



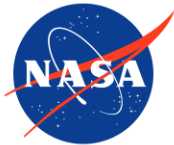
**What effect does electrical conductivity have on
dissolved oxygen in mashapaug pond?**

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This project connects to GLOBE *hydrology*
protocol water quality testing.



The Mashapaug pond has been around for hundreds of years. Over time the pond would go from a drinking source and swimming spot for local kids and families to being drastically changed to a toxic polluted inhabitable and unhealthy pond. The Gorham Company polluted that pond with so much toxic waste and other chemicals that today it's dangerous to go near. The pollution was so bad that the dissolved oxygen in the water would be around 2.9 to 4.5 which is terrible due to the fact that healthy water is usually from 6-8.5 ml of dissolved oxygen. This is inhabitable for animals and drinking wise, the pollution really altered the dissolved oxygen of Mashapaug pond and to this day the water is still the same. Inhabitable

Steps:

1. First we have to grab our items which are 3 bottles that hold water.
2. Then we go to the pond and I fill up the bottles to the brim with the pond water.
3. Then we go back to class.
4. Then when we get to class we grab our electromechanical DO sensor and we hold in still for 5 minutes so it can balance out.
5. Then we measure the dissolved oxygen in all 3 bottles of water
6. Then record in our notebooks how much DO is in the bottle.
7. Then we take all 3 numbers of the bottles and get the average.

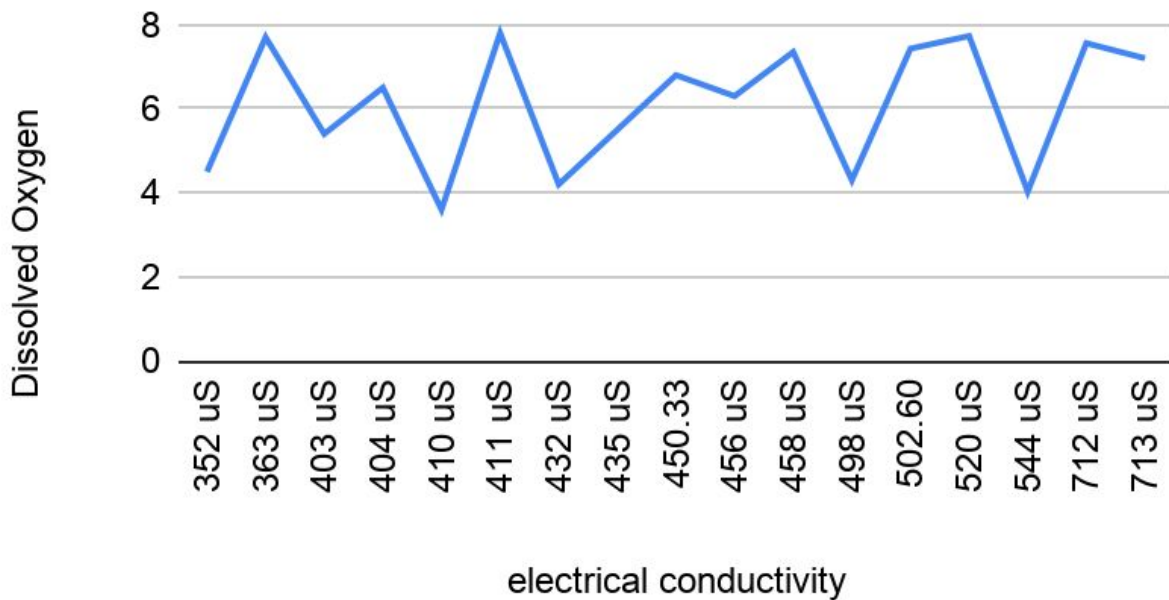
Materials:

1. We use 3 bottles to store water
2. A electromechanical DO sensor
3. Box to hold our materials.
4. Gloves
5. notebook

Data And Table

E C	DO
352 μ S	4.5
363 μ S	7.7
403 μ S	5.4
404 μ S	6.5
410 μ S	3.6
411 μ S	7.8
432 μ S	4.2
435 μ S	5.5
450.33 μ S	6.8
456 μ S	6.3
458 μ S	7.35
498 μ S	4.3
502.60 μ S	7.43
520 μ S	7.73
544 μ S	4.03
712 μ S	7.56
713 μ S	7.2

Electrical Conductivity effect on Dissolved



Analysis of the table and data :

As we can see whenever the electrical conductivity is around the 400 to 500 area the Dissolved Oxygen in the pond usually sits around 6.9-7.7. Which right here is what we can consider a flat rate because this rate doesn't change so when the electrical conductivity is high so is the dissolved oxygen but there is a point where when the electrical conductivity was at a 290 and the Dissolved Oxygen was at a 4.6 rating which is a very unhealthy level for water. And another instance is when the electrical conductivity was at 277pm the dissolved oxygen in the pond was at a 4.3. So it's safe to say that when there is a higher Electrical conductivity in the water then there will be a higher level of dissolved oxygen in the pond as well they will continue to correlate the whole time.

Conclusion of the Lab Report:

So to really wrap everything up the data that we have collected from our pond is a tad bit worrying, like the electrical conductivity in the water the pond that we measured was always around the 400uS range but in healthy pond water the electrical conductivity can go up 2000uS. And then we have the dissolved oxygen which can be around 12 and higher but in our pond the water Dissolved oxygen was around 6.5 to 7 which is very low and honestly just reveals to us how unhealthy the water truly was. Like whenever the electrical conductivity was around 400 the dissolved oxygen would range from 6.5 to 7 so they were both kinda controlling each other. These two both affect each other whenever they are measured. Some things that we can do as

a community to better the future for the pond vary from us and how we take action, such as possibly draining the water and refilling the pond or have the local government sign a bill to strengthen the efforts in cleaning the ponds and water sources in Rhode Island.