

Lake Ferguson and Landfill

Research

Introduction

We had to do some research around the Lake Ferguson and the Landfill, so we decided to study the effects of the Landfill on the quality of the water from Lake Ferguson. To evaluate this, we looked at the turbidity and the dissolved oxygen in the water. This is important because the water from Lake Ferguson is used as drinking water in Kangerlussuaq.

Materials and equipment

Data logger (Vernier)

Pasco probe with weather and light attachments

Turbidity sensor

Dissolved oxygen sensor

Sampling containers

Procedure

We collected water samples from both sites and brought them back to perform testing on them. While we were on the sites, we used the Pasco probe to record measurements on the weather and light. For the water tests, we followed the instruction in the testing kits.

Data/information

Weather and Water Quality Data at Lake Ferguson and the Landfill

	Lake				Landfill			
	Trial 1	Trial 2	Trial 3	Mean	Trial 1	Trial 2	Trial 3	Mean
Windspeed	0,5 m/s	0,7 m/s	2,6 m/s	1,2667 m/s	0 m/s	0 m/s	0 m/s	0 m/s

Temp (°C)	17,9°C	15,1°C	11,9°C	14,9667°C	19,6°C	19,2°C	17,4°C	18,733°C
Relative Humidity	41%	44%	50%	46%	35%	35%	36%	35%
Air Pressure (mBar)	1.005,76	1.005,64	1.005,63	1.005,68	1.013,38	1.013,27	1.013,23	1.013,29
Dew Point (°C)	2,8	2	2,4	2,4	3,9	1,6	2,9	2,8
Light Intensity (lux)	6.472,28	4.082,45	10.151,66	6.902,13	7.575,54	10.760,00	9.145,12	9.160,22
Turbidity (ppm)	10.900,70	10.944,30	10.933,70	10.926,23	34.895,90	37.519,80	35.089,40	35.835,03
Dissolved Oxygen	9.3 mg/L				6.7 mg/L			

Results

Our data was consistent with what would be expected of the area because of the conditions surrounding it. At the Landfill, the ground was muddy and there was a lot of trash and mosquitoes too and there was not much vegetation around the garbage. Because of these conditions the quality of the water was very poor; the turbidity was much higher than at the lake, and there was a lower amount of dissolved oxygen in the water. At the lake, the water was much clearer and the area was not polluted. The ground was covered in rocks and there was a lot more vegetation in the area. The weather conditions were slightly different from the Landfill; the temperature was a little cooler, it was windier and there was more moisture in the air.

Our water testing data may have been affected by the calibration of some of the probes, so it may not be as accurate as it could be. Our weather data was not a very good indicator, because we collected it for one day, where as a long term study would have provided a better model.

Conclusion

Our data shows, that Lake Ferguson is much cleaner than the Landfill and the surroundings did affect the water quality. We were limited because we were unable to collect data from different depths; doing so could have told us a little bit more about how extensive the change was from the lake to the Landfill.