



## FACT SHEET: WATER CONSERVATION - LAKE WATER



### SUSTAINABILITY OPPORTUNITY

Stanford uses lake water to irrigate the golf course, agricultural leaseholds, athletic fields, and campus landscaping. By using lake water, Stanford conserves more than 1 million gallons a day of the limited, high-quality potable water supply. Lake water preserves potable water for domestic, research, academic, and academic support facility use. Lake water is only plumbed to outside fixtures for irrigating landscaped areas, and it is not drinking or domestic water. Stanford's lake water system is an important element of the long-term sustainable water supply for the campus. The primary source of the lake water is untreated surface water runoff from the local streams that is conveyed to and stored in Searsville and Felt lakes. Lake Lagunita is not part of the lake water system.

### FREQUENTLY ASKED QUESTIONS

#### 1. What is in lake water?

Answer: Lake water contains the same substances that are found in local creeks and the local environment. Like water in creeks, lakes, and reservoirs used for recreation, lake water for irrigation is non-potable, meaning it is not suitable for drinking. Lake water quality is also similar to rain water that puddles on the ground, and includes minerals from soils and naturally occurring bacteria commonly present in soils and the environment.

#### 2. Is lake water treated?

Answer: Lake water is not chemically treated. Once the lake water enters the piped distribution system on campus, it is filtered to reduce sediment and some naturally occurring organic material. Otherwise, it is left in its natural state, which includes some remaining organic matter, such as algae and sediment. All irrigation system water is non-potable and should never be used for purposes such as drinking, bathing, washing dishes, or any other domestic use.

#### 3. Why does the lake water smell sometimes?

Answer: Lake water temperature, density, and organic composition varies seasonally, and these natural changes affect the water quality. The lake water contains naturally occurring organic matter, such as algae and bacteria. The organic matter is continually recycled naturally, decomposes, and adds nutrients to the water and bottom sediments. Warm summer weather accelerates the process of decomposition, and the higher nutrient level can cause algal blooms that deplete the dissolved oxygen at the bottom of lakes. If decomposed algae accumulate

at a faster rate than bacteria can decompose the organic matter, the lake will be rich in organics. Frequently, anaerobic bacteria produce gas, so the organic-rich water can have odors. Wind stirs up the lake water, creates circulation and mixing, and can "redistribute" and "turn over" the lower water that is rich in decomposing organic material, causing the pungent material to be exposed to the air, resulting in noticeable odors.

#### 4. How long will the smell last?

Answer: Typically, once the organic material is exposed to air it oxidizes naturally and the smell dissipates. However, the duration of the process is dependent on and aggravated by warm weather, so periodic odors are to be expected during the summer and fall months.

#### 5. What is Stanford Utilities doing about the smell?

Answer: Stanford Utilities staff maintain the lake water supply, distribution pipes, and lakes. Since the lake water sources are from local streams and rainwater, Stanford's management of the lake water system mainly involves maintaining Felt and Searsville lakes and the piping distribution system that contains the lake water. Weeds are cut in the spring to reduce organic matter. To minimize odors and keep the lake water "fresh", Stanford adds groundwater from its wells to the lakes.

#### 6. What is the benefit of using lake water for irrigation?

Answer: Use of lake water conserves the limited potable water supply for domestic, research, academic, and academic support facility use. Stanford conserves more than 1 million gallons of potable water a day by using lake water for campus irrigation.

#### MORE INFORMATION

##### ENVIRONMENTAL QUALITY AND COMPLIANCE

<http://lbre.stanford.edu/sem/environmental>

##### WATER SUSTAINABILITY, EFFICIENCY AND CONSERVATION

[http://lbre.stanford.edu/sem/water\\_conservation](http://lbre.stanford.edu/sem/water_conservation)

