Lakes

Water Quality of Lakes with respect to Criteria parameters during 2017

(a) Brackish Water Lake

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters					Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/l)	BOD (mg/l)	Turbidity, NTU	FC (MPN/100 ml)	pH	DO	BOD	FC			
Chilka lake (January-December, 2017)														
1.	Rambha	12	8.1 (7.6-8.4)	7.7 (6.0-11.7)	1.4 (0.3-2.5)	7.0 (0.5-18.0)	787 (<1.8-5400)	0	0	0	4 (33)	Does not conform to Class-SW-II	FC	Human activities
2.	Satpada	12	7.9 (7.2-8.5)	6.6 (5.3-8.3)	1.8 (0.9-2.6)	29.7 (3.3-110)	721 (<1.8-5400)	0	0	0	7 (58)		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) Fresh Water Lake

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters				Frequency of violation from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/l)	Free ammonia (mg/l)	EC (micro Siemens /cm)	pH	DO	Free ammonia	EC			
(a) Anshupa Lake (January-December, 2017)													
1.	Kadalibari	12	7.9 (7.3-8.4)	7.9 (5.8-12.9)	0.008 (0.002-0.028)	184 (112-364)	0	0	0	0	D	-	-
2.	Bishnupur	12	7.8 (7.2-8.4)	7.3 (5.1-10.5)	0.007 (0.001-0.020)	163 (113-206)	0	0	0	0	D	-	-
3.	Subarnapur	12	7.8 (7.2-8.5)	7.3 (4.8-9.1)	0.014 (0.001-0.112)	178 (94-323)	0	0	0	0	D	-	-
4.	Sarandagarh	12	7.9 (7.2-8.5)	7.1 (5.1-8.4)	0.018 (0.001-0.087)	181 (125-250)	0	0	0	0	D	-	-
(b) Tampara Lake (May-December, 2017)													
5.	Tampara	8	8.0 (7.5-8.5)	6.7 (3.0-9.0)	0.041 (0.001-0.195)	566 (479-730)	0	1 (8)	0	0	D	-	-
***Class 'D'**			**6.5-8.5**	**4 and above**	**1.2 or less**	**1000 or less**	**Fish Culture and Wild life propagation**						

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

Water Quality of Lakes with respect to other parameters during 2017

(a) Brackish Water Lake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological 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)					
Chilka lake (January-December, 2017)																
1.	Rambha	123 (10-286)	137 (104-188)	34.3 (10.9-64.5)	0.153 (0.055-0.560)	0.011 (0.001-0.045)	2.26 (0.28-8.68)	1180 (<1.8-5400)	26160 (12770-38030)	58.04 (33.97-87.74)	19572 (9540-30600)	1.434 (0.039-3.521)	2365 (1290-3880)	10823 (4998-17991)	1089 (507-1549)	0.56 (0.30-1.10)
2.	Satapada	238)65-784)	119 (76-208)	39.5 (27.5-58.8)	0.177 (0.056-0.560)	0.013 (0.002-0.087)	1.80 (0.28-3.92)	1415 (<1.8-9200)	31962 (7086-59110)	57.74 (26.41-87.48)	25705 (4320-51000)	1.824 (0.186-4.167)	3259 (516-6700)	14147 (2499-28486)	1686 (28-3706)	0.56 (0.28-0.90)

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)								
Chilka lake (January-December, 2017)												
1.	Rambha	3.196 (0.511-6.939)	0.088 (0.002-0.751)	0.010	0.025	0.140	0.006	0.006	0.018	0.0009	0.00025	0.006
2.	Satapada	4.216 (0.578-8.646)	0.122 (0.003-0.334)	0.010	0.032	0.160	0.004	0.008	0.014	0.0011	<0.00006	0.004

Data for the period April, 2017

(b) Fresh Water Lake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameters		Mineral constituents						
		Annual average values (Range of values)														
		TSS	Total alkal-inity	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)			
(a) Anshupa Lake (January-December, 2017)																
1.	Kadlibari	55 (8-133)	70 (36-92)	2.4 (0.6-3.9)	20.8 (8.9-3.7)	0.182 (0.056-0.560)	1.80 (0.28-6.16)	9783 (1100-35000)	5512 (490-24000)	106 (67-203)	0.056 (0.003-0.126)	0.58 (0.25-2.88)	65 (36-86)	15.6 (5.0-66.0)	4.38 (1.12-12.68)	0.30 (0.17-0.52)
2.	Bishnupur	32 (6-112)	67 (36-98)	2.5 (0.8-5.2)	17.4 (8.3-33.7)	0.172 (0.056-0.560)	1.63 (0.28-3.92)	5592 (1300-13000)	2549 (390-5400)	96 (72-126)	0.064 (0.003-0.176)	0.41 (0.27-0.55)	63 (38-56)	11.5 (8.8-16.0)	4.27 (0.498-13.05)	0.30 (0.18-0.50)
3.	Subarnapur	39 (12-84)	74 (28-144)	2.5 (1.0-3.7)	19.8 (10.7-29.1)	0.200 (0.056-0.896)	1.63 (0.56-2.8)	4692 (1100-17000)	1880 (78-11000)	104 (52-174)	0.058 (0.007-0.116)	0.40 (0.15-0.67)	67 (36-136)	11.4 (4.0-22.0)	5.26 (1.1-13.3)	0.29 (0.16-0.51)
4.	Sarandagarh	32 (20-62)	73 (52-96)	2.4 (1.1-3.6)	20.3 (10.7-33.1)	0.200 (0.055-0.560)	2.01 (0.28-5.88)	9125 (2400-22000)	4907 (490-14000)	106 (78-146)	0.051 (0.005-0.147)	0.49 (0.32-0.85)	68 (50-90)	14.7 (8.8-22.0)	4.23 (0.62-13.18)	0.29 (0.18-0.47)
(b) Tampara Lake (May-December, 2017)																
5.	Tampada	56 (20-80)	160 (120-216)	8.0 (4.3-10.2)	67.2 (43.9-93.1)	0.523 (0.050-1.560)	4.41 (0.84-12.32)	6546 (78-16000)	2884 (<1.8-9200)	2.12 (1.42-3.31)	328 (258-472)	0.209 (0.095-0.309)	139 (112-250)	87.8 (52.0-147.9)	16.1 (2.6-42.2)	0.468 (0.280-0.647)
*** Class 'C'**		-	-	3.0	-	-	-	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

Contd..

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)								
(a) Anshupa Lake (January-December, 2017)												
1.	Kadlibari	6.024 (0.314-17.854)	0.149 (0.002-0.799)	0.005	0.015	1.150	0.006	0.004	0.047	0.0018	0.00013	0.007
2.	Bishnupur	5.072 (1.342-12.361)	0.106 (0.002-0.291)	0.007	0.013	1.360	0.005	0.002	0.018	0.0018	<0.00006	0.007
3.	Subarnapur	6.131 (0.646-18.867	0.157 (0.002-0.665)	0.003	0.008	1.350	0.004	0.002	0.036	0.0030	0.00013	0.006
4.	Sarandagarh	4.425 (0.792-10.495)	0.185 (0.002-0.501)	0.002	0.008	2.830	0.004	0.003	0.014	0.0020	<0.00006	0.008
(b) Tampara Lake (May-December, 2017)												
5.	Tampada	6.229 (3.023-17.372)	0.072 (0.002-0.241)	0.011	0.032	0.003	0.007	0.005	0.034	0.0018	0.00032	0.008
*** 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 April, 2017 for Anshupa lake and May, 2017 for Tampara lake