

## Wet vs. Dry Weather:

Bacterial contamination is known to be influenced by precipitation, however this is not a strong relationship for all sites. The graph below shows a comparison of all of our samples (2019-2021) with prior 48-hour rain. By river, only the Sudbury sites show a strong relationship with rain. This is because the relationship is moderated by sites such as Maynard, in the Assabet. When graphed by site, the strong relationship with precipitation is evident for Hudson (ABT-162), and Ashland (SUD-236). The boxplot below also shows this same relationship for all sites. (Wet-weather in the boxplot is defined as greater than 0.1 inches in 48 hours.) The boxplot also shows a significant wet-weather difference for Lowell (CND-009), but interestingly, the scatterplot does not show this strong relationship. Since CND-009, is near the mouth of the Concord River, it is diluted with the large river flow. Our hypothesis is that the wet-weather dynamics at CND-009 are related to the flashy nature of flow and bacterial pollution in River Meadow Brook, which is just upstream of CND-009. Small amounts of rain produce bacterial flashes from River Meadow Brook, but large rainfall results in large flows in the Concord which dilute any additional bacteria coming from River Meadow Brook.

