

EIACP NEWSLETTER

STATUS OF ENVIRONMENT & RELATED ISSUES IN PUDUCHERRY

STATUS OF WATER QUALITY IN THE U.T. OF PUDUCHERRY FOR THE YEAR 2022



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EIACP PC HUB PUDUCHERRY

(Environmental Information, Awareness, Capacity Building and Livelihood Programme)

Hosted at Puducherry Pollution Control Committee

**Supported by Ministry of Environment, Forest & Climate Change,
GoI, New Delhi**

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About EIACP

- Environmental Information System (ENVIS) was renamed as EIACP (Environmental Information, Awareness, Capacity Building and Livelihood Programme).
- ENVIS came into existence as a plan programme in 1983.
- It is a project funded by the Ministry of Environment, Forests and Climate Change (MoEF&CC), to facilitate collection, analysis and dissemination of information on various facets of environment.
- The information is being disseminated through the quarterly newsletter and website.

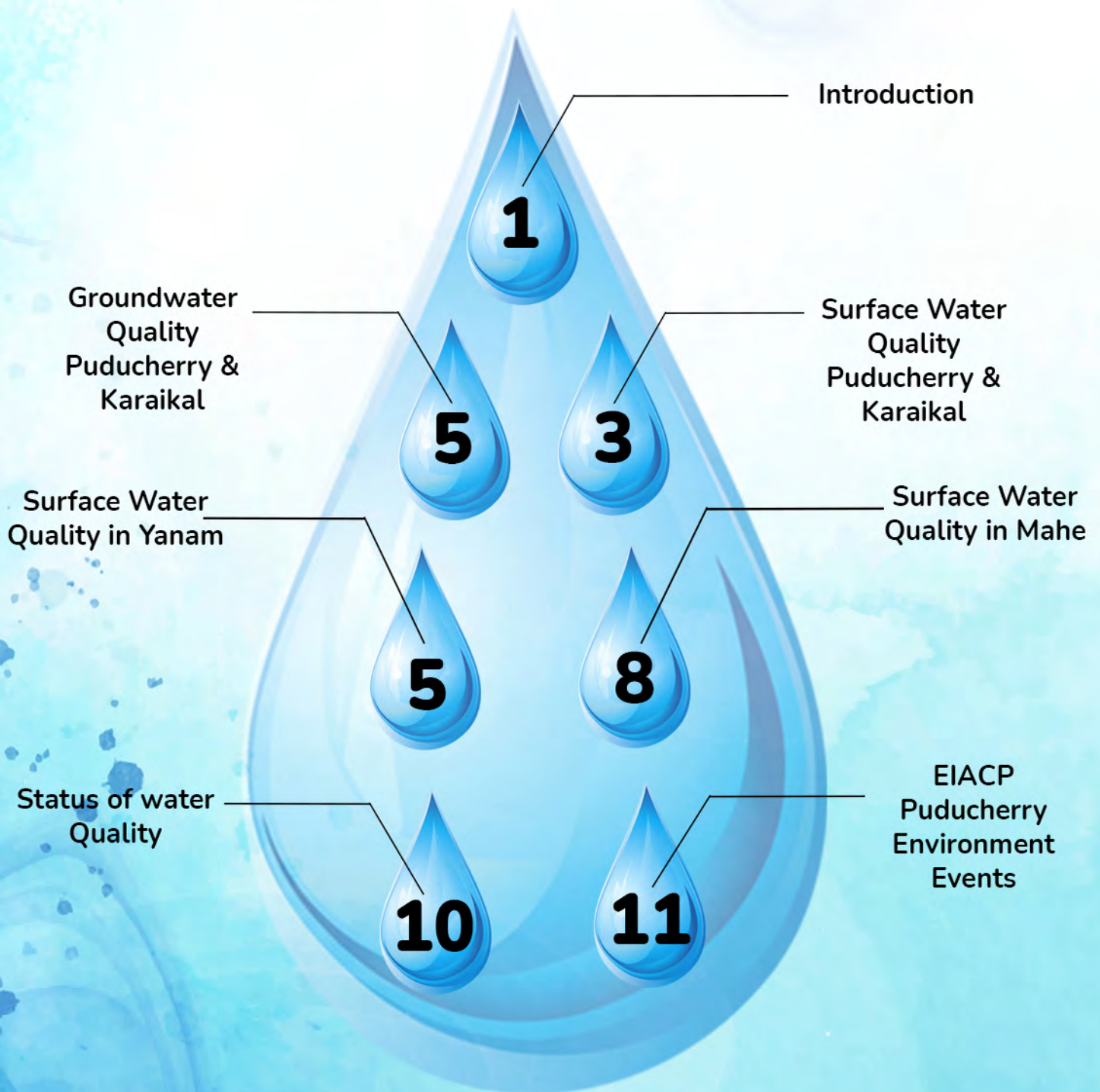
About Puducherry - EIACP PC HUB

Puducherry Envis Hub Centre was started on 22nd September, 2005. Our ENVIS centre located at the Puducherry Pollution Control Committee (PPCC), Puducherry, focuses on special reference to "Status of Environment Related Issues". Activities of our centre include collection, analysis, storage, retrieval and dissemination of information in the subject area allotted. The information is being disseminated through the quarterly newsletter and various environmental awareness program in schools and colleges for imparting Environmental comprehension among students.

Aims and Objectives

- To nurture green, sustainable and inclusive workforce in order to enhance both living and environment standards while fostering gainful and self-employment of youth.
- To conduct skilling courses not only in traditional areas but also in new emerging areas like electric vehicles, hazardous waste/ Bio-medical waste etc. considering their future scope, requirements and prospects.
- To be involved in the Mission LiFE (Lifestyle for Environment) being conceptualized by the Ministry.
- To facilitate technical and environmentally conscious industrial participation focused on sustainable development.
- To develop national and international collaboration for knowledge exchange and skilling and facilitating attainment of the SDGs.
- To aid sustainable livelihoods of tribal population especially in NER based on traditional knowledge and crafts.
- To facilitate informed decisions and policy making by catering to demand for research, innovation and data on emerging issues related to environment.
- To facilitate transition to environmentally conscious futuristic citizens including awareness among public/communities on environment related issues.

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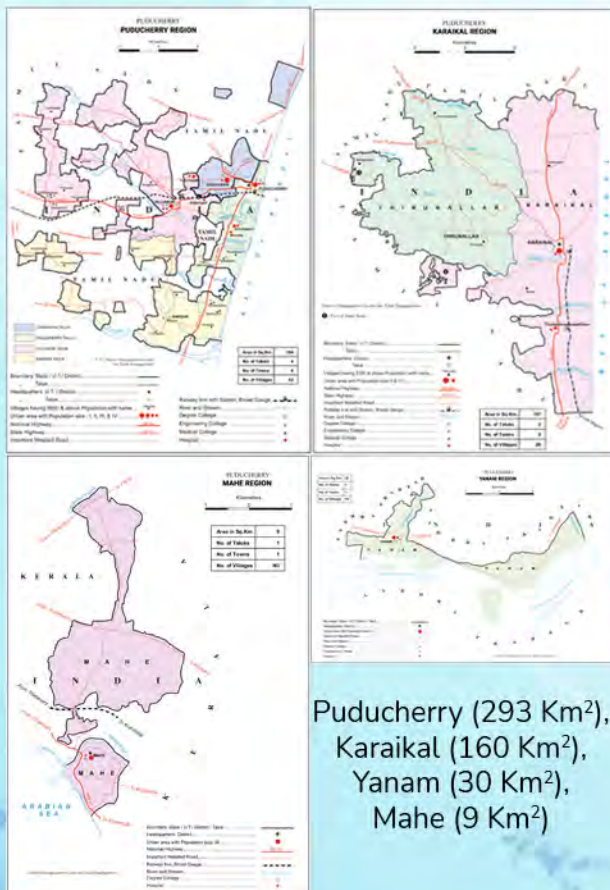


Status of Water Quality in the U.T. of Puducherry for the Year 2022

Introduction

The Union Territory of Puducherry consists of four small unconnected Regions viz., Puducherry Region (293 Km²), Karaikal Region (160 Km²) and Yanam Region (30 Km²) on the Bay of Bengal and Mahe Region (9 Km²) on the Arabian Sea, covering a total area of 483 Km².

Puducherry having the largest area and population followed by Karaikal are both enclaves of Tamil Nadu. Yanam and Mahe are enclaves of Andhra Pradesh and Kerala, respectively.



Puducherry (293 Km²),
Karaikal (160 Km²),
Yanam (30 Km²),
Mahe (9 Km²)

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 various 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, 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.

Water Quality Monitoring Stations in U.T. of Puducherry

U.T of Puducherry has 31 stations under NWMP. The details of water body wise and frequency wise no. of monitoring stations are shown in the figure below:

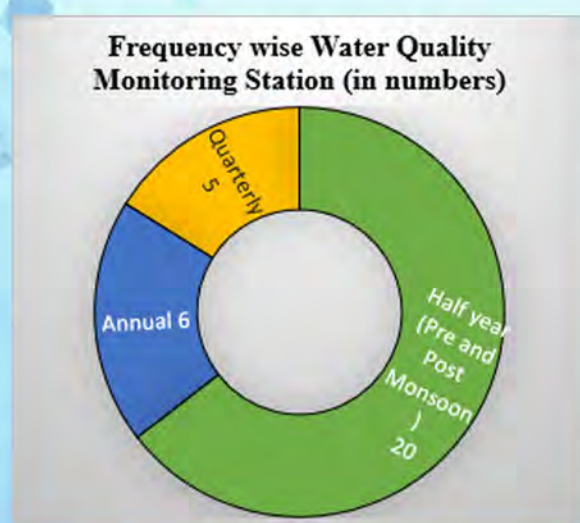
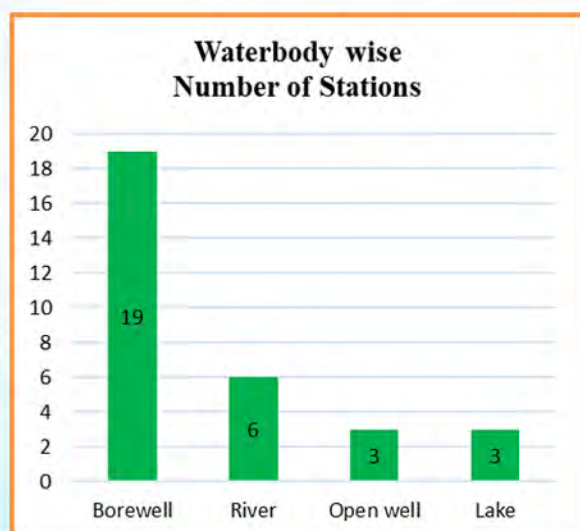


Fig. 1: Water Quality Monitoring Stations & Frequency Wise

List of NWMP Station in U.T of Puducherry

Puducherry Region

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

Yanam Region

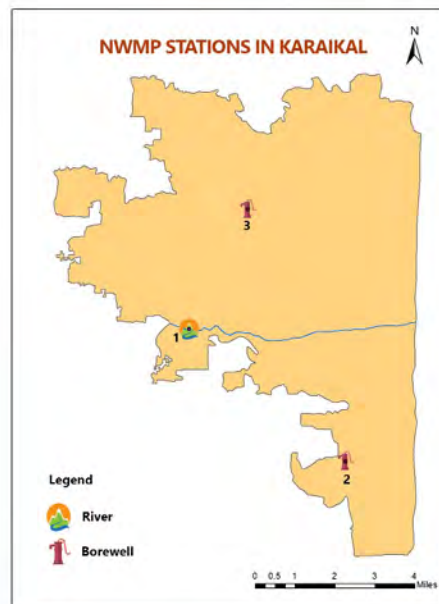
Sl. No.	Location
1	Gowtami - Godavari River Near Balayogi
2	Gowtami - Godavari River - Adavipolam
3	Coringa River (Tidal Lock)

Mahe Region

Sl. No.	Location
1	Mahe River
2	Pallur
3	Panthakkal

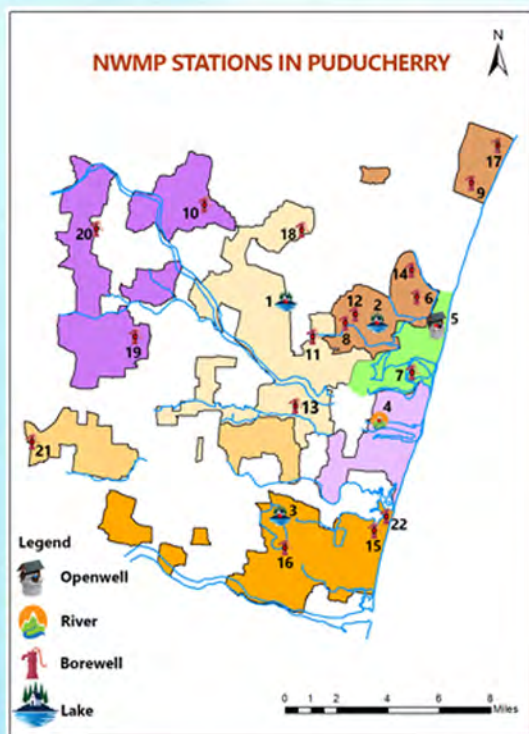
Karaikal Region

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



Karaikal Region

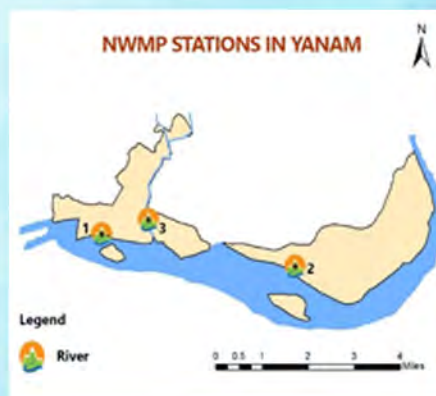
Map View of NWMP Station in U.T of Puducherry



Puducherry Region

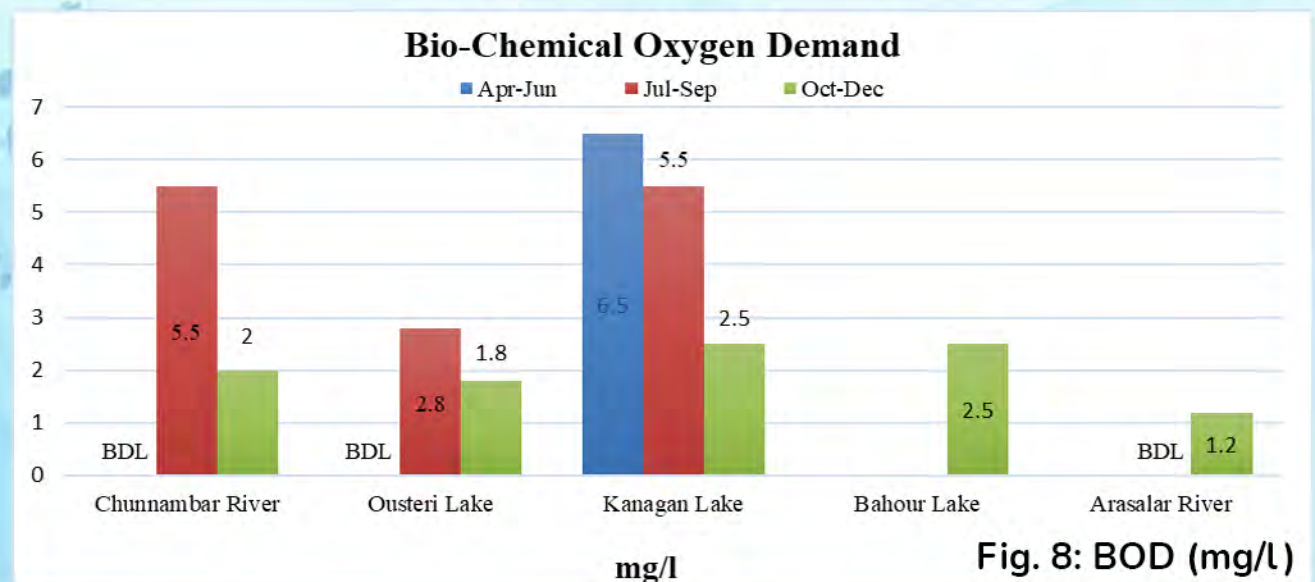
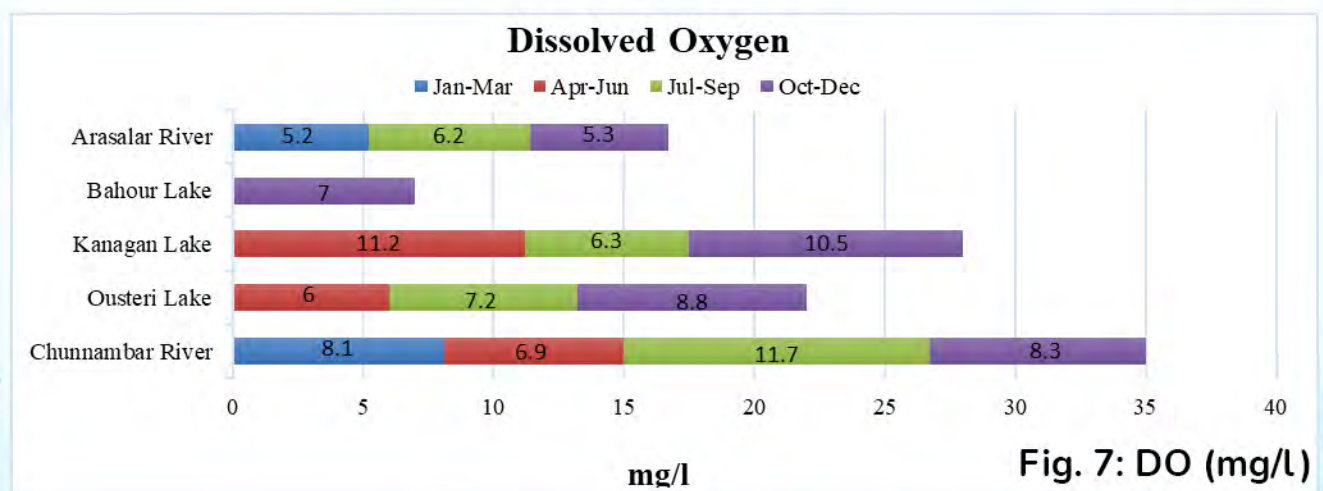
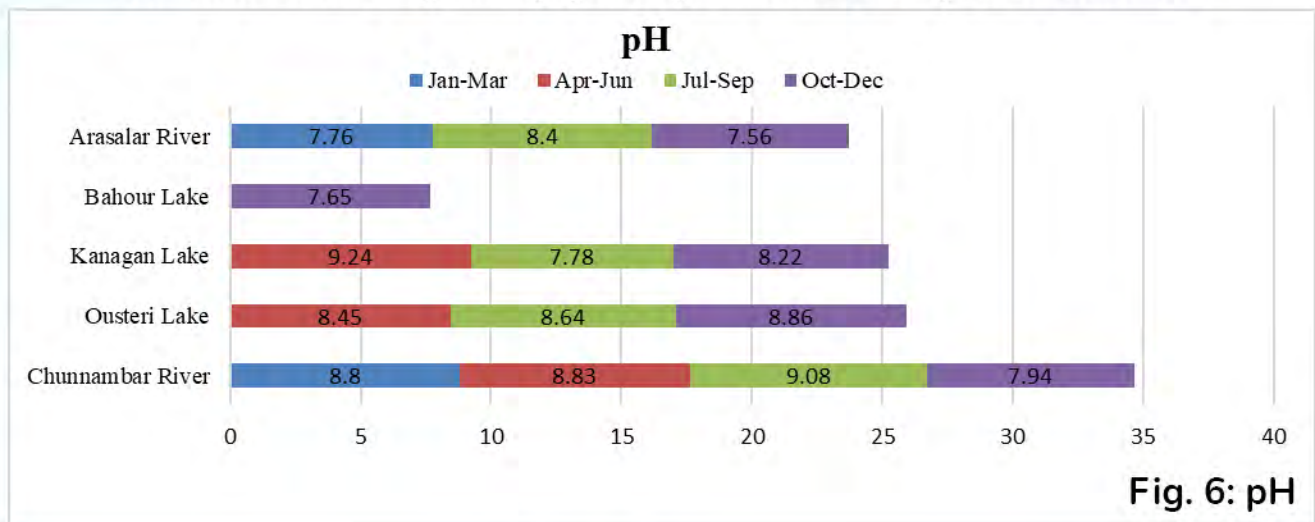


Mahe Region



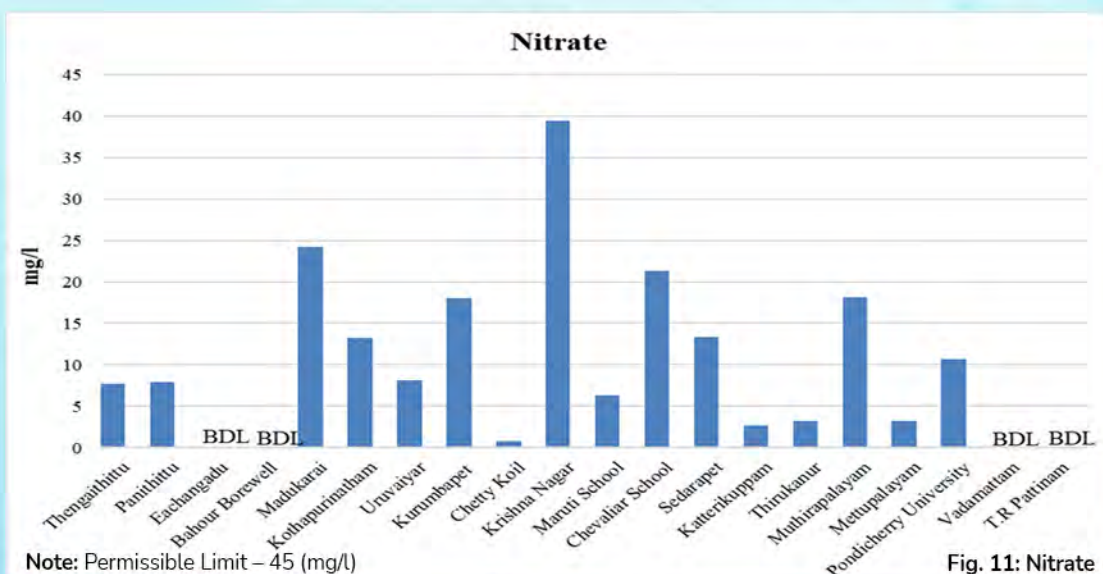
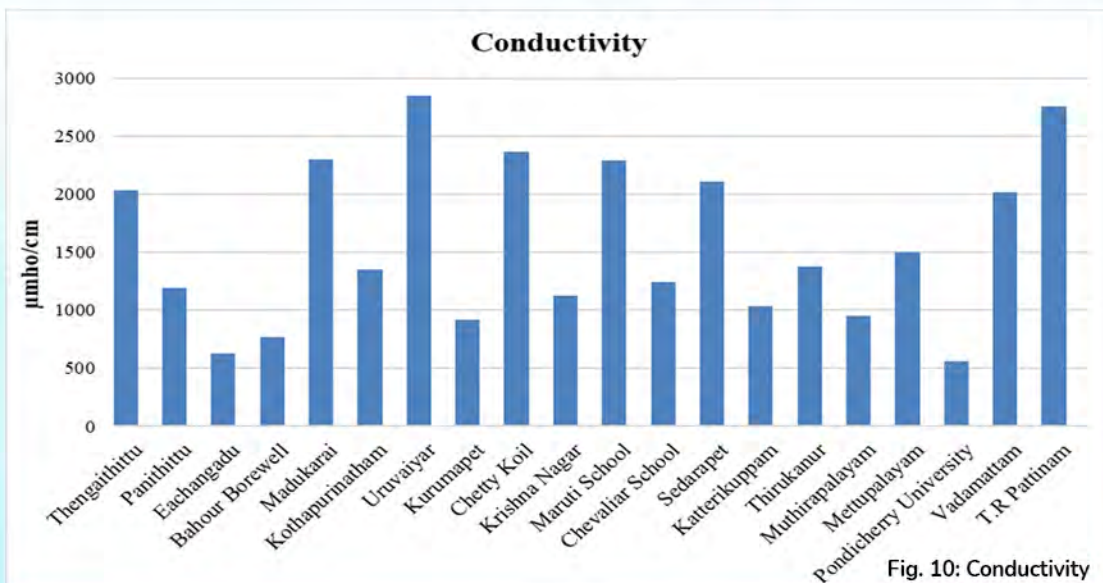
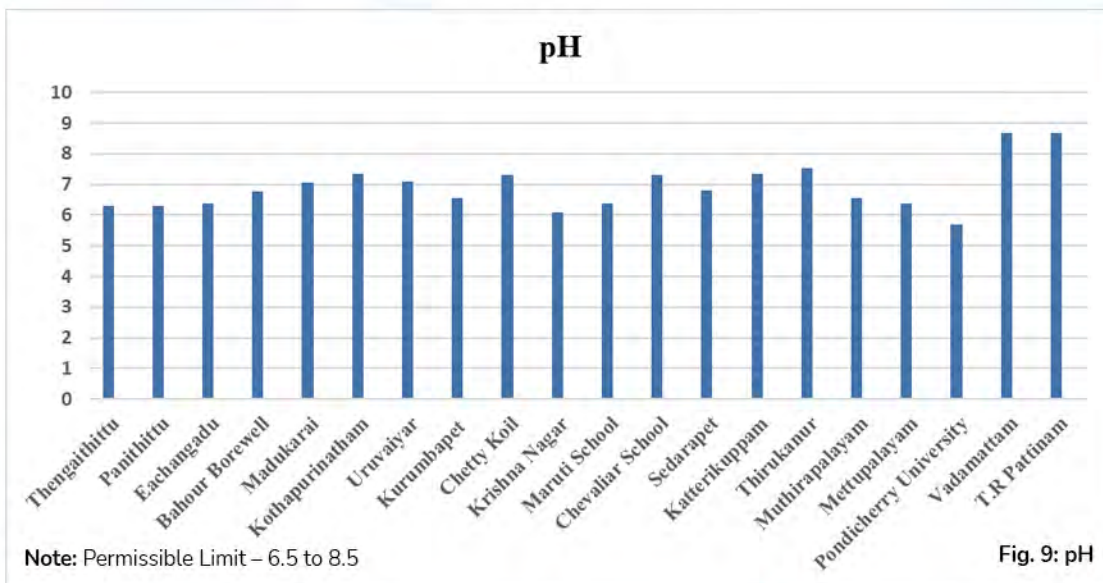
Yanam Region

Surface Water Quality (2022) – Puducherry and Karaikal



Note: As per the primary water quality criteria for bathing water of class B, DO – 5 mg/l or more and BOD should be 3 mg/l or less.

Groundwater Quality in Puducherry and Karaikal during Pre Monsoon, 2022



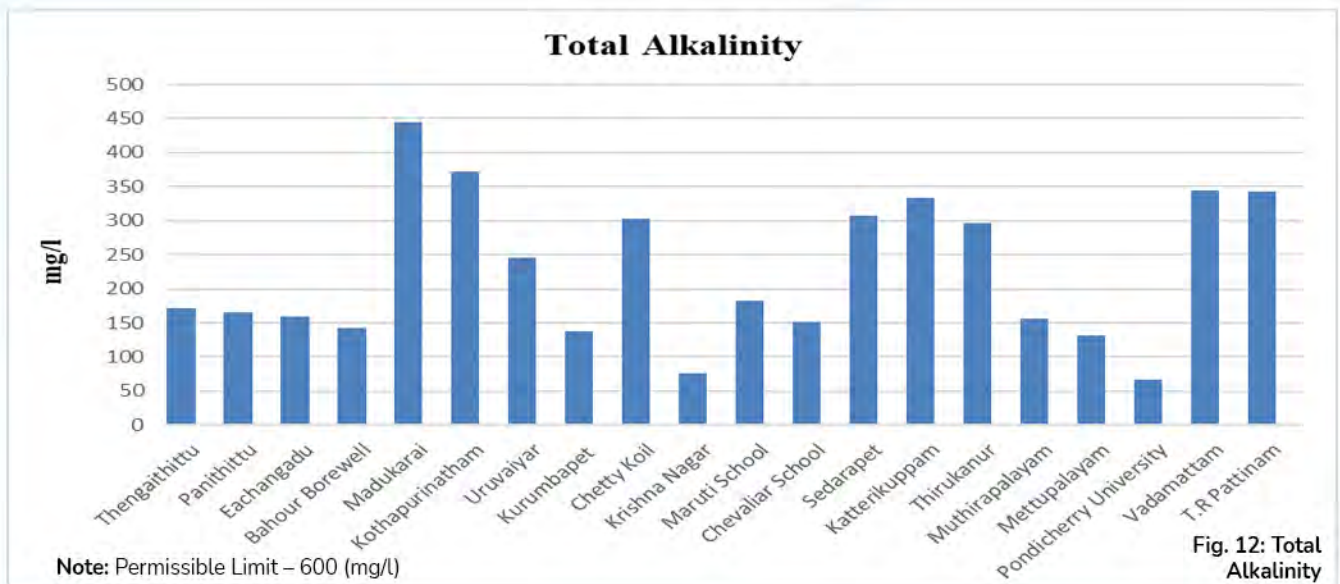


Fig. 12: Total Alkalinity

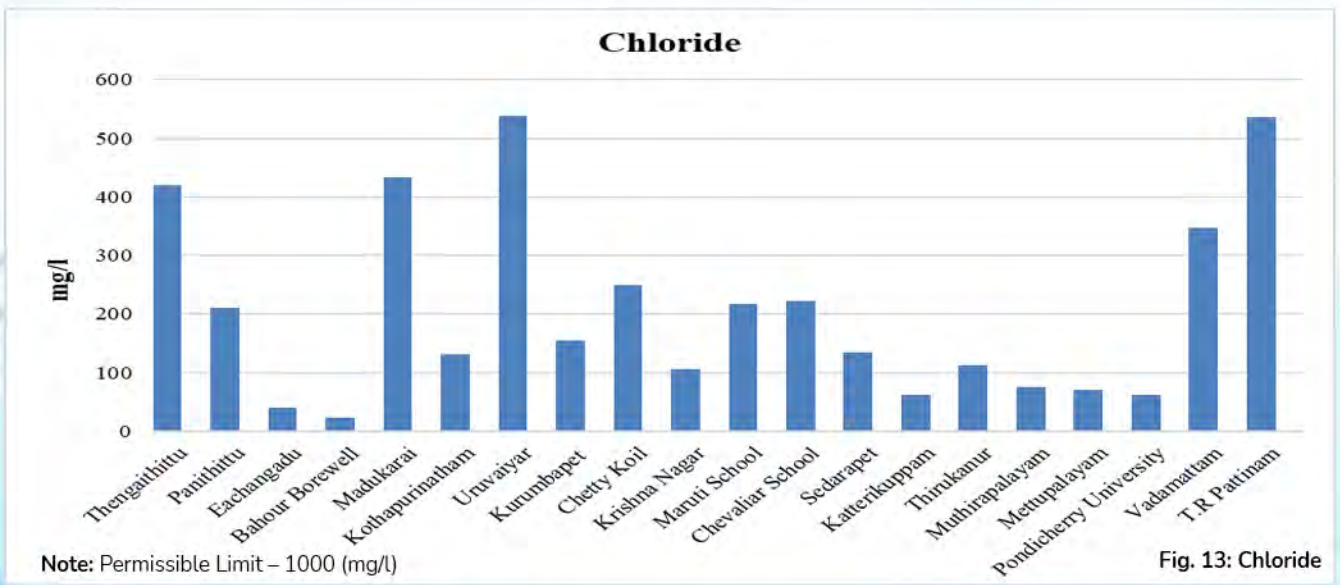


Fig. 13: Chloride

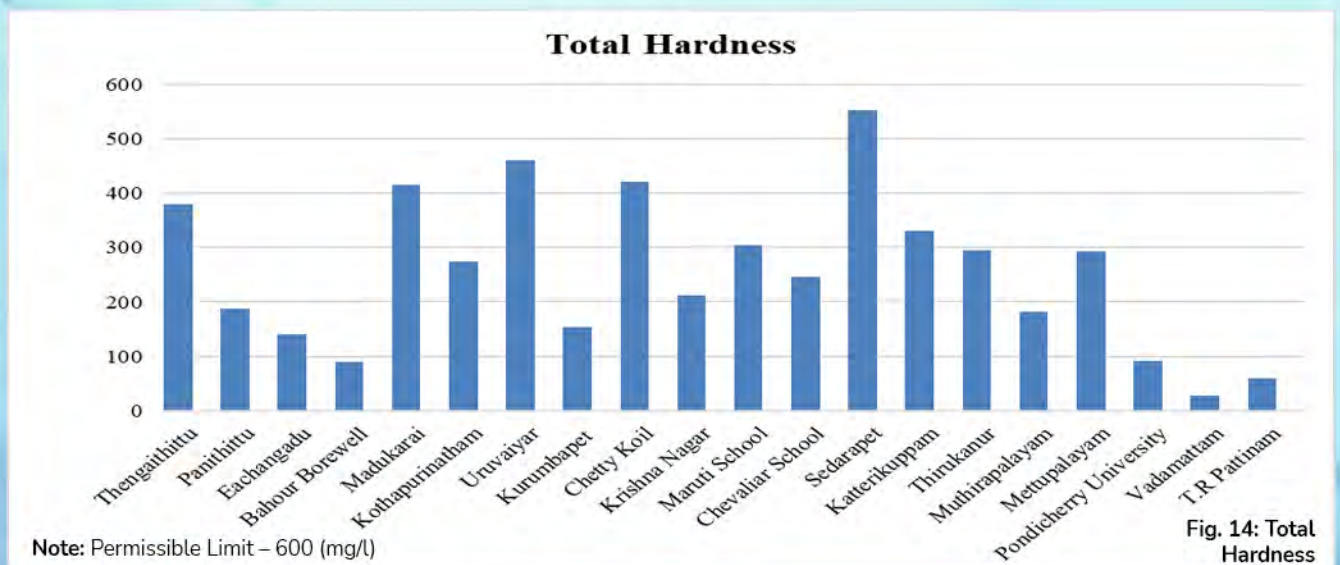
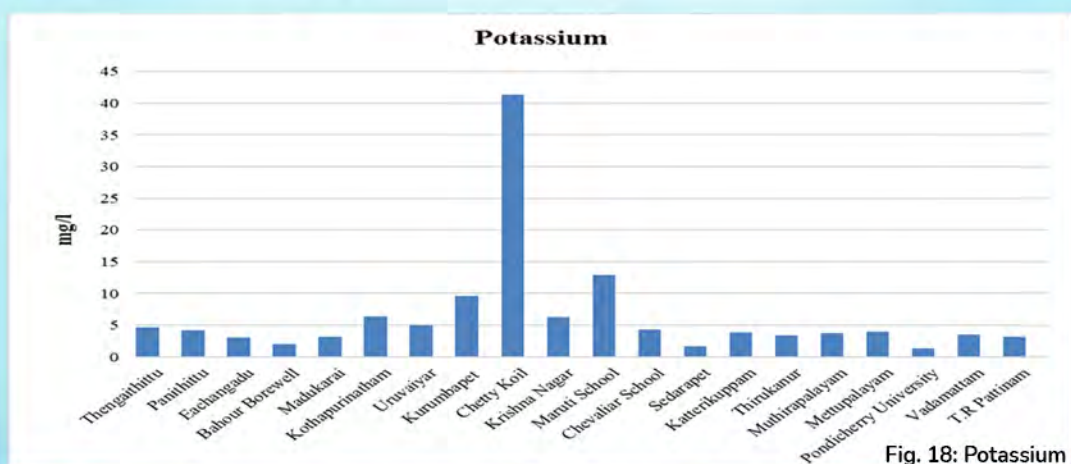
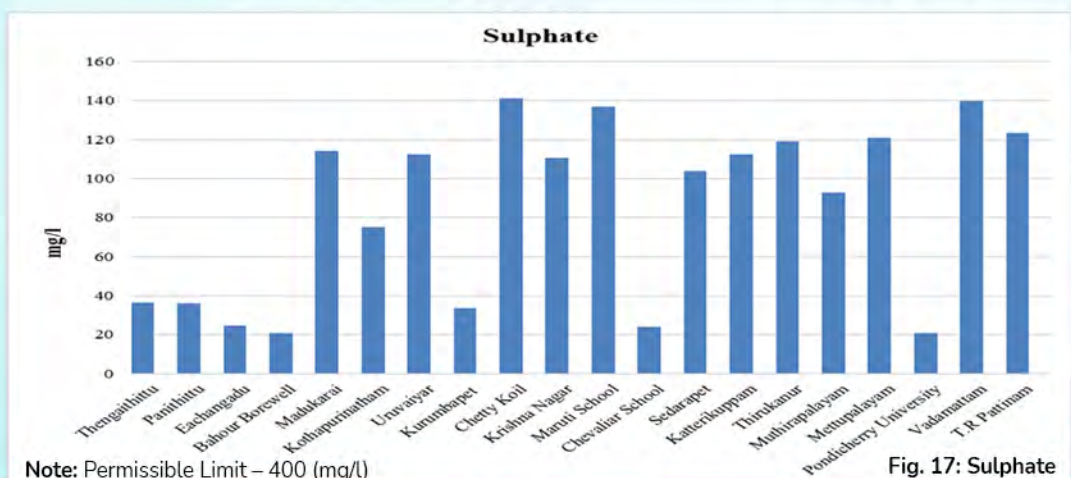
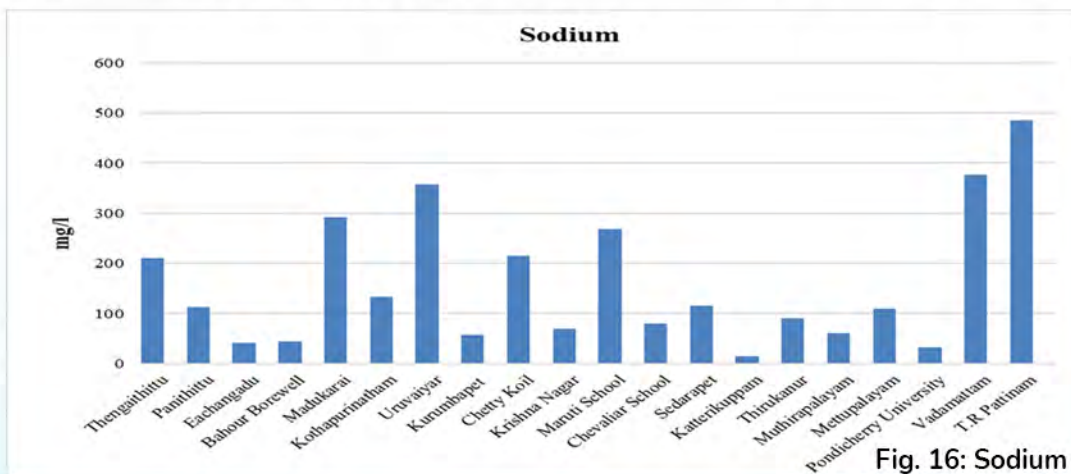
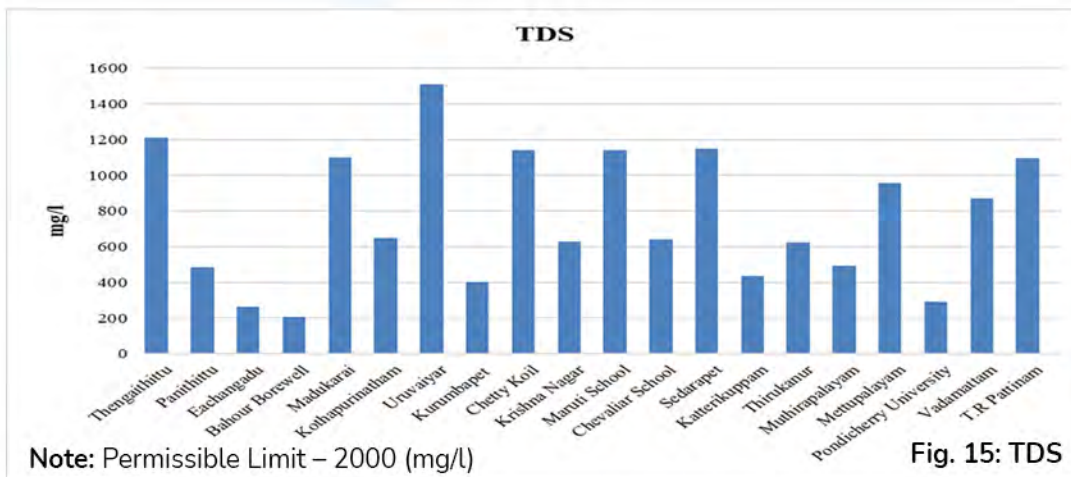


Fig. 14: Total Hardness



Surface Water quality in Mahe region - 2022

Sl.No.	Parameters	Mahe River	Pallur Open Well	Pandakkal Open Well	Acceptable Limit	Permissible Limit
1	Temperature °C	26.0	27.5	27.0	-	-
2	pH	6.54	5.44	5.40	6.5 - 8.5	NR
3	DO mg/l	6.9	-	-	-	-
4	Conductivity µmho/cm	133	344	102	-	-
5	BOD mg/l	BDL (DL -1.0)			-	-
6	Turbidity NTU	52.7	BDL (DL - 1.0)		1	5
7	Total Alkalinity mg/l	61	22	BDL (DL - 20)	200	600
8	Bi- Carbonate as HCO ₃ ⁻ mg/l	74.88	26.57	24.16	-	-
9	P. Alkalinity mg/l	BDL (DL - 5.0)			-	-
10	Carbonate as CO ₃ ²⁻ mg/l	BDL (DL - 3.0)			-	-
11	Chloride mg/l	30.33	45.99	16.63	250	1000
12	COD mg/l	BDL (DL - 5.0)			-	-
13	Total Hardness as CaCO ₃ mg/l	16.0	66.0	16.0	200	600
14	Calcium as CaCO ₃ mg/l	10.0	40.0	12.0	-	-
15	Calcium as Ca ⁺⁺ mg/l	4.0	16.0	4.8	75	200
16	Magnesium as CaCO ₃ mg/l	6.0	26.0	BDL (DL - 4.0)	-	-
17	Magnesium as Mg ⁺⁺ mg/l	1.458	6.318	0.972	30	100
18	TDS mg/l	82.0	270.0	50.0	500	2000
19	TSS mg/l	33.0	BDL (DL - 10)		-	-
20	FDS / TFS mg/l	52.0	46.0	29.0	-	-

Sl.No.	Parameters	Mahe River	Pallur Open Well	Pandakkal Open Well	Acceptable Limit	Permissible Limit
21	Sodium mg/l	15.1	27.8	9.2	-	-
22	Potassium mg/l	1.1	5.8	BDL (DL - 1.0)	-	-
23	% Sodium	65.34	45.04	53.84	-	-
24	SAR	1.6	1.5	1.0	-	-
25	Nitrite Nitrogen as NO ₂ - N mg/l	BDL (DL - 0.02)			-	-
26	Nitrate Nitrogen as NO ₃ - N mg/l	1.84	3.87	1.18	-	-
27	Nitrate as NO ₃ - mg/l	8.21	17.6	5.24	-	-
28	Ammonical Nitrogen as NH ₃ -N mg/l	BDL (DL - 0.4)			-	-
29	Phosphate as PO ₄ ³⁻ - mg/l	-	BDL (DL - 0.05)		-	-
30	Sulphate as SO ₄ ²⁻ -mg/l	-	9.64	8.92	-	-
31	Hexavalent Chromium as Cr6+ mg/l	BDL			-	-
32	Arsenic mg/l	BDL (DL -0.00049)			0.01	0.05
33	Cadmium mg/l	BDL (DL - 0.00042)			0.003	NR
34	Copper mg/l	BDL (DL - 0.00035)			0.05	1.5
35	Lead mg/l	BDL (DL - 0.0031)			0.01	NR
36	Total Chromium mg/l	BDL (DL - 0.00056)			0.05	NR
37	Mercury mg/l	BDL (DL - 0.00052)			0.001	NR
38	Nickel mg/l	BDL (DL - 0.00054)			0.02	NR
39	Zinc mg/l	BDL (DL - 0.0059)			5	15
40	Iron mg/l	0.57	BDL (DL - 0.00067)		0.3	NR

BDL - Below Detectable Limit; DL - Detection Limit; NR - No Relaxation

Surface Water Quality Data in Yanam Region – 2022

Sl.No.	Parameters	Gautami - Godavari River Near Adavipolam	Coringa River (Tidal Lock)	Gautami - Godavari River Near Balayogi Bridge
1	Temperature °C	29.0	29.0	30.0
2	pH	7.99	8.03	8.29
3	DO mg/l	7.3	7.0	8.5
4	Conductivity $\mu\text{mho/cm}$	16600	10460	9833
5	BOD mg/l	BDL (DL - 1.0)		
6	Turbidity NTU	1.7	3.0	1.5
7	Total Alkalinity mg/l	136.0	142.0	138.0
8	Bi- Carbonate as HCO_3^- mg/l	161.04	164.7	151.28
9	P. Alkalinity mg/l	BDL (DL - 5)	7	14
10	Carbonate as CO_3^{2-} mg/l	BDL (DL - 3)	4.2	8.4
11	Chloride mg/l	4465.28	2346.65	2061.63
12	COD mg/l	BDL (DL - 5.0)		
13	Total Hardness as CaCO_3 mg/l	1449	878	798
14	Calcium as CaCO_3 mg/l	327	294	204
15	Calcium as Ca^{++} mg/l	130.8	117.6	81.6
16	Magnesium as CaCO_3 mg/l	1122	584	594
17	Magnesium as Mg^{++} mg/l	272.65	141.91	144.34
18	TDS mg/l	7832	4791	4148
19	TSS mg/l	15.0	26.0	14.0
20	FDS / TFS mg/l	7056	4078	3582

Sl.No.	Parameters	Gautami - Godavari River Near Adavipolam	Coringa River (Tidal Lock)	Gautami - Godavari River Near Balayogi Bridge
21	Nitrate - N mg/l	BDL (DL - 1.0)		
22	Nitrite - N mg/l	BDL (DL - 0.3)		
23	Nitrate mg/l	BDL (DL - 0.02)		
24	Sulphate mg/l	613.35	361.63	303.74
25	Orthophosphate mg/l	BDL (DL - 0.05)	0.26	0.16
26	Ammonia - N mg/l	BDL (DL - 0.4)		
27	Hexavalent Chromium mg/l	BDL		
28	Arsenic mg/l	BDL (DL - 0.00049)		
29	Cadmium mg/l	BDL (DL - 0.00042)		
30	Copper mg/l	BDL (DL - 0.00035)		
31	Lead mg/l	BDL (DL - 0.00031)		
32	Total Chromium mg/l	0.012	BDL (DL - 0.00056)	
33	Mercury mg/l	BDL (DL - 0.00052)		
34	Nickel mg/l	BDL (DL - 0.00054)		
35	Zinc mg/l	BDL (DL - 0.00059)		
36	Iron mg/l	0.38	0.76	0.20

BDL - Below Detectable Limit; DL - Detection Limit; NR - No Relaxation



STATUS OF WATER QUALITY

Surface Water

pH is slightly alkaline in some of the samples in Chunnambar, Ousteri lake and in Kanagan Lake. Dissolved Oxygen (DO) meets the Primary Water Quality Criteria of $\geq 5\text{mg/l}$ in all the Surface water body Samples.

The concentration of Biological Oxygen Demand (BOD) at Kanagan Lake during April (6.5mg/l) and July (5.5mg/l) quarter and at Chunnambar River during July quarter (5.5mg/l) do not meet the Primary Water Quality Criteria of $\leq 3\text{ mg/l}$. In all the other samples BOD is within the criteria. In Chunnambar river during Jan, Apr quarters, in Ousteri lake during Apr quarter and in Arasalar River during Jan and July quarters the concentration of BOD is Below Detectable Limit.

In Bahour Lake during Jan quarter, Apr quarter, Jul quarter and in Arasalar River during Apr quarter sample was not collected due to absence of water/natural flow of water. In Ousteri and Kanagan Lake sampling was not done in Jan quarter.

An increase in BOD level indicates excessive concentration of biodegradable organic matter in water which may be due to sewage disposal and high consumption of Oxygen by heterotrophic organisms.

Ground Water

pH of the borewells viz., Thengaithittu, Panithittu, Eachangadu, Krishna Nagar, Maruti School, Mettupalayam and Pondicherry University is not within the range of 6.5 – 8.5. The values were close to 6.5 in those location. The Level of pH in Vadamattam and T.R.Pattinam during pre monsoon is slightly higher than the range of 8.5. This may be due to nature of the soil and geological formation.

Pesticides viz., Alpha BHC, Beta BHC, Gamma BHC, OP DDT, PP DDT, PP DDE, PP DDD, Alpha Endosulphan, Beta Endosulphan, Dieldrin, Carbaryl (Carbamate), 2,4-D, Aldrin, Malathion, Methyl Parathion, Chloropyrifos, Isoproturon, Alachlor, Atrazine, Monochrotophos, Ethion, Phorate, Butachlor, Heptachlor and Chlorandane are Below Detectable Limit in all the locations and trace metals viz., Copper, Cadmium, Lead, Total Chromium, Zinc, Iron, Arsenic, Mercury, Nickel are also Below Detectable Limit in most of the locations and in other locations the values are well within the limit.

EIACP PC HUB Puducherry Environment Events

World Wetlands Day

Puducherry ENVIS Hub in Collaboration with Department of Forest and Wildlife, Government of Puducherry organised the following activities for the students of Sri Venkateswaraa Medical College Hospital and Research Centre, Puducherry on the occasion of World Wetlands Day observed on 02.02.2023. 135 students and staff participated.

1. Wetland Walk at Ousteri Lake
2. Pledge on Wetland Restoration
3. Debate Competition
4. Released Souvenir Wetland Animal Toys
5. Infographic Release



Monthly & Yearly Science Calendars, 2023

Hon'ble Chief Minister, Government of Puducherry, released Monthly & Yearly Science Calendars, 2023 created by Puducherry EIACP Hub on the occasion of National Science Day observed on 28.02.2023 in the presence of Secretary to Government (Science, Technology & Environment), Director (Department of Science, Technology and Environment) and Member Secretary, PPCC and officials of DST&E, PPCC and EIACP staff.



International Day of Forests

Puducherry EIACP Hub organized and celebrated "International Day of Forests" on 21.03.2023 in collaboration with Department of Forest and Wild Life, Puducherry. Mrs. Vanjulavalli Sridhar, I.F.S., Deputy Conservator of Forests, Addl. Charge as Conservator of Forests, Puducherry and S. Kumaravelu, Deputy Director, Department of Forest and Wildlife, Puducherry had delivered an expert talk on Forest conservation to school students. Students had a very pleasant experience while walking in the forest and also released Forests Day "Infographics". Around 150 students participated.

List of Schools participated in the event

1. St. Antony's Govt. Aided High School
2. Sevalie Sellan Government Higher Secondary School

World Water Day

Puducherry EIACP Hub organized and celebrated "World Water Day" at Chevalier Sellane Govt. Higher Secondary School, Periyakalapet on 22.03.2023. A special lecture was given on water conservation and also conducted essay, drawing & elocution competitions for the students.



Mission LiFE Programme

Puducherry EIACP Hub organized and conducted #MissionLiFE awareness programme in collaboration with EIACP RP - Thiagarajar College of Engineering, Madurai. A special lecture on #MissionLiFE was given.

Sl. No.	Date	Name of the School	No. of Participants
1	23.04.2023	Pondicherry University Community College	130
2	24.04.2023	Mother Theresa Post Graduate & Research Institute Of Health Sciences, Puducherry	150
3	24.04.2023	Kasthurba College for Women, Villianur, Puducherry	95



Puducherry EIACP Hub conducted mass awareness campaign on Mission LiFE at different schools in Puducherry. The details are as follows:

Sl. No.	Date	Name of the School	No. of Participants
1	05.01.2023	Kasthurba Gandhi Govt. High School, Palloor, Mahe.	50
2	05.01.2023	I. K. Kumaran Govt. Higher Secondary School, Mahe.	30
3	06.01.2023	Mahatma Gandhi Government Arts College, Chalakkara, Mahe.	30
4	23.01.2023	Datchanamurthy Govt. High School, Puducherry.	51
5	24.01.2023	Veeramamunivar Govt. Boys High School, Puducherry.	161
6	24.01.2023	Government Higher Secondary School, Puducherry.	75
7	24.01.2023	Makkal Thalaivar V.S. Government High School, Puducherry.	53
8	27.01.2023	Thiru V. Ka. Govt. High School, Arumbarthapuram, Puducherry	100
9	03.03.2023	Annai Sivagami, Higher Secondary School, Puducherry	95
10	08.03.2023	Indira Nagar Government Higher Secondary School, Puducherry	100





Save Water



**Clean Water
and Sanitation**



**Drink
Safe Water**



**Use Water
Resources Properly**



Life Below Water

EIACP PC HUB PUDUCHERRY

(Environmental Information, Awareness, Capacity Building and Livelihood Programme)

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