

# MONITORING REPORT SUMMARY

2022  
ELLIS SPRING  
RUMFORD, MAINE



MANAGING FOR SUSTAINABILITY

# ABOUT ELLIS SPRING

Ellis Spring is located in Rumford, Maine, on the western side of the Ellis River. Ellis Spring is located at the southern end of the approximate 164 square-mile Ellis River watershed near its confluence with the Androscoggin River. The Ellis Spring aquifer is part of an extensive complex of permeable sand and gravel deposits that extend north from Woodstock through Milton Township and into Rumford that are mapped as a significant sand and gravel aquifer by the Maine Geological Survey. The sand and gravel sediments were deposited during the recession of the continental ice sheet that occurred between 11,000 and 13,200 years ago. As the ice sheet melted and receded to the north, active deposition of coarse-grained sand and gravel occurred beneath and along the ice margin where meltwater flowed from the glacier. Today, the Ellis Spring aquifer is composed of these thick sand and gravel deposits up to 288 feet thick. Precipitation recharges the aquifer by infiltration, as gravity pulls the water down into the aquifer to become groundwater (Figure 1). The Rumford Water District (RWD) withdraws groundwater that falls as precipitation within the Ellis River watershed boundary and infiltrates into the Ellis River Aquifer.

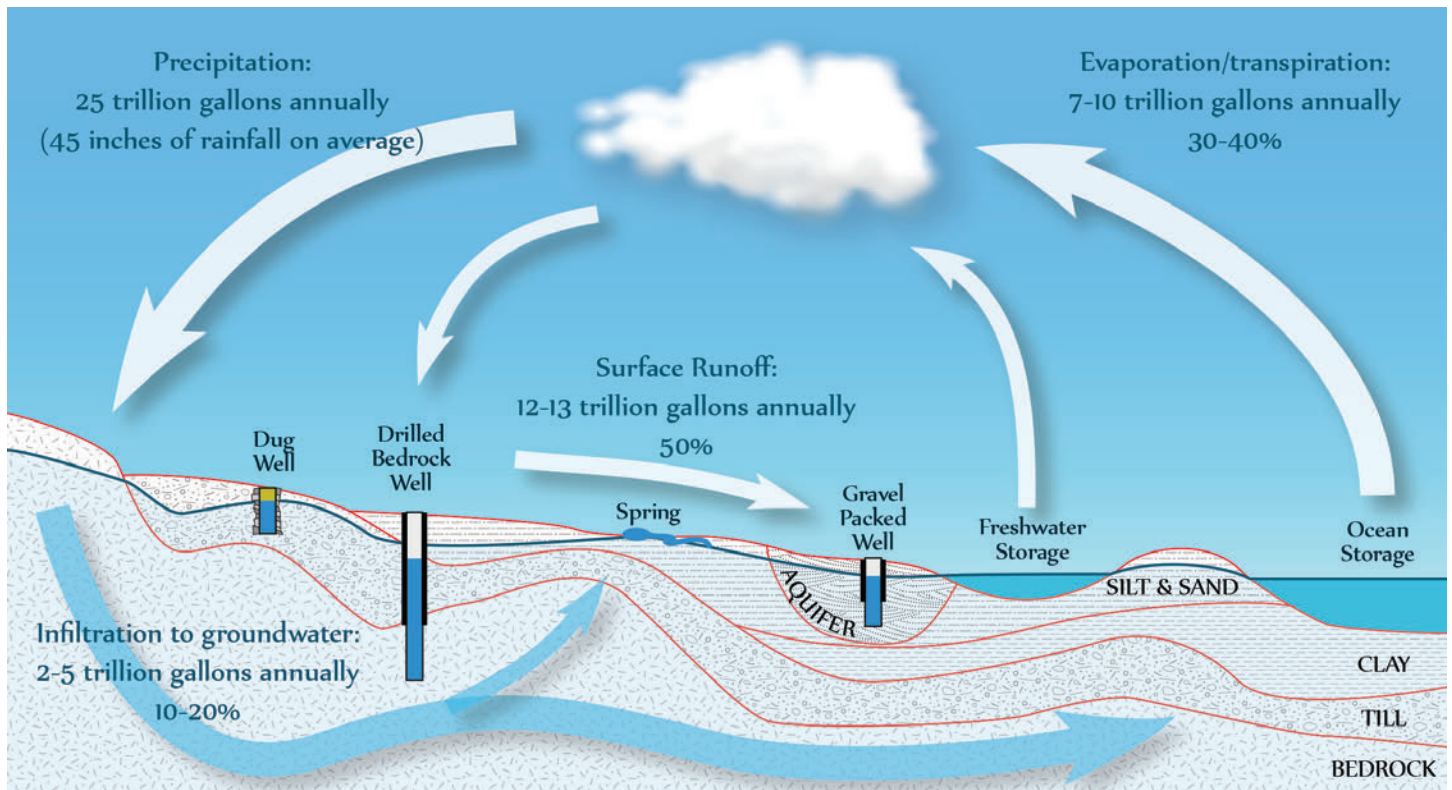


Figure 1: Maine's Water Cycle

## DEFINITION OF A SPRING

A spring is the location where groundwater (water that exists beneath the earth's surface) naturally emerges from the ground. Spring water is withdrawn from two boreholes at the Ellis Spring site, intercepting a portion of the spring water that would otherwise naturally emerge from the ground. The spring water here naturally flows into the Ellis River, then to the Androscoggin River and ultimately flows to the Atlantic Ocean.

## WATER WITHDRAWALS AND SUSTAINABILITY

Beginning in March 2019, Poland Spring began purchasing spring water from the RWD, a water utility that owns the Ellis Spring site. The Maine Drinking Water Program (DWP) of the Department of Health and Human Services regulates transportation of spring water. The DWP reviewed and permitted an application by Poland Spring,

including a detailed hydrogeologic evaluation report, to transport spring water from RWD’s Ellis Spring site. In issuing its permit, the DWP required that purchase and transport of spring water by Poland Spring have no unreasonable adverse effects on the quality and quantity of water available at the RWD’s municipal water supply wells, private domestic wells, wetlands, or the Ellis River. In addition to requiring extensive scientific investigations of the Ellis Spring site, the DWP established a series of permit conditions before issuing the water transport permit. These performance standards protect the aquifer and other natural resources.

Hydrologic analyses were used by regulators to establish an extraction volume from the Ellis Spring source of 158 million gallons of water per year. Greater than this volume of water has been withdrawn historically by the RWD to serve its customers with no adverse impacts to other resources. While this may seem like a large number, this amount represents less than 0.11 percent of the average annual precipitation falling in the Ellis River watershed. In 2022, Poland Spring purchased approximately 91.2 million gallons of spring water, which is approximately 58 percent of the permitted volume and approximately 0.06 percent of the average annual precipitation falling in the watershed.

**Poland Spring’s water withdrawals from Ellis Spring are regulated by:**

- Rumford Water District
- Dept. of Environmental Protection
- Dept. of Health & Human Services (Maine Drinking Water Program)

## SITE MONITORING

### **Aquifer and Surface Water Health**

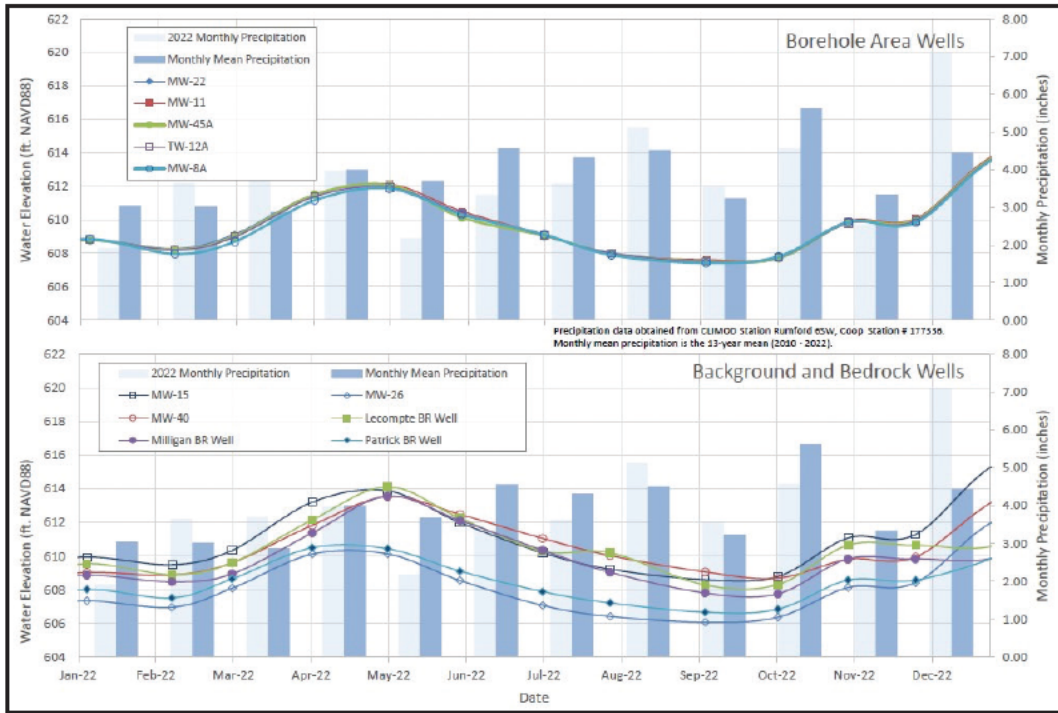
Independent scientists contracted by Poland Spring regularly and thoroughly monitor the Ellis River, groundwater system and springs located in and around the Ellis Spring aquifer. The extraction rates at the spring water boreholes are monitored continuously. Monitoring also includes aquifer levels, spring flow and flow in the Ellis River in and around the Ellis Spring aquifer. These considerable monitoring efforts ensure that Poland Spring’s water purchases are sustainable and do not adversely affect the groundwater, surface water, and natural environments. These independent scientists submit quarterly monitoring data and annual reports to the RWD, DWP, and the Maine Department of Environmental Protection (DEP), where they are available to the public for review.

## RECENT MONITORING RESULTS

The graphs in **Figure 2** summarize important measures of the health of the natural groundwater system. As depicted in the top graph of **Figure 2**, groundwater levels in monitoring wells located in the immediate spring area (on-site) surrounding Ellis Spring Boreholes 1 and 2 naturally fluctuate by a few feet, depending on the season. Spring and fall rains typically lead to excess recharge to the aquifer and rising groundwater levels. Growth and uptake of water by plants in the summer usually exceeds recharge, which often leads to decreasing groundwater levels in the summer months. During the winter when the ground is frozen, recharge is also low and groundwater levels typically decline.

As depicted in the bottom graph of **Figure 2**, groundwater levels in background (off-site) monitoring wells located in the Ellis River valley, but outside of the immediate spring water borehole area also exhibit normal seasonal variation similar to water levels measured in close proximity to the Ellis Spring boreholes. Inspection of the graphs indicate that seasonal conditions and changes in precipitation correlate with trends of groundwater levels measured both on and off-site.

Water levels monitored throughout the Ellis River watershed continue to demonstrate that the aquifer has not been adversely influenced by spring water production operations.



**Figure 2: Groundwater Monitoring Data**

## FUTURE MONITORING

RWD and Poland Spring take their environmental stewardship responsibilities seriously and are committed to sustainable management of natural resources. Monitoring the groundwater, surface water and precipitation will continue for as long as spring water is withdrawn from Ellis Spring.

## SUMMARY

Spring water purchases by Poland Spring at Ellis Spring in Rumford, Maine are overseen by its independent hydrogeologists, the RWD, Maine DWP and the Maine DEP. The RWD and Poland Spring manage for sustainability through proactive monitoring and responsible water use to prevent adverse impacts to groundwater, surface water and other natural resources.

**Interim reports for the months of June through September as well as quarterly and annual monitoring reports are available to the public at the Rumford Water District Office, 25 Spruce Street, Rumford, Maine 04276**

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