

Water quality status of Kolleru Lake and its drains

Kolleru lake is a natural wet land situated between Krishna and Godavari deltas in the coastal districts of West Godavari and Krishna lying between the latitude 16°32' and 16°47' and longitude 81°05' and 81°21' E. The important activities in the lake area are agriculture and aquaculture. The lake is the drinking water source for the people living in the vicinity of the Kolleru Lake and it is a bird sanctuary for indigenous and migrating birds.

The ecological degradation of the lake was set in due to extensive use of pesticides by farmers of Upper catchment and delta regions, bunding for pisciculture, draining of sewage and industrial pollutants through in-flowing drains and channels.

APPCB is monitoring the water quality of the lake at 20 points. Physico-chemical parameters, (19) Bacteriological parameters (3) heavy metals (8) and pesticides are being analysed for all the above points.

Monitoring locations (inlet drains) of Kolleru Lake:

S. No.	Location	Potential sources of pollution	Remarks
1	West Tammileru at Gurukula-padu	Eluru Municipality	Municipal sewage & agricultural run off
2	Budameru at Arugolanu	M/s.The Krishna Dist. Milk Producers Union Ltd., (Vijaya Diary) Krishna Dist. & Vijayawada Municipal Corporation	Industrial effluent discharges and fish and discharges and agricultural run off
3	Chandiraiah drain at Nandigam	M/s. KCP Sugars Ltd., and M/s. KCP Distillery, Vuyyuru, Krishna Dist. Gudivada Municipality	Industrial effluent discharge agricultural and fish pond discharge
4	Polaraju drain at Kakatiya wagu	Agricultural run off	Agriculture drains and fish pond outlets
5	East Tammileru at NH 5	Eluru Municipality	Municipal discharges
6	Bulusu wagu at NH 5	M/s. West Godavari Co-operative Sugars Ltd., Bhimadole	Industrial effluent discharges, agriculture run off
7	Mondikodu drain	--	Agricultural runoff & fish pond discharges
8	Kovali drain	--	Agricultural runoff & fish pond discharges
9	Tokalapalli drain at Chebrolu undi road	Agricultural run off	Agriculture & fish pond discharges
10	Pandikodu drain at Chebrolu – Undo road	Agricultural run off	Agriculture & fish pond discharges
11	Narasannapalem	M/s. Hanumath kali varaprasad babu	Industrial effluent discharges and

drain Arugolanu	at	chemicals Pvt. Ltd., M/s.Delta Sugars Ltd., (M/s. Hanuman Co-operative Sugars) Krishna Dist.	fishpond discharges and agricultural runoff.
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B. Monitoring locations in Kolleru Lake (Lake Points):

1. Pedaedlagadi on Eluru – Kaikaluru road
2. Chinaedlagai on Eluru – Kaikaluru road
3. Circar channel at Alapadu run off
4. Point of Sringavarapadu
5. Point at Kolleti kota
6. Gudivakalanka
7. Kokkirayalanka
8. Chettunnnapadu

C. Outlet of Kolleru Lake:

1. Upputeru at Akiveedu road bridge

Water Quality Monitoring results (annual averages) for the year 2016- 17

Sampling points		pH	TDS	COD	BOD	DO	T. Coli
Inlet drains of Kolleru Lake	West Thammileru	--	--	--	--	--	--
	Budameru	7.47	675	20.2	3.6	6.82	1870
	Chandraiah drain	7.62	444	15	2.8	6.5	1925
	Polaraju drain	7.67	2848	36	6.50	6.49	1922
	East Thammileru	7.56	484	14	2.75	6.77	2292
	Bulusu vagu	7.5	2122	29	6.45	6.74	1917
	Mondikodu	7.5	349	16	2.75	6.68	1683
	Kovvali drain	7.51	365	13	2.63	6.75	1733
	Tokalapalli	7.67	359	13	2.5	6.88	1883
	Pandikodu	7.55	660	16	3.1	6.55	1625
Narasannapalem	7.49	561	20	3.52	6.52	1740	
Lake points	Pedda edlagadi	7.49	1876	34	6.4	7.01	1971
	Chinna edlagadi	7.41	2587	31	5.51	5.64	1700
	Circar channel	7.76	5093	48	9.87	6.93	2192
	Srugavarappadu	7.79	5004	39	8.18	6.64	1950
	Kolleti kota	7.74	3190	38	7.78	6.61	2125
	Gudivaka lanka	7.43	1408	29	7.00	6.95	1691
	Kokkirayalanka	7.52	694	12	2.54	6.89	1881
	Chettunnnapadu	7.44	1767	34	6.42	6.48	1836
Outlet	Upputeru	7.66	4815	35	7.78	6.79	2033

Note: All values are expressed in mg/lit except pH and T. Coli. T. Coli is expressed in MPN/100 ml.

Inferences from the data: The data of annual averages obtained for Kolleru lake for the year 2016 – 17 shows that water is not suitable for the purposes mentioned against Class A, B, C and D, i.e. to use as drinking water source, for bathing purpose and propagation of fisheries and wild life because of high BOD (>3 mg/l) content.

Trends of Dissolved oxygen and BOD values for the years from 2010 – 2017:

Kolleru Lake Sampling points		DO (mg/L)						BOD (mg/L)					
		2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Inlet drains of Kolleru Lake	West Thammileru	1.1	2.3	7.1	5.6	24	--	6.1	1.1	1.2	1.8	3.9	--
	Budameru	2.6	3.3	4.1	2	26	5.2	6.5	0.8	1.6	2.9	2.9	7
	Chandraiah drain	1.8	3.6	5.3	2	21	5	7.2	0.6	1.8	3.4	3.8	7.7
	Polaraju drain	1.6	2.9	2.5	3.5	28	6.8	6.8	1.0	1.8	2.6	2.6	6.8
	East Thammileru	3.2	4.5	7.2	6.1	4.87	6	5.6	0.7	1.0	1.5	19	5
	Bulusu vagu	5.8	3.5	7.1	4.4	3.6	7	7.0	0.7	1.8	3	33	7.9
	Mondikodu	6.1	5.3	7.5	6.2	4.1	7	2.8	0.5	1.2	1.4	20	5
	Kovvali drain	7.2	5.7	7.2	5.6	4.8	6.4	3.2	0.6	1.2	1.7	19	3.7
	Tokalapalli	8.6	4.2	5.1	5.3	5.1	6.2	2.2	0.6	1.2	1.4	21	5.2
	Pandikodu	3.8	3.0	7.1	4.5	3.6	4.4	6.8	1.1	0.8	2.8	27	8.3
	Narasannapalem	4.1	5.3	5.0	1.9	3.1	7.1	5.8	1.2	1.8	3.4	21	18
KollKolleru Lake Pointttttts	Pedda edlagadi	0.6	1.6	7.6	2.6	2.9	4.7	5.6	1.0	1.0	2.6	3.9	12
	Chinna edlagadi	0.8	0.6	1.5	4.1	1.3	5	7.9	1.1	2.6	4.1	4.5	16
	Circar channel	3.2	1.5	5.4	2.9	4.3	6.5	11.0	1.1	2.6	2.9	2.9	18
	Srugavarappadu	2.1	1.1	6.0	3.2	4	5.4	10.6	0.8	1.8	3.2	2.7	23
	Kolleti kota	2.4	0.6	5.5	2.9	4	4.9	11.2	1.2	2.2	2.9	3.1	20
	Gudivaka lanka	0.8	2.8	2.6	3.8	2.4	5.7	10.8	1.2	3.8	3.8	3.9	15
	Kokkiryalanka	2.2	0.6	3.0	3.5	3	4.7	11.8	1.0	2.6	3.5	3.7	17
	Chettunnnapadu	0.2	1.8	5.8	4.0	1.8	6.5	13.0	0.8	1.6	4.0	4.1	16
Outlet	Upputeru	3.1	1.9	5.9	3.3	3.8	5.9	6.6	0.9	1.6	3.2	2.9	11

Note: All values are expressed in mg/lit.

Inferences from the data: The data of annual averages obtained for Kolleru lake for the years from 2010-2015 shows that water is not suitable for the purposes mentioned against Class A, B, C and D, i.e. to use as drinking water source, for bathing purpose and propagation of fisheries and wild life because of low DO (4 mg/l) content.