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To: [Sally Needell](#)
Cc: [Karen Edwards](#)
Subject: Gerrish Ecology and Hydrology are One
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TO: Sally Needell, Chair, and Members of the Conservation Commission

The basic reason why both hydrological and ecological studies are needed at Gerrish (studies, not assessments or inventories) is that Ecology and Hydrology here are one and can only truly be studied in the way they interact and work together. The water of Gerrish Springs, situated above the Gerrish-Ambler intersection, rises from springs (that is, springs, not simply run-off), and has been rising in quantity over the fifty years since the Ambler/Gerrish development was put in. This is a result of climate change and the increasingly heavy rainfall events associated with climate change (assisted by heavy snow and therefore snowmelt in some winters). That spring water, which is now a perennial flow (whereas formerly it tended toward seasonality), flows from three distinct stream flows which conjoin just below the Ambler-Gerrish road intersection and there enter the "storage" system of the Gerrish wetlands. The great number of trees, wetland shrubs, grasses, and other wetland vegetation and, as well, wetland soils, then slows and stores all that water, using it (i.e., taking it up - which the trees do a lot of), reducing its quantity, evaporating some of it, and then slowly releasing it to the broad gully of the unnamed creek which then carries it to Gerrish Brook, Johnson Creek, the Oyster River, and Great Bay. The natural ecological service of these Gerrish wetlands is destroyed with construction of a road or any hard and impermeable surface, and the work of these wetlands to hold the flow and put it to good use is destroyed.

Hydrology and ecology work together, physics and biology work together, all in one unit. Therefore, ecological study and hydrological study must be carried out in conjunction with one another. Thus, a simple assessment, an inventory, a simple description of the contents of the wetland ecosystem, as has been done by Mr. West, will not work and is quite insufficient. A study of this interactive physical-biological ecosystem at this site alone, a study requiring an ecologist and a hydrologist working closely together and interactively, would have to cover all seasons and would take at least a year or two to conduct. A study of downstream impacts through the watershed would take additional time. The overall expense of such work is potentially high, often requiring grant assistance of some sort. It certainly could not be contained within the \$6000 to \$10,000 suggested by the Town Planner. A much easier and less expensive option, and a much less ecologically damaging one, would be to use the Bagdad Access to access and develop the property, an alternative already proven doable by the movement of people, vehicles, and mechanized equipment to the site to accomplish soil testing, surveying and other such preparatory work. This has been done and can be done, and it can be done with overall significantly less impact on wetlands. Durham resident and forester John Parry could give good scientific advice on trees and their ability to take up, store and utilize water, while former Conservation Commission Chair Dr. Dwight Baldwin, a

geologist/physical scientist, and naturalist could contribute knowledge of the physical/biological face of the ecosystem, if called upon.

Overall, leaving this physical-biological ecosystem alone and permitting it to do its job is the wiser alternative.

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