and attract fish. When the fish get close the mussels spray them with their spawn where the spawn get caught in the fish gills and scales. After about 30 days of swimming up and downstream the spawn drops off and repopulate a new area of the river. The more fish in the river, the more freshwater mussels resulting in a cleaner river system.

12. HOW WOULD THE DAM REMOVAL AFFECT RECREATION? Recreation would be improved as canoeing and kayaking would be directly connected to the Assabet River and up into the Nashoba Brook and Fort Pond Brook watersheds. On the few days when it gets cold enough for ice to form, ice skating and ice fishing would be winter activities. Fishing would include a wider variety of fish, and the risk of fish kills would be reduced as the water would not be stagnant but running cool and free. The wetlands created by removal of the dam would increase opportunities for hiking, bird watch and enjoying the natural environment. Water activities would continue at Gerow Park.

13. WON'T DAM REMOVAL COST THE TOWN AS MUCH AS OTHER OPTIONS? There are currently many sources of state, federal, and private funding for the engineering studies, permitting and removal of dams to reduce the cost of the dam removal option to the town. There are fewer sources of funding for repair or dredging

14. STUDIES RELATED TO WARNER'S POND: Natural Resources Commission Warner's Pond website, OARS website, Warner's Pond Dredge Feasibility Study (ESS 2018) • Warner's Pond Dam Phase I Inspection/Evaluation Report (Pare 2018) Concord River Diadromous Fish Restoration Feasibility Study (Gomez and Sullivan Engineers 2016) • Concord Open Space and Recreation Plan (Town of Concord 2015) • Warner's Pond Watershed Management Plan (ESS 2012) • Project Completion Report for Nuisance Aquatic Plant Management Program at Warner's Pond (ACT 2004) • Classification of the Natural Communities of Massachusetts (Swain 2020) • Warner's Pond Management Plan (ACT/NEE 1999) • Fisheries Survey of Warner's Pond (MassWildlife 1983) • Talbot Mills Dam Removal project website • Geospatial data layers available from MassGIS2 • Historical maps of West Concord available from the Concord Free Public Library Special Collections.

15. WHAT IS THE PROCESS FOR DECISION-MAKING? The Natural Resources Commission has established a Task Force to study the issue and make recommendations to a future Town Meeting *See:* Warner's Pond Task Force.

For More Information on Dam Removal Benefits: https://www.sudbury-assabet-concord.org/the-challenges/dam-removal