

Table- 1 Water Quality of Lakes with respect to Criteria parameters during 2013 (January-October)

(a) Chilka Lake

Sl. No	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					BOD	FC			
			pH	DO (mg/l)	BOD (mg/l)	Turbidity, NTU	FC (MPN/100 ml)					
1.	Rambha*	9	7.9 (7.4 – 8.2)	7.5 (5.3 -11.1)	1.9 (0.4 – 5.7)	11.6 (1.6 – 27.0)	6289 (78.0 – 54000)	1 (11)	8 (89)	Does not conform to Class-SW-II	BOD, FC	Human activities
2.	Satpada	10	8.0 (7.4 – 8.4)	6.3 (5.2 – 8.2)	1.8 (0.7 – 3.0)	48.9 (7.5 – 130)	542 (45 -2400)	0	8 (80)		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	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				Free ammonia	EC			
			pH	DO (mg/l)	Free ammonia (mg/l)	EC (micro Siemens /cm)					
1.	Kadalibari	10	7.7 (6.9 – 8.2)	8.1 (5.5 – 10.6)	0.012 (0-0.045)	156 (96-232)	0	0	D	-	-
2.	Bishnupur	10	7.7 (6.7 – 8.5)	7.9 (5.5 -11.1)	0.010 (0-0.043)	165 (115-210)	0	0	D	-	-
3.	Subarnapur	10	7.6 (7.0 – 8.5)	8.0 (2.3 – 11.4)	0.011 (0-0.036)	156 (96-237)	0	0	D	-	-
4.	Sarandagarh	10	7.6 (7.1 – 7.9)	7.8 (4.3 – 11.1)	0.007 (0.001-0.018)	159 (117-231)	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 January-August and October, 2013

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

Table-2 Water Quality of Lakes with respect to other parameters during 2013 (January-October)

(a) Chilka Lake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological Parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	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*	325 (58-1284)	131 (92-148)	26.9 (16.3-42.9)	0.229 (0.112-0.440)	0.013 (0.003-0.022)	3.00 (1.68-5.04)	18614 (230-160000)	21469 (647-33050)	36.09 (3.62-63.27)	16386 (427-26136)	1.150 (0.007-2.312)	3036 (126-4600)	8583 (175-14568)	891 (23-1578)	0.600 (0.192-0.887)
2.	Satapada	258 (88-736)	106 (72-120)	28.6 (14.9-46.5)	0.257 (0.112-0.560)	0.015 (0.003-0.036)	3.28 (2.52-3.64)	1454 (20-9200)	35587 (8657-49690)	61.74 (32.36-85.04)	27957 (6450-40899)	1.770 (0.596-2.391)	3984 (440-8400)	15371 (3582-22600)	1231 (115-2456)	0.618 (0.234-0.965)

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*	5.278 (1.422-9.902)	0.099 (0.005-0.403)	0.002 (BDL-0.013)	0.036 (0.010-0.073)	1.053 (0.070-4.972)	0.002	0.004	0.012	<0.001	BDL	0.007
2.	Satapada	8.173 (0.518-45.227)	0.054 (0.003-0.124)	0.005 (BDL-0.017)	0.039 (0.005-0.084)	2.235 (0.779-4.499)	0.003	0.002	0.008	<0.001	BDL	0.007

* Data for the period January-August and October, 2013

** Data for the period February, 2013

BDL = Below Detection Limit

(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	37 (18-80)	63 (36-88)	2.1 (1.1-3.2)	20.2 (11.3-31.3)	0.313 (0.112-0.560)	2.60 (0.84-4.80)	3611 (230-9200)	1618 (45-5400)	94 (52-136)	0.054 (0.019-0.136)	0.40 (0.20-0.74)	58 (34-72)	11.4 (4.8-18.4)	2.00 (0.49-4.10)	0.340 (0.136-0.640)	
2.	Bishnupur	50 (28-84)	65 (44-80)	2.0 (1.2-3.4)	16.7 (8.4-27.8)	0.258 (0.112-0.392)	2.93 (1.92-3.92)	4838 (1100-9200)	19423 (330-160000)	101 (65-126)	0.069 (0.015-0.166)	0.41 (0.26-0.62)	62 (44-72)	12.3 (6.6-15.7)	3.98 (1.12-11.07)	0.356 (0.102-0.726)	
3.	Subarnapur	40 (16-68)	63 (40-88)	2.0 (1.2-3.4)	19.7 (10.4-27.5)	0.302 (0.168-0.560)	3.18 (1.96-5.04)	8230 (790-54000)	4684 (230-35000)	94 (56-140)	0.078 (0.003-0.290)	0.39 (0.24-0.73)	57 (34-76)	10.9 (4.7-18.4)	2.88 (1.14-6.34)	0.349 (0.176-0.518)	
4.	Sarandagarh	52 (16-98)	67 (52-80)	1.9 (1.1-5.2)	18.4 (8.1-44.9)	0.252 (0.112-0.616)	2.93 (1.68-3.92)	4491 (130-14000)	1570 (45-4600)	97 (66-134)	0.070 (0.012-0.279)	0.40 (0.29-0.68)	59 (40-70)	11.8 (7.5-16.6)	2.58 (0.62-5.62)	0.328 (0.175-0.511)	
* 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	2.296 (0.473-5.514)	0.033 (0.007-0.080)	0.002 (BDL-0.013)	0.028 (0.013-0.043)	1.187 (BDL-3.258)	0.003	0.004	0.009	<0.001	BDL	0.006
2.	Bishnupur	3.505 (0.430-14.796)	0.048 (0.005-0.116)	0.002 (BDL-0.010)	0.032 (0.008-0.062)	1.985 (0.387-3.350)	0.002	0.004	0.010	<0.001	BDL	0.006
3.	Subarnapur	2.333 (0.841-5.283)	0.032 (0.008-0.077)	BDL	0.024 (0.008-0.038)	2.127 (0.136-9.852)	0.002	0.005	0.011	<0.001	BDL	0.006
4.	Sarandagarh	2.391 (0.108-7.790)	0.032 (0.003-0.090)	BDL	0.026 (0.005-0.042)	1.906 (0.567-4.298)	0.003	0.004	0.011	<0.001	BDL	0.006
* 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

BDL = Below Detection Limit

**** Data for the period February, 2013**