

Water quality data of Chilika lake during 2022 (January-December)

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	8.1 (7.4-8.5)	7.1 (6.1-9.0)	1.8 (1.1-2.4)	17.1 (1.5-45)	98 (<1.8-490)	0	0	0	2 (17)	Does not conform to Class- SW-II	FC	Human activities
2.	Satpada	12	7.6 (6.9-8.5)	7.0 (5.3-9.0)	1.8 (1.1-2.9)	39.9 (3.3-85)	269 (20-1300)	0	0	0	5 (42)		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						

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacterio-logical 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	% Na	TDS	B	TH	Cl	SO ₄	F	
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(MPN/100 ml)	(μS/cm)	(mg/L)									
Chilka lake																		
1.	Rambha	29 (<10-70)	128 (80-164)	20.5 (9.9-32)	1.03 (0.56-1.68)	0.109 (0.013-0.210)	4.9 (2.24-8.4)	2395 (110-4900)	441 (306-699)	1.76 (0.95-3.69)	41.01 (26.18-57.88)	NA	<0.5 (<0.5-<0.5)	135 (72-168)	68 (36-200)	27.8 (12.6-48.1)	0.43 (0.31-0.481)	
2.	Satapada	80 (<10-164)	126 (88-144)	25.9 (16.8-37)	0.89 (0.56-1.68)	0.096 (0.-0.260)	4.57 (2.8-6.72)	557 (<1.8-3500)	18994 (328-30340)	40.52 (2.09-90.9)	76.32 (53.3-93.46)	NA	1.523 (<0.5-2.938)	2283 (72-3600)	7788 (54-13989)	830.3 (9.7-1871.5)	0.59 (0.25-0.796)	

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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)								
Chilka lake												
1.	Rambha	3.635 (0.78-10.055)	0.057 (<0.05-0.163)	<0.002	0.017	0.125	0.015	0.006	0.011	0.0024	NA	0.012
2.	Satapada	2.324 (0.901-5.927)	<0.05 (<0.05-0.162)	<0.002	0.011	0.736	0.014	0.008	0.034	0.0019	NA	0.009

NA : Not Analysed

Data for the period April, 2022

DO : Dissolved Oxygen, BOD : Biochemical Oxygen Demand, TC : Total Coliform, TSS : Total Suspended Solids; COD : Chemical Oxygen Demand, NH₄-N : Ammonical nitrogen, TKN : Total Kjeldahl Nitrogen; FC : Fecal Coliform, EC : Electrical Conductivity, TDS : Total Dissolved Solids, B : Boron ; SAR : Sodium Absorption Ratio, TH : Total hardness; Cl : chloride, SO₄ : sulphate; F : Fluoride; PO₄³⁻ : phosphate, : Cr(VI) : Hexavalent Chromium; Fe : Iron, Ni : Nickel, Cu : Copper, Zn : Zinc; Cd : cadmium; Hg : Mercury; Pb : Lead

Water quality data of Anshupa and Tampara lake during 2022 (January-December)

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	7.5 (6.8-8.0)	7.0 (4.6-8.3)	0.019 (0-0.056)	159 (119-234)	0	0	0	0	D	-	-
2.	Bishnupur	12	7.3 (6.9-7.9)	6.6 (4.0-8.0)	0.008 (0-0.020)	152 (109-191)	0	0	0	0	D	-	-
3.	Subarnapur	12	7.4 (6.9-8.0)	7.2 (5.6-8.4)	0.016 (0-0.045)	144 (103-193)	0	0	0	0	D	-	-
4.	Sarandagarh	12	7.3 (6.9-8.4)	6.5 (5.2-7.8)	0.019 (0-0.140)	143 (115-174)	0	0	0	0	D	-	-
(b) Tampara Lake													
5.	Tampara	12	8.3 (7.6-8.5)	6.2 (3.8-7.4)	0.109 (0.013-0.210)	441 (306-699)	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) ** Single Marginal Deviation of DO

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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	22 (<10-45)	69 (56-92)	1.8 (1.1-2.8)	11.9 (6.7-16)	0.84 (<0.4-1.68)	4.11 (2.24-6.16)	3478 (460-22000)	1422 (45-7900)	NA	<0.5 (<0.5-<0.5)	0.51 (0.31-0.91)	23.05 (15.27-34.21)	65 (48-96)	12 (6-20)	8.2 (5.4-19.6)	0.42 (0.305-0.57)
2.	Bishnupur	21 (<10-60)	67 (48-88)	1.4 (1.1-2.0)	9.2 (6.7-14)	0.79 (<0.4-1.68)	4.71 (1.68-9.52)	3466 (490-7900)	1457 (78-4900)	NA	<0.5 (<0.5-<0.5)	0.45 (0.31-0.64)	21.18 (16.82-26.57)	63 (44-76)	12 (8-20)	7.6 (<5-13.6)	0.44 (0.278-0.59)
3.	Subarnapur	22 (<10-57)	61 (44-88)	1.4 (1.1-2.4)	9.6 (6.7-14)	0.93 (<0.4-2.24)	3.87 (1.68-7.84)	1534 (330-4900)	474 (78-2200)	NA	<0.5 (<0.5-<0.5)	0.4 (0.25-0.59)	19.64 (14.63-27.82)	61 (48-84)	12 (6-18)	7.6 (<5-12.4)	0.4 (0.292-0.59)
4.	Sarandagarh	32 (<10-116)	62 (44-88)	1.6 (1.1-2.2)	10.3 (6.7-16)	0.75 (<0.4-1.12)	4.25 (2.24-7.84)	4876 (230-35000)	1548 (45-11000)	NA	<0.5 (<0.5-<0.5)	0.44 (0.23-0.67)	21.42 (11.56-29.72)	60 (48-72)	11 (6-18)	8.4 (<5-14.9)	0.47 (0.298-0.77)
(b) Tampara Lake																	
5.	Tampara	29 (<10-70)	128 (80-164)	4.3 (1.8-11.0)	20.5 (9.9-32)	1.03 (0.56-1.68)	4.9 (2.24-8.4)	2395 (110-4900)	773 (20-2200)	NA	<0.5 (<0.5-<0.5)	1.76 (0.95-3.69)	41.01 (26.18-57.88)	135 (72-168)	68 (36-200)	27.8 (12.6-48.1)	0.43 (0.31-0.481)
* 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	1.507 (0.621-2.953)	0.137 (<0.05-0.924)	0.008	0.016	0.456	0.018	0.004	0.008	0.0009	NA	0.007
2.	Bishnupur	1.905 (0.401-6.097)	0.104 (<0.05-0.495)	0.004	0.016	1.234	0.008	0.001	0.008	0.0039	NA	0.005
3.	Subarnapur	2.036 (0.474-6.245)	0.114 (<0.05-0.402)	0.006	0.014	3.168	0.02	0.004	0.015	0.0024	NA	0.003
4.	Sarandagarh	3.484 (0.567-14.077)	0.058 (<0.05-0.212)	<0.002	0.008	3.5	0.012	0.002	0.015	0.0027	NA	0.004
(b) Tampara Lake												
5.	Tampada	3.635 (0.78-10.055)	0.057 (<0.05-0.163)	<0.002	0.015	0.125	0.015	0.006	0.011	0.0024	NA	0.012
* 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, 2022