

# HEALTH OF THE BOW RIVER LAB REPORT



## QUESTION

Is the Bow River healthy?

## INTRODUCTION

The Bow river is the primary drinking water source for the City of Calgary and many other towns. Throughout the Bow River, there has been a controllable amount of aquatic creatures and aquatic plants. This is a sign of a healthy river system. The downfall of the river's health is with the amount of pollution going into the river. There were multiple plastic pellets found in the river around the 27th of July 2017<sup>1</sup>. This can change the river's pH, turbidity, temperature and dissolved oxygen. The most ideal pH level for rivers is around 7.4<sup>2</sup>, for turbidity is around 10 JTU<sup>3</sup>, dissolved oxygen should be over 5 ppm, and the temperature should range somewhere from 5°C to a high of 30°C<sup>4</sup>. There are multiple other cases of pollution that goes into the river. In the different sites, the tests done were all different. This is the cause of different substances going into the river at different parts. Aquatic life, by itself, can also cause harm towards the river's appearance. This is done by the nutrients overgrowth; it creates an algae layer that can kill fish and other aquatic life forms underneath the algae.

## OBSERVATIONS & GRAPHS

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<sup>1</sup> <http://www.cbc.ca/news/canada/calgary/city-bow-river-pollution-spill-pellets-1.4225340>

<sup>2</sup> <https://www.grc.nasa.gov/www/k-12/fenlewis/Waterquality.html>

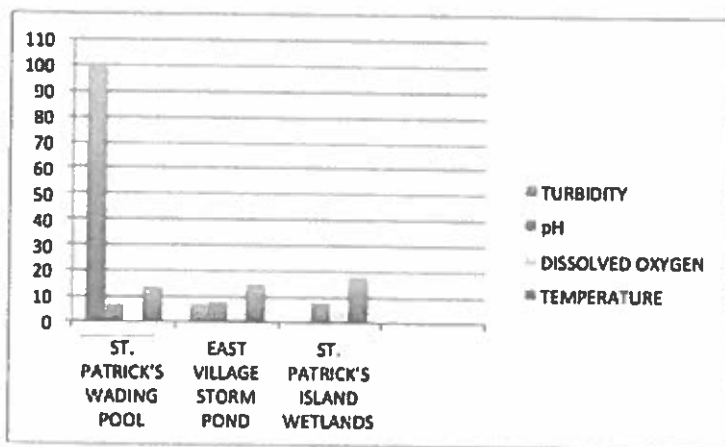
<sup>3</sup>

[http://www.riverwatch.ab.ca/images/River\\_Watch\\_Docs/RW%20Water%20Quality%20Report%20007.pdf](http://www.riverwatch.ab.ca/images/River_Watch_Docs/RW%20Water%20Quality%20Report%20007.pdf)

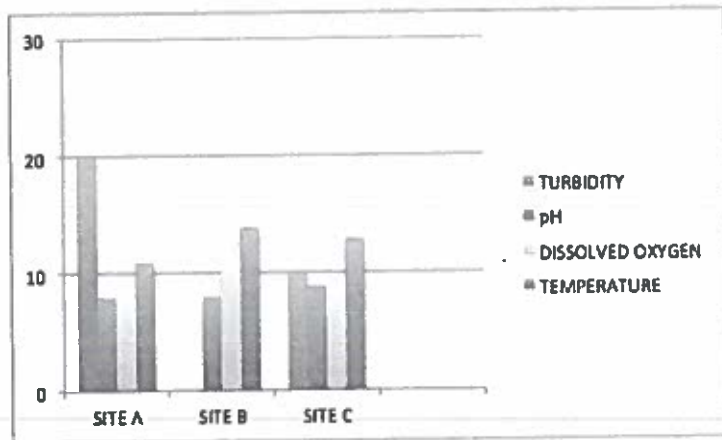
<sup>4</sup>

[http://www.riverwatch.ab.ca/images/River\\_Watch\\_Docs/RW%20Water%20Quality%20Report%20007.pdf](http://www.riverwatch.ab.ca/images/River_Watch_Docs/RW%20Water%20Quality%20Report%20007.pdf)

LOCATION: ST. PATRICK'S ISLAND	TURBIDITY (JTU)	pH	DISSOLVED OXYGEN (ppm)	TEMPERATURE (°C)
ST. PATRICK'S ISLAND WETLANDS	100	7	0	14
EAST VILLAGE STORM POND	80	8	6	15
ST. PATRICK'S WADING POOL	0	8	9	18 ?



LOCATION: PRINCE'S ISLAND	TURBIDITY (JTU)	pH	DISSOLVED OXYGEN (ppm)	TEMPERATURE (°C)
SITE A	20	8	8	11
SITE B	0	8	11	14
SITE C	10	8.9	8	13



## PROCEDURE

### Turbidity:

- ❖ Fill up jar of water, that is being tested.
- ❖ Place a Secchi disk in the jar of water that is being tested.
- ❖ While holding a turbidity chart, look down into the water and compare the appearance of the Secchi disk in the water to the icon on the chart.
- ❖ Observe and record.

### pH:

- ❖ Using the jar of water you used earlier, get a pH strip.
- ❖ Dip the pH strip for about 20-30 seconds.
- ❖ Take the strip out of the water.
- ❖ Using a pH chart, compare the pH strip to the chart.
- ❖ Observe and record.

### Dissolved Oxygen:

- ❖ End of vial needs to be snapped in order for water to flow in.
- ❖ Shake the vial of water until you get a certain shade of blue.
- ❖ Compare the vial with other shaded blue samples that are numbered from 1-12 (This comes with a kit). The unit of measurement is mg/L.

- ❖ Examine and record.

## Temperature

- ❖ Place thermometer in the jar of water being tested.
- ❖ Wait 30 seconds.
- ❖ Take thermometer out.
- ❖ Observe the thermometer then record.

## CONCLUSION

The pH levels, at each sites, are where they need to be. For three of the tests, the river's pH levels were consistent at an 8. Referring back to prior research, the most ideal pH level is 7.4. An 8 is a pretty good number to be at. Thus the Bow River is healthy, pH wise.

Turbidity levels averaged around 10 JTU except for two sites, East Village Storm Pond and St. Patrick's Island. The turbidity levels were at 80 JTU and 100 JTU, respectively, which is quite high. Moreover, the turbidity of the river is healthy.

The dissolved oxygen at all sites, except for the St. Patricks Wetlands, exceeded 5 ppm which is good for the different species living in the Bow River. They will be able to flourish and survive in the Bow River.

The ideal temperature stated in the introduction said it should range from 5°C to 30°C. All the sites had a temperature range from 11°C to 18°C which is a healthy temperature for the Bow River.

All in all, based on the data and information collected, the Bow River is a relatively healthy river. The health of the water is critical to those living in the river, thus examining and studying the number of invertebrates living in the river is a step we should take next.

