
Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, Austin Badger, John Marshall
File:	204700415	Date:	June 17, 18, 20 & 21, 2019

Subsurface Surface Vegetation Plot Lagoon

Reference: June Water Sampling Event

1.1 BACKGROUND

The June sampling event included both surface and subsurface water sampling. All surface and subsurface sites were sampled except for SW2 which was too dry to sample.

The weather was sunny with one day of light rain. Temperatures ranged from 60 to 70°F. All grass and brush were fully leafed out. Bugs were thick in many of the sampling locations.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

Water was sampled at 17 surface water locations (all locations except SW2 which was too dry to sample) on the city property with one duplicate at SW9. Mr. Shaw's property was also sampled. All surface water samples were taken using the peristaltic pump except for SW1 and SW3 where dipping was employed. YSI readings were also recorded at all sampled surface water sites.

SUB-SURFACE

All 16 sub-surface water locations were sampled. All two-inch wells were purged and sampled using the bailer. All one-inch wells were purged and sampled using the peristaltic pump.

IMPROVEMENTS FOR FUTURE SAMPLING:

This sampling event went smoothly. A checklist of items to bring to the sampling site may be beneficial in the future.

1.3 OTHER ACTIVITIES

Weir 1 (SW17)

Width: 2.21 -ft
Water depth: 0.7 -ft
Velocity: 0.36 -ft/sec
Calculated flow: 0.56 -CF/sec

Reference: June Water Sampling Event
Weir 2 (SW18)

Width: 3.22 -ft
 Water depth: 0.5 -ft
 Velocity: 0.36 -ft/sec
 Calculated flow: 0.58 -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 was one duplicate taken during the June sampling event. The duplicate and original sample all tested very similar with no alarming differences. See below for results:

Site ID	Nitrate	Nitrite	Total Nitrates	TSS	TKN	Ammonia	Total P	BOD	FC	E. Coli	TC
SW18	ND	ND	ND	ND	ND	ND	ND	ND	5	1	727
Dup. 1	ND	ND	ND	1.19	ND	0.11	ND	ND	ND	2	727
% Diff	0.0%	0.0%	0.0%	N/A	0.0%	N/A	0.0%	0.0%	N/A	66.7%	0.0%

June Photo Log



Photo 1:
SW-10



Photo 4:
Shaw



Photo 2:
SW-12



Photo 5:
SW-17



Photo 3:
SW-16



Photo 6:
SW-18

Site ID	B1	B3	B4	MW2b	MW6	MW10	MW15	SW1	SW3	B11	MW8
Sample Event	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019
Date Collected	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/17/2019	6/18/2019	6/18/2019
Time	12:45	13:53	13:30	11:49	14:22	12:04	12:20	11:14	14:06	13:42	12:35
Water Temperature (°C)	3.47		4.57	2.75	3.17				16.78		
Conductivity	166		289	118	128				296		
pH	7.71		7.12	7.07	7.69				6.5		
DO	9.63		15.92	3.61	3.38				1.23		
Total Nitrate/Nitrite	ND	ND	1.48	ND	ND	ND	ND	ND	ND	ND(1)	ND(1)
TSS								40.4	114		
Ammonia	0.124	0.143	ND(0.0500)	0.152	0.137	ND(0.0500)	0.311	0.104	ND(0.0500)	0.271	0.201
Total P								0.179	0.343		
BOD								15.6	4.47		
FC	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(100)	2		ND(1)	ND(1)
E. Coli								ND(10)	60		
TC									17330		

Site ID	MW12	MW16	MW17	SW4	SW5	SW6	SW7	SW8	SW9	SW9.1	SW10	SW11
Sample Event	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019
Date Collected	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019	6/18/2019
Time	14:35	14:12	12:00	10:46	11:02	10:30	10:10	12:41	12:02	12:02	11:45	13:56
Water Temperature (°C)			4.15						14.8	14.8		10.05
Conductivity			204						267	267		244
pH			7.15						7.11	7.11		7.06
DO			3.63						3.89	3.89		1.83
TSS				1.27	5.83	ND(0.495)	4.39	2.48	ND(0.500)	1.19	2.93	10.4
TKN	ND(0.500)	ND(0.500)	5.21	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)
Ammonia	0.136	0.181	2.21	ND(0.0500)	0.12	ND(0.0500)	ND(0.0500)	0.102	ND(0.0500)	0.111	0.115	ND(0.0500)
Total P				ND(0.0100)	0.0316	ND(0.0100)	ND(0.0100)	0.063	ND(0.0100)	ND(0.0100)	0.0371	0.0674
BOD				2.92	3.04	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	2.57	ND(2.00)
FC	ND(1)	ND(1)	ND(6)	ND(1)	ND(1)	1	1	1	5	ND(1)	17	ND(1)
E. Coli				1	ND(1)	3	ND(1)	ND(1)	1	2	10	ND(1)
TC				727	1203	649	980	980	727	727	17330	387

Detectable Results Summary Table

June-2019

Site ID	MW13	SW12	SW13	SW14	SW15	SW16	SW17	SW18	Shaw
Sample Event	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019	June, 2019
Date Collected	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019
Time	13:30	10:35	10:55	11:50	11:30	11:15	13:57	14:30	12:45
Water Temperature (°C)	4.31	12.98	15.84	14.8	8.31	8.93	12.22	12.28	13.41
Conductivity	142	182	204	364	222	160	408	507	124
pH	7.14	6.95	6.83	6.99	6.89	6.7	7.39	7.41	7.22
DO	17.35	1.23	1.18	2.08	1.9	2.28	7.23	6.21	4.7
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	1.5	4.17	ND(0.100)
Total Nitrate/Nitrite	ND	ND	ND	ND	ND	ND	1.5	4.17	ND
TSS		8.89	3.4	3.47	1.1	11.9	4.3	13.8	ND(0.495)
TKN	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	1.58	ND(0.500)
Ammonia	0.208	ND(0.0500)	ND(0.0500)	ND(0.0500)	0.154	ND(0.0500)	0.119	1.13	ND(0.0500)
Total P		2:22	ND(0.0100)	1:57	0:41	0:44	4:01	1:55	0:53
BOD		ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	6.84	ND(2.00)
FC	ND(1)	1	340	30	13	260	110	120	5
E. Coli		ND(10)	517	11	23	3540	172	56	4
TC		2480	196	196	2420	14140	1986	1203	194

Site ID	MW14b	MW20
Sample Event	June, 2019	June, 2019
Date Collected	6/21/2019	6/21/2019
Time	13:50	14:21
Water Temperature (°C)	6.93	5.04
Conductivity	127	161
pH	7.35	6.75
Nitrate	ND(0.100)	0.25
Total Nitrate/Nitrite	ND(0.100)	0.25
Total P	0.0463	ND(0.0100)