

Storr's Lake: a living museum

San Salvador's greatest assets are its communities. From Cockburn Town to Victoria Hill and United Estates, neighbors work together to make San Salvador's communities unique and wonderful places to live. On the east side of San Salvador, in Storr's Lake, there are different sorts of unique and wonderful communities, but you would need a microscope to see the neighbors living there. They are microbes, tiny life forms that live around the shore, in the water, and on the lake bottom, and Storr's Lake is full of them. There is an incredible variety of microbes in Storr's Lake. It is like a living museum, with communities of microbes that can be found nowhere else on Earth.

The unusual color of the lake's water, which can range from brown to orange to a rosy red, is actually due to microbes living in the water. These microbes are called "halophilic," which means "salt-loving," and they live in Storr's Lake because the water is so salty. During especially dry weather, the water can be over three times saltier than normal seawater. The color of the microbes, in turn, is due to chemical pigments that the microbes use to catch sunlight, which they can use for energy in the same way that plants do. The lake's color appears to change over time because the numbers and types of microbes in the water change along with changes in water saltiness and chemistry.

Microbes live on the bottom of the lake, too. Around the margins of the lake, the lake bottom is often left exposed when the water level recedes in dry weather. The microbes that live in this region form fist-sized, jelly-like aggregates that have not been described from anywhere else in the world. The slimy jelly-balls help hold in water, protect the microbes inside from harmful ultraviolet radiation from the sun, and can also increase the habitable space for sunlight-harvesting microbes. The jelly itself can also serve as food for different types of microbes that can perform unique and useful functions, for instance, making "fertilizer" for sunlight-harvesting microbes by extracting nutrients from rock, sediment, and air. Thus, these jelly-balls contain communities of microbes that work together to cope with some of the unique challenges presented by the Storr's Lake environment.

Microbes living deeper in the lake have to deal with different challenges. There they need to find ways to harvest sunlight that can not penetrate very far in water, and they also must deal with the peculiar water chemistry of Storr's Lake. In the middle of the lake, microbes form very large mounds called "stromatolites," which comes from the latin words for "rock" and "bed sheets." These stromatolites can be up to two meters in height, which helps the microbes reach up towards the sunlight. The microbes grow in a thin layer at the top of the stromatolites. Their biological activity, over time, causes minerals dissolved in the water to form a thin rocky crust over top of the microbes. A new layer of microbes grows over top of this, and so on, and so on, forming layer after layer over long periods of time. Some of the stromatolites in Storr's Lake have been growing like this, layer by layer, since long before Christopher Columbus set sail. Fossilized stromatolites can be found in rocks from all over the world, and the existence of living stromatolites in Storr's Lake gives scientists a unique opportunity to learn about the environments that these other rocks may have formed in.

Storr's Lake, because of its size, water chemistry, and microbial life, is a unique environment and a tremendous natural, scientific, and educational asset for San Salvador. It is a living museum, rich with the possibility for discovery, and its microbes can teach

us a lot about how living things work with each other and with their environment to make functioning communities.