

Cathance River Water Quality Study 2019

Ben Humphrey, Erik Richardson, Grady Satterfield



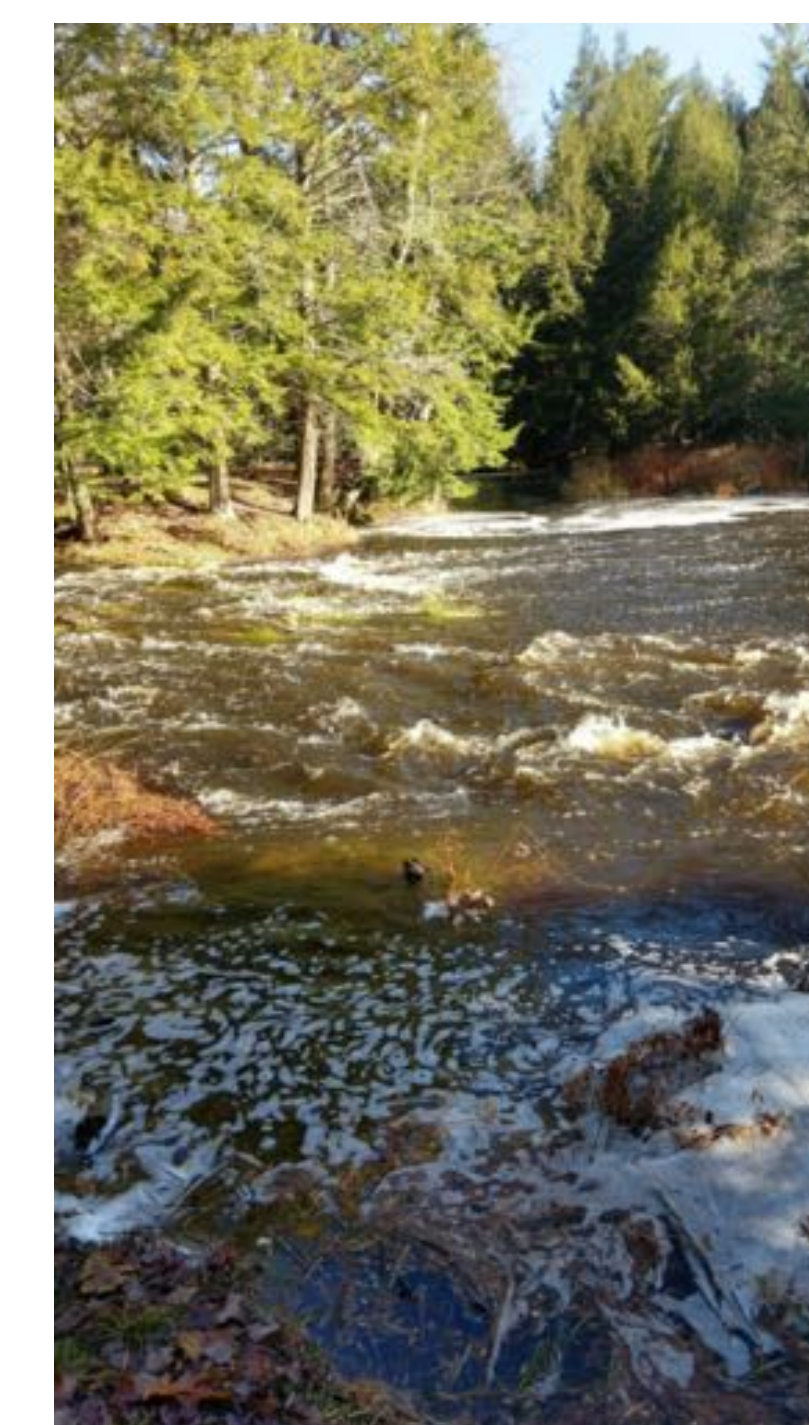
Reflection of trees at the upstream area.

Conclusion:

- The researchers found that the river was healthy overall based on the data from the tests.
- All tests fell within a healthy range, except water color. Water color was based on a healthy range for drinking water so it had a higher standard.
- The researchers' second hypothesis was partially correct. The researchers predicted that in general, the Cathance River water quality would be healthier in the faster moving areas. However, the data showed no significant difference between different areas tested.



Alkalinity Test

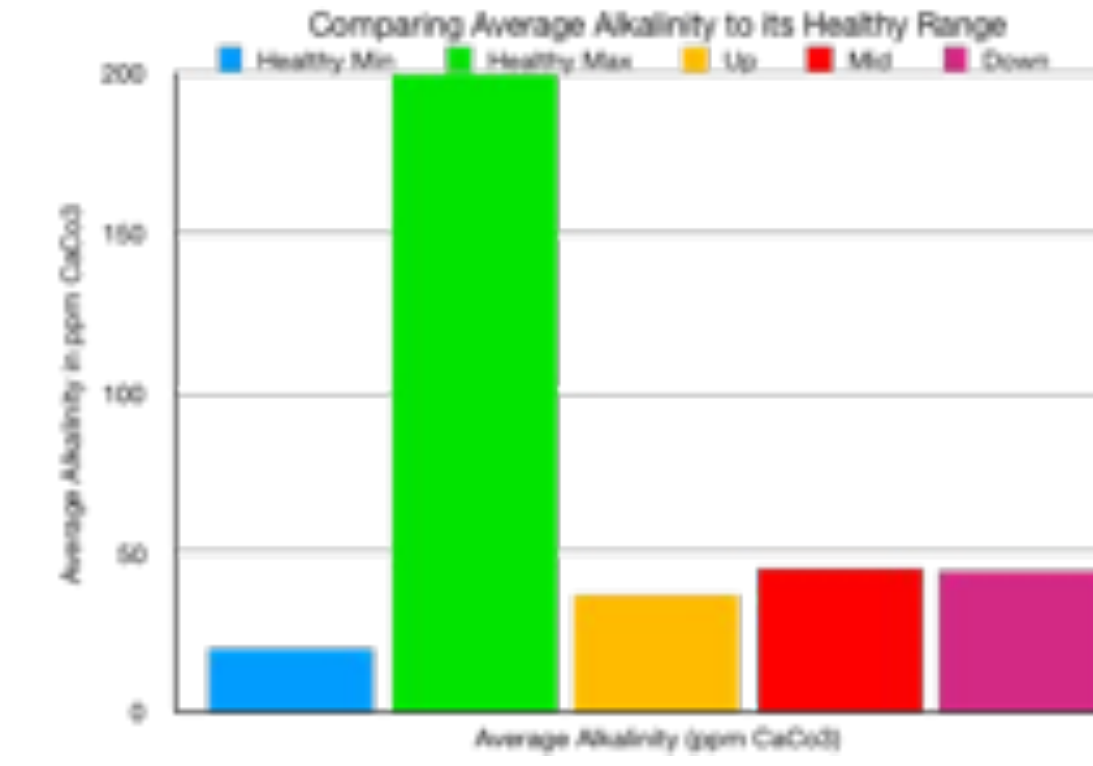
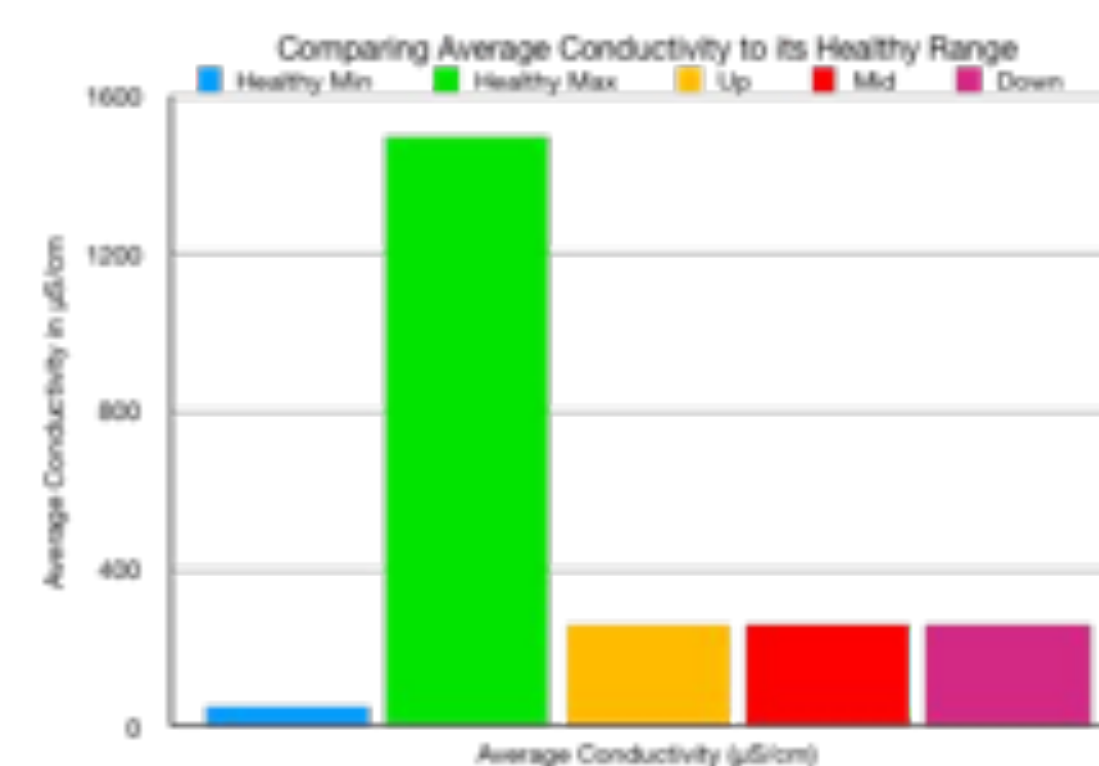
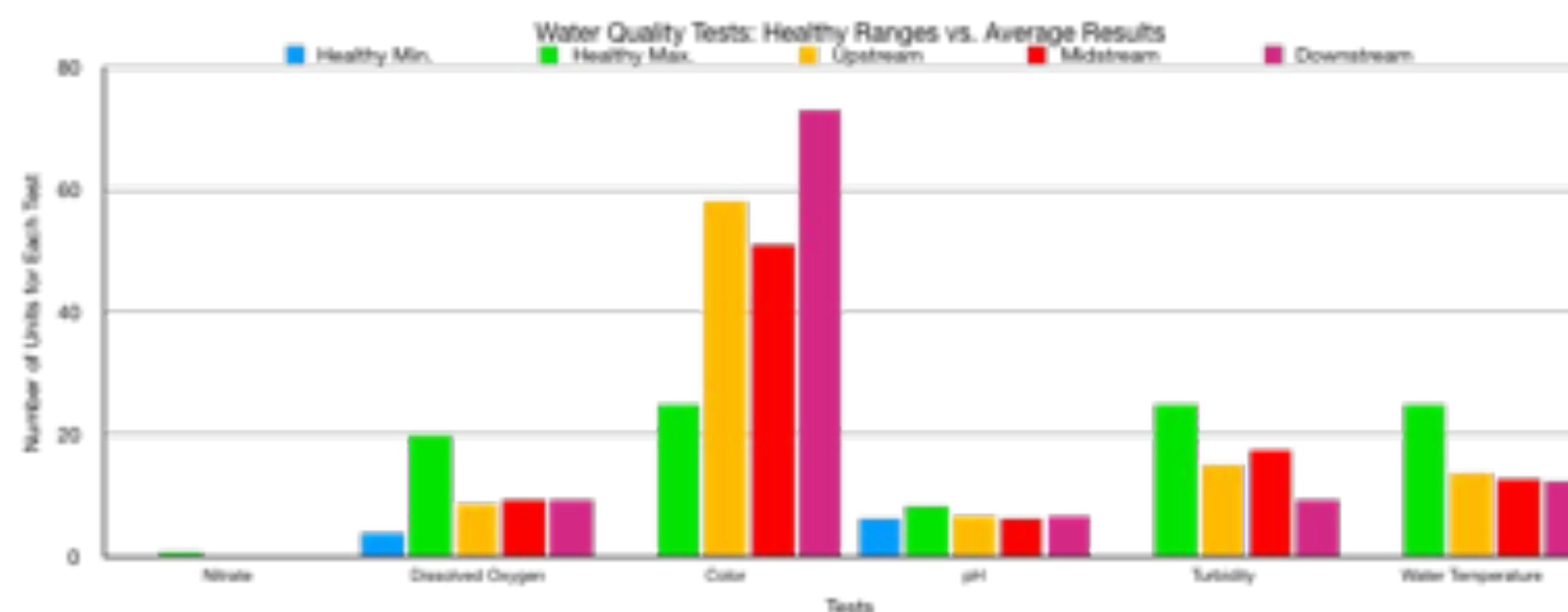


Faster moving water at the midstream area after some rain.

Water Quality Summary Data Table

Water Quality Measurement	Healthy Range (Min)	Healthy Range (Max)	Upstream Avg	Midstream Avg	Downstream Avg
Water Speed (cm/s)	N/A	N/A	1.14	90.5	23.41
Water Depth (cm)	N/A	N/A	43.7	18.5	12.27
Weekly Precipitation (cm)	N/A	N/A	1.86	1.86	1.86
Conductivity (µS/cm)	50	1500	258	259	260
Nitrate (ppm)	0	1	0	0	0
Dissolved Oxygen (ppm)	4	20	8.59	9.43	9.51
Color (PCU)	0	25	58	51	73
Alkalinity (ppm CaCo3)	20	200	37	45.16	44.4
pH	6.5	8.5	6.64	6.5	6.6
Turbidity (JTU)	0	25	15	17.5	9.52
Water Temperature (Centigrade)	0	25	13.66	12.7	12.27

*Areas with blank spaces had no healthy ranges



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Purpose:

- Is the Cathance River water quality/level at healthy or unhealthy levels?
- How does the Cathance River water quality/level differ between further up stream in slower moving water, to downstream where the water is faster, to further downstream where the water is slow again?



Water at the midstream area.



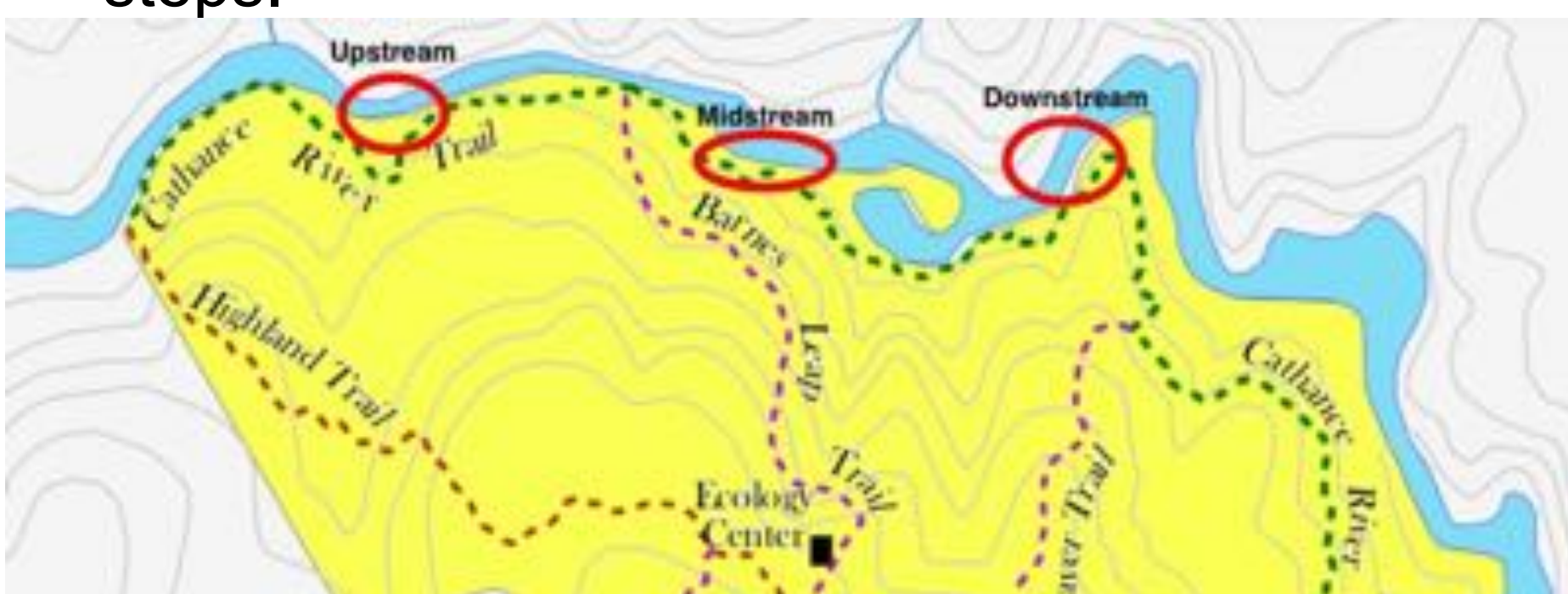
Grady checking Dissolved Oxygen

Hypotheses:

In general, the Cathance River water quality will be at healthy levels. If the water is slow moving then the water quality will be worse than points where the water is moving faster.

Procedure:

- Go to three specific river locations (see map).
- Complete water tests in each area, which include: dissolved oxygen, conductivity, nitrate, color, alkalinity, pH, turbidity, water temperature, water speed, water depth, and weekly precipitation.
- Record the results.
- Clear area.
- Go to the next location(s) and repeat steps.



Three Test Locations on the Cathance River