

Warner's Pond Task Force Working Document: List of Issues to Address

The issues below have come up in Task Force meetings and/or onboarding calls as potential areas of research and evaluation. This is a running list that will be updated in an ongoing way as we continue our deliberations. Moving forward, we can use it to inform the topics for future work groups, as well as presentations by outside experts and/or Task Force members.

General

- For all options, clarify:
 - The methods used and practically what would actually happen
 - Financial/cost information (including long-term maintenance and other long-term costs)
 - Effects on recreational uses and accessibility
 - Effects on water quality, fisheries, wildlife, and overall natural resource values
 - Effects on flooding risks and climate change resilience generally
 - Liability and legal issues
- Also consider
 - Ecological and recreational impacts of different options on the broader system beyond the pond.
 - Present and future of Gerow Park, the Bruce Freeman Rail Trail, MCI, and population growth in West Concord, and how they relate to our decision-making.
 - A longer-term view of impacts on the community and the landscape and/or “snapshots” of what the system could look like under different alternatives in the future (e.g., 20, 30, or 60 years).
 - Opportunities to combine different options (e.g., short and long term) as part of a comprehensive set of recommendations.

Environmental and physical characteristics and impacts

- Rate of change/nature of change
 - What we know and can predict about how fast the pond is changing, whether this will accelerate, what it will look like at different points in time in the future, and whether it will eventually reach a steady state if there are no interventions.
- Water quality
 - Whether and how nutrients and sediment interact and how nutrients are released into the Pond.
 - How sediments flow through the Warner's Pond system.
 - More clarity on nutrient loading models: what they can tell us about a system like Warner's Pond and what their limits are.
 - How the water quality compares to that of other ponds in Concord, and what this means in terms of human, pet health, safety, and other factors.
 - Extent/severity of dissolved oxygen levels in the pond, and upstream vs. downstream measurements.
 - Impacts on downstream municipal water supply.
- Pond characteristics
 - Updated information (since 2012) about pond depths.
 - Information about seasonal changes in the pond (e.g., water quality, vegetation).

- Thermal impacts other than climate change, if they can be measured, and if they can be reversed or mitigated.
- The relationship between the warming of Nashoba Brook and the pond.
- Climate
 - Effects of extreme precipitation and flooding on the pond in general, and on nutrients in particular.
- Sediments
 - What is good vs. bad about the sediment quality
 - Presence of PFAS in the sediments and downstream impacts.
 - More modeling details on nutrients in the sediment, and how they impact water quality and plant growth.
- Wildlife
 - Current inventory of wildlife and how it compares to the past/history, and what “should” be there but is missing.
- Stormwater
 - Existing and potential stormwater impacts from the point source discharge on Route 2 into the deep area of the pond.

Recreation

- A clear list of recreational activities that we care about preserving or enabling (current, historical, potential).
- A list of recreational opportunities that are missing/limited due to the state of the pond.
- Understanding the limits of how much recreation the system can reasonably provide, and how this might change under different scenarios.
- Practicalities of maintaining/paying for maintenance of recreational spaces under different scenarios — who will pay for it and do it, and whether and how we can ensure it will be done.

History and Character

- History and cultural significance of the pond/area since the 1600s, including historical writings or surveys about the land.
- The longer-term history of how nature informed the area, and the non-European history of what people experienced before European settlers arrived.
- History of the use of the pond/area for different recreational activities and for ceremonial purposes (including the Scouts).

Treatment approaches

- Herbicides
 - More about the methods of application and impacts of different herbicides, what has been used in Concord and elsewhere, and where they have been successful (or not).
 - Why different herbicide treatments (SONAR) that have been utilized in Warner’s Pond were considered effective (or not).
 - Evidence about the effectiveness of herbicides in Warner’s Pond given how quickly the water cycles through the system (and how this varies in different areas of the pond).

- How regulatory approval of herbicides has changed since 2012 (e.g., for flumioxazin).
- Implications of certain herbicides (e.g., SONAR and 2,4-D) being endocrine disruptors and their role in causing abnormalities in fish.
- Biological controls
 - Clarifying if biological control of loosestrife needs further consideration because it's already in-system, and doing a good job reducing loosestrife.
- Hydro-raking and rotoavation
 - Role of hydro-raking and rotoavation in spreading vegetation, and whether it should therefore be eliminated as an option.
 - Effectiveness of hydro-raking and rotoavation for control of different invasive aquatic plant species in Warner's Pond, and whether this depends on the area of the pond and the time of year (e.g., during the winter when millfoil is gone).
 - Potential role of hydro-raking and rotoavation as part of a broader package of solutions.
- Bottom sealing
 - Potential role in targeted areas (e.g., the shoreline) as part of a broader package of solutions.
- Drawdown
 - Impact of climate change/less freezing on the potential benefits of drawdown.
 - Frequency of drawdown needed to achieve benefits, and examples from other ponds.
 - Impact of dredging on drawdown, if it changes the pond's shallow bathymetry.
 - Confirming drawdown would likely be 3 feet given state regulations.
 - Potential role of drawdown in targeted areas (e.g., the shoreline) as part of a broader package of solutions.
- Nutrient and sediment controls
 - Confirming that this option should not be seriously considered given the extent of the watershed outside Concord.

Dredging

- Impact of dredging on water quality and sediment accumulation, both generally and within Warner's Pond specifically.
- How/why the dredging bid came in so high.

Dam removal

- Extent and depth of deep water areas if the dam is removed.
- Opportunities to plan for recreation if the dam is removed (including for any remaining deep water areas).
- Downstream impacts of sediment dispersal if the dam is removed.