





GOVERNMENT OF PUDUCHERRY PUDUCHERRY POLLUTION CONTROL COMMITTEE

ENVIS HUB NEWSLETTER

STATUS OF WATER QUALITY IN THE U.T OF PUDUCHERRY FOR THE YEAR 2019

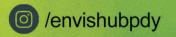


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Status of Water Quality in the U.T. of Puducherry

Department of Science, Technology & Environment / Puducherry Pollution Control Committee has been monitoring Water quality periodically at 31 locations with financial assistance from Central Pollution Control Board under National Water Quality Monitoring Programme (NWMP). Monitoring is done on quarterly basis in surface water bodies in Puducherry and Karaikal regions. The periodicity is annually in Mahe and Yanam regions and during pre and post monsoon in the case of ground water.

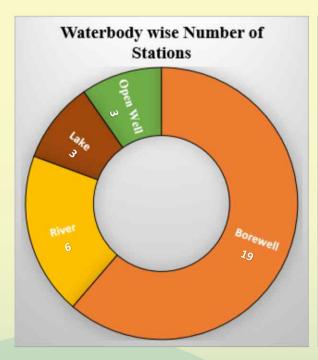
Objectives of Water Quality Monitoring

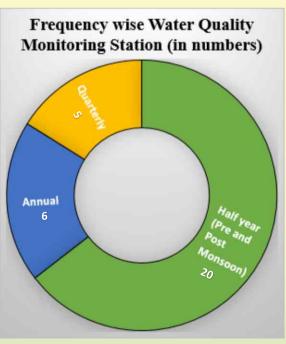
The water quality monitoring is performed with the following main objectives:

- To understand the nature and extent of pollution control and measures required.
- To evaluate the extent of pollution control required and effectiveness of pollution control measures already in existence.
- To assess water quality trends over a period of time.
- To assess assimilative capacity of a water body thereby reducing cost on pollution control.
- To understand the environmental fate of different pollutants
- To assess the fitness of water for different uses.

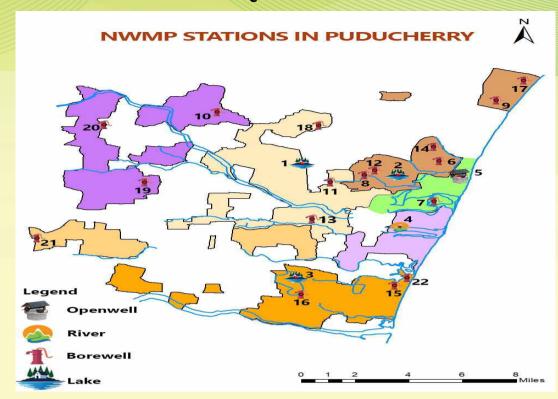
Newly Included Water Quality Monitoring Stations in U.T. of Puducherry

The three new stations (Thirukkanur, Madukarai and Panithittu) have been included in water quality monitoring network under NWMP during the year 2019. In total the U. T of Puducherry has 31 Stations under NWMP.

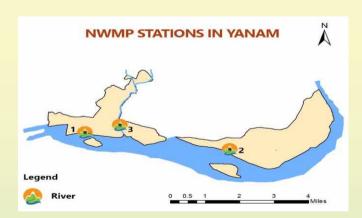




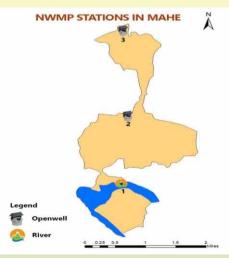
LOCATION MAP OF WATER QUALITY MONITORING STATIONS



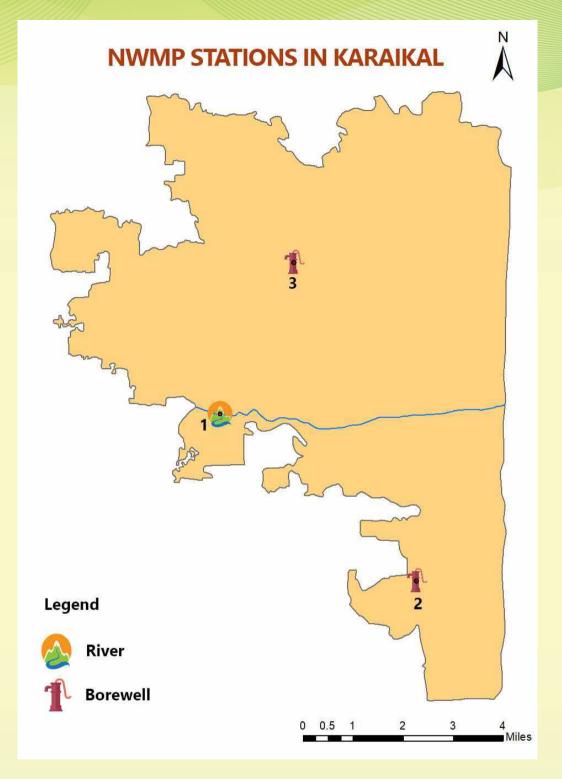
SI.No	Location	SI.No	Location
1	Ousteri Lake	12	Mettupalayam
2	Kanagan Lake	13	Uruvaiyar
3	Bahour Lake	14	Maruthi School
4	Chunnambar River	15	Echankadu
5	ChettyKoil, Mission Street	16	Near by Lake, Bahour
6	Krishna Nagar	17	Chevalier Sellane Government Higher secondary school, Kalapet
7	Thengaithittu	18	DhanderarKulam, Sedarapet
8	Muthirappalayam	19	Kothapurinatham, Thiruvandarkoil
9	Pondicherry University	20	Thirukkanur
10	Katterikuppam	21	Madukarai
11	Kurumbapet	22	Panithittu



SI.No	Location
1	Gowtami - Godavari River Near Balayogi Bridge
2	Gowtami - Godavari River Near Adavipolam
3	Coringa River (Tidal Lock)

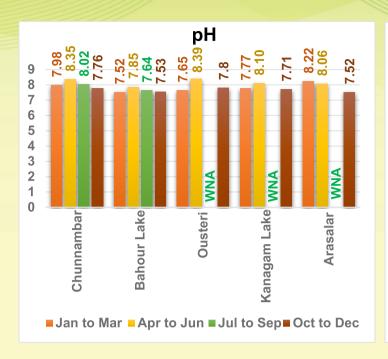


SI.No	Location
1	Mahe River
2	Pallur
3	Panthakkal



SI.No	Location				
1	Arasalar				
2	T.R Pattinam				
3	Vadamattan				

Status of Water Quality in Surface Water (2019) - Puducherry and Karaikal



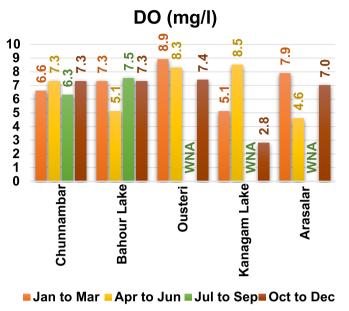


Fig. 1: pH

Fig. 2 : DO (mg/l)

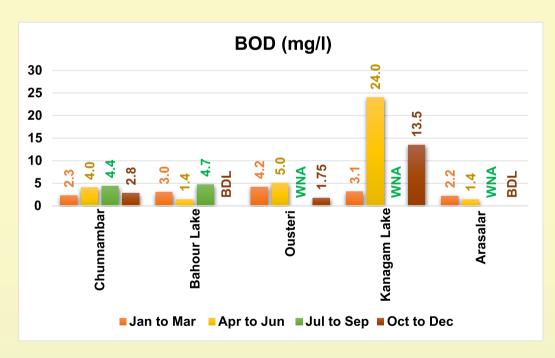


Fig. 3 : BOD (mg/l)

Note:

- BDL Below Detection Limit
- WNA Water not available for sampling in Ousteri, Kanaganeri and Arasalar during July quarter.
- As per the primary water quality criteria for bathing water of class B, pH should be 6.5 to 8.5; DO 5mg/l or more; BOD 3mg/l or less.

Status of Water Quality in Borewell - Puducherry and Karaikal

Comparative Study of Post and Pre Monsoon of 2019

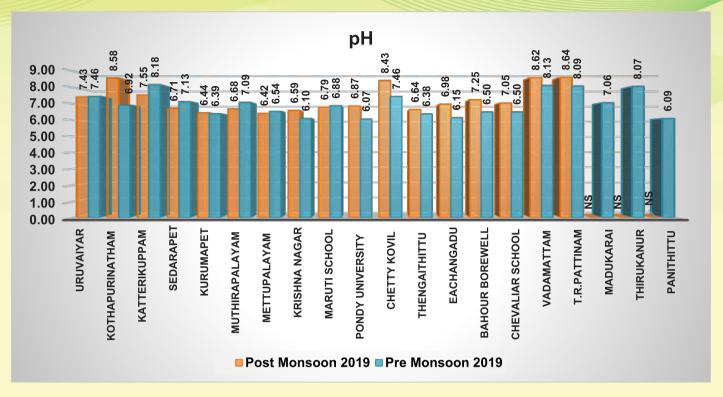


Fig 4 pH

Note: Permissible Limit - 6.5 to 8.5

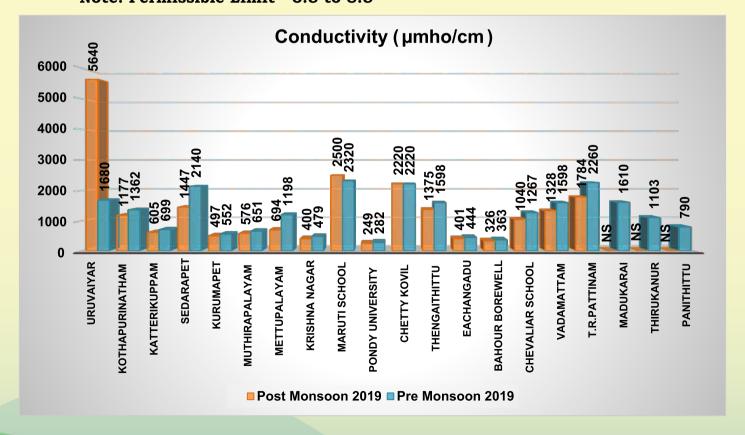


Fig 5 Conductivity (µmho/cm)

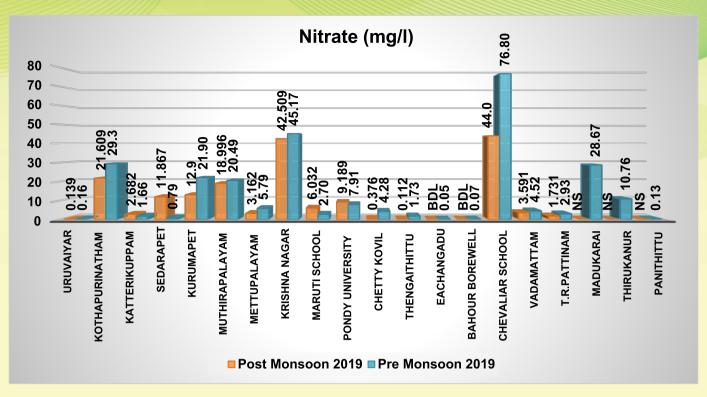


Fig 6 Nitrate (mg/l)

Note: Permissible Limit- 45(mg/l) BDL - Below Detection Limit

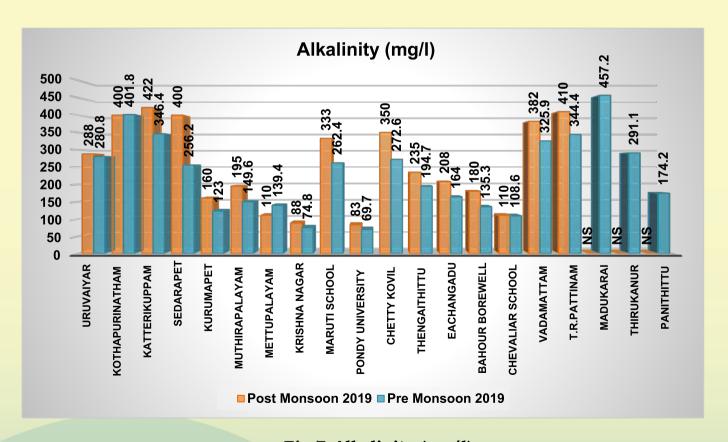


Fig 7 Alkalinity (mg/l)

Note: Permissible Limit - 600 (mg/l)

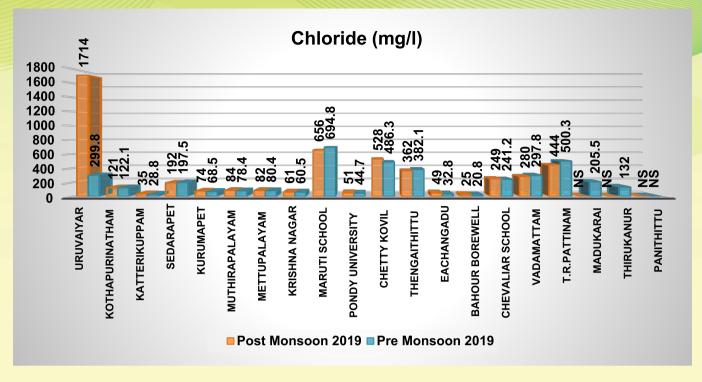


Fig 8 Chloride (mg/l)

Note: Permissible Limit- 1000 (mg/l)

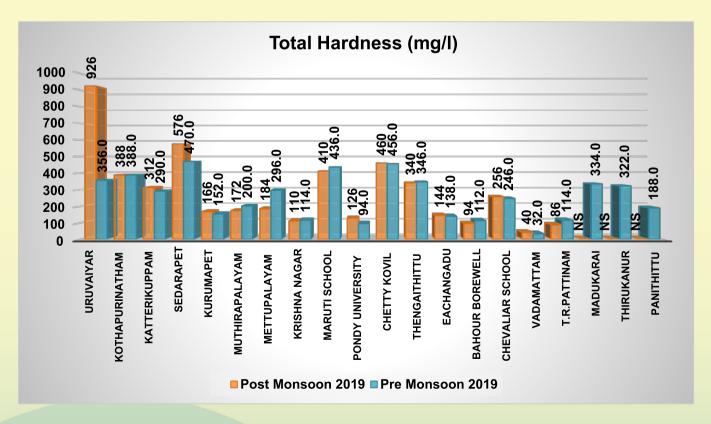


Fig 9 Total Hardness (mg/l)

Note: Permissible Limit- 600 (mg/l)

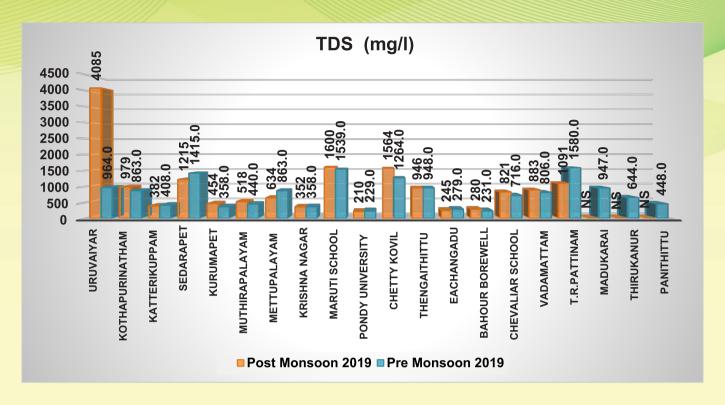


Fig 10 TDS (mg/l)

Note: Permissible Limit - 2000 (mg/l) BDL - Below Detection Limit

NS - Madukarai, Thirukanur and Panithittu are new stations. Water sampling was initiated during Pre Monsoon only.

Pesticides viz., Alpha BHC μ g/L, Beta BHC μ g/L, Gamma BHC μ g/L, OP DDT μ g/L, PP DDT μ g/L, PP DDE μ g/L, PP DDD μ g/L, Alpha Endosulphan μ g/L, Beta Endosulphan μ g/L, Dieldrin μ g/L, Carbaryl (Carbamate) μ g/L, 2,4-D μ g/L, Aldrin μ g/L, Malathion μ g/L, Methyl Parathion μ g/L, Chloropyriphos μ g/L, Isoproturon μ g/L, Alachlor μ g/L, Atrazine μ g/L, Monochrotophos μ g/L, Ethion μ g/L, Phorate μ g/L, and trace metals viz., Copper μ g/L, Nickel μ g/L, Cadmium μ g/L, Lead μ g/L, Total Chromium μ g/L, Iron μ g/L, Zinc μ g/L, Arsenic μ g/L, Mercury μ g/L are Below Detectable Limit in most of the locations. Except in Thengaithiitu and Eachangadu the concentration of iron are (1.07 μ g/l) and (5.1 μ g/l), which is above the permissible limit (0.3 μ g/l).

Surface Water Quality in Yanam Region 2019

Sal.No					
Temperature *C 26.5 26.5 27	S1.No	Parameters			
2 DOmg/l	1	Temperature °C		26.5	
3 pH 7.51 7.68 7.67	2	-	6.6	6.6	7
5 BOD mg/l 0.1 0.2 0.2 6 Nitrate - N mg/l 0.33 0.36 0.33 7 Nitrate - N mg/l 1.46 1.6 1.44 8 Nitrite - N mg/l 0.006 0.007 0.008 9 Turbidity NTU 4.2 7 3.8 10 Bi- Carbonate as CaCO ₃ mg/l 121.5 111.7 117.6 11 Carbonate as CaCO ₃ mg/l NIL NIL NIL NIL 12 Chloride mg/l 4208.8 2175.6 2764.7 13 COD mg/l 20 20 20 14 Total Hardness mg/l 1152 824 964 15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium as Mg++ mg/l 113.7 87.5 93.8 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l	3	pH	7.51	7.68	7.67
5 BOD mg/I 0.1 0.2 0.2 6 Nitrate - N mg/I 0.33 0.36 0.33 7 Nitrate - N mg/I 0.006 0.007 0.008 9 Turbidity NTU 4.2 7 3.8 10 Bi- Carbonate as CaCO ₃ mg/I 121.5 111.7 117.6 11 Carbonate as CaCO ₃ mg/I NIL NIL NIL NIL 12 Chloride mg/I 4208.8 2175.6 2764.7 20 13 COD mg/I 20 20 20 20 14 Total Hardness mg/I 684 464 578 16 Calcium Hardness mg/I 468 360 386 18 Magnesium Bay++ mg/I 113.7 87.5 93.8 19 Sulphate mg/I 496 453 307 20 Orthophosphate mg/I 0.02 0.03 0.02 21 TDS mg/I 7888 4245 5493 22 TSS mg/I<	4	Conductivity µmho/cm	12940	7190	9110
7 Nitrate mg/I 1.46 1.6 1.44 8 Nitrite - N mg/I 0.006 0.007 0.008 9 Turbidity NTU 4.2 7 3.8 10 Bi- Carbonate asCaCO3 mg/I 121.5 111.7 117.6 11 Carbonate as CaCO3 mg/I NIL NIL NIL 12 Chloride mg/I 4208.8 2175.6 2764.7 13 COD mg/I 20 20 20 14 Total Hardness mg/I 1152 824 964 15 Calcium Hardness mg/I 684 464 578 16 Calcium as Ca++ mg/I 273.6 185.6 231.2 17 Magnesium as Mg++ mg/I 113.7 87.5 93.8 18 Magnesium as Mg++ mg/I 113.7 87.5 93.8 19 Sulphate mg/I 496 453 307 20 Orthophosphate mg/I 0.02 0.03 0.02 21 TDS mg/I 7888	5		0.1	0.2	0.2
8 Nitrite - N mg/l 0.006 0.007 0.008 9 Turbidity NTU 4.2 7 3.8 10 Bi- Carbonate as CaCO ₃ mg/l 121.5 111.7 117.6 11 Carbonate as CaCO ₃ mg/l NIL NIL NIL NIL 12 Chloride mg/l 4208.8 2175.6 2764.7 20 31.2 23 23 23 23 23 23 23 23 <td>6</td> <td>Nitrate - N mg/l</td> <td>0.33</td> <td>0.36</td> <td>0.33</td>	6	Nitrate - N mg/l	0.33	0.36	0.33
9 Turbidity NTU	7	Nitrate mg/l	1.46	1.6	1.44
10 Bi- Carbonate as CaCO ₃ mg/l 121.5 111.7 117.6 11 Carbonate as CaCO ₃ mg/l NIL NIL NIL NIL 12 Chloride mg/l 4208.8 2175.6 2764.7 13 COD mg/l 20 20 20 14 Total Hardness mg/l 1152 824 964 15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l BDL BDL BDL BDL 32 Cadmium mg/l BDL BDL BDL BDL 33 Copper mg/l 0.014 0.0072 0.0061 34 Lead mg/l BDL BDL BDL BDL 36 Mercury mg/l BDL BDL BDL BDL 37 Nickel mg/l BDL BDL BDL BDL 38 Zinc mg/l BDL BDL BDL D.0532 38 Zinc mg/l BDL BDL D.0532 30 PR Ratio Recurrency mg/l BDL BDL BDL BDL 36 Mercury mg/l BDL BDL BDL BDL 37 Nickel mg/l BDL BDL BDL D.0532 38 Zinc mg/l BDL BDL D.0532 39 Zinc mg/l BDL BDL BDL D.0532 30 Zinc mg/l BDL BDL D.0532 30 PR Ratio Recurrency mg/l BDL BDL BDL C.0532 30 Zinc mg/l BDL BDL D.0532 31 Zinc mg/l BDL BDL D.0532	8	Nitrite - N mg/l	0.006	0.007	0.008
11	9	Turbidity NTU	4.2	7	3.8
12 Chloride mg/l 20 20 20 20 20 14 Total Hardness mg/l 1152 824 964 15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL BDL 25 Sodium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL BDL BDL BDL BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l BDL	10	Bi- Carbonate asCaCO ₃ mg/l	121.5	111.7	117.6
13 COD mg/l 20 20 20 20 14 Total Hardness mg/l 1152 824 964 964 15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL BDL BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BD	11	Carbonate as CaCO ₃ mg/l	NIL	NIL	NIL
14 Total Hardness mg/l 1152 824 964 15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6	12	Chloride mg/l	4208.8	2175.6	2764.7
15 Calcium Hardness mg/l 684 464 578 16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23	13	COD mg/l	20	20	20
16 Calcium as Ca++ mg/l 273.6 185.6 231.2 17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TTS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0	14	Total Hardness mg/l	1152	824	964
17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 36 Merc	15	Calcium Hardness mg/l	684	464	578
17 Magnesium Hardness mg/l 468 360 386 18 Magnesium as Mg++ mg/l 113.7 87.5 93.8 19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 36 Merc	16	Calcium as Ca++ mg/l	273.6	185.6	231.2
19 Sulphate mg/l 496 453 307 20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034	17		468	360	386
20 Orthophosphate mg/l 0.02 0.03 0.02 21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 36 </td <td>18</td> <td>Magnesium as Mg++ mg/l</td> <td>113.7</td> <td>87.5</td> <td>93.8</td>	18	Magnesium as Mg++ mg/l	113.7	87.5	93.8
21 TDS mg/l 7888 4245 5493 22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36	19	Sulphate mg/l	496	453	307
22 TSS mg/l 32.0 14.0 12.0 23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 <td>20</td> <td>Orthophosphate mg/l</td> <td>0.02</td> <td>0.03</td> <td>0.02</td>	20	Orthophosphate mg/l	0.02	0.03	0.02
23 FDS/TFS mg/l 6634 3429 4515 24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 </td <td>21</td> <td>TDS mg/l</td> <td>7888</td> <td>4245</td> <td>5493</td>	21	TDS mg/l	7888	4245	5493
24 Ammonia - N mg/l BDL BDL BDL 25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	22	TSS mg/l	32.0	14.0	12.0
25 Sodium mg/l 2586.0 1132.4 1660.0 26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL BDL 38 Zinc mg/l BDL BDL 0.532	23	FDS/TFS mg/l	6634	3429	4515
26 Potassium mg/l 83.9 44.4 59.2 27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL BDL 38 Zinc mg/l BDL BDL 0.532		Ammonia - N mg/l			
27 Hexavalent Chromium mg/l BDL BDL BDL 28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532			2586.0	1132.4	1660.0
28 % Sodium 81.7 73.6 77.6 29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL BDL 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL BDL 38 Zinc mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	26	Potassium mg/l	83.9	44.4	59.2
29 SAR 33.0 17.1 23.2 30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL BDL 0.532	27	Hexavalent Chromium mg/l	BDL	BDL	BDL
30 P/R Ratio 7.0 6.0 2.0 31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	28	% Sodium	81.7	73.6	77.6
31 Arsenic mg/l 0.014 0.0072 0.0061 32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532			33.0		23.2
32 Cadmium mg/l BDL BDL BDL 33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	30	P/R Ratio	7.0	6.0	2.0
33 Copper mg/l 0.02 0.015 0.034 34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	31	Arsenic mg/l	0.014	0.0072	0.0061
34 Lead mg/l BDL BDL 0.0094 35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532		Cadmium mg/l	BDL	BDL	
35 Total Chromium mg/l BDL BDL BDL 36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532				0.015	
36 Mercury mg/l BDL BDL BDL 37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	34	Lead mg/l	BDL	BDL	0.0094
37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	35	Total Chromium mg/l	BDL	BDL	BDL
37 Nickel mg/l BDL BDL 0.052 38 Zinc mg/l BDL BDL 0.532	36	Mercury mg/1	BDL	BDL	BDL
38 Zinc mg/l BDL BDL 0.532					
C ₁					
39 iron mg/I $ 0.374 0.496 0.310$	39	Iron mg/l	0.374	0.496	0.310

Water Quality in Mahe Region 2019

Sl.No.	Parameters	Pallur (Open Well)	Pandakkal (Open Well)	Mahe River
1	Temperature °C	28	28.5	29
2	pH	6.31	6.80	7.4
3	Conductivity µmho/cm	174.3	82.2	2940.00
4	DO mg/l	<u>-</u>	_	6.3
5	BOD mg/l	BDL	BDL	BDL
6	Nitrate – N mg/l	0.37	0.69	0.24
7	Nitrate mg/l	1.6	3.0	1.00
8	Nitrite – N mg/l	0.001	0.009	0.0
9	Turbidity NTU	0.4	17.4	18.6
10	Bi- Carbonate as CaCO ₃ mg/l	10.6	25.5	38.2
11	Carbonate as CaCO ₃ mg/l	NIL	NIL	NIL
12	Chloride mg/l	27.7	10.6	893.3
13	COD mg/l	NIL	NIL	NIL
14	Total Hardness mg/l	28.0	18.0	298
15	Calcium Hardness mg/l	22.0	18.0	74.0
16	Calcium as Ca++ mg/l	8.8	7.2	29.6
17	Magnesium Hardness mg/l	6	0	224.0
18	Magnesium as Mg++ mg/l	1.46	0	54.4
19	Sulphate mg/l	4.9	5.3	114.0
20	Ortho Phosphate mg/l	0.007	0.022	0.037
21	TDS mg/l	98	48	1694
22	TSS mg/l	BDL	BDL	20
23	FDS mg/l	49	34	1483.0
24	Sodium mg/l	14.7	5.2	486.0
25	Potassium mg/l	4.8	1.0	18.9
26	Hexavalent Chromium mg/l	BDL	BDL	BDL
27	% Sodium	48.4	37.0	76.5
28	SAR	1.2	0.5	12.2
29	Arsenic mg/L	BDL	BDL	BDL
30	Cadmium mg/L	BDL	BDL	BDL
31	Copper mg/L	BDL	BDL	BDL
32	Lead mg/L	BDL	BDL	BDL
33	Total Chromium mg/L	BDL	BDL	BDL
34	Mercury mg/L	BDL	BDL	BDL
35	Nickel mg/L	BDL	BDL	BDL
36	Zinc mg/L	BDL	BDL	BDL
37	Iron mg/L	0.1	1.6	2.1

Status of Water Quality

Surface Water

The Level of pH in surface water bodies is within the range 6.5 – 8.5 of primary water quality criteria for bathing water of Class B. DO is less in Kanaganeri Lake during December quarter and in Arasalar River during April quarter. BOD in some of the quarters ranges between 3.1 and 4.7 mg/l at Chunnambar River, Bahour Lake and Ousteri Lake which is slightly higher than 3 mg/l as per the primary water quality criteria for bathing water of Class B. In Kanaganeri lake BOD is high during April quarter (24 mg/l) and in October quarter (13.5 mg/l). The reason may be due to water stagnation and decomposition of Bio mass. In Surface water bodies at Yanam and Mahe Region pH, DO and BOD are meeting the primary water quality criteria for bathing water of Class B.

Ground Water

In Uruvaiyar borewell sample, Chloride, Total Hardness and TDS are higher than the permissible limit. This may be due to geological condition of that area. Nitrate concentration in Krishna Nagar borewell and in the borewell of Chevaliar School is higher than the permissible limit. The reason may be due to discharge of untreated sewage water and haphazard disposal of solid waste. In Uruvaiyur as the usual Sampling borewell, is closed and not in operation, the post monsoon and pre monsoon sampling are done at different borewells in the same area. In mahe region the two Openwells are meeting the drinking water quality standards.

WATER SAMPLING BY THE LABORATORY OFFICIALS





STATUS OF SEA WATER QUALITY ON THE OCCASION OF VINAYAGA CHATURTHI FESTIVAL 2019

PUDUCHERRY

		Pre Im	mersion	During I	mmersion	Post Immersion		
S.No	Parameter	Sample - I	Sample - II	Sample - I	Sample - II	Sample - I	Sample- II	
		Reference Point	Immersion Point	Reference Point	Immersion Point	Reference Point	Immersion Point	
1	Dt. of Sampling	26.08.2019	26.08.2019	06.09.2019	06.09.2019	09.09.2019	09.09.2019	
2	Temperature °C	28	27	26	25	26.5	26	
3	рН	7.90	7.90	7.69	7.96	7.96	7.88	
4	Conductivity ms/cm	51.0	50.4	52.0	51.6	51.9	49.9	
5	COD mg/l	NIL	NIL	NIL	NIL	NIL	NIL	
6	BOD mg/l	1.25	BDL	BDL	2.55	BDL	2.05	
7	TS mg/l	36448	36325	38468	39148	36516	35909	
8	TDS mg/l	36428	36292	38344	39020	36430	35792	
9	TSS mg/l	20	33	124	128	86	117	
10	Arsenic (as As) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
11	Cadmium (as Cd) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
12	Copper (as Cu) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
13	Lead (as Pb) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
14	Chromium (as Cr) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
15	Nickel (as Ni) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
16	Zinc (as Zn) mg/l	0.109	0.088	0.066	0.201	0.037	0.054	
17	Iron (as Fe) mg/l	0.39	1.19	0.24	0.91	0.10	0.02	
18	Dissolved Oxygen mg/l	6.2	6.3	6.8	6.6	6.7	6.6	

No significant changes in the concentration of parameters are noticed.

KARAIKAL

		Pre Immersion		During I	nmersion	Post Immersion		
S.No	Parameter	Sample - I	Sample - II	Sample - I	Sample - II	Sample - I	Sample- II	
		Reference Point	Immersion Point	Reference Point	Immersion Point	Reference Point	Immersion Point	
1	Dt. of Sampling	26.08.2019	26.08.2019	05.09.2019	05.09.2019	09.09.2019	09.09.2019	
2	Temperature °C	30.9	30.8	31.6	31.9	29.4	29.2	
3	рН	7.91	7.92	8.19	8.20	8.05	8.04	
4	Conductivity ms/cm	52.2	52.5	53.2	52.9	52.3	52.1	
5	COD mg/l	NIL	NIL	NIL	NIL	NIL	NIL	
6	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
7	TS mg/l	38276	37867	42949	38798	37137	37257	
8	TDS mg/l	38234	37818	42812	38582	36922	37030	
9	TSS mg/l	42	49	137	216	215	227	
10	Arsenic (as As) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
11	Cadmium (as Cd) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
12	Copper (as Cu) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
13	Lead (as Pb) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
14	Chromium (as Cr) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
15	Nickel (as Ni) mg/l	BDL	BDL	BDL	BDL	BDL	BDL	
16	Zinc (as Zn) mg/l	0.034	0.112	0.019	0.017	BDL	BDL	
17	Iron (as Fe) mg/l	3.06	2.63	1.81	1.95	1.74	0.23	
18	Dissolved Oxygen mg/l	6.1	6.1	6.4	6.3	6.1	5.9	

No significant changes in the concentration of parameters are noticed.

References:

- 1. Ministry of Environment, Forest and Climate Change, New Delhi, has notified 20th February 2020 Oussudu Lake, Eco-Sensitive Zone.
- 2. Uniform Drinking Water Quality Monitoring Protocol, Feb 2013.
- 3. Ministry of Environment and Forests, New Delhi, has notified S.O. 2151, the 17th June, 2005 Water Quality Assessment Authority (WQAA).
- 4. Indian Standard Amendment No.1 June 2015 IS 10500:2012 Drinking Water Specification (Second Revision)
- 5. Primary Water Quality Criteria by CPCB
- 6. Designated Best Use Water Quality Criteria by CPCB
- 7. Coastal water standards by CPCB

You can download the above reference from ENVIS HUB Puducherry Website

https://dste.py.gov.in/Envispdy/Sublink/reference.html

Puducherry Environment events

District Level Stake Holders Meeting at Karaikal District

The ENVIS hub Puducherry conducted District Level Stake Holders Meeting to publicize the new initiatives of the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi namely GSDP and GRIDSS programme under the ENVIS scheme on 30.07.2019 at Collectorate, Karaikal under the Chairmanship of District Collector, Karaikal.



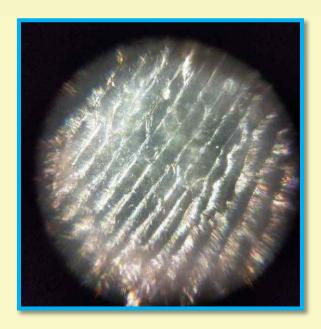
ENVIS Coordinator Thiru. P. Vipin Babu, handed over a plant sapling to Shri. A. Vikranth Raja, I.A.S., District Collector, Karaikal.



Presentation on ENVIS Scheme and its new initiatives by Thiru. P. Vipin Babu, ENVIS Coordinator.

One day Workshop on "Use of Foldscope as an Educational Tool"

Shri. S. Dhinesh, Information Technology Officer, Puducherrry Envis Hub attended One day Workshop on "Use of Foldscope as an Educational Tool" at Indira Gandhi, Govt. High School, Katterikuppam, Puducherry on 20.07.2019 Sponsored by Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India and Directorate of School Education, Puducherry. Shri. Pandiarajan, Tamil Nadu Foldscope Instructor briefed about foldscope.









Environmental Awareness Programme

A rising quality of life, and high rates of resource consumption patterns have an unintended and negative impact on the urban environment - generation of wastes far beyond the handling capacities of urban Governments and agencies. Cities are now grappling with the problems of high volumes of waste, the costs involved, the disposal technologies and methodologies and the impact of wastes on the local and global environment. Puducherry ENVIS Hub Centre along with Puducherry Climate Change Cell (PCCC) conducted Environment related awareness programme for the school students in U.T of Puducherry. The aim of this programme is not only in imparting knowledge and understanding the environment but also focuses on inculcating skill, attitude and values necessary to understand and improve the environment.









List of Schools:

SI. No School Name		Date		o. of Student Participated		No. of Teachers Participated			
			Male	Female	Total	Male	Female	Tot	
1	Makkal Thalaivar V. Subbiah GHS, Reddiarpalayam, Puducherry.	01.07.2019	50	19	69	2	2	4	
2	Savarirayalu Nayagar GGHS, Needarajappaiar St., Puducherry.	03.07.2019	-	102	102	2	2	4	
3	Tamizh Thendral Thiru. Vi. Ka GHS, Savarayalu Street, Puducherry.	05.07.2019	204	<u>-</u>	204	3	3	6	
4	GHS, Thengaithittu, Puducherry.	08.07.2019	14	8	22	2	3	5	
5	Kamala Nehru GHS, Yanam.	10.07.2019	-	50	50	1	1	2	
6	Mahatma Gandhi GBHS, Yanam.	10.07.2019	60	-	60	1	1	2	
7	STPP Govt. Jr. College, Yanam.	11.07.2019	67	73	140	4	4	8	
8	Pandit Jawarharlal Nehru GHS, Mettakur, Yanam.	11.07.2019	27	25	52	2	2	4	
9	Rajiv Gandhi GHS, Yanam.	11.07.2019	-	75	75	1	2	3	
10	Jawahar Navodaya Vidyalaya, Mettakur, Yanam.	11.07.2019	154	149	303	9	2	11	
11	Perunthalaivar Kamrajar GHS, Gueriampeta, Yanam.	11.07.2019	18	34	52	1	2	3	
12	S.K.S.P.V.R.N GHS, Kanakalapeta, Yanam.	11.07.2019	21	30	51	1	2	3	
13	Dr. K.R. Narayanan GHS, Dariyalatippa, Yanam.	12.07.2019	38	34	72	2	2	4	
14	Dr. Ambedkar GPS, Farampeta, Yanam.	12.07.2019	12	23	35	1	-	1	
15	GHS, Kompakkam, Puducherry.	17.07.2019	67	42	109	3	3	6	
16	Thiru. Vi. Ka. GHS, Arumparthapuram, Puducherry.	19.07.2019	31	42	73	3	2	5	
17	GHS, Uruvaiyar, Puducherry.	22.07.2019	24	21	45	1	3	4	
18	GHS, Madagadipet, Puducherry.	24.07.2019	42	52	94	-	3	3	
19	Subramania Bharathiar GGHS, Needarajappiyar St., Puducherry.	26.07.2019	-	87	87	2	3	5	
		Total	829	866	1695	41	42	83	

Puducherry Environment News Report







పచ్చదనంతోనే పర్యావరణ పలిరక్షణ

தடையை மீறி பிளாஸ்டிக் பொருள் விற்பனை? திருபுவனை பகுதியில் அதிகாரிகள் திடீர் ஆய்வு





பிளாஸ்டிக் தடை விழிப்புணர்வு ஊர்வலம்

வர் நாறாயனசாமி துவக்கி துவக்கி வைத்தார்.
பதுச்செயில் 10 நேழ்ச்சியில் அமைச் பதுச்செயில் 20 தொழில் ஐட்பத்துறை பொருட்கள் பயன்படுத்த இயக்குநர் ஸ்டீபத்துறை கறது. பிளாஸ்டிக் தடை பொரியாளர் ரமீடிஷ் நறித்து பொதுயக்களுக்கு உட்பட பலர் கலந்து விழிப்புளர்வு ஏற்படுத் கொண்டனர்.
தும் வகையில், அறிவி யன், தொழில்றுட்பம் மற் நூத்த விழிப்புணர்வு பதா நமக்கறும் கணையாகள் மாணவியர் பங் தகரின் முக்கிய வீதிகள் கேற்ற விழிப்புணர்வு வழியாக சென்றனர்.

புதுச்சேரி, ஆக. 5- ஊர்வலத்திற்கு ஏற்பாடு சுற்றுச்சூழல் துறை செய்தது, சட்டசபை வளர சார்பில் ஏற்பாடு செய்த கத்தில் தொடங்கிய ஊர்வ பிளாஸ்டிக் தடை விழிப்பு லத்தை முதல்வர் நாராய ணர்வு ஊர்வலத்தை முதல் ணசாமி கொடி அசைத்து வர் நாராயணசாமி துவக்கி ஆவக்கி வைத்தார்.







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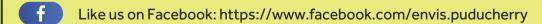
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