**PAESTA Podcast Series – You Asked, We Answered**

**Episode 10 – What are shade balls, and why did LA drop 96 million of them into their reservoir?**

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Hello my name is Amy Ryan and welcome to today’s PAESTA podcast in which we will be discussing what are shade balls and why did Los Angeles drop 96 million of them into their reservoir? Of course, we are all aware of the droughts California has been facing throughout its existence but in particular, throughout the past several years. These droughts of course are affecting California’s freshwater sources, putting the residents in danger with extremely low amounts of drinking water. This is why the government proposed the idea of shade balls. Shade balls by definition are small plastic spheres that float on top of a reservoir for environmental protection and to slow evaporation. On August 12, 2015, the Los Angeles Department of Water and Power dropped 96 million shade balls into the Los Angeles Reservoir in order to prevent algae growth and reduce evaporation. [1,2]

You may be wondering why the department waited until August of 2015 to dump these shade balls into the Los Angeles reservoir. The reason is because California at that time was facing a four-year drought which was considered the worst drought in California’s history. They wanted to be sure the shade balls would be effective so, before dropping the shade balls the department tested them for seven years and found that they reduced water evaporation by 85-90 percent and created them to last approximately 25 years. The city officials hoped to save the 3.3 billion gallons of water with the shade balls. They hoped the shade balls would cool the 175-acre reservoir which would result in the reservoir being less susceptible to evaporation, chemical reactions that can produce harmful substances, and algae growth. The shade balls were also very inexpensive. They were 36 cents a piece, totaling in 34.5 million dollars and officials said they would save the city 250 million dollars overtime. [1,2]

A short five months later after the shade balls had been dumped into four reservoirs in California, they were all being stripped of the shade balls except for the Los Angeles reservoir. The reservoirs that were stripped of their shade balls were replaced by floating covers. Federal rules were the cause of this substitution after mandating that all bodies of drinking water open to the air must be covered. This is because floating covers create more of a barrier from sunlight and airborne contaminations. The only reason the balls are not being removed from the Los Angeles reservoir is because of the expenses. As I said earlier, the shade balls saved Los Angeles 250 million dollars, and this is because it would cost 250 million dollars to install a floating cover over a 175-acre reservoir. The Los Angeles department of Water and Power states that the shade balls are reducing algae growth and water evaporation, but does that mean they are not harming the water itself? [3]

Max Liboiron, a professor at Memorial University of Newfoundland, who studies marine biology said, “most plastics leach endocrine disrupting chemicals that interfere with animal and human hormone systems (Yang 2011). Some endocrine disruptors, break down in water after a few weeks or months. Some don’t. We don’t know what chemicals are in the shade balls, but they will leach, especially because the balls are in the hot sun and are meant to be left in the water over a long period. Most water treatment systems don’t take these kinds of chemicals out of the water.” Liboiron also stated that the balls will fragment into “micro plastics.” Meaning that the shade balls will never decay but instead just shrink and shrink in size over time. [4,5,6]

As you can see this creates quite the controversial topic. Even though the shade balls are reducing evaporation and algae growth, are they really protecting the Los Angeles reservoir? Or are they instead doing more harm than good? Remember, if the shade balls just shrink and shrink overtime, that means eventually humans who are drinking the water from the reservoir will be consuming the micro plastics. So the question of is it really worth saving the 250 million dollars? Even though the shade balls are cost effective what if they eventually do leach and effect human hormone systems? What if they effect animal hormone systems as well? And what if humans consume the tiny micro plastics they create? What effects over time could all of this do to the human and animal body? If the Los Angeles Department of Water and Power does not remove the remaining shade balls, I suppose all we really can do is wait and observe the effects of the shade balls on human and animal life. Or is it for society to decide how their government should invest and spend its money? Follow and learn more about this topic as the shade balls and their journey in the Los Angeles reservoir continue over the time to come. Again I am Amy Ryan and thank you for listening.

*(This audio file was recorder by Amy Ryan on March 25 2016)*

**Works Cited**

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