

WHERE'S OUR WATER PART 1 - VIDEO TRANSCRIPT

Brought to you by The Asombro Institute for Science Education, with support from the USDA Southwest Climate Hub.

This is a photo of Lake Mead outside of Las Vegas, Nevada in 2001 and 2015. What do you see when you compare the two photos? Here's another photo taken in July of 2015. The white rocks are covered in minerals deposited by water. In wet years, like 2000, water reached the top of the white minerals. This dashed line shows how low the water level is in 2015 when this photo was taken. You can see from these photos that water levels have been low in recent years. What do you think caused this change?

The water levels at Lake Mead and many other reservoirs around the Southwest have been low for years, and this is just one example of the effects of climate change on our water supply. Scientists all over the world study the effects of climate change on water, and analyzing data is an important piece of their work. Today we'll think more about what's affecting the water levels at Lake Mead, then you'll use data to construct an argument about the future of the southwest's water supply.

Across the globe temperatures are rising due to climate change. This map shows change in temperature across the Southwest. The darkest red color indicates temperatures that have risen by over 2 degrees Fahrenheit. Look for your state on the map. What's happening to temperatures where you live? How might this affect the amount of water in the Southwest?

Even just a small increase in temperatures is enough to affect our water supply by increasing the rate of evaporation. Have you ever noticed a puddle dry up quickly on a hot day? In the southwest where the climate is already dry, rising temperatures are expected to lead to longer and more extreme droughts. Drought is a lack of moisture bad enough to have economic, environmental, or social impacts.

This graph shows drought levels in the southwest since 1895. Look at the Y-axis. Positive numbers represent wet years, and negative numbers represent dry years. Over the past 120 years, does the data show that the Southwest has gotten wetter, drier, or stayed the same?

The graph shows us that it's getting drier in the southwest, which means we're experiencing more drought. What does that mean for important water sources like Lake Mead?

The photos of Lake Mead in 2001 and 2015 are both from relatively dry years. When temperatures increase, evaporation from this reservoir also increases, lowering water levels, and the water becomes unavailable to people.

Figure 1. Average Temperatures in the Southwestern United States, 2000 – 2020 Versus Long-Term Average

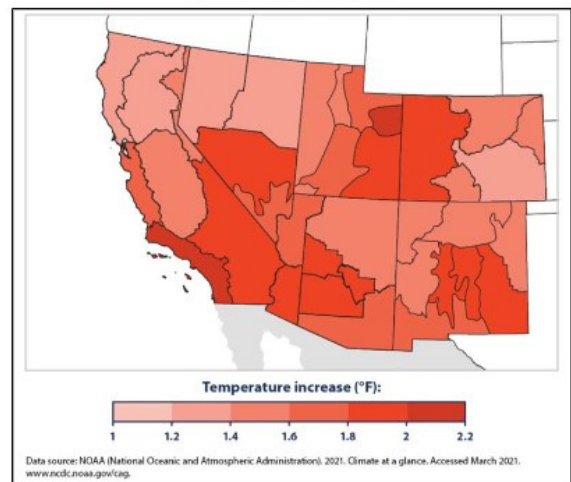
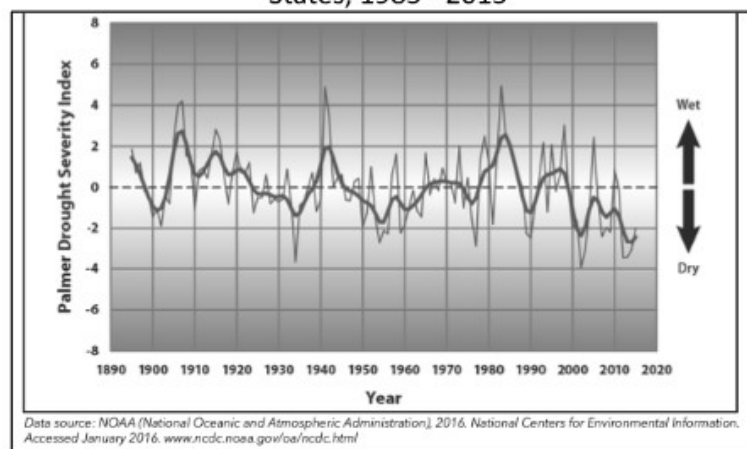


Figure 2. Drought Severity in the Southwestern United States, 1885 - 2015



Another impact of climate change on water resources has to do with snowpack, which builds up during the winter in high elevation areas. When warm spring weather arrives, the snow melts, filling rivers and percolating through the soil to replenish groundwater supplies. As the climate warms, precipitation will fall more often as rain instead of snow. This map shows the change in April snowpack throughout the western U.S. The bigger the dot, the bigger the change in snowpack. Red dots indicate decreases in snowpack, and blue dots indicate increases. What's happening to snowpack in the western U.S.? How will this affect the amount of water in the Southwest?

Let's take a look at those first photos we looked at of Lake Mead and explain what we're seeing. Climate change is causing increased temperatures. Increased temperatures cause drought, and water from Lake Mead evaporates. Increased temperatures also cause decreased snowpack which stops new water from filling the emptying reservoir.

Consider the evidence you've gathered from the three charts and make a claim. How will climate change affect the amount of water in the Southwest? Does this mean we need to conserve water?

Figure 3. Trends in April Snowpack in the Western United States, 1955 - 2022

