

SALMON FALLS Headwater Lakes Septic Survey Report

The Salmon Falls Headwater Lakes

The Salmon Falls Watershed is the area consisting of all land where the water eventually flows into the Salmon Falls River. This includes areas where rain water hits the ground and travels downhill to the river, and also smaller streams and lakes that accumulate rain water and send it to the river.

Watersheds begin in higher elevations, often referred to as headwaters, and end in low-lying areas, ultimately draining out to the ocean. The Salmon Falls River forms the border between Maine and New Hampshire and

eventually drains to the Gulf of Maine. Its headwaters include the four lakes that we are focusing on for this project: Lake Ivanhoe, Lovell Lake, Great East Lake, and Horn Pond. The health and cleanliness of these critical lakes impacts water quality in the entire lower watershed.

Headwater Lakes Septic Survey:

In 2019, AWWA sent a survey to all residents of these lakes to determine the state of shoreline septic systems. Outdated and undersized systems are known to be a significant cause of lake contamination, so AWWA secured grant funding from NHDES to conduct this survey and fund cost -share opportunities for the replacement of 10 systems in the watershed. The survey is designed to determine which systems pose



Figure 2. Number of survey responses and which lakes they came from.

the highest risk to the watershed and thus may be eligible for septic system replacement funds. 700 surveys were sent out to owners of properties within 250' of the shoreline on these lakes. This report analyzes the data from the 100 surveys returned. It is likely that there are more high risk systems in the watershed not displayed here, but this data can act as an indicator for the region.



Figure 1. The Salmon Falls Headwater lakes Watershed.

<u>Contamination from Inadequate Systems:</u> Which systems pose a higher risk to the water?

In this survey, we asked questions that would determine if a system is inadequate and how likely it is to contaminate the lake. The biggest factors affecting this are: the age of the system, how close it is to the water, how many people are using it, and how many days a year it is used. A system that is 10' from the lake causes more contamination than one that is 100' from the lake, and a system used for three months a year poses less risk than one used year round. With this, AWWA created lists of systems that pose high risks of pollution in some or all of these categories. So the highest risk systems are: close to the lake, 40+ years old, used by more than 4 people, and used year round. Systems that only meet three or less of these criteria, are medium or low risk. High risk systems are what AWWA, with funding from NHDES, is interested in helping replace. Replacing inadequate systems is not required by law, but it is essential to preserving the health of the lake and the watershed.

Risk Factor for Septic Systems in the Salmon Falls Headwater Lakes Watershed



Figure 3. Of all the 100 septic surveys that were returned to AWWA, these number show the percentage that posed high, medium, or low risk to the watershed based on how many risk factors were present.

What does this say about septic systems in the Salmon Falls Headwater Lakes?

As mentioned, the participant pool for this survey is small and several key factors impacted the results. First, with a NHDES grant we were only authorized to survey New Hampshire residences. Surveying Maine as well would have produced much more data. The populations of each of the four lakes also differ greatly, with over 200 New Hampshire residents on both Lovell and GEL, 100 on Ivanhoe, and only 26 on Horn. Despite this difference, the return rate for each lake was similar; around 15% of surveys sent to each lake were returned. Figure 2 shows that most responses came from Lovell and GEL, likely due to their larger population.

On Lovell, eight systems were deemed to be high priority for replacement; while Great East and Ivanhoe each had seven. Horn Pond's results returned no high priority systems, however it is worth noting that we only received three surveys from Horn. It is also interesting that Ivanhoe and GEL returned the same number of high priority systems despite a significant difference in population, however, with only 15% of homes being represented the actual number of inadequate systems could vary greatly. What we can say is there are likely far more inadequate systems in our watershed than the data suggests. If a 100 person survey identified 22 systems likely to be causing pollution (approx. 1-in-5), consider the pollution potential of the ~1000 residences of the headwater lakes.

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