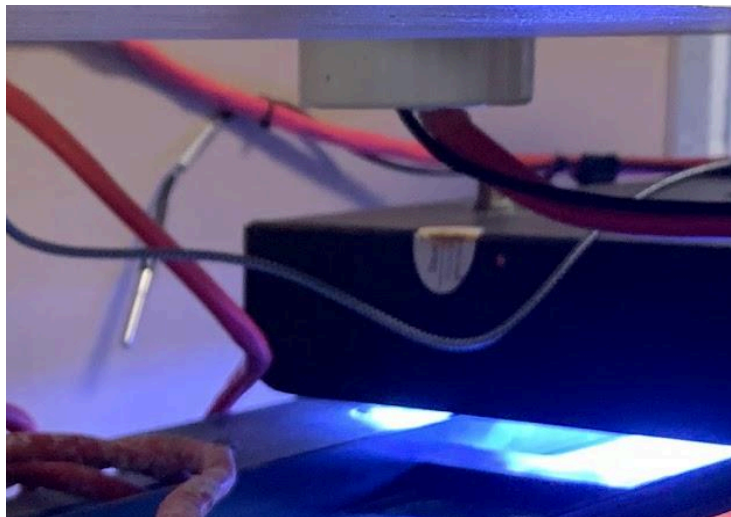
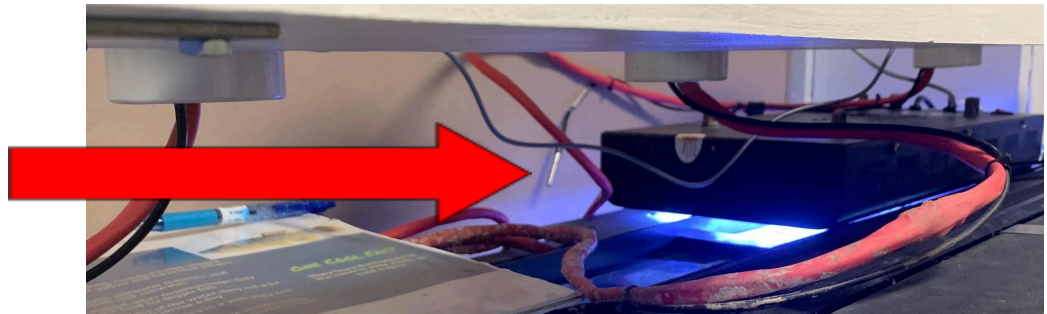


SOLUTION: The Case of the Strange Temperature Spikes

In our classroom, we expected the temperatures to dip from air to surface to bottom of the aquarium, and BOB 07 showed this trend. But BOB 01's surface water data spiked from the time of placement in the aquarium until about 5 pm that night, and then again from about 8 am into the next day. Even during the overnight hours, the surface water data tracked air temperature closely and didn't really fall below it.

In fact, this trend continued every weekday: surface water temps tracking air temps closely, but spiking from around 8 am to 5 pm on weekdays.

First, we concluded that the water sensor might not be submerged, and in this we were correct: the sensor was hanging above the water.



But why the temperature spikes during the day?

Look closely at the picture. Can you see the light from the aquarium bulb next to the sensor? The sensor was both out of the water and being heated by the bulb when it was turned on. The teacher turns that light on when she arrives at school in the morning and off when she goes home in the evening.

Mystery Solved: The water temperature sensor was out of the water and measuring the air temperature. It was also placed close to the aquarium light bulb, which was turned on from around 8 am to 5 pm on weekdays.