

Water quality data of Chilika lake during 2021 (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)							
Chilika lake														
1.	Rambha	12	8.1 (7.3-8.5)	8.0 (6.7-11.0)	1.9 (1.3-2.7)	8.9 (1.3-28.0)	82 (45-170)	0	0	0	2 (17)	Does not conform to Class- SW-II	FC	Human activities
2.	Satpada	12	7.9 (6.9-8.4)	7.2 (5.8-9.6)	1.6 (1.2-1.9)	29.4 (4.0-85.0)	344 (20-1700)	0	0	0	7 (52)		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						

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	% Na	TDS	B	TH	Cl	SO ₄	F	
(mg/L)		(mg/L)				(MPN/100 ml)	(μS/cm)	(mg/L)										
Chilika lake																		
1.	Rambha	136 (59-352)	130 (80-220)	26.8 (13.3-38.5)	1.04 (0.56-1.12)	0.066 (0-0.073)	4.85 (<1.5-8.4)	308 (20-1300)	29588 (7270-40520)	64.85 (8.74-119.61)	81.5 (44.95-92.93)	17376 (8540-26212)	1.475 (<0.5-2.902)	2533 (1000-4000)	12978 (3194-19983)	552 (162.4-982.6)	0.632 (0.301-1.22)	
2.	Satapada	37 (13-183)	138 (56-204)	23.1 (11-30)	0.747 (0.56-1.68)	0.022 (0-0.073)	3.17 (2.24-5.6)	876 (20-3500)	18043 (2930-42780)	31.86 (3.19-85.35)	61.68 (29.66-88.68)	8670 (5880-11460)	1.338 (0.588-1.971)	2353 (336-4200)	7055 (546-16988)	1072.2 (93.3-2211.8)	0.631 (0.191-1.116)	

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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) ##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)			(mg/L)						
Chilka lake											
1.	Rambha	6.449 (0.858-43.795)	<0.05 (<0.05-0.061)	NA	1.564	0.017	0.021	0.015	0.0018	0.00037	0.007
2.	Satapada	2.979 (0.829-5.966)	0.063 (<0.05-0.232)	NA	2.118	0.016	0.033	0.090	0.0016	0.00074	0.007

Data for the period April, 2021

Water quality data of Anshupa and Tampara lake during 2021 (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 (6.9-8.4)	7.1 (5.8-7.8)	0.023 (0-0.210)	182 (117-259)	0	0	0	0	D	-	-
2.	Bishnupur	12	7.3 (6.6-8.0)	6.5 (5.2-7.5)	0.009 (0-0.084)	150 (111-184)	0	0	0	0	D	-	-
3.	Subarnapur	12	7.5 (6.5-8.5)	6.9 (6.2-7.8)	0.012 (0-0.109)	144 (102-181)	0	0	0	0	D	-	-
4.	Sarandagarh	12	7.2 (6.5-8.2)	6.5 (4.0-7.7)	0.009 (0-0.090)	159 (96-223)	0	0	0	0	D	-	-
(b) Tampara Lake													
5.	Tampara	12	8.2 (7.9-8.5)	6.2 (3.0-11.5)	0.062 (0-0.210)	563 (147-945)	0	3 (25)	0	0	Not conforming to class D	DO	Human activities
*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)

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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.	Kadalibari	49 (<10-375)	76 (52-112)	1.5 (1.1-2.3)	12.5 (10.2-19.1)	0.784 (0.56-1.68)	3.19 (<1.5-5.6)	2820 (1300-4700)	912 (220-1700)	124 (100-148)	<0.5 (<0.5-<0.5)	0.48 (0.28-0.9)	20.37 (14.2-32.77)	74 (48-108)	13 (6-22)	13.5 (<5-26.1)	0.296 (0.146-0.496)
2.	Bishnupur	16 (<10-33)	63 (44-80)	1.6 (1.2-2.6)	12.5 (6.5-15.5)	0.72 (0.56-1.68)	3.24 (2.24-5.04)	6660 (2400-17000)	2340 (700-4900)	102 (92-112)	<0.5 (<0.5-0.711)	0.46 (0.32-0.89)	21.51 (15.14-35.95)	61 (40-84)	10 (6-18)	12.3 (<5-22.6)	0.309 (0.176-0.576)
3.	Subarnapur	16 (<10-32)	56 (44-76)	1.4 (1.1-1.9)	10.4 (6.5-11.8)	0.63 (0.56-1.12)	3.24 (1.68-4.48)	3859 (490-16000)	1344 (130-3500)	88 (80-96)	<0.5 (<0.5-<0.5)	0.46 (0.21-0.92)	21.64 (8.71-35.32)	63 (44-116)	11 (6-20)	11.1 (<5-19.8)	0.287 (0.158-0.455)
4.	Sarandagarh	35 (<10-153)	66 (36-96)	1.5 (1.1-2.2)	12.5 (7.1-18)	0.8 (0.56-1.12)	4.04 (2.24-6.72)	3999 (790-9200)	1444 (130-2300)	102 (92-112)	<0.5 (<0.5-0.73)	0.43 (0.31-0.57)	20.38 (15.66-24.74)	67 (40-120)	11 (6-18)	11.4 (5.1-19.9)	0.343 (0.181-0.638)
(b) Tampara Lake																	
5.	Tampara	37 (13-183)	138 (56-204)	4.0 (1.9-6.0)	32.4 (15.1-59.3)	0.91 (0.56-1.68)	6.84 (1.68-33.04)	1579 (460-3500)	416 (110-1700)	634 (588-680)	<0.5 (<0.5-<0.5)	2.87 (0.32-5.99)	46.14 (16.01-64.3)	120 (60-180)	132 (14-296)	21.6 (5.1-40)	0.424 (0.204-1.27)
* 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) ##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
(mg/L)		(mg/L)									
(a) Anshupa Lake											
1.	Kadalibari	3.012 (0.905-5.516)	0.085 (<0.05-0.292)	NA	0.086	0.004	0.002	0.003	0.0010	0.00074	0.009
2.	Bishnupur	1.295 (0.462-3.047)	0.062 (<0.05-0.205)	NA	0.128	0.003	0.001	0.006	<0.0005	0.00074	0.010
3.	Subarnapur	1.946 (0.677-6.326)	0.078 (<0.05-0.283)	NA	0.375	0.002	0.001	0.004	<0.0005	0.00074	0.012
4.	Sarandagarh	2.417 (0.499-6.447)	0.054 (<0.05-0.168)	NA	0.415	0.015	0.002	0.015	0.0022	0.00074	0.008
(b) Tampara Lake											
5.	Tampada	3.566 (0.745-9.448)	0.06 (<0.05-0.575)	NA	0.390	0.012	0.003	0.028	0.0023	0.00074	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 April, 2021

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