

Table - 1 Water Quality of Lakes with respect to Criteria parameters during 2014 (February-December)

(a) Chilka Lake

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)					Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters					pH	DO	BOD	FC			
			pH	DO (mg/l)	BOD (mg/l)	Turbidity, NTU	FC (MPN/100 ml)							
1.	Rambha	11	8.4 (7.8 – 8.9)	8.2 (3.8 -13.1)	1.8 (1.0 – 3.8)	15.6 (1.3 – 35.0)	315 (2 – 1300)	1 (9)	1 (9)	2 (18)	4 (36)	Does not conform to Class-SW-II	BOD, FC	Human activities
2.	Satpada	11	8.1 (7.8 – 8.4)	6.5 (5.2 – 8.4)	1.6 (0.9 – 3.6)	80.0 (3.0 – 160.0)	1008 (45 -5400)	0	0	1 (9)	2 (18)		FC	
Water quality criteria for Class SW-II Waters (MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000)			6.5-8.5	4.0 or more	3.0 or less	30 or less	100 or less	For Bathing, Contact Water Sports and Commercial Fishing						

(b) Anshupa Lake

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				pH	DO	Free ammonia	EC			
			pH	DO (mg/l)	Free ammonia (mg/l)	EC (micro Siemens /cm)							
1.	Kadalibari	11	7.4 (5.9 – 8.12)	7.5 (3.4 – 10.5)	0.004 (0 - 0.015)	165 (114-250)	1 (9)	1 (9)	0	0	D	-	-
2.	Bishnupur	11	7.5 (6.7 – 8.3)	7.5 (4.5 -12.4)	0.006 (0-0.027)	153 (114-182)	0	0	0	0	D	-	-
3.	Subarnapur*	9	7.6 (6.7 – 8.3)	7.5 (2.6 – 11.6)	0.007 (0-0.027)	152 (124-198)	0	1 (11)	0	0	D	-	-
4.	Sarandagarh**	10	7.5 (6.5 – 8.5)	7.7 (2.8 – 13.1)	0.010 (0 - 0.052)	150 (118-188)	0	2 (20)	0	0	D	-	-
***Class 'D'			6.5-8.5	4 and above	1.2 or less	5000 or less	Fish Culture and Wild life propagation						

* Data for the period February- December excluding June and July, 2014 ** Data for the period February- December excluding July, 2014

*** Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Table-2 Water Quality of Lakes with respect to other parameters during 2014 (January-October)

(a) ChilkaLake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriologic al Parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH ₄ -N	Free NH ₃ -N	TKN	TC	EC	SAR	TDS	B	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/ 100 ml)	(µS/cm)	(mg/l)						
1.	Rambha*	64 (12-98)	132 (104-164)	29.4 (11.3-51.1)	0.153 (0.056-0.336)	0.023 (0.002-0.069)	1.30 (0.56-1.95)	1293 (45-5400)	17602 (9400-28460)	51.1 (31.9-72.3)	13208 (7950-20260)	0.918 (0.028-2.740)	1710 (1220-2600)	6999 (4165-10764)	712 (289-1231)	0.577 (0.364-0.689)
2.	Satapada	204 (16-640)	105 (80-124)	27.1 (8.5-48.6)	0.148 (0.112-0.336)	0.010 (0.004-0.033)	1.04 (0.56-1.96)	1929 (130-9200)	30098 (1898-60670)	65.6 (4.8-114.6)	25216 (1160-50508)	1.799 (0.096-3.989)	3210 (160-6400)	14010 (342-28377)	1351 (129-2752)	0.579 (0.312-0.894)

Sl. No.	Sampling Location	Nutrients		Heavy metals									
		Annual average values (Range of values)											
		NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI)	T. Cr	Fe	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg	Pb [#]	
		(mg/l)		(mg/l)									
1.	Rambha*	3.704 (0.669-5.881)	0.293 (0.001-1.517)	0.013 (<0.002-0.033)	0.043 (0.012-0.112)	0.382 (0.026-1.080)	0.021 (0.019-0.023)	0.005 (0.002-0.009)	0.061 (0.054-0.068)	0.0015 (0.0014-0.0017)	0.00014 (<0.00006-0.00052)	0.007 (0.007-0.007)	
2.	Satapada	4.181 (0.691-8.074)	0.144 (0.004-1.178)	0.017 (<0.002-0.066)	0.061 (0.021-0.153)	2.741 (<0.005-8.400)	0.015 (0.012-0.018)	0.005 (0.003-0.007)	0.070 (0.068-0.072)	0.0016 (0.0015-0.0018)	0.00023 (<0.00006-0.00069)	0.013 (0.012-0.014)	

Data for the period February and March, 2014

(b) Anshupa Lake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameters		Mineral constituents						
		Annual average values (Range of values)														
		TSS	Total alkalinity	BOD	COD	NH ₄ -N	TKN	TC	FC	TDS	B	SAR*	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/ 100 ml)		(mg/l)			(mg/l)			
1.	Kadlibari	26 (8-50)	54 (40-78)	3.6 (1.2-8.7)	23.2 (11.4-42.3)	0.178 (0.112-0.280)	1.63 (0.28-4.20)	12544 (1300-54000)	20730 (450-160000)	96 (70-140)	0.059 (0.006-0.128)	0.53 (0.27-1.07)	51 (42-64)	13.3 (6.9-28.4)	7.05 (0.74-14.30)	0.295 (0.208-0.576)
2.	Bishnupur	21 (8-35)	52 (38-68)	2.0 (0.9-3.9)	20.0 (9.69-32.0)	0.163 (0.112-0.280)	1.45 (0.28-2.80)	9418 (330-35000)	4500 (78-24000)	89 (70-105)	0.053 (0.022-0.093)	0.49 (0.25-0.70)	48 (32-62)	11.9 (5.9-16.7)	5.47 (0.24-10.82)	0.278 (0.199-0.413)
3.	Subarnapur	50 (9-284)	52 (36-76)	3.2 (1.0-8.9)	23.3 (10.0-59.8)	0.199 (0.112-0.392)	1.65 (0.56-3.64)	9866 (700-17000)	3096 (330-9200)	87 (74-108)	0.037 (0.003-0.073)	0.42 (0.29-0.58)	48 (38-58)	10.9 (7.8-14.7)	4.90 (1.99-8.45)	0.269 (0.172-0.416)
4.	Sarandagarh	57 (8-354)	49 (36-60)	3.2 (0.5-9.0)	21.8 (9.4-54.9)	0.179 (0.112-0.336)	1.76 (0.28-3.64)	5166 (230-14000)	2129 (78-4900)	87 (72-108)	0.051 (0.003-0.099)	0.46 (0.27-0.87)	49 (40-56)	11.2 (6.9-18.6)	5.66 (1.86-9.82)	0.263 (0.168-0.432)
* Class 'C'		-	-	-	-	-	-	5000		1500	-	-	-	600	400	1.5

* Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Class 'C' : Drinking water source with conventional treatment followed by disinfection

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Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual average values (Range of values)										
		NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI)	T. Cr	Fe	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg	Pb ^{**}
(mg/l)		(mg/l)										
1.	Kadlibari	5.058 (0.979- 23.029)	0.215 (0.013- 1.901)	0.009 (<0.002- 0.021)	0.039 (0.010- 0.070)	1.783 (0.240- 5.839)	0.015 (0.011- 0.018)	0.003 (0.002- 0.005)	0.007 (0.002- 0.012)	0.0040 (0.0008- 0.0065)	0.00026 (<0.00006- 0.00083)	0.004 (0.001- 0.008)
2.	Bishnupur	3.780 (0.509- 8.609)	0.080 (0.013- 0.278)	0.009 (<0.002- 0.020)	0.032 (0.007- 0.058)	1.338 (0.245- 3.330)	0.008 (0.003- 0.014)	0.003 (0.002- 0.005)	0.010 (0.004- 0.016)	0.0033 (0.0009- 0.0058)	0.00017 (<0.00006- 0.00057)	0.007 (0.006- 0.008)
3.	Subarnapur	2.591 (1.063- 5.210)	0.074 (0.014- 0.168)	0.009 (<0.002- 0.021)	0.041 (0.010- 0.076)	3.042 (0.240- 19.457)	0.011 (0.006- 0.016)	0.004 (0.002- 0.006)	0.009 (0.003- 0.015)	0.0039 (0.0013- 0.0064)	0.00013 (<0.00006- 0.00032)	0.007 (0.006- 0.008)
4.	Sarandagarh	3.534 (0.562- 13.799)	0.090 (0.004- 0.247)	0.012 (0.002- 0.026)	0.040 (0.010- 0.076)	3.170 (0.210- 19.253)	0.012 (0.011- 0.012)	0.005 (0.004- 0.006)	0.009 (0.003- 0.016)	0.0041 (0.0009- 0.0072)	0.00019 (<0.00006- 0.00064)	0.004 (<0.001- 0.009)
* Class 'C'		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10

Class 'C' : Drinking water source with conventional treatment followed by disinfection
#Data for the period February and March, 2014