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Hess Lake Muck Monitoring 2018

In 2018, while muck measurements were being recorded an additional subjective measurement was being noted. Due to previous uncertainties with the measurements due to the lack of a 'true bottom', we recorded whether our confidence in the measurement was either (H)igh or (L)ow. You will see on the results page, that under the 2018 values, either a H or a L is listed corresponding to the confidence value. If a true sandy hard bottom was felt, then we recorded an H. If no hard bottom was reached or was inconsistent, then a L was recorded. Another thing to note is the accuracy of sampling the exact same area every time. With recording our GPS locations, the values for longitude and latitude obvious are only given in a certain amount of decimal places. For instance, we might have a reading of 43°25'36.7". The problem with this is that one tenth of a second in coordinate readings is about 8 to 10 feet. Therefore, each coordinate contains about a 100 ft² area, or more due to obstruction of the GPS unit from trees.

In 2016 for the first two measurements, a device was used that had a disc mounted on a solid pole that had notches. As the pole was pushed into the muck, the disc would rise up the pole due to the muck interface. Once the bottom was hit with the pole, the pole would be raised out of the water and the disc would stay at the max height due to the notches (which would prevent the disc from falling). The distance from the disc to the bottom of the pole was the thickness of the muck. However, after the summer measurements, it was noticed that the disc would in face slip at times when raising the pole out of the water giving false measurements. Also at other times the disc would sink a bit in the muck, then be pulled off the pole as it was raised out. Obviously, this was a problem and this method could not be relied upon.

For the Fall measurements in 2016, and all measurements in 2017 and 2018, a new method was developed. Like the first method, a solid bar was pushed into the muck until a solid bottom was reached. The distance to the water's surface was taken. Then a disc was lowered separately into the water, until it rested on the muck's surface. That distance was also taken. Simply subtract the two values and what remains is the muck's thickness in depth. This method seems to be very consistent. There are fewer factors that could lead to a false reading. One reason that has been seen are 'false bottoms', where no solid ground can be reached. This is most likely due to a muck, clay, and sand slurry that exists at the bottom. In order to reduce this error, 3 separate measurements are taken at each location, and averaged. This average is what is shown in the results.

The next page will show the muck monitoring results, as well as the map where each site location is found.

Sincerely,
Matt Novotny
October 2018

Muck Measurement Results

Site #	Small Cove						Large Aeration Cove										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
2016	Spring	N/A	19"	45"	N/A	39"	N/A	21"	N/A	N/A	N/A	50"	N/A	45"	16"	N/A	N/A
	Summer	27"	39"	65"	73"	81"	19"	13"	12"	19"	39"	29"	84"	48"	19"	68"	45"
	Fall	27"	36"	96"	107"	195"	18"	15"	12"	33"	24"	42"	144"	48"	21"	81"	42"
2017	Spring	25"	34"	104"	108"	82"	12"	11"	11"	24"	22"	40"	140"	50"	21"	86"	42"
	Summer	22"	33"	98"	106"	70"	7"	12"	9"	21"	22"	35"	139"	49"	19"	82"	44"
	Fall	21"	34"	97"	100"	54"	9"	11"	9"	15"	24"	34"	135"	53"	19"	84"	45"
2018	Summer	21	70	66	80	34	22	14	8	10	10	50	80	20	16	20	45
	Fall	19	84	57	48	32	24	14	1	8	5	115	28	9	14	19	44
		H	L	L	L	H	H	H	H	H	H	L	L	L	H	H	L

Monitoring Location Map

