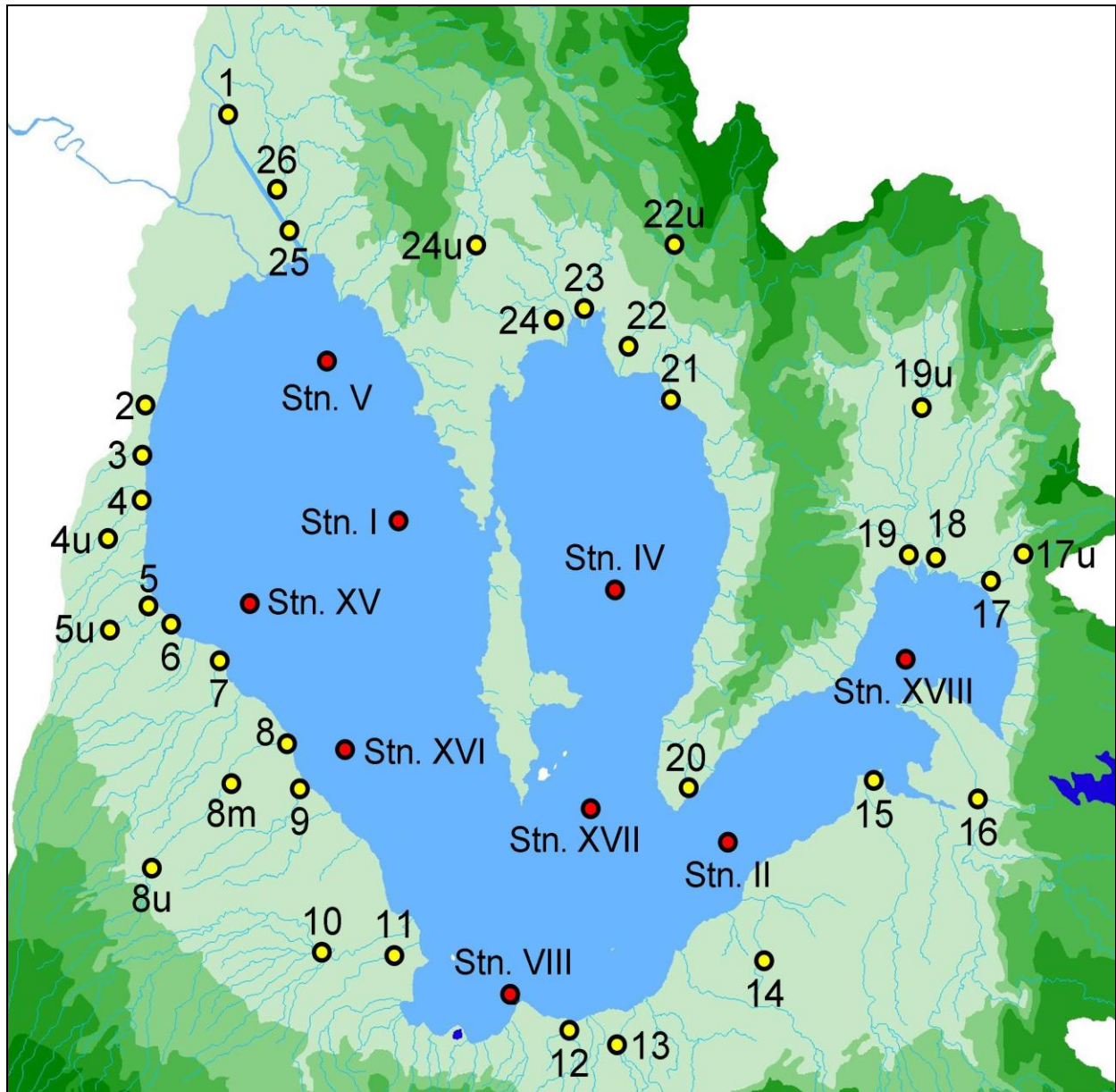




QUARTERLY WATER QUALITY MONITORING REPORT

Laguna Lake and Tributary Rivers
October to December 2013



Sampling Stations and Locations

II. Water Quality Data:

A. Laguna Lake

Location	Water Quality Parameters*								
	BOD (mg/l)			Dissolved Oxygen (mg/l)			Total coliforms (MPN/100ml)**		
	Oct.	Nov.	Dec..	Oct.	Nov.	Dec..	Oct.	Nov.	Dec..
Stn. I (Central West Bay)	2	3	3	8.6	8.0	7.4	186	170	256
Stn. II (East Bay)	1	2	2	8.2	8.0	8.8	185	126	126
Stn. IV (Central Bay)	2	3	2	8.9	7.0	7.7	268	158	203
Stn. V (Northern West Bay)	4	3	4	6.2	8.0	8.0	492	259	294
Stn. VIII (South Bay)	2	2	2	9.2	8.0	7.2	412	492	926
Stn.XV (San Pedro)	2	4	2	8.6	7.0	8.0	77	159	412
Stn.XVI (Sta. Rosa)	3	2	1	7.5	8.0	8.5	397	854	954
Stn.XVII (Sanctuary)	2	2	1	8.6	8.0	7.8	59	66	59
Stn.XVIII (Pagsanjan)	2	2	2	8.8	8.0	8.2	71	83	73

Notes: * DENR Class C Water Quality Criteria:

Biochemical Oxygen Demand (BOD) - 10

mg/l

Dissolved Oxygen (DO) - 5 mg/l

Total Coliforms - 5000 MPN/100 ml

** Based on computed geomean

B. Tributary Rivers

Station	Location	Water Quality Parameters*								
		BOD (mg/l)			Dissolved Oxygen (mg/l)			Total coliforms (MPN/100ml)		
		Oct.	Nov.	Dec..	Oct.	Nov.	Dec..	Oct.	Nov.	Dec..
1	Marikina	6	56	5	1.9	4.3	1.1	68,000	.	-
2	Bagumbayan (Taguig)	32	22	42	0.1	0.1	0.1	700,000	-	-
3	Buli Creek (Taguig)	28	24	86	0.1	0.1	0.1	330,000	-	-
4	Mangagate (Muntinlupa)-Down	33	-	-	0.1	-	-	3,300,000	-	-
4U	Mangagate (Muntinlupa)-Up	20	12	16	4.5	5.7	4.0	1,300,000	-	-
5	Tunasan (Muntinlupa)- Down	75	240	348	0.1	0.1	0.1	7,900,000	-	-
5U	Tunasan (Muntinlupa)- Up	15	3	5	2.4	2.5	2.4	790,000	-	-
6	San Pedro River (T2)	28	30	58	1.3	6.6	0.5	9,200,000	-	-
7	Biñan	-	-	46	-	-	0.5	-	-	-
8	Sta. Rosa- Down	19	15	46	1.5	0.7	0.7	2,200,000	-	-
8M	Sta. Rosa- M	16	8	36	3.5	1.2	0.5	490,000	-	-
8U	Sta. Rosa- U	30	3	6	6.6	6.9	5.2	920,000	-	-
9	Cabuyao	19	15	43	0.5	0.4	0.5	780,000	-	-
10	San Cristobal River (T3)	30	19	25	0.5	1.8	0.9	3,300,000	-	-
11	San Juan River (T5)	22	4	5	4.2	4.7	4.9	>1,600,000	-	-
12	Los Baños	24	4	4	4.8	4.5	3.7	68,000	-	-
13	Bay River (T9)	11	4	3	6.5	7.6	6.7	1,700,000	-	-
14	Pila	16	7	3	4.0	5.0	5.8	>1,600,000	-	-
15	Sta. Cruz River (T6)	10	1	4	6.3	5.9	6.5	130,000	-	-
16	Pagsanjan River (T8)	10	2	2	6.5	6.7	7.3	11,000	-	-
17	Pangil- Down	6	4	2	3.6	7.0	7.6	540,000	-	-
17U	Pangil- Up	1	2	2	7.5	8.2	8.4	3,300	-	-
18	Siniloan	-	-	-	-	-	-	-	-	-
19	Sta. Maria- Down	1	6	2	8.1	7.1	6.5	49,000	-	-
19U	Sta. Maria- Up	2	6	1	8.7	6.7	9.0	7,000	-	-
20	Jala-jala	2	3	5	7.1	6.0	4.8	240,000	-	-
21	Pililla	12	3	6	6.5	6.3	2.7	79,000	-	-
22	Tanay- Down	3	8	4	7.1	7.5	3.6	170,000	-	-
22U	Tanay- Up	1	3	1	6.6	7.8	7.9	> 16,000	-	-
23	Baras	4	6	2	6.9	7.1	2.9	>1,600,000	-	-
24	Morong- Down	12	22	17	5.3	3.4	7.1	540,000	-	-

24U	Morong- Up	10	43	15	3.2	2.7	2.4	23,000	-	-
25	Manggahan Floodway (Taytay)	6	43	8	1.3	1.9	0.1	230,000	-	-
26	Sapang Baho (Cainta)	12	56	-	1.4	0.1	-	1,300,000	-	-

FINDINGS:

A. On Biochemical Oxygen Demand (BOD)

Laguna Lake

- For the last quarter of 2013, all of the nine (9) lake stations passed the 10 mg/L BOD criterion set for Class C waters by the DENR.
- The recorded BOD concentrations for the last quarter ranged only from 1 to 4 mg/L..

Tributary Rivers

- The results of the BOD analysis showed that out of the 34 tributary river stations monitored, only 10 stations consistently conformed to the Class C criterion for BOD and these were Stns. 15 to 17U, 19, 19U, 20, 22, 22U and 23.
- During the last quarter, all of the monthly BOD concentrations in 12 stations namely Stns. 2, to 5, 6, 7, 8, 9, 10, 24 and 26 failed the 10 mg/L Class C criterion.
- The river stations with monthly BOD concentrations that sometimes either complying or exceeding the Class C criterion were Stns. 1, 5U, 8M, 8U, 11 to 14, 21, 24U and 25.
- The BOD concentrations for the last quarter of 2013 ranged from 1.0 to 348 mg/L wherein the highest was recorded in Stn. 5 in December.

B. On Dissolved Oxygen (D.O.)

Laguna Lake

- For the last quarter of 2013, all stations consistently conformed to the DENR Class C criterion set at a minimum 5 mg/L.
- The lowest D.O. concentration computed at 6.2 mg/L was noted in Stn. V in October while the highest concentration of 8.9 mg/L was noted in Stn. IV in October

Tributary Rivers

- Out of the 34 tributary river stations monitored, only 9 stations steadily passed the Class C criterion for DO and these were Stns. 8U,13, 15, 16, 17U, 19, 19U, 20 and 22U.
- Fourteen (14) tributary river stations consistently failed the Class C criterion for DO and these were Stns. 1 to 4, 5, 5U, 7, 8, 8M, 9, 10, 24U, 25 and 26..
- The DO concentrations for the last quarter of 2013 ranged from 0.1 mg/L to 9.0 mg/L wherein the highest concentration was noted in Stns.19U in October and December.

C. On Total Coliform (T. Coli)

Laguna Lake

- For the last quarter of 2013, the total coliform as based on monthly geomeans, all of the nine (9) lake stations conformed to the DENR Class C criterion of 5000 MPN/100ml .
- The computed monthly geomeans for T.coli in the lake ranged from 59 to 954 MPN/100ml.

Tributary Rivers

- For 2013, monitoring of total coliforms in the tributary rivers is conducted on a quarterly basis.
- For October, all of the T. coli concentrations in tributary stations failed the DENR Class C criterion of 5000MPN/100ml except Stn. 17U which complied with the criterion.
- The total coliform concentrations in the tributary river stations ranged from 3,300 to 9,200,000 MPN/100ml.

D. On pH

Laguna Lake

- For the last quarter of 2013, out of the nine lake stations only 4 stations consistently conformed to the DENR Class C criterion set at 6.5 - 8.5.
- Stns. II, IV, VIII, XVII and XVIII exceeded the criterion in October.
- The pH concentrations in the lake ranged from 7.0 to 8.8.

Tributary Rivers

- For the last quarter of 2013, all the tributary river stations consistently met the Class C criterion for pH.
- The pH concentrations in tributary rivers ranged from 7.0 to 8.4.

E. On Ammonia

Laguna Lake

- DAO 34 has no Class C criterion for ammonia. For the last quarter of 2013, the lowest concentration of ammonia measured at 0.024 mg/L was recorded in Stn. XVII in December while the highest concentration of 0.232 mg/L was measured in Stn. V in October.

Tributary Rivers

- For the tributary stations, Stn. 5 recorded the highest ammonia concentration at 7.150 mg/L while Stn. 19U measured the lowest ammonia concentration of 0.029 mg/L both were noted in November.

F. On Nitrate

Laguna Lake

- For the last quarter of 2013, the nitrate concentrations in all of the nine (9) lake stations conformed to the DENR Class C criterion of 10 mg/L.
- The nitrate levels in the lake ranged from 0.024 to 0.389 mg/L.

Tributary Rivers

- For the last quarter of 2013, all the 34 tributary stations conformed to the Class C criterion.
- The highest nitrate concentration measured at 6.534 mg/L was noted in Stn. 11 in November while the lowest nitrate concentration measured at 0.001 mg/L was recorded in Stn. 10 in October.

G. On Inorganic Phosphate

Laguna Lake

- All of the nine (9) lake stations conformed to the DENR Class C criterion set at a maximum of 0.1 mg/L.
- The lowest inorganic concentration measured at 0.020 mg/L was noted in Stns. XVIII in October while the highest concentration of 0.094 mg/L was noted in Stn. V also in October.

Tributary Rivers

- For tributary rivers the DENR Class C criterion is set at 0.4 mg/L. Out of 34 monitored stations, only 11 stations constantly conformed to the criterion and these were Stns. 12, 14, 16, 17, 17U, 19 to 22U.
- The river stations with inorganic phosphate concentrations that sometimes either complying or exceeding the Class C criterion were Stns. 1, 3, 13, and 15.
- Sixteen (16) tributary river stations constantly failed the criterion namely, Stns. 2, 4, to 6, 8, to 11, 24 to 26.
- The levels of inorganic phosphate in tributary rivers ranged from 0.030 mg/L to 2.180 mg/L.