

Water Quality of Lakes with respect to Criteria parameters during 2023 (January-December)

(a) Brackish Water 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)							
Chilka lake														
1.	Rambha	12	8.2 (7.2-8.5)	7.0 (4.0-9.4)	1.7 (1.1-2.1)	5.5 (2.5-23)	499 (78-1700)	0	0	0	10 (83)	Does not conform to Class- SW-II	FC	Human activities
2.	Satpada	12	7.9 (7.3-8.4)	7.2 (6.0-9.0)	1.6 (1.1-2.4)	26.4 (7.3-50)	500 (78-1700)	0	0	0	7 (58)		FC	
Water quality criteria for Class SW-II Waters (MOEF Notification G.S.R. No. 7 Dt. 22.12.1998)			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)				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)								
(a) Anshupa Lake														
1.	Kadalibari	12	7.7 (6.9-8.5)	7.4 (5.2-10.1)	0.042 (0-0.174)	165 (96-252)	0	0	0	0	D	-	-	
2.	Bishnupur	12	7.7 (6.9-8.5)	6.5 (4.6-8.5)	0.034 (0-0.09)	158 (118-199)	0	0	0	0	D	-	-	
3.	Subarnapur	12	7.7 (6.7-8.5)	7.3 (5.2-10.5)	0.045 (0-0.174)	165 (121-263)	0	0	0	0	D	-	-	
4.	Sarandagarh	12	7.6 (6.9-8.5)	7.4 (5.0-9.9)	0.041 (0-0.174)	174 (131-274)	0	0	0	0	D	-	-	
(b) Tampara Lake														
5.	Tampara	12	8.3 (7.9-8.5)	6.2 (5.3-7.7)	0.079 (0-0.174)	550 (418-711)	0	0	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)

Table 10 Water Quality of Lakes with respect to other parameters during 2023 (January-December)

(a) Brackish Water Lake

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacterio-logical Parameter	Mineral constituents								
		Annual average values (Range of values)															
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	TC	EC	SAR	% Na	TDS	B	TH	Cl	SO ₄	F
		(mg/L)		(mg/L)				(MPN/100 ml)	(μS/cm)		(mg/L)						
Chilka lake																	
1.	Rambha	20 (<10-38)	139 (117-192)	29.4 (24-37)	0.66 (0.56-1.12)	0.068 (0-0.174)	4.28 (1.68-10.08)	1452 (13-3300)	16697 (10710-22810)	37.03 (16.11-53.85)	77.1 (63.17-87.4)	11802 (6660-18260)	0.961 (<0.5-1.815)	2135 (1200-3200)	7003 (3798-10495)	431.1 (241.8-781.7)	0.48 (0.27-0.67)
2.	Satapada	175 (30-956)	116 (84-176)	25.6 (18-31)	0.76 (0.56-1.12)	0.032 (0.011-0.073)	4.68 (3.36-8.12)	1814 (330-4700)	21858 (1582-41630)	40.72 (4.38-79.9)	74.23 (51.49-85.94)	15702 (1020-33580)	1.159 (<0.5-1.822)	2563 (392-6200)	8953 (400-18316)	437.1 (29-1410)	0.43 (0.19-1.02)

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												
1.	Rambha	1.571 (0.873-3.287)	0.061 (<0.05-0.196)	0.013313	0.013313	0.013	0.013	0.006	0.013	0.0023	0.01331	0.013
2.	Satapada	1.949 (1.045-3.483)	0.061 (<0.05-0.143)	0.004	0.01	2.987	0.014	0.019	0.014	0.0011	0.00046	0.008

Data for the period April, 2023

(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 alkalinity	BOD	COD	NH ₄ -N	TKN	TC	FC	TDS	B	SAR	% Na	TH	Cl	SO ₄	F		
		(mg/L)		(mg/L)				(MPN/ 100 ml)		(mg/L)		(mg/L)							
(a) Anshupa Lake																			
1.	Kadlibari	29 (13-72)	58 (32-80)	1.7 (1.2-2.1)	13.7 (7.3-24)	0.89 (0.56-1.12)	5.24 (2.8-7.84)	3443 (330-13000)	992 (130-3300)	106 (64-168)	<0.5 (<0.5-<0.5)	0.58 (0.34-1.24)	25.54 (18.42-39.94)	63 (40-80)	14 (6-25)	15.4 (<5-50.8)	0.33 (0.15-0.807)		
2.	Bishnupur	17 (<10-27)	63 (44-82)	1.5 (1.2-2.4)	9.5 (7-27)	0.93 (0.56-2.24)	5.09 (2.24-8.96)	4958 (2800-13000)	1552 (680-2300)	101 (72-120)	<0.5 (<0.5-0.513)	0.58 (0.39-0.96)	26.36 (19.39-36.1)	60 (44-76)	14 (8-30)	6.6 (<5-9.9)	0.37 (0.18-0.737)		
3.	Subarnapur	18 (<10-33)	59 (40-84)	1.6 (1.1-1.9)	10.8 (6.7-12)	0.79 (0.56-1.12)	4.17 (1.68-6.72)	3210 (330-11000)	897 (78-2200)	106 (80-152)	<0.5 (<0.5-<0.5)	0.55 (0.33-1.04)	24.52 (14.35-38.71)	64 (48-104)	13 (6-30)	11.1 (<5-33.2)	0.33 (0.12-0.734)		
4.	Sarandagarh	19 (<10-45)	63 (40-88)	1.7 (1.2-2.6)	11.5 (7.3-27)	1.07 (0.56-3.92)	5.25 (3.36-8.4)	3978 (940-9400)	1226 (330-2200)	109 (84-180)	<0.5 (<0.5-0.605)	0.58 (0.38-0.83)	25.1 (19.03-33.4)	68 (52-116)	16 (8-29)	10.1 (<5-34.3)	0.35 (0.16-0.859)		
(b) Tampara Lake																			
5.	Tampara	40 (16-75)	156 (124-192)	3.4 (2.5-4.2)	32.8 (21-48)	0.81 (0.56-1.68)	4.53 (1.68-8.96)	2306 (490-4900)	828 (130-2200)	340 (252-516)	<0.5 (<0.5-0.572)	2.42 (1.34-4.27)	46.29 (33.44-62.12)	145 (124-172)	88 (40-210)	29.5 (8.8-69)	0.42 (0.31-0.51)		
* 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

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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)							
(a) Anshupa Lake												
1.	Kadlibari	1.493 (0.656-3.463)	0.077 (<0.05-0.167)	0.004	0.012	3.584	0.005	0.003	0.004	0.0006	0.00062	0.006
2.	Bishnupur	1.965 (0.276-3.928)	0.053 (<0.05-0.186)	<0.002	0.005	2.768	0.004	0.001	0.001	0.0008	0.00046	0.006
3.	Subarnapur	2.957 (0.524-12.963)	0.07 (<0.05-0.126)	0.003	0.006	0.159	0.004	0.002	0.004	0.0008	0.00046	0.003
4.	Sarandagarh	3.354 (0.489-6.59)	0.068 (<0.05-0.189)	0.005	0.01	1.742	0.005	0.002	0.003	<0.0005	0.00046	0.005
(b) Tampara Lake												
5.	Tampada	3.095 (1.283-11.023)	0.058 (<0.05-0.128)	0.004	0.01	2.350	0.014	0.005	0.025	0.0009	0.00077	0.004
* 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, 2023