

Coastal Water Quality during 2021 (January-December)

(a) with respect to Criteria parameters

Sl. No	Sampling Location	No. of Obs.	Annual average value (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					BOD	FC			
			pH	DO (mg/l)	BOD (mg/l)	Turbidity, NTU	FC (MPN/100 ml)					
1.	Puri											
(a)	Swargadwara	12	8.1 (7.7-8.4)	6.7 (5.3-7.7)	1.1 (< 1.0-1.6)	5.9 (1.2-16)	25 (<1.8-45)	0	0	SW-II		
(b)	Bankimuhan	12	8.1 (7.6-8.5)	6.6 (5.5-7.8)	1.2 (< 1.0-1.8)	6 (1-19)	384 (<1.8-1300)	0	2 (17)	Does not confirm to Class-SW-II	FC	Human activities
(c)	Baliapanda	12	8.1 (7.7-8.3)	6.8 (5.9-8.4)	1.0 (< 1.0-1.4)	5.5 (1-19.8)	33 (<1.8-45)	0	0	SW-II		
2.	Gopalpur	12	8.0 (7.4-8.4)	7.3 (6.0-8.8)	1.5 (1.2-2.2)	9.1 (<1.0-23)	28 (<1.8-45)	0	0	SW-II		
3.	Paradeep	12	7.8 (6.9-8.2)	6.9 (6.2-7.4)	1.4 (< 1.0-1.9)	7.3 (<1.0-17)	418 (45-790)	0	1 (8)	Does not confirm to Class-SW-II	FC	Human activities
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		

* The value not exceeding 200/100 ml in 20 percent of samples in the year and in 3 consecutive samples in monsoon months.

Sl. No	Sampling Location	No. of Obs.	Annual average value (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					BOD	O&G	FC			
			pH	DO (mg/l)	BOD (mg/l)	O&G, mg/l	FC (MPN/100 ml)						
1.	Gopalpur	12	8.0 (7.4-8.4)	7.3 (6.0-8.8)	1.5 (1.2-2.2)	0.6 (0.4-0.8)	28 (<1.8-45)	0	0	0	SW-IV		
2.	Paradeep	12	7.8 (6.9-8.2)	6.9 (6.2-7.4)	1.4 (< 1.0-1.9)	0.6 (0.4-0.8)	418 (45-790)	0	0	0	SW-IV		
Water quality criteria for Class SW-IV Waters (MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000)			6.5-9.0	3.0 or more	5.0 mg/l or less	10 or less	500 or less				For Harbour Waters		

(b) Coastal Water Quality with respect to other parameters during 2021 (January- December)

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	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100 ml)	(µS/cm)	(mg/l)						
1.	Puri															
(a)	Swargadwara	166 (45-296)	116 (92-144)	33.5 (25-39.2)	0.63 (0.56-1.12)	0.033 (0-0.140)	3.17 (1.68-6.16)	85 (<1.8-230)	43842 (41560-48060)	81.04 (57.92-114.43)	2.081 (<0.5-2.636)	35450 (34860-36040)	4252 (2520-6400)	20065 (19936-20986)	1994 (1385.7-2788.3)	0.758 (0.491-1.223)
(b)	Bankimuhan	153 (56-265)	124 (96-160)	32.9 (25.5-39.2)	0.77 (0.56-1.12)	0.034 (0-0.090)	3.05 (1.68-5.04)	928 (<1.8-3500)	43974 (40070-48660)	80.21 (57.76-109.23)	2.247 (0.737-2.875)	35434 (34648-36220)	4308 (2700-6400)	20069 (19986-20986)	1988.1 (1157.2-2576.5)	0.664 (0.137-0.843)
(c)	Baliapanda	162 (47-295)	123 (92-156)	32.6 (25-39.2)	0.622 (0.56-1.12)	0.032 (0-0.073)	2.92 (<1.5-5.6)	54 (<1.8-130)	44064 (41840-48360)	81.34 (60.42-116.71)	1.99 (0.73-2.611)	37012 (36292-37732)	4277 (2520-6400)	20402 (18987-21985)	1995.6 (1261.9-2506)	0.716 (0.502-0.862)
2.	Gopalpur	118 (27-208)	115 (64-148)	31.4 (7.6-40)	0.653 (0.56-1.12)	0.024 (0-0.090)	3.3 (1.68-5.6)	75 (<1.8-130)	42399 (39210-48060)	73.75 (56.45-104.13)	1.732 (<0.5-2.81)	34498 (32796-36200)	4807 (2880-7000)	19544 (18676-20986)	1812.9 (995.3-2658.9)	0.844 (0.615-1.45)
3.	Paradeep	152 (33-352)	119 (88-172)	27.4 (7.3-38.5)	0.72 (0.56-1.12)	0.019 (0-0.073)	3.36 (<1.5-7.28)	453 (20-1700)	41804 (38080-44990)	70.31 (52.49-89.28)	2.184 (0.734-3.317)	33622 (33048-34196)	4878 (3200-7140)	19320 (17987-19986)	1959.4 (1357.2-2647.1)	0.733 (0.526-1.39)

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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)									
1.	Puri										
(a)	Swargadwara	3.823 (0.982-15.871)	<0.05 (<0.05-0.173)	NA	1.786	0.011	0.021	0.032	0.0026	0.00037	0.007
(b)	Bankimuhan	3.294 (1.288-6.269)	0.073 (<0.05-0.283)	NA	1.566	0.015	0.002	0.044	0.0023	0.00037	0.007
(c)	Baliapanda	2.489 (0.733-4.311)	<0.05 (<0.05-0.079)	NA	3.076	0.011	0.034	0.038	0.0024	0.00037	0.007
2.	Gopalpur	3.268 (1.127-8.139)	<0.05 (<0.05-0.091)	NA	2.779	0.018	0.018	0.054	0.0013	0.00037	0.007
3.	Paradeep	3.78 (0.934-11.112)	0.241 (<0.05-0.983)	NA	0.359	0.008	0.038	0.017	0.0023	0.00037	0.009

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, SO₄²⁻ : sulphate; F⁻ : Fluoride; PO₄³⁻ : phosphate, : Cr(VI) : Hexavalent Chromium; Fe : Iron, Ni : Nickel, Cu : Copper, Zn : Zinc; Cd : cadmium; Hg : Mercury; Pb : Lead

