

(केवल कार्यालय उपयोग हेतु)
(FOR OFFICIAL USE ONLY)

वार्षिक जल पुस्तिका
खण्ड – II, जल गुणवत्ता आँकड़ा

WATER YEAR BOOK
Vol-II, WATER QUALITY DATA

जून 2017 – मई 2018
JUNE 2017 – MAY 2018

पश्चिम प्रवाही नदियाँ बेसिन
WEST FLOWING RIVERS BASIN



कावेरी एवं दक्षिणी नदियाँ परिमण्डल, बेंगलुरु
CAUVERY & SOUTHERN RIVERS CIRCLE, BENGALURU
कावेरी एवं दक्षिणी नदियाँ संगठन, कोयंबतूर
**CAUVERY & SOUTHERN RIVERS ORGANISATION,
COIMBATORE**

अप्रैल – 2019
April – 2019

प्रस्तावना

जल लगभग सीमित मात्रा में उपलब्धता के साथ एक कीमती प्राकृतिक संसाधन है। स्वच्छ जल पूरी दुनिया में दिन-व-दिन एक दुर्लभ वस्तु बन गया है। यह योजना है कि जल संसाधनों का श्रेष्ठतम् उपयोग के लिए एक अच्छी तरह से विकसित डाटा बैंक हो और नियमित रूप से डाटा बैंक का अद्यतन किया जाना चाहिए। जल संसाधन बढ़ाने के अलावा, पानी की गुणवत्ता की निगरानी का काम भी किया जाना आवश्यक है। जल संसाधन, नदी विकास और गंगा संरक्षण मंत्रालय के अंतर्गत, केन्द्रीय जल आयोग, जल संसाधन क्षेत्र के शीर्ष मंत्रालय का निकाय होने के अतिरिक्त, भारत के विभिन्न नदी घाटियों का जल विज्ञानीय आकड़ा संग्रह का एक विशाल नेटवर्क प्रणाली बनाये रखा है।

आकड़ा के कम्प्यूटरीकरण के आगमन से जल वर्ष पुस्तक के प्रकाशन प्रारूप में बहुत परिवर्तन आया है। संसोधित प्रारूप के अनुसार, पश्चिम प्रवाही नदियाँ बेसिन 2017-18 का जल वर्ष पुस्तक दो खण्डों में किया गया। प्रथम खण्ड में नदी धारा प्रवाह एवं निलम्बित तलघट आकड़े तथा द्वितीय खण्ड में जल गुणवत्ता आकड़े एवं प्रमुख नदियों के जल गुणवत्ता प्रचलन / परिदृश्य दिये गये हैं। पश्चिम प्रवाही नदियाँ बेसिन के अन्तर्गत जल गुणवत्ता की निगरानी, 32 जल विज्ञानीय प्रेक्षण स्थलों पर किया जाता है। जिसमें 29 स्थलों की निगरानी कावेरी एवं दक्षिणी नदियाँ परिमण्डल और 3 स्थलों की निगरानी कृष्णा एवं गोदावरी बेसिन संगठन, हैदराबाद के अन्तर्गत आता है। इन स्थलों से एकत्रित किये गये जल नमूने बेंगलुरु, कोची, कोयम्बतूर एवं पुणे के मण्डलीय प्रयोगशाला में विश्लेषण किया गया।

जल नमूना सीधे स्थलों से सम्बन्धित प्रयोगशालाओं में विश्लेषण हेतु भेजा जाता है। भौतिक, रासायनिक, जैविक तथा विषाक्त (पैरामीटर) प्राचल का विश्लेषण किया जाता है। तीन रासायनिक सूचकांको (Indices) का आकड़ा, गणितीय विधि से निकाला जाता है। सिंचाई की उपयुक्तता के लिये अमेरिकन सैलिनिटी रेखाचित्र (विलकाक्स डायग्राम) के द्वारा जल का वर्गीकरण किया जाता है।

इस प्रकाशन में प्रस्तुत किये गये आकड़े, जल संसाधन के योजनाकारों, प्रबन्धकों और जल के उपयोग कर्ताओं के लिये बहुत उपयोगी है। अनुसंधान एवं विकास संस्थानों, योजनाओं, पीने के जल की पूर्ति, सिंचाई, औद्योगिक एवं मल निपटान योजनाओं के लिये विशेष रूप से उपयोगी है।

इस परिमण्डल के अन्तर्गत दक्षिणी नदियाँ मण्डल-कोयम्बतूर, दक्षिण पश्चिमी नदियाँ मण्डल-कोचिन, कावेरी मण्डल-बेंगलुरु तथा कृष्णा एवं गोदावरी बेसिन संगठन के अन्तर्गत ऊपरी कृष्णा मण्डल, पुणे के प्रयासों से इस पुस्तक का प्रकाशन हुआ। सभी प्रशंसा के पात्र हैं।

बेंगलुरु

अप्रैल, 2019

व. मोहन मुरलि

(वू . मोहन मुरलि)

अधीक्षण अभियंता
कावेरी एवं दक्षिणी नदियाँ परिमण्डल

PREFACE

Water is a precious natural resource with almost fixed quantum of availability. Fresh water has been becoming a scarce commodity day by day in whole world. It's planning and optimal utilization calls for a well developed Data Bank and maintenance of the Data Bank by regular updating is equally important. Besides quantifying the Water Resources, the work of monitoring the Quality of Water is also required to be done. Central Water Commission under the Union Ministry of Water Resources, River Development and Ganga Rejuvenation, besides being an apex body on Water Resources Sector, has been maintaining a vast system of Hydrological Network in different River Basins of India.

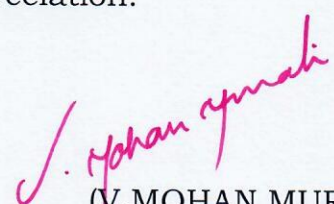
With the advent of computerization of the data, the format of publishing the Water Year Book has also undergone lot of changes. As per the revised format, the Water Year Book for West Flowing Rivers Basin for 2017-18 is published in Two Volumes, Volume-I containing the Stream Flow and Suspended Sediment Data and the Volume-II containing the Water Quality Data and trend/scenario of water quality of major rivers. The Water Quality under this West Flowing Rivers Basin is being monitored at 32 Hydrological Observation Stations – 29 Stations under this region and 3 stations under Krishna & Godavari Basin Organization (KGBO), Hyderabad. The Water samples collected at these stations are being analysed at Divisional laboratories situated at Bangalore, Kochi, Coimbatore and Pune.

The water samples received directly in the respective laboratories are analysed for parameters which include Physical, Chemical, Biological & Toxic elements. In addition to these parameters, three Chemical Indices are derived mathematically from the observed data. Water is classified with the help of US Salinity Diagram (Wilcox Diagram) for its irrigation suitability.

The Data presented in this publication is useful to the Water Resources Planners, Managers and Water Users in catchment area of West Flowing River Basin. The data may be especially useful for R&D institutions, planning, drinking water supply, irrigation, industrial and sewage disposal schemes. Soft copies of the publications will also be available to the user agencies.

The efforts made by the South Western Rivers Division – Kochi, Cauvery Division – Bangalore, Southern Rivers Division – Coimbatore, under this Region & Upper Krishna Division – Pune under KGBO, Hyderabad in bringing out this Book deserves appreciation.

Bengaluru,
April, 2019.


(V. MOHAN MURALI)
Superintending Engineer
Cauvery & Southern Rivers Circle

विषय सूची/CONTENTS

क्र.सं.		पृ.सं.
1	परिचय / Introduction	
1.1	कार्य क्षेत्र / Scope	1
1.2	प्रेक्षण तकनीक / Observation Technique	2
1.3	सूचना स्रोत / Sources of Information	2
2	जल गुणवत्ता आकड़ा / Water Quality Data	
2.1	विस्तार नोट / Explanatory Note	4
2.2	प्रदर्शन विधि / Method of Presentation	5
2.3	जल गुणवत्ता स्थिति / Water Quality Status	6
3	पश्चिम प्रवाही नदियाँ (विश्लेषणात्मक आकड़े)/ West Flowing Rivers (Analytical Data)	
3.1	उल्हास पर बदलापुर / Ulhas at Badlapur	20
3.2	काल पर मंगव / Kal at Mangaon	33
3.3	गाड पर बेलने ब्रिज / Gad at Belne Bridge	41
3.4	अघानासिनी पर सन्तेगुली / Aghanashini at Santeguli	51
3.5	हलडी पर हलडी / Haladi at Haladi	63
3.6	सीता पर अवर्ष / Sita at Avershe	75
3.7	येन्नेहोले पर येन्नेहोले / Yennehole at Yennehole	87
3.8	गुरुपुर पर अड्डूर / Gurpur at Addoor	99
3.9	नेत्रावती पर बंटवाल / Nethravathi at Bantwal	111
3.10	पायश्वनी पर इरिन्जिपुझा / Payaswani at Erinjipuzha	122
3.11	वालापटनम पर पेरुमन्नू / Valapatnam at Perumannu	133
3.12	कुट्टीयाडी पर कुट्टीयाडी / Kuttyadi at Kuttyadi	144
3.13	चालियार पर कुनियिल / Chaliyar at Kuniyil	155
3.14	कडालुण्डी पर कराथोडू / Kadalundi at Karathodu	165
3.15	भारतपुझा पर कुम्बिडी / Bharathapuzha at Kumbidi	175
3.16	पुलनथोडू पर पुलमनथोले / Pulanthodu at Pulamanthole	185
3.17	भारतपुझा पर मनकरा / Bharathapuzha at Mankara	195
3.18	कन्नाडीपुझा पर पुदुर / Kannadipuzha at Pudur	206
3.19	आलियार पर अम्बरमपलयम / Aliyer at Ambarampalayam	216
3.20	चालकुडी पर अरंगली / Chalkudy at Arangaly	229
3.21	पेरियार पर नीलेश्वरम / Periyar at Neeleswaram	239
3.22	पेरियार पर वन्डीपेरियार / Periyar at Vandiperiyar	250
3.23	मूवाट्टुपुझा पर राममंगलम / Muvattupuzha at Ramamangalam	260
3.24	कालियार पर कलामपुर / Kaliyar at Kalampur	271
3.25	मीनाचिल पर किडान्गूर / Meenachil at Kidangoor	281



3.26	मणिमला पर कल्लूपारा / Manimala at Kallooppa	291
3.27	पम्बा पर मलक्करा / Pamba at Malakkara	301
3.28	अचनकोविल पर थुम्पमन / Achankovil at Thumpamon	311
3.29	कल्लडा पर पट्टाझी / Kallada at Pattazhy	321
3.30	वामनपुरम पर आयिलम / Vamanapuram at Ayilam	332
3.31	थम्ब्रापरानी पर कुझिथुरई / Tambraparni at Kuzhithurai	342
3.32	पझयार पर आश्रमम / Pazhayar at Ashramam	352
4	जल गुणवत्ता परिदृश्य / Water Quality Scenario	362
5	संलग्नक / Annexure	
5.1	पश्चिम प्रवाही नदियाँ का जल विज्ञानीय नक्शा / Map showing Hydrological Observation Stations in West Flowing Rivers Basin	401
5.2	विलकाक्स डायग्राम / Wilcox Diagram	402
5.3	संक्षिप्ति एवं विश्लेषण / Abbreviations and Symbols	403
5.4	सहनशीलता सीमा – सिंचाई, औद्योगिक शीतलता एवं सीमित कूड़ा-कचरा निष्कासन के लिये जल गुणवत्ता मानदण्ड / Tolerance limits – Water Quality Parameters for use in Irrigation, Industrial Cooling and Controlled Waste Disposal	404
5.5	सहनशीलता – अन्य उपयोग हेतु चयनित जल गुणवत्ता मानदण्ड / Tolerance limits of the selected water quality parameters for other purposes	405



1. INTRODUCTION

1.1 Scope

Water quality data of 32 stations for the West Flowing Rivers are presented in this volume, for the year 2017-2018. The parameters covered in the data are as under:

1.1.1 Physical

River Discharge, Colour, Odour, Temperature, pH, Electrical Conductivity and T.D.S.

1.1.2 Chemical

Potassium, Sodium, Calcium, Magnesium, Iron, Ammonium, Carbonate, Bicarbonate, Chloride, Fluoride, Sulphate, Nitrate, Nitrite, Phosphate, Silicate, Total Alkalinity, Phenolphthalein Alkalinity and Boron.

1.1.3 Biological/Bacteriological

D.O., B.O.D and C.O.D.; Total Coliform and Fecal Coliform

1.1.4 Trace & Toxic

Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead and Zinc.

1.1.5 Chemical Indices

Hardness Number, Sodium Percentage, Sodium Adsorption Ratio, Residual Sodium Carbonate and USSS Classification.

1.2 Observation Technique

1.2.1 River water samples:

At each station one litre of river water sample is collected at a point of maximum flow & depth in the cross section at a depth of 10 - 20 cm below the water surface in a polythene bottle with double screw cap.

The polythene bottles are labeled with the requisite details of the sampled water and sent through a special messenger to the respective water quality research laboratory for detailed analysis.

1.3 Sources of information

The water quality stations for which data presented in this volume include 1 station under SRD, Coimbatore; 6 stations under CD, Bangalore; 22 stations under SWRD, Kochi and 3 stations under UKD, Pune. The details of the above mentioned stations are as follows:

West Flowing River Basin

S.No.	Station Name	Station Code	Type of Site
1.	Ulhas at Badlapur	WU000P8	GDSQ
2.	Kal at Mangaon	WMA00I8	GDSQ
3.	Gad at Belne Bridge	BELNE BRIDGE	GDQ
4.	Aghanashini at Santeguli	WA000K9	GDQ
5.	Haladi at Haladi	WH000N1	GDQ
6.	Sita at Avershe	WI000J2	GDQ
7.	Yennehole at Yennehole	WS000Q1	GDQ
8.	Gurpur at Addoor	WG000E8	GDQ
9.	Netravathi at Bantwal	WN000G9	GDSQ
10.	Payaswani at Erinjipuzha	KP000C3	GDSQ
11.	Valapatnam at Perumannu	KA000K8	GDSQ
12.	Kuttyadi at Kuttyadi	KK000N2	GDSQ
13.	Chaliyar at Kuniyil	KB000J3	GDSQ
14.	Kadalundi at Karathodu	KL000L7	GDSQ
15.	Bharathapuzha at Kumbidi	KR000C9	GDSQ
16.	Pulanthodu at Pulamanthole	KRA00G4	GDSQ
17.	Bharathapuzha at Mankara	KR000K4	GDSQ
18.	Bharathapuzha at Pudur	KR000M1	GDSQ
19.	Aliyar at Ambarampalayam	KR000U2	GDSQ
20.	Chalakudy at Arangaly	KSA00F3	GDSQ
21.	Periyar at Neeleswaram	KS000F3	GDSQ
22.	Periyar at Vandiperiyar	KS000U1	GDQ
23.	Muvattupuzha at Ramamangalam	KM000I2	GDSQ
24.	Kaliyar at Kalampur	KMA00C6	GDSQ
25.	Meenachil at Kidangoor	KT000L3	GDSQ
26.	Manimala at Kallooppa	KYB00F2	GDSQ
27.	Pamba at Malakkara	KY000J4	GDSQ
28.	Achankovil at Thumpamon	KYA00J4	GDSQ
29.	Kallada at Pattazhy	KD000G4	GDSQ
30.	Vamanapuram at Ayilam	KV000G3	GDSQ
31.	Thambraparani at Kuzhithurai	KF000E1	GDQ
32.	Pazhayar at Ashramam	KE000G2	GDQ

2. WATER QUALITY DATA

2.1 Explanatory Note

The explanatory note described here is designed to assist in the interpretation of various parameters contained in the data presented subsequently.

i) The water samples were collected at a regular frequency of once in a month, from Trend/Flux and once in two months from Baseline stations, usually on the first working day, from the main flowing portion of the stream. The Trace and Toxic elements are analysed once in a year during the month of May.

ii) The collected water samples are neatly labeled and sent to the respective Divisional Laboratory for analysis.

iii) Chemical Indices namely Hardness number, Sodium Percentage, Sodium Adsorption Ratio and Residual Sodium Carbonates are computed as follows:

a) Hardness number is by adding the total Calcium and Magnesium in the sample expressed as equivalent parts of Calcium Carbonate (CaCO_3).

b) Sodium percentage (S.P.) is given by

$$\text{S.P.} = \frac{\text{Na}^+ \times 100}{[\text{Ca}^{++} + \text{Mg}^{++} + \text{Na}^+ + \text{K}^+]}$$

Ionic concentrations are in meq/L.

c) Sodium Adsorption Ratio (SAR) is given by:

$$\text{S.A.R.} = \frac{\text{Na}^+}{\sqrt{\frac{(\text{Ca}^{++} + \text{Mg}^{++})}{2}}}$$

Ionic concentrations are in meq/L.

d) Residual Sodium Carbonate (RSC) is given by

$$\text{RSC} = (\text{CO}_3^{2-} + \text{HCO}_3^-) - (\text{Ca}^{++} + \text{Mg}^{++})$$

Ionic concentrations are in meq/L.

iv) Based on Electrical Conductance (E.C.) and Sodium Adsorption Ratio (S.A.R.) the water samples have been classified as per U.S. Salinity Laboratory standards using Wilcox diagram (Annexure – II).

v) Water year is from 1st June of one calendar year to 31st May of the next calendar year.

vi) Measuring authority refers to the field division responsible for the collection of water sample. The name of the division is abbreviated by taking first alphabet of each word followed by alphabets 'D' for division. For example "CAUVERY DIVISION" is denoted by "CD", "SOUTHERN RIVERS DIVISION" by "SRD" and "SOUTH WESTERN RIVERS DIVISION" by "SWRD".

vii) The station code number is a unique seven column alphanumeric reference number which facilitates storage and retrieval of water quality data in data banks. The first column is the identifier of either an integral river basin or for convenience, a region having several continuous river catchment areas. This is followed by a column which identifies an independent river system which either have one or more outlets to the sea or crosses international border to enter into another country. The third, fourth and fifth column space denote first, second and third order tributaries respectively from the mouth upstream. The sixth and seventh column spaces indicate the location of the gauging station in one of the 225 slots earmarked on the river. The blank column spaces are filled by zero.

2.2. Method of presentation

In the succeeding pages station wise water quality data is presented comprising History sheet, Water Quality data sheet for 2017-18, Water Quality Summary for 2017-18 and Water Quality Seasonal Average for 2007 – 2018. The serial of the water quality observation stations is arranged from the mouth of the river upstream, giving intense priority to an intermediate tributary station in similar fashion.

History sheet gives concise description of the water quality observation stations. Tables on the water quality analysis give the ionic concentrations of various parameters in mg/L. The samples are collected for water quality analysis once a month as already mentioned in Para 2.1 above. Owing to shortage of infrastructure facilities all the parameters are not necessarily analyzed.

3. WATER QUALITY STATUS

3.1 RIVER WATER (*WEST FLOWING RIVERS BASIN*):

The water of West Flowing Rivers is generally of good quality with low to medium ionic concentration. However for basins such as Bharathapuzha and Chaliyar having comparatively large drainage area, the ionic concentration is on higher side at Tambraparni river basin. Moreover, no major industries are situated on the banks of these rivers except Chaliyar. The dissolved oxygen measurement also confirms that the water is of good quality except Pudur. General assessment of the results of water samples collected from West Flowing Rivers shows that the rivers with small drainage area are of acidic in nature except the river originating in Maharashtra and North Karnataka where the results are alkaline whereas with large drainage area are of slightly alkaline in nature except river Chalakudy. The predominant cation is Calcium followed by Sodium, Magnesium and Potassium. Other cation, Iron, is present in negligible quantity. Among the anions Bi-carbonate is the predominant anion followed by Chloride, Sulphate and Silicate. Small quantities of Fluoride and Nitrate are found in some sites except Ashramam site of Pazhayar river basin where Fluoride concentration is very high. Ammonia, Boron, and Phosphate are found in small quantities. Very small quantities of Trace and Toxic elements are also found in the water sample. The Chemical Indices such as Sodium Adsorption Ratio (SAR), Sodium Percentage (SP) and Residual Sodium Carbonate (RSC) are found to be within the tolerance limits and the waters are classified as good quality for irrigation purpose.

Biological/Bacteriological parameters like D.O., B.O.D and C.O.D. Total Coliform and Fecal Coliform are analysed in water sample of some of the sites.

Water quality status of West Flowing Rivers, basin-wise is discussed in detail below:

3.1.1 ULHAS RIVER BASIN

The Ulhas, one of the west flowing rivers drains an area of 4637 Sq.Km. The entire drainage area lies in Maharashtra state. Important tributaries of the Ulhas are Pej, Barvi Murbari, Kalu, Shari, Bhasta, Salpe, Poshir and Shilar. The Kalu and Bhasta together account for about 55.7% of the total catchment area of the basin. Total length of the river from its origin to its out fall into the Arabian Sea is 122 Km. The water quality of this basin commenced with the introduction of observations at the existing gauge and discharge observation station on this river at **Badlapur** from 02/07/1993.

The river water of this basin is slightly alkaline in nature and the pH is varied from 7.2 to 8.2. The maximum Electrical Conductivity observed is 219 $\mu\text{mhos/cm}$, where as the minimum is 96 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium; their maximum values are 22, 15.4 and 9.7 mg/L respectively. Moderate quantity of Iron is also found in the water samples varied from 0.4 to 2.2 mg/L. Bi-carbonate is the major anionic constituent followed by Sulphate, Chloride and Silicate. Their maximum values are 63, 27.5, 23.7 and 22.5 mg/L respectively. Boron, Fluoride, Nitrate and Phosphate are also found within the limit in water samples. It is found that all parameters are within the tolerance limits except Iron with the maximum value of 2.2 mg/L. It is found that all parameters except Bacteriological parameters (e.g. Fecal Coliform and Total Coliform) are beyond the tolerance limit. The river water is classified as C₁S₁ category.

3.1.2 KAL RIVER BASIN

The Kal, which is a major tributary to river Savitri originates from the Sahyadri hill ranges in the Raigad district of Maharashtra. It drains an area of 670 Sq.Km which lies completely in Raigad district. The total length of this river from its origin to its confluence with the Savitri is 40 Km. Water quality station on this river is established at **Mangaon**, where water quality observations are being carried out from 02/07/1993.

The river water of this basin is generally slightly alkaline in nature and the pH is varied from 7.1 to 7.6. The maximum Electrical Conductivity observed is 119 $\mu\text{mhos/cm}$,

where as the minimum is 72 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium; their maximum values are 13.0, 10.9 and 3.9 mg/L respectively. A small quantity of Potassium is also found in the water samples. Moderate quantity of Iron is also found in the water samples varied from 0.3 to 1.2 mg/L and is above the tolerance limit. Bi-carbonate is the major anionic constituent followed by Chloride, Sulphate and Silicate; their maximum values are 53.0, 19.6, 11.2 and 8.2 mg/L respectively. Small quantities of Fluorides, Nitrate and Phosphate are also found in the water samples. It is found that Bacteriological parameters (e.g. Fecal Coliform and Total Coliform) are beyond the tolerance limits. The river water is classified as C₁S₁ category.

3.1.3 GAD RIVER BASIN

The Gad originates from the Sahyadri hill ranges in the Sindhudurg district of Maharashtra state. It drains an area of 890 Sq.Km and has a length of 66 Km from its origin to its out fall into the Arabian Sea. The only water quality on this basin at Adavali has been shifted to **Belne Bridge** in June 2000.

The river water of this basin is almost neutral in nature and the pH is varied from 6.8 and 7.5. The maximum Electrical Conductivity observed is 101 $\mu\text{mhos/cm}$, where as the minimum is 65 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium. Their maximum values are 18.0, 9.2 and 3.9 mg/L respectively. A small quantity of Potassium is also found in the water samples. Moderate quantity of Iron is also found in the water samples varied from 0.3 to 1.2 mg/L and is above the tolerance limit. Bi-carbonate is the major anionic constituent followed by Chloride, Sulphate and Silicate. Their maximum values are 55, 16.0, 11.1 and 9.1 mg/L respectively. Small quantities of Fluoride, Nitrate and Phosphate are also found in water samples. It is found that all parameters except Bacteriological parameters (e.g. Fecal Coliform and Total Coliform) are beyond the tolerance limits. The river water is classified as C₁S₁ category.

3.1.4 AGHNASHINI RIVER BASIN

The river Aghnashini originates from Gadihalli in the Western Ghats of Karnataka. The river has a catchment area of 1350 Sq.Km. and its total length is 117 Km. The river flows mostly through forest area and the only water quality station on this

river is at **Santeguli**. Water Quality Monitoring of this basin commenced with the introduction of Water Quality observations at Santeguli with effect from 01/09/1993.

The river water of this basin is generally neutral in nature and the mean pH is 7.1. The Electrical Conductivity is low and varied from 44 to 71 $\mu\text{mhos/cm}$. The major cationic constituents are Calcium, Sodium, Magnesium and Potassium: Their maximum values are 6.0, 4.0, 3.8 and 1.0 mg/L respectively; their minimum values are 3.0, 2.7, 0.4 and 0.6 mg/L respectively. The predominant anions are Bi-carbonate, Silicate, Chloride and Sulphate: Their maximum values are 33, 10.5, 7.5 and 5.2 mg/L respectively; their minimum values are 9.0, 1.8, 4.6 and 0.7 mg/L respectively. Small quantities of Fluoride, Iron, Phosphate and Nitrate are also observed in water sample. Trace and Toxic elements namely Arsenic, Chromium, Copper, Lead, Nickel and Zinc are also found within the limit in the water sample. It is found that all parameters are within the tolerance limits. The river water quality of this basin is very good and classified into C₁S₁ category.

3.1.5 **HALADI RIVER BASIN**

This river Haladi originates in the Western Ghats near Someswara in the reserved forest of Karnataka. The river has a drainage area of 781 Sq.Km and a total length of 70 Km. The water quality station on this river is at **Haladi**, where water quality observation commenced from 01/09/1993.

The river water of this basin is slightly acidic in nature and the pH values varied from 6.4 to 7.0. The Electrical Conductivity is very low and it varied in a small range between 31 and 35 $\mu\text{mhos/cm}$. Potassium is the major cation followed by Calcium, Sodium and Magnesium. Their maximum values are 5.1, 4.0, 2.7 and 1.6 mg/L respectively; their minimum values are 0.4, 3.0, 2.0 and 0.4 mg/L respectively. Bi-carbonate, Silicate, Chloride and Sulphate are the major anionic constituents and their maximum values are 12.0, 8.5, 4.6 and 3.6 mg/L respectively; their minimum values are 9.0, 3.5, 3.6 and 0.5 mg/L respectively. Trace and Toxic elements are also found within the limit in the water sample. It is found that all parameters are within the tolerance limits. The river water is very good in nature and is classified as C₁S₁ category.

3.1.6 SITA RIVER BASIN

River Sita originates from the Udupi district of Karnataka. The drainage area of the river up to site is 253 Sq.Km. The only water quality station on this river is at **Avershe**, where water quality observations are being carried out from 02/09/2002.

The river water of this basin is acidic in nature and the pH values varied from 6.4 to 6.9. The Electrical Conductivity is very low and varied within a small range from 32 to 42 $\mu\text{mhos/cm}$. The major cations are Calcium, Sodium, Magnesium and Potassium; their maximum values are 4.0, 3.0, 1.8 and 0.6 mg/L respectively; their minimum values are 3.0, 1.9, 0.4 and 0.4 mg/L respectively. Bi-carbonate, Silicate, Chloride and Sulphate are the major anionic constituents and their maximum values are 17.0, 6.9, 4.6 and 4.3 mg/L respectively; their minimum values are 7.0, 0.1, 3.6, and 0.5 mg/L respectively. Trace and Toxic elements are also found within the limit in the water sample. It is found that all parameters are within the tolerance limits. The river water is good in nature and classified as C₁S₁ category.

3.1.7 SWARNA RIVER BASIN

This river Swarna is one of the major west flowing rivers in Dakshina Kannada district. Total drainage area of this river up to the site is 327 Sq.Km. and the river flows for a distance of 61.05 Km up to its confluence with sea. The river is called Yennehole in the initial stages and Swarna after its confluence with its tributary Kaud-hole. The water quality station on this river is established at **Yennehole**, where water quality observations are being carried out from 01/09/1993.

The river water of this basin is slightly acidic in nature and the pH values varied between 6.5 and 6.8. The maximum Electrical Conductivity observed is 41 $\mu\text{mhos/cm}$, where as the minimum is 30 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium, Magnesium and Potassium. Their maximum values are 6.0, 3.0, 1.9 and 0.6 mg/L respectively; their minimum values are 1.0, 1.9, 0.0 and 0.4 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Silicate, Chloride and Sulphate; their maximum values are 14.0, 11.8, 4.6 and 3.4 mg/L respectively; their minimum values are 9.0, 0.3, 2.8 and 0.7 mg/L respectively. It is found that all the parameters are within the tolerance limits. Small quantities of Fluoride and Nitrate are also found within

the limits in water sample. Small quantity of Trace and Toxic elements are also present in the water sample. The river water is good in nature and classified as C₁S₁ category.

3.1.8 GURUPUR RIVER BASIN

River Gurupur originates from the Dakshina Kannada district of Karnataka state. The drainage area of the river is 870.4 Sq.Km. The only water quality station on this river is at **Addoor**, where water quality observations are being carried out from 02/09/2002.

The river water of this basin is slightly acidic in nature and the pH values varied between 6.6 and 7.1. The Electrical Conductivity is very low and varied within a small range between 41 and 55 µmhos/cm. Sodium is the major cation followed by Calcium, Magnesium and Potassium; their maximum values are 6.0, 5.0, 2.7 and 0.9 mg/L respectively; their minimum values are 3.0, 4.0, 0.4 and 0.5 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Chloride and Sulphate; their maximum values are 17.0, 5.7 and 4.8 mg/L respectively; their minimum values are 9.0, 5.3 and 1.1 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. It is found that all parameters are within the tolerance limits. The river water is good and classified as C₁S₁ category.

3.1.9 NETHRAVATHI RIVER BASIN

River Nethravathi originates from South Canara district of Karnataka state. It is a perennial river with a drainage area of 3657 Sq.Km and a length of 103 Km. The only water quality station on this river is at **Bantwal** in Karnataka. Water Quality observations are being carried out from 15/06/1978.

The river water of this basin is slightly acidic in nature and the pH values varied between 6.8 and 7.3. The Electrical Conductivity is very low and varied within a small range between 45 and 50 µmhos/cm. The major cations are Calcium, Sodium, Magnesium and Potassium: their maximum concentrations are 6.0, 3.1, 2.7 and 0.9 mg/L respectively; their minimum values are 3.0, 2.4, 0.7 and 0.6 mg/L respectively. The major anionic constituents are Bi-carbonate, Chloride, and Sulphate; their maximum concentrations are 19.0, 5.7 and 5.4 mg/L respectively; their minimum values are 17.0,

3.6 and 0.7 mg/L respectively. Iron, Fluoride, Nitrate, and Phosphate are also found within the limits in the water samples. Small quantity of Trace and Toxic elements are also present in the water sample. All the parameters are within the tolerance limits and the river water is good and classified as C₁S₁ category.

3.1.10 **PAYASWANI RIVER BASIN**

The Payaswani, also known as the Chandragiri in the lower reaches, originate from the Patti Ghat reserve forest in Coorg District of Karnataka. The river covers a distance of 105 Kms. and drains an area of 1538 Sq. kms. The only water quality station on this basin is located at **Erinjipuzha**, where Water Quality observation commenced from 01/07/1988.

The river water of this basin is slightly acidic in nature and the mean pH value 6.8. Electrical Conductivity is low and varied between of 32 to 56 µmhos/cm. The major cations are Calcium, Sodium and Magnesium; their maximum values are 7.0, 3.9 and 3.0 mg/L respectively. The major anionic constituents are Bi-carbonate, Chloride and Sulphate; their maximum values are 29.0, 7.3 and 5.5 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All the parameters are within tolerance limits and the river water of this basin is good and classified as C₁S₁ category.

3.1.11 **VALAPATNAM RIVER BASIN**

River Valapatnam originates in the Coorg district of Karnataka State. It has a drainage area of 1867 Sq.kms out of which 546 Sq.kms. are in Karnataka and the rest in Kerala. It is a perennial river and has a total length of 101 kms. The only water quality station on this river is at **Perumannu**, where Water Quality observation commenced from 02/06/1986.

The river water of this basin is slightly acidic in nature and the mean pH value 6.9. Electrical Conductivity is low and varied between of 34 to 62 µmhos/cm. The major cations are Calcium, Magnesium and Sodium; their maximum values are 7.0, 3.7 and 3.5 mg/L respectively. Predominant anions are Bi-carbonate Chloride and Sulphate; their maximum values are 35.0, 6.2 and 2.0 mg/L respectively. Small quantity of Trace and

Toxic elements are also present in the water sample. All the parameters are within tolerance limits and the river water of this basin is good and classified as C₁S₁ category.

3.1.12 **KUTTYADI RIVER BASIN**

River Kuttyadi originates from the hills of Western Ghats. The length of the river is 90 kms. and drains an area of 583 Sq. kms. The Water Quality station on this river is at **Kuttyadi**. Water Quality monitoring at this station started from 01/10/2002.

The river water of this basin is generally neutral in nature and the mean pH value is 7.2. The Electrical Conductivity varied between 22 to 38 µmhos/cm. Calcium is the major cation followed by Sodium and Magnesium; their maximum values are 8.0, 4.2 and 2.9 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Silicate and Chloride; their maximum values are 32.0, 14.2 and 7.3 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and classified as C₁S₁ category.

3.1.13 **CHALIYAR RIVER BASIN**

Chaliyar is one of the major rivers of Kerala. The river originates from the Elambari hills in Tamil Nadu. It has a total length of 169 kms and drains an area of 2933 Sq.kms. of which 388 Sq.kms lies in Tamil Nadu. It is a perennial river. The only water quality station on this river is located at **Kuniyil** in Kerala, where Water Quality observation commenced from 15/01/1979.

The river water of this basin is generally acidic in nature and the mean pH value is 6.5. The Electrical Conductivity varied between 47 to 50 µmhos/cm. Sodium is the major cation followed by Calcium and Magnesium; their maximum values are 8.3, 7.0 and 2.0 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Silicate and Chloride; their maximum values are 30.0, 12.4 and 11.1 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and classified as C₁S₁ category.

3.2.14 KADALUNDI RIVER BASIN

The Kadalundi river originates from Karuvarakkundu village in the Calicut District of Kerala State. It drains a total area of 1,112 Sq.kms. and traverses about 130 Kms. Water Quality station on this basin is located at **Karathodu** with the flow of only one month, where Water Quality observation commenced from 01/12/1988.

The river water of this basin is generally alkaline in nature with the pH ranging from 6.9 to 7.2 The Electrical Conductivity values varies from is 56 to 85 $\mu\text{mhos/cm}$. Major Cations are Calcium followed by Sodium and Magnesium; their maximum values are 7.0, 6.5 and 3.0 mg/L respectively. Major anions are Bi-carbonate followed by Silicate and Chloride; their maximum values are 25.0, 11.9 and 9.9 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and classified as C₁S₁ category.

3.2.15 BHARATHAPUZHA RIVER BASIN

Bharathapuzha is the largest river basin in Kerala. It is spread over two states namely Tamil Nadu and Kerala. Out of 6186 Sq.km. of drainage area, 4400 Sq.km is in Kerala and the remaining 1786 Sq.km lies in Tamil Nadu. Originating in Tamil Nadu, the river flows through a total length of 251 kms. There are 5 water quality stations in this basin viz, **Mankara** and **Kumbidi** on the main river, **Pudur** and **Ambarampalayam** on its tributary Aliyar, **Pulamanthole** on its tributary Pulanthodu.

Compared to other rivers basins in Kerala, river water of this basin had highest Electrical Conductivity and Alkalinity. The river water of this basin is slightly alkaline in nature. The maximum Electrical Conductivity observed is 450 $\mu\text{mhos/cm}$ at Pudur and minimum is 48 $\mu\text{mhos/cm}$ at Pulamanthole. The maximum pH 7.8 is observed at Pudur, whereas the minimum pH is 6.5 observed at Kumbidi. The predominant cation is Calcium followed by Sodium, Magnesium and Potassium; their maximum values are 57.0 mg/L (Pudur), 27.8 mg/L (Pudur), 16.7 mg/L (Pudur) and 5.0 mg/L (Mankara); Their minimum values are 3.0 mg/L, 2.7 mg/L, 1.5 mg/L and 1.1 mg/L all at Pulamanthole respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride and Sulphate with the maximum value of 202.0 mg/L, 44.5

mg/L and 21.6 mg/L all at Pudur; their minimum values are 20.0 mg/L (Mankara), 3.9 mg/L (Pulamanthole) and 1.1 mg/L (Pulamanthole) respectively. Small quantity of Ammonia, Boron, Fluoride, Iron, Nitrate, and Phosphate are also found in the water samples. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₂S₁ at Mankara, Kumbidi, Pudur and C₁S₁ at Ambarampalayam, Pulamanthole.

3.2.16 PERIYAR RIVER BASIN

Periyar is the longest river in Kerala which originates from the Sivagiri peak. The total length of the river is 244 Kms. and drains an area of 5389 Sq.kms. On its course it receives a number of tributaries and branches out into two at Alwaye. The Chalakudy River joins the upper branch at Munambam Lake and the other branch further split into small channels and joins the Vembanadu Lake. There are three water quality stations on this basin. Two are on the main river Periyar at **Neeleswaram** and **Vandiperiyar**. The third is on its tributary Chalakudy at **Arangaly**.

The river water of this basin is slightly acidic to alkaline in nature with the pH ranging from 6.1 to 7.8 both at Neeleswaram. The maximum Electrical Conductivity observed is 101 µmhos/cm at Vandiperiyar where as the minimum is 28 µmhos/cm at Neeleswaram. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 8.0 mg/L, 5.4 mg/L and 3.9 mg/L all at Vandiperiyar; their minimum values are 3.0 mg/L, 1.8 mg/L and 1.0 mg/L all at Neeleswaram. Among the anionic constituents Bicarbonate is the dominant anion followed by Silicate and Chloride with their maximum concentration values of 36.0 mg/L (Vandiperiyar), 14.9 mg/L (Arangaly) and 10.3 (Vandiperiyar). Their minimum values are 14.0 mg/L, 8.3 mg/L and 3.1 mg/L all reported at Neeleswaram respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.17 MUVATTUPUZHA RIVER BASIN

River Muvattupuzha originates in the Kottayam district of Kerala. It is a perennial river with total drainage area 1554 Sq.kms and the length is 121 kms. There

are two water quality stations on this Basin, one on the main river Muvattupuzha at **Ramamangalam** and the other at **Kalampur** on its tributary called Kaliyar.

The river water of this basin is slightly alkaline in nature with the pH ranging from 7.0 (Kalampur) to 8.0 (Ramamangalam). The maximum Electrical Conductivity observed is 68 $\mu\text{mhos/cm}$ (Ramamangalam) and the minimum 30 $\mu\text{mhos/cm}$ (Kalampur). The predominant cations are Calcium followed by Sodium and Magnesium; their maximum values are 7.0 mg/L (Ramamangalam), 4.3 mg/L (Ramamangalam) and 3.9 mg/L (Kalampur) respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride and Silicate with the maximum concentration of 29.0 mg/L, 8.1 mg/L and 12.8 mg/L all at site Ramamangalam. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.18 **MEENACHIL RIVER BASIN**

River Meenachil originates in Kottayam district of Kerala State. The total length of the river from its origin to Vembanad Lake, where it joins is about 78 kms. The drainage area is 1272 Sq.Kms. The only water quality station on this river is at **Kidangoor**, with the flow of only one month, where Water Quality observation commenced from 02/06/1986.

The river water of this basin is slightly alkaline in nature with the pH ranging from 7.0 to 7.6. The Electrical Conductivity is varied between 30 $\mu\text{mhos/cm}$ to 45 $\mu\text{mhos/cm}$. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 5.0, 3.7 and 2.0 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 25 mg/L and 6.9 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.19 **PAMBA RIVER BASIN**

Pamba is the third largest river in Kerala. It is a perennial river joined by four tributaries during its course of 176 Kms. Its total drainage area is 2235 Sq.Kms. Its origin

is in the Peerumedu Plateau. There are two water quality stations on this basin. One is on the main river Pamba at **Malakkara**. The other one is on its tributary called Manimala at **Kallooppara**.

The pH of the river water of this basin is slightly acidic to alkaline and varied in between 6.7 (Malakkara) to 7.5 (Kallooppara). The Electrical Conductivity is comparatively low at both sites and it is varied between 27 $\mu\text{mhos/cm}$ (Malakkara) to 45 $\mu\text{mhos/cm}$ at (Kallooppara). The major cation is Calcium followed by Sodium and Magnesium. Their maximum values are 7.0 mg/L at (Kallooppara), 3.5 mg/L at (Kallooppara) and 3.0 mg/L at (Malakkara) respectively. Bicarbonate is the major anion followed by Chloride; their maximum values are 30.0 mg/L at (Malakkara) and 6.3 mg/L at (Kallooppara) respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.20 **ACHANKOVIL RIVER BASIN**

River Achankovil originates in the south of Devarmalai, in the Quilon District of Kerala. The river is formed by several streams originating from Pasukidamettu, Ramakkla Teri and Rishi Malai. It has a total length of 128 km. and drains an area of 1484 Sq. Km. The drainage area up to the Site is 810 Sq. Km. The only water quality station on this basin is located at **Thumpamon**, where Water Quality observation commenced from 15/10/1978.

The river water of this basin is slightly alkaline in nature with the pH ranging from 7.4 to 7.8. The Electrical Conductivity is low and it varied between 29 $\mu\text{mhos/cm}$ to 66 $\mu\text{mhos/cm}$. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 7.0, 3.8 and 2.0 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 30.0 and 7.3 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.21 **KALLADA RIVER BASIN**

Kallada is a perennial river originating in Quilon district. Its total drainage area is 1699 Sq.Km and length is 121 Km. The only water quality station on this river is at **Pattazhy**, where Water Quality observation commenced from 15/10/1978.

The river water of this basin almost neutral in nature with the mean pH value 7.1. The Electrical Conductivity is low and it varied between 39 μ mhos/cm to 63 μ mhos/cm. The predominant cation is Calcium followed by Sodium and Magnesium: their maximum values are 7.0, 5.8 and 2.0 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 25.0 and 9.4 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.22 **VAMANAPURAM RIVER BASIN**

River Vamanapuram originates from Chemunji Motai in Kerala. Its total drainage area is 687 Sq.Kms and the length is 88 Kms. The only water quality station on this river is at **Ayilam**.

The river water is slightly acidic in nature with the mean pH value 6.8. The Electrical Conductivity is low and it varied in between 43 μ mhos/cm to 81 μ mhos/cm. The predominant cation is Sodium followed by Calcium and Magnesium: their maximum values are 6.3, 5.0 and 3.0 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 24.0 and 8.9 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.23 **THAMBRAPARANI RIVER BASIN**

The river Thambraparani originates from the Kanyakumari district of Tamil Nadu. The total length of the river is 55 km. The total drainage area of the river is 906 Sq. km. Water Quality Monitoring of this basin started with effect from 02/12/2002.

The only water quality station in this river is at **Kuzhithurai** with the flow only one month shows water is neutral in nature with pH value 7.1. The Electrical conductivity is 98 $\mu\text{mhos/cm}$. Predominant cation is Sodium followed by Calcium, Magnesium and Potassium; their values are 7.9 mg/L, 7.0 mg/L, 3.9 mg/L and 2.9 mg/L respectively. Bicarbonate is the predominant anion followed by Chloride, and Sulphate; their values are 25.0 mg/L, 14.9 mg/L and 8.9 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

3.2.24 **PAZHAYAR RIVER BASIN**

River Pazhayar originates in the Kanyakumari District of Tamil Nadu. The total length of the river is 40 km. and with a drainage area of 397 Sq. kms. The only Water Quality station on this river is at **Ashramam** with the flow of only one month, Water Quality Monitoring of this basin started with effect from 02/12/2002.

The river water is slightly alkaline in nature with the pH values varies from 7.1 to 7.5. The highest Electrical Conductivity value recorded is 135 $\mu\text{mhos/cm}$ and the lowest value is 112 $\mu\text{mhos/cm}$. The predominant cation is Sodium followed by Calcium and Magnesium; their maximum values are 13.1, 11.0 and 4.9 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 54.0 mg/L and 17.2 mg/L respectively. Small quantity of Trace and Toxic elements are also present in the water sample. All parameters are within tolerance limits and the river water of this basin is good and the water is classified as C₁S₁ classification.

HISTORY SHEET

		Water Year	: 2017-2018
Site	: Badlapur	Code	: WU000P8
State	: Maharashtra	District	Thane
Basin	: WFR South of Tapi	Independent River	: Ulhas
Tributary	: -	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Ulhas
Division	: Upper Krishna Divn, Pune	Sub-Division	: Upper Krishna SD 3, Managaon
Drainage Area	: 785 Sq. Km.	Bank	: Left
Latitude	: 19°09'44"	Longitude	: 73°15'16"
Zero of Gauge (m)	: 9.017 (m.s.l)	24/06/1981	
	Opening Date	Closing Date	
Gauge	: 24/06/1981		
Discharge	: 27/06/1981		
Sediment	: 22/12/2014		
Water Quality	: 02/07/1993		

Water Quality Datasheet for the period : 2017-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	06/06/2017	04/07/2017	02/08/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.960	325.3	264.5
2	Colour_Cod (-)	Clear	Clear	Brown
3	EC_FLD (µmho/cm)	128	157	158
4	EC_GEN (µmho/cm)	115	119	144
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.2	7.3	7.4
7	pH_GEN (pH units)	7.3	7.4	7.6
8	Temp (deg C)	27.0	26.0	26.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	48	52	44
3	B (mg/L)	0.02	0.03	0.09
4	Ca (mg/L)	16	22	13
5	Cl (mg/L)	15.1	23.2	13.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.43	0.43	0.48
8	Fe (mg/L)	1.1	2.2	0.9
9	HCO3 (mg/L)	59	63	54
10	K (mg/L)	0.5	0.6	0.5
11	Mg (mg/L)	2.9	1.9	4.9
12	Na (mg/L)	8.3	12.0	7.9
13	NO2+NO3 (mg N/L)	0.35	1.09	0.70
14	NO2-N (mgN/L)	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.34	1.09	0.70
16	P-Tot (mgP/L)	0.062	0.064	0.008
17	SiO2 (mg/L)	0.5	2.7	5.1
18	SO4 (mg/L)	5.3	11.4	16.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.3	0.6	0.7
2	COD (mg/L)	10.6	4.0	5.0
3	DO (mg/L)	6.8	7.0	8.0
4	DO_SAT% (%)	85	86	99
5	FCol-MPN (MPN/100mL)	20	3000	130
6	Tcol-MPN (MPN/100mL)	260	16000	1300
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	40	56	32
2	HAR_Total (mgCaCO3/L)	52	64	52
3	Na% (%)	26	29	25
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.5	0.7	0.5
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	05/09/2017	04/10/2017	07/11/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	106.7	55.13	20.65
2	Colour_Cod (-)	Brown	Clear	Clear
3	EC_FLD (µmho/cm)	139	235	138
4	EC_GEN (µmho/cm)	164	216	219
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.3	7.5	8.2
7	pH_GEN (pH units)	7.6	7.4	7.5
8	Temp (deg C)	25.0	26.0	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	37	45	50
3	B (mg/L)	0.05	0.11	0.07
4	Ca (mg/L)	16	14	18
5	Cl (mg/L)	11.2	15.8	23.7
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.48	0.49	0.45
8	Fe (mg/L)	0.8	0.9	0.9
9	HCO3 (mg/L)	46	55	61
10	K (mg/L)	0.8	1.2	1.3
11	Mg (mg/L)	4.9	9.7	6.8
12	Na (mg/L)	6.3	8.8	15.4
13	NO2+NO3 (mg N/L)	0.73	1.07	0.79
14	NO2-N (mgN/L)	0.04	0.00	0.01
15	NO3-N (mgN/L)	0.69	1.07	0.78
16	P-Tot (mgP/L)	0.004	0.006	0.016
17	SiO2 (mg/L)	22.5	6.7	7.7
18	SO4 (mg/L)	15.1	27.5	22.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	0.8	1.7
2	COD (mg/L)	9.0	6.0	10.6
3	DO (mg/L)	8.0	5.3	4.5
4	DO_SAT% (%)	97	65	53
5	FCol-MPN (MPN/100mL)	1700	270	9000
6	Tcol-MPN (MPN/100mL)	16000	340	16000
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	40	36	44
2	HAR_Total (mgCaCO3/L)	60	77	72
3	Na% (%)	18	20	31
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.8
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	05/12/2017	01/01/2018	01/02/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	16.08	3.785	13.35
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	138	138	135
4	EC_GEN (µmho/cm)	99	98	110
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.8	7.8	8.1
7	pH_GEN (pH units)	7.2	7.6	7.8
8	Temp (deg C)	24.0	20.0	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	42	48	45
3	B (mg/L)	0.09	0.07	0.06
4	Ca (mg/L)	14	14	13
5	Cl (mg/L)	5.6	7.2	6.7
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.63	0.64	0.63
8	Fe (mg/L)	0.6	0.6	0.5
9	HCO3 (mg/L)	51	59	55
10	K (mg/L)	0.8	0.6	0.6
11	Mg (mg/L)	1.0	1.0	1.9
12	Na (mg/L)	4.2	4.5	4.5
13	NO2+NO3 (mg N/L)	0.27	0.41	0.42
14	NO2-N (mgN/L)	0.01	0.00	0.01
15	NO3-N (mgN/L)	0.27	0.41	0.42
16	P-Tot (mgP/L)	0.005	0.004	0.006
17	SiO2 (mg/L)	1.5	2.0	3.0
18	SO4 (mg/L)	3.2	2.1	4.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.9	1.6	0.8
2	COD (mg/L)	7.4	12.5	6.1
3	DO (mg/L)	4.5	4.5	4.5
4	DO_SAT% (%)	53	49	53
5	FCol-MPN (MPN/100mL)	5000	800	40
6	Tcol-MPN (MPN/100mL)	16000	9000	3000
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	36	36	32
2	HAR_Total (mgCaCO3/L)	40	40	40
3	Na% (%)	18	19	19
4	RSC (-)	0.0	0.2	0.1
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	01/03/2018	01/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	5.323	10.28	5.748
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	138	135	138
4	EC_GEN (µmho/cm)	114	110	96
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.5	7.8	8.0
7	pH_GEN (pH units)	8.2	7.9	8.1
8	Temp (deg C)	26.0	27.0	29.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	44	46	36
3	B (mg/L)	0.05	0.12	0.12
4	Ca (mg/L)	18	16	11
5	Cl (mg/L)	6.7	7.7	9.5
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.64	0.65	0.64
8	Fe (mg/L)	0.4	0.8	0.5
9	HCO3 (mg/L)	54	56	44
10	K (mg/L)	0.5	0.6	0.6
11	Mg (mg/L)	1.0	1.9	2.9
12	Na (mg/L)	4.2	4.5	3.8
13	NO2+NO3 (mg N/L)	0.43	0.52	0.46
14	NO2-N (mgN/L)	0.01	0.00	0.01
15	NO3-N (mgN/L)	0.42	0.51	0.45
16	P-Tot (mgP/L)	0.012	0.005	0.009
17	SiO2 (mg/L)	3.0	3.5	3.5
18	SO4 (mg/L)	2.1	5.0	7.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.6	1.1	0.7
2	COD (mg/L)	13.7	8.4	5.3
3	DO (mg/L)	4.5	4.6	4.5
4	DO_SAT% (%)	55	58	59
5	Fcol-MPN (MPN/100mL)	20	170	110
6	Tcol-MPN (MPN/100mL)	1100	220	500
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	44	40	28
2	HAR_Total (mgCaCO3/L)	48	48	40
3	Na% (%)	16	17	17
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

Sub-Division : Upper Krishna SD 3, Managaon

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1298	0.000	107.4
2	EC_FLD (µmho/cm)	12	235	128	148
3	EC_GEN (µmho/cm)	12	219	96	134
4	pH_FLD (pH units)	12	8.2	7.2	7.7
5	pH_GEN (pH units)	12	8.2	7.2	7.6
6	Temp (deg C)	12	29.0	20.0	25.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	52	36	45
3	B (mg/L)	12	0.12	0.02	0.07
4	Ca (mg/L)	12	22	11	15
5	Cl (mg/L)	12	23.7	5.6	12.1
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.65	0.43	0.55
8	Fe (mg/L)	12	2.2	0.4	0.8
9	HCO3 (mg/L)	12	63	44	55
10	K (mg/L)	12	1.3	0.5	0.7
11	Mg (mg/L)	12	9.7	1.0	3.4
12	Na (mg/L)	12	15.4	3.8	7
13	NO2+NO3 (mg N/L)	12	1.09	0.27	0.6
14	NO2-N (mgN/L)	12	0.04	0.00	0.01
15	NO3-N (mgN/L)	12	1.09	0.27	0.6
16	P-Tot (mgP/L)	12	0.064	0.004	0.017
17	SiO2 (mg/L)	12	22.5	0.5	5.1
18	SO4 (mg/L)	12	27.5	2.1	10.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	1.7	0.6	1.1
2	COD (mg/L)	12	13.7	4.0	8.2
3	DO (mg/L)	12	8.0	4.5	5.6
4	DO_SAT% (%)	12	99	49	68
5	FCol-MPN (MPN/100mL)	12	9000	20	1688
6	Tcol-MPN (MPN/100mL)	12	16000	220	6643
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	56	28	39
2	HAR_Total (mgCaCO3/L)	12	77	40	53
3	Na% (%)	12	31	16	21
4	RSC (-)	12	0.2	0.0	0
5	SAR (-)	12	0.8	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	356.3	116.9	96.36	166.2	190.4
2	EC_FLD (µmho/cm)	156	174	189	195	259
3	EC_GEN (µmho/cm)	152	142	612	179	175
4	pH_FLD (pH units)	7.4	7.3	6.2	7.6	7.2
5	pH_GEN (pH units)	7.5	7.4	7.3	7.7	7.5
6	Temp (deg C)	25.9	26.8	28.5	26.3	24.4
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	34	53	40	52	48
2	B (mg/L)	0.07	0.06	0.05	0.13	0.03
3	Ca (mg/L)	11	15	13	19	18
4	Cl (mg/L)	14.8	10.9	12.8	13.0	10.8
5	F (mg/L)	0.24	0.05	0.17	0.16	0.27
6	Fe (mg/L)	0.6	0.1	0.2	0.1	0.4
7	HCO3 (mg/L)	42	65	49	63	59
8	K (mg/L)	2.0	2.2	0.3	0.9	1.0
9	Mg (mg/L)	3.3	5.4	7.3	4.7	3.5
10	Na (mg/L)	10.3	7.2	8.1	7.2	7.3
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.48	0.66	0.59	0.24	0.55
13	NO2-N (mgN/L)	0.04	0.01	0.01	0.01	0.01
14	NO3-N (mgN/L)	0.44	0.65	0.58	0.23	0.55
15	P-Tot (mgP/L)	0.139	0.005	0.011	0.014	0.031
16	SiO2 (mg/L)	14.1	7.7	8.2	13.8	28.0
17	SO4 (mg/L)	12.9	10.5	24.7	12.5	10.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	0.6	1.1	1.0	0.6
2	COD (mg/L)	7.6	3.4	7.2	6.9	4.0
3	DO (mg/L)	4.0	4.9	4.5	6.2	5.6
4	DO_SAT% (%)	50	62	60	76	67
5	FCol-MPN (MPN/100mL)			61733	8060	105060
6	Tcol-MPN (MPN/100mL)			64000	14120	155660
7	TOC (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	27	36	32	48	46
2	HAR_Total (mgCaCO3/L)	40	59	63	68	60
3	Na% (%)	37	23	22	19	20
4	RSC (-)	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.8	0.5	0.5	0.4	0.4
	PESTICIDES					
1	Aldrin (µg/L)					
2	BHC (µg/L)					
3	DDT (µg/L)					
4	Dieldrin (µg/L)					
5	Endos (µg/L)					

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	193.2	278.7	274.8	72.21	603.8
2	EC_FLD (µmho/cm)	167	255	216	110	190
3	EC_GEN (µmho/cm)	156	174	146	188	183
4	pH_FLD (pH units)	6.3	7.4	7.3	7.9	7.8
5	pH_GEN (pH units)	7.6	7.2	7.4	7.8	7.6
6	Temp (deg C)	23.8	25.2	26.2	26.9	24.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	43	51	53	55	60
2	B (mg/L)	0.03	0.09	0.04	0.09	0.04
3	Ca (mg/L)	17	17	21	20	18
4	Cl (mg/L)	12.1	11.0	27.3	16.2	18.1
5	F (mg/L)	0.28	0.29	0.26	0.39	0.31
6	Fe (mg/L)	0.1	0.8	0.7	1.7	1.2
7	HCO3 (mg/L)	53	62	65	67	74
8	K (mg/L)	0.6	0.6	0.3	0.8	0.6
9	Mg (mg/L)	2.5	7.8	3.3	6.0	7.0
10	Na (mg/L)	7.6	6.3	18.9	8.7	10.4
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.56	0.49	0.71	1.09	1.06
13	NO2-N (mgN/L)	0.08	0.01	0.01	0.01	0.01
14	NO3-N (mgN/L)	0.48	0.48	0.70	1.08	1.05
15	P-Tot (mgP/L)	0.014	0.024	0.007	0.013	2.610
16	SiO2 (mg/L)	10.4	18.0	17.2	5.8	4.0
17	SO4 (mg/L)	10.9	17.9	11.8	15.8	19.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	0.8	0.9	1.1	1.0
2	COD (mg/L)	7.3	7.3	6.5	9.1	7.0
3	DO (mg/L)	5.3	5.4	5.3	3.8	4.2
4	DO_SAT% (%)	62	65	65	48	51
5	FCol-MPN (MPN/100mL)	155400	12840	28200	32720	27982
6	Tcol-MPN (MPN/100mL)	232600	18000	46800	57800	54800
7	TOC (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)	9.22	4.51			
2	Cd (µg/L)	0.20	0.20			
3	Cr (µg/L)	0.68	5.24			
4	Cu (µg/L)	5.31	2.58			
5	Hg (µg/L)		0.26			
6	Ni (µg/L)	12.97	8.48			
7	Pb (µg/L)	0.70	-0.50			
8	Zn (µg/L)	13.71	-0.05			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	43	42	53	49	44
2	HAR_Total (mgCaCO3/L)	54	75	67	74	73
3	Na% (%)	22	16	38	20	23
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	1.0	0.4	0.5
	PESTICIDES					
1	Aldrin (µg/L)					
2	BHC (µg/L)					
3	DDT (µg/L)					
4	Dieldrin (µg/L)					
5	Endos (µg/L)					

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood Jun - Oct	Winter			
			Nov - Feb			
			2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	125.9	5.048	6.694	6.687	6.824
2	EC_FLD (µmho/cm)	163	143	182	181	172
3	EC_GEN (µmho/cm)	152	147	181	183	329
4	pH_FLD (pH units)	7.3	6.5	6.8	6.5	7.3
5	pH_GEN (pH units)	7.5	7.4	7.7	7.7	7.6
6	Temp (deg C)	26.0	24.0	23.4	22.6	23.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	45	38	39	46	52
2	B (mg/L)	0.06	0.08	0.15	0.25	0.06
3	Ca (mg/L)	16	13	11	17	19
4	Cl (mg/L)	15.7	11.5	20.1	21.9	8.1
5	F (mg/L)	0.46	0.80	0.24	0.27	0.47
6	Fe (mg/L)	1.2	0.9	0.1	0.4	0.2
7	HCO3 (mg/L)	55	47	48	56	63
8	K (mg/L)	0.7	0.7	0.9	1.3	1.0
9	Mg (mg/L)	4.9	2.7	3.0	10.5	5.3
10	Na (mg/L)	8.7	11.6	14.1	15.3	4.8
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.79	0.24	0.36	1.11	0.20
13	NO2-N (mgN/L)	0.01	0.12	0.20	0.01	0.02
14	NO3-N (mgN/L)	0.78	0.12	0.16	1.10	0.18
15	P-Tot (mgP/L)	0.029	0.446	0.032	0.064	0.068
16	SiO2 (mg/L)	7.5	15.9	5.4	8.3	14.2
17	SO4 (mg/L)	15.1	13.2	10.2	34.4	12.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	1.9	0.8	1.1	0.9
2	COD (mg/L)	6.9	9.6	2.9	5.4	7.3
3	DO (mg/L)	7.0	5.2	4.7	5.9	4.2
4	DO_SAT% (%)	86	61	57	68	50
5	FCol-MPN (MPN/100mL)	1024			88300	29400
6	Tcol-MPN (MPN/100mL)	6780			124000	13800
7	TOC (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	41	33	28	43	47
2	HAR_Total (mgCaCO3/L)	61	44	40	87	69
3	Na% (%)	23	36	42	27	13
4	RSC (-)	0.0	0.0	0.1	0.0	0.0
5	SAR (-)	0.5	0.8	1.0	0.7	0.3
	PESTICIDES					
1	Aldrin (µg/L)					
2	BHC (µg/L)					
3	DDT (µg/L)					
4	Dieldrin (µg/L)					
5	Endos (µg/L)					

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	12.86	15.41	16.72	12.42	8.202
2	EC_FLD (µmho/cm)	234	191	182	120	174
3	EC_GEN (µmho/cm)	150	127	245	96	150
4	pH_FLD (pH units)	6.7	6.5	6.5	8.0	7.8
5	pH_GEN (pH units)	7.3	7.6	7.2	7.6	7.9
6	Temp (deg C)	24.3	23.2	22.0	24.6	23.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	47	37	42	42	55
2	B (mg/L)	0.08	0.03	0.05	0.04	0.02
3	Ca (mg/L)	16	14	16	15	18
4	Cl (mg/L)	11.1	9.0	15.1	13.9	15.1
5	F (mg/L)	0.27	0.21	0.27	0.27	0.33
6	Fe (mg/L)	0.2	0.1	0.7	0.7	0.8
7	HCO3 (mg/L)	58	46	48	51	68
8	K (mg/L)	0.9	0.6	0.8	0.8	0.4
9	Mg (mg/L)	2.7	1.2	3.6	5.3	3.2
10	Na (mg/L)	6.8	5.8	9.8	9.9	8.5
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.51	0.10	0.44	0.67	0.65
13	NO2-N (mgN/L)	0.00	0.00	0.01	0.01	0.00
14	NO3-N (mgN/L)	0.50	0.10	0.43	0.67	0.64
15	P-Tot (mgP/L)	0.020	0.015	0.005	0.007	0.008
16	SiO2 (mg/L)	6.4	3.6	3.0	14.7	4.8
17	SO4 (mg/L)	5.9	5.4	10.6	18.8	6.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.8	1.1	1.2	1.2
2	COD (mg/L)	7.4	6.1	10.3	7.7	9.7
3	DO (mg/L)	5.4	6.0	4.7	5.1	4.3
4	DO_SAT% (%)	64	70	54	60	51
5	FCol-MPN (MPN/100mL)	56925	23000	49250	195500	36500
6	Tcol-MPN (MPN/100mL)	87675	34500	84000	397000	65000
7	TOC (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)	0.08				
2	Cd (µg/L)	0.00			0.04	
3	Cr (µg/L)	1.99			5.24	
4	Cu (µg/L)	8.73			5.13	
5	Hg (µg/L)					
6	Ni (µg/L)	8.54			-0.50	
7	Pb (µg/L)	0.25			3.59	
8	Zn (µg/L)	6.20			9.00	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	41	35	41	38	44
2	HAR_Total (mgCaCO3/L)	52	40	56	60	57
3	Na% (%)	22	23	27	25	24
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.6	0.6	0.5
	PESTICIDES					
1	Aldrin (µg/L)					
2	BHC (µg/L)					
3	DDT (µg/L)					
4	Dieldrin (µg/L)					
5	Endos (µg/L)					

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	7.201	18.37	8.949	8.291	2.336
2	EC_FLD (µmho/cm)	136	137	143	171	197
3	EC_GEN (µmho/cm)	139	132	135	125	146
4	pH_FLD (pH units)	8.3	8.0	6.3	7.4	5.9
5	pH_GEN (pH units)	7.5	7.5	7.6	7.5	7.6
6	Temp (deg C)	21.8	23.0	24.2	32.5	22.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	53	46	41	37	47
2	B (mg/L)	0.07	0.07	0.11	0.07	0.21
3	Ca (mg/L)	22	15	13	11	19
4	Cl (mg/L)	16.2	10.8	12.1	11.8	10.9
5	F (mg/L)	0.35	0.59	0.06	0.84	0.17
6	Fe (mg/L)	0.9	0.6	0.8	0.1	0.9
7	HCO3 (mg/L)	64	57	50	45	58
8	K (mg/L)	0.6	0.8	1.0	0.5	1.5
9	Mg (mg/L)	4.9	2.7	3.6	4.5	11.1
10	Na (mg/L)	8.7	7.1	11.7	11.5	8.1
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.74	0.47	0.36	1.99	0.54
13	NO2-N (mgN/L)	0.01	0.00	0.12	1.88	0.01
14	NO3-N (mgN/L)	0.73	0.47	0.24	0.11	0.53
15	P-Tot (mgP/L)	0.008	0.008	0.372	0.038	0.025
16	SiO2 (mg/L)	22.3	3.5	0.4	10.1	5.9
17	SO4 (mg/L)	14.3	8.1	10.1	14.1	37.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	1.3	0.9	0.6	0.8
2	COD (mg/L)	8.4	9.2	11.9	4.1	6.6
3	DO (mg/L)	4.5	4.5	5.2	4.6	5.0
4	DO_SAT% (%)	51	52	61	69	57
5	FCol-MPN (MPN/100mL)	25	3710			19667
6	Tcol-MPN (MPN/100mL)	7200	11000			29000
7	TOC (mg/L)			0.9		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)			0.01	2.19	0.01
3	Cr (µg/L)			2.00	2.00	2.00
4	Cu (µg/L)					
5	Hg (µg/L)			0.27		
6	Ni (µg/L)			3.00	1.00	1.97
7	Pb (µg/L)			4.39	3.85	1.00
8	Zn (µg/L)			4.33	15.81	8.45
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	54	37	32	28	47
2	HAR_Total (mgCaCO3/L)	74	48	47	47	94
3	Na% (%)	22	22	34	34	16
4	RSC (-)	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.7	0.7	0.4
	PESTICIDES					
1	Aldrin (µg/L)			0.010	0.010	0.010
2	BHC (µg/L)			0.260	0.100	0.148
3	DDT (µg/L)			0.100	0.100	0.100
4	Dieldrin (µg/L)			0.010	0.010	0.010
5	Endos (µg/L)			0.290	0.100	0.100

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	8.103	9.998	14.09	7.496
2	EC_FLD (µmho/cm)	183	163	208	176
3	EC_GEN (µmho/cm)	105	94	99	103
4	pH_FLD (pH units)	7.2	6.8	6.2	6.1
5	pH_GEN (pH units)	7.0	7.2	7.1	7.1
6	Temp (deg C)	25.3	24.2	25.2	23.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	34	36	33	33
2	B (mg/L)	0.03	0.01	0.02	0.02
3	Ca (mg/L)	13	13	14	13
4	Cl (mg/L)	7.7	6.9	6.4	8.0
5	F (mg/L)	0.31	0.31	0.24	0.28
6	Fe (mg/L)	0.2	0.2	0.0	0.4
7	HCO3 (mg/L)	42	44	40	41
8	K (mg/L)	1.2	0.9	0.5	0.5
9	Mg (mg/L)	3.6	1.6	4.2	1.0
10	Na (mg/L)	4.5	4.9	3.8	4.9
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.12	0.29	0.16	0.75
13	NO2-N (mgN/L)	0.02	0.00	0.01	0.03
14	NO3-N (mgN/L)	0.11	0.29	0.15	0.73
15	P-Tot (mgP/L)	0.011	0.013	0.128	0.004
16	SiO2 (mg/L)	19.9	5.3	11.5	1.0
17	SO4 (mg/L)	11.9	4.2	20.2	3.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.8	0.9	1.5	1.2
2	COD (mg/L)	6.1	7.1	8.6	12.2
3	DO (mg/L)	6.3	6.1	4.7	4.1
4	DO_SAT% (%)	77	73	57	49
5	FCol-MPN (MPN/100mL)	14000	12900	47000	29250
6	Tcol-MPN (MPN/100mL)	17000	18067	67667	49400
7	TOC (mg/L)				
	TRACE & TOXIC				
1	As (µg/L)		0.36	2.46	2.05
2	Cd (µg/L)	0.00	0.04	0.90	0.04
3	Cr (µg/L)	0.65	0.90	0.12	-1.00
4	Cu (µg/L)		30.00	2.53	3.19
5	Hg (µg/L)		0.08	0.25	0.18
6	Ni (µg/L)	0.00	2.10	2.70	1.22
7	Pb (µg/L)	0.00	9.27	0.95	1.69
8	Zn (µg/L)	22.65	13.83	9.19	36.21
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	33	32	35	33
2	HAR_Total (mgCaCO3/L)	48	39	52	37
3	Na% (%)	17	21	14	22
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.2	0.4
	PESTICIDES				
1	Aldrin (µg/L)	0.000	0.002		
2	BHC (µg/L)	0.058	0.071		
3	DDT (µg/L)	0.000	0.005		
4	Dieldrin (µg/L)	0.053	0.001		
5	Endos (µg/L)	0.555	0.084		

Water Quality Seasonal Average for the period: 2003-2018

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	4.127	4.685	4.914	
2	EC_FLD (µmho/cm)	114	113	138	137
3	EC_GEN (µmho/cm)	107	121	130	107
4	pH_FLD (pH units)	7.5	7.9	8.2	7.8
5	pH_GEN (pH units)	7.3	7.5	7.8	8.1
6	Temp (deg C)	26.3	23.2	26.2	27.3
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	39	48	47	42
2	B (mg/L)	0.04	0.00	0.07	0.10
3	Ca (mg/L)	18	15	22	15
4	Cl (mg/L)	12.0	10.9	15.9	8.0
5	F (mg/L)	0.26	0.31	0.36	0.64
6	Fe (mg/L)	0.5	0.9	2.2	0.6
7	HCO3 (mg/L)	48	59	57	51
8	K (mg/L)	0.5	0.4	0.5	0.6
9	Mg (mg/L)	7.4	2.6	3.2	1.9
10	Na (mg/L)	8.9	7.6	9.1	4.2
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.31	1.13	1.97	0.47
13	NO2-N (mgN/L)	0.02	0.01	0.02	0.01
14	NO3-N (mgN/L)	0.30	1.12	1.95	0.46
15	P-Tot (mgP/L)	0.005	0.286	0.446	0.009
16	SiO2 (mg/L)	2.9	3.7	36.6	3.3
17	SO4 (mg/L)	26.4	6.6	11.8	4.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.1	1.0	1.2	1.1
2	COD (mg/L)	9.4	7.9	8.6	9.1
3	DO (mg/L)	3.9	4.5	4.5	4.5
4	DO_SAT% (%)	49	52	55	57
5	FCol-MPN (MPN/100mL)	108667	142000	263	100
6	Tcol-MPN (MPN/100mL)	138667	220000	10673	607
7	TOC (mg/L)				
	TRACE & TOXIC				
1	As (µg/L)	-0.50	-0.50		
2	Cd (µg/L)	-0.01	-0.01		
3	Cr (µg/L)	5.20	5.20		
4	Cu (µg/L)		-0.50		
5	Hg (µg/L)	0.01	0.03		
6	Ni (µg/L)	1.95	-0.50		
7	Pb (µg/L)	10.00	-0.50		
8	Zn (µg/L)	46.00	3.63		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	44	39	56	37
2	HAR_Total (mgCaCO3/L)	75	50	70	46
3	Na% (%)	21	25	23	16
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.3
	PESTICIDES				
1	Aldrin (µg/L)				
2	BHC (µg/L)				
3	DDT (µg/L)				
4	Dieldrin (µg/L)				
5	Endos (µg/L)				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: Mangaon (Seasonal)	Code	: WMA0018
State	: Maharashtra	District	Raigad
Basin	: WFR South of Tapi	Independent River	: Savitri
Tributary	: Kal	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Kal
Division	: Upper Krishna Divn, Pune	Sub-Division	: Upper Krishna SD 3, Managaon
Drainage Area	: 259 Sq. Km.	Bank	: Left
Latitude	: 18°13'53"	Longitude	: 73°17'01"
Zero of Gauge (m)	: 3.905 (m.s.l)	01/06/1980	
	Opening Date	Closing Date	
Gauge	: 01/06/1980		
Discharge	: 27/06/1980		
Sediment	: 22/12/2014		
Water Quality	: 02/07/1993		

Water Quality Datasheet for the period : 2017-2018

Station Name : Mangaon (Seasonal) (WMA00I8)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters		04/07/2017	02/08/2017
			A	A
	PHYSICAL			
1	Q (cumec)		76.18	124.0
2	Colour_Cod (-)		Light Brown	Light Brown
3	EC_FLD (µmho/cm)		106	113
4	EC_GEN (µmho/cm)		72	88
5	Odour_Code (-)		odour free	odour free
6	pH_FLD (pH units)		7.9	7.9
7	pH_GEN (pH units)		7.3	7.1
8	Temp (deg C)		25.0	24.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	0.0
2	ALK-TOT (mgCaCO3/L)		40	20
3	B (mg/L)		0.04	0.05
4	Ca (mg/L)		13	10
5	Cl (mg/L)		19.6	8.7
6	CO3 (mg/L)		0.0	0.0
7	F (mg/L)		0.42	0.46
8	Fe (mg/L)		1.2	0.4
9	HCO3 (mg/L)		49	24
10	K (mg/L)		0.2	0.3
11	Mg (mg/L)		1.9	1.9
12	Na (mg/L)		10.9	5.2
13	NO2+NO3 (mg N/L)		0.79	0.50
14	NO2-N (mgN/L)		0.01	0.00
15	NO3-N (mgN/L)		0.79	0.50
16	P-Tot (mgP/L)		0.052	0.005
17	SiO2 (mg/L)		4.3	4.5
18	SO4 (mg/L)		6.9	6.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)		1.6	0.8
2	COD (mg/L)		14.0	7.0
3	DO (mg/L)		6.0	7.4
4	DO_SAT% (%)		73	88
5	FCol-MPN (MPN/100mL)		9000	9000
6	Tcol-MPN (MPN/100mL)		16000	16000
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)		32	24
2	HAR_Total (mgCaCO3/L)		40	32
3	Na% (%)		37	26
4	RSC (-)		0.0	0.0
5	SAR (-)		0.7	0.4
	PESTICIDES			

Samples not collected due to dry bed/ no flow condition during June month.

Water Quality Datasheet for the period : 2017-2018

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water Analysis

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	05/09/2017	04/10/2017	07/11/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	17.37	16.42	0.539
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	105	105	105
4	EC_GEN (µmho/cm)	98	119	95
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	7.6	7.6
7	pH_GEN (pH units)	7.6	7.4	7.6
8	Temp (deg C)	27.5	27.5	23.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	26	43	36
3	B (mg/L)	0.09	0.09	0.06
4	Ca (mg/L)	10	13	11
5	Cl (mg/L)	5.1	4.4	5.4
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.46	0.44	0.53
8	Fe (mg/L)	0.5	0.3	0.5
9	HCO3 (mg/L)	31	53	44
10	K (mg/L)	0.3	0.2	0.3
11	Mg (mg/L)	2.9	1.9	3.9
12	Na (mg/L)	3.7	3.1	3.7
13	NO2+NO3 (mg N/L)	0.54	0.20	0.35
14	NO2-N (mgN/L)	0.03	0.00	0.00
15	NO3-N (mgN/L)	0.51	0.20	0.34
16	P-Tot (mgP/L)	0.001	0.003	0.005
17	SiO2 (mg/L)	6.6	4.5	8.2
18	SO4 (mg/L)	8.5	6.8	11.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.6	1.7
2	COD (mg/L)	5.0	4.0	9.1
3	DO (mg/L)	6.1	6.2	6.1
4	DO_SAT% (%)	77	78	71
5	FCoI-MPN (MPN/100mL)	9000	2200	2400
6	TcoI-MPN (MPN/100mL)	9000	3000	3000
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	24	32	28
2	HAR_Total (mgCaCO3/L)	36	40	44
3	Na% (%)	18	14	15
4	RSC (-)	0.0	0.1	0.0
5	SAR (-)	0.3	0.2	0.2
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : Mangaon (Seasonal) (WMA00I8)

Division : Upper Krishna Divn, Pune

Local River : Kal

Sub-Division : Upper Krishna SD 3, Managaon

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	183	458.4	0.000	63.10
2	EC_FLD (µmho/cm)	5	113	105	107
3	EC_GEN (µmho/cm)	5	119	72	94
4	pH_FLD (pH units)	5	7.9	7.6	7.7
5	pH_GEN (pH units)	5	7.6	7.1	7.4
6	Temp (deg C)	5	27.5	23.5	25.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	43	20	33
3	B (mg/L)	5	0.09	0.04	0.07
4	Ca (mg/L)	5	13	10	11
5	Cl (mg/L)	5	19.6	4.4	8.6
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.53	0.42	0.46
8	Fe (mg/L)	5	1.2	0.3	0.6
9	HCO3 (mg/L)	5	53	24	40
10	K (mg/L)	5	0.3	0.2	0.3
11	Mg (mg/L)	5	3.9	1.9	2.5
12	Na (mg/L)	5	10.9	3.1	5.3
13	NO2+NO3 (mg N/L)	5	0.79	0.20	0.48
14	NO2-N (mgN/L)	5	0.03	0.00	0.01
15	NO3-N (mgN/L)	5	0.79	0.20	0.47
16	P-Tot (mgP/L)	5	0.052	0.001	0.013
17	SiO2 (mg/L)	5	8.2	4.3	5.6
18	SO4 (mg/L)	5	11.2	6.2	7.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.7	0.6	1.1
2	COD (mg/L)	5	14.0	4.0	7.8
3	DO (mg/L)	5	7.4	6.0	6.4
4	DO_SAT% (%)	5	88	71	77
5	FCol-MPN (MPN/100mL)	5	9000	2200	6320
6	Tcol-MPN (MPN/100mL)	5	16000	3000	9400
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	32	24	28
2	HAR_Total (mgCaCO3/L)	5	44	32	39
3	Na% (%)	5	37	14	22
4	RSC (-)	5	0.1	0.0	0
5	SAR (-)	5	0.7	0.2	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	154.7	60.33	38.77	85.36	240.5
2	EC_FLD (µmho/cm)	212	252	162	149	146
3	EC_GEN (µmho/cm)	72	85	938	97	76
4	pH_FLD (pH units)	6.9	7.6	7.4	7.7	7.6
5	pH_GEN (pH units)	7.4	7.3	7.4	7.6	7.4
6	Temp (deg C)	25.9	26.7	27.4	26.9	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	20	21	34	28	25
2	B (mg/L)	0.06	0.04	0.05	0.15	0.01
3	Ca (mg/L)	6	7	13	12	10
4	Cl (mg/L)	7.5	6.2	8.5	9.8	6.1
5	F (mg/L)	0.10	0.05	0.41	0.15	0.25
6	Fe (mg/L)	0.2	0.4	0.3	0.1	0.2
7	HCO3 (mg/L)	24	26	41	34	30
8	K (mg/L)	0.7	1.0	0.3	0.8	0.6
9	Mg (mg/L)	0.9	2.8	3.3	2.4	1.7
10	Na (mg/L)	6.2	4.2	6.3	5.7	4.1
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.31	0.16	0.19	0.17	0.28
13	NO2-N (mgN/L)	0.01	0.01	0.00	0.01	0.00
14	NO3-N (mgN/L)	0.30	0.16	0.18	0.16	0.28
15	P-Tot (mgP/L)	0.035	0.002	0.005	0.006	0.008
16	SiO2 (mg/L)	10.3	5.2	10.0	8.6	11.5
17	SO4 (mg/L)	2.7	6.7	13.0	10.9	4.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.5	1.1	0.6	0.6
2	COD (mg/L)	7.9	2.6	7.0	4.4	2.9
3	DO (mg/L)	7.0	6.3	6.6	6.8	6.4
4	DO_SAT% (%)	86	79	84	84	80
5	FCol-MPN (MPN/100mL)			16333	3525	30225
6	Tcol-MPN (MPN/100mL)			22333	5550	48000
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	17	32	30	24
2	HAR_Total (mgCaCO3/L)	19	28	46	40	31
3	Na% (%)	40	24	23	22	22
4	RSC (-)	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.4	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood			
		Jun - Oct			
		2012	2013	2014	2015
	PHYSICAL				
1	Q (cumec)	190.5	232.9	104.1	26.59
2	EC_FLD (µmho/cm)	189			156
3	EC_GEN (µmho/cm)	104	86	85	109
4	pH_FLD (pH units)	7.6	7.8		7.5
5	pH_GEN (pH units)	7.5	7.0	7.2	7.5
6	Temp (deg C)	26.6	24.0	26.5	27.6
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	27	24	35	42
2	B (mg/L)	0.02	0.10	0.08	0.07
3	Ca (mg/L)	11	9	13	15
4	Cl (mg/L)	4.5	4.5	28.4	10.0
5	F (mg/L)	0.23	0.27	0.22	0.39
6	Fe (mg/L)	0.3	0.7	0.7	2.0
7	HCO3 (mg/L)	33	30	43	51
8	K (mg/L)	0.3	0.1	0.2	0.2
9	Mg (mg/L)	1.5	2.7	4.9	3.2
10	Na (mg/L)	2.8	3.2	20.0	5.9
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.39	0.34	0.52	1.18
13	NO2-N (mgN/L)	0.14	0.00	0.01	0.00
14	NO3-N (mgN/L)	0.25	0.33	0.51	1.17
15	P-Tot (mgP/L)	0.009	0.016	0.005	0.014
16	SiO2 (mg/L)	6.6	12.3	17.0	7.1
17	SO4 (mg/L)	3.5	9.0	15.0	8.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	1.0	3.3	0.8
2	COD (mg/L)	4.7	9.4	25.3	5.8
3	DO (mg/L)	7.3	7.0		6.3
4	DO_SAT% (%)	91	84		80
5	FCol-MPN (MPN/100mL)	26750	70750	8400	7675
6	Tcol-MPN (MPN/100mL)	39250	151750	36300	13575
	TRACE & TOXIC				
1	As (µg/L)	13.21	5.10		
2	Cd (µg/L)	0.15	0.18		
3	Cr (µg/L)	-1.00	2.83		
4	Cu (µg/L)	0.81	1.29		
5	Hg (µg/L)		0.33		
6	Ni (µg/L)	19.06	7.14		
7	Pb (µg/L)	0.73	-0.50		
8	Zn (µg/L)	7.94	-0.05		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	27	23	33	38
2	HAR_Total (mgCaCO3/L)	33	34	54	51
3	Na% (%)	16	17	43	20
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.2	1.2	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Flood		Winter	
		Jun - Oct		Nov-Feb	
		2016	2017	2007-2008	2011-2012
	PHYSICAL				
1	Q (cumec)	227.8	58.49		2.494
2	EC_FLD (µmho/cm)	128	107		157
3	EC_GEN (µmho/cm)	78	94		104
4	pH_FLD (pH units)	7.6	7.8		7.6
5	pH_GEN (pH units)	7.3	7.4		7.4
6	Temp (deg C)	26.6	26.1		28.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	35	32		38
2	B (mg/L)	0.03	0.07		0.01
3	Ca (mg/L)	11	11		14
4	Cl (mg/L)	11.2	9.4		4.2
5	F (mg/L)	0.29	0.45		0.26
6	Fe (mg/L)	0.7	0.6		0.2
7	HCO3 (mg/L)	42	39		46
8	K (mg/L)	0.2	0.3		0.3
9	Mg (mg/L)	3.4	2.2		1.0
10	Na (mg/L)	6.8	5.7		3.2
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.56	0.51		0.26
13	NO2-N (mgN/L)	0.00	0.01		0.00
14	NO3-N (mgN/L)	0.56	0.50		0.26
15	P-Tot (mgP/L)	0.014	0.015		0.016
16	SiO2 (mg/L)	5.2	5.0		10.1
17	SO4 (mg/L)	9.4	7.1		2.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	1.0		0.7
2	COD (mg/L)	3.9	7.5		3.8
3	DO (mg/L)	5.6	6.4		5.6
4	DO_SAT% (%)	70	79		72
5	FCol-MPN (MPN/100mL)	43355	7300		4900
6	Tcol-MPN (MPN/100mL)	75750	11000		7000
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	27	28		36
2	HAR_Total (mgCaCO3/L)	41	37		40
3	Na% (%)	26	24		15
4	RSC (-)	0.0	0.0		0.0
5	SAR (-)	0.5	0.4		0.2
	PESTICIDES				

2007-2008 to 2010-2011, 2012-13, 2014-2015 and 2015-2016 Samples not collected due to Drybed/no flow condition.

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Winter			Summer
		Nov-Feb			Mar- May
		2013-2014	2016-2017	2017-2018	
	PHYSICAL				
1	Q (cumec)	3.265	0.463	0.539	
2	EC_FLD (µmho/cm)	212	112	105	
3	EC_GEN (µmho/cm)	187	113	95	
4	pH_FLD (pH units)	5.9	7.3	7.6	
5	pH_GEN (pH units)	7.1	7.6	7.6	
6	Temp (deg C)	22.0	29.0	23.5	
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	44	44	36	
2	B (mg/L)	0.08	0.16	0.06	
3	Ca (mg/L)	18	16	11	
4	Cl (mg/L)	4.8	11.2	5.4	
5	F (mg/L)	0.27	0.28	0.53	
6	Fe (mg/L)	0.5	0.7	0.5	
7	HCO3 (mg/L)	54	54	44	
8	K (mg/L)	0.1	0.2	0.3	
9	Mg (mg/L)	2.9	5.8	3.9	
10	Na (mg/L)	3.3	6.6	3.7	
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.33	0.48	0.35	
13	NO2-N (mgN/L)	0.01	0.00	0.00	
14	NO3-N (mgN/L)	0.32	0.48	0.34	
15	P-Tot (mgP/L)	0.003	0.004	0.005	
16	SiO2 (mg/L)	7.1	11.8	8.2	
17	SO4 (mg/L)	9.2	16.9	11.2	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.5	0.5	1.7	
2	COD (mg/L)	4.6	3.8	9.1	
3	DO (mg/L)	4.8	5.7	6.1	
4	DO_SAT% (%)	55	74	71	
5	FCol-MPN (MPN/100mL)	23000	20	2400	
6	Tcol-MPN (MPN/100mL)	70000	16000	3000	
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	44	40	28	
2	HAR_Total (mgCaCO3/L)	56	64	44	
3	Na% (%)	11	18	15	
4	RSC (-)	0.0	0.0	0.0	
5	SAR (-)	0.2	0.4	0.2	
	PESTICIDES				

Down graded as seasonal site from 2007-208 onwards.

HISTORY SHEET

		Water Year	: 2017-2018
Site	: Belne Bridge	Code	: BELNE BRIDGE
State	: Maharashtra	District	Sindudurg
Basin	: WFR South of Tapi	Independent River	: Gad
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Gad
Division	: Upper Krishna Divn, Pune	Sub-Division	: South Western Rivers SD 4,Goa
Drainage Area	: 605 Sq. Km.	Bank	: Right
Latitude	: 16°13'18"	Longitude	: 73°36'40"
Zero of Gauge (m)	: 8.500 (m.s.l)	01/06/2000	
	Opening Date	Closing Date	
Gauge	: 16/06/2000		
Discharge	: 16/06/2000		
Sediment	:		
Water Quality	: 03/07/2000		

Water Quality Datasheet for the period : 2017-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water Analysis

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	14/06/2017	03/07/2017	01/08/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	12.57	168.2	114.1
2	Colour_Cod (-)	Light Brown	Dark Brown	Clear
3	EC_FLD (μmho/cm)	128	130	128
4	EC_GEN (μmho/cm)	70	65	81
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.2	7.1	7.0
7	pH_GEN (pH units)	7.1	7.1	7.1
8	Temp (deg C)	27.5	26.0	25.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	28	42	20
3	B (mg/L)	0.03	0.03	0.06
4	Ca (mg/L)	8	18	10
5	Cl (mg/L)	15.6	16.0	8.2
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.43	0.40	0.47
8	Fe (mg/L)	1.2	1.2	0.6
9	HCO3 (mg/L)	34	51	24
10	K (mg/L)	0.8	0.2	0.2
11	Mg (mg/L)	3.9	2.9	1.9
12	Na (mg/L)	9.2	8.5	5.2
13	NO2+NO3 (mg N/L)	0.40	1.24	0.32
14	NO2-N (mgN/L)	0.01	0.01	0.01
15	NO3-N (mgN/L)	0.40	1.24	0.31
16	P-Tot (mgP/L)	0.059	0.053	0.007
17	SiO2 (mg/L)	1.3	3.8	4.2
18	SO4 (mg/L)	9.4	11.1	8.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.6	0.6
2	COD (mg/L)	4.6	5.0	5.0
3	DO (mg/L)	8.0	8.2	8.2
4	DO_SAT% (%)	100	101	99
5	FCol-MPN (MPN/100mL)	90	40	800
6	Tcol-MPN (MPN/100mL)	3500	3000	16000
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	20	44	24
2	HAR_Total (mgCaCO3/L)	36	56	32
3	Na% (%)	35	25	26
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.7	0.5	0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water Analysis

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	04/09/2017	03/10/2017	06/11/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	63.19	90.62	No Flow
2	Colour_Cod (-)	Clear	Clear	
3	EC_FLD (µmho/cm)	128	90	
4	EC_GEN (µmho/cm)	89	84	
5	Odour_Code (-)	odour free	odour free	
6	pH_FLD (pH units)	7.1	7.0	
7	pH_GEN (pH units)	7.2	6.8	
8	Temp (deg C)	26.0	25.5	
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	20	20	
3	B (mg/L)	0.06	0.09	
4	Ca (mg/L)	10	6	
5	Cl (mg/L)	3.9	9.2	
6	CO3 (mg/L)	0.0	0.0	
7	F (mg/L)	0.46	0.45	
8	Fe (mg/L)	0.3	0.3	
9	HCO3 (mg/L)	24	24	
10	K (mg/L)	0.2	0.3	
11	Mg (mg/L)	2.9	2.9	
12	Na (mg/L)	2.7	6.7	
13	NO2+NO3 (mg N/L)	0.16	2.57	
14	NO2-N (mgN/L)	0.00	0.01	
15	NO3-N (mgN/L)	0.16	2.56	
16	P-Tot (mgP/L)	0.005	0.005	
17	SiO2 (mg/L)	9.1	4.3	
18	SO4 (mg/L)	8.6	9.2	
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.1	1.2	
2	COD (mg/L)	9.0	9.0	
3	DO (mg/L)	8.2	7.1	
4	DO_SAT% (%)	101	86	
5	FCol-MPN (MPN/100mL)	70	1700	
6	Tcol-MPN (MPN/100mL)	16000	5000	
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	24	16	
2	HAR_Total (mgCaCO3/L)	36	28	
3	Na% (%)	14	34	
4	RSC (-)	0.0	0.0	
5	SAR (-)	0.2	0.6	
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water Analysis

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	04/12/2017	01/01/2018	05/02/2018	Samples not collected due to dry bed/ no flow condition during March, April and May months of the year 2018.
		A	A	A	
	PHYSICAL				
1	Q (cumec)	No Flow	No Flow	No Flow	
2	Colour_Cod (-)				
3	EC_FLD (μmho/cm)				
4	EC_GEN (μmho/cm)				
5	Odour_Code (-)				
6	pH_FLD (pH units)				
7	pH_GEN (pH units)				
8	Temp (deg C)				
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)				
5	Cl (mg/L)				
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)				
10	K (mg/L)				
11	Mg (mg/L)				
12	Na (mg/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)				
18	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
3	DO (mg/L)				
4	DO_SAT% (%)				
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

Sub-Division : South Western Rivers SD 4,Goa

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	573.5	0.000	49.61
2	EC_FLD (µmho/cm)	5	130	90	122
3	EC_GEN (µmho/cm)	5	101	65	84
4	pH_FLD (pH units)	5	7.9	7.0	7.3
5	pH_GEN (pH units)	5	7.5	6.8	7.2
6	Temp (deg C)	5	27.5	19.5	25
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	45	20	31
3	B (mg/L)	5	0.11	0.03	0.07
4	Ca (mg/L)	5	18	6	11
5	Cl (mg/L)	5	16.0	3.9	8.8
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.68	0.40	0.51
8	Fe (mg/L)	5	1.2	0.3	0.6
9	HCO3 (mg/L)	5	55	24	38
10	K (mg/L)	5	0.8	0.2	0.4
11	Mg (mg/L)	5	3.9	1.0	2.6
12	Na (mg/L)	5	9.2	2.7	5.4
13	NO2+NO3 (mg N/L)	5	2.57	0.16	0.69
14	NO2-N (mgN/L)	5	0.01	0.00	0
15	NO3-N (mgN/L)	5	2.56	0.16	0.68
16	P-Tot (mgP/L)	5	0.059	0.001	0.017
17	SiO2 (mg/L)	5	9.1	1.3	4.3
18	SO4 (mg/L)	5	11.1	2.7	7.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.8	0.6	0.9
2	COD (mg/L)	5	9.0	4.6	6.6
3	DO (mg/L)	5	8.2	4.5	7.4
4	DO_SAT% (%)	5	101	54	90
5	FCol-MPN (MPN/100mL)	5	1700	40	534
6	Tcol-MPN (MPN/100mL)	5	16000	800	6156
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	44	16	27
2	HAR_Total (mgCaCO3/L)	5	56	28	38
3	Na% (%)	5	35	14	23
4	RSC (-)	5	0.1	0.0	0
5	SAR (-)	5	0.7	0.2	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	143.4	121.5	129.4	132.6	234.7
2	EC_FLD (µmho/cm)					109
3	EC_GEN (µmho/cm)	79	122	665	90	82
4	pH_FLD (pH units)					8.0
5	pH_GEN (pH units)	7.6	7.5	7.4	7.3	7.4
6	Temp (deg C)	25.0	25.0	26.4	26.5	25.6
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.4	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	19	23	26	24	27
3	B (mg/L)	0.04	0.06	0.03	0.08	0.01
4	Ca (mg/L)	6	7	9	8	10
5	Cl (mg/L)	8.4	10.2	9.1	6.3	6.1
6	CO3 (mg/L)	0.5	0.0	0.0	0.0	0.0
7	F (mg/L)	0.09	0.11	0.43	0.15	0.25
8	Fe (mg/L)	0.2	0.3	0.4	0.1	0.3
9	HCO3 (mg/L)	22	28	31	29	33
10	K (mg/L)	0.8	1.1	0.3	0.7	0.6
11	Mg (mg/L)	1.0	1.9	3.4	3.6	1.2
12	Na (mg/L)	7.1	6.8	6.5	3.9	4.2
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.37	0.20	0.23	0.17	0.34
15	NO2-N (mgN/L)	0.01	0.01	0.01	0.01	0.00
16	NO3-N (mgN/L)	0.36	0.19	0.22	0.16	0.33
17	P-Tot (mgP/L)	0.120	0.009	0.005	0.007	0.011
18	SiO2 (mg/L)	8.7	6.4	9.2	7.2	12.0
19	SO4 (mg/L)	3.7	1.7	15.7	10.1	4.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.4	0.4	0.6	0.2
2	COD (mg/L)	10.5	1.9	2.6	4.1	1.1
3	DO (mg/L)		0.0	6.9	7.0	7.3
4	DO_SAT% (%)		0	85	87	89
5	FCol-MPN (MPN/100mL)			88000	6075	12000
6	Tcol-MPN (MPN/100mL)			88000	8775	15500
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	16	24	21	26
2	HAR_Total (mgCaCO3/L)	20	25	38	36	31
3	Na% (%)	42	34	27	20	22
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.6	0.5	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	207.9	141.3	270.5	93.51	146.3
2	EC_FLD (µmho/cm)	110				125
3	EC_GEN (µmho/cm)	104	87	81	86	84
4	pH_FLD (pH units)	7.8				7.2
5	pH_GEN (pH units)	7.4	6.8	7.2	7.3	7.0
6	Temp (deg C)	25.3	24.0	24.7	24.0	23.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	27	43	39	33
3	B (mg/L)	0.02	0.18	0.05	0.07	0.06
4	Ca (mg/L)	8	11	19	17	10
5	Cl (mg/L)	4.2	5.6	23.3	10.5	9.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.22	0.28	0.23	0.38	0.31
8	Fe (mg/L)	0.1	0.4	0.5	1.3	0.7
9	HCO3 (mg/L)	29	33	53	47	40
10	K (mg/L)	0.3	0.2	0.1	0.4	0.3
11	Mg (mg/L)	1.9	3.2	3.6	3.2	3.9
12	Na (mg/L)	2.7	3.3	15.9	5.7	5.6
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.33	0.40	0.32	0.89	0.70
15	NO2-N (mgN/L)	0.02	0.00	0.00	0.00	0.01
16	NO3-N (mgN/L)	0.31	0.39	0.32	0.89	0.69
17	P-Tot (mgP/L)	0.006	0.014	0.007	0.015	0.015
18	SiO2 (mg/L)	7.4	20.6	15.5	8.0	4.8
19	SO4 (mg/L)	5.3	11.5	10.4	8.8	11.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.5	1.7	0.8	0.8
2	COD (mg/L)	5.5	4.4	14.7	5.3	5.3
3	DO (mg/L)	7.3			8.0	8.3
4	DO_SAT% (%)	89			95	97
5	FCoI-MPN (MPN/100mL)	101500	7250	12267	11550	7333
6	TcoI-MPN (MPN/100mL)	160000	17125	18633	16225	14075
	TRACE & TOXIC					
1	As (µg/L)	9.53	3.11			
2	Cd (µg/L)	0.19	0.20			
3	Cr (µg/L)	0.14	3.18			
4	Cu (µg/L)	1.25	-0.50			
5	Ni (µg/L)	3.27	6.91			
6	Pb (µg/L)	0.85	-0.50			
7	Zn (µg/L)	4.01	-0.05			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	21	27	48	42	24
2	HAR_Total (mgCaCO3/L)	29	40	63	55	40
3	Na% (%)	18	15	36	19	23
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.2	1.0	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Flood	Winter			
			Nov - Feb			
			2007-2008	2008-2009	2009-2010	2010-2011
		Jun - Oct				
		2017				
	PHYSICAL					
1	Q (cumec)	87.23	2.306	0.000	16.37	38.08
2	EC_FLD (µmho/cm)	121				82
3	EC_GEN (µmho/cm)	78	118	116	110	153
4	pH_FLD (pH units)	7.1				6.6
5	pH_GEN (pH units)	7.1	7.5	7.7	7.9	7.5
6	Temp (deg C)	26.1	19.8	24.1	26.8	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	26	35	40	74	30
3	B (mg/L)	0.05	0.06	0.15	0.31	0.07
4	Ca (mg/L)	10	10	11	29	11
5	Cl (mg/L)	10.6	8.0	13.7	10.6	4.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.44	0.68	0.18	0.08	0.39
8	Fe (mg/L)	0.7	0.1	0.2	0.3	0.1
9	HCO3 (mg/L)	32	43	49	91	37
10	K (mg/L)	0.3	0.4	0.9	1.3	1.0
11	Mg (mg/L)	2.9	3.3	4.3	9.3	1.9
12	Na (mg/L)	6.5	6.8	7.0	7.4	2.9
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.94	0.12	0.09	0.30	0.06
15	NO2-N (mgN/L)	0.01	0.02	0.03	0.01	0.01
16	NO3-N (mgN/L)	0.93	0.10	0.06	0.30	0.06
17	P-Tot (mgP/L)	0.026	0.294	0.181	0.005	0.015
18	SiO2 (mg/L)	4.5	11.1	5.7	9.7	9.6
19	SO4 (mg/L)	9.3	6.7	3.8	33.5	2.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.8	1.0	0.7	0.7
2	COD (mg/L)	6.5	9.0	2.9	4.1	5.3
3	DO (mg/L)	7.9			6.5	6.3
4	DO_SAT% (%)	98			81	79
5	FCol-MPN (MPN/100mL)	540			24133	7900
6	Tcol-MPN (MPN/100mL)	8700			41733	11000
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	26	24	27	73	28
2	HAR_Total (mgCaCO3/L)	38	38	45	112	36
3	Na% (%)	27	28	25	14	14
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.3	0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	11.54	7.638	No Flow	No Flow	13.09
2	EC_FLD (µmho/cm)	110	102			125
3	EC_GEN (µmho/cm)	101	96			100
4	pH_FLD (pH units)	7.6	7.4			7.4
5	pH_GEN (pH units)	7.4	7.7			7.5
6	Temp (deg C)	25.5	27.0			25.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	30	34			46
3	B (mg/L)	0.06	0.00			0.00
4	Ca (mg/L)	11	13			11
5	Cl (mg/L)	5.5	7.7			14.1
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.26	0.22			0.32
8	Fe (mg/L)	0.3	0.1			0.1
9	HCO3 (mg/L)	37	41			56
10	K (mg/L)	0.5	0.5			0.1
11	Mg (mg/L)	1.0	1.0			3.9
12	Na (mg/L)	4.4	4.1			11.3
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.33	0.10			0.04
15	NO2-N (mgN/L)	0.00	0.00			0.00
16	NO3-N (mgN/L)	0.33	0.10			0.04
17	P-Tot (mgP/L)	0.016	0.013			0.006
18	SiO2 (mg/L)	7.8	0.0			3.9
19	SO4 (mg/L)	2.6	1.8			9.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5			0.5
2	COD (mg/L)	1.7	3.8			4.6
3	DO (mg/L)	6.9	7.2			8.5
4	DO_SAT% (%)	84	90			103
5	FCol-MPN (MPN/100mL)	6650	7800			13000
6	Tcol-MPN (MPN/100mL)	8650	13000			17000
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	28	32			28
2	HAR_Total (mgCaCO3/L)	32	36			44
3	Na% (%)	22	20			36
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	0.3			0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water

Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Winter		Summer
		Nov - Feb		Mar - May
		2016-2017	2017-2018	2007
	PHYSICAL			
1	Q (cumec)	4.733	No Flow	0.000
2	EC_FLD (µmho/cm)	128		
3	EC_GEN (µmho/cm)	92		130
4	pH_FLD (pH units)	7.2		
5	pH_GEN (pH units)	7.2		7.3
6	Temp (deg C)	23.0		25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	50		48
3	B (mg/L)	0.04		0.05
4	Ca (mg/L)	22		10
5	Cl (mg/L)	8.5		8.7
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.27		0.11
8	Fe (mg/L)	0.7		0.2
9	HCO3 (mg/L)	61		29
10	K (mg/L)	0.4		
11	Mg (mg/L)	3.9		3.2
12	Na (mg/L)	5.3		5.2
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.46		0.07
15	NO2-N (mgN/L)	0.00		0.03
16	NO3-N (mgN/L)	0.46		0.04
17	P-Tot (mgP/L)	0.010		0.112
18	SiO2 (mg/L)	9.4		3.8
19	SO4 (mg/L)	11.9		7.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6		1.0
2	COD (mg/L)	4.6		6.8
3	DO (mg/L)	8.1		
4	DO_SAT% (%)	94		
5	FCol-MPN (MPN/100mL)	20		
6	Tcol-MPN (MPN/100mL)	300		
	TRACE & TOXIC			
1	As (µg/L)			
2	Cd (µg/L)			
3	Cr (µg/L)			
4	Cu (µg/L)			
5	Ni (µg/L)			
6	Pb (µg/L)			
7	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	56		24
2	HAR_Total (mgCaCO3/L)	72		37
3	Na% (%)	14		
4	RSC (-)	0.0		0.0
5	SAR (-)	0.3		0.4
	PESTICIDES			

During Summer season from 2008 to 2018 Dry bed/No flow condition.

HISTORY SHEET

		Water Year	: 2017-2018
Site	: SANTEGULI	Code	: WA000K9
State	: Karnataka	District	North Canara
Basin	: WFR South of Tapi	Independent River	: Aghanashini
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Aghanashini
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 1090 Sq. Km.	Bank	: Left
Latitude	: 14°26'04"	Longitude	: 74°35'20"
Zero of Gauge (m)	: 8.000 (m.s.l)	21/05/1988	
	Opening Date	Closing Date	
Gauge	: 21/05/1988		
Discharge	: 09/06/1988		
Sediment	:		
Water Quality	: 01/09/1993		

Water Quality Datasheet for the period : 2017-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	257.2	94.29	89.50
2	Colour_Cod (-)	Brown	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	44		49
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.8		6.9
6	TDS (mg/L)	20		32
7	Temp (deg C)	22.5		23.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	8		12
3	B (mg/L)	0.66		0.04
4	Ca (mg/L)	6		4
5	Cl (mg/L)	4.6		7.5
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.06		0.04
8	Fe (mg/L)	0.2		0.1
9	HCO3 (mg/L)	9		15
10	K (mg/L)	0.7		0.6
11	Mg (mg/L)	0.4		1.6
12	Na (mg/L)	2.7		3.8
13	NO2+NO3 (mg N/L)	1.02		0.32
14	NO2-N (mgN/L)	0.01		0.00
15	NO3-N (mgN/L)	1.01		0.32
16	o-PO4-P (mg P/L)	0.010		0.021
17	SiO2 (mg/L)	9.0		1.8
18	SO4 (mg/L)	5.2		2.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.2
2	DO (mg/L)	6.8		6.8
3	DO_SAT% (%)	78		79
	TRACE & TOXIC			
1	As (µg/L)		1.0	
2	Cd (µg/L)		0.0	
3	Cr (µg/L)		12.0	
4	Cu (µg/L)		3.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		2.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16		10
2	HAR_Total (mgCaCO3/L)	17		16
3	Na% (%)	25		33
4	RSC (-)	0.0		0.0
5	SAR (-)	0.3		0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017	04/12/2017	01/01/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	25.31	13.99	8.664
2	Colour_Cod (-)	Clear	Sample received for trace and toxic analysis	Clear
3	EC_GEN (μmho/cm)	57		58
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	7.1		7.4
6	TDS (mg/L)	40		36
7	Temp (deg C)	23.5		22.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	16		19
3	B (mg/L)	0.28		0.04
4	Ca (mg/L)	4		3
5	Cl (mg/L)	5.7		6.7
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.06		0.04
8	Fe (mg/L)	0.2		0.2
9	HCO3 (mg/L)	19		24
10	K (mg/L)	0.6		0.7
11	Mg (mg/L)	2.7		3.6
12	Na (mg/L)	4.0		4.0
13	NO2+NO3 (mg N/L)	0.87		0.25
14	NO2-N (mgN/L)	0.00		0.00
15	NO3-N (mgN/L)	0.87		0.25
16	o-PO4-P (mg P/L)	0.000		0.000
17	SiO2 (mg/L)	10.0		6.9
18	SO4 (mg/L)	2.2		2.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4		0.8
2	DO (mg/L)	6.5		7.8
3	DO_SAT% (%)	76		89
	TRACE & TOXIC			
1	As (μg/L)		2.8	
2	Cd (μg/L)		0.1	
3	Cr (μg/L)		6.1	
4	Cu (μg/L)		1.3	
5	Ni (μg/L)		0.8	
6	Pb (μg/L)		0.2	
7	Zn (μg/L)		2.8	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	11		8
2	HAR_Total (mgCaCO3/L)	22		23
3	Na% (%)	28		27
4	RSC (-)	0.0		0.0
5	SAR (-)	0.4		0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.869	1.266	
2	Colour_Cod (-)	Clear		
3	EC_GEN (μ mho/cm)	71		
4	Odour_Code (-)	odour free		
5	pH_GEN (pH units)	7.2		
6	TDS (mg/L)	42		
7	Temp (deg C)	22.5		
	CHEMICAL			
1	Alk-Phen (mgCaCO ₃ /L)	0.0		
2	ALK-TOT (mgCaCO ₃ /L)	27		
3	B (mg/L)	0.00		
4	Ca (mg/L)	5		
5	Cl (mg/L)	5.7		
6	CO ₃ (mg/L)	0.0		
7	F (mg/L)	0.04		
8	Fe (mg/L)	0.1		
9	HCO ₃ (mg/L)	33		
10	K (mg/L)	1.0		
11	Mg (mg/L)	3.8		
12	Na (mg/L)	4.0		
13	NO ₂ +NO ₃ (mg N/L)	0.35		
14	NO ₂ -N (mgN/L)	0.00		
15	NO ₃ -N (mgN/L)	0.35		
16	o-PO ₄ -P (mg P/L)	0.062		
17	SiO ₂ (mg/L)	10.5		
18	SO ₄ (mg/L)	0.7		
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.5		
2	DO (mg/L)	7.3		
3	DO_SAT% (%)	84		
	TRACE & TOXIC			
1	As (μ g/L)		0.7	
2	Cd (μ g/L)		0.2	
3	Cr (μ g/L)		0.2	
4	Cu (μ g/L)		11.7	
5	Ni (μ g/L)		31.3	
6	Pb (μ g/L)		0.1	
7	Zn (μ g/L)		38.2	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	12		
2	HAR_Total (mgCaCO ₃ /L)	28		
3	Na% (%)	23		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Sample received for trace and toxic analysis

Sample not received due to Re-organisation , site has been transferred to SWRD Cochin.

Water Quality Summary for the period : 2017-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1056	0.555	57.23
2	EC_GEN (µmho/cm)	5	71	44	56
3	pH_GEN (pH units)	5	7.4	6.8	7.1
4	TDS (mg/L)	5	42	20	34
5	Temp (deg C)	5	23.5	22.5	22.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	27	8	16
3	B (mg/L)	5	0.66	0.00	0.2
4	Ca (mg/L)	5	6	3	4
5	Cl (mg/L)	5	7.5	4.6	6
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.06	0.04	0.05
8	Fe (mg/L)	5	0.2	0.1	0.2
9	HCO3 (mg/L)	5	33	9	20
10	K (mg/L)	5	1.0	0.6	0.7
11	Mg (mg/L)	5	3.8	0.4	2.4
12	Na (mg/L)	5	4.0	2.7	3.7
13	NO2+NO3 (mg N/L)	5	1.02	0.25	0.56
14	NO2-N (mgN/L)	5	0.01	0.00	0
15	NO3-N (mgN/L)	5	1.01	0.25	0.56
16	o-PO4-P (mg P/L)	5	0.062	0.000	0.019
17	SiO2 (mg/L)	5	10.5	1.8	7.6
18	SO4 (mg/L)	5	5.2	0.7	2.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	0.8	0.2	0.4
2	DO (mg/L)	5	7.8	6.5	7
3	DO_SAT% (%)	5	89	76	81
	TRACE & TOXIC				
1	As (µg/L)	3	2.8	0.7	1.5
2	Cd (µg/L)	3	0.2	0.0	0.1
3	Cr (µg/L)	3	12.0	0.2	6.1
4	Cu (µg/L)	3	11.7	1.3	5.3
5	Ni (µg/L)	2	31.3	0.8	16.1
6	Pb (µg/L)	3	1.0	0.1	0.4
7	Zn (µg/L)	3	38.2	2.0	14.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	16	8	11
2	HAR_Total (mgCaCO3/L)	5	28	16	21
3	Na% (%)	5	33	23	27
4	RSC (-)	5	0.0	0.0	0
5	SAR (-)	5	0.4	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	399.8	200.6	83.33	387.6	536.5
2	EC_GEN (µmho/cm)	52	54	50	41	37
3	pH_GEN (pH units)	7.0	7.2	7.1	7.0	6.9
4	TDS (mg/L)					
5	Temp (deg C)	21.8	25.3	23.0	24.0	23.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	15	15	10	8
2	B (mg/L)	0.01		0.01		
3	Ca (mg/L)	3	5	3	2	2
4	Cl (mg/L)	5.5	3.9	5.9	6.7	5.0
5	F (mg/L)	0.00	0.00	0.00	0.03	0.03
6	Fe (mg/L)	0.1		0.1	1.3	0.2
7	HCO3 (mg/L)	18	21	19	12	10
8	K (mg/L)	0.4	1.2	0.8	0.5	0.4
9	Mg (mg/L)	2.4	1.5	2.4	1.9	1.5
10	Na (mg/L)	3.5	3.6	3.4	3.1	3.0
11	NO2+NO3 (mg N/L)	0.32	0.35	0.33	0.35	0.33
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.32	0.35	0.33	0.35	0.33
14	o-PO4-P (mg P/L)	0.000		0.000	0.005	0.005
15	SiO2 (mg/L)	10.0		9.4	8.6	6.7
16	SO4 (mg/L)	1.5	1.9	1.8	1.2	2.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	12	8	6	6
2	HAR_Total (mgCaCO3/L)	18	18	18	14	12
3	Na% (%)	30	28	28	32	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	221.7	515.0	207.4	82.16	191.1
2	EC_GEN (µmho/cm)	42	46	48	52	48
3	pH_GEN (pH units)	6.7	6.6	7.0	6.6	6.4
4	TDS (mg/L)					27
5	Temp (deg C)	24.5	22.3	23.5	22.5	22.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	12	13	14	11
2	B (mg/L)		0.00	0.06	0.83	0.18
3	Ca (mg/L)	3	3	4	4	3
4	Cl (mg/L)	5.0	6.4	6.0	6.9	7.5
5	F (mg/L)	0.03	0.03	0.05	0.06	
6	Fe (mg/L)		0.1	0.1	0.1	0.1
7	HCO3 (mg/L)	13	14	16	17	13
8	K (mg/L)	0.6	0.6	0.7	0.6	0.6
9	Mg (mg/L)	1.2	1.9	1.5	1.2	1.1
10	Na (mg/L)	3.2	3.3	3.5	4.1	5.7
11	NO2+NO3 (mg N/L)	0.42	0.42	0.45	0.65	0.39
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.01	0.01
13	NO3-N (mgN/L)	0.42	0.41	0.44	0.64	0.39
14	o-PO4-P (mg P/L)		0.036	0.078	0.119	0.000
15	SiO2 (mg/L)		7.4	4.8	16.3	17.5
16	SO4 (mg/L)	2.7	3.0	2.1	1.8	3.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	8.9	2.4			
2	Cd (µg/L)	0.2	0.0			
3	Cr (µg/L)	4.1	6.3			
4	Cu (µg/L)	4.5	0.1			
5	Hg (µg/L)					
6	Ni (µg/L)	0.4	8.9			
7	Pb (µg/L)		0.0			
8	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	8	10	11	8
2	HAR_Total (mgCaCO3/L)	13	16	16	16	12
3	Na% (%)	34	30	32	35	48
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	147.0	17.34	13.90	21.75	21.52
2	EC_GEN (µmho/cm)	47	60	58	52	52
3	pH_GEN (pH units)	6.8	7.3	7.1	7.1	7.1
4	TDS (mg/L)	26				
5	Temp (deg C)	22.8	23.5	26.0	25.0	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO ₃ /L)	10	18	17	14	15
2	B (mg/L)	0.35	0.05	0.05	0.04	0.03
3	Ca (mg/L)	5	4	4	4	4
4	Cl (mg/L)	6.0	6.5	7.8	7.8	7.8
5	F (mg/L)	0.05	0.05	0.03	0.02	0.02
6	Fe (mg/L)	0.2	0.1	0.1	0.1	0.1
7	HCO ₃ (mg/L)	12	22	20	17	16
8	K (mg/L)	0.6	1.4	0.8	0.6	0.5
9	Mg (mg/L)	1.0	1.8	1.9	1.9	2.2
10	Na (mg/L)	3.2	4.7	4.3	3.7	3.9
11	NO ₂ +NO ₃ (mg N/L)	0.67	0.25	0.24	0.25	0.29
12	NO ₂ -N (mgN/L)	0.01	0.00	0.01	0.00	0.00
13	NO ₃ -N (mgN/L)	0.67	0.25	0.23	0.25	0.29
14	o-PO ₄ -P (mg P/L)	0.016	0.036	0.031	0.005	0.000
15	SiO ₂ (mg/L)	5.4	12.2	11.2	8.7	10.1
16	SO ₄ (mg/L)	3.7	0.6	0.7	1.2	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD ₃₋₂₇ (mg/L)	0.2				
2	DO (mg/L)	6.8				
3	DO_SAT% (%)	79				
	TRACE & TOXIC					
1	As (µg/L)	1.0				
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	12.0				
4	Cu (µg/L)	3.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	2.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO ₃ /L)	13	10	10	10	9
2	HAR_Total (mgCaCO ₃ /L)	17	18	18	18	19
3	Na% (%)	29	36	33	30	31
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	14.35	19.34	20.37	12.78	10.01
2	EC_GEN (µmho/cm)	54	42	54	60	47
3	pH_GEN (pH units)	6.6	6.7	6.8	7.1	6.8
4	TDS (mg/L)					28
5	Temp (deg C)	25.0	23.8	22.8	22.5	23.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	11	17	18	12
2	B (mg/L)			0.00	0.14	0.17
3	Ca (mg/L)	4	4	4	5	4
4	Cl (mg/L)	7.3	5.1	6.0	6.9	5.9
5	F (mg/L)		0.02	0.07	0.05	0.18
6	Fe (mg/L)	0.1		0.2	0.2	0.2
7	HCO3 (mg/L)	18	13	21	21	15
8	K (mg/L)	0.6	0.4	0.6	1.5	0.6
9	Mg (mg/L)	1.9	1.5	1.9	2.2	1.5
10	Na (mg/L)	3.7	2.5	4.5	3.6	3.4
11	NO2+NO3 (mg N/L)	0.35	0.37	0.41	0.36	0.31
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.01	0.00
13	NO3-N (mgN/L)	0.35	0.36	0.39	0.35	0.31
14	o-PO4-P (mg P/L)	0.010		0.016	0.005	0.124
15	SiO2 (mg/L)	9.5		10.3	5.8	6.9
16	SO4 (mg/L)	2.4	1.7	1.7	2.4	2.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	25.0	1.8			0.5
2	Cd (µg/L)	0.1	0.0		0.1	0.0
3	Cr (µg/L)	2.5	1.2		2.7	0.2
4	Cu (µg/L)	30.4	1.3		2.5	0.4
5	Hg (µg/L)					
6	Ni (µg/L)	3.8	3.3		1.2	0.1
7	Pb (µg/L)	0.2			0.8	0.4
8	Zn (µg/L)	7.8			12.2	2.3
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	9	9	13	9
2	HAR_Total (mgCaCO3/L)	18	15	17	22	15
3	Na% (%)	30	26	36	25	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.5	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	15.79	15.99	2.496	1.441	2.989
2	EC_GEN (µmho/cm)	55	58	82	76	66
3	pH_GEN (pH units)	7.4	7.3	7.4	7.4	7.3
4	TDS (mg/L)	28	38			
5	Temp (deg C)	22.5	23.0	28.3	29.8	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	17	29	27	21
2	B (mg/L)	0.09	0.16	0.03	0.03	0.03
3	Ca (mg/L)	4	4	5	6	5
4	Cl (mg/L)	5.7	6.2	7.3	6.6	7.7
5	F (mg/L)		0.05	0.07	0.04	0.04
6	Fe (mg/L)	0.1	0.2	0.1	0.1	0.1
7	HCO3 (mg/L)	18	21	35	33	26
8	K (mg/L)	0.9	0.6	1.4	1.2	1.1
9	Mg (mg/L)	2.6	3.2	3.2	2.9	2.4
10	Na (mg/L)	3.8	4.0	4.9	4.9	4.7
11	NO2+NO3 (mg N/L)	0.97	0.56	0.24	0.24	0.27
12	NO2-N (mgN/L)	0.01	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.96	0.56	0.24	0.24	0.27
14	o-PO4-P (mg P/L)	0.000	0.000	0.016	0.010	0.005
15	SiO2 (mg/L)	11.1	8.5	10.2	9.4	9.3
16	SO4 (mg/L)	2.5	2.4	1.2	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.6			
2	DO (mg/L)		7.2			
3	DO_SAT% (%)		83			
	TRACE & TOXIC					
1	As (µg/L)	0.6	2.8	5.9		
2	Cd (µg/L)	0.0	0.1	1.0		
3	Cr (µg/L)	0.7	6.1			
4	Cu (µg/L)	0.8	1.3	3.2	7.3	
5	Hg (µg/L)					
6	Ni (µg/L)	0.1	0.8		12.8	
7	Pb (µg/L)	1.3	0.2	1.4		
8	Zn (µg/L)	0.4	2.8	26.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	9	14	14	12
2	HAR_Total (mgCaCO3/L)	21	22	27	26	22
3	Na% (%)	27	27	28	28	31
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	2.989	2.515	2.151	3.029
2	EC_GEN (µmho/cm)	72	69	76	69
3	pH_GEN (pH units)	7.0	6.7	7.3	6.9
4	TDS (mg/L)				
5	Temp (deg C)	24.0	24.3	24.5	23.8
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	19	19	15	23
2	B (mg/L)	0.04		0.00	0.03
3	Ca (mg/L)	5	4	6	6
4	Cl (mg/L)	7.8	8.2	7.8	5.5
5	F (mg/L)	0.10	0.05		0.10
6	Fe (mg/L)	0.1		0.1	0.2
7	HCO3 (mg/L)	23	23	29	28
8	K (mg/L)	1.3	1.5	0.9	1.2
9	Mg (mg/L)	2.4	2.7	2.7	1.9
10	Na (mg/L)	4.5	4.5	4.6	4.6
11	NO2+NO3 (mg N/L)	0.38	0.53	0.73	0.81
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.04
13	NO3-N (mgN/L)	0.38	0.53	0.73	0.77
14	o-PO4-P (mg P/L)	0.005		0.021	0.052
15	SiO2 (mg/L)	12.4		10.6	8.5
16	SO4 (mg/L)	2.9	2.1	2.9	2.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)	1.5	0.9	2.2	6.6
2	Cd (µg/L)	0.1	0.2	0.0	0.0
3	Cr (µg/L)	0.8	3.0	0.1	0.7
4	Cu (µg/L)	5.5	6.8	4.1	4.2
5	Hg (µg/L)				
6	Ni (µg/L)		2.3		9.5
7	Pb (µg/L)	0.2	3.8	1.6	0.6
8	Zn (µg/L)	47.4	16.0	5.6	18.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	11	15	14
2	HAR_Total (mgCaCO3/L)	22	22	26	22
3	Na% (%)	29	29	27	30
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	2.224	1.697	1.196	1.568
2	EC_GEN (µmho/cm)	73	80	76	71
3	pH_GEN (pH units)	7.3	6.8	7.4	7.2
4	TDS (mg/L)		37	51	42
5	Temp (deg C)	25.8	28.0	27.5	22.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	23	20	23	27
2	B (mg/L)	0.42	0.17	0.39	0.00
3	Ca (mg/L)	6	7	7	5
4	Cl (mg/L)	8.7	11.9	8.0	5.7
5	F (mg/L)	0.09		0.06	0.04
6	Fe (mg/L)	0.1	0.1	0.0	0.1
7	HCO3 (mg/L)	28	24	28	33
8	K (mg/L)	1.6	1.0	1.3	1.0
9	Mg (mg/L)	2.4	2.7	2.4	3.8
10	Na (mg/L)	4.7	5.0	5.8	4.0
11	NO2+NO3 (mg N/L)	0.50	0.52	0.43	0.35
12	NO2-N (mgN/L)	0.01	0.01	0.01	0.00
13	NO3-N (mgN/L)	0.50	0.51	0.43	0.35
14	o-PO4-P (mg P/L)	0.010	0.010	0.021	0.062
15	SiO2 (mg/L)	2.7	12.4	11.8	10.5
16	SO4 (mg/L)	2.2	3.5	4.5	0.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				0.5
2	DO (mg/L)				7.3
3	DO_SAT% (%)				84
	TRACE & TOXIC				
1	As (µg/L)		1.2		0.7
2	Cd (µg/L)				0.2
3	Cr (µg/L)		2.0		0.2
4	Cu (µg/L)		2.0		11.7
5	Hg (µg/L)				
6	Ni (µg/L)		0.6		31.3
7	Pb (µg/L)				0.1
8	Zn (µg/L)		6.1		38.2
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	15	17	16	12
2	HAR_Total (mgCaCO3/L)	25	28	26	28
3	Na% (%)	27	27	32	23
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.5	0.3
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: HALADI	Code	: WH000N1
State	: Karnataka	District	Udupi
Basin	: WFR South of Tapi	Independent River	: Haladi
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Haladi
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 583 Sq. Km.	Bank	: Left
Latitude	: 13°34'54"	Longitude	: 74°51'28"
Zero of Gauge (m)	: 15.115 (m.s.l) 13.700 (m.s.l) -2.000 (m.s.l)	03/07/1984 01/06/1985 01/06/1987	- 31/05/1985 - 31/05/1987
	Opening Date	Closing Date	
Gauge	: 03/07/1984		
Discharge	: 30/12/1985		
Sediment	:		
Water Quality	: 01/09/1993		

Water Quality Datasheet for the period : 2017-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	208.4	73.27	67.94
2	Colour_Cod (-)	Light Brown	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	35		33
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.4		6.8
6	TDS (mg/L)	22		22
7	Temp (deg C)	26.5		27.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	8		10
3	B (mg/L)	0.43		0.02
4	Ca (mg/L)	3		4
5	Cl (mg/L)	3.6		4.6
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.02
8	Fe (mg/L)	0.2		0.1
9	HCO3 (mg/L)	10		12
10	K (mg/L)	5.1		0.4
11	Mg (mg/L)	1.6		0.4
12	Na (mg/L)	2.2		2.7
13	NO2+NO3 (mg N/L)	0.74		0.36
14	NO2-N (mgN/L)	0.00		0.00
15	NO3-N (mgN/L)	0.74		0.36
16	o-PO4-P (mg P/L)	0.010		0.000
17	SiO2 (mg/L)	7.2		3.5
18	SO4 (mg/L)	3.6		0.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.2
2	DO (mg/L)	6.4		7.0
3	DO_SAT% (%)	79		88
	TRACE & TOXIC			
1	As (µg/L)		1.0	
2	Cd (µg/L)		1.0	
3	Cr (µg/L)		12.0	
4	Cu (µg/L)		3.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		5.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	7		10
2	HAR_Total (mgCaCO3/L)	13		11
3	Na% (%)	20		34
4	RSC (-)	0.0		0.0
5	SAR (-)	0.3		0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017	04/12/2017	01/01/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	34.39	33.09	43.60
2	Colour_Cod (-)	Clear	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	33		31
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.7		7.0
6	TDS (mg/L)	24		24
7	Temp (deg C)	28.0		25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	10		8
3	B (mg/L)	0.12		0.00
4	Ca (mg/L)	4		3
5	Cl (mg/L)	3.6		3.9
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.04
8	Fe (mg/L)	0.1		0.0
9	HCO3 (mg/L)	12		9
10	K (mg/L)	0.4		0.4
11	Mg (mg/L)	0.5		0.9
12	Na (mg/L)	2.0		2.0
13	NO2+NO3 (mg N/L)	0.31		0.32
14	NO2-N (mgN/L)	0.00		0.01
15	NO3-N (mgN/L)	0.31		0.31
16	o-PO4-P (mg P/L)	0.000		0.000
17	SiO2 (mg/L)	8.5		4.1
18	SO4 (mg/L)	0.9		1.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6		0.8
2	DO (mg/L)	7.3		7.8
3	DO_SAT% (%)	93		94
	TRACE & TOXIC			
1	As (µg/L)		3.6	
2	Cd (µg/L)		0.1	
3	Cr (µg/L)		6.4	
4	Cu (µg/L)		0.5	
5	Ni (µg/L)		3.2	
6	Pb (µg/L)		0.1	
7	Zn (µg/L)		3.9	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	11		8
2	HAR_Total (mgCaCO3/L)	13		11
3	Na% (%)	24		27
4	RSC (-)	0.0		0.0
5	SAR (-)	0.2		0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	23.39	15.37	
2	Colour_Cod (-)	Clear	Sample received for trace and toxic analysis	Sample not received due to Re-organisation , site has been transferred to SWRD Cochin.
3	EC_GEN (μmho/cm)	31		
4	Odour_Code (-)	odour free		
5	pH_GEN (pH units)	6.6		
6	TDS (mg/L)	24		
7	Temp (deg C)	26.0		
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		
2	ALK-TOT (mgCaCO3/L)	10		
3	B (mg/L)	0.00		
4	Ca (mg/L)	3		
5	Cl (mg/L)	3.9		
6	CO3 (mg/L)	0.0		
7	F (mg/L)	0.02		
8	Fe (mg/L)	0.0		
9	HCO3 (mg/L)	12		
10	K (mg/L)	0.5		
11	Mg (mg/L)	1.0		
12	Na (mg/L)	2.0		
13	NO2+NO3 (mg N/L)	0.22		
14	NO2-N (mgN/L)	0.00		
15	NO3-N (mgN/L)	0.22		
16	o-PO4-P (mg P/L)	0.031		
17	SiO2 (mg/L)	5.2		
18	SO4 (mg/L)	0.6		
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		
2	DO (mg/L)	6.4		
3	DO_SAT% (%)	79		
	TRACE & TOXIC			
1	As (μg/L)		0.7	
2	Cd (μg/L)		0.0	
3	Cr (μg/L)		0.9	
4	Cu (μg/L)		0.3	
5	Ni (μg/L)		1.6	
6	Pb (μg/L)		1.4	
7	Zn (μg/L)		0.1	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8		
2	HAR_Total (mgCaCO3/L)	12		
3	Na% (%)	26		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	552.2	2.125	51.45
2	EC_GEN (µmho/cm)	5	35	31	33
3	pH_GEN (pH units)	5	7.0	6.4	6.7
4	TDS (mg/L)	5	24	22	23
5	Temp (deg C)	5	28.0	25.0	26.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	10	8	9
3	B (mg/L)	5	0.43	0.00	0.11
4	Ca (mg/L)	5	4	3	3
5	Cl (mg/L)	5	4.6	3.6	3.9
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.04	0.02	0.03
8	Fe (mg/L)	5	0.2	0.0	0.1
9	HCO3 (mg/L)	5	12	9	11
10	K (mg/L)	5	5.1	0.4	1.4
11	Mg (mg/L)	5	1.6	0.4	0.9
12	Na (mg/L)	5	2.7	2.0	2.2
13	NO2+NO3 (mg N/L)	5	0.74	0.22	0.39
14	NO2-N (mgN/L)	5	0.01	0.00	0
15	NO3-N (mgN/L)	5	0.74	0.22	0.39
16	o-PO4-P (mg P/L)	5	0.031	0.000	0.008
17	SiO2 (mg/L)	5	8.5	3.5	5.7
18	SO4 (mg/L)	5	3.6	0.5	1.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	0.8	0.2	0.4
2	DO (mg/L)	5	7.8	6.4	7
3	DO_SAT% (%)	5	94	79	87
	TRACE & TOXIC				
1	As (µg/L)	3	3.6	0.7	1.8
2	Cd (µg/L)	3	1.0	0.0	0.4
3	Cr (µg/L)	3	12.0	0.9	6.4
4	Cu (µg/L)	3	3.0	0.3	1.3
5	Ni (µg/L)	2	3.2	1.6	2.4
6	Pb (µg/L)	3	1.4	0.1	0.8
7	Zn (µg/L)	3	5.0	0.1	3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	11	7	9
2	HAR_Total (mgCaCO3/L)	5	13	11	12
3	Na% (%)	5	34	20	26
4	RSC (-)	5	0.0	0.0	0
5	SAR (-)	5	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		108.1	94.53	105.1	303.5
2	EC_GEN (µmho/cm)		45	33	34	31
3	pH_GEN (pH units)		6.8	6.6	6.6	6.6
4	TDS (mg/L)					
5	Temp (deg C)		25.3	25.5	25.3	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		12	10	8	8
2	B (mg/L)			0.00		
3	Ca (mg/L)		3	2	2	2
4	Cl (mg/L)		5.9	3.9	5.8	3.9
5	F (mg/L)		0.00	0.00	0.03	0.06
6	Fe (mg/L)			0.1	0.1	0.0
7	HCO3 (mg/L)		14	12	9	10
8	K (mg/L)		1.0	0.6	0.4	0.4
9	Mg (mg/L)		1.0	1.0	1.5	1.5
10	Na (mg/L)		3.8	2.8	2.5	2.2
11	NO2+NO3 (mg N/L)		0.32	0.35	0.34	0.32
12	NO2-N (mgN/L)		0.01	0.00	0.00	0.00
13	NO3-N (mgN/L)		0.32	0.35	0.34	0.32
14	o-PO4-P (mg P/L)			0.000	0.005	0.005
15	SiO2 (mg/L)			7.2	8.3	6.5
16	SO4 (mg/L)		1.5	1.4	1.1	2.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		8	6	6	6
2	HAR_Total (mgCaCO3/L)		12	10	12	12
3	Na% (%)		40	37	30	27
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.5	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	157.1	116.2	116.6	53.65	150.0
2	EC_GEN (µmho/cm)	30	33	34	37	39
3	pH_GEN (pH units)	5.9	6.5	7.2	6.7	6.4
4	TDS (mg/L)					21
5	Temp (deg C)	26.8	26.5	24.5	25.0	22.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	7	8	12	10	10
2	B (mg/L)		0.00	0.08	0.79	0.11
3	Ca (mg/L)	2	3	3	3	4
4	Cl (mg/L)	3.4	3.9	3.4	4.4	5.5
5	F (mg/L)	0.02	0.03	0.03	0.04	
6	Fe (mg/L)		0.1	0.1	0.1	0.2
7	HCO3 (mg/L)	9	10	12	12	12
8	K (mg/L)	0.5	0.4	0.4	0.4	0.5
9	Mg (mg/L)	1.0	1.0	0.7	1.2	0.9
10	Na (mg/L)	2.0	2.5	2.7	2.4	3.0
11	NO2+NO3 (mg N/L)	0.40	0.36	0.32	0.62	0.39
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.00	0.01
13	NO3-N (mgN/L)	0.40	0.36	0.32	0.62	0.38
14	o-PO4-P (mg P/L)		0.031	0.021	0.181	0.202
15	SiO2 (mg/L)		6.9	4.5	11.6	21.5
16	SO4 (mg/L)	2.1	2.0	1.9	1.4	2.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.8	0.9	0.4	1.5
2	DO (mg/L)	6.4	6.7	6.4	6.7	7.5
3	DO_SAT% (%)	79	83	77	81	85
	TRACE & TOXIC					
1	As (µg/L)	3.9	4.2			
2	Cd (µg/L)	0.3	0.0			
3	Cr (µg/L)	2.2	1.2			
4	Cu (µg/L)	6.0	1.0			
5	Ni (µg/L)	0.1	10.0			
6	Pb (µg/L)		0.0			
7	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	7	8	8	9
2	HAR_Total (mgCaCO3/L)	10	11	11	13	13
3	Na% (%)	30	32	34	28	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	116.5		18.70	18.35	42.38
2	EC_GEN (µmho/cm)	34		29	30	30
3	pH_GEN (pH units)	6.6		7.2	7.0	6.7
4	TDS (mg/L)	22				
5	Temp (deg C)	27.0		24.3	25.3	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9		7	8	8
2	B (mg/L)	0.23		0.04	0.03	0.04
3	Ca (mg/L)	3		2	2	2
4	Cl (mg/L)	4.1		3.9	3.9	3.9
5	F (mg/L)	0.03		0.02	0.02	0.02
6	Fe (mg/L)	0.2		0.1	0.0	0.0
7	HCO3 (mg/L)	11		9	10	9
8	K (mg/L)	2.7		0.4	0.3	0.3
9	Mg (mg/L)	1.0		1.0	1.5	1.8
10	Na (mg/L)	2.4		2.6	2.3	1.9
11	NO2+NO3 (mg N/L)	0.55		0.24	0.28	0.30
12	NO2-N (mgN/L)	0.00		0.01	0.00	0.00
13	NO3-N (mgN/L)	0.55		0.23	0.28	0.30
14	o-PO4-P (mg P/L)	0.005		0.036	0.005	0.000
15	SiO2 (mg/L)	5.4		6.1	7.5	7.9
16	SO4 (mg/L)	2.0		0.7	0.9	1.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2				
2	DO (mg/L)	6.7				
3	DO_SAT% (%)	84				
	TRACE & TOXIC					
1	As (µg/L)	1.0				
2	Cd (µg/L)	1.0				
3	Cr (µg/L)	12.0				
4	Cu (µg/L)	3.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	5.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8		4	4	5
2	HAR_Total (mgCaCO3/L)	12		8	10	13
3	Na% (%)	27		40	33	25
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.3		0.4	0.3	0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	34.96	26.40	38.65	36.39	23.06
2	EC_GEN (µmho/cm)	33	35	29	35	45
3	pH_GEN (pH units)	6.3	6.6	6.8	7.0	6.8
4	TDS (mg/L)					16
5	Temp (deg C)	24.8	26.5	26.0	26.5	24.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	10	6	9	12
2	B (mg/L)			0.00	0.17	0.21
3	Ca (mg/L)	2	3	2	3	4
4	Cl (mg/L)	4.3	4.1	4.4	4.1	5.7
5	F (mg/L)		0.02	0.07	0.02	0.24
6	Fe (mg/L)	0.0		0.1	0.1	0.1
7	HCO3 (mg/L)	10	12	8	11	14
8	K (mg/L)	0.4	0.4	0.3	1.0	0.5
9	Mg (mg/L)	1.5	1.2	1.2	1.2	1.5
10	Na (mg/L)	3.2	2.4	2.4	1.9	3.0
11	NO2+NO3 (mg N/L)	0.34	0.36	0.35	0.37	0.30
12	NO2-N (mgN/L)	0.00	0.01	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.34	0.36	0.35	0.36	0.30
14	o-PO4-P (mg P/L)	0.000		0.010	0.005	0.134
15	SiO2 (mg/L)	6.5		9.6	0.9	6.9
16	SO4 (mg/L)	1.9	1.8	1.3	2.2	1.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.2	0.8	0.3	1.0
2	DO (mg/L)	7.1	7.3	7.0	7.3	7.4
3	DO_SAT% (%)	83	91	86	90	88
	TRACE & TOXIC					
1	As (µg/L)	0.2	2.4			0.2
2	Cd (µg/L)	1.0	0.0		0.0	0.0
3	Cr (µg/L)	2.0	2.3		5.3	0.2
4	Cu (µg/L)	16.7	1.6		6.2	
5	Ni (µg/L)	4.3	5.8		6.1	0.0
6	Pb (µg/L)	0.5			2.8	0.4
7	Zn (µg/L)	17.5			19.6	0.5
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	4	7	5	7	9
2	HAR_Total (mgCaCO3/L)	10	12	10	12	15
3	Na% (%)	40	30	33	24	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.3	0.2	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	11.24	37.02	38.91	18.26	21.46
2	EC_GEN (µmho/cm)	33	32	35	32	30
3	pH_GEN (pH units)	7.1	6.8	6.9	7.3	7.0
4	TDS (mg/L)	19	24			
5	Temp (deg C)	24.3	26.5	26.0	27.5	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO ₃ /L)	10	9	12	10	8
2	B (mg/L)	0.11	0.06	0.02	0.03	0.02
3	Ca (mg/L)	4	4	2	2	3
4	Cl (mg/L)	3.2	3.7	2.6	2.8	3.9
5	F (mg/L)		0.04	0.03	0.02	0.04
6	Fe (mg/L)	0.0	0.1	0.1	0.1	0.1
7	HCO ₃ (mg/L)	12	11	15	12	10
8	K (mg/L)	0.4	0.4	0.7	0.4	0.4
9	Mg (mg/L)	0.7	0.7	1.9	1.9	1.0
10	Na (mg/L)	2.5	2.0	1.8	2.1	2.0
11	NO ₂ +NO ₃ (mg N/L)	0.53	0.32	0.26	0.25	0.26
12	NO ₂ -N (mgN/L)	0.01	0.01	0.00	0.00	0.00
13	NO ₃ -N (mgN/L)	0.52	0.31	0.26	0.25	0.26
14	o-PO ₄ -P (mg P/L)	0.000	0.000	0.000	0.010	0.031
15	SiO ₂ (mg/L)	8.4	6.3	2.5	3.2	4.2
16	SO ₄ (mg/L)	1.9	1.2	1.0	1.0	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD ₃₋₂₇ (mg/L)	0.8	0.7			
2	DO (mg/L)	8.4	7.6			
3	DO_SAT% (%)	102	94			
	TRACE & TOXIC					
1	As (µg/L)	1.2	3.5	5.4		
2	Cd (µg/L)	0.1	0.1	1.1		
3	Cr (µg/L)	0.8	6.4			
4	Cu (µg/L)	0.4	0.5	3.2	1.8	
5	Ni (µg/L)	0.4	3.2		13.7	
6	Pb (µg/L)	0.0	0.1	2.0		
7	Zn (µg/L)	1.7	3.9	32.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO ₃ /L)	9	9	4	4	8
2	HAR_Total (mgCaCO ₃ /L)	12	12	12	12	12
3	Na% (%)	31	26	24	26	26
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.2	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	18.85	43.27	27.11	12.05
2	EC_GEN (µmho/cm)	31	33	31	31
3	pH_GEN (pH units)	6.5	6.4	6.9	6.7
4	TDS (mg/L)				
5	Temp (deg C)	27.0	26.3	27.8	26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	8	9	8	7
2	B (mg/L)	0.01		0.00	0.03
3	Ca (mg/L)	2	2	3	2
4	Cl (mg/L)	3.9	4.1	3.2	3.0
5	F (mg/L)	0.02	0.03		0.11
6	Fe (mg/L)	0.0		0.0	0.1
7	HCO3 (mg/L)	9	10	10	8
8	K (mg/L)	0.4	0.4	0.5	0.5
9	Mg (mg/L)	1.9	1.5	1.0	1.0
10	Na (mg/L)	2.4	2.6	2.1	2.6
11	NO2+NO3 (mg N/L)	0.29	0.34	0.38	0.61
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.29	0.34	0.38	0.61
14	o-PO4-P (mg P/L)	0.005		0.016	0.041
15	SiO2 (mg/L)	6.2		6.4	3.2
16	SO4 (mg/L)	2.6	1.6	1.9	2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		0.2	0.2	0.8
2	DO (mg/L)		6.7	6.7	6.3
3	DO_SAT% (%)		80	85	78
	TRACE & TOXIC				
1	As (µg/L)	1.4	1.2	6.6	1.5
2	Cd (µg/L)		0.2	0.2	0.1
3	Cr (µg/L)	0.3	1.8	0.1	0.3
4	Cu (µg/L)	3.4	9.6	2.5	0.9
5	Ni (µg/L)		4.3	0.4	8.1
6	Pb (µg/L)	0.2	3.6	14.2	1.7
7	Zn (µg/L)	7.7	10.0	124.3	16.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	5	7	5
2	HAR_Total (mgCaCO3/L)	12	11	11	9
3	Na% (%)	29	32	28	37
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	11.46	41.94	32.83	19.38
2	EC_GEN (µmho/cm)	32	36	34	31
3	pH_GEN (pH units)	7.2	6.8	7.0	6.6
4	TDS (mg/L)		17	23	24
5	Temp (deg C)	28.3	25.0	28.8	26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	9	8	7	10
2	B (mg/L)	0.36	0.35	0.28	0.00
3	Ca (mg/L)	2	3	3	3
4	Cl (mg/L)	3.5	4.8	3.0	3.9
5	F (mg/L)	0.17		0.03	0.02
6	Fe (mg/L)	0.1	0.1	0.0	0.0
7	HCO3 (mg/L)	11	10	9	12
8	K (mg/L)	1.0	0.4	0.5	0.5
9	Mg (mg/L)	1.0	1.0	0.8	1.0
10	Na (mg/L)	2.2	2.4	2.7	2.0
11	NO2+NO3 (mg N/L)	0.33	0.22	0.47	0.22
12	NO2-N (mgN/L)	0.01	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.32	0.22	0.47	0.22
14	o-PO4-P (mg P/L)	0.000	0.010	0.021	0.031
15	SiO2 (mg/L)	0.3	7.3	5.3	5.2
16	SO4 (mg/L)	1.7	3.2	3.5	0.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.7	0.4	0.7	0.2
2	DO (mg/L)	6.5	7.4	7.7	6.4
3	DO_SAT% (%)	83	90	100	79
	TRACE & TOXIC				
1	As (µg/L)		5.4		0.7
2	Cd (µg/L)				0.0
3	Cr (µg/L)		2.1		0.9
4	Cu (µg/L)		1.6		0.3
5	Ni (µg/L)		1.0		1.6
6	Pb (µg/L)				1.4
7	Zn (µg/L)		7.1		0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	8	8	8
2	HAR_Total (mgCaCO3/L)	10	12	12	12
3	Na% (%)	30	29	33	26
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.3
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: AVERSHE	Code	: WI000J2
State	: Karnataka	District	Udupi
Basin	: WFR South of Tapi	Independent River	: Sita
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Sita
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 253 Sq. Km.	Bank	: Right
Latitude	: 13°31'17"	Longitude	: 74°52'48"
Zero of Gauge (m)	: 88.000 (m.s.l) 8.780 (m.s.l)	21/07/1998 01/06/2006	- 31/05/2006
	Opening Date	Closing Date	
Gauge	: 21/07/1998		
Discharge	: 25/06/2002		
Sediment	:		
Water Quality	: 02/09/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	100.3	60.86	52.89
2	Colour_Cod (-)	Light Brown	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	33		32
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.4		6.7
6	TDS (mg/L)	22		18
7	Temp (deg C)	24.5		24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	6		10
3	B (mg/L)	0.50		0.00
4	Ca (mg/L)	3		4
5	Cl (mg/L)	3.6		3.6
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.02
8	Fe (mg/L)	0.2		0.1
9	HCO3 (mg/L)	7		12
10	K (mg/L)	0.5		0.4
11	Mg (mg/L)	1.6		0.4
12	Na (mg/L)	1.9		2.5
13	NO2+NO3 (mg N/L)	0.46		0.35
14	NO2-N (mgN/L)	0.01		0.00
15	NO3-N (mgN/L)	0.45		0.35
16	o-PO4-P (mg P/L)	0.000		0.041
17	SiO2 (mg/L)	6.9		0.1
18	SO4 (mg/L)	4.3		0.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.4
2	DO (mg/L)	6.6		7.0
3	DO_SAT% (%)	79		83
	TRACE & TOXIC			
1	As (µg/L)		0.0	
2	Cd (µg/L)		0.0	
3	Cr (µg/L)		11.0	
4	Cu (µg/L)		2.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		2.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	7		10
2	HAR_Total (mgCaCO3/L)	13		11
3	Na% (%)	23		32
4	RSC (-)	0.0		0.0
5	SAR (-)	0.2		0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017	04/12/2017	01/01/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	11.24	4.665	2.797
2	Colour_Cod (-)	Clear	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	37		42
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.9		6.9
6	TDS (mg/L)	22		28
7	Temp (deg C)	25.5		25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	12		14
3	B (mg/L)	0.18		0.00
4	Ca (mg/L)	3		4
5	Cl (mg/L)	3.6		4.6
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.02		0.06
8	Fe (mg/L)	0.2		0.2
9	HCO3 (mg/L)	14		17
10	K (mg/L)	0.5		0.6
11	Mg (mg/L)	1.8		0.9
12	Na (mg/L)	2.0		3.0
13	NO2+NO3 (mg N/L)	0.81		0.32
14	NO2-N (mgN/L)	0.00		0.01
15	NO3-N (mgN/L)	0.81		0.31
16	o-PO4-P (mg P/L)	0.000		0.000
17	SiO2 (mg/L)	6.3		5.7
18	SO4 (mg/L)	0.5		0.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.1
2	DO (mg/L)	6.5		6.6
3	DO_SAT% (%)	79		80
	TRACE & TOXIC			
1	As (µg/L)		2.4	
2	Cd (µg/L)		0.1	
3	Cr (µg/L)		5.6	
4	Cu (µg/L)		0.5	
5	Ni (µg/L)		1.0	
6	Pb (µg/L)		0.2	
7	Zn (µg/L)		2.6	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8		11
2	HAR_Total (mgCaCO3/L)	15		15
3	Na% (%)	22		30
4	RSC (-)	0.0		0.0
5	SAR (-)	0.2		0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	No Flow	No Flow	Sample not received due to Re-organisation ,site has been transferred to SWRD Cochin.
2	Colour_Cod (-)			
3	EC_GEN (µmho/cm)			
4	Odour_Code (-)			
5	pH_GEN (pH units)			
6	TDS (mg/L)			
7	Temp (deg C)			
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)			
2	ALK-TOT (mgCaCO3/L)			
3	B (mg/L)			
4	Ca (mg/L)			
5	Cl (mg/L)			
6	CO3 (mg/L)			
7	F (mg/L)			
8	Fe (mg/L)			
9	HCO3 (mg/L)			
10	K (mg/L)			
11	Mg (mg/L)			
12	Na (mg/L)			
13	NO2+NO3 (mg N/L)			
14	NO2-N (mgN/L)			
15	NO3-N (mgN/L)			
16	o-PO4-P (mg P/L)			
17	SiO2 (mg/L)			
18	SO4 (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)			
2	DO (mg/L)			
3	DO_SAT% (%)			
	TRACE & TOXIC			
1	As (µg/L)			
2	Cd (µg/L)			
3	Cr (µg/L)			
4	Cu (µg/L)			
5	Ni (µg/L)			
6	Pb (µg/L)			
7	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)			
2	HAR_Total (mgCaCO3/L)			
3	Na% (%)			
4	RSC (-)			
5	SAR (-)			
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	535.3	0.000	33.79
2	EC_GEN (µmho/cm)	4	42	32	36
3	pH_GEN (pH units)	4	6.9	6.4	6.7
4	TDS (mg/L)	4	28	18	23
5	Temp (deg C)	4	25.5	24.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	14	6	10
3	B (mg/L)	4	0.50	0.00	0.17
4	Ca (mg/L)	4	4	3	3
5	Cl (mg/L)	4	4.6	3.6	3.8
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.06	0.02	0.03
8	Fe (mg/L)	4	0.2	0.1	0.2
9	HCO3 (mg/L)	4	17	7	13
10	K (mg/L)	4	0.6	0.4	0.5
11	Mg (mg/L)	4	1.8	0.4	1.2
12	Na (mg/L)	4	3.0	1.9	2.4
13	NO2+NO3 (mg N/L)	4	0.81	0.32	0.49
14	NO2-N (mgN/L)	4	0.01	0.00	0.01
15	NO3-N (mgN/L)	4	0.81	0.31	0.48
16	o-PO4-P (mg P/L)	4	0.041	0.000	0.01
17	SiO2 (mg/L)	4	6.9	0.1	4.7
18	SO4 (mg/L)	4	4.3	0.5	1.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	0.4	0.1	0.2
2	DO (mg/L)	4	7.0	6.5	6.7
3	DO_SAT% (%)	4	83	79	80
	TRACE & TOXIC				
1	As (µg/L)	2	2.4	0.0	1.2
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	2	11.0	5.6	8.3
4	Cu (µg/L)	2	2.0	0.5	1.2
5	Ni (µg/L)	1	1.0	1.0	1
6	Pb (µg/L)	2	1.0	0.2	0.6
7	Zn (µg/L)	2	2.6	2.0	2.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	11	7	9
2	HAR_Total (mgCaCO3/L)	4	15	11	13
3	Na% (%)	4	32	22	27
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.3	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		86.86	91.74	82.37	169.9
2	EC_GEN (µmho/cm)		48	29	33	31
3	pH_GEN (pH units)		6.8	6.5	6.7	6.5
4	TDS (mg/L)					
5	Temp (deg C)		26.0	26.0	25.5	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		15			8
2	B (mg/L)			0.00		
3	Ca (mg/L)		3	2	2	2
4	Cl (mg/L)		3.9	3.9	4.8	3.9
5	F (mg/L)		0.00	0.00	0.01	0.00
6	Fe (mg/L)			0.1	0.1	0.1
7	HCO3 (mg/L)		19	9	9	10
8	K (mg/L)		0.4	0.3	0.3	0.3
9	Mg (mg/L)		1.9	1.0	1.5	1.0
10	Na (mg/L)		3.2	2.7	2.2	2.5
11	NO2+NO3 (mg N/L)		0.35	0.29	0.34	0.32
12	NO2-N (mgN/L)		0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)		0.35	0.29	0.34	0.32
14	o-PO4-P (mg P/L)			0.000	0.000	0.010
15	SiO2 (mg/L)			6.3	7.3	5.6
16	SO4 (mg/L)		1.1	1.0	1.1	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		8	4	6	6
2	HAR_Total (mgCaCO3/L)		16	8	12	10
3	Na% (%)		30	41	27	35
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.3	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	157.3	60.05	88.22	49.31	105.9
2	EC_GEN (µmho/cm)	27	34	34	35	32
3	pH_GEN (pH units)	6.4	6.4	7.0	6.6	6.4
4	TDS (mg/L)					17
5	Temp (deg C)	25.8	24.8	24.0	25.0	24.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	6	8	9	10	10
2	B (mg/L)		0.00	0.06	0.84	0.10
3	Ca (mg/L)	2	3	2	3	4
4	Cl (mg/L)	3.4	5.0	3.9	4.4	3.2
5	F (mg/L)	0.02	0.03	0.01	0.04	
6	Fe (mg/L)		0.1	0.1	0.2	0.3
7	HCO3 (mg/L)	8	10	11	12	12
8	K (mg/L)	0.4	0.4	0.4	0.4	0.4
9	Mg (mg/L)	0.7	1.0	1.0	1.2	0.5
10	Na (mg/L)	1.9	2.4	2.7	2.2	2.3
11	NO2+NO3 (mg N/L)	0.37	0.25	0.26	0.29	0.36
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.00	0.01
13	NO3-N (mgN/L)	0.37	0.24	0.25	0.29	0.36
14	o-PO4-P (mg P/L)		0.186	0.011	0.078	0.000
15	SiO2 (mg/L)		9.3	5.2	7.9	16.0
16	SO4 (mg/L)	2.0	2.2	1.9	1.1	1.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.3	0.4	0.2	0.5
2	DO (mg/L)	7.2	6.9	6.6	6.3	8.4
3	DO_SAT% (%)	88	83	78	76	101
	TRACE & TOXIC					
1	As (µg/L)	2.4	2.1			
2	Cd (µg/L)	0.4	0.0			
3	Cr (µg/L)	3.1	1.1			
4	Cu (µg/L)	35.0	0.1			
5	Ni (µg/L)		8.6			
6	Pb (µg/L)		0.8			
7	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	7	6	8	9
2	HAR_Total (mgCaCO3/L)	9	11	10	13	11
3	Na% (%)	30	32	36	26	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	71.34		4.798	7.128	14.50
2	EC_GEN (µmho/cm)	33		39	36	37
3	pH_GEN (pH units)	6.5		7.1	6.9	6.8
4	TDS (mg/L)	20				
5	Temp (deg C)	24.3		25.8	26.0	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8		13	10	11
2	B (mg/L)	0.25		0.04	0.03	0.04
3	Ca (mg/L)	3		2	3	2
4	Cl (mg/L)	3.5		3.9	4.8	3.9
5	F (mg/L)	0.03		0.02	0.02	0.01
6	Fe (mg/L)	0.1		0.1	0.1	0.1
7	HCO3 (mg/L)	10		16	12	14
8	K (mg/L)	0.4		0.4	0.6	0.4
9	Mg (mg/L)	1.0		1.9	1.0	1.8
10	Na (mg/L)	2.2		2.9	2.6	2.6
11	NO2+NO3 (mg N/L)	0.41		0.41	0.27	0.29
12	NO2-N (mgN/L)	0.01		0.01	0.00	0.00
13	NO3-N (mgN/L)	0.40		0.41	0.27	0.29
14	o-PO4-P (mg P/L)	0.021		0.031	0.005	0.005
15	SiO2 (mg/L)	3.5		9.1	9.3	7.7
16	SO4 (mg/L)	2.5		0.5	0.9	1.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3				
2	DO (mg/L)	6.8				
3	DO_SAT% (%)	81				
	TRACE & TOXIC					
1	As (µg/L)	0.0				
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	11.0				
4	Cu (µg/L)	2.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	2.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8		6	8	5
2	HAR_Total (mgCaCO3/L)	12		14	12	12
3	Na% (%)	28		30	30	31
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.3		0.3	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	9.423	12.41	10.46	5.951	5.927
2	EC_GEN (µmho/cm)	37	40	37	39	43
3	pH_GEN (pH units)	6.5	6.6	6.6	6.9	6.7
4	TDS (mg/L)					20
5	Temp (deg C)	26.5	26.5	25.5	25.5	25.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	11	10	10	12
2	B (mg/L)			0.00	0.15	0.30
3	Ca (mg/L)	2	4	3	3	4
4	Cl (mg/L)	4.3	4.6	5.0	5.0	5.1
5	F (mg/L)		0.02	0.23	0.05	0.19
6	Fe (mg/L)	0.1		0.2	0.1	0.2
7	HCO3 (mg/L)	13	13	12	13	15
8	K (mg/L)	0.5	0.5	0.5	1.3	0.8
9	Mg (mg/L)	1.9	1.5	1.5	1.5	1.5
10	Na (mg/L)	2.3	2.3	2.7	2.2	2.7
11	NO2+NO3 (mg N/L)	0.32	0.37	0.34	0.31	0.36
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.01	0.00
13	NO3-N (mgN/L)	0.32	0.36	0.33	0.29	0.36
14	o-PO4-P (mg P/L)	0.000		0.026	0.000	0.191
15	SiO2 (mg/L)	7.2		25.3	5.3	14.0
16	SO4 (mg/L)	1.7	1.7	1.3	2.1	2.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3	0.2	0.3	1.4	0.5
2	DO (mg/L)	7.3	6.1	6.3	6.6	6.7
3	DO_SAT% (%)	92	76	77	80	81
	TRACE & TOXIC					
1	As (µg/L)					0.1
2	Cd (µg/L)				0.1	0.0
3	Cr (µg/L)				3.4	0.2
4	Cu (µg/L)				7.0	0.1
5	Ni (µg/L)				3.4	0.3
6	Pb (µg/L)				0.6	0.4
7	Zn (µg/L)				11.2	0.3
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	9	7	8	9
2	HAR_Total (mgCaCO3/L)	14	15	13	14	15
3	Na% (%)	26	24	30	23	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	4.247	6.235	2.178		
2	EC_GEN (µmho/cm)	40	40	56		
3	pH_GEN (pH units)	6.9	6.9	7.5		
4	TDS (mg/L)	21	25			
5	Temp (deg C)	25.2	25.3	25.5		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	13	19		
2	B (mg/L)	0.08	0.09	0.04		
3	Ca (mg/L)	4	4	2		
4	Cl (mg/L)	5.7	4.1	4.6		
5	F (mg/L)		0.04	0.04		
6	Fe (mg/L)	0.0	0.2	0.1		
7	HCO3 (mg/L)	12	15	23		
8	K (mg/L)	0.5	0.5	0.8		
9	Mg (mg/L)	1.5	1.3	3.9		
10	Na (mg/L)	2.7	2.5	3.5		
11	NO2+NO3 (mg N/L)	0.71	0.57	0.43		
12	NO2-N (mgN/L)	0.01	0.01	0.00		
13	NO3-N (mgN/L)	0.70	0.56	0.43		
14	o-PO4-P (mg P/L)	0.000	0.000	0.062		
15	SiO2 (mg/L)	10.1	6.0	15.6		
16	SO4 (mg/L)	1.9	0.5	0.5		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.2			
2	DO (mg/L)	7.3	6.5			
3	DO_SAT% (%)	88	79			
	TRACE & TOXIC					
1	As (µg/L)	1.1	2.4			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	0.3	5.6			
4	Cu (µg/L)	1.1	0.5			
5	Ni (µg/L)	0.0	1.0			
6	Pb (µg/L)	0.1	0.2			
7	Zn (µg/L)	5.7	2.6			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	9	4		
2	HAR_Total (mgCaCO3/L)	15	15	20		
3	Na% (%)	28	26	26		
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.3	0.3	0.3		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)				
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)		No Flow	Dry Bed	No Flow
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: YENNEHOLE	Code	: WS000Q1
State	: Karnataka	District	Udupi
Basin	: WFR South of Tapi	Independent River	: Swarna
Tributary	: Yennehole	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Yennehole
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 327 Sq. Km.	Bank	: Right
Latitude	: 13°17'39"	Longitude	: 74°58'51"
Zero of Gauge (m)	: 15.000 (m.s.l)	24/07/1989	
	Opening Date	Closing Date	
Gauge	: 24/07/1989		
Discharge	: 24/07/1989		
Sediment	:		
Water Quality	: 01/09/1993		

Water Quality Datasheet for the period : 2017-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	166.3	57.41	53.88
2	Colour_Cod (-)	Brown	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	31		30
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.5		6.8
6	TDS (mg/L)	24		24
7	Temp (deg C)	26.0		28.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	8		8
3	B (mg/L)	0.54		0.03
4	Ca (mg/L)	1		3
5	Cl (mg/L)	2.8		3.6
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.02		0.02
8	Fe (mg/L)	0.0		0.1
9	HCO3 (mg/L)	9		10
10	K (mg/L)	0.5		0.4
11	Mg (mg/L)	1.9		0.7
12	Na (mg/L)	1.9		2.5
13	NO2+NO3 (mg N/L)	0.06		0.46
14	NO2-N (mgN/L)	0.01		0.00
15	NO3-N (mgN/L)	0.04		0.46
16	o-PO4-P (mg P/L)	0.000		0.062
17	SiO2 (mg/L)	6.9		0.3
18	SO4 (mg/L)	3.4		1.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.6
2	DO (mg/L)	6.6		7.0
3	DO_SAT% (%)	82		89
	TRACE & TOXIC			
1	As (µg/L)		3.0	
2	Cd (µg/L)		0.0	
3	Cr (µg/L)		12.0	
4	Cu (µg/L)		6.0	
5	Ni (µg/L)			
6	Pb (µg/L)		3.0	
7	Zn (µg/L)		11.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	3		7
2	HAR_Total (mgCaCO3/L)	11		10
3	Na% (%)	26		35
4	RSC (-)	0.0		0.0
5	SAR (-)	0.3		0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017	04/12/2017	01/01/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	14.26	4.660	1.488
2	Colour_Cod (-)	Clear	Sample received for trace and toxic analysis	Clear
3	EC_GEN (µmho/cm)	34		41
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.8		6.8
6	TDS (mg/L)	20		26
7	Temp (deg C)	26.0		25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	10		12
3	B (mg/L)	0.12		0.00
4	Ca (mg/L)	6		4
5	Cl (mg/L)	3.6		4.6
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.02
8	Fe (mg/L)	0.1		0.2
9	HCO3 (mg/L)	12		14
10	K (mg/L)	0.5		0.6
11	Mg (mg/L)	0.0		0.9
12	Na (mg/L)	2.0		3.0
13	NO2+NO3 (mg N/L)	0.76		0.24
14	NO2-N (mgN/L)	0.00		0.01
15	NO3-N (mgN/L)	0.76		0.22
16	o-PO4-P (mg P/L)	0.000		0.000
17	SiO2 (mg/L)	11.8		5.2
18	SO4 (mg/L)	0.7		1.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		0.9
2	DO (mg/L)	6.9		6.4
3	DO_SAT% (%)	85		77
	TRACE & TOXIC			
1	As (µg/L)		2.1	
2	Cd (µg/L)		0.1	
3	Cr (µg/L)		5.8	
4	Cu (µg/L)		1.2	
5	Ni (µg/L)		0.2	
6	Pb (µg/L)		0.4	
7	Zn (µg/L)		6.3	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	15		11
2	HAR_Total (mgCaCO3/L)	15		15
3	Na% (%)	22		30
4	RSC (-)	0.0		0.0
5	SAR (-)	0.2		0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	No Flow	No Flow	
2	Colour_Cod (-)			
3	EC_GEN (µmho/cm)			
4	Odour_Code (-)			
5	pH_GEN (pH units)			
6	TDS (mg/L)			
7	Temp (deg C)			
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)			
2	ALK-TOT (mgCaCO3/L)			
3	B (mg/L)			
4	Ca (mg/L)			
5	Cl (mg/L)			
6	CO3 (mg/L)			
7	F (mg/L)			
8	Fe (mg/L)			
9	HCO3 (mg/L)			
10	K (mg/L)			
11	Mg (mg/L)			
12	Na (mg/L)			
13	NO2+NO3 (mg N/L)			
14	NO2-N (mgN/L)			
15	NO3-N (mgN/L)			
16	o-PO4-P (mg P/L)			
17	SiO2 (mg/L)			
18	SO4 (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)			
2	DO (mg/L)			
3	DO_SAT% (%)			
	TRACE & TOXIC			
1	As (µg/L)			
2	Cd (µg/L)			
3	Cr (µg/L)			
4	Cu (µg/L)			
5	Ni (µg/L)			
6	Pb (µg/L)			
7	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)			
2	HAR_Total (mgCaCO3/L)			
3	Na% (%)			
4	RSC (-)			
5	SAR (-)			
	PESTICIDES			

Sample not received due to Re-organisation , site has been transferred to SWRD Cochin.

Water Quality Summary for the period : 2017-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	466.3	0.000	39.02
2	EC_GEN (µmho/cm)	4	41	30	34
3	pH_GEN (pH units)	4	6.8	6.5	6.7
4	TDS (mg/L)	4	26	20	24
5	Temp (deg C)	4	28.0	25.0	26.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	12	8	9
3	B (mg/L)	4	0.54	0.00	0.17
4	Ca (mg/L)	4	6	1	4
5	Cl (mg/L)	4	4.6	2.8	3.6
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.04	0.02	0.02
8	Fe (mg/L)	4	0.2	0.0	0.1
9	HCO3 (mg/L)	4	14	9	11
10	K (mg/L)	4	0.6	0.4	0.5
11	Mg (mg/L)	4	1.9	0.0	0.9
12	Na (mg/L)	4	3.0	1.9	2.4
13	NO2+NO3 (mg N/L)	4	0.76	0.06	0.38
14	NO2-N (mgN/L)	4	0.01	0.00	0.01
15	NO3-N (mgN/L)	4	0.76	0.04	0.37
16	o-PO4-P (mg P/L)	4	0.062	0.000	0.016
17	SiO2 (mg/L)	4	11.8	0.3	6
18	SO4 (mg/L)	4	3.4	0.7	1.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	0.9	0.2	0.5
2	DO (mg/L)	4	7.0	6.4	6.7
3	DO_SAT% (%)	4	89	77	83
	TRACE & TOXIC				
1	As (µg/L)	2	3.0	2.1	2.6
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	2	12.0	5.8	8.9
4	Cu (µg/L)	2	6.0	1.2	3.6
5	Ni (µg/L)	1	0.2	0.2	0.2
6	Pb (µg/L)	2	3.0	0.4	1.7
7	Zn (µg/L)	2	11.0	6.3	8.7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	15	3	9
2	HAR_Total (mgCaCO3/L)	4	15	10	13
3	Na% (%)	4	35	22	28
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	212.5	106.9	90.52	83.94	182.5
2	EC_GEN (µmho/cm)	33	52	32	31	32
3	pH_GEN (pH units)	6.9	6.9	6.8	6.9	6.6
4	TDS (mg/L)					
5	Temp (deg C)	26.5	26.3	28.0	25.3	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	14	10	8	8
2	B (mg/L)	0.00		0.00		
3	Ca (mg/L)	2	4	2	2	2
4	Cl (mg/L)	4.0	5.9	3.9	3.8	3.9
5	F (mg/L)	0.00	0.00	0.00	0.02	0.05
6	Fe (mg/L)	0.1		0.1	0.1	0.0
7	HCO3 (mg/L)	11	17	12	9	10
8	K (mg/L)	0.3	0.5	0.4	0.3	0.4
9	Mg (mg/L)	1.0	1.5	1.0	1.0	1.0
10	Na (mg/L)	2.9	3.7	2.7	2.3	2.6
11	NO2+NO3 (mg N/L)	0.30	0.49	0.30	0.30	0.34
12	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.30	0.48	0.30	0.30	0.34
14	o-PO4-P (mg P/L)	0.000		0.000	0.000	0.000
15	SiO2 (mg/L)	8.3		7.4	8.2	6.9
16	SO4 (mg/L)	1.0	2.1	1.1	1.1	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	10	6	6	6
2	HAR_Total (mgCaCO3/L)	10	16	10	10	10
3	Na% (%)	38	33	37	34	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	207.7	112.2	98.65	68.00	149.8
2	EC_GEN (µmho/cm)	24	33	31	33	30
3	pH_GEN (pH units)	6.3	6.6	7.0	6.9	6.4
4	TDS (mg/L)					16
5	Temp (deg C)	25.0	25.0	25.3	26.3	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	5	7	9	8	8
2	B (mg/L)		0.00	0.03	0.78	0.17
3	Ca (mg/L)	2	3	3	3	3
4	Cl (mg/L)	2.8	5.0	3.4	3.9	3.2
5	F (mg/L)	0.02	0.03	0.28	0.04	
6	Fe (mg/L)		0.1	0.1	0.1	0.0
7	HCO3 (mg/L)	6	9	10	10	10
8	K (mg/L)	0.5	0.4	0.4	0.4	0.6
9	Mg (mg/L)	0.7	1.0	1.0	1.0	0.4
10	Na (mg/L)	2.0	2.2	2.3	2.0	2.4
11	NO2+NO3 (mg N/L)	0.32	0.17	0.18	0.33	0.34
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.00	0.01
13	NO3-N (mgN/L)	0.32	0.17	0.18	0.33	0.33
14	o-PO4-P (mg P/L)		0.047	0.026	0.088	0.000
15	SiO2 (mg/L)		5.6	4.1	8.2	17.1
16	SO4 (mg/L)	2.0	2.0	2.0	1.4	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	6.3	1.0			
2	Cd (µg/L)	0.3	0.0			
3	Cr (µg/L)	4.8	1.8			
4	Cu (µg/L)	1.0	0.4			
5	Ni (µg/L)	1.3	11.3			
6	Pb (µg/L)		1.7			
7	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	4	7	7	7	8
2	HAR_Total (mgCaCO3/L)	7	11	11	11	9
3	Na% (%)	37	30	30	28	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	92.53	13.50	6.156	13.04	19.54
2	EC_GEN (µmho/cm)	31	44	39	35	32
3	pH_GEN (pH units)	6.6	7.5	7.3	7.0	6.8
4	TDS (mg/L)	24				
5	Temp (deg C)	27.0	28.3	25.8	28.3	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	15	11	10	10
2	B (mg/L)	0.29	0.05	0.05	0.04	0.04
3	Ca (mg/L)	2	3	3	2	2
4	Cl (mg/L)	3.2	3.5	5.0	4.8	3.9
5	F (mg/L)	0.02	0.00	0.02	0.03	0.02
6	Fe (mg/L)	0.0	0.1	0.4	0.1	0.5
7	HCO3 (mg/L)	9	18	14	12	12
8	K (mg/L)	0.4	0.8	0.4	0.5	0.4
9	Mg (mg/L)	1.3	1.9	1.5	1.9	1.5
10	Na (mg/L)	2.2	2.5	3.0	2.6	2.6
11	NO2+NO3 (mg N/L)	0.26	0.30	0.32	0.25	0.30
12	NO2-N (mgN/L)	0.01	0.01	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.25	0.29	0.32	0.25	0.29
14	o-PO4-P (mg P/L)	0.031	0.036	0.031	0.005	0.005
15	SiO2 (mg/L)	3.6	9.9	9.3	8.3	7.8
16	SO4 (mg/L)	2.4	0.5	0.6	0.9	1.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4				
2	DO (mg/L)	6.8				
3	DO_SAT% (%)	86				
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	12.0				
4	Cu (µg/L)	6.0				
5	Ni (µg/L)					
6	Pb (µg/L)	3.0				
7	Zn (µg/L)	11.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	5	8	8	4	5
2	HAR_Total (mgCaCO3/L)	10	16	14	12	11
3	Na% (%)	31	25	31	30	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	15.02	12.16	9.764	7.867	30.41
2	EC_GEN (µmho/cm)	34	53	36	37	32
3	pH_GEN (pH units)	6.3	7.4	6.6	7.2	7.0
4	TDS (mg/L)					18
5	Temp (deg C)	27.0	24.8	26.0	26.0	23.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	15	11	10	7
2	B (mg/L)			0.01	0.10	0.22
3	Ca (mg/L)	3	4	2	3	2
4	Cl (mg/L)	5.3	5.7	3.9	3.9	4.8
5	F (mg/L)		0.04	0.26	0.06	0.04
6	Fe (mg/L)	0.1		0.2	0.1	0.1
7	HCO3 (mg/L)	10	18	13	13	9
8	K (mg/L)	0.5	0.5	0.4	1.2	0.8
9	Mg (mg/L)	1.0	1.9	1.2	1.2	1.5
10	Na (mg/L)	2.3	3.5	2.8	2.2	2.3
11	NO2+NO3 (mg N/L)	0.29	0.36	0.29	0.21	0.26
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.29	0.36	0.29	0.20	0.26
14	o-PO4-P (mg P/L)	0.000		0.026	0.005	0.155
15	SiO2 (mg/L)	6.8		7.7	10.1	6.2
16	SO4 (mg/L)	1.5	1.8	1.4	2.5	2.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	0.1				0.3
2	Cd (µg/L)	0.3			0.1	0.0
3	Cr (µg/L)	2.0			0.2	0.1
4	Cu (µg/L)	6.1			3.6	0.1
5	Ni (µg/L)	3.7			4.6	0.0
6	Pb (µg/L)	0.1			0.7	0.4
7	Zn (µg/L)	14.2			10.7	0.1
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	9	6	8	5
2	HAR_Total (mgCaCO3/L)	12	17	11	13	11
3	Na% (%)	29	30	35	24	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	4.966	6.802	1.046		0.531
2	EC_GEN (µmho/cm)	38	38	51		47
3	pH_GEN (pH units)	7.1	6.8	7.1		6.8
4	TDS (mg/L)	20	23			
5	Temp (deg C)	25.7	25.5	29.5		28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	11	17		16
2	B (mg/L)	0.00	0.06	0.04		0.02
3	Ca (mg/L)	2	5	3		3
4	Cl (mg/L)	3.5	4.1	4.4		5.8
5	F (mg/L)		0.03	0.03		0.04
6	Fe (mg/L)	0.0	0.2	0.1		0.1
7	HCO3 (mg/L)	14	13	21		19
8	K (mg/L)	0.5	0.5	1.0		0.7
9	Mg (mg/L)	1.8	0.4	2.4		1.9
10	Na (mg/L)	2.6	2.5	3.0		3.8
11	NO2+NO3 (mg N/L)	0.26	0.50	0.33		0.28
12	NO2-N (mgN/L)	0.01	0.01	0.02		0.00
13	NO3-N (mgN/L)	0.25	0.49	0.31		0.28
14	o-PO4-P (mg P/L)	0.000	0.000	0.083		0.010
15	SiO2 (mg/L)	9.1	8.5	9.9		8.5
16	SO4 (mg/L)	1.5	1.0	0.6		1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.5			
2	DO (mg/L)		6.7			
3	DO_SAT% (%)		81			
	TRACE & TOXIC					
1	As (µg/L)	0.0	2.1	14.1		
2	Cd (µg/L)	0.1	0.1	1.2		
3	Cr (µg/L)	0.3	5.8			
4	Cu (µg/L)	1.0	1.2	3.4		
5	Ni (µg/L)	0.2	0.2			
6	Pb (µg/L)	0.1	0.4	2.0		
7	Zn (µg/L)	0.5	6.3	34.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	13	8		8
2	HAR_Total (mgCaCO3/L)	14	15	18		16
3	Na% (%)	28	26	26		33
4	RSC (-)	0.0	0.0	0.0		0.0
5	SAR (-)	0.3	0.3	0.3		0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	0.586	0.084		
2	EC_GEN (µmho/cm)	49	67		
3	pH_GEN (pH units)	6.3	6.8		
4	TDS (mg/L)				
5	Temp (deg C)	28.0	27.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	13	17		
2	B (mg/L)	0.02			
3	Ca (mg/L)	3	3		
4	Cl (mg/L)	6.0	10.6		
5	F (mg/L)	0.02	0.02		
6	Fe (mg/L)	0.0			
7	HCO3 (mg/L)	16	21		
8	K (mg/L)	0.9	0.9		
9	Mg (mg/L)	1.5	2.9		
10	Na (mg/L)	4.0	5.6		
11	NO2+NO3 (mg N/L)	0.32	0.38		
12	NO2-N (mgN/L)	0.00	0.00		
13	NO3-N (mgN/L)	0.32	0.38		
14	o-PO4-P (mg P/L)	0.010			
15	SiO2 (mg/L)	10.5			
16	SO4 (mg/L)	3.0	1.7		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)	1.6			
2	Cd (µg/L)	0.0			
3	Cr (µg/L)	1.4			
4	Cu (µg/L)	4.0			
5	Ni (µg/L)				
6	Pb (µg/L)	0.3			
7	Zn (µg/L)	8.9			
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	8		
2	HAR_Total (mgCaCO3/L)	14	20		
3	Na% (%)	37	37		
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.5	0.5		
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)			No Flow	No Flow
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: ADDOOR	Code	: WG000E8
State	: Karnataka	District	South Canara
Basin	: WFR South of Tapi	Independent River	: Gurpur
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Gurpur
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 688 Sq. Km.	Bank	: Right
Latitude	: 12°55'44"	Longitude	: 74°57'14"
Zero of Gauge (m)	: 10.000 (Arb) -1.000 (m.s.l)	21/08/1998 01/06/2005	- 31/05/2005
	Opening Date	Closing Date	
Gauge	: 21/08/1998		
Discharge	: 17/07/2003		
Sediment	:		
Water Quality	: 02/09/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	164.8	71.73	92.22
2	Colour_Cod (-)	Brown	Sample Received only for trace & toxic analysis	Clear
3	EC_GEN (μmho/cm)	55		41
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.6		7.1
6	TDS (mg/L)	40		26
7	Temp (deg C)	27.0		27.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	14		12
3	B (mg/L)	0.25		0.11
4	Ca (mg/L)	4		5
5	Cl (mg/L)	5.3		5.3
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.02
8	Fe (mg/L)	0.2		0.1
9	HCO3 (mg/L)	17		15
10	K (mg/L)	0.9		0.5
11	Mg (mg/L)	2.7		0.4
12	Na (mg/L)	6.0		3.2
13	NO2+NO3 (mg N/L)	0.39		0.38
14	NO2-N (mgN/L)	0.01		0.01
15	NO3-N (mgN/L)	0.38		0.36
16	o-PO4-P (mg P/L)	0.010		0.744
17	SiO2 (mg/L)	9.4		2.9
18	SO4 (mg/L)	4.8		1.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4		0.2
2	DO (mg/L)	6.4		6.4
3	DO_SAT% (%)	81		80
	TRACE & TOXIC			
1	As (μg/L)		3.0	
2	Cd (μg/L)		0.0	
3	Cr (μg/L)		21.0	
4	Cu (μg/L)		4.0	
5	Pb (μg/L)		1.0	
6	Zn (μg/L)		4.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	9		13
2	HAR_Total (mgCaCO3/L)	20		14
3	Na% (%)	38		32
4	RSC (-)	0.0		0.0
5	SAR (-)	0.6		0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gурpur

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017	04/12/2017	01/01/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	22.38	No Flow	No Flow
2	Colour_ Cod (-)	Clear		
3	EC_GEN (μmho/cm)	43		
4	Odour_ Code (-)	odour free		
5	pH_GEN (pH units)	7.1		
6	TDS (mg/L)	30		
7	Temp (deg C)	28.0		
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		
2	ALK-TOT (mgCaCO3/L)	8		
3	B (mg/L)	0.00		
4	Ca (mg/L)	4		
5	Cl (mg/L)	5.7		
6	CO3 (mg/L)	0.0		
7	F (mg/L)	0.04		
8	Fe (mg/L)	0.1		
9	HCO3 (mg/L)	9		
10	K (mg/L)	0.7		
11	Mg (mg/L)	0.9		
12	Na (mg/L)	3.0		
13	NO2+NO3 (mg N/L)	0.90		
14	NO2-N (mgN/L)	0.00		
15	NO3-N (mgN/L)	0.90		
16	o-PO4-P (mg P/L)	0.000		
17	SiO2 (mg/L)	7.9		
18	SO4 (mg/L)	2.6		
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4		
2	DO (mg/L)	6.5		
3	DO_SAT% (%)	83		
	TRACE & TOXIC			
1	As (μg/L)			
2	Cd (μg/L)			
3	Cr (μg/L)			
4	Cu (μg/L)			
5	Pb (μg/L)			
6	Zn (μg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	11		
2	HAR_Total (mgCaCO3/L)	15		
3	Na% (%)	30		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	No Flow	No Flow	
2	Colour_Cod (-)			Sample not received due to Re-organisation , site has been transferred to SWRD Cochin.
3	EC_GEN (µmho/cm)			
4	Odour_Code (-)			
5	pH_GEN (pH units)			
6	TDS (mg/L)			
7	Temp (deg C)			
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)			
2	ALK-TOT (mgCaCO3/L)			
3	B (mg/L)			
4	Ca (mg/L)			
5	Cl (mg/L)			
6	CO3 (mg/L)			
7	F (mg/L)			
8	Fe (mg/L)			
9	HCO3 (mg/L)			
10	K (mg/L)			
11	Mg (mg/L)			
12	Na (mg/L)			
13	NO2+NO3 (mg N/L)			
14	NO2-N (mgN/L)			
15	NO3-N (mgN/L)			
16	o-PO4-P (mg P/L)			
17	SiO2 (mg/L)			
18	SO4 (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)			
2	DO (mg/L)			
3	DO_SAT% (%)			
	TRACE & TOXIC			
1	As (µg/L)			
2	Cd (µg/L)			
3	Cr (µg/L)			
4	Cu (µg/L)			
5	Pb (µg/L)			
6	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)			
2	HAR_Total (mgCaCO3/L)			
3	Na% (%)			
4	RSC (-)			
5	SAR (-)			
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	547.6	0.000	56.98
2	EC_GEN (µmho/cm)	3	55	41	46
3	pH_GEN (pH units)	3	7.1	6.6	6.9
4	TDS (mg/L)	3	40	26	32
5	Temp (deg C)	3	28.0	27.0	27.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	14	8	11
3	B (mg/L)	3	0.25	0.00	0.12
4	Ca (mg/L)	3	5	4	4
5	Cl (mg/L)	3	5.7	5.3	5.4
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.04	0.02	0.03
8	Fe (mg/L)	3	0.2	0.1	0.1
9	HCO3 (mg/L)	3	17	9	14
10	K (mg/L)	3	0.9	0.5	0.7
11	Mg (mg/L)	3	2.7	0.4	1.3
12	Na (mg/L)	3	6.0	3.0	4.1
13	NO2+NO3 (mg N/L)	3	0.90	0.38	0.56
14	NO2-N (mgN/L)	3	0.01	0.00	0.01
15	NO3-N (mgN/L)	3	0.90	0.36	0.55
16	o-PO4-P (mg P/L)	3	0.744	0.000	0.251
17	SiO2 (mg/L)	3	9.4	2.9	6.7
18	SO4 (mg/L)	3	4.8	1.1	2.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	0.4	0.2	0.3
2	DO (mg/L)	3	6.5	6.4	6.4
3	DO_SAT% (%)	3	83	80	81
	TRACE & TOXIC				
1	As (µg/L)	1	3.0	3.0	3
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	21.0	21.0	21
4	Cu (µg/L)	1	4.0	4.0	4
5	Pb (µg/L)	1	1.0	1.0	1
6	Zn (µg/L)	1	4.0	4.0	4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	13	9	11
2	HAR_Total (mgCaCO3/L)	3	20	14	16
3	Na% (%)	3	38	30	33
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.6	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	268.4	286.8	132.0	190.7	325.7
2	EC_GEN (μmho/cm)	44	51	39	69	40
3	pH_GEN (pH units)	7.3	7.2	7.1	6.5	6.6
4	TDS (mg/L)					
5	Temp (deg C)	23.5	25.8		25.5	23.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	8	12	19	8
2	B (mg/L)	0.00		0.00		
3	Ca (mg/L)	2	4	2	5	2
4	Cl (mg/L)	5.0	5.9	5.0	10.5	6.0
5	F (mg/L)	0.00	0.00	0.00	0.02	0.00
6	Fe (mg/L)	0.2		0.2	0.1	0.0
7	HCO3 (mg/L)	14	14	12	24	10
8	K (mg/L)	0.9	0.5	0.5	1.3	0.5
9	Mg (mg/L)	1.9	1.9	1.9	3.4	1.9
10	Na (mg/L)	3.1	3.5	2.5	4.1	2.5
11	NO2+NO3 (mg N/L)	0.38	0.51	0.35	0.39	0.35
12	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.38	0.50	0.35	0.39	0.34
14	o-PO4-P (mg P/L)	0.129		0.000	0.000	0.000
15	SiO2 (mg/L)	11.1		7.9	8.3	
16	SO4 (mg/L)	1.2	2.1	1.1	1.2	2.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (μg/L)					
2	Cd (μg/L)					
3	Cr (μg/L)					
4	Cu (μg/L)					
5	Ni (μg/L)					
6	Pb (μg/L)					
7	Zn (μg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	10	6	12	6
2	HAR_Total (mgCaCO3/L)	14	18	14	26	14
3	Na% (%)	31	29	27	25	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.3	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	282.3	179.5	206.5	57.47	183.8
2	EC_GEN (µmho/cm)	39	39	35	44	41
3	pH_GEN (pH units)	6.6	6.7	6.9	6.7	6.6
4	TDS (mg/L)					24
5	Temp (deg C)	24.3	27.0	25.5	25.8	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	9	8	12	10
2	B (mg/L)		0.00	0.00	0.79	0.08
3	Ca (mg/L)	2	3	2	3	5
4	Cl (mg/L)	3.9	5.0	3.9	5.5	5.1
5	F (mg/L)	0.04	0.02	0.06	0.04	
6	Fe (mg/L)		0.1	0.1	0.2	0.0
7	HCO3 (mg/L)	13	11	10	14	12
8	K (mg/L)	0.8	0.5	0.5	0.6	0.5
9	Mg (mg/L)	1.7	1.2	1.5	1.7	0.4
10	Na (mg/L)	2.9	2.8	2.7	3.1	2.9
11	NO2+NO3 (mg N/L)	0.50	0.34	0.39	0.38	0.48
12	NO2-N (mgN/L)	0.01	0.01	0.01	0.00	0.01
13	NO3-N (mgN/L)	0.48	0.33	0.38	0.38	0.47
14	o-PO4-P (mg P/L)		0.041	0.021	0.093	0.000
15	SiO2 (mg/L)		3.5	5.5	7.8	38.9
16	SO4 (mg/L)	2.7	2.4	2.1	2.0	2.8
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	6.8	3.0			
2	Cd (µg/L)	0.1	0.0			
3	Cr (µg/L)	4.4	1.7			
4	Cu (µg/L)	10.1	0.4			
5	Ni (µg/L)	1.8	9.0			
6	Pb (µg/L)		0.0			
7	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	7	6	7	14
2	HAR_Total (mgCaCO3/L)	13	12	12	14	15
3	Na% (%)	32	32	32	31	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.3	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	110.1	44.03	30.53	13.32	72.10
2	EC_GEN (µmho/cm)	48	46	42	36	36
3	pH_GEN (pH units)	6.9	7.2	7.0	7.1	6.9
4	TDS (mg/L)	33				
5	Temp (deg C)	27.0	24.5	25.5	25.5	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	13	14	11	8	
2	B (mg/L)	0.18	0.05	0.05	0.05	
3	Ca (mg/L)	4	3	3	3	2
4	Cl (mg/L)	5.3	4.2	6.0	5.8	6.0
5	F (mg/L)	0.03	0.04	0.02	0.02	0.02
6	Fe (mg/L)	0.2	0.1	0.1	0.1	0.1
7	HCO3 (mg/L)	16	17	13	10	9
8	K (mg/L)	0.7	1.2	0.8	0.5	0.6
9	Mg (mg/L)	1.5	1.9	1.0	1.0	1.7
10	Na (mg/L)	4.6	2.8	3.2	3.1	2.2
11	NO2+NO3 (mg N/L)	0.39	0.45	0.42	0.27	0.31
12	NO2-N (mgN/L)	0.01	0.03	0.01	0.00	0.00
13	NO3-N (mgN/L)	0.37	0.42	0.41	0.27	0.31
14	o-PO4-P (mg P/L)	0.377	0.010	0.021	0.000	0.000
15	SiO2 (mg/L)	6.1	12.5	0.3	9.3	8.4
16	SO4 (mg/L)	3.0	0.8	0.7	1.0	1.4
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)	0.3				
2	DO (mg/L)	6.4				
3	DO_SAT% (%)	81				
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	21.0				
4	Cu (µg/L)	4.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	8	8	8	5
2	HAR_Total (mgCaCO3/L)	17	16	12	12	13
3	Na% (%)	35	26	35	35	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	64.48	39.27	55.86	5.822	143.7
2	EC_GEN (µmho/cm)	37	43	46	43	37
3	pH_GEN (pH units)	6.2	6.9	6.8	7.2	6.5
4	TDS (mg/L)					
5	Temp (deg C)	26.0	23.0	27.0	25.0	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	11	14	10	9
2	B (mg/L)			0.01	0.16	0.28
3	Ca (mg/L)	3	2	4	3	2
4	Cl (mg/L)	4.3	3.9	3.9	6.0	4.6
5	F (mg/L)			0.04	0.10	0.25
6	Fe (mg/L)	0.1		0.1	0.0	0.1
7	HCO3 (mg/L)	11	13	17	12	11
8	K (mg/L)	0.7	0.6	0.8	1.4	0.7
9	Mg (mg/L)	1.0	1.9	1.0	1.9	1.5
10	Na (mg/L)	3.0	3.0	3.7	2.5	2.5
11	NO2+NO3 (mg N/L)	0.31	0.41	0.56	0.36	0.31
12	NO2-N (mgN/L)	0.01	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.29	0.41	0.56	0.35	0.31
14	o-PO4-P (mg P/L)	0.000		0.021	0.010	0.207
15	SiO2 (mg/L)			7.7	6.6	15.0
16	SO4 (mg/L)	2.4	3.0	2.2	2.4	2.0
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	0.3				
2	Cd (µg/L)	0.2			0.2	
3	Cr (µg/L)	2.5			22.1	
4	Cu (µg/L)	50.5			6.3	
5	Ni (µg/L)	3.8			0.2	
6	Pb (µg/L)	0.2			3.4	
7	Zn (µg/L)	91.9			11.0	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	6	10	8	6
2	HAR_Total (mgCaCO3/L)	12	14	14	16	12
3	Na% (%)	34	31	35	23	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	0.000	7.459			
2	EC_GEN (µmho/cm)		43			
3	pH_GEN (pH units)		7.1			
4	TDS (mg/L)		30			
5	Temp (deg C)		28.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		8			
2	B (mg/L)		0.00			
3	Ca (mg/L)		4			
4	Cl (mg/L)		5.7			
5	F (mg/L)		0.04			
6	Fe (mg/L)		0.1			
7	HCO3 (mg/L)		9			
8	K (mg/L)		0.7			
9	Mg (mg/L)		0.9			
10	Na (mg/L)		3.0			
11	NO2+NO3 (mg N/L)		0.90			
12	NO2-N (mgN/L)		0.00			
13	NO3-N (mgN/L)		0.90			
14	o-PO4-P (mg P/L)		0.000			
15	SiO2 (mg/L)		7.9			
16	SO4 (mg/L)		2.6			
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)		0.4			
2	DO (mg/L)		6.5			
3	DO_SAT% (%)		83			
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		11			
2	HAR_Total (mgCaCO3/L)		15			
3	Na% (%)		30			
4	RSC (-)		0.0			
5	SAR (-)		0.3			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)				
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)			No Flow	No Flow
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: BANTWAL	Code	: WN000G9
State	: Karnataka	District	South Canara
Basin	: WFR South of Tapi	Independent River	: Netravathi
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Netravathi
Division	: Cauvery Division, Bangalore	Sub-Division	: SWRSD-III, Mangalore
Drainage Area	: 3184 Sq. Km.	Bank	: Right
Latitude	: 12°52'51"	Longitude	: 75°02'28"
Zero of Gauge (m)	: 1.000 (m.s.l)	01/11/1970	
	Opening Date	Closing Date	
Gauge	: 01/11/1970		
Discharge	: 01/11/1970		
Sediment	: 22/06/1972		
Water Quality	: 15/06/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	03/07/2017	03/08/2017	04/09/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	470.8	420.3	510.8
2	Colour_Cod (-)	Brown	Sample Received Only for trace & toxic analysis	Clear
3	EC_GEN (μmho/cm)	50		45
4	Odour_Code (-)	odour free		odour free
5	pH_GEN (pH units)	6.8		7.3
6	TDS (mg/L)	40		38
7	Temp (deg C)	27.5		28.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	16		14
3	B (mg/L)	0.67		0.00
4	Ca (mg/L)	6		5
5	Cl (mg/L)	3.6		5.3
6	CO3 (mg/L)	0.0		0.0
7	F (mg/L)	0.04		0.04
8	Fe (mg/L)	0.1		0.1
9	HCO3 (mg/L)	19		17
10	K (mg/L)	0.9		0.6
11	Mg (mg/L)	0.7		0.7
12	Na (mg/L)	2.4		3.1
13	NO2+NO3 (mg N/L)	0.07		0.43
14	NO2-N (mgN/L)	0.01		0.00
15	NO3-N (mgN/L)	0.06		0.43
16	o-PO4-P (mg P/L)	0.010		0.878
17	SiO2 (mg/L)	11.6		1.9
18	SO4 (mg/L)	5.4		0.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2		1.0
2	DO (mg/L)	6.4		7.0
3	DO_SAT% (%)	81		89
	TRACE & TOXIC			
1	As (μg/L)		8.0	
2	Cd (μg/L)		0.0	
3	Cr (μg/L)		13.0	
4	Cu (μg/L)		2.0	
5	Pb (μg/L)		3.0	
6	Zn (μg/L)		4.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16		13
2	HAR_Total (mgCaCO3/L)	19		16
3	Na% (%)	21		29
4	RSC (-)	0.0		0.0
5	SAR (-)	0.2		0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/11/2017		
		A		
	PHYSICAL			
1	Q (cumec)	145.1		
2	Colour_Cod (-)	Clear	Sample not received from 01.12.2017 to 30.04.2018 due to No Flow	Sample not received in the month of May 2018, due to reorganisation this WQ station, transferred to SWRD Cochin.
3	EC_GEN (µmho/cm)	48		
4	Odour_Code (-)	odour free		
5	pH_GEN (pH units)	7.3		
6	TDS (mg/L)	34		
7	Temp (deg C)	28.5		
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		
2	ALK-TOT (mgCaCO3/L)	16		
3	B (mg/L)	0.05		
4	Ca (mg/L)	3		
5	Cl (mg/L)	5.7		
6	CO3 (mg/L)	0.0		
7	F (mg/L)	0.04		
8	Fe (mg/L)	0.2		
9	HCO3 (mg/L)	19		
10	K (mg/L)	0.7		
11	Mg (mg/L)	2.7		
12	Na (mg/L)	3.0		
13	NO2+NO3 (mg N/L)	0.36		
14	NO2-N (mgN/L)	0.00		
15	NO3-N (mgN/L)	0.36		
16	o-PO4-P (mg P/L)	0.000		
17	SiO2 (mg/L)	10.7		
18	SO4 (mg/L)	1.8		
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.1		
2	DO (mg/L)	6.5		
3	DO_SAT% (%)	83		
	TRACE & TOXIC			
1	As (µg/L)			
2	Cd (µg/L)			
3	Cr (µg/L)			
4	Cu (µg/L)			
5	Pb (µg/L)			
6	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8		
2	HAR_Total (mgCaCO3/L)	19		
3	Na% (%)	25		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2575	0.00	236.9
2	EC_GEN (µmho/cm)	3	50	45	48
3	pH_GEN (pH units)	3	7.3	6.8	7.1
4	TDS (mg/L)	3	40	34	37
5	Temp (deg C)	3	28.5	27.5	28
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	16	14	15
3	B (mg/L)	3	0.67	0.00	0.24
4	Ca (mg/L)	3	6	3	5
5	Cl (mg/L)	3	5.7	3.6	4.9
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.04	0.04	0.04
8	Fe (mg/L)	3	0.2	0.1	0.1
9	HCO3 (mg/L)	3	19	17	18
10	K (mg/L)	3	0.9	0.6	0.7
11	Mg (mg/L)	3	2.7	0.7	1.4
12	Na (mg/L)	3	3.1	2.4	2.8
13	NO2+NO3 (mg N/L)	3	0.43	0.07	0.29
14	NO2-N (mgN/L)	3	0.01	0.00	0
15	NO3-N (mgN/L)	3	0.43	0.06	0.28
16	o-PO4-P (mg P/L)	3	0.878	0.000	0.296
17	SiO2 (mg/L)	3	11.6	1.9	8
18	SO4 (mg/L)	3	5.4	0.7	2.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	1.0	0.1	0.4
2	DO (mg/L)	3	7.0	6.4	6.6
3	DO_SAT% (%)	3	89	81	84
	TRACE & TOXIC				
1	As (µg/L)	1	8.0	8.0	8
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	13.0	13.0	13
4	Cu (µg/L)	1	2.0	2.0	2
5	Pb (µg/L)	1	3.0	3.0	3
6	Zn (µg/L)	1	4.0	4.0	4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	16	8	12
2	HAR_Total (mgCaCO3/L)	3	19	16	18
3	Na% (%)	3	29	21	25
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.3	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		1019	724.2	854.7	1331
2	EC_GEN (µmho/cm)		51	50	44	36
3	pH_GEN (pH units)		7.2	7.1	7.1	6.5
4	TDS (mg/L)					
5	Temp (deg C)		24.0	27.9	26.5	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		13	15	12	8
2	B (mg/L)			0.00		
3	Ca (mg/L)		4	4	3	2
4	Cl (mg/L)		5.8	5.0	5.8	3.9
5	F (mg/L)		0.04	0.02	0.06	0.03
6	Fe (mg/L)			0.3	0.1	0.1
7	HCO3 (mg/L)		16	19	14	12
8	K (mg/L)		1.3	1.1	0.8	0.6
9	Mg (mg/L)		1.5	1.5	1.9	1.9
10	Na (mg/L)		3.5	3.5	3.0	2.1
11	NO2+NO3 (mg N/L)		0.36	0.48	0.45	0.41
12	NO2-N (mgN/L)		0.04	0.03	0.00	0.00
13	NO3-N (mgN/L)		0.32	0.45	0.45	0.41
14	o-PO4-P (mg P/L)			0.005	0.005	0.000
15	SiO2 (mg/L)			10.9	11.1	9.1
16	SO4 (mg/L)		1.6	1.6	1.7	2.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.8	1.0		
2	DO (mg/L)		7.5	6.3	6.7	
3	DO_SAT% (%)		89	80	83	
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		10	10	8	6
2	HAR_Total (mgCaCO3/L)		16	16	16	14
3	Na% (%)		31	31	28	24
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.4	0.4	0.3	0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	1074	1162	642.5	342.6	926.9
2	EC_GEN (µmho/cm)	42	45	45	45	43
3	pH_GEN (pH units)	6.9	6.9	7.1	7.1	6.4
4	TDS (mg/L)					24
5	Temp (deg C)	25.5	26.0	26.0	28.3	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	11	12	13	10
2	B (mg/L)		0.00	0.02	0.81	0.18
3	Ca (mg/L)	3	4	3	3	4
4	Cl (mg/L)	3.9	5.5	5.0	5.0	5.1
5	F (mg/L)	0.04	0.20	0.21	0.06	
6	Fe (mg/L)		0.1	0.1	0.1	0.0
7	HCO3 (mg/L)	13	14	15	15	12
8	K (mg/L)	0.9	0.6	2.8	0.6	0.6
9	Mg (mg/L)	1.5	1.7	1.0	1.7	1.1
10	Na (mg/L)	3.2	2.7	3.5	2.7	2.9
11	NO2+NO3 (mg N/L)	0.61	0.28	0.26	0.40	0.55
12	NO2-N (mgN/L)	0.01	0.01	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.60	0.27	0.26	0.40	0.54
14	o-PO4-P (mg P/L)		0.041	0.026	0.093	0.000
15	SiO2 (mg/L)		10.5	3.6	9.3	9.4
16	SO4 (mg/L)	3.7	2.5	2.4	2.1	3.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.2	0.5	0.9	0.6
2	DO (mg/L)	6.6	7.0	6.4	6.2	6.9
3	DO_SAT% (%)	79	86	79	79	86
	TRACE & TOXIC					
1	As (µg/L)		2.5			
2	Cd (µg/L)	0.2	2.0			
3	Cr (µg/L)	4.0	2.0			
4	Cu (µg/L)	8.2	0.6			
5	Ni (µg/L)	0.4	8.4			
6	Pb (µg/L)		0.0			
7	Zn (µg/L)		0.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	9	7	8	11
2	HAR_Total (mgCaCO3/L)	14	16	11	15	15
3	Na% (%)	31	26	35	27	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.5	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)			160.4	164.5	359.1
2	EC_GEN (µmho/cm)	48		49	43	45
3	pH_GEN (pH units)	7.1		7.4	7.3	6.9
4	TDS (mg/L)	39				
5	Temp (deg C)	27.8		25.5	30.0	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15		15	12	12
2	B (mg/L)	0.34		0.08	0.04	0.03
3	Ca (mg/L)	6		5	3	4
4	Cl (mg/L)	4.4		6.0	5.8	6.0
5	F (mg/L)	0.04		0.04	0.02	0.02
6	Fe (mg/L)	0.1		0.1	0.1	0.1
7	HCO3 (mg/L)	18		18	14	14
8	K (mg/L)	0.7		0.8	0.5	1.2
9	Mg (mg/L)	0.7		1.0	1.9	1.0
10	Na (mg/L)	2.7		3.5	3.0	3.8
11	NO2+NO3 (mg N/L)	0.25		0.34	0.25	0.42
12	NO2-N (mgN/L)	0.01		0.01	0.00	0.00
13	NO3-N (mgN/L)	0.25		0.32	0.25	0.42
14	o-PO4-P (mg P/L)	0.444		0.031	0.000	0.000
15	SiO2 (mg/L)	6.7		12.3	10.8	11.3
16	SO4 (mg/L)	3.0		0.8	1.1	2.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6		0.1	0.6	
2	DO (mg/L)	6.7		6.4	6.8	7.0
3	DO_SAT% (%)	85		78	90	85
	TRACE & TOXIC					
1	As (µg/L)	8.0				
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	13.0				
4	Cu (µg/L)	2.0				
5	Ni (µg/L)					
6	Pb (µg/L)	3.0				
7	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14		12	8	10
2	HAR_Total (mgCaCO3/L)	17		16	16	14
3	Na% (%)	25		31	28	35
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.3		0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	94.04	85.56	221.5	163.0	417.2
2	EC_GEN (µmho/cm)	50	51	44	49	48
3	pH_GEN (pH units)	6.6	7.0	6.9	7.4	7.1
4	TDS (mg/L)					25
5	Temp (deg C)	29.0	27.5	27.5	29.0	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO ₃ /L)	13	14	14	14	13
2	B (mg/L)			0.00	0.02	0.16
3	Ca (mg/L)	3	5	3	4	5
4	Cl (mg/L)	6.2	5.7	5.0	6.0	5.5
5	F (mg/L)		0.04	0.04	0.04	0.06
6	Fe (mg/L)	0.1		0.1	0.1	0.1
7	HCO ₃ (mg/L)	15	17	17	17	16
8	K (mg/L)	0.7	0.7	0.7	1.5	1.1
9	Mg (mg/L)	1.9	1.5	1.9	1.5	0.7
10	Na (mg/L)	3.4	3.3	3.0	2.7	3.6
11	NO ₂ +NO ₃ (mg N/L)	0.48	0.48	0.42	0.32	0.36
12	NO ₂ -N (mgN/L)	0.01	0.01	0.00	0.01	0.00
13	NO ₃ -N (mgN/L)	0.47	0.47	0.42	0.31	0.36
14	o-PO ₄ -P (mg P/L)	0.010		0.010	0.010	0.119
15	SiO ₂ (mg/L)	9.7		8.0	3.1	9.4
16	SO ₄ (mg/L)	2.5	2.2	1.5	2.2	2.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD ₃₋₂₇ (mg/L)	0.8	0.7	0.4	1.3	0.5
2	DO (mg/L)	7.5	6.8	6.0	7.3	6.2
3	DO_SAT% (%)	99	86	75	96	78
	TRACE & TOXIC					
1	As (µg/L)	0.3	8.2			
2	Cd (µg/L)	0.3	0.0		0.0	
3	Cr (µg/L)	2.5	0.1		0.3	
4	Cu (µg/L)	20.6	0.6		3.1	
5	Ni (µg/L)	8.0	5.4		0.0	
6	Pb (µg/L)	0.5			1.5	
7	Zn (µg/L)	8.6			8.0	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO ₃ /L)	8	12	8	10	12
2	HAR_Total (mgCaCO ₃ /L)	16	18	16	16	15
3	Na% (%)	30	27	28	25	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	67.95	145.1			
2	EC_GEN (µmho/cm)	47	48			
3	pH_GEN (pH units)	7.4	7.3			
4	TDS (mg/L)	25	34			
5	Temp (deg C)	30.0	28.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	17	16			
2	B (mg/L)	0.00	0.05			
3	Ca (mg/L)	5	3			
4	Cl (mg/L)	3.5	5.7			
5	F (mg/L)		0.04			
6	Fe (mg/L)	0.1	0.2			
7	HCO3 (mg/L)	21	19			
8	K (mg/L)	0.8	0.7			
9	Mg (mg/L)	1.5	2.7			
10	Na (mg/L)	2.9	3.0			
11	NO2+NO3 (mg N/L)	0.70	0.36			
12	NO2-N (mgN/L)	0.00	0.00			
13	NO3-N (mgN/L)	0.70	0.36			
14	o-PO4-P (mg P/L)	0.000	0.000			
15	SiO2 (mg/L)	4.9	10.7			
16	SO4 (mg/L)	0.2	1.8			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.1			
2	DO (mg/L)	6.8	6.5			
3	DO_SAT% (%)	90	83			
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	8			
2	HAR_Total (mgCaCO3/L)	18	19			
3	Na% (%)	25	25			
4	RSC (-)	0.0	0.0			
5	SAR (-)	0.3	0.3			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	7.521	3.544	1.478	0.000
2	EC_GEN (µmho/cm)	66	68	67	69
3	pH_GEN (pH units)	6.8	6.8	7.3	7.2
4	TDS (mg/L)				
5	Temp (deg C)	27.3	29.8	30.8	31.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	26	22	20	23
2	B (mg/L)	0.03		0.00	0.11
3	Ca (mg/L)	4	5	6	5
4	Cl (mg/L)	3.9	7.1	6.2	5.7
5	F (mg/L)	0.11	0.03		0.24
6	Fe (mg/L)	0.0		0.1	0.1
7	HCO3 (mg/L)	30	27	24	28
8	K (mg/L)	1.1	1.2	1.1	1.4
9	Mg (mg/L)	3.4	2.9	1.9	2.9
10	Na (mg/L)	3.7	3.9	4.3	4.7
11	NO2+NO3 (mg N/L)	0.41	0.51	0.85	0.96
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.41	0.51	0.85	0.95
14	o-PO4-P (mg P/L)	0.005		0.021	0.052
15	SiO2 (mg/L)	26.1		7.4	7.8
16	SO4 (mg/L)	2.3	1.9	2.6	2.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		0.4	0.6	2.3
2	DO (mg/L)	6.4	6.2	6.3	5.9
3	DO_SAT% (%)	81	80	85	79
	TRACE & TOXIC				
1	As (µg/L)	1.5	0.3	3.8	
2	Cd (µg/L)		0.4	0.0	
3	Cr (µg/L)	0.4	3.1		
4	Cu (µg/L)	3.9	6.8	1.1	
5	Ni (µg/L)		5.7		
6	Pb (µg/L)	0.4	4.5	1.2	
7	Zn (µg/L)	8.5	46.0	3.0	
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	12	14	12
2	HAR_Total (mgCaCO3/L)	24	24	22	24
3	Na% (%)	24	25	28	29
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

River Water

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)			No Flow	No Flow
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	TDS (mg/L)				
5	Temp (deg C)				
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
11	NO2+NO3 (mg N/L)				
12	NO2-N (mgN/L)				
13	NO3-N (mgN/L)				
14	o-PO4-P (mg P/L)				
15	SiO2 (mg/L)				
16	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	DO (mg/L)				
3	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				
2	HAR_Total (mgCaCO3/L)				
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: ERINJIPUZHA	Code	: KP000C3
State	: Kerala	District	Kasaragod
Basin	: WFR South of Tapi	Independent River	: Payaswani
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Payaswani
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 957 Sq. Km.	Bank	: Right
Latitude	: 12°29'45"	Longitude	: 75°09'25"
Zero of Gauge (m)	: 0.000 (Arb.) 1.910 (Arb.) 9.100 (m.s.l)	20/07/1984	- 31/05/1985
		01/06/1985	- 31/03/1989
		01/04/1989	
	Opening Date	Closing Date	
Gauge	: 20/07/1984		
Discharge	: 25/06/1985		
Sediment	: 13/06/1988		
Water Quality	: 01/07/1988		

Water Quality Datasheet for the period : 2017-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	14.60	103.6	84.90
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown
3	EC_FLD (µmho/cm)		91	
4	EC_GEN (µmho/cm)	41	45	32
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)		7.0	
7	pH_GEN (pH units)	6.9	6.2	6.5
8	TDS (mg/L)		28	25
9	Temp (deg C)	29.0	28.0	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	16	12
3	B (mg/L)	0.10	0.04	0.08
4	Ca (mg/L)	7	3	5
5	Cl (mg/L)	7.3	4.8	5.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.01	0.06
8	Fe (mg/L)	0.1	0.1	0.0
9	HCO3 (mg/L)	25	20	15
10	K (mg/L)	1.3	1.0	0.6
11	Mg (mg/L)	3.0	1.9	1.0
12	Na (mg/L)	3.9	3.0	2.8
13	NO2-N (mgN/L)	0.03	0.02	0.02
14	o-PO4-P (mg P/L)	0.134	0.316	0.224
15	SiO2 (mg/L)	11.2	8.6	12.6
16	SO4 (mg/L)	5.5	2.0	2.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	1.0	1.2
2	DO (mg/L)	6.4	8.6	8.6
3	DO_SAT% (%)	83	110	104
	TRACE & TOXIC			
1	As (µg/L)		9.0	
2	Cd (µg/L)			
3	Cr (µg/L)		2.0	
4	Cu (µg/L)		6.0	
5	Ni (µg/L)			
6	Pb (µg/L)		16.0	
7	Zn (µg/L)		5.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	17	9	12
2	HAR_Total (mgCaCO3/L)	29	16	16
3	Na% (%)	22	27	26
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2017	01/02/2018
		A	A
	PHYSICAL		
1	Q (cumec)	10.29	1.817
2	Colour_Cod (-)	Clear	Clear
3	EC_FLD (µmho/cm)		
4	EC_GEN (µmho/cm)	47	56
5	Odour_Code (-)	odour free	odour free
6	pH_FLD (pH units)		
7	pH_GEN (pH units)	7.0	7.5
8	TDS (mg/L)	33	32
9	Temp (deg C)	24.5	26.5
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	24
3	B (mg/L)	0.12	0.11
4	Ca (mg/L)	5	7
5	Cl (mg/L)	5.0	4.1
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.08	0.09
8	Fe (mg/L)	0.1	0.1
9	HCO3 (mg/L)	29	29
10	K (mg/L)	0.7	1.0
11	Mg (mg/L)	3.0	2.0
12	Na (mg/L)	3.6	2.6
13	NO2-N (mgN/L)	0.01	0.03
14	o-PO4-P (mg P/L)	0.163	0.088
15	SiO2 (mg/L)	10.6	10.2
16	SO4 (mg/L)	1.4	2.8
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)	1.2	1.0
2	DO (mg/L)	7.9	7.2
3	DO_SAT% (%)	94	89
	TRACE & TOXIC		
1	As (µg/L)	2.7	
2	Cd (µg/L)	0.1	
3	Cr (µg/L)	5.3	
4	Cu (µg/L)	5.0	
5	Ni (µg/L)	1.4	
6	Pb (µg/L)	0.6	
7	Zn (µg/L)	8.6	
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	12	17
2	HAR_Total (mgCaCO3/L)	24	25
3	Na% (%)	23	17
4	RSC (-)	0.0	0.0
5	SAR (-)	0.3	0.2
	PESTICIDES		

Water Quality Summary for the period : 2017-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	645.8	0.000	54.63
2	EC_FLD (µmho/cm)	1	91	91	91
3	EC_GEN (µmho/cm)	5	56	32	44
4	pH_FLD (pH units)	1	7.0	7.0	6.9
5	pH_GEN (pH units)	5	7.5	6.2	6.8
6	TDS (mg/L)	4	33	25	30
7	Temp (deg C)	5	29.0	24.5	26.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	24	12	19
3	B (mg/L)	5	0.12	0.04	0.09
4	Ca (mg/L)	5	7	3	5
5	Cl (mg/L)	5	7.3	4.1	5.2
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.09	0.01	0.06
8	Fe (mg/L)	5	0.1	0.0	0.1
9	HCO3 (mg/L)	5	29	15	24
10	K (mg/L)	5	1.3	0.6	0.9
11	Mg (mg/L)	5	3.0	1.0	2.2
12	Na (mg/L)	5	3.9	2.6	3.2
13	NO2-N (mgN/L)	5	0.03	0.01	0.02
14	o-PO4-P (mg P/L)	5	0.316	0.088	0.185
15	SiO2 (mg/L)	5	12.6	8.6	10.6
16	SO4 (mg/L)	5	5.5	1.4	2.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.4	1.0	1.2
2	DO (mg/L)	5	8.6	6.4	7.7
3	DO_SAT% (%)	5	110	83	96
	TRACE & TOXIC				
1	As (µg/L)	2	9.0	2.7	5.9
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	5.3	2.0	3.6
4	Cu (µg/L)	2	6.0	5.0	5.5
5	Ni (µg/L)	1	1.4	1.4	1.4
6	Pb (µg/L)	2	16.0	0.6	8.3
7	Zn (µg/L)	2	8.6	5.0	6.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	17	9	13
2	HAR_Total (mgCaCO3/L)	5	29	16	22
3	Na% (%)	5	27	17	23
4	RSC (-)	5	0.0	0.0	0
5	SAR (-)	5	0.3	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	108.1	145.9	188.3	129.3	83.69
2	EC_FLD (µmho/cm)	39	39	39		
3	EC_GEN (µmho/cm)	52	53	45	54	51
4	pH_FLD (pH units)	6.9	6.9	7.0	7.0	7.0
5	pH_GEN (pH units)	7.0	6.9	7.0	7.1	6.9
6	TDS (mg/L)	42	41	27	33	35
7	Temp (deg C)	26.7	26.2	26.5	24.8	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	17	15	16	17
3	B (mg/L)	0.01	0.10	0.00	0.23	0.26
4	Ca (mg/L)	5	4	5	4	5
5	Cl (mg/L)	8.8	7.3	6.2	5.9	7.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.22	0.05	0.14	0.16	0.06
8	Fe (mg/L)		0.2	0.0	0.1	0.1
9	HCO3 (mg/L)	20	20	18	20	21
10	K (mg/L)	0.8	0.7	0.9	0.4	0.8
11	Mg (mg/L)	3.0	2.3	1.1	1.5	1.6
12	Na (mg/L)	4.2	3.8	3.4	3.6	3.9
13	NH3-N (mg N/L)		0.14	0.23	0.37	0.03
14	NO2+NO3 (mg N/L)	2.03	0.33		0.19	0.14
15	NO2-N (mgN/L)	0.04	0.06		0.03	0.04
16	NO3-N (mgN/L)	1.99	0.20		0.16	0.12
17	o-PO4-P (mg P/L)	0.144	0.021	0.057	0.074	0.055
18	P-Tot (mgP/L)	0.144	0.027			
19	SiO2 (mg/L)	20.6	23.7	24.1	19.1	15.9
20	SO4 (mg/L)	1.4	2.0	1.0	1.3	0.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.5	0.5	0.8	0.4
2	COD (mg/L)	7.1	3.8	4.6	5.4	2.5
3	DO (mg/L)	7.5	7.2	7.9	7.8	7.1
4	DO_SAT% (%)	93	89	94	95	89
5	FCol-MPN (MPN/100mL)		880	9	400	350
6	Tcol-MPN (MPN/100mL)		1123	170	1250	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	10	11	11	13
2	HAR_Total (mgCaCO3/L)	25	19	16	17	19
3	Na% (%)	26	29	31	31	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	54.83	124.9	328.2	74.80	109.1
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	53	50	47	49	18
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.6	6.6	6.4	6.3	6.1
6	TDS (mg/L)	33	30			
7	Temp (deg C)	25.2	25.0	27.5	27.3	25.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	18	18			40
3	B (mg/L)	0.04	0.03			
4	Ca (mg/L)	5	5	5	7	8
5	Cl (mg/L)	7.3	6.9	7.4	8.7	19.5
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.19			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	22	22	19	33	48
10	K (mg/L)	1.1	0.8	1.0		0.6
11	Mg (mg/L)	2.6	1.8	2.9	2.8	2.8
12	Na (mg/L)	4.1	3.9	3.1		22.6
13	NH3-N (mg N/L)	0.04				
14	NO2+NO3 (mg N/L)	1.09	0.62			
15	NO2-N (mgN/L)	0.01	0.03			
16	NO3-N (mgN/L)	1.08	0.59			
17	o-PO4-P (mg P/L)	0.251	0.060			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	12.0	10.1			
20	SO4 (mg/L)	2.0	0.8	2.2		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.6	1.6	0.7	0.4
2	COD (mg/L)	3.0	4.3			
3	DO (mg/L)	6.7	5.3	7.1	6.4	6.4
4	DO_SAT% (%)	81	64	90	80	77
5	FCol-MPN (MPN/100mL)	1123	1600			
6	Tcol-MPN (MPN/100mL)	1167	883	1213		
	TRACE & TOXIC					
1	As (µg/L)	6.3	5.0			
2	Cd (µg/L)	0.0	0.0			
3	Cr (µg/L)	4.8	1.0			
4	Cu (µg/L)	14.9	1.1			
5	Hg (µg/L)		0.1			
6	Ni (µg/L)	7.5	8.8			
7	Pb (µg/L)	1.9				
8	Zn (µg/L)	17.0	16.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	13	13	17	20
2	HAR_Total (mgCaCO3/L)	24	20	25	29	31
3	Na% (%)	26	29	23		59
4	RSC (-)	0.0	0.0			0.2
5	SAR (-)	0.4	0.4	0.3		1.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	67.70	14.16	10.94	12.22	22.96
2	EC_FLD (μmho/cm)	91		50		
3	EC_GEN (μmho/cm)	39	59	57	52	53
4	pH_FLD (pH units)	6.9	7.0	7.0	7.8	7.0
5	pH_GEN (pH units)	6.5	7.1	7.3	7.0	7.0
6	TDS (mg/L)	26	48	46	29	34
7	Temp (deg C)	27.3	26.3	26.8	24.5	21.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	17	21	18	16
3	B (mg/L)	0.07	0.05	0.03	0.46	0.22
4	Ca (mg/L)	5	5	5	4	3
5	Cl (mg/L)	5.7	7.1	8.2	7.1	6.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.04	0.26	0.07	0.41	0.11
8	Fe (mg/L)	0.1	0.7	0.1	0.1	0.5
9	HCO3 (mg/L)	20	21	26	21	20
10	K (mg/L)	1.0	0.9	1.0	1.6	0.7
11	Mg (mg/L)	2.0	3.5	3.5	2.2	2.5
12	Na (mg/L)	3.2	4.0	4.3	4.1	3.5
13	NH3-N (mg N/L)		0.15		0.15	0.05
14	NO2+NO3 (mg N/L)		1.72	0.10		0.15
15	NO2-N (mgN/L)	0.02	0.10	0.01		0.01
16	NO3-N (mgN/L)		1.62	0.09		0.14
17	o-PO4-P (mg P/L)	0.225	0.044	0.041	0.026	0.015
18	P-Tot (mgP/L)		0.044			
19	SiO2 (mg/L)	10.8	15.9	21.8	27.3	13.3
20	SO4 (mg/L)	3.2	1.0	1.4	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	0.6	0.5	0.4	1.1
2	COD (mg/L)		4.8	4.0	3.5	7.7
3	DO (mg/L)	7.9	7.2	6.8	7.8	7.9
4	DO_SAT% (%)	99	89	85	92	89
5	FCol-MPN (MPN/100mL)		440	500	700	425
6	Tcol-MPN (MPN/100mL)		1050	900	1250	1250
	TRACE & TOXIC					
1	As (μg/L)	9.0				
2	Cd (μg/L)					
3	Cr (μg/L)	2.0				
4	Cu (μg/L)	6.0				
5	Hg (μg/L)					
6	Ni (μg/L)					
7	Pb (μg/L)	16.0				
8	Zn (μg/L)	5.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	12	12	9	9
2	HAR_Total (mgCaCO3/L)	21	27	26	18	19
3	Na% (%)	25	24	25	32	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	18.66	9.378	14.46	12.25	18.88
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	61	56	54	52	50
4	pH_FLD (pH units)		7.7			
5	pH_GEN (pH units)	6.9	6.7	7.0	7.1	7.0
6	TDS (mg/L)	40	36	37		
7	Temp (deg C)	26.5	25.8	27.5	26.5	27.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	22	17	20		
3	B (mg/L)	0.18	0.12	0.05		
4	Ca (mg/L)	6	6	6	5	6
5	Cl (mg/L)	6.0	6.4	7.1	4.8	21.5
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.15	0.14	0.08		
8	Fe (mg/L)	1.0	0.0		0.0	0.0
9	HCO3 (mg/L)	27	21	25	26	58
10	K (mg/L)	0.8	0.9	1.0		0.1
11	Mg (mg/L)	2.0	1.7	1.8	2.8	2.4
12	Na (mg/L)	3.6	3.9	4.1		8.4
13	NH3-N (mg N/L)	0.06	0.02			
14	NO2+NO3 (mg N/L)		0.93	0.52		
15	NO2-N (mgN/L)		0.01	0.01		
16	NO3-N (mgN/L)	1.00	0.93	0.50		
17	o-PO4-P (mg P/L)	0.650	0.093	0.025		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	15.7	14.8	11.8		
20	SO4 (mg/L)	0.8	1.8	1.0	1.1	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.6	0.5	0.5	1.2
2	COD (mg/L)	3.7	13.5	3.7		
3	DO (mg/L)	7.1	6.8	7.5	7.1	7.2
4	DO_SAT% (%)	88	83	94	88	91
5	FCol-MPN (MPN/100mL)	1050	700	1600		
6	Tcol-MPN (MPN/100mL)	1250	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.1				
2	Cd (µg/L)	1.0			0.0	
3	Cr (µg/L)	114.0			0.5	
4	Cu (µg/L)	3.9			2.4	
5	Hg (µg/L)					
6	Ni (µg/L)	0.9			1.0	
7	Pb (µg/L)	13.9			0.3	
8	Zn (µg/L)	1.5			13.8	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	14	15	12	16
2	HAR_Total (mgCaCO3/L)	22	21	22	24	26
3	Na% (%)	25	27	28		43
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.3	0.4	0.4		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	6.950	6.054	6.709	1.554	0.000
2	EC_FLD (µmho/cm)				58	
3	EC_GEN (µmho/cm)	37	51	93	64	
4	pH_FLD (pH units)			7.0	7.0	
5	pH_GEN (pH units)	6.8	7.3	6.9	7.1	
6	TDS (mg/L)		33	86	53	
7	Temp (deg C)	26.3	25.5	27.0	28.5	
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	36	24	18	25	
3	B (mg/L)		0.11	0.11	0.10	
4	Ca (mg/L)	6	6	6	5	
5	Cl (mg/L)	21.5	4.5	11.2	6.4	
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	
7	F (mg/L)		0.09	0.21	0.11	
8	Fe (mg/L)		0.1		0.1	
9	HCO3 (mg/L)	44	29	22	31	
10	K (mg/L)	1.0	0.9	1.0	1.8	
11	Mg (mg/L)	3.8	2.5	3.0	2.5	
12	Na (mg/L)	14.7	3.1	7.0	4.4	
13	NH3-N (mg N/L)			0.11	0.10	
14	NO2+NO3 (mg N/L)			0.92	0.11	
15	NO2-N (mgN/L)		0.02	0.11	0.04	
16	NO3-N (mgN/L)			0.81	0.08	
17	o-PO4-P (mg P/L)		0.125	0.246	0.021	
18	P-Tot (mgP/L)			0.246		
19	SiO2 (mg/L)		10.4	15.7	22.4	
20	SO4 (mg/L)		2.1	1.0	1.0	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.5	1.1	0.6	0.6	
2	COD (mg/L)			4.6	4.8	
3	DO (mg/L)	11.4	7.5	7.0	6.0	
4	DO_SAT% (%)	140	91	88	77	
5	FCol-MPN (MPN/100mL)			240		
6	Tcol-MPN (MPN/100mL)			600		
	TRACE & TOXIC					
1	As (µg/L)		2.7	4.1		
2	Cd (µg/L)		0.1	2.1		
3	Cr (µg/L)		5.3		2.0	
4	Cu (µg/L)		5.0	3.3	1.0	
5	Hg (µg/L)					
6	Ni (µg/L)		1.4		4.9	
7	Pb (µg/L)		0.6	1.9	1.0	
8	Zn (µg/L)		8.6	42.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	14	14	12	
2	HAR_Total (mgCaCO3/L)	31	25	27	22	
3	Na% (%)	50	20	36	28	
4	RSC (-)	0.1	0.0	0.0	0.1	
5	SAR (-)	1.2	0.3	0.6	0.4	
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	1.740	0.424	0.104	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	89		68	
4	pH_FLD (pH units)	7.0			
5	pH_GEN (pH units)	6.7		7.0	
6	TDS (mg/L)	55		48	
7	Temp (deg C)	26.5		31.0	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	
2	ALK-TOT (mgCaCO3/L)	22		26	
3	B (mg/L)	0.21		0.05	
4	Ca (mg/L)	5		11	
5	Cl (mg/L)	9.2		7.8	
6	CO3 (mg/L)	0.0		0.0	
7	F (mg/L)	0.12		0.28	
8	Fe (mg/L)	0.2	0.0	0.1	0.0
9	HCO3 (mg/L)	27		32	
10	K (mg/L)	1.0		1.9	
11	Mg (mg/L)	2.4		1.0	
12	Na (mg/L)	5.0		4.2	
13	NH3-N (mg N/L)	0.05			
14	NO2+NO3 (mg N/L)	0.28		0.79	
15	NO2-N (mgN/L)	0.02		0.08	
16	NO3-N (mgN/L)	0.26		0.71	
17	o-PO4-P (mg P/L)	0.580		0.080	
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	15.4		15.2	
20	SO4 (mg/L)	1.0		0.8	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2.4		0.4	
2	COD (mg/L)	11.4		2.8	
3	DO (mg/L)	8.0		6.5	
4	DO_SAT% (%)	98		87	
5	FCol-MPN (MPN/100mL)	900		220	
6	Tcol-MPN (MPN/100mL)	1600		280	
	TRACE & TOXIC				
1	As (µg/L)	0.9	0.0	2.8	1.6
2	Cd (µg/L)	0.0	0.0	0.0	0.1
3	Cr (µg/L)	8.6	3.1	0.4	2.4
4	Cu (µg/L)	3.5	1.8	1.4	1.3
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		4.7	0.1	4.2
7	Pb (µg/L)	0.4	3.9	2.4	0.1
8	Zn (µg/L)	11.9	0.0	2.0	2.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12		28	
2	HAR_Total (mgCaCO3/L)	22		32	
3	Na% (%)	32		21	
4	RSC (-)	0.0		0.0	
5	SAR (-)	0.5		0.3	
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Cochin

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.108	0.000	No Flow	No Flow
2	EC_FLD ($\mu\text{mho}/\text{cm}$)				
3	EC_GEN ($\mu\text{mho}/\text{cm}$)	74			
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.3			
6	TDS (mg/L)				
7	Temp (deg C)	29.0	25.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO ₃ /L)				
2	ALK-TOT (mgCaCO ₃ /L)				
3	B (mg/L)				
4	Ca (mg/L)	8			
5	Cl (mg/L)	5.2			
6	CO ₃ (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO ₃ (mg/L)	26			
10	K (mg/L)				
11	Mg (mg/L)	2.8			
12	Na (mg/L)				
13	NH ₃ -N (mg N/L)				
14	NO ₂ +NO ₃ (mg N/L)				
15	NO ₂ -N (mgN/L)				
16	NO ₃ -N (mgN/L)				
17	o-PO ₄ -P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO ₂ (mg/L)				
20	SO ₄ (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	2.6			
2	COD (mg/L)				
3	DO (mg/L)	6.6			
4	DO_SAT% (%)	86			
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As ($\mu\text{g}/\text{L}$)				
2	Cd ($\mu\text{g}/\text{L}$)				
3	Cr ($\mu\text{g}/\text{L}$)				
4	Cu ($\mu\text{g}/\text{L}$)				
5	Hg ($\mu\text{g}/\text{L}$)				
6	Ni ($\mu\text{g}/\text{L}$)				
7	Pb ($\mu\text{g}/\text{L}$)				
8	Zn ($\mu\text{g}/\text{L}$)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	20			
2	HAR_Total (mgCaCO ₃ /L)	31			
3	Na% (%)				
4	RSC (-)				
5	SAR (-)				
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: PERUMANNU	Code	: KA000K8
State	: Kerala	District	Cannanore
Basin	: WFR South of Tapi	Independent River	: Valapatnam
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Valapatnam
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 1070 Sq. Km.	Bank	: Right
Latitude	: 11°58'51"	Longitude	: 75°34'40"
Zero of Gauge (m)	: 3.470 (m.s.l)	23/05/1984	
	Opening Date	Closing Date	
Gauge	: 23/05/1984		
Discharge	: 26/06/1985		
Sediment	: 26/07/1986		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.323	131.9	156.1
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_FLD (µmho/cm)	42	65	48
4	EC_GEN (µmho/cm)	58	46	34
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.1	7.2	6.6
7	pH_GEN (pH units)	6.6	6.4	6.5
8	TDS (mg/L)	32	36	28
9	Temp (deg C)	28.5	25.5	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	28	20
3	B (mg/L)	0.04	0.06	0.06
4	Ca (mg/L)	5	7	5
5	Cl (mg/L)	3.1	5.8	4.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.04	0.06	0.04
8	Fe (mg/L)	0.0	0.1	0.0
9	HCO3 (mg/L)	25	35	25
10	K (mg/L)	0.8	1.0	0.7
11	Mg (mg/L)	2.0	3.7	2.0
12	Na (mg/L)	2.4	3.1	2.9
13	NO2-N (mgN/L)	0.02	0.01	0.03
14	o-PO4-P (mg P/L)	0.074	0.102	0.413
15	SiO2 (mg/L)	10.8	12.8	14.6
16	SO4 (mg/L)	1.3	1.4	1.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	0.4	1.1
2	DO (mg/L)	8.2	8.0	6.0
3	DO_SAT% (%)	105	97	73
	TRACE & TOXIC			
1	As (µg/L)		4.0	
2	Cd (µg/L)			
3	Cr (µg/L)		3.0	
4	Cu (µg/L)		4.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		9.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	17	12
2	HAR_Total (mgCaCO3/L)	21	33	20
3	Na% (%)	19	17	23
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.2	0.2	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2017	01/02/2018	03/04/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	10.77	0.614	0.535
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)			
4	EC_GEN (µmho/cm)	53	56	62
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)			
7	pH_GEN (pH units)	7.2	7.6	7.3
8	TDS (mg/L)	31	32	
9	Temp (deg C)		25.0	29.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	20	11
3	B (mg/L)	0.19	0.09	0.07
4	Ca (mg/L)	5	7	3
5	Cl (mg/L)	5.9	6.2	4.2
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.02	0.06	0.06
8	Fe (mg/L)	0.0	0.1	0.1
9	HCO3 (mg/L)	25	24	14
10	K (mg/L)	0.6	0.9	0.9
11	Mg (mg/L)	3.0	1.0	1.0
12	Na (mg/L)	3.5	3.3	2.7
13	NO2-N (mgN/L)	0.02	0.02	0.02
14	o-PO4-P (mg P/L)	0.293	0.280	0.081
15	SiO2 (mg/L)	8.4	14.6	10.3
16	SO4 (mg/L)	2.0	1.4	1.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.9	1.4
2	DO (mg/L)	8.0	7.6	8.0
3	DO_SAT% (%)		92	104
	TRACE & TOXIC			
1	As (µg/L)	2.6		0.5
2	Cd (µg/L)	0.1		0.0
3	Cr (µg/L)	5.8		0.5
4	Cu (µg/L)	3.9		13.3
5	Ni (µg/L)	1.0		5.8
6	Pb (µg/L)	2.7		1.6
7	Zn (µg/L)	8.0		23.7
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	17	7
2	HAR_Total (mgCaCO3/L)	24	21	11
3	Na% (%)	23	25	32
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1117	0.423	90.05
2	EC_FLD (µmho/cm)	3	65	42	52
3	EC_GEN (µmho/cm)	6	62	34	51
4	pH_FLD (pH units)	3	7.2	6.6	7
5	pH_GEN (pH units)	6	7.6	6.4	6.9
6	TDS (mg/L)	5	36	28	32
7	Temp (deg C)	5	29.0	25.0	26.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	28	11	20
3	B (mg/L)	6	0.19	0.04	0.08
4	Ca (mg/L)	6	7	3	5
5	Cl (mg/L)	6	6.2	3.1	4.9
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.06	0.02	0.05
8	Fe (mg/L)	6	0.1	0.0	0.1
9	HCO3 (mg/L)	6	35	14	24
10	K (mg/L)	6	1.0	0.6	0.8
11	Mg (mg/L)	6	3.7	1.0	2.1
12	Na (mg/L)	6	3.5	2.4	3
13	NO2-N (mgN/L)	6	0.03	0.01	0.02
14	o-PO4-P (mg P/L)	6	0.413	0.074	0.207
15	SiO2 (mg/L)	6	14.6	8.4	11.9
16	SO4 (mg/L)	6	2.0	1.3	1.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.4	0.4	1
2	DO (mg/L)	6	8.2	6.0	7.6
3	DO_SAT% (%)	5	105	73	94
	TRACE & TOXIC				
1	As (µg/L)	3	4.0	0.5	2.3
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	3	5.8	0.5	3.1
4	Cu (µg/L)	3	13.3	3.9	7.1
5	Ni (µg/L)	2	5.8	1.0	3.4
6	Pb (µg/L)	3	2.7	1.0	1.8
7	Zn (µg/L)	3	23.7	8.0	13.6
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	17	7	13
2	HAR_Total (mgCaCO3/L)	6	33	11	22
3	Na% (%)	6	32	17	23
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	184.9	285.9	157.4	165.9	121.1
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	46	49	45	53	51
4	pH_FLD (pH units)				6.4	6.4
5	pH_GEN (pH units)	6.9	6.8	7.2	6.9	6.3
6	TDS (mg/L)	36	36	27	30	34
7	Temp (deg C)	27.5	27.5	27.7	28.8	27.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	15	14	16	16
3	B (mg/L)	0.01	0.02	0.22	0.03	0.16
4	Ca (mg/L)	5	4	5	4	5
5	Cl (mg/L)	7.2	7.1	6.4	6.3	6.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.19	0.08	0.11	0.12	0.04
8	Fe (mg/L)		0.1	0.0	0.0	0.3
9	HCO3 (mg/L)	20	18	17	20	20
10	K (mg/L)	0.6	0.7	0.7	0.5	0.7
11	Mg (mg/L)	2.5	1.7	1.3	1.7	1.7
12	Na (mg/L)	3.7	3.8	3.5	3.6	3.6
13	NH3-N (mg N/L)			0.26	0.12	0.08
14	NO2+NO3 (mg N/L)	1.47	0.19		0.19	0.18
15	NO2-N (mgN/L)	0.03	0.09		0.03	0.00
16	NO3-N (mgN/L)	1.44	0.10		0.17	0.15
17	o-PO4-P (mg P/L)	0.142	0.022	0.053	0.106	0.051
18	P-Tot (mgP/L)	0.142	0.040			
19	SiO2 (mg/L)	21.1	21.1	34.2	22.5	18.4
20	SO4 (mg/L)	1.2	1.0	1.0	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5	0.3	0.2	0.4
2	COD (mg/L)	4.0	4.3	3.1	1.4	2.3
3	DO (mg/L)	7.5	7.1	7.0	7.1	6.9
4	DO_SAT% (%)	95	89	86	92	86
5	FCol-MPN (MPN/100mL)	170	500	360	900	590
6	Tcol-MPN (MPN/100mL)	900	1600	1600	1600	975
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	10	11	11	13
2	HAR_Total (mgCaCO3/L)	24	17	17	18	20
3	Na% (%)	24	32	30	30	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	101.1	484.9	705.8	71.38	94.62
2	EC_FLD (µmho/cm)				68	74
3	EC_GEN (µmho/cm)	53	45	45	53	22
4	pH_FLD (pH units)	6.5			7.6	6.6
5	pH_GEN (pH units)	6.5	6.6	6.7	6.5	5.9
6	TDS (mg/L)	33	28			
7	Temp (deg C)	28.0	25.8	25.5	26.8	26.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	17	16			24
3	B (mg/L)	0.05	0.03			
4	Ca (mg/L)	6	4	5	6	9
5	Cl (mg/L)	7.1	6.3	7.4	16.5	22.2
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.19			
8	Fe (mg/L)	0.1	0.0			
9	HCO3 (mg/L)	21	19	19	22	29
10	K (mg/L)	1.0	1.0	1.0		0.8
11	Mg (mg/L)	1.8	1.8	2.9	2.8	3.8
12	Na (mg/L)	4.1	3.9	2.8		18.6
13	NH3-N (mg N/L)	0.00				
14	NO2+NO3 (mg N/L)	1.19	0.37			
15	NO2-N (mgN/L)	0.00	0.01			
16	NO3-N (mgN/L)	1.19	0.36			
17	o-PO4-P (mg P/L)	0.255	0.063			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	9.7	8.8			
20	SO4 (mg/L)	1.0	0.8	1.1		
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)	0.4	0.7	0.7	0.4	0.6
2	COD (mg/L)	2.7	4.3			
3	DO (mg/L)	6.7	6.2	7.2	6.6	6.1
4	DO_SAT% (%)	84	76	88	83	76
5	Fcol-MPN (MPN/100mL)	1133	900			
6	Tcol-MPN (MPN/100mL)	1600	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	6.5	2.9			
2	Cd (µg/L)	0.0	0.0			
3	Cr (µg/L)	5.3	0.8			
4	Cu (µg/L)	11.6	0.6			
5	Hg (µg/L)		0.1			
6	Ni (µg/L)	5.8	9.3			
7	Pb (µg/L)	2.2	0.1			
8	Zn (µg/L)	21.4	13.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	10	13	16	21
2	HAR_Total (mgCaCO3/L)	22	18	25	28	37
3	Na% (%)	28	31	22		50
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.4	0.4	0.3		1.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood Jun - Oct	Winter			
			Nov - Feb			
			2007-2008	2008-2009	2009-2010	2010-2011
		2017				
	PHYSICAL					
1	Q (cumec)	96.43	16.92	7.831	6.911	23.83
2	EC_FLD (µmho/cm)	52				
3	EC_GEN (µmho/cm)	46	69	57	48	51
4	pH_FLD (pH units)	7.0				6.6
5	pH_GEN (pH units)	6.5	7.3	7.2	6.8	6.9
6	TDS (mg/L)	32	56	45	28	32
7	Temp (deg C)	26.3	26.8	27.3	28.3	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	23	18	20	17	17
3	B (mg/L)	0.05	0.10	0.10	0.28	0.15
4	Ca (mg/L)	6	6	5	3	5
5	Cl (mg/L)	4.3	8.0	7.5	7.1	6.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.18	0.26	0.14	0.09
8	Fe (mg/L)	0.0	0.3	0.2	0.1	0.0
9	HCO3 (mg/L)	28	23	24	21	20
10	K (mg/L)	0.8	0.9	0.9	1.0	0.6
11	Mg (mg/L)	2.6	2.5	2.5	2.4	1.5
12	Na (mg/L)	2.8	4.0	4.3	3.9	3.3
13	NH3-N (mg N/L)				0.15	0.08
14	NO2+NO3 (mg N/L)		0.84	0.28		0.29
15	NO2-N (mgN/L)	0.02	0.08	0.08		0.03
16	NO3-N (mgN/L)		0.77	0.15		0.26
17	o-PO4-P (mg P/L)	0.196	0.495	0.014	0.029	0.080
18	P-Tot (mgP/L)		0.495			
19	SiO2 (mg/L)	12.7	13.2	20.6	26.3	13.6
20	SO4 (mg/L)	1.4	1.7	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)	1.0	0.8	0.5	0.4	0.8
2	COD (mg/L)		6.2	3.7	2.9	6.5
3	DO (mg/L)	7.4	7.5	7.2	6.7	7.0
4	DO_SAT% (%)	91	93	90	86	87
5	FCol-MPN (MPN/100mL)		490	900	1600	1050
6	Tcol-MPN (MPN/100mL)		900	1600	1600	1250
	TRACE & TOXIC					
1	As (µg/L)	4.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	4.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	9.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	15	12	8	12
2	HAR_Total (mgCaCO3/L)	25	25	22	18	18
3	Na% (%)	20	24	29	31	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	14.38	12.55	8.395	5.983	9.590
2	EC_FLD (µmho/cm)					66
3	EC_GEN (µmho/cm)	54	59	53	45	50
4	pH_FLD (pH units)	6.7	7.2			7.6
5	pH_GEN (pH units)	6.8	6.4	6.8	7.1	6.8
6	TDS (mg/L)	36	38	34		
7	Temp (deg C)	26.0	26.0	26.3	26.3	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	19	21	21		
3	B (mg/L)	0.07	0.12	0.03		
4	Ca (mg/L)	6	6	6	4	8
5	Cl (mg/L)	7.1	7.4	6.5	4.1	26.7
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.14	0.14	0.09		
8	Fe (mg/L)	1.0	0.0		0.0	0.0
9	HCO3 (mg/L)	24	26	26	22	36
10	K (mg/L)	0.8	1.0	1.0		0.1
11	Mg (mg/L)	2.0	2.2	2.2	1.9	3.3
12	Na (mg/L)	3.9	4.0	4.0		8.8
13	NH3-N (mg N/L)	0.06	0.01			
14	NO2+NO3 (mg N/L)		1.03	0.29		
15	NO2-N (mgN/L)		0.01	0.02		
16	NO3-N (mgN/L)	1.55	1.02	0.27		
17	o-PO4-P (mg P/L)	0.495	0.082	0.024		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	14.6	17.4	10.3		
20	SO4 (mg/L)	0.6	0.7	0.9	0.9	
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)	0.5	0.7	0.6	0.6	0.8
2	COD (mg/L)	4.6	4.5	4.3		
3	DO (mg/L)	7.1	6.9	7.7	6.7	6.8
4	DO_SAT% (%)	88	84	95	83	83
5	Fcol-MPN (MPN/100mL)	1600	1050	1250		
6	Tcol-MPN (MPN/100mL)	1600	1250	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.1				
2	Cd (µg/L)	0.2			0.1	
3	Cr (µg/L)	1.8			0.3	
4	Cu (µg/L)	26.6			5.7	
5	Hg (µg/L)					
6	Ni (µg/L)	2.8			1.5	
7	Pb (µg/L)	0.2			10.6	
8	Zn (µg/L)	3.6			9.2	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	16	15	10	20
2	HAR_Total (mgCaCO3/L)	23	25	24	18	33
3	Na% (%)	26	25	26		38
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.4	0.3	0.4		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	0.887	5.690	4.464	3.099	4.962
2	EC_FLD (µmho/cm)	50				
3	EC_GEN (µmho/cm)	81	54	67	56	55
4	pH_FLD (pH units)	6.8				
5	pH_GEN (pH units)	5.9	7.4	7.0	7.2	7.1
6	TDS (mg/L)		32	54	44	34
7	Temp (deg C)	27.3	25.0	28.5	31.0	31.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	25	20	18	22	22
3	B (mg/L)		0.14	0.01	0.07	0.13
4	Ca (mg/L)	9	6	5	4	5
5	Cl (mg/L)	27.4	6.0	8.5	5.7	7.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)		0.04	0.16	0.10	0.12
8	Fe (mg/L)		0.1	1.6	0.0	0.1
9	HCO3 (mg/L)	31	24	22	27	27
10	K (mg/L)	1.9	0.8	1.4	1.3	1.7
11	Mg (mg/L)	4.2	2.0	2.5	2.4	2.0
12	Na (mg/L)	13.2	3.4	5.2	3.9	4.2
13	NH3-N (mg N/L)			0.05	0.09	0.12
14	NO2+NO3 (mg N/L)			0.59	0.12	
15	NO2-N (mgN/L)		0.02	0.19	0.01	
16	NO3-N (mgN/L)			0.40	0.11	0.03
17	o-PO4-P (mg P/L)		0.287	0.235		
18	P-Tot (mgP/L)			0.235		
19	SiO2 (mg/L)		11.5	12.3	18.7	26.7
20	SO4 (mg/L)		1.7	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)	0.9	0.8	1.0	1.2	1.4
2	COD (mg/L)			8.3	8.9	10.2
3	DO (mg/L)	8.5	7.8	7.2	7.0	7.4
4	DO_SAT% (%)	106	92	92	94	100
5	FCol-MPN (MPN/100mL)			500		1600
6	Tcol-MPN (MPN/100mL)			900		1600
	TRACE & TOXIC					
1	As (µg/L)		2.5	4.6	1.0	
2	Cd (µg/L)		0.1	0.5		
3	Cr (µg/L)		5.8		2.0	
4	Cu (µg/L)		3.9	8.3	6.8	
5	Hg (µg/L)					
6	Ni (µg/L)		1.0		8.4	
7	Pb (µg/L)		2.7	2.4	1.0	
8	Zn (µg/L)		8.0	51.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	24	14	12	10	12
2	HAR_Total (mgCaCO3/L)	41	23	22	20	20
3	Na% (%)	40	24	32	28	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.9	0.3	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	3.845	3.181	2.094	1.380
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	69	60	64	61
4	pH_FLD (pH units)	7.0	7.2		
5	pH_GEN (pH units)	7.4	6.4	6.9	7.0
6	TDS (mg/L)	43	39	36	38
7	Temp (deg C)	30.5	29.5	30.0	30.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	23	24	24	24
3	B (mg/L)	0.14	0.24	0.01	0.04
4	Ca (mg/L)	5	6	6	6
5	Cl (mg/L)	7.0	7.8	7.1	8.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.11	0.03	0.28	0.19
8	Fe (mg/L)	0.1	0.1	0.1	0.0
9	HCO3 (mg/L)	28	29	29	29
10	K (mg/L)	0.8	0.8	1.2	1.2
11	Mg (mg/L)	3.4	3.5	3.0	2.9
12	Na (mg/L)	4.6	4.4	4.0	4.7
13	NH3-N (mg N/L)	0.05	0.03		
14	NO2+NO3 (mg N/L)	0.26	1.47	0.75	0.52
15	NO2-N (mgN/L)	0.04	0.02	0.07	0.15
16	NO3-N (mgN/L)	0.22	1.45	0.68	0.36
17	o-PO4-P (mg P/L)	0.870	0.085	0.030	0.075
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	17.8	11.6	15.8	15.7
20	SO4 (mg/L)	1.0	1.0	0.7	1.0
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)	0.8	0.6	0.6	0.8
2	COD (mg/L)	5.8	8.4	4.2	5.6
3	DO (mg/L)	6.4	5.6	5.9	6.5
4	DO_SAT% (%)	85	73	78	86
5	FCol-MPN (MPN/100mL)	1600	1600	1600	900
6	Tcol-MPN (MPN/100mL)	1600	1600	1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.0	0.6	2.6	1.0
2	Cd (µg/L)	0.2	0.0	0.0	0.1
3	Cr (µg/L)	3.3	6.7	0.1	0.5
4	Cu (µg/L)	2.3	1.0	1.5	1.6
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		5.2	0.7	3.0
7	Pb (µg/L)	0.0	4.1	2.6	0.2
8	Zn (µg/L)	39.1	0.0	4.1	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	13	14	16	14
2	HAR_Total (mgCaCO3/L)	27	29	28	26
3	Na% (%)	26	25	23	27
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Cochin

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	1.115	0.519	0.052	0.535
2	EC_FLD (µmho/cm)			41	
3	EC_GEN (µmho/cm)	98	72	65	62
4	pH_FLD (pH units)		7.1	6.8	
5	pH_GEN (pH units)	6.8	6.2	6.7	7.3
6	TDS (mg/L)				
7	Temp (deg C)	30.0	29.5	29.5	29.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			37	11
3	B (mg/L)				0.07
4	Ca (mg/L)	11	13	9	3
5	Cl (mg/L)	7.8	33.5	18.2	4.2
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)				0.06
8	Fe (mg/L)				0.1
9	HCO3 (mg/L)	26	17	45	14
10	K (mg/L)		0.3	1.7	0.9
11	Mg (mg/L)	1.9	4.8	7.6	0.9
12	Na (mg/L)		13.8	14.6	2.7
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				0.02
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				0.081
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				10.3
20	SO4 (mg/L)				1.3
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)	0.1	1.0	2.2	1.4
2	COD (mg/L)				
3	DO (mg/L)	7.0	6.2	7.0	8.0
4	DO_SAT% (%)	93	81	91	104
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.5
2	Cd (µg/L)				0.0
3	Cr (µg/L)				0.5
4	Cu (µg/L)				13.3
5	Hg (µg/L)				
6	Ni (µg/L)				5.8
7	Pb (µg/L)				1.6
8	Zn (µg/L)				23.7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	27	31	24	7
2	HAR_Total (mgCaCO3/L)	35	51	55	11
3	Na% (%)		37	36	32
4	RSC (-)			0.0	0.0
5	SAR (-)		0.8	0.9	0.4
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KUTTYADI	Code	: KK000N2
State	: Kerala	District	Kozhikode
Basin	: WFR South of Tapi	Independent River	: Kuttyadi
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kuttyadi
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 238 Sq. Km.	Bank	: Right
Latitude	: 11°39'03"	Longitude	: 75°45'30"
Zero of Gauge (m)	: 0 (m.s.l)	16/03/1996	
	Opening Date	Closing Date	
Gauge	: 16/03/1996		
Discharge	: 13/03/2000		
Sediment	: 01/06/2013		
Water Quality	: 01/10/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	7.936	49.73	39.40
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (μmho/cm)			
4	EC_GEN (μmho/cm)	38	35	22
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)			
7	pH_GEN (pH units)	7.0	7.4	7.6
8	TDS (mg/L)		21	18
9	Temp (deg C)	28.0	26.0	26.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	8	16	12
3	B (mg/L)	0.06	0.03	0.04
4	Ca (mg/L)	3	3	3
5	Cl (mg/L)	4.2	2.9	2.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.07	0.03	0.07
8	Fe (mg/L)	0.1	0.1	0.0
9	HCO3 (mg/L)	10	20	15
10	K (mg/L)	0.5	0.6	0.4
11	Mg (mg/L)	1.0	2.9	1.0
12	Na (mg/L)	2.2	1.6	1.3
13	NO2-N (mgN/L)	0.01	0.02	0.02
14	o-PO4-P (mg P/L)	0.057	0.063	0.046
15	SiO2 (mg/L)	10.5	7.2	9.6
16	SO4 (mg/L)	2.2	2.1	1.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.2	1.6	1.1
2	DO (mg/L)	7.4	6.1	5.2
3	DO_SAT% (%)	95	75	64
	TRACE & TOXIC			
1	As (μg/L)		3.0	
2	Cd (μg/L)			
3	Cr (μg/L)		5.0	
4	Cu (μg/L)		3.0	
5	Ni (μg/L)			
6	Pb (μg/L)		1.0	
7	Zn (μg/L)		4.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	9	8
2	HAR_Total (mgCaCO3/L)	12	21	12
3	Na% (%)	27	14	18
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.2
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2017	01/02/2018	02/04/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	2.579	24.82	2.833
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)			23
4	EC_GEN (µmho/cm)	32	23	27
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)			6.3
7	pH_GEN (pH units)	7.3	6.9	6.9
8	TDS (mg/L)	22	18	
9	Temp (deg C)	26.0	26.0	29.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	12	26
3	B (mg/L)	0.08	0.06	0.10
4	Ca (mg/L)	3	3	8
5	Cl (mg/L)	3.0	3.1	7.3
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.03	0.04	0.04
8	Fe (mg/L)	0.1	0.1	0.2
9	HCO3 (mg/L)	15	14	32
10	K (mg/L)	0.6	0.8	1.2
11	Mg (mg/L)	2.0	1.0	2.7
12	Na (mg/L)	1.6	1.9	4.2
13	NO2-N (mgN/L)	0.01	0.06	0.01
14	o-PO4-P (mg P/L)	0.034	0.052	0.066
15	SiO2 (mg/L)	10.4	14.2	10.2
16	SO4 (mg/L)	2.5	1.5	2.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.9	0.8	1.1
2	DO (mg/L)	7.9	6.5	8.5
3	DO_SAT% (%)	97	80	111
	TRACE & TOXIC			
1	As (µg/L)	6.1		0.5
2	Cd (µg/L)	0.1		0.0
3	Cr (µg/L)	43.3		15.2
4	Cu (µg/L)	2.1		27.4
5	Ni (µg/L)	8.2		7.3
6	Pb (µg/L)	3.0		2.3
7	Zn (µg/L)	23.4		24.0
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	8	19
2	HAR_Total (mgCaCO3/L)	16	13	30
3	Na% (%)	17	23	23
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.2	0.2	0.3
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	206.3	1.459	31.49
2	EC_FLD (µmho/cm)	1	23	23	23
3	EC_GEN (µmho/cm)	6	38	22	29
4	pH_FLD (pH units)	1	6.3	6.3	6.3
5	pH_GEN (pH units)	6	7.6	6.9	7.2
6	TDS (mg/L)	4	22	18	20
7	Temp (deg C)	6	29.0	26.0	26.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	26	8	14
3	B (mg/L)	6	0.10	0.03	0.06
4	Ca (mg/L)	6	8	3	4
5	Cl (mg/L)	6	7.3	2.0	3.7
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.07	0.03	0.05
8	Fe (mg/L)	6	0.2	0.0	0.1
9	HCO3 (mg/L)	6	32	10	18
10	K (mg/L)	6	1.2	0.4	0.7
11	Mg (mg/L)	6	2.9	1.0	1.8
12	Na (mg/L)	6	4.2	1.3	2.1
13	NO2-N (mgN/L)	6	0.06	0.01	0.02
14	o-PO4-P (mg P/L)	6	0.066	0.034	0.053
15	SiO2 (mg/L)	6	14.2	7.2	10.3
16	SO4 (mg/L)	6	2.5	1.4	2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.6	0.8	1.1
2	DO (mg/L)	6	8.5	5.2	6.9
3	DO_SAT% (%)	6	111	64	87
	TRACE & TOXIC				
1	As (µg/L)	3	6.1	0.5	3.2
2	Cd (µg/L)	2	0.1	0.0	0.1
3	Cr (µg/L)	3	43.3	5.0	21.2
4	Cu (µg/L)	3	27.4	2.1	10.9
5	Ni (µg/L)	2	8.2	7.3	7.7
6	Pb (µg/L)	3	3.0	1.0	2.1
7	Zn (µg/L)	3	24.0	4.0	17.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	19	8	10
2	HAR_Total (mgCaCO3/L)	6	30	12	17
3	Na% (%)	6	27	14	20
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.3	0.2	0.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)			56.53	43.96	38.19
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)		31	29	34	33
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		6.5	6.9	6.6	6.1
6	TDS (mg/L)		24	16	21	22
7	Temp (deg C)		26.0	26.3	27.0	25.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		9	8	9	10
2	B (mg/L)		0.01	0.19	0.36	0.25
3	Ca (mg/L)		3	2	3	4
4	Cl (mg/L)		5.3	4.7	5.0	4.7
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.05	0.10	0.11	0.05
7	Fe (mg/L)		0.3	0.0	0.3	0.1
8	HCO3 (mg/L)		11	10	11	12
9	K (mg/L)		0.4	0.7	0.3	0.4
10	Mg (mg/L)		1.0	0.8	1.2	0.5
11	Na (mg/L)		2.7	2.6	2.7	2.6
12	NH3-N (mg N/L)		0.05	0.27	0.24	0.01
13	NO2+NO3 (mg N/L)		0.11		0.05	0.17
14	NO2-N (mgN/L)		0.03		0.00	0.01
15	NO3-N (mgN/L)		0.08		0.06	0.15
16	o-PO4-P (mg P/L)		0.035	0.028	0.059	0.030
17	P-Tot (mgP/L)		0.015			
18	SiO2 (mg/L)		17.4	28.2	21.0	11.4
19	SO4 (mg/L)		1.1	1.0	1.0	0.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.5		
2	COD (mg/L)			1.8	1.6	
3	DO (mg/L)					
4	DO_SAT% (%)					
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		7	6	7	9
2	HAR_Total (mgCaCO3/L)		11	9	12	11
3	Na% (%)		33	36	33	32
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.3	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	30.94	129.9	143.5	33.40	27.43
2	EC_FLD (µmho/cm)		35			
3	EC_GEN (µmho/cm)	36	27	29	31	13
4	pH_FLD (pH units)		6.9			
5	pH_GEN (pH units)	7.1	6.7	7.1	8.0	6.7
6	TDS (mg/L)	23	17			
7	Temp (deg C)	26.7	25.2	27.0	27.8	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	9			19
2	B (mg/L)	0.02	0.03			
3	Ca (mg/L)	4	3	3	11	7
4	Cl (mg/L)	4.2	4.8	5.2	12.6	10.0
5	CO3 (mg/L)	0.0	0.0			0.0
6	F (mg/L)	0.01	0.08			
7	Fe (mg/L)	0.1	0.1			
8	HCO3 (mg/L)	13	11	12	48	23
9	K (mg/L)	0.6	0.6	0.6		0.7
10	Mg (mg/L)	1.2	1.0	1.9	3.2	3.1
11	Na (mg/L)	2.3	2.7	2.8		6.8
12	NH3-N (mg N/L)	0.00				
13	NO2+NO3 (mg N/L)	0.52	0.17			
14	NO2-N (mgN/L)	0.00	0.00			
15	NO3-N (mgN/L)	0.52	0.17			
16	o-PO4-P (mg P/L)	0.099	0.068			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	8.3	5.2			
19	SO4 (mg/L)	0.9	0.6	0.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.4	0.7	1.0	1.3
2	COD (mg/L)		2.7			
3	DO (mg/L)		6.9	8.1	6.4	5.6
4	DO_SAT% (%)		83	101	81	71
5	FCol-MPN (MPN/100mL)		950			
6	Tcol-MPN (MPN/100mL)		1050	1600		
	TRACE & TOXIC					
1	As (µg/L)	4.5	3.2			
2	Cd (µg/L)	0.2	0.0			
3	Cr (µg/L)	2.6	0.6			
4	Cu (µg/L)	5.6	0.6			
5	Ni (µg/L)	6.1	8.4			
6	Pb (µg/L)	0.2	4.9			
7	Zn (µg/L)	5.5	13.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	7	7	29	18
2	HAR_Total (mgCaCO3/L)	14	12	15	42	31
3	Na% (%)	25	32	30		29
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	0.3	0.4		0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	32.35			15.34	13.72
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	32		29	33	31
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.3		6.9	6.4	6.6
6	TDS (mg/L)	20		24	20	17
7	Temp (deg C)	26.7		26.0	26.3	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12		10	9	10
2	B (mg/L)	0.04			0.44	
3	Ca (mg/L)	3		2	3	3
4	Cl (mg/L)	3.0		5.7	4.7	4.0
5	CO3 (mg/L)	0.0		0.0	0.0	0.0
6	F (mg/L)	0.06		0.05	0.57	0.07
7	Fe (mg/L)	0.1		0.1	0.0	0.5
8	HCO3 (mg/L)	15		12	10	13
9	K (mg/L)	0.5		0.5	0.6	0.4
10	Mg (mg/L)	1.6		1.5	0.7	1.3
11	Na (mg/L)	1.7		3.1	2.5	2.3
12	NH3-N (mg N/L)				0.16	0.05
13	NO2+NO3 (mg N/L)					0.06
14	NO2-N (mgN/L)	0.02				0.02
15	NO3-N (mgN/L)			0.04		0.04
16	o-PO4-P (mg P/L)	0.055		0.010	0.061	0.055
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	9.1		14.0	21.1	10.5
19	SO4 (mg/L)	1.9		1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3				
2	COD (mg/L)				2.2	2.4
3	DO (mg/L)	6.2				
4	DO_SAT% (%)	78				
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	5.0				
4	Cu (µg/L)	3.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8		6	8	7
2	HAR_Total (mgCaCO3/L)	15		12	11	12
3	Na% (%)	20		35	32	28
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.2		0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	11.30	8.171	21.56	6.314	21.08
2	EC_FLD (µmho/cm)			34		
3	EC_GEN (µmho/cm)	32	30	28	34	54
4	pH_FLD (pH units)			6.7		
5	pH_GEN (pH units)	6.7	6.5	7.0	7.7	7.6
6	TDS (mg/L)	18	17	18		
7	Temp (deg C)	25.5	26.0	25.8	27.5	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	11	11		
2	B (mg/L)	0.04	0.07	0.02		
3	Ca (mg/L)	3	4	3	3	8
4	Cl (mg/L)	4.6	4.5	4.1	4.0	30.0
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)	0.04	0.24	0.04		
7	Fe (mg/L)	0.9	0.0		0.0	0.0
8	HCO3 (mg/L)	13	13	14	16	42
9	K (mg/L)	0.4	0.5	0.5		0.2
10	Mg (mg/L)	1.0	1.0	1.3	1.4	5.2
11	Na (mg/L)	2.6	2.6	2.2		5.9
12	NH3-N (mg N/L)	0.15	0.00			
13	NO2+NO3 (mg N/L)		0.47	0.14		
14	NO2-N (mgN/L)		0.00	0.00		
15	NO3-N (mgN/L)	0.29	0.47	0.14		
16	o-PO4-P (mg P/L)	0.620	0.001	0.014		
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	8.7	10.5	3.8		
19	SO4 (mg/L)	0.6	0.7	0.8	0.4	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4		0.5	0.7	1.0
2	COD (mg/L)			3.2		
3	DO (mg/L)			6.9	7.3	7.1
4	DO_SAT% (%)			84	92	90
5	FCol-MPN (MPN/100mL)			1050		
6	Tcol-MPN (MPN/100mL)			1250		
	TRACE & TOXIC					
1	As (µg/L)	0.6				
2	Cd (µg/L)	0.3			0.1	
3	Cr (µg/L)	1.1			3.7	
4	Cu (µg/L)	23.3			6.2	
5	Ni (µg/L)	3.2			3.5	
6	Pb (µg/L)	0.2			4.7	
7	Zn (µg/L)	16.0			9.1	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	9	8	8	20
2	HAR_Total (mgCaCO3/L)	12	13	13	14	41
3	Na% (%)	31	29	27		35
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.3	0.3	0.3		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	1.797	13.70			2.324
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	61	27		35	31
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.1	7.1		5.8	6.7
6	TDS (mg/L)		20		25	18
7	Temp (deg C)	27.0	26.0		28.0	28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	24	12		13	10
2	B (mg/L)		0.07		0.06	0.26
3	Ca (mg/L)	9	3		3	3
4	Cl (mg/L)	31.0	3.0		5.7	5.0
5	CO3 (mg/L)	0.0	0.0		0.0	0.0
6	F (mg/L)		0.04		0.11	0.06
7	Fe (mg/L)		0.1		0.0	
8	HCO3 (mg/L)	29	15		16	12
9	K (mg/L)	0.9	0.7		1.0	0.6
10	Mg (mg/L)	5.2	1.5		1.5	1.0
11	Na (mg/L)	9.6	1.7		3.0	2.8
12	NH3-N (mg N/L)				0.09	0.10
13	NO2+NO3 (mg N/L)				0.11	
14	NO2-N (mgN/L)		0.03		0.04	
15	NO3-N (mgN/L)				0.08	0.03
16	o-PO4-P (mg P/L)		0.043		0.012	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)		12.3		12.1	21.4
19	SO4 (mg/L)		2.0		1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.8			
2	COD (mg/L)					1.8
3	DO (mg/L)	7.6	7.2			
4	DO_SAT% (%)	94	89			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		6.1			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		43.3		2.0	
4	Cu (µg/L)		2.1		1.0	
5	Ni (µg/L)		8.2		5.4	
6	Pb (µg/L)		3.0		1.0	
7	Zn (µg/L)		23.4			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	21	8		8	8
2	HAR_Total (mgCaCO3/L)	43	14		14	12
3	Na% (%)	34	20		30	32
4	RSC (-)	0.1	0.0		0.0	0.0
5	SAR (-)	0.7	0.2		0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	7.611	17.61	1.899	2.168
2	EC_FLD (μmho/cm)				33
3	EC_GEN (μmho/cm)	33	31	32	32
4	pH_FLD (pH units)				6.8
5	pH_GEN (pH units)	7.0	6.4	6.5	7.4
6	TDS (mg/L)	19	20	18	19
7	Temp (deg C)	24.5	29.0	29.0	30.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	11	10	13	12
2	B (mg/L)	0.15	0.07	0.01	0.04
3	Ca (mg/L)	3	3	3	4
4	Cl (mg/L)	4.3	5.0	3.6	3.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0
6	F (mg/L)	0.11	0.02	0.18	0.01
7	Fe (mg/L)	0.2	0.0	0.0	0.1
8	HCO3 (mg/L)	13	12	16	15
9	K (mg/L)	0.5	0.5	0.5	0.5
10	Mg (mg/L)	1.0	1.0	2.0	1.0
11	Na (mg/L)	2.4	2.7	2.0	2.0
12	NH3-N (mg N/L)	0.05			
13	NO2+NO3 (mg N/L)			0.20	0.13
14	NO2-N (mgN/L)			0.00	0.00
15	NO3-N (mgN/L)	0.15	0.75	0.20	0.13
16	o-PO4-P (mg P/L)	0.021	0.085	0.020	0.040
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	15.5	8.4	11.5	7.4
19	SO4 (mg/L)	1.0	1.0	1.4	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			0.4	0.8
2	COD (mg/L)			2.2	5.2
3	DO (mg/L)			7.1	7.6
4	DO_SAT% (%)			92	101
5	FCol-MPN (MPN/100mL)			500	1600
6	Tcol-MPN (MPN/100mL)			900	1600
	TRACE & TOXIC				
1	As (μg/L)	1.3		1.6	3.9
2	Cd (μg/L)	0.0		0.0	0.0
3	Cr (μg/L)	0.6		0.4	6.3
4	Cu (μg/L)	3.2		2.6	1.4
5	Ni (μg/L)			0.0	2.8
6	Pb (μg/L)	0.1		3.0	0.3
7	Zn (μg/L)	21.8		0.0	2.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	8	8	11
2	HAR_Total (mgCaCO3/L)	12	12	16	15
3	Na% (%)	29	32	21	22
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.2	0.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Cochin

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	2.911	2.045	1.905	2.833
2	EC_FLD (μmho/cm)				23
3	EC_GEN (μmho/cm)	29	165	46	27
4	pH_FLD (pH units)				6.3
5	pH_GEN (pH units)	7.6	6.4	7.4	6.9
6	TDS (mg/L)				
7	Temp (deg C)	30.0	29.0	29.0	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			42	26
2	B (mg/L)				0.10
3	Ca (mg/L)	19	9	22	8
4	Cl (mg/L)	5.2	13.0	20.9	7.3
5	CO3 (mg/L)			0.0	0.0
6	F (mg/L)				0.04
7	Fe (mg/L)				0.2
8	HCO3 (mg/L)	79	28	52	32
9	K (mg/L)		0.3	1.0	1.2
10	Mg (mg/L)	6.7	3.8	13.3	2.7
11	Na (mg/L)		8.2	9.4	4.2
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				0.01
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				0.066
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				10.2
19	SO4 (mg/L)				2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.2	1.2	0.2	1.1
2	COD (mg/L)				
3	DO (mg/L)	7.2	5.6		8.5
4	DO_SAT% (%)	95	73		111
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (μg/L)				0.5
2	Cd (μg/L)				0.0
3	Cr (μg/L)				15.2
4	Cu (μg/L)				27.4
5	Ni (μg/L)				7.3
6	Pb (μg/L)				2.3
7	Zn (μg/L)				24.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	47	24	55	19
2	HAR_Total (mgCaCO3/L)	75	39	110	30
3	Na% (%)		31	16	23
4	RSC (-)			0.0	0.0
5	SAR (-)		0.6	0.4	0.3
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KUNIYIL	Code	: KB000J3
State	: Kerala	District	Malappuram
Basin	: WFR South of Tapi	Independent River	: Chaliyar
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Chaliyar
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 1876 Sq. Km.	Bank	: Right
Latitude	: 11°14'22"	Longitude	: 76°01'24"
Zero of Gauge (m)	: 3.300 (Arb.) 0.000 (m.s.l)	01/06/1978 01/06/1984	- 31/05/1984
	Opening Date	Closing Date	
Gauge	: 01/06/1978		
Discharge	: 04/01/1979		
Sediment	: 21/01/1979		
Water Quality	: 15/01/1979		

Water Quality Datasheet for the period : 2017-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/08/2017	03/10/2017
		A	A
	PHYSICAL		
1	Q (cumec)	121.8	193.8
2	Colour_Cod (-)	Clear	Light Brown
3	EC_FLD (μmho/cm)	91	89
4	EC_GEN (μmho/cm)	50	50
5	Odour_Code (-)	odour free	odour free
6	pH_FLD (pH units)	7.0	6.9
7	pH_GEN (pH units)	6.3	6.3
8	TDS (mg/L)	38	44
9	Temp (deg C)	28.0	28.5
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	24
3	B (mg/L)	0.06	0.10
4	Ca (mg/L)	7	7
5	Cl (mg/L)	7.7	11.1
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.04	0.01
8	Fe (mg/L)	0.0	0.1
9	HCO3 (mg/L)	30	30
10	K (mg/L)	1.2	1.1
11	Mg (mg/L)	1.8	2.0
12	Na (mg/L)	5.3	8.3
13	NO2-N (mgN/L)	0.06	0.04
14	o-PO4-P (mg P/L)	0.114	0.328
15	SiO2 (mg/L)	10.3	8.3
16	SO4 (mg/L)	2.3	2.3
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)	1.0	0.8
2	DO (mg/L)	8.1	8.1
3	DO_SAT% (%)	103	104
	TRACE & TOXIC		
1	As (μg/L)	4.0	
2	Cd (μg/L)		
3	Cr (μg/L)	2.0	
4	Cu (μg/L)	2.0	
5	Ni (μg/L)		
6	Pb (μg/L)		
7	Zn (μg/L)	21.0	
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	17	16
2	HAR_Total (mgCaCO3/L)	25	25
3	Na% (%)	31	41
4	RSC (-)	0.0	0.0
5	SAR (-)	0.5	0.7
	PESTICIDES		

Water Quality Summary for the period : 2017-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1337	0.000	108.2
2	EC_FLD (µmho/cm)	2	91	89	90
3	EC_GEN (µmho/cm)	2	50	50	50
4	pH_FLD (pH units)	2	7.0	6.9	6.9
5	pH_GEN (pH units)	2	6.3	6.3	6.3
6	TDS (mg/L)	2	44	38	41
7	Temp (deg C)	2	28.5	28.0	28.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	2	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	2	24	24	24
3	B (mg/L)	2	0.10	0.06	0.08
4	Ca (mg/L)	2	7	7	7
5	Cl (mg/L)	2	11.1	7.7	9.4
6	CO3 (mg/L)	2	0.0	0.0	0
7	F (mg/L)	2	0.04	0.01	0.02
8	Fe (mg/L)	2	0.1	0.0	0
9	HCO3 (mg/L)	2	30	30	30
10	K (mg/L)	2	1.2	1.1	1.2
11	Mg (mg/L)	2	2.0	1.8	1.9
12	Na (mg/L)	2	8.3	5.3	6.8
13	NO2-N (mgN/L)	2	0.06	0.04	0.05
14	o-PO4-P (mg P/L)	2	0.328	0.114	0.221
15	SiO2 (mg/L)	2	10.3	8.3	9.3
16	SO4 (mg/L)	2	2.3	2.3	2.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2	1.0	0.8	0.9
2	DO (mg/L)	2	8.1	8.1	8.1
3	DO_SAT% (%)	2	104	103	104
	TRACE & TOXIC				
1	As (µg/L)	1	4.0	4.0	4
2	Cr (µg/L)	1	2.0	2.0	2
3	Cu (µg/L)	1	2.0	2.0	2
4	Zn (µg/L)	1	21.0	21.0	21
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	2	17	16	17
2	HAR_Total (mgCaCO3/L)	2	25	25	25
3	Na% (%)	2	41	31	36
4	RSC (-)	2	0.0	0.0	0
5	SAR (-)	2	0.7	0.5	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	269.6	406.2	130.0	166.9	502.3
2	EC_FLD (µmho/cm)	98	67	88	75	91
3	EC_GEN (µmho/cm)	68	60	51	62	63
4	pH_FLD (pH units)	7.0	7.0	7.0	7.0	7.0
5	pH_GEN (pH units)	6.9	6.7	7.1	6.9	6.8
6	TDS (mg/L)	53	47	31	39	43
7	Temp (deg C)	26.8	27.3	24.3	24.3	24.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	19	19	17	19	19
3	B (mg/L)	0.00	0.58	0.15	0.02	0.18
4	Ca (mg/L)	6	4	5	5	5
5	Cl (mg/L)	7.1	7.8	6.8	6.8	7.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.24	0.05	0.12	0.12	0.08
8	Fe (mg/L)		0.1	0.0	0.1	0.1
9	HCO3 (mg/L)	24	23	20	23	24
10	K (mg/L)	0.8	0.8	0.9	0.4	1.2
11	Mg (mg/L)	3.0	2.7	1.7	1.5	1.9
12	Na (mg/L)	4.3	4.1	4.0	3.6	4.3
13	NH3-N (mg N/L)			0.31	0.13	0.04
14	NO2+NO3 (mg N/L)	2.90	0.28		0.12	0.23
15	NO2-N (mgN/L)	0.19	0.04		0.04	0.03
16	NO3-N (mgN/L)	2.71	0.18		0.09	0.21
17	o-PO4-P (mg P/L)	0.143	0.032	0.067	0.087	0.042
18	P-Tot (mgP/L)	0.143				
19	SiO2 (mg/L)	20.1	19.8	28.4	21.1	20.8
20	SO4 (mg/L)	1.5	1.4	1.0	1.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.4	0.3	0.4	0.4
2	COD (mg/L)	4.0	3.1	2.7	2.7	2.6
3	DO (mg/L)	6.9	6.5	8.0	8.5	6.5
4	DO_SAT% (%)	86	81	95	101	78
5	Fcol-MPN (MPN/100mL)		855	12	320	1600
6	Tcol-MPN (MPN/100mL)		885	170	975	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	11	12	13	13
2	HAR_Total (mgCaCO3/L)	29	22	19	19	21
3	Na% (%)	24	28	30	29	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	71.39	381.4	548.4	125.0	92.75
2	EC_FLD (µmho/cm)	93	92	89	96	94
3	EC_GEN (µmho/cm)	69	63	83	66	21
4	pH_FLD (pH units)	6.9	6.8	7.0	7.0	6.9
5	pH_GEN (pH units)	6.6	6.4	6.2	6.8	6.1
6	TDS (mg/L)	43	43			
7	Temp (deg C)	26.2	22.8	26.3	29.3	28.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	22	19			35
3	B (mg/L)	0.02	0.05			
4	Ca (mg/L)	6	5	5	9	8
5	Cl (mg/L)	7.1	6.6	10.5	13.0	19.5
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.21			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	27	24	24	40	42
10	K (mg/L)	1.3	1.2	1.4		0.7
11	Mg (mg/L)	2.6	2.5	5.3	3.5	3.8
12	Na (mg/L)	4.5	4.0	4.6		12.4
13	NH3-N (mg N/L)	0.05				
14	NO2+NO3 (mg N/L)	1.23	0.48			
15	NO2-N (mgN/L)	0.01	0.05			
16	NO3-N (mgN/L)	1.22	0.43			
17	o-PO4-P (mg P/L)	0.273	0.105			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	14.7	9.3			
20	SO4 (mg/L)	0.9	0.8	1.3		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.6	0.7	0.9	0.4
2	COD (mg/L)	2.8	3.3			
3	DO (mg/L)	6.9	5.8	7.9	6.7	4.4
4	DO_SAT% (%)	86	67	97	87	56
5	FCol-MPN (MPN/100mL)	600	1600			
6	Tcol-MPN (MPN/100mL)	1050	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	5.9	3.1			
2	Cd (µg/L)	0.0	0.0			
3	Cr (µg/L)	7.9	0.6			
4	Cu (µg/L)	15.4	1.2			
5	Hg (µg/L)					
6	Ni (µg/L)	4.0	7.4			
7	Pb (µg/L)	4.9	2.7			
8	Zn (µg/L)	70.3	31.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	13	13	22	20
2	HAR_Total (mgCaCO3/L)	26	23	34	37	35
3	Na% (%)	27	26	24		42
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.4	0.4	0.4		0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	157.8	0.000		22.68	41.97
2	EC_FLD (µmho/cm)	90				88
3	EC_GEN (µmho/cm)	50	176		98	64
4	pH_FLD (pH units)	6.9				7.0
5	pH_GEN (pH units)	6.3	6.8		7.1	7.0
6	TDS (mg/L)	41	151		60	39
7	Temp (deg C)	28.3	27.0		24.0	24.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0		0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	42		18	25
3	B (mg/L)	0.08	0.01		0.19	0.40
4	Ca (mg/L)	7	10		7	6
5	Cl (mg/L)	9.4	14.2		10.7	7.8
6	CO3 (mg/L)	0.0	0.0		0.0	0.0
7	F (mg/L)	0.02	0.15		0.39	0.05
8	Fe (mg/L)	0.0	0.2		0.1	0.3
9	HCO3 (mg/L)	30	51		22	31
10	K (mg/L)	1.2	1.5		1.2	0.7
11	Mg (mg/L)	1.9	8.5		2.0	2.0
12	Na (mg/L)	6.8	7.2		7.2	4.4
13	NH3-N (mg N/L)				0.26	0.05
14	NO2+NO3 (mg N/L)		2.78			0.18
15	NO2-N (mgN/L)	0.05	0.32			0.01
16	NO3-N (mgN/L)		2.46			0.16
17	o-PO4-P (mg P/L)	0.221	0.283		0.031	0.022
18	P-Tot (mgP/L)		0.283			
19	SiO2 (mg/L)	9.3	15.7		35.3	17.4
20	SO4 (mg/L)	2.3	1.8		14.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.8		2.2	0.8
2	COD (mg/L)		6.5		16.2	5.8
3	DO (mg/L)	8.1	5.4			8.0
4	DO_SAT% (%)	104	68			95
5	Fcol-MPN (MPN/100mL)		580		1600	1600
6	Tcol-MPN (MPN/100mL)		900		1600	1600
	TRACE & TOXIC					
1	As (µg/L)	4.0				
2	Cd (µg/L)					
3	Cr (µg/L)	2.0				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)	21.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	17	26		18	16
2	HAR_Total (mgCaCO3/L)	25	61		26	24
3	Na% (%)	36	20		36	28
4	RSC (-)	0.0	0.0		0.0	0.0
5	SAR (-)	0.6	0.4		0.6	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	34.89	0.000	23.08	0.000	0.000
2	EC_FLD (µmho/cm)	87	94	90	89	95
3	EC_GEN (µmho/cm)	68	95	88	87	98
4	pH_FLD (pH units)	7.0	7.0	7.0	7.0	7.0
5	pH_GEN (pH units)	6.8	6.6	6.9	7.0	6.3
6	TDS (mg/L)	43	58	57		
7	Temp (deg C)	26.5	25.8	23.0	29.8	30.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	23	28	32		
3	B (mg/L)	0.21	0.15	0.05		
4	Ca (mg/L)	6	8	8	9	9
5	Cl (mg/L)	8.9	9.6	9.6	9.6	19.5
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.29	0.21	0.11		
8	Fe (mg/L)	0.8	0.1		0.0	0.0
9	HCO3 (mg/L)	29	35	39	42	53
10	K (mg/L)	1.2	1.4	1.4		0.1
11	Mg (mg/L)	2.5	3.2	2.7	3.3	3.3
12	Na (mg/L)	5.3	6.4	6.9		12.1
13	NH3-N (mg N/L)	0.02	0.05			
14	NO2+NO3 (mg N/L)		1.96	0.28		
15	NO2-N (mgN/L)		0.01	0.01		
16	NO3-N (mgN/L)	1.80	1.95	0.27		
17	o-PO4-P (mg P/L)	0.425	0.101	0.010		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	17.9	18.5	8.8		
20	SO4 (mg/L)	0.9	0.8	2.0	1.1	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.7	1.0	0.5	0.5
2	COD (mg/L)	3.6	5.5	7.3		
3	DO (mg/L)	6.8	6.2	7.3	7.1	7.9
4	DO_SAT% (%)	85	76	85	93	105
5	FCol-MPN (MPN/100mL)	1250	1250	1600		
6	Tcol-MPN (MPN/100mL)	1600	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.6				
2	Cd (µg/L)	0.4			0.0	
3	Cr (µg/L)	6.0			0.6	
4	Cu (µg/L)	130.7			2.0	
5	Hg (µg/L)					
6	Ni (µg/L)	7.3			2.9	
7	Pb (µg/L)	1.0			0.3	
8	Zn (µg/L)	25.8			13.2	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	20	19	22	22
2	HAR_Total (mgCaCO3/L)	25	33	30	35	35
3	Na% (%)	31	29	32		43
4	RSC (-)	0.0	0.0	0.1		
5	SAR (-)	0.5	0.5	0.5		0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		No Flow			0.000
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)					
4	pH_FLD (pH units)					
5	pH_GEN (pH units)					
6	TDS (mg/L)					
7	Temp (deg C)					
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)					
2	ALK-TOT (mgCaCO3/L)					
3	B (mg/L)					
4	Ca (mg/L)					
5	Cl (mg/L)					
6	CO3 (mg/L)					
7	F (mg/L)					
8	Fe (mg/L)					
9	HCO3 (mg/L)					
10	K (mg/L)					
11	Mg (mg/L)					
12	Na (mg/L)					
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)					
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)					
20	SO4 (mg/L)					
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)					
2	HAR_Total (mgCaCO3/L)					
3	Na% (%)					
4	RSC (-)					
5	SAR (-)					
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)		92		89
3	EC_GEN (µmho/cm)		98	110	121
4	pH_FLD (pH units)		7.0		7.0
5	pH_GEN (pH units)		6.8	6.8	7.1
6	TDS (mg/L)		71	75	90
7	Temp (deg C)		30.0	29.5	25.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		44	39	39
3	B (mg/L)		0.12	0.02	0.08
4	Ca (mg/L)		11	13	7
5	Cl (mg/L)		9.0	9.2	10.6
6	CO3 (mg/L)		0.0	0.0	0.0
7	F (mg/L)		0.05	0.38	0.10
8	Fe (mg/L)		0.1	0.1	0.1
9	HCO3 (mg/L)		54	47	48
10	K (mg/L)		1.5	1.8	1.6
11	Mg (mg/L)		3.9	1.5	3.9
12	Na (mg/L)		6.9	6.8	7.2
13	NH3-N (mg N/L)		0.05		
14	NO2+NO3 (mg N/L)		2.50	1.30	0.51
15	NO2-N (mgN/L)		0.08	0.10	0.08
16	NO3-N (mgN/L)		2.42	1.20	0.43
17	o-PO4-P (mg P/L)		0.085	0.060	0.110
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)		14.0	16.5	17.0
20	SO4 (mg/L)		0.5	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		1.0	4.2	0.4
2	COD (mg/L)		11.2	27.4	2.8
3	DO (mg/L)		6.6	5.3	6.3
4	DO_SAT% (%)		87	69	76
5	FCol-MPN (MPN/100mL)		1600	280	1600
6	Tcol-MPN (MPN/100mL)		1600	350	1600
	TRACE & TOXIC				
1	As (µg/L)		0.4	1.1	8.0
2	Cd (µg/L)		0.1	0.1	0.1
3	Cr (µg/L)		5.6	0.3	1.0
4	Cu (µg/L)		3.6	1.1	3.4
5	Hg (µg/L)				
6	Ni (µg/L)		6.6	0.5	5.8
7	Pb (µg/L)		8.1	2.7	0.2
8	Zn (µg/L)		0.1	5061.0	28.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		28	32	18
2	HAR_Total (mgCaCO3/L)		44	38	34
3	Na% (%)		25	27	30
4	RSC (-)		0.0	0.0	0.1
5	SAR (-)		0.5	0.5	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Cochin

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)		92		
3	EC_GEN (µmho/cm)	88	120		
4	pH_FLD (pH units)		7.0		
5	pH_GEN (pH units)	7.0	6.5		
6	TDS (mg/L)				
7	Temp (deg C)	33.0	34.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	9	9		
5	Cl (mg/L)	7.8	20.9		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	45	27		
10	K (mg/L)		0.2		
11	Mg (mg/L)	2.8	3.8		
12	Na (mg/L)		10.2		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	3.4		
2	COD (mg/L)				
3	DO (mg/L)	6.6	8.8		
4	DO_SAT% (%)	92	125		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	24	24		
2	HAR_Total (mgCaCO3/L)	35	39		
3	Na% (%)		36		
4	RSC (-)				
5	SAR (-)		0.7		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KARATHODU	Code	: KL000L7
State	: Kerala	District	Malappuram
Basin	: WFR South of Tapi	Independent River	: Kadalundi
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kadalundi
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 750 Sq. Km.	Bank	: Right
Latitude	: 11°03'25"	Longitude	: 76°02'22"
Zero of Gauge (m)	: 89 (Arb.) 2.000 (m.s.l)	28/12/1985 01/05/1988	- 30/04/1988
	Opening Date	Closing Date	
Gauge	: 28/12/1985		
Discharge	: 20/06/1986		
Sediment	: 22/06/1989		
Water Quality	: 01/12/1988		

Water Quality Datasheet for the period : 2017-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/08/2017	03/10/2017	01/12/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	23.65	93.45	0.915
2	Colour_Cod (-)	Clear	Light Brown	Clear
3	EC_GEN (µmho/cm)	85	56	78
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.2	7.2	6.9
6	TDS (mg/L)	49	45	46
7	Temp (deg C)	26.5	25.5	27.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	20	20
3	B (mg/L)	0.13	0.04	0.09
4	Ca (mg/L)	7	7	7
5	Cl (mg/L)	9.6	9.1	9.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.04	0.06	0.06
8	Fe (mg/L)	0.0	0.0	
9	HCO3 (mg/L)	20	25	25
10	K (mg/L)	1.8	1.2	1.6
11	Mg (mg/L)	1.8	3.0	3.0
12	Na (mg/L)	5.1	5.1	6.5
13	NO2-N (mgN/L)	0.06	0.04	
14	o-PO4-P (mg P/L)	0.048	0.053	
15	SiO2 (mg/L)	8.1	10.3	11.9
16	SO4 (mg/L)	7.8	7.8	7.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	1.2	0.9
2	DO (mg/L)	7.0	7.1	7.4
3	DO_SAT% (%)	86	86	93
	TRACE & TOXIC			
1	As (µg/L)	3.0		2.9
2	Cd (µg/L)			0.1
3	Cr (µg/L)	4.0		6.3
4	Cu (µg/L)	1.0		1.7
5	Ni (µg/L)			4.2
6	Pb (µg/L)	2.0		1.7
7	Zn (µg/L)	3.0		13.6
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	17	16	16
2	HAR_Total (mgCaCO3/L)	25	29	29
3	Na% (%)	29	27	32
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.5
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	412.0	0.000	36.59
2	EC_GEN (µmho/cm)	3	85	56	73
3	pH_GEN (pH units)	3	7.2	6.9	7.1
4	TDS (mg/L)	3	49	45	47
5	Temp (deg C)	3	27.5	25.5	26.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	20	16	19
3	B (mg/L)	3	0.13	0.04	0.09
4	Ca (mg/L)	3	7	7	7
5	Cl (mg/L)	3	9.9	9.1	9.5
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.06	0.04	0.05
8	Fe (mg/L)	2	0.0	0.0	0
9	HCO3 (mg/L)	3	25	20	23
10	K (mg/L)	3	1.8	1.2	1.5
11	Mg (mg/L)	3	3.0	1.8	2.6
12	Na (mg/L)	3	6.5	5.1	5.6
13	NO2-N (mgN/L)	2	0.06	0.04	0.05
14	o-PO4-P (mg P/L)	2	0.053	0.048	0.051
15	SiO2 (mg/L)	3	11.9	8.1	10.1
16	SO4 (mg/L)	3	7.8	7.8	7.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	1.4	0.9	1.2
2	DO (mg/L)	3	7.4	7.0	7.2
3	DO_SAT% (%)	3	93	86	88
	TRACE & TOXIC				
1	As (µg/L)	2	3.0	2.9	2.9
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	6.3	4.0	5.1
4	Cu (µg/L)	2	1.7	1.0	1.4
5	Ni (µg/L)	1	4.2	4.2	4.2
6	Pb (µg/L)	2	2.0	1.7	1.9
7	Zn (µg/L)	2	13.6	3.0	8.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	17	16	17
2	HAR_Total (mgCaCO3/L)	3	29	25	27
3	Na% (%)	3	32	27	29
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.5	0.4	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		61.01	51.16	52.20	52.54
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)		65	55	65	64
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		6.6	7.2	6.7	6.0
6	TDS (mg/L)		51	32	46	45
7	Temp (deg C)		26.5	27.0	25.3	26.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		17	15	18	18
3	B (mg/L)		0.04		0.55	0.20
4	Ca (mg/L)		4	4	4	6
5	Cl (mg/L)		8.9	7.1	9.9	9.0
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.05	0.09	0.13	0.03
8	Fe (mg/L)			0.0	0.1	0.1
9	HCO3 (mg/L)		20	18	22	22
10	K (mg/L)		0.6	1.0	0.9	1.2
11	Mg (mg/L)		2.5	1.5	2.3	1.5
12	Na (mg/L)		4.4	4.2	5.4	5.1
13	NH3-N (mg N/L)		0.05		0.30	0.09
14	NO2+NO3 (mg N/L)		0.31		0.12	0.19
15	NO2-N (mgN/L)		0.04		0.02	0.04
16	NO3-N (mgN/L)		0.28		0.10	0.15
17	o-PO4-P (mg P/L)		0.055	0.085	0.061	0.064
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		20.0		26.3	19.9
20	SO4 (mg/L)		3.1	1.0	1.9	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.4	0.4	0.4	0.8
2	COD (mg/L)		3.2	3.2	3.1	4.7
3	DO (mg/L)		7.2			7.1
4	DO_SAT% (%)		90			88
5	FCol-MPN (MPN/100mL)				1600	1600
6	Tcol-MPN (MPN/100mL)				1600	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		11	10	11	14
2	HAR_Total (mgCaCO3/L)		21	16	20	20
3	Na% (%)		31	35	35	34
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.4	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	23.95	62.29	256.2	20.38	25.80
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	75	78	67	48	17
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.7	6.7	6.9	7.5	5.6
6	TDS (mg/L)	46	54			
7	Temp (deg C)	26.7	26.8	26.7	27.7	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			
2	ALK-TOT (mgCaCO3/L)	22	23			
3	B (mg/L)	0.07	0.05			
4	Ca (mg/L)	6	6	6	5	16
5	Cl (mg/L)	11.1	11.1	10.9	10.4	16.7
6	CO3 (mg/L)	0.0	0.0			
7	F (mg/L)	0.03	0.41			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	27	28	24	32	
10	K (mg/L)	1.6	1.5	2.2		0.1
11	Mg (mg/L)	2.9	2.5	4.9	2.8	1.9
12	Na (mg/L)	6.3	7.3	4.6		12.7
13	NH3-N (mg N/L)	0.05				
14	NO2+NO3 (mg N/L)	1.42	0.43			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.41	0.42			
17	o-PO4-P (mg P/L)	0.465	0.095			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	14.1	11.2			
20	SO4 (mg/L)	1.1	0.8	3.3		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.4	0.9	0.7	3.0
2	COD (mg/L)	5.5	2.4			
3	DO (mg/L)	6.7	5.6	7.1	6.8	8.2
4	DO_SAT% (%)	83	70	88	86	103
5	FCol-MPN (MPN/100mL)	1600	1250			
6	Tcol-MPN (MPN/100mL)	1600	1600	1213		
	TRACE & TOXIC					
1	As (µg/L)	5.8	7.9			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	1.3	1.0			
4	Cu (µg/L)	3.2	0.3			
5	Hg (µg/L)		0.0			
6	Ni (µg/L)	5.1	6.8			
7	Pb (µg/L)	3.0	0.9			
8	Zn (µg/L)	17.8	5.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	16	16	12	39
2	HAR_Total (mgCaCO3/L)	28	26	36	24	47
3	Na% (%)	31	35	22		37
4	RSC (-)	0.0	0.0			
5	SAR (-)	0.5	0.6	0.3		0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	58.55		10.91	11.81	24.17
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	71		84	72	61
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.2		7.2	7.4	6.8
6	TDS (mg/L)	47		67	43	36
7	Temp (deg C)	26.0		26.5	27.5	24.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	18		27	18	19
3	B (mg/L)	0.08				0.22
4	Ca (mg/L)	7		8	4	5
5	Cl (mg/L)	9.4		10.7	9.9	8.4
6	CO3 (mg/L)	0.0		0.0	0.0	0.0
7	F (mg/L)	0.05		0.05	0.10	
8	Fe (mg/L)	0.0		0.1	0.0	0.6
9	HCO3 (mg/L)	22		33	22	23
10	K (mg/L)	1.5		1.3	1.2	0.8
11	Mg (mg/L)	2.4		2.9	2.5	2.5
12	Na (mg/L)	5.1		6.7	6.5	5.2
13	NH3-N (mg N/L)				0.21	0.05
14	NO2+NO3 (mg N/L)					0.24
15	NO2-N (mgN/L)	0.05				0.07
16	NO3-N (mgN/L)			0.26		0.17
17	o-PO4-P (mg P/L)	0.051		0.041	0.028	0.075
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	9.2		21.4	29.9	13.2
20	SO4 (mg/L)	7.8		1.6	1.4	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3		0.4	0.4	0.8
2	COD (mg/L)			3.3	4.8	6.0
3	DO (mg/L)	7.0		7.0		
4	DO_SAT% (%)	86		86		
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	4.0				
4	Cu (µg/L)	1.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	2.0				
8	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	17		20	10	12
2	HAR_Total (mgCaCO3/L)	27		32	20	22
3	Na% (%)	28		30	40	33
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.4		0.5	0.6	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	8.504	0.000	7.087	0.791	0.000
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	65		81	72	65
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.3		6.9	7.4	6.9
6	TDS (mg/L)	44		55		
7	Temp (deg C)	26.5		27.0	27.3	27.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0		
2	ALK-TOT (mgCaCO3/L)	20		26		
3	B (mg/L)	0.11		0.02		
4	Ca (mg/L)	6		7	5	6
5	Cl (mg/L)	9.9		11.0	8.9	18.2
6	CO3 (mg/L)	0.0		0.0		
7	F (mg/L)	0.21		0.14		
8	Fe (mg/L)	0.7				
9	HCO3 (mg/L)	24		32	32	33
10	K (mg/L)	1.2		1.5		0.2
11	Mg (mg/L)	2.0		2.5	3.3	3.3
12	Na (mg/L)	5.4		7.5		16.4
13	NH3-N (mg N/L)	0.02				
14	NO2+NO3 (mg N/L)			0.38		
15	NO2-N (mgN/L)			0.02		
16	NO3-N (mgN/L)	2.18		0.37		
17	o-PO4-P (mg P/L)	0.830		0.050		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	17.4		12.1		
20	SO4 (mg/L)	0.6		1.3	1.5	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2		0.6	0.4	1.4
2	COD (mg/L)	1.2		3.8		
3	DO (mg/L)	7.0		6.9	6.0	7.4
4	DO_SAT% (%)	86		87	75	93
5	FCol-MPN (MPN/100mL)			360		
6	Tcol-MPN (MPN/100mL)			625		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14		17	14	16
2	HAR_Total (mgCaCO3/L)	22		27	28	29
3	Na% (%)	33		36		55
4	RSC (-)	0.0		0.0		
5	SAR (-)	0.5		0.6		1.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		0.915			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)		78			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		6.9			
6	TDS (mg/L)		46			
7	Temp (deg C)		27.5			
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			
2	ALK-TOT (mgCaCO3/L)		20			
3	B (mg/L)		0.09			
4	Ca (mg/L)		7			
5	Cl (mg/L)		9.9			
6	CO3 (mg/L)		0.0			
7	F (mg/L)		0.06			
8	Fe (mg/L)					
9	HCO3 (mg/L)		25			
10	K (mg/L)		1.6			
11	Mg (mg/L)		3.0			
12	Na (mg/L)		6.5			
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)					
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		11.9			
20	SO4 (mg/L)		7.8			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.9			
2	COD (mg/L)					
3	DO (mg/L)		7.4			
4	DO_SAT% (%)		93			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		2.9			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		6.3			
4	Cu (µg/L)		1.7			
5	Hg (µg/L)					
6	Ni (µg/L)		4.2			
7	Pb (µg/L)		1.7			
8	Zn (µg/L)		13.6			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		16			
2	HAR_Total (mgCaCO3/L)		29			
3	Na% (%)		32			
4	RSC (-)		0.0			
5	SAR (-)		0.5			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)				0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)				93
4	pH_FLD (pH units)				
5	pH_GEN (pH units)				6.9
6	TDS (mg/L)				64
7	Temp (deg C)				27.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				0.0
2	ALK-TOT (mgCaCO3/L)				32
3	B (mg/L)				0.01
4	Ca (mg/L)				8
5	Cl (mg/L)				14.2
6	CO3 (mg/L)				0.0
7	F (mg/L)				0.21
8	Fe (mg/L)		0.0		0.1
9	HCO3 (mg/L)				39
10	K (mg/L)				2.6
11	Mg (mg/L)				3.9
12	Na (mg/L)				8.6
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				0.74
15	NO2-N (mgN/L)				0.01
16	NO3-N (mgN/L)				0.73
17	o-PO4-P (mg P/L)				0.090
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				9.0
20	SO4 (mg/L)				1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				1.4
2	COD (mg/L)				10.4
3	DO (mg/L)				6.5
4	DO_SAT% (%)				82
5	FCol-MPN (MPN/100mL)				1600
6	Tcol-MPN (MPN/100mL)				1600
	TRACE & TOXIC				
1	As (µg/L)		0.4	2.6	1.2
2	Cd (µg/L)		0.1	0.1	0.0
3	Cr (µg/L)		1.1	0.2	1.5
4	Cu (µg/L)		2.9	1.8	1.5
5	Hg (µg/L)				
6	Ni (µg/L)		8.2	0.0	0.2
7	Pb (µg/L)		4.2	2.4	0.3
8	Zn (µg/L)		0.3	1.2	2.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				20
2	HAR_Total (mgCaCO3/L)				36
3	Na% (%)				32
4	RSC (-)				0.0
5	SAR (-)				0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Cochin

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	67	102		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.5	6.1		
6	TDS (mg/L)				
7	Temp (deg C)	28.5	27.5		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	5	7		
5	Cl (mg/L)	3.9	22.1		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	11	10		
10	K (mg/L)		0.2		
11	Mg (mg/L)	3.8	2.8		
12	Na (mg/L)		6.9		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4	1.4		
2	COD (mg/L)				
3	DO (mg/L)	7.8	7.2		
4	DO_SAT% (%)	100	90		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	18		
2	HAR_Total (mgCaCO3/L)	28	30		
3	Na% (%)		33		
4	RSC (-)				
5	SAR (-)		0.6		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KUMBIDI	Code	: KR000C9
State	: Kerala	District	Palakkad
Basin	: WFR South of Tapi	Independent River	: Bharathapuzha
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Bharathapuzha
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 5755 Sq. Km.	Bank	: Left
Latitude	: 10°51'16"	Longitude	: 76°01'12"
Zero of Gauge (m)	: 4.000 (m.s.l) 2.000 (m.s.l)	01/06/1978	- 31/05/2007
	Opening Date	Closing Date	
Gauge	: 01/06/1978		
Discharge	: 08/01/1979		
Sediment	: 24/06/1980		
Water Quality	: 03/12/1979		

Water Quality Datasheet for the period : 2017-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	11.42	71.90	562.1	24.95
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)			265	114
4	EC_GEN (µmho/cm)	91	105	97	99
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_GEN (pH units)	6.5	6.6	6.8	7.2
7	TDS (mg/L)		61	63	69
8	Temp (deg C)	29.0	28.0	28.0	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	36	32	36	36
3	B (mg/L)	0.02	0.14	0.15	0.28
4	Ca (mg/L)	12	9	10	13
5	Cl (mg/L)	20.9	8.7	10.1	12.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.30	0.53	0.71	0.59
8	Fe (mg/L)	0.1	0.0	0.1	0.1
9	HCO3 (mg/L)	44	40	44	44
10	K (mg/L)	3.1	2.0	2.1	2.2
11	Mg (mg/L)	4.0	2.7	3.0	3.9
12	Na (mg/L)	14.2	6.3	7.5	7.9
13	NO2-N (mgN/L)	0.06	0.04	0.04	0.03
14	o-PO4-P (mg P/L)	0.026	0.080	0.058	0.068
15	SiO2 (mg/L)	8.5	7.3	8.7	8.2
16	SO4 (mg/L)	7.7	7.5	8.0	10.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.6	1.4	1.2	0.8
2	DO (mg/L)	6.0	7.3	4.6	6.8
3	DO_SAT% (%)	78	93	59	87
	TRACE & TOXIC				
1	As (µg/L)		3.0		3.3
2	Cd (µg/L)				0.1
3	Cr (µg/L)		3.0		6.8
4	Cu (µg/L)		2.0		4.6
5	Ni (µg/L)				13.4
6	Pb (µg/L)		2.0		6.0
7	Zn (µg/L)		4.0		13.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	29	21	24	32
2	HAR_Total (mgCaCO3/L)	45	33	37	49
3	Na% (%)	39	28	29	25
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.9	0.5	0.5	0.5
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1219	0.000	97.91
2	EC_FLD (µmho/cm)	2	265	114	190
3	EC_GEN (µmho/cm)	4	105	91	98
4	pH_GEN (pH units)	4	7.2	6.5	6.8
5	TDS (mg/L)	3	69	61	64
6	Temp (deg C)	4	29.0	28.0	28.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	36	32	35
3	B (mg/L)	4	0.28	0.02	0.15
4	Ca (mg/L)	4	13	9	11
5	Cl (mg/L)	4	20.9	8.7	13.1
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.71	0.30	0.53
8	Fe (mg/L)	4	0.1	0.0	0.1
9	HCO3 (mg/L)	4	44	40	43
10	K (mg/L)	4	3.1	2.0	2.3
11	Mg (mg/L)	4	4.0	2.7	3.4
12	Na (mg/L)	4	14.2	6.3	9
13	NO2-N (mgN/L)	4	0.06	0.03	0.04
14	o-PO4-P (mg P/L)	4	0.080	0.026	0.058
15	SiO2 (mg/L)	4	8.7	7.3	8.2
16	SO4 (mg/L)	4	10.2	7.5	8.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.6	0.8	1.3
2	DO (mg/L)	4	7.3	4.6	6.2
3	DO_SAT% (%)	4	93	59	79
	TRACE & TOXIC				
1	As (µg/L)	2	3.3	3.0	3.1
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	6.8	3.0	4.9
4	Cu (µg/L)	2	4.6	2.0	3.3
5	Ni (µg/L)	1	13.4	13.4	13.4
6	Pb (µg/L)	2	6.0	2.0	4
7	Zn (µg/L)	2	13.8	4.0	8.9
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	32	21	27
2	HAR_Total (mgCaCO3/L)	4	49	33	41
3	Na% (%)	4	39	25	30
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.9	0.5	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	280.4	209.2	196.4	241.8	158.5
2	EC_FLD (µmho/cm)	117	126		157	200
3	EC_GEN (µmho/cm)	150	185	85	143	114
4	pH_FLD (pH units)	7.8	7.5		7.7	7.3
5	pH_GEN (pH units)	7.5	7.5	7.4	7.3	6.6
6	TDS (mg/L)	123	146	51	91	80
7	Temp (deg C)	28.7	28.2	29.0	28.7	26.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	45	52	26	40	37
3	B (mg/L)	0.00	0.42	0.27	0.07	0.17
4	Ca (mg/L)	14	12	7	8	10
5	Cl (mg/L)	17.5	20.7	11.1	13.0	14.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.28	0.12	0.13	0.14	0.07
8	Fe (mg/L)		0.1	0.1	0.1	0.1
9	HCO3 (mg/L)	54	63	32	49	45
10	K (mg/L)	2.1	1.8	1.8	2.3	1.8
11	Mg (mg/L)	6.1	8.9	2.0	5.0	3.4
12	Na (mg/L)	12.1	13.1	6.8	9.2	8.2
13	NH3-N (mg N/L)		0.05	0.16	0.19	0.07
14	NO2+NO3 (mg N/L)	4.13	0.16		0.29	0.29
15	NO2-N (mgN/L)	0.12	0.05		0.02	0.06
16	NO3-N (mgN/L)	4.01	0.43		0.27	0.23
17	o-PO4-P (mg P/L)	0.216	0.174	0.055	0.134	0.115
18	P-Tot (mgP/L)	0.166	0.010			
19	SiO2 (mg/L)	22.3	25.5	36.1	24.3	21.7
20	SO4 (mg/L)	9.7	7.1	1.0	2.6	2.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1	0.5	0.3	1.1	0.3
2	COD (mg/L)	9.2	4.1	5.4	8.9	2.3
3	DO (mg/L)	6.9	6.6		8.2	6.3
4	DO_SAT% (%)	88	84		106	78
5	FCol-MPN (MPN/100mL)	870	940	403	767	950
6	Tcol-MPN (MPN/100mL)	940	1050	1150	1367	1250
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	36	29	19	21	25
2	HAR_Total (mgCaCO3/L)	61	66	27	42	40
3	Na% (%)	29	30	34	31	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.7	0.6	0.6	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	53.27	231.7	930.1	185.0	46.24
2	EC_FLD (µmho/cm)	171	160	212	222	70
3	EC_GEN (µmho/cm)	113	101	133	161	62
4	pH_FLD (pH units)	7.9	7.4			
5	pH_GEN (pH units)	6.9	6.8	6.8	6.8	5.7
6	TDS (mg/L)	77	71			
7	Temp (deg C)	29.2	26.8	27.3	28.0	27.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	37	34			26
3	B (mg/L)	0.09	0.06			
4	Ca (mg/L)	9	9	12	16	7
5	Cl (mg/L)	12.9	11.8	15.9	18.2	16.3
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.08	1.09			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	45	42	54	77	31
10	K (mg/L)	1.9	2.1	3.0		0.9
11	Mg (mg/L)	4.2	3.4	5.3	7.3	3.8
12	Na (mg/L)	8.5	7.3	8.2		20.6
13	NH3-N (mg N/L)	0.15				
14	NO2+NO3 (mg N/L)	2.04	0.73			
15	NO2-N (mgN/L)	0.04	0.09			
16	NO3-N (mgN/L)	2.00	0.65			
17	o-PO4-P (mg P/L)	0.297	0.087			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	15.7	6.1			
20	SO4 (mg/L)	1.3	0.7	8.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.2	1.1	0.7	1.1
2	COD (mg/L)	5.6	8.5			
3	DO (mg/L)	6.8	6.2	6.6	6.1	6.3
4	DO_SAT% (%)	88	78	83	78	80
5	FCoI-MPN (MPN/100mL)	303	1050			
6	TcoI-MPN (MPN/100mL)	983	1250	1213		
	TRACE & TOXIC					
1	As (µg/L)	6.1	4.8			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	2.2	0.4			
4	Cu (µg/L)	3.4	1.4			
5	Hg (µg/L)		0.2			
6	Ni (µg/L)	2.4	9.6			
7	Pb (µg/L)	10.0	0.0			
8	Zn (µg/L)	24.4	14.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	23	23	29	40	18
2	HAR_Total (mgCaCO3/L)	41	37	51	71	34
3	Na% (%)	30	29	25		54
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.6	0.5	0.5		1.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	215.1	41.76	28.44	27.84	83.05
2	EC_FLD (µmho/cm)	265	207			195
3	EC_GEN (µmho/cm)	97	224	234	192	159
4	pH_FLD (pH units)		7.6			7.4
5	pH_GEN (pH units)	6.6	7.6	7.9	7.4	7.4
6	TDS (mg/L)	62	192	187	115	105
7	Temp (deg C)	28.3	29.5	27.5	27.3	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	35	62	69	65	55
3	B (mg/L)	0.10	0.02	0.07	0.38	0.20
4	Ca (mg/L)	10	14	16	15	14
5	Cl (mg/L)	13.2	22.7	27.0	18.4	18.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.51	0.32	0.23	0.16	0.10
8	Fe (mg/L)	0.1	0.4	0.1	0.0	0.3
9	HCO3 (mg/L)	43	75	84	79	67
10	K (mg/L)	2.4	2.0	2.3	2.4	1.8
11	Mg (mg/L)	3.2	9.0	9.5	7.1	5.9
12	Na (mg/L)	9.3	14.3	16.7	14.1	10.8
13	NH3-N (mg N/L)		0.05		0.22	0.06
14	NO2+NO3 (mg N/L)		2.44	0.42		0.35
15	NO2-N (mgN/L)	0.05	0.22	0.10		0.08
16	NO3-N (mgN/L)		2.22	0.33		0.28
17	o-PO4-P (mg P/L)	0.055	0.193	0.073	0.037	0.157
18	P-Tot (mgP/L)		0.346			
19	SiO2 (mg/L)	8.2	12.9	21.9	28.7	16.9
20	SO4 (mg/L)	7.7	10.2	9.8	4.6	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.4	0.9	1.1	0.4	0.9
2	COD (mg/L)		7.0	6.6	4.2	6.2
3	DO (mg/L)	6.0	6.9	7.3	9.2	8.4
4	DO_SAT% (%)	77	90	92	115	105
5	FCol-MPN (MPN/100mL)		500	1600	1250	505
6	Tcol-MPN (MPN/100mL)		900	1600	1600	885
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	2.0				
8	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	25	36	39	38	35
2	HAR_Total (mgCaCO3/L)	38	74	78	68	60
3	Na% (%)	32	29	31	30	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.7	0.8	0.7	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	47.56	8.215	28.30	29.05	22.44
2	EC_FLD (µmho/cm)	230	165	230		147
3	EC_GEN (µmho/cm)	182	148	129	199	61
4	pH_FLD (pH units)	7.5	7.2			
5	pH_GEN (pH units)	7.2	6.6	6.9	7.2	6.1
6	TDS (mg/L)	130	93	91		
7	Temp (deg C)	26.0	27.5	27.5	27.0	28.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	59	43	45		
3	B (mg/L)	0.18	0.13	0.06		
4	Ca (mg/L)	15	12	12	13	14
5	Cl (mg/L)	18.1	15.6	12.4	23.1	29.3
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	1.91	1.08	0.50		
8	Fe (mg/L)	0.8	0.1		0.0	0.0
9	HCO3 (mg/L)	73	53	55	86	31
10	K (mg/L)	2.3	2.5	1.9		0.3
11	Mg (mg/L)	7.3	5.8	4.4	9.5	5.0
12	Na (mg/L)	11.5	9.7	9.2		15.9
13	NH3-N (mg N/L)	0.03	0.11			
14	NO2+NO3 (mg N/L)		4.06	0.78		
15	NO2-N (mgN/L)		0.07	0.05		
16	NO3-N (mgN/L)	2.80	3.99	0.72		
17	o-PO4-P (mg P/L)	0.358	0.176	0.012		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	18.5	15.0	5.2		
20	SO4 (mg/L)	5.6	1.2	2.6	6.3	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5	0.9	0.8	0.6
2	COD (mg/L)	4.1	2.4	6.4		
3	DO (mg/L)	6.8	6.5	7.5	7.0	6.4
4	DO_SAT% (%)	84	82	94	88	82
5	FCoI-MPN (MPN/100mL)	1600	320	1600		
6	TcoI-MPN (MPN/100mL)	1600	560	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.6				
2	Cd (µg/L)	0.2			0.1	
3	Cr (µg/L)	1.3			0.5	
4	Cu (µg/L)	4.7			10.1	
5	Hg (µg/L)					
6	Ni (µg/L)	1.7			2.9	
7	Pb (µg/L)	0.4			1.8	
8	Zn (µg/L)	5.8			9.7	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	37	31	29	33	35
2	HAR_Total (mgCaCO3/L)	67	55	47	73	56
3	Na% (%)	27	27	31		38
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.6	0.6	0.6		0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	2.331	24.95	13.79	3.185	5.435
2	EC_FLD (µmho/cm)		114			
3	EC_GEN (µmho/cm)	52	99	126	98	98
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.1	7.2	7.3	7.4	7.3
6	TDS (mg/L)		69	106	79	57
7	Temp (deg C)	27.0	28.0	27.0	30.0	32.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	39	36	34	26	29
3	B (mg/L)		0.28	0.02	0.07	
4	Ca (mg/L)	6	13	8	6	6
5	Cl (mg/L)	23.5	12.9	14.3	9.9	11.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)		0.59	0.33	0.07	0.26
8	Fe (mg/L)		0.1		0.0	0.0
9	HCO3 (mg/L)	48	44	42	32	35
10	K (mg/L)	1.8	2.2	2.4	3.0	1.8
11	Mg (mg/L)	2.8	3.9	5.0	3.5	2.9
12	Na (mg/L)	14.3	7.8	9.2	6.9	8.6
13	NH3-N (mg N/L)			0.05	0.08	0.49
14	NO2+NO3 (mg N/L)			1.10	0.31	
15	NO2-N (mgN/L)		0.03	0.12	0.05	
16	NO3-N (mgN/L)			0.98	0.26	0.12
17	o-PO4-P (mg P/L)		0.068	0.195	0.010	
18	P-Tot (mgP/L)			0.195		
19	SiO2 (mg/L)		8.2	14.8	25.6	29.8
20	SO4 (mg/L)		10.2	4.0	3.6	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8	1.8	0.6	0.6
2	COD (mg/L)			15.8	4.5	4.2
3	DO (mg/L)	8.0	6.8	7.4	6.0	
4	DO_SAT% (%)	100	87	93	79	
5	FCoI-MPN (MPN/100mL)			300	1600	900
6	TcoI-MPN (MPN/100mL)			500	1600	1600
	TRACE & TOXIC					
1	As (µg/L)		3.3	4.4	1.5	
2	Cd (µg/L)		0.1	0.6		
3	Cr (µg/L)		6.8	2.5	2.0	
4	Cu (µg/L)		4.6	5.6	1.1	
5	Hg (µg/L)					
6	Ni (µg/L)		13.4		10.8	
7	Pb (µg/L)		5.9	1.0	1.0	
8	Zn (µg/L)		13.8	30.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	32	20	14	16
2	HAR_Total (mgCaCO3/L)	27	49	41	29	28
3	Na% (%)	51	25	31	32	38
4	RSC (-)	0.2	0.0	0.0	0.0	0.0
5	SAR (-)	1.2	0.5	0.6	0.6	0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	26.32	9.195	1.333	0.880
2	EC_FLD (µmho/cm)	132	109		
3	EC_GEN (µmho/cm)	115	151	86	86
4	pH_FLD (pH units)	7.5	8.0		
5	pH_GEN (pH units)	6.5	7.1	7.2	7.0
6	TDS (mg/L)	75	109	56	56
7	Temp (deg C)	29.0	29.0	30.0	29.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	38	51	26	28
3	B (mg/L)	0.12	0.35	0.17	0.04
4	Ca (mg/L)	10	12	8	7
5	Cl (mg/L)	12.8	15.6	12.0	10.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.16	0.15	0.52	0.12
8	Fe (mg/L)	0.2	0.1	0.2	0.0
9	HCO3 (mg/L)	46	62	32	34
10	K (mg/L)	2.2	2.3	2.3	2.9
11	Mg (mg/L)	3.4	6.4	2.5	3.0
12	Na (mg/L)	7.8	10.9	7.4	7.2
13	NH3-N (mg N/L)	0.05	0.12		
14	NO2+NO3 (mg N/L)	0.34	3.11	0.84	0.34
15	NO2-N (mgN/L)	0.06	0.11	0.05	0.07
16	NO3-N (mgN/L)	0.28	3.00	0.79	0.27
17	o-PO4-P (mg P/L)	0.020	0.095	0.120	0.075
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	17.1	16.4	16.0	17.0
20	SO4 (mg/L)	1.0	0.5	0.7	1.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4	1.6	1.6	0.6
2	COD (mg/L)	10.6	14.8	9.6	4.3
3	DO (mg/L)	7.4	5.6	6.1	5.7
4	DO_SAT% (%)	96	73	81	74
5	FCol-MPN (MPN/100mL)	500	1600	280	900
6	Tcol-MPN (MPN/100mL)	900	1600	1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.0	0.3	2.5	2.1
2	Cd (µg/L)	0.0	0.0	0.0	0.0
3	Cr (µg/L)	0.7	1.6	0.2	0.4
4	Cu (µg/L)	2.9	0.7	1.9	0.8
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		3.1	0.0	1.7
7	Pb (µg/L)	0.2	3.8	2.6	0.1
8	Zn (µg/L)	3.2	0.0	1.7	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	24	30	20	18
2	HAR_Total (mgCaCO3/L)	38	57	30	31
3	Na% (%)	29	29	33	32
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.6	0.6	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)		260		
3	EC_GEN (µmho/cm)	65	116		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.2	6.5		
6	TDS (mg/L)				
7	Temp (deg C)	27.0	30.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	11	9		
5	Cl (mg/L)	5.2	33.5		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	82	15		
10	K (mg/L)		0.2		
11	Mg (mg/L)	2.8	3.8		
12	Na (mg/L)		15.6		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	2.2		
2	COD (mg/L)				
3	DO (mg/L)	6.2	7.2		
4	DO_SAT% (%)	78	95		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	27	24		
2	HAR_Total (mgCaCO3/L)	39	39		
3	Na% (%)		46		
4	RSC (-)				
5	SAR (-)		1.1		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: PULAMANTHOLE	Code	: KRA00G4
State	: Kerala	District	Palakkad
Basin	: WFR South of Tapi	Independent River	: Bharathapuzha
Tributary	: Pulanthodu	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Pulanthodu
Division	: SWR Division, Cochin	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 940 Sq. Km.	Bank	: Left
Latitude	: 10°53'53"	Longitude	: 76°11'31"
Zero of Gauge (m)	: 84.500 (m.s.l) 10.400 (m.s.l)	24/05/1985 01/06/1987	- 31/05/1987
	Opening Date	Closing Date	
Gauge	: 24/05/1985		
Discharge	: 17/02/1986		
Sediment	: 28/08/1986		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	4.155	67.88	88.62
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	48	59	56
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.8	7.3	7.4
6	TDS (mg/L)		33	44
7	Temp (deg C)	31.5	30.0	26.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	28	20	28
3	B (mg/L)	0.22	0.05	0.05
4	Ca (mg/L)	10	3	8
5	Cl (mg/L)	8.3	3.9	9.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.03	0.07	0.08
8	Fe (mg/L)	0.1	0.0	0.0
9	HCO3 (mg/L)	34	25	35
10	K (mg/L)	1.6	1.3	1.1
11	Mg (mg/L)	2.0	2.9	3.0
12	Na (mg/L)	5.0	2.8	4.8
13	NO2-N (mgN/L)	0.06	0.03	0.05
14	o-PO4-P (mg P/L)	0.059	0.106	0.062
15	SiO2 (mg/L)	13.6	10.6	8.8
16	SO4 (mg/L)	1.8	1.1	2.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.2	1.2	0.9
2	DO (mg/L)	7.0	6.8	6.0
3	DO_SAT% (%)	94	90	74
	TRACE & TOXIC			
1	As (µg/L)		3.0	
2	Cd (µg/L)			
3	Cr (µg/L)		3.0	
4	Cu (µg/L)		1.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		3.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	25	9	20
2	HAR_Total (mgCaCO3/L)	33	21	33
3	Na% (%)	24	22	24
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2017	03/04/2018
		A	A
	PHYSICAL		
1	Q (cumec)	6.661	1.477
2	Colour_Cod (-)	Clear	Clear
3	EC_GEN (µmho/cm)	76	85
4	Odour_Code (-)	odour free	odour free
5	pH_GEN (pH units)	6.8	6.8
6	TDS (mg/L)	42	
7	Temp (deg C)	29.0	32.0
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	20
3	B (mg/L)	0.06	0.16
4	Ca (mg/L)	5	7
5	Cl (mg/L)	5.0	8.3
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.08	0.08
8	Fe (mg/L)	0.1	0.1
9	HCO3 (mg/L)	29	25
10	K (mg/L)	1.3	1.8
11	Mg (mg/L)	3.9	1.5
12	Na (mg/L)	2.7	4.8
13	NO2-N (mgN/L)	0.08	0.04
14	o-PO4-P (mg P/L)	0.054	0.124
15	SiO2 (mg/L)	8.8	12.6
16	SO4 (mg/L)	2.1	1.5
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)	1.1	1.0
2	DO (mg/L)	7.4	7.6
3	DO_SAT% (%)	96	104
	TRACE & TOXIC		
1	As (µg/L)	3.6	1.2
2	Cd (µg/L)	0.1	0.0
3	Cr (µg/L)	11.4	13.6
4	Cu (µg/L)	2.8	47.0
5	Ni (µg/L)	1.5	5.9
6	Pb (µg/L)	2.3	2.5
7	Zn (µg/L)	26.4	25.3
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	12	17
2	HAR_Total (mgCaCO3/L)	29	23
3	Na% (%)	17	29
4	RSC (-)	0.0	0.0
5	SAR (-)	0.2	0.4
	PESTICIDES		

Water Quality Summary for the period : 2017-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

Sub-Division : Chaliyar SD, Calicut

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2091	0.000	47.38
2	EC_GEN (µmho/cm)	5	85	48	65
3	pH_GEN (pH units)	5	7.4	6.8	7
4	TDS (mg/L)	3	44	33	39
5	Temp (deg C)	5	32.0	26.5	29.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	28	20	24
3	B (mg/L)	5	0.22	0.05	0.11
4	Ca (mg/L)	5	10	3	7
5	Cl (mg/L)	5	9.1	3.9	6.9
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.08	0.03	0.07
8	Fe (mg/L)	5	0.1	0.0	0.1
9	HCO3 (mg/L)	5	35	25	30
10	K (mg/L)	5	1.8	1.1	1.4
11	Mg (mg/L)	5	3.9	1.5	2.7
12	Na (mg/L)	5	5.0	2.7	4
13	NO2-N (mgN/L)	5	0.08	0.03	0.05
14	o-PO4-P (mg P/L)	5	0.124	0.054	0.081
15	SiO2 (mg/L)	5	13.6	8.8	10.9
16	SO4 (mg/L)	5	2.3	1.1	1.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.2	0.9	1.1
2	DO (mg/L)	5	7.6	6.0	7
3	DO_SAT% (%)	5	104	74	92
	TRACE & TOXIC				
1	As (µg/L)	3	3.6	1.2	2.6
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	3	13.6	3.0	9.3
4	Cu (µg/L)	3	47.0	1.0	16.9
5	Ni (µg/L)	2	5.9	1.5	3.7
6	Pb (µg/L)	3	2.5	1.0	1.9
7	Zn (µg/L)	3	26.4	3.0	18.2
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	25	9	16
2	HAR_Total (mgCaCO3/L)	5	33	21	28
3	Na% (%)	5	29	17	23
4	RSC (-)	5	0.0	0.0	0
5	SAR (-)	5	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2008	2009	2010	2011	2012
	PHYSICAL					
1	Q (cumec)	85.22	67.61	84.93	68.52	26.12
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	57	53	65	63	63
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.7	7.1	6.7	6.1	6.9
6	TDS (mg/L)	44	30	43	42	42
7	Temp (deg C)	27.3	27.8	28.8	29.7	30.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	15	19	20	20
2	B (mg/L)	0.01		0.12	0.16	0.05
3	Ca (mg/L)	4	4	5	7	6
4	Cl (mg/L)	8.0	7.5	8.6	8.5	7.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.05	0.09	0.21	0.06	0.02
7	Fe (mg/L)		0.0	0.1	0.1	0.1
8	HCO3 (mg/L)	20	18	23	24	25
9	K (mg/L)	1.1	1.2	1.2	1.5	1.4
10	Mg (mg/L)	2.1	1.2	2.1	1.3	3.1
11	Na (mg/L)	4.3	4.7	4.7	4.7	4.7
12	NH3-N (mg N/L)		0.12	0.44	0.08	0.03
13	NO2+NO3 (mg N/L)	0.33		0.12	0.23	1.48
14	NO2-N (mgN/L)	0.05		0.02	0.03	0.01
15	NO3-N (mgN/L)	0.22		0.14	0.20	1.47
16	o-PO4-P (mg P/L)	0.024	0.054	0.053	0.038	0.263
17	P-Tot (mgP/L)	0.010				
18	SiO2 (mg/L)	21.9	30.5	23.6	19.7	13.4
19	SO4 (mg/L)	1.0	1.0	1.1	1.1	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.5	0.7	0.6	0.5
2	COD (mg/L)	6.3	4.1	4.4	2.3	3.4
3	DO (mg/L)	6.7			6.5	6.4
4	DO_SAT% (%)	85			85	85
5	FCol-MPN (MPN/100mL)				350	900
6	Tcol-MPN (MPN/100mL)				1600	1600
	TRACE & TOXIC					
1	As (µg/L)					0.0
2	Cd (µg/L)					0.0
3	Cr (µg/L)					1.7
4	Cu (µg/L)					3.4
5	Hg (µg/L)					
6	Ni (µg/L)					1.7
7	Pb (µg/L)					2.6
8	Zn (µg/L)					17.2
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	11	12	17	14
2	HAR_Total (mgCaCO3/L)	19	16	21	22	27
3	Na% (%)	32	37	33	30	26
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2013	2014	2015	2016	2017
	PHYSICAL					
1	Q (cumec)	95.33	246.2	24.72	28.91	53.55
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	55	57	63	27	54
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.7	6.9	7.3	6.2	7.2
6	TDS (mg/L)	37				38
7	Temp (deg C)	27.0	29.3	30.0	28.2	29.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18			15	26
2	B (mg/L)	0.07				0.11
3	Ca (mg/L)	5	6	5	11	7
4	Cl (mg/L)	8.8	8.5	12.3	11.0	7.1
5	CO3 (mg/L)	0.0			0.0	0.0
6	F (mg/L)	0.21				0.06
7	Fe (mg/L)	0.1				0.0
8	HCO3 (mg/L)	21	22	34	18	31
9	K (mg/L)	1.7	1.9		0.7	1.3
10	Mg (mg/L)	2.0	3.4	2.5	2.8	2.6
11	Na (mg/L)	5.4	3.9		8.9	4.2
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)	0.46				
14	NO2-N (mgN/L)	0.02				0.05
15	NO3-N (mgN/L)	0.44				
16	o-PO4-P (mg P/L)	0.099				0.076
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	12.8				11.0
19	SO4 (mg/L)	0.8	2.6			1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.8	0.9	1.0	1.1
2	COD (mg/L)	4.5				
3	DO (mg/L)	5.8	7.0	6.5	5.9	6.6
4	DO_SAT% (%)	73	92	87	77	86
5	FCol-MPN (MPN/100mL)	1250				
6	Tcol-MPN (MPN/100mL)	1600	763			
	TRACE & TOXIC					
1	As (µg/L)	6.1				3.0
2	Cd (µg/L)	0.1				
3	Cr (µg/L)	1.2				3.0
4	Cu (µg/L)	0.3				1.0
5	Hg (µg/L)	0.0				
6	Ni (µg/L)	7.9				
7	Pb (µg/L)					1.0
8	Zn (µg/L)	5.0				3.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	16	13	29	18
2	HAR_Total (mgCaCO3/L)	20	30	24	41	29
3	Na% (%)	35	24		33	23
4	RSC (-)	0.0			0.0	0.0
5	SAR (-)	0.5	0.3		0.7	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
	PHYSICAL					
1	Q (cumec)	13.26	9.022	24.29	13.00	4.305
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	72	63	65	65	71
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.3	6.6	6.9	6.9	6.7
6	TDS (mg/L)	56	37	41	41	45
7	Temp (deg C)	28.0	29.3	28.0	28.5	29.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	24	24	21	25	23
2	B (mg/L)	0.10	0.66	0.32	0.19	0.11
3	Ca (mg/L)	6	6	6	6	7
4	Cl (mg/L)	9.2	7.5	6.4	9.6	8.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.05	0.25	0.09	0.29	0.28
7	Fe (mg/L)	0.1	0.1	0.2	1.5	0.1
8	HCO3 (mg/L)	29	29	26	30	29
9	K (mg/L)	1.4	1.4	1.1	1.4	1.5
10	Mg (mg/L)	2.9	1.5	2.2	2.5	2.7
11	Na (mg/L)	6.2	5.5	4.2	5.6	5.7
12	NH3-N (mg N/L)		0.17	0.05	0.07	0.03
13	NO2+NO3 (mg N/L)			0.27		2.17
14	NO2-N (mgN/L)			0.01		0.03
15	NO3-N (mgN/L)	0.08		0.26	1.53	2.13
16	o-PO4-P (mg P/L)	0.020	0.026	0.119	0.229	0.149
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	20.7	29.1	13.6	17.3	15.2
19	SO4 (mg/L)	1.4	1.0	1.0	0.6	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	0.5	0.3	0.3	0.4
2	COD (mg/L)	9.2	6.1	1.9	3.7	2.8
3	DO (mg/L)	6.8			6.8	7.1
4	DO_SAT% (%)	87			88	92
5	Fcol-MPN (MPN/100mL)	500				600
6	Tcol-MPN (MPN/100mL)	900				1050
	TRACE & TOXIC					
1	As (µg/L)				0.8	
2	Cd (µg/L)				0.2	
3	Cr (µg/L)				1.5	
4	Cu (µg/L)				4.0	
5	Hg (µg/L)					
6	Ni (µg/L)				3.7	
7	Pb (µg/L)				0.2	
8	Zn (µg/L)				9.7	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	14	15	16	18
2	HAR_Total (mgCaCO3/L)	26	20	24	26	29
3	Na% (%)	33	35	27	30	29
4	RSC (-)	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.4	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
	PHYSICAL					
1	Q (cumec)	15.93	7.626	9.142	2.678	6.661
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	68	78	44	60	77
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.9	7.3	7.0	6.7	7.2
6	TDS (mg/L)	42				43
7	Temp (deg C)	28.8	29.5	29.0	28.5	28.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	28			16	25
2	B (mg/L)	0.10				0.07
3	Ca (mg/L)	7	5	5	6	7
4	Cl (mg/L)	8.8	8.8	16.9	8.6	5.6
5	CO3 (mg/L)	0.0			0.0	0.0
6	F (mg/L)	0.14				0.07
7	Fe (mg/L)		0.0	0.0		0.1
8	HCO3 (mg/L)	34	36	26	19	30
9	K (mg/L)	1.5		0.2	2.8	1.3
10	Mg (mg/L)	1.7	3.8	2.0	3.8	3.0
11	Na (mg/L)	5.8		10.7	9.2	3.3
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)	0.24				
14	NO2-N (mgN/L)	0.01				0.06
15	NO3-N (mgN/L)	0.23				
16	o-PO4-P (mg P/L)	0.040				0.059
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	12.4				10.7
19	SO4 (mg/L)	0.9	1.3			2.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.4	1.2	0.8	1.0
2	COD (mg/L)	3.4				
3	DO (mg/L)	7.7	7.0	7.2	7.2	7.0
4	DO_SAT% (%)	99	92	94	92	91
5	Fcol-MPN (MPN/100mL)	500				
6	Tcol-MPN (MPN/100mL)	900				
	TRACE & TOXIC					
1	As (µg/L)					3.6
2	Cd (µg/L)		0.1			0.1
3	Cr (µg/L)		3.1			11.4
4	Cu (µg/L)		5.5			2.8
5	Hg (µg/L)					
6	Ni (µg/L)		1.1			1.5
7	Pb (µg/L)		0.2			2.3
8	Zn (µg/L)		9.5			26.4
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	18	14	12	16	17
2	HAR_Total (mgCaCO3/L)	25	30	20	31	29
3	Na% (%)	32		53	37	19
4	RSC (-)	0.1			0.0	0.0
5	SAR (-)	0.5		1.0	0.7	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer				
		Mar - May				
		2009	2010	2011	2012	2013
	PHYSICAL					
1	Q (cumec)		5.560	9.702	6.215	2.187
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)		61	73	72	71
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.0	7.7	6.8	7.0
6	TDS (mg/L)		35	43	52	46
7	Temp (deg C)		32.5	32.0	29.0	28.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		19	25	20	24
2	B (mg/L)		1.20	0.13	0.22	0.09
3	Ca (mg/L)		4	6	6	6
4	Cl (mg/L)		8.5	10.8	9.9	7.8
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.17	0.12	0.04	0.38
7	Fe (mg/L)		0.1	0.4	0.0	0.0
8	HCO3 (mg/L)		23	31	24	29
9	K (mg/L)		1.6	1.8	1.8	2.4
10	Mg (mg/L)		2.5	2.0	3.0	2.9
11	Na (mg/L)		5.7	6.0	5.5	5.2
12	NH3-N (mg N/L)		0.24	0.05	0.11	
13	NO2+NO3 (mg N/L)			0.27	2.15	0.71
14	NO2-N (mgN/L)			0.02	0.04	0.01
15	NO3-N (mgN/L)		0.11	0.25	2.11	0.70
16	o-PO4-P (mg P/L)			0.860	0.080	0.030
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)		28.2	20.4	14.0	15.8
19	SO4 (mg/L)		1.0	1.0	2.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.4	1.2	0.4	0.8
2	COD (mg/L)		3.6	10.4	4.2	5.2
3	DO (mg/L)				6.4	6.1
4	DO_SAT% (%)				83	78
5	FCoI-MPN (MPN/100mL)				1600	900
6	TcoI-MPN (MPN/100mL)				1600	1600
	TRACE & TOXIC					
1	As (µg/L)			1.1	0.0	2.9
2	Cd (µg/L)			0.0	0.1	0.0
3	Cr (µg/L)			1.8	1.3	0.1
4	Cu (µg/L)			5.3	3.0	5.4
5	Hg (µg/L)			0.0		
6	Ni (µg/L)				2.6	0.0
7	Pb (µg/L)			0.3	4.5	3.0
8	Zn (µg/L)			11.0	0.0	2.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		10	16	14	16
2	HAR_Total (mgCaCO3/L)		20	24	27	28
3	Na% (%)		36	33	29	27
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.6	0.5	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Cochin

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer				
		Mar - May				
		2014	2015	2016	2017	2018
	PHYSICAL					
1	Q (cumec)	1.045	3.346	0.000		1.477
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	67	71	75		85
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.9	7.6	6.0		6.8
6	TDS (mg/L)	45				
7	Temp (deg C)	32.5	34.5	32.0		32.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	23				20
2	B (mg/L)	0.08				0.16
3	Ca (mg/L)	8	5	9		7
4	Cl (mg/L)	8.5	9.1	27.4		8.3
5	CO3 (mg/L)	0.0				0.0
6	F (mg/L)	0.02				0.08
7	Fe (mg/L)	0.0				0.1
8	HCO3 (mg/L)	28	18	12		25
9	K (mg/L)	2.5		0.4		1.8
10	Mg (mg/L)	2.5	3.8	2.8		1.5
11	Na (mg/L)	4.7		13.2		4.8
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)	0.90				
14	NO2-N (mgN/L)	0.01				0.04
15	NO3-N (mgN/L)	0.89				
16	o-PO4-P (mg P/L)	0.100				0.124
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	17.5				12.6
19	SO4 (mg/L)	1.4				1.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	1.0	1.8		1.0
2	COD (mg/L)	7.2				
3	DO (mg/L)	6.5	7.2	6.6		7.6
4	DO_SAT% (%)	89	102	90		104
5	FCoI-MPN (MPN/100mL)	1600				
6	TcoI-MPN (MPN/100mL)	1600				
	TRACE & TOXIC					
1	As (µg/L)	1.0				1.2
2	Cd (µg/L)	0.0				0.0
3	Cr (µg/L)	0.4				13.6
4	Cu (µg/L)	1.6				47.0
5	Hg (µg/L)					
6	Ni (µg/L)	7.7				5.9
7	Pb (µg/L)	0.2				2.5
8	Zn (µg/L)	1.0				25.3
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	20	12	24		17
2	HAR_Total (mgCaCO3/L)	30	28	35		23
3	Na% (%)	23		45		29
4	RSC (-)	0.0				0.0
5	SAR (-)	0.4		1.0		0.4
	PESTICIDES					

HISTORY SHEET

		Water Year	: 2017-2018
Site	: MANKARA	Code	: KR000K4
State	: Kerala	District	Palakkad
Basin	: WFR South of Tapi	Independent River	: Bharathapuzha
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Bharathapuzha
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 2775 Sq. Km.	Bank	: Right
Latitude	: 10°45'40"	Longitude	: 76°29'10"
Zero of Gauge (m)	: 45.830 (m.s.l) 45.000 (m.s.l)	26/05/1984 01/06/1989	- 31/05/1989
	Opening Date	Closing Date	
Gauge	: 26/05/1984		
Discharge	: 21/06/1985		
Sediment	: 24/09/2013		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/08/2017	03/10/2017	01/12/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.857	11.82	2.353
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	67		
4	EC_GEN (µmho/cm)	294	231	298
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0		
7	pH_GEN (pH units)	7.4	7.4	7.3
8	TDS (mg/L)	163	149	188
9	Temp (deg C)	27.5	28.5	26.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	89	101	109
3	B (mg/L)	0.16	0.26	0.36
4	Ca (mg/L)	26	29	24
5	Cl (mg/L)	18.3	24.2	31.7
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.34	0.64	0.73
8	Fe (mg/L)	0.1	0.1	0.1
9	HCO3 (mg/L)	109	123	133
10	K (mg/L)	5.0	3.3	3.8
11	Mg (mg/L)	8.1	4.9	13.8
12	Na (mg/L)	13.5	18.3	20.6
13	NO2-N (mgN/L)	0.09	0.07	0.09
14	o-PO4-P (mg P/L)	0.143	0.234	0.247
15	SiO2 (mg/L)	10.7	12.6	14.5
16	SO4 (mg/L)	13.0	9.1	12.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.7	1.3
2	DO (mg/L)	6.1	7.3	7.6
3	DO_SAT% (%)	77	93	94
	TRACE & TOXIC			
1	As (µg/L)	2.0		2.9
2	Cd (µg/L)			0.1
3	Cr (µg/L)	4.0		17.3
4	Cu (µg/L)	1.0		2.8
5	Ni (µg/L)			5.9
6	Pb (µg/L)	1.0		1.9
7	Zn (µg/L)	9.0		8.9
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	64	73	61
2	HAR_Total (mgCaCO3/L)	98	94	118
3	Na% (%)	22	29	27
4	RSC (-)	0.0	0.1	0.0
5	SAR (-)	0.6	0.8	0.8
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/02/2018	03/04/2018
		A	A
	PHYSICAL		
1	Q (cumec)	1.634	0.132
2	Colour_Cod (-)	Clear	Clear
3	EC_FLD (µmho/cm)		
4	EC_GEN (µmho/cm)	223	264
5	Odour_Code (-)	odour free	odour free
6	pH_FLD (pH units)		
7	pH_GEN (pH units)	8.1	6.7
8	TDS (mg/L)	128	
9	Temp (deg C)	20.0	29.3
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	75	17
3	B (mg/L)	0.09	0.31
4	Ca (mg/L)	30	8
5	Cl (mg/L)	19.5	5.6
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.43	0.78
8	Fe (mg/L)	0.1	0.1
9	HCO3 (mg/L)	92	20
10	K (mg/L)	1.7	1.6
11	Mg (mg/L)	7.1	2.1
12	Na (mg/L)	10.5	3.1
13	NO2-N (mgN/L)	0.08	0.08
14	o-PO4-P (mg P/L)	0.421	0.268
15	SiO2 (mg/L)	14.8	10.3
16	SO4 (mg/L)	15.4	12.0
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)	1.0	1.5
2	DO (mg/L)	6.3	7.2
3	DO_SAT% (%)	69	94
	TRACE & TOXIC		
1	As (µg/L)		0.6
2	Cd (µg/L)		0.0
3	Cr (µg/L)		1.6
4	Cu (µg/L)		11.7
5	Ni (µg/L)		5.8
6	Pb (µg/L)		1.9
7	Zn (µg/L)		23.5
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	76	19
2	HAR_Total (mgCaCO3/L)	105	28
3	Na% (%)	18	19
4	RSC (-)	0.0	0.0
5	SAR (-)	0.4	0.3
	PESTICIDES		

Water Quality Summary for the period : 2017-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	153.2	0.000	8.777
2	EC_FLD (µmho/cm)	1	67	67	67
3	EC_GEN (µmho/cm)	5	298	223	262
4	pH_FLD (pH units)	1	7.0	7.0	7
5	pH_GEN (pH units)	5	8.1	6.7	7.4
6	TDS (mg/L)	4	188	128	157
7	Temp (deg C)	5	29.3	20.0	26.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	109	17	78
3	B (mg/L)	5	0.36	0.09	0.24
4	Ca (mg/L)	5	30	8	23
5	Cl (mg/L)	5	31.7	5.6	19.9
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.78	0.34	0.58
8	Fe (mg/L)	5	0.1	0.1	0.1
9	HCO3 (mg/L)	5	133	20	95
10	K (mg/L)	5	5.0	1.6	3.1
11	Mg (mg/L)	5	13.8	2.1	7.2
12	Na (mg/L)	5	20.6	3.1	13.2
13	NO2-N (mgN/L)	5	0.09	0.07	0.08
14	o-PO4-P (mg P/L)	5	0.421	0.143	0.263
15	SiO2 (mg/L)	5	14.8	10.3	12.6
16	SO4 (mg/L)	5	15.4	9.1	12.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.5	0.7	1.1
2	DO (mg/L)	5	7.6	6.1	6.9
3	DO_SAT% (%)	5	94	69	85
	TRACE & TOXIC				
1	As (µg/L)	3	2.9	0.6	1.8
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	3	17.3	1.6	7.6
4	Cu (µg/L)	3	11.7	1.0	5.2
5	Ni (µg/L)	2	5.9	5.8	5.8
6	Pb (µg/L)	3	1.9	1.0	1.6
7	Zn (µg/L)	3	23.5	8.9	13.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	76	19	59
2	HAR_Total (mgCaCO3/L)	5	118	28	89
3	Na% (%)	5	29	18	23
4	RSC (-)	5	0.1	0.0	0
5	SAR (-)	5	0.8	0.3	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)			27.79	21.31	21.45
2	EC_FLD (μmho/cm)					
3	EC_GEN (μmho/cm)		470	209	238	382
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.9	7.6	7.3	7.2
6	TDS (mg/L)		375	135	142	274
7	Temp (deg C)		30.5	22.5	28.0	29.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		151	62	65	111
3	B (mg/L)		0.03	1.37	0.34	0.28
4	Ca (mg/L)		31	18	13	27
5	Cl (mg/L)		43.3	22.8	21.3	41.9
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.05	0.17	0.11	0.28
8	Fe (mg/L)		0.0	0.0	0.1	0.1
9	HCO3 (mg/L)		184	76	79	135
10	K (mg/L)		2.6	3.8	3.0	2.9
11	Mg (mg/L)		19.6	5.4	9.0	12.6
12	Na (mg/L)		31.0	16.2	16.2	25.2
13	NH3-N (mg N/L)			0.30	0.27	0.13
14	NO2+NO3 (mg N/L)				0.23	0.55
15	NO2-N (mgN/L)				0.03	0.11
16	NO3-N (mgN/L)		0.41		0.20	0.43
17	o-PO4-P (mg P/L)		0.032	0.134	0.135	0.104
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		26.8	29.6	21.1	20.2
20	SO4 (mg/L)		20.5	6.9	6.1	12.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.6		
2	COD (mg/L)			6.3	11.9	
3	DO (mg/L)					
4	DO_SAT% (%)					
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (μg/L)					
2	Cd (μg/L)					
3	Cr (μg/L)					
4	Cu (μg/L)					
5	Hg (μg/L)					
6	Ni (μg/L)					
7	Pb (μg/L)					
8	Zn (μg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		78	46	31	67
2	HAR_Total (mgCaCO3/L)		160	68	69	120
3	Na% (%)		29	32	33	30
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		1.1	0.8	0.8	1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	4.779	33.94	176.2	20.51	5.198
2	EC_FLD (μmho/cm)		182			
3	EC_GEN (μmho/cm)	356	173	217	239	86
4	pH_FLD (pH units)		6.8			
5	pH_GEN (pH units)	7.5	7.1	7.4	7.1	6.1
6	TDS (mg/L)	251	130			
7	Temp (deg C)	28.5	27.3	29.2	29.5	27.9
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	127	66			34
3	B (mg/L)	0.19	0.06			
4	Ca (mg/L)	31	17	21	9	17
5	Cl (mg/L)	30.7	14.9	18.3	20.4	26.1
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.36	2.21			
8	Fe (mg/L)	0.2	0.1			
9	HCO3 (mg/L)	155	80	102	98	41
10	K (mg/L)	3.8	3.0	4.1		0.9
11	Mg (mg/L)	14.4	6.6	15.7	3.5	3.5
12	Na (mg/L)	20.8	10.1	11.6		14.0
13	NH3-N (mg N/L)	0.18				
14	NO2+NO3 (mg N/L)	5.70	0.54			
15	NO2-N (mgN/L)	0.12	0.13			
16	NO3-N (mgN/L)	5.58	0.41			
17	o-PO4-P (mg P/L)	0.350	0.155			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	18.6	15.0			
20	SO4 (mg/L)	5.8	1.0	13.7		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.4	1.1	0.7	0.7
2	COD (mg/L)		11.1			
3	DO (mg/L)		3.9	6.1	6.7	5.8
4	DO_SAT% (%)		50	79	87	73
5	FCol-MPN (MPN/100mL)		950			
6	Tcol-MPN (MPN/100mL)		1050	1213		
	TRACE & TOXIC					
1	As (μg/L)	0.2	3.3			
2	Cd (μg/L)	3.6	0.1			
3	Cr (μg/L)	2.2	0.6			
4	Cu (μg/L)	2.3	0.8			
5	Hg (μg/L)		0.1			
6	Ni (μg/L)	4.4	8.2			
7	Pb (μg/L)	9.1	1.7			
8	Zn (μg/L)	24.4	8.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	77	42	53	23	42
2	HAR_Total (mgCaCO3/L)	137	69	118	38	56
3	Na% (%)	24	23	18		41
4	RSC (-)	0.0	0.0			0.1
5	SAR (-)	0.8	0.5	0.5		1.1
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR00K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	6.839			8.189	19.08
2	EC_FLD (μmho/cm)	67				
3	EC_GEN (μmho/cm)	263		358	360	369
4	pH_FLD (pH units)	7.0				
5	pH_GEN (pH units)	7.4		8.0	7.7	7.8
6	TDS (mg/L)	156		291	238	257
7	Temp (deg C)	28.0		27.3	25.0	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	95		120	121	130
3	B (mg/L)	0.21		0.06	0.00	0.17
4	Ca (mg/L)	28		34	24	31
5	Cl (mg/L)	21.3		25.9	29.8	33.0
6	CO3 (mg/L)	0.0		0.0	0.0	0.0
7	F (mg/L)	0.49		0.38	0.16	0.48
8	Fe (mg/L)	0.1		0.1	0.0	0.3
9	HCO3 (mg/L)	116		146	148	159
10	K (mg/L)	4.2		2.7	3.7	3.5
11	Mg (mg/L)	6.5		12.4	14.4	13.0
12	Na (mg/L)	15.9		19.5	22.0	22.5
13	NH3-N (mg N/L)				0.20	0.05
14	NO2+NO3 (mg N/L)			0.46		0.60
15	NO2-N (mgN/L)	0.08		0.09		0.11
16	NO3-N (mgN/L)			0.37		0.49
17	o-PO4-P (mg P/L)	0.189		0.084	0.043	0.239
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.7		25.3	32.0	19.1
20	SO4 (mg/L)	11.1		10.6	14.7	20.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8				
2	COD (mg/L)				11.4	12.4
3	DO (mg/L)	6.7				
4	DO_SAT% (%)	85				
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (μg/L)	2.0				
2	Cd (μg/L)					
3	Cr (μg/L)	4.0				
4	Cu (μg/L)	1.0				
5	Hg (μg/L)					
6	Ni (μg/L)					
7	Pb (μg/L)	1.0				
8	Zn (μg/L)	9.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	69		86	61	78
2	HAR_Total (mgCaCO3/L)	96		138	121	132
3	Na% (%)	25		24	28	27
4	RSC (-)	0.1		0.0	0.0	0.0
5	SAR (-)	0.7		0.7	0.9	0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	23.94	1.415	4.962	5.469	7.547
2	EC_FLD (μmho/cm)			183		
3	EC_GEN (μmho/cm)	371	271	227	273	194
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.6	7.0	7.1	7.5	7.3
6	TDS (mg/L)	273	186	161		
7	Temp (deg C)	27.8	26.3	27.5	27.0	27.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	130	87	81		
3	B (mg/L)	0.59	0.20	0.12		
4	Ca (mg/L)	32	24	20	20	19
5	Cl (mg/L)	35.1	24.0	21.3	26.3	14.3
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	3.22	2.71	0.90		
8	Fe (mg/L)	1.1	0.2		0.0	0.0
9	HCO3 (mg/L)	159	107	99	120	59
10	K (mg/L)	3.5	3.4	2.7		0.4
11	Mg (mg/L)	13.9	11.2	8.1	13.3	4.2
12	Na (mg/L)	25.5	16.8	15.2		10.8
13	NH3-N (mg N/L)	0.05	0.23			
14	NO2+NO3 (mg N/L)		8.11	1.65		
15	NO2-N (mgN/L)		0.26	0.08		
16	NO3-N (mgN/L)	3.89	7.85	1.57		
17	o-PO4-P (mg P/L)	0.450	0.283	0.072		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	17.7	18.1	11.0		
20	SO4 (mg/L)	19.8	1.1	4.7	7.9	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2		1.1	0.2	1.0
2	COD (mg/L)			8.2		
3	DO (mg/L)			6.3	6.5	6.1
4	DO_SAT% (%)			79	82	77
5	FCol-MPN (MPN/100mL)		210	1600		
6	Tcol-MPN (MPN/100mL)		360	1600		
	TRACE & TOXIC					
1	As (μg/L)	0.3				
2	Cd (μg/L)	0.2			0.4	
3	Cr (μg/L)	1.1			13.9	
4	Cu (μg/L)	2.6			3.0	
5	Hg (μg/L)					
6	Ni (μg/L)	2.3			1.8	
7	Pb (μg/L)	0.2			6.2	
8	Zn (μg/L)	15.3			9.0	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	79	61	51	51	47
2	HAR_Total (mgCaCO3/L)	137	108	84	106	65
3	Na% (%)	28	24	28		27
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.9	0.7	0.7		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		1.994			0.000
2	EC_FLD (μ mho/cm)					
3	EC_GEN (μ mho/cm)		260		259	
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.7		7.3	
6	TDS (mg/L)		158		202	
7	Temp (deg C)		23.0		25.5	
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0		0.0	
2	ALK-TOT (mgCaCO3/L)		92		96	
3	B (mg/L)		0.23		0.18	
4	Ca (mg/L)		27		23	
5	Cl (mg/L)		25.6		16.3	
6	CO3 (mg/L)		0.0		0.0	
7	F (mg/L)		0.58		0.19	
8	Fe (mg/L)		0.1		0.1	
9	HCO3 (mg/L)		112		117	
10	K (mg/L)		2.8		3.7	
11	Mg (mg/L)		10.5		11.2	
12	Na (mg/L)		15.5		12.3	
13	NH3-N (mg N/L)				0.10	
14	NO2+NO3 (mg N/L)				0.42	
15	NO2-N (mgN/L)		0.08		0.08	
16	NO3-N (mgN/L)				0.34	
17	o-PO4-P (mg P/L)		0.334		0.039	
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		14.7		27.4	
20	SO4 (mg/L)		13.7		12.4	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.1			
2	COD (mg/L)					
3	DO (mg/L)		7.0			
4	DO_SAT% (%)		81			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (μ g/L)		2.9			
2	Cd (μ g/L)		0.1			
3	Cr (μ g/L)		17.3			
4	Cu (μ g/L)		2.8			
5	Hg (μ g/L)					
6	Ni (μ g/L)		5.9			
7	Pb (μ g/L)		1.9			
8	Zn (μ g/L)		8.9			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		68		58	
2	HAR_Total (mgCaCO3/L)		112		105	
3	Na% (%)		22		20	
4	RSC (-)		0.0		0.0	
5	SAR (-)		0.6		0.5	
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	1.642	2.153	0.016	1.836
2	EC_FLD (µmho/cm)			179	
3	EC_GEN (µmho/cm)	430	286	169	139
4	pH_FLD (pH units)			6.8	
5	pH_GEN (pH units)	8.3	8.4	7.2	7.4
6	TDS (mg/L)	301	203	115	103
7	Temp (deg C)	31.0	28.0	29.5	30.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	10.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	146	96	65	50
3	B (mg/L)	0.13	0.47	0.26	0.03
4	Ca (mg/L)	30	22	23	14
5	Cl (mg/L)	47.5	26.2	13.5	14.0
6	CO3 (mg/L)	12.0	0.0	0.0	0.0
7	F (mg/L)	0.67	0.04	1.13	0.57
8	Fe (mg/L)	0.3	0.0	0.2	0.1
9	HCO3 (mg/L)	154	117	79	61
10	K (mg/L)	6.0	2.8	4.0	4.9
11	Mg (mg/L)	14.8	11.8	3.4	7.0
12	Na (mg/L)	30.0	18.8	10.0	8.7
13	NH3-N (mg N/L)	0.13	0.26		
14	NO2+NO3 (mg N/L)	0.80	4.78	2.80	2.64
15	NO2-N (mgN/L)	0.04	0.21	0.26	0.06
16	NO3-N (mgN/L)	0.76	4.57	2.54	2.58
17	o-PO4-P (mg P/L)	0.890	0.110	0.180	0.120
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	24.4	18.0	18.6	20.1
20	SO4 (mg/L)	12.0	1.0	1.4	7.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6		2.4	2.2
2	COD (mg/L)			17.2	16.6
3	DO (mg/L)			4.5	5.1
4	DO_SAT% (%)			59	68
5	FCol-MPN (MPN/100mL)			900	900
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.2		2.3	4.7
2	Cd (µg/L)	0.0	0.1	0.0	0.0
3	Cr (µg/L)	2.2	1.1	0.6	2.4
4	Cu (µg/L)	13.1	2.0	1.4	1.9
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		2.4	0.7	1.7
7	Pb (µg/L)	0.9	5.7	3.3	0.2
8	Zn (µg/L)	11.8	0.0	2.7	3.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	74	54	58	35
2	HAR_Total (mgCaCO3/L)	136	103	72	64
3	Na% (%)	31	28	22	21
4	RSC (-)	0.2	0.0	0.0	0.0
5	SAR (-)	1.1	0.8	0.5	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MANKARA (KR000K4)

Division : SWR Division, Cochin

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.036	0.155		0.132
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	650	197		264
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.3	6.2		6.7
6	TDS (mg/L)				
7	Temp (deg C)	31.0	29.3		29.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				0.0
2	ALK-TOT (mgCaCO3/L)				17
3	B (mg/L)				0.31
4	Ca (mg/L)	5	16		8
5	Cl (mg/L)	15.6	16.9		5.6
6	CO3 (mg/L)				0.0
7	F (mg/L)				0.78
8	Fe (mg/L)				0.1
9	HCO3 (mg/L)	34	29		20
10	K (mg/L)		0.4		1.6
11	Mg (mg/L)	0.9	3.8		2.1
12	Na (mg/L)		8.9		3.1
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				0.08
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				0.268
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				10.3
20	SO4 (mg/L)				12.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.8	1.4		1.5
2	COD (mg/L)				
3	DO (mg/L)	6.2	6.2		7.2
4	DO_SAT% (%)	83	81		94
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.6
2	Cd (µg/L)				0.0
3	Cr (µg/L)				1.6
4	Cu (µg/L)				11.7
5	Hg (µg/L)				
6	Ni (µg/L)				5.8
7	Pb (µg/L)				1.9
8	Zn (µg/L)				23.5
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	39		19
2	HAR_Total (mgCaCO3/L)	16	55		28
3	Na% (%)		26		19
4	RSC (-)				0.0
5	SAR (-)		0.5		0.3
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: PUDUR	Code	: KR000M1
State	: Kerala	District	Palakkad
Basin	: WFR South of Tapi	Independent River	: Bharathapuzha
Tributary	: Kannadipuzha	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kannadipuzha
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 1313 Sq. Km.	Bank	: Left
Latitude	: 10°46'39"	Longitude	: 76°30'44"
Zero of Gauge (m)	: 40.500 (m.s.l)	01/06/1985	- 31/08/1985
	: 58.285 (m.s.l)	01/09/1985	- 31/05/1989
	: 58.000 (m.s.l)	01/06/1989	
		Opening Date	Closing Date
Gauge	: 01/06/1985		
Discharge	: 02/09/1985		
Sediment	: 01/10/2013		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/08/2017	03/10/2017	01/12/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.629	16.35	1.161
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN ($\mu\text{mho/cm}$)	393	359	450
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	7.8	7.6
6	TDS (mg/L)	221	252	256
7	Temp (deg C)		27.5	26.0
	CHEMICAL			
1	Alk-Phen (mgCaCO ₃ /L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO ₃ /L)	154	166	137
3	B (mg/L)	0.12	0.33	0.43
4	Ca (mg/L)	53	57	39
5	Cl (mg/L)	18.3	24.2	44.5
6	CO ₃ (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.74	0.83	0.86
8	Fe (mg/L)	0.1	0.1	0.1
9	HCO ₃ (mg/L)	188	202	167
10	K (mg/L)	2.0	2.6	4.8
11	Mg (mg/L)	9.2	13.8	16.7
12	Na (mg/L)	13.2	18.7	27.8
13	NO ₂ -N (mgN/L)	0.13	0.08	0.08
14	o-PO ₄ -P (mg P/L)	0.071	0.412	0.368
15	SiO ₂ (mg/L)	13.6	9.3	13.2
16	SO ₄ (mg/L)	13.9	21.6	21.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.6	0.8	1.2
2	DO (mg/L)	6.8	6.1	6.8
3	DO_SAT% (%)		77	84
	TRACE & TOXIC			
1	As ($\mu\text{g/L}$)	2.0		3.2
2	Cd ($\mu\text{g/L}$)			0.1
3	Cr ($\mu\text{g/L}$)	3.0		5.4
4	Cu ($\mu\text{g/L}$)	2.0		0.9
5	Ni ($\mu\text{g/L}$)			5.1
6	Pb ($\mu\text{g/L}$)	3.0		4.1
7	Zn ($\mu\text{g/L}$)	3.0		11.0
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	133	143	97
2	HAR_Total (mgCaCO ₃ /L)	172	200	167
3	Na% (%)	14	17	26
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.6	0.9
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : PUDUR (KR000M1)

Local River : Kannadipuzha

Division : SWR Division, Cochin

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	60.82	0.000	4.217
2	EC_GEN (µmho/cm)	3	450	359	401
3	pH_GEN (pH units)	3	7.8	7.6	7.7
4	TDS (mg/L)	3	256	221	243
5	Temp (deg C)	2	27.5	26.0	26.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	166	137	152
3	B (mg/L)	3	0.43	0.12	0.29
4	Ca (mg/L)	3	57	39	50
5	Cl (mg/L)	3	44.5	18.3	29
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.86	0.74	0.81
8	Fe (mg/L)	3	0.1	0.1	0.1
9	HCO3 (mg/L)	3	202	167	186
10	K (mg/L)	3	4.8	2.0	3.1
11	Mg (mg/L)	3	16.7	9.2	13.3
12	Na (mg/L)	3	27.8	13.2	19.9
13	NO2-N (mgN/L)	3	0.13	0.08	0.1
14	o-PO4-P (mg P/L)	3	0.412	0.071	0.284
15	SiO2 (mg/L)	3	13.6	9.3	12
16	SO4 (mg/L)	3	21.6	13.9	19
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	1.2	0.6	0.9
2	DO (mg/L)	3	6.8	6.1	6.6
3	DO_SAT% (%)	2	84	77	80
	TRACE & TOXIC				
1	As (µg/L)	2	3.2	2.0	2.6
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	5.4	3.0	4.2
4	Cu (µg/L)	2	2.0	0.9	1.4
5	Ni (µg/L)	1	5.1	5.1	5.1
6	Pb (µg/L)	2	4.1	3.0	3.5
7	Zn (µg/L)	2	11.0	3.0	7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	143	97	124
2	HAR_Total (mgCaCO3/L)	3	200	167	180
3	Na% (%)	3	26	14	19
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.9	0.4	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)			7.633	11.36	10.82
2	EC_FLD (μmho/cm)					
3	EC_GEN (μmho/cm)		460	293	365	372
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.9	7.8	7.6	7.4
6	TDS (mg/L)		372	188	227	266
7	Temp (deg C)		30.0	28.3	28.8	28.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		147	116	130	123
3	B (mg/L)		0.32	0.09		0.16
4	Ca (mg/L)		42	32	28	32
5	Cl (mg/L)		41.0	22.0	23.3	29.1
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.63	0.27	0.13	1.65
8	Fe (mg/L)		0.1	0.0	0.3	0.2
9	HCO3 (mg/L)		179	142	158	150
10	K (mg/L)		1.5	3.1	4.0	3.4
11	Mg (mg/L)		19.1	9.9	13.4	13.1
12	Na (mg/L)		24.0	16.2	18.0	20.3
13	NH3-N (mg N/L)			0.41	0.09	0.25
14	NO2+NO3 (mg N/L)				0.17	0.33
15	NO2-N (mgN/L)				0.02	0.10
16	NO3-N (mgN/L)		0.39		0.15	0.23
17	o-PO4-P (mg P/L)		0.083	0.084	0.146	0.143
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		21.2	28.6	23.3	24.2
20	SO4 (mg/L)		6.6	13.5	7.0	17.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)			5.8	10.0	
3	DO (mg/L)					
4	DO_SAT% (%)					
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (μg/L)					
2	Cd (μg/L)					
3	Cr (μg/L)					
4	Cu (μg/L)					
5	Hg (μg/L)					
6	Ni (μg/L)					
7	Pb (μg/L)					
8	Zn (μg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		106	79	71	79
2	HAR_Total (mgCaCO3/L)		186	120	126	134
3	Na% (%)		22	22	23	24
4	RSC (-)		0.0	0.0	0.1	0.0
5	SAR (-)		0.8	0.6	0.7	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	2.379	9.075	69.80	13.21	1.056
2	EC_FLD (μmho/cm)					
3	EC_GEN (μmho/cm)	406	436	288	242	127
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.4	7.4	7.4	7.6	6.2
6	TDS (mg/L)	299	324			
7	Temp (deg C)	30.2	26.5	25.2	28.8	27.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	162	128			37
3	B (mg/L)	0.18	0.08			
4	Ca (mg/L)	41	40	30	11	10
5	Cl (mg/L)	26.0	29.6	21.6	24.3	25.8
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.49	1.26			
8	Fe (mg/L)	0.4	0.1			
9	HCO3 (mg/L)	198	156	146	99	45
10	K (mg/L)	3.4	7.4	4.5		0.5
11	Mg (mg/L)	16.2	18.5	17.5	3.5	2.8
12	Na (mg/L)	18.9	20.4	13.6		17.7
13	NH3-N (mg N/L)	0.16				
14	NO2+NO3 (mg N/L)	5.20	1.50			
15	NO2-N (mgN/L)	0.09	0.13			
16	NO3-N (mgN/L)	5.11	1.37			
17	o-PO4-P (mg P/L)	0.291	0.183			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	20.7	15.8			
20	SO4 (mg/L)	6.7	41.7	14.2		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.9	1.7	0.6	0.8
2	COD (mg/L)		13.2			
3	DO (mg/L)		4.4	6.0	6.4	6.1
4	DO_SAT% (%)		55	72	83	78
5	FCol-MPN (MPN/100mL)		1050			
6	Tcol-MPN (MPN/100mL)		1250	763		
	TRACE & TOXIC					
1	As (μg/L)	7.8	4.9			
2	Cd (μg/L)	0.0	0.3			
3	Cr (μg/L)	1.8	1.4			
4	Cu (μg/L)	5.3	1.4			
5	Hg (μg/L)		0.5			
6	Ni (μg/L)	10.1	9.3			
7	Pb (μg/L)	3.5	0.1			
8	Zn (μg/L)	21.6	12.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	102	101	75	27	24
2	HAR_Total (mgCaCO3/L)	170	178	148	42	36
3	Na% (%)	19	18	17		50
4	RSC (-)	0.0	0.0			0.1
5	SAR (-)	0.6	0.6	0.5		1.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	8.489			4.053	12.89
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	376		458	381	369
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.8		8.1	7.7	7.8
6	TDS (mg/L)	236		365	233	256
7	Temp (deg C)	27.5		28.5	27.5	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.3	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	160		141	140	141
3	B (mg/L)	0.23		0.06	0.06	0.14
4	Ca (mg/L)	55		34	31	33
5	Cl (mg/L)	21.3		41.5	26.2	36.6
6	CO3 (mg/L)	0.0		0.4	0.0	0.0
7	F (mg/L)	0.78		0.48	0.12	0.36
8	Fe (mg/L)	0.1		0.1	0.1	0.1
9	HCO3 (mg/L)	195		171	171	173
10	K (mg/L)	2.3		3.5	3.8	3.8
11	Mg (mg/L)	11.5		17.2	16.4	14.9
12	Na (mg/L)	15.9		25.4	19.9	24.5
13	NH3-N (mg N/L)				0.18	0.13
14	NO2+NO3 (mg N/L)			0.55		0.51
15	NO2-N (mgN/L)	0.10		0.12		0.09
16	NO3-N (mgN/L)			0.42		0.42
17	o-PO4-P (mg P/L)	0.242		0.132	0.112	0.196
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.5		18.5	36.7	16.3
20	SO4 (mg/L)	17.8		15.2	17.9	6.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7				
2	COD (mg/L)				6.8	12.8
3	DO (mg/L)	6.5				
4	DO_SAT% (%)	77				
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)	2.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	3.0				
8	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	138		86	78	83
2	HAR_Total (mgCaCO3/L)	186		158	146	145
3	Na% (%)	15		25	23	27
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.5		0.9	0.7	0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	12.40	0.706	2.012	2.962	3.334
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	367	414	319	264	127
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.8	7.2	7.4	7.4	6.4
6	TDS (mg/L)	279	262	235		
7	Temp (deg C)	27.0	27.5	26.5	23.0	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	133	150	132		
3	B (mg/L)	0.59	0.19	0.06		
4	Ca (mg/L)	34	38	35	16	11
5	Cl (mg/L)	24.9	33.7	22.7	25.0	29.3
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	3.19	5.47	0.20		
8	Fe (mg/L)	0.8	0.1		0.0	0.0
9	HCO3 (mg/L)	163	183	162	114	42
10	K (mg/L)	3.0	4.6	3.0		0.3
11	Mg (mg/L)	12.9	16.5	12.2	14.2	5.4
12	Na (mg/L)	19.1	25.0	16.7		11.9
13	NH3-N (mg N/L)	0.07	0.23			
14	NO2+NO3 (mg N/L)		9.63	1.05		
15	NO2-N (mgN/L)		0.13	0.05		
16	NO3-N (mgN/L)	5.30	9.51	1.01		
17	o-PO4-P (mg P/L)	0.450	0.390	0.064		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	20.7	20.1	21.5		
20	SO4 (mg/L)	18.8	8.2	3.8	5.8	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2		0.6	0.4	0.7
2	COD (mg/L)			4.1		
3	DO (mg/L)			6.3	6.1	6.9
4	DO_SAT% (%)			78	70	86
5	FCol-MPN (MPN/100mL)	1600		1600		
6	Tcol-MPN (MPN/100mL)	1600		1600		
	TRACE & TOXIC					
1	As (µg/L)	0.5				
2	Cd (µg/L)	0.1			0.2	
3	Cr (µg/L)	0.5			1.7	
4	Cu (µg/L)	3.9			8.5	
5	Hg (µg/L)					
6	Ni (µg/L)	2.6			3.7	
7	Pb (µg/L)	0.1			0.7	
8	Zn (µg/L)	11.2			9.3	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	84	94	87	41	27
2	HAR_Total (mgCaCO3/L)	138	163	138	100	50
3	Na% (%)	23	25	21		37
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.7	0.9	0.6		0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		1.161			0.000
2	EC_FLD (μmho/cm)					
3	EC_GEN (μmho/cm)		450			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.6			
6	TDS (mg/L)		256			
7	Temp (deg C)		26.0			
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			
2	ALK-TOT (mgCaCO3/L)		137			
3	B (mg/L)		0.43			
4	Ca (mg/L)		39			
5	Cl (mg/L)		44.5			
6	CO3 (mg/L)		0.0			
7	F (mg/L)		0.86			
8	Fe (mg/L)		0.1			
9	HCO3 (mg/L)		167			
10	K (mg/L)		4.8			
11	Mg (mg/L)		16.7			
12	Na (mg/L)		27.8			
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)		0.08			
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)		0.368			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		13.2			
20	SO4 (mg/L)		21.6			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.2			
2	COD (mg/L)					
3	DO (mg/L)		6.8			
4	DO_SAT% (%)		84			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (μg/L)		3.2			
2	Cd (μg/L)		0.1			
3	Cr (μg/L)		5.4			
4	Cu (μg/L)		0.9			
5	Hg (μg/L)					
6	Ni (μg/L)		5.1			
7	Pb (μg/L)		4.1			
8	Zn (μg/L)		11.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		97			
2	HAR_Total (mgCaCO3/L)		167			
3	Na% (%)		26			
4	RSC (-)		0.0			
5	SAR (-)		0.9			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	5.095	2.252	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	490	380	442	350
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.3	7.8	7.5	7.8
6	TDS (mg/L)	340	285	309	252
7	Temp (deg C)	32.0	32.0	31.5	29.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	175	165	127	157
3	B (mg/L)	0.10	0.78	0.22	0.06
4	Ca (mg/L)	45	30	30	36
5	Cl (mg/L)	46.2	34.1	52.0	34.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.93	0.57	0.72	0.10
8	Fe (mg/L)	0.2	0.1	0.2	0.0
9	HCO3 (mg/L)	213	201	155	191
10	K (mg/L)	4.2	3.8	9.3	7.1
11	Mg (mg/L)	20.1	18.6	17.5	15.0
12	Na (mg/L)	24.0	25.0	33.7	24.8
13	NH3-N (mg N/L)	0.07	0.13		
14	NO2+NO3 (mg N/L)	0.72	5.58	5.98	0.63
15	NO2-N (mgN/L)	0.09	0.24	0.28	0.05
16	NO3-N (mgN/L)	0.63	5.34	5.70	0.58
17	o-PO4-P (mg P/L)	0.290	0.105	0.260	0.080
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	27.3	17.8	15.8	9.6
20	SO4 (mg/L)	14.0	0.5	13.0	2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			3.8	2.8
2	COD (mg/L)			29.6	20.2
3	DO (mg/L)			3.9	5.5
4	DO_SAT% (%)			53	72
5	FCol-MPN (MPN/100mL)			1600	900
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.0	0.7	1.1	1.6
2	Cd (µg/L)	0.1	0.1	0.1	0.0
3	Cr (µg/L)	2.2	1.2	0.3	0.9
4	Cu (µg/L)	4.4	3.0	1.3	1.7
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		8.0	2.5	3.7
7	Pb (µg/L)	0.8	4.1	6.1	0.1
8	Zn (µg/L)	77.8	0.0	1.5	4.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	113	76	74	90
2	HAR_Total (mgCaCO3/L)	196	154	147	153
3	Na% (%)	21	26	32	25
4	RSC (-)	0.0	0.3	0.0	0.1
5	SAR (-)	0.7	0.9	1.2	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PUDUR (KR000M1)

Division : SWR Division, Cochin

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.288	0.000		No Flow
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	287	48		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.1	6.6		
6	TDS (mg/L)				
7	Temp (deg C)	29.5	30.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	22	6		
5	Cl (mg/L)	5.2	30.0		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	106	10		
10	K (mg/L)		0.2		
11	Mg (mg/L)	9.5	2.8		
12	Na (mg/L)		10.7		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.4		
2	COD (mg/L)				
3	DO (mg/L)	5.4	6.0		
4	DO_SAT% (%)	70	79		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	55	16		
2	HAR_Total (mgCaCO3/L)	94	28		
3	Na% (%)		46		
4	RSC (-)				
5	SAR (-)		0.9		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: AMBARAMPALAYAM	Code	: KR000U2
State	: Tamil Nadu	District	Coimbatore
Basin	: WFR South of Tapi	Independent River	: Bharathapuzha
Tributary	: Aliyar	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Aliyar
Division	: SR Division, Coimbatore	Sub-Division	: MCSD, Coimbatore
Drainage Area	: 950 Sq. Km.	Bank	: Right
Latitude	: 10°37'53"	Longitude	: 76°56'46"
Zero of Gauge (m)	: 217.000 (m.s.l)	26/09/1977	
	Opening Date	Closing Date	
Gauge	: 26/09/1977		
Discharge	: 09/03/1978		
Sediment	: 01/08/2002		
Water Quality	: 01/08/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/06/2017	01/07/2017	01/08/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	2.449	3.383	2.337
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (μmho/cm)	143	151	112
4	EC_GEN (μmho/cm)	126	144	101
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.6	7.1
7	pH_GEN (pH units)	6.8	7.8	6.8
8	TDS (mg/L)	73	83	58
9	Temp (deg C)	26.0	24.5	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	42	53	30
3	B (mg/L)	0.03	0.04	0.02
4	Ca (mg/L)	13	13	9
5	Cl (mg/L)	13.2	15.1	13.2
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.12	0.23	0.13
8	Fe (mg/L)	0.020	0.010	0.010
9	HCO3 (mg/L)	51	65	37
10	K (mg/L)	2.9	4.3	2.6
11	Mg (mg/L)	2.9	4.7	1.9
12	Na (mg/L)	8.5	10.0	7.4
13	NH3-N (mg N/L)	0.51	0.13	0.29
14	NO2+NO3 (mg N/L)	0.35	0.26	0.29
15	NO2-N (mgN/L)	0.04	0.00	0.04
16	NO3-N (mgN/L)	0.31	0.26	0.25
17	o-PO4-P (mg P/L)	0.020	0.040	0.060
18	SiO2 (mg/L)	11.7	13.1	9.7
19	SO4 (mg/L)	3.4	4.0	2.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	1.0	2.3
2	COD (mg/L)	4.2	6.5	7.0
3	DO (mg/L)	5.7	5.9	5.7
4	DO_SAT% (%)	71	70	69
	TRACE & TOXIC			
1	As (μg/L)			0.01
2	Cd (μg/L)			0.00
3	Cr (μg/L)			0.00
4	Cu (μg/L)			0.00
5	Ni (μg/L)			
6	Pb (μg/L)			0.00
7	Zn (μg/L)			18.00
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	31	31	23
2	HAR_Total (mgCaCO3/L)	43	51	31
3	Na% (%)	28	28	32
4	RSC (-)	0.0	0.1	0.0
5	SAR (-)	0.6	0.6	0.6
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/09/2017	03/10/2017	01/11/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	8.653	13.81	7.863
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (μmho/cm)	148	86	131
4	EC_GEN (μmho/cm)	167	86	128
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.5	7.3
7	pH_GEN (pH units)	7.6	7.0	7.1
8	TDS (mg/L)	97	49	74
9	Temp (deg C)	24.5	24.5	24.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	68	30	49
3	B (mg/L)	0.04	0.06	0.05
4	Ca (mg/L)	22	6	12
5	Cl (mg/L)	13.1	9.3	11.2
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.24	0.11	0.15
8	Fe (mg/L)	0.010	0.020	0.000
9	HCO3 (mg/L)	83	36	59
10	K (mg/L)	3.0	1.9	2.1
11	Mg (mg/L)	2.8	3.7	3.7
12	Na (mg/L)	9.9	6.0	8.5
13	NH3-N (mg N/L)	0.05	0.09	0.12
14	NO2+NO3 (mg N/L)	0.01	0.01	0.10
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.01	0.01	0.10
17	o-PO4-P (mg P/L)	0.020	0.010	0.010
18	SiO2 (mg/L)	10.9	6.6	7.7
19	SO4 (mg/L)	5.3	1.9	1.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.3	2.5	1.8
2	COD (mg/L)	3.1	9.5	4.2
3	DO (mg/L)	5.9	6.1	5.9
4	DO_SAT% (%)	70	72	71
	TRACE & TOXIC			
1	As (μg/L)			
2	Cd (μg/L)			
3	Cr (μg/L)			
4	Cu (μg/L)			
5	Ni (μg/L)			
6	Pb (μg/L)			
7	Zn (μg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	54	15	31
2	HAR_Total (mgCaCO3/L)	66	31	46
3	Na% (%)	24	28	28
4	RSC (-)	0.1	0.0	0.1
5	SAR (-)	0.5	0.5	0.5
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/12/2017	01/01/2018	01/02/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	8.258	11.63	6.179
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (μmho/cm)	119	93	97
4	EC_GEN (μmho/cm)	128	92	94
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.3	7.5	7.5
7	pH_GEN (pH units)	7.0	6.9	7.5
8	TDS (mg/L)	72	55	54
9	Temp (deg C)	24.0	25.0	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	52	35	35
3	B (mg/L)	0.06	0.06	0.07
4	Ca (mg/L)	14	11	6
5	Cl (mg/L)	9.8	7.8	9.4
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.18	0.15	0.42
8	Fe (mg/L)	0.000	0.000	0.000
9	HCO3 (mg/L)	63	42	42
10	K (mg/L)	2.6	1.7	1.5
11	Mg (mg/L)	3.8	1.9	4.9
12	Na (mg/L)	7.4	6.0	6.5
13	NH3-N (mg N/L)	0.10	0.10	0.02
14	NO2+NO3 (mg N/L)	0.48	0.40	0.14
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.48	0.40	0.14
17	o-PO4-P (mg P/L)	0.020	0.020	0.010
18	SiO2 (mg/L)	8.9	8.1	5.7
19	SO4 (mg/L)	3.2	3.1	2.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.0	2.9
2	COD (mg/L)	5.6	5.6	5.9
3	DO (mg/L)	5.8	5.9	7.3
4	DO_SAT% (%)	68	72	87
	TRACE & TOXIC			
1	As (μg/L)	3.53		
2	Cd (μg/L)	0.09		
3	Cr (μg/L)	1.51		
4	Cu (μg/L)	8.27		
5	Ni (μg/L)	2.99		
6	Pb (μg/L)	3.01		
7	Zn (μg/L)	3.70		
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	35	27	16
2	HAR_Total (mgCaCO3/L)	51	35	36
3	Na% (%)	23	26	27
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.5
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/03/2018	02/04/2018	01/05/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	9.216	2.262	4.495
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (μmho/cm)	72	178	98
4	EC_GEN (μmho/cm)	99	159	98
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4	7.5	7.7
7	pH_GEN (pH units)	7.1	8.0	7.7
8	TDS (mg/L)	57	92	56
9	Temp (deg C)	25.0	25.5	24.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	39	61	33
3	B (mg/L)	0.08	0.09	0.03
4	Ca (mg/L)	3	14	10
5	Cl (mg/L)	11.3	15.1	7.7
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.43	0.02
8	Fe (mg/L)	0.010	0.020	0.000
9	HCO3 (mg/L)	48	74	40
10	K (mg/L)	1.3	2.7	2.0
11	Mg (mg/L)	7.8	5.8	2.9
12	Na (mg/L)	6.4	9.9	5.1
13	NH3-N (mg N/L)	0.00	0.01	0.02
14	NO2+NO3 (mg N/L)	0.15	0.00	1.39
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.15	0.00	1.39
17	o-PO4-P (mg P/L)	0.010	0.010	0.040
18	SiO2 (mg/L)	4.4	10.4	6.0
19	SO4 (mg/L)	1.4	3.7	3.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.6	0.6
2	COD (mg/L)	2.2	3.9	4.2
3	DO (mg/L)	6.5	6.6	6.3
4	DO_SAT% (%)	79	80	75
	TRACE & TOXIC			
1	As (μg/L)		0.51	
2	Cd (μg/L)		0.19	
3	Cr (μg/L)		1.03	
4	Cu (μg/L)		5.60	
5	Ni (μg/L)		0.91	
6	Pb (μg/L)		1.78	
7	Zn (μg/L)		29.50	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	36	24
2	HAR_Total (mgCaCO3/L)	40	60	36
3	Na% (%)	25	25	22
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.6	0.4
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : Middle Cauvery SD, Coimbatore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	18.46	0.428	6.408
2	EC_FLD (μmho/cm)	12	178	72	119
3	EC_GEN (μmho/cm)	12	167	86	119
4	pH_FLD (pH units)	12	7.7	7.1	7.5
5	pH_GEN (pH units)	12	8.0	6.8	7.3
6	TDS (mg/L)	12	97	49	68
7	Temp (deg C)	12	26.0	24.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	68	30	44
3	B (mg/L)	12	0.09	0.02	0.05
4	Ca (mg/L)	12	22	3	11
5	Cl (mg/L)	12	15.1	7.7	11.4
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.43	0.02	0.19
8	Fe (mg/L)	12	0.020	0.000	0.008
9	HCO3 (mg/L)	12	83	36	53
10	K (mg/L)	12	4.3	1.3	2.4
11	Mg (mg/L)	12	7.8	1.9	3.9
12	Na (mg/L)	12	10.0	5.1	7.6
13	NH3-N (mg N/L)	12	0.51	0.00	0.12
14	NO2+NO3 (mg N/L)	12	1.39	0.00	0.3
15	NO2-N (mgN/L)	12	0.04	0.00	0.01
16	NO3-N (mgN/L)	12	1.39	0.00	0.29
17	o-PO4-P (mg P/L)	12	0.060	0.010	0.022
18	SiO2 (mg/L)	12	13.1	4.4	8.6
19	SO4 (mg/L)	12	5.3	1.4	3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.9	0.6	1.3
2	COD (mg/L)	12	9.5	2.2	5.2
3	DO (mg/L)	12	7.3	5.7	6.1
4	DO_SAT% (%)	12	87	68	74
	TRACE & TOXIC				
1	As (μg/L)	3	3.53	0.01	1.35
2	Cd (μg/L)	3	0.19	0.00	0.1
3	Cr (μg/L)	3	1.51	0.00	0.85
4	Cu (μg/L)	3	8.27	0.00	4.62
5	Ni (μg/L)	2	2.99	0.91	1.95
6	Pb (μg/L)	3	3.01	0.00	1.6
7	Zn (μg/L)	3	29.50	3.70	17.07
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	54	8	28
2	HAR_Total (mgCaCO3/L)	12	66	31	44
3	Na% (%)	12	32	22	26
4	RSC (-)	12	0.1	0.0	0
5	SAR (-)	12	0.6	0.4	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	8.745	9.281	8.789	9.322	12.26
2	EC_FLD (µmho/cm)		174	151	182	155
3	EC_GEN (µmho/cm)	212	188	183	191	163
4	pH_FLD (pH units)		8.1	7.9	7.9	7.4
5	pH_GEN (pH units)	7.8	7.9	7.8	7.8	7.3
6	TDS (mg/L)					
7	Temp (deg C)	25.9	25.7	26.9	26.3	26.4
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	84	76	91	98	73
3	B (mg/L)	0.21	0.13	0.13	0.12	
4	Ca (mg/L)	17	18	21	23	19
5	Cl (mg/L)	11.9	10.5	12.4	20.4	18.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.27	0.40	0.27	0.36	0.39
8	Fe (mg/L)	0.058	0.064	0.145	0.144	
9	HCO3 (mg/L)	103	93	111	120	89
10	K (mg/L)	3.1	2.0	2.1	2.9	2.9
11	Mg (mg/L)	8.0	6.0	8.4	9.5	6.0
12	Na (mg/L)	13.7	9.9	8.5	12.1	12.4
13	NH3-N (mg N/L)	0.05	0.07	0.13	0.05	
14	NO2+NO3 (mg N/L)	2.24	1.13			
15	NO2-N (mgN/L)	0.02	0.01			
16	NO3-N (mgN/L)	2.22	1.12	0.54	4.03	0.35
17	o-PO4-P (mg P/L)		0.010	0.077	0.588	
18	P-Tot (mgP/L)	0.019				
19	SiO2 (mg/L)	12.5	11.5	18.5	22.3	
20	SO4 (mg/L)	6.0	4.5	2.1	5.6	5.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.8	0.5	1.1	1.8
2	COD (mg/L)					
3	DO (mg/L)		6.5	6.2	6.8	6.2
4	DO_SAT% (%)		80	78	84	77
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	43	46	53	59	48
2	HAR_Total (mgCaCO3/L)	77	71	88	98	73
3	Na% (%)	26	21	17	21	25
4	RSC (-)	0.2	0.2	0.1	0.1	0.0
5	SAR (-)	0.7	0.5	0.4	0.5	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	6.614	13.41	13.77	6.200	5.860
2	EC_FLD (µmho/cm)	128	201	279	295	131
3	EC_GEN (µmho/cm)	142	201	278	290	167
4	pH_FLD (pH units)	7.8	7.8	8.1	8.0	7.5
5	pH_GEN (pH units)	7.8	7.6	8.1	7.9	7.3
6	TDS (mg/L)			149	168	95
7	Temp (deg C)	25.6	26.0	25.9	26.5	25.4
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	2.3	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	62	88	119	111	66
3	B (mg/L)				0.15	0.06
4	Ca (mg/L)	17	23	33	30	16
5	Cl (mg/L)	12.9	18.7	21.3	26.6	13.9
6	CO3 (mg/L)	0.0	0.0	2.8	0.0	0.0
7	F (mg/L)	0.32	0.32	0.47	0.67	0.23
8	Fe (mg/L)	0.292	0.118		0.030	0.008
9	HCO3 (mg/L)	76	107	139	135	80
10	K (mg/L)	1.8	2.5	4.4	4.4	2.7
11	Mg (mg/L)	5.1	9.1	8.8	9.6	6.1
12	Na (mg/L)	8.0	11.1	16.0	19.4	9.9
13	NH3-N (mg N/L)		0.19	0.14	0.12	0.15
14	NO2+NO3 (mg N/L)				1.39	0.42
15	NO2-N (mgN/L)				0.01	0.00
16	NO3-N (mgN/L)	0.13	0.23	0.63	1.38	0.42
17	o-PO4-P (mg P/L)				0.038	0.032
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)				18.2	10.2
20	SO4 (mg/L)	2.5	5.7	6.8	11.7	5.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	2.0	1.1	2.3	1.0	1.3
2	COD (mg/L)		5.9	6.5	6.0	6.8
3	DO (mg/L)	7.3	7.4	5.7	6.4	7.1
4	DO_SAT% (%)	90	91	70	80	87
	TRACE & TOXIC					
1	As (µg/L)	16.47	2.37			
2	Cd (µg/L)	0.13	0.03			
3	Cr (µg/L)	3.52	13.36			
4	Cu (µg/L)	2.61	2.43			
5	Hg (µg/L)		0.07			
6	Ni (µg/L)	5.90	13.71			
7	Pb (µg/L)	5.07				
8	Zn (µg/L)	11.81	11.00			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	42	58	84	76	41
2	HAR_Total (mgCaCO3/L)	63	96	120	116	66
3	Na% (%)	22	20	22	26	24
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.6	0.8	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCS D, Coimbatore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	6.127	18.64	11.57	9.528	20.00
2	EC_FLD (µmho/cm)	128		224	260	317
3	EC_GEN (µmho/cm)	125	279	241	289	366
4	pH_FLD (pH units)	7.5		8.1	8.0	7.8
5	pH_GEN (pH units)	7.2	8.0	7.8	7.8	7.9
6	TDS (mg/L)	72				
7	Temp (deg C)	24.9	24.6	24.5	25.6	24.6
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	45	107	106	123	157
3	B (mg/L)	0.04	0.18	0.02	0.11	0.08
4	Ca (mg/L)	12	20	23	25	42
5	Cl (mg/L)	12.8	15.9	17.4	24.3	47.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.17	0.27	0.43	0.52	0.98
8	Fe (mg/L)	0.014	0.057	0.085	0.340	0.223
9	HCO3 (mg/L)	55	131	129	150	192
10	K (mg/L)	2.9	3.0	2.7	4.3	4.6
11	Mg (mg/L)	3.2	9.2	9.7	14.6	13.4
12	Na (mg/L)	8.4	22.2	16.4	17.8	35.7
13	NH3-N (mg N/L)	0.21	0.04		0.11	0.04
14	NO2+NO3 (mg N/L)	0.18	1.44			
15	NO2-N (mgN/L)	0.02	0.02			
16	NO3-N (mgN/L)	0.17	1.42	0.40	0.89	3.03
17	o-PO4-P (mg P/L)	0.030		0.010	0.012	0.250
18	P-Tot (mgP/L)		0.016			
19	SiO2 (mg/L)	10.4	15.1	1.6	26.2	30.7
20	SO4 (mg/L)	3.4	16.8	11.8	19.6	31.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.5	0.7	0.7	0.5	1.4
2	COD (mg/L)	6.1				
3	DO (mg/L)	5.9		6.8	6.7	6.5
4	DO_SAT% (%)	71		81	82	78
	TRACE & TOXIC					
1	As (µg/L)	0.01				
2	Cd (µg/L)	0.00				
3	Cr (µg/L)	0.00				
4	Cu (µg/L)	0.00				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	0.00				
8	Zn (µg/L)	18.00				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	31	51	58	62	104
2	HAR_Total (mgCaCO3/L)	44	90	98	123	160
3	Na% (%)	28	34	28	23	31
4	RSC (-)	0.0	0.4	0.2	0.1	0.0
5	SAR (-)	0.6	1.0	0.8	0.7	1.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	19.11	8.588	14.09	17.78	12.66
2	EC_FLD (µmho/cm)	266	198	137	278	201
3	EC_GEN (µmho/cm)	293	198	134	270	209
4	pH_FLD (pH units)	7.6	7.8	7.9	7.9	7.8
5	pH_GEN (pH units)	7.6	7.6	7.7	7.7	7.8
6	TDS (mg/L)				153	121
7	Temp (deg C)	24.4	24.8	24.8	25.3	23.6
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	128	82	64	104	77
3	B (mg/L)				0.00	0.32
4	Ca (mg/L)	32	23	16	24	22
5	Cl (mg/L)	34.6	19.3	11.8	25.9	18.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.54	0.36	0.22	0.40	0.33
8	Fe (mg/L)	0.070			0.017	0.018
9	HCO3 (mg/L)	156	100	78	127	93
10	K (mg/L)	4.5	2.4	2.0	4.2	3.0
11	Mg (mg/L)	10.9	6.8	5.1	12.5	7.7
12	Na (mg/L)	26.1	10.6	7.8	18.0	13.0
13	NH3-N (mg N/L)		0.11	0.38	0.12	0.22
14	NO2+NO3 (mg N/L)				1.77	1.63
15	NO2-N (mgN/L)				0.04	0.01
16	NO3-N (mgN/L)	0.39	0.18	0.20	1.70	1.62
17	o-PO4-P (mg P/L)				0.005	0.087
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)				15.6	15.6
20	SO4 (mg/L)	20.9	5.0	3.8	12.6	8.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.4	1.7	1.3	1.3
2	COD (mg/L)		7.3	5.1	9.9	7.5
3	DO (mg/L)	6.8	6.6	7.0	6.9	6.7
4	DO_SAT% (%)	80	80	84	84	79
	TRACE & TOXIC					
1	As (µg/L)	0.75				
2	Cd (µg/L)				0.56	
3	Cr (µg/L)	11.56			13.70	
4	Cu (µg/L)	26.72			0.62	
5	Hg (µg/L)					
6	Ni (µg/L)	1.75			6.66	
7	Pb (µg/L)	1.12			0.82	
8	Zn (µg/L)	12.90			2.25	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	81	57	41	60	54
2	HAR_Total (mgCaCO3/L)	127	85	62	112	86
3	Na% (%)	30	20	21	25	24
4	RSC (-)	0.1	0.0	0.1	0.0	0.0
5	SAR (-)	1.0	0.5	0.4	0.7	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	6.019	8.483	7.275	3.790	6.007
2	EC_FLD (µmho/cm)	137	110		230	184
3	EC_GEN (µmho/cm)	139	111	267	234	217
4	pH_FLD (pH units)	7.6	7.4		8.2	7.9
5	pH_GEN (pH units)	7.5	7.1	8.0	8.0	7.9
6	TDS (mg/L)	81	64			
7	Temp (deg C)	24.0	24.4	26.0	26.8	25.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	48	42	112	107	115
3	B (mg/L)	0.07	0.06	0.21	0.12	0.08
4	Ca (mg/L)	13	11	22	26	27
5	Cl (mg/L)	14.0	9.6	14.2	14.5	35.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.20	0.22	0.44	0.45	0.42
8	Fe (mg/L)	0.030	0.000	0.057	0.106	0.080
9	HCO3 (mg/L)	59	52	137	131	140
10	K (mg/L)	3.2	2.0	3.1	3.0	3.0
11	Mg (mg/L)	4.3	3.6	9.4	9.1	9.8
12	Na (mg/L)	9.3	7.1	18.4	14.2	25.4
13	NH3-N (mg N/L)	0.29	0.08	0.04	0.13	
14	NO2+NO3 (mg N/L)	0.55	0.28	0.91		
15	NO2-N (mgN/L)	0.00	0.00	0.03		
16	NO3-N (mgN/L)	0.55	0.28	0.88	0.06	0.80
17	o-PO4-P (mg P/L)	0.055	0.015		0.018	0.032
18	P-Tot (mgP/L)			0.056		
19	SiO2 (mg/L)	9.3	7.6	13.8	24.8	27.0
20	SO4 (mg/L)	4.5	2.8	9.1	4.6	4.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.4	1.6	0.4	1.2	1.1
2	COD (mg/L)	6.7	5.3			
3	DO (mg/L)	6.4	6.2		6.6	6.5
4	DO_SAT% (%)	76	75		83	79
	TRACE & TOXIC					
1	As (µg/L)	1.92	3.53	4.41	10.41	3.00
2	Cd (µg/L)	0.10	0.09	0.53		
3	Cr (µg/L)	0.57	1.51			
4	Cu (µg/L)	0.09	8.27		1.66	
5	Hg (µg/L)					
6	Ni (µg/L)	0.25	2.99		8.43	
7	Pb (µg/L)	0.20	3.01			
8	Zn (µg/L)	11.30	3.70	7.00		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	34	27	55	64	68
2	HAR_Total (mgCaCO3/L)	52	42	94	102	109
3	Na% (%)	27	26	28	22	30
4	RSC (-)	0.0	0.0	0.4	0.2	0.1
5	SAR (-)	0.6	0.5	0.8	0.6	1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	5.779	5.983	3.288	5.992
2	EC_FLD (µmho/cm)	380	200	227	176
3	EC_GEN (µmho/cm)	416	208	227	170
4	pH_FLD (pH units)	8.2	8.2	7.7	7.7
5	pH_GEN (pH units)	8.1	7.8	7.5	7.7
6	TDS (mg/L)				97
7	Temp (deg C)	27.2	25.5	26.7	26.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6.6	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	177	98	103	74
3	B (mg/L)	0.08			
4	Ca (mg/L)	40	20	30	23
5	Cl (mg/L)	43.3	24.1	18.6	17.6
6	CO3 (mg/L)	8.0	0.0	0.0	0.0
7	F (mg/L)	0.84	0.43	0.70	0.25
8	Fe (mg/L)		0.210	0.016	0.050
9	HCO3 (mg/L)	200	119	126	90
10	K (mg/L)	4.9	3.4	2.6	2.5
11	Mg (mg/L)	17.5	11.3	7.8	4.5
12	Na (mg/L)	37.3	16.6	10.8	10.0
13	NH3-N (mg N/L)	0.00		0.26	0.14
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)	0.71	0.16	0.10	0.29
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	37.5			
20	SO4 (mg/L)	26.9	7.5	4.9	2.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2.2	1.7	0.9	1.3
2	COD (mg/L)			5.5	7.3
3	DO (mg/L)	5.5	7.0	7.4	6.0
4	DO_SAT% (%)	69	85	93	75
	TRACE & TOXIC				
1	As (µg/L)	0.52	1.63	2.25	4.02
2	Cd (µg/L)	0.24	0.40	0.09	0.07
3	Cr (µg/L)	2.37	42.66	0.66	1.33
4	Cu (µg/L)	2.53	2.98	1.55	0.76
5	Hg (µg/L)			0.19	
6	Ni (µg/L)		0.98	6.60	9.24
7	Pb (µg/L)	0.94	4.44	1.55	1.30
8	Zn (µg/L)	15.72	10.00	1.22	8.00
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	100	51	75	58
2	HAR_Total (mgCaCO3/L)	173	98	107	77
3	Na% (%)	30	26	18	21
4	RSC (-)	0.1	0.0	0.0	0.0
5	SAR (-)	1.2	0.7	0.5	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	7.768	8.246	5.357	5.324
2	EC_FLD (µmho/cm)	291	144	98	116
3	EC_GEN (µmho/cm)	280	137	91	119
4	pH_FLD (pH units)	8.0	7.8	7.1	7.5
5	pH_GEN (pH units)	7.8	7.7	7.4	7.6
6	TDS (mg/L)	160	79	53	68
7	Temp (deg C)	27.2	25.2	24.8	25.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	115	42	31	44
3	B (mg/L)	0.05	0.10	0.02	0.07
4	Ca (mg/L)	27	16	9	9
5	Cl (mg/L)	22.3	14.0	10.8	11.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.58	0.13	0.10	0.17
8	Fe (mg/L)	0.043	0.000	0.020	0.010
9	HCO3 (mg/L)	141	52	38	54
10	K (mg/L)	3.9	2.2	2.2	2.0
11	Mg (mg/L)	12.2	3.5	2.2	5.5
12	Na (mg/L)	16.0	8.6	6.8	7.1
13	NH3-N (mg N/L)	0.08	0.05	0.22	0.01
14	NO2+NO3 (mg N/L)	0.80	2.93	0.17	0.51
15	NO2-N (mgN/L)	0.00	0.00	0.02	0.00
16	NO3-N (mgN/L)	0.80	2.93	0.15	0.51
17	o-PO4-P (mg P/L)	0.017	0.080	0.010	0.020
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	17.8	11.6	6.8	6.9
20	SO4 (mg/L)	9.5	4.2	2.1	2.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.1	0.8	0.9	0.7
2	COD (mg/L)	6.5	5.2	5.3	3.4
3	DO (mg/L)	6.7	6.6	6.6	6.5
4	DO_SAT% (%)	84	80	78	78
	TRACE & TOXIC				
1	As (µg/L)			3.00	0.51
2	Cd (µg/L)			0.00	0.19
3	Cr (µg/L)			2.00	1.03
4	Cu (µg/L)			6.00	5.60
5	Hg (µg/L)				
6	Ni (µg/L)				0.91
7	Pb (µg/L)			3.00	1.78
8	Zn (µg/L)			28.00	29.50
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	68	39	22	23
2	HAR_Total (mgCaCO3/L)	119	54	31	46
3	Na% (%)	22	25	31	24
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.5	0.5	0.5
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: ARANGALY	Code	: KSA00F3
State	: Kerala	District	Trichur
Basin	: WFR South of Tapi	Independent River	: Periyar
Tributary	: Chalakudy	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Chalakudy
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 1342 Sq. Km.	Bank	: Left
Latitude	: 10°17'10"	Longitude	: 76°19'20"
Zero of Gauge (m)	: 0.000 (m.s.l)	17/02/1978	
	Opening Date	Closing Date	
Gauge	: 17/02/1978		
Discharge	: 27/04/1978		
Sediment	: 08/07/1980		
Water Quality	: 01/08/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	46.58	50.93	62.73	22.55
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	62	63	62	53
4	EC_GEN (µmho/cm)	45	42	31	44
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	5.9	6.0	6.0	5.9
7	pH_GEN (pH units)	6.6	6.8	7.0	7.0
8	TDS (mg/L)		35	27	33
9	Temp (deg C)	26.0	26.0	26.0	26.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	20	16	20
3	B (mg/L)	0.11	0.09	0.08	0.08
4	Ca (mg/L)	5	5	7	5
5	Cl (mg/L)	6.3	6.8	4.0	5.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.07	0.04	0.08	0.06
8	Fe (mg/L)	0.1	0.0	0.1	0.1
9	HCO3 (mg/L)	15	25	20	25
10	K (mg/L)	1.2	1.3	0.8	1.4
11	Mg (mg/L)	1.0	2.8	1.0	2.0
12	Na (mg/L)	3.8	3.8	2.5	2.9
13	NO2-N (mgN/L)	0.03	0.08	0.04	0.03
14	o-PO4-P (mg P/L)	0.054	0.340	0.046	0.084
15	SiO2 (mg/L)	14.9	8.9	11.4	10.3
16	SO4 (mg/L)	4.0	3.2	3.0	3.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	0.8	1.0	1.1
2	DO (mg/L)	6.4	7.7	4.3	6.3
3	DO_SAT% (%)	79	95	53	78
	TRACE & TOXIC				
1	As (µg/L)		7.0		2.6
2	Cd (µg/L)				0.1
3	Cr (µg/L)		3.0		12.7
4	Cu (µg/L)		1.0		3.4
5	Ni (µg/L)				4.7
6	Pb (µg/L)		1.0		3.2
7	Zn (µg/L)		10.0		12.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	13	16	12
2	HAR_Total (mgCaCO3/L)	17	25	20	20
3	Na% (%)	31	24	20	22
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.2	0.3
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	845.8	0.000	42.87
2	EC_FLD (µmho/cm)	4	63	53	60
3	EC_GEN (µmho/cm)	4	45	31	41
4	pH_FLD (pH units)	4	6.0	5.9	5.9
5	pH_GEN (pH units)	4	7.0	6.6	6.8
6	TDS (mg/L)	3	35	27	32
7	Temp (deg C)	4	26.0	26.0	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	20	12	17
3	B (mg/L)	4	0.11	0.08	0.09
4	Ca (mg/L)	4	7	5	5
5	Cl (mg/L)	4	6.8	4.0	5.5
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.08	0.04	0.06
8	Fe (mg/L)	4	0.1	0.0	0.1
9	HCO3 (mg/L)	4	25	15	21
10	K (mg/L)	4	1.4	0.8	1.2
11	Mg (mg/L)	4	2.8	1.0	1.7
12	Na (mg/L)	4	3.8	2.5	3.3
13	NO2-N (mgN/L)	4	0.08	0.03	0.04
14	o-PO4-P (mg P/L)	4	0.340	0.046	0.131
15	SiO2 (mg/L)	4	14.9	8.9	11.4
16	SO4 (mg/L)	4	4.0	3.0	3.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.1	0.4	0.8
2	DO (mg/L)	4	7.7	4.3	6.2
3	DO_SAT% (%)	4	95	53	76
	TRACE & TOXIC				
1	As (µg/L)	2	7.0	2.6	4.8
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	12.7	3.0	7.8
4	Cu (µg/L)	2	3.4	1.0	2.2
5	Ni (µg/L)	1	4.7	4.7	4.7
6	Pb (µg/L)	2	3.2	1.0	2.1
7	Zn (µg/L)	2	12.8	10.0	11.4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	16	12	13
2	HAR_Total (mgCaCO3/L)	4	25	17	20
3	Na% (%)	4	31	20	25
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	152.9	125.3	63.76	59.92	57.01
2	EC_FLD (µmho/cm)	58	48	60	59	59
3	EC_GEN (µmho/cm)	48	40	42	54	41
4	pH_FLD (pH units)	6.8	7.0	7.1	7.0	6.9
5	pH_GEN (pH units)	6.5	6.6	7.0	6.3	6.2
6	TDS (mg/L)	38	32	25	34	27
7	Temp (deg C)	25.2	25.8	24.0	26.7	23.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	12	11	12	13
3	B (mg/L)	0.01	0.05	0.32	0.14	0.31
4	Ca (mg/L)	5	4	5	3	5
5	Cl (mg/L)	8.3	7.1	5.3	5.9	6.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.11	0.07	0.08	0.15	0.02
8	Fe (mg/L)			0.0	0.1	0.1
9	HCO3 (mg/L)	13	15	13	15	16
10	K (mg/L)	1.1	0.6	1.0	0.7	0.9
11	Mg (mg/L)	1.3	1.2	0.7	1.8	1.2
12	Na (mg/L)	3.4	3.0	3.3	3.2	3.2
13	NH3-N (mg N/L)			0.17	0.29	0.05
14	NO2+NO3 (mg N/L)	1.31	0.15		0.17	0.13
15	NO2-N (mgN/L)	0.04	0.05		0.03	0.01
16	NO3-N (mgN/L)	1.27	0.11		0.15	0.12
17	o-PO4-P (mg P/L)	0.146	0.068	0.063	0.063	0.049
18	P-Tot (mgP/L)	0.116				
19	SiO2 (mg/L)	19.5	20.0	28.6	24.7	16.4
20	SO4 (mg/L)	2.1	1.0	3.0	1.1	0.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.6	0.7	0.8	0.5
2	COD (mg/L)	3.8	4.4	3.6	5.4	3.3
3	DO (mg/L)	6.9	7.2	7.9	7.8	6.6
4	DO_SAT% (%)	83	88	93	97	78
5	FCol-MPN (MPN/100mL)	1600	900	500		885
6	Tcol-MPN (MPN/100mL)	1600	1600	900		940
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	12	8	11
2	HAR_Total (mgCaCO3/L)	17	15	15	16	16
3	Na% (%)	29	29	30	30	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	26.91	72.90	267.3	69.87	54.35
2	EC_FLD (µmho/cm)	60	53	57	69	60
3	EC_GEN (µmho/cm)	47	41	41	169	17
4	pH_FLD (pH units)	7.2	6.4	6.2	6.3	6.1
5	pH_GEN (pH units)	6.4	6.8	7.0	6.7	7.3
6	TDS (mg/L)	28	26			
7	Temp (deg C)	25.2	25.0	26.2	30.0	27.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	14	13			35
3	B (mg/L)	0.07	0.04			
4	Ca (mg/L)	5	5	5	6	9
5	Cl (mg/L)	7.1	6.0	7.3	10.0	11.7
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.19			
8	Fe (mg/L)	0.0	0.0			
9	HCO3 (mg/L)	17	16	16	33	43
10	K (mg/L)	1.3	1.1	1.4		0.8
11	Mg (mg/L)	1.6	1.3	4.5	2.2	3.2
12	Na (mg/L)	4.0	3.2	2.8		17.8
13	NH3-N (mg N/L)	0.04				
14	NO2+NO3 (mg N/L)	1.24	0.72			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.23	0.71			
17	o-PO4-P (mg P/L)	0.230	0.097			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.9	9.4			
20	SO4 (mg/L)	0.9	0.5	0.9		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.7	0.5	0.5	1.3
2	COD (mg/L)	4.3	4.3			
3	DO (mg/L)	6.7	5.6	7.2	6.5	6.9
4	DO_SAT% (%)	81	67	89	86	87
5	FCol-MPN (MPN/100mL)	530	390			
6	Tcol-MPN (MPN/100mL)	1600	625	1213		
	TRACE & TOXIC					
1	As (µg/L)	6.5	5.1			
2	Cd (µg/L)	0.0	0.0			
3	Cr (µg/L)	1.5	0.9			
4	Cu (µg/L)	7.2	1.2			
5	Hg (µg/L)		0.2			
6	Ni (µg/L)	7.0	7.1			
7	Pb (µg/L)	3.8	1.5			
8	Zn (µg/L)	19.4	8.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	11	11	16	23
2	HAR_Total (mgCaCO3/L)	20	17	30	25	36
3	Na% (%)	28	28	18		49
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.4	0.3	0.2		1.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	53.41	18.69	19.67	26.15	33.71
2	EC_FLD (µmho/cm)	62	56	59	59	59
3	EC_GEN (µmho/cm)	40	68	65	53	45
4	pH_FLD (pH units)	6.0	6.9	7.0	7.0	6.9
5	pH_GEN (pH units)	6.8	7.7	6.6	6.8	6.8
6	TDS (mg/L)	31	54	53	31	26
7	Temp (deg C)	26.0	25.5	25.5	24.5	24.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	17	15	15	13
3	B (mg/L)	0.09	0.01	0.04		0.31
4	Ca (mg/L)	6	6	5	5	5
5	Cl (mg/L)	5.7	7.1	9.2	7.1	5.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.06		0.05	0.08	0.08
8	Fe (mg/L)	0.1	0.2		0.1	1.0
9	HCO3 (mg/L)	20	21	18	18	16
10	K (mg/L)	1.1	1.4	1.4	1.3	0.8
11	Mg (mg/L)	1.6	2.5	1.9	1.0	0.5
12	Na (mg/L)	3.4	3.0	4.2	3.8	3.2
13	NH3-N (mg N/L)		0.05		0.18	0.05
14	NO2+NO3 (mg N/L)		1.48	0.28		0.19
15	NO2-N (mgN/L)	0.05	0.02	0.14		0.10
16	NO3-N (mgN/L)		1.45	0.14		0.10
17	o-PO4-P (mg P/L)	0.147	0.058	0.076	0.047	0.041
18	P-Tot (mgP/L)		0.058			
19	SiO2 (mg/L)	11.7	17.5	22.1	20.6	15.9
20	SO4 (mg/L)	3.4	1.6	1.0	1.0	1.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	1.2	0.9	0.2	1.5
2	COD (mg/L)		9.2	6.8	3.8	12.0
3	DO (mg/L)	6.1	7.0	6.7	7.7	7.7
4	DO_SAT% (%)	76	85	81	92	92
5	Fcol-MPN (MPN/100mL)					500
6	Tcol-MPN (MPN/100mL)					1600
	TRACE & TOXIC					
1	As (µg/L)	7.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	1.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	10.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	14	12	12	12
2	HAR_Total (mgCaCO3/L)	21	24	20	16	14
3	Na% (%)	25	20	30	32	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	8.872	1.502	0.000	9.000	23.88
2	EC_FLD (µmho/cm)	59	59	59	62	62
3	EC_GEN (µmho/cm)	52	58	51	41	50
4	pH_FLD (pH units)	6.9	7.3	6.3	6.6	6.4
5	pH_GEN (pH units)	6.3	6.0	7.1	7.3	6.3
6	TDS (mg/L)	32	35	34		
7	Temp (deg C)	24.0	23.5	23.7	26.5	27.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	15	15	15		
3	B (mg/L)	0.12	0.11	0.21		
4	Ca (mg/L)	6	5	5	5	7
5	Cl (mg/L)	7.8	7.1	8.2	4.0	30.0
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.20	0.14	0.13		
8	Fe (mg/L)	0.7	0.1		0.0	0.0
9	HCO3 (mg/L)	18	18	19	14	69
10	K (mg/L)	1.0	1.5	1.1		0.2
11	Mg (mg/L)	1.0	1.7	1.3	1.9	3.3
12	Na (mg/L)	4.1	3.8	4.4		10.7
13	NH3-N (mg N/L)	0.00	0.01			
14	NO2+NO3 (mg N/L)		0.94	0.39		
15	NO2-N (mgN/L)		0.01	0.01		
16	NO3-N (mgN/L)	1.45	0.93	0.38		
17	o-PO4-P (mg P/L)		0.085	0.092		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.0	12.3	5.3		
20	SO4 (mg/L)	0.6	0.5	0.8	5.0	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	1.8	0.4	0.2	0.4
2	COD (mg/L)	4.6	13.4	2.7		
3	DO (mg/L)	6.6	6.7	7.6	6.8	6.4
4	DO_SAT% (%)	78	78	89	84	81
5	FCol-MPN (MPN/100mL)		1600	1050		
6	Tcol-MPN (MPN/100mL)		1600	1250		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.1	
3	Cr (µg/L)				1.0	
4	Cu (µg/L)				12.3	
5	Hg (µg/L)					
6	Ni (µg/L)				3.6	
7	Pb (µg/L)				1.4	
8	Zn (µg/L)				9.6	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	13	13	12	18
2	HAR_Total (mgCaCO3/L)	18	20	18	20	31
3	Na% (%)	32	27	32		43
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.4	0.4	0.4		0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	9.051	22.55			No Flow
2	EC_FLD (µmho/cm)	62	53			
3	EC_GEN (µmho/cm)	44	44			
4	pH_FLD (pH units)	6.5	5.9			
5	pH_GEN (pH units)	5.2	7.0			
6	TDS (mg/L)		33			
7	Temp (deg C)	27.0	26.0			
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			
2	ALK-TOT (mgCaCO3/L)	20	20			
3	B (mg/L)		0.08			
4	Ca (mg/L)	9	5			
5	Cl (mg/L)	23.0	4.9			
6	CO3 (mg/L)	0.0	0.0			
7	F (mg/L)		0.06			
8	Fe (mg/L)		0.1			
9	HCO3 (mg/L)	24	25			
10	K (mg/L)	2.8	1.4			
11	Mg (mg/L)	2.8	2.0			
12	Na (mg/L)	16.6	2.9			
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)		0.03			
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)		0.084			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		10.3			
20	SO4 (mg/L)		3.2			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.1			
2	COD (mg/L)					
3	DO (mg/L)	7.6	6.3			
4	DO_SAT% (%)	95	78			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		2.6			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		12.7			
4	Cu (µg/L)		3.4			
5	Hg (µg/L)					
6	Ni (µg/L)		4.7			
7	Pb (µg/L)		3.2			
8	Zn (µg/L)		12.8			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	24	12			
2	HAR_Total (mgCaCO3/L)	35	20			
3	Na% (%)	48	22			
4	RSC (-)	0.0	0.0			
5	SAR (-)	1.2	0.3			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	No Flow	0.000	0.000	0.000
2	EC_FLD (µmho/cm)		60	58	60
3	EC_GEN (µmho/cm)		60	62	61
4	pH_FLD (pH units)		7.2	7.4	6.8
5	pH_GEN (pH units)		6.1	6.6	6.8
6	TDS (mg/L)		37	36	42
7	Temp (deg C)		26.0	24.0	26.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		13	17	15
3	B (mg/L)		0.11	0.06	0.03
4	Ca (mg/L)		6	6	6
5	Cl (mg/L)		7.8	7.1	9.9
6	CO3 (mg/L)		0.0	0.0	0.0
7	F (mg/L)		0.03	0.21	0.24
8	Fe (mg/L)		0.0	0.1	0.1
9	HCO3 (mg/L)		16	21	18
10	K (mg/L)		2.3	1.5	2.0
11	Mg (mg/L)		2.0	1.5	1.5
12	Na (mg/L)		4.2	3.9	5.4
13	NH3-N (mg N/L)		0.05		
14	NO2+NO3 (mg N/L)		1.33	0.48	0.64
15	NO2-N (mgN/L)		0.03	0.01	0.18
16	NO3-N (mgN/L)		1.30	0.47	0.46
17	o-PO4-P (mg P/L)		0.085	0.090	0.060
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)		14.2	12.0	10.1
20	SO4 (mg/L)		3.2	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		0.8	1.4	0.4
2	COD (mg/L)		7.6	8.6	3.0
3	DO (mg/L)		6.0	5.5	6.3
4	DO_SAT% (%)		74	65	78
5	FCol-MPN (MPN/100mL)		900	1600	500
6	Tcol-MPN (MPN/100mL)		1600	1600	900
	TRACE & TOXIC				
1	As (µg/L)		0.0	2.4	2.0
2	Cd (µg/L)		0.1	0.0	0.1
3	Cr (µg/L)		1.0	0.1	0.5
4	Cu (µg/L)		5.6	0.8	0.8
5	Hg (µg/L)				
6	Ni (µg/L)		10.4	0.1	3.2
7	Pb (µg/L)		4.1	2.8	0.2
8	Zn (µg/L)		0.0	0.1	2.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		14	16	14
2	HAR_Total (mgCaCO3/L)		22	22	20
3	Na% (%)		27	26	34
4	RSC (-)		0.0	0.0	0.0
5	SAR (-)		0.4	0.4	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Cochin

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	4.343	3.993	2.669	No Flow
2	EC_FLD (µmho/cm)	76	71		
3	EC_GEN (µmho/cm)	54	55	58	
4	pH_FLD (pH units)	7.1	5.9		
5	pH_GEN (pH units)	7.3	6.5	6.8	
6	TDS (mg/L)				
7	Temp (deg C)	29.0	33.0	27.0	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	
2	ALK-TOT (mgCaCO3/L)			57	
3	B (mg/L)				
4	Ca (mg/L)	8	8	19	
5	Cl (mg/L)	26.1	20.9	19.6	
6	CO3 (mg/L)			0.0	
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	26	12	69	
10	K (mg/L)		0.4	1.9	
11	Mg (mg/L)	3.8	3.8	11.4	
12	Na (mg/L)		15.6	15.3	
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.6	2.8	
2	COD (mg/L)				
3	DO (mg/L)	7.2	7.8		
4	DO_SAT% (%)	94	109		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	20	48	
2	HAR_Total (mgCaCO3/L)	35	35	95	
3	Na% (%)		49	26	
4	RSC (-)			0.0	
5	SAR (-)		1.1	0.7	
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: NEELESWARAM	Code	: KS000F3
State	: Kerala	District	Ernakulam
Basin	: WFR South of Tapi	Independent River	: Periyar
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Periyar
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 4234 Sq. Km.	Bank	: Right
Latitude	: 10°11'00"	Longitude	: 76°29'44"
Zero of Gauge (m)	: 1.000 (m.s.l) -3.000 (m.s.l)	19/01/1971 01/06/2005	- 31/05/2005
	Opening Date	Closing Date	
Gauge	: 19/01/1971		
Discharge	: 16/03/1971		
Sediment	: 26/09/1972		
Water Quality	: 15/06/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	128.3	376.3	182.8
2	Colour_Cod (-)	Clear	Light Brown	Clear
3	EC_FLD (µmho/cm)	43	52	55
4	EC_GEN (µmho/cm)	40	46	33
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.9	6.4	6.3
7	pH_GEN (pH units)	6.9	7.7	7.8
8	TDS (mg/L)		26	24
9	Temp (deg C)	26.0	26.5	25.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	12	12
3	B (mg/L)	0.01	0.03	0.13
4	Ca (mg/L)	7	3	3
5	Cl (mg/L)	5.2	5.8	4.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.06	1.36	0.03
8	Fe (mg/L)	0.1	0.0	0.0
9	HCO3 (mg/L)	25	15	15
10	K (mg/L)	1.4	1.0	0.6
11	Mg (mg/L)	2.0	1.9	1.0
12	Na (mg/L)	2.9	3.1	2.7
13	NO2+NO3 (mg N/L)		0.00	
14	NO2-N (mgN/L)	0.03	0.00	0.06
15	NO3-N (mgN/L)		0.00	
16	o-PO4-P (mg P/L)	0.038	0.061	0.062
17	SiO2 (mg/L)	12.9	12.5	11.9
18	SO4 (mg/L)	3.7	1.6	2.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.6	0.9
2	DO (mg/L)	6.8	7.4	5.4
3	DO_SAT% (%)	84	91	65
	TRACE & TOXIC			
1	As (µg/L)		3.0	
2	Cd (µg/L)			
3	Cr (µg/L)		5.0	
4	Cu (µg/L)		2.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		3.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	17	9	8
2	HAR_Total (mgCaCO3/L)	25	16	12
3	Na% (%)	19	28	31
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2017	01/02/2018	02/04/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	82.83	11.26	77.00
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	48		
4	EC_GEN (µmho/cm)	38	28	32
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.9		
7	pH_GEN (pH units)	7.6	7.1	6.1
8	TDS (mg/L)	27	18	
9	Temp (deg C)	24.5	26.5	27.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	12	15
3	B (mg/L)	0.14	0.12	0.93
4	Ca (mg/L)	3	3	5
5	Cl (mg/L)	5.0	3.1	6.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.03	0.06	0.06
8	Fe (mg/L)	0.1	0.1	0.1
9	HCO3 (mg/L)	20	14	18
10	K (mg/L)	1.0	0.6	1.2
11	Mg (mg/L)	2.0	1.0	1.0
12	Na (mg/L)	3.5	1.8	3.6
13	NO2+NO3 (mg N/L)			
14	NO2-N (mgN/L)	0.04	0.03	0.02
15	NO3-N (mgN/L)			
16	o-PO4-P (mg P/L)	0.048	0.046	0.074
17	SiO2 (mg/L)	9.6	8.3	14.5
18	SO4 (mg/L)	3.0	1.9	0.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	0.9	1.2
2	DO (mg/L)	7.7	6.8	8.1
3	DO_SAT% (%)	92	84	102
	TRACE & TOXIC			
1	As (µg/L)	2.3		0.7
2	Cd (µg/L)	0.1		0.0
3	Cr (µg/L)	6.0		0.1
4	Cu (µg/L)	2.7		28.8
5	Ni (µg/L)	1.5		4.7
6	Pb (µg/L)	0.7		1.0
7	Zn (µg/L)	16.8		17.5
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	8	13
2	HAR_Total (mgCaCO3/L)	16	13	17
3	Na% (%)	30	23	31
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.2	0.4
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2050	0.000	177.7
2	EC_FLD (µmho/cm)	4	55	43	49
3	EC_GEN (µmho/cm)	6	46	28	36
4	pH_FLD (pH units)	4	6.9	6.3	6.6
5	pH_GEN (pH units)	6	7.8	6.1	7.2
6	TDS (mg/L)	4	27	18	24
7	Temp (deg C)	6	27.0	24.5	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	20	12	15
3	B (mg/L)	6	0.93	0.01	0.23
4	Ca (mg/L)	6	7	3	4
5	Cl (mg/L)	6	6.9	3.1	5
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	1.36	0.03	0.27
8	Fe (mg/L)	6	0.1	0.0	0.1
9	HCO3 (mg/L)	6	25	14	18
10	K (mg/L)	6	1.4	0.6	1
11	Mg (mg/L)	6	2.0	1.0	1.5
12	Na (mg/L)	6	3.6	1.8	2.9
13	NO2+NO3 (mg N/L)	1	0.00	0.00	0
14	NO2-N (mgN/L)	6	0.06	0.00	0.03
15	NO3-N (mgN/L)	1	0.00	0.00	0
16	o-PO4-P (mg P/L)	6	0.074	0.038	0.055
17	SiO2 (mg/L)	6	14.5	8.3	11.6
18	SO4 (mg/L)	6	3.7	0.9	2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.6	0.8	1.1
2	DO (mg/L)	6	8.1	5.4	7
3	DO_SAT% (%)	6	102	65	86
	TRACE & TOXIC				
1	As (µg/L)	3	3.0	0.7	2
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	3	6.0	0.1	3.7
4	Cu (µg/L)	3	28.8	2.0	11.2
5	Ni (µg/L)	2	4.7	1.5	3.1
6	Pb (µg/L)	3	1.0	0.7	0.9
7	Zn (µg/L)	3	17.5	3.0	12.4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	17	8	10
2	HAR_Total (mgCaCO3/L)	6	25	12	17
3	Na% (%)	6	31	19	27
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	320.1	361.6	249.5	209.7	292.1
2	EC_FLD (µmho/cm)		44	44	47	
3	EC_GEN (µmho/cm)	41	42	43	43	43
4	pH_FLD (pH units)	6.9	6.9	7.0	7.1	
5	pH_GEN (pH units)	6.2	6.3	6.9	6.8	6.2
6	TDS (mg/L)	31	34	25	28	28
7	Temp (deg C)	29.0	29.0	26.8	27.0	26.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	12	10	12	12
3	B (mg/L)	0.00	0.02		0.15	0.17
4	Ca (mg/L)	5	4	4	4	4
5	Cl (mg/L)	8.0	7.1	5.7	5.1	5.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.13	0.06	0.11	0.12	0.06
8	Fe (mg/L)		0.1	0.0	0.1	0.1
9	HCO3 (mg/L)	13	15	12	14	15
10	K (mg/L)	1.6	0.8	1.2	0.5	1.0
11	Mg (mg/L)	1.3	1.7	0.7	1.3	1.3
12	Na (mg/L)	3.4	3.1	3.0	2.8	3.1
13	NH3-N (mg N/L)		0.05	0.25	0.26	0.14
14	NO2+NO3 (mg N/L)	1.20	0.32		0.17	0.16
15	NO2-N (mgN/L)	0.03	0.05		0.02	0.01
16	NO3-N (mgN/L)	1.18	0.21		0.16	0.16
17	o-PO4-P (mg P/L)	0.403	0.025	0.037	0.080	0.051
18	P-Tot (mgP/L)	0.123	0.010			
19	SiO2 (mg/L)	20.2	18.9	31.6	20.5	12.9
20	SO4 (mg/L)	2.1	1.1	1.0	1.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.7	0.4	0.8	0.4
2	COD (mg/L)	4.9	5.7	5.1	6.2	2.7
3	DO (mg/L)	6.9	7.6	7.8	7.4	7.0
4	DO_SAT% (%)	89	99	95	95	87
5	FCol-MPN (MPN/100mL)	1600		287	500	260
6	Tcol-MPN (MPN/100mL)	1600		1150	1600	940
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	10	9	9
2	HAR_Total (mgCaCO3/L)	17	17	12	14	15
3	Na% (%)	28	28	33	29	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	116.5	326.0	539.4	281.3	204.0
2	EC_FLD (µmho/cm)	50	45	47	45	45
3	EC_GEN (µmho/cm)	42	41	39	38	20
4	pH_FLD (pH units)	7.0	7.0	7.0	7.0	6.9
5	pH_GEN (pH units)	6.9	6.9	7.1	6.7	6.4
6	TDS (mg/L)	28	26			
7	Temp (deg C)	27.1	24.8	26.3	26.4	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	13	12			25
3	B (mg/L)	0.03	0.03			
4	Ca (mg/L)	4	3	3	11	16
5	Cl (mg/L)	5.5	5.2	6.9	10.9	14.2
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.15			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	15	15	13	33	31
10	K (mg/L)	1.0	1.1	1.5		1.1
11	Mg (mg/L)	2.3	1.5	1.6	6.3	4.7
12	Na (mg/L)	3.2	3.1	4.6		10.0
13	NH3-N (mg N/L)	0.01				
14	NO2+NO3 (mg N/L)	1.24	0.21			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.23	0.21			
17	o-PO4-P (mg P/L)	0.190	0.071			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	10.2	5.8			
20	SO4 (mg/L)	1.1	0.5	0.9		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.9	0.7	0.6	1.0
2	COD (mg/L)	4.5	5.9			
3	DO (mg/L)	7.3	5.8	7.3	6.5	5.3
4	DO_SAT% (%)	91	70	90	80	65
5	FCol-MPN (MPN/100mL)	890	1050			
6	Tcol-MPN (MPN/100mL)	1160	1250	1600		
	TRACE & TOXIC					
1	As (µg/L)	1.9	4.3			
2	Cd (µg/L)	0.2	0.3			
3	Cr (µg/L)	1.1	0.4			
4	Cu (µg/L)	2.3	0.8			
5	Ni (µg/L)	2.0	6.0			
6	Pb (µg/L)	2.9	2.2			
7	Zn (µg/L)	28.9	14.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	8	7	27	39
2	HAR_Total (mgCaCO3/L)	19	14	14	54	59
3	Na% (%)	26	30	35		27
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	0.4	0.6		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	229.1	135.0	160.2	59.20	158.6
2	EC_FLD (µmho/cm)	50	44		45	
3	EC_GEN (µmho/cm)	40	43	44	44	45
4	pH_FLD (pH units)	6.5	7.0		7.0	
5	pH_GEN (pH units)	7.4	6.9	6.7	6.6	7.0
6	TDS (mg/L)	25	35	32	27	26
7	Temp (deg C)	26.0	29.0	27.5	25.8	25.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	15	10	15	11	15
3	B (mg/L)	0.06	0.03	0.08		0.13
4	Ca (mg/L)	4	4	4	4	4
5	Cl (mg/L)	5.0	7.2	6.4	6.0	4.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.48	0.10	0.06	0.23	0.15
8	Fe (mg/L)	0.0	0.1	0.1	0.1	0.7
9	HCO3 (mg/L)	18	13	19	13	18
10	K (mg/L)	1.0	1.4	1.2	1.1	1.0
11	Mg (mg/L)	1.6	2.0	1.7	0.7	1.8
12	Na (mg/L)	2.9	3.0	4.0	3.1	2.9
13	NH3-N (mg N/L)		0.22		0.18	0.11
14	NO2+NO3 (mg N/L)	0.00	0.57	0.17		0.31
15	NO2-N (mgN/L)	0.03	0.11	0.05		0.06
16	NO3-N (mgN/L)	0.00	0.46	0.12		0.25
17	o-PO4-P (mg P/L)	0.054	0.035	0.071	0.027	0.027
18	P-Tot (mgP/L)		0.035			
19	SiO2 (mg/L)	12.4	18.3	21.3	25.3	13.5
20	SO4 (mg/L)	2.5	1.9	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1	0.5	0.5	0.7	0.5
2	COD (mg/L)		3.8	3.5	6.3	3.7
3	DO (mg/L)	6.5	6.8	7.2	7.2	
4	DO_SAT% (%)	80	88	91	88	
5	FCol-MPN (MPN/100mL)		900	1050	1600	1050
6	Tcol-MPN (MPN/100mL)		1600	1600	1600	1600
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	5.0				
4	Cu (µg/L)	2.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	9	11	10
2	HAR_Total (mgCaCO3/L)	18	18	16	14	17
3	Na% (%)	26	25	32	31	26
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	124.2	24.87	72.98	49.91	97.50
2	EC_FLD (μmho/cm)	47	48	48	45	46
3	EC_GEN (μmho/cm)	48	47	44	43	46
4	pH_FLD (pH units)	7.0	7.0	7.0	7.1	
5	pH_GEN (pH units)	6.8	6.6	7.3	7.6	7.8
6	TDS (mg/L)	34	29	33		
7	Temp (deg C)	26.6	29.1	25.5	25.9	26.1
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	13	12	10		
3	B (mg/L)	0.19	0.10	0.18		
4	Ca (mg/L)	4	4	3	4	12
5	Cl (mg/L)	6.2	6.1	7.1	4.8	15.0
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.20	0.18	0.09		
8	Fe (mg/L)	1.1	0.1		0.0	0.0
9	HCO3 (mg/L)	15	15	12	18	85
10	K (mg/L)	1.0	1.3	1.3		0.2
11	Mg (mg/L)	1.5	1.5	1.6	1.9	2.5
12	Na (mg/L)	3.3	3.4	4.0		8.5
13	NH3-N (mg N/L)	0.11	0.01			
14	NO2+NO3 (mg N/L)		1.10	0.33		
15	NO2-N (mgN/L)		0.01	0.00		
16	NO3-N (mgN/L)	0.94	1.09	0.35		
17	o-PO4-P (mg P/L)	0.420	0.064			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	10.0	12.8	4.0		
20	SO4 (mg/L)	0.6	0.8	0.8	1.0	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.3	0.7	0.9	0.7
2	COD (mg/L)	1.9	10.0	1.6		
3	DO (mg/L)	7.1	7.0	7.5	6.9	7.2
4	DO_SAT% (%)	88	91	90	84	89
5	FCol-MPN (MPN/100mL)	950	205	500		
6	Tcol-MPN (MPN/100mL)	1250	335	900		
	TRACE & TOXIC					
1	As (μg/L)	0.0				
2	Cd (μg/L)	0.3			0.2	
3	Cr (μg/L)	1.0			1.2	
4	Cu (μg/L)	26.1			3.2	
5	Ni (μg/L)	2.8			1.8	
6	Pb (μg/L)	0.2			0.9	
7	Zn (μg/L)	27.1			10.0	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	11	9	10	29
2	HAR_Total (mgCaCO3/L)	15	17	15	18	40
3	Na% (%)	30	28	34		36
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.4	0.4	0.4		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	15.26	47.05	149.3	18.60	93.13
2	EC_FLD (µmho/cm)	50	48	44		46
3	EC_GEN (µmho/cm)	43	33	46	46	32
4	pH_FLD (pH units)	7.1	6.9	7.1		7.1
5	pH_GEN (pH units)	7.7	7.4	6.7	6.0	6.8
6	TDS (mg/L)		23	36	38	19
7	Temp (deg C)	27.5	25.5	28.5	27.0	28.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	14	12	15	11
3	B (mg/L)		0.13		0.06	
4	Ca (mg/L)	5	3	4	3	2
5	Cl (mg/L)	12.1	4.0	8.5	5.0	4.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)		0.05	0.09	0.05	0.08
8	Fe (mg/L)		0.1		0.0	
9	HCO3 (mg/L)	30	17	15	18	13
10	K (mg/L)	1.8	0.8	1.5	1.8	0.9
11	Mg (mg/L)	8.1	1.5	1.5	1.9	1.5
12	Na (mg/L)	9.3	2.7	4.1	3.2	2.9
13	NH3-N (mg N/L)					0.17
14	NO2+NO3 (mg N/L)			0.29	0.15	
15	NO2-N (mgN/L)		0.03	0.12	0.04	
16	NO3-N (mgN/L)			0.17	0.11	0.10
17	o-PO4-P (mg P/L)		0.047	0.270	0.021	
18	P-Tot (mgP/L)			0.270		
19	SiO2 (mg/L)		9.0	16.4	20.5	24.3
20	SO4 (mg/L)		2.5	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	2.5	1.1	0.4	0.6	0.4
2	COD (mg/L)			2.8	4.0	3.8
3	DO (mg/L)	7.8	7.3	6.8	7.0	7.9
4	DO_SAT% (%)	98	88	87	88	101
5	FCol-MPN (MPN/100mL)			1600	1600	500
6	Tcol-MPN (MPN/100mL)			1600	1600	900
	TRACE & TOXIC					
1	As (µg/L)		2.3	4.3		
2	Cd (µg/L)		0.1	0.5		
3	Cr (µg/L)		5.9			
4	Cu (µg/L)		2.7	1.5		
5	Ni (µg/L)		1.5			
6	Pb (µg/L)		0.7	1.2		
7	Zn (µg/L)		16.8	16.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	8	10	8	5
2	HAR_Total (mgCaCO3/L)	47	14	16	16	11
3	Na% (%)	37	27	33	28	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.3	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	52.43	100.5	41.45	90.43
2	EC_FLD (µmho/cm)		51		
3	EC_GEN (µmho/cm)	54	51	34	36
4	pH_FLD (pH units)		7.0		
5	pH_GEN (pH units)	7.5	6.6	7.1	7.2
6	TDS (mg/L)	32	33	20	
7	Temp (deg C)	29.0	29.5	29.5	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	15	13	13	
3	B (mg/L)		0.10	0.07	
4	Ca (mg/L)	4	4	3	6
5	Cl (mg/L)	5.7	5.2	5.0	7.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.16	0.02	0.19	0.10
8	Fe (mg/L)	0.3	0.0	0.1	0.0
9	HCO3 (mg/L)	19	16	16	
10	K (mg/L)	1.3	0.9	1.1	1.8
11	Mg (mg/L)	2.0	2.5	1.5	1.0
12	Na (mg/L)	3.2	2.7	3.2	2.4
13	NH3-N (mg N/L)	0.09	0.07		
14	NO2+NO3 (mg N/L)	0.19	1.17	0.26	
15	NO2-N (mgN/L)	0.03	0.04	0.01	
16	NO3-N (mgN/L)	0.17	1.13	0.25	0.92
17	o-PO4-P (mg P/L)	0.012	0.080	0.020	
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	19.4	11.8	11.5	
20	SO4 (mg/L)	1.2	1.0	0.8	0.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	1.0	0.4	2.8
2	COD (mg/L)	5.2	6.2	2.4	
3	DO (mg/L)		7.0	6.7	7.1
4	DO_SAT% (%)		91	87	
5	FCOI-MPN (MPN/100mL)		280	1600	
6	Tcol-MPN (MPN/100mL)		350	1600	
	TRACE & TOXIC				
1	As (µg/L)	2.7	0.1	1.0	7.4
2	Cd (µg/L)	0.0	0.1	0.1	0.0
3	Cr (µg/L)	0.7	0.5	0.3	0.9
4	Cu (µg/L)	3.2	0.1	2.9	0.9
5	Ni (µg/L)		1.4	0.0	0.2
6	Pb (µg/L)	0.1	4.3	5.6	0.5
7	Zn (µg/L)	42.2	0.1	2.7	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	10	8	16
2	HAR_Total (mgCaCO3/L)	18	20	14	20
3	Na% (%)	26	22	31	19
4	RSC (-)	0.0	0.0	0.0	
5	SAR (-)	0.3	0.3	0.4	0.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	69.79	25.46	71.02	77.00
2	EC_FLD (µmho/cm)	46	66	44	
3	EC_GEN (µmho/cm)	41	45	44	32
4	pH_FLD (pH units)	7.0	7.0	7.0	
5	pH_GEN (pH units)	7.6	6.3	6.9	6.1
6	TDS (mg/L)				
7	Temp (deg C)	27.5	29.0	30.0	27.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			58	15
3	B (mg/L)				0.93
4	Ca (mg/L)	8	19	22	5
5	Cl (mg/L)	6.6	18.2	18.2	6.9
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)				0.06
8	Fe (mg/L)				0.1
9	HCO3 (mg/L)	29	23	71	18
10	K (mg/L)		0.4	1.9	1.2
11	Mg (mg/L)	2.8	2.8	7.6	0.9
12	Na (mg/L)		15.5	9.1	3.6
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				0.02
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				0.074
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				14.5
20	SO4 (mg/L)				0.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	1.6	2.4	1.2
2	COD (mg/L)				
3	DO (mg/L)	7.6	7.2	7.2	8.1
4	DO_SAT% (%)	95	94	96	102
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.7
2	Cd (µg/L)				0.0
3	Cr (µg/L)				0.1
4	Cu (µg/L)				28.8
5	Ni (µg/L)				4.7
6	Pb (µg/L)				1.0
7	Zn (µg/L)				17.5
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	47	55	13
2	HAR_Total (mgCaCO3/L)	31	59	86	17
3	Na% (%)		36	18	31
4	RSC (-)			0.0	0.0
5	SAR (-)		0.9	0.4	0.4
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: VANDIPERIYAR	Code	: KS000U1
State	: Kerala	District	Idukki
Basin	: WFR South of Tapi	Independent River	: Periyar
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Periyar
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 712 Sq. Km.	Bank	: Left
Latitude	: 09°34'24"	Longitude	: 77°05'26"
Zero of Gauge (m)	: 789.000 (m.s.l)	19/04/1999	
	Opening Date	Closing Date	
Gauge	: 19/04/1999		
Discharge	: 07/06/2000		
Sediment	:		
Water Quality	: 01/10/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/08/2017	03/10/2017	01/12/2017	01/02/2018
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	2.857	6.529	9.005	0.240
2	Colour_Cod (-)	Clear	Clear	Light Brown	Clear
3	EC_FLD (µmho/cm)	72	72	72	71
4	EC_GEN (µmho/cm)	56	49	82	101
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4		7.2	7.4
7	pH_GEN (pH units)	7.3	7.5	7.2	7.3
8	TDS (mg/L)	37	36	41	54
9	Temp (deg C)	22.0	20.0	26.0	20.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	20	24	30
3	B (mg/L)	0.04	0.07	0.06	0.10
4	Ca (mg/L)	7	7	5	8
5	Cl (mg/L)	6.8	7.1	5.9	10.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.04	0.07	0.02	0.08
8	Fe (mg/L)	0.1	0.1	0.1	0.1
9	HCO3 (mg/L)	25	25	29	36
10	K (mg/L)	1.5	1.3	1.4	2.4
11	Mg (mg/L)	1.8	2.0	3.9	2.0
12	Na (mg/L)	3.7	3.9	4.1	5.4
13	NO2-N (mgN/L)	0.04	0.06	0.04	0.02
14	o-PO4-P (mg P/L)	0.074	0.104	0.052	0.086
15	SiO2 (mg/L)	13.6	10.8	13.4	10.6
16	SO4 (mg/L)	2.4	3.9	3.7	1.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4	1.2	1.1	1.0
2	DO (mg/L)	6.6	6.8	7.4	7.1
3	DO_SAT% (%)	75	75	91	78
	TRACE & TOXIC				
1	As (µg/L)	3.0		2.4	
2	Cd (µg/L)			0.0	
3	Cr (µg/L)	4.0		379.7	
4	Cu (µg/L)	1.0		3.9	
5	Ni (µg/L)			35.9	
6	Pb (µg/L)	2.0		5.9	
7	Zn (µg/L)	4.0		18.5	
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	17	16	12	21
2	HAR_Total (mgCaCO3/L)	25	25	29	29
3	Na% (%)	23	25	23	26
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	52.03	0.000	3.738
2	EC_FLD (µmho/cm)	4	72	71	72
3	EC_GEN (µmho/cm)	4	101	49	72
4	pH_FLD (pH units)	3	7.4	7.2	7.3
5	pH_GEN (pH units)	4	7.5	7.2	7.3
6	TDS (mg/L)	4	54	36	42
7	Temp (deg C)	4	26.0	20.0	22
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	30	20	24
3	B (mg/L)	4	0.10	0.04	0.07
4	Ca (mg/L)	4	8	5	7
5	Cl (mg/L)	4	10.3	5.9	7.5
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.08	0.02	0.05
8	Fe (mg/L)	4	0.1	0.1	0.1
9	HCO3 (mg/L)	4	36	25	29
10	K (mg/L)	4	2.4	1.3	1.6
11	Mg (mg/L)	4	3.9	1.8	2.4
12	Na (mg/L)	4	5.4	3.7	4.3
13	NO2-N (mgN/L)	4	0.06	0.02	0.04
14	o-PO4-P (mg P/L)	4	0.104	0.052	0.079
15	SiO2 (mg/L)	4	13.6	10.6	12.1
16	SO4 (mg/L)	4	3.9	1.1	2.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.4	1.0	1.2
2	DO (mg/L)	4	7.4	6.6	7
3	DO_SAT% (%)	4	91	75	80
	TRACE & TOXIC				
1	As (µg/L)	2	3.0	2.4	2.7
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	2	379.7	4.0	191.8
4	Cu (µg/L)	2	3.9	1.0	2.4
5	Ni (µg/L)	1	35.9	35.9	35.9
6	Pb (µg/L)	2	5.9	2.0	4
7	Zn (µg/L)	2	18.5	4.0	11.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	21	12	17
2	HAR_Total (mgCaCO3/L)	4	29	25	27
3	Na% (%)	4	26	23	24
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.4	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	6.165		4.466	4.031	12.16
2	EC_FLD (µmho/cm)	63	64	70	70	70
3	EC_GEN (µmho/cm)	65	63	50	65	62
4	pH_FLD (pH units)	7.5	6.6	6.8	7.3	7.0
5	pH_GEN (pH units)	6.6	6.8	7.1	6.8	6.5
6	TDS (mg/L)	53	48	28	41	43
7	Temp (deg C)	24.2	23.0	23.5	25.0	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	17	16	12	18	16
2	B (mg/L)	0.00	0.16		0.26	0.24
3	Ca (mg/L)	6	5	4	5	6
4	Cl (mg/L)	10.9	8.2	7.5	7.5	7.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.12	0.17	0.11	0.10	0.05
7	Fe (mg/L)		0.1	0.0	0.1	0.1
8	HCO3 (mg/L)	20	20	14	22	20
9	K (mg/L)	1.5	0.8	1.7	1.1	1.5
10	Mg (mg/L)	2.5	1.8	1.0	2.2	1.5
11	Na (mg/L)	5.4	4.8	4.1	4.1	4.0
12	NH3-N (mg N/L)		0.06	0.21	0.31	0.14
13	NO2+NO3 (mg N/L)		0.23		0.22	0.22
14	NO2-N (mgN/L)		0.04		0.03	0.04
15	NO3-N (mgN/L)		0.21		0.19	0.18
16	o-PO4-P (mg P/L)	0.165	0.050	0.051	0.117	0.078
17	P-Tot (mgP/L)	0.108				
18	SiO2 (mg/L)	17.6	19.2	24.3	26.2	16.3
19	SO4 (mg/L)	1.0	1.0	1.0	1.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.8	0.6	0.9	0.6
2	COD (mg/L)	3.0	6.3	8.0	7.5	3.7
3	DO (mg/L)	7.0	6.9	8.0	8.7	6.3
4	DO_SAT% (%)	82	80	95	106	75
5	FCol-MPN (MPN/100mL)	1600				
6	Tcol-MPN (MPN/100mL)	1600				
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	12	9	11	14
2	HAR_Total (mgCaCO3/L)	25	19	13	20	20
3	Na% (%)	30	34	37	29	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	1.165	5.396	11.22	5.887	2.362
2	EC_FLD (µmho/cm)	71	71	72	39	71
3	EC_GEN (µmho/cm)	61	81	63	123	35
4	pH_FLD (pH units)	7.0	7.2	7.2	7.3	7.3
5	pH_GEN (pH units)	6.6	6.8	7.0	7.3	6.5
6	TDS (mg/L)	40	54			
7	Temp (deg C)	24.8	22.7	24.7	22.7	22.2
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	17	25			24
2	B (mg/L)	0.08	0.04			
3	Ca (mg/L)	6	7	6	11	9
4	Cl (mg/L)	6.0	9.9	9.3	9.1	13.9
5	CO3 (mg/L)	0.0	0.0			0.0
6	F (mg/L)	0.01	0.36			
7	Fe (mg/L)	0.1	0.1			
8	HCO3 (mg/L)	20	31	25	33	29
9	K (mg/L)	1.2	2.5	2.2		0.8
10	Mg (mg/L)	2.2	2.4	5.7	4.1	3.5
11	Na (mg/L)	3.7	6.1	4.1		13.3
12	NH3-N (mg N/L)	0.02				
13	NO2+NO3 (mg N/L)	1.84	0.37			
14	NO2-N (mgN/L)	0.02	0.03			
15	NO3-N (mgN/L)	1.83	0.34			
16	o-PO4-P (mg P/L)	0.247	0.173			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	9.4	9.8			
19	SO4 (mg/L)	1.1	0.7	1.1		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	1.3	1.2	0.6	1.5
2	COD (mg/L)	3.8	9.8			
3	DO (mg/L)	6.3	5.6	6.2	5.7	5.1
4	DO_SAT% (%)	76	65	74	66	59
5	FCol-MPN (MPN/100mL)	1250	1600			
6	Tcol-MPN (MPN/100mL)	1600	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.0	4.0			
2	Cd (µg/L)	1.0	0.0			
3	Cr (µg/L)	2.8	1.5			
4	Cu (µg/L)	2.3	1.0			
5	Hg (µg/L)		0.5			
6	Ni (µg/L)	13.1	7.8			
7	Pb (µg/L)	0.7	1.6			
8	Zn (µg/L)	10.6	5.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	18	14	29	24
2	HAR_Total (mgCaCO3/L)	23	28	38	46	38
3	Na% (%)	25	29	21		38
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	0.5	0.3		0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	4.693	1.072		1.016	3.135
2	EC_FLD (µmho/cm)	72	84	74		56
3	EC_GEN (µmho/cm)	53	96	80	86	62
4	pH_FLD (pH units)	7.4	6.9	6.6		6.8
5	pH_GEN (pH units)	7.4	6.9	7.1	6.6	6.7
6	TDS (mg/L)	36	79	65	50	39
7	Temp (deg C)	21.0	24.5	24.0	23.8	22.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	20	24	22	23	18
2	B (mg/L)	0.05	0.06	0.24	0.33	0.04
3	Ca (mg/L)	7	8	5	6	5
4	Cl (mg/L)	6.9	12.8	9.9	10.7	7.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.05	0.05	0.37	0.22	0.05
7	Fe (mg/L)	0.1		0.1	0.0	0.5
8	HCO3 (mg/L)	25	29	27	28	23
9	K (mg/L)	1.4	2.9	1.8	2.3	1.6
10	Mg (mg/L)	1.9	2.8	2.9	2.7	1.7
11	Na (mg/L)	3.8	7.0	5.8	7.3	4.8
12	NH3-N (mg N/L)		0.15		0.20	0.06
13	NO2+NO3 (mg N/L)					0.84
14	NO2-N (mgN/L)	0.05				0.04
15	NO3-N (mgN/L)			0.27		0.80
16	o-PO4-P (mg P/L)	0.089		0.105	0.024	0.102
17	P-Tot (mgP/L)		0.060			
18	SiO2 (mg/L)	12.2	17.1	20.1	20.4	15.3
19	SO4 (mg/L)	3.2	1.2	1.0	6.3	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3	0.9	0.4	1.2	0.9
2	COD (mg/L)		7.0	3.3	10.0	6.5
3	DO (mg/L)	6.7	5.3	6.0		8.5
4	DO_SAT% (%)	75	63	71		98
5	FCol-MPN (MPN/100mL)		1600	500	1600	500
6	Tcol-MPN (MPN/100mL)		1600	1600	1600	900
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	4.0				
4	Cu (µg/L)	1.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	2.0				
8	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	17	19	12	15	12
2	HAR_Total (mgCaCO3/L)	25	30	24	26	19
3	Na% (%)	24	30	32	35	37
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	0.5	0.6	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	7.001	0.390	0.949	1.081	1.963
2	EC_FLD (µmho/cm)	69		72	72	72
3	EC_GEN (µmho/cm)	77	64	98	71	78
4	pH_FLD (pH units)	6.7		7.3	7.2	7.3
5	pH_GEN (pH units)	6.9	6.6	7.0	7.5	7.7
6	TDS (mg/L)	53	43	67		
7	Temp (deg C)	23.5	24.0	23.8	23.5	20.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	23	14	32		
2	B (mg/L)	0.25	0.10	0.05		
3	Ca (mg/L)	6	8	8	6	14
4	Cl (mg/L)	10.3	9.9	11.8	8.3	17.6
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)	0.35	0.23	0.17		
7	Fe (mg/L)	0.8	0.1		0.0	0.0
8	HCO3 (mg/L)	29	17	39	33	52
9	K (mg/L)	1.9	2.4	2.4		0.3
10	Mg (mg/L)	2.7	2.5	3.4	2.8	3.3
11	Na (mg/L)	5.5	5.2	7.0		14.2
12	NH3-N (mg N/L)	0.11	0.09			
13	NO2+NO3 (mg N/L)		3.16	0.68		
14	NO2-N (mgN/L)		0.02	0.02		
15	NO3-N (mgN/L)	1.70	3.14	0.67		
16	o-PO4-P (mg P/L)	0.163	0.126	0.056		
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	12.7	15.5	6.3		
19	SO4 (mg/L)	0.8	1.5	1.1	0.5	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9		1.0	1.2	0.8
2	COD (mg/L)	8.6	3.6	6.9		
3	DO (mg/L)	6.8		5.5	5.0	6.2
4	DO_SAT% (%)	80		65	59	69
5	FCol-MPN (MPN/100mL)	1600		1250		
6	Tcol-MPN (MPN/100mL)	1600		1600		
	TRACE & TOXIC					
1	As (µg/L)	0.2				
2	Cd (µg/L)	0.1			0.8	
3	Cr (µg/L)	1.9			1.1	
4	Cu (µg/L)	58.0			7.5	
5	Hg (µg/L)					
6	Ni (µg/L)	3.7			2.6	
7	Pb (µg/L)	0.2			21.9	
8	Zn (µg/L)	6.1			9.5	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	20	20	16	35
2	HAR_Total (mgCaCO3/L)	26	30	34	28	49
3	Na% (%)	31	25	29		44
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.5	0.4	0.5		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	0.166	4.623	0.475		0.000
2	EC_FLD (µmho/cm)	71	72	88		
3	EC_GEN (µmho/cm)	89	91	100		
4	pH_FLD (pH units)	7.2	7.3	6.4		
5	pH_GEN (pH units)	6.8	7.3	6.6		
6	TDS (mg/L)		48	83		
7	Temp (deg C)	22.0	23.0	26.0		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	20	27	22		
2	B (mg/L)		0.08	0.08		
3	Ca (mg/L)	9	7	8		
4	Cl (mg/L)	20.1	8.1	14.2		
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)		0.05	0.10		
7	Fe (mg/L)		0.1			
8	HCO3 (mg/L)	24	33	27		
9	K (mg/L)	1.9	1.9	3.2		
10	Mg (mg/L)	3.8	3.0	3.0		
11	Na (mg/L)	11.0	4.7	8.0		
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)					
14	NO2-N (mgN/L)		0.03			
15	NO3-N (mgN/L)					
16	o-PO4-P (mg P/L)		0.069			
17	P-Tot (mgP/L)			0.135		
18	SiO2 (mg/L)		12.0	11.8		
19	SO4 (mg/L)		2.4	1.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.1	1.0		
2	COD (mg/L)			9.6		
3	DO (mg/L)	7.2	7.3	4.0		
4	DO_SAT% (%)	82	85	49		
5	FCol-MPN (MPN/100mL)			1600		
6	Tcol-MPN (MPN/100mL)			1600		
	TRACE & TOXIC					
1	As (µg/L)		2.4	2.9		
2	Cd (µg/L)		0.0	0.5		
3	Cr (µg/L)		379.6			
4	Cu (µg/L)		3.9	1.8		
5	Hg (µg/L)					
6	Ni (µg/L)		35.9			
7	Pb (µg/L)		5.9			
8	Zn (µg/L)		18.5	19.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	24	17	20		
2	HAR_Total (mgCaCO3/L)	39	29	33		
3	Na% (%)	37	25	32		
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.8	0.4	0.6		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)				71
3	EC_GEN (µmho/cm)			188	164
4	pH_FLD (pH units)				7.0
5	pH_GEN (pH units)			7.2	7.0
6	TDS (mg/L)			141	126
7	Temp (deg C)			28.0	26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			58	54
2	B (mg/L)			0.11	0.02
3	Ca (mg/L)			14	10
4	Cl (mg/L)			23.0	21.3
5	CO3 (mg/L)			0.0	0.0
6	F (mg/L)			0.51	0.12
7	Fe (mg/L)			0.1	0.1
8	HCO3 (mg/L)			71	66
9	K (mg/L)			4.7	8.2
10	Mg (mg/L)			5.8	6.9
11	Na (mg/L)			17.3	15.2
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)			2.20	1.09
14	NO2-N (mgN/L)			0.02	0.02
15	NO3-N (mgN/L)			2.18	1.07
16	o-PO4-P (mg P/L)			0.080	0.050
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)			9.2	6.8
19	SO4 (mg/L)			0.7	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			2.4	0.8
2	COD (mg/L)			16.6	5.6
3	DO (mg/L)			3.9	4.1
4	DO_SAT% (%)			50	51
5	FCOI-MPN (MPN/100mL)			1600	1600
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (µg/L)			1.4	1.9
2	Cd (µg/L)			0.4	0.0
3	Cr (µg/L)			1.6	7.3
4	Cu (µg/L)			3.7	3.8
5	Hg (µg/L)				
6	Ni (µg/L)			51.2	1.6
7	Pb (µg/L)			41.5	0.1
8	Zn (µg/L)			8.1	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			36	26
2	HAR_Total (mgCaCO3/L)			60	55
3	Na% (%)			36	34
4	RSC (-)			0.0	0.0
5	SAR (-)			1.0	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Cochin

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)	172	72		
3	EC_GEN (µmho/cm)	193	175		
4	pH_FLD (pH units)	7.4	7.4		
5	pH_GEN (pH units)	7.5	6.4		
6	TDS (mg/L)				
7	Temp (deg C)	27.0	26.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	8	13		
4	Cl (mg/L)	6.6	13.0		
5	CO3 (mg/L)				
6	F (mg/L)				
7	Fe (mg/L)				
8	HCO3 (mg/L)	16	23		
9	K (mg/L)		0.5		
10	Mg (mg/L)	2.8	4.8		
11	Na (mg/L)		17.6		
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				
19	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3.0	1.6		
2	COD (mg/L)				
3	DO (mg/L)	5.2	6.0		
4	DO_SAT% (%)	65	74		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	31		
2	HAR_Total (mgCaCO3/L)	31	51		
3	Na% (%)		43		
4	RSC (-)				
5	SAR (-)		1.1		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: RAMAMANGALAM	Code	: KM00012
State	: Kerala	District	Ernakulam
Basin	: WFR South of Tapi	Independent River	: Muvattupuzha
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Muvattupuzha
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 1208 Sq. Km.	Bank	: Left
Latitude	: 09°56'37"	Longitude	: 76°28'42"
Zero of Gauge (m)	: 0.000 (m.s.l)	24/02/1978	
	Opening Date	Closing Date	
Gauge	: 24/02/1978		
Discharge	: 25/04/1978		
Sediment	: 20/02/1979		
Water Quality	: 15/08/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : RAMAMANGALAM (KM000I2)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	79.12	178.4	126.1
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)			26
4	EC_GEN (µmho/cm)	59	68	40
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	7.6	8.0	8.0
7	TDS (mg/L)		38	31
8	Temp (deg C)	27.0	27.5	27.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	16	16
3	B (mg/L)	0.19	0.02	0.13
4	Ca (mg/L)	5	3	7
5	Cl (mg/L)	5.2	4.8	5.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.06	0.06	0.08
8	Fe (mg/L)	0.1	0.1	0.1
9	HCO3 (mg/L)	20	20	20
10	K (mg/L)	1.3	1.4	0.8
11	Mg (mg/L)	2.0	1.9	1.0
12	Na (mg/L)	3.1	2.6	2.9
13	NO2-N (mgN/L)	0.05	0.02	0.04
14	o-PO4-P (mg P/L)	0.048	0.037	0.028
15	SiO2 (mg/L)	8.2	8.8	12.8
16	SO4 (mg/L)	2.8	2.1	4.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.8	1.0
2	DO (mg/L)	7.0	6.8	6.4
3	DO_SAT% (%)	88	85	80
	TRACE & TOXIC			
1	As (µg/L)		2.0	
2	Cd (µg/L)			
3	Cr (µg/L)		3.0	
4	Cu (µg/L)		2.0	
5	Ni (µg/L)			
6	Pb (µg/L)		1.0	
7	Zn (µg/L)		2.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	9	16
2	HAR_Total (mgCaCO3/L)	21	16	20
3	Na% (%)	23	24	23
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : RAMAMANGALAM (KM000I2)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2017	01/02/2018	03/04/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	51.51	44.65	32.53
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_FLD (µmho/cm)			
4	EC_GEN (µmho/cm)	59	44	52
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	7.7	7.1	7.0
7	TDS (mg/L)	33	28	
8	Temp (deg C)	27.0	25.5	28.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	24	20	24
3	B (mg/L)	0.10	0.07	0.09
4	Ca (mg/L)	7	5	6
5	Cl (mg/L)	5.0	4.1	8.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.08	0.08	0.08
8	Fe (mg/L)	0.0	0.0	0.1
9	HCO3 (mg/L)	29	24	29
10	K (mg/L)	1.2	1.4	1.0
11	Mg (mg/L)	2.0	2.0	3.1
12	Na (mg/L)	3.5	2.5	4.3
13	NO2-N (mgN/L)	0.07	0.04	0.03
14	o-PO4-P (mg P/L)	0.072	0.067	0.084
15	SiO2 (mg/L)	9.6	8.8	10.3
16	SO4 (mg/L)	2.1	1.9	1.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.6	1.3
2	DO (mg/L)	7.4	7.1	8.1
3	DO_SAT% (%)	93	86	103
	TRACE & TOXIC			
1	As (µg/L)	2.5		0.4
2	Cd (µg/L)	0.0		0.0
3	Cr (µg/L)	6.6		0.1
4	Cu (µg/L)	4.4		13.5
5	Ni (µg/L)	2.1		8.3
6	Pb (µg/L)	2.9		0.8
7	Zn (µg/L)	10.2		20.3
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16	13	16
2	HAR_Total (mgCaCO3/L)	24	21	28
3	Na% (%)	23	19	24
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.4
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : RAMAMANGALAM (KM000I2)

Division : SWR Division, Cochin

Local River : Muvattupuzha

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	827.3	22.64	126.5
2	EC_FLD (µmho/cm)	1	26	26	26
3	EC_GEN (µmho/cm)	6	68	40	54
4	pH_GEN (pH units)	6	8.0	7.0	7.6
5	TDS (mg/L)	4	38	28	32
6	Temp (deg C)	6	28.0	25.5	27
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	24	16	19
3	B (mg/L)	6	0.19	0.02	0.1
4	Ca (mg/L)	6	7	3	5
5	Cl (mg/L)	6	8.1	4.1	5.4
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.08	0.06	0.07
8	Fe (mg/L)	6	0.1	0.0	0.1
9	HCO3 (mg/L)	6	29	20	24
10	K (mg/L)	6	1.4	0.8	1.2
11	Mg (mg/L)	6	3.1	1.0	2
12	Na (mg/L)	6	4.3	2.5	3.1
13	NO2-N (mgN/L)	6	0.07	0.02	0.04
14	o-PO4-P (mg P/L)	6	0.084	0.028	0.056
15	SiO2 (mg/L)	6	12.8	8.2	9.8
16	SO4 (mg/L)	6	4.6	1.3	2.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.3	0.6	0.9
2	DO (mg/L)	6	8.1	6.4	7.1
3	DO_SAT% (%)	6	103	80	89
	TRACE & TOXIC				
1	As (µg/L)	3	2.5	0.4	1.6
2	Cd (µg/L)	2	0.0	0.0	0
3	Cr (µg/L)	3	6.6	0.1	3.2
4	Cu (µg/L)	3	13.5	2.0	6.6
5	Ni (µg/L)	2	8.3	2.1	5.2
6	Pb (µg/L)	3	2.9	0.8	1.6
7	Zn (µg/L)	3	20.3	2.0	10.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	16	9	14
2	HAR_Total (mgCaCO3/L)	6	28	16	22
3	Na% (%)	6	24	19	23
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	240.2	196.9	181.3	167.2	217.9
2	EC_FLD (µmho/cm)	59	55	107	57	61
3	EC_GEN (µmho/cm)	43	51	53	58	50
4	pH_FLD (pH units)	6.4	6.2	8.2	7.4	8.7
5	pH_GEN (pH units)	6.4	6.5	6.9	6.5	6.3
6	TDS (mg/L)	34	39	31	40	33
7	Temp (deg C)	27.8	27.7	27.8	27.8	27.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	13	12	13	14
3	B (mg/L)	0.02	0.03		0.10	0.15
4	Ca (mg/L)	5	3	5	4	4
5	Cl (mg/L)	7.6	7.8	7.1	7.2	6.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.15	0.07	0.09	0.13	0.04
8	Fe (mg/L)		0.1	0.0	0.0	0.1
9	HCO3 (mg/L)	14	16	15	15	17
10	K (mg/L)	1.0	0.9	1.1	0.7	1.2
11	Mg (mg/L)	1.5	1.8	1.0	1.7	1.2
12	Na (mg/L)	3.5	3.6	3.7	3.8	3.6
13	NH3-N (mg N/L)		0.05	0.20	0.22	0.06
14	NO2+NO3 (mg N/L)	1.22	0.33		0.16	0.16
15	NO2-N (mgN/L)	0.04	0.05		0.02	0.01
16	NO3-N (mgN/L)	1.18	0.29		0.14	0.15
17	o-PO4-P (mg P/L)	0.145	0.023	0.042	0.057	0.050
18	P-Tot (mgP/L)	0.145	0.010			
19	SiO2 (mg/L)	20.7	19.5	32.5	21.0	17.9
20	SO4 (mg/L)	1.3	1.1	1.0	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.7	0.3	0.3	0.9
2	COD (mg/L)	5.2	6.2	3.4	2.5	6.1
3	DO (mg/L)	7.3	7.1	7.8	7.7	6.9
4	DO_SAT% (%)	92	89	98	98	87
5	FCol-MPN (MPN/100mL)	1600	900	680	900	390
6	Tcol-MPN (MPN/100mL)	1600	1600	1183	1600	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	9	12	9	11
2	HAR_Total (mgCaCO3/L)	19	16	16	16	16
3	Na% (%)	27	31	33	33	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	107.3	178.3	263.4	217.6	112.6
2	EC_FLD (µmho/cm)	56	50	52	53	28
3	EC_GEN (µmho/cm)	62	57	53	45	40
4	pH_FLD (pH units)	7.8	7.0	6.0		
5	pH_GEN (pH units)	6.8	7.0	7.1	7.1	6.8
6	TDS (mg/L)	38	40	28		
7	Temp (deg C)	27.7	27.8	26.5	27.0	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	14	15			30
3	B (mg/L)	0.02	0.02			
4	Ca (mg/L)	5	6	6	6	9
5	Cl (mg/L)	7.1	8.1	8.3	10.0	23.4
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.07	0.22			
8	Fe (mg/L)	0.1	0.1			
9	HCO3 (mg/L)	17	19	13	25	36
10	K (mg/L)	1.3	1.4	1.6		1.1
11	Mg (mg/L)	2.0	1.5	5.5	2.2	3.8
12	Na (mg/L)	4.0	4.3	3.3		11.5
13	NH3-N (mg N/L)	0.01				
14	NO2+NO3 (mg N/L)	1.24	0.50			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.23	0.49			
17	o-PO4-P (mg P/L)	0.247	0.048			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	10.1	8.7			
20	SO4 (mg/L)	1.0	0.9	1.3		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.5	0.6	0.4	0.9
2	COD (mg/L)	2.5	3.6			
3	DO (mg/L)	7.0	5.7	7.1	6.7	6.7
4	DO_SAT% (%)	89	72	88	83	84
5	FCol-MPN (MPN/100mL)	767	1600			
6	Tcol-MPN (MPN/100mL)	1600	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	4.8	3.8			
2	Cd (µg/L)	0.1	0.1			
3	Cr (µg/L)	3.0	0.6			
4	Cu (µg/L)	4.6	0.7			
5	Hg (µg/L)		0.1			
6	Ni (µg/L)	3.5	8.1			
7	Pb (µg/L)	3.3	3.3			
8	Zn (µg/L)	32.0	2.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	14	16	16	22
2	HAR_Total (mgCaCO3/L)	20	20	39	25	38
3	Na% (%)	29	30	22		39
4	RSC (-)	0.0	0.0			0.1
5	SAR (-)	0.4	0.4	0.3		0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood Jun - Oct	Winter			
			Nov - Feb			
			2007-2008	2008-2009	2009-2010	2010-2011
		2017				
	PHYSICAL					
1	Q (cumec)	127.9	104.4	43.72	62.78	120.1
2	EC_FLD (µmho/cm)	26	67	64	73	50
3	EC_GEN (µmho/cm)	56	51	58	50	47
4	pH_FLD (pH units)		6.8	7.0	7.3	7.4
5	pH_GEN (pH units)	7.9	7.2	6.9	6.5	6.8
6	TDS (mg/L)	34	38	48	29	27
7	Temp (deg C)	27.2	27.0	27.3	26.8	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	12	15	16	15
3	B (mg/L)	0.11	0.00	0.04	1.15	0.10
4	Ca (mg/L)	5	5	4	4	4
5	Cl (mg/L)	5.0	8.8	8.5	7.4	6.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.07	0.12	0.07	0.14	0.09
8	Fe (mg/L)	0.1	0.4	0.1	0.1	0.3
9	HCO3 (mg/L)	20	15	18	20	18
10	K (mg/L)	1.2	1.1	1.6	1.3	1.0
11	Mg (mg/L)	1.6	1.8	2.2	1.7	1.3
12	Na (mg/L)	2.9	4.2	4.3	4.5	3.6
13	NH3-N (mg N/L)		0.05		0.24	0.05
14	NO2+NO3 (mg N/L)		0.93	0.28		0.26
15	NO2-N (mgN/L)	0.04	0.08	0.05		0.04
16	NO3-N (mgN/L)		0.84	0.22		0.22
17	o-PO4-P (mg P/L)	0.038	0.086	0.049	0.023	0.060
18	P-Tot (mgP/L)		0.086			
19	SiO2 (mg/L)	9.9	18.5	20.2	24.3	13.5
20	SO4 (mg/L)	3.2	1.4	1.9	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.0	0.6	0.7	0.2
2	COD (mg/L)		7.2	4.6	5.8	1.4
3	DO (mg/L)	6.7	7.5	7.2	7.6	7.6
4	DO_SAT% (%)	85	93	90	95	96
5	FCol-MPN (MPN/100mL)			500	1600	940
6	Tcol-MPN (MPN/100mL)			1600	1600	1600
	TRACE & TOXIC					
1	As (µg/L)	2.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	2.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	12	10	10	10
2	HAR_Total (mgCaCO3/L)	19	19	19	17	15
3	Na% (%)	23	31	31	34	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	107.2	31.41	99.49	73.27	61.76
2	EC_FLD (µmho/cm)	42	52	79	48	39
3	EC_GEN (µmho/cm)	58	60	57	37	50
4	pH_FLD (pH units)	7.9	7.4	6.6	6.5	
5	pH_GEN (pH units)	6.8	6.5	7.1	7.7	6.9
6	TDS (mg/L)	35	39	35	25	
7	Temp (deg C)	26.8	28.3	26.3	26.0	26.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	16	17	15		
3	B (mg/L)	0.12	0.12	0.02		
4	Ca (mg/L)	4	4	5	5	5
5	Cl (mg/L)	8.3	7.8	8.5	4.0	14.3
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.26	0.20	0.11		
8	Fe (mg/L)	1.1	0.1		0.0	0.0
9	HCO3 (mg/L)	20	21	18	17	67
10	K (mg/L)	1.2	1.4	1.4		0.2
11	Mg (mg/L)	1.5	2.7	1.8	0.9	1.7
12	Na (mg/L)	4.6	4.9	5.2		4.9
13	NH3-N (mg N/L)	0.06	0.01			
14	NO2+NO3 (mg N/L)		1.15	0.35		
15	NO2-N (mgN/L)		0.01	0.04		
16	NO3-N (mgN/L)	1.01	1.14	0.31		
17	o-PO4-P (mg P/L)	0.645	0.061	0.072		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	13.2	11.3	6.6		
20	SO4 (mg/L)	0.6	1.1	0.8	1.4	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.2	0.4	0.4	0.4
2	COD (mg/L)	3.4	1.1	3.0		
3	DO (mg/L)	7.2	6.4	7.3	7.0	7.2
4	DO_SAT% (%)	90	82	90	86	89
5	FCol-MPN (MPN/100mL)	500	500	1050		
6	Tcol-MPN (MPN/100mL)	900	900	1250		
	TRACE & TOXIC					
1	As (µg/L)	0.0				
2	Cd (µg/L)	0.4			0.6	
3	Cr (µg/L)	2.4			0.5	
4	Cu (µg/L)	64.6			5.5	
5	Hg (µg/L)					
6	Ni (µg/L)	2.2			1.9	
7	Pb (µg/L)	0.2			0.3	
8	Zn (µg/L)	19.6			10.5	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	11	12	12	14
2	HAR_Total (mgCaCO3/L)	17	22	19	16	21
3	Na% (%)	35	31	35		29
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.5	0.5	0.5		0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM000I2)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	19.74	48.08	96.06	65.04	54.46
2	EC_FLD (µmho/cm)	26		60	52	54
3	EC_GEN (µmho/cm)	49	51	57	46	51
4	pH_FLD (pH units)			6.1		8.4
5	pH_GEN (pH units)	7.5	7.4	6.9	6.6	6.9
6	TDS (mg/L)		30	43	36	31
7	Temp (deg C)	28.5	26.3	27.5	29.0	28.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	17	22	17	15	14
3	B (mg/L)		0.09		0.06	0.14
4	Ca (mg/L)	6	6	5	4	4
5	Cl (mg/L)	20.0	4.5	8.5	6.4	8.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)		0.08	0.12	0.11	0.14
8	Fe (mg/L)		0.0	0.5	0.1	0.6
9	HCO3 (mg/L)	21	27	21	18	17
10	K (mg/L)	2.6	1.3	1.5	1.5	1.4
11	Mg (mg/L)	3.8	2.0	2.0	1.9	2.0
12	Na (mg/L)	14.8	3.0	5.1	3.7	4.5
13	NH3-N (mg N/L)			0.05	0.09	0.16
14	NO2+NO3 (mg N/L)			1.27	0.28	
15	NO2-N (mgN/L)		0.06	0.06	0.05	
16	NO3-N (mgN/L)			1.21	0.23	0.10
17	o-PO4-P (mg P/L)		0.070	0.208	0.017	
18	P-Tot (mgP/L)			0.208		
19	SiO2 (mg/L)		9.2	18.6	21.0	27.6
20	SO4 (mg/L)		2.0	1.0	2.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	0.7	0.6	0.8	0.4
2	COD (mg/L)			4.2	6.3	3.4
3	DO (mg/L)	7.6	7.3	7.0	7.2	7.2
4	DO_SAT% (%)	98	89	88	94	92
5	FCol-MPN (MPN/100mL)				1600	
6	Tcol-MPN (MPN/100mL)				1600	
	TRACE & TOXIC					
1	As (µg/L)		2.5	4.3	1.0	
2	Cd (µg/L)		0.0	0.5		
3	Cr (µg/L)		6.6		2.0	
4	Cu (µg/L)		4.4	1.6	1.0	
5	Hg (µg/L)					
6	Ni (µg/L)		2.1		7.9	
7	Pb (µg/L)		2.9	2.6	1.0	
8	Zn (µg/L)		10.2	20.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	14	12	10	10
2	HAR_Total (mgCaCO3/L)	31	23	20	18	18
3	Na% (%)	50	21	33	29	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	1.2	0.3	0.5	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	101.6	81.37	41.82	117.5
2	EC_FLD (µmho/cm)	58	48	53	56
3	EC_GEN (µmho/cm)	75	74	58	62
4	pH_FLD (pH units)	8.4	7.9	8.0	6.3
5	pH_GEN (pH units)	6.7	6.5	6.9	6.6
6	TDS (mg/L)	45	50	36	40
7	Temp (deg C)	27.5	28.0	29.5	27.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	15	18	15	16
3	B (mg/L)	0.13	0.25	0.01	0.12
4	Ca (mg/L)	6	6	4	6
5	Cl (mg/L)	10.3	9.9	7.8	9.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.14	0.04	0.27	0.36
8	Fe (mg/L)	0.2	10.0	0.1	0.0
9	HCO3 (mg/L)	18	22	19	20
10	K (mg/L)	1.5	1.5	1.8	1.7
11	Mg (mg/L)	1.5	1.5	2.0	1.5
12	Na (mg/L)	5.4	6.0	4.1	5.3
13	NH3-N (mg N/L)	0.10	0.10		
14	NO2+NO3 (mg N/L)	0.17	1.18	0.42	2.20
15	NO2-N (mgN/L)	0.02	0.06	0.01	0.08
16	NO3-N (mgN/L)	0.16	1.12	0.41	2.12
17	o-PO4-P (mg P/L)	0.030	0.080	0.090	0.078
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	19.4	12.0	12.5	11.3
20	SO4 (mg/L)	1.0	1.0	0.6	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.0	0.4	0.6	0.4
2	COD (mg/L)	7.4	4.2	4.4	2.8
3	DO (mg/L)	7.8	7.0	6.1	6.3
4	DO_SAT% (%)	98	89	79	79
5	FCol-MPN (MPN/100mL)	900	1600	900	900
6	Tcol-MPN (MPN/100mL)	1600	1600	1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.1	0.0	1.6	2.1
2	Cd (µg/L)	0.0	0.1	0.0	0.0
3	Cr (µg/L)	1.4	2.7	0.2	0.4
4	Cu (µg/L)	2.9	3.0	1.1	0.4
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		5.2	0.0	4.8
7	Pb (µg/L)	0.3	3.9	3.2	0.2
8	Zn (µg/L)	13.8	0.1	3.7	4.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14	16	11	16
2	HAR_Total (mgCaCO3/L)	20	22	19	22
3	Na% (%)	35	35	30	32
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.4	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Cochin

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	78.86	73.82	58.88	32.53
2	EC_FLD (µmho/cm)	88	24		
3	EC_GEN (µmho/cm)	94	64	63	52
4	pH_FLD (pH units)	7.2			
5	pH_GEN (pH units)	7.6	7.8	7.5	7.0
6	TDS (mg/L)				
7	Temp (deg C)	28.0	29.0	28.5	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			74	24
3	B (mg/L)				0.09
4	Ca (mg/L)	6	9	28	6
5	Cl (mg/L)	10.4	18.2	20.9	8.1
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)				0.08
8	Fe (mg/L)				0.1
9	HCO3 (mg/L)	26	24	90	29
10	K (mg/L)		0.2	2.6	1.0
11	Mg (mg/L)	1.9	1.9	9.5	3.0
12	Na (mg/L)		10.0	14.2	4.3
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				0.03
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				0.084
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				10.3
20	SO4 (mg/L)				1.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.8	1.8	0.8	1.3
2	COD (mg/L)				
3	DO (mg/L)	8.0	7.8		8.1
4	DO_SAT% (%)	102	101		103
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.4
2	Cd (µg/L)				0.0
3	Cr (µg/L)				0.1
4	Cu (µg/L)				13.5
5	Hg (µg/L)				
6	Ni (µg/L)				8.3
7	Pb (µg/L)				0.8
8	Zn (µg/L)				20.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	24	70	16
2	HAR_Total (mgCaCO3/L)	24	31	110	28
3	Na% (%)		41	21	24
4	RSC (-)			0.0	0.0
5	SAR (-)		0.8	0.6	0.4
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KALAMPUR	Code	: KMA00C6
State	: Kerala	District	Ernakulam
Basin	: WFR South of Tapi	Independent River	: Muvattupuzha
Tributary	: Kaliyar	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kaliyar
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 405 Sq. Km.	Bank	: Right
Latitude	: 09°59'26"	Longitude	: 76°37'56"
Zero of Gauge (m)	: 89.535 (Arb.) 5.000 (m.s.l)	29/11/1985 01/02/1988	- 31/01/1988
	Opening Date	Closing Date	
Gauge	: 29/11/1985		
Discharge	: 23/06/1986		
Sediment	: 01/06/1988		
Water Quality	: 01/06/1988		

Water Quality Datasheet for the period : 2017-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/08/2017	03/10/2017	01/12/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	127.4	49.05	17.80
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_FLD (µmho/cm)	68	68	68
4	EC_GEN (µmho/cm)	31	30	41
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	6.9	6.9
7	pH_GEN (pH units)	7.4	7.3	7.0
8	TDS (mg/L)	25	22	34
9	Temp (deg C)	27.0	28.0	28.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	16	24
3	B (mg/L)	0.09	0.08	0.08
4	Ca (mg/L)	3	5	5
5	Cl (mg/L)	4.8	6.1	5.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.03	0.09	0.08
8	Fe (mg/L)	0.1	0.1	0.0
9	HCO3 (mg/L)	15	20	29
10	K (mg/L)	0.8	1.2	0.9
11	Mg (mg/L)	1.9	2.0	3.9
12	Na (mg/L)	2.8	3.5	3.5
13	NO2-N (mgN/L)	0.03	0.07	0.02
14	o-PO4-P (mg P/L)	0.068	0.073	0.052
15	SiO2 (mg/L)	8.4	9.8	8.3
16	SO4 (mg/L)	4.8	4.9	2.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.0	1.1
2	DO (mg/L)	8.0	6.2	6.4
3	DO_SAT% (%)	100	79	82
	TRACE & TOXIC			
1	As (µg/L)	4.0		2.6
2	Cd (µg/L)			0.1
3	Cr (µg/L)	4.0		11.3
4	Cu (µg/L)	2.0		1.2
5	Ni (µg/L)			2.3
6	Pb (µg/L)	1.0		2.5
7	Zn (µg/L)	3.0		6.2
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	9	12	12
2	HAR_Total (mgCaCO3/L)	16	20	29
3	Na% (%)	26	26	20
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	305.9	0.000	32.85
2	EC_FLD (µmho/cm)	3	68	68	68
3	EC_GEN (µmho/cm)	3	41	30	34
4	pH_FLD (pH units)	3	7.0	6.9	6.9
5	pH_GEN (pH units)	3	7.4	7.0	7.2
6	TDS (mg/L)	3	34	22	27
7	Temp (deg C)	3	28.0	27.0	27.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	24	12	17
3	B (mg/L)	3	0.09	0.08	0.08
4	Ca (mg/L)	3	5	3	4
5	Cl (mg/L)	3	6.1	4.8	5.6
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.09	0.03	0.07
8	Fe (mg/L)	3	0.1	0.0	0.1
9	HCO3 (mg/L)	3	29	15	21
10	K (mg/L)	3	1.2	0.8	1
11	Mg (mg/L)	3	3.9	1.9	2.6
12	Na (mg/L)	3	3.5	2.8	3.3
13	NO2-N (mgN/L)	3	0.07	0.02	0.04
14	o-PO4-P (mg P/L)	3	0.073	0.052	0.064
15	SiO2 (mg/L)	3	9.8	8.3	8.8
16	SO4 (mg/L)	3	4.9	2.9	4.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	1.1	0.8	1
2	DO (mg/L)	3	8.0	6.2	6.9
3	DO_SAT% (%)	3	100	79	87
	TRACE & TOXIC				
1	As (µg/L)	2	4.0	2.6	3.3
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	11.3	4.0	7.6
4	Cu (µg/L)	2	2.0	1.2	1.6
5	Ni (µg/L)	1	2.3	2.3	2.3
6	Pb (µg/L)	2	2.5	1.0	1.7
7	Zn (µg/L)	2	6.2	3.0	4.6
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	12	9	11
2	HAR_Total (mgCaCO3/L)	3	29	16	22
3	Na% (%)	3	26	20	24
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.3	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		53.14	36.23	35.69	54.82
2	EC_FLD (µmho/cm)		42			
3	EC_GEN (µmho/cm)		42	40	46	40
4	pH_FLD (pH units)		6.2			
5	pH_GEN (pH units)		6.5	6.6	6.1	5.7
6	TDS (mg/L)		33	23	30	25
7	Temp (deg C)		27.0	26.3	26.8	26.2
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		11	11	10	13
2	B (mg/L)		0.06		0.02	0.24
3	Ca (mg/L)		3	5	3	4
4	Cl (mg/L)		6.6	6.0	6.2	5.8
5	F (mg/L)		0.18	0.08	0.21	0.02
6	Fe (mg/L)		0.1	0.0	0.2	0.1
7	HCO3 (mg/L)		13	13	13	16
8	K (mg/L)		0.7	1.0	0.6	0.9
9	Mg (mg/L)		1.5	1.0	1.5	1.5
10	Na (mg/L)		3.9	3.2	3.4	3.1
11	NH3-N (mg N/L)			0.25	0.09	0.15
12	NO2+NO3 (mg N/L)		0.24		0.14	0.17
13	NO2-N (mgN/L)		0.05		0.02	0.03
14	NO3-N (mgN/L)		0.17		0.12	0.14
15	o-PO4-P (mg P/L)		0.044	0.051	0.057	0.077
16	P-Tot (mgP/L)		0.054			
17	SiO2 (mg/L)		17.9	30.2	15.0	8.9
18	SO4 (mg/L)		1.2	3.0	1.2	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.6	0.6	0.6	0.7
2	COD (mg/L)		4.8	4.4	4.1	3.9
3	DO (mg/L)		6.9			6.5
4	DO_SAT% (%)		87			80
5	FCol-MPN (MPN/100mL)				900	280
6	Tcol-MPN (MPN/100mL)				1600	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		7	11	7	9
2	HAR_Total (mgCaCO3/L)		14	15	14	16
3	Na% (%)		37	30	34	29
4	SAR (-)		0.5	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	17.38	38.13	95.57	51.77	41.12
2	EC_FLD (µmho/cm)	69	68	68	67	52
3	EC_GEN (µmho/cm)	54	41	40	38	34
4	pH_FLD (pH units)	6.9	6.8	7.1	7.6	6.9
5	pH_GEN (pH units)	6.7	6.7	7.0	7.0	6.2
6	TDS (mg/L)	37	27	34		
7	Temp (deg C)	26.7	27.0	25.8	26.7	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19	15			21
2	B (mg/L)	0.03	0.09			
3	Ca (mg/L)	6	4	4	10	12
4	Cl (mg/L)	6.9	5.9	6.4	10.0	12.6
5	F (mg/L)	0.02	0.16			
6	Fe (mg/L)	0.0	0.1			
7	HCO3 (mg/L)	23	18	15	26	26
8	K (mg/L)	1.7	1.3	1.2		0.7
9	Mg (mg/L)	1.8	1.6	2.7	3.2	4.4
10	Na (mg/L)	3.8	3.3	2.5		6.2
11	NH3-N (mg N/L)	0.01				
12	NO2+NO3 (mg N/L)	1.40	0.26			
13	NO2-N (mgN/L)	0.01	0.01			
14	NO3-N (mgN/L)	1.39	0.25			
15	o-PO4-P (mg P/L)	0.242	0.084			
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	11.9	8.7			
18	SO4 (mg/L)	0.9	0.5	1.1		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.6	0.5	0.5	0.9
2	COD (mg/L)	4.7	3.9			
3	DO (mg/L)	6.9	5.7	6.9	7.1	5.5
4	DO_SAT% (%)	86	71	85	88	67
5	FCol-MPN (MPN/100mL)	743	1050			
6	Tcol-MPN (MPN/100mL)	817	1250	1213		
	TRACE & TOXIC					
1	As (µg/L)	0.8	9.1			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	1.9	0.8			
4	Cu (µg/L)	5.0	0.7			
5	Hg (µg/L)		0.0			
6	Ni (µg/L)	2.4	8.4			
7	Pb (µg/L)	2.6	1.6			
8	Zn (µg/L)	16.1	9.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	10	11	25	29
2	HAR_Total (mgCaCO3/L)	23	17	23	38	47
3	Na% (%)	25	29	20		22
4	SAR (-)	0.4	0.4	0.2		0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	88.23		3.641	5.183	13.58
2	EC_FLD (µmho/cm)	68			49	
3	EC_GEN (µmho/cm)	30		45	45	44
4	pH_FLD (pH units)	6.9			6.8	
5	pH_GEN (pH units)	7.3		6.8	6.4	6.6
6	TDS (mg/L)	23		36	26	28
7	Temp (deg C)	27.5		26.5	27.3	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14		13	10	17
2	B (mg/L)	0.09			0.45	0.15
3	Ca (mg/L)	4		3	4	4
4	Cl (mg/L)	5.4		6.4	6.7	6.0
5	F (mg/L)	0.06		0.05	0.22	0.09
6	Fe (mg/L)	0.1		0.1	0.1	0.0
7	HCO3 (mg/L)	17		16	12	20
8	K (mg/L)	1.0		1.1	1.2	0.8
9	Mg (mg/L)	1.9		1.5	1.0	2.3
10	Na (mg/L)	3.2		3.9	4.0	3.4
11	NH3-N (mg N/L)				0.22	0.05
12	NO2+NO3 (mg N/L)					0.25
13	NO2-N (mgN/L)	0.05				0.04
14	NO3-N (mgN/L)			0.10		0.21
15	o-PO4-P (mg P/L)	0.071		0.048	0.026	0.150
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	9.1		19.9	18.2	12.9
18	SO4 (mg/L)	4.8		1.0	4.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9		0.4	0.6	1.1
2	COD (mg/L)			3.6	5.2	7.3
3	DO (mg/L)	7.1		6.8	7.2	
4	DO_SAT% (%)	90		84	90	
5	FCol-MPN (MPN/100mL)				500	
6	Tcol-MPN (MPN/100mL)				900	
	TRACE & TOXIC					
1	As (µg/L)	4.0				
2	Cd (µg/L)					
3	Cr (µg/L)	4.0				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10		8	9	10
2	HAR_Total (mgCaCO3/L)	18		14	13	19
3	Na% (%)	26		35	37	27
4	SAR (-)	0.3		0.5	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	11.56	0.484	17.34	9.375	9.922
2	EC_FLD (µmho/cm)	69		68	69	68
3	EC_GEN (µmho/cm)	49	50	46	31	63
4	pH_FLD (pH units)	6.9		6.8	7.1	6.4
5	pH_GEN (pH units)	6.5	6.3	6.9	7.5	7.1
6	TDS (mg/L)	34	29	31	33	
7	Temp (deg C)	26.3	27.3	26.8	27.0	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	15	15		
2	B (mg/L)	0.28	0.07	0.07		
3	Ca (mg/L)	4	6	5	2	5
4	Cl (mg/L)	7.5	7.3	6.8	3.3	16.5
5	F (mg/L)	0.12	0.15	0.16		
6	Fe (mg/L)	1.1	0.0		0.0	0.0
7	HCO3 (mg/L)	18	18	19	14	71
8	K (mg/L)	1.2	1.3	1.3		0.2
9	Mg (mg/L)	1.5	1.2	1.8	1.4	6.9
10	Na (mg/L)	4.2	3.9	3.8		8.0
11	NH3-N (mg N/L)	0.31	0.01			
12	NO2+NO3 (mg N/L)		1.20	0.37		
13	NO2-N (mgN/L)		0.04	0.01		
14	NO3-N (mgN/L)	1.16	1.17	0.36		
15	o-PO4-P (mg P/L)	0.460	0.090	0.022		
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	12.0	13.3	6.5		
18	SO4 (mg/L)	0.8	0.9	1.0	0.7	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.9	1.2	0.7	1.0
2	COD (mg/L)	4.0	7.4	8.6		
3	DO (mg/L)	6.8	6.9	7.3	6.5	6.5
4	DO_SAT% (%)	84	87	91	82	82
5	FCol-MPN (MPN/100mL)		1600	1050		
6	Tcol-MPN (MPN/100mL)		1600	1250		
	TRACE & TOXIC					
1	As (µg/L)	0.7				
2	Cd (µg/L)	0.6			0.1	
3	Cr (µg/L)	0.9			0.4	
4	Cu (µg/L)	8.2			4.1	
5	Hg (µg/L)					
6	Ni (µg/L)	12.5			0.9	
7	Pb (µg/L)	0.1			2.3	
8	Zn (µg/L)	8.2			9.6	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	15	12	6	12
2	HAR_Total (mgCaCO3/L)	17	20	19	12	41
3	Na% (%)	32	28	29		33
4	SAR (-)	0.4	0.4	0.4		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		17.80			0.000
2	EC_FLD (µmho/cm)		68			
3	EC_GEN (µmho/cm)		41			52
4	pH_FLD (pH units)		6.9			
5	pH_GEN (pH units)		7.0			6.6
6	TDS (mg/L)		34			29
7	Temp (deg C)		28.0			27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		24			21
2	B (mg/L)		0.08			0.48
3	Ca (mg/L)		5			4
4	Cl (mg/L)		5.9			9.2
5	F (mg/L)		0.08			0.11
6	Fe (mg/L)		0.0			0.0
7	HCO3 (mg/L)		29			26
8	K (mg/L)		0.9			1.5
9	Mg (mg/L)		3.9			2.9
10	Na (mg/L)		3.5			5.2
11	NH3-N (mg N/L)					0.08
12	NO2+NO3 (mg N/L)					
13	NO2-N (mgN/L)		0.02			
14	NO3-N (mgN/L)					0.15
15	o-PO4-P (mg P/L)		0.052			
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)		8.3			27.8
18	SO4 (mg/L)		2.9			1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.1			1.0
2	COD (mg/L)					8.8
3	DO (mg/L)		6.4			
4	DO_SAT% (%)		82			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		2.6			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		11.3			
4	Cu (µg/L)		1.2			
5	Hg (µg/L)					
6	Ni (µg/L)		2.3			
7	Pb (µg/L)		2.5			
8	Zn (µg/L)		6.2			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		12			10
2	HAR_Total (mgCaCO3/L)		29			22
3	Na% (%)		20			32
4	SAR (-)		0.3			0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (μmho/cm)				68
3	EC_GEN (μmho/cm)			56	51
4	pH_FLD (pH units)				6.9
5	pH_GEN (pH units)			7.1	6.7
6	TDS (mg/L)			35	32
7	Temp (deg C)			27.5	27.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			18	18
2	B (mg/L)			0.10	0.02
3	Ca (mg/L)			4	6
4	Cl (mg/L)			8.5	6.3
5	F (mg/L)			0.26	0.26
6	Fe (mg/L)		0.0	0.0	0.0
7	HCO3 (mg/L)			22	22
8	K (mg/L)			1.9	2.4
9	Mg (mg/L)			3.0	2.4
10	Na (mg/L)			4.5	3.4
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)			0.51	0.99
13	NO2-N (mgN/L)			0.01	0.01
14	NO3-N (mgN/L)			0.50	0.98
15	o-PO4-P (mg P/L)			0.060	0.100
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)			11.5	11.2
18	SO4 (mg/L)			0.8	1.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			0.6	0.4
2	COD (mg/L)			3.8	3.0
3	DO (mg/L)			6.9	6.1
4	DO_SAT% (%)			87	77
5	FCol-MPN (MPN/100mL)				1600
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (μg/L)		0.3	1.1	0.9
2	Cd (μg/L)		0.1	0.0	0.0
3	Cr (μg/L)		2.0	0.1	0.6
4	Cu (μg/L)		2.2	1.4	1.4
5	Hg (μg/L)				
6	Ni (μg/L)		4.1	0.1	0.2
7	Pb (μg/L)		4.5	4.0	0.0
8	Zn (μg/L)		0.0	4.8	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			10	14
2	HAR_Total (mgCaCO3/L)			23	24
3	Na% (%)			28	22
4	SAR (-)			0.4	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Cochin

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (μmho/cm)	68			
3	EC_GEN (μmho/cm)	55	67		
4	pH_FLD (pH units)	7.1	6.9		
5	pH_GEN (pH units)	7.5	6.1		
6	TDS (mg/L)	33			
7	Temp (deg C)	28.0	30.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	22	5		
4	Cl (mg/L)	5.2	27.4		
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)	13	28		
8	K (mg/L)		0.3		
9	Mg (mg/L)	8.6	3.8		
10	Na (mg/L)		11.8		
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)				
13	NO2-N (mgN/L)				
14	NO3-N (mgN/L)				
15	o-PO4-P (mg P/L)				
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)				
18	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	0.8		
2	COD (mg/L)				
3	DO (mg/L)	6.8	6.4		
4	DO_SAT% (%)	87	85		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (μg/L)				
2	Cd (μg/L)				
3	Cr (μg/L)				
4	Cu (μg/L)				
5	Hg (μg/L)				
6	Ni (μg/L)				
7	Pb (μg/L)				
8	Zn (μg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	55	12		
2	HAR_Total (mgCaCO3/L)	90	28		
3	Na% (%)		48		
4	SAR (-)		1.0		
	PESTICIDES				

HISTORY SHEET

Water Year : 2017-2018

Site : KIDANGOOR

Code : KT000L3

State : Kerala

District : Kottayam

Basin : WFR South of Tapi

Independent River : Meenachil

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Meenachil

Division : SWR Division, Cochin

Sub-Division : SWR SD No 2, Kochi

Drainage Area : 615 Sq. Km.

Bank : Left

Latitude : 09°40'30"

Longitude : 76°36'10"

Zero of Gauge (m) : -1.184 (m.s.l)
-1.2 (m.s.l)

01/06/1985 - 31/05/1988
01/06/1988

Opening Date

Closing Date

Gauge : 01/06/1985

Discharge : 02/07/1985

Sediment : 01/06/1987

Water Quality : 02/06/1986

Water Quality Datasheet for the period : 2017-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	67.86	54.30	48.53	13.91
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	40	36	36	42
4	EC_GEN (µmho/cm)	42	40	30	45
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	6.7	6.8	6.8	6.8
7	pH_GEN (pH units)	7.1	7.6	7.5	7.0
8	TDS (mg/L)		34	22	32
9	Temp (deg C)	26.5	27.0	28.0	27.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	8	20	12	16
3	B (mg/L)	0.02	0.11	0.08	0.08
4	Ca (mg/L)	3	5	3	5
5	Cl (mg/L)	5.2	5.8	4.0	6.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.04	0.02	0.03	0.08
8	Fe (mg/L)	0.1	0.1	0.1	0.0
9	HCO3 (mg/L)	10	25	15	20
10	K (mg/L)	0.6	0.9	0.7	1.3
11	Mg (mg/L)	1.0	1.8	1.0	2.0
12	Na (mg/L)	2.8	3.3	2.4	3.7
13	NO2-N (mgN/L)	0.02	0.06	0.01	0.03
14	o-PO4-P (mg P/L)	0.032	0.051	0.048	0.045
15	SiO2 (mg/L)	9.3	14.2	12.4	12.3
16	SO4 (mg/L)	2.3	2.0	2.3	2.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	0.9	1.0	1.2
2	DO (mg/L)	6.4	6.3	6.3	6.6
3	DO_SAT% (%)	79	79	80	83
	TRACE & TOXIC				
1	As (µg/L)		3.0		4.3
2	Cd (µg/L)				0.1
3	Cr (µg/L)		3.0		17.0
4	Cu (µg/L)		3.0		4.5
5	Ni (µg/L)				12.0
6	Pb (µg/L)		2.0		2.6
7	Zn (µg/L)		3.0		80.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	13	8	12
2	HAR_Total (mgCaCO3/L)	12	20	12	20
3	Na% (%)	32	25	28	27
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

Sub-Division : SWR SD No 2, Kochi

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	468.8	0.000	56.74
2	EC_FLD (μmho/cm)	4	42	36	39
3	EC_GEN (μmho/cm)	4	45	30	39
4	pH_FLD (pH units)	4	6.8	6.7	6.8
5	pH_GEN (pH units)	4	7.6	7.0	7.3
6	TDS (mg/L)	3	34	22	29
7	Temp (deg C)	4	28.0	26.5	27.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	20	8	14
3	B (mg/L)	4	0.11	0.02	0.07
4	Ca (mg/L)	4	5	3	4
5	Cl (mg/L)	4	6.9	4.0	5.5
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.08	0.02	0.04
8	Fe (mg/L)	4	0.1	0.0	0.1
9	HCO3 (mg/L)	4	25	10	17
10	K (mg/L)	4	1.3	0.6	0.9
11	Mg (mg/L)	4	2.0	1.0	1.4
12	Na (mg/L)	4	3.7	2.4	3
13	NO2-N (mgN/L)	4	0.06	0.01	0.03
14	o-PO4-P (mg P/L)	4	0.051	0.032	0.044
15	SiO2 (mg/L)	4	14.2	9.3	12
16	SO4 (mg/L)	4	2.3	2.0	2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.2	0.4	0.9
2	DO (mg/L)	4	6.6	6.3	6.4
3	DO_SAT% (%)	4	83	79	80
	TRACE & TOXIC				
1	As (μg/L)	2	4.3	3.0	3.7
2	Cd (μg/L)	1	0.1	0.1	0.1
3	Cr (μg/L)	2	17.0	3.0	10
4	Cu (μg/L)	2	4.5	3.0	3.7
5	Ni (μg/L)	1	12.0	12.0	12
6	Pb (μg/L)	2	2.6	2.0	2.3
7	Zn (μg/L)	2	80.1	3.0	41.5
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	13	8	10
2	HAR_Total (mgCaCO3/L)	4	20	12	16
3	Na% (%)	4	32	25	28
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.4	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	69.14	83.51	65.30	72.83	119.4
2	EC_FLD (µmho/cm)	39	38	40	37	34
3	EC_GEN (µmho/cm)	35	39	34	43	40
4	pH_FLD (pH units)	6.5	6.4	6.8	6.9	6.9
5	pH_GEN (pH units)	6.1	6.3	6.6	6.1	5.7
6	TDS (mg/L)	27	31	20	26	27
7	Temp (deg C)	27.0	26.8	26.7	26.3	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO ₃ /L)	9	11	9	10	10
2	B (mg/L)	0.01	0.37	0.05	0.06	0.14
3	Ca (mg/L)	4	3	3	3	3
4	Cl (mg/L)	8.0	6.6	5.2	6.5	6.1
5	CO ₃ (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.12	0.05	0.09	0.16	0.05
7	Fe (mg/L)		0.1		0.0	0.0
8	HCO ₃ (mg/L)	11	14	11	12	12
9	K (mg/L)	1.5	0.8	1.1	0.9	0.9
10	Mg (mg/L)	1.7	1.2	0.6	1.2	1.5
11	Na (mg/L)	3.2	3.4	3.2	3.4	3.2
12	NH ₃ -N (mg N/L)		0.05	0.27	0.39	0.12
13	NO ₂ +NO ₃ (mg N/L)	1.09	0.22		0.20	2.92
14	NO ₂ -N (mgN/L)	0.03	0.05		0.01	0.02
15	NO ₃ -N (mgN/L)	1.06	0.28		0.19	1.49
16	o-PO ₄ -P (mg P/L)	0.146	0.042	0.081	0.064	0.059
17	P-Tot (mgP/L)	0.102	0.040			
18	SiO ₂ (mg/L)	17.7	22.0	20.7	25.6	15.1
19	SO ₄ (mg/L)	1.4	1.2	1.0	1.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD ₃₋₂₇ (mg/L)	0.8	0.5	0.3	0.7	0.9
2	COD (mg/L)	5.9	3.8	2.7	5.3	6.0
3	DO (mg/L)	7.3	6.5	7.8	7.7	6.9
4	DO_SAT% (%)	92	82	97	95	84
5	FCol-MPN (MPN/100mL)	910	1600	900	900	
6	Tcol-MPN (MPN/100mL)	975	1600	1600	1600	
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO ₃ /L)	11	9	6	8	8
2	HAR_Total (mgCaCO ₃ /L)	18	14	9	13	15
3	Na% (%)	26	34	40	35	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	12.87	48.16	156.1	73.55	34.58
2	EC_FLD (µmho/cm)	43	40	42	42	37
3	EC_GEN (µmho/cm)	44	42	35	35	29
4	pH_FLD (pH units)	7.0		6.8	6.6	6.6
5	pH_GEN (pH units)	6.4	6.6	7.0	7.1	6.4
6	TDS (mg/L)	27	26			
7	Temp (deg C)	25.8	26.8	25.7	25.5	26.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	13			19
2	B (mg/L)	0.01	0.04			
3	Ca (mg/L)	5	4	5	6	9
4	Cl (mg/L)	6.4	6.5	6.9	9.6	9.6
5	CO3 (mg/L)	0.0	0.0			0.0
6	F (mg/L)	0.01	0.15			
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	15	15	12	27	24
9	K (mg/L)	1.0	1.1	1.1		1.0
10	Mg (mg/L)	1.7	1.7	2.5	2.2	3.8
11	Na (mg/L)	3.5	3.6	2.5		13.8
12	NH3-N (mg N/L)	0.02				
13	NO2+NO3 (mg N/L)	1.13	0.48			
14	NO2-N (mgN/L)	0.01	0.01			
15	NO3-N (mgN/L)	1.12	0.47			
16	o-PO4-P (mg P/L)	0.238	0.077			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	10.4	9.0			
19	SO4 (mg/L)	0.8	0.4	1.2		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5	0.9	0.5	1.3
2	COD (mg/L)	2.9	3.3			
3	DO (mg/L)	6.3	5.8	6.6	6.7	6.5
4	DO_SAT% (%)	77	71	81	82	80
5	FCol-MPN (MPN/100mL)	693	1600			
6	Tcol-MPN (MPN/100mL)	1183	1600	1600		
	TRACE & TOXIC					
1	As (µg/L)	5.2	3.3			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	1.1	0.3			
4	Cu (µg/L)	4.7	0.7			
5	Hg (µg/L)					
6	Ni (µg/L)	3.6	5.6			
7	Pb (µg/L)	2.2	0.1			
8	Zn (µg/L)	29.1	5.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	11	14	24
2	HAR_Total (mgCaCO3/L)	18	16	22	24	39
3	Na% (%)	28	31	22		42
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.4	0.4	0.3		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	56.90	10.67	13.33	9.257	14.31
2	EC_FLD (µmho/cm)	37	47	37	37	40
3	EC_GEN (µmho/cm)	37	39	43	46	46
4	pH_FLD (pH units)	6.8	6.4	6.5	6.5	6.7
5	pH_GEN (pH units)	7.4	7.5	6.4	6.3	6.1
6	TDS (mg/L)	28	29	35	26	28
7	Temp (deg C)	27.2	27.5	27.5	27.0	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	13	10	10	10	13
2	B (mg/L)	0.07	0.00	0.02		0.12
3	Ca (mg/L)	4	3	3	3	4
4	Cl (mg/L)	5.0	7.8	8.5	7.1	6.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.03		0.05	0.11	0.08
7	Fe (mg/L)	0.1	1.3	0.2	0.1	0.1
8	HCO3 (mg/L)	16	12	12	12	16
9	K (mg/L)	0.7	1.3	1.5	1.2	1.2
10	Mg (mg/L)	1.3	2.5	1.5	1.0	1.3
11	Na (mg/L)	2.8	4.0	4.7	4.4	3.7
12	NH3-N (mg N/L)		0.10		0.21	0.05
13	NO2+NO3 (mg N/L)		0.64			0.39
14	NO2-N (mgN/L)	0.03	0.06			0.04
15	NO3-N (mgN/L)		0.58	0.21		0.35
16	o-PO4-P (mg P/L)	0.044	0.227	0.054	0.036	0.011
17	P-Tot (mgP/L)		0.227			
18	SiO2 (mg/L)	12.0	12.1	17.9	21.0	13.5
19	SO4 (mg/L)	2.2	2.4	1.8	1.0	1.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.2	0.6	1.6	1.2
2	COD (mg/L)		1.4	2.1	12.6	9.1
3	DO (mg/L)	6.3	6.8	5.8	6.6	7.4
4	DO_SAT% (%)	80	85	73	82	91
5	FCol-MPN (MPN/100mL)		580	350	1600	1600
6	Tcol-MPN (MPN/100mL)		1600	900	1600	1600
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	3.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	2.0				
8	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	8	8	8	10
2	HAR_Total (mgCaCO3/L)	15	18	14	12	15
3	Na% (%)	28	30	39	41	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.5	0.6	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	14.29	6.133	26.19	5.826	16.65
2	EC_FLD (µmho/cm)	34	44	39	69	40
3	EC_GEN (µmho/cm)	38	50	56	72	44
4	pH_FLD (pH units)	6.8	6.8		7.1	6.5
5	pH_GEN (pH units)	5.9	5.9	6.8	7.2	6.9
6	TDS (mg/L)	26	30	38		
7	Temp (deg C)	25.2	26.5	26.8	24.3	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	16	21		
2	B (mg/L)	0.10	0.09	0.01		
3	Ca (mg/L)	5	7	6	3	7
4	Cl (mg/L)	5.8	7.1	8.5	8.7	22.8
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)	0.13	0.11	0.09		
7	Fe (mg/L)		0.1		0.0	0.0
8	HCO3 (mg/L)	17	20	26	26	34
9	K (mg/L)	1.4	1.4	1.6		0.3
10	Mg (mg/L)	1.0	1.0	2.0	3.8	2.8
11	Na (mg/L)	3.1	3.8	4.8		9.2
12	NH3-N (mg N/L)	0.00	0.01			
13	NO2+NO3 (mg N/L)		1.68	0.28		
14	NO2-N (mgN/L)		0.01	0.00		
15	NO3-N (mgN/L)	1.06	1.67	0.28		
16	o-PO4-P (mg P/L)	0.140	0.009	0.100		
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	10.8	14.0	7.4		
19	SO4 (mg/L)	0.6	1.1	0.8	1.3	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	0.6	0.8	0.2	1.2
2	COD (mg/L)	7.6	4.2	5.8		
3	DO (mg/L)	5.8	6.2	7.4	6.3	7.4
4	DO_SAT% (%)	70	76	92	75	91
5	FCol-MPN (MPN/100mL)		500	1600		
6	Tcol-MPN (MPN/100mL)		900	1600		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.1	
3	Cr (µg/L)				8.1	
4	Cu (µg/L)				2.1	
5	Hg (µg/L)					
6	Ni (µg/L)				4.9	
7	Pb (µg/L)				0.9	
8	Zn (µg/L)				9.9	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	18	14	8	18
2	HAR_Total (mgCaCO3/L)	16	22	22	24	29
3	Na% (%)	27	26	30		43
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.3	0.4	0.4		0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	2.112	13.91	19.21		3.943
2	EC_FLD (µmho/cm)	40	42	52		
3	EC_GEN (µmho/cm)	59	45	40		
4	pH_FLD (pH units)	6.8	6.8	6.8		
5	pH_GEN (pH units)	7.0	7.0	6.5		
6	TDS (mg/L)		32	29		
7	Temp (deg C)	27.0	27.0	27.0		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	44	16	10		
2	B (mg/L)		0.08	0.01		
3	Ca (mg/L)	6	5	3		
4	Cl (mg/L)	15.6	6.9	8.5		
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)		0.08	0.20		
7	Fe (mg/L)		0.0			
8	HCO3 (mg/L)	54	20	12		
9	K (mg/L)	2.8	1.3	1.2		
10	Mg (mg/L)	3.8	2.0	2.0		
11	Na (mg/L)	15.4	3.7	4.0		
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)			0.21		
14	NO2-N (mgN/L)		0.03	0.10		
15	NO3-N (mgN/L)			0.11		
16	o-PO4-P (mg P/L)		0.045	0.214		
17	P-Tot (mgP/L)			0.214		
18	SiO2 (mg/L)		12.3	10.9		
19	SO4 (mg/L)		2.3	1.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.2	0.8		
2	COD (mg/L)			5.2		
3	DO (mg/L)	7.6	6.6	7.6		
4	DO_SAT% (%)	95	83	95		
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		4.3	4.5		
2	Cd (µg/L)		0.1	0.5		
3	Cr (µg/L)		17.0			
4	Cu (µg/L)		4.5	3.5		
5	Hg (µg/L)					
6	Ni (µg/L)		12.0			
7	Pb (µg/L)		2.6	1.7		
8	Zn (µg/L)		80.1	34.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	12	8		
2	HAR_Total (mgCaCO3/L)	31	20	16		
3	Na% (%)	49	27	33		
4	RSC (-)	0.3	0.0	0.0		
5	SAR (-)	1.2	0.4	0.4		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	15.53	16.26	7.166	14.29
2	EC_FLD (µmho/cm)	60		68	
3	EC_GEN (µmho/cm)	70		97	73
4	pH_FLD (pH units)	6.8		6.7	
5	pH_GEN (pH units)	6.2		6.7	7.0
6	TDS (mg/L)	44		63	48
7	Temp (deg C)	26.0		27.5	26.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	16		24	24
2	B (mg/L)	0.35		0.01	0.02
3	Ca (mg/L)	5		8	7
4	Cl (mg/L)	9.6		14.2	10.6
5	CO3 (mg/L)	0.0		0.0	0.0
6	F (mg/L)	0.12		0.32	0.26
7	Fe (mg/L)	0.2	0.0	0.0	0.0
8	HCO3 (mg/L)	20		29	29
9	K (mg/L)	3.0		5.1	2.0
10	Mg (mg/L)	1.5		2.5	2.9
11	Na (mg/L)	5.0		7.6	6.2
12	NH3-N (mg N/L)	0.08			
13	NO2+NO3 (mg N/L)			0.87	0.58
14	NO2-N (mgN/L)			0.01	0.02
15	NO3-N (mgN/L)	0.21		0.86	0.56
16	o-PO4-P (mg P/L)	0.045		0.090	0.070
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	16.8		12.0	7.6
19	SO4 (mg/L)	1.0		1.1	1.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.0		1.2	1.6
2	COD (mg/L)	6.2		7.8	9.4
3	DO (mg/L)	7.3		5.5	6.1
4	DO_SAT% (%)	90		69	75
5	FCol-MPN (MPN/100mL)	1600		1600	1600
6	Tcol-MPN (MPN/100mL)	1600		1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.4	0.0	1.6	1.5
2	Cd (µg/L)	0.3	0.1	0.0	0.0
3	Cr (µg/L)	0.5	0.9	0.2	0.3
4	Cu (µg/L)	4.3	4.8	1.7	1.1
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		3.1	0.7	1.0
7	Pb (µg/L)	0.1	4.2	3.2	0.3
8	Zn (µg/L)	67.1	0.0	5.1	2.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12		20	18
2	HAR_Total (mgCaCO3/L)	18		30	30
3	Na% (%)	33		31	29
4	RSC (-)	0.0		0.0	0.0
5	SAR (-)	0.5		0.6	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Cochin

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.760	0.000	1.448	No Flow
2	EC_FLD (μmho/cm)	54			
3	EC_GEN (μmho/cm)	65	99	58	
4	pH_FLD (pH units)	7.2			
5	pH_GEN (pH units)	7.5	6.2	7.0	
6	TDS (mg/L)				
7	Temp (deg C)	26.5	28.0	29.5	
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			42	
2	B (mg/L)				
3	Ca (mg/L)	6	6	19	
4	Cl (mg/L)	10.4	24.8	15.6	
5	CO3 (mg/L)			0.0	
6	F (mg/L)				
7	Fe (mg/L)				
8	HCO3 (mg/L)	37	26	52	
9	K (mg/L)		0.1	2.7	
10	Mg (mg/L)	3.8	3.8	11.4	
11	Na (mg/L)		14.5	15.0	
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				
19	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.4	1.2	
2	COD (mg/L)				
3	DO (mg/L)	6.6	6.0		
4	DO_SAT% (%)	81	77		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (μg/L)				
2	Cd (μg/L)				
3	Cr (μg/L)				
4	Cu (μg/L)				
5	Hg (μg/L)				
6	Ni (μg/L)				
7	Pb (μg/L)				
8	Zn (μg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	16	47	
2	HAR_Total (mgCaCO3/L)	31	31	94	
3	Na% (%)		50	25	
4	RSC (-)			0.0	
5	SAR (-)		1.1	0.7	
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KALLOOPPARA	Code	: KYB00F2
State	: Kerala	District	Pathanamthitta
Basin	: WFR South of Tapi	Independent River	: Pamba
Tributary	: Manimala	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Manimala
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 731 Sq. Km.	Bank	: Right
Latitude	: 09°24'13"	Longitude	: 76°39'01"
Zero of Gauge (m)	: 0 (m.s.l)	01/06/1985	
	Opening Date	Closing Date	
Gauge	: 01/06/1985		
Discharge	: 19/06/1985		
Sediment	: 19/05/1986		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	40.98	79.56	40.36	15.53
2	Colour_Cod (-)	Light Brown	Clear	Clear	Clear
3	EC_FLD (µmho/cm)			52	62
4	EC_GEN (µmho/cm)	45	43	34	45
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_GEN (pH units)	6.9	7.5	7.4	6.7
7	TDS (mg/L)		28	29	29
8	Temp (deg C)	27.0	28.0	29.0	28.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	16	16	16
3	B (mg/L)	0.14	0.04	0.07	0.09
4	Ca (mg/L)	5	3	7	3
5	Cl (mg/L)	6.3	5.8	6.1	5.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.03	0.10	0.06	0.06
8	Fe (mg/L)	0.0	0.1	0.1	0.1
9	HCO3 (mg/L)	20	20	20	20
10	K (mg/L)	1.3	1.2	1.0	1.4
11	Mg (mg/L)	2.0	1.9	1.0	2.0
12	Na (mg/L)	3.4	3.1	3.3	3.5
13	NO2-N (mgN/L)	0.04	0.02	0.02	0.01
14	o-PO4-P (mg P/L)	0.046	0.029	0.033	0.072
15	SiO2 (mg/L)	12.1	10.4	14.2	12.3
16	SO4 (mg/L)	1.9	1.2	1.6	1.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	1.0	0.8	1.3
2	DO (mg/L)	6.4	7.6	6.3	6.8
3	DO_SAT% (%)	80	97	82	87
	TRACE & TOXIC				
1	As (µg/L)		2.0		4.8
2	Cd (µg/L)				0.1
3	Cr (µg/L)		3.0		7.3
4	Cu (µg/L)		1.0		2.0
5	Ni (µg/L)				22.4
6	Pb (µg/L)		1.0		2.3
7	Zn (µg/L)		4.0		7.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	9	16	8
2	HAR_Total (mgCaCO3/L)	21	16	20	16
3	Na% (%)	25	27	25	30
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	600.7	0.000	54.66
2	EC_FLD (µmho/cm)	2	62	52	57
3	EC_GEN (µmho/cm)	4	45	34	42
4	pH_GEN (pH units)	4	7.5	6.7	7.1
5	TDS (mg/L)	3	29	28	28
6	Temp (deg C)	4	29.0	27.0	28.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	16	16	16
3	B (mg/L)	4	0.14	0.04	0.09
4	Ca (mg/L)	4	7	3	5
5	Cl (mg/L)	4	6.3	5.8	6
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.10	0.03	0.06
8	Fe (mg/L)	4	0.1	0.0	0.1
9	HCO3 (mg/L)	4	20	20	20
10	K (mg/L)	4	1.4	1.0	1.2
11	Mg (mg/L)	4	2.0	1.0	1.7
12	Na (mg/L)	4	3.5	3.1	3.3
13	NO2-N (mgN/L)	4	0.04	0.01	0.02
14	o-PO4-P (mg P/L)	4	0.072	0.029	0.045
15	SiO2 (mg/L)	4	14.2	10.4	12.3
16	SO4 (mg/L)	4	1.9	1.2	1.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.3	0.4	0.9
2	DO (mg/L)	4	7.6	6.3	6.8
3	DO_SAT% (%)	4	97	80	87
	TRACE & TOXIC				
1	As (µg/L)	2	4.8	2.0	3.4
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	7.3	3.0	5.2
4	Cu (µg/L)	2	2.0	1.0	1.5
5	Ni (µg/L)	1	22.4	22.4	22.4
6	Pb (µg/L)	2	2.3	1.0	1.7
7	Zn (µg/L)	2	7.0	4.0	5.5
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	16	8	11
2	HAR_Total (mgCaCO3/L)	4	21	16	18
3	Na% (%)	4	30	25	27
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.4	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	60.26	80.89	70.27	78.15	80.37
2	EC_FLD (µmho/cm)		45			
3	EC_GEN (µmho/cm)	42	44	43	45	46
4	pH_FLD (pH units)		6.2			
5	pH_GEN (pH units)	6.3	6.4	6.7	6.3	5.7
6	TDS (mg/L)	31	35	25	27	31
7	Temp (deg C)	27.2	27.8	27.0	27.8	27.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	10	9	10	12
2	B (mg/L)	0.00	0.03	0.09	0.25	0.14
3	Ca (mg/L)	5	4	3	3	4
4	Cl (mg/L)	8.7	7.8	6.2	6.2	7.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.06	0.08	0.16	0.06
7	Fe (mg/L)			0.1	0.2	0.1
8	HCO3 (mg/L)	11	12	11	13	15
9	K (mg/L)	1.1	0.9	1.4	0.6	1.1
10	Mg (mg/L)	1.3	1.0	0.6	1.7	1.5
11	Na (mg/L)	4.0	4.1	3.6	3.4	3.9
12	NH3-N (mg N/L)		0.05	0.21	0.32	0.03
13	NO2+NO3 (mg N/L)	1.17	0.24		0.21	0.33
14	NO2-N (mgN/L)	0.01	0.05		0.03	0.01
15	NO3-N (mgN/L)	1.16	0.22		0.17	0.32
16	o-PO4-P (mg P/L)	0.127	0.020	0.038	0.091	0.031
17	P-Tot (mgP/L)	0.087	0.014			
18	SiO2 (mg/L)	20.4	22.3	29.6	22.5	17.8
19	SO4 (mg/L)	2.1	1.7	1.0	1.2	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.3	0.4	0.4	0.5
2	COD (mg/L)	4.6	2.1	3.1	2.6	3.2
3	DO (mg/L)	7.6	6.4	8.1	7.4	6.9
4	DO_SAT% (%)	95	81	102	94	88
5	FCol-MPN (MPN/100mL)					280
6	Tcol-MPN (MPN/100mL)					625
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	7	7	9
2	HAR_Total (mgCaCO3/L)	17	14	10	14	16
3	Na% (%)	32	37	40	33	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	11.96	33.57	138.7	89.57	71.41
2	EC_FLD (µmho/cm)					50
3	EC_GEN (µmho/cm)	51	52	40	36	17
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.9	6.7	7.0	7.4	6.1
6	TDS (mg/L)	31	34			
7	Temp (deg C)	28.3	27.8	28.2	27.7	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	15			15
2	B (mg/L)	0.09	0.07			
3	Ca (mg/L)	5	4	5	8	5
4	Cl (mg/L)	9.0	8.5	7.1	10.3	11.7
5	CO3 (mg/L)	0.0	0.0			0.0
6	F (mg/L)	0.01	0.17			
7	Fe (mg/L)	0.1	0.1			
8	HCO3 (mg/L)	14	19	13	24	18
9	K (mg/L)	1.3	1.7	1.4		0.3
10	Mg (mg/L)	1.3	1.7	1.5	2.8	2.8
11	Na (mg/L)	5.1	4.6	2.9		8.4
12	NH3-N (mg N/L)	0.04				
13	NO2+NO3 (mg N/L)	0.99	0.40			
14	NO2-N (mgN/L)	0.00	0.01			
15	NO3-N (mgN/L)	0.99	0.39			
16	o-PO4-P (mg P/L)	0.207	0.087			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	10.7	9.4			
19	SO4 (mg/L)	0.8	0.8	1.6		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.5	0.4	0.6	1.0
2	COD (mg/L)	2.7	3.3			
3	DO (mg/L)	6.5	5.8	7.0	6.9	7.3
4	DO_SAT% (%)	83	73	89	87	92
5	FCol-MPN (MPN/100mL)	867	1050			
6	Tcol-MPN (MPN/100mL)	1133	1250	1600		
	TRACE & TOXIC					
1	As (µg/L)	5.3	2.5			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	1.5	0.6			
4	Cu (µg/L)	0.5	0.3			
5	Hg (µg/L)		0.0			
6	Ni (µg/L)	1.5	5.6			
7	Pb (µg/L)	10.5	0.9			
8	Zn (µg/L)	14.6	7.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	11	12	20	14
2	HAR_Total (mgCaCO3/L)	17	18	18	31	26
3	Na% (%)	38	33	27		41
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.5	0.5	0.3		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	53.63	12.09	13.14	9.778	18.99
2	EC_FLD (µmho/cm)	52				
3	EC_GEN (µmho/cm)	40	47	59	50	46
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.3	6.9	6.6	6.0	6.3
6	TDS (mg/L)	28	38	48	29	29
7	Temp (deg C)	28.0	27.5	28.5	29.0	28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	9	13	12	13
2	B (mg/L)	0.08	0.02	0.11	0.29	0.15
3	Ca (mg/L)	5	5	4	3	4
4	Cl (mg/L)	6.0	8.5	7.8	8.5	6.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.06		0.05	0.31	0.09
7	Fe (mg/L)	0.1	1.0	0.2		0.4
8	HCO3 (mg/L)	20	11	16	14	16
9	K (mg/L)	1.2	1.2	1.6	1.4	1.3
10	Mg (mg/L)	1.6	1.5	1.5	1.0	1.3
11	Na (mg/L)	3.2	4.0	4.5	5.0	3.3
12	NH3-N (mg N/L)		0.05		0.16	0.05
13	NO2+NO3 (mg N/L)		0.40			0.29
14	NO2-N (mgN/L)	0.03	0.11			0.06
15	NO3-N (mgN/L)		0.29	0.15		0.23
16	o-PO4-P (mg P/L)	0.036	0.097	0.038	0.054	0.062
17	P-Tot (mgP/L)		0.097			
18	SiO2 (mg/L)	12.2	14.8	21.2	29.3	16.2
19	SO4 (mg/L)	1.6	4.3	1.2	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	1.2	0.2	0.6	0.3
2	COD (mg/L)		9.0	1.6	6.3	2.1
3	DO (mg/L)	6.8	6.4	6.4	7.9	7.0
4	DO_SAT% (%)	86	80	82	102	89
5	FCol-MPN (MPN/100mL)			1600		1600
6	Tcol-MPN (MPN/100mL)			1600		1600
	TRACE & TOXIC					
1	As (µg/L)	2.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	1.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	1.0				
8	Zn (µg/L)	4.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	12	10	8	10
2	HAR_Total (mgCaCO3/L)	19	18	16	12	15
3	Na% (%)	26	31	35	44	31
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.5	0.6	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	35.06	4.999	23.83	6.915	9.915
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	49	55	56	38	59
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.4	6.6	6.9	7.2	6.9
6	TDS (mg/L)	37	31	40		
7	Temp (deg C)	28.3	28.5	28.3	27.5	28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	16	15		
2	B (mg/L)	0.27	0.13	0.01		
3	Ca (mg/L)	3	5	4	4	5
4	Cl (mg/L)	7.5	7.5	7.5	4.0	15.6
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)	0.15	0.13	0.08		
7	Fe (mg/L)	1.0	0.0		0.0	0.0
8	HCO3 (mg/L)	13	19	19	17	36
9	K (mg/L)	1.6	1.7	1.5		0.1
10	Mg (mg/L)	1.3	2.2	2.0	1.4	3.6
11	Na (mg/L)	4.3	4.0	4.3		10.7
12	NH3-N (mg N/L)	0.04	0.01			
13	NO2+NO3 (mg N/L)		1.22	0.31		
14	NO2-N (mgN/L)		0.01	0.01		
15	NO3-N (mgN/L)	1.22	1.21	0.30		
16	o-PO4-P (mg P/L)	0.046	0.089	0.064		
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	13.1	13.1	9.5		
19	SO4 (mg/L)	1.6	1.0	0.9	1.7	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.9	0.9	0.2	0.6
2	COD (mg/L)	2.4	4.8	6.4		
3	DO (mg/L)	6.8	6.9	7.7	6.6	6.8
4	DO_SAT% (%)	87	88	98	84	87
5	FCol-MPN (MPN/100mL)	1600	1050	1250		
6	Tcol-MPN (MPN/100mL)	1600	1250	1600		
	TRACE & TOXIC					
1	As (µg/L)	0.6				
2	Cd (µg/L)	0.1			0.1	
3	Cr (µg/L)	1.0			1.1	
4	Cu (µg/L)	33.5			0.9	
5	Hg (µg/L)					
6	Ni (µg/L)	2.7			4.0	
7	Pb (µg/L)	0.1			8.5	
8	Zn (µg/L)	6.7			10.2	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	12	11	10	12
2	HAR_Total (mgCaCO3/L)	14	21	19	16	27
3	Na% (%)	37	27	32		51
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.5	0.4	0.4		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		15.53	7.115		0.000
2	EC_FLD (µmho/cm)		62			
3	EC_GEN (µmho/cm)		45			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		6.7			
6	TDS (mg/L)		29			
7	Temp (deg C)		28.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		16			
2	B (mg/L)		0.09			
3	Ca (mg/L)		3			
4	Cl (mg/L)		5.9			
5	CO3 (mg/L)		0.0			
6	F (mg/L)		0.06			
7	Fe (mg/L)		0.1			
8	HCO3 (mg/L)		20			
9	K (mg/L)		1.4			
10	Mg (mg/L)		2.0			
11	Na (mg/L)		3.5			
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)					
14	NO2-N (mgN/L)		0.01			
15	NO3-N (mgN/L)					
16	o-PO4-P (mg P/L)		0.072			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)		12.3			
19	SO4 (mg/L)		1.7			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.3			
2	COD (mg/L)					
3	DO (mg/L)		6.8			
4	DO_SAT% (%)		87			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		4.8	4.2		
2	Cd (µg/L)		0.1	0.5		
3	Cr (µg/L)		7.3			
4	Cu (µg/L)		2.0	2.3		
5	Hg (µg/L)					
6	Ni (µg/L)		22.4			
7	Pb (µg/L)		2.3			
8	Zn (µg/L)		7.0	23.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		8			
2	HAR_Total (mgCaCO3/L)		16			
3	Na% (%)		30			
4	RSC (-)		0.0			
5	SAR (-)		0.4			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	18.31	16.27	6.668	18.56
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)			71	83
4	pH_FLD (pH units)				
5	pH_GEN (pH units)			6.7	6.6
6	TDS (mg/L)			47	58
7	Temp (deg C)			28.0	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			17	19
2	B (mg/L)			0.01	0.04
3	Ca (mg/L)			6	6
4	Cl (mg/L)			9.9	15.6
5	CO3 (mg/L)			0.0	0.0
6	F (mg/L)			0.35	0.10
7	Fe (mg/L)	0.3	0.0	0.0	0.0
8	HCO3 (mg/L)			21	23
9	K (mg/L)			2.4	3.0
10	Mg (mg/L)			2.0	3.5
11	Na (mg/L)			5.9	9.0
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)			0.50	0.55
14	NO2-N (mgN/L)			0.01	0.02
15	NO3-N (mgN/L)			0.49	0.53
16	o-PO4-P (mg P/L)			0.020	0.110
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)			13.5	17.0
19	SO4 (mg/L)			3.5	4.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			1.2	1.8
2	COD (mg/L)			9.4	12.8
3	DO (mg/L)			6.1	6.5
4	DO_SAT% (%)			78	83
5	FCol-MPN (MPN/100mL)			900	500
6	Tcol-MPN (MPN/100mL)			1600	900
	TRACE & TOXIC				
1	As (µg/L)	1.1	0.0	1.5	4.9
2	Cd (µg/L)	0.0	0.1	0.1	0.0
3	Cr (µg/L)	0.4	1.0	0.2	0.5
4	Cu (µg/L)	2.7	0.9	2.3	1.0
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		0.8	0.0	2.0
7	Pb (µg/L)	0.0	3.9	3.1	0.1
8	Zn (µg/L)	44.4	0.0	2.9	3.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			16	14
2	HAR_Total (mgCaCO3/L)			24	29
3	Na% (%)			32	38
4	RSC (-)			0.0	0.0
5	SAR (-)			0.5	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Cochin

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	70	78		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.7	6.2		
6	TDS (mg/L)				
7	Temp (deg C)	28.5	28.5		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	6	6		
4	Cl (mg/L)	6.6	19.5		
5	CO3 (mg/L)				
6	F (mg/L)				
7	Fe (mg/L)				
8	HCO3 (mg/L)	11	16		
9	K (mg/L)		0.5		
10	Mg (mg/L)	1.9	3.8		
11	Na (mg/L)		8.5		
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				
19	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.2	1.8		
2	COD (mg/L)				
3	DO (mg/L)	7.2	8.2		
4	DO_SAT% (%)	92	105		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	16		
2	HAR_Total (mgCaCO3/L)	24	31		
3	Na% (%)		37		
4	RSC (-)				
5	SAR (-)		0.7		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: MALAKKARA	Code	: KY000J4
State	: Kerala	District	Pathanamthitta
Basin	: WFR South of Tapi	Independent River	: Pamba
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Pamba
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 1713 Sq. Km.	Bank	: Left
Latitude	: 09°19'57"	Longitude	: 76°39'47"
Zero of Gauge (m)	: -1.000 (m.s.l)	20/05/1984	
	Opening Date	Closing Date	
Gauge	: 20/05/1984		
Discharge	: 19/06/1985		
Sediment	: 18/06/1986		
Water Quality	: 01/07/1986		

Water Quality Datasheet for the period : 2017-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	60.58	71.79	134.3	80.13
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	46	48	44	44
4	EC_GEN (µmho/cm)	39	36	27	42
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	7.0	7.0	7.0
7	pH_GEN (pH units)	6.9	7.4	7.4	6.7
8	TDS (mg/L)		33	20	28
9	Temp (deg C)	28.0	26.5	26.5	26.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	24	12	16
3	B (mg/L)	0.06	0.08	0.03	0.11
4	Ca (mg/L)	3	7	3	3
5	Cl (mg/L)	2.1	3.9	3.0	4.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.04	0.03	0.04
8	Fe (mg/L)	0.1	0.1	0.1	0.0
9	HCO3 (mg/L)	15	30	15	20
10	K (mg/L)	0.8	0.8	0.9	0.9
11	Mg (mg/L)	1.0	2.8	1.0	3.0
12	Na (mg/L)	1.6	2.1	2.3	2.4
13	NO2-N (mgN/L)	0.02	0.04	0.04	0.03
14	o-PO4-P (mg P/L)	0.028	0.049	0.038	0.043
15	SiO2 (mg/L)	14.4	14.8	10.6	10.4
16	SO4 (mg/L)	1.0	2.3	1.7	2.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.8	1.0	1.4
2	DO (mg/L)	7.0	8.2	5.4	6.8
3	DO_SAT% (%)	89	101	67	84
	TRACE & TOXIC				
1	As (µg/L)		2.0		3.0
2	Cd (µg/L)				0.1
3	Cr (µg/L)		3.0		6.2
4	Cu (µg/L)		1.0		1.5
5	Ni (µg/L)				10.4
6	Pb (µg/L)		3.0		2.3
7	Zn (µg/L)		3.0		5.7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	17	8	8
2	HAR_Total (mgCaCO3/L)	12	29	12	20
3	Na% (%)	20	13	27	19
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.2	0.3	0.2
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	916.0	0.000	109.8
2	EC_FLD (µmho/cm)	4	48	44	46
3	EC_GEN (µmho/cm)	4	42	27	36
4	pH_FLD (pH units)	4	7.0	7.0	7
5	pH_GEN (pH units)	4	7.4	6.7	7.1
6	TDS (mg/L)	3	33	20	27
7	Temp (deg C)	4	28.0	26.0	26.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	24	12	16
3	B (mg/L)	4	0.11	0.03	0.07
4	Ca (mg/L)	4	7	3	4
5	Cl (mg/L)	4	4.0	2.1	3.2
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.05	0.03	0.04
8	Fe (mg/L)	4	0.1	0.0	0.1
9	HCO3 (mg/L)	4	30	15	20
10	K (mg/L)	4	0.9	0.8	0.9
11	Mg (mg/L)	4	3.0	1.0	1.9
12	Na (mg/L)	4	2.4	1.6	2.1
13	NO2-N (mgN/L)	4	0.04	0.02	0.03
14	o-PO4-P (mg P/L)	4	0.049	0.028	0.039
15	SiO2 (mg/L)	4	14.8	10.4	12.5
16	SO4 (mg/L)	4	2.9	1.0	2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.4	0.6	1
2	DO (mg/L)	4	8.2	5.4	6.9
3	DO_SAT% (%)	4	101	67	85
	TRACE & TOXIC				
1	As (µg/L)	2	3.0	2.0	2.5
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	2	6.2	3.0	4.6
4	Cu (µg/L)	2	1.5	1.0	1.2
5	Ni (µg/L)	1	10.4	10.4	10.4
6	Pb (µg/L)	2	3.0	2.3	2.6
7	Zn (µg/L)	2	5.7	3.0	4.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	17	8	10
2	HAR_Total (mgCaCO3/L)	4	29	12	18
3	Na% (%)	4	27	13	20
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.3	0.2	0.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	163.2	225.3	141.6	180.6	127.5
2	EC_FLD (µmho/cm)	49	48	57	57	57
3	EC_GEN (µmho/cm)	35	42	32	38	35
4	pH_FLD (pH units)	7.5	7.1	7.5	7.2	7.0
5	pH_GEN (pH units)	6.3	6.4	6.9	6.4	6.1
6	TDS (mg/L)	26	33	19	25	22
7	Temp (deg C)	25.8	26.0	25.5	25.8	25.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	10	10	11	11
2	B (mg/L)	0.00	0.11		0.12	0.19
3	Ca (mg/L)	4	3	3	3	4
4	Cl (mg/L)	7.1	7.5	5.0	5.5	5.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.07	0.08	0.18	0.04
7	Fe (mg/L)			0.0	0.0	0.1
8	HCO3 (mg/L)	11	12	13	13	14
9	K (mg/L)	1.1	0.6	1.1	0.7	0.7
10	Mg (mg/L)	1.3	1.2	0.8	1.0	0.5
11	Na (mg/L)	3.3	3.0	3.0	3.0	2.7
12	NH3-N (mg N/L)			0.19	0.25	0.11
13	NO2+NO3 (mg N/L)	0.95	0.25		0.22	0.14
14	NO2-N (mgN/L)	0.02	0.05		0.03	0.00
15	NO3-N (mgN/L)	0.93	0.23		0.19	0.17
16	o-PO4-P (mg P/L)	0.133	0.029	0.057	0.040	0.052
17	P-Tot (mgP/L)	0.092				
18	SiO2 (mg/L)	19.2	22.4	28.6	27.4	15.1
19	SO4 (mg/L)	1.1	1.0	1.0	1.0	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.4	0.5	0.4	0.6
2	COD (mg/L)	3.3	3.2	4.5	3.1	3.9
3	DO (mg/L)	6.6	6.9	7.4	7.3	6.9
4	DO_SAT% (%)	80	85	90	89	83
5	FCol-MPN (MPN/100mL)	1123	1250	885	900	335
6	Tcol-MPN (MPN/100mL)	1600	1600	940	1600	1250
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	8	8	9	11
2	HAR_Total (mgCaCO3/L)	16	13	11	13	13
3	Na% (%)	29	32	34	33	31
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	51.35	107.5	182.4	163.3	88.77
2	EC_FLD (µmho/cm)	55	53	44	46	46
3	EC_GEN (µmho/cm)	34	36	34	37	16
4	pH_FLD (pH units)	7.2	7.1	7.1	7.0	7.1
5	pH_GEN (pH units)	6.5	6.6	7.0	7.0	6.1
6	TDS (mg/L)	20	23			
7	Temp (deg C)	27.2	25.3	26.8	25.8	27.2
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	11			16
2	B (mg/L)	0.02	0.02			
3	Ca (mg/L)	4	3	4	7	11
4	Cl (mg/L)	5.5	5.9	5.9	9.6	14.3
5	CO3 (mg/L)	0.0	0.0			0.0
6	F (mg/L)	0.01	0.14			
7	Fe (mg/L)	0.1	0.1			
8	HCO3 (mg/L)	14	13	14	25	20
9	K (mg/L)	1.1	1.1	1.1		0.9
10	Mg (mg/L)	1.2	1.2	2.6	2.8	3.5
11	Na (mg/L)	2.9	3.3	2.5		7.5
12	NH3-N (mg N/L)	0.01				
13	NO2+NO3 (mg N/L)	0.59	0.45			
14	NO2-N (mgN/L)	0.01	0.01			
15	NO3-N (mgN/L)	0.59	0.44			
16	o-PO4-P (mg P/L)	0.233	0.072			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	10.4	8.7			
19	SO4 (mg/L)	1.1	0.5	1.1		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.5	0.6	0.5	2.1
2	COD (mg/L)	2.3	3.1			
3	DO (mg/L)	7.0	5.8	7.4	6.5	6.5
4	DO_SAT% (%)	88	70	92	80	81
5	FCol-MPN (MPN/100mL)	633	950			
6	Tcol-MPN (MPN/100mL)	1133	1050	763		
	TRACE & TOXIC					
1	As (µg/L)	3.7	3.2			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	1.9	0.3			
4	Cu (µg/L)	3.4	0.4			
5	Hg (µg/L)		0.0			
6	Ni (µg/L)	1.4	6.6			
7	Pb (µg/L)	2.1	0.0			
8	Zn (µg/L)	34.9	5.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	8	9	17	27
2	HAR_Total (mgCaCO3/L)	14	13	20	29	42
3	Na% (%)	29	33	22		27
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	0.4	0.3		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	88.89	80.96	26.98	40.71	74.43
2	EC_FLD (µmho/cm)	46	47	50		58
3	EC_GEN (µmho/cm)	34	35	42	35	36
4	pH_FLD (pH units)	7.0	6.8	7.0	7.3	7.0
5	pH_GEN (pH units)	7.2	7.1	6.5	6.2	6.3
6	TDS (mg/L)	26	26	34	20	21
7	Temp (deg C)	27.0	24.5	25.5	26.3	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	11	12	10	13
2	B (mg/L)	0.06	0.07			0.16
3	Ca (mg/L)	4	4	4	3	4
4	Cl (mg/L)	3.0	7.1	7.1	5.5	5.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.04		0.05	0.31	0.09
7	Fe (mg/L)	0.1	0.7	0.1	0.1	0.0
8	HCO3 (mg/L)	20	13	15	12	15
9	K (mg/L)	0.8	1.0	1.2	0.9	0.7
10	Mg (mg/L)	1.6	1.5	1.0	1.0	1.3
11	Na (mg/L)	2.0	3.7	3.7	3.0	2.9
12	NH3-N (mg N/L)		0.06		0.17	0.05
13	NO2+NO3 (mg N/L)		0.50			0.14
14	NO2-N (mgN/L)	0.03	0.07			0.02
15	NO3-N (mgN/L)		0.43	0.19		0.12
16	o-PO4-P (mg P/L)	0.038	0.064	0.045	0.031	0.103
17	P-Tot (mgP/L)		0.064			
18	SiO2 (mg/L)	13.3	13.3	19.5	16.3	13.0
19	SO4 (mg/L)	1.7	1.8	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.2	0.2	0.6	0.8
2	COD (mg/L)		1.6	1.5	5.2	5.4
3	DO (mg/L)	6.9	6.8	6.0	7.4	7.2
4	DO_SAT% (%)	86	81	73	91	87
5	FCol-MPN (MPN/100mL)			500	625	1600
6	Tcol-MPN (MPN/100mL)			1600	1250	1600
	TRACE & TOXIC					
1	As (µg/L)	2.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	1.0				
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)	3.0				
8	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	10	7	9
2	HAR_Total (mgCaCO3/L)	18	16	14	11	14
3	Na% (%)	20	32	34	35	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.4	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	39.01	22.67	78.55	14.99	48.14
2	EC_FLD (µmho/cm)	60	58	44	46	44
3	EC_GEN (µmho/cm)	39	47	35	38	46
4	pH_FLD (pH units)	7.2	7.2	7.1	7.0	7.0
5	pH_GEN (pH units)	6.3	6.5	6.9	7.4	7.0
6	TDS (mg/L)	25	29	24	42	
7	Temp (deg C)	25.0	27.8	24.5	26.0	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	13	9		
2	B (mg/L)	0.25	0.11	0.01		
3	Ca (mg/L)	4	4	3	4	4
4	Cl (mg/L)	5.7	6.6	7.1	4.8	18.2
5	CO3 (mg/L)	0.0	0.0	0.0		
6	F (mg/L)	0.12	0.13	0.08		
7	Fe (mg/L)	0.5	0.0		0.0	0.0
8	HCO3 (mg/L)	20	16	11	16	42
9	K (mg/L)	1.2	1.7	0.9		0.2
10	Mg (mg/L)	1.5	1.7	1.8	1.4	4.4
11	Na (mg/L)	3.0	3.5	3.5		6.6
12	NH3-N (mg N/L)	0.01	0.01			
13	NO2+NO3 (mg N/L)		1.19	0.50		
14	NO2-N (mgN/L)		0.01	0.05		
15	NO3-N (mgN/L)	1.87	1.19	0.85		
16	o-PO4-P (mg P/L)	0.670	0.065			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	11.0	12.4	6.8		
19	SO4 (mg/L)	0.6	1.3	0.9	1.9	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.3	0.2	0.7	1.5
2	COD (mg/L)	5.8	11.4	1.2		
3	DO (mg/L)	7.0	6.8	7.8	6.7	7.1
4	DO_SAT% (%)	85	86	93	83	88
5	FCol-MPN (MPN/100mL)		625	500		
6	Tcol-MPN (MPN/100mL)		1250	900		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.0	
3	Cr (µg/L)				0.6	
4	Cu (µg/L)				8.3	
5	Hg (µg/L)					
6	Ni (µg/L)				0.7	
7	Pb (µg/L)				0.5	
8	Zn (µg/L)				9.5	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	11	9	10	10
2	HAR_Total (mgCaCO3/L)	16	18	16	16	28
3	Na% (%)	27	28	30		40
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.3	0.4	0.4		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	34.73	80.13	20.40		66.65
2	EC_FLD (µmho/cm)	42	44	50		
3	EC_GEN (µmho/cm)	43	42	40		30
4	pH_FLD (pH units)	7.0	7.0	7.4		7.4
5	pH_GEN (pH units)	6.8	6.7	6.5		6.7
6	TDS (mg/L)		28	32		18
7	Temp (deg C)	28.0	26.0	25.5		27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	16	10		11
2	B (mg/L)		0.11	0.16		0.12
3	Ca (mg/L)	6	3	4		3
4	Cl (mg/L)	8.6	4.0	7.8		4.9
5	CO3 (mg/L)	0.0	0.0	0.0		0.0
6	F (mg/L)		0.04	0.24		0.08
7	Fe (mg/L)		0.0			0.1
8	HCO3 (mg/L)	11	20	12		13
9	K (mg/L)	1.7	0.9	1.2		1.0
10	Mg (mg/L)	3.8	3.0	1.5		1.0
11	Na (mg/L)	13.3	2.4	3.8		2.9
12	NH3-N (mg N/L)			0.05		0.36
13	NO2+NO3 (mg N/L)			0.48		
14	NO2-N (mgN/L)		0.03	0.09		
15	NO3-N (mgN/L)			0.39		0.08
16	o-PO4-P (mg P/L)		0.043	0.660		
17	P-Tot (mgP/L)			0.266		
18	SiO2 (mg/L)		10.4	15.4		25.6
19	SO4 (mg/L)		2.9	1.0		1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	1.4	1.6		0.4
2	COD (mg/L)			11.6		4.8
3	DO (mg/L)	8.2	6.8	6.8		7.6
4	DO_SAT% (%)	105	84	82		95
5	FCol-MPN (MPN/100mL)					900
6	Tcol-MPN (MPN/100mL)					1600
	TRACE & TOXIC					
1	As (µg/L)		3.0	4.0		
2	Cd (µg/L)		0.1	1.1		
3	Cr (µg/L)		6.2			
4	Cu (µg/L)		1.5	3.2		
5	Hg (µg/L)					
6	Ni (µg/L)		10.4			
7	Pb (µg/L)		2.3			
8	Zn (µg/L)		5.7	48.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	8	10		8
2	HAR_Total (mgCaCO3/L)	31	20	16		12
3	Na% (%)	47	19	32		32
4	RSC (-)	0.0	0.0	0.0		0.0
5	SAR (-)	1.0	0.2	0.4		0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	44.37	31.96	0.000	0.000
2	EC_FLD (µmho/cm)			67	
3	EC_GEN (µmho/cm)			36	28
4	pH_FLD (pH units)			7.9	
5	pH_GEN (pH units)			6.8	7.1
6	TDS (mg/L)			21	
7	Temp (deg C)			28.0	
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			12	5
2	B (mg/L)			0.07	
3	Ca (mg/L)			4	5
4	Cl (mg/L)			5.0	6.4
5	CO3 (mg/L)			0.0	0.0
6	F (mg/L)			0.19	0.13
7	Fe (mg/L)	0.5	0.0	0.0	0.0
8	HCO3 (mg/L)			15	6
9	K (mg/L)			1.1	0.7
10	Mg (mg/L)			1.0	2.9
11	Na (mg/L)			2.9	1.6
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)			0.28	
14	NO2-N (mgN/L)			0.01	
15	NO3-N (mgN/L)			0.27	1.33
16	o-PO4-P (mg P/L)			0.040	
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)			12.5	
19	SO4 (mg/L)			1.0	0.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			0.4	0.4
2	COD (mg/L)			2.9	
3	DO (mg/L)			6.5	
4	DO_SAT% (%)			83	
5	FCol-MPN (MPN/100mL)			1600	
6	Tcol-MPN (MPN/100mL)			1600	
	TRACE & TOXIC				
1	As (µg/L)	1.1	0.3	2.5	4.2
2	Cd (µg/L)	0.0	0.1	0.0	0.0
3	Cr (µg/L)	1.1	1.3	0.1	0.4
4	Cu (µg/L)	2.9	0.9	1.4	1.0
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		1.3	21.0	1.6
7	Pb (µg/L)	0.1	4.2	2.6	0.3
8	Zn (µg/L)	76.9	0.1	2.5	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			10	12
2	HAR_Total (mgCaCO3/L)			14	24
3	Na% (%)			29	12
4	RSC (-)			0.0	0.0
5	SAR (-)			0.3	0.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Cochin

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)	25			
3	EC_GEN (µmho/cm)	22	32		
4	pH_FLD (pH units)	7.2			
5	pH_GEN (pH units)	7.8	6.1		
6	TDS (mg/L)	44			
7	Temp (deg C)	26.5	28.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	5	10		
4	Cl (mg/L)	10.4	15.6		
5	CO3 (mg/L)				
6	F (mg/L)				
7	Fe (mg/L)				
8	HCO3 (mg/L)	21	16		
9	K (mg/L)		0.3		
10	Mg (mg/L)	1.9	5.2		
11	Na (mg/L)		11.5		
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				
19	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.4		
2	COD (mg/L)				
3	DO (mg/L)	8.6	6.6		
4	DO_SAT% (%)	106	84		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	26		
2	HAR_Total (mgCaCO3/L)	20	48		
3	Na% (%)		34		
4	RSC (-)				
5	SAR (-)		0.7		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: THUMPAMON	Code	: KYA00J4
State	: Kerala	District	Pathanamthitta
Basin	: WFR South of Tapi	Independent River	: Pamba
Tributary	: Achankovil	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Achankovil
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 810 Sq. Km.	Bank	: Right
Latitude	: 09°13'30"	Longitude	: 76°42'52"
Zero of Gauge (m)	: 5.000 (m.s.l)	21/12/1977	
	Opening Date	Closing Date	
Gauge	: 21/12/1977		
Discharge	: 28/01/1978		
Sediment	: 23/03/1981		
Water Quality	: 15/10/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017	01/12/2017
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	13.73	5.535	56.97	225.1
2	Colour_Cod (-)	Brown	Clear	Light Brown	Brown
3	EC_FLD (µmho/cm)			28	42
4	EC_GEN (µmho/cm)	66	61	36	29
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_GEN (pH units)	7.5	7.7	7.8	7.4
7	TDS (mg/L)		35	26	28
8	Temp (deg C)	26.0	27.5	27.0	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	24	16	20
3	B (mg/L)	0.04	0.06	0.08	0.13
4	Ca (mg/L)	5	5	5	7
5	Cl (mg/L)	7.3	4.8	5.1	3.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.04	0.03	0.06	0.04
8	Fe (mg/L)	0.1	0.0	0.0	0.1
9	HCO3 (mg/L)	20	30	20	25
10	K (mg/L)	0.9	0.9	0.5	1.6
11	Mg (mg/L)	2.0	1.8	1.0	1.0
12	Na (mg/L)	3.8	3.6	3.3	2.1
13	NO2-N (mgN/L)	0.03	0.04	0.02	0.02
14	o-PO4-P (mg P/L)	0.054	0.028	0.074	0.062
15	SiO2 (mg/L)	8.8	10.4	8.7	11.8
16	SO4 (mg/L)	1.0	1.0	1.0	1.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.8	0.6	1.1	1.4
2	DO (mg/L)	6.8	5.9	5.4	6.8
3	DO_SAT% (%)	84	74	68	87
	TRACE & TOXIC				
1	As (µg/L)		3.0		2.9
2	Cd (µg/L)				0.0
3	Cr (µg/L)		3.0		5.5
4	Cu (µg/L)		2.0		1.1
5	Ni (µg/L)				2.4
6	Pb (µg/L)		1.0		4.5
7	Zn (µg/L)		3.0		10.4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	13	12	16
2	HAR_Total (mgCaCO3/L)	21	20	16	20
3	Na% (%)	28	27	30	17
4	RSC (-)	0.0	0.1	0.0	0.0
5	SAR (-)	0.4	0.3	0.4	0.2
	PESTICIDES				

Water Quality Summary for the period : 2017-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	759.2	0.000	35.39
2	EC_FLD (µmho/cm)	2	42	28	35
3	EC_GEN (µmho/cm)	4	66	29	48
4	pH_GEN (pH units)	4	7.8	7.4	7.6
5	TDS (mg/L)	3	35	26	30
6	Temp (deg C)	4	28.0	26.0	27.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	24	16	19
3	B (mg/L)	4	0.13	0.04	0.08
4	Ca (mg/L)	4	7	5	5
5	Cl (mg/L)	4	7.3	3.0	5
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.06	0.03	0.04
8	Fe (mg/L)	4	0.1	0.0	0
9	HCO3 (mg/L)	4	30	20	23
10	K (mg/L)	4	1.6	0.5	1
11	Mg (mg/L)	4	2.0	1.0	1.4
12	Na (mg/L)	4	3.8	2.1	3.2
13	NO2-N (mgN/L)	4	0.04	0.02	0.03
14	o-PO4-P (mg P/L)	4	0.074	0.028	0.055
15	SiO2 (mg/L)	4	11.8	8.7	9.9
16	SO4 (mg/L)	4	1.5	1.0	1.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.4	0.6	1
2	DO (mg/L)	4	6.8	5.4	6.2
3	DO_SAT% (%)	4	87	68	78
	TRACE & TOXIC				
1	As (µg/L)	2	3.0	2.9	2.9
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	2	5.5	3.0	4.2
4	Cu (µg/L)	2	2.0	1.1	1.5
5	Ni (µg/L)	1	2.4	2.4	2.4
6	Pb (µg/L)	2	4.5	1.0	2.8
7	Zn (µg/L)	2	10.4	3.0	6.7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	16	12	13
2	HAR_Total (mgCaCO3/L)	4	21	16	19
3	Na% (%)	4	30	17	25
4	RSC (-)	4	0.1	0.0	0
5	SAR (-)	4	0.4	0.2	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		58.05	30.31	50.87	38.04
2	EC_FLD (µmho/cm)		45	47		
3	EC_GEN (µmho/cm)		52	48	54	52
4	pH_FLD (pH units)		6.6	6.5	6.9	
5	pH_GEN (pH units)		6.5	6.7	6.5	6.4
6	TDS (mg/L)		41	28	32	35
7	Temp (deg C)		26.3	26.3	27.3	28.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		11	11	11	13
2	B (mg/L)		0.03		0.15	0.24
3	Ca (mg/L)		3	3	4	5
4	Cl (mg/L)		8.5	7.8	7.1	8.0
5	F (mg/L)		0.07	0.08	0.13	0.04
6	Fe (mg/L)		0.2		0.1	0.1
7	HCO3 (mg/L)		14	13	14	16
8	K (mg/L)		1.2	1.1	0.9	1.0
9	Mg (mg/L)		1.8	1.0	1.3	0.8
10	Na (mg/L)		4.6	4.6	4.0	4.2
11	NH3-N (mg N/L)		0.05	0.20	0.25	0.04
12	NO2+NO3 (mg N/L)		0.23		0.26	0.20
13	NO2-N (mgN/L)		0.04		0.03	0.02
14	NO3-N (mgN/L)		0.18		0.23	0.18
15	o-PO4-P (mg P/L)		0.027	0.058	0.088	0.072
16	P-Tot (mgP/L)		0.032			
17	SiO2 (mg/L)		21.9	28.6	20.6	20.1
18	SO4 (mg/L)		2.9	1.0	2.7	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.9	0.2	0.5	0.7
2	COD (mg/L)		6.7	2.6	3.8	5.0
3	DO (mg/L)		6.9	6.6	7.0	6.5
4	DO_SAT% (%)		86	81	88	84
5	FCol-MPN (MPN/100mL)		900		1250	1600
6	Tcol-MPN (MPN/100mL)		1600		1600	1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		9	8	10	13
2	HAR_Total (mgCaCO3/L)		16	12	15	16
3	Na% (%)		36	43	35	34
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.5	0.6	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	4.195	26.01	47.21	40.17	23.83
2	EC_FLD (µmho/cm)					26
3	EC_GEN (µmho/cm)	58	58	51	52	46
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.4	6.8	7.0	7.2	6.1
6	TDS (mg/L)	39	38			
7	Temp (deg C)	29.5	27.5	27.8	24.3	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	17			10
2	B (mg/L)	0.01	0.01			
3	Ca (mg/L)	6	5	6	6	12
4	Cl (mg/L)	6.2	8.5	8.8	11.7	11.1
5	F (mg/L)	0.04	0.26			
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	22	21	18	26	12
8	K (mg/L)	1.3	1.7	1.5		0.2
9	Mg (mg/L)	1.7	1.3	3.5	2.2	3.8
10	Na (mg/L)	4.0	5.0	3.9		16.3
11	NH3-N (mg N/L)	0.00				
12	NO2+NO3 (mg N/L)	1.46	0.33			
13	NO2-N (mgN/L)	0.01	0.01			
14	NO3-N (mgN/L)	1.45	0.32			
15	o-PO4-P (mg P/L)	0.322	0.076			
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	12.3	10.2			
18	SO4 (mg/L)	0.8	0.8	1.4		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.8	1.0	0.8	1.4
2	COD (mg/L)	4.0	6.3			
3	DO (mg/L)	6.7	5.4	7.9	6.7	7.9
4	DO_SAT% (%)	88	69	101	80	98
5	FCol-MPN (MPN/100mL)	425	1250			
6	Tcol-MPN (MPN/100mL)	900	1600	1213		
	TRACE & TOXIC					
1	As (µg/L)	11.9	4.1			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	5.1	0.2			
4	Cu (µg/L)	5.9	3.3			
5	Ni (µg/L)	7.1	7.3			
6	Pb (µg/L)	2.5	0.0			
7	Zn (µg/L)	5.4	4.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	13	14	14	30
2	HAR_Total (mgCaCO3/L)	21	18	29	24	45
3	Na% (%)	28	35	25		43
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.4	0.5	0.3		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	25.41		14.56	8.388	34.91
2	EC_FLD (µmho/cm)	28		49		
3	EC_GEN (µmho/cm)	55		54	57	45
4	pH_FLD (pH units)			6.7		6.6
5	pH_GEN (pH units)	7.7		6.7	6.7	6.6
6	TDS (mg/L)	31		43	34	28
7	Temp (deg C)	26.8		26.0	26.5	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19		15	15	15
2	B (mg/L)	0.06		0.00	0.64	0.55
3	Ca (mg/L)	5		5	4	4
4	Cl (mg/L)	5.7		9.2	7.8	6.3
5	F (mg/L)	0.04		0.05	0.47	0.07
6	Fe (mg/L)	0.0		0.1	0.0	1.0
7	HCO3 (mg/L)	23		18	18	18
8	K (mg/L)	0.7		1.7	1.3	0.9
9	Mg (mg/L)	1.6		1.5	1.0	2.0
10	Na (mg/L)	3.6		5.0	5.1	3.6
11	NH3-N (mg N/L)				0.19	0.05
12	NO2+NO3 (mg N/L)					0.20
13	NO2-N (mgN/L)	0.03				0.08
14	NO3-N (mgN/L)			0.11		0.12
15	o-PO4-P (mg P/L)	0.052		0.067	0.026	0.045
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	9.3		18.1	28.2	11.4
18	SO4 (mg/L)	1.0		2.5	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8		0.8	0.2	0.6
2	COD (mg/L)			4.9	3.4	4.4
3	DO (mg/L)	6.0		6.2	6.8	6.7
4	DO_SAT% (%)	75		76	84	84
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)	3.0				
2	Cd (µg/L)					
3	Cr (µg/L)	3.0				
4	Cu (µg/L)	2.0				
5	Ni (µg/L)					
6	Pb (µg/L)	1.0				
7	Zn (µg/L)	3.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12		12	10	10
2	HAR_Total (mgCaCO3/L)	19		18	14	18
3	Na% (%)	28		35	42	29
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.4		0.5	0.6	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	16.14	5.553	18.82	8.528	14.32
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	49	54	61	64	35
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.3	6.3	6.9	7.6	6.7
6	TDS (mg/L)	42	34	39		
7	Temp (deg C)	28.5	27.5	26.5	26.3	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	15	21		
2	B (mg/L)	0.43	0.08	0.05		
3	Ca (mg/L)	5	6	5	4	7
4	Cl (mg/L)	7.1	7.5	9.1	8.1	15.6
5	F (mg/L)	0.21	0.17	0.10		
6	Fe (mg/L)		0.1		0.0	0.0
7	HCO3 (mg/L)	20	18	26	26	53
8	K (mg/L)	1.2	1.5	1.3		0.2
9	Mg (mg/L)	1.0	2.0	2.5	2.8	2.5
10	Na (mg/L)	3.7	4.0	5.8		11.6
11	NH3-N (mg N/L)	0.00	0.00			
12	NO2+NO3 (mg N/L)		1.66	0.26		
13	NO2-N (mgN/L)		0.01	0.01		
14	NO3-N (mgN/L)	1.68	1.65	0.25		
15	o-PO4-P (mg P/L)		0.120	0.026		
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	18.0	17.4	11.0		
18	SO4 (mg/L)	0.6	2.9	0.8	0.9	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	1.3	0.7	0.4	0.8
2	COD (mg/L)	1.4	9.6	4.8		
3	DO (mg/L)	6.1	6.6	6.8	6.2	7.3
4	DO_SAT% (%)	78	83	84	76	91
5	FCol-MPN (MPN/100mL)		280	1050		
6	Tcol-MPN (MPN/100mL)		500	1250		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.0	
3	Cr (µg/L)				3.8	
4	Cu (µg/L)				5.4	
5	Ni (µg/L)				5.7	
6	Pb (µg/L)				0.2	
7	Zn (µg/L)				9.5	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	14	13	10	18
2	HAR_Total (mgCaCO3/L)	16	22	23	22	28
3	Na% (%)	31	27	34		47
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.4	0.4	0.5		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		225.1			0.000
2	EC_FLD (µmho/cm)		42			
3	EC_GEN (µmho/cm)		29			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.4			
6	TDS (mg/L)		28			
7	Temp (deg C)		28.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		20			
2	B (mg/L)		0.13			
3	Ca (mg/L)		7			
4	Cl (mg/L)		3.0			
5	F (mg/L)		0.04			
6	Fe (mg/L)		0.1			
7	HCO3 (mg/L)		25			
8	K (mg/L)		1.6			
9	Mg (mg/L)		1.0			
10	Na (mg/L)		2.1			
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)					
13	NO2-N (mgN/L)		0.02			
14	NO3-N (mgN/L)					
15	o-PO4-P (mg P/L)		0.062			
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)		11.8			
18	SO4 (mg/L)		1.5			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.4			
2	COD (mg/L)					
3	DO (mg/L)		6.8			
4	DO_SAT% (%)		87			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		2.9			
2	Cd (µg/L)		0.0			
3	Cr (µg/L)		5.5			
4	Cu (µg/L)		1.1			
5	Ni (µg/L)		2.4			
6	Pb (µg/L)		4.5			
7	Zn (µg/L)		10.4			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		16			
2	HAR_Total (mgCaCO3/L)		20			
3	Na% (%)		17			
4	RSC (-)		0.0			
5	SAR (-)		0.2			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	15.92	10.80	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)			70	63
4	pH_FLD (pH units)				
5	pH_GEN (pH units)			6.8	6.7
6	TDS (mg/L)			45	42
7	Temp (deg C)			28.5	28.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			15	17
2	B (mg/L)			0.01	0.04
3	Ca (mg/L)			6	6
4	Cl (mg/L)			9.9	8.5
5	F (mg/L)			0.34	0.11
6	Fe (mg/L)	0.4	0.0	0.1	0.0
7	HCO3 (mg/L)			19	21
8	K (mg/L)			3.1	4.4
9	Mg (mg/L)			2.0	1.5
10	Na (mg/L)			5.5	4.5
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)			0.44	0.44
13	NO2-N (mgN/L)			0.01	0.04
14	NO3-N (mgN/L)			0.43	0.40
15	o-PO4-P (mg P/L)			0.070	0.095
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)			15.2	12.6
18	SO4 (mg/L)			3.6	1.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			0.4	0.4
2	COD (mg/L)			2.6	3.0
3	DO (mg/L)			5.5	5.6
4	DO_SAT% (%)			70	72
5	FCOI-MPN (MPN/100mL)			1600	900
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (µg/L)	2.5	0.0	2.3	1.8
2	Cd (µg/L)	0.1	0.1	0.0	0.1
3	Cr (µg/L)	0.8	0.9	0.2	0.3
4	Cu (µg/L)	3.8	3.0	1.7	0.8
5	Ni (µg/L)		2.4	0.5	1.0
6	Pb (µg/L)	0.4	4.0	3.1	0.3
7	Zn (µg/L)	20.2	0.1	3.1	5.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			14	14
2	HAR_Total (mgCaCO3/L)			22	20
3	Na% (%)			32	28
4	RSC (-)			0.0	0.0
5	SAR (-)			0.5	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Cochin

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	65	75		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.7	6.4		
6	TDS (mg/L)				
7	Temp (deg C)	27.5	27.5		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	8	9		
4	Cl (mg/L)	13.0	33.5		
5	F (mg/L)				
6	Fe (mg/L)				
7	HCO3 (mg/L)	32	23		
8	K (mg/L)		0.2		
9	Mg (mg/L)	3.8	1.9		
10	Na (mg/L)		10.0		
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)				
13	NO2-N (mgN/L)				
14	NO3-N (mgN/L)				
15	o-PO4-P (mg P/L)				
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)				
18	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.0	2.0		
2	COD (mg/L)				
3	DO (mg/L)	8.0	8.4		
4	DO_SAT% (%)	100	106		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	19	24		
2	HAR_Total (mgCaCO3/L)	35	31		
3	Na% (%)		41		
4	RSC (-)				
5	SAR (-)		0.8		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: PATTAZHY	Code	: KD000G4
State	: Kerala	District	Quilon
Basin	: WFR South of Tapi	Independent River	: Kallada
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kallada
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 1210 Sq. Km.	Bank	: Right
Latitude	: 09°04'22"	Longitude	: 76°45'40"
Zero of Gauge (m)	: 3.000 (m.s.l) 2.000 (m.s.l)	20/04/1978 01/06/2005	- 31/05/2005
	Opening Date	Closing Date	
Gauge	: 20/04/1978		
Discharge	: 20/04/1978		
Sediment	: 25/09/1980		
Water Quality	: 15/10/1978		

Water Quality Datasheet for the period : 2017-2018

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2017	01/08/2017	03/10/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	32.62	7.071	47.11
2	Colour_Cod (-)	Light Brown	Clear	Light Brown
3	EC_GEN (µmho/cm)	63	61	40
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.9	7.5	7.5
6	TDS (mg/L)		37	34
7	Temp (deg C)	26.0	27.0	26.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	16	20
3	B (mg/L)	0.12	0.08	0.06
4	Ca (mg/L)	5	5	7
5	Cl (mg/L)	8.3	7.7	7.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.08	0.03	0.08
8	Fe (mg/L)	0.0	0.1	0.1
9	HCO3 (mg/L)	15	20	25
10	K (mg/L)	2.0	1.2	1.1
11	Mg (mg/L)	1.0	1.8	2.0
12	Na (mg/L)	4.3	4.6	3.8
13	NO2-N (mgN/L)	0.06	0.02	0.06
14	o-PO4-P (mg P/L)	0.024	0.038	0.063
15	SiO2 (mg/L)	10.6	12.3	10.9
16	SO4 (mg/L)	2.1	4.0	2.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.4	1.2
2	DO (mg/L)	7.5	7.2	6.0
3	DO_SAT% (%)	92	90	74
	TRACE & TOXIC			
1	As (µg/L)		2.0	
2	Cd (µg/L)			
3	Cr (µg/L)		3.0	
4	Cu (µg/L)		2.0	
5	Ni (µg/L)			
6	Pb (µg/L)			
7	Zn (µg/L)		15.0	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	13	16
2	HAR_Total (mgCaCO3/L)	17	20	25
3	Na% (%)	33	31	24
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2017-2018

Station Name : PATTZHY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2017	01/02/2018	03/04/2018
		A	A	A
	PHYSICAL			
1	Q (cumec)	572.1	5.446	5.583
2	Colour_Cod (-)		Clear	Clear
3	EC_GEN (μ mho/cm)	39	53	50
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.8	7.0	7.1
6	TDS (mg/L)	27	31	
7	Temp (deg C)		26.5	30.0
	CHEMICAL			
1	Alk-Phen (mgCaCO ₃ /L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO ₃ /L)	12	18	15
3	B (mg/L)	0.06	0.13	0.11
4	Ca (mg/L)	3	5	5
5	Cl (mg/L)	5.9	7.2	9.4
6	CO ₃ (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.03	0.04	0.06
8	Fe (mg/L)	0.0	0.1	0.1
9	HCO ₃ (mg/L)	15	22	18
10	K (mg/L)	1.6	1.7	1.3
11	Mg (mg/L)	2.0	2.0	1.3
12	Na (mg/L)	3.4	3.8	5.8
13	NO ₂ -N (mgN/L)	0.02	0.04	0.01
14	o-PO ₄ -P (mg P/L)	0.032	0.078	0.089
15	SiO ₂ (mg/L)	12.8	12.4	14.2
16	SO ₄ (mg/L)	3.9	1.6	2.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.8	1.0	1.2
2	DO (mg/L)	6.1	7.5	9.1
3	DO_SAT% (%)		93	120
	TRACE & TOXIC			
1	As (μ g/L)	3.9		0.5
2	Cd (μ g/L)	0.1		0.0
3	Cr (μ g/L)	7.6		5.3
4	Cu (μ g/L)	2.7		7.5
5	Ni (μ g/L)	5.4		4.4
6	Pb (μ g/L)	3.3		1.4
7	Zn (μ g/L)	5.7		24.4
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	8	13	12
2	HAR_Total (mgCaCO ₃ /L)	16	21	17
3	Na% (%)	29	26	40
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.6
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	572.1	1.287	46.99
2	EC_GEN (µmho/cm)	6	63	39	51
3	pH_GEN (pH units)	6	7.5	6.8	7.1
4	TDS (mg/L)	4	37	27	32
5	Temp (deg C)	5	30.0	26.0	27.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	20	12	16
3	B (mg/L)	6	0.13	0.06	0.09
4	Ca (mg/L)	6	7	3	5
5	Cl (mg/L)	6	9.4	5.9	7.6
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.08	0.03	0.05
8	Fe (mg/L)	6	0.1	0.0	0.1
9	HCO3 (mg/L)	6	25	15	19
10	K (mg/L)	6	2.0	1.1	1.5
11	Mg (mg/L)	6	2.0	1.0	1.7
12	Na (mg/L)	6	5.8	3.4	4.3
13	NO2-N (mgN/L)	6	0.06	0.01	0.03
14	o-PO4-P (mg P/L)	6	0.089	0.024	0.054
15	SiO2 (mg/L)	6	14.2	10.6	12.2
16	SO4 (mg/L)	6	4.0	1.6	2.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.2	0.4	0.9
2	DO (mg/L)	6	9.1	6.0	7.2
3	DO_SAT% (%)	5	120	74	94
	TRACE & TOXIC				
1	As (µg/L)	3	3.9	0.5	2.1
2	Cd (µg/L)	2	0.1	0.0	0
3	Cr (µg/L)	3	7.6	3.0	5.3
4	Cu (µg/L)	3	7.5	2.0	4.1
5	Ni (µg/L)	2	5.4	4.4	4.9
6	Pb (µg/L)	2	3.3	1.4	2.3
7	Zn (µg/L)	3	24.4	5.7	15
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	16	8	12
2	HAR_Total (mgCaCO3/L)	6	25	16	19
3	Na% (%)	6	40	24	31
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.6	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		32.23	17.72	57.79	40.63
2	EC_FLD (µmho/cm)				65	65
3	EC_GEN (µmho/cm)		55	50	56	53
4	pH_FLD (pH units)				7.2	7.3
5	pH_GEN (pH units)		6.6	6.9	6.5	6.1
6	TDS (mg/L)		43	31	38	35
7	Temp (deg C)		26.2	26.3	25.5	25.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		13	13	12	11
3	B (mg/L)		0.09	0.05	0.16	0.13
4	Ca (mg/L)		3	4	3	5
5	Cl (mg/L)		9.6	6.6	8.6	8.6
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.07	0.09	0.20	0.07
8	Fe (mg/L)		0.1	0.0	0.0	0.1
9	HCO3 (mg/L)		16	16	14	14
10	K (mg/L)		1.4	1.7	1.1	2.0
11	Mg (mg/L)		2.5	1.0	1.4	1.0
12	Na (mg/L)		4.9	3.7	5.2	4.7
13	NH3-N (mg N/L)		0.05	0.19	0.27	0.06
14	NO2+NO3 (mg N/L)		0.38		0.12	0.38
15	NO2-N (mgN/L)		0.06		0.01	0.04
16	NO3-N (mgN/L)		0.25		0.11	0.36
17	o-PO4-P (mg P/L)		0.068	0.054	0.113	0.023
18	P-Tot (mgP/L)		0.124			
19	SiO2 (mg/L)		25.4	28.0	23.4	19.0
20	SO4 (mg/L)		2.4	1.0	1.0	3.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.7	0.7	0.6	0.4
2	COD (mg/L)		4.9	6.1	4.4	3.5
3	DO (mg/L)		6.1		7.0	6.9
4	DO_SAT% (%)		76		85	84
5	FCol-MPN (MPN/100mL)					500
6	Tcol-MPN (MPN/100mL)					900
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		9	10	8	11
2	HAR_Total (mgCaCO3/L)		19	14	14	16
3	Na% (%)		35	33	42	36
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.5	0.4	0.6	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	16.66	48.34	53.24	31.47	70.15
2	EC_FLD (µmho/cm)	63	65		32	31
3	EC_GEN (µmho/cm)	48	50	47	47	20
4	pH_FLD (pH units)	7.3	7.0	7.0	7.0	
5	pH_GEN (pH units)	6.6	6.7	7.0	7.0	6.3
6	TDS (mg/L)	28	31	30		
7	Temp (deg C)	27.2	27.7	27.8	27.5	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	14	13			25
3	B (mg/L)	0.02	0.03			
4	Ca (mg/L)	5	4	5	14	8
5	Cl (mg/L)	8.9	8.6	9.0	11.7	12.2
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.23			
8	Fe (mg/L)	0.2	0.1			
9	HCO3 (mg/L)	17	16	15	19	31
10	K (mg/L)	1.7	1.8	2.1		1.0
11	Mg (mg/L)	1.6	1.7	2.2	5.1	3.2
12	Na (mg/L)	5.5	4.5	3.9		13.8
13	NH3-N (mg N/L)	0.02				
14	NO2+NO3 (mg N/L)	1.43	0.54			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.43	0.53			
17	o-PO4-P (mg P/L)	0.199	0.080			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.6	10.3			
20	SO4 (mg/L)	0.9	0.8	1.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5	0.9	0.5	1.3
2	COD (mg/L)	2.7	2.5			
3	DO (mg/L)	6.7	5.8	7.5	6.9	6.1
4	DO_SAT% (%)	84	75	95	87	76
5	FCol-MPN (MPN/100mL)	767	700			
6	Tcol-MPN (MPN/100mL)	1367	1250	763		
	TRACE & TOXIC					
1	As (µg/L)	6.9	4.3			
2	Cd (µg/L)	0.0	0.1			
3	Cr (µg/L)	2.1	0.6			
4	Cu (µg/L)	1.4	0.7			
5	Hg (µg/L)		0.2			
6	Ni (µg/L)	2.1	8.2			
7	Pb (µg/L)	2.1	0.1			
8	Zn (µg/L)	17.7	3.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	9	11	34	19
2	HAR_Total (mgCaCO3/L)	18	16	21	56	32
3	Na% (%)	37	35	28		46
4	RSC (-)	0.0	0.0			0.2
5	SAR (-)	0.6	0.5	0.4		1.1
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	28.93		11.03	56.04	73.57
2	EC_FLD (μmho/cm)				54	56
3	EC_GEN (μmho/cm)	55		52	41	50
4	pH_FLD (pH units)					7.1
5	pH_GEN (pH units)	7.3		6.9	6.4	6.8
6	TDS (mg/L)	35		37	23	32
7	Temp (deg C)	26.5		26.3	27.3	24.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16		12	11	16
3	B (mg/L)	0.09		0.04	0.40	0.16
4	Ca (mg/L)	6		4	3	4
5	Cl (mg/L)	7.7		8.5	7.8	7.4
6	CO3 (mg/L)	0.0		0.0	0.0	0.0
7	F (mg/L)	0.06		0.07	0.16	0.09
8	Fe (mg/L)	0.1		0.2	0.1	0.2
9	HCO3 (mg/L)	20		15	13	20
10	K (mg/L)	1.4		2.0	1.5	1.7
11	Mg (mg/L)	1.6		1.5	1.0	1.8
12	Na (mg/L)	4.2		4.9	4.3	4.4
13	NH3-N (mg N/L)				0.20	0.05
14	NO2+NO3 (mg N/L)			0.21		0.33
15	NO2-N (mgN/L)	0.05		0.05		0.04
16	NO3-N (mgN/L)			0.19		0.29
17	o-PO4-P (mg P/L)	0.042		0.029	0.018	0.108
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	11.3		24.9	28.4	12.8
20	SO4 (mg/L)	2.9		2.4	1.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8		0.7	0.2	0.6
2	COD (mg/L)			5.2	5.7	4.9
3	DO (mg/L)	6.9		7.4	7.6	6.9
4	DO_SAT% (%)	85		91	96	82
5	FCol-MPN (MPN/100mL)			900		
6	Tcol-MPN (MPN/100mL)			1600		
	TRACE & TOXIC					
1	As (μg/L)	2.0				
2	Cd (μg/L)					
3	Cr (μg/L)	3.0				
4	Cu (μg/L)	2.0				
5	Hg (μg/L)					
6	Ni (μg/L)					
7	Pb (μg/L)					
8	Zn (μg/L)	15.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14		9	8	10
2	HAR_Total (mgCaCO3/L)	21		15	12	17
3	Na% (%)	30		38	40	33
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.4		0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	53.99	9.997	41.86	23.67	19.23
2	EC_FLD (μmho/cm)	62	62			32
3	EC_GEN (μmho/cm)	44	49	42	30	55
4	pH_FLD (pH units)	7.0	7.3		7.1	7.1
5	pH_GEN (pH units)	6.6	6.5	7.0	7.5	7.0
6	TDS (mg/L)	31	33	29	33	
7	Temp (deg C)	24.8	27.8	26.3	26.5	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	12	13	14		
3	B (mg/L)	0.17	0.08	0.03		
4	Ca (mg/L)	4	5	5	3	6
5	Cl (mg/L)	8.2	7.5	6.4	4.0	21.5
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.18	0.20	0.11		
8	Fe (mg/L)	1.2	0.0		0.0	0.0
9	HCO3 (mg/L)	15	16	18	16	36
10	K (mg/L)	1.5	1.6	1.4		0.2
11	Mg (mg/L)	1.0	1.5	1.0	1.4	2.0
12	Na (mg/L)	4.3	4.1	4.0		11.2
13	NH3-N (mg N/L)	0.04	0.01			
14	NO2+NO3 (mg N/L)		1.17	0.52		
15	NO2-N (mgN/L)		0.01	0.01		
16	NO3-N (mgN/L)	0.76	1.16	0.50		
17	o-PO4-P (mg P/L)	0.140	0.057	0.024		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	16.3	13.6	11.8		
20	SO4 (mg/L)	0.7	1.0	0.9	1.4	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.1	0.8	0.9	0.8
2	COD (mg/L)	3.6	8.6	5.6		
3	DO (mg/L)	7.0	7.3	7.0	6.9	7.2
4	DO_SAT% (%)	84	92	86	85	90
5	FCol-MPN (MPN/100mL)	920	700	500		
6	Tcol-MPN (MPN/100mL)	1050	1250	900		
	TRACE & TOXIC					
1	As (μg/L)	0.3				
2	Cd (μg/L)	0.0			0.5	
3	Cr (μg/L)	0.8			1.1	
4	Cu (μg/L)	24.6			3.2	
5	Hg (μg/L)					
6	Ni (μg/L)	2.8			13.7	
7	Pb (μg/L)	0.1			12.1	
8	Zn (μg/L)				11.2	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	12	12	8	16
2	HAR_Total (mgCaCO3/L)	15	18	16	14	24
3	Na% (%)	36	31	33		52
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.5	0.4	0.4		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	4.998	288.8		8.406	64.41
2	EC_FLD (µmho/cm)	33				47
3	EC_GEN (µmho/cm)	57	46		40	42
4	pH_FLD (pH units)	7.0				7.9
5	pH_GEN (pH units)	6.9	6.9		6.7	6.9
6	TDS (mg/L)		29		28	24
7	Temp (deg C)	25.5	26.5		27.0	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0		0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	15		14	13
3	B (mg/L)		0.09		0.07	0.04
4	Ca (mg/L)	7	4		3	3
5	Cl (mg/L)	26.0	6.6		6.4	7.1
6	CO3 (mg/L)	0.0	0.0		0.0	0.0
7	F (mg/L)		0.04		0.16	0.11
8	Fe (mg/L)		0.1		0.0	0.1
9	HCO3 (mg/L)	13	18		17	16
10	K (mg/L)	2.8	1.7		1.6	1.6
11	Mg (mg/L)	4.2	2.0		1.9	1.5
12	Na (mg/L)	9.1	3.6		3.4	4.5
13	NH3-N (mg N/L)				0.09	0.15
14	NO2+NO3 (mg N/L)				0.32	
15	NO2-N (mgN/L)		0.03		0.06	
16	NO3-N (mgN/L)				0.26	0.05
17	o-PO4-P (mg P/L)		0.055			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		12.6		17.6	23.5
20	SO4 (mg/L)		2.7		1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.9		0.8	0.4
2	COD (mg/L)				5.6	4.2
3	DO (mg/L)	7.3	6.8		7.2	7.8
4	DO_SAT% (%)	88	93		90	98
5	FCol-MPN (MPN/100mL)				1600	
6	Tcol-MPN (MPN/100mL)				1600	
	TRACE & TOXIC					
1	As (µg/L)		3.9			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		7.6		2.0	
4	Cu (µg/L)		2.7		1.0	
5	Hg (µg/L)					
6	Ni (µg/L)		5.4		11.3	
7	Pb (µg/L)		3.3		1.0	
8	Zn (µg/L)		5.7			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	18	10		8	8
2	HAR_Total (mgCaCO3/L)	36	19		16	14
3	Na% (%)	35	28		29	38
4	RSC (-)	0.0	0.0		0.0	0.0
5	SAR (-)	0.7	0.4		0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)	41.81	20.77	4.215	43.87
2	EC_FLD (µmho/cm)	55	65	59	
3	EC_GEN (µmho/cm)	50	50	62	41
4	pH_FLD (pH units)	8.4	7.3	7.1	
5	pH_GEN (pH units)	6.6	6.2	6.8	6.8
6	TDS (mg/L)	29	33	38	26
7	Temp (deg C)	27.5	26.0	28.5	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	12	11	16	24
3	B (mg/L)	0.12	0.16	0.02	0.06
4	Ca (mg/L)	3	4	5	6
5	Cl (mg/L)	8.5	7.8	9.2	7.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.09	0.03	0.33	0.22
8	Fe (mg/L)	0.2	0.1	0.0	0.1
9	HCO3 (mg/L)	15	13	20	29
10	K (mg/L)	2.8	1.8	3.0	2.1
11	Mg (mg/L)	1.5	1.0	2.0	2.9
12	Na (mg/L)	4.4	4.8	4.9	4.5
13	NH3-N (mg N/L)	0.05	0.08		
14	NO2+NO3 (mg N/L)		1.62	0.50	0.46
15	NO2-N (mgN/L)		0.07	0.06	0.04
16	NO3-N (mgN/L)	0.17	1.55	0.44	0.42
17	o-PO4-P (mg P/L)	0.025	0.095	0.050	0.080
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	18.6	14.6	11.5	5.2
20	SO4 (mg/L)	1.0	0.9	1.4	1.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4	1.2	2.2	0.6
2	COD (mg/L)	6.8	4.8	16.6	4.0
3	DO (mg/L)	7.8	6.4	6.7	6.7
4	DO_SAT% (%)	98	79	86	86
5	FCol-MPN (MPN/100mL)	1600	1600	500	1600
6	Tcol-MPN (MPN/100mL)	1600	1600	1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.2	0.1	2.4	2.1
2	Cd (µg/L)	0.6	0.1	0.0	0.0
3	Cr (µg/L)	1.0	0.7	0.1	0.5
4	Cu (µg/L)	7.4	1.8	1.3	0.7
5	Hg (µg/L)	0.0			
6	Ni (µg/L)		0.9	0.0	2.1
7	Pb (µg/L)	0.3	4.2	3.4	0.4
8	Zn (µg/L)	14.8	0.0	2.1	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	10	12	16
2	HAR_Total (mgCaCO3/L)	14	14	20	28
3	Na% (%)	35	39	31	24
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.5	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : PATAZHAY (KD000G4)

Division : SWR Division, Cochin

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	18.09	12.03	9.210	5.583
2	EC_FLD (µmho/cm)		35	34	
3	EC_GEN (µmho/cm)	42	38	70	50
4	pH_FLD (pH units)	7.2			
5	pH_GEN (pH units)	7.4	6.3	6.9	7.1
6	TDS (mg/L)	33			
7	Temp (deg C)	27.5	27.0	26.0	30.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			42	15
3	B (mg/L)				0.11
4	Ca (mg/L)	5	8	19	5
5	Cl (mg/L)	7.8	18.2	18.2	9.4
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)				0.06
8	Fe (mg/L)				0.1
9	HCO3 (mg/L)	18	23	52	18
10	K (mg/L)		0.4	2.8	1.3
11	Mg (mg/L)	1.9	3.8	11.4	1.3
12	Na (mg/L)		11.0	9.1	5.8
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				0.01
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				0.089
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				14.2
20	SO4 (mg/L)				2.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.2	0.4	1.2
2	COD (mg/L)				
3	DO (mg/L)	8.2	6.2	7.3	9.1
4	DO_SAT% (%)	103	78	90	120
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.5
2	Cd (µg/L)				0.0
3	Cr (µg/L)				5.3
4	Cu (µg/L)				7.5
5	Hg (µg/L)				
6	Ni (µg/L)				4.4
7	Pb (µg/L)				1.4
8	Zn (µg/L)				24.4
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	20	47	12
2	HAR_Total (mgCaCO3/L)	20	35	94	17
3	Na% (%)		40	17	40
4	RSC (-)			0.0	0.0
5	SAR (-)		0.8	0.4	0.6
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: AYILAM	Code	: KV000G3
State	: Kerala	District	Thiruvananthapuram
Basin	: WFR South of Tapi	Independent River	: Vamanapuram
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Vamanapuram
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 540 Sq. Km.	Bank	: Left
Latitude	: 08°42'54"	Longitude	: 76°51'00"
Zero of Gauge (m)	: 0.000 (m.s.l)	01/06/1978	
	Opening Date	Closing Date	
Gauge	: 01/06/1978		
Discharge	: 18/12/1978		
Sediment	: 26/12/1978		
Water Quality	: 02/01/1979		

Water Quality Datasheet for the period : 2017-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2017	03/10/2017	01/12/2017
		A	A	A
	PHYSICAL			
1	Q (cumec)	11.54	23.92	152.1
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (μmho/cm)		36	
4	EC_GEN (μmho/cm)	50	43	81
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	6.7	6.6	7.1
7	TDS (mg/L)		32	40
8	Temp (deg C)	27.0	26.0	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	20	16	16
3	B (mg/L)		0.04	0.04
4	Ca (mg/L)	5	5	3
5	Cl (mg/L)	8.3	7.1	8.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)		0.05	0.04
8	Fe (mg/L)			0.1
9	HCO3 (mg/L)	24	20	20
10	K (mg/L)	0.9	1.0	2.5
11	Mg (mg/L)	3.0	1.0	2.0
12	Na (mg/L)	3.8	4.7	6.3
13	NO2-N (mgN/L)			0.03
14	o-PO4-P (mg P/L)			0.084
15	SiO2 (mg/L)		10.4	12.3
16	SO4 (mg/L)		3.1	3.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	0.9	1.3
2	DO (mg/L)	5.6	8.0	6.8
3	DO_SAT% (%)	70	99	81
	TRACE & TOXIC			
1	As (μg/L)			4.9
2	Cd (μg/L)			0.1
3	Cr (μg/L)			6.5
4	Cu (μg/L)			6.8
5	Pb (μg/L)			5.0
6	Zn (μg/L)			12.9
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	12	8
2	HAR_Total (mgCaCO3/L)	25	16	16
3	Na% (%)	24	37	42
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	0.7
	PESTICIDES			

Water Quality Summary for the period : 2017-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	162.7	0.000	13.36
2	EC_FLD (µmho/cm)	1	36	36	36
3	EC_GEN (µmho/cm)	3	81	43	58
4	pH_GEN (pH units)	3	7.1	6.6	6.8
5	TDS (mg/L)	2	40	32	36
6	Temp (deg C)	3	27.0	24.0	25.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	20	16	17
3	B (mg/L)	2	0.04	0.04	0.04
4	Ca (mg/L)	3	5	3	4
5	Cl (mg/L)	3	8.9	7.1	8.1
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	2	0.05	0.04	0.04
8	Fe (mg/L)	1	0.1	0.1	0.1
9	HCO3 (mg/L)	3	24	20	21
10	K (mg/L)	3	2.5	0.9	1.5
11	Mg (mg/L)	3	3.0	1.0	2
12	Na (mg/L)	3	6.3	3.8	4.9
13	NO2-N (mgN/L)	1	0.03	0.03	0.03
14	o-PO4-P (mg P/L)	1	0.084	0.084	0.084
15	SiO2 (mg/L)	2	12.3	10.4	11.3
16	SO4 (mg/L)	2	3.4	3.1	3.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	1.4	0.9	1.2
2	DO (mg/L)	3	8.0	5.6	6.8
3	DO_SAT% (%)	3	99	70	83
	TRACE & TOXIC				
1	As (µg/L)	1	4.9	4.9	4.9
2	Cd (µg/L)	1	0.1	0.1	0.1
3	Cr (µg/L)	1	6.5	6.5	6.5
4	Cu (µg/L)	1	6.8	6.8	6.8
5	Pb (µg/L)	1	5.0	5.0	5
6	Zn (µg/L)	1	12.9	12.9	12.9
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	12	8	11
2	HAR_Total (mgCaCO3/L)	3	25	16	19
3	Na% (%)	3	42	24	34
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.7	0.3	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)		45.94	15.04	36.31	7.328
2	EC_FLD (µmho/cm)		48			
3	EC_GEN (µmho/cm)		52	50	54	53
4	pH_FLD (pH units)		6.6			
5	pH_GEN (pH units)		6.6	7.1	6.7	6.5
6	TDS (mg/L)		41	29	34	36
7	Temp (deg C)		25.8	25.8	27.3	26.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		12	12	12	14
3	B (mg/L)		0.02	0.08	0.53	0.34
4	Ca (mg/L)		4	4	4	5
5	Cl (mg/L)		9.5	7.5	8.5	10.0
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.06	0.10	0.16	0.03
8	Fe (mg/L)		0.0	0.1	0.4	0.1
9	HCO3 (mg/L)		15	14	15	17
10	K (mg/L)		1.6	1.9	1.1	1.4
11	Mg (mg/L)		1.7	0.5	1.8	1.2
12	Na (mg/L)		5.4	4.9	5.3	5.4
13	NH3-N (mg N/L)		0.05	0.23	0.23	0.12
14	NO2+NO3 (mg N/L)		0.20		0.10	0.16
15	NO2-N (mgN/L)		0.07		0.01	0.02
16	NO3-N (mgN/L)		0.14		0.10	0.14
17	o-PO4-P (mg P/L)		0.032	0.067	0.077	0.015
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		23.3	29.4	27.5	22.0
20	SO4 (mg/L)		1.9	1.0	4.0	0.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.2	1.2	0.9	0.9
2	COD (mg/L)		9.9	6.7	6.7	5.5
3	DO (mg/L)		7.4			7.2
4	DO_SAT% (%)		90			90
5	FCol-MPN (MPN/100mL)		1600	900	500	
6	Tcol-MPN (MPN/100mL)		1600	1600	500	
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		9	9	9	12
2	HAR_Total (mgCaCO3/L)		16	11	17	17
3	Na% (%)		39	44	39	38
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.6	0.6	0.6	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	0.000	12.63	17.31	22.85	14.91
2	EC_FLD (µmho/cm)					37
3	EC_GEN (µmho/cm)	69	62	60	50	85
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.1	6.5	6.6	6.9	5.7
6	TDS (mg/L)	47	39			
7	Temp (deg C)	27.8	26.0	25.8	24.8	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	16	17			12
3	B (mg/L)	0.02	0.02			
4	Ca (mg/L)	5	4	5	8	10
5	Cl (mg/L)	10.6	10.6	10.9	14.5	10.4
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.02	0.25			
8	Fe (mg/L)	0.0	0.1			
9	HCO3 (mg/L)	20	20	20	30	15
10	K (mg/L)	2.3	2.4	2.5		0.1
11	Mg (mg/L)	1.7	2.0	3.2	3.5	4.7
12	Na (mg/L)	5.8	6.3	4.5		20.2
13	NH3-N (mg N/L)	0.02				
14	NO2+NO3 (mg N/L)	1.23	0.48			
15	NO2-N (mgN/L)	0.01	0.01			
16	NO3-N (mgN/L)	1.22	0.47			
17	o-PO4-P (mg P/L)	0.346	0.103			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	15.0	10.7			
20	SO4 (mg/L)	0.8	0.7	1.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.0	0.3	0.9	1.1
2	COD (mg/L)	2.8	7.1			
3	DO (mg/L)	6.0	4.9	6.5	7.1	6.3
4	DO_SAT% (%)	76	60	80	85	79
5	FCol-MPN (MPN/100mL)	500	1050			
6	Tcol-MPN (MPN/100mL)	900	1250	1213		
	TRACE & TOXIC					
1	As (µg/L)	2.6	4.7			
2	Cd (µg/L)	0.6	0.1			
3	Cr (µg/L)	3.4	0.6			
4	Cu (µg/L)	10.4	1.4			
5	Hg (µg/L)		0.1			
6	Ni (µg/L)	3.1	7.4			
7	Pb (µg/L)	0.5	0.7			
8	Zn (µg/L)	3.3	16.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	11	13	21	26
2	HAR_Total (mgCaCO3/L)	20	19	27	35	46
3	Na% (%)	35	38	27		50
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.6	0.6	0.4		1.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	17.73		39.83	5.677	26.74
2	EC_FLD (µmho/cm)	36		49		
3	EC_GEN (µmho/cm)	46		51	53	50
4	pH_FLD (pH units)			6.8		
5	pH_GEN (pH units)	6.6		6.9	7.0	6.8
6	TDS (mg/L)	32		41	30	31
7	Temp (deg C)	26.5		25.5	26.5	25.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	18		12	12	10
3	B (mg/L)	0.04		0.01	1.15	0.17
4	Ca (mg/L)	5		3	2	3
5	Cl (mg/L)	7.7		9.9	9.9	13.1
6	CO3 (mg/L)	0.0		0.0	0.0	0.0
7	F (mg/L)	0.05		0.05	0.05	0.07
8	Fe (mg/L)				0.1	1.3
9	HCO3 (mg/L)	22		15	15	12
10	K (mg/L)	0.9		1.8	1.8	1.8
11	Mg (mg/L)	2.0		1.5	1.0	1.5
12	Na (mg/L)	4.2		5.7	6.0	6.8
13	NH3-N (mg N/L)				0.19	0.05
14	NO2+NO3 (mg N/L)			0.37		0.28
15	NO2-N (mgN/L)			0.22		0.01
16	NO3-N (mgN/L)			0.15		0.28
17	o-PO4-P (mg P/L)			0.010	0.031	0.033
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	10.4		22.3	38.8	12.5
20	SO4 (mg/L)	3.1		1.2	1.4	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1		1.0	0.2	1.3
2	COD (mg/L)			8.4	3.6	10.4
3	DO (mg/L)	6.8		6.8		
4	DO_SAT% (%)	84		82		
5	Fcol-MPN (MPN/100mL)					1600
6	Tcol-MPN (MPN/100mL)					1600
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12		8	6	8
2	HAR_Total (mgCaCO3/L)	21		14	10	14
3	Na% (%)	31		43	52	47
4	RSC (-)	0.0		0.0	0.0	0.0
5	SAR (-)	0.4		0.7	0.8	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	19.10	0.000	13.59	8.288	9.730
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	46	63	61	38	49
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.4	6.3	6.9	7.2	6.7
6	TDS (mg/L)	28	40	40		
7	Temp (deg C)	25.5	26.8	27.3	23.8	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	13	17	17		
3	B (mg/L)	0.28	0.11	0.06		
4	Ca (mg/L)	4	4	5	3	9
5	Cl (mg/L)	8.2	9.5	12.0	4.0	22.6
6	CO3 (mg/L)	0.0	0.0	0.0		
7	F (mg/L)	0.17	0.22	0.12		
8	Fe (mg/L)	0.7	0.0		0.0	0.0
9	HCO3 (mg/L)	16	20	20	17	45
10	K (mg/L)	1.8	2.6	2.4		0.3
11	Mg (mg/L)	2.0	2.2	1.3	1.9	5.6
12	Na (mg/L)	4.3	5.8	6.7		13.7
13	NH3-N (mg N/L)	0.01	0.02			
14	NO2+NO3 (mg N/L)		0.90	0.24		
15	NO2-N (mgN/L)		0.02	0.01		
16	NO3-N (mgN/L)	1.52	0.88	0.23		
17	o-PO4-P (mg P/L)		0.077	0.090		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	18.0	17.0	9.7		
20	SO4 (mg/L)	2.5	2.8	0.9	1.7	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.4	1.6	1.2	0.2	0.8
2	COD (mg/L)	9.8	13.6	8.5		
3	DO (mg/L)	6.6	6.6	7.3	6.9	7.0
4	DO_SAT% (%)	80	82	92	81	87
5	FCol-MPN (MPN/100mL)	1600	590	1250		
6	Tcol-MPN (MPN/100mL)	1600	975	1600		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.2	
3	Cr (µg/L)				4.2	
4	Cu (µg/L)				8.5	
5	Hg (µg/L)					
6	Ni (µg/L)				0.7	
7	Pb (µg/L)				0.4	
8	Zn (µg/L)				12.6	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	11	12	8	23
2	HAR_Total (mgCaCO3/L)	18	20	17	16	47
3	Na% (%)	31	35	42		44
4	RSC (-)	0.0	0.0	0.0		
5	SAR (-)	0.4	0.6	0.7		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		152.1			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)		81			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)		7.1			
6	TDS (mg/L)		40			
7	Temp (deg C)		24.0			
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			
2	ALK-TOT (mgCaCO3/L)		16			
3	B (mg/L)		0.04			
4	Ca (mg/L)		3			
5	Cl (mg/L)		8.9			
6	CO3 (mg/L)		0.0			
7	F (mg/L)		0.04			
8	Fe (mg/L)		0.1			
9	HCO3 (mg/L)		20			
10	K (mg/L)		2.5			
11	Mg (mg/L)		2.0			
12	Na (mg/L)		6.3			
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)		0.03			
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)		0.084			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		12.3			
20	SO4 (mg/L)		3.4			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.3			
2	COD (mg/L)					
3	DO (mg/L)		6.8			
4	DO_SAT% (%)		81			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)		4.9			
2	Cd (µg/L)		0.1			
3	Cr (µg/L)		6.5			
4	Cu (µg/L)		6.8			
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)		5.0			
8	Zn (µg/L)		12.9			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		8			
2	HAR_Total (mgCaCO3/L)		16			
3	Na% (%)		42			
4	RSC (-)		0.0			
5	SAR (-)		0.7			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)			0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)			74	71
4	pH_FLD (pH units)				
5	pH_GEN (pH units)			6.8	6.9
6	TDS (mg/L)			52	44
7	Temp (deg C)			27.0	26.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			19	20
3	B (mg/L)			0.02	0.04
4	Ca (mg/L)			7	6
5	Cl (mg/L)			12.0	11.3
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)			0.37	0.09
8	Fe (mg/L)			0.1	0.0
9	HCO3 (mg/L)			23	24
10	K (mg/L)			4.6	3.8
11	Mg (mg/L)			1.0	2.0
12	Na (mg/L)			6.5	6.4
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)			0.63	0.15
15	NO2-N (mgN/L)			0.05	0.05
16	NO3-N (mgN/L)			0.58	0.10
17	o-PO4-P (mg P/L)			0.070	0.077
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)			15.2	18.9
20	SO4 (mg/L)			1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			1.8	2.0
2	COD (mg/L)			14.2	14.2
3	DO (mg/L)			4.9	6.7
4	DO_SAT% (%)			61	83
5	FCol-MPN (MPN/100mL)			1600	1600
6	Tcol-MPN (MPN/100mL)			1600	1600
	TRACE & TOXIC				
1	As (µg/L)			1.3	0.1
2	Cd (µg/L)			0.0	0.0
3	Cr (µg/L)			0.3	0.4
4	Cu (µg/L)			1.9	0.8
5	Hg (µg/L)				
6	Ni (µg/L)			0.0	4.4
7	Pb (µg/L)			3.4	0.4
8	Zn (µg/L)			2.4	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			18	14
2	HAR_Total (mgCaCO3/L)			22	22
3	Na% (%)			34	34
4	RSC (-)			0.0	0.0
5	SAR (-)			0.6	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : AYILAM (KV000G3)

Division : SWR Division, Cochin

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	72	99		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	6.6	6.6		
6	TDS (mg/L)				
7	Temp (deg C)	24.5	28.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	6	16		
5	Cl (mg/L)	3.9	19.5		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	32	45		
10	K (mg/L)		0.1		
11	Mg (mg/L)	1.9	5.7		
12	Na (mg/L)		11.6		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4			
2	COD (mg/L)				
3	DO (mg/L)	6.6	7.2		
4	DO_SAT% (%)	78	92		
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	39		
2	HAR_Total (mgCaCO3/L)	24	63		
3	Na% (%)		29		
4	RSC (-)				
5	SAR (-)		0.6		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: KUZHITHURAI	Code	: KF000E1
State	: Tamil Nadu	District	Kanyakumari
Basin	: WFR South of Tapi	Independent River	: Thambraparani
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Thambraparani
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 841 Sq. Km.	Bank	: Right
Latitude	: 08°18'21"	Longitude	: 77°11'50"
Zero of Gauge (m)	: 0.000 (m.s.l)	26/11/1997	
	Opening Date	Closing Date	
Gauge	: 26/11/1997		
Discharge	: 01/11/2000		
Sediment	:		
Water Quality	: 02/12/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	04/12/2017
		A
	PHYSICAL	
1	Q (cumec)	49.96
2	Colour_Cod (-)	
3	EC_GEN (µmho/cm)	98
4	Odour_Code (-)	odour free
5	pH_GEN (pH units)	7.1
6	TDS (mg/L)	59
	CHEMICAL	
1	Alk-Phen (mgCaCO3/L)	0.0
2	ALK-TOT (mgCaCO3/L)	20
3	B (mg/L)	0.31
4	Ca (mg/L)	7
5	Cl (mg/L)	14.9
6	CO3 (mg/L)	0.0
7	F (mg/L)	0.73
8	Fe (mg/L)	0.1
9	HCO3 (mg/L)	25
10	K (mg/L)	2.9
11	Mg (mg/L)	3.9
12	Na (mg/L)	7.9
13	NO2-N (mgN/L)	0.07
14	o-PO4-P (mg P/L)	0.234
15	SiO2 (mg/L)	12.7
16	SO4 (mg/L)	8.9
	BIOLOGICAL/BACTERIOLOGICAL	
1	BOD3-27 (mg/L)	1.2
2	DO (mg/L)	7.5
	TRACE & TOXIC	
1	As (µg/L)	3.0
2	Cd (µg/L)	0.0
3	Cr (µg/L)	10.1
4	Cu (µg/L)	1.3
5	Ni (µg/L)	2.2
6	Pb (µg/L)	1.6
7	Zn (µg/L)	10.7
	CHEMICAL INDICES	
1	HAR_Ca (mgCaCO3/L)	16
2	HAR_Total (mgCaCO3/L)	33
3	Na% (%)	32
4	RSC (-)	0.0
5	SAR (-)	0.6
	PESTICIDES	

Water Quality Summary for the period : 2017-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	151.6	0.000	5.364
2	EC_GEN (µmho/cm)	1	98	98	98
3	pH_GEN (pH units)	1	7.1	7.1	7.1
4	TDS (mg/L)	1	59	59	59
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	1	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	1	20	20	20
3	B (mg/L)	1	0.31	0.31	0.31
4	Ca (mg/L)	1	7	7	7
5	Cl (mg/L)	1	14.9	14.9	14.9
6	CO3 (mg/L)	1	0.0	0.0	0
7	F (mg/L)	1	0.73	0.73	0.73
8	Fe (mg/L)	1	0.1	0.1	0.1
9	HCO3 (mg/L)	1	25	25	25
10	K (mg/L)	1	2.9	2.9	2.9
11	Mg (mg/L)	1	3.9	3.9	3.9
12	Na (mg/L)	1	7.9	7.9	7.9
13	NO2-N (mgN/L)	1	0.07	0.07	0.07
14	o-PO4-P (mg P/L)	1	0.234	0.234	0.234
15	SiO2 (mg/L)	1	12.7	12.7	12.7
16	SO4 (mg/L)	1	8.9	8.9	8.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1	1.2	1.2	1.2
2	DO (mg/L)	1	7.5	7.5	7.5
	TRACE & TOXIC				
1	As (µg/L)	1	3.0	3.0	3
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	10.1	10.1	10.1
4	Cu (µg/L)	1	1.3	1.3	1.3
5	Ni (µg/L)	1	2.2	2.2	2.2
6	Pb (µg/L)	1	1.6	1.6	1.6
7	Zn (µg/L)	1	10.7	10.7	10.7
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	1	16	16	16
2	HAR_Total (mgCaCO3/L)	1	33	33	33
3	Na% (%)	1	32	32	32
4	RSC (-)	1	0.0	0.0	0
5	SAR (-)	1	0.6	0.6	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)			0.000	0.000	0.000
2	EC_GEN (µmho/cm)				218	
3	pH_GEN (pH units)				6.6	
4	TDS (mg/L)				151	
5	Temp (deg C)				26.0	
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)				0.0	
2	ALK-TOT (mgCaCO3/L)				28	
3	B (mg/L)				0.55	
4	Ca (mg/L)				11	
5	Cl (mg/L)				22.0	
6	CO3 (mg/L)				0.0	
7	F (mg/L)				0.05	
8	Fe (mg/L)				0.2	
9	HCO3 (mg/L)				34	
10	K (mg/L)				7.5	
11	Mg (mg/L)				3.4	
12	Na (mg/L)				15.9	
13	NH3-N (mg N/L)				0.08	
14	NO2+NO3 (mg N/L)				0.31	
15	NO2-N (mgN/L)				0.05	
16	NO3-N (mgN/L)				0.27	
17	o-PO4-P (mg P/L)				0.051	
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)				28.0	
20	SO4 (mg/L)				22.0	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)				13.8	
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)				28	
2	HAR_Total (mgCaCO3/L)				42	
3	Na% (%)				40	
4	RSC (-)				0.0	
5	SAR (-)				1.1	
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	0.000	0.000	0.000	9.949	3.296
2	EC_GEN (µmho/cm)	680	463	147	139	60
3	pH_GEN (pH units)	7.7	7.1	7.3	7.2	6.7
4	TDS (mg/L)	482	343			
5	Temp (deg C)	26.0	24.2	26.5	25.3	30.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	172	38			28
3	B (mg/L)	0.36	0.08			
4	Ca (mg/L)	52	14	12	8	8
5	Cl (mg/L)	72.0	87.1	22.8	26.7	23.8
6	CO3 (mg/L)	0.0	0.0			0.0
7	F (mg/L)	0.34	1.31			
8	Fe (mg/L)	0.2	0.1			
9	HCO3 (mg/L)	210	47	39	62	35
10	K (mg/L)	5.5	6.4	4.7		1.1
11	Mg (mg/L)	14.8	9.8	4.6	3.9	3.8
12	Na (mg/L)	47.0	55.3	11.6		10.9
13	NH3-N (mg N/L)	0.38				
14	NO2+NO3 (mg N/L)	10.83	1.37			
15	NO2-N (mgN/L)	0.63	0.08			
16	NO3-N (mgN/L)	10.20	1.29			
17	o-PO4-P (mg P/L)	0.265	0.107			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	16.8	10.6			
20	SO4 (mg/L)	14.0	22.2	7.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	0.3	5.2			
2	Cd (µg/L)	0.2	0.5			
3	Cr (µg/L)	4.2	0.6			
4	Cu (µg/L)	7.8	0.5			
5	Ni (µg/L)	3.3	10.0			
6	Pb (µg/L)	7.7	6.8			
7	Zn (µg/L)	5.5	25.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	130	34	29	20	20
2	HAR_Total (mgCaCO3/L)	192	75	48	36	36
3	Na% (%)	34	51	34		37
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	1.5	2.4	0.8		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2017	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	No Flow			No Flow	24.43
2	EC_GEN (µmho/cm)					120
3	pH_GEN (pH units)					6.8
4	TDS (mg/L)					78
5	Temp (deg C)					26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)					0.0
2	ALK-TOT (mgCaCO3/L)					29
3	B (mg/L)					0.16
4	Ca (mg/L)					7
5	Cl (mg/L)					14.0
6	CO3 (mg/L)					0.0
7	F (mg/L)					
8	Fe (mg/L)					0.3
9	HCO3 (mg/L)					35
10	K (mg/L)					3.4
11	Mg (mg/L)					3.0
12	Na (mg/L)					10.6
13	NH3-N (mg N/L)					0.05
14	NO2+NO3 (mg N/L)					0.29
15	NO2-N (mgN/L)					0.06
16	NO3-N (mgN/L)					0.23
17	o-PO4-P (mg P/L)					0.148
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)					20.4
20	SO4 (mg/L)					4.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)					18
2	HAR_Total (mgCaCO3/L)					30
3	Na% (%)					40
4	RSC (-)					0.0
5	SAR (-)					0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	0.000	0.000	0.000	11.01	10.95
2	EC_GEN (µmho/cm)	155		151	120	124
3	pH_GEN (pH units)	7.7		7.0	7.5	7.8
4	TDS (mg/L)	116		106		
5	Temp (deg C)	25.5		26.0	25.0	26.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0		
2	ALK-TOT (mgCaCO3/L)	34		30		
3	B (mg/L)	0.27		0.05		
4	Ca (mg/L)	9		9	7	8
5	Cl (mg/L)	15.6		22.9	21.6	28.0
6	CO3 (mg/L)	0.0		0.0		
7	F (mg/L)			0.73		
8	Fe (mg/L)	1.5			0.0	0.0
9	HCO3 (mg/L)	42		37	34	54
10	K (mg/L)	2.5		4.0		0.2
11	Mg (mg/L)	2.5		4.2	3.3	3.0
12	Na (mg/L)	9.3		14.4		13.0
13	NH3-N (mg N/L)	0.60				
14	NO2+NO3 (mg N/L)			1.41		
15	NO2-N (mgN/L)			0.01		
16	NO3-N (mgN/L)	1.30		1.41		
17	o-PO4-P (mg P/L)			0.012		
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	18.0		5.6		
20	SO4 (mg/L)	1.2		8.6	3.7	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8				
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	0.3				
2	Cd (µg/L)	0.1			0.1	
3	Cr (µg/L)	0.8			4.1	
4	Cu (µg/L)	43.7			22.5	
5	Ni (µg/L)	3.4			6.8	
6	Pb (µg/L)	0.3			10.4	
7	Zn (µg/L)	16.7			9.8	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	22		22	18	20
2	HAR_Total (mgCaCO3/L)	32		39	31	32
3	Na% (%)	36		41		44
4	RSC (-)	0.0		0.0		
5	SAR (-)	0.7		1.0		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)		49.96			
2	EC_GEN (µmho/cm)		98			
3	pH_GEN (pH units)		7.1			
4	TDS (mg/L)		59			
5	Temp (deg C)					
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			
2	ALK-TOT (mgCaCO3/L)		20			
3	B (mg/L)		0.31			
4	Ca (mg/L)		7			
5	Cl (mg/L)		14.9			
6	CO3 (mg/L)		0.0			
7	F (mg/L)		0.73			
8	Fe (mg/L)		0.1			
9	HCO3 (mg/L)		25			
10	K (mg/L)		2.9			
11	Mg (mg/L)		3.9			
12	Na (mg/L)		7.9			
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)		0.07			
16	NO3-N (mgN/L)					
17	o-PO4-P (mg P/L)		0.234			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)		12.7			
20	SO4 (mg/L)		8.9			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.2			
2	COD (mg/L)					
3	DO (mg/L)		7.5			
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)		3.0			
2	Cd (µg/L)		0.0			
3	Cr (µg/L)		10.1			
4	Cu (µg/L)		1.3			
5	Ni (µg/L)		2.2			
6	Pb (µg/L)		1.6			
7	Zn (µg/L)		10.7			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		16			
2	HAR_Total (mgCaCO3/L)		33			
3	Na% (%)		32			
4	RSC (-)		0.0			
5	SAR (-)		0.6			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)			0.000	0.000
2	EC_GEN (µmho/cm)			1370	114
3	pH_GEN (pH units)			7.2	7.4
4	TDS (mg/L)			1028	80
5	Temp (deg C)			23.0	29.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			166	30
3	B (mg/L)			1.27	0.06
4	Ca (mg/L)			38	10
5	Cl (mg/L)			189.0	16.3
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)			1.19	0.43
8	Fe (mg/L)			0.3	0.0
9	HCO3 (mg/L)			203	37
10	K (mg/L)			30.0	5.9
11	Mg (mg/L)			77.3	2.4
12	Na (mg/L)			103.0	10.2
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)			22.80	1.54
15	NO2-N (mgN/L)			6.00	0.09
16	NO3-N (mgN/L)			16.80	1.45
17	o-PO4-P (mg P/L)			0.280	0.130
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)			14.5	21.4
20	SO4 (mg/L)			96.0	2.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
3	DO (mg/L)				
4	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)			2.6	5.8
2	Cd (µg/L)			0.0	0.0
3	Cr (µg/L)			0.3	3.5
4	Cu (µg/L)			1.5	1.7
5	Ni (µg/L)			4.6	1.5
6	Pb (µg/L)			8.6	0.2
7	Zn (µg/L)			1.3	1.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			96	24
2	HAR_Total (mgCaCO3/L)			418	34
3	Na% (%)			33	35
4	RSC (-)			0.0	0.0
5	SAR (-)			2.2	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Cochin

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_GEN (µmho/cm)	162	143		
3	pH_GEN (pH units)	6.9	7.0		
4	TDS (mg/L)				
5	Temp (deg C)	27.5	33.0		
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)				
2	ALK-TOT (mgCaCO3/L)				
3	B (mg/L)				
4	Ca (mg/L)	8	8		
5	Cl (mg/L)	14.3	31.3		
6	CO3 (mg/L)				
7	F (mg/L)				
8	Fe (mg/L)				
9	HCO3 (mg/L)	26	12		
10	K (mg/L)		0.2		
11	Mg (mg/L)	1.9	2.8		
12	Na (mg/L)		6.5		
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)				
17	o-PO4-P (mg P/L)				
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)				
20	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
3	DO (mg/L)				
4	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Ni (µg/L)				
6	Pb (µg/L)				
7	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	20		
2	HAR_Total (mgCaCO3/L)	27	31		
3	Na% (%)		31		
4	RSC (-)				
5	SAR (-)		0.5		
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2017-2018
Site	: ASHRAMAM	Code	: KE000G2
State	: Tamil Nadu	District	Kanyakumari
Basin	: WFR South of Tapi	Independent River	: Pazhayar
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Pazhayar
Division	: SWR Division, Cochin	Sub-Division	: SWR SD No 1, Trivandrum
Drainage Area	: 258 Sq. Km.	Bank	: Right
Latitude	: 08°09'33"	Longitude	: 77°27'32"
Zero of Gauge (m)	: 1.000 (m.s.l)	01/04/1996	
	Opening Date	Closing Date	
Gauge	: 01/04/1996		
Discharge	: 21/09/1999		
Sediment	:		
Water Quality	: 02/12/2002		

Water Quality Datasheet for the period : 2017-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	03/10/2017	04/12/2017
		A	A
	PHYSICAL		
1	Q (cumec)	1.510	38.98
2	Colour_Cod (-)	Clear	Brown
3	EC_GEN (µmho/cm)	135	112
4	Odour_Code (-)	odour free	odour free
5	pH_GEN (pH units)	7.5	7.1
6	TDS (mg/L)	89	76
7	Temp (deg C)	26.0	26.0
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	44	32
3	B (mg/L)	0.18	0.27
4	Ca (mg/L)	11	10
5	Cl (mg/L)	17.2	16.8
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.81	0.81
8	Fe (mg/L)	0.1	0.0
9	HCO3 (mg/L)	54	39
10	K (mg/L)	3.9	3.2
11	Mg (mg/L)	3.0	4.9
12	Na (mg/L)	13.1	9.5
13	NO2-N (mgN/L)	0.03	0.06
14	o-PO4-P (mg P/L)	0.176	0.206
15	SiO2 (mg/L)	12.4	7.2
16	SO4 (mg/L)	9.0	7.9
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)		1.3
2	DO (mg/L)		6.0
3	DO_SAT% (%)		74
	TRACE & TOXIC		
1	As (µg/L)		4.0
2	Cd (µg/L)		0.0
3	Cr (µg/L)		13.2
4	Cu (µg/L)		2.0
5	Ni (µg/L)		2.3
6	Pb (µg/L)		1.7
7	Zn (µg/L)		10.5
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	29	24
2	HAR_Total (mgCaCO3/L)	41	45
3	Na% (%)	39	30
4	RSC (-)	0.1	0.0
5	SAR (-)	0.9	0.6
	PESTICIDES		

Water Quality Summary for the period : 2017-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

Sub-Division : SWR SD No 1, Trivandrum

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	536.6	0.000	3.947
2	EC_GEN (µmho/cm)	2	135	112	124
3	pH_GEN (pH units)	2	7.5	7.1	7.3
4	TDS (mg/L)	2	89	76	82
5	Temp (deg C)	2	26.0	26.0	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	2	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	2	44	32	38
3	B (mg/L)	2	0.27	0.18	0.23
4	Ca (mg/L)	2	11	10	11
5	Cl (mg/L)	2	17.2	16.8	17
6	CO3 (mg/L)	2	0.0	0.0	0
7	F (mg/L)	2	0.81	0.81	0.81
8	Fe (mg/L)	2	0.1	0.0	0
9	HCO3 (mg/L)	2	54	39	47
10	K (mg/L)	2	3.9	3.2	3.5
11	Mg (mg/L)	2	4.9	3.0	3.9
12	Na (mg/L)	2	13.1	9.5	11.3
13	NO2-N (mgN/L)	2	0.06	0.03	0.04
14	o-PO4-P (mg P/L)	2	0.206	0.176	0.191
15	SiO2 (mg/L)	2	12.4	7.2	9.8
16	SO4 (mg/L)	2	9.0	7.9	8.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1	1.3	1.3	1.3
2	DO (mg/L)	1	6.0	6.0	6
3	DO_SAT% (%)	1	74	74	74
	TRACE & TOXIC				
1	As (µg/L)	1	4.0	4.0	4
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	13.2	13.2	13.2
4	Cu (µg/L)	1	2.0	2.0	2
5	Ni (µg/L)	1	2.3	2.3	2.3
6	Pb (µg/L)	1	1.7	1.7	1.7
7	Zn (µg/L)	1	10.5	10.5	10.5
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	2	29	24	26
2	HAR_Total (mgCaCO3/L)	2	45	41	43
3	Na% (%)	2	39	30	34
4	RSC (-)	2	0.1	0.0	0
5	SAR (-)	2	0.9	0.6	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)				1.384	0.826
2	EC_GEN (µmho/cm)				190	194
3	pH_GEN (pH units)				6.9	7.0
4	TDS (mg/L)				124	149
5	Temp (deg C)				25.5	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)				24	54
2	B (mg/L)				0.20	0.18
3	Ca (mg/L)				9	15
4	Cl (mg/L)				17.0	23.9
5	CO3 (mg/L)				0.0	0.0
6	F (mg/L)					0.08
7	Fe (mg/L)				0.3	0.1
8	HCO3 (mg/L)				29	66
9	K (mg/L)				5.3	3.4
10	Mg (mg/L)				4.4	4.8
11	Na (mg/L)				9.8	15.2
12	NH3-N (mg N/L)				0.06	0.19
13	NO2+NO3 (mg N/L)				0.23	0.28
14	NO2-N (mgN/L)				0.01	0.08
15	NO3-N (mgN/L)				0.22	0.20
16	o-PO4-P (mg P/L)				0.012	0.070
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)				23.0	13.8
19	SO4 (mg/L)				16.4	1.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)				12.4	
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)				22	38
2	HAR_Total (mgCaCO3/L)				40	57
3	Na% (%)				31	35
4	RSC (-)				0.0	0.0
5	SAR (-)				0.7	0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	0.000	0.000	0.000	2.965	
2	EC_GEN (µmho/cm)	635	416	423	131	
3	pH_GEN (pH units)	7.8	7.0	7.3	7.5	
4	TDS (mg/L)	425	309			
5	Temp (deg C)	25.0	26.8	26.3	26.3	
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	166	127			
2	B (mg/L)	0.26	0.11			
3	Ca (mg/L)	48	33	32	7	
4	Cl (mg/L)	70.3	52.1	51.2	29.5	
5	CO3 (mg/L)	0.0	0.0			
6	F (mg/L)	0.25	2.95			
7	Fe (mg/L)	0.2	0.1			
8	HCO3 (mg/L)	203	154	152	29	
9	K (mg/L)	5.0	6.8	7.5		
10	Mg (mg/L)	13.6	9.3	19.3	2.5	
11	Na (mg/L)	46.0	37.7	29.4		
12	NH3-N (mg N/L)	0.32				
13	NO2+NO3 (mg N/L)	8.31	0.63			
14	NO2-N (mgN/L)	0.71	0.12			
15	NO3-N (mgN/L)	7.60	0.51			
16	o-PO4-P (mg P/L)	0.161	0.120			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	15.6	14.0			
19	SO4 (mg/L)	12.0	12.9	19.9		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)	0.4	4.2			
2	Cd (µg/L)	0.4	0.8			
3	Cr (µg/L)	3.1	4.8			
4	Cu (µg/L)	4.9	0.8			
5	Hg (µg/L)		0.1			
6	Ni (µg/L)	5.2	10.0			
7	Pb (µg/L)	1.2				
8	Zn (µg/L)	4.4	10.0			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	120	83	79	18	
2	HAR_Total (mgCaCO3/L)	177	122	159	29	
3	Na% (%)	35	38	29		
4	RSC (-)	0.0	0.2			
5	SAR (-)	1.5	1.5	1.0		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
			Jun - Oct	Nov - Feb		
				2007-2008	2008-2009	2009-2010
		2017				
	PHYSICAL					
1	Q (cumec)	1.510				15.06
2	EC_GEN (µmho/cm)	135				188
3	pH_GEN (pH units)	7.5				7.0
4	TDS (mg/L)	89				131
5	Temp (deg C)	26.0				26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	44				52
2	B (mg/L)	0.18				0.18
3	Ca (mg/L)	11				14
4	Cl (mg/L)	17.2				24.1
5	CO3 (mg/L)	0.0				0.0
6	F (mg/L)	0.81				0.23
7	Fe (mg/L)	0.1				0.1
8	HCO3 (mg/L)	54				63
9	K (mg/L)	3.8				4.6
10	Mg (mg/L)	3.0				4.9
11	Na (mg/L)	13.1				16.5
12	NH3-N (mg N/L)					0.06
13	NO2+NO3 (mg N/L)					0.16
14	NO2-N (mgN/L)	0.03				0.06
15	NO3-N (mgN/L)					0.10
16	o-PO4-P (mg P/L)	0.176				0.213
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	12.4				18.8
19	SO4 (mg/L)	9.0				2.8
	BIOLOGICAL/BACTERIOLOGIC					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)					
4	DO_SAT% (%)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)					
3	Cr (µg/L)					
4	Cu (µg/L)					
5	Hg (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	29				36
2	HAR_Total (mgCaCO3/L)	41				56
3	Na% (%)	39				37
4	RSC (-)	0.1				0.0
5	SAR (-)	0.9				1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
	PHYSICAL					
1	Q (cumec)	19.18	0.000	0.000	16.92	0.000
2	EC_GEN (µmho/cm)	202		401	189	190
3	pH_GEN (pH units)	6.8		7.1	7.3	7.4
4	TDS (mg/L)	151		300		
5	Temp (deg C)	24.0		25.8	25.5	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	61		128		
2	B (mg/L)	0.48		0.07		
3	Ca (mg/L)	17		32	13	13
4	Cl (mg/L)	26.3		41.7	26.7	39.1
5	CO3 (mg/L)	0.0		0.0		
6	F (mg/L)	2.05		1.48		
7	Fe (mg/L)	0.3			0.0	0.0
8	HCO3 (mg/L)	74		156	70	48
9	K (mg/L)	4.8		6.0		0.3
10	Mg (mg/L)	5.4		10.2	8.5	4.7
11	Na (mg/L)	18.0		28.5		10.6
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)			2.07		
14	NO2-N (mgN/L)			0.03		
15	NO3-N (mgN/L)	3.75		2.04		
16	o-PO4-P (mg P/L)	0.220		0.010		
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	7.0		5.0		
19	SO4 (mg/L)	2.0		10.2	6.7	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
3	DO (mg/L)			7.0		
4	DO_SAT% (%)			85		
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)				0.1	
3	Cr (µg/L)				1.2	
4	Cu (µg/L)				4.2	
5	Hg (µg/L)					
6	Ni (µg/L)				3.4	
7	Pb (µg/L)				15.3	
8	Zn (µg/L)				9.2	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	42		81	31	31
2	HAR_Total (mgCaCO3/L)	65		123	67	51
3	Na% (%)	36		32		30
4	RSC (-)	0.0		0.1		
5	SAR (-)	1.0		1.1		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2016-2017	2017-2018	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	0.265	38.98			
2	EC_GEN (µmho/cm)	44	112			
3	pH_GEN (pH units)	6.6	7.1			
4	TDS (mg/L)		76			
5	Temp (deg C)	24.0	26.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	32			
2	B (mg/L)		0.27			
3	Ca (mg/L)	6	10			
4	Cl (mg/L)	11.2	16.8			
5	CO3 (mg/L)	0.0	0.0			
6	F (mg/L)		0.81			
7	Fe (mg/L)		0.0			
8	HCO3 (mg/L)	17	39			
9	K (mg/L)	2.6	3.2			
10	Mg (mg/L)	2.8	4.9			
11	Na (mg/L)	8.7	9.5			
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)					
14	NO2-N (mgN/L)		0.06			
15	NO3-N (mgN/L)					
16	o-PO4-P (mg P/L)		0.206			
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)		7.2			
19	SO4 (mg/L)		7.9			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		1.3			
2	COD (mg/L)					
3	DO (mg/L)		6.0			
4	DO_SAT% (%)		74			
	TRACE & TOXIC					
1	As (µg/L)		4.0			
2	Cd (µg/L)		0.0			
3	Cr (µg/L)		13.2			
4	Cu (µg/L)		2.0			
5	Hg (µg/L)					
6	Ni (µg/L)		2.3			
7	Pb (µg/L)		1.7			
8	Zn (µg/L)		10.5			
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	24			
2	HAR_Total (mgCaCO3/L)	27	45			
3	Na% (%)	39	30			
4	RSC (-)	0.0	0.0			
5	SAR (-)	0.7	0.6			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2011	2012	2013	2014
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
2	EC_GEN (µmho/cm)		404	495	565
3	pH_GEN (pH units)		6.8	7.3	7.0
4	TDS (mg/L)		311	347	450
5	Temp (deg C)		24.5	25.0	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)		96	132	77
2	B (mg/L)		0.45	0.64	0.15
3	Ca (mg/L)		30	40	40
4	Cl (mg/L)		44.0	48.0	76.0
5	CO3 (mg/L)		0.0	0.0	0.0
6	F (mg/L)		0.21	2.40	0.68
7	Fe (mg/L)		0.1	0.2	0.1
8	HCO3 (mg/L)		117	161	94
9	K (mg/L)		11.0	9.1	14.0
10	Mg (mg/L)		6.9	5.4	19.2
11	Na (mg/L)		28.0	37.2	42.0
12	NH3-N (mg N/L)		0.15		
13	NO2+NO3 (mg N/L)		4.69	7.46	10.54
14	NO2-N (mgN/L)		0.14	0.26	0.14
15	NO3-N (mgN/L)		4.55	7.20	10.40
16	o-PO4-P (mg P/L)		0.750	0.160	0.100
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)		14.0	19.0	18.9
19	SO4 (mg/L)		6.5	1.2	38.0
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
3	DO (mg/L)				
4	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)			1.7	4.5
2	Cd (µg/L)			0.0	0.0
3	Cr (µg/L)			0.2	1.2
4	Cu (µg/L)			1.7	1.2
5	Hg (µg/L)				
6	Ni (µg/L)			0.0	2.2
7	Pb (µg/L)			3.0	0.5
8	Zn (µg/L)			0.1	3.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		74	101	100
2	HAR_Total (mgCaCO3/L)		103	124	180
3	Na% (%)		34	38	32
4	RSC (-)		0.0	0.2	0.0
5	SAR (-)		1.2	1.5	1.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2007-2018

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Cochin

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2015	2016	2017	2018
	PHYSICAL				
1	Q (cumec)	0.000	0.000	No Flow	No Flow
2	EC_GEN (µmho/cm)	522	36		
3	pH_GEN (pH units)	7.3	6.2		
4	TDS (mg/L)				
5	Temp (deg C)	26.0	27.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)	5	6		
4	Cl (mg/L)	26.6	36.5		
5	CO3 (mg/L)				
6	F (mg/L)				
7	Fe (mg/L)				
8	HCO3 (mg/L)	34	16		
9	K (mg/L)		0.2		
10	Mg (mg/L)	1.9	2.8		
11	Na (mg/L)		5.9		
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)				
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				
19	SO4 (mg/L)				
	BIOLOGICAL/BACTERIOLOGIC				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
3	DO (mg/L)				
4	DO_SAT% (%)				
	TRACE & TOXIC				
1	As (µg/L)				
2	Cd (µg/L)				
3	Cr (µg/L)				
4	Cu (µg/L)				
5	Hg (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	16		
2	HAR_Total (mgCaCO3/L)	20	28		
3	Na% (%)		32		
4	RSC (-)				
5	SAR (-)		0.5		
	PESTICIDES				

(केवल कार्यालय उपयोग हेतु)
(FOR OFFICIAL USE ONLY)

वार्षिक जल पुस्तिका

जल गुणवत्ता परिदृश्य

WATER YEAR BOOK

WATER QUALITY SCENARIO

जून 2017 – मई 2018

JUNE 2017 – MAY 2018

पश्चिम प्रवाही नदियाँ बेसिन

WEST FLOWING RIVERS BASIN



कावेरी एवं दक्षिणी नदियाँ परिमण्डल, बंगलुरु

CAUVERY & SOUTHERN RIVERS CIRCLE, BENGALURU

कावेरी एवं दक्षिणी नदियाँ संगठन, कोयंबतूर

CAUVERY & SOUTHERN RIVERS ORGANISATION, COIMBATORE

अप्रैल – 2019

April – 2019

1. INTRODUCTION:

The water of West Flowing Rivers is generally of good quality with low to medium ionic concentration. However, for basins such as Bharathapuzha and Chaliyar having comparatively large drainage area, the ionic concentration is on higher side at Thambraparani river basin. Moreover, no major industries are situated on the banks of these rivers except Chaliyar. General assessment of the results of water samples collected from West Flowing Rivers shows that the rivers with small drainage area are of acidic in nature except the river originating in Maharashtra and North Karnataka where the results are alkaline whereas with large drainage area are of slightly alkaline in nature except river Chalakudy.

2. MAJOR RIVERS:

2.1. ULHAS RIVER BASIN

The Ulhas, one of the west flowing rivers drains an area of 4637 Sq.Km. The entire drainage area lies in Maharashtra state. Important tributaries of the Ulhas are Peg, Barvi Murbari, Kalu, Shari, Bhasta, Salpe, Poshir and Shilar. The Kalu and Bhasta together account for about 55.7% of the total catchment area of the basin. Total length of the river from its origin to its out fall into the Arabian Sea is 122 Km. The water quality of this basin commenced with the introduction of observations at the existing gauge and discharge observation station on this river at **Badlapur** from 02/07/1993.

2.2. KAL RIVER BASIN

The Kal, which is a major tributary to river Savitri originates from the Sahyadri hill ranges in the Raigad district of Maharashtra. It drains an area of 670 Sq.Km which lies completely in Raigad district. The total length of this river from its origin to its confluence with the Savitri is 40 Km. Water quality station on this river is established at **Mangaon**, where water quality observations are being carried out from 02/07/1993.

2.3. GAD RIVER BASIN

The Gad originates from the Sahyadri hill ranges in the Sindhudurg district of Maharashtra state. It drains an area of 890 Sq.Km and has a length of 66 Km from its origin to its out fall into the Arabian Sea. The only water quality on this basin at Adavali has been shifted to **Belne Bridge** in June 2000.

2.4. AGHNASHINI RIVER BASIN

The river Aghnashini originates from Gadihalli in the Western Ghats of Karnataka. The river has a catchment area of 1350 Sq.Km. and its total length is 117 Km. The river flows mostly through forest area and the only water quality station on this river is at **Santeguli**. Water Quality Monitoring of this basin commenced with the introduction of Water Quality observations at Santeguli with effect from 01/09/1993.

2.5. HALADI RIVER BASIN

This river Haladi originates in the Western Ghats near Someswara in the reserved forest of Karnataka. The river has a drainage area of 781 Sq.Km and a total length of 70 Km. The water quality station on this river is at **Haladi**, where water quality observation commenced from 01/09/1993.

2.6. SITA RIVER BASIN

River Sita originates from the Udupi district of Karnataka. The only water quality station on this river is at **Avershe**, where water quality observations are being carried out from 02/09/2002.

2.7. SWARNA RIVER BASIN

This river Swarna is one of the major west flowing rivers in Dakshina Kannada district. Total drainage area of this river up to the site is 327 Sq.Km. and the river flows for a distance of 61.05 Km up to its confluence with sea. The river is called Yennehole in the initial stages and Swarna after its confluence with its tributary Kaud-hole. The water quality station on this river is established at **Yennehole**, where water quality observations are being carried out from 01/09/1993.

2.8. GURUPUR RIVER BASIN

River Gurupur originates from the Dakshina Kannada district of Karnataka state. The drainage area of the river is 870.4 Sq.Km. The only water quality station on this river is at **Addoor**, where water quality observations are being carried out from 02/09/2002.

2.9. NETHRAVATHI RIVER BASIN

River Nethravathi originates from South Canara district of Karnataka state. It is a perennial river with a drainage area of 3657 Sq.Km and a length of 103 Km. The only water quality station on this river is at **Bantwal** in Karnataka. Water Quality observations are being carried out from 15/06/1978.

2.10. PAYASWANI RIVER BASIN

The Payaswani, also known as the Chandragiri in the lower reaches, originate from the Patti Ghat reserve forest in Coorg District of Karnataka. The river covers a distance of 105 Kms. and drains an area of 1538 Sq. kms. The only water quality station on this basin is located at **Erinjipuzha**, where Water Quality observation commenced from 01/07/1988.

2.11. VALAPATNAM RIVER BASIN

River Valapatnam originates in the Coorg district of Karnataka State. It has a drainage area of 1867 Sq.kms out of which 546 Sq.kms. are in Karnataka and the rest in Kerala. It is a perennial river and has a total length of 101 kms. The only water quality station on this river is at **Perumannu**, where Water Quality observation commenced from 02/06/1986.

2.12. KUTTYADI RIVER BASIN

River Kuttyadi originates from the hills of Western Ghats. The length of the river is 90 kms. and drains an area of 583 Sq. kms. The Water Quality station on this river is at **Kuttyadi** (Thottathankara). Water Quality monitoring at this station started from 01/10/2002.

2.13. CHALIYAR RIVER BASIN

Chaliyar is one of the major rivers of Kerala. The river originates from the Elambari hills in Tamil Nadu. It has a total length of 169 kms and drains an area of 2933 Sq.kms. of which 388 Sq.kms lies in Tamil Nadu. It is a perennial river. The only water quality station on this river is located at **Kuniyil** in Kerala, where Water Quality observation commenced from 15/01/1979.

2.14. KADALUNDI RIVER BASIN

The Kadalundi also known by the names Karimpuzha and Oruvanpurampuzha, originate from Karuvarakkundu village in the Calicut District of Kerala State. It drains a total area of 1.112 Sq.kms. and traverses about 130 Kms. Water Quality station on this basin is located at **Karathodu** only, where Water Quality observation commenced from 01/12/1988.

2.15. BHARATHAPUZHA RIVER BASIN

Bharathapuzha is the largest river basin in Kerala. It is spread over two states namely Tamil Nadu and Kerala. Out of 6186 Sq.km. of drainage area, 4400 Sq.km is in Kerala and the remaining 1786 Sq.km lies in Tamil Nadu. Originating in Tamil Nadu, the river flows through a total length of 251 kms. There are 5 water quality stations in this basin viz, **Kumbidi, Pulamanthole, Pudur, Ambarampalayam** and **Mankara**. Among the five sites Pulamanthole is situated on its tributary Pulanthodu.

2.16. PERIYAR RIVER BASIN

Periyar is the longest river in Kerala which originates from the Sivagiri peak. The total length of the river is 244 Kms. and drains an area of 5398 Sq.kms. On its course it receives a number of tributaries and branches out into two at Alwaye. The Chalakudy River joins the upper branch at Munambam Lake and the other branch further split into small channels and joins the Vembanadu Lake. There are three water quality stations on this basin. Two are on the main river Periyar at **Neeleswaram** and **Vandiperiyar**. The third is on its tributary Chalakudy at **Arangaly**. It is a perennial river.

2.17. MUVATTUPUZHA RIVER BASIN

River Muvattupuzha originates in the Idukki district of Kerala. It is a perennial river with total drainage area 1554 Sq.kms and the length is 121 kms. There are two water quality stations on this Basin, one on the main river Muvattupuzha at **Ramamangalam** and the other at **Kalampur** on its tributary called Kaliyar.

2.18. MEENACHIL RIVER BASIN

River Meenachil originates in Kottayam district of Kerala State. The total length of the river from its origin to Vembanad Lake, where it joins is about 78 kms. The drainage area is 1,272 Sq.Kms. The only water quality station on this river is at **Kidangoor**, where Water Quality observation commenced from 02/06/1986.

2.19. PAMBA RIVER BASIN

Pamba is the third largest river in Kerala. It is a perennial river joined by four tributaries during its course of 176 Kms. Its total drainage area is 2,235 Sq.Kms. Its origin is in the Peerumedu Plateau. There are two water quality stations on this basin. One is on the main river Pamba at **Malakkara**. The other one is on its tributary called Manimala at **Kallooppa**.

2.20. ACHENKOVIL RIVER BASIN

River Achenkovil originates in the south of Devarmalai, in the Quilon District of Kerala. The river is formed by several streams originating from Pasukidamettu, Ramakkla Teri and Rishi Malai. It has a total length of 138 km. and drains an area of 1484 Sq. Km. The drainage area up to the Site is 810 Sq. Km. The only water quality station on this basin is located at **Thumpamon**, where Water Quality observation commenced from 15/10/1978.

2.21. KALLADA RIVER BASIN

Kallada is a perennial river originating in Quilon district. Its total drainage area is 1699 Sq.Km and length is 121 Km. The only water quality station on this river is at **Pattazhy**, where Water Quality observation commenced from 15/10/1978.

2.22. VAMANAPURAM RIVER BASIN

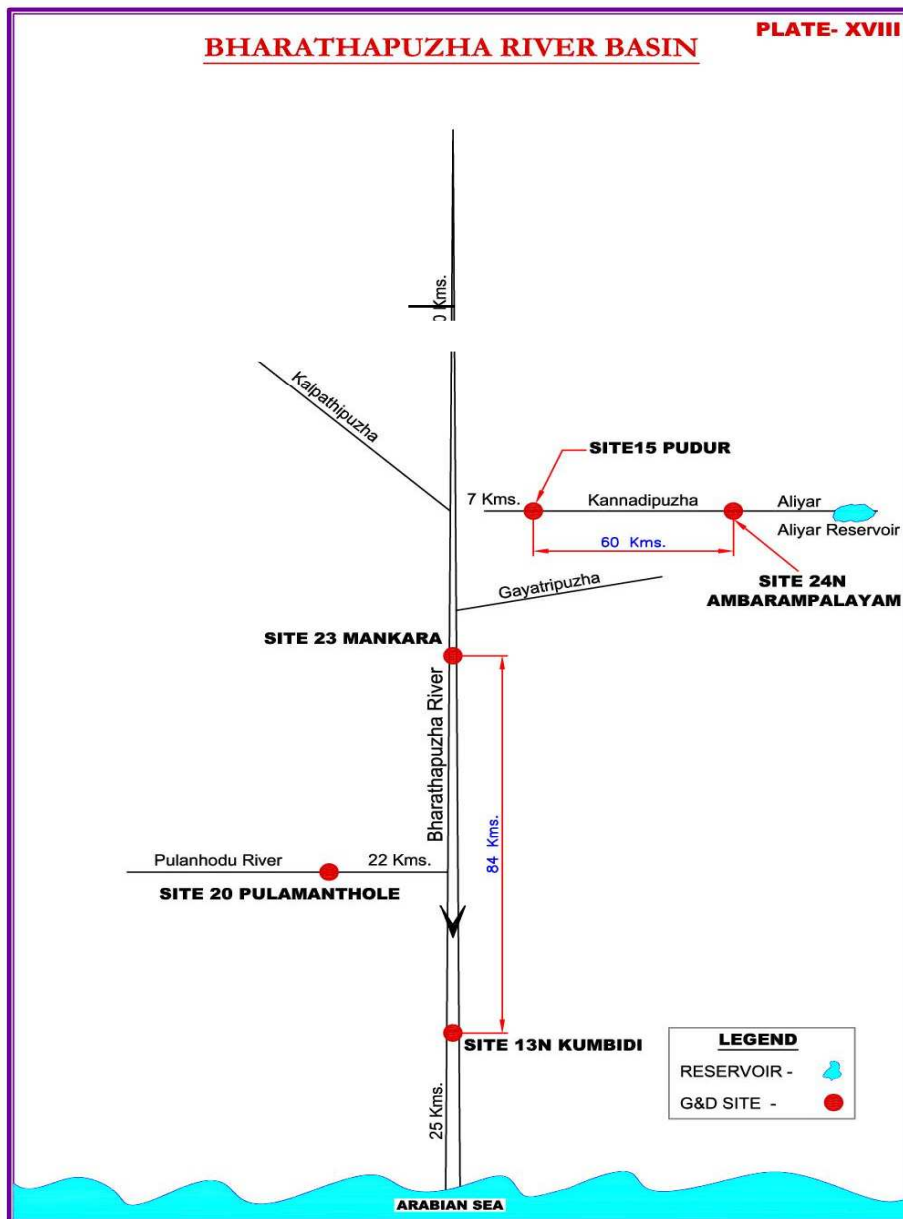
River Vamanapuram originates from Chemunji Motai in Kerala. Its total drainage area is 681 Sq.Kms and the length is 88 Kms. The only water quality station on this river is at **Ayilam**.

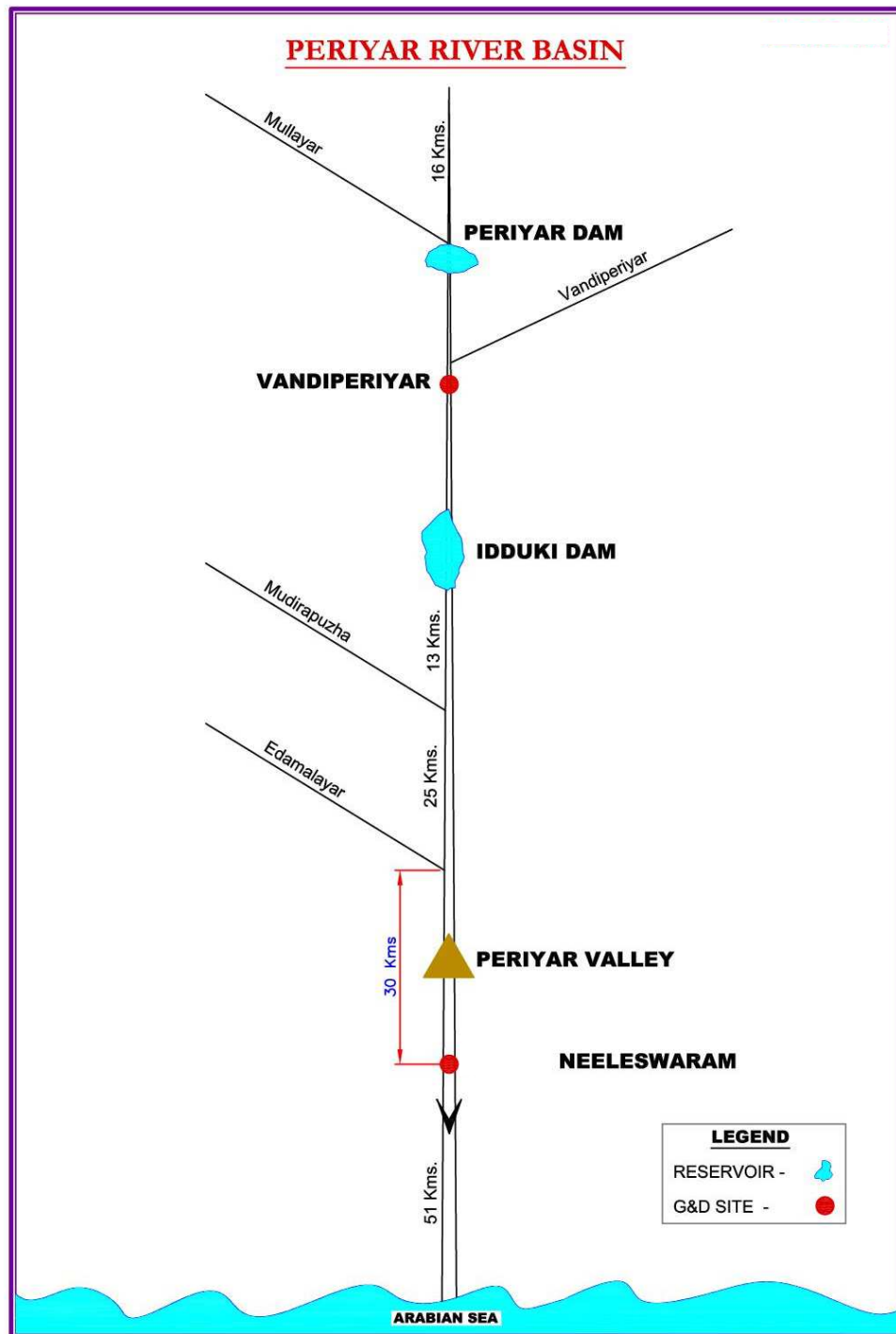
2.23. TAMBRAPARANI RIVER BASIN

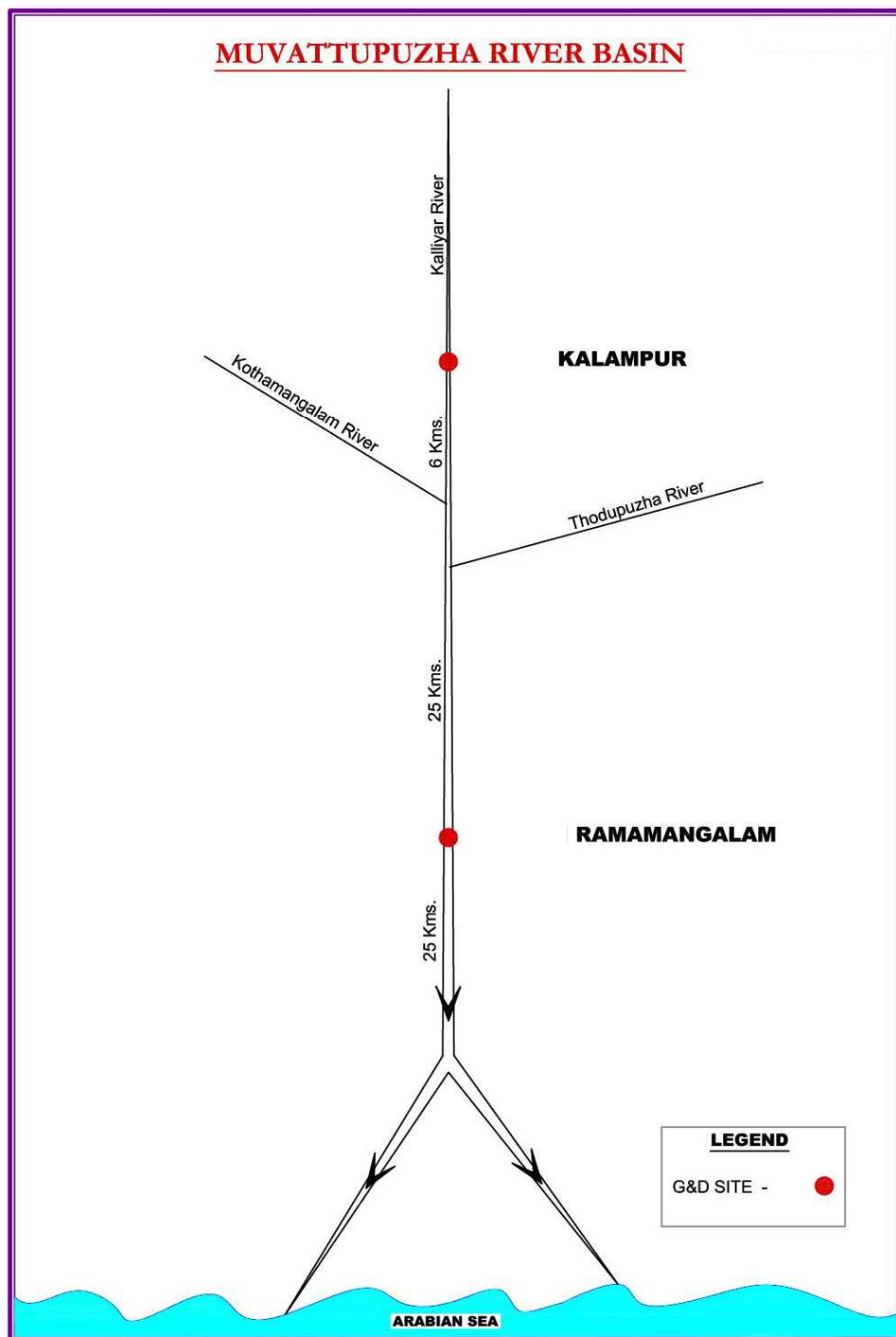
The river Tambraparani originates from the Kanyakumari district of Tamil Nadu. The total length of the river is 55 km. The total drainage area of the river is 841 Sq. km. The only Water Quality station on this river is at **Kuzhithurai**. Water Quality Monitoring of this basin started with effect from 02/12/2002.

2.24. PAZHAYAR RIVER BASIN

River Pazhayar originates in the Kanyakumari District of Tamil Nadu. The total length of the river is 40 km. and with a drainage area of 258 Sq. kms. The only Water Quality station on this river is at **Ashramam**. Water Quality Monitoring of this basin started with effect from 02/12/2002.







3. Water Quality Network:

River wise network details in West Flowing Rivers Basin

River	River Type	WQ Sites	Date of Opening	Drainage Area (Sq.Km)	State
Ulhas	Main River	Badlapur	02/07/1993	785	Maharashtra
Kal	Tributary	Mangaon	02/07/1993	259	Maharashtra
Gad	Main River	Belne Bridge	03/07/2000	605	Maharashtra
Aghanashini	Main River	Santeguli	01/09/1993	1090	Karnataka
Haladi	Main River	Haladi	01/09/1993	583	Karnataka
Sita	Main River	Avershe	02/09/2002	253	Karnataka
Yennehole	Tributary	Yennehole	01/09/1993	327	Karnataka
Gurpur	Main River	Addoor	02/09/2002	688	Karnataka
Netravati	Main River	Bantwal	15/06/1978	3184	Karnataka
Payaswani	Main River	Erinjipuzha	01/07/1988	957	Kerala
Valapatnam	Main River	Perumannu	02/06/1986	1070	Kerala
Kuttyadi	Main River	Kuttyadi	01/10/2002	238	Kerala
Chaliyar	Main River	Kuniyil	15/01/1979	1876	Kerala
Kadalundi	Main River	Karathodu	01/12/1988	750	Kerala
Bharathapuzha	Main River	Mankara	02/06/1986	2775	Kerala
		Kumbidi	03/12/1979	5755	
Kannadipuzha	Tributary	Pudur	02/06/1986	1313	Kerala
Aliyar	Tributary	Ambarampalayam	01/08/1978	950	Tamil Nadu
Pulanthodu	Tributary	Pulamanthole	02/06/1986	940	Kerala
Chalakudi	Tributary	Arangaly	01/08/1978	1342	Kerala
Periyar	Main River	Vandiperiyar	01/10/2002	712	Kerala
		Neeleswaram	15/06/1978	4234	
Muvattupuzha	Main River	Ramamangalam	15/08/1978	1208	Kerala
Kaliyar	Tributary	Kalampur	01/06/1988	405	Kerala
Meenachil	Main River	Kidangoor	02/06/1986	615	Kerala
Pamba	Main River	Malakkara	01/07/1986	1713	Kerala
Manimala	Tributary	Kallooppa	02/06/1986	731	Kerala
Achankovil	Tributary	Thumpamon	15/10/1978	810	Kerala
Kallada	Main River	Pattazhy	15/10/1978	1210	Kerala
Vamanapuram	Main River	Ayilam	02/01/1979	540	Kerala
Thambraparani	Main River	Kuzhithurai	02/12/2002	841	Tamil Nadu
Pazhayar	Main River	Ashramam	02/12/2002	258	Tamil Nadu

4. Analysis:

Water Quality monitoring provides information on the physical, chemical biological status of water resources. The river water quality monitoring is a part of hydrological observation of Central Water Commission. The objectives of the river water quality monitoring is to assess the suitability of river water for various designated uses viz, irrigation, drinking purposes, out- door bathing and propagation of wildlife and fisheries, water quality improving or degrading etc.

River Water Quality Data of sites on the main river for the period given in Table – 1 has been taken into consideration for studying the WQ Scenario of the Rivers. Average of yearly Maximum, Average of yearly Minimum and Annual Average for the period of Since Inception, Last 10 years i.e. 2007 – 2008 to 2016 – 2017 and One year (2017 – 2018) for the major parameters like Electrical conductivity, pH, Fluoride, Biochemical Oxygen Demand and Dissolved Oxygen are taken into consideration for concluding the WQ Scenario of Bharathapuzha, Aliyar & Kannadipuzha, Periyar and Muvattupuzha Rivers.

Table-1

River	WQ Site Name	Year of Inception	Last 10 years	Last One Year
Bharathapuzha	Mankara	1986 - 1987	2007-08 to 2016-17	2017 - 2018
	Kumbidi	1980 - 1981	2007-08 to 2016-17	2017 - 2018
Aliyar & Kannadipuzha	Ambarampalayam	1979 - 1980	2007-08 to 2016-17	2017 - 2018
	Pudur	1986 - 1987	2007-08 to 2016-17	2017 - 2018
Periyar	Vandiperiyar	2002 - 2003	2007-08 to 2016-17	2017 - 2018
	Neeleswaram	1980 - 1981	2007-08 to 2016-17	2017 - 2018
Muvattupuzha	Kalampur	1988 - 1989	2007-08 to 2016-17	2017 - 2018
	Ramamangalam	1980 - 1981	2007-08 to 2016-17	2017 - 2018

WQ Scenario of these Rivers is concluded with relation to the Tolerance limits of selected pollution indicating parameters for inland surface waters designated for different uses as prescribed by the Bureau of Indian Standards (BIS IS: 2296-1982) which is shown in Annexure - IV and Drinking Water Specification as prescribed by Bureau of Indian Standards (IS 10500: 2012) which is shown in Annexure - V.

4.1 Bharathapuzha River:

The water quality scenario is being presented in pictorial graph among the sites **Mankara** and **Kumbidi** on river Bharathapuzha under West Flowing Rivers Basin. The data details considered for water quality trend study from upstream to downstream of Bharathapuzha River is given below.

4.1.1 Electrical Conductivity (EC) ($\mu\text{mhos/cm}$)

EC values for the period considered is given in Table - 2 and their graphical representation is given in Figure - 1.1, Figure - 1.2 & Figure - 1.3.

Table – 2

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Mankara	466	436	298	167	145	223	292	271	262
Kumbidi	211	215	105	78	80	91	135	134	98

Figure - 1.1

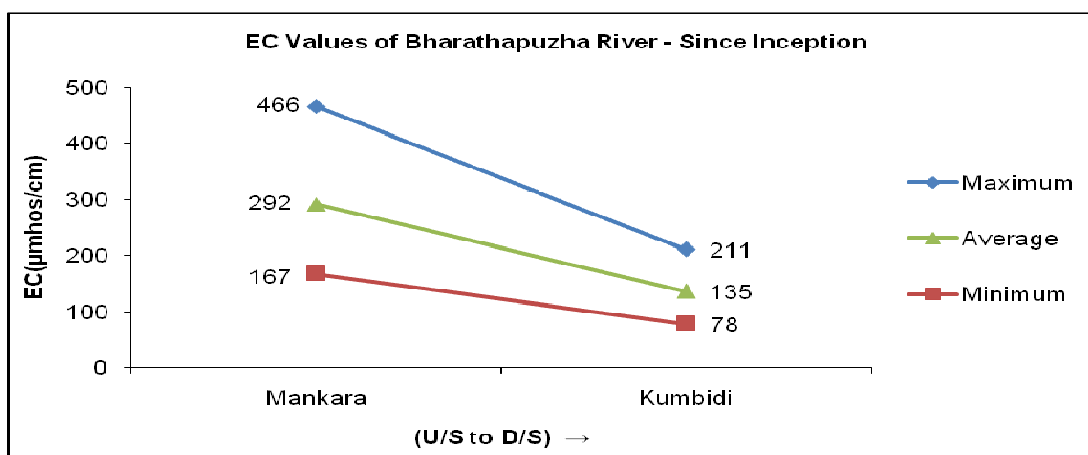


Figure - 1.2

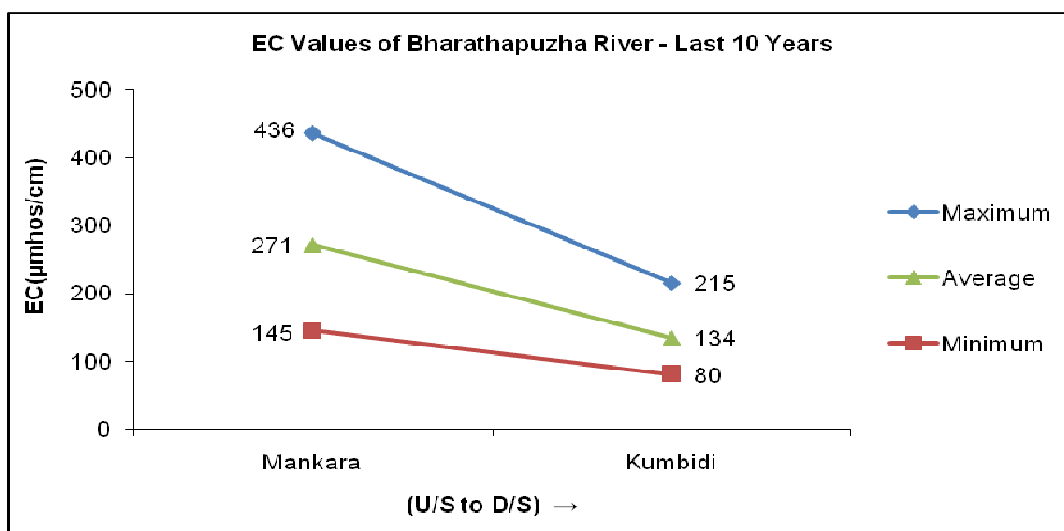
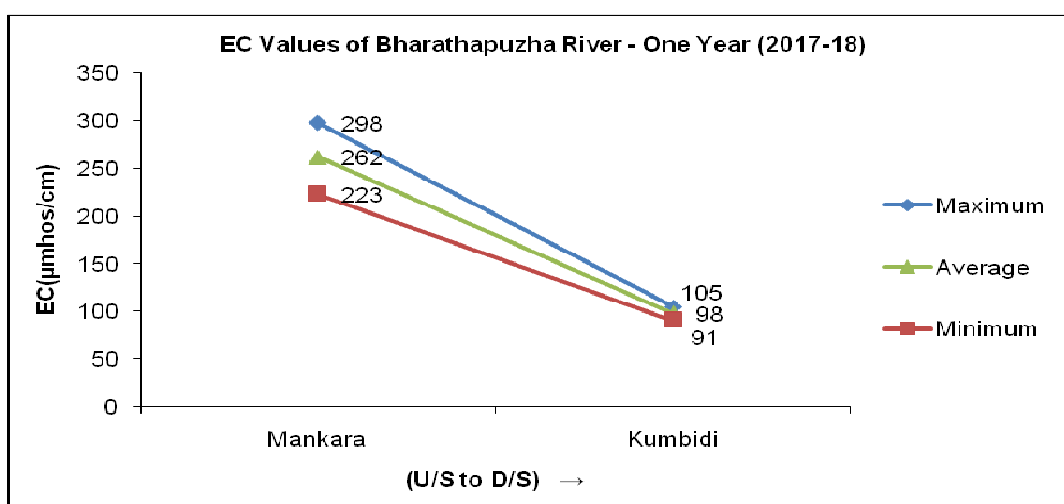


Figure - 1.3



4.1.2 pH

pH values for the period considered is given in Table - 3 and their graphical representation is given in Figure - 2.1, Figure - 2.2 & Figure - 2.3.

Table – 3

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Mankara	8.1	7.9	8.1	7.1	6.8	6.7	7.7	7.3	7.4
Kumbidi	7.7	7.4	7.2	6.9	6.6	6.5	7.3	7.0	6.8

Figure - 2.1

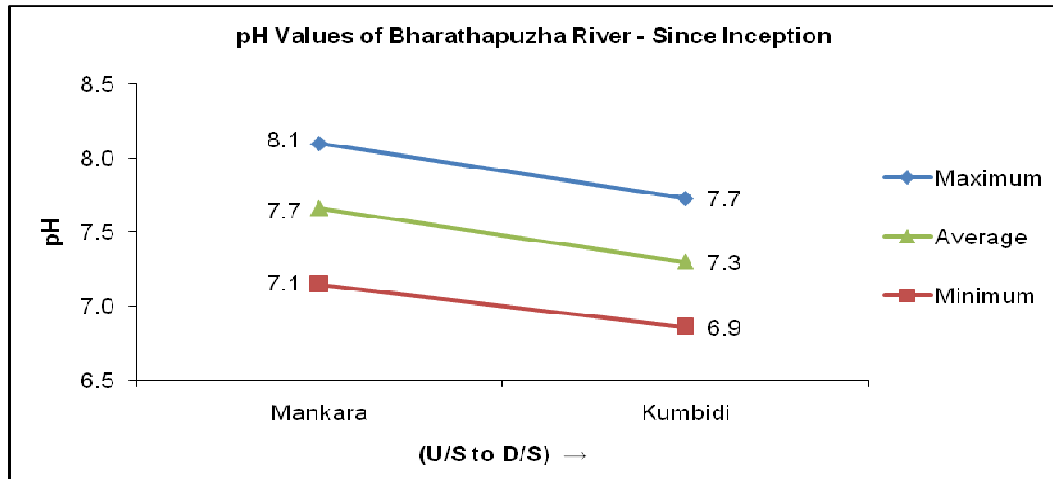


Figure - 2.2

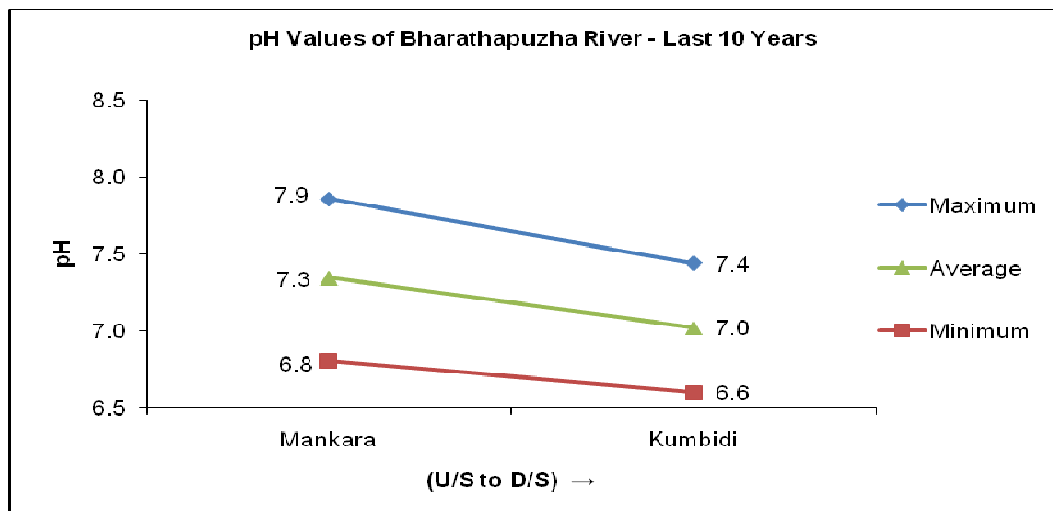
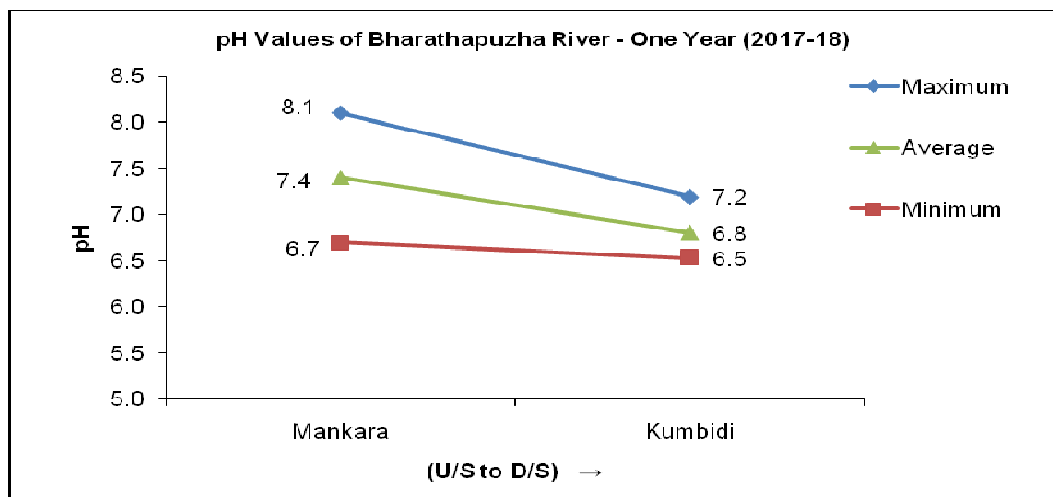


Figure - 2.3



4.1.3 Fluoride, mg/L

Fluoride values for the period considered is given in Table - 4 and their graphical representation is given in Figure - 3.1, Figure - 3.2 & Figure-3.3.

Table – 4

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Mankara	1.31	1.86	0.78	0.23	0.19	0.34	0.64	0.79	0.58
Kumbidi	0.71	0.90	0.71	0.10	0.08	0.30	0.33	0.38	0.53

Figure - 3.1

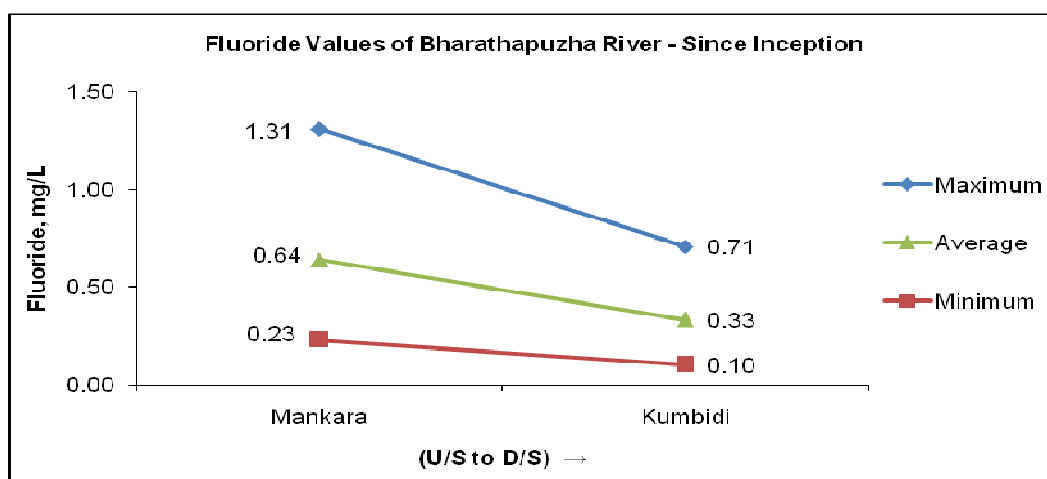


Figure - 3.2

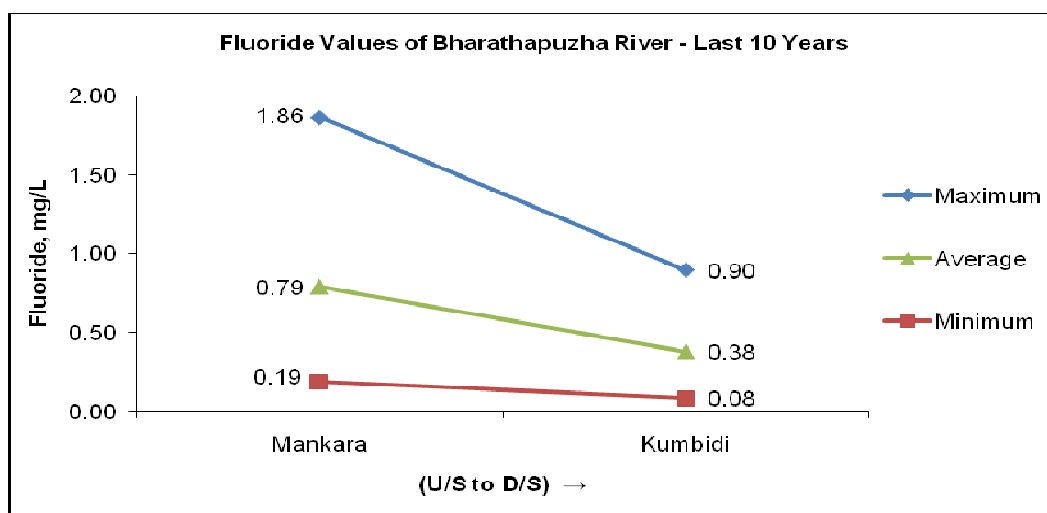
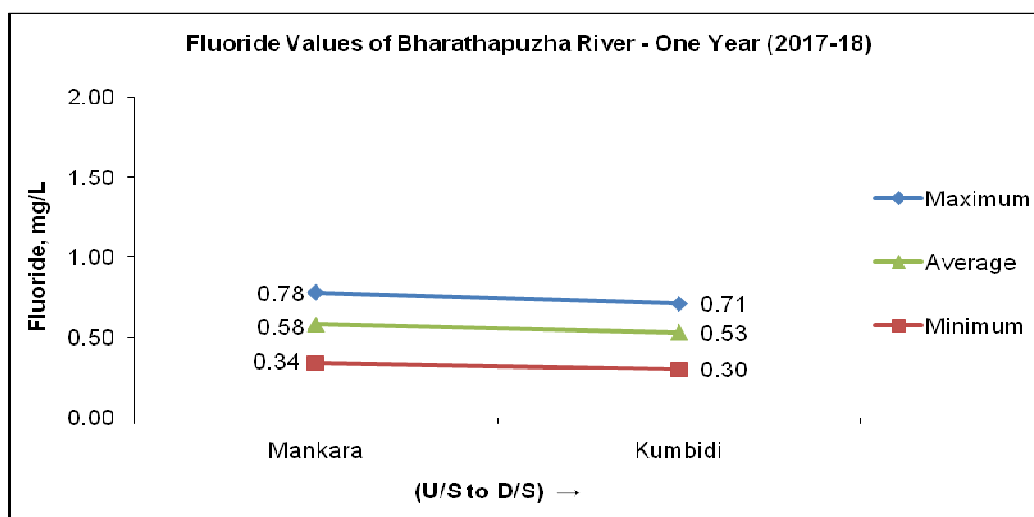


Figure - 3.3



4.1.4 BOD, mg/L

Biochemical Oxygen Demand (BOD) values for the period considered is given in Table - 5 and their graphical representation is given in Figure - 4.1, Figure - 4.2 & Figure - 4.3.

Table – 5

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Mankara	1.5	1.5	1.5	0.8	0.8	0.7	1.1	1.1	1.1
Kumbidi	1.6	1.7	1.6	0.3	0.3	0.8	0.9	0.9	1.3

Figure - 4.1

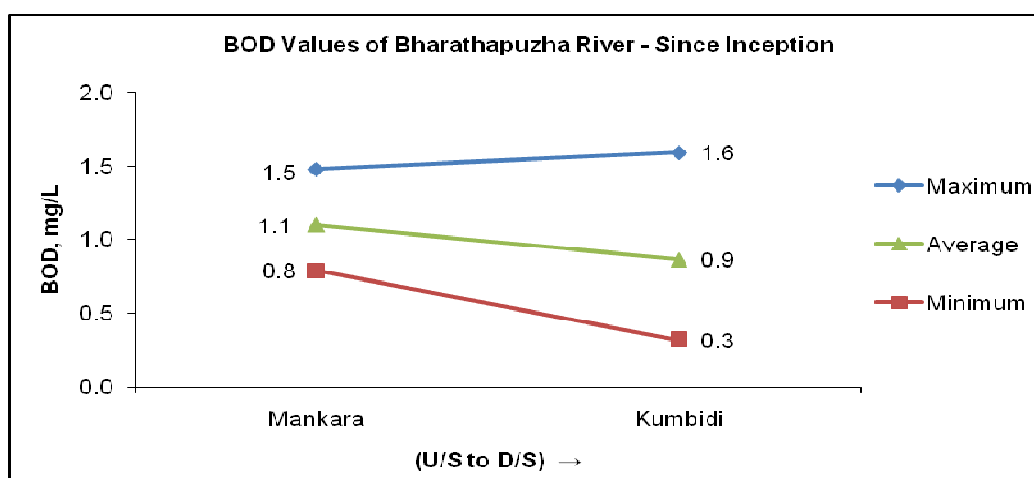


Figure - 4.2

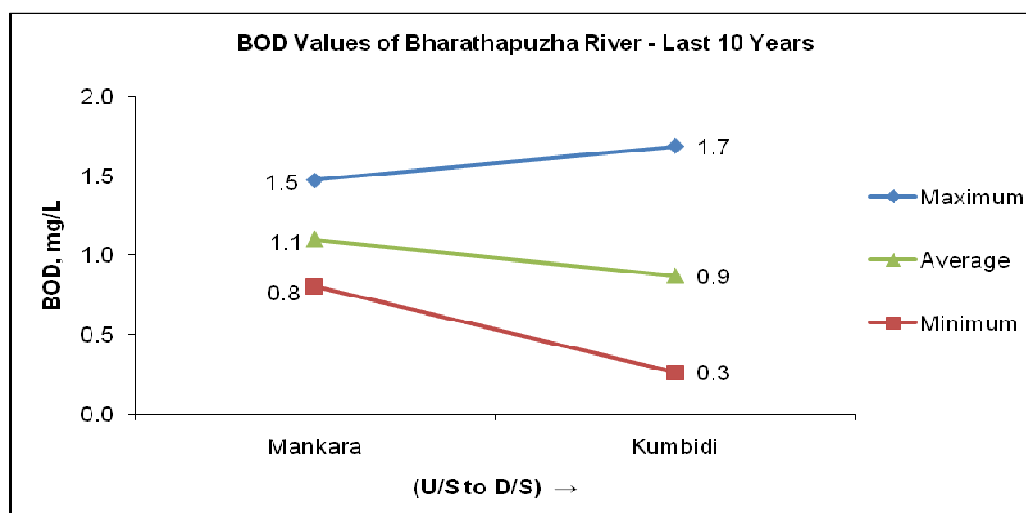
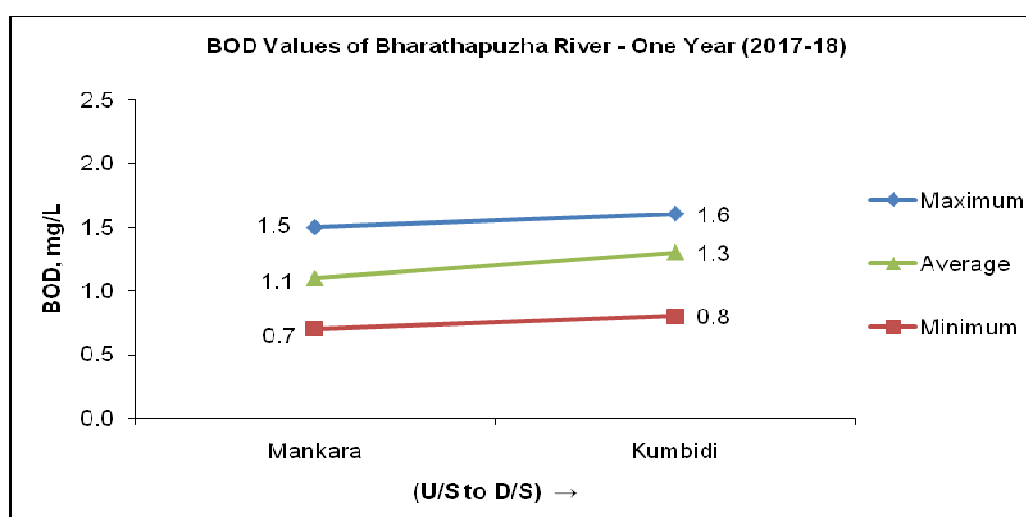


Figure - 4.3



4.1.5 DO, mg/L

Dissolved Oxygen (DO) values for the period considered is given in Table - 6 and their graphical representation is given in Figure - 5.1, Figure - 5.2 & Figure - 5.3.

Table – 6

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Mankara	7.1	6.7	7.6	4.8	4.4	6.1	6.2	5.7	7.2
Kumbidi	7.8	7.7	7.3	5.9	6.0	4.6	7.0	7.0	6.2

Figure - 5.1

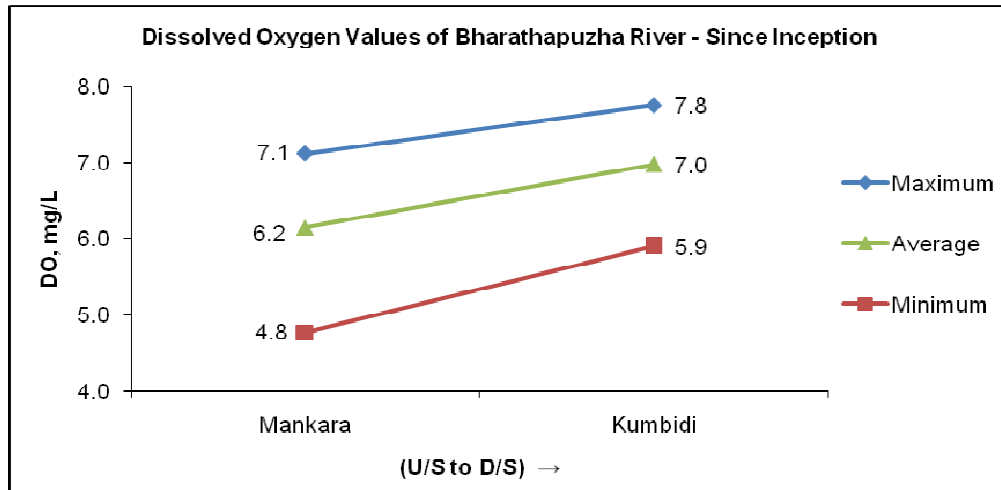


Figure - 5.2

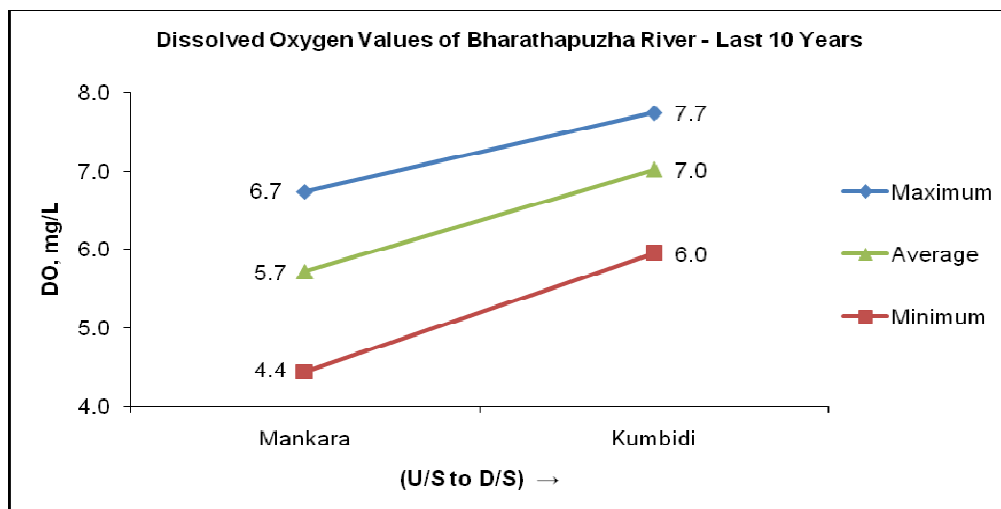
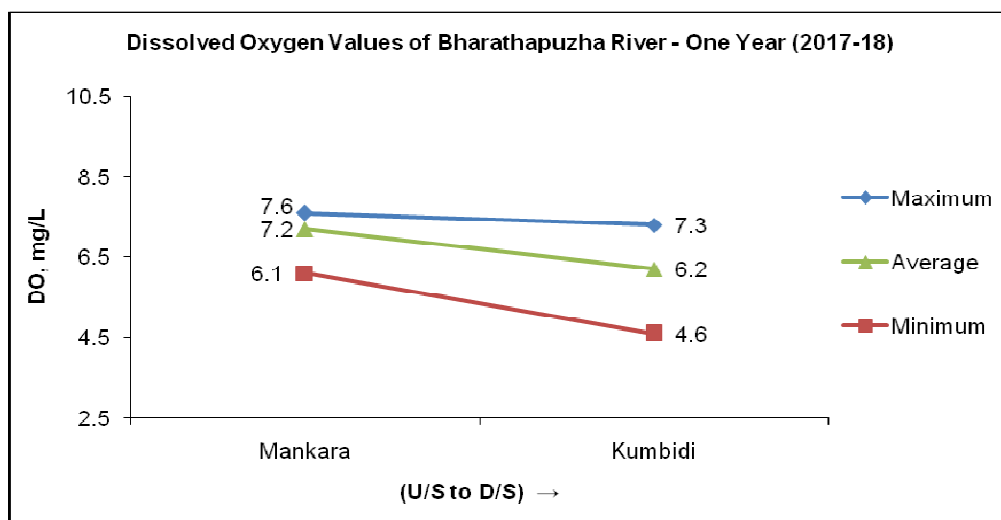


Figure - 5.3



5.1 General Remarks / Conclusion about Water Quality Trend:

Trends of the river Bharathapuzha is as follows:

The water quality of river Bharathapuzha is over all good in nature. The ionic concentration is gradually decreasing from site Mankara (upstream) to site Kumbidi (downstream) which is unusual, as in normal case the water quality is deteriorating from upstream to downstream. It is due to the drainage area of Kumbidi site (5755 sq.km.) is more than drainage area of site Mankara (2775 sq.km.). As quantum of water is increased at Kumbidi, so, value of all pollution indicating parameters are reduced at Kumbidi site.

4.2 Aliyar & Kannadipuzha River:

The water quality scenario is being presented in pictorial graph among the sites **Ambarampalayam** and **Pudur** on river Aliyar & Kannadipuzha in Bharathapuzha river basin under West Flowing Rivers Basin. Ambarampalayam site is on river Aliyar after that river name change and known as Kannadipuzha. Pudur site is on river Kannadipuzha. The data details considered for water quality trend study from upstream to downstream of Aliyar & Kannadipuzha River is given below.

4.2.1 Electrical Conductivity (EC) (µmhos/cm)

EC values for the period considered is given in Table - 7 and their graphical representation is given in Figure - 6.1, Figure - 6.2 & Figure - 6.3.

Table – 7

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Ambarampalayam	542	409	167	125	100	86	265	221	119
Pudur	511	501	450	274	232	359	380	337	401

Figure - 6.1

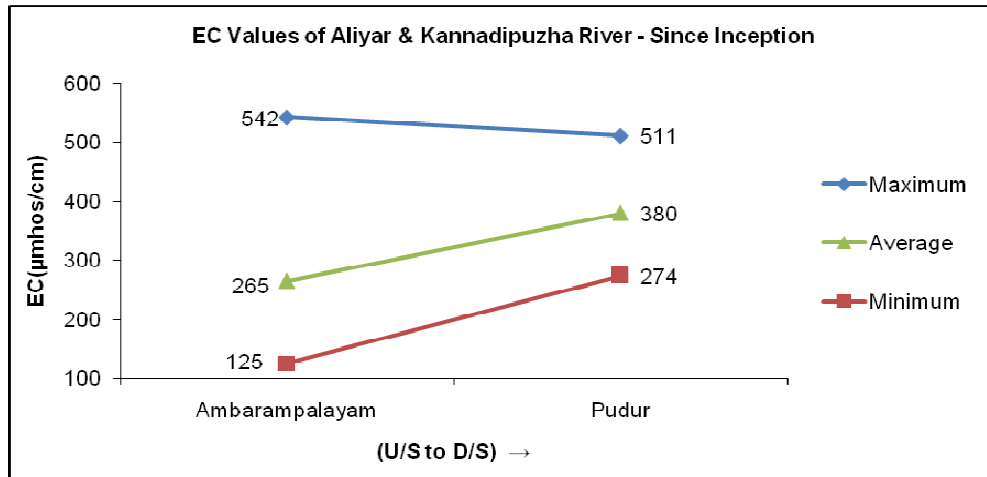


Figure - 6.2

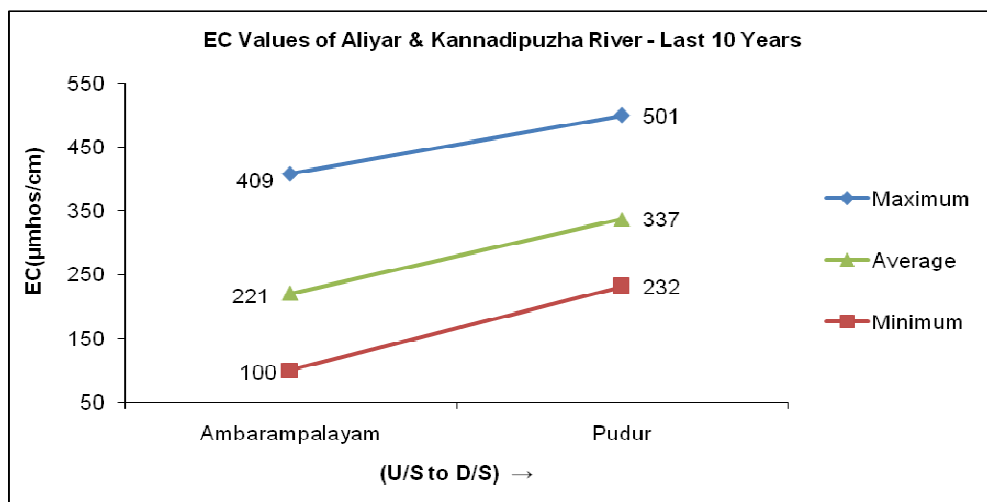
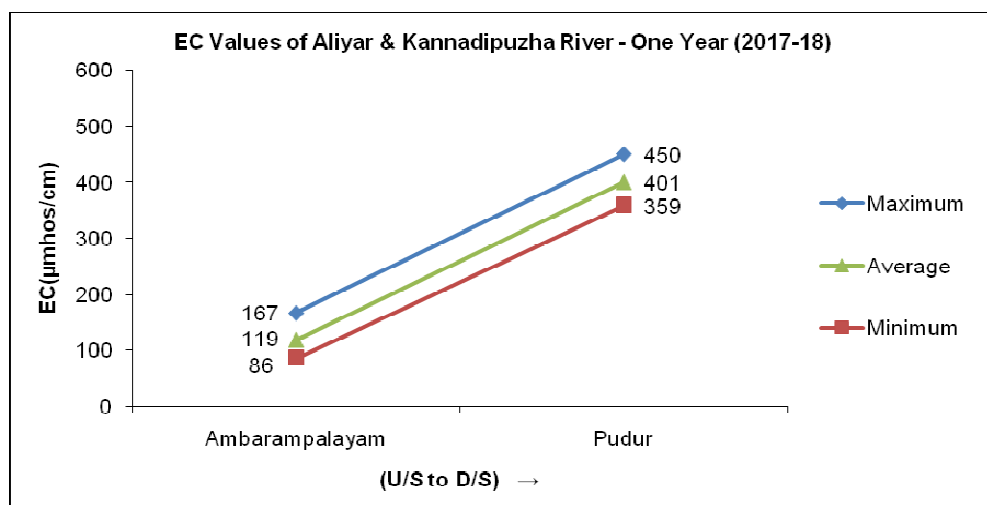


Figure - 6.3



4.2.2 pH

pH values for the period considered is given in Table - 8 and their graphical representation is given in Figure - 7.1, Figure - 7.2 & Figure - 7.3.

Table – 8

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Ambarampalayam	8.2	8.2	8.0	7.2	7.3	6.8	7.7	7.8	7.3
Pudur	8.1	7.9	7.8	7.4	7.0	7.6	7.8	7.5	7.7

Figure - 7.1

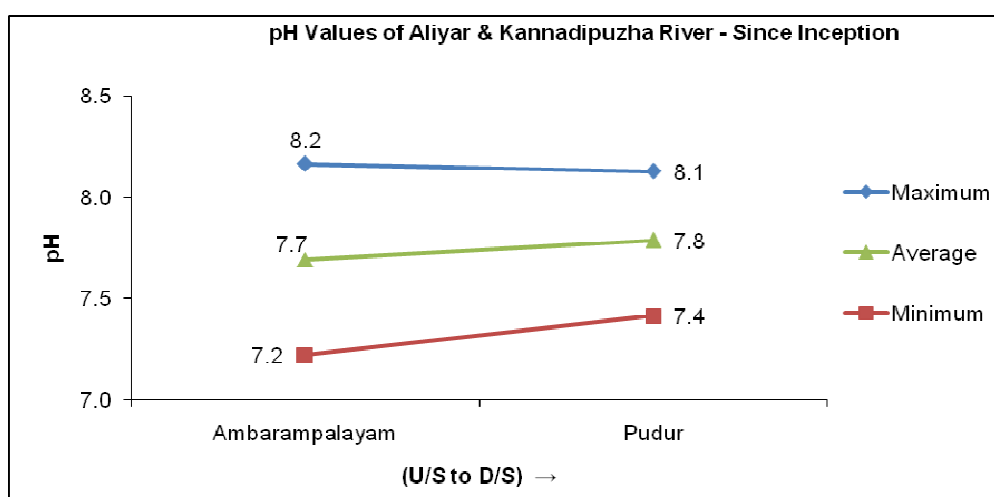


Figure - 7.2

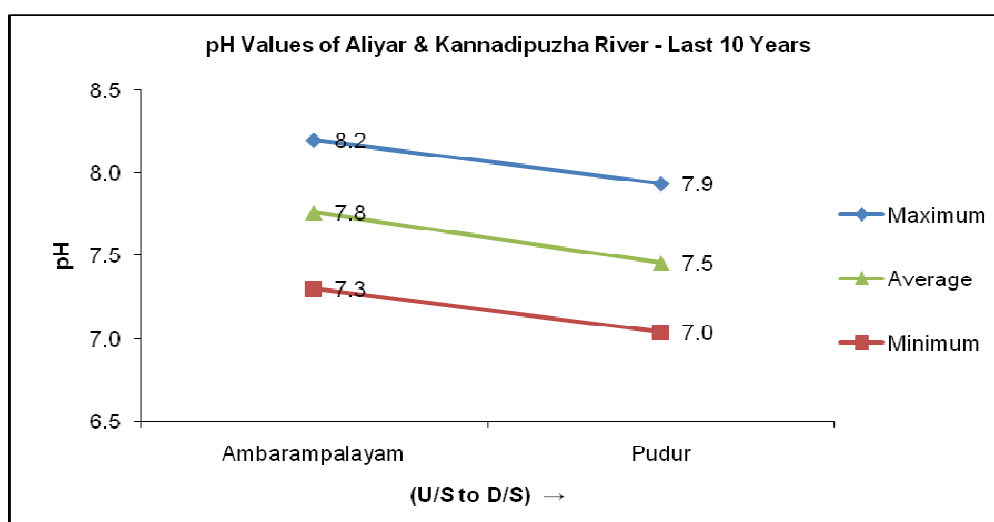
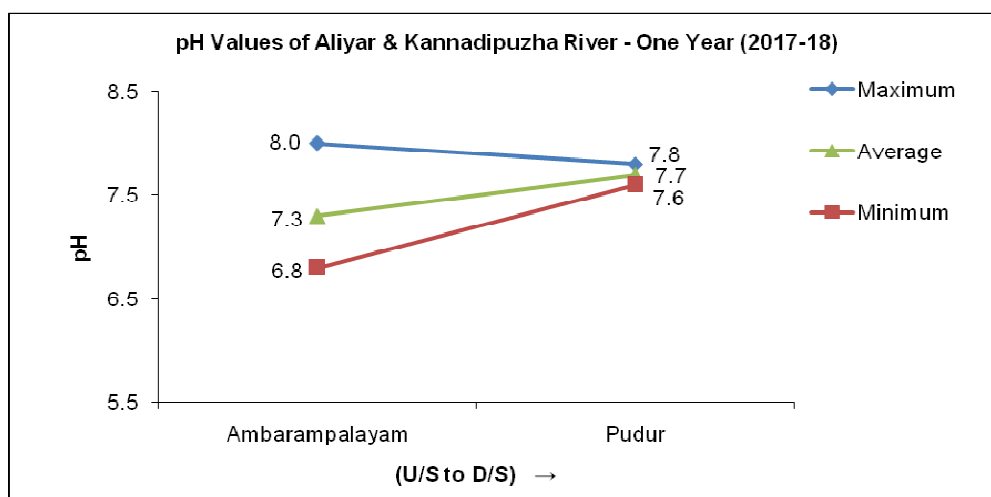


Figure - 7.3



4.2.3 Fluoride, mg/L

Fluoride values for the period considered is given in Table - 9 and their graphical representation is given in Figure - 8.1 , Figure - 8.2 & Figure - 8.3.

Table – 9

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Ambarampalayam	0.95	0.73	0.43	0.18	0.16	0.02	0.46	0.39	0.19
Pudur	1.68	2.48	0.86	0.35	0.24	0.74	0.81	1.01	0.81

Figure - 8.1

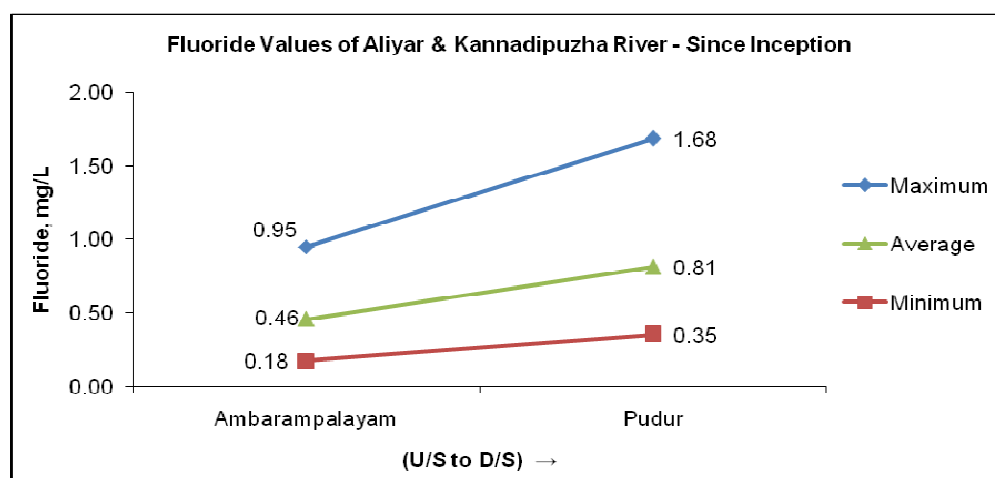


Figure - 8.2

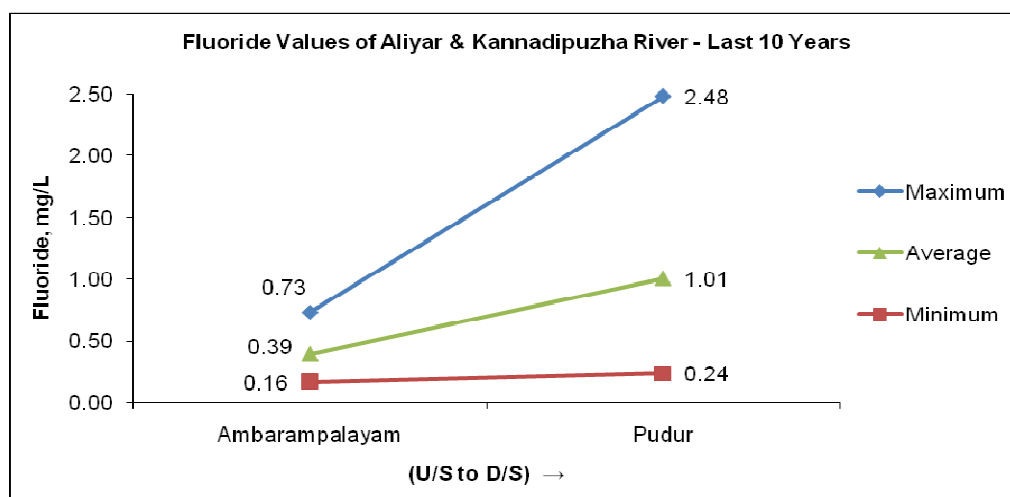
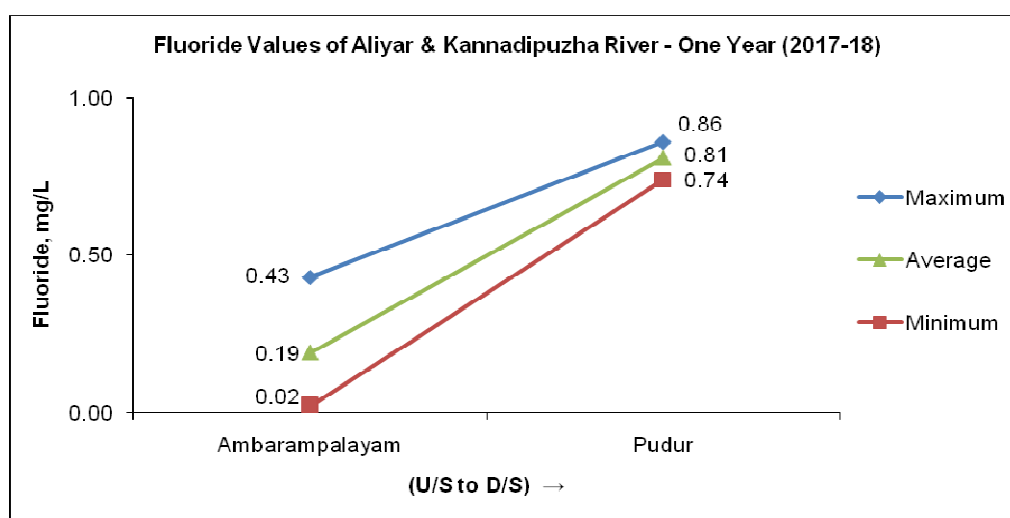


Figure - 8.3



4.2.4 BOD, mg/L

Biochemical Oxygen Demand (BOD) values for the period considered is given in Table - 10 and their graphical representation is given in Figure - 9.1, Figure - 9.2 & Figure - 9.3.

Table - 10

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Ambarampalayam	2.6	3.0	2.9	0.6	0.5	0.6	1.2	1.2	1.3
Pudur	2.0	2.2	1.2	0.8	0.8	0.6	1.3	1.4	0.9

Figure - 9.1

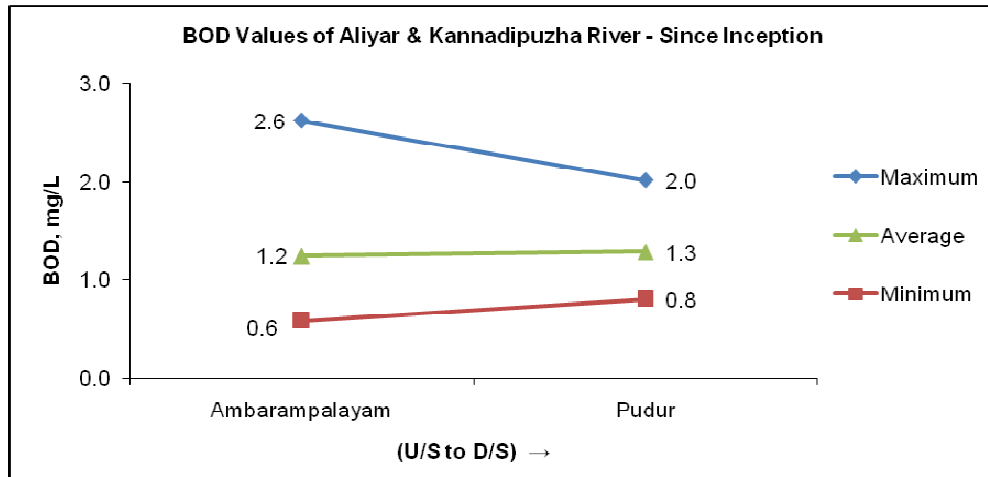


Figure - 9.2

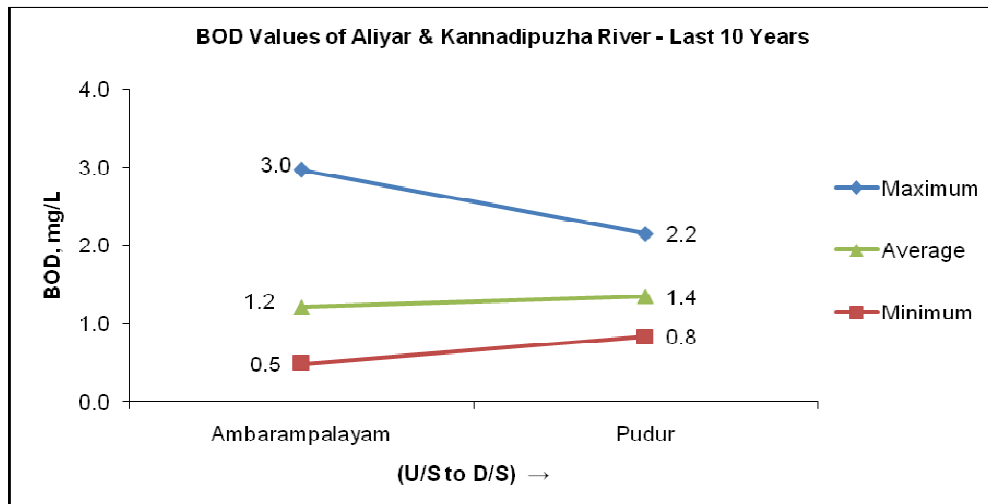
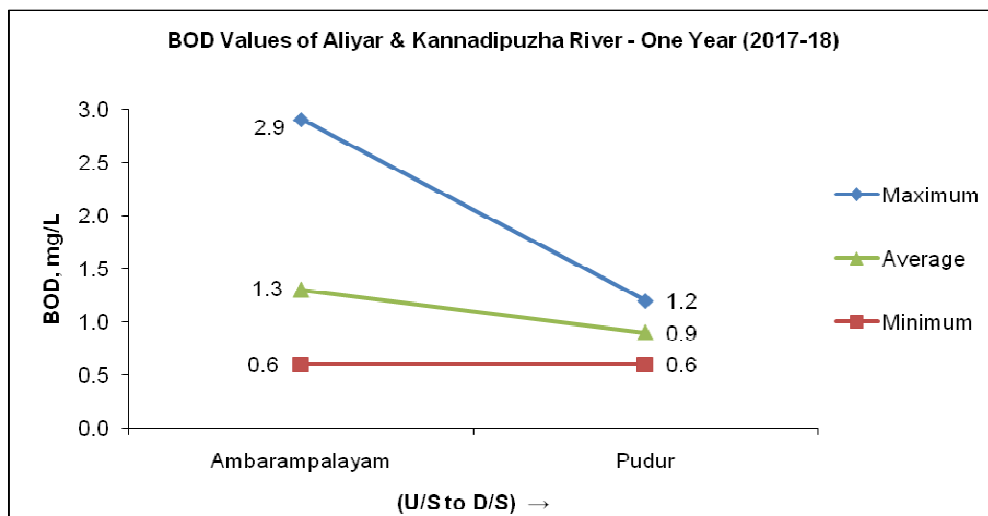


Figure - 9.3



4.2.5 DO, mg/L

Dissolved Oxygen (DO) values for the period considered is given in Table - 11 and their graphical representation is given in Figure - 10.1, Figure - 10.2 & Figure - 10.3.

Table – 11

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Ambarampalayam	7.9	7.6	7.3	6.1	5.9	5.7	6.9	6.6	6.1
Pudur	7.3	6.5	6.8	5.0	4.1	6.1	6.2	5.6	6.6

Figure - 10.1

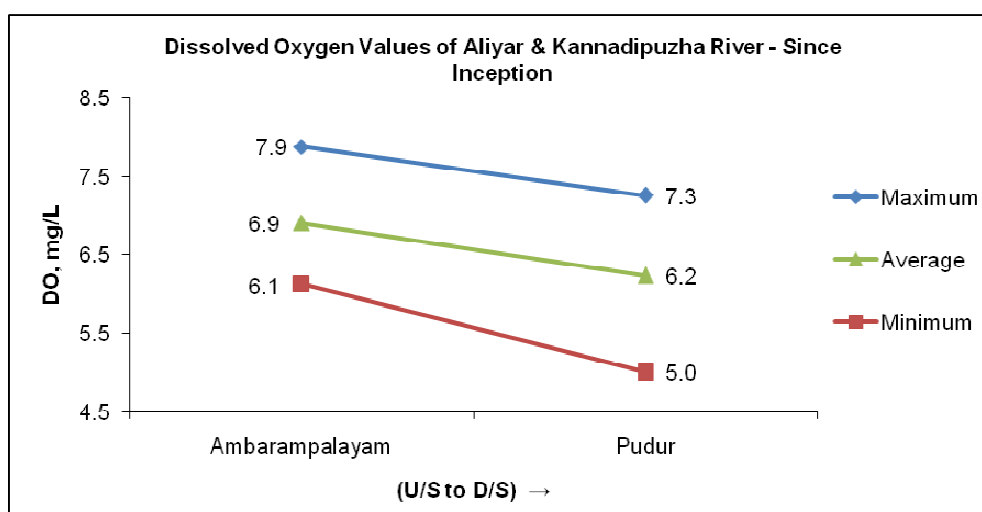


Figure - 10.2

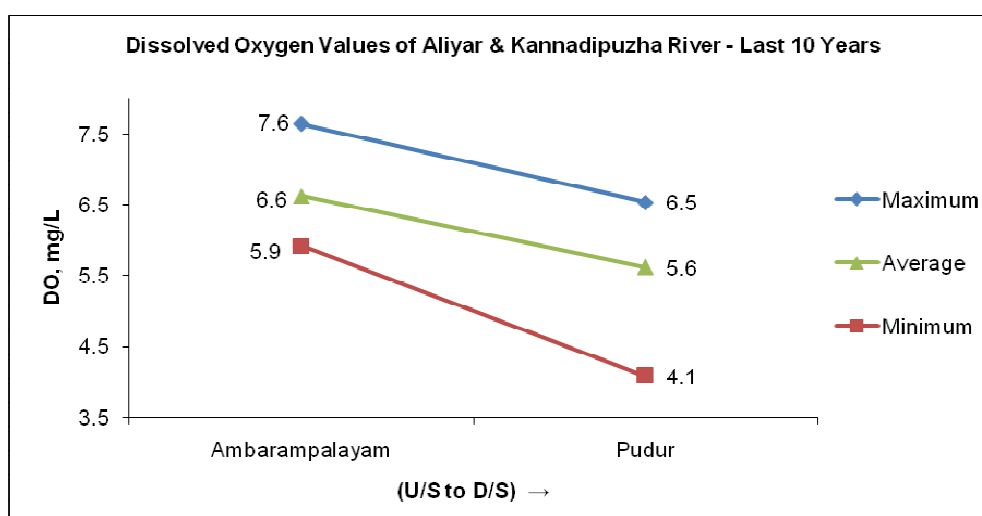
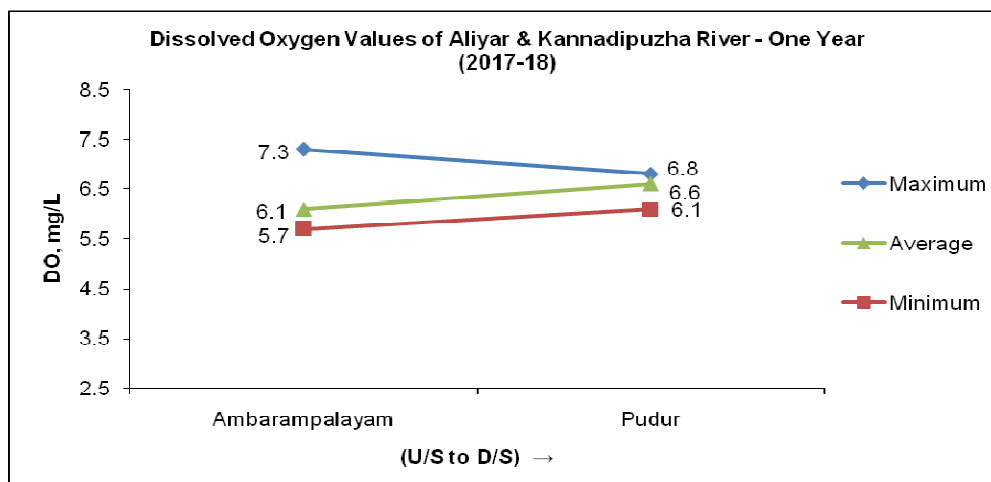


Figure - 10.3



5.2 General Remarks / Conclusion about Water Quality Trend:

Trends of the river Aliyar & Kannadipuzha under are as follows:

The water quality of river Aliyar & Kannadipuzha is good in nature. The ionic concentration is gradually increasing from upstream to downstream. As far as the Water Quality is concerned, it is found that the water quality of River Aliyar & Kannadipuzha shows little deteriorating trend due to direct human activities which can be seen from the above graphs.

4.3 Periyar River:

The water quality scenario is being presented in pictorial graph among the sites **Vandiperiyar** and **Neeleswaram** on river Periyar under West Flowing Rivers Basin. The data details considered for water quality trend study from upstream to downstream of Periyar River is given below.

4.3.1 Electrical Conductivity (EC) ($\mu\text{mhos/cm}$)

EC values for the period considered is given in Table - 12 and their graphical representation is given in Figure - 11.1, Figure - 11.2 & Figure - 11.3.

Table – 12

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Vandiperiyar	125	133	101	48	45	49	79	81	72
Neeleswaram	72	52	46	32	31	28	44	42	36

Figure - 11.1

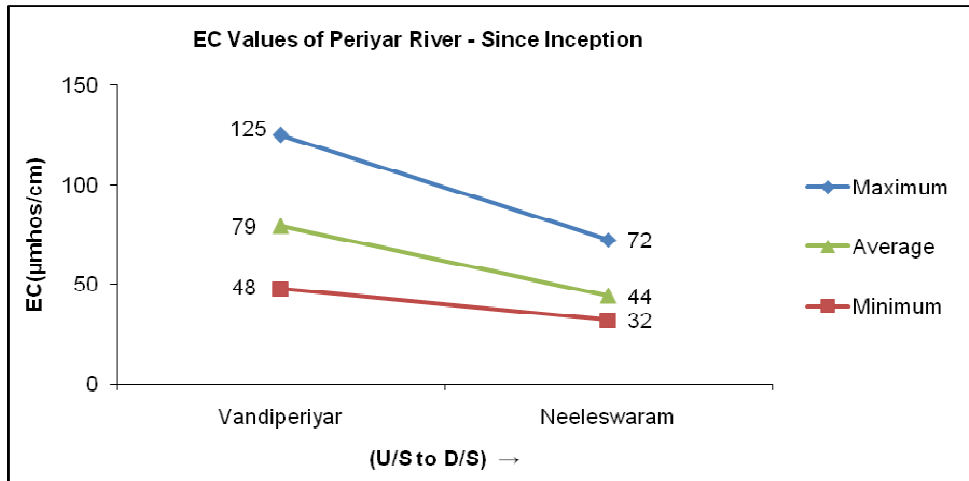


Figure - 11.2

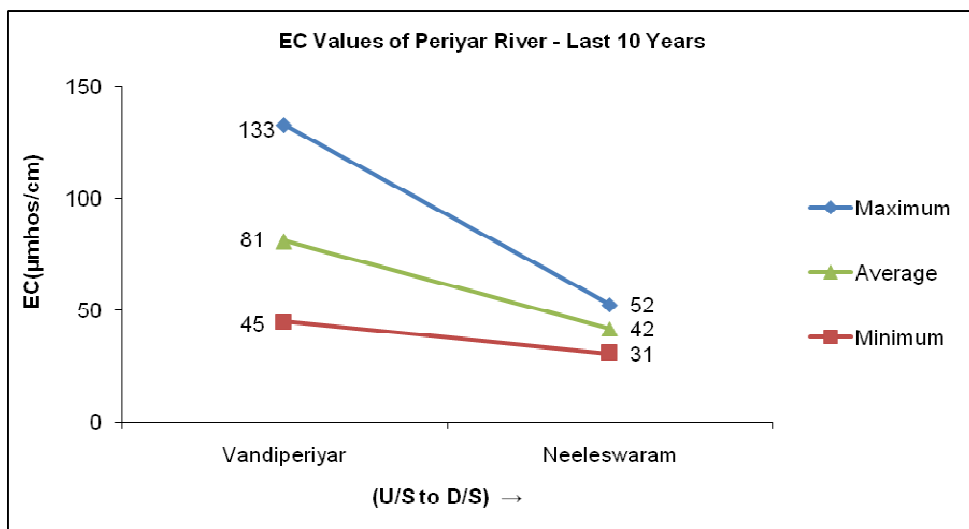
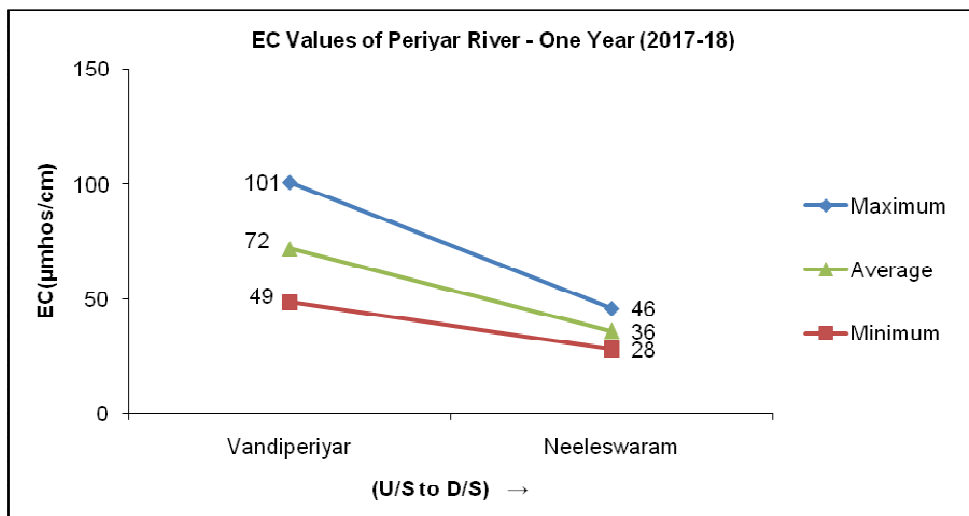


Figure - 11.3



4.3.2 pH

pH values for the period considered is given in Table - 13 and their graphical representation is given in Figure - 12.1, Figure - 12.2 & Figure - 12.3.

Table – 13

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Vandiperiyar	7.3	7.2	7.5	6.5	6.4	7.2	6.9	6.9	7.3
Neeleswaram	7.6	7.4	7.8	6.5	6.2	6.1	7.1	6.8	7.2

Figure - 12.1

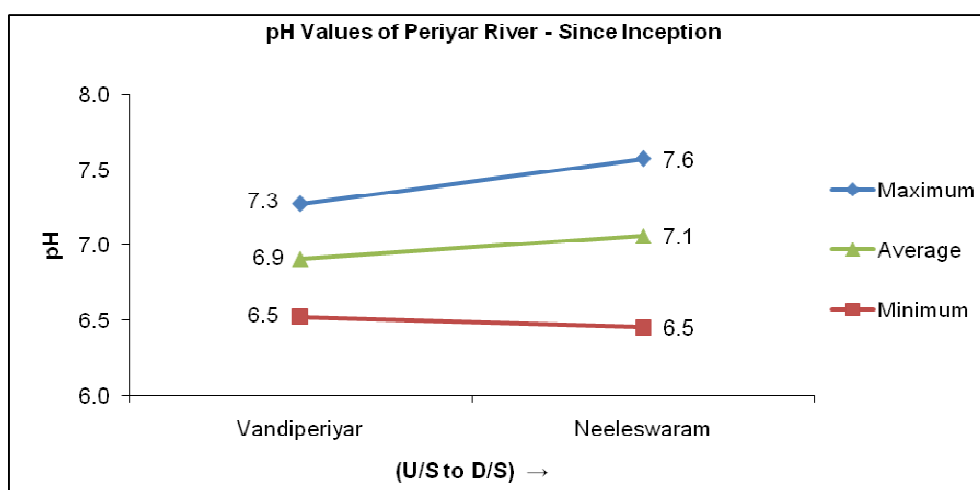


Figure - 12.2

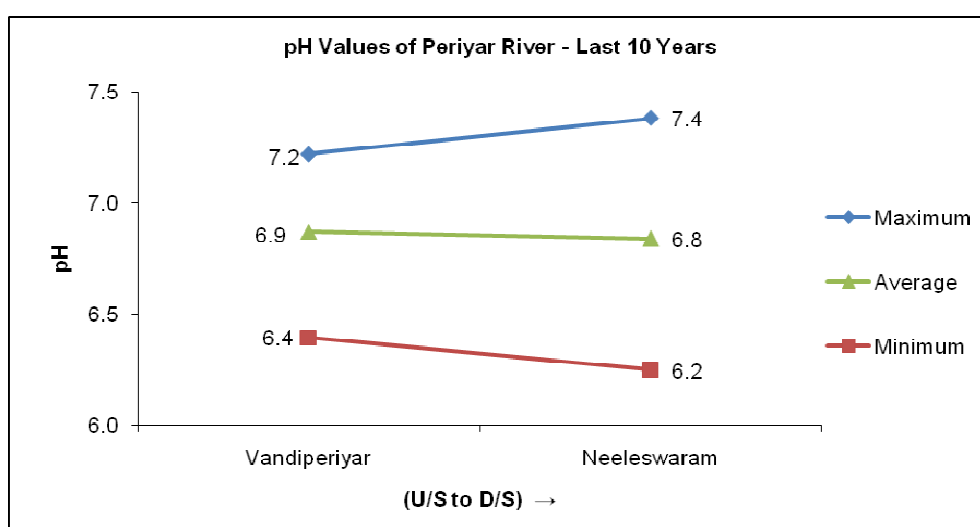
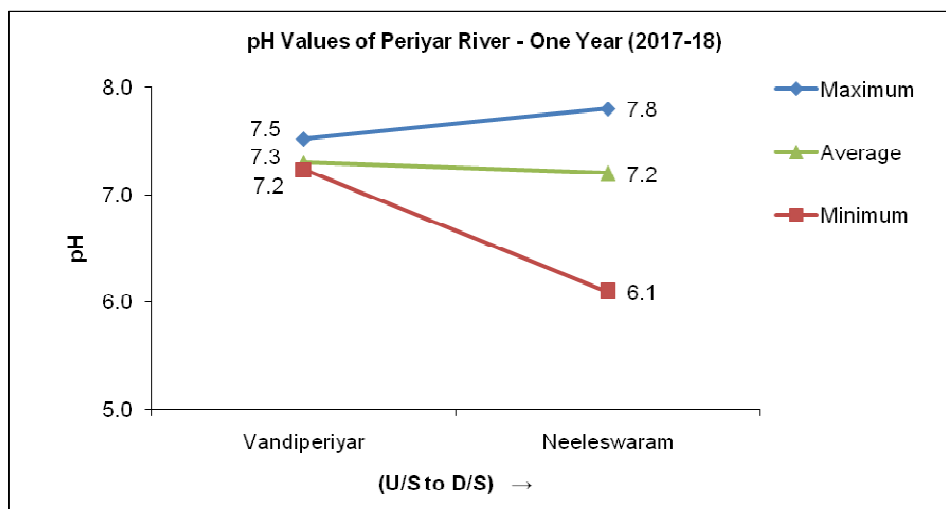


Figure - 12.3



4.3.3 Fluoride, mg/L

Fluoride values for the period considered is given in Table - 14 and their graphical representation is given in Figure - 13.1 , Figure - 13.2 & Figure - 13.3.

Table – 14

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Vandiperiyar	0.30	0.36	0.08	0.06	0.05	0.02	0.15	0.17	0.05
Neeleswaram	0.29	0.20	1.36	0.06	0.05	0.03	0.13	0.11	0.27

Figure - 13.1

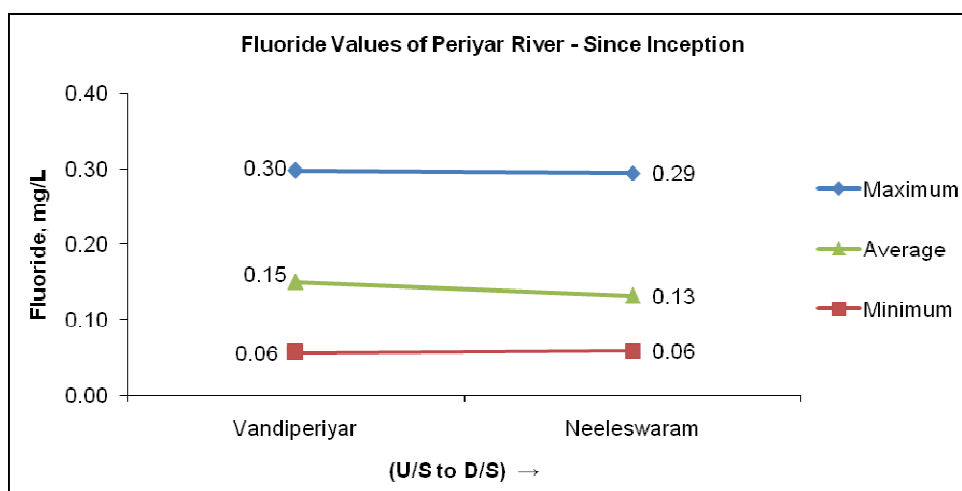


Figure - 13.2

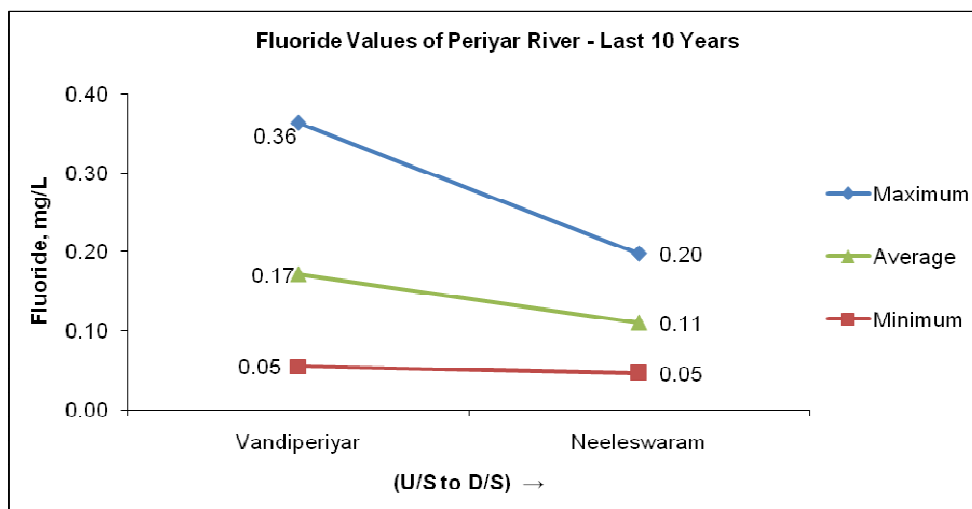
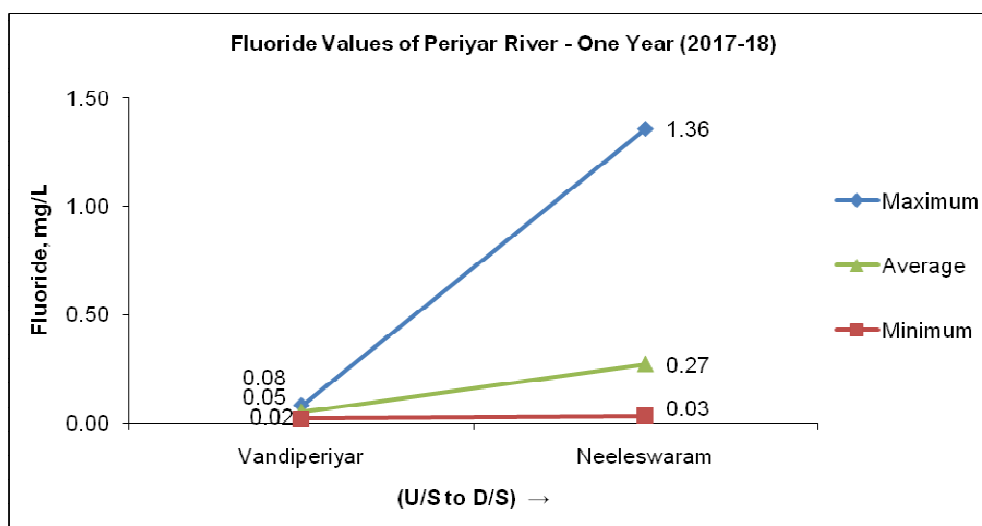


Figure - 13.3



4.3.4 BOD, mg/L

Biochemical Oxygen Demand (BOD) values for the period considered is given in Table - 15 and their graphical representation is given in Figure - 14.1, Figure - 14.2 & Figure - 14.3.

Table – 15

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Vandiperiyar	1.7	1.8	1.4	0.4	0.4	1.0	1.0	1.0	1.2
Neeleswaram	1.5	1.6	1.6	0.4	0.2	0.8	0.9	0.8	1.1

Figure - 14.1

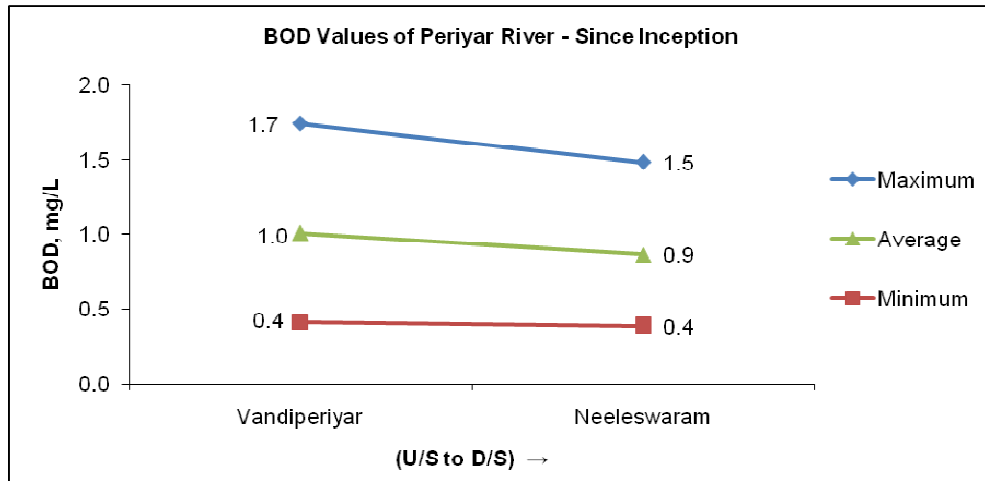


Figure - 14.2

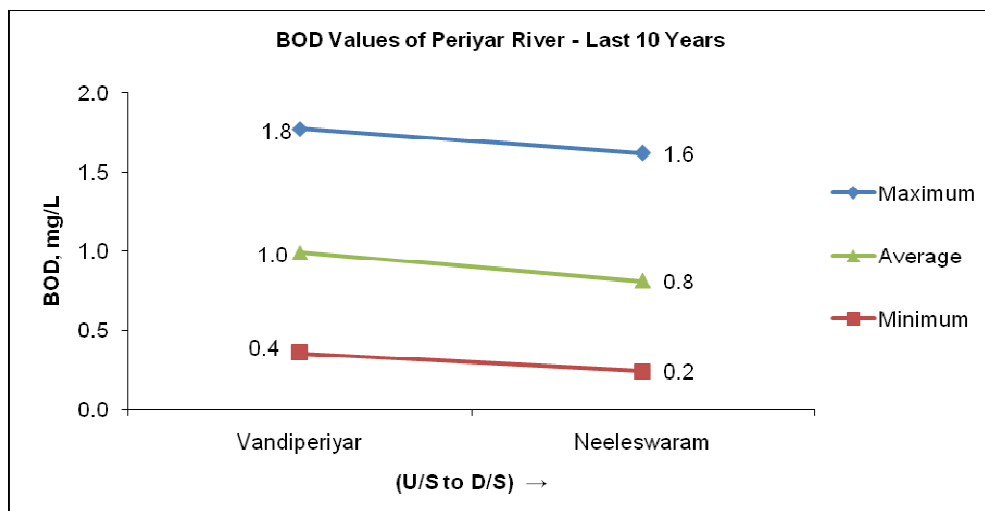
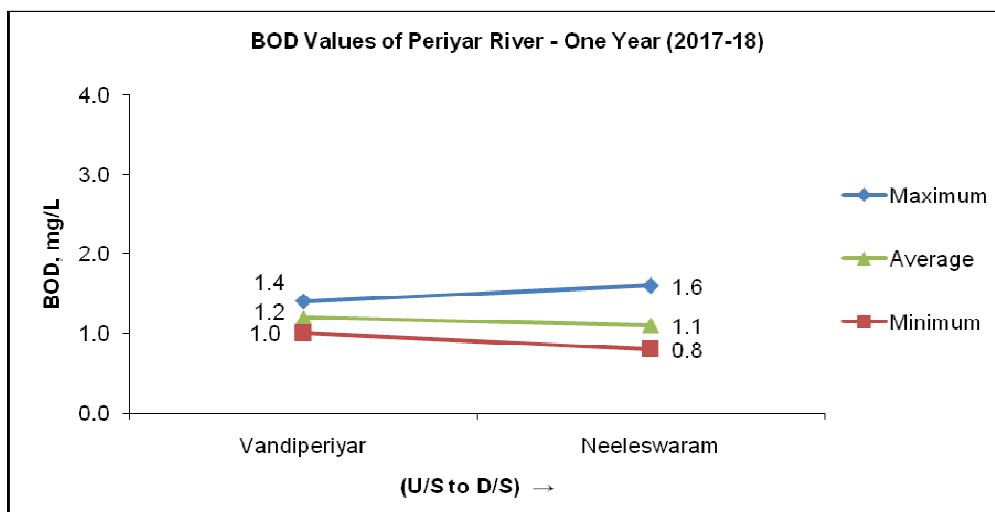


Figure - 14.3



4.3.5 DO, mg/L

Dissolved Oxygen (DO) values for the period considered is given in Table - 16 and their graphical representation is given in Figure - 15.1, Figure - 15.2 & Figure - 15.3.

Table – 16

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Vandiperiyar	7.5	7.6	7.4	5.2	5.1	6.6	6.4	6.4	7.0
Neeleswaram	8.1	7.8	8.1	6.3	5.8	5.4	7.3	7.0	7.0

Figure - 15.1

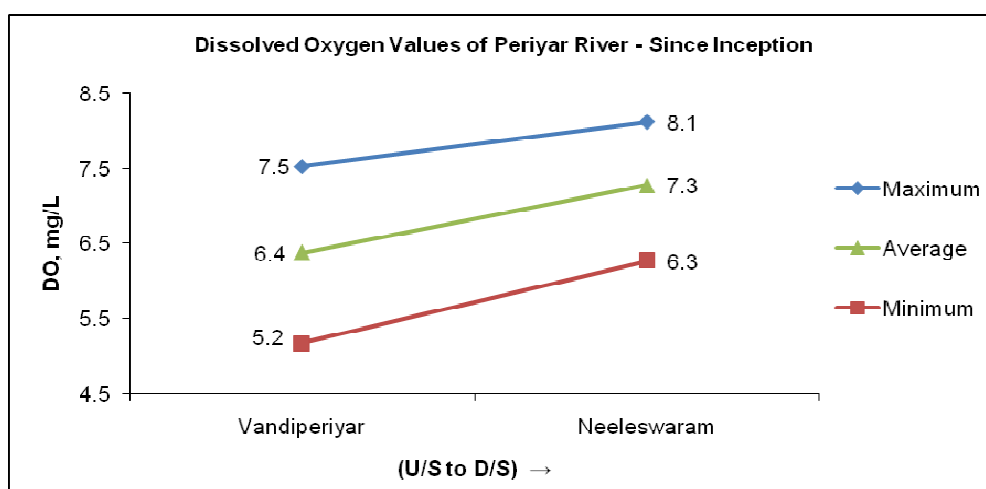


Figure - 15.2

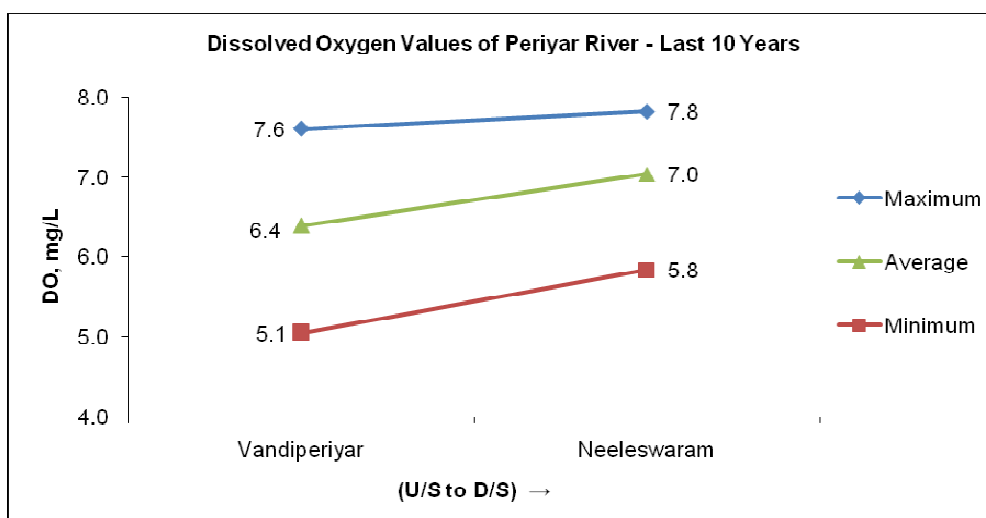
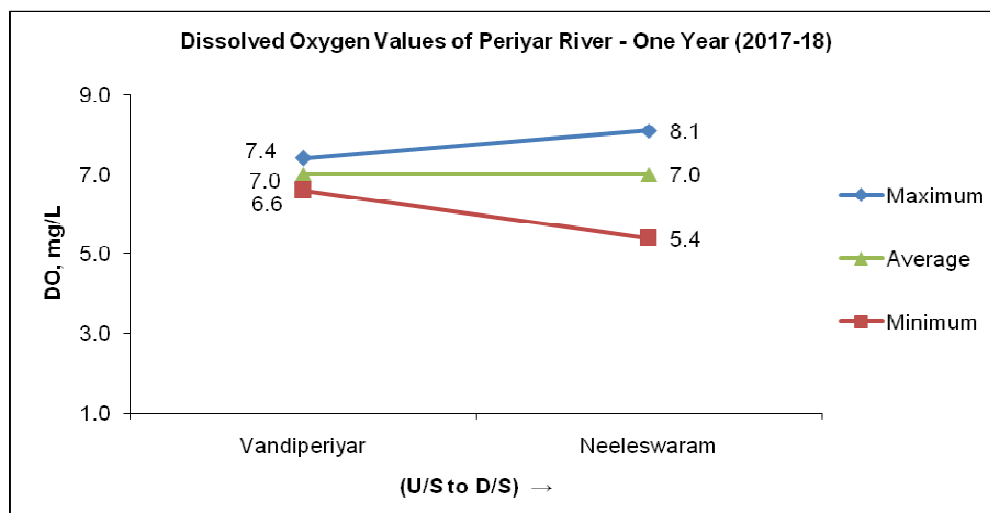


Figure - 15.3



5.3 General Remarks / Conclusion about Water Quality Trend:

Trends of the river Periyar with its tributaries are as follows:

The water quality of river Periyar is almost same and very good in nature. The ionic concentration is gradually decreasing from upstream to downstream which is unusual, as in normal case, the water quality is deteriorating from upstream to downstream. It is due to drainage area of Neeleswaram site is more than drainage area of site Vandiperiyar. As quantum of water is increased at Neeleswaram, so, value of all pollution indicating parameters are reduced at Neeleswaram site.

4.4 Muvattupuzha River:

The water quality scenario is being presented in pictorial graph among the sites **Kalampur** and **Ramamangalam** on river Muvattupuzha under West Flowing Rivers Basin. The data details considered for water quality trend study from upstream to downstream of Muvattupuzha River is given below.

4.4.1 Electrical Conductivity (EC) ($\mu\text{mhos/cm}$)

EC values for the period considered is given in Table - 17 and their graphical representation is given in Figure - 16.1, Figure - 16.2 & Figure - 16.3

Table – 17

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Kalampur	76	63	41	33	31	30	47	45	34
Ramamangalam	67	69	68	40	41	40	53	54	54

Figure - 16.1

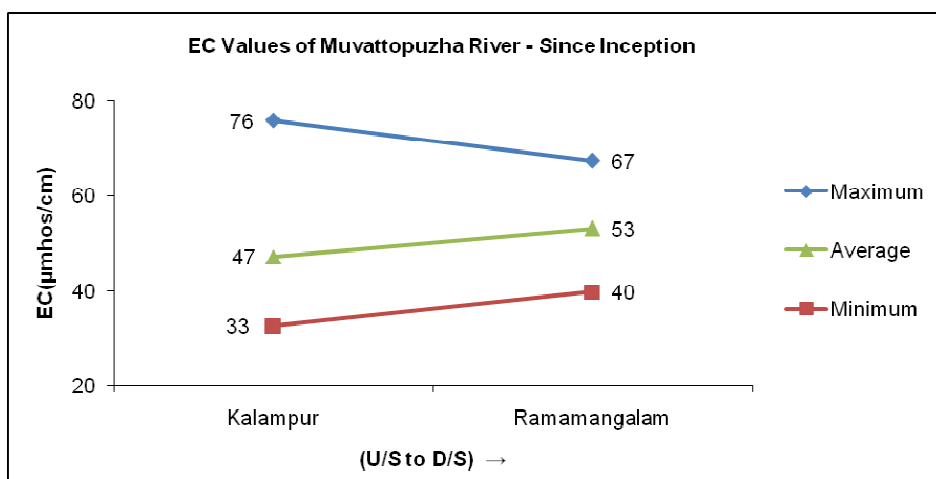


Figure - 16.2

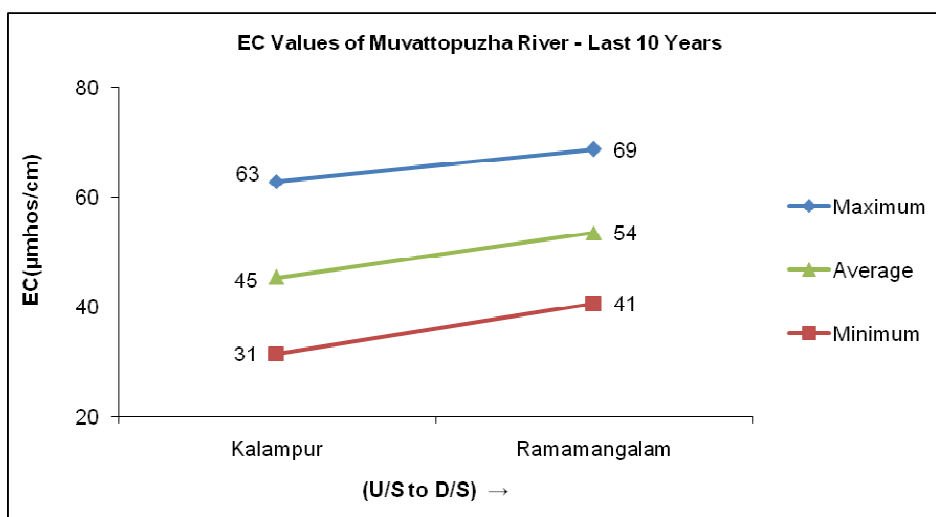
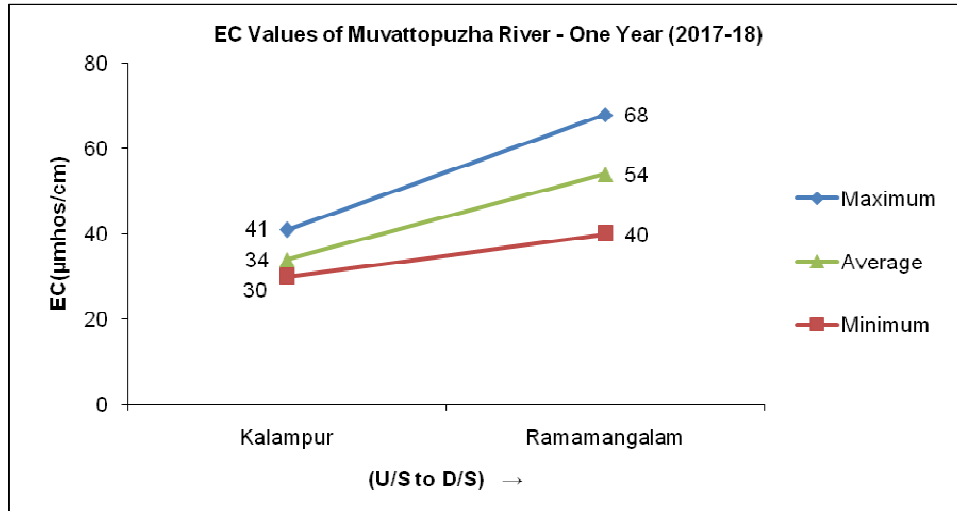


Figure - 16.3



4.4.2 pH

pH values for the period considered is given in Table - 18 and their graphical representation is given in Figure - 17.1, Figure - 17.2 & Figure - 17.3.

Table - 18

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Kalampur	7.3	7.1	7.4	6.3	6.1	7.0	6.9	6.6	7.2
Ramamangalam	7.5	7.3	8.0	6.6	6.4	7.0	7.1	6.9	7.6

Figure - 17.1

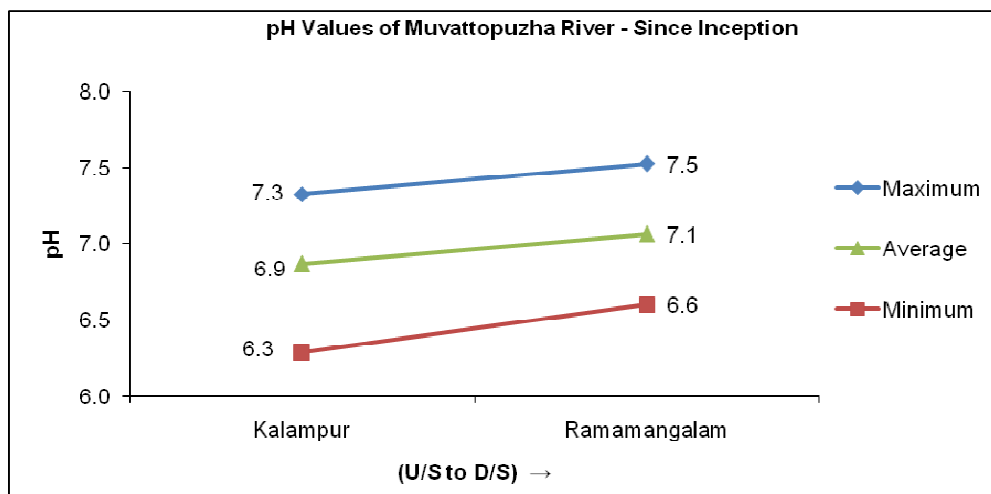


Figure - 17.2

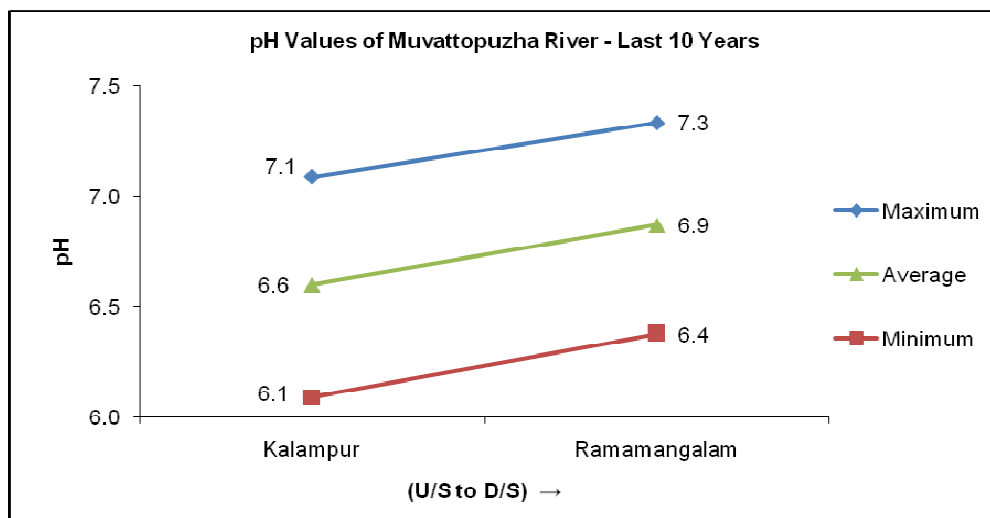
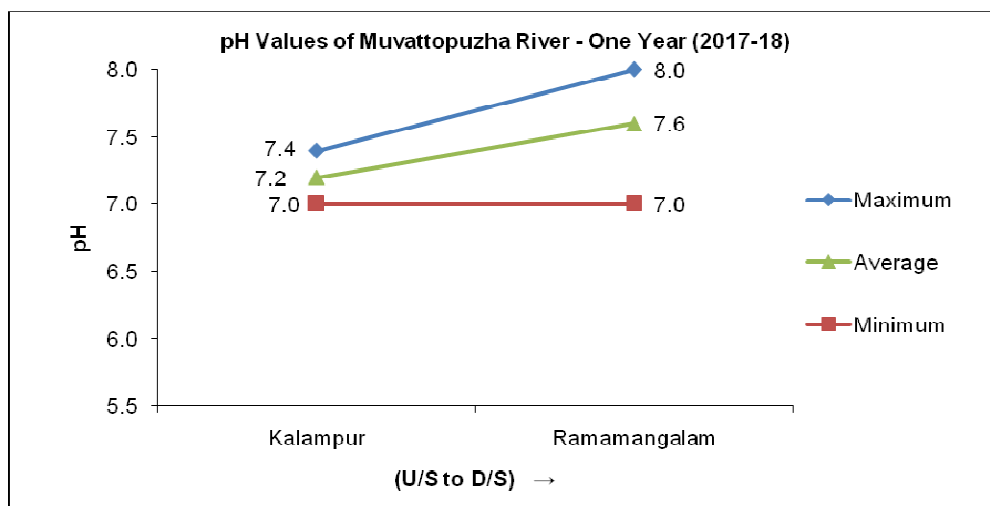


Figure - 17.3



4.4.3 Fluoride, mg/L

Fluoride values for the period considered is given in Table - 19 and their graphical representation is given in Figure - 18.1 , Figure - 18.2 & Figure - 18.3.

Table – 19

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Kalampur	0.19	0.24	0.09	0.07	0.05	0.03	0.12	0.14	0.07
Ramamangalam	0.28	0.23	0.08	0.05	0.05	0.06	0.13	0.13	0.07

Figure - 18.1

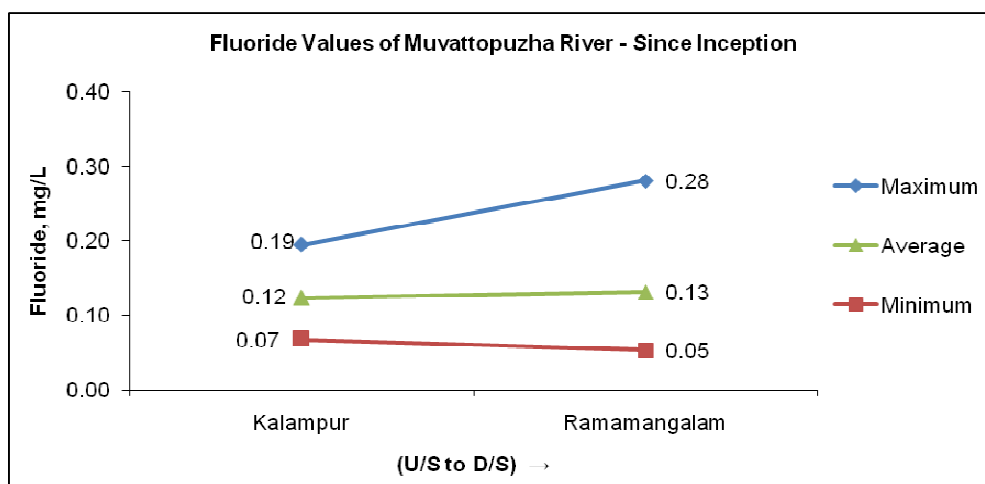


Figure - 18.2

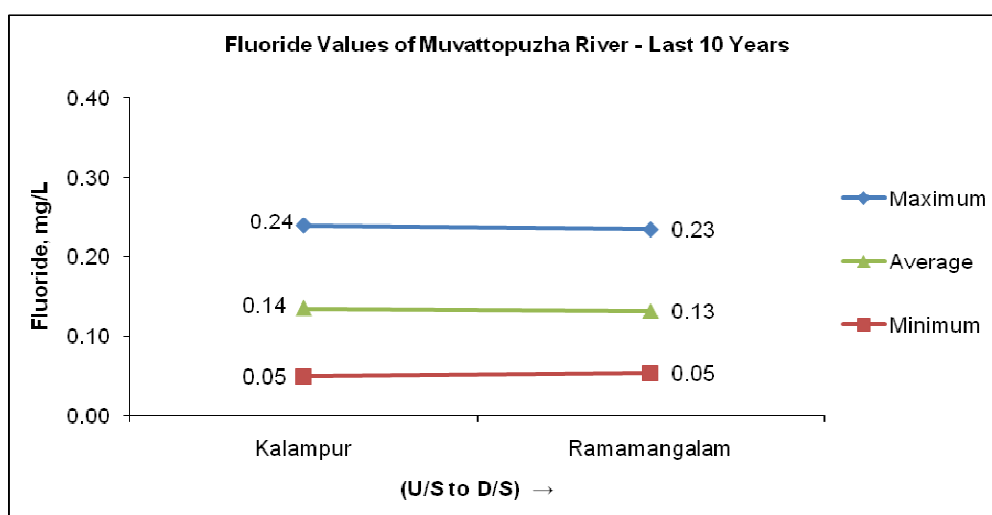
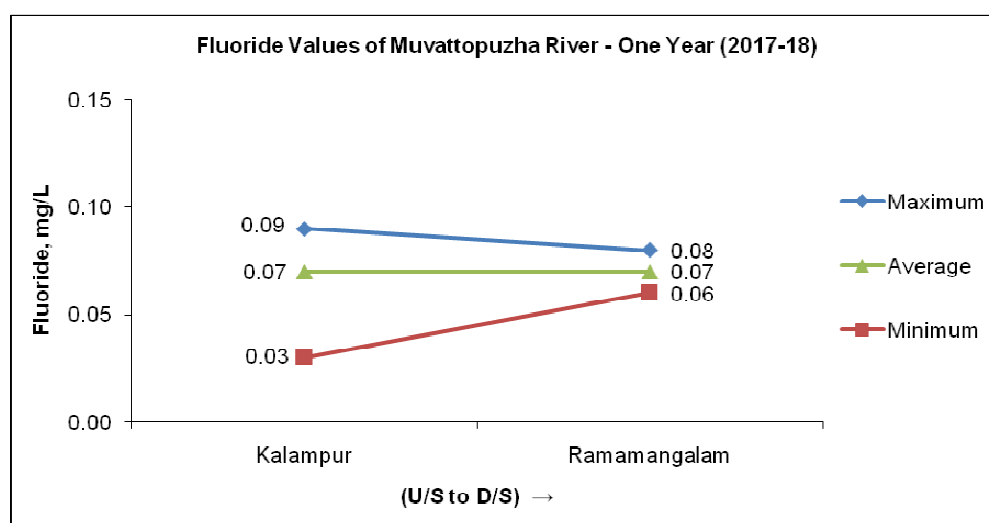


Figure - 18.3



4.4.4 BOD, mg/L

Biochemical Oxygen Demand (BOD) values for the period considered is given in Table - 20 and their graphical representation is given in Figure - 19.1, Figure - 19.2 & Figure - 19.3.

Table – 20

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Kalampur	1.1	1.3	1.1	0.4	0.3	0.8	0.7	0.8	1.0
Ramamangalam	1.4	1.4	1.3	0.4	0.2	0.6	0.8	0.7	0.9

Figure - 19.1

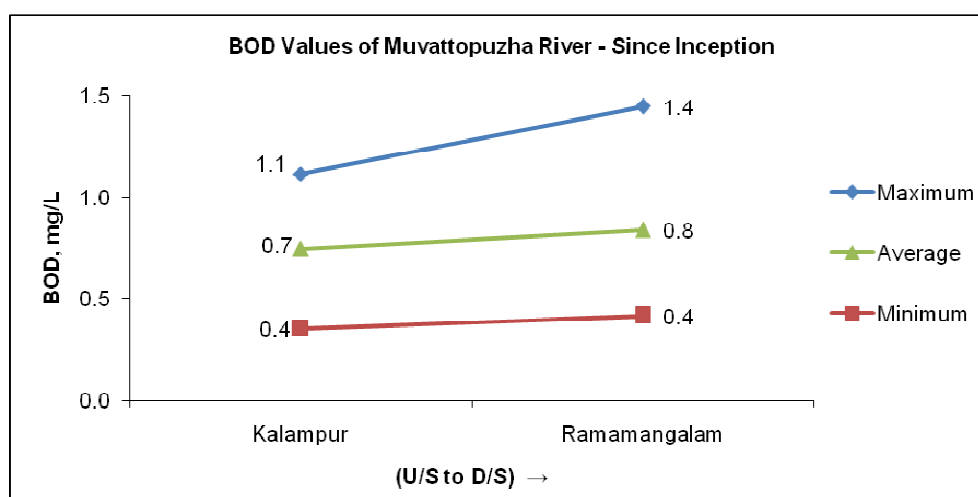


Figure - 19.2

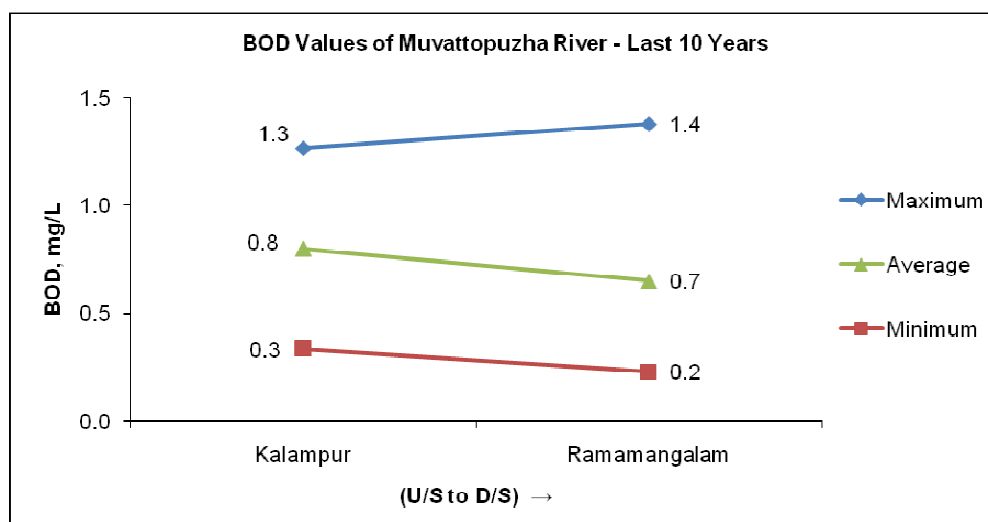
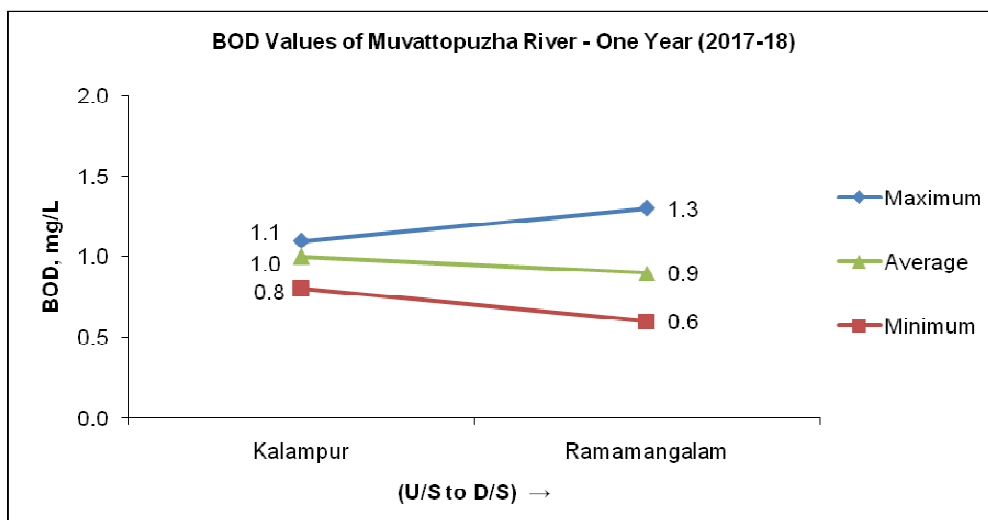


Figure - 19.3



4.4.5 DO, mg/L

Dissolved Oxygen (DO) values for the period considered is given in Table - 21 and their graphical representation is given in Figure - 20.1, Figure - 20.2 & Figure - 20.3.

Table - 21

Site Name	Average of Yearly Maximum			Average of Yearly Minimum			Annual Average		
	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year	Since Inception	Last 10 Years	One Year
Kalampur	7.9	7.4	8.0	6.0	5.7	6.2	7.0	6.8	6.9
Ramamangalam	8.9	7.8	8.1	6.6	6.2	6.4	7.5	7.1	7.1

Figure - 20.1

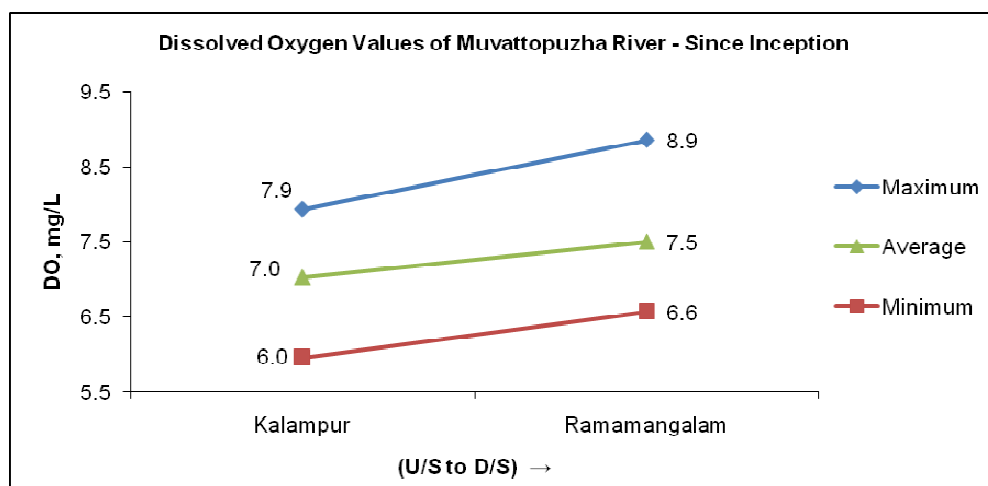


Figure - 20.2

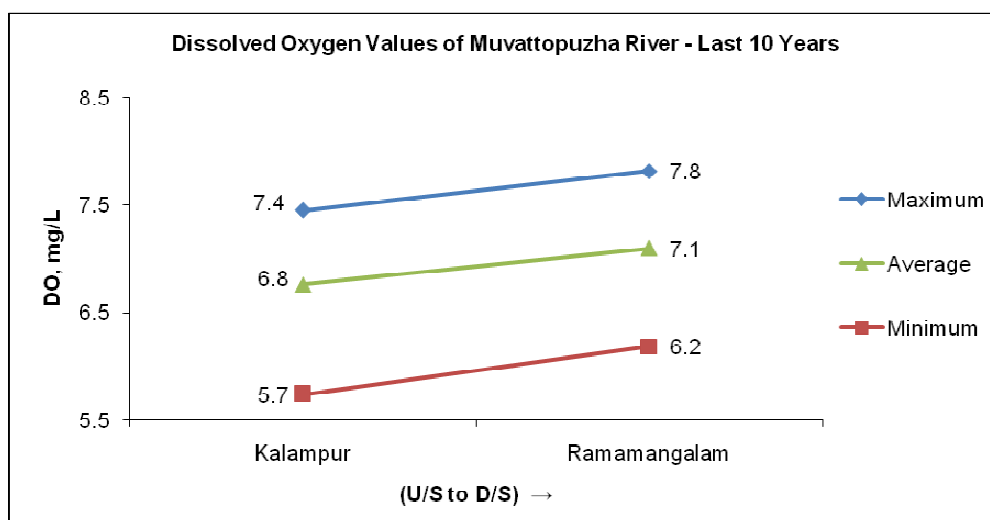
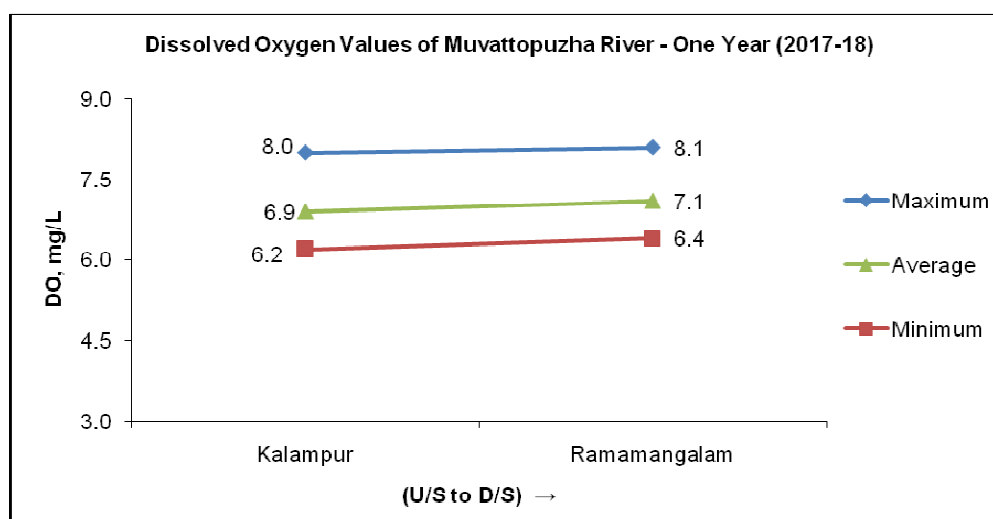


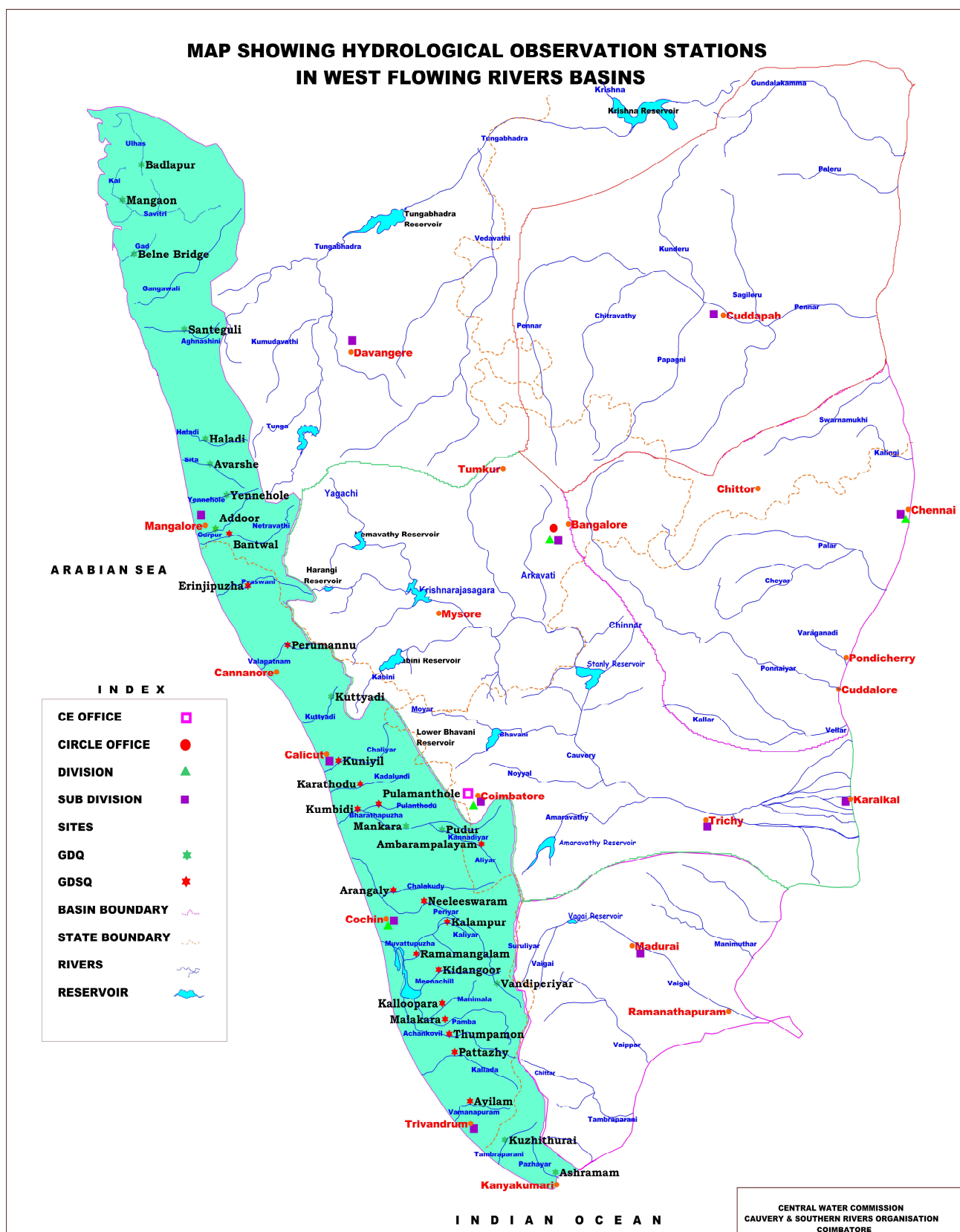
Figure - 20.3



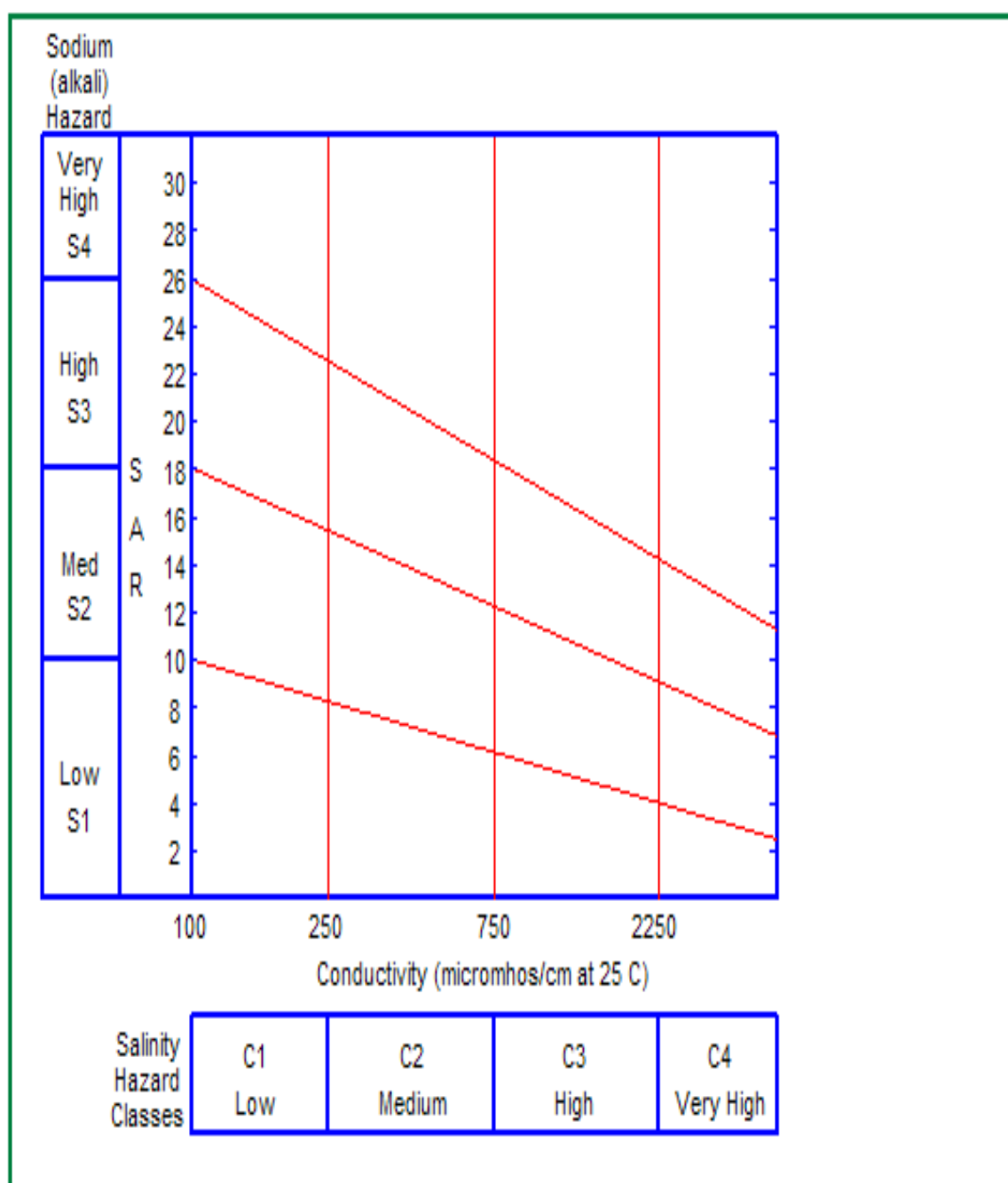
5.4 General Remarks / Conclusion about Water Quality Trend:

Trends of the river Muvattupuzha with its tributaries are as follows:

The water quality of river Muvattupuzha is almost same and good in nature. The ionic concentration is gradually increasing from upstream to downstream. As far as the Water Quality is concerned, it is found that the water quality of river Muvattupuzha shows little deteriorating trend due to direct human activities which can be seen from the above graphs.



Wilcox Diagram



ABBREVIATIONS AND SYMBOLS

Q (Cumec)	: Discharge in Cubic metre per second
EC_FLD	: Electrical Conductivity Field
EC_GEN	: Electrical Conductivity General
pH_FLD	: Negative logarithm of hydrogen ion concentration - Field
pH_GEN	: Negative logarithm of hydrogen ion concentration - General
Temp (°C)	: Temperature in degree celsius
Alk-Phen	: Phenolphthalein Alkalinity
ALK-TOT	: Total Alkalinity
B	: Boron
Ca	: Calcium
Cl	: Chloride
CO ₃	: Carbonate
F	: Fluoride
Fe	: Iron
HCO ₃	: Bicarbonate
K	: Potassium
Mg	: Magnesium
Na	: Sodium
NH ₃ -N	: Ammonia Nitrogen
NO ₂ -N	: Nitrite Nitrogen
NO ₃ -N	: Nitrate Nitrogen
o-PO ₄ -P	: Ortho Phosphate Phosphorus
SiO ₂	: Silica
SO ₄	: Sulphate
BOD	: Biochemical Oxygen Demand (3 days incubation at 27°C)
COD	: Chemical Oxygen Demand
DO	: Dissolved Oxygen
As	: Arsenic
Cd	: Cadmium
Cr	: Chromium
Cu	: Copper
Hg	: Mercury
Ni	: Nickel
Pb	: Lead
Zn	: Zinc
HAR_Ca	: Calcium Hardness
HAR_Total	: Total Hardness
Na%	: Sodium Percentage
RSC	: Residual Sodium Carbonate
SAR	: Sodium Adsorption Ratio
SRD	: Southern Rivers Division, Coimbatore
CD	: Cauvery Division, Bengaluru

TOLERANCE LIMITS OF THE WATER QUALITY PARAMETERS FOR USE IN
IRRIGATION, INDUSTRIAL, COOLING AND CONTROLLED WASTE DISPOSAL

(According to ISI publication IS: 2296 - 1982)

Sl.No.	Characteristics	Tolerance limits
1	pH	6.0 to 8.5
2	Electrical Conductance at 25°C, mhos/cm, max.	2250×10^{-6}
3	Total Dissolved Solids (inorganic)	2100
4	Sodium Adsorption Ratio, max.	26
5	Percent Sodium, max.	60
6	Boron (as B), mg/L, max.	2
7	Chlorides (as Cl) mg/L, max.	600
8	Sulphates (as SO ₄) mg/L, max.	1000

TOLERANCE LIMITS OF SELECTED WATER QUALITY
PARAMETERS FOR OTHER PURPOSES

(According to ISI publication IS: 2296 - 1982)

Sl. No.	Characteristics	Tolerance limits *			
		Class-A	Class-B	Class-C	Class-D
1	pH value	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5
2	Dissolved Oxygen mg/L, min.	6	5	4	4
3	Bio-chemical Oxygen Demand (5 days at 20°C) mg/L, max	2	3	3	-
4	Total Coliform Organisms MPN/100 ml, max.	50	500	5000	-
5	Total Dissolved Solids, mg/L, max.	500	-	1500	-
6	Chlorides (as Cl) mg/L, max.	250	-	600	-
7	Sulphates (as SO ₄) mg/L max.	400	-	400	-
8	Electrical Conductance at 25°C, mhos/cm, max.	-	-	-	1000 x 10 ⁻⁶

* Class-A : Refers drinking water without conventional treatment but after disinfection.

Class-B : Refers outdoor bathing.

Class-C : Refers drinking water with conventional treatment followed by disinfection.

Class-D : Refers fish culture and wild life propagation.