
Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, Riley Bronga, Jakob Keldsen
File:	204700415	Date:	March 22 & 25, 2019

Subsurface Surface Vegetation Plot Lagoon

Reference: **March Water Sampling Event**

1.1 BACKGROUND

The March sampling event was for surface and subsurface water. The site is beginning to thaw although many sites were still not able to be sampled due to ice. There are a few inches of melt water on top of a thick layer of ice on most of the site. Most surface water sites were not sampled due to the majority of the water appearing to be melt water and run off rather than the actual surface water.

The weather was sunny and in the mid 40's.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

Water was only sampled at SW17, and SW18. All other sampling locations were checked, however there was melt water and runoff at each of them. Samples were not taken because they would not be representative of the actual surface water. Ice was not drilled at any location.

SW17 and SW18 were sampled by dipping a bottle into the stream. The ice was either completely out or mostly out at both locations. Flow data was able to be obtained for both sites.

SUBSURFACE

Half of the subsurface sites were sampled. The sites that were not sampled was due to frozen water in the casing. Many times, it would appear as if the monitoring well was thawed, but really there was 1-2' of water sitting on ice.

All 2" well casings were purged using a bailer and all 1" well casings were purged with the peristaltic pump except for MW14, which is too deep for the pump. Many of the wells produce silty water after having one well volume purged.

IMPROVEMENTS FOR FUTURE SAMPLING:

No improvements need, this sampling event went very smoothly.

Reference: March Water Sampling Event

1.3 OTHER ACTIVITIES

Weir 1 (SW17)

Width: 2.21 -ft
 Water depth: 0.67 -ft
 Velocity: 0.43 -ft/sec
 Calculated flow: 0.64 -CF/sec

Weir 2 (SW18)

Width: 3.22 -ft
 Water depth: 0.71 -ft
 Velocity: 0.55 -ft/sec
 Calculated flow: 1.25 -CF/sec

1.4 SAMPLE RESULTS

The attached table summaries detected analytes. All other were below detectable limits. Complete results can be found in the SGS reports.

1.5 DATA QUALITY

There were two duplicates taken during the March sampling event. The duplicate and original sample all tested very similar with no alarming differences. See below for results:

Site ID	Nitrate	Nitrite	Total Nitrate /Nitrite	TSS	TKN	Ammonia	Total P	BOD	FC	E. Coli	TC
MW6	ND	ND	ND		ND	0.149			ND		
DUP1	ND	ND	ND		ND	0.108			ND		
% Diff	0.0%	0.0%	0.0%	N/A	0.0%	-31.9%	N/A	N/A	0.0%	N/A	N/A
MW18	2.17	ND	2.2	16	3.2	1.89	1.91	3.45	8	10	109
DUP2	2.08	ND	2.11	12.7	ND	2.37	1.78	2.45	3	16	115
% Diff	-4.2%	0.0%	-4.2%	-23.0%	N/A	22.5%	-7.0%	33.9%	-90.9%	46.2%	5.4%

Attachment: Photo Log

March Photo Log



Photo 1:
SW-2



Photo 4:
MW-2B



Photo 2:
SW-3



Photo 5:
SW-5



Photo 3:
Access Berm



Photo 6:
SW-17

Attachment: Results Summary Table

Site ID	SW17	SW18	SW18.1	B1	B4	MW6	MW6.1	MW10
Sample Event	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019
Date Collected	3/25/2019	3/25/2019	3/25/2019	3/22/2019	3/22/2019	3/22/2019	3/22/2019	3/22/2019
Time	14:03	14:23	14:23	10:26	11:15	11:40	11:40	9:45
Sample Type	Surface	Surface	Surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface
Water Temperature (°C)	2.27	2.78	2.78	3.33	4.2	3.15	3.15	3.52
pH	5.75	6.51	6.51	7.17	6.65	6.81	6.81	5.92
DO	6.18	6.61	6.61	3.52		2.67	2.67	3.2
Nitrate	1.28	2.17	2.08	ND(0.100)	1.52	ND(0.100)	ND(0.100)	0.246
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	1.3	2.2	2.11	ND(0.100)	1.52	ND(0.100)	ND(0.100)	0.279
TSS	1.44	16	12.7					
TKN	ND(0.500)	3.2	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)
Ammonia	0.252	1.89	2.37	0.13	ND(0.0500)	0.149	0.108	ND(0.0500)
Total P	0.0753	1.91	1.78					
BOD	ND(2.00)	3.45	2.45					
FC	31	8	3	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
E. Coli	35	10	16					
TC	96	109	115					

Site ID	B11	MW13	MW14a	MW14b	MW15	MW20
Sample Event	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019	March, 2019
Date Collected	3/22/2019	3/22/2019	3/25/2019	3/25/2019	3/22/2019	3/25/2019
Time	13:30	14:19	13:12	13:33	10:00	12:19
Sample Type	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface
Water Temperature (°C)	3.25		3.88		1.98	3.90
pH	6.48		6		5.92	6.27
DO	0.17				3.2	
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.241
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.241
TKN	ND(0.500)	ND(0.500)	ND(0.500)		ND(0.500)	1.05
Ammonia	0.132	0.364	ND(0.0500)		0.222	0.717
FC	ND(1)	ND(100)	1	ND(200)	ND(100)	ND(100)