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Vol-II, WATER QUALITY DATA

जून 2015 – मई 2016
JUNE 2015 – MAY 2016

पश्चिम प्रवाही नदियाँ बेसिन
WEST FLOWING RIVERS BASIN



कावेरी एवं दक्षिणी नदियाँ परिमण्डल, बंगलुरु
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कावेरी एवं दक्षिणी नदियाँ संगठन, कोयंबत्तूर
**CAUVERY & SOUTHERN RIVERS ORGANIZATION,
COIMBATORE**

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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 श्रेष्ठतम 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 2015-16 का जल वर्ष पुस्तक दो खण्डों में किया गया। प्रथम खण्ड में नदी धारा प्रवाह एवं निलम्बित तलछट 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 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 हैं। 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
मई, 2017

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 2015-16 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,
May, 2017.


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1. INTRODUCTION

1.1 Scope

Water quality data of 32 stations for the West Flowing Rivers are presented in this volume, for the year 2015-2016. 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 USSL 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 on West Flowing River (WFR) under SRD, Coimbatore; 6 stations on WFR under CD, Bangalore; 22 stations on WFR under SWRD, Kochi and 3 stations on WFR 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

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

Ionic concentrations are in meq/L.

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

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

Ionic concentrations are in meq/L.

d) Residual Sodium Carbonate (RSC) is given by

$$\text{RSC} = (CO_3^{2-} + HCO_3^-) - (Ca^{++} + Mg^{++})$$

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 2015-16, Water Quality Summary for 2015-16 and Water Quality Seasonal Average for 2005 - 2016 (Decadal change). 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 Thambraparani 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 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.

The river water of this basin is generally alkaline in nature and the pH is varied the pH value is 7.4 to 8.1. The maximum Electrical Conductivity observed is 278 $\mu\text{mhos/cm}$, where as the minimum is 113 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium; their maximum values are 27.0, 12.8 and 8.8 mg/L respectively. Potassium and Iron are also found in the water samples. Bi-carbonate is the major anionic constituent followed by Chloride, Sulphate and Silicate. Their maximum values are 78.0, 24.0, 22.6 and 19.6 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. Trace and Toxic elements viz., Chromium and Zinc are also found within the limit in the water sample. 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 C₂S₁ 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 slightly alkaline in nature and the pH is varied from 7.4 and 7.5. The maximum Electrical Conductivity observed is 164 $\mu\text{mhos/cm}$, where as the minimum is 85 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium; their maximum values are 16.0, 6.5 and 3.9 mg/L respectively. Small quantities of Potassium and Iron are also found in the water samples. Bi-carbonate is the major anionic constituent followed by Chloride, Sulphate and Silicate; their maximum values are 53.0, 10.5, 9.9 and 18.2 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 slightly alkaline in nature and the pH is varied from 7.2 and 7.5. The maximum Electrical Conductivity observed is 100 $\mu\text{mhos/cm}$, where as the minimum is 82 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium and Magnesium. Their maximum values are 22.0, 11.3 and 3.9 mg/L respectively. Small quantities of Potassium and Iron are also found in the water sample. Bi-carbonate is the major anionic constituent followed by Chloride, Sulphate and Silicate. Their maximum values are 56.0, 14.1, 12.6 and 21.8 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 slightly acidic in nature and the pH is varied from 6.5 and 7.1. The Electrical Conductivity is low and varied from 34 to 91 $\mu\text{mhos/cm}$. The major cationic constituents are Calcium, Sodium, Magnesium and Potassium. Their maximum values are 8.0, 6.0, 2.9 and 1.1 mg/L respectively. The predominant anions are Bi-carbonate, Chloride, Sulphate and Silicate. Their maximum values are 25.0, 15.6, 4.4 and 25.3 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 6.5 to 7.0. The Electrical Conductivity is very low and it varied in a small range between 33 and 55 $\mu\text{mhos/cm}$. Calcium is the major cation followed by Sodium, Magnesium and Potassium. Their maximum values are 4.0, 3.7, 1.9 and 0.6 mg/L respectively. Bi-carbonate, Chloride and Sulphate are the major anionic constituents and their maximum values are 19.0, 7.1 and 3.8 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 6.5 to 6.9. The Electrical Conductivity is very low and varied within a small range from 33 to 44 µmhos/cm. The major cations are Calcium, Sodium, Magnesium and Potassium; their maximum values are 4.0, 3.0, 1.9 and 1.0 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Chloride and Sulphate. Their maximum values are 16.0, 6.0 and 2.4 mg/L respectively. 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 6.8 and 7.1. The maximum Electrical Conductivity observed is 39 µmhos/cm, where as the minimum is 24 µmhos/cm. Calcium is the major cation followed by Sodium, Magnesium and Potassium. Their maximum values are 3.0, 2.8, 1.9 and 1.0 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Chloride and Sulphate; their maximum values are 11.0, 7.1 and 2.2 mg/L

respectively. It is found that all the parameters are within the tolerance limits. 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 6.5 and 6.7. The Electrical Conductivity is very low and varied within a small range between 37 and 45 µmhos/cm. Calcium is the major cation followed by Sodium, Magnesium and Potassium; their maximum values are 3.0, 3.3, 1.9 and 0.7 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Chloride and Sulphate; their maximum values are 16.0, 6.0 and 2.2 mg/L respectively. 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 alkaline in nature and the pH values varied between 6.9 and 7.2. The Electrical Conductivity is very low and varied within a small range between 42 and 53 µmhos/cm. The major cations are Calcium, Sodium, Potassium and Magnesium and their maximum concentrations are 5.0, 3.9, 1.9 and 1.3 mg/L respectively. The major anionic constituents are Bi-carbonate, Chloride, and

Sulphate; their maximum concentrations are 19.0, 6.4 and 2.2 mg/L respectively. Nitrate, Fluoride, Iron and Phosphate are also found within the limits in the water samples. 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 acidic in nature and the mean pH value 6.6. Electrical Conductivity is low and varied between of 22 to 85 µmhos/cm. The major cations are Sodium, Calcium and Magnesium; their maximum values are 9.6, 8.0 and 3.8 mg/L respectively. The major anionic constituents are Bi-carbonate and Chloride; their maximum values are 79.0 and 30.0 mg/L respectively. 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. The pH and Electrical Conductivity values varied within the range of 6.2 to 7.1; and 25 to 78 µmhos/cm. respectively. The major Cations are Sodium, Calcium and Magnesium; their maximum values are 13.8, 13.0 and 4.8 mg/L respectively. Predominant anions are Bi-carbonate and Chloride; their maximum values are 48.0 and 37.8 mg/L

respectively. 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 alkaline in nature and the mean pH value is 7.6. The Electrical Conductivity varied between 13 to 165 µmhos/cm. Calcium is the major cation followed by Magnesium and Sodium; their maximum values are 16.0, 9.4 and 8.2 mg/L respectively. Bi-carbonate is the major anionic constituent followed by Chloride; their maximum values are 79.0 and 36.5 mg/L respectively. 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 is acidic in nature with mean pH value 6.6. The maximum Electrical Conductivity value is 157 and minimum 72 µmhos/cm. Major Cations are Sodium, Calcium and Magnesium; their maximum values are 13.9, 9.0 and 3.8 mg/L respectively. Major anions are Bi-carbonate and Chloride; their maximum values are 63.0 and 22.2 mg/L respectively. The water of this basin comes under C₁S₁ classification.

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** only, where Water Quality observation commenced from 01/12/1988.

The river water of this basin is slightly alkaline in nature and the mean pH is 7.1. The highest Electrical Conductivity value recorded is 102 $\mu\text{mhos/cm}$. and the lowest is 28 $\mu\text{mhos/cm}$. Major Cations are Sodium, Calcium and; their maximum values are 17.9, 7.0 and 4.7 mg/L respectively. Bi-Carbonate dominates among the anionic concentrations followed by Chloride with maximum values 48.0 and 22.1 mg/L respectively. All parameters parameters are within the tolerance limits. The water of this basin comes under C₁S₁ classification.

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 except Pulamanthole & Kumbidi where water is acidic in nature. The maximum Electrical Conductivity observed is 432 $\mu\text{mhos/cm}$ at Pudur and minimum is 24 $\mu\text{mhos/cm}$ at Kumbidi. The maximum pH 8.2 is observed at Ambarampalayam, whereas the minimum pH is 6.0 observed at Kumbidi. The predominant cation is Calcium followed by Sodium, Magnesium and Potassium; their maximum values are 49.0 mg/L, 30.1 mg/L, 27.0 mg/L and 6.4 mg/L all at Ambarampalayam. Among the anionic constituents Bicarbonate is the dominant anion with the maximum value of

205.0 mg/L (Ambarampalayam) followed by Chloride with a maximum value of 43.0 mg/L (Pudur), Sulphate with a maximum value 19.7 mg/L (Ambarampalayam). Small quantity of Ammonia, Boron, Fluoride, Iron, Nitrate, and Phosphate are also found in the water samples. The water is classified as C₂S₁ at Pudur, Mankara, Kumbidi and Ambarampalayam and C₁S₁ at 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 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**.

The river water of this basin is generally alkaline in nature with the pH ranging from 6.0 at Arangaly to 7.9 at Vandiperiyar. The maximum Electrical Conductivity observed is 425 µmhos/cm at Arangaly where as the minimum is 23 µmhos/cm is observed at Neeleswaram. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 23.0 mg/L (Vandiperiyar), 17.7 mg/L (Vandiperiyar) and 10.5 mg/L (Neeleswaram). Among the anionic constituents Bicarbonate is the dominant anion with the maximum concentration of 111.0 mg/L (Neeleswaram) followed by Chloride with a maximum value of 43.0 mg/L (Arangaly). All parameters are within the tolerance limits. The water is classified as C₁S₁ at Neeleswaram and Vandiperiyar and C₂S₁ at Arangaly.

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 generally alkaline in nature with the pH ranging from 6.0 (Kalampur) to 7.8 (Ramamangalam). The maximum Electrical Conductivity observed is 104 $\mu\text{mhos/cm}$ and the minimum 22 $\mu\text{mhos/cm}$ both at Kalampur. The predominant cations are Calcium followed by Sodium and Magnesium; their maximum values are 16.0 mg/L, 11.8 mg/L and 11.0 mg/L all at Kalampur. Among the anionic constituents Bicarbonate is the dominant anion with the maximum concentration of 106.0 mg/L followed by Chloride with a maximum value of 27.4 mg/L both at Kalampur. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under 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**, where Water Quality observation commenced from 02/06/1986.

The river water of this basin is generally acidic in nature with the mean pH 6.9. The Electrical Conductivity is varied between 19 $\mu\text{mhos/cm}$ to 99 $\mu\text{mhos/cm}$. The predominant cation is Sodium followed by Calcium and Magnesium; their maximum values are 14.5, 9.0 and 4.7 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 37.0 and 31.1 mg/L respectively. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under 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 **Kallooppa**.

The pH of the river water of this basin is varied in between 6.1 at Malakkara to 7.9 at Kallooppa. The Electrical Conductivity is comparatively low at both sites and it is varied between 20 $\mu\text{mhos/cm}$ (Malakkara) to 95 $\mu\text{mhos/cm}$ at (Kallooppa). The major cation is Calcium followed by Sodium and Magnesium. Their maximum values are 13.0 mg/L (Kallooppa) and 12.5 mg/L (Kallooppa) and 7.8 mg/L (Malakkara) respectively. Bicarbonate is the major anion followed by Chloride; their maximum values are 53.0 and 26.1 mg/L respectively both at Malakkara. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under C_1S_1 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 1484 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 almost neutral in nature with the mean pH value 6.9. The Electrical Conductivity is low and it varied between 25 $\mu\text{mhos/cm}$ to 75 $\mu\text{mhos/cm}$. The predominant cation is Sodium followed by Calcium and Magnesium; their maximum values are 12.8, 9.0 and 3.1 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 79.0 and 33.5 mg/L respectively. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under C_1S_1 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 is almost neutral in nature with the mean pH value 6.9. The Electrical Conductivity is low and it varied between 26 μ mhos/cm to 84 μ mhos/cm. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 35.0, 12.1 and 9.5 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 48.0 and 29.9 mg/L respectively. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under 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 27 μ mhos/cm to 99 μ mhos/cm. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 16.0, 15.6 and 9.4 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 63.0 and 29.6 mg/L respectively. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits. The water of this basin comes under 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. The only Water Quality station on this river is at **Kuzhithurai**. 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 7.0 to 7.9. The highest Electrical Conductivity value recorded is 154 $\mu\text{mhos/cm}$ and the lowest value is 96 $\mu\text{mhos/cm}$. The predominant cation is Sodium followed by Calcium and Magnesium; their maximum values are 19.0, 14.0 and 8.6 mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride and their maximum values are 106.0 and 31.3 mg/L respectively. All the parameters including the Chemical Indices and Biological parameters are within the tolerance limits except Fluoride. The water of this basin falls in the C_1S_1 category.

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**. Water Quality Monitoring of this basin started with effect from 02/12/2002.

The pH of the river water of this basin is alkaline in nature with the mean pH value 7.3. The highest Electrical Conductivity value recorded is 337 $\mu\text{mhos/cm}$. and the lowest is 25 $\mu\text{mhos/cm}$. The predominant cation is Calcium followed by Sodium and Magnesium; their maximum values are 16.0, 14.8 and 5.7mg/L respectively. Among the anionic constituents Bicarbonate is the dominant anion followed by Chloride with maximum values 53.0 and 39.1 mg/L respectively. All the parameters including the Chemical Indices are within the tolerance limits except Fluoride. The water of this basin comes under C_2S_1 classification.

HISTORY SHEET

		Water Year	: 2015-2016
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 : 2015-2016

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	02/06/2015	03/07/2015	04/08/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	10.85	27.56	128.3
2	Colour_Cod (-)	Clear	Light Brown	Light Brown
3	EC_FLD (µmho/cm)	137	108	102
4	EC_GEN (µmho/cm)	127	278	169
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4	7.3	8.3
7	pH_GEN (pH units)	7.8	8.0	7.6
8	Temp (deg C)	34.0	26.0	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	36	64	58
3	B (mg/L)	0.03	0.16	0.06
4	Ca (mg/L)	16	27	18
5	Cl (mg/L)	15.5	24.0	11.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.30	0.35	0.61
8	Fe (mg/L)	0.7	3.3	2.0
9	HCO3 (mg/L)	44	78	71
10	K (mg/L)	0.7	1.7	0.5
11	Mg (mg/L)	3.9	8.8	4.9
12	Na (mg/L)	8.1	12.8	5.8
13	NO2+NO3 (mg N/L)	0.56	2.27	1.01
14	NO2-N (mgN/L)	0.00	0.00	0.01
15	NO3-N (mgN/L)	0.56	2.27	1.00
16	P-Tot (mgP/L)	0.008	0.040	0.002
17	SiO2 (mg/L)	1.9	0.4	5.9
18	SO4 (mg/L)	14.2	22.6	11.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.2	1.8	1.2
2	COD (mg/L)	8.4	16.0	8.0
3	DO (mg/L)	4.0	4.5	3.1
4	DO_SAT% (%)	57	55	38
5	FCol-MPN (MPN/100mL)	130000	17000	13000
6	Tcol-MPN (MPN/100mL)	240000	22000	22000
	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)	40	68	44
2	HAR_Total (mgCaCO3/L)	56	105	64
3	Na% (%)	24	21	16
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.3
	PESTICIDES	Anlaysis not done due to mall function of instrument.		

Water Quality Datasheet for the period : 2015-2016

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	02/09/2015	06/10/2015	03/11/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	99.63	94.65	13.84
2	Colour_Cod (-)	Clear	Brown	Clear
3	EC_FLD (µmho/cm)	102	102	102
4	EC_GEN (µmho/cm)	195	169	192
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	8.4	8.3	8.3
7	pH_GEN (pH units)	7.9	7.6	7.6
8	Temp (deg C)	24.0	25.5	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	59	59	64
3	B (mg/L)	0.10	0.11	0.01
4	Ca (mg/L)	19	18	19
5	Cl (mg/L)	14.2	16.5	21.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.32	0.35	0.33
8	Fe (mg/L)	1.1	1.2	1.0
9	HCO3 (mg/L)	72	72	78
10	K (mg/L)	0.4	0.7	0.3
11	Mg (mg/L)	6.8	5.8	3.9
12	Na (mg/L)	7.5	9.3	11.3
13	NO2+NO3 (mg N/L)	0.78	0.85	0.77
14	NO2-N (mgN/L)	0.05	0.00	0.00
15	NO3-N (mgN/L)	0.72	0.85	0.76
16	P-Tot (mgP/L)	0.012	0.004	0.005
17	SiO2 (mg/L)	19.6	1.1	3.8
18	SO4 (mg/L)	15.3	15.7	10.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.9	2.0
2	COD (mg/L)	5.0	8.0	18.2
3	DO (mg/L)	3.8	3.8	3.8
4	DO_SAT% (%)	45	46	46
5	FCol-MPN (MPN/100mL)	1300	2300	13000
6	Tcol-MPN (MPN/100mL)	1700	3300	24000
	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)	48	44	48
2	HAR_Total (mgCaCO3/L)	76	68	64
3	Na% (%)	18	23	28
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.6
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

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	02/12/2015	02/01/2016	02/02/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	15.13	1.85	1.988
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	370	108	115
4	EC_GEN (µmho/cm)	175	113	119
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4	7.3	8.1
7	pH_GEN (pH units)	7.8	7.9	8.1
8	Temp (deg C)	24.0	20.0	23.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	58	50	49
3	B (mg/L)	0.01	0.04	0.03
4	Ca (mg/L)	19	16	16
5	Cl (mg/L)	13.9	13.2	11.5
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.30	0.35	0.33
8	Fe (mg/L)	0.9	0.8	0.8
9	HCO3 (mg/L)	71	61	60
10	K (mg/L)	0.4	0.5	0.4
11	Mg (mg/L)	3.9	1.9	2.9
12	Na (mg/L)	9.7	7.4	5.7
13	NO2+NO3 (mg N/L)	0.62	0.64	0.57
14	NO2-N (mgN/L)	0.01	0.01	0.00
15	NO3-N (mgN/L)	0.61	0.63	0.56
16	P-Tot (mgP/L)	0.008	0.007	0.010
17	SiO2 (mg/L)	3.8	3.9	7.6
18	SO4 (mg/L)	9.3	5.4	2.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.2	0.8	0.6
2	COD (mg/L)	10.1	5.8	4.6
3	DO (mg/L)	4.5	4.5	4.6
4	DO_SAT% (%)	53	49	54
5	FCol-MPN (MPN/100mL)	24000	92000	17000
6	Tcol-MPN (MPN/100mL)	54000	160000	22000
	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)	48	40	40
2	HAR_Total (mgCaCO3/L)	64	48	52
3	Na% (%)	25	25	19
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

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	02/03/2016	02/04/2016	03/05/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	9.754	4.3	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	110	115	113
4	EC_GEN (µmho/cm)	116	121	125
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	8.1	7.4	8.1
7	pH_GEN (pH units)	7.4	7.5	7.6
8	Temp (deg C)	22.0	23.5	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	56	44	44
3	B (mg/L)	0.00	0.00	0.00
4	Ca (mg/L)	16	16	14
5	Cl (mg/L)	9.7	11.3	11.9
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.33	0.32	0.29
8	Fe (mg/L)	1.1	0.1	1.6
9	HCO3 (mg/L)	68	54	54
10	K (mg/L)	0.3	0.5	0.3
11	Mg (mg/L)	2.9	1.9	2.9
12	Na (mg/L)	6.4	7.7	8.6
13	NO2+NO3 (mg N/L)	0.97	1.17	1.26
14	NO2-N (mgN/L)	0.02	0.02	0.01
15	NO3-N (mgN/L)	0.95	1.15	1.25
16	P-Tot (mgP/L)	0.002	0.850	0.006
17	SiO2 (mg/L)	3.6	3.4	4.1
18	SO4 (mg/L)	6.1	5.6	8.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.8	0.6	0.6
2	COD (mg/L)	13.7	5.3	4.6
3	DO (mg/L)	4.5	4.5	4.5
4	DO_SAT% (%)	51	53	53
5	FCol-MPN (MPN/100mL)	22000	54000	350000
6	Tcol-MPN (MPN/100mL)	28000	92000	540000
	TRACE & TOXIC			
1	As (µg/L)		-0.50	
2	Cd (µg/L)		-0.01	
3	Cr (µg/L)		5.20	
4	Cu (µg/L)		-0.50	
5	Hg (µg/L)		0.03	
6	Ni (µg/L)		-0.50	
7	Pb (µg/L)		-0.50	
8	Zn (µg/L)		3.63	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	40	40	36
2	HAR_Total (mgCaCO3/L)	52	48	48
3	Na% (%)	21	26	28
4	RSC (-)	0.1	0.0	0.0
5	SAR (-)	0.4	0.5	0.5
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : Badlapur (WU000P8)

Division : Upper Krishna Divn, Pune

Local River : Ulhas

River Water Summary

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	860.2	0.000	54.47
2	EC_FLD (µmho/cm)	12	370	102	132
3	EC_GEN (µmho/cm)	12	278	113	158
4	pH_FLD (pH units)	12	8.4	7.3	7.9
5	pH_GEN (pH units)	12	8.1	7.4	7.7
6	Temp (deg C)	12	34.0	20.0	24.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	64	36	53
3	B (mg/L)	12	0.16	0.00	0.05
4	Ca (mg/L)	12	27	14	18
5	Cl (mg/L)	12	24.0	9.7	14.5
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.61	0.29	0.35
8	Fe (mg/L)	12	3.3	0.1	1.2
9	HCO3 (mg/L)	12	78	44	65
10	K (mg/L)	12	1.7	0.3	0.6
11	Mg (mg/L)	12	8.8	1.9	4.2
12	Na (mg/L)	12	12.8	5.7	8.4
13	NO2+NO3 (mg N/L)	12	2.27	0.56	0.95
14	NO2-N (mgN/L)	12	0.05	0.00	0.01
15	NO3-N (mgN/L)	12	2.27	0.56	0.94
16	P-Tot (mgP/L)	12	0.850	0.002	0.08
17	SiO2 (mg/L)	12	19.6	0.4	4.9
18	SO4 (mg/L)	12	22.6	2.1	10.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.0	0.6	1.1
2	COD (mg/L)	12	18.2	4.6	9
3	DO (mg/L)	12	4.6	3.1	4.2
4	DO_SAT% (%)	12	57	38	50
5	Fcol-MPN (MPN/100mL)	12	350000	1300	61300
6	Tcol-MPN (MPN/100mL)	12	540000	1700	100750
	TRACE & TOXIC				
1	As (µg/L)	1	-0.50	-0.50	-0.5
2	Cd (µg/L)	1	-0.01	-0.01	-0.01
3	Cr (µg/L)	1	5.20	5.20	5.2
4	Cu (µg/L)	1	-0.50	-0.50	-0.5
5	Hg (µg/L)	1	0.03	0.03	0.03
6	Ni (µg/L)	1	-0.50	-0.50	-0.5
7	Pb (µg/L)	1	-0.50	-0.50	-0.5
8	Zn (µg/L)	1	3.63	3.63	3.63
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	68	36	45
2	HAR_Total (mgCaCO3/L)	12	105	48	62
3	Na% (%)	12	28	16	23
4	RSC (-)	12	0.1	0.0	0
5	SAR (-)	12	0.6	0.3	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

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				
		2001	2002	2003	2004	2005
	PHYSICAL					
1	Q (cumec)	113	146.2	104.4	363.1	668.4
2	EC_FLD (µmho/cm)	445	367	207	185	103
3	EC_GEN (µmho/cm)	202	182	175	168	121
4	pH_FLD (pH units)	7.3	7.3	7.6	7.8	8.2
5	pH_GEN (pH units)	7.7	7.6	7.8	7.6	7.6
6	TDS (mg/L)	139	147			
7	Temp (deg C)	27.1	27.3	28.3	27.8	26.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.2	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	72	69	97	103	83
3	B (mg/L)	0.35	0.25	0.26	0.17	0.23
4	Ca (mg/L)	15	13	15	16	10
5	Cl (mg/L)	14.4	22.8	13.1	11.7	6.9
6	CO3 (mg/L)	0.5	0.3	0.0	0.0	0.0
7	F (mg/L)	0.24	0.49	0.27	0.21	0.08
8	Fe (mg/L)	0.1	0.1	0.1	0.0	0.2
9	HCO3 (mg/L)	71	42	59	63	51
10	K (mg/L)	0.4	0.7	0.9	0.9	11.2
11	Mg (mg/L)	6.3	7.7	6.2	3.8	4.1
12	Na (mg/L)	8.8	12.7	10.3	10.3	8.4
13	NH3-N (mg N/L)	0.05	0.05	0.06	0.07	
14	NO2+NO3 (mg N/L)	0.09	0.13	0.11	0.43	0.41
15	NO2-N (mgN/L)		0.01	0.01	0.01	0.04
16	NO3-N (mgN/L)	0.01	0.11	0.10	0.42	0.37
17	P-Tot (mgP/L)	0.134	0.064	0.102	0.068	0.109
18	SiO2 (mg/L)	28.1	14.8	6.9	4.5	9.1
19	SO4 (mg/L)	9.3	9.4	9.3	8.0	20.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1	1.2	1.2	1.3	0.3
2	COD (mg/L)		7.3	4.2	4.7	11.3
3	DO (mg/L)		6.6	5.7	6.7	5.1
4	DO_SAT% (%)		82	69	85	64
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)	0.01				
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Hg (µg/L)					
7	Ni (µg/L)					
8	Pb (µg/L)					
9	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	37	34	38	40	25
2	HAR_Total (mgCaCO3/L)	64	66	64	56	42
3	Na% (%)	23	28	26	28	25
4	RSC (-)	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.7	0.6	0.6	0.6
	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: 2001-2016

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				
		2006	2007	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	539.1	356.3	116.9	96.36	166.2
2	EC_FLD (µmho/cm)	208	156	174	189	195
3	EC_GEN (µmho/cm)	146	152	142	612	179
4	pH_FLD (pH units)	7.9	7.4	7.3	6.2	7.6
5	pH_GEN (pH units)	7.4	7.5	7.4	7.3	7.7
6	TDS (mg/L)					
7	Temp (deg C)	27.1	25.9	26.8	28.5	26.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	98	34	53	40	52
3	B (mg/L)	0.10	0.07	0.06	0.05	0.13
4	Ca (mg/L)	18	11	15	13	19
5	Cl (mg/L)	16.5	14.8	10.9	12.8	13.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.12	0.24	0.05	0.17	0.16
8	Fe (mg/L)	0.1	0.6	0.1	0.2	0.1
9	HCO3 (mg/L)	60	42	65	49	63
10	K (mg/L)	10.4	2.0	2.2	0.3	0.9
11	Mg (mg/L)	3.1	3.3	5.4	7.3	4.7
12	Na (mg/L)	10.4	10.3	7.2	8.1	7.2
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.30	0.48	0.66	0.59	0.24
15	NO2-N (mgN/L)	0.00	0.04	0.01	0.01	0.01
16	NO3-N (mgN/L)	0.30	0.44	0.65	0.58	0.23
17	P-Tot (mgP/L)	0.230	0.139	0.005	0.011	0.014
18	SiO2 (mg/L)	8.5	14.1	7.7	8.2	13.8
19	SO4 (mg/L)	12.4	12.9	10.5	24.7	12.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	1.2	0.6	1.1	1.0
2	COD (mg/L)	3.2	7.6	3.4	7.2	6.9
3	DO (mg/L)	5.5	4.0	4.9	4.5	6.2
4	DO_SAT% (%)	68	50	62	60	76
5	FCol-MPN (MPN/100mL)				61733	8060
6	Tcol-MPN (MPN/100mL)				64000	14120
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Hg (µg/L)					
7	Ni (µg/L)					
8	Pb (µg/L)					
9	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	45	27	36	32	48
2	HAR_Total (mgCaCO3/L)	58	40	59	63	68
3	Na% (%)	26	37	23	22	19
4	RSC (-)	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.7	0.8	0.5	0.5	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: 2001-2016

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				
		2011	2012	2013	2014	2015
	PHYSICAL					
1	Q (cumec)	190.4	193.2	278.7	274.8	72.21
2	EC_FLD (µmho/cm)	259	167	255	216	110
3	EC_GEN (µmho/cm)	175	156	174	146	188
4	pH_FLD (pH units)	7.2	6.3	7.4	7.3	7.9
5	pH_GEN (pH units)	7.5	7.6	7.2	7.4	7.8
6	TDS (mg/L)					
7	Temp (deg C)	24.4	23.8	25.2	26.2	26.9
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	48	43	51	53	55
3	B (mg/L)	0.03	0.03	0.09	0.04	0.09
4	Ca (mg/L)	18	17	17	21	20
5	Cl (mg/L)	10.8	12.1	11.0	27.3	16.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.27	0.28	0.29	0.26	0.39
8	Fe (mg/L)	0.4	0.1	0.8	0.7	1.7
9	HCO3 (mg/L)	59	53	62	65	67
10	K (mg/L)	1.0	0.6	0.6	0.3	0.8
11	Mg (mg/L)	3.5	2.5	7.8	3.3	6.0
12	Na (mg/L)	7.3	7.6	6.3	18.9	8.7
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.55	0.56	0.49	0.71	1.09
15	NO2-N (mgN/L)	0.01	0.08	0.01	0.01	0.01
16	NO3-N (mgN/L)	0.55	0.48	0.48	0.70	1.08
17	P-Tot (mgP/L)	0.031	0.014	0.024	0.007	0.013
18	SiO2 (mg/L)	28.0	10.4	18.0	17.2	5.8
19	SO4 (mg/L)	10.6	10.9	17.9	11.8	15.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	1.0	0.8	0.9	1.1
2	COD (mg/L)	4.0	7.3	7.3	6.5	9.1
3	DO (mg/L)	5.6	5.3	5.4	5.3	3.8
4	DO_SAT% (%)	67	62	65	65	48
5	FCol-MPN (MPN/100mL)	105060	155400	12840	28200	32720
6	Tcol-MPN (MPN/100mL)	155660	232600	18000	46800	57800
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)		9.22	4.51		
3	Cd (µg/L)		0.20	0.20		
4	Cr (µg/L)		0.68	5.24		
5	Cu (µg/L)		5.31	2.58		
6	Hg (µg/L)			0.26		
7	Ni (µg/L)		12.97	8.48		
8	Pb (µg/L)		0.70	-0.50		
9	Zn (µg/L)		13.71	-0.05		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	46	43	42	53	49
2	HAR_Total (mgCaCO3/L)	60	54	75	67	74
3	Na% (%)	20	22	16	38	20
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.3	1.0	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: 2001-2016

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				
		2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
	PHYSICAL					
1	Q (cumec)	5.061	6.364	4.291	6.942	12.75
2	EC_FLD (µmho/cm)	442	391	164		149
3	EC_GEN (µmho/cm)	154	141	130	125	115
4	pH_FLD (pH units)	7.2	7.1	7.5		7.5
5	pH_GEN (pH units)	7.8	7.5	7.5	7.6	7.6
6	TDS (mg/L)	119	101			
7	Temp (deg C)	23.2	23.3	24.3	23.5	22.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	1.5	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	59	48	71	73	89
3	B (mg/L)	0.39	0.35	0.20	0.14	0.17
4	Ca (mg/L)	16	12	12	9	9
5	Cl (mg/L)	21.0	16.7	12.7	8.0	6.7
6	CO3 (mg/L)	0.3	0.1	0.0	0.0	0.0
7	F (mg/L)	0.14	0.12	0.28	0.25	0.09
8	Fe (mg/L)	0.1	0.1	0.1	0.1	0.2
9	HCO3 (mg/L)	64	29	43	44	54
10	K (mg/L)	0.3	0.9	0.8	0.7	7.8
11	Mg (mg/L)	6.6	4.6	4.4	3.5	3.6
12	Na (mg/L)	8.6	10.7	8.5	6.0	4.9
13	NH3-N (mg N/L)	0.05	0.05	0.07	0.22	
14	NO2+NO3 (mg N/L)	0.18	0.07	0.33	0.44	0.21
15	NO2-N (mgN/L)		0.02	0.01	0.04	0.05
16	NO3-N (mgN/L)	0.01	0.05	0.32	0.40	0.17
17	P-Tot (mgP/L)	0.155	0.080	0.103	0.056	0.089
18	SiO2 (mg/L)	16.2	9.3	3.9	4.7	5.8
19	SO4 (mg/L)	12.4	9.2	10.1	5.5	6.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	1.7	1.5	0.9	0.7
2	COD (mg/L)		6.3	5.0	5.5	21.1
3	DO (mg/L)		6.5	4.7	6.2	5.8
4	DO_SAT% (%)		74	57	78	66
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)	0.01				
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Hg (µg/L)					
7	Ni (µg/L)					
8	Pb (µg/L)					
9	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	40	29	31	22	24
2	HAR_Total (mgCaCO3/L)	67	49	50	37	39
3	Na% (%)	22	32	27	27	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.1
5	SAR (-)	0.5	0.7	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: 2001-2016

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				
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
	PHYSICAL					
1	Q (cumec)	12.01	5.048	6.694	6.687	6.824
2	EC_FLD (µmho/cm)	173	143	182	181	172
3	EC_GEN (µmho/cm)	124	147	181	183	329
4	pH_FLD (pH units)	8.0	6.5	6.8	6.5	7.3
5	pH_GEN (pH units)	7.6	7.4	7.7	7.7	7.6
6	TDS (mg/L)					
7	Temp (deg C)	24.8	24.0	23.4	22.6	23.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	44	38	39	46	52
3	B (mg/L)	0.32	0.08	0.15	0.25	0.06
4	Ca (mg/L)	6	13	11	17	19
5	Cl (mg/L)	18.1	11.5	20.1	21.9	8.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.06	0.80	0.24	0.27	0.47
8	Fe (mg/L)	0.2	0.9	0.1	0.4	0.2
9	HCO3 (mg/L)	27	47	48	56	63
10	K (mg/L)	9.8	0.7	0.9	1.3	1.0
11	Mg (mg/L)	2.4	2.7	3.0	10.5	5.3
12	Na (mg/L)	9.8	11.6	14.1	15.3	4.8
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.18	0.24	0.36	1.11	0.20
15	NO2-N (mgN/L)	0.05	0.12	0.20	0.01	0.02
16	NO3-N (mgN/L)	0.13	0.12	0.16	1.10	0.18
17	P-Tot (mgP/L)	0.257	0.446	0.032	0.064	0.068
18	SiO2 (mg/L)	4.3	15.9	5.4	8.3	14.2
19	SO4 (mg/L)	12.1	13.2	10.2	34.4	12.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	1.9	0.8	1.1	0.9
2	COD (mg/L)	8.5	9.6	2.9	5.4	7.3
3	DO (mg/L)	7.1	5.2	4.7	5.9	4.2
4	DO_SAT% (%)	86	61	57	68	50
5	FCol-MPN (MPN/100mL)				88300	29400
6	Tcol-MPN (MPN/100mL)				124000	13800
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Hg (µg/L)					
7	Ni (µg/L)					
8	Pb (µg/L)					
9	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	33	28	43	47
2	HAR_Total (mgCaCO3/L)	26	44	40	87	69
3	Na% (%)	36	36	42	27	13
4	RSC (-)	0.0	0.0	0.1	0.0	0.0
5	SAR (-)	0.9	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: 2001-2016

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	TDS (mg/L)					
7	Temp (deg C)	24.3	23.2	22.0	24.6	23.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	47	37	42	42	55
3	B (mg/L)	0.08	0.03	0.05	0.04	0.02
4	Ca (mg/L)	16	14	16	15	18
5	Cl (mg/L)	11.1	9.0	15.1	13.9	15.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.27	0.21	0.27	0.27	0.33
8	Fe (mg/L)	0.2	0.1	0.7	0.7	0.8
9	HCO3 (mg/L)	58	46	48	51	68
10	K (mg/L)	0.9	0.6	0.8	0.8	0.4
11	Mg (mg/L)	2.7	1.2	3.6	5.3	3.2
12	Na (mg/L)	6.8	5.8	9.8	9.9	8.5
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.51	0.10	0.44	0.67	0.65
15	NO2-N (mgN/L)	0.00	0.00	0.01	0.01	0.00
16	NO3-N (mgN/L)	0.50	0.10	0.43	0.67	0.64
17	P-Tot (mgP/L)	0.020	0.015	0.005	0.007	0.008
18	SiO2 (mg/L)	6.4	3.6	3.0	14.7	4.8
19	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	Al (mg/L)					
2	As (µg/L)	0.08				
3	Cd (µg/L)	0.00			0.04	
4	Cr (µg/L)	1.99			5.24	
5	Cu (µg/L)	8.73			5.13	
6	Hg (µg/L)					
7	Ni (µg/L)	8.54			-0.50	
8	Pb (µg/L)	0.25			3.59	
9	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: 2001-2016

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				
		2002	2003	2004	2005	2006
	PHYSICAL					
1	Q (cumec)	3.563	4.691	5.48	4.606	10.38
2	EC_FLD (µmho/cm)	426	176	172		170
3	EC_GEN (µmho/cm)	151	137	152	126	103
4	pH_FLD (pH units)	7.1	7.3	7.6		7.5
5	pH_GEN (pH units)	7.5	7.9	7.5	7.6	7.6
6	TDS (mg/L)	114				
7	Temp (deg C)	25.1	28.8	28.6	26.8	30.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	45	60	101	103	63
3	B (mg/L)	0.41	0.32	0.23	0.20	0.12
4	Ca (mg/L)	15	12	12	14	12
5	Cl (mg/L)	19.7	12.5	13.0	7.3	6.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.36	0.09	0.45	0.10	0.15
8	Fe (mg/L)	0.0	0.1	0.0	0.2	0.2
9	HCO3 (mg/L)	55	36	62	63	48
10	K (mg/L)	0.4	0.8	0.9	0.4	4.5
11	Mg (mg/L)	8.6	5.8	5.4	2.7	1.7
12	Na (mg/L)	7.9	7.9	12.4	5.8	5.0
13	NH3-N (mg N/L)	0.05	0.05	0.09	0.14	
14	NO2+NO3 (mg N/L)	0.53	0.06	0.33	0.35	0.34
15	NO2-N (mgN/L)		0.01	0.02	0.02	0.06
16	NO3-N (mgN/L)	0.01	0.05	0.30	0.32	0.29
17	P-Tot (mgP/L)	0.111	0.068	0.077	0.180	0.136
18	SiO2 (mg/L)	9.2	8.8	1.6	11.7	4.8
19	SO4 (mg/L)	12.1	8.3	13.0	4.3	7.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	2.0	1.0	1.5	0.8	1.5
2	COD (mg/L)		4.7	4.6	3.3	17.7
3	DO (mg/L)	4.9		3.7		5.0
4	DO_SAT% (%)	60		47		56
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)	0.01				
2	As (µg/L)					
3	Cd (µg/L)					0.01
4	Cr (µg/L)					2.00
5	Cu (µg/L)					
6	Hg (µg/L)					
7	Ni (µg/L)					1.00
8	Pb (µg/L)					33.00
9	Zn (µg/L)					80.00
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	37	31	30	35	29
2	HAR_Total (mgCaCO3/L)	72	55	53	46	36
3	Na% (%)	20	24	29	21	21
4	RSC (-)	0.0	0.0	0.0	0.1	0.1
5	SAR (-)	0.4	0.5	0.7	0.4	0.4
	PESTICIDES					
1	Aldrin (µg/L)					0.010
2	BHC (µg/L)					0.100
3	DDT (µg/L)					0.100
4	Dieldrin (µg/L)					0.033
5	Endos (µg/L)					0.100

Water Quality Seasonal Average for the period: 2001-2016

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				
		2007	2008	2009	2010	2011
	PHYSICAL					
1	Q (cumec)	13.52	8.949	8.291	2.336	8.103
2	EC_FLD (µmho/cm)	171	143	171	197	183
3	EC_GEN (µmho/cm)	174	135	125	146	105
4	pH_FLD (pH units)	7.7	6.3	7.4	5.9	7.2
5	pH_GEN (pH units)	7.4	7.6	7.5	7.6	7.0
6	TDS (mg/L)					
7	Temp (deg C)	29.0	24.2	32.5	22.5	25.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	55	41	37	47	34
3	B (mg/L)	0.09	0.11	0.07	0.21	0.03
4	Ca (mg/L)	9	13	11	19	13
5	Cl (mg/L)	11.7	12.1	11.8	10.9	7.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.17	0.06	0.84	0.17	0.31
8	Fe (mg/L)	0.3	0.8	0.1	0.9	0.2
9	HCO3 (mg/L)	43	50	45	58	42
10	K (mg/L)	5.3	1.0	0.5	1.5	1.2
11	Mg (mg/L)	1.2	3.6	4.5	11.1	3.6
12	Na (mg/L)	9.6	11.7	11.5	8.1	4.5
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.27	0.36	1.99	0.54	0.12
15	NO2-N (mgN/L)	0.03	0.12	1.88	0.01	0.02
16	NO3-N (mgN/L)	0.24	0.24	0.11	0.53	0.11
17	P-Tot (mgP/L)	0.199	0.372	0.038	0.025	0.011
18	SiO2 (mg/L)	4.5	0.4	10.1	5.9	19.9
19	SO4 (mg/L)	4.7	10.1	14.1	37.6	11.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3	0.9	0.6	0.8	0.8
2	COD (mg/L)	16.2	11.9	4.1	6.6	6.1
3	DO (mg/L)	6.3	5.2	4.6	5.0	6.3
4	DO_SAT% (%)	79	61	69	57	77
5	FCol-MPN (MPN/100mL)				19667	14000
6	Tcol-MPN (MPN/100mL)				29000	17000
7	TOC (mg/L)		0.9			
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)					
3	Cd (µg/L)	7.00	0.01	2.19	0.01	0.00
4	Cr (µg/L)	23.00	2.00	2.00	2.00	0.65
5	Cu (µg/L)					
6	Hg (µg/L)	3.03	0.27			
7	Ni (µg/L)	6.00	3.00	1.00	1.97	0.00
8	Pb (µg/L)	97.00	4.39	3.85	1.00	0.00
9	Zn (µg/L)	48.00	4.33	15.81	8.45	22.65
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	22	32	28	47	33
2	HAR_Total (mgCaCO3/L)	27	47	47	94	48
3	Na% (%)	37	34	34	16	17
4	RSC (-)	0.2	0.0	0.0	0.0	0.0
5	SAR (-)	0.8	0.7	0.7	0.4	0.3
	PESTICIDES					
1	Aldrin (µg/L)	0.010	0.010	0.010	0.010	0.000
2	BHC (µg/L)	0.100	0.260	0.100	0.148	0.058
3	DDT (µg/L)	0.100	0.100	0.100	0.100	0.000
4	Dieldrin (µg/L)	0.030	0.010	0.010	0.010	0.053
5	Endos (µg/L)	0.130	0.290	0.100	0.100	0.555

Water Quality Seasonal Average for the period: 2001-2016

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				
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)	9.998	14.09	7.496	4.127	4.685
2	EC_FLD (µmho/cm)	163	208	176	114	113
3	EC_GEN (µmho/cm)	94	99	103	107	121
4	pH_FLD (pH units)	6.8	6.2	6.1	7.5	7.9
5	pH_GEN (pH units)	7.2	7.1	7.1	7.3	7.5
6	TDS (mg/L)					
7	Temp (deg C)	24.2	25.2	23.5	26.3	23.2
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	36	33	33	39	48
3	B (mg/L)	0.01	0.02	0.02	0.04	0.00
4	Ca (mg/L)	13	14	13	18	15
5	Cl (mg/L)	6.9	6.4	8.0	12.0	10.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.31	0.24	0.28	0.26	0.31
8	Fe (mg/L)	0.2	0.0	0.4	0.5	0.9
9	HCO3 (mg/L)	44	40	41	48	59
10	K (mg/L)	0.9	0.5	0.5	0.5	0.4
11	Mg (mg/L)	1.6	4.2	1.0	7.4	2.6
12	Na (mg/L)	4.9	3.8	4.9	8.9	7.6
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.29	0.16	0.75	0.31	1.13
15	NO2-N (mgN/L)	0.00	0.01	0.03	0.02	0.01
16	NO3-N (mgN/L)	0.29	0.15	0.73	0.30	1.12
17	P-Tot (mgP/L)	0.013	0.128	0.004	0.005	0.286
18	SiO2 (mg/L)	5.3	11.5	1.0	2.9	3.7
19	SO4 (mg/L)	4.2	20.2	3.5	26.4	6.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	1.5	1.2	1.1	1.0
2	COD (mg/L)	7.1	8.6	12.2	9.4	7.9
3	DO (mg/L)	6.1	4.7	4.1	3.9	4.5
4	DO_SAT% (%)	73	57	49	49	52
5	FCol-MPN (MPN/100mL)	12900	47000	29250	108667	142000
6	Tcol-MPN (MPN/100mL)	18067	67667	49400	138667	220000
7	TOC (mg/L)					
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)	0.36	2.46	2.05	-0.50	-0.50
3	Cd (µg/L)	0.04	0.90	0.04	-0.01	-0.01
4	Cr (µg/L)	0.90	0.12	-1.00	5.20	5.20
5	Cu (µg/L)	30.00	2.53	3.19		-0.50
6	Hg (µg/L)	0.08	0.25	0.18	0.01	0.03
7	Ni (µg/L)	2.10	2.70	1.22	1.95	-0.50
8	Pb (µg/L)	9.27	0.95	1.69	10.00	-0.50
9	Zn (µg/L)	13.83	9.19	36.21	46.00	3.63
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	32	35	33	44	39
2	HAR_Total (mgCaCO3/L)	39	52	37	75	50
3	Na% (%)	21	14	22	21	25
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.4	0.5	0.5
	PESTICIDES					
1	Aldrin (µg/L)	0.002				
2	BHC (µg/L)	0.071				
3	DDT (µg/L)	0.005				
4	Dieldrin (µg/L)	0.001				
5	Endos (µg/L)	0.084				

HISTORY SHEET

		Water Year	: 2015-2016
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 : 2015-2016

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	03/07/2015	04/08/2015	02/09/2015	06/10/2015
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	15.37	31.12	23.80	36.10
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	150	152	155	168
4	EC_GEN (µmho/cm)	164	93	95	85
5	Odour_Code (-)	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	7.6	7.5	7.4
7	pH_GEN (pH units)	7.4	7.5	7.4	7.5
8	Temp (deg C)	27.5	26.5	28.0	28.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	42	42	43	41
3	B (mg/L)	0.04	0.11	0.06	0.06
4	Ca (mg/L)	16	16	14	14
5	Cl (mg/L)	10.2	9.3	10.5	10.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.28	0.70	0.29	0.30
8	Fe (mg/L)	2.2	2.6	2.1	1.1
9	HCO3 (mg/L)	51	51	53	51
10	K (mg/L)	0.2	0.1	0.1	0.2
11	Mg (mg/L)	2.9	2.9	3.9	2.9
12	Na (mg/L)	6.3	5.1	6.5	5.5
13	NO2+NO3 (mg N/L)	1.36	1.26	1.42	0.66
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.01
15	NO3-N (mgN/L)	1.36	1.26	1.42	0.65
16	P-Tot (mgP/L)	0.010	0.022	0.021	0.005
17	SiO2 (mg/L)	1.3	7.4	18.2	1.5
18	SO4 (mg/L)	6.3	6.7	9.9	9.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.1	0.7	0.5	0.8
2	COD (mg/L)	7.0	5.0	5.0	6.0
3	DO (mg/L)	6.0	6.2	6.5	6.6
4	DO_SAT% (%)	75	76	83	84
5	FCol-MPN (MPN/100mL)	13000	4900	4900	7900
6	Tcol-MPN (MPN/100mL)	24000	7900	9400	13000
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	40	40	36	36
2	HAR_Total (mgCaCO3/L)	52	52	52	48
3	Na% (%)	21	18	21	20
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.4	0.3
	PESTICIDES	Analysis not done due to mall function of instrument.			

Water Quality Summary for the period : 2015-2016

Station Name : Mangaon (Seasonal) (WMA0018)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water Summary Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	187	390.2	0.000	33.05
2	EC_FLD (µmho/cm)	4	168	150	156
3	EC_GEN (µmho/cm)	4	164	85	109
4	pH_FLD (pH units)	4	7.6	7.4	7.5
5	pH_GEN (pH units)	4	7.5	7.4	7.5
6	Temp (deg C)	4	28.5	26.5	27.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	43	41	42
3	B (mg/L)	4	0.11	0.04	0.07
4	Ca (mg/L)	4	16	14	15
5	Cl (mg/L)	4	10.5	9.3	10
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.70	0.28	0.39
8	Fe (mg/L)	4	2.6	1.1	2
9	HCO3 (mg/L)	4	53	51	51
10	K (mg/L)	4	0.2	0.1	0.2
11	Mg (mg/L)	4	3.9	2.9	3.2
12	Na (mg/L)	4	6.5	5.1	5.9
13	NO2+NO3 (mg N/L)	4	1.42	0.66	1.18
14	NO2-N (mgN/L)	4	0.01	0.00	0
15	NO3-N (mgN/L)	4	1.42	0.65	1.17
16	P-Tot (mgP/L)	4	0.022	0.005	0.014
17	SiO2 (mg/L)	4	18.2	1.3	7.1
18	SO4 (mg/L)	4	9.9	6.3	8.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	1.1	0.5	0.8
2	COD (mg/L)	4	7.0	5.0	5.8
3	DO (mg/L)	4	6.6	6.0	6.3
4	DO_SAT% (%)	4	84	75	80
5	FCol-MPN (MPN/100mL)	4	13000	4900	7675
6	Tcol-MPN (MPN/100mL)	4	24000	7900	13575
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	40	36	38
2	HAR_Total (mgCaCO3/L)	4	52	48	51
3	Na% (%)	4	21	18	20
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: 2001-2016

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				
		2001	2002	2003	2004	2005
	PHYSICAL					
1	Q (cumec)	34.76	44.14	41.08	192.7	189.0
2	EC_FLD (µmho/cm)			375		
3	EC_GEN (µmho/cm)	104	91	113	85	77
4	pH_FLD (pH units)			7.7		
5	pH_GEN (pH units)	7.9	7.6	7.8	7.5	7.2
6	Temp (deg C)	28.7	28.6	28.0	28.4	27.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.7	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	132	62	85	61	62
3	B (mg/L)	0.13	0.22	0.24	0.14	0.12
4	Ca (mg/L)	12	10	13	6	5
5	Cl (mg/L)	7.6	7.3	8.4	5.7	5.7
6	CO3 (mg/L)	0.9	0.0	0.0	0.0	0.0
7	F (mg/L)	0.06	0.45	0.15	0.15	
8	Fe (mg/L)	0.0	0.0	0.1		0.2
9	HCO3 (mg/L)	80	38	52	37	38
10	K (mg/L)	0.2	0.4	0.6	0.4	5.2
11	Mg (mg/L)	4.4	5.1	3.9	3.4	3.0
12	Na (mg/L)	4.0	3.8	6.0	4.8	3.4
13	NH3-N (mg N/L)	0.05	0.05	0.06	0.06	
14	NO2+NO3 (mg N/L)		0.10	0.10	0.27	0.24
15	NO2-N (mgN/L)	0.00	0.04	0.00	0.00	0.02
16	NO3-N (mgN/L)		0.06	0.10	0.27	0.22
17	P-Tot (mgP/L)	0.093	0.049	0.080	0.023	0.052
18	SiO2 (mg/L)	19.0	10.1	2.4	1.4	6.5
19	SO4 (mg/L)	3.7	3.6	6.7	3.6	4.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.6	0.7	1.4	0.7
2	COD (mg/L)		4.0	3.4	4.1	5.0
3	DO (mg/L)		6.4		6.1	
4	DO_SAT% (%)		82		78	
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)	29	25	33	15	13
2	HAR_Total (mgCaCO3/L)	47	46	49	29	26
3	Na% (%)	16	16	21	26	19
4	RSC (-)	0.4	0.0	0.0	0.0	0.1
5	SAR (-)	0.3	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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				
		2006	2007	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	338.3	154.7	60.33	38.77	85.36
2	EC_FLD (µmho/cm)	110	212	252	162	149
3	EC_GEN (µmho/cm)	76	72	85	938	97
4	pH_FLD (pH units)	8.0	6.9	7.6	7.4	7.7
5	pH_GEN (pH units)	7.2	7.4	7.3	7.4	7.6
6	Temp (deg C)	25.8	25.9	26.7	27.4	26.9
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	72	20	21	34	28
3	B (mg/L)	0.31	0.06	0.04	0.05	0.15
4	Ca (mg/L)	12	6	7	13	12
5	Cl (mg/L)	9.1	7.5	6.2	8.5	9.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.10	0.10	0.05	0.41	0.15
8	Fe (mg/L)	0.1	0.2	0.4	0.3	0.1
9	HCO3 (mg/L)	44	24	26	41	34
10	K (mg/L)	3.9	0.7	1.0	0.3	0.8
11	Mg (mg/L)	0.6	0.9	2.8	3.3	2.4
12	Na (mg/L)	4.9	6.2	4.2	6.3	5.7
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.10	0.31	0.16	0.19	0.17
15	NO2-N (mgN/L)	0.00	0.01	0.01	0.00	0.01
16	NO3-N (mgN/L)	0.10	0.30	0.16	0.18	0.16
17	P-Tot (mgP/L)	0.195	0.035	0.002	0.005	0.006
18	SiO2 (mg/L)	4.1	10.3	5.2	10.0	8.6
19	SO4 (mg/L)	2.6	2.7	6.7	13.0	10.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.9	0.5	1.1	0.6
2	COD (mg/L)	3.1	7.9	2.6	7.0	4.4
3	DO (mg/L)	7.8	7.0	6.3	6.6	6.8
4	DO_SAT% (%)	96	86	79	84	84
5	FCol-MPN (MPN/100mL)				16333	3525
6	Tcol-MPN (MPN/100mL)				22333	5550
	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)	30	15	17	32	30
2	HAR_Total (mgCaCO3/L)	33	19	28	46	40
3	Na% (%)	28	40	24	23	22
4	RSC (-)	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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				
		2011	2012	2013	2014	2015
	PHYSICAL					
1	Q (cumec)	240.5	190.5	232.9	104.1	28.49
2	EC_FLD (µmho/cm)	146	189			156
3	EC_GEN (µmho/cm)	76	104	86	85	109
4	pH_FLD (pH units)	7.6	7.6	7.8		7.5
5	pH_GEN (pH units)	7.4	7.5	7.0	7.2	7.5
6	Temp (deg C)	27.0	26.6	24.0	26.5	27.6
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	25	27	24	35	42
3	B (mg/L)	0.01	0.02	0.10	0.08	0.07
4	Ca (mg/L)	10	11	9	13	15
5	Cl (mg/L)	6.1	4.5	4.5	28.4	10.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.25	0.23	0.27	0.22	0.39
8	Fe (mg/L)	0.2	0.3	0.7	0.7	2.0
9	HCO3 (mg/L)	30	33	30	43	51
10	K (mg/L)	0.6	0.3	0.1	0.2	0.2
11	Mg (mg/L)	1.7	1.5	2.7	4.9	3.2
12	Na (mg/L)	4.1	2.8	3.2	20.0	5.9
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.28	0.39	0.34	0.52	1.18
15	NO2-N (mgN/L)	0.00	0.14	0.00	0.01	0.00
16	NO3-N (mgN/L)	0.28	0.25	0.33	0.51	1.17
17	P-Tot (mgP/L)	0.008	0.009	0.016	0.005	0.014
18	SiO2 (mg/L)	11.5	6.6	12.3	17.0	7.1
19	SO4 (mg/L)	4.5	3.5	9.0	15.0	8.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.6	1.0	3.3	0.8
2	COD (mg/L)	2.9	4.7	9.4	25.3	5.8
3	DO (mg/L)	6.4	7.3	7.0		6.3
4	DO_SAT% (%)	80	91	84		80
5	FCol-MPN (MPN/100mL)	30225	26750	70750	8400	7675
6	Tcol-MPN (MPN/100mL)	48000	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)	24	27	23	33	38
2	HAR_Total (mgCaCO3/L)	31	33	34	54	51
3	Na% (%)	22	16	17	43	20
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.2	1.2	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

Station Name : Mangaon (Seasonal) (WMA00I8)

Division : Upper Krishna Divn, Pune

Local River : Kal

River Water

Sub-Division : Upper Krishna SD 3, Managaon

S.No	Parameters	Winter			
		Nov-Feb			
		2011-2012	2001-2002 to 2010-2011, 2012-13, 2014-2015 and 2015-2016 Samples not collected due to Drybed/no flow condition.	2013-2014	Down graded as seasonal site from 2007-208 onwards.
	PHYSICAL				
1	Q (cumec)	2.494		3.265	
2	EC_FLD (µmho/cm)	157		212	
3	EC_GEN (µmho/cm)	104		187	
4	pH_FLD (pH units)	7.6		5.9	
5	pH_GEN (pH units)	7.4		7.1	
6	Temp (deg C)	28.5		22.0	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	
2	ALK-TOT (mgCaCO3/L)	38		44	
3	B (mg/L)	0.01		0.08	
4	Ca (mg/L)	14		18	
5	Cl (mg/L)	4.2		4.8	
6	CO3 (mg/L)	0.0		0.0	
7	F (mg/L)	0.26		0.27	
8	Fe (mg/L)	0.2		0.5	
9	HCO3 (mg/L)	46		54	
10	K (mg/L)	0.3		0.1	
11	Mg (mg/L)	1.0		2.9	
12	Na (mg/L)	3.2		3.3	
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	0.26		0.33	
15	NO2-N (mgN/L)	0.00		0.01	
16	NO3-N (mgN/L)	0.26		0.32	
17	P-Tot (mgP/L)	0.016		0.003	
18	SiO2 (mg/L)	10.1		7.1	
19	SO4 (mg/L)	2.0		9.2	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.7		0.5	
2	COD (mg/L)	3.8		4.6	
3	DO (mg/L)	5.6		4.8	
4	DO_SAT% (%)	72		55	
5	FCol-MPN (MPN/100mL)	4900		23000	
6	Tcol-MPN (MPN/100mL)	7000		70000	
	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		44	
2	HAR_Total (mgCaCO3/L)	40		56	
3	Na% (%)	15		11	
4	RSC (-)	0.0		0.0	
5	SAR (-)	0.2		0.2	
	PESTICIDES				

HISTORY SHEET

Water Year : 2015-2016

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 : 2015-2016

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	02/07/2015	03/08/2015	01/09/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	129.4	136.7	66.39
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)			
4	EC_GEN (µmho/cm)	82	86	93
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)			
7	pH_GEN (pH units)	7.3	7.2	7.2
8	Temp (deg C)	24.0	24.0	24.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	34	40	41
3	B (mg/L)	0.04	0.07	0.09
4	Ca (mg/L)	13	22	21
5	Cl (mg/L)	9.7	10.4	11.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.31	0.55	0.31
8	Fe (mg/L)	2.3	0.3	1.6
9	HCO3 (mg/L)	42	49	51
10	K (mg/L)	0.7	0.2	0.2
11	Mg (mg/L)	1.9	3.9	3.9
12	Na (mg/L)	5.3	5.5	6.1
13	NO2+NO3 (mg N/L)	1.43	0.44	0.97
14	NO2-N (mgN/L)	0.01	0.00	0.01
15	NO3-N (mgN/L)	1.42	0.44	0.96
16	P-Tot (mgP/L)	0.013	0.026	0.016
17	SiO2 (mg/L)	2.1	7.1	21.8
18	SO4 (mg/L)	5.0	12.6	10.3
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	1.4	0.6
2	COD (mg/L)	5.0	5.0	6.0
3	DO (mg/L)		7.5	7.9
4	DO_SAT% (%)		89	94
5	FCol-MPN (MPN/100mL)	11000	7900	3300
6	Tcol-MPN (MPN/100mL)	14000	11000	4900
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	32	56	52
2	HAR_Total (mgCaCO3/L)	40	72	68
3	Na% (%)	22	14	16
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.3
	PESTICIDES	Anlalysis not done due to mall function of instrument.		

Water Quality Datasheet for the period : 2015-2016

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	05/10/2015	02/11/2015
		A	A
	PHYSICAL		
1	Q (cumec)	41.61	13.09
2	Colour_Cod (-)	Clear	Clear
3	EC_FLD (µmho/cm)		125
4	EC_GEN (µmho/cm)	82	100
5	Odour_Code (-)	odour free	odour free
6	pH_FLD (pH units)		7.4
7	pH_GEN (pH units)	7.3	7.5
8	Temp (deg C)	24.0	25.0
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	39	46
3	B (mg/L)	0.07	0.00
4	Ca (mg/L)	11	11
5	Cl (mg/L)	10.6	14.1
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.33	0.32
8	Fe (mg/L)	1.1	0.1
9	HCO3 (mg/L)	48	56
10	K (mg/L)	0.3	0.1
11	Mg (mg/L)	2.9	3.9
12	Na (mg/L)	5.8	11.3
13	NO2+NO3 (mg N/L)	0.73	0.04
14	NO2-N (mgN/L)	0.00	0.00
15	NO3-N (mgN/L)	0.73	0.04
16	P-Tot (mgP/L)	0.005	0.006
17	SiO2 (mg/L)	1.0	3.9
18	SO4 (mg/L)	7.2	9.2
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)	0.6	0.5
2	COD (mg/L)	5.0	4.6
3	DO (mg/L)	8.6	8.5
4	DO_SAT% (%)	102	103
5	FCol-MPN (MPN/100mL)	24000	13000
6	Tcol-MPN (MPN/100mL)	35000	17000
	TRACE & TOXIC		
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	28	28
2	HAR_Total (mgCaCO3/L)	40	44
3	Na% (%)	24	36
4	RSC (-)	0.0	0.0
5	SAR (-)	0.4	0.7
	PESTICIDES		

Water Quality Summary for the period : 2015-2016

Station Name : Belne Bridge (BELNE BRIDGE)

Division : Upper Krishna Divn, Pune

Local River : Gad

River Water Summary Sub-Division : South Western Rivers SD 4,Goa

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	501.8	0.000	33.26
2	EC_FLD (µmho/cm)	1	125	125	125
3	EC_GEN (µmho/cm)	5	100	82	89
4	pH_FLD (pH units)	1	7.4	7.4	7.4
5	pH_GEN (pH units)	5	7.5	7.2	7.3
6	Temp (deg C)	5	25.0	24.0	24.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	5	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	5	46	34	40
3	B (mg/L)	5	0.09	0.00	0.05
4	Ca (mg/L)	5	22	11	16
5	Cl (mg/L)	5	14.1	9.7	11.2
6	CO3 (mg/L)	5	0.0	0.0	0
7	F (mg/L)	5	0.55	0.31	0.36
8	Fe (mg/L)	5	2.3	0.1	1.1
9	HCO3 (mg/L)	5	56	42	49
10	K (mg/L)	5	0.7	0.1	0.3
11	Mg (mg/L)	5	3.9	1.9	3.3
12	Na (mg/L)	5	11.3	5.3	6.8
13	NO2+NO3 (mg N/L)	5	1.43	0.04	0.72
14	NO2-N (mgN/L)	5	0.01	0.00	0
15	NO3-N (mgN/L)	5	1.42	0.04	0.72
16	P-Tot (mgP/L)	5	0.026	0.005	0.013
17	SiO2 (mg/L)	5	21.8	1.0	7.2
18	SO4 (mg/L)	5	12.6	5.0	8.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.4	0.5	0.7
2	COD (mg/L)	5	6.0	4.6	5.1
3	DO (mg/L)	4	8.6	7.5	8.1
4	DO_SAT% (%)	4	103	89	97
5	FCol-MPN (MPN/100mL)	5	24000	3300	11840
6	Tcol-MPN (MPN/100mL)	5	35000	4900	16380
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	5	56	28	39
2	HAR_Total (mgCaCO3/L)	5	72	40	53
3	Na% (%)	5	36	14	22
4	RSC (-)	5	0.0	0.0	0
5	SAR (-)	5	0.7	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

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				
		2001	2002	2003	2004	2005
	PHYSICAL					
1	Q (cumec)	112.2	85.84	86.15	119.9	189.0
2	EC_FLD (µmho/cm)			85	83	83
3	EC_GEN (µmho/cm)	152	87	92	88	86
4	pH_FLD (pH units)			7.7	6.6	6.6
5	pH_GEN (pH units)	7.9	7.6	7.4	7.2	7.1
6	TDS (mg/L)	91	76			
7	Temp (deg C)	26.1	26.5	27.3	26.9	25.4
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	1.3	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	41	70	61	62	66
3	B (mg/L)	0.25	0.47	0.19	0.08	0.10
4	Ca (mg/L)	10	10	10	6	5
5	Cl (mg/L)	6.2	8.7	6.8	6.7	7.1
6	CO3 (mg/L)	1.6	0.0	0.0	0.0	0.0
7	F (mg/L)	0.07	0.21	0.13	0.10	0.13
8	Fe (mg/L)	0.0	0.0	0.1		0.2
9	HCO3 (mg/L)	23	42	37	38	40
10	K (mg/L)	0.3	0.5	0.5	0.4	7.2
11	Mg (mg/L)	4.4	5.6	3.3	2.9	3.2
12	Na (mg/L)	3.8	3.9	5.2	5.7	6.4
13	NH3-N (mg N/L)	0.05	0.05		0.06	
14	NO2+NO3 (mg N/L)	1.03	0.05	0.06	0.15	0.18
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.04
16	NO3-N (mgN/L)	1.03	0.05	0.06	0.15	0.13
17	P-Tot (mgP/L)	0.049	0.077	0.052	0.013	0.031
18	SiO2 (mg/L)	14.5	6.7	3.8	1.2	7.5
19	SO4 (mg/L)	4.2	3.6	6.1	2.4	4.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.6	0.5	0.9	0.5
2	COD (mg/L)		4.0	3.3	3.0	34.9
3	DO (mg/L)		4.9	6.4	6.4	6.5
4	DO_SAT% (%)		60	80	80	79
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	Al (mg/L)	0.01				
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	25	26	25	14	12
2	HAR_Total (mgCaCO3/L)	43	49	39	26	26
3	Na% (%)	17	16	22	32	29
4	RSC (-)	0.0	0.0	0.0	0.1	0.2
5	SAR (-)	0.3	0.3	0.4	0.5	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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				
		2006	2007	2008	2009	2010
	PHYSICAL					
1	Q (cumec)	92.50	143.4	121.5	129.4	132.6
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	68	79	122	665	90
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.4	7.6	7.5	7.4	7.3
6	TDS (mg/L)					
7	Temp (deg C)	26.0	25.0	25.0	26.4	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.4	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	30	19	23	26	24
3	B (mg/L)	0.22	0.04	0.06	0.03	0.08
4	Ca (mg/L)	6	6	7	9	8
5	Cl (mg/L)	13.6	8.4	10.2	9.1	6.3
6	CO3 (mg/L)	0.0	0.5	0.0	0.0	0.0
7	F (mg/L)	0.09	0.09	0.11	0.43	0.15
8	Fe (mg/L)	0.5	0.2	0.3	0.4	0.1
9	HCO3 (mg/L)	18	22	28	31	29
10	K (mg/L)	4.0	0.8	1.1	0.3	0.7
11	Mg (mg/L)	0.5	1.0	1.9	3.4	3.6
12	Na (mg/L)	4.9	7.1	6.8	6.5	3.9
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.11	0.37	0.20	0.23	0.17
15	NO2-N (mgN/L)	0.00	0.01	0.01	0.01	0.01
16	NO3-N (mgN/L)	0.11	0.36	0.19	0.22	0.16
17	P-Tot (mgP/L)	0.030	0.120	0.009	0.005	0.007
18	SiO2 (mg/L)	2.6	8.7	6.4	9.2	7.2
19	SO4 (mg/L)	1.8	3.7	1.7	15.7	10.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.6	0.4	0.4	0.6
2	COD (mg/L)	3.4	10.5	1.9	2.6	4.1
3	DO (mg/L)			0.0	6.9	7.0
4	DO_SAT% (%)			0	85	87
5	FCol-MPN (MPN/100mL)				88000	6075
6	Tcol-MPN (MPN/100mL)				88000	8775
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	16	16	24	21
2	HAR_Total (mgCaCO3/L)	18	20	25	38	36
3	Na% (%)	32	42	34	27	20
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.7	0.6	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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				
		2011	2012	2013	2014	2015
	PHYSICAL					
1	Q (cumec)	234.7	207.9	141.3	270.5	93.51
2	EC_FLD (µmho/cm)	109	110			
3	EC_GEN (µmho/cm)	82	104	87	81	86
4	pH_FLD (pH units)	8.0	7.8			
5	pH_GEN (pH units)	7.4	7.4	6.8	7.2	7.3
6	TDS (mg/L)					
7	Temp (deg C)	25.6	25.3	24.0	24.7	24.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	27	24	27	43	39
3	B (mg/L)	0.01	0.02	0.18	0.05	0.07
4	Ca (mg/L)	10	8	11	19	17
5	Cl (mg/L)	6.1	4.2	5.6	23.3	10.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.25	0.22	0.28	0.23	0.38
8	Fe (mg/L)	0.3	0.1	0.4	0.5	1.3
9	HCO3 (mg/L)	33	29	33	53	47
10	K (mg/L)	0.6	0.3	0.2	0.1	0.4
11	Mg (mg/L)	1.2	1.9	3.2	3.6	3.2
12	Na (mg/L)	4.2	2.7	3.3	15.9	5.7
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.34	0.33	0.40	0.32	0.89
15	NO2-N (mgN/L)	0.00	0.02	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.33	0.31	0.39	0.32	0.89
17	P-Tot (mgP/L)	0.011	0.006	0.014	0.007	0.015
18	SiO2 (mg/L)	12.0	7.4	20.6	15.5	8.0
19	SO4 (mg/L)	4.4	5.3	11.5	10.4	8.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.7	0.5	1.7	0.8
2	COD (mg/L)	1.1	5.5	4.4	14.7	5.3
3	DO (mg/L)	7.3	7.3			8.0
4	DO_SAT% (%)	89	89			95
5	FCol-MPN (MPN/100mL)	12000	101500	7250	12267	11550
6	Tcol-MPN (MPN/100mL)	15500	160000	17125	18633	16225
	TRACE & TOXIC					
1	Al (mg/L)					
2	As (µg/L)		9.53	3.11		
3	Cd (µg/L)		0.19	0.20		
4	Cr (µg/L)		0.14	3.18		
5	Cu (µg/L)		1.25	-0.50		
6	Ni (µg/L)		3.27	6.91		
7	Pb (µg/L)		0.85	-0.50		
8	Zn (µg/L)		4.01	-0.05		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	26	21	27	48	42
2	HAR_Total (mgCaCO3/L)	31	29	40	63	55
3	Na% (%)	22	18	15	36	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.2	1.0	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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				
		2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
	PHYSICAL					
1	Q (cumec)	2.070	3.883	2.560	1.893	1.895
2	EC_FLD (µmho/cm)		116	101		83
3	EC_GEN (µmho/cm)	119	103	113	123	112
4	pH_FLD (pH units)		7.6	7.8		6.6
5	pH_GEN (pH units)	8.0	7.7	7.6	7.8	7.6
6	TDS (mg/L)	85	82			
7	Temp (deg C)	24.8	26.7	27.3	26.3	25.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	1.3	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	67	46	50	97	86
3	B (mg/L)	0.16	0.17	0.13	0.05	0.08
4	Ca (mg/L)	11	9	10	11	13
5	Cl (mg/L)	13.7	7.1	12.3	8.2	9.2
6	CO3 (mg/L)	1.6	0.0	0.0	0.0	0.0
7	F (mg/L)	0.10	0.07	0.18	0.13	0.10
8	Fe (mg/L)	0.0	0.0	0.0		0.1
9	HCO3 (mg/L)	39	28	30	59	52
10	K (mg/L)	0.4	0.5	0.6	0.7	4.8
11	Mg (mg/L)	8.0	5.8	4.1	3.6	4.5
12	Na (mg/L)	5.3	4.5	7.0	6.1	5.1
13	NH3-N (mg N/L)	0.05	0.05		0.06	
14	NO2+NO3 (mg N/L)	0.02	0.04	0.19	0.46	0.23
15	NO2-N (mgN/L)	0.00	0.00	0.01	0.02	0.05
16	NO3-N (mgN/L)	0.02	0.04	0.18	0.43	0.18
17	P-Tot (mgP/L)	0.039	0.059	0.035	0.035	0.050
18	SiO2 (mg/L)	12.0	5.8	3.2	5.1	5.1
19	SO4 (mg/L)	6.6	4.0	7.7	2.6	7.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.8	0.6	1.5	0.7
2	COD (mg/L)		3.8	2.8	4.0	43.9
3	DO (mg/L)		7.9	6.5	6.2	6.5
4	DO_SAT% (%)		96	82	78	80
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	Al (mg/L)	0.01				
2	As (µg/L)					
3	Cd (µg/L)					
4	Cr (µg/L)					
5	Cu (µg/L)					
6	Ni (µg/L)					
7	Pb (µg/L)					
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	28	21	25	27	32
2	HAR_Total (mgCaCO3/L)	61	46	43	42	50
3	Na% (%)	16	18	26	24	18
4	RSC (-)	0.0	0.0	0.0	0.1	0.1
5	SAR (-)	0.3	0.3	0.5	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2001-2016

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			
		2006-2007	2007-2008	2008-2009	2009-2010
	PHYSICAL				
1	Q (cumec)	3.033	2.306	0.000	16.37
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	117	118	116	110
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.6	7.5	7.7	7.9
6	TDS (mg/L)				
7	Temp (deg C)	24.3	19.8	24.1	26.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	51	35	40	74
3	B (mg/L)		0.06	0.15	0.31
4	Ca (mg/L)	8	10	11	29
5	Cl (mg/L)	13.3	8.0	13.7	10.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)		0.68	0.18	0.08
8	Fe (mg/L)	0.3	0.1	0.2	0.3
9	HCO3 (mg/L)	31	43	49	91
10	K (mg/L)	6.8	0.4	0.9	1.3
11	Mg (mg/L)	2.9	3.3	4.3	9.3
12	Na (mg/L)	6.6	6.8	7.0	7.4
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	0.04	0.12	0.09	0.30
15	NO2-N (mgN/L)	0.01	0.02	0.03	0.01
16	NO3-N (mgN/L)	0.03	0.10	0.06	0.30
17	P-Tot (mgP/L)	0.251	0.294	0.181	0.005
18	SiO2 (mg/L)	2.5	11.1	5.7	9.7
19	SO4 (mg/L)	9.3	6.7	3.8	33.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	0.8	1.0	0.7
2	COD (mg/L)	9.3	9.0	2.9	4.1
3	DO (mg/L)				6.5
4	DO_SAT% (%)				81
5	FCol-MPN (MPN/100mL)				24133
6	Tcol-MPN (MPN/100mL)				41733
	TRACE & TOXIC				
1	Al (mg/L)				
2	As (µg/L)				
3	Cd (µg/L)				
4	Cr (µg/L)				
5	Cu (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	19	24	27	73
2	HAR_Total (mgCaCO3/L)	31	38	45	112
3	Na% (%)	27	28	25	14
4	RSC (-)	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

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			
		2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL				
1	Q (cumec)	38.08	11.54	7.638	No flow
2	EC_FLD (µmho/cm)	82	110	102	
3	EC_GEN (µmho/cm)	153	101	96	
4	pH_FLD (pH units)	6.6	7.6	7.4	
5	pH_GEN (pH units)	7.5	7.4	7.7	
6	TDS (mg/L)				
7	Temp (deg C)	27.0	25.5	27.0	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	30	30	34	
3	B (mg/L)	0.07	0.06	0.00	
4	Ca (mg/L)	11	11	13	
5	Cl (mg/L)	4.7	5.5	7.7	
6	CO3 (mg/L)	0.0	0.0	0.0	
7	F (mg/L)	0.39	0.26	0.22	
8	Fe (mg/L)	0.1	0.3	0.1	
9	HCO3 (mg/L)	37	37	41	
10	K (mg/L)	1.0	0.5	0.5	
11	Mg (mg/L)	1.9	1.0	1.0	
12	Na (mg/L)	2.9	4.4	4.1	
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	0.06	0.33	0.10	
15	NO2-N (mgN/L)	0.01	0.00	0.00	
16	NO3-N (mgN/L)	0.06	0.33	0.10	
17	P-Tot (mgP/L)	0.015	0.016	0.013	
18	SiO2 (mg/L)	9.6	7.8	0.0	
19	SO4 (mg/L)	2.7	2.6	1.8	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.7	0.5	0.5	
2	COD (mg/L)	5.3	1.7	3.8	
3	DO (mg/L)	6.3	6.9	7.2	
4	DO_SAT% (%)	79	84	90	
5	FCol-MPN (MPN/100mL)	7900	6650	7800	
6	Tcol-MPN (MPN/100mL)	11000	8650	13000	
	TRACE & TOXIC				
1	Al (mg/L)				
2	As (µg/L)				
3	Cd (µg/L)				
4	Cr (µg/L)				
5	Cu (µg/L)				
6	Ni (µg/L)				
7	Pb (µg/L)				
8	Zn (µg/L)				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	28	28	32	
2	HAR_Total (mgCaCO3/L)	36	32	36	
3	Na% (%)	14	22	20	
4	RSC (-)	0.0	0.0	0.0	
5	SAR (-)	0.2	0.3	0.3	
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

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
		2014-2015	2015-2016	2007
	PHYSICAL			
1	Q (cumec)	No flow	13.09	0.000
2	EC_FLD (µmho/cm)		125	
3	EC_GEN (µmho/cm)		100	130
4	pH_FLD (pH units)		7.4	
5	pH_GEN (pH units)		7.5	7.3
6	TDS (mg/L)			
7	Temp (deg C)		25.0	25.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	0.0
2	ALK-TOT (mgCaCO3/L)		46	48
3	B (mg/L)		0.00	0.05
4	Ca (mg/L)		11	10
5	Cl (mg/L)		14.1	8.7
6	CO3 (mg/L)		0.0	0.0
7	F (mg/L)		0.32	0.11
8	Fe (mg/L)		0.1	0.2
9	HCO3 (mg/L)		56	29
10	K (mg/L)		0.1	
11	Mg (mg/L)		3.9	3.2
12	Na (mg/L)		11.3	5.2
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)		0.04	0.07
15	NO2-N (mgN/L)		0.00	0.03
16	NO3-N (mgN/L)		0.04	0.04
17	P-Tot (mgP/L)		0.006	0.112
18	SiO2 (mg/L)		3.9	3.8
19	SO4 (mg/L)		9.2	7.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)		0.5	1.0
2	COD (mg/L)		4.6	6.8
3	DO (mg/L)		8.5	
4	DO_SAT% (%)		103	
5	FCol-MPN (MPN/100mL)		13000	
6	Tcol-MPN (MPN/100mL)		17000	
	TRACE & TOXIC			
1	Al (mg/L)			
2	As (µg/L)			
3	Cd (µg/L)			
4	Cr (µg/L)			
5	Cu (µg/L)			
6	Ni (µg/L)			
7	Pb (µg/L)			
8	Zn (µg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)		28	24
2	HAR_Total (mgCaCO3/L)		44	37
3	Na% (%)		36	
4	RSC (-)		0.0	0.0
5	SAR (-)		0.7	0.4
	PESTICIDES			

During Summer season from 2002 to 2007 and from 2008 to 2016 Dry bed/No flow condition.

HISTORY SHEET

		Water Year	: 2015-2016
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 : 2015-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	88.9	75.43	19.53
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_GEN (µmho/cm)	52	51	34
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.7	6.5	6.6
6	TDS (mg/L)			
7	Temp (deg C)	23.0	22.0	23.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	16	12	9
3	B (mg/L)	0.06	1.59	0.20
4	Ca (mg/L)	4	5	2
5	Cl (mg/L)	5.0	8.9	3.6
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.04	0.08	0.30
8	Fe (mg/L)	0.1	0.1	0.1
9	HCO3 (mg/L)	19	14	11
10	K (mg/L)	0.7	0.5	0.5
11	Mg (mg/L)	1.5	1.0	1.0
12	Na (mg/L)	4.0	4.2	2.7
13	NO2+NO3 (mg N/L)	0.88	0.42	0.35
14	NO2-N (mgN/L)	0.00	0.01	0.00
15	NO3-N (mgN/L)	0.88	0.41	0.35
16	o-PO4-P (mg P/L)	0.031	0.207	0.165
17	SiO2 (mg/L)	7.4	25.3	4.2
18	SO4 (mg/L)	1.7	1.9	2.0
	BIOLOGICAL/BACTERIOLOGICAL			
	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	12	6
2	HAR_Total (mgCaCO3/L)	16	16	10
3	Na% (%)	34	36	35
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.4
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/01/2016	01/02/2016	01/03/2016	02/05/2016
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	6.522	3.986	2.65	0.745
2	Colour_Cod (-)	Clear		Clear	Clear
3	EC_GEN (µmho/cm)	59		68	91
4	Odour_Code (-)	odour free		odour free	odour free
5	pH_GEN (pH units)	7.0		7.1	6.6
6	TDS (mg/L)	28		32	42
7	Temp (deg C)	24.0		28.0	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0
2	ALK-TOT (mgCaCO3/L)	15		19	20
3	B (mg/L)	0.14		0.31	0.02
4	Ca (mg/L)	5		6	8
5	Cl (mg/L)	8.2		8.2	15.6
6	CO3 (mg/L)	0.0		0.0	0.0
7	F (mg/L)	0.06			
8	Fe (mg/L)	0.2		0.2	0.0
9	HCO3 (mg/L)	19		23	25
10	K (mg/L)	0.8		0.9	1.1
11	Mg (mg/L)	1.9		2.4	2.9
12	Na (mg/L)	4.1		4.1	6.0
13	NO2+NO3 (mg N/L)	0.27		0.27	0.77
14	NO2-N (mgN/L)	0.00		0.00	0.01
15	NO3-N (mgN/L)	0.27		0.27	0.76
16	o-PO4-P (mg P/L)	0.083		0.021	0.000
17	SiO2 (mg/L)	9.7		14.0	10.9
18	SO4 (mg/L)	2.2		4.4	2.6
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
1	As (µg/L)		0.5		1.2
2	Cd (µg/L)		0.0		
3	Cr (µg/L)		0.2		2.0
4	Cu (µg/L)		0.4		2.0
5	Ni (µg/L)		0.1		0.6
6	Pb (µg/L)		0.4		
7	Zn (µg/L)		2.3		6.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12		14	20
2	HAR_Total (mgCaCO3/L)	20		24	32
3	Na% (%)	30		26	28
4	RSC (-)	0.0		0.0	0.0
5	SAR (-)	0.4		0.4	0.5
	PESTICIDES				

Water Quality Summary for the period : 2015-2016

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)	366	449.6	0.000	50.48
2	EC_GEN (µmho/cm)	6	91	34	59
3	pH_GEN (pH units)	6	7.1	6.5	6.8
4	TDS (mg/L)	3	42	28	34
5	Temp (deg C)	6	28.0	22.0	24.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	20	9	15
3	B (mg/L)	6	1.59	0.02	0.39
4	Ca (mg/L)	6	8	2	5
5	Cl (mg/L)	6	15.6	3.6	8.2
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	4	0.30	0.04	0.12
8	Fe (mg/L)	6	0.2	0.0	0.1
9	HCO3 (mg/L)	6	25	11	19
10	K (mg/L)	6	1.1	0.5	0.7
11	Mg (mg/L)	6	2.9	1.0	1.8
12	Na (mg/L)	6	6.0	2.7	4.2
13	NO2+NO3 (mg N/L)	6	0.88	0.27	0.49
14	NO2-N (mgN/L)	6	0.01	0.00	0
15	NO3-N (mgN/L)	6	0.88	0.27	0.49
16	o-PO4-P (mg P/L)	6	0.207	0.000	0.084
17	SiO2 (mg/L)	6	25.3	4.2	11.9
18	SO4 (mg/L)	6	4.4	1.7	2.5
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
1	As (µg/L)	2	1.2	0.5	0.8
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	2	2.0	0.2	1.1
4	Cu (µg/L)	2	2.0	0.4	1.2
5	Ni (µg/L)	2	0.6	0.1	0.3
6	Pb (µg/L)	1	0.4	0.4	0.4
7	Zn (µg/L)	2	6.1	2.3	4.2
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	20	6	12
2	HAR_Total (mgCaCO3/L)	6	32	10	20
3	Na% (%)	6	36	26	32
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.5	0.4	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	222.8	413	399.8	367.1	83.35
2	EC_GEN (µmho/cm)	164	162	52	54	50
3	pH_GEN (pH units)	6.7	6.9	7.0	7.2	7.1
4	TDS (mg/L)					
5	Temp (deg C)	17.0	23.0	21.8	25.3	23.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	32	45	15	15	15
2	B (mg/L)		0.00	0.01		0.01
3	Ca (mg/L)	4	5	3	5	3
4	Cl (mg/L)	32.1	23.7	5.5	3.9	5.9
5	F (mg/L)	0.41	0.47	0.00	0.00	0.00
6	Fe (mg/L)	2.3	0.0	0.1		0.1
7	HCO3 (mg/L)	39	54	18	21	19
8	K (mg/L)	5.6	15.7	0.4	1.2	0.8
9	Mg (mg/L)	2.6	1.9	2.4	1.5	2.4
10	Na (mg/L)	26.0	19.4	3.5	3.6	3.4
11	NO2+NO3 (mg N/L)	0.00	0.00	0.32	0.35	0.33
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.00	0.00	0.32	0.35	0.33
14	o-PO4-P (mg P/L)	0.000	0.000	0.000		0.000
15	SiO2 (mg/L)	13.2	7.8	10.0		9.4
16	SO4 (mg/L)	2.0	1.5	1.5	1.9	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
	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	13	8	12	8
2	HAR_Total (mgCaCO3/L)	20	21	18	18	18
3	Na% (%)	66	53	30	28	28
4	RSC (-)	0.2	0.5	0.0	0.0	0.0
5	SAR (-)	2.7	1.8	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	387.6	536.5	221.7	515	207.4
2	EC_GEN (µmho/cm)	41	37	42	46	48
3	pH_GEN (pH units)	7.0	6.9	6.7	6.6	7.0
4	TDS (mg/L)					
5	Temp (deg C)	24.0	23.5	24.5	22.3	23.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	8	11	12	13
2	B (mg/L)				0.00	0.06
3	Ca (mg/L)	2	2	3	3	4
4	Cl (mg/L)	6.7	5.0	5.0	6.4	6.0
5	F (mg/L)	0.03	0.03	0.03	0.03	0.05
6	Fe (mg/L)	1.3	0.2		0.1	0.1
7	HCO3 (mg/L)	12	10	13	14	16
8	K (mg/L)	0.5	0.4	0.6	0.6	0.7
9	Mg (mg/L)	1.9	1.5	1.2	1.9	1.5
10	Na (mg/L)	3.1	3.0	3.2	3.3	3.5
11	NO2+NO3 (mg N/L)	0.35	0.33	0.42	0.42	0.45
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.01
13	NO3-N (mgN/L)	0.35	0.33	0.42	0.41	0.44
14	o-PO4-P (mg P/L)	0.005	0.005		0.036	0.078
15	SiO2 (mg/L)	8.6	6.7		7.4	4.8
16	SO4 (mg/L)	1.2	2.4	2.7	3.0	2.1
	BIOLOGICAL/BACTERIOLOGICAL					
	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)	6	6	8	8	10
2	HAR_Total (mgCaCO3/L)	14	12	13	16	16
3	Na% (%)	32	34	34	30	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: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	82.16	21.77	19.83	17.34	13.89
2	EC_GEN (µmho/cm)	52	226	243	60	58
3	pH_GEN (pH units)	6.6	7.3	7.3	7.3	7.1
4	TDS (mg/L)					
5	Temp (deg C)	22.5	23.3	23.3	23.5	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	49	93	18	17
2	B (mg/L)	0.83		0.00	0.05	0.05
3	Ca (mg/L)	4	7	17	4	4
4	Cl (mg/L)	6.9	52.0	16.1	6.5	7.8
5	F (mg/L)	0.06	0.40	0.47	0.05	0.03
6	Fe (mg/L)	0.1	2.4	0.0	0.1	0.1
7	HCO3 (mg/L)	17	60	114	22	20
8	K (mg/L)	0.6	2.0	14.9	1.4	0.8
9	Mg (mg/L)	1.2	2.9	9.1	1.8	1.9
10	Na (mg/L)	4.1	42.8	13.6	4.7	4.3
11	NO2+NO3 (mg N/L)	0.65	0.00	0.00	0.25	0.24
12	NO2-N (mgN/L)	0.01	0.00	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.64	0.00	0.00	0.25	0.23
14	o-PO4-P (mg P/L)	0.119	0.000	0.000	0.036	0.031
15	SiO2 (mg/L)	16.3	9.6	6.0	12.2	11.2
16	SO4 (mg/L)	1.8	2.2	1.4	0.6	0.7
	BIOLOGICAL/BACTERIOLOGICAL					
	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	18	43	10	10
2	HAR_Total (mgCaCO3/L)	16	30	81	18	18
3	Na% (%)	35	74	30	36	33
4	RSC (-)	0.0	0.4	0.3	0.0	0.0
5	SAR (-)	0.4	3.4	0.8	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	21.75	21.53	14.35	19.34	20.37
2	EC_GEN (µmho/cm)	52	52	54	42	54
3	pH_GEN (pH units)	7.1	7.1	6.6	6.7	6.8
4	TDS (mg/L)					
5	Temp (deg C)	25.0	24.0	25.0	23.8	22.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	15	15	11	17
2	B (mg/L)	0.04	0.03			0.00
3	Ca (mg/L)	4	4	4	4	4
4	Cl (mg/L)	7.8	7.8	7.3	5.1	6.0
5	F (mg/L)	0.02	0.02		0.02	0.07
6	Fe (mg/L)	0.1	0.1	0.1		0.2
7	HCO3 (mg/L)	17	16	18	13	21
8	K (mg/L)	0.6	0.5	0.6	0.4	0.6
9	Mg (mg/L)	1.9	2.2	1.9	1.5	1.9
10	Na (mg/L)	3.7	3.9	3.7	2.5	4.5
11	NO2+NO3 (mg N/L)	0.25	0.29	0.35	0.37	0.41
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.01
13	NO3-N (mgN/L)	0.25	0.29	0.35	0.36	0.39
14	o-PO4-P (mg P/L)	0.005	0.000	0.010		0.016
15	SiO2 (mg/L)	8.7	10.1	9.5		10.3
16	SO4 (mg/L)	1.2	1.8	2.4	1.7	1.7
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)			25.0	1.8	
2	Cd (µg/L)			0.1	0.0	
3	Cr (µg/L)			2.5	1.2	
4	Cu (µg/L)			30.4	1.3	
5	Hg (µg/L)					
6	Ni (µg/L)			3.8	3.3	
7	Pb (µg/L)			0.2		
8	Zn (µg/L)			7.8		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	9	10	9	9
2	HAR_Total (mgCaCO3/L)	18	19	18	15	17
3	Na% (%)	30	31	30	26	36
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.3	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	15.98	10.01	1.625	2.366	2.496
2	EC_GEN (µmho/cm)	60	47	230	140	82
3	pH_GEN (pH units)	7.1	6.8	7.1	7.5	7.4
4	TDS (mg/L)		28			
5	Temp (deg C)	22.5	23.5	25.3	21.0	28.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	12	39	35	29
2	B (mg/L)	0.14	0.17		0.00	0.03
3	Ca (mg/L)	5	4	6	8	5
4	Cl (mg/L)	6.9	5.9	47.6	16.0	7.3
5	F (mg/L)	0.05	0.18	0.50	0.55	0.07
6	Fe (mg/L)	0.2	0.2	2.5	0.0	0.1
7	HCO3 (mg/L)	21	15	48	43	35
8	K (mg/L)	1.5	0.6	7.9	3.3	1.4
9	Mg (mg/L)	2.2	1.5	1.9	2.9	3.2
10	Na (mg/L)	3.6	3.4	39.6	13.2	4.9
11	NO2+NO3 (mg N/L)	0.36	0.31		0.00	0.24
12	NO2-N (mgN/L)	0.01	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.35	0.31		0.00	0.24
14	o-PO4-P (mg P/L)	0.005	0.124	0.000	0.000	0.016
15	SiO2 (mg/L)	5.8	6.9	9.6	7.8	10.2
16	SO4 (mg/L)	2.4	2.1	3.8	1.2	1.2
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)		0.5	3.4		5.9
2	Cd (µg/L)	0.1	0.0	3.0		1.0
3	Cr (µg/L)	2.7	0.2			
4	Cu (µg/L)	2.5	0.4	26.2		3.2
5	Hg (µg/L)					
6	Ni (µg/L)	1.2	0.1			
7	Pb (µg/L)	0.8	0.4	2.8		1.4
8	Zn (µg/L)	12.2	2.3	83.0		26.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	13	9	14	20	14
2	HAR_Total (mgCaCO3/L)	22	15	22	32	27
3	Na% (%)	25	33	72	45	28
4	RSC (-)	0.0	0.0	0.4	0.1	0.0
5	SAR (-)	0.3	0.4	3.8	1.0	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	1.441	2.989	2.99	2.87
2	EC_GEN (µmho/cm)	76	66	72	69
3	pH_GEN (pH units)	7.4	7.3	7.0	6.7
4	TDS (mg/L)				
5	Temp (deg C)	29.8	27.3	24.0	24.3
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	27	21	19	19
2	B (mg/L)	0.03	0.03	0.04	
3	Ca (mg/L)	6	5	5	4
4	Cl (mg/L)	6.6	7.7	7.8	8.2
5	F (mg/L)	0.04	0.04	0.10	0.05
6	Fe (mg/L)	0.1	0.1	0.1	
7	HCO3 (mg/L)	33	26	23	23
8	K (mg/L)	1.2	1.1	1.3	1.5
9	Mg (mg/L)	2.9	2.4	2.4	2.7
10	Na (mg/L)	4.9	4.7	4.5	4.5
11	NO2+NO3 (mg N/L)	0.24	0.27	0.38	0.53
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.24	0.27	0.38	0.53
14	o-PO4-P (mg P/L)	0.010	0.005	0.005	
15	SiO2 (mg/L)	9.4	9.3	12.4	
16	SO4 (mg/L)	1.1	1.0	2.9	2.1
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
1	As (µg/L)			1.5	0.9
2	Cd (µg/L)			0.1	0.2
3	Cr (µg/L)			0.8	3.0
4	Cu (µg/L)	7.3		5.5	6.8
5	Hg (µg/L)				
6	Ni (µg/L)	12.8			2.3
7	Pb (µg/L)			0.2	3.8
8	Zn (µg/L)			47.4	16.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14	12	12	11
2	HAR_Total (mgCaCO3/L)	26	22	22	22
3	Na% (%)	28	31	29	29
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: 2005-2016

Station Name : SANTEGULI (WA000K9)

Division : Cauvery Division, Bangalore

Local River : Aghanashini

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	2.151	3.029	2.224	1.697
2	EC_GEN (µmho/cm)	76	69	73	80
3	pH_GEN (pH units)	7.3	6.9	7.3	6.8
4	TDS (mg/L)				37
5	Temp (deg C)	24.5	23.8	25.8	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	15	23	23	20
2	B (mg/L)	0.00	0.03	0.42	0.17
3	Ca (mg/L)	6	6	6	7
4	Cl (mg/L)	7.8	5.5	8.7	11.9
5	F (mg/L)		0.10	0.09	
6	Fe (mg/L)	0.1	0.2	0.1	0.1
7	HCO3 (mg/L)	29	28	28	24
8	K (mg/L)	0.9	1.2	1.6	1.0
9	Mg (mg/L)	2.7	1.9	2.4	2.7
10	Na (mg/L)	4.6	4.6	4.7	5.0
11	NO2+NO3 (mg N/L)	0.73	0.81	0.50	0.52
12	NO2-N (mgN/L)	0.00	0.04	0.01	0.01
13	NO3-N (mgN/L)	0.73	0.77	0.50	0.51
14	o-PO4-P (mg P/L)	0.021	0.052	0.010	0.010
15	SiO2 (mg/L)	10.6	8.5	2.7	12.4
16	SO4 (mg/L)	2.9	2.7	2.2	3.5
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
1	As (µg/L)	2.2	6.6		1.2
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.1	0.7		2.0
4	Cu (µg/L)	4.1	4.2		2.0
5	Hg (µg/L)				
6	Ni (µg/L)		9.5		0.6
7	Pb (µg/L)	1.6	0.6		
8	Zn (µg/L)	5.6	18.0		6.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	15	14	15	17
2	HAR_Total (mgCaCO3/L)	26	22	25	28
3	Na% (%)	27	30	27	27
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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 (Arb) -2.000 (m.s.l)	03/07/1984	- 31/05/1985
		01/06/1985	- 31/05/1987
		01/06/1987	
	Opening Date	Closing Date	
Gauge	: 03/07/1984		
Discharge	: 30/12/1985		
Sediment	:		
Water Quality	: 01/09/1993		

Water Quality Datasheet for the period : 2015-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015	01/01/2016
		A	A	A	A
	PHYSICAL				
1	Q (cumec)	51.99	55.3	46.36	9.367
2	Colour_Cod (-)	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	40	33	55	34
4	Odour_Code (-)	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	6.9	6.5	6.6	7.0
6	TDS (mg/L)				16
7	Temp (deg C)	27.0	23.0	24.5	23.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	8	16	8
3	B (mg/L)	0.07	1.52	0.26	0.16
4	Ca (mg/L)	4	2	4	3
5	Cl (mg/L)	3.9	5.0	7.1	4.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.02	0.06	0.42	0.06
8	Fe (mg/L)	0.1	0.2	0.1	0.2
9	HCO3 (mg/L)	14	10	19	9
10	K (mg/L)	0.5	0.4	0.6	0.5
11	Mg (mg/L)	1.0	1.5	1.9	1.0
12	Na (mg/L)	2.3	2.5	3.7	2.4
13	NO2+NO3 (mg N/L)	0.95	0.29	0.35	0.25
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.95	0.29	0.35	0.25
16	o-PO4-P (mg P/L)	0.041	0.320	0.155	0.114
17	SiO2 (mg/L)	5.9	17.3	8.1	5.7
18	SO4 (mg/L)	1.3	1.4	2.0	1.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		0.4	1.2	0.8
2	DO (mg/L)	6.9	6.5	7.4	7.5
3	DO_SAT% (%)	86	76	88	87
	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	6	10	8
2	HAR_Total (mgCaCO3/L)	14	12	18	12
3	Na% (%)	25	30	30	29
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.3
	PESTICIDES				

Water Quality Datasheet for the period : 2015-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

River Water Analysis

Sub-Division : SWRSD-III, Mangalore

S.No	Parameters	01/02/2016	01/03/2016	02/05/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	13.47	53.05	30.84
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)		33	39
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)		7.0	6.6
6	TDS (mg/L)		16	18
7	Temp (deg C)	26.0	23.0	27.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	0.0
2	ALK-TOT (mgCaCO3/L)		8	8
3	B (mg/L)		0.31	0.39
4	Ca (mg/L)		3	3
5	Cl (mg/L)		3.9	5.7
6	CO3 (mg/L)		0.0	0.0
7	F (mg/L)			
8	Fe (mg/L)	0.0	0.0	0.1
9	HCO3 (mg/L)		9	10
10	K (mg/L)		0.4	0.3
11	Mg (mg/L)		1.0	1.0
12	Na (mg/L)		2.0	2.8
13	NO2+NO3 (mg N/L)		0.20	0.24
14	NO2-N (mgN/L)		0.00	0.00
15	NO3-N (mgN/L)		0.20	0.24
16	o-PO4-P (mg P/L)		0.020	0.000
17	SiO2 (mg/L)		8.9	5.8
18	SO4 (mg/L)		3.8	2.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)		0.4	0.4
2	DO (mg/L)		7.4	7.5
3	DO_SAT% (%)		86	94
	TRACE & TOXIC			
1	As (µg/L)	0.2		5.4
2	Cd (µg/L)	0.0		
3	Cr (µg/L)	0.2		2.1
4	Cu (µg/L)			1.6
5	Ni (µg/L)	0.0		1.0
6	Pb (µg/L)	0.4		
7	Zn (µg/L)	0.5		7.1
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)		8	8
2	HAR_Total (mgCaCO3/L)		12	12
3	Na% (%)		26	33
4	RSC (-)		0.0	0.0
5	SAR (-)		0.3	0.4
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

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)	366	391	0.296	49.65
2	EC_GEN (µmho/cm)	6	55	33	39
3	pH_GEN (pH units)	6	7.0	6.5	6.8
4	TDS (mg/L)	3	18	16	17
5	Temp (deg C)	7	27.0	23.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	16	8	10
3	B (mg/L)	6	1.52	0.07	0.45
4	Ca (mg/L)	6	4	2	3
5	Cl (mg/L)	6	7.1	3.9	5
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	4	0.42	0.02	0.14
8	Fe (mg/L)	7	0.2	0.0	0.1
9	HCO3 (mg/L)	6	19	9	12
10	K (mg/L)	6	0.6	0.3	0.4
11	Mg (mg/L)	6	1.9	1.0	1.2
12	Na (mg/L)	6	3.7	2.0	2.6
13	NO2+NO3 (mg N/L)	6	0.95	0.20	0.38
14	NO2-N (mgN/L)	6	0.00	0.00	0
15	NO3-N (mgN/L)	6	0.95	0.20	0.38
16	o-PO4-P (mg P/L)	6	0.320	0.000	0.108
17	SiO2 (mg/L)	6	17.3	5.7	8.6
18	SO4 (mg/L)	6	3.8	1.3	2.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	5	1.2	0.4	0.6
2	DO (mg/L)	6	7.5	6.5	7.2
3	DO_SAT% (%)	6	94	76	86
	TRACE & TOXIC				
1	As (µg/L)	2	5.4	0.2	2.8
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	2	2.1	0.2	1.2
4	Cu (µg/L)	1	1.6	1.6	1.6
5	Ni (µg/L)	2	1.0	0.0	0.5
6	Pb (µg/L)	1	0.4	0.4	0.4
7	Zn (µg/L)	2	7.1	0.5	3.8
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	10	6	8
2	HAR_Total (mgCaCO3/L)	6	18	12	13
3	Na% (%)	6	33	25	29
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.4	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	92.28	Water Quality observation suspended because of Rationalization of H.O. net work.	Water Quality observation suspended because of Rationalization of H.O. net work.	108.2	94.53
2	EC_GEN (µmho/cm)	134			45	33
3	pH_GEN (pH units)	6.5			6.8	6.6
4	TDS (mg/L)					
5	Temp (deg C)	26.3			25.3	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	28			12	10
2	B (mg/L)					0.00
3	Ca (mg/L)	6			3	2
4	Cl (mg/L)	25.5			5.9	3.9
5	F (mg/L)	0.33			0.00	0.00
6	Fe (mg/L)	1.2				0.1
7	HCO3 (mg/L)	35			14	12
8	K (mg/L)	3.8			1.0	0.6
9	Mg (mg/L)	2.0			1.0	1.0
10	Na (mg/L)	20.9			3.8	2.8
11	NO2+NO3 (mg N/L)	0.00			0.32	0.35
12	NO2-N (mgN/L)	0.00			0.01	0.00
13	NO3-N (mgN/L)	0.00			0.32	0.35
14	o-PO4-P (mg P/L)	0.000				0.000
15	SiO2 (mg/L)	6.8				7.2
16	SO4 (mg/L)	1.4			1.5	1.4
	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)	14			8	6
2	HAR_Total (mgCaCO3/L)	22			12	10
3	Na% (%)	63			40	37
4	RSC (-)	0.1			0.0	0.0
5	SAR (-)	1.9			0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	105.1	303.5	157.1	116.2	116.6
2	EC_GEN (µmho/cm)	34	31	30	33	34
3	pH_GEN (pH units)	6.6	6.6	5.9	6.5	7.2
4	TDS (mg/L)					
5	Temp (deg C)	25.3	25.5	26.8	26.5	24.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	8	7	8	12
2	B (mg/L)				0.00	0.08
3	Ca (mg/L)	2	2	2	3	3
4	Cl (mg/L)	5.8	3.9	3.4	3.9	3.4
5	F (mg/L)	0.03	0.06	0.02	0.03	0.03
6	Fe (mg/L)	0.1	0.0		0.1	0.1
7	HCO3 (mg/L)	9	10	9	10	12
8	K (mg/L)	0.4	0.4	0.5	0.4	0.4
9	Mg (mg/L)	1.5	1.5	1.0	1.0	0.7
10	Na (mg/L)	2.5	2.2	2.0	2.5	2.7
11	NO2+NO3 (mg N/L)	0.34	0.32	0.40	0.36	0.32
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.01
13	NO3-N (mgN/L)	0.34	0.32	0.40	0.36	0.32
14	o-PO4-P (mg P/L)	0.005	0.005		0.031	0.021
15	SiO2 (mg/L)	8.3	6.5		6.9	4.5
16	SO4 (mg/L)	1.1	2.3	2.1	2.0	1.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.2	0.8	0.9
2	DO (mg/L)			6.4	6.7	6.4
3	DO_SAT% (%)			79	83	77
	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	6	6	7	8
2	HAR_Total (mgCaCO3/L)	12	12	10	11	11
3	Na% (%)	30	27	30	32	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	53.65	27.78	Water Quality observation suspended because of Rationalization of H.O. net work.	Water Quality observation suspended because of Rationalization of H.O. net work.	18.7
2	EC_GEN (µmho/cm)	37	217			29
3	pH_GEN (pH units)	6.7	7.1			7.2
4	TDS (mg/L)					
5	Temp (deg C)	25.0	24.3			24.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	63			7
2	B (mg/L)	0.79				0.04
3	Ca (mg/L)	3	8			2
4	Cl (mg/L)	4.4	31.8			3.9
5	F (mg/L)	0.04	0.61			0.02
6	Fe (mg/L)	0.1	1.7			0.1
7	HCO3 (mg/L)	12	77			9
8	K (mg/L)	0.4	2.0			0.4
9	Mg (mg/L)	1.2	9.8			1.0
10	Na (mg/L)	2.4	26.6			2.6
11	NO2+NO3 (mg N/L)	0.62				0.24
12	NO2-N (mgN/L)	0.00	0.00			0.01
13	NO3-N (mgN/L)	0.62	0.00			0.23
14	o-PO4-P (mg P/L)	0.181	0.000			0.036
15	SiO2 (mg/L)	11.6	6.6			6.1
16	SO4 (mg/L)	1.4	1.2			0.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4				
2	DO (mg/L)	6.7				
3	DO_SAT% (%)	81				
	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	20			4
2	HAR_Total (mgCaCO3/L)	13	60			8
3	Na% (%)	28	48			40
4	RSC (-)	0.0	0.1			0.0
5	SAR (-)	0.3	1.6			0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	18.35	42.38	34.96	26.4	38.65
2	EC_GEN (µmho/cm)	30	30	33	35	29
3	pH_GEN (pH units)	7.0	6.7	6.3	6.6	6.8
4	TDS (mg/L)					
5	Temp (deg C)	25.3	25.5	24.8	26.5	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	8	8	10	6
2	B (mg/L)	0.03	0.04			0.00
3	Ca (mg/L)	2	2	2	3	2
4	Cl (mg/L)	3.9	3.9	4.3	4.1	4.4
5	F (mg/L)	0.02	0.02		0.02	0.07
6	Fe (mg/L)	0.0	0.0	0.0		0.1
7	HCO3 (mg/L)	10	9	10	12	8
8	K (mg/L)	0.3	0.3	0.4	0.4	0.3
9	Mg (mg/L)	1.5	1.8	1.5	1.2	1.2
10	Na (mg/L)	2.3	1.9	3.2	2.4	2.4
11	NO2+NO3 (mg N/L)	0.28	0.30	0.34	0.36	0.35
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.28	0.30	0.34	0.36	0.35
14	o-PO4-P (mg P/L)	0.005	0.000	0.000		0.010
15	SiO2 (mg/L)	7.5	7.9	6.5		9.6
16	SO4 (mg/L)	0.9	1.4	1.9	1.8	1.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.2	0.2	0.8
2	DO (mg/L)			7.1	7.3	7.0
3	DO_SAT% (%)			83	91	86
	TRACE & TOXIC					
1	As (µg/L)			0.2	2.4	
2	Cd (µg/L)			1.0	0.0	
3	Cr (µg/L)			2.0	2.3	
4	Cu (µg/L)			16.7	1.6	
5	Ni (µg/L)			4.3	5.8	
6	Pb (µg/L)			0.5		
7	Zn (µg/L)			17.5		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	4	5	4	7	5
2	HAR_Total (mgCaCO3/L)	10	13	10	12	10
3	Na% (%)	33	25	40	30	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.4	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	38.82	23.06	20.56	Water Quality observation suspended because of Rationalization of H.O. net work.	38.91
2	EC_GEN (µmho/cm)	35	45	237		35
3	pH_GEN (pH units)	7.0	6.8	6.9		6.9
4	TDS (mg/L)		16			
5	Temp (deg C)	26.5	24.5	26.0		26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	12	79		12
2	B (mg/L)	0.17	0.21			0.02
3	Ca (mg/L)	3	4	18		2
4	Cl (mg/L)	4.1	5.7	27.7		2.6
5	F (mg/L)	0.02	0.24	0.69		0.03
6	Fe (mg/L)	0.1	0.1	1.6		0.1
7	HCO3 (mg/L)	11	14	97		15
8	K (mg/L)	1.0	0.5	1.5		0.7
9	Mg (mg/L)	1.2	1.5	8.8		1.9
10	Na (mg/L)	1.9	3.0	22.3		1.8
11	NO2+NO3 (mg N/L)	0.37	0.30	0.00		0.26
12	NO2-N (mgN/L)	0.01	0.00	0.00		0.00
13	NO3-N (mgN/L)	0.36	0.30	0.00		0.26
14	o-PO4-P (mg P/L)	0.005	0.134	0.000		0.000
15	SiO2 (mg/L)	0.9	6.9	3.6		2.5
16	SO4 (mg/L)	2.2	1.9	1.6		1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	1.0			
2	DO (mg/L)	7.3	7.4			
3	DO_SAT% (%)	90	88			
	TRACE & TOXIC					
1	As (µg/L)		0.2	9.0		5.4
2	Cd (µg/L)	0.0	0.0	0.0		1.1
3	Cr (µg/L)	5.3	0.2	3.3		
4	Cu (µg/L)	6.2		2.3		3.2
5	Ni (µg/L)	6.1	0.0	3.1		
6	Pb (µg/L)	2.8	0.4			2.0
7	Zn (µg/L)	19.6	0.5			32.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	7	9	45		4
2	HAR_Total (mgCaCO3/L)	12	15	81		12
3	Na% (%)	24	30	36		24
4	RSC (-)	0.0	0.0	0.0		0.0
5	SAR (-)	0.2	0.3	1.1		0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	18.27	21.46	18.85	43.09
2	EC_GEN (µmho/cm)	32	30	31	33
3	pH_GEN (pH units)	7.3	7.0	6.5	6.4
4	TDS (mg/L)				
5	Temp (deg C)	27.5	27.3	27.0	26.3
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	10	8	8	9
2	B (mg/L)	0.03	0.02	0.01	
3	Ca (mg/L)	2	3	2	2
4	Cl (mg/L)	2.8	3.9	3.9	4.1
5	F (mg/L)	0.02	0.04	0.02	0.03
6	Fe (mg/L)	0.1	0.1	0.0	
7	HCO3 (mg/L)	12	10	9	10
8	K (mg/L)	0.4	0.4	0.4	0.4
9	Mg (mg/L)	1.9	1.0	1.9	1.5
10	Na (mg/L)	2.1	2.0	2.4	2.6
11	NO2+NO3 (mg N/L)	0.25	0.26	0.29	0.34
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.25	0.26	0.29	0.34
14	o-PO4-P (mg P/L)	0.010	0.031	0.005	
15	SiO2 (mg/L)	3.2	4.2	6.2	
16	SO4 (mg/L)	1.0	1.1	2.6	1.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				0.2
2	DO (mg/L)				6.7
3	DO_SAT% (%)				80
	TRACE & TOXIC				
1	As (µg/L)			1.4	1.2
2	Cd (µg/L)				0.2
3	Cr (µg/L)			0.3	1.8
4	Cu (µg/L)	1.8		3.4	9.6
5	Ni (µg/L)	13.7			4.3
6	Pb (µg/L)			0.2	3.6
7	Zn (µg/L)			7.7	10.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	8	4	5
2	HAR_Total (mgCaCO3/L)	12	12	12	11
3	Na% (%)	26	26	29	32
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: 2005-2016

Station Name : HALADI (WH000N1)

Division : Cauvery Division, Bangalore

Local River : Haladi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	27.11	12.05	11.46	41.94
2	EC_GEN (µmho/cm)	31	31	32	36
3	pH_GEN (pH units)	6.9	6.7	7.2	6.8
4	TDS (mg/L)				17
5	Temp (deg C)	27.8	26.0	28.3	25.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	8	7	9	8
2	B (mg/L)	0.00	0.03	0.36	0.35
3	Ca (mg/L)	3	2	2	3
4	Cl (mg/L)	3.2	3.0	3.5	4.8
5	F (mg/L)		0.11	0.17	
6	Fe (mg/L)	0.0	0.1	0.1	0.1
7	HCO3 (mg/L)	10	8	11	10
8	K (mg/L)	0.5	0.5	1.0	0.4
9	Mg (mg/L)	1.0	1.0	1.0	1.0
10	Na (mg/L)	2.1	2.6	2.2	2.4
11	NO2+NO3 (mg N/L)	0.38	0.61	0.33	0.22
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.38	0.61	0.32	0.22
14	o-PO4-P (mg P/L)	0.016	0.041	0.000	0.010
15	SiO2 (mg/L)	6.4	3.2	0.3	7.3
16	SO4 (mg/L)	1.9	2.2	1.7	3.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.2	0.8	0.7	0.4
2	DO (mg/L)	6.7	6.3	6.5	7.4
3	DO_SAT% (%)	85	78	83	90
	TRACE & TOXIC				
1	As (µg/L)	6.6	1.5		5.4
2	Cd (µg/L)	0.2	0.1		
3	Cr (µg/L)	0.1	0.3		2.1
4	Cu (µg/L)	2.5	0.9		1.6
5	Ni (µg/L)	0.4	8.1		1.0
6	Pb (µg/L)	14.2	1.7		
7	Zn (µg/L)	124.3	16.0		7.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	7	5	6	8
2	HAR_Total (mgCaCO3/L)	11	9	10	12
3	Na% (%)	28	37	30	29
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.3	0.3
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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 (Arb) 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 : 2015-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	55.27	43.36	13.76
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	36	33	44
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.7	6.5	6.6
6	TDS (mg/L)			
7	Temp (deg C)	25.0	25.0	26.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	11	8	11
3	B (mg/L)	0.08	1.60	0.19
4	Ca (mg/L)	3	3	4
5	Cl (mg/L)	3.9	5.0	6.0
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.02	0.06	0.34
8	Fe (mg/L)	0.1	0.2	0.1
9	HCO3 (mg/L)	14	10	13
10	K (mg/L)	0.4	0.4	1.0
11	Mg (mg/L)	1.5	1.0	1.0
12	Na (mg/L)	2.0	2.3	3.0
13	NO2+NO3 (mg N/L)	0.27	0.31	0.43
14	NO2-N (mgN/L)	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.27	0.31	0.43
16	o-PO4-P (mg P/L)	0.000	0.155	0.320
17	SiO2 (mg/L)	6.4	9.3	18.6
18	SO4 (mg/L)	1.0	1.2	2.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)		0.2	0.6
2	DO (mg/L)	6.5	6.1	6.6
3	DO_SAT% (%)	78	74	82
	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	8	10
2	HAR_Total (mgCaCO3/L)	14	12	14
3	Na% (%)	23	29	30
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.2	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/01/2016	01/02/2016	
		A	A	
	PHYSICAL			
1	Q (cumec)	2.896	1.121	Water samples are not received for the months Mar & May 2016 because of no flow condition
2	Colour_Cod (-)	Clear		
3	EC_GEN (µmho/cm)	42		
4	Odour_Code (-)	odour free		
5	pH_GEN (pH units)	6.9		
6	TDS (mg/L)	20		
7	Temp (deg C)	24.0		
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		
2	ALK-TOT (mgCaCO3/L)	13		
3	B (mg/L)	0.41		
4	Ca (mg/L)	3		
5	Cl (mg/L)	4.3		
6	CO3 (mg/L)	0.0		
7	F (mg/L)	0.04		
8	Fe (mg/L)	0.2		
9	HCO3 (mg/L)	16		
10	K (mg/L)	0.6		
11	Mg (mg/L)	1.9		
12	Na (mg/L)	2.5		
13	NO2+NO3 (mg N/L)	0.29		
14	NO2-N (mgN/L)	0.00		
15	NO3-N (mgN/L)	0.29		
16	o-PO4-P (mg P/L)	0.062		
17	SiO2 (mg/L)	9.4		
18	SO4 (mg/L)	2.0		
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4		
2	DO (mg/L)	6.7		
3	DO_SAT% (%)	80		
	TRACE & TOXIC			
1	As (µg/L)		0.1	
2	Cd (µg/L)		0.0	
3	Cr (µg/L)		0.2	
4	Cu (µg/L)		0.1	
5	Ni (µg/L)		0.3	
6	Pb (µg/L)		0.4	
7	Zn (µg/L)		0.3	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8		
2	HAR_Total (mgCaCO3/L)	16		
3	Na% (%)	25		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

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)	366	343.5	0.000	27.57
2	EC_GEN (µmho/cm)	4	44	33	39
3	pH_GEN (pH units)	4	6.9	6.5	6.7
4	TDS (mg/L)	1	20	20	20
5	Temp (deg C)	4	26.5	24.0	25.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	13	8	11
3	B (mg/L)	4	1.60	0.08	0.57
4	Ca (mg/L)	4	4	3	3
5	Cl (mg/L)	4	6.0	3.9	4.8
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.34	0.02	0.11
8	Fe (mg/L)	4	0.2	0.1	0.2
9	HCO3 (mg/L)	4	16	10	13
10	K (mg/L)	4	1.0	0.4	0.6
11	Mg (mg/L)	4	1.9	1.0	1.3
12	Na (mg/L)	4	3.0	2.0	2.4
13	NO2+NO3 (mg N/L)	4	0.43	0.27	0.33
14	NO2-N (mgN/L)	4	0.00	0.00	0
15	NO3-N (mgN/L)	4	0.43	0.27	0.33
16	o-PO4-P (mg P/L)	4	0.320	0.000	0.134
17	SiO2 (mg/L)	4	18.6	6.4	10.9
18	SO4 (mg/L)	4	2.4	1.0	1.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	0.6	0.2	0.4
2	DO (mg/L)	4	6.7	6.1	6.5
3	DO_SAT% (%)	4	82	74	78
	TRACE & TOXIC				
1	As (µg/L)	1	0.1	0.1	0.1
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	0.2	0.2	0.2
4	Cu (µg/L)	1	0.1	0.1	0.1
5	Ni (µg/L)	1	0.3	0.3	0.3
6	Pb (µg/L)	1	0.4	0.4	0.4
7	Zn (µg/L)	1	0.3	0.3	0.3
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	10	8	9
2	HAR_Total (mgCaCO3/L)	4	16	12	14
3	Na% (%)	4	30	23	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: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	85.63	Water Quality observation suspended because of Rationalization of H.O. net work.	Water Quality observation suspended because of Rationalization of H.O. net work.	86.88	94.37
2	EC_GEN (µmho/cm)	136			48	29
3	pH_GEN (pH units)	6.6			6.8	6.5
4	TDS (mg/L)					
5	Temp (deg C)	27.5			26.0	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	34			15	
2	B (mg/L)					0.00
3	Ca (mg/L)	5			3	2
4	Cl (mg/L)	21.5			3.9	3.9
5	F (mg/L)	0.53			0.00	0.00
6	Fe (mg/L)	0.1				0.1
7	HCO3 (mg/L)	41			19	9
8	K (mg/L)	3.3			0.4	0.3
9	Mg (mg/L)	3.9			1.9	1.0
10	Na (mg/L)	17.4			3.2	2.7
11	NO2+NO3 (mg N/L)	0.00			0.35	0.29
12	NO2-N (mgN/L)	0.00			0.00	0.00
13	NO3-N (mgN/L)	0.00			0.35	0.29
14	o-PO4-P (mg P/L)	0.000				0.000
15	SiO2 (mg/L)	9.9				6.3
16	SO4 (mg/L)	1.1			1.1	1.0
	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)	12			8	4
2	HAR_Total (mgCaCO3/L)	28			16	8
3	Na% (%)	49			30	41
4	RSC (-)	0.1			0.0	0.0
5	SAR (-)	1.4			0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	82.37	169.9	157.3	60.05	88.22
2	EC_GEN (µmho/cm)	33	31	27	34	34
3	pH_GEN (pH units)	6.7	6.5	6.4	6.4	7.0
4	TDS (mg/L)					
5	Temp (deg C)	25.5	25.0	25.8	24.8	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		8	6	8	9
2	B (mg/L)				0.00	0.06
3	Ca (mg/L)	2	2	2	3	2
4	Cl (mg/L)	4.8	3.9	3.4	5.0	3.9
5	F (mg/L)	0.01	0.00	0.02	0.03	0.01
6	Fe (mg/L)	0.1	0.1		0.1	0.1
7	HCO3 (mg/L)	9	10	8	10	11
8	K (mg/L)	0.3	0.3	0.4	0.4	0.4
9	Mg (mg/L)	1.5	1.0	0.7	1.0	1.0
10	Na (mg/L)	2.2	2.5	1.9	2.4	2.7
11	NO2+NO3 (mg N/L)	0.34	0.32	0.37	0.25	0.26
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.01
13	NO3-N (mgN/L)	0.34	0.32	0.37	0.24	0.25
14	o-PO4-P (mg P/L)	0.000	0.010		0.186	0.011
15	SiO2 (mg/L)	7.3	5.6		9.3	5.2
16	SO4 (mg/L)	1.1	1.8	2.0	2.2	1.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.8	0.3	0.4
2	DO (mg/L)			7.2	6.9	6.6
3	DO_SAT% (%)			88	83	78
	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	6	6	7	6
2	HAR_Total (mgCaCO3/L)	12	10	9	11	10
3	Na% (%)	27	35	30	32	36
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	49.31	8.34	Water Quality observation suspended because of Rationalization of H.O. net work.	Water Quality observation suspended because of Rationalization of H.O. net work.	4.799
2	EC_GEN (µmho/cm)	35	217			39
3	pH_GEN (pH units)	6.6	7.3			7.1
4	TDS (mg/L)					
5	Temp (deg C)	25.0	27.0			25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	49			13
2	B (mg/L)	0.84				0.04
3	Ca (mg/L)	3	9			2
4	Cl (mg/L)	4.4	43.5			3.9
5	F (mg/L)	0.04	0.68			0.02
6	Fe (mg/L)	0.2	0.1			0.1
7	HCO3 (mg/L)	12	60			16
8	K (mg/L)	0.4	1.8			0.4
9	Mg (mg/L)	1.2	4.3			1.9
10	Na (mg/L)	2.2	35.4			2.9
11	NO2+NO3 (mg N/L)	0.29	0.00			0.41
12	NO2-N (mgN/L)	0.00	0.00			0.01
13	NO3-N (mgN/L)	0.29	0.00			0.41
14	o-PO4-P (mg P/L)	0.078	0.000			0.031
15	SiO2 (mg/L)	7.9	19.5			9.1
16	SO4 (mg/L)	1.1	1.4			0.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2				
2	DO (mg/L)	6.3				
3	DO_SAT% (%)	76				
	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	24			6
2	HAR_Total (mgCaCO3/L)	13	41			14
3	Na% (%)	26	64			30
4	RSC (-)	0.0	0.2			0.0
5	SAR (-)	0.3	2.4			0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	13.04	14.5	9.423	12.41	10.46
2	EC_GEN (µmho/cm)	36	37	37	40	37
3	pH_GEN (pH units)	6.9	6.8	6.5	6.6	6.6
4	TDS (mg/L)					
5	Temp (deg C)	26.0	25.0	26.5	26.5	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	11	11	11	10
2	B (mg/L)	0.03	0.04			0.00
3	Ca (mg/L)	3	2	2	4	3
4	Cl (mg/L)	4.8	3.9	4.3	4.6	5.0
5	F (mg/L)	0.02	0.01		0.02	0.23
6	Fe (mg/L)	0.1	0.1	0.1		0.2
7	HCO3 (mg/L)	12	14	13	13	12
8	K (mg/L)	0.6	0.4	0.5	0.5	0.5
9	Mg (mg/L)	1.0	1.8	1.9	1.5	1.5
10	Na (mg/L)	2.6	2.6	2.3	2.3	2.7
11	NO2+NO3 (mg N/L)	0.27	0.29	0.32	0.37	0.34
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.01
13	NO3-N (mgN/L)	0.27	0.29	0.32	0.36	0.33
14	o-PO4-P (mg P/L)	0.005	0.005	0.000		0.026
15	SiO2 (mg/L)	9.3	7.7	7.2		25.3
16	SO4 (mg/L)	0.9	1.4	1.7	1.7	1.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			1.3	0.2	0.3
2	DO (mg/L)			7.3	6.1	6.3
3	DO_SAT% (%)			92	76	77
	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	5	6	9	7
2	HAR_Total (mgCaCO3/L)	12	12	14	15	13
3	Na% (%)	30	31	26	24	30
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: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	8.404	5.927	Water Quality observation suspended because of Rationalization of H.O. net work.	Water Quality observation suspended because of Rationalization of H.O. net work.	1.089
2	EC_GEN (µmho/cm)	39	43			56
3	pH_GEN (pH units)	6.9	6.7			7.5
4	TDS (mg/L)		20			
5	Temp (deg C)	25.5	25.3			25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	12			19
2	B (mg/L)	0.15	0.30			0.04
3	Ca (mg/L)	3	4			2
4	Cl (mg/L)	5.0	5.1			4.6
5	F (mg/L)	0.05	0.19			0.04
6	Fe (mg/L)	0.1	0.2			0.1
7	HCO3 (mg/L)	13	15			23
8	K (mg/L)	1.3	0.8			0.8
9	Mg (mg/L)	1.5	1.5			3.9
10	Na (mg/L)	2.2	2.7			3.5
11	NO2+NO3 (mg N/L)	0.31	0.36			0.43
12	NO2-N (mgN/L)	0.01	0.00			0.00
13	NO3-N (mgN/L)	0.29	0.36			0.43
14	o-PO4-P (mg P/L)	0.000	0.191			0.062
15	SiO2 (mg/L)	5.3	14.0			15.6
16	SO4 (mg/L)	2.1	2.2			0.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.4	0.5			
2	DO (mg/L)	6.6	6.7			
3	DO_SAT% (%)	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)	8	9			4
2	HAR_Total (mgCaCO3/L)	14	15			20
3	Na% (%)	23	27			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: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.
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: 2005-2016

Station Name : AVERSHE (WI000J2)

Division : Cauvery Division, Bangalore

Local River : Sita

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.	Water samples notcollected because of no flow codition.
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	: 2015-2016
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 : 2015-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	106.7	29.28	85.27
2	Colour_Cod (-)	Light Brown	Clear	Brown
3	EC_GEN (µmho/cm)	34	31	24
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	6.8	6.8
6	TDS (mg/L)			
7	Temp (deg C)	26.5	26.0	26.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	9	8	7
3	B (mg/L)	0.05	1.50	0.27
4	Ca (mg/L)	3	2	2
5	Cl (mg/L)	3.9	3.9	2.5
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.02	0.06	0.04
8	Fe (mg/L)	0.2	0.1	0.1
9	HCO3 (mg/L)	11	10	8
10	K (mg/L)	0.4	0.4	1.0
11	Mg (mg/L)	1.0	1.0	1.0
12	Na (mg/L)	2.0	2.1	1.7
13	NO2+NO3 (mg N/L)	0.42	0.24	0.27
14	NO2-N (mgN/L)	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.42	0.24	0.27
16	o-PO4-P (mg P/L)	0.000	0.176	0.176
17	SiO2 (mg/L)	5.3	11.0	3.7
18	SO4 (mg/L)	1.3	1.4	1.8
	BIOLOGICAL/BACTERIOLOGICAL			
	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	4
2	HAR_Total (mgCaCO3/L)	12	10	8
3	Na% (%)	26	30	28
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/01/2016	01/02/2016	
		A	A	
	PHYSICAL			
1	Q (cumec)	4.64	1.304	Water samples are not received for the months Mar & May 2016 because of no flow condition
2	Colour_Cod (-)	Clear		
3	EC_GEN (µmho/cm)	39		
4	Odour_Code (-)	odour free		
5	pH_GEN (pH units)	7.1		
6	TDS (mg/L)	18		
7	Temp (deg C)	21.0		
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0		
2	ALK-TOT (mgCaCO3/L)	8		
3	B (mg/L)	0.17		
4	Ca (mg/L)	2		
5	Cl (mg/L)	7.1		
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)	0.6		
11	Mg (mg/L)	1.9		
12	Na (mg/L)	2.8		
13	NO2+NO3 (mg N/L)	0.25		
14	NO2-N (mgN/L)	0.00		
15	NO3-N (mgN/L)	0.25		
16	o-PO4-P (mg P/L)	0.134		
17	SiO2 (mg/L)	8.6		
18	SO4 (mg/L)	2.2		
	BIOLOGICAL/BACTERIOLOGICAL			
	TRACE & TOXIC			
1	As (µg/L)		0.3	
2	Cd (µg/L)		0.0	
3	Cr (µg/L)		0.1	
4	Cu (µg/L)		0.1	
5	Ni (µg/L)		0.0	
6	Pb (µg/L)		0.4	
7	Zn (µg/L)		0.1	
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	6		
2	HAR_Total (mgCaCO3/L)	14		
3	Na% (%)	29		
4	RSC (-)	0.0		
5	SAR (-)	0.3		
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

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)	366	610.7	0.000	39.05
2	EC_GEN (µmho/cm)	4	39	24	32
3	pH_GEN (pH units)	4	7.1	6.8	6.9
4	TDS (mg/L)	1	18	18	18
5	Temp (deg C)	4	26.5	21.0	25
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	9	7	8
3	B (mg/L)	4	1.50	0.05	0.5
4	Ca (mg/L)	4	3	2	2
5	Cl (mg/L)	4	7.1	2.5	4.3
6	CO3 (mg/L)	4	0.0	0.0	0
7	F (mg/L)	4	0.06	0.02	0.04
8	Fe (mg/L)	4	0.2	0.1	0.1
9	HCO3 (mg/L)	4	11	8	10
10	K (mg/L)	4	1.0	0.4	0.6
11	Mg (mg/L)	4	1.9	1.0	1.2
12	Na (mg/L)	4	2.8	1.7	2.2
13	NO2+NO3 (mg N/L)	4	0.42	0.24	0.29
14	NO2-N (mgN/L)	4	0.00	0.00	0
15	NO3-N (mgN/L)	4	0.42	0.24	0.29
16	o-PO4-P (mg P/L)	4	0.176	0.000	0.121
17	SiO2 (mg/L)	4	11.0	3.7	7.2
18	SO4 (mg/L)	4	2.2	1.3	1.7
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
1	As (µg/L)	1	0.3	0.3	0.3
2	Cd (µg/L)	1	0.0	0.0	0
3	Cr (µg/L)	1	0.1	0.1	0.1
4	Cu (µg/L)	1	0.1	0.1	0.1
5	Ni (µg/L)	1	0.0	0.0	0
6	Pb (µg/L)	1	0.4	0.4	0.4
7	Zn (µg/L)	1	0.1	0.1	0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	8	4	6
2	HAR_Total (mgCaCO3/L)	4	14	8	11
3	Na% (%)	4	30	26	28
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.3	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	98.33	140.2	212.5	106.9	90.53
2	EC_GEN (µmho/cm)	146	225	33	52	32
3	pH_GEN (pH units)	6.8	6.6	6.9	6.9	6.8
4	TDS (mg/L)					
5	Temp (deg C)	27.8	28.5	26.5	26.3	28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	31	54	9	14	10
2	B (mg/L)		0.00	0.00		0.00
3	Ca (mg/L)	6	3	2	4	2
4	Cl (mg/L)	29.6	46.8	4.0	5.9	3.9
5	F (mg/L)	0.08	0.46	0.00	0.00	0.00
6	Fe (mg/L)	0.1	0.0	0.1		0.1
7	HCO3 (mg/L)	38	66	11	17	12
8	K (mg/L)	3.5	24.4	0.3	0.5	0.4
9	Mg (mg/L)	0.9	2.0	1.0	1.5	1.0
10	Na (mg/L)	24.0	35.1	2.9	3.7	2.7
11	NO2+NO3 (mg N/L)	0.00	0.00	0.30	0.49	0.30
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.00	0.00	0.30	0.48	0.30
14	o-PO4-P (mg P/L)	0.000	0.000	0.000		0.000
15	SiO2 (mg/L)	6.2	8.3	8.3		7.4
16	SO4 (mg/L)	1.3	0.0	1.0	2.1	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
	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)	14	8	6	10	6
2	HAR_Total (mgCaCO3/L)	18	16	10	16	10
3	Na% (%)	69	63	38	33	37
4	RSC (-)	0.3	0.8	0.0	0.0	0.0
5	SAR (-)	2.5	4.2	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	83.96	182.5	207.7	112.2	98.65
2	EC_GEN (µmho/cm)	31	32	24	33	31
3	pH_GEN (pH units)	6.9	6.6	6.3	6.6	7.0
4	TDS (mg/L)					
5	Temp (deg C)	25.3	25.5	25.0	25.0	25.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	8	5	7	9
2	B (mg/L)				0.00	0.03
3	Ca (mg/L)	2	2	2	3	3
4	Cl (mg/L)	3.8	3.9	2.8	5.0	3.4
5	F (mg/L)	0.02	0.05	0.02	0.03	0.28
6	Fe (mg/L)	0.1	0.0		0.1	0.1
7	HCO3 (mg/L)	9	10	6	9	10
8	K (mg/L)	0.3	0.4	0.5	0.4	0.4
9	Mg (mg/L)	1.0	1.0	0.7	1.0	1.0
10	Na (mg/L)	2.3	2.6	2.0	2.2	2.3
11	NO2+NO3 (mg N/L)	0.30	0.34	0.32	0.17	0.18
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.01
13	NO3-N (mgN/L)	0.30	0.34	0.32	0.17	0.18
14	o-PO4-P (mg P/L)	0.000	0.000		0.047	0.026
15	SiO2 (mg/L)	8.2	6.9		5.6	4.1
16	SO4 (mg/L)	1.1	1.8	2.0	2.0	2.0
	BIOLOGICAL/BACTERIOLOGICAL					
	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)	6	6	4	7	7
2	HAR_Total (mgCaCO3/L)	10	10	7	11	11
3	Na% (%)	34	35	37	30	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.3	0.3	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	68	9.244	11.68	13.5	6.158
2	EC_GEN (µmho/cm)	33	176	256	44	39
3	pH_GEN (pH units)	6.9	7.0	6.9	7.5	7.3
4	TDS (mg/L)					
5	Temp (deg C)	26.3	27.8	27.5	28.3	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8	43	59	15	11
2	B (mg/L)	0.78		0.00	0.05	0.05
3	Ca (mg/L)	3	6	10	3	3
4	Cl (mg/L)	3.9	37.9	52.6	3.5	5.0
5	F (mg/L)	0.04	0.06	0.54	0.00	0.02
6	Fe (mg/L)	0.1	0.1	0.0	0.1	0.4
7	HCO3 (mg/L)	10	52	72	18	14
8	K (mg/L)	0.4	1.8	7.5	0.8	0.4
9	Mg (mg/L)	1.0	2.9	5.5	1.9	1.5
10	Na (mg/L)	2.0	31.4	37.9	2.5	3.0
11	NO2+NO3 (mg N/L)	0.33	0.00	0.00	0.30	0.32
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.33	0.00	0.00	0.29	0.32
14	o-PO4-P (mg P/L)	0.088	0.000	0.000	0.036	0.031
15	SiO2 (mg/L)	8.2	9.0	5.7	9.9	9.3
16	SO4 (mg/L)	1.4	1.6	0.0	0.5	0.6
	BIOLOGICAL/BACTERIOLOGICAL					
	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	14	26	8	8
2	HAR_Total (mgCaCO3/L)	11	26	49	16	14
3	Na% (%)	28	69	59	25	31
4	RSC (-)	0.0	0.3	0.2	0.0	0.0
5	SAR (-)	0.3	2.9	2.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	13.04	19.54	15.02	12.16	9.764
2	EC_GEN (µmho/cm)	35	32	34	53	36
3	pH_GEN (pH units)	7.0	6.8	6.3	7.4	6.6
4	TDS (mg/L)					
5	Temp (deg C)	28.3	25.0	27.0	24.8	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	10	8	15	11
2	B (mg/L)	0.04	0.04			0.01
3	Ca (mg/L)	2	2	3	4	2
4	Cl (mg/L)	4.8	3.9	5.3	5.7	3.9
5	F (mg/L)	0.03	0.02		0.04	0.26
6	Fe (mg/L)	0.1	0.5	0.1		0.2
7	HCO3 (mg/L)	12	12	10	18	13
8	K (mg/L)	0.5	0.4	0.5	0.5	0.4
9	Mg (mg/L)	1.9	1.5	1.0	1.9	1.2
10	Na (mg/L)	2.6	2.6	2.3	3.5	2.8
11	NO2+NO3 (mg N/L)	0.25	0.30	0.29	0.36	0.29
12	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	0.00
13	NO3-N (mgN/L)	0.25	0.29	0.29	0.36	0.29
14	o-PO4-P (mg P/L)	0.005	0.005	0.000		0.026
15	SiO2 (mg/L)	8.3	7.8	6.8		7.7
16	SO4 (mg/L)	0.9	1.6	1.5	1.8	1.4
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)			0.1		
2	Cd (µg/L)			0.3		
3	Cr (µg/L)			2.0		
4	Cu (µg/L)			6.1		
5	Ni (µg/L)			3.7		
6	Pb (µg/L)			0.1		
7	Zn (µg/L)			14.2		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	4	5	8	9	6
2	HAR_Total (mgCaCO3/L)	12	11	12	17	11
3	Na% (%)	30	34	29	30	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	11.55	30.41	No Flow	0.148	1.046
2	EC_GEN (µmho/cm)	37	32		193	51
3	pH_GEN (pH units)	7.2	7.0		6.9	7.1
4	TDS (mg/L)		18			
5	Temp (deg C)	26.0	23.8		27.8	29.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	7		50	17
2	B (mg/L)	0.10	0.22		0.00	0.04
3	Ca (mg/L)	3	2		6	3
4	Cl (mg/L)	3.9	4.8		35.3	4.4
5	F (mg/L)	0.06	0.04		0.40	0.03
6	Fe (mg/L)	0.1	0.1		0.0	0.1
7	HCO3 (mg/L)	13	9		62	21
8	K (mg/L)	1.2	0.8		19.2	1.0
9	Mg (mg/L)	1.2	1.5		2.9	2.4
10	Na (mg/L)	2.2	2.3		24.0	3.0
11	NO2+NO3 (mg N/L)	0.21	0.26		0.00	0.33
12	NO2-N (mgN/L)	0.01	0.00		0.00	0.02
13	NO3-N (mgN/L)	0.20	0.26		0.00	0.31
14	o-PO4-P (mg P/L)	0.005	0.155		0.000	0.083
15	SiO2 (mg/L)	10.1	6.2		7.5	9.9
16	SO4 (mg/L)	2.5	2.0		0.0	0.6
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)		0.3		4.1	14.1
2	Cd (µg/L)	0.1	0.0		14.0	1.2
3	Cr (µg/L)	0.2	0.1			
4	Cu (µg/L)	3.6	0.1		2.5	3.4
5	Ni (µg/L)	4.6	0.0			
6	Pb (µg/L)	0.7	0.4		2.2	2.0
7	Zn (µg/L)	10.7	0.1		60.0	34.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	5		16	8
2	HAR_Total (mgCaCO3/L)	13	11		28	18
3	Na% (%)	24	29		48	26
4	RSC (-)	0.0	0.0		0.5	0.0
5	SAR (-)	0.3	0.3		2.0	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.531	0.586	0.084
2	EC_GEN (µmho/cm)		47	49	67
3	pH_GEN (pH units)		6.8	6.3	6.8
4	TDS (mg/L)				
5	Temp (deg C)		28.0	28.0	27.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)		16	13	17
2	B (mg/L)		0.02	0.02	
3	Ca (mg/L)		3	3	3
4	Cl (mg/L)		5.8	6.0	10.6
5	F (mg/L)		0.04	0.02	0.02
6	Fe (mg/L)		0.1	0.0	
7	HCO3 (mg/L)		19	16	21
8	K (mg/L)		0.7	0.9	0.9
9	Mg (mg/L)		1.9	1.5	2.9
10	Na (mg/L)		3.8	4.0	5.6
11	NO2+NO3 (mg N/L)		0.28	0.32	0.38
12	NO2-N (mgN/L)		0.00	0.00	0.00
13	NO3-N (mgN/L)		0.28	0.32	0.38
14	o-PO4-P (mg P/L)		0.010	0.010	
15	SiO2 (mg/L)		8.5	10.5	
16	SO4 (mg/L)		1.0	3.0	1.7
	BIOLOGICAL/BACTERIOLOGICAL				
	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	8
2	HAR_Total (mgCaCO3/L)		16	14	20
3	Na% (%)		33	37	37
4	RSC (-)		0.0	0.0	0.0
5	SAR (-)		0.4	0.5	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : YENNEHOLE (WS000Q1)

Division : Cauvery Division, Bangalore

Local River : Yennehole

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	No Flow	No Flow	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				
	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	: 2015-2016
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	- 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 : 2015-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015	
		A	A	A	
	PHYSICAL				Water samples are not received for the months Jan - May 2016 because of no flow condition
1	Q (cumec)	83.51	31.43	143.7	
2	Colour_Cod (-)	Clear	Clear	Brown	
3	EC_GEN (µmho/cm)	45	42	37	
4	Odour_Code (-)	odour free	odour free	odour free	
5	pH_GEN (pH units)	6.7	6.6	6.5	
6	Temp (deg C)	25.0	26.5	26.5	
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	14	10	9	
3	B (mg/L)	0.06	1.53	0.28	
4	Ca (mg/L)	3	2	2	
5	Cl (mg/L)	5.0	6.0	4.6	
6	CO3 (mg/L)	0.0	0.0	0.0	
7	F (mg/L)	0.02	0.06	0.25	
8	Fe (mg/L)	0.3	0.1	0.1	
9	HCO3 (mg/L)	16	12	11	
10	K (mg/L)	0.7	0.5	0.7	
11	Mg (mg/L)	1.5	1.9	1.5	
12	Na (mg/L)	3.3	2.9	2.5	
13	NO2+NO3 (mg N/L)	0.39	0.36	0.31	
14	NO2-N (mgN/L)	0.00	0.00	0.00	
15	NO3-N (mgN/L)	0.39	0.36	0.31	
16	o-PO4-P (mg P/L)	0.021	0.165	0.207	
17	SiO2 (mg/L)	6.2	9.3	15.0	
18	SO4 (mg/L)	2.2	1.9	2.0	
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	6	6	
2	HAR_Total (mgCaCO3/L)	14	14	12	
3	Na% (%)	33	30	30	
4	RSC (-)	0.0	0.0	0.0	
5	SAR (-)	0.4	0.3	0.3	
	PESTICIDES				

Water Quality Summary for the period : 2015-2016

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)	366	903.5	0.000	51.07
2	EC_GEN (µmho/cm)	3	45	37	41
3	pH_GEN (pH units)	3	6.7	6.5	6.6
4	Temp (deg C)	3	26.5	25.0	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	3	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	3	14	9	11
3	B (mg/L)	3	1.53	0.06	0.62
4	Ca (mg/L)	3	3	2	3
5	Cl (mg/L)	3	6.0	4.6	5.2
6	CO3 (mg/L)	3	0.0	0.0	0
7	F (mg/L)	3	0.25	0.02	0.11
8	Fe (mg/L)	3	0.3	0.1	0.2
9	HCO3 (mg/L)	3	16	11	13
10	K (mg/L)	3	0.7	0.5	0.6
11	Mg (mg/L)	3	1.9	1.5	1.6
12	Na (mg/L)	3	3.3	2.5	2.9
13	NO2+NO3 (mg N/L)	3	0.39	0.31	0.35
14	NO2-N (mgN/L)	3	0.00	0.00	0
15	NO3-N (mgN/L)	3	0.39	0.31	0.35
16	o-PO4-P (mg P/L)	3	0.207	0.021	0.131
17	SiO2 (mg/L)	3	15.0	6.2	10.2
18	SO4 (mg/L)	3	2.2	1.9	2
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	3	8	6	7
2	HAR_Total (mgCaCO3/L)	3	14	12	13
3	Na% (%)	3	33	30	31
4	RSC (-)	3	0.0	0.0	0
5	SAR (-)	3	0.4	0.3	0.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	121.2	304.1	268.4	286.8	131.9
2	EC_GEN (µmho/cm)	177	136	44	51	39
3	pH_GEN (pH units)	6.9	6.9	7.3	7.2	7.1
4	Temp (deg C)	25.8	23.8	23.5	25.8	
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	39		11	8	12
2	B (mg/L)		0.00	0.00		0.00
3	Ca (mg/L)	4	4	2	4	2
4	Cl (mg/L)	31.5	26.2	5.0	5.9	5.0
5	F (mg/L)	0.36	0.28	0.00	0.00	0.00
6	Fe (mg/L)	0.1	0.0	0.2		0.2
7	HCO3 (mg/L)	48	34	14	14	12
8	K (mg/L)	4.6	5.8	0.9	0.5	0.5
9	Mg (mg/L)	4.9	1.5	1.9	1.9	1.9
10	Na (mg/L)	25.4	21.3	3.1	3.5	2.5
11	NO2+NO3 (mg N/L)	0.00	0.00	0.38	0.51	0.35
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.01	0.00
13	NO3-N (mgN/L)	0.00	0.00	0.38	0.50	0.35
14	o-PO4-P (mg P/L)	0.000	0.000	0.129		0.000
15	SiO2 (mg/L)	6.0	28.2	11.1		7.9
16	SO4 (mg/L)	2.4	0.9	1.2	2.1	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
	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	6	10	6
2	HAR_Total (mgCaCO3/L)	30	16	14	18	14
3	Na% (%)	59	68	31	29	27
4	RSC (-)	0.2	0.3	0.0	0.0	0.0
5	SAR (-)	2.2	2.4	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	190.7	325.7	282.3	179.5	206.5
2	EC_GEN (µmho/cm)	69	40	39	39	35
3	pH_GEN (pH units)	6.5	6.6	6.6	6.7	6.9
4	Temp (deg C)	25.5	23.8	24.3	27.0	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19	8	11	9	8
2	B (mg/L)				0.00	0.00
3	Ca (mg/L)	5	2	2	3	2
4	Cl (mg/L)	10.5	6.0	3.9	5.0	3.9
5	F (mg/L)	0.02	0.00	0.04	0.02	0.06
6	Fe (mg/L)	0.1	0.0		0.1	0.1
7	HCO3 (mg/L)	24	10	13	11	10
8	K (mg/L)	1.3	0.5	0.8	0.5	0.5
9	Mg (mg/L)	3.4	1.9	1.7	1.2	1.5
10	Na (mg/L)	4.1	2.5	2.9	2.8	2.7
11	NO2+NO3 (mg N/L)	0.39	0.35	0.50	0.34	0.39
12	NO2-N (mgN/L)	0.00	0.01	0.01	0.01	0.01
13	NO3-N (mgN/L)	0.39	0.34	0.48	0.33	0.38
14	o-PO4-P (mg P/L)	0.000	0.000		0.041	0.021
15	SiO2 (mg/L)	8.3			3.5	5.5
16	SO4 (mg/L)	1.2	2.4	2.7	2.4	2.1
	BIOLOGICAL/BACTERIOLOGICAL					
	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)	12	6	6	7	6
2	HAR_Total (mgCaCO3/L)	26	14	13	12	12
3	Na% (%)	25	27	32	32	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.4	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	57.47	36.06	34.19	22.02	30.53
2	EC_GEN (µmho/cm)	44	264	235	46	42
3	pH_GEN (pH units)	6.7	6.8	7.3	7.2	7.0
4	Temp (deg C)	25.8	26.0	25.0	24.5	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	46		14	11
2	B (mg/L)	0.79		0.00	0.05	0.05
3	Ca (mg/L)	3	9	6	3	3
4	Cl (mg/L)	5.5	51.5	54.2	4.2	6.0
5	F (mg/L)	0.04	0.34	0.27	0.04	0.02
6	Fe (mg/L)	0.2	0.2	0.0	0.1	0.1
7	HCO3 (mg/L)	14	56	57	17	13
8	K (mg/L)	0.6	0.8	3.5	1.2	0.8
9	Mg (mg/L)	1.7	3.8	2.9	1.9	1.0
10	Na (mg/L)	3.1	41.4	45.3	2.8	3.2
11	NO2+NO3 (mg N/L)	0.38	0.00	0.00	0.45	0.42
12	NO2-N (mgN/L)	0.00	0.00	0.00	0.03	0.01
13	NO3-N (mgN/L)	0.38	0.00	0.00	0.42	0.41
14	o-PO4-P (mg P/L)	0.093	0.000	0.000	0.010	0.021
15	SiO2 (mg/L)	7.8	5.4	20.4	12.5	0.3
16	SO4 (mg/L)	2.0	1.2	1.3	0.8	0.7
	BIOLOGICAL/BACTERIOLOGICAL					
	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	24	16	8	8
2	HAR_Total (mgCaCO3/L)	14	40	28	16	12
3	Na% (%)	31	69	76	26	35
4	RSC (-)	0.0	0.1	0.4	0.0	0.0
5	SAR (-)	0.4	2.9	3.8	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	2.083	36.05	25.24	39.27	55.86
2	EC_GEN (µmho/cm)	36	36	37	43	46
3	pH_GEN (pH units)	7.1	6.9	6.2	6.9	6.8
4	Temp (deg C)	25.5	25.0	26.0	23.0	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	8		9	11	14
2	B (mg/L)	0.05				0.01
3	Ca (mg/L)	3	2	3	2	4
4	Cl (mg/L)	5.8	6.0	4.3	3.9	3.9
5	F (mg/L)	0.02	0.02			0.04
6	Fe (mg/L)	0.1	0.1	0.1		0.1
7	HCO3 (mg/L)	10	9	11	13	17
8	K (mg/L)	0.5	0.6	0.7	0.6	0.8
9	Mg (mg/L)	1.0	1.7	1.0	1.9	1.0
10	Na (mg/L)	3.1	2.2	3.0	3.0	3.7
11	NO2+NO3 (mg N/L)	0.27	0.31	0.31	0.41	0.56
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.00	0.00
13	NO3-N (mgN/L)	0.27	0.31	0.29	0.41	0.56
14	o-PO4-P (mg P/L)	0.000	0.000	0.000		0.021
15	SiO2 (mg/L)	9.3	8.4			7.7
16	SO4 (mg/L)	1.0	1.4	2.4	3.0	2.2
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)			0.3		
2	Cd (µg/L)			0.2		
3	Cr (µg/L)			2.5		
4	Cu (µg/L)			50.5		
5	Ni (µg/L)			3.8		
6	Pb (µg/L)			0.2		
7	Zn (µg/L)			91.9		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	5	8	6	10
2	HAR_Total (mgCaCO3/L)	12	13	12	14	14
3	Na% (%)	35	27	34	31	35
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: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	5.822	143.7			
2	EC_GEN (µmho/cm)	43	37			
3	pH_GEN (pH units)	7.2	6.5			
4	Temp (deg C)	25.0	26.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	9			
2	B (mg/L)	0.16	0.28			
3	Ca (mg/L)	3	2			
4	Cl (mg/L)	6.0	4.6			
5	F (mg/L)	0.10	0.25			
6	Fe (mg/L)	0.0	0.1			
7	HCO3 (mg/L)	12	11			
8	K (mg/L)	1.4	0.7			
9	Mg (mg/L)	1.9	1.5			
10	Na (mg/L)	2.5	2.5			
11	NO2+NO3 (mg N/L)	0.36	0.31			
12	NO2-N (mgN/L)	0.01	0.00			
13	NO3-N (mgN/L)	0.35	0.31			
14	o-PO4-P (mg P/L)	0.010	0.207			
15	SiO2 (mg/L)	6.6	15.0			
16	SO4 (mg/L)	2.4	2.0			
	BIOLOGICAL/BACTERIOLOGICAL					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)	0.2				
3	Cr (µg/L)	22.1				
4	Cu (µg/L)	6.3				
5	Ni (µg/L)	0.2				
6	Pb (µg/L)	3.4				
7	Zn (µg/L)	11.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	6			
2	HAR_Total (mgCaCO3/L)	16	12			
3	Na% (%)	23	30			
4	RSC (-)	0.0	0.0			
5	SAR (-)	0.3	0.3			
	PESTICIDES					

No Flow

No Flow

No Flow

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL	No Flow	No Flow	No Flow	No Flow
1	Q (cumec)				
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	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				
	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: 2005-2016

Station Name : ADDOOR (WG000E8)

Division : Cauvery Division, Bangalore

Local River : Gurpur

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL	No Flow	No Flow	No Flow	No Flow
1	Q (cumec)				
2	EC_GEN (µmho/cm)				
3	pH_GEN (pH units)				
4	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				
	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	: 2015-2016
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 : 2015-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water Analysis

S.No	Parameters	01/07/2015	01/09/2015	02/11/2015	01/01/2016	
		A	A	A	A	
	PHYSICAL					
1	Q (cumec)	407.4	277.7	657.1	177.4	
2	Colour_Cod (-)	Light Brown	Clear	Light Brown	Clear	
3	EC_GEN (µmho/cm)	46	43	42	53	
4	Odour_Code (-)	odour free	odour free	odour free	odour free	
5	pH_GEN (pH units)	7.2	6.9	7.0	7.2	
6	TDS (mg/L)				25	
7	Temp (deg C)	28.0	28.5	27.0	28.0	
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	14	12	11	15	
3	B (mg/L)	0.09	1.54	0.19	0.14	
4	Ca (mg/L)	3	3	5	5	
5	Cl (mg/L)	5.0	5.0	4.6	6.4	
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	
7	F (mg/L)	0.04	0.08	0.06	0.06	
8	Fe (mg/L)	0.1	0.1	0.1	0.0	
9	HCO3 (mg/L)	16	14	13	19	
10	K (mg/L)	0.7	0.6	1.3	0.9	
11	Mg (mg/L)	1.9	1.5	0.0	1.5	
12	Na (mg/L)	2.5	2.8	3.9	3.2	
13	NO2+NO3 (mg N/L)	0.46	0.34	0.42	0.29	
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	
15	NO3-N (mgN/L)	0.46	0.34	0.42	0.29	
16	o-PO4-P (mg P/L)	0.041	0.145	0.145	0.093	
17	SiO2 (mg/L)	9.6	8.9	6.8	12.0	
18	SO4 (mg/L)	2.2	2.0	2.1	2.2	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)		0.9	0.6	0.4	
2	DO (mg/L)	6.3	6.1	6.0	6.3	
3	DO_SAT% (%)	80	79	76	80	
	TRACE & TOXIC					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	8	12	12	
2	HAR_Total (mgCaCO3/L)	16	14	12	18	
3	Na% (%)	24	29	38	27	
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.3	0.3	0.5	0.3	
	PESTICIDES					

Water sample is not collected for May 2016.

Water Quality Summary for the period : 2015-2016

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)	366	2159	0.000	222.9
2	EC_GEN (µmho/cm)	4	53	42	46
3	pH_GEN (pH units)	4	7.2	6.9	7.1
4	TDS (mg/L)	1	25	25	25
5	Temp (deg C)	4	28.5	27.0	27.9
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	4	15	11	13
3	B (mg/L)	4	1.54	0.09	0.49
4	Ca (mg/L)	4	5	3	4
5	Cl (mg/L)	4	6.4	4.6	5.2
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	19	13	16
10	K (mg/L)	4	1.3	0.6	0.9
11	Mg (mg/L)	4	1.9	0.0	1.2
12	Na (mg/L)	4	3.9	2.5	3.1
13	NO2+NO3 (mg N/L)	4	0.46	0.29	0.38
14	NO2-N (mgN/L)	4	0.00	0.00	0
15	NO3-N (mgN/L)	4	0.46	0.29	0.38
16	o-PO4-P (mg P/L)	4	0.145	0.041	0.106
17	SiO2 (mg/L)	4	12.0	6.8	9.3
18	SO4 (mg/L)	4	2.2	2.0	2.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3	0.9	0.4	0.6
2	DO (mg/L)	4	6.3	6.0	6.2
3	DO_SAT% (%)	4	80	76	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	12	8	10
2	HAR_Total (mgCaCO3/L)	4	18	12	15
3	Na% (%)	4	38	24	30
4	RSC (-)	4	0.0	0.0	0
5	SAR (-)	4	0.5	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	908.1	Water Quality observation suspended because of Rationalization of H.O. Net works.	Water Quality observation suspended because of Rationalization of H.O. Net works.	516.7	724.2
2	EC_GEN (µmho/cm)	127			51	50
3	pH_GEN (pH units)	6.9			7.2	7.1
4	TDS (mg/L)					
5	Temp (deg C)	26.0			24.0	27.9
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18			13	15
2	B (mg/L)					0.00
3	Ca (mg/L)	3			4	4
4	Cl (mg/L)	29.0			5.8	5.0
5	F (mg/L)	0.53			0.04	0.02
6	Fe (mg/L)	0.2				0.3
7	HCO3 (mg/L)	23			16	19
8	K (mg/L)	4.0			1.3	1.1
9	Mg (mg/L)	1.0			1.5	1.5
10	Na (mg/L)	24.1			3.5	3.5
11	NO2+NO3 (mg N/L)	0.00			0.36	0.48
12	NO2-N (mgN/L)	0.00			0.04	0.03
13	NO3-N (mgN/L)	0.00			0.32	0.45
14	o-PO4-P (mg P/L)	0.000				0.005
15	SiO2 (mg/L)	6.9				10.9
16	SO4 (mg/L)	5.0			1.6	1.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7			0.8	1.0
2	DO (mg/L)	7.3			7.5	6.3
3	DO_SAT% (%)	89			89	80
	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			10	10
2	HAR_Total (mgCaCO3/L)	12			16	16
3	Na% (%)	69			31	31
4	RSC (-)	0.1			0.0	0.0
5	SAR (-)	3.0			0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	854.7	1331	1074	1162	642.5
2	EC_GEN (µmho/cm)	44	36	42	45	45
3	pH_GEN (pH units)	7.1	6.5	6.9	6.9	7.1
4	TDS (mg/L)					
5	Temp (deg C)	26.5	25.0	25.5	26.0	26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	8	11	11	12
2	B (mg/L)				0.00	0.02
3	Ca (mg/L)	3	2	3	4	3
4	Cl (mg/L)	5.8	3.9	3.9	5.5	5.0
5	F (mg/L)	0.06	0.03	0.04	0.20	0.21
6	Fe (mg/L)	0.1	0.1		0.1	0.1
7	HCO3 (mg/L)	14	12	13	14	15
8	K (mg/L)	0.8	0.6	0.9	0.6	2.8
9	Mg (mg/L)	1.9	1.9	1.5	1.7	1.0
10	Na (mg/L)	3.0	2.1	3.2	2.7	3.5
11	NO2+NO3 (mg N/L)	0.45	0.41	0.61	0.28	0.26
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.01	0.00
13	NO3-N (mgN/L)	0.45	0.41	0.60	0.27	0.26
14	o-PO4-P (mg P/L)	0.005	0.000		0.041	0.026
15	SiO2 (mg/L)	11.1	9.1		10.5	3.6
16	SO4 (mg/L)	1.7	2.9	3.7	2.5	2.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.4	0.2	0.5
2	DO (mg/L)	6.7		6.6	7.0	6.4
3	DO_SAT% (%)	83		79	86	79
	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	6	8	9	7
2	HAR_Total (mgCaCO3/L)	16	14	14	16	11
3	Na% (%)	28	24	31	26	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.2	0.4	0.3	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	342.6	257.9	Water Quality observation suspended because of Rationalization of H.O. Net works.	Water Quality observation suspended because of Rationalization of H.O. Net works.	160.4
2	EC_GEN (µmho/cm)	45	176			49
3	pH_GEN (pH units)	7.1	6.8			7.4
4	TDS (mg/L)					
5	Temp (deg C)	28.3	26.5			25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	13	29			15
2	B (mg/L)	0.81				0.08
3	Ca (mg/L)	3	11			5
4	Cl (mg/L)	5.0	37.9			6.0
5	F (mg/L)	0.06	0.42			0.04
6	Fe (mg/L)	0.1	0.2			0.1
7	HCO3 (mg/L)	15	35			18
8	K (mg/L)	0.6	0.5			0.8
9	Mg (mg/L)	1.7	0.5			1.0
10	Na (mg/L)	2.7	30.8			3.5
11	NO2+NO3 (mg N/L)	0.40	0.00			0.34
12	NO2-N (mgN/L)	0.00	0.00			0.01
13	NO3-N (mgN/L)	0.40	0.00			0.32
14	o-PO4-P (mg P/L)	0.093	0.000			0.031
15	SiO2 (mg/L)	9.3				12.3
16	SO4 (mg/L)	2.1	6.4			0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.5			0.1
2	DO (mg/L)	6.2	6.9			6.4
3	DO_SAT% (%)	79	85			78
	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	28			12
2	HAR_Total (mgCaCO3/L)	15	30			16
3	Na% (%)	27	69			31
4	RSC (-)	0.0	0.0			0.0
5	SAR (-)	0.3	2.5			0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	164.5	179.6	97.42	85.56	221.5
2	EC_GEN (µmho/cm)	43	45	50	51	44
3	pH_GEN (pH units)	7.3	6.9	6.6	7.0	6.9
4	TDS (mg/L)					
5	Temp (deg C)	30.0	25.5	29.0	27.5	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	12	13	14	14
2	B (mg/L)	0.04	0.03			0.00
3	Ca (mg/L)	3	4	3	5	3
4	Cl (mg/L)	5.8	6.0	6.2	5.7	5.0
5	F (mg/L)	0.02	0.02		0.04	0.04
6	Fe (mg/L)	0.1	0.1	0.1		0.1
7	HCO3 (mg/L)	14	14	15	17	17
8	K (mg/L)	0.5	1.2	0.7	0.7	0.7
9	Mg (mg/L)	1.9	1.0	1.9	1.5	1.9
10	Na (mg/L)	3.0	3.8	3.4	3.3	3.0
11	NO2+NO3 (mg N/L)	0.25	0.42	0.48	0.48	0.42
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.01	0.00
13	NO3-N (mgN/L)	0.25	0.42	0.47	0.47	0.42
14	o-PO4-P (mg P/L)	0.000	0.000	0.010		0.010
15	SiO2 (mg/L)	10.8	11.3	9.7		8.0
16	SO4 (mg/L)	1.1	2.4	2.5	2.2	1.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6		0.8	0.7	0.4
2	DO (mg/L)	6.8	7.0	7.5	6.8	6.0
3	DO_SAT% (%)	90	85	99	86	75
	TRACE & TOXIC					
1	As (µg/L)			0.3	8.2	
2	Cd (µg/L)			0.3	0.0	
3	Cr (µg/L)			2.5	0.1	
4	Cu (µg/L)			20.6	0.6	
5	Ni (µg/L)			8.0	5.4	
6	Pb (µg/L)			0.5		
7	Zn (µg/L)			8.6		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	10	8	12	8
2	HAR_Total (mgCaCO3/L)	16	14	16	18	16
3	Na% (%)	28	35	30	27	28
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: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	163	417.2	Water Quality observation suspended because of Rationalization of H.O. Net works.	Water Quality observation suspended because of Rationalization of H.O. Net works.	No Flow
2	EC_GEN (µmho/cm)	49	48			
3	pH_GEN (pH units)	7.4	7.1			
4	TDS (mg/L)		25			
5	Temp (deg C)	29.0	27.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	13			
2	B (mg/L)	0.02	0.16			
3	Ca (mg/L)	4	5			
4	Cl (mg/L)	6.0	5.5			
5	F (mg/L)	0.04	0.06			
6	Fe (mg/L)	0.1	0.1			
7	HCO3 (mg/L)	17	16			
8	K (mg/L)	1.5	1.1			
9	Mg (mg/L)	1.5	0.7			
10	Na (mg/L)	2.7	3.6			
11	NO2+NO3 (mg N/L)	0.32	0.36			
12	NO2-N (mgN/L)	0.01	0.00			
13	NO3-N (mgN/L)	0.31	0.36			
14	o-PO4-P (mg P/L)	0.010	0.119			
15	SiO2 (mg/L)	3.1	9.4			
16	SO4 (mg/L)	2.2	2.1			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3	0.5			
2	DO (mg/L)	7.3	6.2			
3	DO_SAT% (%)	96	78			
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	0.3				
4	Cu (µg/L)	3.1				
5	Ni (µg/L)	0.0				
6	Pb (µg/L)	1.5				
7	Zn (µg/L)	8.0				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	12			
2	HAR_Total (mgCaCO3/L)	16	15			
3	Na% (%)	25	33			
4	RSC (-)	0.0	0.0			
5	SAR (-)	0.3	0.4			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)			7.522	5.012
2	EC_GEN (µmho/cm)			66	68
3	pH_GEN (pH units)			6.8	6.8
4	TDS (mg/L)				
5	Temp (deg C)			27.3	29.8
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			26	22
2	B (mg/L)			0.03	
3	Ca (mg/L)			4	5
4	Cl (mg/L)			3.9	7.1
5	F (mg/L)			0.11	0.03
6	Fe (mg/L)			0.0	
7	HCO3 (mg/L)			30	27
8	K (mg/L)			1.1	1.2
9	Mg (mg/L)			3.4	2.9
10	Na (mg/L)			3.7	3.9
11	NO2+NO3 (mg N/L)			0.41	0.51
12	NO2-N (mgN/L)			0.00	0.00
13	NO3-N (mgN/L)			0.41	0.51
14	o-PO4-P (mg P/L)			0.005	
15	SiO2 (mg/L)			26.1	
16	SO4 (mg/L)			2.3	1.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				0.4
2	DO (mg/L)			6.4	6.2
3	DO_SAT% (%)			81	80
	TRACE & TOXIC				
1	As (µg/L)			1.5	0.3
2	Cd (µg/L)				0.4
3	Cr (µg/L)			0.4	3.1
4	Cu (µg/L)			3.9	6.8
5	Ni (µg/L)				5.7
6	Pb (µg/L)			0.4	4.5
7	Zn (µg/L)			8.5	46.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			10	12
2	HAR_Total (mgCaCO3/L)			24	24
3	Na% (%)			24	25
4	RSC (-)			0.0	0.0
5	SAR (-)			0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : BANTWAL (WN000G9)

Division : Cauvery Division, Bangalore

Local River : Netravathi

Sub-Division : SWRSD-III, Mangalore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	1.478			
2	EC_GEN (µmho/cm)	67			
3	pH_GEN (pH units)	7.3			
4	TDS (mg/L)				
5	Temp (deg C)	30.8			
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	20			
2	B (mg/L)	0.00			
3	Ca (mg/L)	6			
4	Cl (mg/L)	6.2			
5	F (mg/L)				
6	Fe (mg/L)	0.1			
7	HCO3 (mg/L)	24			
8	K (mg/L)	1.1			
9	Mg (mg/L)	1.9			
10	Na (mg/L)	4.3			
11	NO2+NO3 (mg N/L)	0.85			
12	NO2-N (mgN/L)	0.00			
13	NO3-N (mgN/L)	0.85			
14	o-PO4-P (mg P/L)	0.021			
15	SiO2 (mg/L)	7.4			
16	SO4 (mg/L)	2.6			
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6			
2	DO (mg/L)	6.3			
3	DO_SAT% (%)	85			
	TRACE & TOXIC				
1	As (µg/L)	3.8			
2	Cd (µg/L)	0.0			
3	Cr (µg/L)				
4	Cu (µg/L)	1.1			
5	Ni (µg/L)				
6	Pb (µg/L)	1.2			
7	Zn (µg/L)	3.0			
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14			
2	HAR_Total (mgCaCO3/L)	22			
3	Na% (%)	28			
4	RSC (-)	0.0			
5	SAR (-)	0.4			
	PESTICIDES				

No Flow

No Flow

No Flow

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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.)	20/07/1984	31/05/1985
	: 1.910 (Arb.)	01/06/1985	31/03/1989
	: 9.100 (m.s.l.)	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 : 2015-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.012	106.2	117.2
2	Colour_Cod (-)	Clear	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	85	40	22
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.6	6.3	6.1
6	Temp (deg C)	30.5	25.5	26.0
	CHEMICAL			
1	Ca (mg/L)	6	6	8
2	Cl (mg/L)	5.2	5.2	15.6
3	Fe (mg/L)			
4	HCO3 (mg/L)	26	34	37
5	K (mg/L)			
6	Mg (mg/L)	1.9	2.9	3.8
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.6	0.8
2	DO (mg/L)	6.2	6.8	6.2
3	DO_SAT% (%)	82	82	76
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16	16	20
2	HAR_Total (mgCaCO3/L)	24	28	35
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	35.10	2.651	0.000
2	Colour_Cod (-)	Clear	Clear	
3	EC_GEN (µmho/cm)	25	74	
4	Odour_Code (-)	odour free	odour free	
5	pH_GEN (pH units)	5.8	8.2	
6	Temp (deg C)	27.0	28.0	
	CHEMICAL			
1	Ca (mg/L)	5	8	
2	Cl (mg/L)	13.0	30.0	
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	37	79	
5	K (mg/L)	0.1	0.1	
6	Mg (mg/L)	1.0	3.8	
7	Na (mg/L)	7.2	9.6	
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.6	
2	DO (mg/L)	7.2	7.2	
3	DO_SAT% (%)	90	92	
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	20	
2	HAR_Total (mgCaCO3/L)	16	35	
3	Na% (%)	50	37	
4	SAR (-)	0.8	0.7	
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	772.9	0.000	55.82
2	EC_GEN (µmho/cm)	5	85	22	49
3	pH_GEN (pH units)	5	8.2	5.8	6.6
4	Temp (deg C)	6	30.5	25.0	27
	CHEMICAL				
1	Ca (mg/L)	5	8	5	7
2	Cl (mg/L)	5	30.0	5.2	13.8
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	5	79	26	43
5	K (mg/L)	2	0.1	0.1	0.1
6	Mg (mg/L)	5	3.8	1.0	2.7
7	Na (mg/L)	2	9.6	7.2	8.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	5	1.6	0.6	0.9
2	DO (mg/L)	5	7.2	6.2	6.7
3	DO_SAT% (%)	5	92	76	85
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	5	20	12	16
2	HAR_Total (mgCaCO ₃ /L)	5	35	16	28
3	Na% (%)	2	50	37	43
4	SAR (-)	2	0.8	0.7	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ERINJIPUZA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	185.4	140.7	108.1	145.9	188.3
2	EC_FLD (µmho/cm)		42	39	39	39
3	EC_GEN (µmho/cm)	52	41	52	53	45
4	pH_FLD (pH units)	6.8	6.9	6.9	6.9	7.0
5	pH_GEN (pH units)	7.1	6.9	7.0	6.9	7.0
6	TDS (mg/L)	39	33	42	41	27
7	Temp (deg C)	25.5	25.3	26.7	26.2	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	21	13	16	17	15
2	B (mg/L)	0.05	0.02	0.01	0.10	0.00
3	Ca (mg/L)	5	4	5	4	5
4	Cl (mg/L)	7.5	7.1	8.8	7.3	6.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.13	0.10	0.22	0.05	0.14
7	Fe (mg/L)				0.2	0.0
8	HCO3 (mg/L)	26	16	20	20	18
9	K (mg/L)	1.0	0.7	0.8	0.7	0.9
10	Mg (mg/L)	3.7	2.2	3.0	2.3	1.1
11	Na (mg/L)	4.1	3.5	4.2	3.8	3.4
12	NH3-N (mg N/L)				0.14	0.23
13	NO2+NO3 (mg N/L)	0.59	0.35	2.03	0.33	
14	NO2-N (mgN/L)	0.16	0.04	0.04	0.06	
15	NO3-N (mgN/L)	0.42	0.31	1.99	0.20	
16	o-PO4-P (mg P/L)			0.144	0.021	0.057
17	P-Tot (mgP/L)	0.081	0.116	0.144	0.027	
18	SiO2 (mg/L)	8.7	7.9	20.6	23.7	24.1
19	SO4 (mg/L)	4.1	1.5	1.4	2.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.5	0.9	0.5	0.5
2	COD (mg/L)	2.1	3.9	7.1	3.8	4.6
3	DO (mg/L)	6.9	8.0	7.5	7.2	7.9
4	DO_SAT% (%)	84	97	93	89	94
5	FCol-MPN (MPN/100mL)				880	9
6	Tcol-MPN (MPN/100mL)				1123	170
	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	11	13	10	11
2	HAR_Total (mgCaCO3/L)	28	20	25	19	16
3	Na% (%)	24	27	26	29	31
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: 2005-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	129.3	83.69	54.83	124.9	328.2
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	54	51	53	50	47
4	pH_FLD (pH units)	7.0	7.0			
5	pH_GEN (pH units)	7.1	6.9	6.6	6.6	6.4
6	TDS (mg/L)	33	35	33	30	
7	Temp (deg C)	24.8	26.5	25.2	25.0	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	17	18	18	
2	B (mg/L)	0.23	0.26	0.04	0.03	
3	Ca (mg/L)	4	5	5	5	5
4	Cl (mg/L)	5.9	7.2	7.3	6.9	7.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.16	0.06	0.02	0.19	
7	Fe (mg/L)	0.1	0.1	0.1	0.1	
8	HCO3 (mg/L)	20	21	22	22	19
9	K (mg/L)	0.4	0.8	1.1	0.8	1.0
10	Mg (mg/L)	1.5	1.6	2.6	1.8	2.9
11	Na (mg/L)	3.6	3.9	4.1	3.9	3.1
12	NH3-N (mg N/L)	0.37	0.03	0.04		
13	NO2+NO3 (mg N/L)	0.19	0.14	1.09	0.62	
14	NO2-N (mgN/L)	0.03	0.04	0.01	0.03	
15	NO3-N (mgN/L)	0.16	0.12	1.08	0.59	
16	o-PO4-P (mg P/L)	0.074	0.055	0.251	0.060	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	19.1	15.9	12.0	10.1	
19	SO4 (mg/L)	1.3	0.7	2.0	0.8	2.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.4	0.5	0.6	1.6
2	COD (mg/L)	5.4	2.5	3.0	4.3	
3	DO (mg/L)	7.8	7.1	6.7	5.3	7.1
4	DO_SAT% (%)	95	89	81	64	90
5	FCol-MPN (MPN/100mL)	400	350	1123	1600	
6	Tcol-MPN (MPN/100mL)	1250	1600	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)	11	13	13	13	13
2	HAR_Total (mgCaCO3/L)	17	19	24	20	25
3	Na% (%)	31	29	26	29	23
4	RSC (-)	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: 2005-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	74.80	9.808	15.92	14.16	10.94
2	EC_FLD (µmho/cm)			56		50
3	EC_GEN (µmho/cm)	49	57	62	59	57
4	pH_FLD (pH units)		7.0	6.7	7.0	7.0
5	pH_GEN (pH units)	6.3	7.2	6.6	7.1	7.3
6	TDS (mg/L)		43	49	48	46
7	Temp (deg C)	27.3	25.5	27.0	26.3	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		15	16	17	21
2	B (mg/L)		0.04	0.02	0.05	0.03
3	Ca (mg/L)	7	5	4	5	5
4	Cl (mg/L)	8.7	8.0	8.5	7.1	8.2
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.06	0.14	0.26	0.07
7	Fe (mg/L)				0.7	0.1
8	HCO3 (mg/L)	33	19	20	21	26
9	K (mg/L)		0.8	1.2	0.9	1.0
10	Mg (mg/L)	2.8	2.0	2.5	3.5	3.5
11	Na (mg/L)		4.0	4.5	4.0	4.3
12	NH3-N (mg N/L)				0.15	
13	NO2+NO3 (mg N/L)		1.58	0.32	1.72	0.10
14	NO2-N (mgN/L)		0.04	0.00	0.10	0.01
15	NO3-N (mgN/L)		1.54	0.32	1.62	0.09
16	o-PO4-P (mg P/L)				0.044	0.041
17	P-Tot (mgP/L)		0.343	0.049	0.044	
18	SiO2 (mg/L)		13.5	11.0	15.9	21.8
19	SO4 (mg/L)		1.0	2.3	1.0	1.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.3	0.8	0.6	0.5
2	COD (mg/L)		3.1	5.0	4.8	4.0
3	DO (mg/L)	6.4	6.6	7.0	7.2	6.8
4	DO_SAT% (%)	80	80	87	89	85
5	FCol-MPN (MPN/100mL)				440	500
6	Tcol-MPN (MPN/100mL)				1050	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)	17	13	11	12	12
2	HAR_Total (mgCaCO3/L)	29	21	21	27	26
3	Na% (%)		28	31	24	25
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: 2005-2016

Station Name : ERINJIPUZA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	12.22	22.96	18.66	9.378	14.46
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	52	53	61	56	54
4	pH_FLD (pH units)	7.8	7.0		7.7	
5	pH_GEN (pH units)	7.0	7.0	6.9	6.7	7.0
6	TDS (mg/L)	29	34	40	36	37
7	Temp (deg C)	24.5	21.8	26.5	25.8	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	16	22	17	20
2	B (mg/L)	0.46	0.22	0.18	0.12	0.05
3	Ca (mg/L)	4	3	6	6	6
4	Cl (mg/L)	7.1	6.5	6.0	6.4	7.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.41	0.11	0.15	0.14	0.08
7	Fe (mg/L)	0.1	0.5	1.0	0.0	
8	HCO3 (mg/L)	21	20	27	21	25
9	K (mg/L)	1.6	0.7	0.8	0.9	1.0
10	Mg (mg/L)	2.2	2.5	2.0	1.7	1.8
11	Na (mg/L)	4.1	3.5	3.6	3.9	4.1
12	NH3-N (mg N/L)	0.15	0.05	0.06	0.02	
13	NO2+NO3 (mg N/L)		0.15		0.93	0.52
14	NO2-N (mgN/L)		0.01		0.01	0.01
15	NO3-N (mgN/L)		0.14	1.00	0.93	0.50
16	o-PO4-P (mg P/L)	0.026	0.015	0.650	0.093	0.025
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	27.3	13.3	15.7	14.8	11.8
19	SO4 (mg/L)	1.0	1.0	0.8	1.8	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.1	0.8	1.6	0.5
2	COD (mg/L)	3.5	7.7	3.7	13.5	3.7
3	DO (mg/L)	7.8	7.9	7.1	6.8	7.5
4	DO_SAT% (%)	92	89	88	83	94
5	FCol-MPN (MPN/100mL)	700	425	1050	700	1600
6	Tcol-MPN (MPN/100mL)	1250	1250	1250	1600	1600
	TRACE & TOXIC					
1	As (µg/L)			0.1		
2	Cd (µg/L)			1.0		
3	Cr (µg/L)			114.0		
4	Cu (µg/L)			3.9		
5	Hg (µg/L)					
6	Ni (µg/L)			0.9		
7	Pb (µg/L)			13.9		
8	Zn (µg/L)			1.5		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	9	14	14	15
2	HAR_Total (mgCaCO3/L)	18	19	22	21	22
3	Na% (%)	32	28	25	27	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	12.25	18.88			6.709
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	52	50			93
4	pH_FLD (pH units)					7.0
5	pH_GEN (pH units)	7.1	7.0			6.9
6	TDS (mg/L)					86
7	Temp (deg C)	26.5	27.5			27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					18
2	B (mg/L)					0.11
3	Ca (mg/L)	5	6			6
4	Cl (mg/L)	4.8	21.5			11.2
5	CO3 (mg/L)					0.0
6	F (mg/L)					0.21
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	26	58			22
9	K (mg/L)		0.1			1.0
10	Mg (mg/L)	2.8	2.4			3.0
11	Na (mg/L)		8.4			7.0
12	NH3-N (mg N/L)					0.11
13	NO2+NO3 (mg N/L)					0.92
14	NO2-N (mgN/L)					0.11
15	NO3-N (mgN/L)					0.81
16	o-PO4-P (mg P/L)					0.246
17	P-Tot (mgP/L)					0.246
18	SiO2 (mg/L)					15.7
19	SO4 (mg/L)	1.1				1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	1.2			0.6
2	COD (mg/L)					4.6
3	DO (mg/L)	7.1	7.2			7.0
4	DO_SAT% (%)	88	91			88
5	FCol-MPN (MPN/100mL)					240
6	Tcol-MPN (MPN/100mL)					600
	TRACE & TOXIC					
1	As (µg/L)					4.1
2	Cd (µg/L)	0.0				2.1
3	Cr (µg/L)	0.5				
4	Cu (µg/L)	2.4				3.3
5	Hg (µg/L)					
6	Ni (µg/L)	1.0				
7	Pb (µg/L)	0.3				1.9
8	Zn (µg/L)	13.8				42.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	16			14
2	HAR_Total (mgCaCO3/L)	24	26			27
3	Na% (%)		43			36
4	RSC (-)					0.0
5	SAR (-)		0.7			0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	1.554	0.000	1.740	0.424
2	EC_FLD (µmho/cm)	58			
3	EC_GEN (µmho/cm)	64		89	
4	pH_FLD (pH units)	7.0		7.0	
5	pH_GEN (pH units)	7.1		6.7	
6	TDS (mg/L)	53		55	
7	Temp (deg C)	28.5		26.5	
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	25		22	
2	B (mg/L)	0.10		0.21	
3	Ca (mg/L)	5		5	
4	Cl (mg/L)	6.4		9.2	
5	CO3 (mg/L)	0.0		0.0	
6	F (mg/L)	0.11		0.12	
7	Fe (mg/L)	0.1		0.2	0.0
8	HCO3 (mg/L)	31		27	
9	K (mg/L)	1.8		1.0	
10	Mg (mg/L)	2.5		2.4	
11	Na (mg/L)	4.4		5.0	
12	NH3-N (mg N/L)	0.10		0.05	
13	NO2+NO3 (mg N/L)	0.11		0.28	
14	NO2-N (mgN/L)	0.04		0.02	
15	NO3-N (mgN/L)	0.08		0.26	
16	o-PO4-P (mg P/L)	0.021		0.580	
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	22.4		15.4	
19	SO4 (mg/L)	1.0		1.0	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6		2.4	
2	COD (mg/L)	4.8		11.4	
3	DO (mg/L)	6.0		8.0	
4	DO_SAT% (%)	77		98	
5	FCol-MPN (MPN/100mL)			900	
6	Tcol-MPN (MPN/100mL)			1600	
	TRACE & TOXIC				
1	As (µg/L)			0.9	0.0
2	Cd (µg/L)			0.0	0.0
3	Cr (µg/L)	2.0		8.6	3.1
4	Cu (µg/L)	1.0		3.5	1.8
5	Hg (µg/L)			0.0	
6	Ni (µg/L)	4.9			4.7
7	Pb (µg/L)	1.0		0.4	3.9
8	Zn (µg/L)			11.9	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12		12	
2	HAR_Total (mgCaCO3/L)	22		22	
3	Na% (%)	28		32	
4	RSC (-)	0.1		0.0	
5	SAR (-)	0.4		0.5	
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ERINJIPUZZHA (KP000C3)

Division : SWR Division, Kochi

Local River : Payaswani

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.104	0.000	0.108	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	68		74	
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.0		7.3	
6	TDS (mg/L)	48			
7	Temp (deg C)	31.0		29.0	25.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	26			
2	B (mg/L)	0.05			
3	Ca (mg/L)	11		8	
4	Cl (mg/L)	7.8		5.2	
5	CO3 (mg/L)	0.0			
6	F (mg/L)	0.28			
7	Fe (mg/L)	0.1	0.0		
8	HCO3 (mg/L)	32		26	
9	K (mg/L)	1.9			
10	Mg (mg/L)	1.0		2.8	
11	Na (mg/L)	4.2			
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)	0.79			
14	NO2-N (mgN/L)	0.08			
15	NO3-N (mgN/L)	0.71			
16	o-PO4-P (mg P/L)	0.080			
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	15.2			
19	SO4 (mg/L)	0.8			
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4		2.6	
2	COD (mg/L)	2.8			
3	DO (mg/L)	6.5		6.6	
4	DO_SAT% (%)	87		86	
5	FCol-MPN (MPN/100mL)	220			
6	Tcol-MPN (MPN/100mL)	280			
	TRACE & TOXIC				
1	As (µg/L)	2.8	1.6		
2	Cd (µg/L)	0.0	0.1		
3	Cr (µg/L)	0.4	2.4		
4	Cu (µg/L)	1.4	1.3		
5	Hg (µg/L)				
6	Ni (µg/L)	0.1	4.2		
7	Pb (µg/L)	2.4	0.1		
8	Zn (µg/L)	2.0	2.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	28		20	
2	HAR_Total (mgCaCO3/L)	32		31	
3	Na% (%)	21			
4	RSC (-)	0.0			
5	SAR (-)	0.3			
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	1.956	126.4	85.75
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	67	68	68
4	EC_GEN (µmho/cm)	78	41	40
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.6	7.5
7	pH_GEN (pH units)	6.5	6.2	6.7
8	Temp (deg C)	29.0	25.0	26.5
	CHEMICAL			
1	Ca (mg/L)	5	6	8
2	Cl (mg/L)	9.1	23.5	16.9
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	24	16	26
5	K (mg/L)			
6	Mg (mg/L)	1.9	2.9	3.8
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.2	0.4	0.6
2	DO (mg/L)	7.4	5.6	6.8
3	DO_SAT% (%)	96	68	84
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	12	16	20
2	HAR_Total (mgCaCO ₃ /L)	20	28	35
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	17.21	1.968	0.519
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	66		
4	EC_GEN (µmho/cm)	25	75	72
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	7.6	7.1
7	pH_GEN (pH units)	7.1	6.4	6.2
8	Temp (deg C)	26.5	25.5	29.5
	CHEMICAL			
1	Ca (mg/L)	6	9	13
2	Cl (mg/L)	15.6	37.8	33.5
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	24	48	17
5	K (mg/L)	0.1	0.2	0.3
6	Mg (mg/L)	1.9	4.7	4.8
7	Na (mg/L)	8.0	9.7	13.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.8	0.8	1.0
2	DO (mg/L)	6.8	6.8	6.2
3	DO_SAT% (%)	84	82	81
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	16	24	31
2	HAR_Total (mgCaCO ₃ /L)	24	43	51
3	Na% (%)	42	33	37
4	SAR (-)	0.7	0.6	0.8
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1296	0.384	77.99
2	EC_FLD (µmho/cm)	4	68	66	67
3	EC_GEN (µmho/cm)	6	78	25	55
4	pH_FLD (pH units)	6	7.7	7.1	7.5
5	pH_GEN (pH units)	6	7.1	6.2	6.5
6	Temp (deg C)	6	29.5	25.0	27
	CHEMICAL				
1	Ca (mg/L)	6	13	5	8
2	Cl (mg/L)	6	37.8	9.1	22.7
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	48	16	26
5	K (mg/L)	3	0.3	0.1	0.2
6	Mg (mg/L)	6	4.8	1.9	3.3
7	Na (mg/L)	3	13.8	8.0	10.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.0	0.2	0.6
2	DO (mg/L)	6	7.4	5.6	6.6
3	DO_SAT% (%)	6	96	68	82
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	31	12	20
2	HAR_Total (mgCaCO ₃ /L)	6	51	20	33
3	Na% (%)	3	42	33	37
4	SAR (-)	3	0.8	0.6	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	477.6	360.8	184.9	285.9	157.4
2	EC_FLD (µmho/cm)	58	42			
3	EC_GEN (µmho/cm)	50	37	46	49	45
4	pH_FLD (pH units)	5.9	6.9			
5	pH_GEN (pH units)	7.1	6.7	6.9	6.8	7.2
6	TDS (mg/L)	41	27	36	36	27
7	Temp (deg C)	27.8	26.0	27.5	27.5	27.7
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	22	10	16	15	14
3	B (mg/L)	0.04	0.05	0.01	0.02	0.22
4	Ca (mg/L)	5	4	5	4	5
5	Cl (mg/L)	7.3	7.6	7.2	7.1	6.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.10	0.08	0.19	0.08	0.11
8	Fe (mg/L)				0.1	0.0
9	HCO3 (mg/L)	27	12	20	18	17
10	K (mg/L)	0.7	0.7	0.6	0.7	0.7
11	Mg (mg/L)	3.7	2.2	2.5	1.7	1.3
12	Na (mg/L)	3.6	3.1	3.7	3.8	3.5
13	NH3-N (mg N/L)					0.26
14	NO2+NO3 (mg N/L)	1.07	0.34	1.47	0.19	
15	NO2-N (mgN/L)	0.39	0.08	0.03	0.09	
16	NO3-N (mgN/L)	0.68	0.26	1.44	0.10	
17	o-PO4-P (mg P/L)			0.142	0.022	0.053
18	P-Tot (mgP/L)	0.031	0.108	0.142	0.040	
19	SiO2 (mg/L)	8.1	6.4	21.1	21.1	34.2
20	SO4 (mg/L)	1.7	1.0	1.2	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.5	0.5	0.5	0.3
2	COD (mg/L)	2.3	4.0	4.0	4.3	3.1
3	DO (mg/L)	7.1	8.2	7.5	7.1	7.0
4	DO SAT% (%)	90	101	95	89	86
5	FCol-MPN (MPN/100mL)			170	500	360
6	Tcol-MPN (MPN/100mL)			900	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)	12	9	13	10	11
2	HAR_Total (mgCaCO3/L)	28	19	24	17	17
3	Na% (%)	22	26	24	32	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	165.9	121.1	101.1	484.9	705.8
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	53	51	53	45	45
4	pH_FLD (pH units)	6.4	6.4	6.5		
5	pH_GEN (pH units)	6.9	6.3	6.5	6.6	6.7
6	TDS (mg/L)	30	34	33	28	
7	Temp (deg C)	28.8	27.3	28.0	25.8	25.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	16	16	17	16	
3	B (mg/L)	0.03	0.16	0.05	0.03	
4	Ca (mg/L)	4	5	6	4	5
5	Cl (mg/L)	6.3	6.7	7.1	6.3	7.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	
7	F (mg/L)	0.12	0.04	0.02	0.19	
8	Fe (mg/L)	0.0	0.3	0.1	0.0	
9	HCO3 (mg/L)	20	20	21	19	19
10	K (mg/L)	0.5	0.7	1.0	1.0	1.0
11	Mg (mg/L)	1.7	1.7	1.8	1.8	2.9
12	Na (mg/L)	3.6	3.6	4.1	3.9	2.8
13	NH3-N (mg N/L)	0.12	0.08	0.00		
14	NO2+NO3 (mg N/L)	0.19	0.18	1.19	0.37	
15	NO2-N (mgN/L)	0.03	0.00	0.00	0.01	
16	NO3-N (mgN/L)	0.17	0.15	1.19	0.36	
17	o-PO4-P (mg P/L)	0.106	0.051	0.255	0.063	
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	22.5	18.4	9.7	8.8	
20	SO4 (mg/L)	1.0	0.9	1.0	0.8	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.4	0.4	0.7	0.7
2	COD (mg/L)	1.4	2.3	2.7	4.3	
3	DO (mg/L)	7.1	6.9	6.7	6.2	7.2
4	DO SAT% (%)	92	86	84	76	88
5	Fcol-MPN (MPN/100mL)	900	590	1133	900	
6	Tcol-MPN (MPN/100mL)	1600	975	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)	11	13	14	10	13
2	HAR_Total (mgCaCO3/L)	18	20	22	18	25
3	Na% (%)	30	28	28	31	22
4	RSC (-)	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: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	71.38	3.541	12.00	16.92	7.831
2	EC_FLD (µmho/cm)	68	59	59		
3	EC_GEN (µmho/cm)	53	54	51	69	57
4	pH_FLD (pH units)	7.6	6.4	7.1		
5	pH_GEN (pH units)	6.5	7.1	6.7	7.3	7.2
6	TDS (mg/L)		44	39	56	45
7	Temp (deg C)	26.8	27.3	27.5	26.8	27.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		15	18	18	20
3	B (mg/L)		0.07	0.02	0.10	0.10
4	Ca (mg/L)	6	5	4	6	5
5	Cl (mg/L)	16.5	7.3	7.8	8.0	7.5
6	CO3 (mg/L)		0.0	0.0	0.0	0.0
7	F (mg/L)		0.05	0.22	0.18	0.26
8	Fe (mg/L)				0.3	0.2
9	HCO3 (mg/L)	22	18	23	23	24
10	K (mg/L)		0.8	0.5	0.9	0.9
11	Mg (mg/L)	2.8	1.9	4.2	2.5	2.5
12	Na (mg/L)		3.9	4.1	4.0	4.3
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)		2.17	0.51	0.84	0.28
15	NO2-N (mgN/L)		0.23	0.01	0.08	0.08
16	NO3-N (mgN/L)		1.94	0.50	0.77	0.15
17	o-PO4-P (mg P/L)				0.495	0.014
18	P-Tot (mgP/L)		0.111	0.050	0.495	
19	SiO2 (mg/L)		14.5	10.5	13.2	20.6
20	SO4 (mg/L)		1.0	1.0	1.7	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.3	0.9	0.8	0.5
2	COD (mg/L)		2.5	5.7	6.2	3.7
3	DO (mg/L)	6.6	6.8	7.5	7.5	7.2
4	DO SAT% (%)	83	85	95	93	90
5	FCol-MPN (MPN/100mL)				490	900
6	Tcol-MPN (MPN/100mL)				900	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	13	11	15	12
2	HAR_Total (mgCaCO3/L)	28	21	28	25	22
3	Na% (%)		28	24	24	29
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.4	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	6.911	23.83	14.38	12.55	8.395
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	48	51	54	59	53
4	pH_FLD (pH units)		6.6	6.7	7.2	
5	pH_GEN (pH units)	6.8	6.9	6.8	6.4	6.8
6	TDS (mg/L)	28	32	36	38	34
7	Temp (deg C)	28.3	26.5	26.0	26.0	26.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	17	17	19	21	21
3	B (mg/L)	0.28	0.15	0.07	0.12	0.03
4	Ca (mg/L)	3	5	6	6	6
5	Cl (mg/L)	7.1	6.0	7.1	7.4	6.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.14	0.09	0.14	0.14	0.09
8	Fe (mg/L)	0.1	0.0	1.0	0.0	
9	HCO3 (mg/L)	21	20	24	26	26
10	K (mg/L)	1.0	0.6	0.8	1.0	1.0
11	Mg (mg/L)	2.4	1.5	2.0	2.2	2.2
12	Na (mg/L)	3.9	3.3	3.9	4.0	4.0
13	NH3-N (mg N/L)	0.15	0.08	0.06	0.01	
14	NO2+NO3 (mg N/L)		0.29		1.03	0.29
15	NO2-N (mgN/L)		0.03		0.01	0.02
16	NO3-N (mgN/L)		0.26	1.55	1.02	0.27
17	o-PO4-P (mg P/L)	0.029	0.080	0.495	0.082	0.024
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	26.3	13.6	14.6	17.4	10.3
20	SO4 (mg/L)	1.0	1.0	0.6	0.7	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8	0.5	0.7	0.6
2	COD (mg/L)	2.9	6.5	4.6	4.5	4.3
3	DO (mg/L)	6.7	7.0	7.1	6.9	7.7
4	DO SAT% (%)	86	87	88	84	95
5	FCol-MPN (MPN/100mL)	1600	1050	1600	1050	1250
6	Tcol-MPN (MPN/100mL)	1600	1250	1600	1250	1600
	TRACE & TOXIC					
1	As (µg/L)			0.1		
2	Cd (µg/L)			0.2		
3	Cr (µg/L)			1.8		
4	Cu (µg/L)			26.6		
5	Hg (µg/L)					
6	Ni (µg/L)			2.8		
7	Pb (µg/L)			0.2		
8	Zn (µg/L)			3.6		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	12	15	16	15
2	HAR_Total (mgCaCO3/L)	18	18	23	25	24
3	Na% (%)	31	27	26	25	26
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: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	5.983	9.590	3.603	2.194	4.464
2	EC_FLD (µmho/cm)		66			
3	EC_GEN (µmho/cm)	45	50	86	63	67
4	pH_FLD (pH units)		7.6		6.8	
5	pH_GEN (pH units)	7.1	6.8	7.3	7.3	7.0
6	TDS (mg/L)			64	45	54
7	Temp (deg C)	26.3	26.0	30.0	30.5	28.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)			0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)			20	24	18
3	B (mg/L)			0.06	0.01	0.01
4	Ca (mg/L)	4	8	6	7	5
5	Cl (mg/L)	4.1	26.7	8.2	8.5	8.5
6	CO3 (mg/L)			0.0	0.0	0.0
7	F (mg/L)			0.13		0.16
8	Fe (mg/L)	0.0	0.0			1.6
9	HCO3 (mg/L)	22	36	25	29	22
10	K (mg/L)		0.1	0.8	1.2	1.4
11	Mg (mg/L)	1.9	3.3	3.9	2.0	2.5
12	Na (mg/L)		8.8	4.4	4.6	5.2
13	NH3-N (mg N/L)					0.05
14	NO2+NO3 (mg N/L)			0.52	0.44	0.59
15	NO2-N (mgN/L)			0.10	0.01	0.19
16	NO3-N (mgN/L)			0.43	0.43	0.40
17	o-PO4-P (mg P/L)					0.235
18	P-Tot (mgP/L)			0.241		0.235
19	SiO2 (mg/L)			12.8	10.7	12.3
20	SO4 (mg/L)	0.9		1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.8	0.4	0.8	1.0
2	COD (mg/L)			4.6	7.6	8.3
3	DO (mg/L)	6.7	6.8	6.0	6.4	7.2
4	DO SAT% (%)	83	83	79	85	92
5	FCol-MPN (MPN/100mL)					500
6	Tcol-MPN (MPN/100mL)					900
	TRACE & TOXIC					
1	As (µg/L)			6.9	4.9	4.6
2	Cd (µg/L)	0.1		2.0	1.0	0.5
3	Cr (µg/L)	0.3		1.6	0.4	
4	Cu (µg/L)	5.7		1.3	10.8	8.3
5	Hg (µg/L)					
6	Ni (µg/L)	1.5		8.9	13.4	
7	Pb (µg/L)	10.6		7.0	2.3	2.4
8	Zn (µg/L)	9.2		29.0	153.0	51.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	20	14	18	12
2	HAR_Total (mgCaCO3/L)	18	33	30	26	22
3	Na% (%)		38	24	27	32
4	RSC (-)			0.0	0.0	0.0
5	SAR (-)		0.7	0.3	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	3.099	4.962	3.845	3.181
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	56	55	69	60
4	pH_FLD (pH units)			7.0	7.2
5	pH_GEN (pH units)	7.2	7.1	7.4	6.4
6	TDS (mg/L)	44	34	43	39
7	Temp (deg C)	31.0	31.5	30.5	29.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	22	22	23	24
3	B (mg/L)	0.07	0.13	0.14	0.24
4	Ca (mg/L)	4	5	5	6
5	Cl (mg/L)	5.7	7.8	7.0	7.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.10	0.12	0.11	0.03
8	Fe (mg/L)	0.0	0.1	0.1	0.1
9	HCO3 (mg/L)	27	27	28	29
10	K (mg/L)	1.3	1.7	0.8	0.8
11	Mg (mg/L)	2.4	2.0	3.4	3.5
12	Na (mg/L)	3.9	4.2	4.6	4.4
13	NH3-N (mg N/L)	0.09	0.12	0.05	0.03
14	NO2+NO3 (mg N/L)	0.12		0.26	1.47
15	NO2-N (mgN/L)	0.01		0.04	0.02
16	NO3-N (mgN/L)	0.11	0.03	0.22	1.45
17	o-PO4-P (mg P/L)			0.870	0.085
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	18.7	26.7	17.8	11.6
20	SO4 (mg/L)	1.0	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.4	0.8	0.6
2	COD (mg/L)	8.9	10.2	5.8	8.4
3	DO (mg/L)	7.0	7.4	6.4	5.6
4	DO_SAT% (%)	94	100	85	73
5	FCol-MPN (MPN/100mL)		1600	1600	1600
6	Tcol-MPN (MPN/100mL)		1600	1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.0		1.0	0.6
2	Cd (µg/L)			0.2	0.0
3	Cr (µg/L)	2.0		3.3	6.7
4	Cu (µg/L)	6.8		2.3	1.0
5	Hg (µg/L)			0.0	
6	Ni (µg/L)	8.4			5.2
7	Pb (µg/L)	1.0		0.0	4.1
8	Zn (µg/L)			39.1	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	12	13	14
2	HAR_Total (mgCaCO3/L)	20	20	27	29
3	Na% (%)	28	29	26	25
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: 2005-2016

Station Name : PERUMANNU (KA000K8)

Division : SWR Division, Kochi

Local River : Valapatnam

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	2.094	1.380	1.115	0.519
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	64	61	98	72
4	pH_FLD (pH units)				7.1
5	pH_GEN (pH units)	6.9	7.0	6.8	6.2
6	TDS (mg/L)	36	38		
7	Temp (deg C)	30.0	30.0	30.0	29.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	24	24		
3	B (mg/L)	0.01	0.04		
4	Ca (mg/L)	6	6	11	13
5	Cl (mg/L)	7.1	8.8	7.8	33.5
6	CO3 (mg/L)	0.0	0.0		
7	F (mg/L)	0.28	0.19		
8	Fe (mg/L)	0.1	0.0		
9	HCO3 (mg/L)	29	29	26	17
10	K (mg/L)	1.2	1.2		0.3
11	Mg (mg/L)	3.0	2.9	1.9	4.8
12	Na (mg/L)	4.0	4.7		13.8
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	0.75	0.52		
15	NO2-N (mgN/L)	0.07	0.15		
16	NO3-N (mgN/L)	0.68	0.36		
17	o-PO4-P (mg P/L)	0.030	0.075		
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	15.8	15.7		
20	SO4 (mg/L)	0.7	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.8	0.1	1.0
2	COD (mg/L)	4.2	5.6		
3	DO (mg/L)	5.9	6.5	7.0	6.2
4	DO_SAT% (%)	78	86	93	81
5	FCol-MPN (MPN/100mL)	1600	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.6	1.0		
2	Cd (µg/L)	0.0	0.1		
3	Cr (µg/L)	0.1	0.5		
4	Cu (µg/L)	1.5	1.6		
5	Hg (µg/L)				
6	Ni (µg/L)	0.7	3.0		
7	Pb (µg/L)	2.6	0.2		
8	Zn (µg/L)	4.1	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	14	27	31
2	HAR_Total (mgCaCO3/L)	28	26	35	51
3	Na% (%)	23	27		37
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.3	0.4		0.8
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 238 Sq. Km.	Bank	: Right
Latitude	: 11°39'03"	Longitude	: 75°45'30"
Zero of Gauge (m)	: 0.000 (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 : 2015-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	12.31	38.27	49.63
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	27	53	13
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	8.8	8.3
6	Temp (deg C)	30.0	27.5	26.0
	CHEMICAL			
1	Ca (mg/L)	16	6	13
2	Cl (mg/L)	9.1	7.8	20.9
3	Fe (mg/L)			
4	HCO3 (mg/L)	26	79	37
5	K (mg/L)			
6	Mg (mg/L)	1.9	1.9	5.7
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.4	0.6	1.0
2	DO (mg/L)	7.0	5.2	7.0
3	DO_SAT% (%)	93	65	86
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	39	16	31
2	HAR_Total (mgCaCO3/L)	47	24	55
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	5.853	36.31	2.045
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	60	47	165
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.6	7.6	6.4
6	Temp (deg C)	27.0	28.0	29.0
	CHEMICAL			
1	Ca (mg/L)	3	13	9
2	Cl (mg/L)	23.5	36.5	13.0
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	21	63	28
5	K (mg/L)	0.1	0.2	0.3
6	Mg (mg/L)	1.0	9.4	3.8
7	Na (mg/L)	6.9	4.9	8.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	1.0	1.2
2	DO (mg/L)	7.2	7.0	5.6
3	DO_SAT% (%)	90	89	73
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	31	24
2	HAR_Total (mgCaCO3/L)	12	70	39
3	Na% (%)	56	13	31
4	SAR (-)	0.9	0.3	0.6
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	432.4	1.627	30.24
2	EC_GEN (µmho/cm)	6	165	13	61
3	pH_GEN (pH units)	6	8.8	6.4	7.6
4	Temp (deg C)	6	30.0	26.0	27.9
	CHEMICAL				
1	Ca (mg/L)	6	16	3	10
2	Cl (mg/L)	6	36.5	7.8	18.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	79	21	43
5	K (mg/L)	3	0.3	0.1	0.2
6	Mg (mg/L)	6	9.4	1.0	3.9
7	Na (mg/L)	3	8.2	4.9	6.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.4	0.6	1
2	DO (mg/L)	6	7.2	5.2	6.5
3	DO_SAT% (%)	6	93	65	83
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	39	8	25
2	HAR_Total (mgCaCO ₃ /L)	6	70	12	41
3	Na% (%)	3	56	13	33
4	SAR (-)	3	0.9	0.3	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)					56.53
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	42			31	29
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.2			6.5	6.9
6	TDS (mg/L)	31			24	16
7	Temp (deg C)	27.0			26.0	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15			9	8
2	B (mg/L)	0.13			0.01	0.19
3	Ca (mg/L)	4			3	2
4	Cl (mg/L)	5.8			5.3	4.7
5	F (mg/L)	0.11			0.05	0.10
6	Fe (mg/L)				0.3	0.0
7	HCO3 (mg/L)	19			11	10
8	K (mg/L)	0.6			0.4	0.7
9	Mg (mg/L)	1.5			1.0	0.8
10	Na (mg/L)	3.1			2.7	2.6
11	NH3-N (mg N/L)				0.05	0.27
12	NO2+NO3 (mg N/L)	0.87			0.11	
13	NO2-N (mgN/L)	0.22			0.03	
14	NO3-N (mgN/L)	0.65			0.08	
15	o-PO4-P (mg P/L)				0.035	0.028
16	P-Tot (mgP/L)	0.082			0.015	
17	SiO2 (mg/L)	7.9			17.4	28.2
18	SO4 (mg/L)	1.0			1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					0.5
2	COD (mg/L)	6.3				1.8
3	DO (mg/L)	8.1				
4	DO_SAT% (%)	101				
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)	9			7	6
2	HAR_Total (mgCaCO3/L)	15			11	9
3	Na% (%)	30			33	36
4	RSC (-)	0.0			0.0	0.0
5	SAR (-)	0.4			0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	43.96	38.19	30.94	129.9	143.5
2	EC_FLD (µmho/cm)				35	
3	EC_GEN (µmho/cm)	34	33	36	27	29
4	pH_FLD (pH units)				6.9	
5	pH_GEN (pH units)	6.6	6.1	7.1	6.7	7.1
6	TDS (mg/L)	21	22	23	17	
7	Temp (deg C)	27.0	25.7	26.7	25.2	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	10	11	9	
2	B (mg/L)	0.36	0.25	0.02	0.03	
3	Ca (mg/L)	3	4	4	3	3
4	Cl (mg/L)	5.0	4.7	4.2	4.8	5.2
5	F (mg/L)	0.11	0.05	0.01	0.08	
6	Fe (mg/L)	0.3	0.1	0.1	0.1	
7	HCO3 (mg/L)	11	12	13	11	12
8	K (mg/L)	0.3	0.4	0.6	0.6	0.6
9	Mg (mg/L)	1.2	0.5	1.2	1.0	1.9
10	Na (mg/L)	2.7	2.6	2.3	2.7	2.8
11	NH3-N (mg N/L)	0.24	0.01	0.00		
12	NO2+NO3 (mg N/L)	0.05	0.17	0.52	0.17	
13	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	
14	NO3-N (mgN/L)	0.06	0.15	0.52	0.17	
15	o-PO4-P (mg P/L)	0.059	0.030	0.099	0.068	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	21.0	11.4	8.3	5.2	
18	SO4 (mg/L)	1.0	0.5	0.9	0.6	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)				0.4	0.7
2	COD (mg/L)	1.6			2.7	
3	DO (mg/L)				6.9	8.1
4	DO_SAT% (%)				83	101
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)	7	9	9	7	7
2	HAR_Total (mgCaCO3/L)	12	11	14	12	15
3	Na% (%)	33	32	25	32	30
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.3	0.3	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	33.40				
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	31	33			29
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	8.0	6.8			6.9
6	TDS (mg/L)		27			24
7	Temp (deg C)	27.8	25.8			26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		10			10
2	B (mg/L)		0.03			
3	Ca (mg/L)	11	3			2
4	Cl (mg/L)	12.6	4.8			5.7
5	F (mg/L)		0.07			0.05
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	48	13			12
8	K (mg/L)		0.5			0.5
9	Mg (mg/L)	3.2	1.5			1.5
10	Na (mg/L)		2.6			3.1
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		0.64			
13	NO2-N (mgN/L)		0.20			
14	NO3-N (mgN/L)		0.44			0.04
15	o-PO4-P (mg P/L)					0.010
16	P-Tot (mgP/L)		0.128			
17	SiO2 (mg/L)		12.3			14.0
18	SO4 (mg/L)		1.0			1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0				
2	COD (mg/L)		5.6			
3	DO (mg/L)	6.4				
4	DO_SAT% (%)	81				
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)	29	8			6
2	HAR_Total (mgCaCO3/L)	42	14			12
3	Na% (%)		28			35
4	RSC (-)		0.0			0.0
5	SAR (-)		0.3			0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	15.34	13.72	11.30	8.171	21.56
2	EC_FLD (µmho/cm)					34
3	EC_GEN (µmho/cm)	33	31	32	30	28
4	pH_FLD (pH units)					6.7
5	pH_GEN (pH units)	6.4	6.6	6.7	6.5	7.0
6	TDS (mg/L)	20	17	18	17	18
7	Temp (deg C)	26.3	25.0	25.5	26.0	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	9	10	11	11	11
2	B (mg/L)	0.44		0.04	0.07	0.02
3	Ca (mg/L)	3	3	3	4	3
4	Cl (mg/L)	4.7	4.0	4.6	4.5	4.1
5	F (mg/L)	0.57	0.07	0.04	0.24	0.04
6	Fe (mg/L)	0.0	0.5	0.9	0.0	
7	HCO3 (mg/L)	10	13	13	13	14
8	K (mg/L)	0.6	0.4	0.4	0.5	0.5
9	Mg (mg/L)	0.7	1.3	1.0	1.0	1.3
10	Na (mg/L)	2.5	2.3	2.6	2.6	2.2
11	NH3-N (mg N/L)	0.16	0.05	0.15	0.00	
12	NO2+NO3 (mg N/L)		0.06		0.47	0.14
13	NO2-N (mgN/L)		0.02		0.00	0.00
14	NO3-N (mgN/L)		0.04	0.29	0.47	0.14
15	o-PO4-P (mg P/L)	0.061	0.055	0.620	0.001	0.014
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	21.1	10.5	8.7	10.5	3.8
18	SO4 (mg/L)	1.0	1.0	0.6	0.7	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.4		0.5
2	COD (mg/L)	2.2	2.4			3.2
3	DO (mg/L)					6.9
4	DO_SAT% (%)					84
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		
3	Cr (µg/L)			1.1		
4	Cu (µg/L)			23.3		
5	Ni (µg/L)			3.2		
6	Pb (µg/L)			0.2		
7	Zn (µg/L)			16.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	7	8	9	8
2	HAR_Total (mgCaCO3/L)	11	12	12	13	13
3	Na% (%)	32	28	31	29	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: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	6.314	21.08			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	34	54	42		
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.7	7.6	7.0		
6	TDS (mg/L)			31		
7	Temp (deg C)	27.5	27.5	26.5		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			14		
2	B (mg/L)			0.02		
3	Ca (mg/L)	3	8	4		
4	Cl (mg/L)	4.0	30.0	7.1		
5	F (mg/L)			0.10		
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	16	42	17		
8	K (mg/L)		0.2	0.8		
9	Mg (mg/L)	1.4	5.2	2.4		
10	Na (mg/L)		5.9	3.7		
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)			0.88		
13	NO2-N (mgN/L)			0.16		
14	NO3-N (mgN/L)			0.72		
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)			0.086		
17	SiO2 (mg/L)			11.7		
18	SO4 (mg/L)	0.4		4.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	1.0			
2	COD (mg/L)			4.4		
3	DO (mg/L)	7.3	7.1			
4	DO_SAT% (%)	92	90			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			5.9		
2	Cd (µg/L)	0.1		7.0		
3	Cr (µg/L)	3.7		0.7		
4	Cu (µg/L)	6.2		0.7		
5	Ni (µg/L)	3.5		3.3		
6	Pb (µg/L)	4.7		1.3		
7	Zn (µg/L)	9.1		1.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	20	10		
2	HAR_Total (mgCaCO3/L)	14	41	20		
3	Na% (%)		35	28		
4	RSC (-)			0.0		
5	SAR (-)		0.6	0.4		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		2.324	7.611	17.61
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	35	31	33	31
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	5.8	6.7	7.0	6.4
6	TDS (mg/L)	25	18	19	20
7	Temp (deg C)	28.0	28.0	24.5	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	13	10	11	10
2	B (mg/L)	0.06	0.26	0.15	0.07
3	Ca (mg/L)	3	3	3	3
4	Cl (mg/L)	5.7	5.0	4.3	5.0
5	F (mg/L)	0.11	0.06	0.11	0.02
6	Fe (mg/L)	0.0		0.2	0.0
7	HCO3 (mg/L)	16	12	13	12
8	K (mg/L)	1.0	0.6	0.5	0.5
9	Mg (mg/L)	1.5	1.0	1.0	1.0
10	Na (mg/L)	3.0	2.8	2.4	2.7
11	NH3-N (mg N/L)	0.09	0.10	0.05	
12	NO2+NO3 (mg N/L)	0.11			
13	NO2-N (mgN/L)	0.04			
14	NO3-N (mgN/L)	0.08	0.03	0.15	0.75
15	o-PO4-P (mg P/L)	0.012		0.021	0.085
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	12.1	21.4	15.5	8.4
18	SO4 (mg/L)	1.0	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	COD (mg/L)		1.8		
3	DO (mg/L)				
4	DO_SAT% (%)				
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)			1.3	
2	Cd (µg/L)			0.0	
3	Cr (µg/L)	2.0		0.6	
4	Cu (µg/L)	1.0		3.2	
5	Ni (µg/L)	5.4			
6	Pb (µg/L)	1.0		0.1	
7	Zn (µg/L)			21.8	
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	8	8	8
2	HAR_Total (mgCaCO3/L)	14	12	12	12
3	Na% (%)	30	32	29	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: 2005-2016

Station Name : KUTTYADI (KK000N2)

Division : SWR Division, Kochi

Local River : Kuttyadi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	1.899	2.168	2.911	2.045
2	EC_FLD (µmho/cm)		33		
3	EC_GEN (µmho/cm)	32	32	29	165
4	pH_FLD (pH units)		6.8		
5	pH_GEN (pH units)	6.5	7.4	7.6	6.4
6	TDS (mg/L)	18	19		
7	Temp (deg C)	29.0	30.0	30.0	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	13	12		
2	B (mg/L)	0.01	0.04		
3	Ca (mg/L)	3	4	19	9
4	Cl (mg/L)	3.6	3.7	5.2	13.0
5	F (mg/L)	0.18	0.01		
6	Fe (mg/L)	0.0	0.1		
7	HCO3 (mg/L)	16	15	79	28
8	K (mg/L)	0.5	0.5		0.3
9	Mg (mg/L)	2.0	1.0	6.7	3.8
10	Na (mg/L)	2.0	2.0		8.2
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.20	0.13		
13	NO2-N (mgN/L)	0.00	0.00		
14	NO3-N (mgN/L)	0.20	0.13		
15	o-PO4-P (mg P/L)	0.020	0.040		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	11.5	7.4		
18	SO4 (mg/L)	1.4	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	0.8	0.2	1.2
2	COD (mg/L)	2.2	5.2		
3	DO (mg/L)	7.1	7.6	7.2	5.6
4	DO_SAT% (%)	92	101	95	73
5	FCol-MPN (MPN/100mL)	500	1600		
6	Tcol-MPN (MPN/100mL)	900	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.6	3.9		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.4	6.3		
4	Cu (µg/L)	2.6	1.4		
5	Ni (µg/L)	0.0	2.8		
6	Pb (µg/L)	3.0	0.3		
7	Zn (µg/L)	0.0	2.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	11	47	24
2	HAR_Total (mgCaCO3/L)	16	15	75	39
3	Na% (%)	21	22		31
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.2	0.2		0.6
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, kochi	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.)	01/06/1978	31/05/1984
	: 0.000 (m.s.l.)	01/06/1984	
	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 : 2015-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	98.66	276.4
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	96	96	96
4	EC_GEN (µmho/cm)	79	22	96
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	7.0	6.9
7	pH_GEN (pH units)	7.2	6.1	7.0
8	Temp (deg C)	31.0	29.0	28.0
	CHEMICAL			
1	Ca (mg/L)	8	9	9
2	Cl (mg/L)	11.7	10.4	16.9
3	Fe (mg/L)			
4	HCO3 (mg/L)	32	53	37
5	K (mg/L)			
6	Mg (mg/L)	2.9	3.8	3.8
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	1.0	0.8
2	DO (mg/L)	7.0	7.0	6.0
3	DO_SAT% (%)	94	91	77
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	20	24	24
2	HAR_Total (mgCaCO3/L)	31	39	39
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	96	95	92
4	EC_GEN (µmho/cm)	39	157	120
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	7.0	7.0
7	pH_GEN (pH units)	4.5	8.0	6.5
8	Temp (deg C)	30.0	30.5	34.0
	CHEMICAL			
1	Ca (mg/L)	8	9	9
2	Cl (mg/L)	16.9	22.2	20.9
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	42	63	27
5	K (mg/L)	0.1	0.2	0.2
6	Mg (mg/L)	2.9	3.8	3.8
7	Na (mg/L)	10.3	13.9	10.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.6	0.4	3.4
2	DO (mg/L)	7.8	8.0	8.8
3	DO_SAT% (%)	103	106	125
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	20	24	24
2	HAR_Total (mgCaCO ₃ /L)	31	39	39
3	Na% (%)	42	43	36
4	SAR (-)	0.8	1.0	0.7
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1539	0.000	80.40
2	EC_FLD (µmho/cm)	6	96	92	95
3	EC_GEN (µmho/cm)	6	157	22	86
4	pH_FLD (pH units)	6	7.0	6.9	7
5	pH_GEN (pH units)	6	8.0	4.5	6.6
6	Temp (deg C)	6	34.0	28.0	30.4
	CHEMICAL				
1	Ca (mg/L)	6	9	8	9
2	Cl (mg/L)	6	22.2	10.4	16.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO3 (mg/L)	6	63	27	42
5	K (mg/L)	3	0.2	0.1	0.1
6	Mg (mg/L)	6	3.8	2.9	3.5
7	Na (mg/L)	3	13.9	10.2	11.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	3.4	0.4	1.2
2	DO (mg/L)	6	8.8	6.0	7.4
3	DO_SAT% (%)	6	125	77	99
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	24	20	22
2	HAR_Total (mgCaCO3/L)	6	39	31	37
3	Na% (%)	3	43	36	40
4	SAR (-)	3	1.0	0.7	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	602.6	659.4	269.6	406.2	130.0
2	EC_FLD (µmho/cm)	98	67	98	67	88
3	EC_GEN (µmho/cm)	66	51	68	60	51
4	pH_FLD (pH units)	7.0	6.9	7.0	7.0	7.0
5	pH_GEN (pH units)	7.4	6.9	6.9	6.7	7.1
6	TDS (mg/L)	49	39	53	47	31
7	Temp (deg C)	28.2	25.2	26.8	27.3	24.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	22	14	19	19	17
2	B (mg/L)	0.11	0.04	0.00	0.58	0.15
3	Ca (mg/L)	6	4	6	4	5
4	Cl (mg/L)	8.1	7.3	7.1	7.8	6.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.18	0.16	0.24	0.05	0.12
7	Fe (mg/L)				0.1	0.0
8	HCO3 (mg/L)	27	17	24	23	20
9	K (mg/L)	1.1	1.0	0.8	0.8	0.9
10	Mg (mg/L)	3.4	2.6	3.0	2.7	1.7
11	Na (mg/L)	4.3	3.7	4.3	4.1	4.0
12	NH3-N (mg N/L)					0.31
13	NO2+NO3 (mg N/L)	0.42	0.49	2.90	0.28	
14	NO2-N (mgN/L)	0.12	0.01	0.19	0.04	
15	NO3-N (mgN/L)	0.29	0.47	2.71	0.18	
16	o-PO4-P (mg P/L)			0.143	0.032	0.067
17	P-Tot (mgP/L)	0.073	0.286	0.143		
18	SiO2 (mg/L)	8.5	8.2	20.1	19.8	28.4
19	SO4 (mg/L)	3.5	2.2	1.5	1.4	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.3	0.5	0.4	0.3
2	COD (mg/L)	2.5	2.7	4.0	3.1	2.7
3	DO (mg/L)	6.8	6.7	6.9	6.5	8.0
4	DO_SAT% (%)	87	81	86	81	95
5	FCol-MPN (MPN/100mL)				855	12
6	Tcol-MPN (MPN/100mL)				885	170
	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	10	16	11	12
2	HAR_Total (mgCaCO3/L)	29	20	29	22	19
3	Na% (%)	24	27	24	28	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	166.9	502.3	71.39	381.4	548.4
2	EC_FLD (µmho/cm)	75	91	93	92	89
3	EC_GEN (µmho/cm)	62	63	69	63	83
4	pH_FLD (pH units)	7.0	7.0	6.9	6.8	7.0
5	pH_GEN (pH units)	6.9	6.8	6.6	6.4	6.2
6	TDS (mg/L)	39	43	43	43	
7	Temp (deg C)	24.3	24.8	26.2	22.8	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19	19	22	19	
2	B (mg/L)	0.02	0.18	0.02	0.05	
3	Ca (mg/L)	5	5	6	5	5
4	Cl (mg/L)	6.8	7.1	7.1	6.6	10.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.12	0.08	0.02	0.21	
7	Fe (mg/L)	0.1	0.1	0.1	0.1	
8	HCO3 (mg/L)	23	24	27	24	24
9	K (mg/L)	0.4	1.2	1.3	1.2	1.4
10	Mg (mg/L)	1.5	1.9	2.6	2.5	5.3
11	Na (mg/L)	3.6	4.3	4.5	4.0	4.6
12	NH3-N (mg N/L)	0.13	0.04	0.05		
13	NO2+NO3 (mg N/L)	0.12	0.23	1.23	0.48	
14	NO2-N (mgN/L)	0.04	0.03	0.01	0.05	
15	NO3-N (mgN/L)	0.09	0.21	1.22	0.43	
16	o-PO4-P (mg P/L)	0.087	0.042	0.273	0.105	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	21.1	20.8	14.7	9.3	
19	SO4 (mg/L)	1.0	0.8	0.9	0.8	1.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.4	0.5	0.6	0.7
2	COD (mg/L)	2.7	2.6	2.8	3.3	
3	DO (mg/L)	8.5	6.5	6.9	5.8	7.9
4	DO_SAT% (%)	101	78	86	67	97
5	FCol-MPN (MPN/100mL)	320	1600	600	1600	
6	Tcol-MPN (MPN/100mL)	975	1600	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)	13	13	15	13	13
2	HAR_Total (mgCaCO3/L)	19	21	26	23	34
3	Na% (%)	29	30	27	26	24
4	RSC (-)	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: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	125.0	32.97	54.44	0.000	
2	EC_FLD (µmho/cm)	96	99	97		
3	EC_GEN (µmho/cm)	66	88	75	176	
4	pH_FLD (pH units)	7.0	7.0	7.0		
5	pH_GEN (pH units)	6.8	7.4	6.7	6.8	
6	TDS (mg/L)		68	61	151	
7	Temp (deg C)	29.3	29.0	28.0	27.0	
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		25	25	42	
2	B (mg/L)		0.01	0.02	0.01	
3	Ca (mg/L)	9	7	8	10	
4	Cl (mg/L)	13.0	10.1	7.8	14.2	
5	CO3 (mg/L)		0.0	0.0	0.0	
6	F (mg/L)		0.07	0.23	0.15	
7	Fe (mg/L)				0.2	
8	HCO3 (mg/L)	40	30	31	51	
9	K (mg/L)		1.0	0.2	1.5	
10	Mg (mg/L)	3.5	3.4	2.0	8.5	
11	Na (mg/L)		5.3	3.6	7.2	
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)		1.06	0.35	2.78	
14	NO2-N (mgN/L)		0.20	0.02	0.32	
15	NO3-N (mgN/L)		0.86	0.33	2.46	
16	o-PO4-P (mg P/L)				0.283	
17	P-Tot (mgP/L)		0.237	0.049	0.283	
18	SiO2 (mg/L)		19.0	10.4	15.7	
19	SO4 (mg/L)		1.0	1.2	1.8	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.4	0.2	0.8	
2	COD (mg/L)		3.9	1.2	6.5	
3	DO (mg/L)	6.7	6.6	7.0	5.4	
4	DO_SAT% (%)	87	86	89	68	
5	FCol-MPN (MPN/100mL)				580	
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)	22	17	20	26	
2	HAR_Total (mgCaCO3/L)	37	31	28	61	
3	Na% (%)		26	22	20	
4	RSC (-)		0.0	0.0	0.0	
5	SAR (-)		0.4	0.3	0.4	
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	22.68	41.97	34.89	0.000	23.08
2	EC_FLD (µmho/cm)		88	87	94	90
3	EC_GEN (µmho/cm)	98	64	68	95	88
4	pH_FLD (pH units)		7.0	7.0	7.0	7.0
5	pH_GEN (pH units)	7.1	7.0	6.8	6.6	6.9
6	TDS (mg/L)	60	39	43	58	57
7	Temp (deg C)	24.0	24.0	26.5	25.8	23.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	25	23	28	32
2	B (mg/L)	0.19	0.40	0.21	0.15	0.05
3	Ca (mg/L)	7	6	6	8	8
4	Cl (mg/L)	10.7	7.8	8.9	9.6	9.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.39	0.05	0.29	0.21	0.11
7	Fe (mg/L)	0.1	0.3	0.8	0.1	
8	HCO3 (mg/L)	22	31	29	35	39
9	K (mg/L)	1.2	0.7	1.2	1.4	1.4
10	Mg (mg/L)	2.0	2.0	2.5	3.2	2.7
11	Na (mg/L)	7.2	4.4	5.3	6.4	6.9
12	NH3-N (mg N/L)	0.26	0.05	0.02	0.05	
13	NO2+NO3 (mg N/L)		0.18		1.96	0.28
14	NO2-N (mgN/L)		0.01		0.01	0.01
15	NO3-N (mgN/L)		0.16	1.80	1.95	0.27
16	o-PO4-P (mg P/L)	0.031	0.022	0.425	0.101	0.010
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	35.3	17.4	17.9	18.5	8.8
19	SO4 (mg/L)	14.2	1.0	0.9	0.8	2.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	2.2	0.8	0.6	0.7	1.0
2	COD (mg/L)	16.2	5.8	3.6	5.5	7.3
3	DO (mg/L)		8.0	6.8	6.2	7.3
4	DO_SAT% (%)		95	85	76	85
5	FCol-MPN (MPN/100mL)	1600	1600	1250	1250	1600
6	Tcol-MPN (MPN/100mL)	1600	1600	1600	1600	1600
	TRACE & TOXIC					
1	As (µg/L)			0.6		
2	Cd (µg/L)			0.4		
3	Cr (µg/L)			6.0		
4	Cu (µg/L)			130.7		
5	Hg (µg/L)					
6	Ni (µg/L)			7.3		
7	Pb (µg/L)			1.0		
8	Zn (µg/L)			25.8		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	18	16	15	20	19
2	HAR_Total (mgCaCO3/L)	26	24	25	33	30
3	Na% (%)	36	28	31	29	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.1
5	SAR (-)	0.6	0.4	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	0.000	0.000			
2	EC_FLD (µmho/cm)	89	95			
3	EC_GEN (µmho/cm)	87	98			
4	pH_FLD (pH units)	7.0	7.0			
5	pH_GEN (pH units)	7.0	6.3			
6	TDS (mg/L)					
7	Temp (deg C)	29.8	30.3			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	9	9			
4	Cl (mg/L)	9.6	19.5			
5	CO3 (mg/L)					
6	F (mg/L)					
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	42	53			
9	K (mg/L)		0.1			
10	Mg (mg/L)	3.3	3.3			
11	Na (mg/L)		12.1			
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)	1.1				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.5			
2	COD (mg/L)					
3	DO (mg/L)	7.1	7.9			
4	DO_SAT% (%)	93	105			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)	0.0				
3	Cr (µg/L)	0.6				
4	Cu (µg/L)	2.0				
5	Hg (µg/L)					
6	Ni (µg/L)	2.9				
7	Pb (µg/L)	0.3				
8	Zn (µg/L)	13.2				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	22	22			
2	HAR_Total (mgCaCO3/L)	35	35			
3	Na% (%)		43			
4	RSC (-)					
5	SAR (-)		0.9			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
2	EC_FLD (µmho/cm)				92
3	EC_GEN (µmho/cm)				98
4	pH_FLD (pH units)				7.0
5	pH_GEN (pH units)				6.8
6	TDS (mg/L)				71
7	Temp (deg C)				30.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				44
2	B (mg/L)				0.12
3	Ca (mg/L)				11
4	Cl (mg/L)				9.0
5	CO3 (mg/L)				0.0
6	F (mg/L)				0.05
7	Fe (mg/L)				0.1
8	HCO3 (mg/L)				54
9	K (mg/L)				1.5
10	Mg (mg/L)				3.9
11	Na (mg/L)				6.9
12	NH3-N (mg N/L)				0.05
13	NO2+NO3 (mg N/L)				2.50
14	NO2-N (mgN/L)				0.08
15	NO3-N (mgN/L)				2.42
16	o-PO4-P (mg P/L)				0.085
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)				14.0
19	SO4 (mg/L)				0.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				1.0
2	COD (mg/L)				11.2
3	DO (mg/L)				6.6
4	DO_SAT% (%)				87
5	FCol-MPN (MPN/100mL)				1600
6	Tcol-MPN (MPN/100mL)				1600
	TRACE & TOXIC				
1	As (µg/L)				0.4
2	Cd (µg/L)				0.1
3	Cr (µg/L)				5.6
4	Cu (µg/L)				3.6
5	Hg (µg/L)				
6	Ni (µg/L)				6.6
7	Pb (µg/L)				8.1
8	Zn (µg/L)				0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				28
2	HAR_Total (mgCaCO3/L)				44
3	Na% (%)				25
4	RSC (-)				0.0
5	SAR (-)				0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUNIYIL (KB000J3)

Division : SWR Division, Kochi

Local River : Chaliyar

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)		89		92
3	EC_GEN (µmho/cm)	110	121	88	120
4	pH_FLD (pH units)		7.0		7.0
5	pH_GEN (pH units)	6.8	7.1	7.0	6.5
6	TDS (mg/L)	75	90		
7	Temp (deg C)	29.5	25.5	33.0	34.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	39	39		
2	B (mg/L)	0.02	0.08		
3	Ca (mg/L)	13	7	9	9
4	Cl (mg/L)	9.2	10.6	7.8	20.9
5	CO3 (mg/L)	0.0	0.0		
6	F (mg/L)	0.38	0.10		
7	Fe (mg/L)	0.1	0.1		
8	HCO3 (mg/L)	47	48	45	27
9	K (mg/L)	1.8	1.6		0.2
10	Mg (mg/L)	1.5	3.9	2.8	3.8
11	Na (mg/L)	6.8	7.2		10.2
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)	1.30	0.51		
14	NO2-N (mgN/L)	0.10	0.08		
15	NO3-N (mgN/L)	1.20	0.43		
16	o-PO4-P (mg P/L)	0.060	0.110		
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	16.5	17.0		
19	SO4 (mg/L)	1.1	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4.2	0.4	0.6	3.4
2	COD (mg/L)	27.4	2.8		
3	DO (mg/L)	5.3	6.3	6.6	8.8
4	DO_SAT% (%)	69	76	92	125
5	FCol-MPN (MPN/100mL)	280	1600		
6	Tcol-MPN (MPN/100mL)	350	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.1	8.0		
2	Cd (µg/L)	0.1	0.1		
3	Cr (µg/L)	0.3	1.0		
4	Cu (µg/L)	1.1	3.4		
5	Hg (µg/L)				
6	Ni (µg/L)	0.5	5.8		
7	Pb (µg/L)	2.7	0.2		
8	Zn (µg/L)	5061.0	28.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	32	18	24	24
2	HAR_Total (mgCaCO3/L)	38	34	35	39
3	Na% (%)	27	30		36
4	RSC (-)	0.0	0.1		
5	SAR (-)	0.5	0.5		0.7
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	Sub-Division	: Chaliyar SD, Calicut
Drainage Area	: 750 Sq. Km.	Bank	: Right
Latitude	: 11°03'25"	Longitude	: 76°02'22"
Zero of Gauge (m)	: 89.000 (Arb.)	28/12/1985	30/04/1988
	: 2.000 (m.s.l.)	01/05/1988	
	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 : 2015-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	39.28	21.85
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	51	28	65
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	7.7	7.3
6	Temp (deg C)	29.5	26.5	27.0
	CHEMICAL			
1	Ca (mg/L)	3	5	6
2	Cl (mg/L)	6.5	7.8	16.9
3	HCO3 (mg/L)	16	32	48
4	K (mg/L)			
5	Mg (mg/L)	3.8	2.9	1.9
6	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.2	1.0	0.8
2	DO (mg/L)	6.4	7.0	7.0
3	DO_SAT% (%)	83	86	88
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	12	16
2	HAR_Total (mgCaCO3/L)	24	24	24
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	38	93	102
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.9	6.9	6.1
6	Temp (deg C)	28.5	26.5	27.5
	CHEMICAL			
1	Ca (mg/L)	6	6	7
2	Cl (mg/L)	18.2	18.2	22.1
3	HCO3 (mg/L)	24	42	10
4	K (mg/L)	0.1	0.3	0.2
5	Mg (mg/L)	1.9	4.7	2.9
6	Na (mg/L)	14.8	17.9	6.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	2.4	1.4
2	DO (mg/L)	6.8	8.0	7.2
3	DO_SAT% (%)	87	99	90
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16	16	18
2	HAR_Total (mgCaCO3/L)	24	35	30
3	Na% (%)	58	52	33
4	SAR (-)	1.3	1.3	0.6
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	437.0	0.000	25.78
2	EC_GEN (µmho/cm)	6	102	28	63
3	pH_GEN (pH units)	6	7.7	6.1	7.1
4	Temp (deg C)	6	29.5	26.5	27.6
	CHEMICAL				
1	Ca (mg/L)	6	7	3	6
2	Cl (mg/L)	6	22.1	6.5	15
3	HCO3 (mg/L)	6	48	10	28
4	K (mg/L)	3	0.3	0.1	0.2
5	Mg (mg/L)	6	4.7	1.9	3
6	Na (mg/L)	3	17.9	6.9	13.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	2.4	0.2	1
2	DO (mg/L)	6	8.0	6.4	7.1
3	DO_SAT% (%)	6	99	83	89
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	18	8	14
2	HAR_Total (mgCaCO3/L)	6	35	24	27
3	Na% (%)	3	58	33	48
4	SAR (-)	3	1.3	0.6	1.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	66.31	169.7		61.01	51.16
2	EC_GEN (µmho/cm)	70	67		65	55
3	pH_GEN (pH units)	6.7	6.7		6.6	7.2
4	TDS (mg/L)	54	53		51	32
5	Temp (deg C)	26.2	26.2		26.5	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	23	16		17	15
2	B (mg/L)	0.07	0.02		0.04	
3	Ca (mg/L)	5	5		4	4
4	Cl (mg/L)	11.0	11.9		8.9	7.1
5	F (mg/L)	0.16	0.15		0.05	0.09
6	Fe (mg/L)					0.0
7	HCO3 (mg/L)	28	20		20	18
8	K (mg/L)	2.6	1.6		0.6	1.0
9	Mg (mg/L)	2.9	3.6		2.5	1.5
10	Na (mg/L)	6.3	6.3		4.4	4.2
11	NH3-N (mg N/L)				0.05	
12	NO2+NO3 (mg N/L)	0.66	0.34		0.31	
13	NO2-N (mgN/L)	0.18	0.07		0.04	
14	NO3-N (mgN/L)	0.48	0.27		0.28	
15	o-PO4-P (mg P/L)				0.055	0.085
16	P-Tot (mgP/L)	0.065	0.133			
17	SiO2 (mg/L)	6.7	7.3		20.0	
18	SO4 (mg/L)	3.0	3.3		3.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.7		0.4	0.4
2	COD (mg/L)	2.1	4.6		3.2	3.2
3	DO (mg/L)	6.2	7.5		7.2	
4	DO_SAT% (%)	77	92		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)	13	13		11	10
2	HAR_Total (mgCaCO3/L)	25	28		21	16
3	Na% (%)	33	32		31	35
4	RSC (-)	0.0	0.0		0.0	0.0
5	SAR (-)	0.6	0.5		0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	52.20	52.54	23.95	62.29	256.2
2	EC_GEN (µmho/cm)	65	64	75	78	67
3	pH_GEN (pH units)	6.7	6.0	6.7	6.7	6.9
4	TDS (mg/L)	46	45	46	54	
5	Temp (deg C)	25.3	26.7	26.7	26.8	26.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	18	22	23	
2	B (mg/L)	0.55	0.20	0.07	0.05	
3	Ca (mg/L)	4	6	6	6	6
4	Cl (mg/L)	9.9	9.0	11.1	11.1	10.9
5	F (mg/L)	0.13	0.03	0.03	0.41	
6	Fe (mg/L)	0.1	0.1	0.1	0.1	
7	HCO3 (mg/L)	22	22	27	28	24
8	K (mg/L)	0.9	1.2	1.6	1.5	2.2
9	Mg (mg/L)	2.3	1.5	2.9	2.5	4.9
10	Na (mg/L)	5.4	5.1	6.3	7.3	4.6
11	NH3-N (mg N/L)	0.30	0.09	0.05		
12	NO2+NO3 (mg N/L)	0.12	0.19	1.42	0.43	
13	NO2-N (mgN/L)	0.02	0.04	0.01	0.01	
14	NO3-N (mgN/L)	0.10	0.15	1.41	0.42	
15	o-PO4-P (mg P/L)	0.061	0.064	0.465	0.095	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	26.3	19.9	14.1	11.2	
18	SO4 (mg/L)	1.9	1.0	1.1	0.8	3.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8	0.7	0.4	0.9
2	COD (mg/L)	3.1	4.7	5.5	2.4	
3	DO (mg/L)		7.1	6.7	5.6	7.1
4	DO_SAT% (%)		88	83	70	88
5	FCol-MPN (MPN/100mL)	1600	1600	1600	1250	
6	Tcol-MPN (MPN/100mL)	1600	1600	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)	11	14	16	16	16
2	HAR_Total (mgCaCO3/L)	20	20	28	26	36
3	Na% (%)	35	34	31	35	22
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.5	0.5	0.5	0.6	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	20.38	19.12	20.40		10.91
2	EC_GEN (µmho/cm)	48	72	65		84
3	pH_GEN (pH units)	7.5	6.8	6.4		7.2
4	TDS (mg/L)		55	50		67
5	Temp (deg C)	27.7	26.0	27.0		26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		18	17		27
2	B (mg/L)		0.02	0.05		
3	Ca (mg/L)	5	6	6		8
4	Cl (mg/L)	10.4	10.6	9.9		10.7
5	F (mg/L)		0.10	0.22		0.05
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	32	22	21		33
8	K (mg/L)		1.3	0.4		1.3
9	Mg (mg/L)	2.8	2.9	2.4		2.9
10	Na (mg/L)		5.6	7.6		6.7
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		0.69	0.24		
13	NO2-N (mgN/L)		0.17	0.01		
14	NO3-N (mgN/L)		0.53	0.23		0.26
15	o-PO4-P (mg P/L)					0.041
16	P-Tot (mgP/L)		0.088	0.218		
17	SiO2 (mg/L)		13.7	9.9		21.4
18	SO4 (mg/L)		2.3	5.7		1.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.2	6.4		0.4
2	COD (mg/L)		1.2	3.6		3.3
3	DO (mg/L)	6.8	7.2	7.4		7.0
4	DO_SAT% (%)	86	89	93		86
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	14	14		20
2	HAR_Total (mgCaCO3/L)	24	26	24		32
3	Na% (%)		31	40		30
4	RSC (-)		0.0	0.0		0.0
5	SAR (-)		0.5	0.7		0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	11.81	24.17	8.504	0.000	7.087
2	EC_GEN (µmho/cm)	72	61	65		81
3	pH_GEN (pH units)	7.4	6.8	6.3		6.9
4	TDS (mg/L)	43	36	44		55
5	Temp (deg C)	27.5	24.0	26.5		27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	19	20		26
2	B (mg/L)		0.22	0.11		0.02
3	Ca (mg/L)	4	5	6		7
4	Cl (mg/L)	9.9	8.4	9.9		11.0
5	F (mg/L)	0.10		0.21		0.14
6	Fe (mg/L)	0.0	0.6	0.7		
7	HCO3 (mg/L)	22	23	24		32
8	K (mg/L)	1.2	0.8	1.2		1.5
9	Mg (mg/L)	2.5	2.5	2.0		2.5
10	Na (mg/L)	6.5	5.2	5.4		7.5
11	NH3-N (mg N/L)	0.21	0.05	0.02		
12	NO2+NO3 (mg N/L)		0.24			0.38
13	NO2-N (mgN/L)		0.07			0.02
14	NO3-N (mgN/L)		0.17	2.18		0.37
15	o-PO4-P (mg P/L)	0.028	0.075	0.830		0.050
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	29.9	13.2	17.4		12.1
18	SO4 (mg/L)	1.4	1.0	0.6		1.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8	0.2		0.6
2	COD (mg/L)	4.8	6.0	1.2		3.8
3	DO (mg/L)			7.0		6.9
4	DO_SAT% (%)			86		87
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)	10	12	14		17
2	HAR_Total (mgCaCO3/L)	20	22	22		27
3	Na% (%)	40	33	33		36
4	RSC (-)	0.0	0.0	0.0		0.0
5	SAR (-)	0.6	0.5	0.5		0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	0.791	0.000			
2	EC_GEN (µmho/cm)	72	65			
3	pH_GEN (pH units)	7.4	6.9			
4	TDS (mg/L)					
5	Temp (deg C)	27.3	27.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	5	6			
4	Cl (mg/L)	8.9	18.2			
5	F (mg/L)					
6	Fe (mg/L)					
7	HCO3 (mg/L)	32	33			
8	K (mg/L)		0.2			
9	Mg (mg/L)	3.3	3.3			
10	Na (mg/L)		16.4			
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)	1.5				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.4			
2	COD (mg/L)					
3	DO (mg/L)	6.0	7.4			
4	DO_SAT% (%)	75	93			
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)	14	16			
2	HAR_Total (mgCaCO3/L)	28	29			
3	Na% (%)		55			
4	RSC (-)					
5	SAR (-)		1.3			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
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)				0.0
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
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)				
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)				0.4
2	Cd (µg/L)				0.1
3	Cr (µg/L)				1.1
4	Cu (µg/L)				2.9
5	Hg (µg/L)				
6	Ni (µg/L)				8.2
7	Pb (µg/L)				4.2
8	Zn (µg/L)				0.3
	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: 2005-2016

Station Name : KARATHODU (KL000L7)

Division : SWR Division, Kochi

Local River : Kadalundi

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_GEN (µmho/cm)		93	67	102
3	pH_GEN (pH units)		6.9	7.5	6.1
4	TDS (mg/L)		64		
5	Temp (deg C)		27.5	28.5	27.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)		32		
2	B (mg/L)		0.01		
3	Ca (mg/L)		8	5	7
4	Cl (mg/L)		14.2	3.9	22.1
5	F (mg/L)		0.21		
6	Fe (mg/L)		0.1		
7	HCO3 (mg/L)		39	11	10
8	K (mg/L)		2.6		0.2
9	Mg (mg/L)		3.9	3.8	2.8
10	Na (mg/L)		8.6		6.9
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)		0.74		
13	NO2-N (mgN/L)		0.01		
14	NO3-N (mgN/L)		0.73		
15	o-PO4-P (mg P/L)		0.090		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)		9.0		
18	SO4 (mg/L)		1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		1.4	1.4	1.4
2	COD (mg/L)		10.4		
3	DO (mg/L)		6.5	7.8	7.2
4	DO_SAT% (%)		82	100	90
5	FCol-MPN (MPN/100mL)		1600		
6	Tcol-MPN (MPN/100mL)		1600		
	TRACE & TOXIC				
1	As (µg/L)	2.6	1.2		
2	Cd (µg/L)	0.1	0.0		
3	Cr (µg/L)	0.2	1.5		
4	Cu (µg/L)	1.8	1.5		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	0.2		
7	Pb (µg/L)	2.4	0.3		
8	Zn (µg/L)	1.2	2.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		20	12	18
2	HAR_Total (mgCaCO3/L)		36	28	30
3	Na% (%)		32		33
4	RSC (-)		0.0		
5	SAR (-)		0.6		0.6
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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.)	01/06/1978	31/05/2007
	: 2.000 (m.s.l.)	01/06/2007	
	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 : 2015-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	24.04	103.1	428.0
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	288	218	160
4	EC_GEN (µmho/cm)	309	35	140
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	7.1	6.7	6.7
7	Temp (deg C)	29.0	28.0	27.0
	CHEMICAL			
1	Ca (mg/L)	16	17	16
2	Cl (mg/L)	20.9	7.8	26.1
3	Fe (mg/L)			
4	HCO3 (mg/L)	69	111	50
5	K (mg/L)			
6	Mg (mg/L)	9.5	6.7	5.7
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.2	0.4	0.6
2	DO (mg/L)	6.4	6.0	5.8
3	DO_SAT% (%)	83	77	73
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	39	43	39
2	HAR_Total (mgCaCO3/L)	79	71	63
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	32.89	12.00	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	201	93	260
4	EC_GEN (µmho/cm)	99	24	116
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	6.2	6.0	6.5
7	Temp (deg C)	28.0	28.0	30.0
	CHEMICAL			
1	Ca (mg/L)	13	16	9
2	Cl (mg/L)	28.7	30.0	33.5
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	2	61	15
5	K (mg/L)	0.3	0.4	0.2
6	Mg (mg/L)	3.8	6.3	3.8
7	Na (mg/L)	15.2	16.6	15.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	0.2	2.2
2	DO (mg/L)	6.8	6.0	7.2
3	DO_SAT% (%)	87	77	95
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	31	39	24
2	HAR_Total (mgCaCO3/L)	47	65	39
3	Na% (%)	41	36	46
4	SAR (-)	1.0	0.9	1.1
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1297	0.000	90.05
2	EC_FLD (µmho/cm)	6	288	93	203
3	EC_GEN (µmho/cm)	6	309	24	120
4	pH_GEN (pH units)	6	7.1	6.0	6.5
5	Temp (deg C)	6	30.0	27.0	28.3
	CHEMICAL				
1	Ca (mg/L)	6	17	9	14
2	Cl (mg/L)	6	33.5	7.8	24.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO3 (mg/L)	6	111	2	51
5	K (mg/L)	3	0.4	0.2	0.3
6	Mg (mg/L)	6	9.5	3.8	6
7	Na (mg/L)	3	16.6	15.2	15.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	2.2	0.2	0.9
2	DO (mg/L)	6	7.2	5.8	6.4
3	DO_SAT% (%)	6	95	73	82
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	43	24	36
2	HAR_Total (mgCaCO3/L)	6	79	39	61
3	Na% (%)	3	46	36	41
4	SAR (-)	3	1.1	0.9	1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	598.3	581.6	280.4	209.2	196.4
2	EC_FLD (µmho/cm)	98	116	117	126	
3	EC_GEN (µmho/cm)	98	117	150	185	85
4	pH_FLD (pH units)	7.7	7.4	7.8	7.5	
5	pH_GEN (pH units)	7.2	7.2	7.5	7.5	7.4
6	TDS (mg/L)	70	89	123	146	51
7	Temp (deg C)	27.2	27.5	28.7	28.2	29.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	32	35	45	52	26
2	B (mg/L)	0.07	0.03	0.00	0.42	0.27
3	Ca (mg/L)	8	9	14	12	7
4	Cl (mg/L)	12.3	14.9	17.5	20.7	11.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.25	0.27	0.28	0.12	0.13
7	Fe (mg/L)				0.1	0.1
8	HCO3 (mg/L)	39	43	54	63	32
9	K (mg/L)	1.8	2.0	2.1	1.8	1.8
10	Mg (mg/L)	4.1	5.3	6.1	8.9	2.0
11	Na (mg/L)	7.2	10.4	12.1	13.1	6.8
12	NH3-N (mg N/L)				0.05	0.16
13	NO2+NO3 (mg N/L)	0.33	1.45	4.13	0.16	
14	NO2-N (mgN/L)	0.08	0.13	0.12	0.05	
15	NO3-N (mgN/L)	0.25	1.32	4.01	0.43	
16	o-PO4-P (mg P/L)			0.216	0.174	0.055
17	P-Tot (mgP/L)	0.161	0.149	0.166	0.010	
18	SiO2 (mg/L)	8.1	11.9	22.3	25.5	36.1
19	SO4 (mg/L)	4.9	9.7	9.7	7.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8	1.1	0.5	0.3
2	COD (mg/L)	4.0	5.8	9.2	4.1	5.4
3	DO (mg/L)	6.0	7.3	6.9	6.6	
4	DO_SAT% (%)	75	93	88	84	
5	FCol-MPN (MPN/100mL)			870	940	403
6	Tcol-MPN (MPN/100mL)			940	1050	1150
	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)	21	22	36	29	19
2	HAR_Total (mgCaCO3/L)	38	44	61	66	27
3	Na% (%)	29	33	29	30	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.7	0.7	0.7	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	241.8	158.5	53.27	231.7	930.1
2	EC_FLD (µmho/cm)	157	200	171	160	212
3	EC_GEN (µmho/cm)	143	114	113	101	133
4	pH_FLD (pH units)	7.7	7.3	7.9	7.4	
5	pH_GEN (pH units)	7.3	6.6	6.9	6.8	6.8
6	TDS (mg/L)	91	80	77	71	
7	Temp (deg C)	28.7	26.7	29.2	26.8	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	40	37	37	34	
2	B (mg/L)	0.07	0.17	0.09	0.06	
3	Ca (mg/L)	8	10	9	9	12
4	Cl (mg/L)	13.0	14.0	12.9	11.8	15.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.14	0.07	0.08	1.09	
7	Fe (mg/L)	0.1	0.1	0.1	0.1	
8	HCO3 (mg/L)	49	45	45	42	54
9	K (mg/L)	2.3	1.8	1.9	2.1	3.0
10	Mg (mg/L)	5.0	3.4	4.2	3.4	5.3
11	Na (mg/L)	9.2	8.2	8.5	7.3	8.2
12	NH3-N (mg N/L)	0.19	0.07	0.15		
13	NO2+NO3 (mg N/L)	0.29	0.29	2.04	0.73	
14	NO2-N (mgN/L)	0.02	0.06	0.04	0.09	
15	NO3-N (mgN/L)	0.27	0.23	2.00	0.65	
16	o-PO4-P (mg P/L)	0.134	0.115	0.297	0.087	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	24.3	21.7	15.7	6.1	
19	SO4 (mg/L)	2.6	2.6	1.3	0.7	8.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1	0.3	0.8	1.2	1.1
2	COD (mg/L)	8.9	2.3	5.6	8.5	
3	DO (mg/L)	8.2	6.3	6.8	6.2	6.6
4	DO_SAT% (%)	106	78	88	78	83
5	FCol-MPN (MPN/100mL)	767	950	303	1050	
6	Tcol-MPN (MPN/100mL)	1367	1250	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)	21	25	23	23	29
2	HAR_Total (mgCaCO3/L)	42	40	41	37	51
3	Na% (%)	31	30	30	29	25
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.6	0.6	0.6	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
			Jun - Oct	Nov - Feb		
				2005-2006	2006-2007	2007-2008
		2015		2008-2009		
	PHYSICAL					
1	Q (cumec)	185.0	25.43	33.08	41.76	28.44
2	EC_FLD (µmho/cm)	222	157	176	207	
3	EC_GEN (µmho/cm)	161	207	178	224	234
4	pH_FLD (pH units)		8.1	7.3	7.6	
5	pH_GEN (pH units)	6.8	7.8	7.6	7.6	7.9
6	TDS (mg/L)		167	143	192	187
7	Temp (deg C)	28.0	25.8	27.8	29.5	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		57	60	62	69
2	B (mg/L)		0.03	0.01	0.02	0.07
3	Ca (mg/L)	16	16	16	14	16
4	Cl (mg/L)	18.2	21.0	18.9	22.7	27.0
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.21	0.49	0.32	0.23
7	Fe (mg/L)				0.4	0.1
8	HCO3 (mg/L)	77	70	73	75	84
9	K (mg/L)		2.0	1.6	2.0	2.3
10	Mg (mg/L)	7.3	7.5	8.0	9.0	9.5
11	Na (mg/L)		12.8	16.4	14.3	16.7
12	NH3-N (mg N/L)				0.05	
13	NO2+NO3 (mg N/L)		0.36	1.04	2.44	0.42
14	NO2-N (mgN/L)		0.06	0.00	0.22	0.10
15	NO3-N (mgN/L)		0.30	1.04	2.22	0.33
16	o-PO4-P (mg P/L)				0.193	0.073
17	P-Tot (mgP/L)		0.212	0.054	0.346	
18	SiO2 (mg/L)		14.7	13.1	12.9	21.9
19	SO4 (mg/L)		5.6	10.0	10.2	9.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.3	0.8	0.9	1.1
2	COD (mg/L)		3.2	6.9	7.0	6.6
3	DO (mg/L)	6.1	6.6	7.3	6.9	7.3
4	DO_SAT% (%)	78	81	92	90	92
5	FCol-MPN (MPN/100mL)				500	1600
6	Tcol-MPN (MPN/100mL)				900	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)	40	41	39	36	39
2	HAR_Total (mgCaCO3/L)	71	72	72	74	78
3	Na% (%)		27	33	29	31
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.7	0.9	0.7	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	27.84	83.05	47.56	8.215	28.30
2	EC_FLD (µmho/cm)		195	230	165	230
3	EC_GEN (µmho/cm)	192	159	182	148	129
4	pH_FLD (pH units)		7.4	7.5	7.2	
5	pH_GEN (pH units)	7.4	7.4	7.2	6.6	6.9
6	TDS (mg/L)	115	105	130	93	91
7	Temp (deg C)	27.3	26.5	26.0	27.5	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	65	55	59	43	45
2	B (mg/L)	0.38	0.20	0.18	0.13	0.06
3	Ca (mg/L)	15	14	15	12	12
4	Cl (mg/L)	18.4	18.6	18.1	15.6	12.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.16	0.10	1.91	1.08	0.50
7	Fe (mg/L)	0.0	0.3	0.8	0.1	
8	HCO3 (mg/L)	79	67	73	53	55
9	K (mg/L)	2.4	1.8	2.3	2.5	1.9
10	Mg (mg/L)	7.1	5.9	7.3	5.8	4.4
11	Na (mg/L)	14.1	10.8	11.5	9.7	9.2
12	NH3-N (mg N/L)	0.22	0.06	0.03	0.11	
13	NO2+NO3 (mg N/L)		0.35		4.06	0.78
14	NO2-N (mgN/L)		0.08		0.07	0.05
15	NO3-N (mgN/L)		0.28	2.80	3.99	0.72
16	o-PO4-P (mg P/L)	0.037	0.157	0.358	0.176	0.012
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	28.7	16.9	18.5	15.0	5.2
19	SO4 (mg/L)	4.6	1.0	5.6	1.2	2.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.9	0.5	0.5	0.9
2	COD (mg/L)	4.2	6.2	4.1	2.4	6.4
3	DO (mg/L)	9.2	8.4	6.8	6.5	7.5
4	DO_SAT% (%)	115	105	84	82	94
5	FCol-MPN (MPN/100mL)	1250	505	1600	320	1600
6	Tcol-MPN (MPN/100mL)	1600	885	1600	560	1600
	TRACE & TOXIC					
1	As (µg/L)			0.6		
2	Cd (µg/L)			0.2		
3	Cr (µg/L)			1.3		
4	Cu (µg/L)			4.7		
5	Hg (µg/L)					
6	Ni (µg/L)			1.7		
7	Pb (µg/L)			0.4		
8	Zn (µg/L)			5.8		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	38	35	37	31	29
2	HAR_Total (mgCaCO3/L)	68	60	67	55	47
3	Na% (%)	30	28	27	27	31
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.6	0.6	0.6	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	29.05	22.44	2.168	4.395	13.79
2	EC_FLD (µmho/cm)		147	118		
3	EC_GEN (µmho/cm)	199	61	95	74	126
4	pH_FLD (pH units)			8.0	7.4	
5	pH_GEN (pH units)	7.2	6.1	7.9	7.2	7.3
6	TDS (mg/L)			68	56	106
7	Temp (deg C)	27.0	28.0	30.0	29.0	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			27	22	34
2	B (mg/L)			0.03	0.01	0.02
3	Ca (mg/L)	13	14	8	5	8
4	Cl (mg/L)	23.1	29.3	19.9	12.8	14.3
5	CO3 (mg/L)			0.0	0.0	0.0
6	F (mg/L)			0.28	0.05	0.33
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	86	31	33	27	42
9	K (mg/L)		0.3	2.0	2.5	2.4
10	Mg (mg/L)	9.5	5.0	3.9	2.0	5.0
11	Na (mg/L)		15.9	11.1	8.2	9.2
12	NH3-N (mg N/L)					0.05
13	NO2+NO3 (mg N/L)			0.51	1.30	1.10
14	NO2-N (mgN/L)			0.13	0.01	0.12
15	NO3-N (mgN/L)			0.38	1.28	0.98
16	o-PO4-P (mg P/L)					0.195
17	P-Tot (mgP/L)			0.382		0.195
18	SiO2 (mg/L)			15.8	9.6	14.8
19	SO4 (mg/L)	6.3		2.8	1.5	4.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.6	0.4	1.8	1.8
2	COD (mg/L)			5.6	12.4	15.8
3	DO (mg/L)	7.0	6.4	5.4	7.0	7.4
4	DO_SAT% (%)	88	82	71	91	93
5	FCol-MPN (MPN/100mL)					300
6	Tcol-MPN (MPN/100mL)					500
	TRACE & TOXIC					
1	As (µg/L)			7.4	9.8	4.4
2	Cd (µg/L)	0.1		4.0	1.0	0.6
3	Cr (µg/L)	0.5		2.7	17.2	2.5
4	Cu (µg/L)	10.1		2.4	15.4	5.6
5	Hg (µg/L)			0.2		
6	Ni (µg/L)	2.9		3.5	10.6	
7	Pb (µg/L)	1.8		5.2	1.2	1.0
8	Zn (µg/L)	9.7		52.0	18.0	30.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	33	35	20	12	20
2	HAR_Total (mgCaCO3/L)	73	56	36	20	41
3	Na% (%)		38	38	43	31
4	RSC (-)			0.0	0.0	0.0
5	SAR (-)		0.9	0.8	0.8	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	3.185	5.435	26.32	9.195
2	EC_FLD (µmho/cm)			132	109
3	EC_GEN (µmho/cm)	98	98	115	151
4	pH_FLD (pH units)			7.5	8.0
5	pH_GEN (pH units)	7.4	7.3	6.5	7.1
6	TDS (mg/L)	79	57	75	109
7	Temp (deg C)	30.0	32.0	29.0	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	26	29	38	51
2	B (mg/L)	0.07		0.12	0.35
3	Ca (mg/L)	6	6	10	12
4	Cl (mg/L)	9.9	11.4	12.8	15.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0
6	F (mg/L)	0.07	0.26	0.16	0.15
7	Fe (mg/L)	0.0	0.0	0.2	0.1
8	HCO3 (mg/L)	32	35	46	62
9	K (mg/L)	3.0	1.8	2.2	2.3
10	Mg (mg/L)	3.5	2.9	3.4	6.4
11	Na (mg/L)	6.9	8.6	7.8	10.9
12	NH3-N (mg N/L)	0.08	0.49	0.05	0.12
13	NO2+NO3 (mg N/L)	0.31		0.34	3.11
14	NO2-N (mgN/L)	0.05		0.06	0.11
15	NO3-N (mgN/L)	0.26	0.12	0.28	3.00
16	o-PO4-P (mg P/L)	0.010		0.020	0.095
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	25.6	29.8	17.1	16.4
19	SO4 (mg/L)	3.6	1.0	1.0	0.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.6	1.4	1.6
2	COD (mg/L)	4.5	4.2	10.6	14.8
3	DO (mg/L)	6.0		7.4	5.6
4	DO_SAT% (%)	79		96	73
5	FCol-MPN (MPN/100mL)	1600	900	500	1600
6	Tcol-MPN (MPN/100mL)	1600	1600	900	1600
	TRACE & TOXIC				
1	As (µg/L)	1.5		1.0	0.3
2	Cd (µg/L)			0.0	0.0
3	Cr (µg/L)	2.0		0.7	1.6
4	Cu (µg/L)	1.1		2.9	0.7
5	Hg (µg/L)			0.0	
6	Ni (µg/L)	10.8			3.1
7	Pb (µg/L)	1.0		0.2	3.8
8	Zn (µg/L)			3.2	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14	16	24	30
2	HAR_Total (mgCaCO3/L)	29	28	38	57
3	Na% (%)	32	38	29	29
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.7	0.6	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUMBIDI (KR000C9)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	1.333	0.880	0.000	0.000
2	EC_FLD (µmho/cm)				260
3	EC_GEN (µmho/cm)	86	86	65	116
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.2	7.0	7.2	6.5
6	TDS (mg/L)	56	56		
7	Temp (deg C)	30.0	29.0	27.0	30.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	26	28		
2	B (mg/L)	0.17	0.04		
3	Ca (mg/L)	8	7	11	9
4	Cl (mg/L)	12.0	10.6	5.2	33.5
5	CO3 (mg/L)	0.0	0.0		
6	F (mg/L)	0.52	0.12		
7	Fe (mg/L)	0.2	0.0		
8	HCO3 (mg/L)	32	34	82	15
9	K (mg/L)	2.3	2.9		0.2
10	Mg (mg/L)	2.5	3.0	2.8	3.8
11	Na (mg/L)	7.4	7.2		15.6
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)	0.84	0.34		
14	NO2-N (mgN/L)	0.05	0.07		
15	NO3-N (mgN/L)	0.79	0.27		
16	o-PO4-P (mg P/L)	0.120	0.075		
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	16.0	17.0		
19	SO4 (mg/L)	0.7	1.2		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.6	0.6	0.4	2.2
2	COD (mg/L)	9.6	4.3		
3	DO (mg/L)	6.1	5.7	6.2	7.2
4	DO_SAT% (%)	81	74	78	95
5	Fcol-MPN (MPN/100mL)	280	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.5	2.1		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.2	0.4		
4	Cu (µg/L)	1.9	0.8		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	1.7		
7	Pb (µg/L)	2.6	0.1		
8	Zn (µg/L)	1.7	0.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	18	27	24
2	HAR_Total (mgCaCO3/L)	30	31	39	39
3	Na% (%)	33	32		46
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.6	0.6		1.1
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	6.724	23.39	44.05
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_GEN (µmho/cm)	94	39	56
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	6.8	7.6
6	Temp (deg C)	32.0	29.0	29.0
	CHEMICAL			
1	Ca (mg/L)	5	5	6
2	Cl (mg/L)	9.1	9.1	18.6
3	Fe (mg/L)			
4	HCO3 (mg/L)	21	37	45
5	K (mg/L)			
6	Mg (mg/L)	3.8	1.9	1.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.8	1.0
2	DO (mg/L)	6.8	6.2	6.6
3	DO_SAT% (%)	93	81	86
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	12	16
2	HAR_Total (mgCaCO3/L)	28	20	24
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water Analysis

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	15.82	2.466	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	35	52	75
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	7.0	6.0
6	Temp (deg C)	29.0	29.0	32.0
	CHEMICAL			
1	Ca (mg/L)	5	5	9
2	Cl (mg/L)	11.7	22.2	27.4
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	29	24	12
5	K (mg/L)	0.1	0.2	0.4
6	Mg (mg/L)	1.0	3.1	2.9
7	Na (mg/L)	8.0	13.5	13.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	1.4	1.8
2	DO (mg/L)	7.2	7.2	6.6
3	DO_SAT% (%)	94	94	90
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	12	24
2	HAR_Total (mgCaCO3/L)	16	25	35
3	Na% (%)	52	54	45
4	SAR (-)	0.9	1.2	1.0
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water Summary

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	401.2	0.000	29.66
2	EC_GEN (µmho/cm)	6	94	35	58
3	pH_GEN (pH units)	6	7.6	6.0	7
4	Temp (deg C)	6	32.0	29.0	30
	CHEMICAL				
1	Ca (mg/L)	6	9	5	6
2	Cl (mg/L)	6	27.4	9.1	16.3
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	45	12	28
5	K (mg/L)	3	0.4	0.1	0.2
6	Mg (mg/L)	6	3.8	1.0	2.4
7	Na (mg/L)	3	13.5	8.0	11.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.8	0.8	1.1
2	DO (mg/L)	6	7.2	6.2	6.8
3	DO_SAT% (%)	6	94	81	90
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	24	12	14
2	HAR_Total (mgCaCO ₃ /L)	6	35	16	24
3	Na% (%)	3	54	45	50
4	SAR (-)	3	1.2	0.9	1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
		PULAMANTHOLE				
	PHYSICAL					
1	Q (cumec)	143.5			85.22	67.61
2	EC_GEN (µmho/cm)	58			57	53
3	pH_GEN (pH units)	6.7			6.7	7.1
4	TDS (mg/L)	38			44	30
5	Temp (deg C)	28.5			27.3	27.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	20			16	15
2	B (mg/L)	0.14			0.01	
3	Ca (mg/L)	5			4	4
4	Cl (mg/L)	8.5			8.0	7.5
5	F (mg/L)	0.14			0.05	0.09
6	Fe (mg/L)					0.0
7	HCO3 (mg/L)	24			20	18
8	K (mg/L)	1.7			1.1	1.2
9	Mg (mg/L)	2.4			2.1	1.2
10	Na (mg/L)	4.7			4.3	4.7
11	NH3-N (mg N/L)					0.12
12	NO2+NO3 (mg N/L)	0.19			0.33	
13	NO2-N (mgN/L)	0.01			0.05	
14	NO3-N (mgN/L)	0.18			0.22	
15	o-PO4-P (mg P/L)				0.024	0.054
16	P-Tot (mgP/L)	0.055			0.010	
17	SiO2 (mg/L)	8.0			21.9	30.5
18	SO4 (mg/L)	2.2			1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3			0.8	0.5
2	COD (mg/L)	2.1			6.3	4.1
3	DO (mg/L)	6.4			6.7	
4	DO_SAT% (%)	82			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)	11			11	11
2	HAR_Total (mgCaCO3/L)	21			19	16
3	Na% (%)	31			32	37
4	RSC (-)	0.0			0.0	0.0
5	SAR (-)	0.4			0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	84.93	68.52	26.12	95.33	246.2
2	EC_GEN (µmho/cm)	65	63	63	55	57
3	pH_GEN (pH units)	6.7	6.1	6.9	6.7	6.9
4	TDS (mg/L)	43	42	42	37	
5	Temp (deg C)	28.8	29.7	30.5	27.0	29.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19	20	20	18	
2	B (mg/L)	0.12	0.16	0.05	0.07	
3	Ca (mg/L)	5	7	6	5	6
4	Cl (mg/L)	8.6	8.5	7.9	8.8	8.5
5	F (mg/L)	0.21	0.06	0.02	0.21	
6	Fe (mg/L)	0.1	0.1	0.1	0.1	
7	HCO3 (mg/L)	23	24	25	21	22
8	K (mg/L)	1.2	1.5	1.4	1.7	1.9
9	Mg (mg/L)	2.1	1.3	3.1	2.0	3.4
10	Na (mg/L)	4.7	4.7	4.7	5.4	3.9
11	NH3-N (mg N/L)	0.44	0.08	0.03		
12	NO2+NO3 (mg N/L)	0.12	0.23	1.48	0.46	
13	NO2-N (mgN/L)	0.02	0.03	0.01	0.02	
14	NO3-N (mgN/L)	0.14	0.20	1.47	0.44	
15	o-PO4-P (mg P/L)	0.053	0.038	0.263	0.099	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	23.6	19.7	13.4	12.8	
18	SO4 (mg/L)	1.1	1.1	0.9	0.8	2.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.6	0.5	0.8	0.8
2	COD (mg/L)	4.4	2.3	3.4	4.5	
3	DO (mg/L)		6.5	6.4	5.8	7.0
4	DO_SAT% (%)		85	85	73	92
5	FCol-MPN (MPN/100mL)		350	900	1250	
6	Tcol-MPN (MPN/100mL)		1600	1600	1600	763
	TRACE & TOXIC					
1	As (µg/L)			0.0	6.1	
2	Cd (µg/L)			0.0	0.1	
3	Cr (µg/L)			1.7	1.2	
4	Cu (µg/L)			3.4	0.3	
5	Hg (µg/L)				0.0	
6	Ni (µg/L)			1.7	7.9	
7	Pb (µg/L)			2.6		
8	Zn (µg/L)			17.2	5.0	
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	17	14	11	16
2	HAR_Total (mgCaCO3/L)	21	22	27	20	30
3	Na% (%)	33	30	26	35	24
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.5	0.4	0.4	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Flood	Winter			
			Nov - Feb			
		Jun - Oct	2005-2006	2006-2007	2007-2008	2008-2009
		2015				
	PHYSICAL					
1	Q (cumec)	24.72	9.013			13.26
2	EC_GEN (µmho/cm)	63	67			72
3	pH_GEN (pH units)	7.3	7.3			7.3
4	TDS (mg/L)		47			56
5	Temp (deg C)	30.0	28.8			28.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		17			24
2	B (mg/L)		0.02			0.10
3	Ca (mg/L)	5	5			6
4	Cl (mg/L)	12.3	9.6			9.2
5	F (mg/L)		0.05			0.05
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	34	21			29
8	K (mg/L)		1.4			1.4
9	Mg (mg/L)	2.5	2.0			2.9
10	Na (mg/L)		5.5			6.2
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		1.25			
13	NO2-N (mgN/L)		0.32			
14	NO3-N (mgN/L)		0.93			0.08
15	o-PO4-P (mg P/L)					0.020
16	P-Tot (mgP/L)		0.158			
17	SiO2 (mg/L)		14.6			20.7
18	SO4 (mg/L)		1.0			1.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.3			1.2
2	COD (mg/L)		2.2			9.2
3	DO (mg/L)	6.5	5.9			6.8
4	DO_SAT% (%)	87	76			87
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)	13	13			14
2	HAR_Total (mgCaCO3/L)	24	21			26
3	Na% (%)		34			33
4	RSC (-)		0.0			0.0
5	SAR (-)		0.5			0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	9.022	24.29	13.00	4.305	15.93
2	EC_GEN (µmho/cm)	63	65	65	71	68
3	pH_GEN (pH units)	6.6	6.9	6.9	6.7	6.9
4	TDS (mg/L)	37	41	41	45	42
5	Temp (deg C)	29.3	28.0	28.5	29.3	28.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	24	21	25	23	28
2	B (mg/L)	0.66	0.32	0.19	0.11	0.10
3	Ca (mg/L)	6	6	6	7	7
4	Cl (mg/L)	7.5	6.4	9.6	8.5	8.8
5	F (mg/L)	0.25	0.09	0.29	0.28	0.14
6	Fe (mg/L)	0.1	0.2	1.5	0.1	
7	HCO3 (mg/L)	29	26	30	29	34
8	K (mg/L)	1.4	1.1	1.4	1.5	1.5
9	Mg (mg/L)	1.5	2.2	2.5	2.7	1.7
10	Na (mg/L)	5.5	4.2	5.6	5.7	5.8
11	NH3-N (mg N/L)	0.17	0.05	0.07	0.03	
12	NO2+NO3 (mg N/L)		0.27		2.17	0.24
13	NO2-N (mgN/L)		0.01		0.03	0.01
14	NO3-N (mgN/L)		0.26	1.53	2.13	0.23
15	o-PO4-P (mg P/L)	0.026	0.119	0.229	0.149	0.040
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	29.1	13.6	17.3	15.2	12.4
18	SO4 (mg/L)	1.0	1.0	0.6	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.3	0.3	0.4	0.5
2	COD (mg/L)	6.1	1.9	3.7	2.8	3.4
3	DO (mg/L)			6.8	7.1	7.7
4	DO_SAT% (%)			88	92	99
5	FCol-MPN (MPN/100mL)				600	500
6	Tcol-MPN (MPN/100mL)				1050	900
	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	15	16	18	18
2	HAR_Total (mgCaCO3/L)	20	24	26	29	25
3	Na% (%)	35	27	30	29	32
4	RSC (-)	0.1	0.0	0.0	0.0	0.1
5	SAR (-)	0.5	0.4	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	7.626	9.142	7.353		
2	EC_GEN (µmho/cm)	78	44	70		
3	pH_GEN (pH units)	7.3	7.0	7.3		
4	TDS (mg/L)			53		
5	Temp (deg C)	29.5	29.0	33.0		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			21		
2	B (mg/L)			0.03		
3	Ca (mg/L)	5	5	4		
4	Cl (mg/L)	8.8	16.9	12.8		
5	F (mg/L)			0.16		
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	36	26	26		
8	K (mg/L)		0.2	1.8		
9	Mg (mg/L)	3.8	2.0	2.4		
10	Na (mg/L)		10.7	6.4		
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)			0.68		
13	NO2-N (mgN/L)			0.15		
14	NO3-N (mgN/L)			0.52		
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)			0.247		
17	SiO2 (mg/L)			13.8		
18	SO4 (mg/L)	1.3		1.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.2	1.4		
2	COD (mg/L)			4.2		
3	DO (mg/L)	7.0	7.2	6.0		
4	DO_SAT% (%)	92	94	84		
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			5.4		
2	Cd (µg/L)	0.1		4.0		
3	Cr (µg/L)	3.1				
4	Cu (µg/L)	5.5		1.5		
5	Hg (µg/L)					
6	Ni (µg/L)	1.1		1.2		
7	Pb (µg/L)	0.2		0.6		
8	Zn (µg/L)	9.5				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	14	12	9		
2	HAR_Total (mgCaCO3/L)	30	20	19		
3	Na% (%)		53	40		
4	RSC (-)			0.0		
5	SAR (-)		1.0	0.6		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

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

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PULAMANTHOLE (KRA00G4)

Division : SWR Division, Kochi

Local River : Pulanthodu

River Water

Sub-Division : Chaliyar SD, Calicut

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	2.187	1.045	3.346	0.000
2	EC_GEN (µmho/cm)	71	67	71	75
3	pH_GEN (pH units)	7.0	6.9	7.6	6.0
4	TDS (mg/L)	46	45		
5	Temp (deg C)	28.5	32.5	34.5	32.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	24	23		
2	B (mg/L)	0.09	0.08		
3	Ca (mg/L)	6	8	5	9
4	Cl (mg/L)	7.8	8.5	9.1	27.4
5	F (mg/L)	0.38	0.02		
6	Fe (mg/L)	0.0	0.0		
7	HCO3 (mg/L)	29	28	18	12
8	K (mg/L)	2.4	2.5		0.4
9	Mg (mg/L)	2.9	2.5	3.8	2.8
10	Na (mg/L)	5.2	4.7		13.2
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.71	0.90		
13	NO2-N (mgN/L)	0.01	0.01		
14	NO3-N (mgN/L)	0.70	0.89		
15	o-PO4-P (mg P/L)	0.030	0.100		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	15.8	17.5		
18	SO4 (mg/L)	0.8	1.4		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.8	1.0	1.0	1.8
2	COD (mg/L)	5.2	7.2		
3	DO (mg/L)	6.1	6.5	7.2	6.6
4	DO_SAT% (%)	78	89	102	90
5	FCol-MPN (MPN/100mL)	900	1600		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.9	1.0		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.1	0.4		
4	Cu (µg/L)	5.4	1.6		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	7.7		
7	Pb (µg/L)	3.0	0.2		
8	Zn (µg/L)	2.0	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	20	12	24
2	HAR_Total (mgCaCO3/L)	28	30	28	35
3	Na% (%)	27	23		45
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.4	0.4		1.0
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	5.694	7.513	48.32
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	261	71	385
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	6.9	7.1
6	Temp (deg C)	29.5	29.0	30.0
	CHEMICAL			
1	Ca (mg/L)	5	5	19
2	Cl (mg/L)	24.8	18.2	18.2
3	Fe (mg/L)			
4	HCO3 (mg/L)	119	135	40
5	K (mg/L)			
6	Mg (mg/L)	1.9	1.9	6.7
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.8	0.8
2	DO (mg/L)	7.2	6.6	6.2
3	DO_SAT% (%)	94	86	82
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	12	47
2	HAR_Total (mgCaCO3/L)	20	20	75
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	11.14	3.958	0.155
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	29	360	197
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.2	7.4	6.2
6	Temp (deg C)	29.0	26.5	29.3
	CHEMICAL			
1	Ca (mg/L)	28	9	16
2	Cl (mg/L)	18.2	10.4	16.9
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	34	85	29
5	K (mg/L)	0.6	0.2	0.4
6	Mg (mg/L)	3.8	4.7	3.8
7	Na (mg/L)	13.4	8.2	8.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	1.0	1.4
2	DO (mg/L)	5.8	6.4	6.2
3	DO_SAT% (%)	75	79	81
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	70	24	39
2	HAR_Total (mgCaCO3/L)	86	43	55
3	Na% (%)	25	29	26
4	SAR (-)	0.6	0.5	0.5
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	308.1	0.000	13.91
2	EC_GEN (µmho/cm)	6	385	29	217
3	pH_GEN (pH units)	6	7.5	6.2	7
4	Temp (deg C)	6	30.0	26.5	28.9
	CHEMICAL				
1	Ca (mg/L)	6	28	5	14
2	Cl (mg/L)	6	24.8	10.4	17.8
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	135	29	74
5	K (mg/L)	3	0.6	0.2	0.4
6	Mg (mg/L)	6	6.7	1.9	3.8
7	Na (mg/L)	3	13.4	8.2	10.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.4	0.6	0.9
2	DO (mg/L)	6	7.2	5.8	6.4
3	DO_SAT% (%)	6	94	75	83
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	70	12	34
2	HAR_Total (mgCaCO ₃ /L)	6	86	20	50
3	Na% (%)	3	29	25	27
4	SAR (-)	3	0.6	0.5	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	58.74				27.79
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	213			470	209
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.6			7.9	7.6
6	TDS (mg/L)	149			375	135
7	Temp (deg C)	27.2			30.5	22.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0			0.0	0.0
2	ALK-TOT (mgCaCO3/L)	89			151	62
3	B (mg/L)	0.04			0.03	1.37
4	Ca (mg/L)	21			31	18
5	Cl (mg/L)	20.1			43.3	22.8
6	CO3 (mg/L)	0.0			0.0	0.0
7	F (mg/L)	0.42			0.05	0.17
8	Fe (mg/L)				0.0	0.0
9	HCO3 (mg/L)	108			184	76
10	K (mg/L)	3.4			2.6	3.8
11	Mg (mg/L)	8.8			19.6	5.4
12	Na (mg/L)	13.2			31.0	16.2
13	NH3-N (mg N/L)					0.30
14	NO2+NO3 (mg N/L)	1.04				
15	NO2-N (mgN/L)	0.33				
16	NO3-N (mgN/L)	0.70			0.41	
17	o-PO4-P (mg P/L)				0.032	0.134
18	P-Tot (mgP/L)	0.042				
19	SiO2 (mg/L)	8.7			26.8	29.6
20	SO4 (mg/L)	4.8			20.5	6.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					0.6
2	COD (mg/L)	8.9				6.3
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)	53			78	46
2	HAR_Total (mgCaCO3/L)	89			160	68
3	Na% (%)	24			29	32
4	RSC (-)	0.1			0.0	0.0
5	SAR (-)	0.6			1.1	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	21.31	21.45	4.779	33.94	176.2
2	EC_FLD (µmho/cm)				182	
3	EC_GEN (µmho/cm)	238	382	356	173	217
4	pH_FLD (pH units)				6.8	
5	pH_GEN (pH units)	7.3	7.2	7.5	7.1	7.4
6	TDS (mg/L)	142	274	251	130	
7	Temp (deg C)	28.0	29.0	28.5	27.3	29.2
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	65	111	127	66	
3	B (mg/L)	0.34	0.28	0.19	0.06	
4	Ca (mg/L)	13	27	31	17	21
5	Cl (mg/L)	21.3	41.9	30.7	14.9	18.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	
7	F (mg/L)	0.11	0.28	0.36	2.21	
8	Fe (mg/L)	0.1	0.1	0.2	0.1	
9	HCO3 (mg/L)	79	135	155	80	102
10	K (mg/L)	3.0	2.9	3.8	3.0	4.1
11	Mg (mg/L)	9.0	12.6	14.4	6.6	15.7
12	Na (mg/L)	16.2	25.2	20.8	10.1	11.6
13	NH3-N (mg N/L)	0.27	0.13	0.18		
14	NO2+NO3 (mg N/L)	0.23	0.55	5.70	0.54	
15	NO2-N (mgN/L)	0.03	0.11	0.12	0.13	
16	NO3-N (mgN/L)	0.20	0.43	5.58	0.41	
17	o-PO4-P (mg P/L)	0.135	0.104	0.350	0.155	
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	21.1	20.2	18.6	15.0	
20	SO4 (mg/L)	6.1	12.5	5.8	1.0	13.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)				1.4	1.1
2	COD (mg/L)	11.9			11.1	
3	DO (mg/L)				3.9	6.1
4	DO SAT% (%)				50	79
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)	31	67	77	42	53
2	HAR_Total (mgCaCO3/L)	69	120	137	69	118
3	Na% (%)	33	30	24	23	18
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.8	1.0	0.8	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	20.51	7.200			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	239	322			358
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.1	7.9			8.0
6	TDS (mg/L)		228			291
7	Temp (deg C)	29.5	25.8			27.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			0.0
2	ALK-TOT (mgCaCO3/L)		89			120
3	B (mg/L)		0.37			0.06
4	Ca (mg/L)	9	27			34
5	Cl (mg/L)	20.4	30.0			25.9
6	CO3 (mg/L)		0.0			0.0
7	F (mg/L)		0.26			0.38
8	Fe (mg/L)					0.1
9	HCO3 (mg/L)	98	109			146
10	K (mg/L)		2.7			2.7
11	Mg (mg/L)	3.5	10.2			12.4
12	Na (mg/L)		20.2			19.5
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)		2.40			0.46
15	NO2-N (mgN/L)		0.21			0.09
16	NO3-N (mgN/L)		2.18			0.37
17	o-PO4-P (mg P/L)					0.084
18	P-Tot (mgP/L)		0.297			
19	SiO2 (mg/L)		16.0			25.3
20	SO4 (mg/L)		14.3			10.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7				
2	COD (mg/L)		9.0			
3	DO (mg/L)	6.7				
4	DO SAT% (%)	87				
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)	23	67			86
2	HAR_Total (mgCaCO3/L)	38	109			138
3	Na% (%)		28			24
4	RSC (-)		0.0			0.0
5	SAR (-)		0.8			0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	8.189	19.08	23.94	1.415	4.962
2	EC_FLD (µmho/cm)					183
3	EC_GEN (µmho/cm)	360	369	371	271	227
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.7	7.8	7.6	7.0	7.1
6	TDS (mg/L)	238	257	273	186	161
7	Temp (deg C)	25.0	26.0	27.8	26.3	27.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	121	130	130	87	81
3	B (mg/L)	0.00	0.17	0.59	0.20	0.12
4	Ca (mg/L)	24	31	32	24	20
5	Cl (mg/L)	29.8	33.0	35.1	24.0	21.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.16	0.48	3.22	2.71	0.90
8	Fe (mg/L)	0.0	0.3	1.1	0.2	
9	HCO3 (mg/L)	148	159	159	107	99
10	K (mg/L)	3.7	3.5	3.5	3.4	2.7
11	Mg (mg/L)	14.4	13.0	13.9	11.2	8.1
12	Na (mg/L)	22.0	22.5	25.5	16.8	15.2
13	NH3-N (mg N/L)	0.20	0.05	0.05	0.23	
14	NO2+NO3 (mg N/L)		0.60		8.11	1.65
15	NO2-N (mgN/L)		0.11		0.26	0.08
16	NO3-N (mgN/L)		0.49	3.89	7.85	1.57
17	o-PO4-P (mg P/L)	0.043	0.239	0.450	0.283	0.072
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	32.0	19.1	17.7	18.1	11.0
20	SO4 (mg/L)	14.7	20.5	19.8	1.1	4.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			1.2		1.1
2	COD (mg/L)	11.4	12.4			8.2
3	DO (mg/L)					6.3
4	DO SAT% (%)					79
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		
3	Cr (µg/L)			1.1		
4	Cu (µg/L)			2.6		
5	Hg (µg/L)					
6	Ni (µg/L)			2.3		
7	Pb (µg/L)			0.2		
8	Zn (µg/L)			15.3		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	61	78	79	61	51
2	HAR_Total (mgCaCO3/L)	121	132	137	108	84
3	Na% (%)	28	27	28	24	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.9	0.9	0.9	0.7	0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	5.469	7.547	0.774		
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	273	194	390		
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.5	7.3	8.1		
6	TDS (mg/L)			276		
7	Temp (deg C)	27.0	27.8	30.5		
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)			0.0		
2	ALK-TOT (mgCaCO3/L)			131		
3	B (mg/L)			0.46		
4	Ca (mg/L)	20	19	27		
5	Cl (mg/L)	26.3	14.3	44.6		
6	CO3 (mg/L)			0.0		
7	F (mg/L)			0.37		
8	Fe (mg/L)	0.0	0.0			
9	HCO3 (mg/L)	120	59	160		
10	K (mg/L)		0.4	3.4		
11	Mg (mg/L)	13.3	4.2	14.6		
12	Na (mg/L)		10.8	26.4		
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)			0.63		
15	NO2-N (mgN/L)			0.11		
16	NO3-N (mgN/L)			0.52		
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)			0.458		
19	SiO2 (mg/L)			16.6		
20	SO4 (mg/L)	7.9		2.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	1.0			
2	COD (mg/L)			8.6		
3	DO (mg/L)	6.5	6.1			
4	DO SAT% (%)	82	77			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			11.8		
2	Cd (µg/L)	0.4		6.0		
3	Cr (µg/L)	13.9		1.6		
4	Cu (µg/L)	3.0				
5	Hg (µg/L)					
6	Ni (µg/L)	1.8		7.4		
7	Pb (µg/L)	6.2		2.4		
8	Zn (µg/L)	9.0		5.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	51	47	68		
2	HAR_Total (mgCaCO3/L)	106	65	129		
3	Na% (%)		27	30		
4	RSC (-)			0.1		
5	SAR (-)		0.6	1.0		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	1.642	2.153
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	259		430	286
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	7.3		8.3	8.4
6	TDS (mg/L)	202		301	203
7	Temp (deg C)	25.5		31.0	28.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0		10.0	0.0
2	ALK-TOT (mgCaCO3/L)	96		146	96
3	B (mg/L)	0.18		0.13	0.47
4	Ca (mg/L)	23		30	22
5	Cl (mg/L)	16.3		47.5	26.2
6	CO3 (mg/L)	0.0		12.0	0.0
7	F (mg/L)	0.19		0.67	0.04
8	Fe (mg/L)	0.1		0.3	0.0
9	HCO3 (mg/L)	117		154	117
10	K (mg/L)	3.7		6.0	2.8
11	Mg (mg/L)	11.2		14.8	11.8
12	Na (mg/L)	12.3		30.0	18.8
13	NH3-N (mg N/L)	0.10		0.13	0.26
14	NO2+NO3 (mg N/L)	0.42		0.80	4.78
15	NO2-N (mgN/L)	0.08		0.04	0.21
16	NO3-N (mgN/L)	0.34		0.76	4.57
17	o-PO4-P (mg P/L)	0.039		0.890	0.110
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	27.4		24.4	18.0
20	SO4 (mg/L)	12.4		12.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			0.6	
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)			1.2	
2	Cd (µg/L)			0.0	0.1
3	Cr (µg/L)			2.2	1.1
4	Cu (µg/L)			13.1	2.0
5	Hg (µg/L)			0.0	
6	Ni (µg/L)				2.4
7	Pb (µg/L)			0.9	5.7
8	Zn (µg/L)			11.8	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	58		74	54
2	HAR_Total (mgCaCO3/L)	105		136	103
3	Na% (%)	20		31	28
4	RSC (-)	0.0		0.2	0.0
5	SAR (-)	0.5		1.1	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MANKARA (KR000K4)

Division : SWR Division, Kochi

Local River : Bharathapuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.016	1.836	0.036	0.155
2	EC_FLD (µmho/cm)	179			
3	EC_GEN (µmho/cm)	169	139	650	197
4	pH_FLD (pH units)	6.8			
5	pH_GEN (pH units)	7.2	7.4	7.3	6.2
6	TDS (mg/L)	115	103		
7	Temp (deg C)	29.5	30.5	31.0	29.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	65	50		
3	B (mg/L)	0.26	0.03		
4	Ca (mg/L)	23	14	5	16
5	Cl (mg/L)	13.5	14.0	15.6	16.9
6	CO3 (mg/L)	0.0	0.0		
7	F (mg/L)	1.13	0.57		
8	Fe (mg/L)	0.2	0.1		
9	HCO3 (mg/L)	79	61	34	29
10	K (mg/L)	4.0	4.9		0.4
11	Mg (mg/L)	3.4	7.0	0.9	3.8
12	Na (mg/L)	10.0	8.7		8.9
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	2.80	2.64		
15	NO2-N (mgN/L)	0.26	0.06		
16	NO3-N (mgN/L)	2.54	2.58		
17	o-PO4-P (mg P/L)	0.180	0.120		
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	18.6	20.1		
20	SO4 (mg/L)	1.4	7.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2.4	2.2	1.8	1.4
2	COD (mg/L)	17.2	16.6		
3	DO (mg/L)	4.5	5.1	6.2	6.2
4	DO_SAT% (%)	59	68	83	81
5	FCol-MPN (MPN/100mL)	900	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.3	4.7		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.6	2.4		
4	Cu (µg/L)	1.4	1.9		
5	Hg (µg/L)				
6	Ni (µg/L)	0.7	1.7		
7	Pb (µg/L)	3.3	0.2		
8	Zn (µg/L)	2.7	3.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	58	35	12	39
2	HAR_Total (mgCaCO3/L)	72	64	16	55
3	Na% (%)	22	21		26
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.5	0.5		0.5
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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			
Gauge	: 01/06/1985		
Discharge	: 02/09/1985		
Sediment	: 01/10/2013		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2015-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	3.767	2.344	33.52
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	251	44	432
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	7.1	8.0
6	Temp (deg C)	29.0	28.5	29.0
	CHEMICAL			
1	Ca (mg/L)	8	19	6
2	Cl (mg/L)	18.2	15.6	39.1
3	Fe (mg/L)			
4	HCO3 (mg/L)	124	116	58
5	K (mg/L)			
6	Mg (mg/L)	1.9	5.7	2.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.1	1.2	0.4
2	DO (mg/L)	5.8	6.6	6.8
3	DO_SAT% (%)	75	84	88
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	20	47	16
2	HAR_Total (mgCaCO3/L)	27	71	28
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	4.661	2.007	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	229	24	48
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.9	6.0	6.6
6	Temp (deg C)	27.0	26.0	30.0
	CHEMICAL			
1	Ca (mg/L)	16	6	6
2	Cl (mg/L)	43.0	15.6	30.0
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	37	48	10
5	K (mg/L)	0.5	0.2	0.2
6	Mg (mg/L)	7.6	3.1	2.9
7	Na (mg/L)	12.7	11.0	10.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.8	0.4
2	DO (mg/L)	6.6	7.2	6.0
3	DO_SAT% (%)	83	89	79
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	39	16	16
2	HAR_Total (mgCaCO3/L)	71	29	28
3	Na% (%)	28	45	46
4	SAR (-)	0.7	0.9	0.9
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	146.9	0.000	6.528
2	EC_GEN (µmho/cm)	6	432	24	171
3	pH_GEN (pH units)	6	8.0	6.0	7
4	Temp (deg C)	6	30.0	26.0	28.3
	CHEMICAL				
1	Ca (mg/L)	6	19	6	10
2	Cl (mg/L)	6	43.0	15.6	26.9
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	124	10	65
5	K (mg/L)	3	0.5	0.2	0.3
6	Mg (mg/L)	6	7.6	1.9	4
7	Na (mg/L)	3	12.7	10.7	11.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.2	0.1	0.6
2	DO (mg/L)	6	7.2	5.8	6.5
3	DO_SAT% (%)	6	89	75	83
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	47	16	25
2	HAR_Total (mgCaCO ₃ /L)	6	71	27	42
3	Na% (%)	3	46	28	40
4	SAR (-)	3	0.9	0.7	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	37.68				7.633
2	EC_GEN (µmho/cm)	268			460	293
3	pH_GEN (pH units)	7.6			7.9	7.8
4	TDS (mg/L)	195			372	188
5	Temp (deg C)	27.0			30.0	28.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0			0.0	0.0
2	ALK-TOT (mgCaCO3/L)	128			147	116
3	B (mg/L)	0.02			0.32	0.09
4	Ca (mg/L)	28			42	32
5	Cl (mg/L)	15.5			41.0	22.0
6	CO3 (mg/L)	0.0			0.0	0.0
7	F (mg/L)	0.35			0.63	0.27
8	Fe (mg/L)				0.1	0.0
9	HCO3 (mg/L)	156			179	142
10	K (mg/L)	2.0			1.5	3.1
11	Mg (mg/L)	10.5			19.1	9.9
12	Na (mg/L)	11.5			24.0	16.2
13	NH3-N (mg N/L)					0.41
14	NO2+NO3 (mg N/L)	0.48				
15	NO2-N (mgN/L)	0.18				
16	NO3-N (mgN/L)	0.30			0.39	
17	o-PO4-P (mg P/L)				0.083	0.084
18	P-Tot (mgP/L)	0.082				
19	SiO2 (mg/L)	9.6			21.2	28.6
20	SO4 (mg/L)	7.2			6.6	13.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)	7.3				5.8
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)	69			106	79
2	HAR_Total (mgCaCO3/L)	113			186	120
3	Na% (%)	18			22	22
4	RSC (-)	0.3			0.0	0.0
5	SAR (-)	0.5			0.8	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	11.36	10.82	2.379	9.075	69.80
2	EC_GEN (µmho/cm)	365	372	406	436	288
3	pH_GEN (pH units)	7.6	7.4	7.4	7.4	7.4
4	TDS (mg/L)	227	266	299	324	
5	Temp (deg C)	28.8	28.5	30.2	26.5	25.2
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	130	123	162	128	
3	B (mg/L)		0.16	0.18	0.08	
4	Ca (mg/L)	28	32	41	40	30
5	Cl (mg/L)	23.3	29.1	26.0	29.6	21.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	
7	F (mg/L)	0.13	1.65	0.49	1.26	
8	Fe (mg/L)	0.3	0.2	0.4	0.1	
9	HCO3 (mg/L)	158	150	198	156	146
10	K (mg/L)	4.0	3.4	3.4	7.4	4.5
11	Mg (mg/L)	13.4	13.1	16.2	18.5	17.5
12	Na (mg/L)	18.0	20.3	18.9	20.4	13.6
13	NH3-N (mg N/L)	0.09	0.25	0.16		
14	NO2+NO3 (mg N/L)	0.17	0.33	5.20	1.50	
15	NO2-N (mgN/L)	0.02	0.10	0.09	0.13	
16	NO3-N (mgN/L)	0.15	0.23	5.11	1.37	
17	o-PO4-P (mg P/L)	0.146	0.143	0.291	0.183	
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	23.3	24.2	20.7	15.8	
20	SO4 (mg/L)	7.0	17.9	6.7	41.7	14.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)				1.9	1.7
2	COD (mg/L)	10.0			13.2	
3	DO (mg/L)				4.4	6.0
4	DO_SAT% (%)				55	72
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)	71	79	102	101	75
2	HAR_Total (mgCaCO3/L)	126	134	170	178	148
3	Na% (%)	23	24	19	18	17
4	RSC (-)	0.1	0.0	0.0	0.0	
5	SAR (-)	0.7	0.8	0.6	0.6	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
			Jun - Oct	Nov - Feb		
				2005-2006	2006-2007	2007-2008
		2015				
	PHYSICAL					
1	Q (cumec)	13.21	4.501			
2	EC_GEN (µmho/cm)	242	358			458
3	pH_GEN (pH units)	7.6	7.9			8.1
4	TDS (mg/L)		273			365
5	Temp (deg C)	28.8	25.5			28.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)		0.0			0.3
2	ALK-TOT (mgCaCO3/L)		105			141
3	B (mg/L)		0.22			0.06
4	Ca (mg/L)	11	33			34
5	Cl (mg/L)	24.3	27.4			41.5
6	CO3 (mg/L)		0.0			0.4
7	F (mg/L)		0.44			0.48
8	Fe (mg/L)					0.1
9	HCO3 (mg/L)	99	128			171
10	K (mg/L)		2.6			3.5
11	Mg (mg/L)	3.5	12.4			17.2
12	Na (mg/L)		18.3			25.4
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)		0.75			0.55
15	NO2-N (mgN/L)		0.17			0.12
16	NO3-N (mgN/L)		0.58			0.42
17	o-PO4-P (mg P/L)					0.132
18	P-Tot (mgP/L)		0.251			
19	SiO2 (mg/L)		16.8			18.5
20	SO4 (mg/L)		10.2			15.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6				
2	COD (mg/L)		5.2			
3	DO (mg/L)	6.4				
4	DO_SAT% (%)	83				
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	82			86
2	HAR_Total (mgCaCO3/L)	42	133			158
3	Na% (%)		22			25
4	RSC (-)		0.0			0.0
5	SAR (-)		0.7			0.9
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	4.053	12.89	12.40	0.706	2.012
2	EC_GEN (µmho/cm)	381	369	367	414	319
3	pH_GEN (pH units)	7.7	7.8	7.8	7.2	7.4
4	TDS (mg/L)	233	256	279	262	235
5	Temp (deg C)	27.5	26.0	27.0	27.5	26.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	140	141	133	150	132
3	B (mg/L)	0.06	0.14	0.59	0.19	0.06
4	Ca (mg/L)	31	33	34	38	35
5	Cl (mg/L)	26.2	36.6	24.9	33.7	22.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.12	0.36	3.19	5.47	0.20
8	Fe (mg/L)	0.1	0.1	0.8	0.1	
9	HCO3 (mg/L)	171	173	163	183	162
10	K (mg/L)	3.8	3.8	3.0	4.6	3.0
11	Mg (mg/L)	16.4	14.9	12.9	16.5	12.2
12	Na (mg/L)	19.9	24.5	19.1	25.0	16.7
13	NH3-N (mg N/L)	0.18	0.13	0.07	0.23	
14	NO2+NO3 (mg N/L)		0.51		9.63	1.05
15	NO2-N (mgN/L)		0.09		0.13	0.05
16	NO3-N (mgN/L)		0.42	5.30	9.51	1.01
17	o-PO4-P (mg P/L)	0.112	0.196	0.450	0.390	0.064
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	36.7	16.3	20.7	20.1	21.5
20	SO4 (mg/L)	17.9	6.9	18.8	8.2	3.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.2		0.6
2	COD (mg/L)	6.8	12.8			4.1
3	DO (mg/L)					6.3
4	DO_SAT% (%)					78
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		
3	Cr (µg/L)			0.5		
4	Cu (µg/L)			3.9		
5	Hg (µg/L)					
6	Ni (µg/L)			2.6		
7	Pb (µg/L)			0.1		
8	Zn (µg/L)			11.2		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	78	83	84	94	87
2	HAR_Total (mgCaCO3/L)	146	145	138	163	138
3	Na% (%)	23	27	23	25	21
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.9	0.7	0.9	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	2.962	3.334	11.36		
2	EC_GEN (µmho/cm)	264	127	384		
3	pH_GEN (pH units)	7.4	6.4	8.0		
4	TDS (mg/L)			304		
5	Temp (deg C)	23.0	26.5	30.0		
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)			0.0		
2	ALK-TOT (mgCaCO3/L)			141		
3	B (mg/L)			0.00		
4	Ca (mg/L)	16	11	31		
5	Cl (mg/L)	25.0	29.3	39.4		
6	CO3 (mg/L)			0.0		
7	F (mg/L)			0.56		
8	Fe (mg/L)	0.0	0.0			
9	HCO3 (mg/L)	114	42	172		
10	K (mg/L)		0.3	3.0		
11	Mg (mg/L)	14.2	5.4	18.5		
12	Na (mg/L)		11.9	23.6		
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)			0.67		
15	NO2-N (mgN/L)			0.15		
16	NO3-N (mgN/L)			0.53		
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)			0.390		
19	SiO2 (mg/L)			20.2		
20	SO4 (mg/L)	5.8		2.8		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.7			
2	COD (mg/L)			7.6		
3	DO (mg/L)	6.1	6.9			
4	DO_SAT% (%)	70	86			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			11.5		
2	Cd (µg/L)	0.2		3.0		
3	Cr (µg/L)	1.7		2.7		
4	Cu (µg/L)	8.5		1.2		
5	Hg (µg/L)			0.1		
6	Ni (µg/L)	3.7		12.7		
7	Pb (µg/L)	0.7		4.6		
8	Zn (µg/L)	9.3		7.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	41	27	78		
2	HAR_Total (mgCaCO3/L)	100	50	155		
3	Na% (%)		37	25		
4	RSC (-)			0.0		
5	SAR (-)		0.8	0.8		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	5.095	2.252
2	EC_GEN (µmho/cm)			490	380
3	pH_GEN (pH units)			7.3	7.8
4	TDS (mg/L)			340	285
5	Temp (deg C)			32.0	32.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)			0.0	0.0
2	ALK-TOT (mgCaCO3/L)			175	165
3	B (mg/L)			0.10	0.78
4	Ca (mg/L)			45	30
5	Cl (mg/L)			46.2	34.1
6	CO3 (mg/L)			0.0	0.0
7	F (mg/L)			0.93	0.57
8	Fe (mg/L)			0.2	0.1
9	HCO3 (mg/L)			213	201
10	K (mg/L)			4.2	3.8
11	Mg (mg/L)			20.1	18.6
12	Na (mg/L)			24.0	25.0
13	NH3-N (mg N/L)			0.07	0.13
14	NO2+NO3 (mg N/L)			0.72	5.58
15	NO2-N (mgN/L)			0.09	0.24
16	NO3-N (mgN/L)			0.63	5.34
17	o-PO4-P (mg P/L)			0.290	0.105
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)			27.3	17.8
20	SO4 (mg/L)			14.0	0.5
	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)			1.0	0.7
2	Cd (µg/L)			0.1	0.1
3	Cr (µg/L)			2.2	1.2
4	Cu (µg/L)			4.4	3.0
5	Hg (µg/L)			0.0	
6	Ni (µg/L)				8.0
7	Pb (µg/L)			0.8	4.1
8	Zn (µg/L)			77.8	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			113	76
2	HAR_Total (mgCaCO3/L)			196	154
3	Na% (%)			21	26
4	RSC (-)			0.0	0.3
5	SAR (-)			0.7	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PUDUR (KR000M1)

Division : SWR Division, Kochi

Local River : Kannadipuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.288	0.000
2	EC_GEN (µmho/cm)	442	350	287	48
3	pH_GEN (pH units)	7.5	7.8	7.1	6.6
4	TDS (mg/L)	309	252		
5	Temp (deg C)	31.5	29.0	29.5	30.0
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	127	157		
3	B (mg/L)	0.22	0.06		
4	Ca (mg/L)	30	36	22	6
5	Cl (mg/L)	52.0	34.0	5.2	30.0
6	CO3 (mg/L)	0.0	0.0		
7	F (mg/L)	0.72	0.10		
8	Fe (mg/L)	0.2	0.0		
9	HCO3 (mg/L)	155	191	106	10
10	K (mg/L)	9.3	7.1		0.2
11	Mg (mg/L)	17.5	15.0	9.5	2.8
12	Na (mg/L)	33.7	24.8		10.7
13	NH3-N (mg N/L)				
14	NO2+NO3 (mg N/L)	5.98	0.63		
15	NO2-N (mgN/L)	0.28	0.05		
16	NO3-N (mgN/L)	5.70	0.58		
17	o-PO4-P (mg P/L)	0.260	0.080		
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	15.8	9.6		
20	SO4 (mg/L)	13.0	2.2		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	3.8	2.8	0.6	0.4
2	COD (mg/L)	29.6	20.2		
3	DO (mg/L)	3.9	5.5	5.4	6.0
4	DO_SAT% (%)	53	72	70	79
5	FCOI-MPN (MPN/100mL)	1600	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.1	1.6		
2	Cd (µg/L)	0.1	0.0		
3	Cr (µg/L)	0.3	0.9		
4	Cu (µg/L)	1.3	1.7		
5	Hg (µg/L)				
6	Ni (µg/L)	2.5	3.7		
7	Pb (µg/L)	6.1	0.1		
8	Zn (µg/L)	1.5	4.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	74	90	55	16
2	HAR_Total (mgCaCO3/L)	147	153	94	28
3	Na% (%)	32	25		46
4	RSC (-)	0.0	0.1		
5	SAR (-)	1.2	0.9		0.9
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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 (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 : 2015-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/06/2015	01/07/2015	01/08/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	3.112	5.692	3.361
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	409	438	225
4	EC_GEN (µmho/cm)	385	428	254
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	8.1	8.2	8.0
7	pH_GEN (pH units)	8.2	8.1	7.8
8	TDS (mg/L)	224	249	144
9	Temp (deg C)	27.0	27.5	27.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	149	168	100
3	B (mg/L)	0.19	0.12	
4	Ca (mg/L)	19	49	35
5	Cl (mg/L)	32.6	40.7	21.3
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.61	0.74	
8	Fe (mg/L)	0.120	0.000	0.000
9	HCO3 (mg/L)	181	205	123
10	K (mg/L)	6.4	5.8	3.1
11	Mg (mg/L)	27.0	10.6	4.8
12	Na (mg/L)	24.7	30.1	16.0
13	NH3-N (mg N/L)	0.00	0.01	0.25
14	NO2+NO3 (mg N/L)	1.11	1.65	1.69
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	1.11	1.65	1.69
17	o-PO4-P (mg P/L)	0.050	0.050	0.030
18	SiO2 (mg/L)	23.6	25.2	15.0
19	SO4 (mg/L)	18.4	19.7	6.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)		1.0	1.4
2	COD (mg/L)	8.4	9.5	4.6
3	DO (mg/L)	6.2	6.8	6.1
4	DO_SAT% (%)	78	85	77
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	48	123	87
2	HAR_Total (mgCaCO3/L)	160	167	107
3	Na% (%)	24	27	24
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.9	1.0	0.7
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/09/2015	01/10/2015	02/11/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	9.537	9.299	12.95
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	164	238	194
4	EC_GEN (µmho/cm)	163	218	190
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.9	7.8	7.9
7	pH_GEN (pH units)	7.8	7.6	8.1
8	TDS (mg/L)	93	128	110
9	Temp (deg C)	25.5	25.0	24.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	62	77	69
3	B (mg/L)		0.15	0.20
4	Ca (mg/L)	22	27	21
5	Cl (mg/L)	15.5	23.1	17.3
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)			
8	Fe (mg/L)	0.020	0.010	0.050
9	HCO3 (mg/L)	75	93	84
10	K (mg/L)	2.3	4.6	3.5
11	Mg (mg/L)	1.9	3.8	5.8
12	Na (mg/L)	11.1	15.2	13.3
13	NH3-N (mg N/L)	0.18	0.16	0.17
14	NO2+NO3 (mg N/L)	0.76	1.75	1.88
15	NO2-N (mgN/L)	0.00	0.07	0.02
16	NO3-N (mgN/L)	0.76	1.68	1.86
17	o-PO4-P (mg P/L)	0.020	0.040	0.050
18	SiO2 (mg/L)	10.0	17.5	15.4
19	SO4 (mg/L)	6.0	7.4	8.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.0	1.3
2	COD (mg/L)	2.8	4.5	8.2
3	DO (mg/L)	6.7	6.4	6.1
4	DO_SAT% (%)	81	77	73
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	56	67	51
2	HAR_Total (mgCaCO3/L)	64	83	75
3	Na% (%)	27	27	27
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.6	0.7	0.7
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/12/2015	01/01/2016	01/02/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	7.526	18.73	11.44
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	400	79	129
4	EC_GEN (µmho/cm)	391	125	129
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	8.0	7.5	7.7
7	pH_GEN (pH units)	8.2	7.4	7.7
8	TDS (mg/L)	227	72	76
9	Temp (deg C)	24.0	23.0	23.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	142	46	50
3	B (mg/L)	0.16	0.80	0.13
4	Ca (mg/L)	33	16	17
5	Cl (mg/L)	32.7	12.1	12.1
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.59	0.19	0.22
8	Fe (mg/L)	0.020	0.000	0.000
9	HCO3 (mg/L)	173	56	61
10	K (mg/L)	5.1	1.4	1.9
11	Mg (mg/L)	18.2	3.8	2.9
12	Na (mg/L)	23.9	6.8	8.0
13	NH3-N (mg N/L)	0.06	0.37	0.29
14	NO2+NO3 (mg N/L)	3.49	0.52	0.63
15	NO2-N (mgN/L)	0.00	0.02	0.00
16	NO3-N (mgN/L)	3.49	0.50	0.63
17	o-PO4-P (mg P/L)	0.150	0.060	
18	SiO2 (mg/L)	19.9	12.9	14.1
19	SO4 (mg/L)	16.5	3.5	4.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0		1.8
2	COD (mg/L)	8.5	3.0	10.1
3	DO (mg/L)	6.4	6.7	7.5
4	DO_SAT% (%)	76	78	87
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	83	40	43
2	HAR_Total (mgCaCO3/L)	159	55	55
3	Na% (%)	24	21	23
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.8	0.4	0.5
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water Analysis

S.No	Parameters	01/03/2016	01/04/2016	02/05/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	10.21	7.551	6.98
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	128	179	126
4	EC_GEN (µmho/cm)	119	167	126
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.8	8.0	7.7
7	pH_GEN (pH units)	7.6	7.6	8.0
8	TDS (mg/L)	67	96	73
9	Temp (deg C)	24.0	25.0	26.5
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	30	60	37
3	B (mg/L)	0.11	0.08	0.12
4	Ca (mg/L)	9	20	17
5	Cl (mg/L)	12.7	16.4	12.7
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.09	0.14	0.16
8	Fe (mg/L)	0.000	0.000	0.000
9	HCO3 (mg/L)	36	73	46
10	K (mg/L)	2.0	2.4	2.2
11	Mg (mg/L)	4.8	3.8	1.9
12	Na (mg/L)	8.4	9.3	8.0
13	NH3-N (mg N/L)	0.06	0.08	0.00
14	NO2+NO3 (mg N/L)	3.27	2.30	3.21
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	3.27	2.30	3.21
17	o-PO4-P (mg P/L)	0.060	0.140	0.040
18	SiO2 (mg/L)	12.0	14.3	8.5
19	SO4 (mg/L)	4.9	4.2	3.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.8	0.9
2	COD (mg/L)	3.6	3.6	8.5
3	DO (mg/L)	6.4	6.6	6.7
4	DO_SAT% (%)	76	80	83
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	24	51	43
2	HAR_Total (mgCaCO3/L)	43	67	51
3	Na% (%)	29	22	24
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.6	0.5	0.5
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

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)	366	116.9	0.355	9.874
2	EC_FLD (µmho/cm)	12	438	79	226
3	EC_GEN (µmho/cm)	12	428	119	225
4	pH_FLD (pH units)	12	8.2	7.5	7.9
5	pH_GEN (pH units)	12	8.2	7.4	7.8
6	TDS (mg/L)	12	249	67	130
7	Temp (deg C)	12	27.5	23.0	25.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	168	30	82
3	B (mg/L)	10	0.80	0.08	0.21
4	Ca (mg/L)	12	49	9	24
5	Cl (mg/L)	12	40.7	12.1	20.8
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	8	0.74	0.09	0.34
8	Fe (mg/L)	12	0.120	0.000	0.018
9	HCO3 (mg/L)	12	205	36	100
10	K (mg/L)	12	6.4	1.4	3.4
11	Mg (mg/L)	12	27.0	1.9	7.4
12	Na (mg/L)	12	30.1	6.8	14.6
13	NH3-N (mg N/L)	12	0.37	0.00	0.14
14	NO2+NO3 (mg N/L)	12	3.49	0.52	1.86
15	NO2-N (mgN/L)	12	0.07	0.00	0.01
16	NO3-N (mgN/L)	12	3.49	0.50	1.85
17	o-PO4-P (mg P/L)	11	0.150	0.020	0.063
18	SiO2 (mg/L)	12	25.2	8.5	15.7
19	SO4 (mg/L)	12	19.7	3.4	8.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	10	1.8	0.6	1
2	COD (mg/L)	12	10.1	2.8	6.3
3	DO (mg/L)	12	7.5	6.1	6.5
4	DO_SAT% (%)	12	87	73	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	123	24	60
2	HAR_Total (mgCaCO3/L)	12	167	43	91
3	Na% (%)	12	29	21	25
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	1.0	0.4	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	12.02	10.31	8.745	9.281	8.789
2	EC_FLD (µmho/cm)	206	184		174	151
3	EC_GEN (µmho/cm)	201	189	212	188	183
4	pH_FLD (pH units)	7.8	8.0		8.1	7.9
5	pH_GEN (pH units)	7.5	7.9	7.8	7.9	7.8
6	TDS (mg/L)					
7	Temp (deg C)	26.5	25.8	25.9	25.7	26.9
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	77	78	84	76	91
3	B (mg/L)	0.16	0.24	0.21	0.13	0.13
4	Ca (mg/L)	21	17	17	18	21
5	Cl (mg/L)	14.1	11.4	11.9	10.5	12.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.37	0.33	0.27	0.40	0.27
8	Fe (mg/L)	0.066	0.063	0.058	0.064	0.145
9	HCO3 (mg/L)	94	95	103	93	111
10	K (mg/L)	2.2	2.4	3.1	2.0	2.1
11	Mg (mg/L)	7.9	7.4	8.0	6.0	8.4
12	Na (mg/L)	9.6	10.7	13.7	9.9	8.5
13	NH3-N (mg N/L)		0.07	0.05	0.07	0.13
14	NO2+NO3 (mg N/L)	0.98	0.97	2.24	1.13	
15	NO2-N (mgN/L)	0.01	0.01	0.02	0.01	
16	NO3-N (mgN/L)	0.96	0.96	2.22	1.12	0.54
17	o-PO4-P (mg P/L)				0.010	0.077
18	P-Tot (mgP/L)	0.015	0.011	0.019		
19	SiO2 (mg/L)	11.1	11.2	12.5	11.5	18.5
20	SO4 (mg/L)	3.5	5.1	6.0	4.5	2.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	1.5	0.8	0.8	0.5
2	COD (mg/L)					
3	DO (mg/L)	6.9	7.8		6.5	6.2
4	DO_SAT% (%)	86	95		80	78
	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)	53	43	43	46	53
2	HAR_Total (mgCaCO3/L)	86	74	77	71	88
3	Na% (%)	19	23	26	21	17
4	RSC (-)	0.0	0.1	0.2	0.2	0.1
5	SAR (-)	0.4	0.5	0.7	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	9.322	12.26	6.614	13.41	13.77
2	EC_FLD (µmho/cm)	182	155	128	201	279
3	EC_GEN (µmho/cm)	191	163	142	201	278
4	pH_FLD (pH units)	7.9	7.4	7.8	7.8	8.1
5	pH_GEN (pH units)	7.8	7.3	7.8	7.6	8.1
6	TDS (mg/L)					149
7	Temp (deg C)	26.3	26.4	25.6	26.0	25.9
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	2.3
2	ALK-TOT (mgCaCO3/L)	98	73	62	88	119
3	B (mg/L)	0.12				
4	Ca (mg/L)	23	19	17	23	33
5	Cl (mg/L)	20.4	18.9	12.9	18.7	21.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	2.8
7	F (mg/L)	0.36	0.39	0.32	0.32	0.47
8	Fe (mg/L)	0.144		0.292	0.118	
9	HCO3 (mg/L)	120	89	76	107	139
10	K (mg/L)	2.9	2.9	1.8	2.5	4.4
11	Mg (mg/L)	9.5	6.0	5.1	9.1	8.8
12	Na (mg/L)	12.1	12.4	8.0	11.1	16.0
13	NH3-N (mg N/L)	0.05			0.19	0.14
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)					
16	NO3-N (mgN/L)	4.03	0.35	0.13	0.23	0.63
17	o-PO4-P (mg P/L)	0.588				
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	22.3				
20	SO4 (mg/L)	5.6	5.9	2.5	5.7	6.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.1	1.8	2.0	1.1	2.3
2	COD (mg/L)				5.9	6.5
3	DO (mg/L)	6.8	6.2	7.3	7.4	5.7
4	DO_SAT% (%)	84	77	90	91	70
	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)	59	48	42	58	84
2	HAR_Total (mgCaCO3/L)	98	73	63	96	120
3	Na% (%)	21	25	22	20	22
4	RSC (-)	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.4	0.5	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	6.2	13.97	13.58	18.64	11.57
2	EC_FLD (µmho/cm)	295	225	238		224
3	EC_GEN (µmho/cm)	290	231	243	279	241
4	pH_FLD (pH units)	8.0	7.9	7.8		8.1
5	pH_GEN (pH units)	7.9	7.9	7.8	8.0	7.8
6	TDS (mg/L)	168				
7	Temp (deg C)	26.5	25.3	25.1	24.6	24.5
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	111	83	95	107	106
3	B (mg/L)	0.15	0.11	0.22	0.18	0.02
4	Ca (mg/L)	30	18	24	20	23
5	Cl (mg/L)	26.6	12.8	15.0	15.9	17.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.67	0.37	0.42	0.27	0.43
8	Fe (mg/L)	0.030	0.069	0.058	0.057	0.085
9	HCO3 (mg/L)	135	101	116	131	129
10	K (mg/L)	4.4	2.4	3.1	3.0	2.7
11	Mg (mg/L)	9.6	10.5	7.5	9.2	9.7
12	Na (mg/L)	19.4	14.2	16.5	22.2	16.4
13	NH3-N (mg N/L)	0.12	0.13	0.07	0.04	
14	NO2+NO3 (mg N/L)	1.39	1.02	1.63	1.44	
15	NO2-N (mgN/L)	0.01	0.01	0.03	0.02	
16	NO3-N (mgN/L)	1.38	1.01	1.60	1.42	0.40
17	o-PO4-P (mg P/L)	0.038				0.010
18	P-Tot (mgP/L)		0.025	0.013	0.016	
19	SiO2 (mg/L)	18.2	13.9	18.1	15.1	1.6
20	SO4 (mg/L)	11.7	14.5	9.5	16.8	11.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.0	1.2	1.1	0.7	0.7
2	COD (mg/L)	6.0				
3	DO (mg/L)	6.4	7.2	7.8		6.8
4	DO_SAT% (%)	80	87	95		81
	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)	76	45	60	51	58
2	HAR_Total (mgCaCO3/L)	116	89	92	90	98
3	Na% (%)	26	24	26	34	28
4	RSC (-)	0.0	0.0	0.1	0.4	0.2
5	SAR (-)	0.8	0.6	0.7	1.0	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	9.528	20	19.11	8.588	14.09
2	EC_FLD (µmho/cm)	260	317	266	198	137
3	EC_GEN (µmho/cm)	289	366	293	198	134
4	pH_FLD (pH units)	8.0	7.8	7.6	7.8	7.9
5	pH_GEN (pH units)	7.8	7.9	7.6	7.6	7.7
6	TDS (mg/L)					
7	Temp (deg C)	25.6	24.6	24.4	24.8	24.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	123	157	128	82	64
3	B (mg/L)	0.11	0.08			
4	Ca (mg/L)	25	42	32	23	16
5	Cl (mg/L)	24.3	47.9	34.6	19.3	11.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.52	0.98	0.54	0.36	0.22
8	Fe (mg/L)	0.340	0.223	0.070		
9	HCO3 (mg/L)	150	192	156	100	78
10	K (mg/L)	4.3	4.6	4.5	2.4	2.0
11	Mg (mg/L)	14.6	13.4	10.9	6.8	5.1
12	Na (mg/L)	17.8	35.7	26.1	10.6	7.8
13	NH3-N (mg N/L)	0.11	0.04		0.11	0.38
14	NO2+NO3 (mg N/L)					
15	NO2-N (mgN/L)					
16	NO3-N (mgN/L)	0.89	3.03	0.39	0.18	0.20
17	o-PO4-P (mg P/L)	0.012	0.250			
18	P-Tot (mgP/L)					
19	SiO2 (mg/L)	26.2	30.7			
20	SO4 (mg/L)	19.6	31.4	20.9	5.0	3.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	1.4	1.6	1.4	1.7
2	COD (mg/L)				7.3	5.1
3	DO (mg/L)	6.7	6.5	6.8	6.6	7.0
4	DO_SAT% (%)	82	78	80	80	84
	TRACE & TOXIC					
1	As (µg/L)			0.75		
2	Cd (µg/L)					
3	Cr (µg/L)			11.56		
4	Cu (µg/L)			26.72		
5	Hg (µg/L)					
6	Ni (µg/L)			1.75		
7	Pb (µg/L)			1.12		
8	Zn (µg/L)			12.90		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	62	104	81	57	41
2	HAR_Total (mgCaCO3/L)	123	160	127	85	62
3	Na% (%)	23	31	30	20	21
4	RSC (-)	0.1	0.0	0.1	0.0	0.1
5	SAR (-)	0.7	1.2	1.0	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

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		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	17.78	12.66	6.083	6.581	7.275
2	EC_FLD (µmho/cm)	278	201	167	183	
3	EC_GEN (µmho/cm)	270	209	156	239	267
4	pH_FLD (pH units)	7.9	7.8	8.0	7.8	
5	pH_GEN (pH units)	7.7	7.8	7.7	7.9	8.0
6	TDS (mg/L)	153	121			
7	Temp (deg C)	25.3	23.6	26.7	27.5	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	104	77	62	105	112
3	B (mg/L)	0.00	0.32	0.22	0.18	0.21
4	Ca (mg/L)	24	22	15	22	22
5	Cl (mg/L)	25.9	18.6	10.6	10.9	14.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.40	0.33	0.31	0.24	0.44
8	Fe (mg/L)	0.017	0.018	0.079	0.062	0.057
9	HCO3 (mg/L)	127	93	75	129	137
10	K (mg/L)	4.2	3.0	1.8	2.1	3.1
11	Mg (mg/L)	12.5	7.7	5.8	9.1	9.4
12	Na (mg/L)	18.0	13.0	8.1	12.5	18.4
13	NH3-N (mg N/L)	0.12	0.22	0.14		0.04
14	NO2+NO3 (mg N/L)	1.77	1.63	0.75	1.81	0.91
15	NO2-N (mgN/L)	0.04	0.01	0.01	0.01	0.03
16	NO3-N (mgN/L)	1.70	1.62	0.75	1.81	0.88
17	o-PO4-P (mg P/L)	0.005	0.087			
18	P-Tot (mgP/L)			0.023	0.019	0.056
19	SiO2 (mg/L)	15.6	15.6	11.2	11.2	13.8
20	SO4 (mg/L)	12.6	8.3	3.9	4.0	9.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.3	1.3	0.6	0.6	0.4
2	COD (mg/L)	9.9	7.5			
3	DO (mg/L)	6.9	6.7	6.9	7.3	
4	DO_SAT% (%)	84	79	86	90	
	TRACE & TOXIC					
1	As (µg/L)			8.31	11.04	4.41
2	Cd (µg/L)	0.56		11.00	2.00	0.53
3	Cr (µg/L)	13.70				
4	Cu (µg/L)	0.62				
5	Hg (µg/L)					
6	Ni (µg/L)	6.66			4.00	
7	Pb (µg/L)	0.82				
8	Zn (µg/L)	2.25		9.00		7.00
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	60	54	37	56	55
2	HAR_Total (mgCaCO3/L)	112	86	62	94	94
3	Na% (%)	25	24	22	21	28
4	RSC (-)	0.0	0.0	0.0	0.2	0.4
5	SAR (-)	0.7	0.6	0.5	0.6	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	3.79	6.007	5.779	5.983
2	EC_FLD (µmho/cm)	230	184	380	200
3	EC_GEN (µmho/cm)	234	217	416	208
4	pH_FLD (pH units)	8.2	7.9	8.2	8.2
5	pH_GEN (pH units)	8.0	7.9	8.1	7.8
6	TDS (mg/L)				
7	Temp (deg C)	26.8	25.7	27.2	25.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	6.6	0.0
2	ALK-TOT (mgCaCO3/L)	107	115	177	98
3	B (mg/L)	0.12	0.08	0.08	
4	Ca (mg/L)	26	27	40	20
5	Cl (mg/L)	14.5	35.9	43.3	24.1
6	CO3 (mg/L)	0.0	0.0	8.0	0.0
7	F (mg/L)	0.45	0.42	0.84	0.43
8	Fe (mg/L)	0.106	0.080		0.210
9	HCO3 (mg/L)	131	140	200	119
10	K (mg/L)	3.0	3.0	4.9	3.4
11	Mg (mg/L)	9.1	9.8	17.5	11.3
12	Na (mg/L)	14.2	25.4	37.3	16.6
13	NH3-N (mg N/L)	0.13		0.00	
14	NO2+NO3 (mg N/L)				
15	NO2-N (mgN/L)				
16	NO3-N (mgN/L)	0.06	0.80	0.71	0.16
17	o-PO4-P (mg P/L)	0.018	0.032		
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)	24.8	27.0	37.5	
20	SO4 (mg/L)	4.6	4.0	26.9	7.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.1	2.2	1.7
2	COD (mg/L)				
3	DO (mg/L)	6.6	6.5	5.5	7.0
4	DO_SAT% (%)	83	79	69	85
	TRACE & TOXIC				
1	As (µg/L)	10.41		0.52	1.63
2	Cd (µg/L)			0.24	0.40
3	Cr (µg/L)			2.37	42.66
4	Cu (µg/L)	1.66		2.53	2.98
5	Hg (µg/L)				
6	Ni (µg/L)	8.43			0.98
7	Pb (µg/L)			0.94	4.44
8	Zn (µg/L)			15.72	10.00
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	64	68	100	51
2	HAR_Total (mgCaCO3/L)	102	109	173	98
3	Na% (%)	22	30	30	26
4	RSC (-)	0.2	0.1	0.1	0.0
5	SAR (-)	0.6	1.0	1.2	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AMBARAMPALAYAM (KR000U2)

Division : SR Division, Coimbatore

Local River : Aliyar

Sub-Division : MCSD, Coimbatore

River Water

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	3.288	5.992	7.768	8.246
2	EC_FLD (µmho/cm)	227	176	291	144
3	EC_GEN (µmho/cm)	227	170	280	137
4	pH_FLD (pH units)	7.7	7.7	8.0	7.8
5	pH_GEN (pH units)	7.5	7.7	7.8	7.7
6	TDS (mg/L)		97	160	79
7	Temp (deg C)	26.7	26.3	27.2	25.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	103	74	115	42
3	B (mg/L)			0.05	0.10
4	Ca (mg/L)	30	23	27	16
5	Cl (mg/L)	18.6	17.6	22.3	14.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0
7	F (mg/L)	0.70	0.25	0.58	0.13
8	Fe (mg/L)	0.016	0.050	0.043	0.000
9	HCO3 (mg/L)	126	90	141	52
10	K (mg/L)	2.6	2.5	3.9	2.2
11	Mg (mg/L)	7.8	4.5	12.2	3.5
12	Na (mg/L)	10.8	10.0	16.0	8.6
13	NH3-N (mg N/L)	0.26	0.14	0.08	0.05
14	NO2+NO3 (mg N/L)			0.80	2.93
15	NO2-N (mgN/L)			0.00	0.00
16	NO3-N (mgN/L)	0.10	0.29	0.80	2.93
17	o-PO4-P (mg P/L)			0.017	0.080
18	P-Tot (mgP/L)				
19	SiO2 (mg/L)			17.8	11.6
20	SO4 (mg/L)	4.9	2.6	9.5	4.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.9	1.3	1.1	0.8
2	COD (mg/L)	5.5	7.3	6.5	5.2
3	DO (mg/L)	7.4	6.0	6.7	6.6
4	DO_SAT% (%)	93	75	84	80
	TRACE & TOXIC				
1	As (µg/L)	2.25	4.02		
2	Cd (µg/L)	0.09	0.07		
3	Cr (µg/L)	0.66	1.33		
4	Cu (µg/L)	1.55	0.76		
5	Hg (µg/L)	0.19			
6	Ni (µg/L)	6.60	9.24		
7	Pb (µg/L)	1.55	1.30		
8	Zn (µg/L)	1.22	8.00		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	75	58	68	39
2	HAR_Total (mgCaCO3/L)	107	77	119	54
3	Na% (%)	18	21	22	25
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.6	0.5
	PESTICIDES				

HISTORY SHEET

Water Year : 2015-2016

Site : ARANGALY

Code : KSA00F3

State : Kerala

District : Thrissur

Basin : WFR South of Tapi

Independent River : Periyar

Tributary : Chalakudy

Sub Tributary :

Sub-Sub Tributary :

Local River : Chalakudy

Division : SWR Division, Kochi

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) : 4.000 (m.s.l.)

17/02/1978

Opening Date

Gauge : 17/02/1978

Discharge : 27/04/1978

Sediment : 08/07/1980

Water Quality : 01/08/1978

Water Quality Datasheet for the period : 2015-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	15.29	71.41	122.9
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	65	85	59
4	EC_GEN (µmho/cm)	50	425	33
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.2	6.3	6.3
7	pH_GEN (pH units)	6.0	6.5	7.8
8	Temp (deg C)	30.0	31.0	29.0
	CHEMICAL			
1	Ca (mg/L)	6	5	8
2	Cl (mg/L)	5.2	6.5	18.2
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	16	26	55
5	K (mg/L)			
6	Mg (mg/L)	1.9	1.9	2.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	0.4	0.6
2	DO (mg/L)	6.6	6.4	6.6
3	DO_SAT% (%)	87	86	86
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	16	12	20
2	HAR_Total (mgCaCO ₃ /L)	24	20	31
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	40.79	6.965	3.993
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	63	61	71
4	EC_GEN (µmho/cm)	26	74	55
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.6	6.2	6.0
7	pH_GEN (pH units)	6.5	6.1	6.5
8	Temp (deg C)	28.0	27.5	33.0
	CHEMICAL			
1	Ca (mg/L)	6	8	8
2	Cl (mg/L)	16.9	43.0	20.9
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	53	85	12
5	K (mg/L)	0.2	0.2	0.4
6	Mg (mg/L)	1.9	4.7	3.8
7	Na (mg/L)	10.4	10.9	15.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.4	0.4	1.6
2	DO (mg/L)	6.4	6.4	7.8
3	DO_SAT% (%)	82	80	109
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	16	20	20
2	HAR_Total (mgCaCO ₃ /L)	24	39	35
3	Na% (%)	49	38	49
4	SAR (-)	0.9	0.8	1.1
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

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)	366	531.5	0.095	47.73
2	EC_FLD (µmho/cm)	6	85	59	67
3	EC_GEN (µmho/cm)	6	425	26	110
4	pH_FLD (pH units)	6	6.6	6.0	6.3
5	pH_GEN (pH units)	6	7.8	6.0	6.6
6	Temp (deg C)	6	33.0	27.5	29.8
	CHEMICAL				
1	Ca (mg/L)	6	8	5	7
2	Cl (mg/L)	6	43.0	5.2	18.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	85	12	41
5	K (mg/L)	3	0.4	0.2	0.3
6	Mg (mg/L)	6	4.7	1.9	2.8
7	Na (mg/L)	3	15.6	10.4	12.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.6	0.4	0.6
2	DO (mg/L)	6	7.8	6.4	6.7
3	DO_SAT% (%)	6	109	80	88
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	20	12	17
2	HAR_Total (mgCaCO ₃ /L)	6	39	20	29
3	Na% (%)	3	49	38	45
4	SAR (-)	3	1.1	0.8	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	464.2	80.89	152.9	125.3	63.76
2	EC_FLD (µmho/cm)	49	49	58	48	60
3	EC_GEN (µmho/cm)	41	39	48	40	42
4	pH_FLD (pH units)	6.0	6.2	6.8	7.0	7.1
5	pH_GEN (pH units)	6.7	6.4	6.5	6.6	7.0
6	TDS (mg/L)	26	30	38	32	25
7	Temp (deg C)	27.0	26.2	25.2	25.8	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	11	11	12	11
2	B (mg/L)	0.01	0.01	0.01	0.05	0.32
3	Ca (mg/L)	4	5	5	4	5
4	Cl (mg/L)	6.0	8.0	8.3	7.1	5.3
5	F (mg/L)	0.12	0.12	0.11	0.07	0.08
6	Fe (mg/L)					0.0
7	HCO3 (mg/L)	17	13	13	15	13
8	K (mg/L)	1.5	0.9	1.1	0.6	1.0
9	Mg (mg/L)	1.7	1.6	1.3	1.2	0.7
10	Na (mg/L)	2.8	3.5	3.4	3.0	3.3
11	NH3-N (mg N/L)					0.17
12	NO2+NO3 (mg N/L)	0.54	1.05	1.31	0.15	
13	NO2-N (mgN/L)	0.20	0.01	0.04	0.05	
14	NO3-N (mgN/L)	0.34	1.03	1.27	0.11	
15	o-PO4-P (mg P/L)			0.146	0.068	0.063
16	P-Tot (mgP/L)	0.075	0.095	0.116		
17	SiO2 (mg/L)	5.9	8.0	19.5	20.0	28.6
18	SO4 (mg/L)	1.5	1.0	2.1	1.0	3.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.7	0.5	0.6	0.7
2	COD (mg/L)	2.5	5.7	3.8	4.4	3.6
3	DO (mg/L)	7.2	7.5	6.9	7.2	7.9
4	DO_SAT% (%)	91	92	83	88	93
5	FCol-MPN (MPN/100mL)	700		1600	900	500
6	Tcol-MPN (MPN/100mL)	1250		1600	1600	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)	10	12	11	10	12
2	HAR_Total (mgCaCO3/L)	17	19	17	15	15
3	Na% (%)	25	28	29	29	30
4	SAR (-)	0.3	0.4	0.4	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	59.92	57.01	26.91	72.90	267.3
2	EC_FLD (µmho/cm)	59	59	60	53	57
3	EC_GEN (µmho/cm)	54	41	47	41	41
4	pH_FLD (pH units)	7.0	6.9	7.2	6.4	6.2
5	pH_GEN (pH units)	6.3	6.2	6.4	6.8	7.0
6	TDS (mg/L)	34	27	28	26	
7	Temp (deg C)	26.7	23.8	25.2	25.0	26.2
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	13	14	13	
2	B (mg/L)	0.14	0.31	0.07	0.04	
3	Ca (mg/L)	3	5	5	5	5
4	Cl (mg/L)	5.9	6.1	7.1	6.0	7.3
5	F (mg/L)	0.15	0.02	0.02	0.19	
6	Fe (mg/L)	0.1	0.1	0.0	0.0	
7	HCO3 (mg/L)	15	16	17	16	16
8	K (mg/L)	0.7	0.9	1.3	1.1	1.4
9	Mg (mg/L)	1.8	1.2	1.6	1.3	4.5
10	Na (mg/L)	3.2	3.2	4.0	3.2	2.8
11	NH3-N (mg N/L)	0.29	0.05	0.04		
12	NO2+NO3 (mg N/L)	0.17	0.13	1.24	0.72	
13	NO2-N (mgN/L)	0.03	0.01	0.01	0.01	
14	NO3-N (mgN/L)	0.15	0.12	1.23	0.71	
15	o-PO4-P (mg P/L)	0.063	0.049	0.230	0.097	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	24.7	16.4	11.9	9.4	
18	SO4 (mg/L)	1.1	0.7	0.9	0.5	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.5	0.7	0.7	0.5
2	COD (mg/L)	5.4	3.3	4.3	4.3	
3	DO (mg/L)	7.8	6.6	6.7	5.6	7.2
4	DO_SAT% (%)	97	78	81	67	89
5	FCol-MPN (MPN/100mL)		885	530	390	
6	Tcol-MPN (MPN/100mL)		940	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)	8	11	13	11	11
2	HAR_Total (mgCaCO3/L)	16	16	20	17	30
3	Na% (%)	30	29	28	28	18
4	SAR (-)	0.4	0.4	0.4	0.3	0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	69.87	27.79	7.286	18.69	19.67
2	EC_FLD (µmho/cm)	69	63	54	56	59
3	EC_GEN (µmho/cm)	169	47	44	68	65
4	pH_FLD (pH units)	6.3	6.5	6.2	6.9	7.0
5	pH_GEN (pH units)	6.7	6.7	6.1	7.7	6.6
6	TDS (mg/L)		32	36	54	53
7	Temp (deg C)	30.0	27.0	25.5	25.5	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		15	13	17	15
2	B (mg/L)		0.03	0.03	0.01	0.04
3	Ca (mg/L)	6	4	3	6	5
4	Cl (mg/L)	10.0	6.0	7.1	7.1	9.2
5	F (mg/L)		0.09	0.22		0.05
6	Fe (mg/L)				0.2	
7	HCO3 (mg/L)	33	18	16	21	18
8	K (mg/L)		1.2	0.5	1.4	1.4
9	Mg (mg/L)	2.2	2.0	3.4	2.5	1.9
10	Na (mg/L)		3.2	3.2	3.0	4.2
11	NH3-N (mg N/L)				0.05	
12	NO2+NO3 (mg N/L)		0.10	2.45	1.48	0.28
13	NO2-N (mgN/L)		0.00	0.02	0.02	0.14
14	NO3-N (mgN/L)		0.10	2.43	1.45	0.14
15	o-PO4-P (mg P/L)				0.058	0.076
16	P-Tot (mgP/L)		0.145	0.063	0.058	
17	SiO2 (mg/L)		11.6	10.5	17.5	22.1
18	SO4 (mg/L)		1.0	1.0	1.6	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.6	0.6	1.2	0.9
2	COD (mg/L)		4.2	4.8	9.2	6.8
3	DO (mg/L)	6.5	6.0	8.2	7.0	6.7
4	DO_SAT% (%)	86	75	99	85	81
5	FCol-MPN (MPN/100mL)		1600			
6	Tcol-MPN (MPN/100mL)		2900			
	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	10	8	14	12
2	HAR_Total (mgCaCO3/L)	25	18	22	24	20
3	Na% (%)		26	24	20	30
4	SAR (-)		0.3	0.3	0.3	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	26.15	33.71	8.872	1.502	0.000
2	EC_FLD (µmho/cm)	59	59	59	59	59
3	EC_GEN (µmho/cm)	53	45	52	58	51
4	pH_FLD (pH units)	7.0	6.9	6.9	7.3	6.3
5	pH_GEN (pH units)	6.8	6.8	6.3	6.0	7.1
6	TDS (mg/L)	31	26	32	35	34
7	Temp (deg C)	24.5	24.0	24.0	23.5	23.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	13	15	15	15
2	B (mg/L)		0.31	0.12	0.11	0.21
3	Ca (mg/L)	5	5	6	5	5
4	Cl (mg/L)	7.1	5.0	7.8	7.1	8.2
5	F (mg/L)	0.08	0.08	0.20	0.14	0.13
6	Fe (mg/L)	0.1	1.0	0.7	0.1	
7	HCO3 (mg/L)	18	16	18	18	19
8	K (mg/L)	1.3	0.8	1.0	1.5	1.1
9	Mg (mg/L)	1.0	0.5	1.0	1.7	1.3
10	Na (mg/L)	3.8	3.2	4.1	3.8	4.4
11	NH3-N (mg N/L)	0.18	0.05	0.00	0.01	
12	NO2+NO3 (mg N/L)		0.19		0.94	0.39
13	NO2-N (mgN/L)		0.10		0.01	0.01
14	NO3-N (mgN/L)		0.10	1.45	0.93	0.38
15	o-PO4-P (mg P/L)	0.047	0.041		0.085	0.092
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	20.6	15.9	11.0	12.3	5.3
18	SO4 (mg/L)	1.0	1.2	0.6	0.5	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	1.5	0.6	1.8	0.4
2	COD (mg/L)	3.8	12.0	4.6	13.4	2.7
3	DO (mg/L)	7.7	7.7	6.6	6.7	7.6
4	DO_SAT% (%)	92	92	78	78	89
5	FCol-MPN (MPN/100mL)		500		1600	1050
6	Tcol-MPN (MPN/100mL)		1600		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)	12	12	14	13	13
2	HAR_Total (mgCaCO3/L)	16	14	18	20	18
3	Na% (%)	32	32	32	27	32
4	SAR (-)	0.4	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	9.000	23.88			
2	EC_FLD (µmho/cm)	62	62			
3	EC_GEN (µmho/cm)	41	50			
4	pH_FLD (pH units)	6.6	6.4			
5	pH_GEN (pH units)	7.3	6.3			
6	TDS (mg/L)					
7	Temp (deg C)	26.5	27.8			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	5	7			
4	Cl (mg/L)	4.0	30.0			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	14	69			
8	K (mg/L)		0.2			
9	Mg (mg/L)	1.9	3.3			
10	Na (mg/L)		10.7			
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)	5.0				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.4			
2	COD (mg/L)					
3	DO (mg/L)	6.8	6.4			
4	DO_SAT% (%)	84	81			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	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)	12	18			
2	HAR_Total (mgCaCO3/L)	20	31			
3	Na% (%)		43			
4	SAR (-)		0.8			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
2	EC_FLD (µmho/cm)				60
3	EC_GEN (µmho/cm)				60
4	pH_FLD (pH units)				7.2
5	pH_GEN (pH units)				6.1
6	TDS (mg/L)				37
7	Temp (deg C)				26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				13
2	B (mg/L)				0.11
3	Ca (mg/L)				6
4	Cl (mg/L)				7.8
5	F (mg/L)				0.03
6	Fe (mg/L)				0.0
7	HCO3 (mg/L)				16
8	K (mg/L)				2.3
9	Mg (mg/L)				2.0
10	Na (mg/L)				4.2
11	NH3-N (mg N/L)				0.05
12	NO2+NO3 (mg N/L)				1.33
13	NO2-N (mgN/L)				0.03
14	NO3-N (mgN/L)				1.30
15	o-PO4-P (mg P/L)				0.085
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)				14.2
18	SO4 (mg/L)				3.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				0.8
2	COD (mg/L)				7.6
3	DO (mg/L)				6.0
4	DO_SAT% (%)				74
5	FCol-MPN (MPN/100mL)				900
6	Tcol-MPN (MPN/100mL)				1600
	TRACE & TOXIC				
1	As (µg/L)				0.0
2	Cd (µg/L)				0.1
3	Cr (µg/L)				1.0
4	Cu (µg/L)				5.6
5	Hg (µg/L)				
6	Ni (µg/L)				10.4
7	Pb (µg/L)				4.1
8	Zn (µg/L)				0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)				14
2	HAR_Total (mgCaCO3/L)				22
3	Na% (%)				27
4	SAR (-)				0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ARANGALY (KSA00F3)

Division : SWR Division, Kochi

Local River : Chalakudy

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	4.343	3.993
2	EC_FLD (µmho/cm)	58	60	76	71
3	EC_GEN (µmho/cm)	62	61	54	55
4	pH_FLD (pH units)	7.4	6.8	7.1	5.9
5	pH_GEN (pH units)	6.6	6.8	7.3	6.5
6	TDS (mg/L)	36	42		
7	Temp (deg C)	24.0	26.0	29.0	33.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	17	15		
2	B (mg/L)	0.06	0.03		
3	Ca (mg/L)	6	6	8	8
4	Cl (mg/L)	7.1	9.9	26.1	20.9
5	F (mg/L)	0.21	0.24		
6	Fe (mg/L)	0.1	0.1		
7	HCO3 (mg/L)	21	18	26	12
8	K (mg/L)	1.5	2.0		0.4
9	Mg (mg/L)	1.5	1.5	3.8	3.8
10	Na (mg/L)	3.9	5.4		15.6
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.48	0.64		
13	NO2-N (mgN/L)	0.01	0.18		
14	NO3-N (mgN/L)	0.47	0.46		
15	o-PO4-P (mg P/L)	0.090	0.060		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	12.0	10.1		
18	SO4 (mg/L)	1.1	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.4	0.4	1.2	1.6
2	COD (mg/L)	8.6	3.0		
3	DO (mg/L)	5.5	6.3	7.2	7.8
4	DO_SAT% (%)	65	78	94	109
5	FCol-MPN (MPN/100mL)	1600	500		
6	Tcol-MPN (MPN/100mL)	1600	900		
	TRACE & TOXIC				
1	As (µg/L)	2.4	2.0		
2	Cd (µg/L)	0.0	0.1		
3	Cr (µg/L)	0.1	0.5		
4	Cu (µg/L)	0.8	0.8		
5	Hg (µg/L)				
6	Ni (µg/L)	0.1	3.2		
7	Pb (µg/L)	2.8	0.2		
8	Zn (µg/L)	0.1	2.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	14	20	20
2	HAR_Total (mgCaCO3/L)	22	20	35	35
3	Na% (%)	26	34		49
4	SAR (-)	0.4	0.5		1.1
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	Sub-Division	: SWR SD No 2, Kochi
Drainage Area	: 4234 Sq. Km.	Bank	: Right
Latitude	: 10°11'01"	Longitude	: 76°29'44"
Zero of Gauge (m)	: 1.000 (m.s.l.) - 3.000 (m.s.l.)	19/01/1971	31/05/2005
	Opening Date	01/06/2005	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 : 2015-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	113.1	218.2	512.6
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (μmho/cm)	44	45	48
4	EC_GEN (μmho/cm)	42	34	39
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0		
7	pH_GEN (pH units)	6.2	7.4	6.5
8	Temp (deg C)	28.5	25.0	25.8
	CHEMICAL			
1	Ca (mg/L)	6	5	22
2	Cl (mg/L)	10.4	9.1	13.0
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	11	37	53
5	K (mg/L)			
6	Mg (mg/L)	10.5	1.0	7.6
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.8	0.4	0.6
2	DO (mg/L)	7.0	6.0	6.4
3	DO_SAT% (%)	90	73	78
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	16	12	55
2	HAR_Total (mgCaCO ₃ /L)	59	16	86
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	171.9	23.12	25.46
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	46		66
4	EC_GEN (µmho/cm)	23	70	45
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)			7.0
7	pH_GEN (pH units)	7.9	7.7	6.3
8	Temp (deg C)	27.3	25.0	29.0
	CHEMICAL			
1	Ca (mg/L)	5	19	19
2	Cl (mg/L)	11.7	18.2	18.2
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	111	58	23
5	K (mg/L)	0.1	0.3	0.4
6	Mg (mg/L)	1.9	3.1	2.9
7	Na (mg/L)	8.2	8.7	15.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	1.0	1.6
2	DO (mg/L)	6.6	7.8	7.2
3	DO_SAT% (%)	83	94	94
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	47	47
2	HAR_Total (mgCaCO3/L)	20	60	59
3	Na% (%)	47	24	36
4	SAR (-)	0.8	0.5	0.9
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1726	0.000	159.5
2	EC_FLD (µmho/cm)	6	66	44	50
3	EC_GEN (µmho/cm)	6	70	23	42
4	pH_FLD (pH units)	2	7.0	7.0	7
5	pH_GEN (pH units)	6	7.9	6.2	7
6	Temp (deg C)	6	29.0	25.0	26.8
	CHEMICAL				
1	Ca (mg/L)	6	22	5	13
2	Cl (mg/L)	6	18.2	9.1	13.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	111	11	49
5	K (mg/L)	3	0.4	0.1	0.3
6	Mg (mg/L)	6	10.5	1.0	4.5
7	Na (mg/L)	3	15.5	8.2	10.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.6	0.4	0.8
2	DO (mg/L)	6	7.8	6.0	6.8
3	DO_SAT% (%)	6	94	73	85
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	55	12	31
2	HAR_Total (mgCaCO ₃ /L)	6	86	16	50
3	Na% (%)	3	47	24	36
4	SAR (-)	3	0.9	0.5	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	989.2	337.2	320.1	361.6	249.5
2	EC_FLD (µmho/cm)	43	38		44	44
3	EC_GEN (µmho/cm)	48	32	41	42	43
4	pH_FLD (pH units)	6.7	6.9	6.9	6.9	7.0
5	pH_GEN (pH units)	6.8	6.5	6.2	6.3	6.9
6	TDS (mg/L)	37	24	31	34	25
7	Temp (deg C)	27.7	26.7	29.0	29.0	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	19	11	11	12	10
2	B (mg/L)	0.10	0.04	0.00	0.02	
3	Ca (mg/L)	5	3	5	4	4
4	Cl (mg/L)	6.0	7.8	8.0	7.1	5.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.15	0.12	0.13	0.06	0.11
7	Fe (mg/L)				0.1	0.0
8	HCO3 (mg/L)	24	13	13	15	12
9	K (mg/L)	1.3	1.0	1.6	0.8	1.2
10	Mg (mg/L)	1.8	2.1	1.3	1.7	0.7
11	Na (mg/L)	3.3	3.1	3.4	3.1	3.0
12	NH3-N (mg N/L)				0.05	0.25
13	NO2+NO3 (mg N/L)	0.72	0.20	1.20	0.32	
14	NO2-N (mgN/L)	0.16	0.04	0.03	0.05	
15	NO3-N (mgN/L)	0.55	0.16	1.18	0.21	
16	o-PO4-P (mg P/L)			0.403	0.025	0.037
17	P-Tot (mgP/L)	0.041	0.152	0.123	0.010	
18	SiO2 (mg/L)	6.8	7.9	20.2	18.9	31.6
19	SO4 (mg/L)	1.8	1.0	2.1	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.8	0.7	0.7	0.4
2	COD (mg/L)	4.9	6.8	4.9	5.7	5.1
3	DO (mg/L)	7.2	7.7	6.9	7.6	7.8
4	DO_SAT% (%)	90	96	89	99	95
5	FCol-MPN (MPN/100mL)	767	273	1600		287
6	Tcol-MPN (MPN/100mL)	1267	383	1600		1150
	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	8	11	10	10
2	HAR_Total (mgCaCO3/L)	19	17	17	17	12
3	Na% (%)	26	27	28	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: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	209.7	292.1	116.5	326.0	539.4
2	EC_FLD (µmho/cm)	47		50	45	47
3	EC_GEN (µmho/cm)	43	43	42	41	39
4	pH_FLD (pH units)	7.1		7.0	7.0	7.0
5	pH_GEN (pH units)	6.8	6.2	6.9	6.9	7.1
6	TDS (mg/L)	28	28	28	26	
7	Temp (deg C)	27.0	26.3	27.1	24.8	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	12	13	12	
2	B (mg/L)	0.15	0.17	0.03	0.03	
3	Ca (mg/L)	4	4	4	3	3
4	Cl (mg/L)	5.1	5.8	5.5	5.2	6.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.12	0.06	0.02	0.15	
7	Fe (mg/L)	0.1	0.1	0.1	0.1	
8	HCO3 (mg/L)	14	15	15	15	13
9	K (mg/L)	0.5	1.0	1.0	1.1	1.5
10	Mg (mg/L)	1.3	1.3	2.3	1.5	1.6
11	Na (mg/L)	2.8	3.1	3.2	3.1	4.6
12	NH3-N (mg N/L)	0.26	0.14	0.01		
13	NO2+NO3 (mg N/L)	0.17	0.16	1.24	0.21	
14	NO2-N (mgN/L)	0.02	0.01	0.01	0.01	
15	NO3-N (mgN/L)	0.16	0.16	1.23	0.21	
16	o-PO4-P (mg P/L)	0.080	0.051	0.190	0.071	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	20.5	12.9	10.2	5.8	
19	SO4 (mg/L)	1.0	0.8	1.1	0.5	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.4	0.6	0.9	0.7
2	COD (mg/L)	6.2	2.7	4.5	5.9	
3	DO (mg/L)	7.4	7.0	7.3	5.8	7.3
4	DO_SAT% (%)	95	87	91	70	90
5	FCol-MPN (MPN/100mL)	500	260	890	1050	
6	Tcol-MPN (MPN/100mL)	1600	940	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	9	9	8	7
2	HAR_Total (mgCaCO3/L)	14	15	19	14	14
3	Na% (%)	29	30	26	30	35
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.3	0.4	0.3	0.4	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	River Water				
		Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	281.3	103.7	118.2	135.0	160.2
2	EC_FLD (µmho/cm)	45	50	49	44	
3	EC_GEN (µmho/cm)	38	43	41	43	44
4	pH_FLD (pH units)	7.0	7.1	6.8	7.0	
5	pH_GEN (pH units)	6.7	7.0	6.4	6.9	6.7
6	TDS (mg/L)		32	32	35	32
7	Temp (deg C)	26.4	27.8	28.3	29.0	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		13	11	10	15
2	B (mg/L)		0.03	0.02	0.03	0.08
3	Ca (mg/L)	11	4	5	4	4
4	Cl (mg/L)	10.9	5.5	6.8	7.2	6.4
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.05	0.32	0.10	0.06
7	Fe (mg/L)				0.1	0.1
8	HCO3 (mg/L)	33	15	13	13	19
9	K (mg/L)		1.0	0.7	1.4	1.2
10	Mg (mg/L)	6.3	1.7	2.0	2.0	1.7
11	Na (mg/L)		2.9	2.8	3.0	4.0
12	NH3-N (mg N/L)				0.22	
13	NO2+NO3 (mg N/L)		0.81	0.95	0.57	0.17
14	NO2-N (mgN/L)		0.05	0.11	0.11	0.05
15	NO3-N (mgN/L)		0.77	0.84	0.46	0.12
16	o-PO4-P (mg P/L)				0.035	0.071
17	P-Tot (mgP/L)		0.140	0.094	0.035	
18	SiO2 (mg/L)		12.4	9.8	18.3	21.3
19	SO4 (mg/L)		1.0	1.8	1.9	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.5	0.7	0.5	0.5
2	COD (mg/L)		4.3	2.3	3.8	3.5
3	DO (mg/L)	6.5	6.7	7.3	6.8	7.2
4	DO_SAT% (%)	80	85	93	88	91
5	FCol-MPN (MPN/100mL)		900	700	900	1050
6	Tcol-MPN (MPN/100mL)		1600	1250	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)	27	11	12	10	9
2	HAR_Total (mgCaCO3/L)	54	18	20	18	16
3	Na% (%)		25	23	25	32
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: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	59.20	158.6	124.2	24.87	72.98
2	EC_FLD (µmho/cm)	45		47	48	48
3	EC_GEN (µmho/cm)	44	45	48	47	44
4	pH_FLD (pH units)	7.0		7.0	7.0	7.0
5	pH_GEN (pH units)	6.6	7.0	6.8	6.6	7.3
6	TDS (mg/L)	27	26	34	29	33
7	Temp (deg C)	25.8	25.5	26.6	29.1	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	15	13	12	10
2	B (mg/L)		0.13	0.19	0.10	0.18
3	Ca (mg/L)	4	4	4	4	3
4	Cl (mg/L)	6.0	4.9	6.2	6.1	7.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.23	0.15	0.20	0.18	0.09
7	Fe (mg/L)	0.1	0.7	1.1	0.1	
8	HCO3 (mg/L)	13	18	15	15	12
9	K (mg/L)	1.1	1.0	1.0	1.3	1.3
10	Mg (mg/L)	0.7	1.8	1.5	1.5	1.6
11	Na (mg/L)	3.1	2.9	3.3	3.4	4.0
12	NH3-N (mg N/L)	0.18	0.11	0.11	0.01	
13	NO2+NO3 (mg N/L)		0.31		1.10	0.33
14	NO2-N (mgN/L)		0.06		0.01	0.00
15	NO3-N (mgN/L)		0.25	0.94	1.09	0.35
16	o-PO4-P (mg P/L)	0.027	0.027	0.420	0.064	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	25.3	13.5	10.0	12.8	4.0
19	SO4 (mg/L)	1.0	1.0	0.6	0.8	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.5	0.4	1.3	0.7
2	COD (mg/L)	6.3	3.7	1.9	10.0	1.6
3	DO (mg/L)	7.2		7.1	7.0	7.5
4	DO_SAT% (%)	88		88	91	90
5	FCol-MPN (MPN/100mL)	1600	1050	950	205	500
6	Tcol-MPN (MPN/100mL)	1600	1600	1250	335	900
	TRACE & TOXIC					
1	As (µg/L)			0.0		
2	Cd (µg/L)			0.3		
3	Cr (µg/L)			1.0		
4	Cu (µg/L)			26.1		
5	Ni (µg/L)			2.8		
6	Pb (µg/L)			0.2		
7	Zn (µg/L)			27.1		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	11	10	9	11	9
2	HAR_Total (mgCaCO3/L)	14	17	15	17	15
3	Na% (%)	31	26	30	28	34
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: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	49.91	97.50	63.06	82.23	149.3
2	EC_FLD (µmho/cm)	45	46	50		44
3	EC_GEN (µmho/cm)	43	46	41	36	46
4	pH_FLD (pH units)	7.1		7.0	6.3	7.1
5	pH_GEN (pH units)	7.6	7.8	7.0	6.8	6.7
6	TDS (mg/L)			31	29	36
7	Temp (deg C)	25.9	26.1	28.0	28.0	28.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			17	9	12
2	B (mg/L)			0.01	0.01	
3	Ca (mg/L)	4	12	5	4	4
4	Cl (mg/L)	4.8	15.0	5.7	9.2	8.5
5	CO3 (mg/L)			0.0	0.0	0.0
6	F (mg/L)			0.22	0.05	0.09
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	18	85	21	11	15
9	K (mg/L)		0.2	1.1	1.4	1.5
10	Mg (mg/L)	1.9	2.5	2.0	1.0	1.5
11	Na (mg/L)		8.5	3.0	3.4	4.1
12	NH3-N (mg N/L)					
13	NO2+NO3 (mg N/L)			0.83	0.65	0.29
14	NO2-N (mgN/L)			0.20	0.13	0.12
15	NO3-N (mgN/L)			0.63	0.52	0.17
16	o-PO4-P (mg P/L)					0.270
17	P-Tot (mgP/L)			0.361	0.022	0.270
18	SiO2 (mg/L)			9.8	9.0	16.4
19	SO4 (mg/L)	1.0		1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.7	1.0	1.2	0.4
2	COD (mg/L)			8.2	9.6	2.8
3	DO (mg/L)	6.9	7.2	6.6	7.8	6.8
4	DO_SAT% (%)	84	89	84	100	87
5	FCol-MPN (MPN/100mL)			1600	900	1600
6	Tcol-MPN (MPN/100mL)			2900	1600	1600
	TRACE & TOXIC					
1	As (µg/L)			5.9	7.2	4.3
2	Cd (µg/L)	0.2		6.0		0.5
3	Cr (µg/L)	1.2		0.5	0.4	
4	Cu (µg/L)	3.2		0.2	7.2	1.5
5	Ni (µg/L)	1.8		2.2	4.2	
6	Pb (µg/L)	0.9		1.6	1.1	1.2
7	Zn (µg/L)	10.0			5.0	16.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	29	12	10	10
2	HAR_Total (mgCaCO3/L)	18	40	20	14	16
3	Na% (%)		36	23	32	33
4	RSC (-)			0.0	0.0	0.0
5	SAR (-)		0.6	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	18.60	93.13	52.43	100.5
2	EC_FLD (µmho/cm)		46		51
3	EC_GEN (µmho/cm)	46	32	54	51
4	pH_FLD (pH units)		7.1		7.0
5	pH_GEN (pH units)	6.0	6.8	7.5	6.6
6	TDS (mg/L)	38	19	32	33
7	Temp (deg C)	27.0	28.5	29.0	29.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	15	11	15	13
2	B (mg/L)	0.06			0.10
3	Ca (mg/L)	3	2	4	4
4	Cl (mg/L)	5.0	4.9	5.7	5.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0
6	F (mg/L)	0.05	0.08	0.16	0.02
7	Fe (mg/L)	0.0		0.3	0.0
8	HCO3 (mg/L)	18	13	19	16
9	K (mg/L)	1.8	0.9	1.3	0.9
10	Mg (mg/L)	1.9	1.5	2.0	2.5
11	Na (mg/L)	3.2	2.9	3.2	2.7
12	NH3-N (mg N/L)		0.17	0.09	0.07
13	NO2+NO3 (mg N/L)	0.15		0.19	1.17
14	NO2-N (mgN/L)	0.04		0.03	0.04
15	NO3-N (mgN/L)	0.11	0.10	0.17	1.13
16	o-PO4-P (mg P/L)	0.021		0.012	0.080
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	20.5	24.3	19.4	11.8
19	SO4 (mg/L)	1.0	1.0	1.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.4	0.6	1.0
2	COD (mg/L)	4.0	3.8	5.2	6.2
3	DO (mg/L)	7.0	7.9		7.0
4	DO_SAT% (%)	88	101		91
5	Fcol-MPN (MPN/100mL)	1600	500		280
6	Tcol-MPN (MPN/100mL)	1600	900		350
	TRACE & TOXIC				
1	As (µg/L)			2.7	0.1
2	Cd (µg/L)			0.0	0.1
3	Cr (µg/L)			0.7	0.5
4	Cu (µg/L)			3.2	0.1
5	Ni (µg/L)				1.4
6	Pb (µg/L)			0.1	4.3
7	Zn (µg/L)			42.2	0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	5	10	10
2	HAR_Total (mgCaCO3/L)	16	11	18	20
3	Na% (%)	28	34	26	22
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: 2005-2016

Station Name : NEELESWARAM (KS000F3)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	41.45	90.43	69.79	25.46
2	EC_FLD (µmho/cm)			46	66
3	EC_GEN (µmho/cm)	34	36	41	45
4	pH_FLD (pH units)			7.0	7.0
5	pH_GEN (pH units)	7.1	7.2	7.6	6.3
6	TDS (mg/L)	20			
7	Temp (deg C)	29.5		27.5	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	13			
2	B (mg/L)	0.07			
3	Ca (mg/L)	3	6	8	19
4	Cl (mg/L)	5.0	7.7	6.6	18.2
5	CO3 (mg/L)	0.0	0.0		
6	F (mg/L)	0.19	0.10		
7	Fe (mg/L)	0.1	0.0		
8	HCO3 (mg/L)	16		29	23
9	K (mg/L)	1.1	1.8		0.4
10	Mg (mg/L)	1.5	1.0	2.8	2.8
11	Na (mg/L)	3.2	2.4		15.5
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)	0.26			
14	NO2-N (mgN/L)	0.01			
15	NO3-N (mgN/L)	0.25	0.92		
16	o-PO4-P (mg P/L)	0.020			
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	11.5			
19	SO4 (mg/L)	0.8	0.8		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.4	2.8	0.6	1.6
2	COD (mg/L)	2.4			
3	DO (mg/L)	6.7	7.1	7.6	7.2
4	DO_SAT% (%)	87		95	94
5	FCol-MPN (MPN/100mL)	1600			
6	Tcol-MPN (MPN/100mL)	1600			
	TRACE & TOXIC				
1	As (µg/L)	1.0	7.4		
2	Cd (µg/L)	0.1	0.0		
3	Cr (µg/L)	0.3	0.9		
4	Cu (µg/L)	2.9	0.9		
5	Ni (µg/L)	0.0	0.2		
6	Pb (µg/L)	5.6	0.5		
7	Zn (µg/L)	2.7	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	16	20	47
2	HAR_Total (mgCaCO3/L)	14	20	31	59
3	Na% (%)	31	19		36
4	RSC (-)	0.0			
5	SAR (-)	0.4	0.2		0.9
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.470	4.202	12.99
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	70	7	
4	EC_GEN (µmho/cm)	92	200	76
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.2	7.3	
7	pH_GEN (pH units)	7.7	7.6	6.7
8	Temp (deg C)	27.0	21.0	20.0
	CHEMICAL			
1	Ca (mg/L)	8	5	22
2	Cl (mg/L)	7.8	9.1	10.2
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	18	26	53
5	K (mg/L)			
6	Mg (mg/L)	2.9	1.9	7.6
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.6	0.6	0.6
2	DO (mg/L)	4.6	5.4	7.2
3	DO_SAT% (%)	58	61	79
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	20	12	55
2	HAR_Total (mgCaCO ₃ /L)	31	20	86
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	3.425	0.502	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	71	72	72
4	EC_GEN (µmho/cm)	37	119	175
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)	7.9	7.5	6.4
8	Temp (deg C)	21.0	20.0	26.0
	CHEMICAL			
1	Ca (mg/L)	5	23	13
2	Cl (mg/L)	16.9	18.2	13.0
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	34	69	23
5	K (mg/L)	0.2	0.4	0.5
6	Mg (mg/L)	1.9	4.7	4.8
7	Na (mg/L)	11.3	17.2	17.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.4	1.2	1.6
2	DO (mg/L)	6.4	6.0	6.0
3	DO_SAT% (%)	72	66	74
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	12	58	31
2	HAR_Total (mgCaCO ₃ /L)	20	78	51
3	Na% (%)	55	32	43
4	SAR (-)	1.1	0.8	1.1
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	58.89	0.000	4.157
2	EC_FLD (µmho/cm)	6	72	7	58
3	EC_GEN (µmho/cm)	6	200	37	116
4	pH_FLD (pH units)	5	7.4	7.2	7.3
5	pH_GEN (pH units)	6	7.9	6.4	7.3
6	Temp (deg C)	6	27.0	20.0	22.5
	CHEMICAL				
1	Ca (mg/L)	6	23	5	12
2	Cl (mg/L)	6	18.2	7.8	12.6
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO3 (mg/L)	6	69	18	37
5	K (mg/L)	3	0.5	0.2	0.3
6	Mg (mg/L)	6	7.6	1.9	4
7	Na (mg/L)	3	17.7	11.3	15.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.6	0.4	0.8
2	DO (mg/L)	6	7.2	4.6	5.9
3	DO_SAT% (%)	6	79	58	68
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	58	12	31
2	HAR_Total (mgCaCO3/L)	6	86	20	48
3	Na% (%)	3	55	32	43
4	SAR (-)	3	1.1	0.8	1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	51.66	14.77	6.165		4.466
2	EC_FLD (µmho/cm)			63	64	70
3	EC_GEN (µmho/cm)	71	50	65	63	50
4	pH_FLD (pH units)			7.5	6.6	6.8
5	pH_GEN (pH units)	6.7	6.8	6.6	6.8	7.1
6	TDS (mg/L)	54	40	53	48	28
7	Temp (deg C)	23.7	24.5	24.2	23.0	23.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	21	12	17	16	12
2	B (mg/L)	0.07	0.05	0.00	0.16	
3	Ca (mg/L)	5	5	6	5	4
4	Cl (mg/L)	9.8	9.4	10.9	8.2	7.5
5	F (mg/L)	0.13	0.07	0.12	0.17	0.11
6	Fe (mg/L)				0.1	0.0
7	HCO3 (mg/L)	25	14	20	20	14
8	K (mg/L)	2.2	1.6	1.5	0.8	1.7
9	Mg (mg/L)	2.9	1.9	2.5	1.8	1.0
10	Na (mg/L)	5.1	4.3	5.4	4.8	4.1
11	NH3-N (mg N/L)				0.06	0.21
12	NO2+NO3 (mg N/L)	1.03			0.23	
13	NO2-N (mgN/L)	0.28			0.04	
14	NO3-N (mgN/L)	0.75			0.21	
15	o-PO4-P (mg P/L)			0.165	0.050	0.051
16	P-Tot (mgP/L)	0.023	0.149	0.108		
17	SiO2 (mg/L)	6.9	8.4	17.6	19.2	24.3
18	SO4 (mg/L)	1.2	1.8	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.5	0.8	0.6
2	COD (mg/L)	3.9		3.0	6.3	8.0
3	DO (mg/L)			7.0	6.9	8.0
4	DO_SAT% (%)			82	80	95
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)	13	13	14	12	9
2	HAR_Total (mgCaCO3/L)	25	21	25	19	13
3	Na% (%)	29	29	30	34	37
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	4.031	12.16	1.165	5.396	11.22
2	EC_FLD (µmho/cm)	70	70	71	71	72
3	EC_GEN (µmho/cm)	65	62	61	81	63
4	pH_FLD (pH units)	7.3	7.0	7.0	7.2	7.2
5	pH_GEN (pH units)	6.8	6.5	6.6	6.8	7.0
6	TDS (mg/L)	41	43	40	54	
7	Temp (deg C)	25.0	24.0	24.8	22.7	24.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18	16	17	25	
2	B (mg/L)	0.26	0.24	0.08	0.04	
3	Ca (mg/L)	5	6	6	7	6
4	Cl (mg/L)	7.5	7.5	6.0	9.9	9.3
5	F (mg/L)	0.10	0.05	0.01	0.36	
6	Fe (mg/L)	0.1	0.1	0.1	0.1	
7	HCO3 (mg/L)	22	20	20	31	25
8	K (mg/L)	1.1	1.5	1.2	2.5	2.2
9	Mg (mg/L)	2.2	1.5	2.2	2.4	5.7
10	Na (mg/L)	4.1	4.0	3.7	6.1	4.1
11	NH3-N (mg N/L)	0.31	0.14	0.02		
12	NO2+NO3 (mg N/L)	0.22	0.22	1.84	0.37	
13	NO2-N (mgN/L)	0.03	0.04	0.02	0.03	
14	NO3-N (mgN/L)	0.19	0.18	1.83	0.34	
15	o-PO4-P (mg P/L)	0.117	0.078	0.247	0.173	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	26.2	16.3	9.4	9.8	
18	SO4 (mg/L)	1.0	0.8	1.1	0.7	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.6	0.6	1.3	1.2
2	COD (mg/L)	7.5	3.7	3.8	9.8	
3	DO (mg/L)	8.7	6.3	6.3	5.6	6.2
4	DO_SAT% (%)	106	75	76	65	74
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)	11	14	14	18	14
2	HAR_Total (mgCaCO3/L)	20	20	23	28	38
3	Na% (%)	29	29	25	29	21
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.4	0.4	0.3	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	River Water				
		Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	5.887	0.494	3.302	1.072	
2	EC_FLD (µmho/cm)	39			84	74
3	EC_GEN (µmho/cm)	123	104	74	96	80
4	pH_FLD (pH units)	7.3			6.9	6.6
5	pH_GEN (pH units)	7.3	7.0	6.6	6.9	7.1
6	TDS (mg/L)		79	58	79	65
7	Temp (deg C)	22.7	24.0	24.5	24.5	24.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		29	23	24	22
2	B (mg/L)		0.02	0.04	0.06	0.24
3	Ca (mg/L)	11	10	8	8	5
4	Cl (mg/L)	9.1	13.1	13.1	12.8	9.9
5	F (mg/L)		0.05	0.32	0.05	0.37
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	33	35	29	29	27
8	K (mg/L)		2.4	1.6	2.9	1.8
9	Mg (mg/L)	4.1	2.7	2.7	2.8	2.9
10	Na (mg/L)		7.0	6.1	7.0	5.8
11	NH3-N (mg N/L)				0.15	
12	NO2+NO3 (mg N/L)		3.97			
13	NO2-N (mgN/L)		0.11			
14	NO3-N (mgN/L)		3.86			0.27
15	o-PO4-P (mg P/L)					0.105
16	P-Tot (mgP/L)		0.211	0.061	0.060	
17	SiO2 (mg/L)		16.8	12.0	17.1	20.1
18	SO4 (mg/L)		1.0	1.0	1.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6			0.9	0.4
2	COD (mg/L)		4.4		7.0	3.3
3	DO (mg/L)	5.7			5.3	6.0
4	DO_SAT% (%)	66			63	71
5	FCol-MPN (MPN/100mL)				1600	500
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)	29	24	20	19	12
2	HAR_Total (mgCaCO3/L)	46	35	31	30	24
3	Na% (%)		28	28	30	32
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.5	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	1.016	3.135	7.001	0.390	0.949
2	EC_FLD (µmho/cm)		56	69		72
3	EC_GEN (µmho/cm)	86	62	77	64	98
4	pH_FLD (pH units)		6.8	6.7		7.3
5	pH_GEN (pH units)	6.6	6.7	6.9	6.6	7.0
6	TDS (mg/L)	50	39	53	43	67
7	Temp (deg C)	23.8	22.5	23.5	24.0	23.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	23	18	23	14	32
2	B (mg/L)	0.33	0.04	0.25	0.10	0.05
3	Ca (mg/L)	6	5	6	8	8
4	Cl (mg/L)	10.7	7.0	10.3	9.9	11.8
5	F (mg/L)	0.22	0.05	0.35	0.23	0.17
6	Fe (mg/L)	0.0	0.5	0.8	0.1	
7	HCO3 (mg/L)	28	23	29	17	39
8	K (mg/L)	2.3	1.6	1.9	2.4	2.4
9	Mg (mg/L)	2.7	1.7	2.7	2.5	3.4
10	Na (mg/L)	7.3	4.8	5.5	5.2	7.0
11	NH3-N (mg N/L)	0.20	0.06	0.11	0.09	
12	NO2+NO3 (mg N/L)		0.84		3.16	0.68
13	NO2-N (mgN/L)		0.04		0.02	0.02
14	NO3-N (mgN/L)		0.80	1.70	3.14	0.67
15	o-PO4-P (mg P/L)	0.024	0.102	0.163	0.126	0.056
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	20.4	15.3	12.7	15.5	6.3
18	SO4 (mg/L)	6.3	1.0	0.8	1.5	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	0.9	0.9		1.0
2	COD (mg/L)	10.0	6.5	8.6	3.6	6.9
3	DO (mg/L)		8.5	6.8		5.5
4	DO_SAT% (%)		98	80		65
5	FCol-MPN (MPN/100mL)	1600	500	1600		1250
6	Tcol-MPN (MPN/100mL)	1600	900	1600		1600
	TRACE & TOXIC					
1	As (µg/L)			0.2		
2	Cd (µg/L)			0.1		
3	Cr (µg/L)			1.9		
4	Cu (µg/L)			58.0		
5	Hg (µg/L)					
6	Ni (µg/L)			3.7		
7	Pb (µg/L)			0.2		
8	Zn (µg/L)			6.1		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	15	12	15	20	20
2	HAR_Total (mgCaCO3/L)	26	19	26	30	34
3	Na% (%)	35	37	31	25	29
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.5	0.5	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	1.081	1.963		0.151	0.475
2	EC_FLD (µmho/cm)	72	72			88
3	EC_GEN (µmho/cm)	71	78			100
4	pH_FLD (pH units)	7.2	7.3			6.4
5	pH_GEN (pH units)	7.5	7.7			6.6
6	TDS (mg/L)					83
7	Temp (deg C)	23.5	20.5			26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					22
2	B (mg/L)					0.08
3	Ca (mg/L)	6	14			8
4	Cl (mg/L)	8.3	17.6			14.2
5	F (mg/L)					0.10
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	33	52			27
8	K (mg/L)		0.3			3.2
9	Mg (mg/L)	2.8	3.3			3.0
10	Na (mg/L)		14.2			8.0
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)					0.135
17	SiO2 (mg/L)					11.8
18	SO4 (mg/L)	0.5				1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.2	0.8			1.0
2	COD (mg/L)					9.6
3	DO (mg/L)	5.0	6.2			4.0
4	DO_SAT% (%)	59	69			49
5	FCol-MPN (MPN/100mL)					1600
6	Tcol-MPN (MPN/100mL)					1600
	TRACE & TOXIC					
1	As (µg/L)				6.1	2.9
2	Cd (µg/L)	0.8				0.5
3	Cr (µg/L)	1.1			2.0	
4	Cu (µg/L)	7.5			5.3	1.8
5	Hg (µg/L)					
6	Ni (µg/L)	2.6			4.6	
7	Pb (µg/L)	21.9			1.4	
8	Zn (µg/L)	9.5			5.0	19.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	16	35			20
2	HAR_Total (mgCaCO3/L)	28	49			33
3	Na% (%)		44			32
4	RSC (-)					0.0
5	SAR (-)		1.0			0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	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-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	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)				
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: 2005-2016

Station Name : VANDIPERIYAR (KS000U1)

Division : SWR Division, Kochi

Local River : Periyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)		71	172	72
3	EC_GEN (µmho/cm)	188	164	193	175
4	pH_FLD (pH units)		7.0	7.4	7.4
5	pH_GEN (pH units)	7.2	7.0	7.5	6.4
6	TDS (mg/L)	141	126		
7	Temp (deg C)	28.0	26.0	27.0	26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	58	54		
2	B (mg/L)	0.11	0.02		
3	Ca (mg/L)	14	10	8	13
4	Cl (mg/L)	23.0	21.3	6.6	13.0
5	F (mg/L)	0.51	0.12		
6	Fe (mg/L)	0.1	0.1		
7	HCO3 (mg/L)	71	66	16	23
8	K (mg/L)	4.7	8.2		0.5
9	Mg (mg/L)	5.8	6.9	2.8	4.8
10	Na (mg/L)	17.3	15.2		17.6
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	2.20	1.09		
13	NO2-N (mgN/L)	0.02	0.02		
14	NO3-N (mgN/L)	2.18	1.07		
15	o-PO4-P (mg P/L)	0.080	0.050		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	9.2	6.8		
18	SO4 (mg/L)	0.7	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2.4	0.8	3.0	1.6
2	COD (mg/L)	16.6	5.6		
3	DO (mg/L)	3.9	4.1	5.2	6.0
4	DO_SAT% (%)	50	51	65	74
5	FCol-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	20	31
2	HAR_Total (mgCaCO3/L)	60	55	31	51
3	Na% (%)	36	34		43
4	RSC (-)	0.0	0.0		
5	SAR (-)	1.0	0.9		1.1
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	148.3	154.5	350.0
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	56	50	52
4	EC_GEN (µmho/cm)	33	58	43
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	7.4	7.1	6.8
7	Temp (deg C)	28.5	26.0	26.5
	CHEMICAL			
1	Ca (mg/L)	3	8	8
2	Cl (mg/L)	7.8	9.1	13.0
3	Fe (mg/L)			
4	HCO3 (mg/L)	21	16	37
5	K (mg/L)			
6	Mg (mg/L)	1.9	1.9	2.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.1	0.2	0.8
2	DO (mg/L)	7.0	5.8	7.2
3	DO_SAT% (%)	90	71	89
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	20	20
2	HAR_Total (mgCaCO3/L)	16	27	31
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : RAMAMANGALAM (KM000I2)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	79.72	43.80	73.82
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	55	22	24
4	EC_GEN (µmho/cm)	26	74	64
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_GEN (pH units)	6.9	7.0	7.8
7	Temp (deg C)	27.5	26.0	29.0
	CHEMICAL			
1	Ca (mg/L)	5	6	9
2	Cl (mg/L)	14.3	14.3	18.2
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	85	50	24
5	K (mg/L)	0.2	0.2	0.2
6	Mg (mg/L)	1.9	1.6	1.9
7	Na (mg/L)	8.8	1.0	10.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.2	1.8
2	DO (mg/L)	6.4	8.0	7.8
3	DO_SAT% (%)	80	99	101
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	16	24
2	HAR_Total (mgCaCO3/L)	20	22	31
3	Na% (%)	49	9	41
4	SAR (-)	0.9	0.1	0.8
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	740.9	32.83	126.7
2	EC_FLD (µmho/cm)	6	56	22	43
3	EC_GEN (µmho/cm)	6	74	26	50
4	pH_GEN (pH units)	6	7.8	6.8	7.1
5	Temp (deg C)	6	29.0	26.0	27.3
	CHEMICAL				
1	Ca (mg/L)	6	9	3	7
2	Cl (mg/L)	6	18.2	7.8	12.8
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO3 (mg/L)	6	85	16	39
5	K (mg/L)	3	0.2	0.2	0.2
6	Mg (mg/L)	6	2.9	1.6	2
7	Na (mg/L)	3	10.0	1.0	6.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.8	0.1	0.6
2	DO (mg/L)	6	8.0	5.8	7
3	DO_SAT% (%)	6	101	71	88
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	24	8	16
2	HAR_Total (mgCaCO3/L)	6	31	16	25
3	Na% (%)	3	49	9	33
4	SAR (-)	3	0.9	0.1	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	479.9	317.1	240.2	196.9	181.3
2	EC_FLD (µmho/cm)	84	42	59	55	107
3	EC_GEN (µmho/cm)	47	40	43	51	53
4	pH_FLD (pH units)	7.2	6.6	6.4	6.2	8.2
5	pH_GEN (pH units)	6.8	6.5	6.4	6.5	6.9
6	TDS (mg/L)	35	30	34	39	31
7	Temp (deg C)	28.2	27.5	27.8	27.7	27.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	11	11	13	12
2	B (mg/L)	0.09	0.01	0.02	0.03	
3	Ca (mg/L)	4	4	5	3	5
4	Cl (mg/L)	7.2	7.3	7.6	7.8	7.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.14	0.08	0.15	0.07	0.09
7	Fe (mg/L)				0.1	0.0
8	HCO3 (mg/L)	17	13	14	16	15
9	K (mg/L)	1.8	1.1	1.0	0.9	1.1
10	Mg (mg/L)	1.1	1.8	1.5	1.8	1.0
11	Na (mg/L)	3.9	3.6	3.5	3.6	3.7
12	NH3-N (mg N/L)				0.05	0.20
13	NO2+NO3 (mg N/L)	0.83	0.31	1.22	0.33	
14	NO2-N (mgN/L)	0.16	0.04	0.04	0.05	
15	NO3-N (mgN/L)	0.67	0.27	1.18	0.29	
16	o-PO4-P (mg P/L)			0.145	0.023	0.042
17	P-Tot (mgP/L)	0.053	0.097	0.145	0.010	
18	SiO2 (mg/L)	6.9	10.9	20.7	19.5	32.5
19	SO4 (mg/L)	1.5	1.0	1.3	1.1	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.7	0.7	0.7	0.3
2	COD (mg/L)	4.6	5.5	5.2	6.2	3.4
3	DO (mg/L)	7.0	7.9	7.3	7.1	7.8
4	DO_SAT% (%)	90	99	92	89	98
5	FCol-MPN (MPN/100mL)	633		1600	900	680
6	Tcol-MPN (MPN/100mL)	1133		1600	1600	1183
	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	13	9	12
2	HAR_Total (mgCaCO3/L)	14	17	19	16	16
3	Na% (%)	34	30	27	31	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	167.2	217.9	107.3	178.3	263.4
2	EC_FLD (µmho/cm)	57	61	56	50	52
3	EC_GEN (µmho/cm)	58	50	62	57	53
4	pH_FLD (pH units)	7.4	8.7	7.8	7.0	6.0
5	pH_GEN (pH units)	6.5	6.3	6.8	7.0	7.1
6	TDS (mg/L)	40	33	38	40	28
7	Temp (deg C)	27.8	27.7	27.7	27.8	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	13	14	14	15	
2	B (mg/L)	0.10	0.15	0.02	0.02	
3	Ca (mg/L)	4	4	5	6	6
4	Cl (mg/L)	7.2	6.8	7.1	8.1	8.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.13	0.04	0.07	0.22	
7	Fe (mg/L)	0.0	0.1	0.1	0.1	
8	HCO3 (mg/L)	15	17	17	19	13
9	K (mg/L)	0.7	1.2	1.3	1.4	1.6
10	Mg (mg/L)	1.7	1.2	2.0	1.5	5.5
11	Na (mg/L)	3.8	3.6	4.0	4.3	3.3
12	NH3-N (mg N/L)	0.22	0.06	0.01		
13	NO2+NO3 (mg N/L)	0.16	0.16	1.24	0.50	
14	NO2-N (mgN/L)	0.02	0.01	0.01	0.01	
15	NO3-N (mgN/L)	0.14	0.15	1.23	0.49	
16	o-PO4-P (mg P/L)	0.057	0.050	0.247	0.048	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	21.0	17.9	10.1	8.7	
19	SO4 (mg/L)	1.0	0.9	1.0	0.9	1.3
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	0.9	0.4	0.5	0.6
2	COD (mg/L)	2.5	6.1	2.5	3.6	
3	DO (mg/L)	7.7	6.9	7.0	5.7	7.1
4	DO_SAT% (%)	98	87	89	72	88
5	FCol-MPN (MPN/100mL)	900	390	767	1600	
6	Tcol-MPN (MPN/100mL)	1600	1600	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)	9	11	12	14	16
2	HAR_Total (mgCaCO3/L)	16	16	20	20	39
3	Na% (%)	33	32	29	30	22
4	RSC (-)	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: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	217.6	64.18	89.74	104.4	43.72
2	EC_FLD (µmho/cm)	53	95	49	67	64
3	EC_GEN (µmho/cm)	45	51	45	51	58
4	pH_FLD (pH units)		7.4	6.6	6.8	7.0
5	pH_GEN (pH units)	7.1	6.9	6.5	7.2	6.9
6	TDS (mg/L)		39	35	38	48
7	Temp (deg C)	27.0	27.5	27.8	27.0	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		14	13	12	15
2	B (mg/L)		0.01	0.03	0.00	0.04
3	Ca (mg/L)	6	4	6	5	4
4	Cl (mg/L)	10.0	7.7	8.8	8.8	8.5
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.06	0.38	0.12	0.07
7	Fe (mg/L)				0.4	0.1
8	HCO3 (mg/L)	25	17	15	15	18
9	K (mg/L)		1.3	0.8	1.1	1.6
10	Mg (mg/L)	2.2	1.7	1.5	1.8	2.2
11	Na (mg/L)		4.0	3.6	4.2	4.3
12	NH3-N (mg N/L)				0.05	
13	NO2+NO3 (mg N/L)		1.35	0.23	0.93	0.28
14	NO2-N (mgN/L)		0.36	0.00	0.08	0.05
15	NO3-N (mgN/L)		0.99	0.23	0.84	0.22
16	o-PO4-P (mg P/L)				0.086	0.049
17	P-Tot (mgP/L)		0.271	0.046	0.086	
18	SiO2 (mg/L)		11.7	11.5	18.5	20.2
19	SO4 (mg/L)		1.2	1.0	1.4	1.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.4	0.4	1.0	0.6
2	COD (mg/L)		3.6	3.1	7.2	4.6
3	DO (mg/L)	6.7	6.7	7.3	7.5	7.2
4	DO_SAT% (%)	83	85	93	93	90
5	FCol-MPN (MPN/100mL)		700			500
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)	16	11	14	12	10
2	HAR_Total (mgCaCO3/L)	25	18	20	19	19
3	Na% (%)		31	27	31	31
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.4	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	62.78	120.1	107.2	31.41	99.49
2	EC_FLD (µmho/cm)	73	50	42	52	79
3	EC_GEN (µmho/cm)	50	47	58	60	57
4	pH_FLD (pH units)	7.3	7.4	7.9	7.4	6.6
5	pH_GEN (pH units)	6.5	6.8	6.8	6.5	7.1
6	TDS (mg/L)	29	27	35	39	35
7	Temp (deg C)	26.8	27.0	26.8	28.3	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	16	15	16	17	15
2	B (mg/L)	1.15	0.10	0.12	0.12	0.02
3	Ca (mg/L)	4	4	4	4	5
4	Cl (mg/L)	7.4	6.7	8.3	7.8	8.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.14	0.09	0.26	0.20	0.11
7	Fe (mg/L)	0.1	0.3	1.1	0.1	
8	HCO3 (mg/L)	20	18	20	21	18
9	K (mg/L)	1.3	1.0	1.2	1.4	1.4
10	Mg (mg/L)	1.7	1.3	1.5	2.7	1.8
11	Na (mg/L)	4.5	3.6	4.6	4.9	5.2
12	NH3-N (mg N/L)	0.24	0.05	0.06	0.01	
13	NO2+NO3 (mg N/L)		0.26		1.15	0.35
14	NO2-N (mgN/L)		0.04		0.01	0.04
15	NO3-N (mgN/L)		0.22	1.01	1.14	0.31
16	o-PO4-P (mg P/L)	0.023	0.060	0.645	0.061	0.072
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	24.3	13.5	13.2	11.3	6.6
19	SO4 (mg/L)	1.0	1.0	0.6	1.1	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.2	0.9	0.2	0.4
2	COD (mg/L)	5.8	1.4	3.4	1.1	3.0
3	DO (mg/L)	7.6	7.6	7.2	6.4	7.3
4	DO_SAT% (%)	95	96	90	82	90
5	FCol-MPN (MPN/100mL)	1600	940	500	500	1050
6	Tcol-MPN (MPN/100mL)	1600	1600	900	900	1250
	TRACE & TOXIC					
1	As (µg/L)			0.0		
2	Cd (µg/L)			0.4		
3	Cr (µg/L)			2.4		
4	Cu (µg/L)			64.6		
5	Hg (µg/L)					
6	Ni (µg/L)			2.2		
7	Pb (µg/L)			0.2		
8	Zn (µg/L)			19.6		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	10	11	11	12
2	HAR_Total (mgCaCO3/L)	17	15	17	22	19
3	Na% (%)	34	33	35	31	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.5	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	73.27	61.76	114.0	94.02	96.06
2	EC_FLD (µmho/cm)	48	39		49	60
3	EC_GEN (µmho/cm)	37	50	57	47	57
4	pH_FLD (pH units)	6.5		7.3	6.7	6.1
5	pH_GEN (pH units)	7.7	6.9	7.0	6.7	6.9
6	TDS (mg/L)	25		44	37	43
7	Temp (deg C)	26.0	26.8	28.0	29.0	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			15	13	17
2	B (mg/L)			0.04	0.01	
3	Ca (mg/L)	5	5	4	4	5
4	Cl (mg/L)	4.0	14.3	8.8	10.7	8.5
5	CO3 (mg/L)			0.0	0.0	0.0
6	F (mg/L)			0.76	0.05	0.12
7	Fe (mg/L)	0.0	0.0			0.5
8	HCO3 (mg/L)	17	67	18	16	21
9	K (mg/L)		0.2	1.6	1.8	1.5
10	Mg (mg/L)	0.9	1.7	2.0	2.0	2.0
11	Na (mg/L)		4.9	4.6	3.8	5.1
12	NH3-N (mg N/L)					0.05
13	NO2+NO3 (mg N/L)			0.78	1.04	1.27
14	NO2-N (mgN/L)			0.22	0.21	0.06
15	NO3-N (mgN/L)			0.56	0.83	1.21
16	o-PO4-P (mg P/L)					0.208
17	P-Tot (mgP/L)			0.426	0.009	0.208
18	SiO2 (mg/L)			11.7	9.2	18.6
19	SO4 (mg/L)	1.4		1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.4	1.2	1.8	0.6
2	COD (mg/L)			7.6	12.4	4.2
3	DO (mg/L)	7.0	7.2	7.6	7.2	7.0
4	DO_SAT% (%)	86	89	97	94	88
5	FCol-MPN (MPN/100mL)			600		
6	Tcol-MPN (MPN/100mL)			1600		
	TRACE & TOXIC					
1	As (µg/L)			7.7	5.9	4.3
2	Cd (µg/L)	0.6		3.0		0.5
3	Cr (µg/L)	0.5		0.8	0.5	
4	Cu (µg/L)	5.5		1.0	2.7	1.6
5	Hg (µg/L)			0.0		
6	Ni (µg/L)	1.9		4.4	2.0	
7	Pb (µg/L)	0.3		1.6	1.5	2.6
8	Zn (µg/L)	10.5			1.0	20.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	12	14	10	10	12
2	HAR_Total (mgCaCO3/L)	16	21	18	18	20
3	Na% (%)		29	33	29	33
4	RSC (-)			0.0	0.0	0.0
5	SAR (-)		0.5	0.5	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	65.04	54.46	101.6	81.37
2	EC_FLD (µmho/cm)	52	54	58	48
3	EC_GEN (µmho/cm)	46	51	75	74
4	pH_FLD (pH units)		8.4	8.4	7.9
5	pH_GEN (pH units)	6.6	6.9	6.7	6.5
6	TDS (mg/L)	36	31	45	50
7	Temp (deg C)	29.0	28.0	27.5	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	15	14	15	18
2	B (mg/L)	0.06	0.14	0.13	0.25
3	Ca (mg/L)	4	4	6	6
4	Cl (mg/L)	6.4	8.5	10.3	9.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0
6	F (mg/L)	0.11	0.14	0.14	0.04
7	Fe (mg/L)	0.1	0.6	0.2	10.0
8	HCO3 (mg/L)	18	17	18	22
9	K (mg/L)	1.5	1.4	1.5	1.5
10	Mg (mg/L)	1.9	2.0	1.5	1.5
11	Na (mg/L)	3.7	4.5	5.4	6.0
12	NH3-N (mg N/L)	0.09	0.16	0.10	0.10
13	NO2+NO3 (mg N/L)	0.28		0.17	1.18
14	NO2-N (mgN/L)	0.05		0.02	0.06
15	NO3-N (mgN/L)	0.23	0.10	0.16	1.12
16	o-PO4-P (mg P/L)	0.017		0.030	0.080
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	21.0	27.6	19.4	12.0
19	SO4 (mg/L)	2.2	1.0	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.8	0.4	1.0	0.4
2	COD (mg/L)	6.3	3.4	7.4	4.2
3	DO (mg/L)	7.2	7.2	7.8	7.0
4	DO_SAT% (%)	94	92	98	89
5	FCol-MPN (MPN/100mL)	1600		900	1600
6	Tcol-MPN (MPN/100mL)	1600		1600	1600
	TRACE & TOXIC				
1	As (µg/L)	1.0		1.1	0.0
2	Cd (µg/L)			0.0	0.1
3	Cr (µg/L)	2.0		1.4	2.7
4	Cu (µg/L)	1.0		2.9	3.0
5	Hg (µg/L)			0.0	
6	Ni (µg/L)	7.9			5.2
7	Pb (µg/L)	1.0		0.3	3.9
8	Zn (µg/L)			13.8	0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	10	14	16
2	HAR_Total (mgCaCO3/L)	18	18	20	22
3	Na% (%)	29	33	35	35
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : RAMAMANGALAM (KM00012)

Division : SWR Division, Kochi

Local River : Muvattupuzha

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	41.82	117.5	78.86	73.82
2	EC_FLD (µmho/cm)	53	56	88	24
3	EC_GEN (µmho/cm)	58	62	94	64
4	pH_FLD (pH units)	8.0	6.3	7.2	
5	pH_GEN (pH units)	6.9	6.6	7.6	7.8
6	TDS (mg/L)	36	40		
7	Temp (deg C)	29.5	27.5	28.0	29.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	15	16		
2	B (mg/L)	0.01	0.12		
3	Ca (mg/L)	4	6	6	9
4	Cl (mg/L)	7.8	9.9	10.4	18.2
5	CO3 (mg/L)	0.0	0.0		
6	F (mg/L)	0.27	0.36		
7	Fe (mg/L)	0.1	0.0		
8	HCO3 (mg/L)	19	20	26	24
9	K (mg/L)	1.8	1.7		0.2
10	Mg (mg/L)	2.0	1.5	1.9	1.9
11	Na (mg/L)	4.1	5.3		10.0
12	NH3-N (mg N/L)				
13	NO2+NO3 (mg N/L)	0.42	2.20		
14	NO2-N (mgN/L)	0.01	0.08		
15	NO3-N (mgN/L)	0.41	2.12		
16	o-PO4-P (mg P/L)	0.090	0.078		
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)	12.5	11.3		
19	SO4 (mg/L)	0.6	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.6	0.4	1.8	1.8
2	COD (mg/L)	4.4	2.8		
3	DO (mg/L)	6.1	6.3	8.0	7.8
4	DO_SAT% (%)	79	79	102	101
5	FCol-MPN (MPN/100mL)	900	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.6	2.1		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.2	0.4		
4	Cu (µg/L)	1.1	0.4		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	4.8		
7	Pb (µg/L)	3.2	0.2		
8	Zn (µg/L)	3.7	4.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	16	16	24
2	HAR_Total (mgCaCO3/L)	19	22	24	31
3	Na% (%)	30	32		41
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.4	0.5		0.8
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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.)	29/11/1985	31/01/1988
	5.000 (m.s.l.)	01/02/1988	
	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 : 2015-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	16.46	38.94	99.90
2	Colour_Cod (-)	Light Brown	Clear	Light Brown
3	EC_FLD (µmho/cm)	66	68	68
4	EC_GEN (µmho/cm)	25	55	34
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.8	9.2	6.9
7	pH_GEN (pH units)	7.5	7.6	6.0
8	Temp (deg C)	28.0	26.0	26.0
	CHEMICAL			
1	Ca (mg/L)	16	8	6
2	Cl (mg/L)	7.8	5.2	16.9
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	18	21	37
5	K (mg/L)			
6	Mg (mg/L)	3.8	2.9	2.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.2	0.6	0.8
2	DO (mg/L)	7.2	6.8	7.2
3	DO_SAT% (%)	92	84	89
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	39	20	16
2	HAR_Total (mgCaCO ₃ /L)	55	31	28
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	19.84	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)		68	
4	EC_GEN (µmho/cm)	21	104	67
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)		6.4	6.9
7	pH_GEN (pH units)	7.0	7.1	6.1
8	Temp (deg C)	27.0	27.0	30.0
	CHEMICAL			
1	Ca (mg/L)	5	5	5
2	Cl (mg/L)	16.9	16.1	27.4
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	37	106	28
5	K (mg/L)	0.1	0.2	0.3
6	Mg (mg/L)	2.9	11.0	3.8
7	Na (mg/L)	7.5	8.6	11.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	1.0	1.0	0.8
2	DO (mg/L)	6.2	6.8	6.4
3	DO_SAT% (%)	78	85	85
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	12	12	12
2	HAR_Total (mgCaCO ₃ /L)	24	57	28
3	Na% (%)	41	25	48
4	SAR (-)	0.7	0.5	1.0
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	218.2	0.000	30.06
2	EC_FLD (µmho/cm)	6	68	66	68
3	EC_GEN (µmho/cm)	6	104	21	51
4	pH_FLD (pH units)	5	9.2	6.4	7.2
5	pH_GEN (pH units)	6	7.6	6.0	6.9
6	Temp (deg C)	6	30.0	26.0	27.3
	CHEMICAL				
1	Ca (mg/L)	6	16	5	7
2	Cl (mg/L)	6	27.4	5.2	15.1
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	106	18	41
5	K (mg/L)	3	0.3	0.1	0.2
6	Mg (mg/L)	6	11.0	2.9	4.5
7	Na (mg/L)	3	11.8	7.5	9.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.0	0.2	0.7
2	DO (mg/L)	6	7.2	6.2	6.8
3	DO_SAT% (%)	6	92	78	85
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	39	12	18
2	HAR_Total (mgCaCO ₃ /L)	6	57	24	37
3	Na% (%)	3	48	25	38
4	SAR (-)	3	1.0	0.5	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	144.0			53.14	36.23
2	EC_FLD (µmho/cm)	82			42	
3	EC_GEN (µmho/cm)	40			42	40
4	pH_FLD (pH units)	7.9			6.2	
5	pH_GEN (pH units)	6.5			6.5	6.6
6	TDS (mg/L)	31			33	23
7	Temp (deg C)	26.5			27.0	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15			11	11
2	B (mg/L)	0.05			0.06	
3	Ca (mg/L)	4			3	5
4	Cl (mg/L)	6.3			6.6	6.0
5	F (mg/L)	0.15			0.18	0.08
6	Fe (mg/L)				0.1	0.0
7	HCO3 (mg/L)	18			13	13
8	K (mg/L)	1.2			0.7	1.0
9	Mg (mg/L)	2.3			1.5	1.0
10	Na (mg/L)	3.4			3.9	3.2
11	NH3-N (mg N/L)					0.25
12	NO2+NO3 (mg N/L)	0.42			0.24	
13	NO2-N (mgN/L)	0.10			0.05	
14	NO3-N (mgN/L)	0.33			0.17	
15	o-PO4-P (mg P/L)				0.044	0.051
16	P-Tot (mgP/L)	0.041			0.054	
17	SiO2 (mg/L)	7.6			17.9	30.2
18	SO4 (mg/L)	1.5			1.2	3.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5			0.6	0.6
2	COD (mg/L)	4.2			4.8	4.4
3	DO (mg/L)	6.9			6.9	
4	DO_SAT% (%)	86			87	
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)	10			7	11
2	HAR_Total (mgCaCO3/L)	19			14	15
3	Na% (%)	26			37	30
4	SAR (-)	0.3			0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	35.69	54.82	17.38	38.13	95.57
2	EC_FLD (µmho/cm)			69	68	68
3	EC_GEN (µmho/cm)	46	40	54	41	40
4	pH_FLD (pH units)			6.9	6.8	7.1
5	pH_GEN (pH units)	6.1	5.7	6.7	6.7	7.0
6	TDS (mg/L)	30	25	37	27	34
7	Temp (deg C)	26.8	26.2	26.7	27.0	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	13	19	15	
2	B (mg/L)	0.02	0.24	0.03	0.09	
3	Ca (mg/L)	3	4	6	4	4
4	Cl (mg/L)	6.2	5.8	6.9	5.9	6.4
5	F (mg/L)	0.21	0.02	0.02	0.16	
6	Fe (mg/L)	0.2	0.1	0.0	0.1	
7	HCO3 (mg/L)	13	16	23	18	15
8	K (mg/L)	0.6	0.9	1.7	1.3	1.2
9	Mg (mg/L)	1.5	1.5	1.8	1.6	2.7
10	Na (mg/L)	3.4	3.1	3.8	3.3	2.5
11	NH3-N (mg N/L)	0.09	0.15	0.01		
12	NO2+NO3 (mg N/L)	0.14	0.17	1.40	0.26	
13	NO2-N (mgN/L)	0.02	0.03	0.01	0.01	
14	NO3-N (mgN/L)	0.12	0.14	1.39	0.25	
15	o-PO4-P (mg P/L)	0.057	0.077	0.242	0.084	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	15.0	8.9	11.9	8.7	
18	SO4 (mg/L)	1.2	0.8	0.9	0.5	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.7	0.7	0.6	0.5
2	COD (mg/L)	4.1	3.9	4.7	3.9	
3	DO (mg/L)		6.5	6.9	5.7	6.9
4	DO_SAT% (%)		80	86	71	85
5	FCol-MPN (MPN/100mL)	900	280	743	1050	
6	Tcol-MPN (MPN/100mL)	1600	1600	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)	7	9	15	10	11
2	HAR_Total (mgCaCO3/L)	14	16	23	17	23
3	Na% (%)	34	29	25	29	20
4	SAR (-)	0.4	0.3	0.4	0.4	0.2
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	51.77	15.81			3.641
2	EC_FLD (µmho/cm)	67	64			
3	EC_GEN (µmho/cm)	38	42			45
4	pH_FLD (pH units)	7.6	8.2			
5	pH_GEN (pH units)	7.0	6.5			6.8
6	TDS (mg/L)		31			36
7	Temp (deg C)	26.7	26.5			26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		13			13
2	B (mg/L)					
3	Ca (mg/L)	10	3			3
4	Cl (mg/L)	10.0	6.4			6.4
5	F (mg/L)		0.08			0.05
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	26	16			16
8	K (mg/L)		1.1			1.1
9	Mg (mg/L)	3.2	1.5			1.5
10	Na (mg/L)		3.3			3.9
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		0.29			
13	NO2-N (mgN/L)		0.00			
14	NO3-N (mgN/L)		0.29			0.10
15	o-PO4-P (mg P/L)					0.048
16	P-Tot (mgP/L)		0.136			
17	SiO2 (mg/L)		12.6			19.9
18	SO4 (mg/L)		1.0			1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.2			0.4
2	COD (mg/L)		1.4			3.6
3	DO (mg/L)	7.1	6.0			6.8
4	DO_SAT% (%)	88	74			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)	25	8			8
2	HAR_Total (mgCaCO3/L)	38	14			14
3	Na% (%)		32			35
4	SAR (-)		0.4			0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	5.183	13.58	11.56	0.484	17.34
2	EC_FLD (µmho/cm)	49		69		68
3	EC_GEN (µmho/cm)	45	44	49	50	46
4	pH_FLD (pH units)	6.8		6.9		6.8
5	pH_GEN (pH units)	6.4	6.6	6.5	6.3	6.9
6	TDS (mg/L)	26	28	34	29	31
7	Temp (deg C)	27.3	26.0	26.3	27.3	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	17	15	15	15
2	B (mg/L)	0.45	0.15	0.28	0.07	0.07
3	Ca (mg/L)	4	4	4	6	5
4	Cl (mg/L)	6.7	6.0	7.5	7.3	6.8
5	F (mg/L)	0.22	0.09	0.12	0.15	0.16
6	Fe (mg/L)	0.1	0.0	1.1	0.0	
7	HCO3 (mg/L)	12	20	18	18	19
8	K (mg/L)	1.2	0.8	1.2	1.3	1.3
9	Mg (mg/L)	1.0	2.3	1.5	1.2	1.8
10	Na (mg/L)	4.0	3.4	4.2	3.9	3.8
11	NH3-N (mg N/L)	0.22	0.05	0.31	0.01	
12	NO2+NO3 (mg N/L)		0.25		1.20	0.37
13	NO2-N (mgN/L)		0.04		0.04	0.01
14	NO3-N (mgN/L)		0.21	1.16	1.17	0.36
15	o-PO4-P (mg P/L)	0.026	0.150	0.460	0.090	0.022
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	18.2	12.9	12.0	13.3	6.5
18	SO4 (mg/L)	4.1	1.0	0.8	0.9	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	1.1	0.7	0.9	1.2
2	COD (mg/L)	5.2	7.3	4.0	7.4	8.6
3	DO (mg/L)	7.2		6.8	6.9	7.3
4	DO_SAT% (%)	90		84	87	91
5	FCol-MPN (MPN/100mL)	500			1600	1050
6	Tcol-MPN (MPN/100mL)	900			1600	1250
	TRACE & TOXIC					
1	As (µg/L)			0.7		
2	Cd (µg/L)			0.6		
3	Cr (µg/L)			0.9		
4	Cu (µg/L)			8.2		
5	Hg (µg/L)					
6	Ni (µg/L)			12.5		
7	Pb (µg/L)			0.1		
8	Zn (µg/L)			8.2		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	9	10	11	15	12
2	HAR_Total (mgCaCO3/L)	13	19	17	20	19
3	Na% (%)	37	27	32	28	29
4	SAR (-)	0.5	0.3	0.4	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	9.375	9.922			
2	EC_FLD (µmho/cm)	69	68			
3	EC_GEN (µmho/cm)	31	63			
4	pH_FLD (pH units)	7.1	6.4			
5	pH_GEN (pH units)	7.5	7.1			
6	TDS (mg/L)	33				
7	Temp (deg C)	27.0	27.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	2	5			
4	Cl (mg/L)	3.3	16.5			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	14	71			
8	K (mg/L)		0.2			
9	Mg (mg/L)	1.4	6.9			
10	Na (mg/L)		8.0			
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)	0.7				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	1.0			
2	COD (mg/L)					
3	DO (mg/L)	6.5	6.5			
4	DO_SAT% (%)	82	82			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)	0.1				
3	Cr (µg/L)	0.4				
4	Cu (µg/L)	4.1				
5	Hg (µg/L)					
6	Ni (µg/L)	0.9				
7	Pb (µg/L)	2.3				
8	Zn (µg/L)	9.6				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	6	12			
2	HAR_Total (mgCaCO3/L)	12	41			
3	Na% (%)		33			
4	SAR (-)		0.6			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)		52		
4	pH_FLD (pH units)				
5	pH_GEN (pH units)		6.6		
6	TDS (mg/L)		29		
7	Temp (deg C)		27.0		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)		21		
2	B (mg/L)		0.48		
3	Ca (mg/L)		4		
4	Cl (mg/L)		9.2		
5	F (mg/L)		0.11		
6	Fe (mg/L)		0.0		0.0
7	HCO3 (mg/L)		26		
8	K (mg/L)		1.5		
9	Mg (mg/L)		2.9		
10	Na (mg/L)		5.2		
11	NH3-N (mg N/L)		0.08		
12	NO2+NO3 (mg N/L)				
13	NO2-N (mgN/L)				
14	NO3-N (mgN/L)		0.15		
15	o-PO4-P (mg P/L)				
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)		27.8		
18	SO4 (mg/L)		1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		1.0		
2	COD (mg/L)		8.8		
3	DO (mg/L)				
4	DO_SAT% (%)				
5	FCol-MPN (MPN/100mL)				
6	Tcol-MPN (MPN/100mL)				
	TRACE & TOXIC				
1	As (µg/L)				0.3
2	Cd (µg/L)				0.1
3	Cr (µg/L)				2.0
4	Cu (µg/L)				2.2
5	Hg (µg/L)				
6	Ni (µg/L)				4.1
7	Pb (µg/L)				4.5
8	Zn (µg/L)				0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		10		
2	HAR_Total (mgCaCO3/L)		22		
3	Na% (%)		32		
4	SAR (-)		0.5		
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALAMPUR (KMA00C6)

Division : SWR Division, Kochi

Local River : Kaliyar

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)		68	68	
3	EC_GEN (µmho/cm)	56	51	55	67
4	pH_FLD (pH units)		6.9	7.1	6.9
5	pH_GEN (pH units)	7.1	6.7	7.5	6.1
6	TDS (mg/L)	35	32	33	
7	Temp (deg C)	27.5	27.0	28.0	30.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	18	18		
2	B (mg/L)	0.10	0.02		
3	Ca (mg/L)	4	6	22	5
4	Cl (mg/L)	8.5	6.3	5.2	27.4
5	F (mg/L)	0.26	0.26		
6	Fe (mg/L)	0.0	0.0		
7	HCO3 (mg/L)	22	22	13	28
8	K (mg/L)	1.9	2.4		0.3
9	Mg (mg/L)	3.0	2.4	8.6	3.8
10	Na (mg/L)	4.5	3.4		11.8
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	1.2	0.8
2	COD (mg/L)	3.8	3.0		
3	DO (mg/L)	6.9	6.1	6.8	6.4
4	DO_SAT% (%)	87	77	87	85
5	FCol-MPN (MPN/100mL)		1600		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.1	0.9		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.1	0.6		
4	Cu (µg/L)	1.4	1.4		
5	Hg (µg/L)				
6	Ni (µg/L)	0.1	0.2		
7	Pb (µg/L)	4.0	0.0		
8	Zn (µg/L)	4.8	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	14	55	12
2	HAR_Total (mgCaCO3/L)	23	24	90	28
3	Na% (%)	28	22		48
4	SAR (-)	0.4	0.3		1.0
	PESTICIDES				

HISTORY SHEET

Water Year : 2015-2016

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, Kochi

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.)
- 1.200 (m.s.l.)**

01/06/1985 : 31/05/1988
01/06/1988

Opening Date

Gauge : 01/06/1985

Discharge : 02/07/1985

Sediment : 01/06/1987

Water Quality : 02/06/1986

Water Quality Datasheet for the period : 2015-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	31.54	28.27	160.9
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	42	39	44
4	EC_GEN (µmho/cm)	26	44	36
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.8	6.1	6.8
7	pH_GEN (pH units)	7.3	6.9	7.1
8	Temp (deg C)	25.0	26.0	25.5
	CHEMICAL			
1	Ca (mg/L)	5	6	6
2	Cl (mg/L)	6.5	5.2	16.9
3	Fe (mg/L)			
4	HCO3 (mg/L)	13	36	32
5	K (mg/L)			
6	Mg (mg/L)	1.9	1.9	2.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	0.2	0.8
2	DO (mg/L)	7.2	6.2	6.8
3	DO_SAT% (%)	87	76	82
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	16	16
2	HAR_Total (mgCaCO3/L)	20	24	28
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water Analysis

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	32.96	0.343	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	36	44	
4	EC_GEN (µmho/cm)	19	70	99
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	6.1	6.8	
7	pH_GEN (pH units)	7.2	6.7	6.2
8	Temp (deg C)	26.0	26.0	28.0
	CHEMICAL			
1	Ca (mg/L)	5	9	6
2	Cl (mg/L)	14.3	31.3	24.8
3	Fe (mg/L)		0.0	
4	HCO ₃ (mg/L)	32	37	26
5	K (mg/L)	0.1	0.4	0.1
6	Mg (mg/L)	1.0	4.7	3.8
7	Na (mg/L)	7.5	10.9	14.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.6	0.4
2	DO (mg/L)	6.8	8.0	6.0
3	DO_SAT% (%)	84	99	77
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	12	24	16
2	HAR_Total (mgCaCO ₃ /L)	16	43	31
3	Na% (%)	51	35	50
4	SAR (-)	0.8	0.7	1.1
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water Summary

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	450.2	0.000	37.71
2	EC_FLD (µmho/cm)	6	44	36	41
3	EC_GEN (µmho/cm)	6	99	19	49
4	pH_FLD (pH units)	5	6.8	6.1	6.5
5	pH_GEN (pH units)	6	7.3	6.2	6.9
6	Temp (deg C)	6	28.0	25.0	26.1
	CHEMICAL				
1	Ca (mg/L)	6	9	5	6
2	Cl (mg/L)	6	31.3	5.2	16.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	37	13	29
5	K (mg/L)	3	0.4	0.1	0.2
6	Mg (mg/L)	6	4.7	1.0	2.7
7	Na (mg/L)	3	14.5	7.5	11
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.6	0.2	0.7
2	DO (mg/L)	6	8.0	6.0	6.8
3	DO_SAT% (%)	6	99	76	84
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	24	12	16
2	HAR_Total (mgCaCO ₃ /L)	6	43	16	27
3	Na% (%)	3	51	35	45
4	SAR (-)	3	1.1	0.7	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	181.8	193.8	69.14	83.51	65.30
2	EC_FLD (µmho/cm)	40	42	39	38	40
3	EC_GEN (µmho/cm)	38	34	35	39	34
4	pH_FLD (pH units)	6.4	6.5	6.5	6.4	6.8
5	pH_GEN (pH units)	6.4	6.0	6.1	6.3	6.6
6	TDS (mg/L)	27	25	27	31	20
7	Temp (deg C)	27.0	27.0	27.0	26.8	26.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	9	9	11	9
2	B (mg/L)	0.11	0.01	0.01	0.37	0.05
3	Ca (mg/L)	3	4	4	3	3
4	Cl (mg/L)	6.7	7.6	8.0	6.6	5.2
5	F (mg/L)	0.16	0.13	0.12	0.05	0.09
6	Fe (mg/L)				0.1	
7	HCO3 (mg/L)	18	11	11	14	11
8	K (mg/L)	1.0	1.0	1.5	0.8	1.1
9	Mg (mg/L)	1.9	1.5	1.7	1.2	0.6
10	Na (mg/L)	3.5	3.5	3.2	3.4	3.2
11	NH3-N (mg N/L)				0.05	0.27
12	NO2+NO3 (mg N/L)	0.44	0.39	1.09	0.22	
13	NO2-N (mgN/L)	0.08	0.04	0.03	0.05	
14	NO3-N (mgN/L)	0.36	0.35	1.06	0.28	
15	o-PO4-P (mg P/L)			0.146	0.042	0.081
16	P-Tot (mgP/L)	0.042	0.136	0.102	0.040	
17	SiO2 (mg/L)	8.5	5.7	17.7	22.0	20.7
18	SO4 (mg/L)	1.6	1.2	1.4	1.2	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.9	0.8	0.5	0.3
2	COD (mg/L)	4.3	7.0	5.9	3.8	2.7
3	DO (mg/L)	6.9	8.0	7.3	6.5	7.8
4	DO_SAT% (%)	86	100	92	82	97
5	FCol-MPN (MPN/100mL)			910	1600	900
6	Tcol-MPN (MPN/100mL)			975	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)	9	9	11	9	6
2	HAR_Total (mgCaCO3/L)	17	15	18	14	9
3	Na% (%)	30	31	26	34	40
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.3	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	72.83	119.4	12.87	48.16	156.1
2	EC_FLD (µmho/cm)	37	34	43	40	42
3	EC_GEN (µmho/cm)	43	40	44	42	35
4	pH_FLD (pH units)	6.9	6.9	7.0		6.8
5	pH_GEN (pH units)	6.1	5.7	6.4	6.6	7.0
6	TDS (mg/L)	26	27	27	26	
7	Temp (deg C)	26.3	25.8	25.8	26.8	25.7
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	10	12	13	
2	B (mg/L)	0.06	0.14	0.01	0.04	
3	Ca (mg/L)	3	3	5	4	5
4	Cl (mg/L)	6.5	6.1	6.4	6.5	6.9
5	F (mg/L)	0.16	0.05	0.01	0.15	
6	Fe (mg/L)	0.0	0.0	0.0	0.0	
7	HCO3 (mg/L)	12	12	15	15	12
8	K (mg/L)	0.9	0.9	1.0	1.1	1.1
9	Mg (mg/L)	1.2	1.5	1.7	1.7	2.5
10	Na (mg/L)	3.4	3.2	3.5	3.6	2.5
11	NH3-N (mg N/L)	0.39	0.12	0.02		
12	NO2+NO3 (mg N/L)	0.20	2.92	1.13	0.48	
13	NO2-N (mgN/L)	0.01	0.02	0.01	0.01	
14	NO3-N (mgN/L)	0.19	1.49	1.12	0.47	
15	o-PO4-P (mg P/L)	0.064	0.059	0.238	0.077	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	25.6	15.1	10.4	9.0	
18	SO4 (mg/L)	1.0	0.8	0.8	0.4	1.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	0.9	0.5	0.5	0.9
2	COD (mg/L)	5.3	6.0	2.9	3.3	
3	DO (mg/L)	7.7	6.9	6.3	5.8	6.6
4	DO_SAT% (%)	95	84	77	71	81
5	FCol-MPN (MPN/100mL)	900		693	1600	
6	Tcol-MPN (MPN/100mL)	1600		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)	8	8	11	10	11
2	HAR_Total (mgCaCO3/L)	13	15	18	16	22
3	Na% (%)	35	32	28	31	22
4	RSC (-)	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: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	73.55	30.59	23.87	10.67	13.33
2	EC_FLD (µmho/cm)	42	34	36	47	37
3	EC_GEN (µmho/cm)	35	36	37	39	43
4	pH_FLD (pH units)	6.6	6.1	6.4	6.4	6.5
5	pH_GEN (pH units)	7.1	6.4	5.9	7.5	6.4
6	TDS (mg/L)		24	29	29	35
7	Temp (deg C)	25.5	27.5	27.5	27.5	27.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		12	11	10	10
2	B (mg/L)		0.02	0.02	0.00	0.02
3	Ca (mg/L)	6	2	3	3	3
4	Cl (mg/L)	9.6	6.4	8.5	7.8	8.5
5	F (mg/L)		0.11	0.20		0.05
6	Fe (mg/L)				1.3	0.2
7	HCO3 (mg/L)	27	15	13	12	12
8	K (mg/L)		0.8	0.4	1.3	1.5
9	Mg (mg/L)	2.2	2.0	2.0	2.5	1.5
10	Na (mg/L)		3.3	2.8	4.0	4.7
11	NH3-N (mg N/L)				0.10	
12	NO2+NO3 (mg N/L)		0.59	0.32	0.64	
13	NO2-N (mgN/L)		0.16	0.00	0.06	
14	NO3-N (mgN/L)		0.43	0.32	0.58	0.21
15	o-PO4-P (mg P/L)				0.227	0.054
16	P-Tot (mgP/L)		0.084	0.024	0.227	
17	SiO2 (mg/L)		11.8	9.4	12.1	17.9
18	SO4 (mg/L)		1.0	2.3	2.4	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.2	0.6	0.2	0.6
2	COD (mg/L)		1.8	3.4	1.4	2.1
3	DO (mg/L)	6.7	6.4	8.0	6.8	5.8
4	DO_SAT% (%)	82	80	100	85	73
5	FCol-MPN (MPN/100mL)				580	350
6	Tcol-MPN (MPN/100mL)				1600	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)	14	6	8	8	8
2	HAR_Total (mgCaCO3/L)	24	14	16	18	14
3	Na% (%)		32	27	30	39
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.4	0.3	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	9.257	14.31	14.29	6.133	26.19
2	EC_FLD (µmho/cm)	37	40	34	44	39
3	EC_GEN (µmho/cm)	46	46	38	50	56
4	pH_FLD (pH units)	6.5	6.7	6.8	6.8	
5	pH_GEN (pH units)	6.3	6.1	5.9	5.9	6.8
6	TDS (mg/L)	26	28	26	30	38
7	Temp (deg C)	27.0	26.3	25.2	26.5	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	13	14	16	21
2	B (mg/L)		0.12	0.10	0.09	0.01
3	Ca (mg/L)	3	4	5	7	6
4	Cl (mg/L)	7.1	6.3	5.8	7.1	8.5
5	F (mg/L)	0.11	0.08	0.13	0.11	0.09
6	Fe (mg/L)	0.1	0.1		0.1	
7	HCO3 (mg/L)	12	16	17	20	26
8	K (mg/L)	1.2	1.2	1.4	1.4	1.6
9	Mg (mg/L)	1.0	1.3	1.0	1.0	2.0
10	Na (mg/L)	4.4	3.7	3.1	3.8	4.8
11	NH3-N (mg N/L)	0.21	0.05	0.00	0.01	
12	NO2+NO3 (mg N/L)		0.39		1.68	0.28
13	NO2-N (mgN/L)		0.04		0.01	0.00
14	NO3-N (mgN/L)		0.35	1.06	1.67	0.28
15	o-PO4-P (mg P/L)	0.036	0.011	0.140	0.009	0.100
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	21.0	13.5	10.8	14.0	7.4
18	SO4 (mg/L)	1.0	1.5	0.6	1.1	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.2	1.0	0.6	0.8
2	COD (mg/L)	12.6	9.1	7.6	4.2	5.8
3	DO (mg/L)	6.6	7.4	5.8	6.2	7.4
4	DO_SAT% (%)	82	91	70	76	92
5	Fcol-MPN (MPN/100mL)	1600	1600		500	1600
6	Tcol-MPN (MPN/100mL)	1600	1600		900	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)	8	10	12	18	14
2	HAR_Total (mgCaCO3/L)	12	15	16	22	22
3	Na% (%)	41	32	27	26	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.4	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	5.826	16.65		6.234	19.21
2	EC_FLD (µmho/cm)	69	40			52
3	EC_GEN (µmho/cm)	72	44			40
4	pH_FLD (pH units)	7.1	6.5			6.8
5	pH_GEN (pH units)	7.2	6.9			6.5
6	TDS (mg/L)					29
7	Temp (deg C)	24.3	26.0			27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					10
2	B (mg/L)					0.01
3	Ca (mg/L)	3	7			3
4	Cl (mg/L)	8.7	22.8			8.5
5	F (mg/L)					0.20
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	26	34			12
8	K (mg/L)		0.3			1.2
9	Mg (mg/L)	3.8	2.8			2.0
10	Na (mg/L)		9.2			4.0
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)					0.21
13	NO2-N (mgN/L)					0.10
14	NO3-N (mgN/L)					0.11
15	o-PO4-P (mg P/L)					0.214
16	P-Tot (mgP/L)					0.214
17	SiO2 (mg/L)					10.9
18	SO4 (mg/L)	1.3				1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	1.2			0.8
2	COD (mg/L)					5.2
3	DO (mg/L)	6.3	7.4			7.6
4	DO_SAT% (%)	75	91			95
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)				5.3	4.5
2	Cd (µg/L)	0.1			1.0	0.5
3	Cr (µg/L)	8.1			0.5	
4	Cu (µg/L)	2.1			6.8	3.5
5	Hg (µg/L)					
6	Ni (µg/L)	4.9			5.0	
7	Pb (µg/L)	0.9			1.1	1.7
8	Zn (µg/L)	9.9			6.0	34.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	18			8
2	HAR_Total (mgCaCO3/L)	24	29			16
3	Na% (%)		43			33
4	RSC (-)					0.0
5	SAR (-)		0.8			0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		3.943	15.53	16.26
2	EC_FLD (µmho/cm)			60	
3	EC_GEN (µmho/cm)			70	
4	pH_FLD (pH units)			6.8	
5	pH_GEN (pH units)			6.2	
6	TDS (mg/L)			44	
7	Temp (deg C)			26.0	
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)			16	
2	B (mg/L)			0.35	
3	Ca (mg/L)			5	
4	Cl (mg/L)			9.6	
5	F (mg/L)			0.12	
6	Fe (mg/L)			0.2	0.0
7	HCO3 (mg/L)			20	
8	K (mg/L)			3.0	
9	Mg (mg/L)			1.5	
10	Na (mg/L)			5.0	
11	NH3-N (mg N/L)			0.08	
12	NO2+NO3 (mg N/L)				
13	NO2-N (mgN/L)				
14	NO3-N (mgN/L)			0.21	
15	o-PO4-P (mg P/L)			0.045	
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)			16.8	
18	SO4 (mg/L)			1.0	
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)			1.0	
2	COD (mg/L)			6.2	
3	DO (mg/L)			7.3	
4	DO_SAT% (%)			90	
5	FCol-MPN (MPN/100mL)			1600	
6	Tcol-MPN (MPN/100mL)			1600	
	TRACE & TOXIC				
1	As (µg/L)			1.4	0.0
2	Cd (µg/L)			0.3	0.1
3	Cr (µg/L)			0.5	0.9
4	Cu (µg/L)			4.3	4.8
5	Hg (µg/L)			0.0	
6	Ni (µg/L)				3.1
7	Pb (µg/L)			0.1	4.2
8	Zn (µg/L)			67.1	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)			12	
2	HAR_Total (mgCaCO3/L)			18	
3	Na% (%)			33	
4	RSC (-)			0.0	
5	SAR (-)			0.5	
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KIDANGOOR (KT000L3)

Division : SWR Division, Kochi

Local River : Meenachil

River Water

Sub-Division : SWR SD No 2, Kochi

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	7.166	14.29	0.760	0.000
2	EC_FLD (µmho/cm)	68		54	
3	EC_GEN (µmho/cm)	97	73	65	99
4	pH_FLD (pH units)	6.7		7.2	
5	pH_GEN (pH units)	6.7	7.0	7.5	6.2
6	TDS (mg/L)	63	48		
7	Temp (deg C)	27.5	26.5	26.5	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	24	24		
2	B (mg/L)	0.01	0.02		
3	Ca (mg/L)	8	7	6	6
4	Cl (mg/L)	14.2	10.6	10.4	24.8
5	F (mg/L)	0.32	0.26		
6	Fe (mg/L)	0.0	0.0		
7	HCO3 (mg/L)	29	29	37	26
8	K (mg/L)	5.1	2.0		0.1
9	Mg (mg/L)	2.5	2.9	3.8	3.8
10	Na (mg/L)	7.6	6.2		14.5
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.87	0.58		
13	NO2-N (mgN/L)	0.01	0.02		
14	NO3-N (mgN/L)	0.86	0.56		
15	o-PO4-P (mg P/L)	0.090	0.070		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	12.0	7.6		
18	SO4 (mg/L)	1.1	1.2		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.6	0.6	0.4
2	COD (mg/L)	7.8	9.4		
3	DO (mg/L)	5.5	6.1	6.6	6.0
4	DO_SAT% (%)	69	75	81	77
5	FCol-MPN (MPN/100mL)	1600	1600		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	1.6	1.5		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.2	0.3		
4	Cu (µg/L)	1.7	1.1		
5	Hg (µg/L)				
6	Ni (µg/L)	0.7	1.0		
7	Pb (µg/L)	3.2	0.3		
8	Zn (µg/L)	5.1	2.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	20	18	16	16
2	HAR_Total (mgCaCO3/L)	30	30	31	31
3	Na% (%)	31	29		50
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.6	0.5		1.1
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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)	: 1.000 (m.s.l.)	01/06/1985	
	Opening Date		
Gauge	: 01/06/1985		
Discharge	: 19/06/1985		
Sediment	: 19/05/1986		
Water Quality	: 02/06/1986		

Water Quality Datasheet for the period : 2015-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	14.14	42.23	212.3
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	28	40	40
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	7.9	7.2
6	Temp (deg C)	28.0	28.0	27.0
	CHEMICAL			
1	Ca (mg/L)	5	6	13
2	Cl (mg/L)	9.9	7.8	13.0
3	Fe (mg/L)			
4	HCO3 (mg/L)	16	24	32
5	K (mg/L)			
6	Mg (mg/L)	1.9	2.9	3.8
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.1	0.8	0.8
2	DO (mg/L)	7.2	6.6	6.8
3	DO_SAT% (%)	92	84	85
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	16	31
2	HAR_Total (mgCaCO3/L)	20	28	47
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	19.83	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	23	95	78
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	6.9	6.2
6	Temp (deg C)	28.0	28.0	28.5
	CHEMICAL			
1	Ca (mg/L)	3	6	6
2	Cl (mg/L)	14.3	16.9	19.6
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	18	53	SWR SD No 1,
5	K (mg/L)	0.2	0.1	Trivandrum
6	Mg (mg/L)	1.0	6.3	3.8
7	Na (mg/L)	8.8	12.5	8.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	0.6	1.8
2	DO (mg/L)	6.4	7.2	8.2
3	DO_SAT% (%)	82	92	105
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	16	16
2	HAR_Total (mgCaCO3/L)	12	42	31
3	Na% (%)	62	40	37
4	SAR (-)	1.1	0.8	0.7
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	483.9	0.000	47.93
2	EC_GEN (µmho/cm)	6	95	23	51
3	pH_GEN (pH units)	6	7.9	6.2	7
4	Temp (deg C)	6	28.5	27.0	27.9
	CHEMICAL				
1	Ca (mg/L)	6	13	3	7
2	Cl (mg/L)	6	19.6	7.8	13.6
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	53	16	26
5	K (mg/L)	3	0.5	0.1	0.2
6	Mg (mg/L)	6	6.3	1.0	3.3
7	Na (mg/L)	3	12.5	8.5	10
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.8	0.1	0.8
2	DO (mg/L)	6	8.2	6.4	7.1
3	DO_SAT% (%)	6	105	82	90
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	31	8	16
2	HAR_Total (mgCaCO ₃ /L)	6	47	12	30
3	Na% (%)	3	62	37	46
4	SAR (-)	3	1.1	0.7	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	144.2	199.2	60.26	80.89	70.27
2	EC_FLD (µmho/cm)	39	42		45	
3	EC_GEN (µmho/cm)	43	37	42	44	43
4	pH_FLD (pH units)		6.5		6.2	
5	pH_GEN (pH units)	6.4	6.1	6.3	6.4	6.7
6	TDS (mg/L)	29	28	31	35	25
7	Temp (deg C)	28.0	27.7	27.2	27.8	27.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	8	9	10	9
2	B (mg/L)	0.32	0.02	0.00	0.03	0.09
3	Ca (mg/L)	3	4	5	4	3
4	Cl (mg/L)	6.5	8.0	8.7	7.8	6.2
5	F (mg/L)	0.16	0.18	0.09	0.06	0.08
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	18	10	11	12	11
8	K (mg/L)	1.2	1.1	1.1	0.9	1.4
9	Mg (mg/L)	2.1	1.2	1.3	1.0	0.6
10	Na (mg/L)	3.5	3.8	4.0	4.1	3.6
11	NH3-N (mg N/L)				0.05	0.21
12	NO2+NO3 (mg N/L)	0.36	0.97	1.17	0.24	
13	NO2-N (mgN/L)	0.08	0.11	0.01	0.05	
14	NO3-N (mgN/L)	0.29	0.86	1.16	0.22	
15	o-PO4-P (mg P/L)			0.127	0.020	0.038
16	P-Tot (mgP/L)	0.026	0.117	0.087	0.014	
17	SiO2 (mg/L)	7.0	8.8	20.4	22.3	29.6
18	SO4 (mg/L)	1.4	1.4	2.1	1.7	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.9	0.7	0.3	0.4
2	COD (mg/L)	3.2	6.9	4.6	2.1	3.1
3	DO (mg/L)	7.0	8.0	7.6	6.4	8.1
4	DO_SAT% (%)	89	101	95	81	102
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)	9	11	11	10	7
2	HAR_Total (mgCaCO3/L)	17	16	17	14	10
3	Na% (%)	29	33	32	37	40
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.5	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	78.15	80.37	11.96	33.57	138.7
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	45	46	51	52	40
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.3	5.7	6.9	6.7	7.0
6	TDS (mg/L)	27	31	31	34	
7	Temp (deg C)	27.8	27.7	28.3	27.8	28.2
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	SWR SD No 1	12	12	15	
2	B (mg/L)	Trivandrum	0.14	0.09	0.07	
3	Ca (mg/L)	3	4	5	4	5
4	Cl (mg/L)	6.2	7.2	9.0	8.5	7.1
5	F (mg/L)	0.16	0.06	0.01	0.17	
6	Fe (mg/L)	0.2	0.1	0.1	0.1	
7	HCO3 (mg/L)	13	15	14	19	13
8	K (mg/L)	0.6	1.1	1.3	1.7	1.4
9	Mg (mg/L)	1.7	1.5	1.3	1.7	1.5
10	Na (mg/L)	3.4	3.9	5.1	4.6	2.9
11	NH3-N (mg N/L)	0.32	0.03	0.04		
12	NO2+NO3 (mg N/L)	0.21	0.33	0.99	0.40	
13	NO2-N (mgN/L)	0.03	0.01	0.00	0.01	
14	NO3-N (mgN/L)	0.17	0.32	0.99	0.39	
15	o-PO4-P (mg P/L)	0.091	0.031	0.207	0.087	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	22.5	17.8	10.7	9.4	
18	SO4 (mg/L)	1.2	0.9	0.8	0.8	1.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.5	0.4	0.5	0.4
2	COD (mg/L)	2.6	3.2	2.7	3.3	
3	DO (mg/L)	7.4	6.9	6.5	5.8	7.0
4	DO_SAT% (%)	94	88	83	73	89
5	FCol-MPN (MPN/100mL)		280	867	1050	
6	Tcol-MPN (MPN/100mL)		625	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)	7	9	11	11	12
2	HAR_Total (mgCaCO3/L)	14	16	17	18	18
3	Na% (%)	33	33	38	33	27
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.4	0.4	0.5	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
			Jun - Oct	Nov - Feb		
				2005-2006	2006-2007	2007-2008
		2015		2008-2009		
	PHYSICAL					
1	Q (cumec)	89.57	17.13	29.44	12.09	13.14
2	EC_FLD (µmho/cm)			47		
3	EC_GEN (µmho/cm)	36	52	40	47	59
4	pH_FLD (pH units)			6.4		
5	pH_GEN (pH units)	7.4	6.7	6.0	6.9	6.6
6	TDS (mg/L)		38	32	38	48
7	Temp (deg C)	27.7	29.3	28.5	27.5	28.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		13	9	9	13
2	B (mg/L)		0.01	0.01	0.02	0.11
3	Ca (mg/L)	8	4	4	5	4
4	Cl (mg/L)	10.3	7.9	7.8	8.5	7.8
5	F (mg/L)		0.06	0.22		0.05
6	Fe (mg/L)				1.0	0.2
7	HCO3 (mg/L)	24	16	11	11	16
8	K (mg/L)		1.5	0.5	1.2	1.6
9	Mg (mg/L)	2.8	1.5	1.0	1.5	1.5
10	Na (mg/L)		4.3	3.4	4.0	4.5
11	NH3-N (mg N/L)				0.05	
12	NO2+NO3 (mg N/L)		1.69	1.43	0.40	
13	NO2-N (mgN/L)		0.41	0.00	0.11	
14	NO3-N (mgN/L)		1.27	1.43	0.29	0.15
15	o-PO4-P (mg P/L)				0.097	0.038
16	P-Tot (mgP/L)		0.051	0.056	0.097	
17	SiO2 (mg/L)		12.8	11.8	14.8	21.2
18	SO4 (mg/L)		1.6	1.8	4.3	1.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.7	0.4	1.2	0.2
2	COD (mg/L)		6.2	3.0	9.0	1.6
3	DO (mg/L)	6.9	6.2	6.6	6.4	6.4
4	DO_SAT% (%)	87	81	84	80	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)	20	10	10	12	10
2	HAR_Total (mgCaCO3/L)	31	16	14	18	16
3	Na% (%)		34	33	31	35
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.5	0.4	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	9.778	18.99	35.06	4.999	23.83
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	50	46	49	55	56
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.0	6.3	6.4	6.6	6.9
6	TDS (mg/L)	29	29	37	31	40
7	Temp (deg C)	29.0	28.0	28.3	28.5	28.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	13	11	16	15
2	B (mg/L)	0.29	0.15	0.27	0.13	0.01
3	Ca (mg/L)	3	4	3	5	4
4	Cl (mg/L)	8.5	6.0	7.5	7.5	7.5
5	F (mg/L)	0.31	0.09	0.15	0.13	0.08
6	Fe (mg/L)		0.4	1.0	0.0	
7	HCO3 (mg/L)	14	16	13	19	19
8	K (mg/L)	1.4	1.3	1.6	1.7	1.5
9	Mg (mg/L)	1.0	1.3	1.3	2.2	2.0
10	Na (mg/L)	5.0	3.3	4.3	4.0	4.3
11	NH3-N (mg N/L)	0.16	0.05	0.04	0.01	
12	NO2+NO3 (mg N/L)		0.29		1.22	0.31
13	NO2-N (mgN/L)		0.06		0.01	0.01
14	NO3-N (mgN/L)		0.23	1.22	1.21	0.30
15	o-PO4-P (mg P/L)	0.054	0.062	0.046	0.089	0.064
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	29.3	16.2	13.1	13.1	9.5
18	SO4 (mg/L)	1.1	1.0	1.6	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.3	0.6	0.9	0.9
2	COD (mg/L)	6.3	2.1	2.4	4.8	6.4
3	DO (mg/L)	7.9	7.0	6.8	6.9	7.7
4	DO_SAT% (%)	102	89	87	88	98
5	FCol-MPN (MPN/100mL)		1600	1600	1050	1250
6	Tcol-MPN (MPN/100mL)		1600	1600	1250	1600
	TRACE & TOXIC					
1	As (µg/L)			0.6		
2	Cd (µg/L)			0.1		
3	Cr (µg/L)			1.0		
4	Cu (µg/L)			33.5		
5	Hg (µg/L)					
6	Ni (µg/L)			2.7		
7	Pb (µg/L)			0.1		
8	Zn (µg/L)			6.7		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	10	9	12	11
2	HAR_Total (mgCaCO3/L)	12	15	14	21	19
3	Na% (%)	44	31	37	27	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.4	0.5	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	6.915	9.915	3.453	9.701	7.115
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	38	59	74		
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.2	6.9	6.7		
6	TDS (mg/L)			53		
7	Temp (deg C)	27.5	28.0	28.0		
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			16		
2	B (mg/L)					
3	Ca (mg/L)	4	5	4		
4	Cl (mg/L)	4.0	15.6	11.4		
5	F (mg/L)			0.19		
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	17	36	20		
8	K (mg/L)		0.1	0.9		
9	Mg (mg/L)	1.4	3.6	3.4		
10	Na (mg/L)		10.7	6.0		
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)			0.37		
13	NO2-N (mgN/L)			0.06		
14	NO3-N (mgN/L)			0.31		
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)			0.195		
17	SiO2 (mg/L)			8.2		
18	SO4 (mg/L)	1.7		1.0		
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.6	1.4		
2	COD (mg/L)			7.6		
3	DO (mg/L)	6.6	6.8	6.6		
4	DO_SAT% (%)	84	87	84		
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			7.2	8.4	4.2
2	Cd (µg/L)	0.1		4.0		0.5
3	Cr (µg/L)	1.1		2.6	0.6	
4	Cu (µg/L)	0.9		1.6	3.8	2.3
5	Hg (µg/L)					
6	Ni (µg/L)	4.0		11.4	2.7	
7	Pb (µg/L)	8.5		3.3	1.5	
8	Zn (µg/L)	10.2		5.0	5.0	23.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	12	10		
2	HAR_Total (mgCaCO3/L)	16	27	24		
3	Na% (%)		51	34		
4	RSC (-)			0.0		
5	SAR (-)		1.0	0.5		
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	18.31	16.27
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-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)			0.3	0.0
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
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)				
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)			1.1	0.0
2	Cd (µg/L)			0.0	0.1
3	Cr (µg/L)			0.4	1.0
4	Cu (µg/L)			2.7	0.9
5	Hg (µg/L)			0.0	
6	Ni (µg/L)				0.8
7	Pb (µg/L)			0.0	3.9
8	Zn (µg/L)			44.4	0.0
	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: 2005-2016

Station Name : KALLOPPARA (KYB00F2)

Division : SWR Division, Kochi

Local River : Manimala

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	6.668	18.56	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	71	83	70	78
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	6.7	6.6	7.7	6.2
6	TDS (mg/L)	47	58		
7	Temp (deg C)	28.0	28.0	28.5	28.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	17	19		
2	B (mg/L)	0.01	0.04		
3	Ca (mg/L)	6	6	6	6
4	Cl (mg/L)	9.9	15.6	6.6	19.5
5	F (mg/L)	0.35	0.10		
6	Fe (mg/L)	0.0	0.0		
7	HCO3 (mg/L)	21	23	11	16
8	K (mg/L)	2.4	3.0		0.5
9	Mg (mg/L)	2.0	3.5	1.9	3.8
10	Na (mg/L)	5.9	9.0		8.5
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.50	0.55		
13	NO2-N (mgN/L)	0.01	0.02		
14	NO3-N (mgN/L)	0.49	0.53		
15	o-PO4-P (mg P/L)	0.020	0.110		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	13.5	17.0		
18	SO4 (mg/L)	3.5	4.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.2	1.8	0.2	1.8
2	COD (mg/L)	9.4	12.8		
3	DO (mg/L)	6.1	6.5	7.2	8.2
4	DO_SAT% (%)	78	83	92	105
5	FCol-MPN (MPN/100mL)	900	500		
6	Tcol-MPN (MPN/100mL)	1600	900		
	TRACE & TOXIC				
1	As (µg/L)	1.5	4.9		
2	Cd (µg/L)	0.1	0.0		
3	Cr (µg/L)	0.2	0.5		
4	Cu (µg/L)	2.3	1.0		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	2.0		
7	Pb (µg/L)	3.1	0.1		
8	Zn (µg/L)	2.9	3.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	16	14	16	16
2	HAR_Total (mgCaCO3/L)	24	29	24	31
3	Na% (%)	32	38		37
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.5	0.7		0.7
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	53.29	98.42	338.1
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	46		45
4	EC_GEN (µmho/cm)	35	48	28
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0		7.0
7	pH_GEN (pH units)	7.2	6.7	7.2
8	Temp (deg C)	27.0	25.5	25.0
	CHEMICAL			
1	Ca (mg/L)	6	6	8
2	Cl (mg/L)	7.8	6.5	14.3
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	24	18	32
5	K (mg/L)			
6	Mg (mg/L)	2.9	1.9	3.8
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	0.4	0.6
2	DO (mg/L)	7.0	5.8	6.8
3	DO_SAT% (%)	88	70	82
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	16	16	20
2	HAR_Total (mgCaCO ₃ /L)	28	24	35
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	96.28	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	44		
4	EC_GEN (µmho/cm)	20	73	32
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0		
7	pH_GEN (pH units)	7.2	6.8	6.1
8	Temp (deg C)	27.0	26.0	28.0
	CHEMICAL			
1	Ca (mg/L)	3	5	10
2	Cl (mg/L)	10.4	26.1	SWR SD No 1,
3	Fe (mg/L)		0.0	Trivandrum
4	HCO3 (mg/L)	32	53	16
5	K (mg/L)	0.1	0.2	0.4
6	Mg (mg/L)	1.0	7.8	5.2
7	Na (mg/L)	7.1	6.1	11.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	2.6	1.4
2	DO (mg/L)	5.8	8.4	6.6
3	DO_SAT% (%)	73	104	84
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	8	12	26
2	HAR_Total (mgCaCO3/L)	12	44	48
3	Na% (%)	57	23	34
4	SAR (-)	0.9	0.4	0.7
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	619.9	0.000	92.37
2	EC_FLD (µmho/cm)	6	46	44	45
3	EC_GEN (µmho/cm)	6	73	20	39
4	pH_FLD (pH units)	3	7.0	7.0	7
5	pH_GEN (pH units)	6	7.2	6.1	6.9
6	Temp (deg C)	6	28.0	25.0	26.4
	CHEMICAL				
1	Ca (mg/L)	6	10	3	6
2	Cl (mg/L)	6	26.1	6.5	13.5
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	53	16	29
5	K (mg/L)	3	0.4	0.1	0.2
6	Mg (mg/L)	6	7.8	1.0	3.8
7	Na (mg/L)	3	11.5	6.1	8.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	2.6	0.4	1
2	DO (mg/L)	6	8.4	5.8	6.7
3	DO_SAT% (%)	6	104	70	84
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	26	8	16
2	HAR_Total (mgCaCO ₃ /L)	6	48	12	32
3	Na% (%)	3	57	23	38
4	SAR (-)	3	0.9	0.4	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	347.3	279.2	163.2	225.3	141.6
2	EC_FLD (µmho/cm)	68	46	49	48	57
3	EC_GEN (µmho/cm)	33	36	35	42	32
4	pH_FLD (pH units)	7.7	6.9	7.5	7.1	7.5
5	pH_GEN (pH units)	6.4	6.1	6.3	6.4	6.9
6	TDS (mg/L)	22	26	26	33	19
7	Temp (deg C)	27.2	25.2	25.8	26.0	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	13	10	9	10	10
2	B (mg/L)	0.20	0.03	0.00	0.11	
3	Ca (mg/L)	3	4	4	3	3
4	Cl (mg/L)	5.6	7.6	7.1	7.5	5.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.14	0.13	0.09	0.07	0.08
7	Fe (mg/L)					0.0
8	HCO3 (mg/L)	16	12	11	12	13
9	K (mg/L)	0.9	1.0	1.1	0.6	1.1
10	Mg (mg/L)	1.6	1.9	1.3	1.2	0.8
11	Na (mg/L)	3.0	3.5	3.3	3.0	3.0
12	NH3-N (mg N/L)					0.19
13	NO2+NO3 (mg N/L)	0.42	1.30	0.95	0.25	
14	NO2-N (mgN/L)	0.15	0.15	0.02	0.05	
15	NO3-N (mgN/L)	0.27	1.15	0.93	0.23	
16	o-PO4-P (mg P/L)			0.133	0.029	0.057
17	P-Tot (mgP/L)	0.022	0.110	0.092		
18	SiO2 (mg/L)	6.7	10.5	19.2	22.4	28.6
19	SO4 (mg/L)	1.0	1.2	1.1	1.0	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	1.3	0.5	0.4	0.5
2	COD (mg/L)	3.9	10.6	3.3	3.2	4.5
3	DO (mg/L)	7.1	7.4	6.6	6.9	7.4
4	DO_SAT% (%)	89	90	80	85	90
5	FCol-MPN (MPN/100mL)	767		1123	1250	885
6	Tcol-MPN (MPN/100mL)	1267		1600	1600	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)	8	11	11	8	8
2	HAR_Total (mgCaCO3/L)	15	19	16	13	11
3	Na% (%)	29	28	29	32	34
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: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	180.6	127.5	51.35	107.5	182.4
2	EC_FLD (µmho/cm)	57	57	55	53	44
3	EC_GEN (µmho/cm)	38	35	34	36	34
4	pH_FLD (pH units)	7.2	7.0	7.2	7.1	7.1
5	pH_GEN (pH units)	6.4	6.1	6.5	6.6	7.0
6	TDS (mg/L)	25	22	20	23	
7	Temp (deg C)	25.8	25.0	27.2	25.3	26.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	SWR SD No 1	11	12	11	
2	B (mg/L)	Trivandrum	0.19	0.02	0.02	
3	Ca (mg/L)	3	4	4	3	4
4	Cl (mg/L)	5.5	5.2	5.5	5.9	5.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	
6	F (mg/L)	0.18	0.04	0.01	0.14	
7	Fe (mg/L)	0.0	0.1	0.1	0.1	
8	HCO3 (mg/L)	13	14	14	13	14
9	K (mg/L)	0.7	0.7	1.1	1.1	1.1
10	Mg (mg/L)	1.0	0.5	1.2	1.2	2.6
11	Na (mg/L)	3.0	2.7	2.9	3.3	2.5
12	NH3-N (mg N/L)	0.25	0.11	0.01		
13	NO2+NO3 (mg N/L)	0.22	0.14	0.59	0.45	
14	NO2-N (mgN/L)	0.03	0.00	0.01	0.01	
15	NO3-N (mgN/L)	0.19	0.17	0.59	0.44	
16	o-PO4-P (mg P/L)	0.040	0.052	0.233	0.072	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	27.4	15.1	10.4	8.7	
19	SO4 (mg/L)	1.0	0.8	1.1	0.5	1.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.6	0.6	0.5	0.6
2	COD (mg/L)	3.1	3.9	2.3	3.1	
3	DO (mg/L)	7.3	6.9	7.0	5.8	7.4
4	DO_SAT% (%)	89	83	88	70	92
5	FCol-MPN (MPN/100mL)	900	335	633	950	
6	Tcol-MPN (MPN/100mL)	1600	1250	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	11	9	8	9
2	HAR_Total (mgCaCO3/L)	13	13	14	13	20
3	Na% (%)	33	31	29	33	22
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.4	0.3	0.3	0.4	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	163.3	89.92	67.41	80.96	26.98
2	EC_FLD (µmho/cm)	46	56	47	47	50
3	EC_GEN (µmho/cm)	37	36	30	35	42
4	pH_FLD (pH units)	7.0	7.4	7.2	6.8	7.0
5	pH_GEN (pH units)	7.0	6.8	6.4	7.1	6.5
6	TDS (mg/L)		25	23	26	34
7	Temp (deg C)	25.8	25.5	24.5	24.5	25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		14	10	11	12
2	B (mg/L)		0.02	0.01	0.07	
3	Ca (mg/L)	7	4	6	4	4
4	Cl (mg/L)	9.6	5.9	6.4	7.1	7.1
5	CO3 (mg/L)		0.0	0.0	0.0	0.0
6	F (mg/L)		0.05	0.26		0.05
7	Fe (mg/L)				0.7	0.1
8	HCO3 (mg/L)	25	17	12	13	15
9	K (mg/L)		0.8	0.7	1.0	1.2
10	Mg (mg/L)	2.8	1.5	2.0	1.5	1.0
11	Na (mg/L)		2.8	2.4	3.7	3.7
12	NH3-N (mg N/L)				0.06	
13	NO2+NO3 (mg N/L)		1.21	2.06	0.50	
14	NO2-N (mgN/L)		0.39	0.00	0.07	
15	NO3-N (mgN/L)		0.82	2.06	0.43	0.19
16	o-PO4-P (mg P/L)				0.064	0.045
17	P-Tot (mgP/L)		0.094	0.076	0.064	
18	SiO2 (mg/L)		11.6	12.2	13.3	19.5
19	SO4 (mg/L)		1.0	1.2	1.8	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.4	1.0	0.2	0.2
2	COD (mg/L)		3.5	8.4	1.6	1.5
3	DO (mg/L)	6.5	6.5	7.6	6.8	6.0
4	DO_SAT% (%)	80	79	90	81	73
5	FCol-MPN (MPN/100mL)		1250			500
6	Tcol-MPN (MPN/100mL)		2250			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)	17	9	14	10	10
2	HAR_Total (mgCaCO3/L)	29	15	22	16	14
3	Na% (%)		28	18	32	34
4	RSC (-)		0.0	0.0	0.0	0.0
5	SAR (-)		0.3	0.2	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	40.71	74.43	39.01	22.67	78.55
2	EC_FLD (µmho/cm)		58	60	58	44
3	EC_GEN (µmho/cm)	35	36	39	47	35
4	pH_FLD (pH units)	7.3	7.0	7.2	7.2	7.1
5	pH_GEN (pH units)	6.2	6.3	6.3	6.5	6.9
6	TDS (mg/L)	20	21	25	29	24
7	Temp (deg C)	26.3	26.0	25.0	27.8	24.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	10	13	16	13	9
2	B (mg/L)		0.16	0.25	0.11	0.01
3	Ca (mg/L)	3	4	4	4	3
4	Cl (mg/L)	5.5	5.3	5.7	6.6	7.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.31	0.09	0.12	0.13	0.08
7	Fe (mg/L)	0.1	0.0	0.5	0.0	
8	HCO3 (mg/L)	12	15	20	16	11
9	K (mg/L)	0.9	0.7	1.2	1.7	0.9
10	Mg (mg/L)	1.0	1.3	1.5	1.7	1.8
11	Na (mg/L)	3.0	2.9	3.0	3.5	3.5
12	NH3-N (mg N/L)	0.17	0.05	0.01	0.01	
13	NO2+NO3 (mg N/L)		0.14		1.19	0.50
14	NO2-N (mgN/L)		0.02		0.01	0.05
15	NO3-N (mgN/L)		0.12	1.87	1.19	0.85
16	o-PO4-P (mg P/L)	0.031	0.103	0.670	0.065	
17	P-Tot (mgP/L)					
18	SiO2 (mg/L)	16.3	13.0	11.0	12.4	6.8
19	SO4 (mg/L)	1.0	1.0	0.6	1.3	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.8	0.8	1.3	0.2
2	COD (mg/L)	5.2	5.4	5.8	11.4	1.2
3	DO (mg/L)	7.4	7.2	7.0	6.8	7.8
4	DO_SAT% (%)	91	87	85	86	93
5	FCol-MPN (MPN/100mL)	625	1600		625	500
6	Tcol-MPN (MPN/100mL)	1250	1600		1250	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)	7	9	10	11	9
2	HAR_Total (mgCaCO3/L)	11	14	16	18	16
3	Na% (%)	35	30	27	28	30
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.3	0.3	0.4	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	14.99	48.14	44.22	48.98	20.40
2	EC_FLD (µmho/cm)	46	44			50
3	EC_GEN (µmho/cm)	38	46	63		40
4	pH_FLD (pH units)	7.0	7.0			7.4
5	pH_GEN (pH units)	7.4	7.0	6.7		6.5
6	TDS (mg/L)	42		46		32
7	Temp (deg C)	26.0	26.5	26.5		25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			19		10
2	B (mg/L)			0.02		0.16
3	Ca (mg/L)	4	4	6		4
4	Cl (mg/L)	4.8	18.2	13.1		7.8
5	CO3 (mg/L)			0.0		0.0
6	F (mg/L)			0.22		0.24
7	Fe (mg/L)	0.0	0.0			
8	HCO3 (mg/L)	16	42	23		12
9	K (mg/L)		0.2	2.4		1.2
10	Mg (mg/L)	1.4	4.4	2.4		1.5
11	Na (mg/L)		6.6	6.9		3.8
12	NH3-N (mg N/L)					0.05
13	NO2+NO3 (mg N/L)			0.56		0.48
14	NO2-N (mgN/L)			0.12		0.09
15	NO3-N (mgN/L)			0.44		0.39
16	o-PO4-P (mg P/L)					0.660
17	P-Tot (mgP/L)			0.168		0.266
18	SiO2 (mg/L)			5.3		15.4
19	SO4 (mg/L)	1.9		1.8		1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.7	1.5	0.6		1.6
2	COD (mg/L)			5.4		11.6
3	DO (mg/L)	6.7	7.1	5.4		6.8
4	DO_SAT% (%)	83	88	67		82
5	FCol-MPN (MPN/100mL)			1600		
6	Tcol-MPN (MPN/100mL)			2900		
	TRACE & TOXIC					
1	As (µg/L)			5.1	6.2	4.0
2	Cd (µg/L)	0.0		3.0	1.0	1.1
3	Cr (µg/L)	0.6		0.2	0.4	
4	Cu (µg/L)	8.3		0.3	4.7	3.2
5	Hg (µg/L)					
6	Ni (µg/L)	0.7		0.3	5.3	
7	Pb (µg/L)	0.5		0.4	0.9	
8	Zn (µg/L)	9.5			35.0	48.0
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10	10	16		10
2	HAR_Total (mgCaCO3/L)	16	28	26		16
3	Na% (%)		40	34		32
4	RSC (-)			0.0		0.0
5	SAR (-)		0.7	0.6		0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		66.65	44.37	31.96
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)		30		
4	pH_FLD (pH units)		7.4		
5	pH_GEN (pH units)		6.7		
6	TDS (mg/L)		18		
7	Temp (deg C)		27.5		
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)		11		
2	B (mg/L)		0.12		
3	Ca (mg/L)		3		
4	Cl (mg/L)		4.9		
5	CO3 (mg/L)		0.0		
6	F (mg/L)		0.08		
7	Fe (mg/L)		0.1	0.5	0.0
8	HCO3 (mg/L)		13		
9	K (mg/L)		1.0		
10	Mg (mg/L)		1.0		
11	Na (mg/L)		2.9		
12	NH3-N (mg N/L)		0.36		
13	NO2+NO3 (mg N/L)				
14	NO2-N (mgN/L)				
15	NO3-N (mgN/L)		0.08		
16	o-PO4-P (mg P/L)				
17	P-Tot (mgP/L)				
18	SiO2 (mg/L)		25.6		
19	SO4 (mg/L)		1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)		0.4		
2	COD (mg/L)		4.8		
3	DO (mg/L)		7.6		
4	DO_SAT% (%)		95		
5	FCol-MPN (MPN/100mL)		900		
6	Tcol-MPN (MPN/100mL)		1600		
	TRACE & TOXIC				
1	As (µg/L)			1.1	0.3
2	Cd (µg/L)			0.0	0.1
3	Cr (µg/L)			1.1	1.3
4	Cu (µg/L)			2.9	0.9
5	Hg (µg/L)			0.0	
6	Ni (µg/L)				1.3
7	Pb (µg/L)			0.1	4.2
8	Zn (µg/L)			76.9	0.1
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)		8		
2	HAR_Total (mgCaCO3/L)		12		
3	Na% (%)		32		
4	RSC (-)		0.0		
5	SAR (-)		0.4		
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : MALAKKARA (KY000J4)

Division : SWR Division, Kochi

Local River : Pamba

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)	67		25	
3	EC_GEN (µmho/cm)	36	28	22	32
4	pH_FLD (pH units)	7.9		7.2	
5	pH_GEN (pH units)	6.8	7.1	7.8	6.1
6	TDS (mg/L)	21		44	
7	Temp (deg C)	28.0		26.5	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	12	5		
2	B (mg/L)	0.07			
3	Ca (mg/L)	4	5	5	10
4	Cl (mg/L)	5.0	6.4	10.4	15.6
5	CO3 (mg/L)	0.0	0.0		
6	F (mg/L)	0.19	0.13		
7	Fe (mg/L)	0.0	0.0		
8	HCO3 (mg/L)	15	6	21	16
9	K (mg/L)	1.1	0.7		0.3
10	Mg (mg/L)	1.0	2.9	1.9	5.2
11	Na (mg/L)	2.9	1.6		11.5
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	1.2	1.4
2	COD (mg/L)	2.9			
3	DO (mg/L)	6.5		8.6	6.6
4	DO_SAT% (%)	83		106	84
5	FCol-MPN (MPN/100mL)	1600			
6	Tcol-MPN (MPN/100mL)	1600			
	TRACE & TOXIC				
1	As (µg/L)	2.5	4.2		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.1	0.4		
4	Cu (µg/L)	1.4	1.0		
5	Hg (µg/L)				
6	Ni (µg/L)	21.0	1.6		
7	Pb (µg/L)	2.6	0.3		
8	Zn (µg/L)	2.5	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	12	12	26
2	HAR_Total (mgCaCO3/L)	14	24	20	48
3	Na% (%)	29	12		34
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.3	0.1		0.7
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	7.588	15.22	97.70
2	Colour_Cod (-)	Clear	Clear	Brown
3	EC_GEN (µmho/cm)	72	37	46
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.4	7.1	7.1
6	Temp (deg C)	19.0	27.5	26.5
	CHEMICAL			
1	Ca (mg/L)	6	5	6
2	Cl (mg/L)	9.1	7.8	18.2
3	Fe (mg/L)			
4	HCO3 (mg/L)	16	32	29
5	K (mg/L)			
6	Mg (mg/L)	2.9	1.9	1.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.8	0.8
2	DO (mg/L)	7.2	6.0	7.0
3	DO_SAT% (%)	78	75	86
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16	12	16
2	HAR_Total (mgCaCO3/L)	28	20	24
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	28.64	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	25	45	75
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.7	6.8	6.4
6	Temp (deg C)	26.5	27.5	27.5
	CHEMICAL			
1	Ca (mg/L)	6	8	9
2	Cl (mg/L)	13.0	18.2	33.5
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	26	79	SWR SD No 1,
5	K (mg/L)	0.1	0.2	Trivandrum
6	Mg (mg/L)	1.9	3.1	1.9
7	Na (mg/L)	10.3	12.8	10.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	0.8	2.0
2	DO (mg/L)	7.0	7.6	8.4
3	DO_SAT% (%)	86	95	106
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	16	20	24
2	HAR_Total (mgCaCO3/L)	24	33	31
3	Na% (%)	49	46	41
4	SAR (-)	0.9	1.0	0.8
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	236.8	0.000	25.58
2	EC_GEN (µmho/cm)	6	75	25	50
3	pH_GEN (pH units)	6	7.4	6.4	6.9
4	Temp (deg C)	6	27.5	19.0	25.8
	CHEMICAL				
1	Ca (mg/L)	6	9	5	7
2	Cl (mg/L)	6	33.5	7.8	16.7
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	79	16	34
5	K (mg/L)	3	0.2	0.1	0.2
6	Mg (mg/L)	6	3.1	1.9	2.3
7	Na (mg/L)	3	12.8	10.0	11
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	2.0	0.8	1
2	DO (mg/L)	6	8.4	6.0	7.2
3	DO_SAT% (%)	6	106	75	88
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	24	12	17
2	HAR_Total (mgCaCO ₃ /L)	6	33	20	26
3	Na% (%)	3	49	41	45
4	SAR (-)	3	1.0	0.8	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	91.17			58.05	30.31
2	EC_FLD (µmho/cm)	46			45	47
3	EC_GEN (µmho/cm)	56			52	48
4	pH_FLD (pH units)	6.6			6.6	6.5
5	pH_GEN (pH units)	6.5			6.5	6.7
6	TDS (mg/L)	41			41	28
7	Temp (deg C)	27.3			26.3	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	17			11	11
2	B (mg/L)	0.15			0.03	
3	Ca (mg/L)	4			3	3
4	Cl (mg/L)	8.9			8.5	7.8
5	F (mg/L)	0.13			0.07	0.08
6	Fe (mg/L)				0.2	
7	HCO3 (mg/L)	21			14	13
8	K (mg/L)	1.4			1.2	1.1
9	Mg (mg/L)	1.6			1.8	1.0
10	Na (mg/L)	4.8			4.6	4.6
11	NH3-N (mg N/L)				0.05	0.20
12	NO2+NO3 (mg N/L)	0.50			0.23	
13	NO2-N (mgN/L)	0.08			0.04	
14	NO3-N (mgN/L)	0.42			0.18	
15	o-PO4-P (mg P/L)				0.027	0.058
16	P-Tot (mgP/L)	0.081			0.032	
17	SiO2 (mg/L)	7.9			21.9	28.6
18	SO4 (mg/L)	2.8			2.9	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8			0.9	0.2
2	COD (mg/L)	6.2			6.7	2.6
3	DO (mg/L)	7.0			6.9	6.6
4	DO_SAT% (%)	87			86	81
5	FCol-MPN (MPN/100mL)				900	
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	Ni (µg/L)					
6	Pb (µg/L)					
7	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	10			9	8
2	HAR_Total (mgCaCO3/L)	17			16	12
3	Na% (%)	36			36	43
4	RSC (-)	0.0			0.0	0.0
5	SAR (-)	0.5			0.5	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	50.87	38.04	4.195	26.01	47.21
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	54	52	58	58	51
4	pH_FLD (pH units)	6.9				
5	pH_GEN (pH units)	6.5	6.4	6.4	6.8	7.0
6	TDS (mg/L)	32	35	39	38	
7	Temp (deg C)	27.3	28.8	29.5	27.5	27.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	SWR SD No 1	13	18	17	
2	B (mg/L)	Trivandrum	0.24	0.01	0.01	
3	Ca (mg/L)	4	5	6	5	6
4	Cl (mg/L)	7.1	8.0	6.2	8.5	8.8
5	F (mg/L)	0.13	0.04	0.04	0.26	
6	Fe (mg/L)	0.1	0.1	0.0	0.0	
7	HCO3 (mg/L)	14	16	22	21	18
8	K (mg/L)	0.9	1.0	1.3	1.7	1.5
9	Mg (mg/L)	1.3	0.8	1.7	1.3	3.5
10	Na (mg/L)	4.0	4.2	4.0	5.0	3.9
11	NH3-N (mg N/L)	0.25	0.04	0.00		
12	NO2+NO3 (mg N/L)	0.26	0.20	1.46	0.33	
13	NO2-N (mgN/L)	0.03	0.02	0.01	0.01	
14	NO3-N (mgN/L)	0.23	0.18	1.45	0.32	
15	o-PO4-P (mg P/L)	0.088	0.072	0.322	0.076	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	20.6	20.1	12.3	10.2	
18	SO4 (mg/L)	2.7	1.8	0.8	0.8	1.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.7	0.6	0.8	1.0
2	COD (mg/L)	3.8	5.0	4.0	6.3	
3	DO (mg/L)	7.0	6.5	6.7	5.4	7.9
4	DO_SAT% (%)	88	84	88	69	101
5	FCol-MPN (MPN/100mL)	1250	1600	425	1250	
6	Tcol-MPN (MPN/100mL)	1600	1600	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)	10	13	14	13	14
2	HAR_Total (mgCaCO3/L)	15	16	21	18	29
3	Na% (%)	35	34	28	35	25
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.4	0.5	0.4	0.5	0.3
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	40.17	51.80			14.56
2	EC_FLD (µmho/cm)		42			49
3	EC_GEN (µmho/cm)	52	47			54
4	pH_FLD (pH units)		6.7			6.7
5	pH_GEN (pH units)	7.2	6.6			6.7
6	TDS (mg/L)		36			43
7	Temp (deg C)	24.3	26.5			26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		13			15
2	B (mg/L)		0.02			0.00
3	Ca (mg/L)	6	5			5
4	Cl (mg/L)	11.7	7.8			9.2
5	F (mg/L)		0.09			0.05
6	Fe (mg/L)					0.1
7	HCO3 (mg/L)	26	16			18
8	K (mg/L)		1.1			1.7
9	Mg (mg/L)	2.2	1.0			1.5
10	Na (mg/L)		3.6			5.0
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		1.62			
13	NO2-N (mgN/L)		0.63			
14	NO3-N (mgN/L)		0.99			0.11
15	o-PO4-P (mg P/L)					0.067
16	P-Tot (mgP/L)		0.085			
17	SiO2 (mg/L)		12.5			18.1
18	SO4 (mg/L)		1.3			2.5
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.8	0.2			0.8
2	COD (mg/L)		1.8			4.9
3	DO (mg/L)	6.7	6.2			6.2
4	DO_SAT% (%)	80	76			76
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)	14	12			12
2	HAR_Total (mgCaCO3/L)	24	16			18
3	Na% (%)		31			35
4	RSC (-)		0.0			0.0
5	SAR (-)		0.4			0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	8.388	34.91	16.14	5.553	18.82
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	57	45	49	54	61
4	pH_FLD (pH units)		6.6			
5	pH_GEN (pH units)	6.7	6.6	6.3	6.3	6.9
6	TDS (mg/L)	34	28	42	34	39
7	Temp (deg C)	26.5	27.0	28.5	27.5	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	15	15	16	15	21
2	B (mg/L)	0.64	0.55	0.43	0.08	0.05
3	Ca (mg/L)	4	4	5	6	5
4	Cl (mg/L)	7.8	6.3	7.1	7.5	9.1
5	F (mg/L)	0.47	0.07	0.21	0.17	0.10
6	Fe (mg/L)	0.0	1.0		0.1	
7	HCO3 (mg/L)	18	18	20	18	26
8	K (mg/L)	1.3	0.9	1.2	1.5	1.3
9	Mg (mg/L)	1.0	2.0	1.0	2.0	2.5
10	Na (mg/L)	5.1	3.6	3.7	4.0	5.8
11	NH3-N (mg N/L)	0.19	0.05	0.00	0.00	
12	NO2+NO3 (mg N/L)		0.20		1.66	0.26
13	NO2-N (mgN/L)		0.08		0.01	0.01
14	NO3-N (mgN/L)		0.12	1.68	1.65	0.25
15	o-PO4-P (mg P/L)	0.026	0.045		0.120	0.026
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	28.2	11.4	18.0	17.4	11.0
18	SO4 (mg/L)	1.0	1.0	0.6	2.9	0.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.6	0.2	1.3	0.7
2	COD (mg/L)	3.4	4.4	1.4	9.6	4.8
3	DO (mg/L)	6.8	6.7	6.1	6.6	6.8
4	DO_SAT% (%)	84	84	78	83	84
5	FCol-MPN (MPN/100mL)				280	1050
6	Tcol-MPN (MPN/100mL)				500	1250
	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	12	14	13
2	HAR_Total (mgCaCO3/L)	14	18	16	22	23
3	Na% (%)	42	29	31	27	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.4	0.4	0.4	0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	8.528	14.32			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	64	35			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.6	6.7			
6	TDS (mg/L)					
7	Temp (deg C)	26.3	27.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	4	7			
4	Cl (mg/L)	8.1	15.6			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	26	53			
8	K (mg/L)		0.2			
9	Mg (mg/L)	2.8	2.5			
10	Na (mg/L)		11.6			
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)	0.9				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.8			
2	COD (mg/L)					
3	DO (mg/L)	6.2	7.3			
4	DO_SAT% (%)	76	91			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	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)	10	18			
2	HAR_Total (mgCaCO3/L)	22	28			
3	Na% (%)		47			
4	RSC (-)					
5	SAR (-)		1.0			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	15.92	10.80
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-TOT (mgCaCO3/L)				
2	B (mg/L)				
3	Ca (mg/L)				
4	Cl (mg/L)				
5	F (mg/L)				
6	Fe (mg/L)			0.4	0.0
7	HCO3 (mg/L)				
8	K (mg/L)				
9	Mg (mg/L)				
10	Na (mg/L)				
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)				
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)			2.5	0.0
2	Cd (µg/L)			0.1	0.1
3	Cr (µg/L)			0.8	0.9
4	Cu (µg/L)			3.8	3.0
5	Ni (µg/L)				2.4
6	Pb (µg/L)			0.4	4.0
7	Zn (µg/L)			20.2	0.1
	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: 2005-2016

Station Name : THUMPAMON (KYA00J4)

Division : SWR Division, Kochi

Local River : Achankovil

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	70	63	65	75
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	6.8	6.7	7.7	6.4
6	TDS (mg/L)	45	42		
7	Temp (deg C)	28.5	28.5	27.5	27.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	15	17		
2	B (mg/L)	0.01	0.04		
3	Ca (mg/L)	6	6	8	9
4	Cl (mg/L)	9.9	8.5	13.0	33.5
5	F (mg/L)	0.34	0.11		
6	Fe (mg/L)	0.1	0.0		
7	HCO3 (mg/L)	19	21	32	23
8	K (mg/L)	3.1	4.4		0.2
9	Mg (mg/L)	2.0	1.5	3.8	1.9
10	Na (mg/L)	5.5	4.5		10.0
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	1.0	2.0
2	COD (mg/L)	2.6	3.0		
3	DO (mg/L)	5.5	5.6	8.0	8.4
4	DO_SAT% (%)	70	72	100	106
5	FCol-MPN (MPN/100mL)	1600	900		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.3	1.8		
2	Cd (µg/L)	0.0	0.1		
3	Cr (µg/L)	0.2	0.3		
4	Cu (µg/L)	1.7	0.8		
5	Ni (µg/L)	0.5	1.0		
6	Pb (µg/L)	3.1	0.3		
7	Zn (µg/L)	3.1	5.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14	14	19	24
2	HAR_Total (mgCaCO3/L)	22	20	35	31
3	Na% (%)	32	28		41
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.5	0.4		0.8
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	33.33	31.37	29.70
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)	31	32	32
4	EC_GEN (µmho/cm)	58	40	43
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	7.0	7.0
7	pH_GEN (pH units)	7.3	6.8	7.0
8	Temp (deg C)	27.0	27.5	28.0
	CHEMICAL			
1	Ca (mg/L)	3	3	35
2	Cl (mg/L)	9.1	9.1	16.9
3	Fe (mg/L)			
4	HCO ₃ (mg/L)	18	21	18
5	K (mg/L)			
6	Mg (mg/L)	3.8	1.9	9.5
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD ₃₋₂₇ (mg/L)	0.2	0.6	0.6
2	DO (mg/L)	6.8	6.6	7.2
3	DO_SAT% (%)	85	83	92
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO ₃ /L)	8	8	88
2	HAR_Total (mgCaCO ₃ /L)	24	16	127
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	34.01	4.440	12.03
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	31	33	35
4	EC_GEN (µmho/cm)	26	84	38
5	Odour_Code (-)	odour free	odour free	odour free
6	pH_FLD (pH units)	7.0	7.1	
7	pH_GEN (pH units)	7.0	7.1	6.3
8	Temp (deg C)	27.0	27.0	27.0
	CHEMICAL			
1	Ca (mg/L)	5	8	8
2	Cl (mg/L)	13.0	29.9	SWR SD No 1,
3	Fe (mg/L)		0.0	Trivandrum
4	HCO3 (mg/L)	24	48	23
5	K (mg/L)	0.2	0.3	0.4
6	Mg (mg/L)	1.0	3.1	3.8
7	Na (mg/L)	10.3	12.1	11.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.6	1.0	1.2
2	DO (mg/L)	6.6	7.8	6.2
3	DO_SAT% (%)	83	98	78
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	20	20
2	HAR_Total (mgCaCO3/L)	16	33	35
3	Na% (%)	59	45	40
4	SAR (-)	1.1	0.9	0.8
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	335.0	0.000	33.76
2	EC_FLD (µmho/cm)	6	35	31	32
3	EC_GEN (µmho/cm)	6	84	26	48
4	pH_FLD (pH units)	5	7.1	7.0	7
5	pH_GEN (pH units)	6	7.3	6.3	6.9
6	Temp (deg C)	6	28.0	27.0	27.3
	CHEMICAL				
1	Ca (mg/L)	6	35	3	10
2	Cl (mg/L)	6	29.9	9.1	16.1
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	48	18	25
5	K (mg/L)	3	0.4	0.2	0.3
6	Mg (mg/L)	6	9.5	1.0	3.8
7	Na (mg/L)	3	12.1	10.3	11.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	6	1.2	0.2	0.7
2	DO (mg/L)	6	7.8	6.2	6.9
3	DO_SAT% (%)	6	98	78	86
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	88	8	26
2	HAR_Total (mgCaCO ₃ /L)	6	127	16	42
3	Na% (%)	3	59	40	48
4	SAR (-)	3	1.1	0.8	1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	48.81	40.67		32.23	17.72
2	EC_FLD (µmho/cm)	43	59			
3	EC_GEN (µmho/cm)	43	44		55	50
4	pH_FLD (pH units)	7.1	7.0			
5	pH_GEN (pH units)	6.6	6.5		6.6	6.9
6	TDS (mg/L)	34	35		43	31
7	Temp (deg C)	27.5	27.0		26.2	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	11		13	13
2	B (mg/L)	0.06	0.02		0.09	0.05
3	Ca (mg/L)	3	4		3	4
4	Cl (mg/L)	8.9	9.2		9.6	6.6
5	F (mg/L)	0.13	0.19		0.07	0.09
6	Fe (mg/L)				0.1	0.0
7	HCO3 (mg/L)	17	13		16	16
8	K (mg/L)	1.8	1.7		1.4	1.7
9	Mg (mg/L)	1.9	1.6		2.5	1.0
10	Na (mg/L)	4.7	5.3		4.9	3.7
11	NH3-N (mg N/L)				0.05	0.19
12	NO2+NO3 (mg N/L)	0.58	0.39		0.38	
13	NO2-N (mgN/L)	0.21	0.01		0.06	
14	NO3-N (mgN/L)	0.37	0.38		0.25	
15	o-PO4-P (mg P/L)				0.068	0.054
16	P-Tot (mgP/L)	0.047	0.147		0.124	
17	SiO2 (mg/L)	7.1	6.6		25.4	28.0
18	SO4 (mg/L)	3.0	1.9		2.4	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.3	1.1		0.7	0.7
2	COD (mg/L)	2.9	8.4		4.9	6.1
3	DO (mg/L)	6.7	7.5		6.1	
4	DO_SAT% (%)	85	93		76	
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)	8	9		9	10
2	HAR_Total (mgCaCO3/L)	16	16		19	14
3	Na% (%)	36	39		35	33
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: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	57.79	40.63	16.66	48.34	53.24
2	EC_FLD (µmho/cm)	65	65	63	65	
3	EC_GEN (µmho/cm)	56	53	48	50	47
4	pH_FLD (pH units)	7.2	7.3	7.3	7.0	7.0
5	pH_GEN (pH units)	6.5	6.1	6.6	6.7	7.0
6	TDS (mg/L)	38	35	28	31	30
7	Temp (deg C)	25.5	25.5	27.2	27.7	27.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	SWR SD No 1	11	14	13	
2	B (mg/L)	Trivandrum	0.13	0.02	0.03	
3	Ca (mg/L)	3	5	5	4	5
4	Cl (mg/L)	8.6	8.6	8.9	8.6	9.0
5	F (mg/L)	0.20	0.07	0.02	0.23	
6	Fe (mg/L)	0.0	0.1	0.2	0.1	
7	HCO3 (mg/L)	14	14	17	16	15
8	K (mg/L)	1.1	2.0	1.7	1.8	2.1
9	Mg (mg/L)	1.4	1.0	1.6	1.7	2.2
10	Na (mg/L)	5.2	4.7	5.5	4.5	3.9
11	NH3-N (mg N/L)	0.27	0.06	0.02		
12	NO2+NO3 (mg N/L)	0.12	0.38	1.43	0.54	
13	NO2-N (mgN/L)	0.01	0.04	0.01	0.01	
14	NO3-N (mgN/L)	0.11	0.36	1.43	0.53	
15	o-PO4-P (mg P/L)	0.113	0.023	0.199	0.080	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	23.4	19.0	11.6	10.3	
18	SO4 (mg/L)	1.0	3.7	0.9	0.8	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.4	0.5	0.5	0.9
2	COD (mg/L)	4.4	3.5	2.7	2.5	
3	DO (mg/L)	7.0	6.9	6.7	5.8	7.5
4	DO_SAT% (%)	85	84	84	75	95
5	FCol-MPN (MPN/100mL)		500	767	700	
6	Tcol-MPN (MPN/100mL)		900	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)	8	11	11	9	11
2	HAR_Total (mgCaCO3/L)	14	16	18	16	21
3	Na% (%)	42	36	37	35	28
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.6	0.5	0.6	0.5	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	31.47	26.80	17.29		11.03
2	EC_FLD (µmho/cm)	32	48	58		
3	EC_GEN (µmho/cm)	47	45	45		52
4	pH_FLD (pH units)	7.0	7.2	7.5		
5	pH_GEN (pH units)	7.0	6.8	6.8		6.9
6	TDS (mg/L)		35	36		37
7	Temp (deg C)	27.5	26.5	26.5		26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		11	12		12
2	B (mg/L)		0.02	0.02		0.04
3	Ca (mg/L)	14	4	5		4
4	Cl (mg/L)	11.7	8.2	9.9		8.5
5	F (mg/L)		0.05	0.31		0.07
6	Fe (mg/L)					0.2
7	HCO3 (mg/L)	19	13	15		15
8	K (mg/L)		1.6	1.3		2.0
9	Mg (mg/L)	5.1	1.5	1.7		1.5
10	Na (mg/L)		4.1	4.7		4.9
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		1.53	0.42		0.21
13	NO2-N (mgN/L)		0.26	0.00		0.05
14	NO3-N (mgN/L)		1.27	0.42		0.19
15	o-PO4-P (mg P/L)					0.029
16	P-Tot (mgP/L)		0.210	0.090		
17	SiO2 (mg/L)		13.0	10.0		24.9
18	SO4 (mg/L)		1.5	1.4		2.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.5	0.4	0.5		0.7
2	COD (mg/L)		3.5	4.3		5.2
3	DO (mg/L)	6.9	6.6	7.1		7.4
4	DO_SAT% (%)	87	82	88		91
5	FCol-MPN (MPN/100mL)					900
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)	34	11	13		9
2	HAR_Total (mgCaCO3/L)	56	17	20		15
3	Na% (%)		32	33		38
4	RSC (-)		0.0	0.0		0.0
5	SAR (-)		0.4	0.5		0.5
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	56.04	73.57	53.99	9.997	41.86
2	EC_FLD (µmho/cm)	54	56	62	62	
3	EC_GEN (µmho/cm)	41	50	44	49	42
4	pH_FLD (pH units)		7.1	7.0	7.3	
5	pH_GEN (pH units)	6.4	6.8	6.6	6.5	7.0
6	TDS (mg/L)	23	32	31	33	29
7	Temp (deg C)	27.3	24.3	24.8	27.8	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	11	16	12	13	14
2	B (mg/L)	0.40	0.16	0.17	0.08	0.03
3	Ca (mg/L)	3	4	4	5	5
4	Cl (mg/L)	7.8	7.4	8.2	7.5	6.4
5	F (mg/L)	0.16	0.09	0.18	0.20	0.11
6	Fe (mg/L)	0.1	0.2	1.2	0.0	
7	HCO3 (mg/L)	13	20	15	16	18
8	K (mg/L)	1.5	1.7	1.5	1.6	1.4
9	Mg (mg/L)	1.0	1.8	1.0	1.5	1.0
10	Na (mg/L)	4.3	4.4	4.3	4.1	4.0
11	NH3-N (mg N/L)	0.20	0.05	0.04	0.01	
12	NO2+NO3 (mg N/L)		0.33		1.17	0.52
13	NO2-N (mgN/L)		0.04		0.01	0.01
14	NO3-N (mgN/L)		0.29	0.76	1.16	0.50
15	o-PO4-P (mg P/L)	0.018	0.108	0.140	0.057	0.024
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	28.4	12.8	16.3	13.6	11.8
18	SO4 (mg/L)	1.2	1.0	0.7	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.6	0.8	1.1	0.8
2	COD (mg/L)	5.7	4.9	3.6	8.6	5.6
3	DO (mg/L)	7.6	6.9	7.0	7.3	7.0
4	DO_SAT% (%)	96	82	84	92	86
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		
3	Cr (µg/L)			0.8		
4	Cu (µg/L)			24.6		
5	Hg (µg/L)					
6	Ni (µg/L)			2.8		
7	Pb (µg/L)			0.1		
8	Zn (µg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	10	11	12	12
2	HAR_Total (mgCaCO3/L)	12	17	15	18	16
3	Na% (%)	40	33	36	31	33
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: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	23.67	19.23	24.09	14.78	
2	EC_FLD (µmho/cm)		32	48		
3	EC_GEN (µmho/cm)	30	55	58	42	
4	pH_FLD (pH units)	7.1	7.1	6.9		
5	pH_GEN (pH units)	7.5	7.0	6.8	6.9	
6	TDS (mg/L)	33		40	33	
7	Temp (deg C)	26.5	27.0	28.5	27.5	
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)			14	12	
2	B (mg/L)				0.09	
3	Ca (mg/L)	3	6	4	4	
4	Cl (mg/L)	4.0	21.5	9.9	10.7	
5	F (mg/L)			0.12	0.05	
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	16	36	17	15	
8	K (mg/L)		0.2	2.8	2.0	
9	Mg (mg/L)	1.4	2.0	2.0	1.0	
10	Na (mg/L)		11.2	5.2	4.8	
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)			0.41	0.44	
13	NO2-N (mgN/L)			0.08	0.02	
14	NO3-N (mgN/L)			0.33	0.42	
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)			0.212		
17	SiO2 (mg/L)			10.3	8.1	
18	SO4 (mg/L)	1.4		4.5	1.0	
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.8	0.8	1.0	
2	COD (mg/L)			6.6	6.8	
3	DO (mg/L)	6.9	7.2	5.4	6.6	
4	DO_SAT% (%)	85	90	69	83	
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	TRACE & TOXIC					
1	As (µg/L)			6.0		
2	Cd (µg/L)	0.5		4.0		
3	Cr (µg/L)	1.1		0.8		
4	Cu (µg/L)	3.2		1.0		
5	Hg (µg/L)					
6	Ni (µg/L)	13.7		2.3		
7	Pb (µg/L)	12.1		3.2		
8	Zn (µg/L)	11.2		7.0		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	8	16	10	10	
2	HAR_Total (mgCaCO3/L)	14	24	18	14	
3	Na% (%)		52	34	39	
4	RSC (-)			0.0	0.0	
5	SAR (-)		1.0	0.5	0.6	
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)	8.406	64.41	41.81	20.77
2	EC_FLD (µmho/cm)		47	55	65
3	EC_GEN (µmho/cm)	40	42	50	50
4	pH_FLD (pH units)		7.9	8.4	7.3
5	pH_GEN (pH units)	6.7	6.9	6.6	6.2
6	TDS (mg/L)	28	24	29	33
7	Temp (deg C)	27.0	27.0	27.5	26.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	14	13	12	11
2	B (mg/L)	0.07	0.04	0.12	0.16
3	Ca (mg/L)	3	3	3	4
4	Cl (mg/L)	6.4	7.1	8.5	7.8
5	F (mg/L)	0.16	0.11	0.09	0.03
6	Fe (mg/L)	0.0	0.1	0.2	0.1
7	HCO3 (mg/L)	17	16	15	13
8	K (mg/L)	1.6	1.6	2.8	1.8
9	Mg (mg/L)	1.9	1.5	1.5	1.0
10	Na (mg/L)	3.4	4.5	4.4	4.8
11	NH3-N (mg N/L)	0.09	0.15	0.05	0.08
12	NO2+NO3 (mg N/L)	0.32			1.62
13	NO2-N (mgN/L)	0.06			0.07
14	NO3-N (mgN/L)	0.26	0.05	0.17	1.55
15	o-PO4-P (mg P/L)			0.025	0.095
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	17.6	23.5	18.6	14.6
18	SO4 (mg/L)	1.0	1.0	1.0	0.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	0.8	0.4	1.4	1.2
2	COD (mg/L)	5.6	4.2	6.8	4.8
3	DO (mg/L)	7.2	7.8	7.8	6.4
4	DO_SAT% (%)	90	98	98	79
5	FCol-MPN (MPN/100mL)	1600		1600	1600
6	Tcol-MPN (MPN/100mL)	1600		1600	1600
	TRACE & TOXIC				
1	As (µg/L)			1.2	0.1
2	Cd (µg/L)			0.6	0.1
3	Cr (µg/L)	2.0		1.0	0.7
4	Cu (µg/L)	1.0		7.4	1.8
5	Hg (µg/L)			0.0	
6	Ni (µg/L)	11.3			0.9
7	Pb (µg/L)	1.0		0.3	4.2
8	Zn (µg/L)			14.8	0.0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	8	8	8	10
2	HAR_Total (mgCaCO3/L)	16	14	14	14
3	Na% (%)	29	38	35	39
4	RSC (-)	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : PATTAZHY (KD000G4)

Division : SWR Division, Kochi

Local River : Kallada

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	4.215	43.87	18.09	12.03
2	EC_FLD (µmho/cm)	59			35
3	EC_GEN (µmho/cm)	62	41	42	38
4	pH_FLD (pH units)	7.1		7.2	
5	pH_GEN (pH units)	6.8	6.8	7.4	6.3
6	TDS (mg/L)	38	26	33	
7	Temp (deg C)	28.5	28.0	27.5	27.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	16	24		
2	B (mg/L)	0.02	0.06		
3	Ca (mg/L)	5	6	5	8
4	Cl (mg/L)	9.2	7.8	7.8	18.2
5	F (mg/L)	0.33	0.22		
6	Fe (mg/L)	0.0	0.1		
7	HCO3 (mg/L)	20	29	18	23
8	K (mg/L)	3.0	2.1		0.4
9	Mg (mg/L)	2.0	2.9	1.9	3.8
10	Na (mg/L)	4.9	4.5		11.0
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.50	0.46		
13	NO2-N (mgN/L)	0.06	0.04		
14	NO3-N (mgN/L)	0.44	0.42		
15	o-PO4-P (mg P/L)	0.050	0.080		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	11.5	5.2		
18	SO4 (mg/L)	1.4	1.2		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	2.2	0.6	1.2	1.2
2	COD (mg/L)	16.6	4.0		
3	DO (mg/L)	6.7	6.7	8.2	6.2
4	DO_SAT% (%)	86	86	103	78
5	FCol-MPN (MPN/100mL)	500	1600		
6	Tcol-MPN (MPN/100mL)	1600	1600		
	TRACE & TOXIC				
1	As (µg/L)	2.4	2.1		
2	Cd (µg/L)	0.0	0.0		
3	Cr (µg/L)	0.1	0.5		
4	Cu (µg/L)	1.3	0.7		
5	Hg (µg/L)				
6	Ni (µg/L)	0.0	2.1		
7	Pb (µg/L)	3.4	0.4		
8	Zn (µg/L)	2.1	1.0		
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	16	12	20
2	HAR_Total (mgCaCO3/L)	20	28	20	35
3	Na% (%)	31	24		40
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.5	0.4		0.8
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	16.30	10.97	41.29
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	51	51	49
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.2	6.2	7.3
6	Temp (deg C)	23.0	26.0	25.5
	CHEMICAL			
1	Ca (mg/L)	8	3	14
2	Cl (mg/L)	7.8	9.7	26.1
3	Fe (mg/L)			
4	HCO3 (mg/L)	26	32	32
5	K (mg/L)			
6	Mg (mg/L)	2.9	1.9	5.7
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.6	0.2	0.8
2	DO (mg/L)	7.4	6.6	7.2
3	DO_SAT% (%)	86	81	87
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	20	8	35
2	HAR_Total (mgCaCO3/L)	31	16	59
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	19.46	0.000	0.000
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	27	70	99
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.5	6.9	6.6
6	Temp (deg C)	26.0	27.0	28.0
	CHEMICAL			
1	Ca (mg/L)	5	14	16
2	Cl (mg/L)	29.6	15.6	19.6
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	26	63	45
5	K (mg/L)	0.3	0.3	0.1
6	Mg (mg/L)	1.9	9.4	5.7
7	Na (mg/L)	11.7	15.6	11.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.4	1.2	
2	DO (mg/L)	7.2	6.8	7.2
3	DO_SAT% (%)	89	85	92
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	35	39
2	HAR_Total (mgCaCO3/L)	20	74	63
3	Na% (%)	56	31	29
4	SAR (-)	1.2	0.8	0.6
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	307.6	0.000	16.02
2	EC_GEN (µmho/cm)	6	99	27	58
3	pH_GEN (pH units)	6	7.3	6.2	6.8
4	Temp (deg C)	6	28.0	23.0	25.9
	CHEMICAL				
1	Ca (mg/L)	6	16	3	10
2	Cl (mg/L)	6	29.6	7.8	18.1
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	63	26	37
5	K (mg/L)	3	0.3	0.1	0.2
6	Mg (mg/L)	6	9.4	1.9	4.6
7	Na (mg/L)	3	15.6	11.6	13
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	5	1.6	0.2	0.8
2	DO (mg/L)	6	7.4	6.6	7.1
3	DO_SAT% (%)	6	92	81	87
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	39	8	25
2	HAR_Total (mgCaCO ₃ /L)	6	74	16	44
3	Na% (%)	3	56	29	39
4	SAR (-)	3	1.2	0.6	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	40.76	52.21		45.94	15.04
2	EC_FLD (µmho/cm)	46	48		48	
3	EC_GEN (µmho/cm)	47	50		52	50
4	pH_FLD (pH units)	6.7	6.6		6.6	
5	pH_GEN (pH units)	6.9	6.5		6.6	7.1
6	TDS (mg/L)	35	35		41	29
7	Temp (deg C)	26.8	25.2		25.8	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	14	9		12	12
2	B (mg/L)	0.08	0.03		0.02	0.08
3	Ca (mg/L)	4	4		4	4
4	Cl (mg/L)	8.5	10.1		9.5	7.5
5	F (mg/L)	0.13	0.13		0.06	0.10
6	Fe (mg/L)				0.0	0.1
7	HCO3 (mg/L)	17	11		15	14
8	K (mg/L)	1.3	1.9		1.6	1.9
9	Mg (mg/L)	1.9	1.2		1.7	0.5
10	Na (mg/L)	4.9	5.9		5.4	4.9
11	NH3-N (mg N/L)				0.05	0.23
12	NO2+NO3 (mg N/L)	0.51	0.47		0.20	
13	NO2-N (mgN/L)	0.19	0.05		0.07	
14	NO3-N (mgN/L)	0.32	0.42		0.14	
15	o-PO4-P (mg P/L)				0.032	0.067
16	P-Tot (mgP/L)	0.081	0.099			
17	SiO2 (mg/L)	8.7	8.6		23.3	29.4
18	SO4 (mg/L)	4.2	6.9		1.9	1.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.4	0.7		1.2	1.2
2	COD (mg/L)	3.7	5.5		9.9	6.7
3	DO (mg/L)	6.8	6.7		7.4	
4	DO_SAT% (%)	84	81		90	
5	FCol-MPN (MPN/100mL)				1600	900
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)	9	11		9	9
2	HAR_Total (mgCaCO3/L)	17	16		16	11
3	Na% (%)	36	42		39	44
4	RSC (-)	0.0	0.0		0.0	0.0
5	SAR (-)	0.5	0.6		0.6	0.6
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	36.31	7.328	0.000	12.63	17.31
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	54	53	69	62	60
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	6.7	6.5	6.1	6.5	6.6
6	TDS (mg/L)	34	36	47	39	
7	Temp (deg C)	27.3	26.8	27.8	26.0	25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	14	16	17	
2	B (mg/L)	0.53	0.34	0.02	0.02	
3	Ca (mg/L)	4	5	5	4	5
4	Cl (mg/L)	8.5	10.0	10.6	10.6	10.9
5	F (mg/L)	0.16	0.03	0.02	0.25	
6	Fe (mg/L)	0.4	0.1	0.0	0.1	
7	HCO3 (mg/L)	15	17	20	20	20
8	K (mg/L)	1.1	1.4	2.3	2.4	2.5
9	Mg (mg/L)	1.8	1.2	1.7	2.0	3.2
10	Na (mg/L)	5.3	5.4	5.8	6.3	4.5
11	NH3-N (mg N/L)	0.23	0.12	0.02		
12	NO2+NO3 (mg N/L)	0.10	0.16	1.23	0.48	
13	NO2-N (mgN/L)	0.01	0.02	0.01	0.01	
14	NO3-N (mgN/L)	0.10	0.14	1.22	0.47	
15	o-PO4-P (mg P/L)	0.077	0.015	0.346	0.103	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	27.5	22.0	15.0	10.7	
18	SO4 (mg/L)	4.0	0.6	0.8	0.7	1.8
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.9	0.4	1.0	0.3
2	COD (mg/L)	6.7	5.5	2.8	7.1	
3	DO (mg/L)		7.2	6.0	4.9	6.5
4	DO_SAT% (%)		90	76	60	80
5	FCol-MPN (MPN/100mL)	500		500	1050	
6	Tcol-MPN (MPN/100mL)	500		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)	9	12	13	11	13
2	HAR_Total (mgCaCO3/L)	17	17	20	19	27
3	Na% (%)	39	38	35	38	27
4	RSC (-)	0.0	0.0	0.0	0.0	
5	SAR (-)	0.6	0.6	0.6	0.6	0.4
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	22.85	38.66	30.82		39.83
2	EC_FLD (µmho/cm)		48	49		49
3	EC_GEN (µmho/cm)	50	51	49		51
4	pH_FLD (pH units)		6.6	6.6		6.8
5	pH_GEN (pH units)	6.9	6.8	6.1		6.9
6	TDS (mg/L)		41	40		41
7	Temp (deg C)	24.8	25.0	26.5		25.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		11	13		12
2	B (mg/L)		0.02	0.01		0.01
3	Ca (mg/L)	8	4	4		3
4	Cl (mg/L)	14.5	9.2	9.9		9.9
5	F (mg/L)		0.13	0.22		0.05
6	Fe (mg/L)					
7	HCO3 (mg/L)	30	13	16		15
8	K (mg/L)		1.7	1.2		1.8
9	Mg (mg/L)	3.5	1.0	1.5		1.5
10	Na (mg/L)		4.8	4.4		5.7
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		0.89	0.65		0.37
13	NO2-N (mgN/L)		0.26	0.00		0.22
14	NO3-N (mgN/L)		0.62	0.65		0.15
15	o-PO4-P (mg P/L)					0.010
16	P-Tot (mgP/L)		0.011	0.043		
17	SiO2 (mg/L)		16.5	9.3		22.3
18	SO4 (mg/L)		4.0	3.4		1.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.9	0.6	0.4		1.0
2	COD (mg/L)		4.8	2.8		8.4
3	DO (mg/L)	7.1	6.6	7.2		6.8
4	DO_SAT% (%)	85	80	89		82
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)	21	10	10		8
2	HAR_Total (mgCaCO3/L)	35	14	16		14
3	Na% (%)		39	35		43
4	RSC (-)		0.0	0.0		0.0
5	SAR (-)		0.6	0.5		0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	5.677	26.74	19.10	0.000	13.59
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	53	50	46	63	61
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.0	6.8	6.4	6.3	6.9
6	TDS (mg/L)	30	31	28	40	40
7	Temp (deg C)	26.5	25.5	25.5	26.8	27.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	12	10	13	17	17
2	B (mg/L)	1.15	0.17	0.28	0.11	0.06
3	Ca (mg/L)	2	3	4	4	5
4	Cl (mg/L)	9.9	13.1	8.2	9.5	12.0
5	F (mg/L)	0.05	0.07	0.17	0.22	0.12
6	Fe (mg/L)	0.1	1.3	0.7	0.0	
7	HCO3 (mg/L)	15	12	16	20	20
8	K (mg/L)	1.8	1.8	1.8	2.6	2.4
9	Mg (mg/L)	1.0	1.5	2.0	2.2	1.3
10	Na (mg/L)	6.0	6.8	4.3	5.8	6.7
11	NH3-N (mg N/L)	0.19	0.05	0.01	0.02	
12	NO2+NO3 (mg N/L)		0.28		0.90	0.24
13	NO2-N (mgN/L)		0.01		0.02	0.01
14	NO3-N (mgN/L)		0.28	1.52	0.88	0.23
15	o-PO4-P (mg P/L)	0.031	0.033		0.077	0.090
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	38.8	12.5	18.0	17.0	9.7
18	SO4 (mg/L)	1.4	1.0	2.5	2.8	0.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	1.3	1.4	1.6	1.2
2	COD (mg/L)	3.6	10.4	9.8	13.6	8.5
3	DO (mg/L)			6.6	6.6	7.3
4	DO_SAT% (%)			80	82	92
5	FCol-MPN (MPN/100mL)		1600	1600	590	1250
6	Tcol-MPN (MPN/100mL)		1600	1600	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)	6	8	10	11	12
2	HAR_Total (mgCaCO3/L)	10	14	18	20	17
3	Na% (%)	52	47	31	35	42
4	RSC (-)	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.8	0.8	0.4	0.6	0.7
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	8.288	9.730			
2	EC_FLD (µmho/cm)					
3	EC_GEN (µmho/cm)	38	49			
4	pH_FLD (pH units)					
5	pH_GEN (pH units)	7.2	6.7			
6	TDS (mg/L)					
7	Temp (deg C)	23.8	26.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	3	9			
4	Cl (mg/L)	4.0	22.6			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	17	45			
8	K (mg/L)		0.3			
9	Mg (mg/L)	1.9	5.6			
10	Na (mg/L)		13.7			
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)	1.7				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.2	0.8			
2	COD (mg/L)					
3	DO (mg/L)	6.9	7.0			
4	DO_SAT% (%)	81	87			
5	FCol-MPN (MPN/100mL)					
6	Tcol-MPN (MPN/100mL)					
	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)	8	23			
2	HAR_Total (mgCaCO3/L)	16	47			
3	Na% (%)		44			
4	RSC (-)					
5	SAR (-)		1.0			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	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-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	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)				
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: 2005-2016

Station Name : AYILAM (KV000G3)

Division : SWR Division, Kochi

Local River : Vamanapuram

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_FLD (µmho/cm)				
3	EC_GEN (µmho/cm)	74	71	72	99
4	pH_FLD (pH units)				
5	pH_GEN (pH units)	6.8	6.9	6.6	6.6
6	TDS (mg/L)	52	44		
7	Temp (deg C)	27.0	26.0	24.5	28.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	19	20		
2	B (mg/L)	0.02	0.04		
3	Ca (mg/L)	7	6	6	16
4	Cl (mg/L)	12.0	11.3	3.9	19.5
5	F (mg/L)	0.37	0.09		
6	Fe (mg/L)	0.1	0.0		
7	HCO3 (mg/L)	23	24	32	45
8	K (mg/L)	4.6	3.8		0.1
9	Mg (mg/L)	1.0	2.0	1.9	5.7
10	Na (mg/L)	6.5	6.4		11.6
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	0.63	0.15		
13	NO2-N (mgN/L)	0.05	0.05		
14	NO3-N (mgN/L)	0.58	0.10		
15	o-PO4-P (mg P/L)	0.070	0.077		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	15.2	18.9		
18	SO4 (mg/L)	1.1	1.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	1.8	2.0	1.4	
2	COD (mg/L)	14.2	14.2		
3	DO (mg/L)	4.9	6.7	6.6	7.2
4	DO_SAT% (%)	61	83	78	92
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	16	39
2	HAR_Total (mgCaCO3/L)	22	22	24	63
3	Na% (%)	34	34		29
4	RSC (-)	0.0	0.0		
5	SAR (-)	0.6	0.6		0.6
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	8.419	4.497	16.93
2	Colour_Cod (-)	Clear	Clear	Light Brown
3	EC_GEN (µmho/cm)	154	140	124
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.0	7.0	7.4
6	Temp (deg C)	26.0	26.0	24.0
	CHEMICAL			
1	Ca (mg/L)	14	3	6
2	Cl (mg/L)	27.4	23.5	29.4
3	Fe (mg/L)			
4	HCO3 (mg/L)	106	37	42
5	K (mg/L)			
6	Mg (mg/L)	8.6	1.2	1.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	35	8	16
2	HAR_Total (mgCaCO3/L)	71	13	24
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	16.73	5.166	0.000
2	Colour_Cod (-)	Light Brown	Clear	Clear
3	EC_GEN (µmho/cm)	96	152	143
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.9	7.7	7.0
6	Temp (deg C)	25.5	28.0	33.0
	CHEMICAL			
1	Ca (mg/L)	9	6	8
2	Cl (mg/L)	28.7	27.4	31.3
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	37	71	SWR SD No 1,
5	K (mg/L)	0.3	0.1	Trivandrum
6	Mg (mg/L)	2.9	3.1	2.9
7	Na (mg/L)	19.0	7.0	6.5
	BIOLOGICAL/BACTERIOLOGICAL			
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	24	16	20
2	HAR_Total (mgCaCO3/L)	35	29	31
3	Na% (%)	54	35	31
4	SAR (-)	1.4	0.6	0.5
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	162.2	0.000	13.44
2	EC_GEN (µmho/cm)	6	154	96	135
3	pH_GEN (pH units)	6	7.9	7.0	7.3
4	Temp (deg C)	6	33.0	24.0	27.1
	CHEMICAL				
1	Ca (mg/L)	6	14	3	8
2	Cl (mg/L)	6	31.3	23.5	27.9
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO ₃ (mg/L)	6	106	12	51
5	K (mg/L)	3	0.3	0.1	0.2
6	Mg (mg/L)	6	8.6	1.2	3.4
7	Na (mg/L)	3	19.0	6.5	10.8
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	6	35	8	20
2	HAR_Total (mgCaCO ₃ /L)	6	71	13	34
3	Na% (%)	3	54	31	40
4	SAR (-)	3	1.4	0.5	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	23.15				0.000
2	EC_GEN (µmho/cm)	123				
3	pH_GEN (pH units)	6.9				
4	TDS (mg/L)	81				
5	Temp (deg C)	24.0				
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	18				
2	B (mg/L)					
3	Ca (mg/L)	10				
4	Cl (mg/L)	16.0				
5	F (mg/L)	0.31				
6	Fe (mg/L)					
7	HCO3 (mg/L)	22				
8	K (mg/L)	3.4				
9	Mg (mg/L)	4.9				
10	Na (mg/L)	10.5				
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.59				
13	NO2-N (mgN/L)	0.10				
14	NO3-N (mgN/L)	0.49				
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)	0.043				
17	SiO2 (mg/L)	7.5				
18	SO4 (mg/L)	17.3				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)	3.8				
	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				
2	HAR_Total (mgCaCO3/L)	46				
3	Na% (%)	31				
4	RSC (-)	0.0				
5	SAR (-)	0.7				
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	0.000	0.000	0.000	0.000	0.000
2	EC_GEN (µmho/cm)	218		680	463	147
3	pH_GEN (pH units)	6.6		7.7	7.1	7.3
4	TDS (mg/L)	151		482	343	
5	Temp (deg C)	26.0		26.0	24.2	26.5
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	28		172	38	
2	B (mg/L)	0.55		0.36	0.08	
3	Ca (mg/L)	SWR SD No 1,		52	14	12
4	Cl (mg/L)	Trivandrum		72.0	87.1	22.8
5	F (mg/L)	0.05		0.34	1.31	
6	Fe (mg/L)	0.2		0.2	0.1	
7	HCO3 (mg/L)	34		210	47	39
8	K (mg/L)	7.5		5.5	6.4	4.7
9	Mg (mg/L)	3.4		14.8	9.8	4.6
10	Na (mg/L)	15.9		47.0	55.3	11.6
11	NH3-N (mg N/L)	0.08		0.38		
12	NO2+NO3 (mg N/L)	0.31		10.83	1.37	
13	NO2-N (mgN/L)	0.05		0.63	0.08	
14	NO3-N (mgN/L)	0.27		10.20	1.29	
15	o-PO4-P (mg P/L)	0.051		0.265	0.107	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	28.0		16.8	10.6	
18	SO4 (mg/L)	22.0		14.0	22.2	7.0
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)	13.8				
	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)	28		130	34	29
2	HAR_Total (mgCaCO3/L)	42		192	75	48
3	Na% (%)	40		34	51	34
4	RSC (-)	0.0		0.0	0.0	
5	SAR (-)	1.1		1.5	2.4	0.8
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	9.949	25.85			
2	EC_GEN (µmho/cm)	139	127			
3	pH_GEN (pH units)	7.2	6.7			
4	TDS (mg/L)		84			
5	Temp (deg C)	25.3	25.0			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		18			
2	B (mg/L)		0.01			
3	Ca (mg/L)	8	8			
4	Cl (mg/L)	26.7	20.2			
5	F (mg/L)		0.11			
6	Fe (mg/L)					
7	HCO3 (mg/L)	62	22			
8	K (mg/L)		3.6			
9	Mg (mg/L)	3.9	2.4			
10	Na (mg/L)		11.0			
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		2.61			
13	NO2-N (mgN/L)		0.98			
14	NO3-N (mgN/L)		1.63			
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)		0.204			
17	SiO2 (mg/L)		16.8			
18	SO4 (mg/L)		12.8			
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)		8.8			
	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)	36	30			
3	Na% (%)		41			
4	RSC (-)		0.0			
5	SAR (-)		0.9			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	0.000	24.43	0.000	0.000	0.000
2	EC_GEN (µmho/cm)		120	155		151
3	pH_GEN (pH units)		6.8	7.7		7.0
4	TDS (mg/L)		78	116		106
5	Temp (deg C)		26.0	25.5		26.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		29	34		30
2	B (mg/L)		0.16	0.27		0.05
3	Ca (mg/L)		7	9		9
4	Cl (mg/L)		14.0	15.6		22.9
5	F (mg/L)					0.73
6	Fe (mg/L)		0.3	1.5		
7	HCO3 (mg/L)		35	42		37
8	K (mg/L)		3.4	2.5		4.0
9	Mg (mg/L)		3.0	2.5		4.2
10	Na (mg/L)		10.6	9.3		14.4
11	NH3-N (mg N/L)		0.05	0.60		
12	NO2+NO3 (mg N/L)		0.29			1.41
13	NO2-N (mgN/L)		0.06			0.01
14	NO3-N (mgN/L)		0.23	1.30		1.41
15	o-PO4-P (mg P/L)		0.148			0.012
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)		20.4	18.0		5.6
18	SO4 (mg/L)		4.6	1.2		8.6
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)			0.8		
2	COD (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)			0.3		
2	Cd (µg/L)			0.1		
3	Cr (µg/L)			0.8		
4	Cu (µg/L)			43.7		
5	Ni (µg/L)			3.4		
6	Pb (µg/L)			0.3		
7	Zn (µg/L)			16.7		
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)		18	22		22
2	HAR_Total (mgCaCO3/L)		30	32		39
3	Na% (%)		40	36		41
4	RSC (-)		0.0	0.0		0.0
5	SAR (-)		0.8	0.7		1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	11.01	10.95			
2	EC_GEN (µmho/cm)	120	124			
3	pH_GEN (pH units)	7.5	7.8			
4	TDS (mg/L)					
5	Temp (deg C)	25.0	26.8			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	7	8			
4	Cl (mg/L)	21.6	28.0			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	34	54			
8	K (mg/L)		0.2			
9	Mg (mg/L)	3.3	3.0			
10	Na (mg/L)		13.0			
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)	3.7				
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)					
2	COD (mg/L)					
	TRACE & TOXIC					
1	As (µg/L)					
2	Cd (µg/L)	0.1				
3	Cr (µg/L)	4.1				
4	Cu (µg/L)	22.5				
5	Ni (µg/L)	6.8				
6	Pb (µg/L)	10.4				
7	Zn (µg/L)	9.8				
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	18	20			
2	HAR_Total (mgCaCO3/L)	31	32			
3	Na% (%)		44			
4	RSC (-)					
5	SAR (-)		1.0			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
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	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)				
2	COD (mg/L)				
	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: 2005-2016

Station Name : KUZHITHURAI (KF000E1)

Division : SWR Division, Kochi

Local River : Thambraparani

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_GEN (µmho/cm)	1370	114	162	143
3	pH_GEN (pH units)	7.2	7.4	6.9	7.0
4	TDS (mg/L)	1028	80		
5	Temp (deg C)	23.0	29.0	27.5	33.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	166	30		
2	B (mg/L)	1.27	0.06		
3	Ca (mg/L)	38	10	8	8
4	Cl (mg/L)	189.0	16.3	14.3	31.3
5	F (mg/L)	1.19	0.43		
6	Fe (mg/L)	0.3	0.0		
7	HCO3 (mg/L)	203	37	26	12
8	K (mg/L)	30.0	5.9		0.2
9	Mg (mg/L)	77.3	2.4	1.9	2.8
10	Na (mg/L)	103.0	10.2		6.5
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	22.80	1.54		
13	NO2-N (mgN/L)	6.00	0.09		
14	NO3-N (mgN/L)	16.80	1.45		
15	o-PO4-P (mg P/L)	0.280	0.130		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	14.5	21.4		
18	SO4 (mg/L)	96.0	2.4		
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)				
2	COD (mg/L)				
	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	20	20
2	HAR_Total (mgCaCO3/L)	418	34	27	31
3	Na% (%)	33	35		31
4	RSC (-)	0.0	0.0		
5	SAR (-)	2.2	0.8		0.5
	PESTICIDES				

HISTORY SHEET

		Water Year	: 2015-2016
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, Kochi	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 : 2015-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/06/2015	01/08/2015	01/10/2015
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	0.000	8.895
2	Colour_Cod (-)	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	38	25	330
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	6.8	7.1	8.7
6	Temp (deg C)	27.0	27.0	25.0
	CHEMICAL			
1	Ca (mg/L)	5	5	13
2	Cl (mg/L)	26.1	26.1	36.5
3	Fe (mg/L)			
4	HCO3 (mg/L)	16	34	37
5	K (mg/L)			
6	Mg (mg/L)	2.9	1.0	3.9
7	Na (mg/L)			
	BIOLOGICAL/BACTERIOLOGICAL			
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	12	12	31
2	HAR_Total (mgCaCO3/L)	24	16	47
3	Na% (%)			
4	SAR (-)			
	PESTICIDES			

Water Quality Datasheet for the period : 2015-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water Analysis

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	01/12/2015	01/02/2016	01/04/2016
		A	A	A
	PHYSICAL			
1	Q (cumec)	0.000	0.000	0.000
2	Colour_Cod (-)	Brown	Clear	Clear
3	EC_GEN (µmho/cm)	44	337	36
4	Odour_Code (-)	odour free	odour free	odour free
5	pH_GEN (pH units)	7.3	7.5	6.2
6	Temp (deg C)	25.0	26.0	27.0
	CHEMICAL			
1	Ca (mg/L)	16	9	6
2	Cl (mg/L)	39.1	39.1	36.5
3	Fe (mg/L)		0.0	
4	HCO3 (mg/L)	53	42	SWR SD No 1,
5	K (mg/L)	0.6	0.1	Trivandrum
6	Mg (mg/L)	5.7	3.8	2.9
7	Na (mg/L)	14.8	6.4	5.9
	BIOLOGICAL/BACTERIOLOGICAL			
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	39	24	16
2	HAR_Total (mgCaCO3/L)	63	39	28
3	Na% (%)	34	26	32
4	SAR (-)	0.8	0.4	0.5
	PESTICIDES			

Water Quality Summary for the period : 2015-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water Summary

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	103.7	0.000	4.648
2	EC_GEN (µmho/cm)	6	337	25	135
3	pH_GEN (pH units)	6	8.7	6.2	7.3
4	Temp (deg C)	6	27.0	25.0	26.2
	CHEMICAL				
1	Ca (mg/L)	6	16	5	9
2	Cl (mg/L)	6	39.1	26.1	33.9
3	Fe (mg/L)	1	0.0	0.0	0
4	HCO3 (mg/L)	6	53	16	33
5	K (mg/L)	3	0.6	0.1	0.3
6	Mg (mg/L)	6	5.7	1.0	3.3
7	Na (mg/L)	3	14.8	5.9	9
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	39	12	22
2	HAR_Total (mgCaCO3/L)	6	63	16	36
3	Na% (%)	3	34	26	31
4	SAR (-)	3	0.8	0.4	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2005	2006	2007	2008	2009
	PHYSICAL					
1	Q (cumec)	12.73				0.000
2	EC_GEN (µmho/cm)	263				
3	pH_GEN (pH units)	7.3				
4	TDS (mg/L)	183				
5	Temp (deg C)	28.7				
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	73				
2	B (mg/L)	0.20				
3	Ca (mg/L)	21				
4	Cl (mg/L)	26.6				
5	F (mg/L)	0.37				
6	Fe (mg/L)					
7	HCO3 (mg/L)	89				
8	K (mg/L)	5.9				
9	Mg (mg/L)	7.0				
10	Na (mg/L)	18.8				
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)	0.63				
13	NO2-N (mgN/L)	0.21				
14	NO3-N (mgN/L)	0.43				
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)	0.291				
17	SiO2 (mg/L)	9.5				
18	SO4 (mg/L)	16.8				
	BIOLOGICAL/BACTERIOLOGICAL					
1	COD (mg/L)	8.6				
2	DO (mg/L)	7.3				
3	DO_SAT% (%)	94				
	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)	53				
2	HAR_Total (mgCaCO3/L)	82				
3	Na% (%)	32				
4	RSC (-)	0.1				
5	SAR (-)	0.9				
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood				
		Jun - Oct				
		2010	2011	2012	2013	2014
	PHYSICAL					
1	Q (cumec)	1.384	0.826	0.000	0.000	0.000
2	EC_GEN (µmho/cm)	190	194	635	416	423
3	pH_GEN (pH units)	6.9	7.0	7.8	7.0	7.3
4	TDS (mg/L)	124	149	425	309	
5	Temp (deg C)	25.5	26.0	25.0	26.8	26.3
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)	24	54	166	127	
2	B (mg/L)	0.20	0.18	0.26	0.11	
3	Ca (mg/L)	SWR SD No	15	48	33	32
4	Cl (mg/L)	Trivandrum	23.9	70.3	52.1	51.2
5	F (mg/L)		0.08	0.25	2.95	
6	Fe (mg/L)	0.3	0.1	0.2	0.1	
7	HCO3 (mg/L)	29	66	203	154	152
8	K (mg/L)	5.3	3.4	5.0	6.8	7.5
9	Mg (mg/L)	4.4	4.8	13.6	9.3	19.3
10	Na (mg/L)	9.8	15.2	46.0	37.7	29.4
11	NH3-N (mg N/L)	0.06	0.19	0.32		
12	NO2+NO3 (mg N/L)	0.23	0.28	8.31	0.63	
13	NO2-N (mgN/L)	0.01	0.08	0.71	0.12	
14	NO3-N (mgN/L)	0.22	0.20	7.60	0.51	
15	o-PO4-P (mg P/L)	0.012	0.070	0.161	0.120	
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)	23.0	13.8	15.6	14.0	
18	SO4 (mg/L)	16.4	1.5	12.0	12.9	19.9
	BIOLOGICAL/BACTERIOLOGICAL					
1	COD (mg/L)	12.4				
2	DO (mg/L)					
3	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)	22	38	120	83	79
2	HAR_Total (mgCaCO3/L)	40	57	177	122	159
3	Na% (%)	31	35	35	38	29
4	RSC (-)	0.0	0.0	0.0	0.2	
5	SAR (-)	0.7	0.9	1.5	1.5	1.0
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Flood	Winter			
		Jun - Oct	Nov - Feb			
		2015	2005-2006	2006-2007	2007-2008	2008-2009
	PHYSICAL					
1	Q (cumec)	2.965	11.83			
2	EC_GEN (µmho/cm)	131	163			
3	pH_GEN (pH units)	7.5	7.1			
4	TDS (mg/L)		117			
5	Temp (deg C)	26.3	26.3			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		38			
2	B (mg/L)		0.02			
3	Ca (mg/L)	7	13			
4	Cl (mg/L)	29.5	20.4			
5	F (mg/L)		0.10			
6	Fe (mg/L)					
7	HCO3 (mg/L)	29	47			
8	K (mg/L)		3.0			
9	Mg (mg/L)	2.5	4.0			
10	Na (mg/L)		12.8			
11	NH3-N (mg N/L)					
12	NO2+NO3 (mg N/L)		1.44			
13	NO2-N (mgN/L)		0.32			
14	NO3-N (mgN/L)		1.12			
15	o-PO4-P (mg P/L)					
16	P-Tot (mgP/L)		0.420			
17	SiO2 (mg/L)		16.1			
18	SO4 (mg/L)		3.8			
	BIOLOGICAL/BACTERIOLOGICAL					
1	COD (mg/L)		9.0			
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)	18	32			
2	HAR_Total (mgCaCO3/L)	29	49			
3	Na% (%)		35			
4	RSC (-)		0.0			
5	SAR (-)		0.8			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter				
		Nov - Feb				
		2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	PHYSICAL					
1	Q (cumec)	0.000	15.06	19.18	0.000	0.000
2	EC_GEN (µmho/cm)		188	202		401
3	pH_GEN (pH units)		7.0	6.8		7.1
4	TDS (mg/L)		131	151		300
5	Temp (deg C)		26.5	24.0		25.8
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)		52	61		128
2	B (mg/L)		0.18	0.48		0.07
3	Ca (mg/L)		14	17		32
4	Cl (mg/L)		24.1	26.3		41.7
5	F (mg/L)		0.23	2.05		1.48
6	Fe (mg/L)		0.1	0.3		
7	HCO3 (mg/L)		63	74		156
8	K (mg/L)		4.6	4.8		6.0
9	Mg (mg/L)		4.9	5.4		10.2
10	Na (mg/L)		16.5	18.0		28.5
11	NH3-N (mg N/L)		0.06			
12	NO2+NO3 (mg N/L)		0.16			2.07
13	NO2-N (mgN/L)		0.06			0.03
14	NO3-N (mgN/L)		0.10	3.75		2.04
15	o-PO4-P (mg P/L)		0.213	0.220		0.010
16	P-Tot (mgP/L)					
17	SiO2 (mg/L)		18.8	7.0		5.0
18	SO4 (mg/L)		2.8	2.0		10.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	COD (mg/L)					
2	DO (mg/L)					7.0
3	DO_SAT% (%)					85
	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	42		81
2	HAR_Total (mgCaCO3/L)		56	65		123
3	Na% (%)		37	36		32
4	RSC (-)		0.0	0.0		0.1
5	SAR (-)		1.0	1.0		1.1
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Winter		Summer		
		Nov - Feb		Mar - May		
		2014-2015	2015-2016	2006	2007	2008
	PHYSICAL					
1	Q (cumec)	16.92	0.000			
2	EC_GEN (µmho/cm)	189	190			
3	pH_GEN (pH units)	7.3	7.4			
4	TDS (mg/L)					
5	Temp (deg C)	25.5	25.5			
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)					
2	B (mg/L)					
3	Ca (mg/L)	13	13			
4	Cl (mg/L)	26.7	39.1			
5	F (mg/L)					
6	Fe (mg/L)	0.0	0.0			
7	HCO3 (mg/L)	70	48			
8	K (mg/L)		0.3			
9	Mg (mg/L)	8.5	4.7			
10	Na (mg/L)		10.6			
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)	6.7				
	BIOLOGICAL/BACTERIOLOGICAL					
1	COD (mg/L)					
2	DO (mg/L)					
3	DO_SAT% (%)					
	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)	31	31			
2	HAR_Total (mgCaCO3/L)	67	51			
3	Na% (%)		30			
4	RSC (-)					
5	SAR (-)		0.6			
	PESTICIDES					

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2009	2010	2011	2012
	PHYSICAL				
1	Q (cumec)		0.000	0.000	0.000
2	EC_GEN (µmho/cm)				404
3	pH_GEN (pH units)				6.8
4	TDS (mg/L)				311
5	Temp (deg C)				24.5
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)				96
2	B (mg/L)				0.45
3	Ca (mg/L)				30
4	Cl (mg/L)				44.0
5	F (mg/L)				0.21
6	Fe (mg/L)				0.1
7	HCO3 (mg/L)				117
8	K (mg/L)				11.0
9	Mg (mg/L)				6.9
10	Na (mg/L)				28.0
11	NH3-N (mg N/L)				0.15
12	NO2+NO3 (mg N/L)				4.69
13	NO2-N (mgN/L)				0.14
14	NO3-N (mgN/L)				4.55
15	o-PO4-P (mg P/L)				0.750
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)				14.0
18	SO4 (mg/L)				6.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	COD (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)				74
2	HAR_Total (mgCaCO3/L)				103
3	Na% (%)				34
4	RSC (-)				0.0
5	SAR (-)				1.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2005-2016

Station Name : ASHRAMAM (KE000G2)

Division : SWR Division, Kochi

Local River : Pazhayar

River Water

Sub-Division : SWR SD No 1, Trivandrum

S.No	Parameters	Summer			
		Mar - May			
		2013	2014	2015	2016
	PHYSICAL				
1	Q (cumec)	0.000	0.000	0.000	0.000
2	EC_GEN (µmho/cm)	495	565	522	36
3	pH_GEN (pH units)	7.3	7.0	7.3	6.2
4	TDS (mg/L)	347	450		
5	Temp (deg C)	25.0	28.0	26.0	27.0
	CHEMICAL				
1	ALK-TOT (mgCaCO3/L)	132	77		
2	B (mg/L)	0.64	0.15		
3	Ca (mg/L)	40	40	5	6
4	Cl (mg/L)	48.0	76.0	26.6	36.5
5	F (mg/L)	2.40	0.68		
6	Fe (mg/L)	0.2	0.1		
7	HCO3 (mg/L)	161	94	34	16
8	K (mg/L)	9.1	14.0		0.2
9	Mg (mg/L)	5.4	19.2	1.9	2.8
10	Na (mg/L)	37.2	42.0		5.9
11	NH3-N (mg N/L)				
12	NO2+NO3 (mg N/L)	7.46	10.54		
13	NO2-N (mgN/L)	0.26	0.14		
14	NO3-N (mgN/L)	7.20	10.40		
15	o-PO4-P (mg P/L)	0.160	0.100		
16	P-Tot (mgP/L)				
17	SiO2 (mg/L)	19.0	18.9		
18	SO4 (mg/L)	1.2	38.0		
	BIOLOGICAL/BACTERIOLOGICAL				
1	COD (mg/L)				
2	DO (mg/L)				
3	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)	101	100	12	16
2	HAR_Total (mgCaCO3/L)	124	180	20	28
3	Na% (%)	38	32		32
4	RSC (-)	0.2	0.0		
5	SAR (-)	1.5	1.4		0.5
	PESTICIDES				

(केवल कार्यालय उपयोग हेतु)
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वार्षिक जल पुस्तिका
जल गुणवत्ता परिदृश्य
WATER YEAR BOOK
WATER QUALITY SCENARIO

जून 2015 – मई 2016
JUNE 2015 – MAY 2016

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 ORGANIZATION, COIMBATORE

मई – 2017
MAY – 2017

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. AGHANASHINI RIVER BASIN

The river Aghanashini 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**. 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 River originates from Karuvarakkundu village in the Calicut District of Kerala State. It drains a total area of 1112 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 **Kallooppaara**.

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 1484 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 68 Sq.Kms and the length is 88 Kms. The only water quality station on this river is at **Ayilam**.

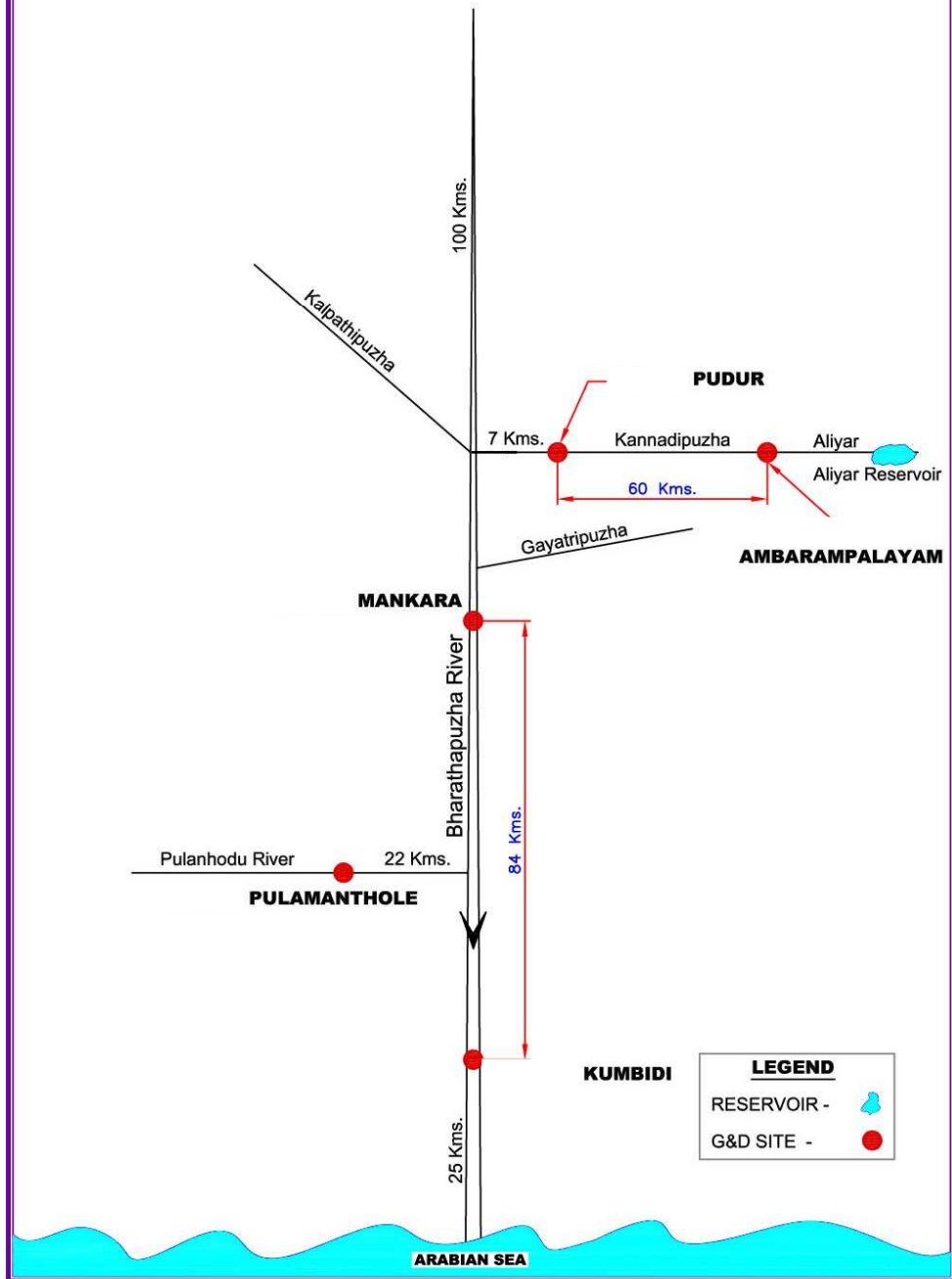
2.23. TAMBRAPARANI RIVER BASIN

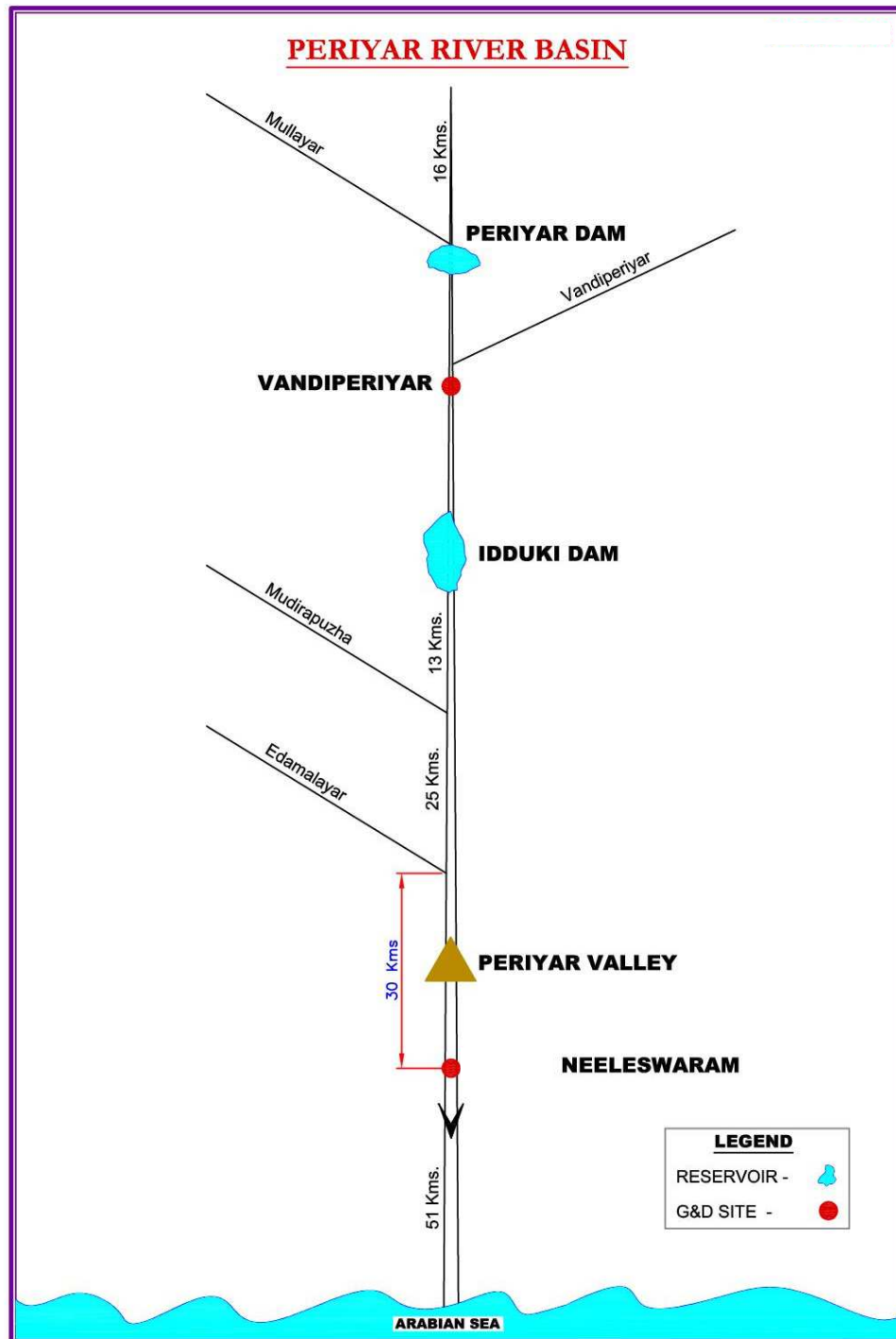
The river Tambraparani originates from the Kanyakumari district of Tamil Nadu. The total length of the river is 55 km. The total drainage area of the river is 906 Sq. km. The only Water Quality station on this river is at **Kuzhithurai**. Water Quality Monitoring of this basin started with effect from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

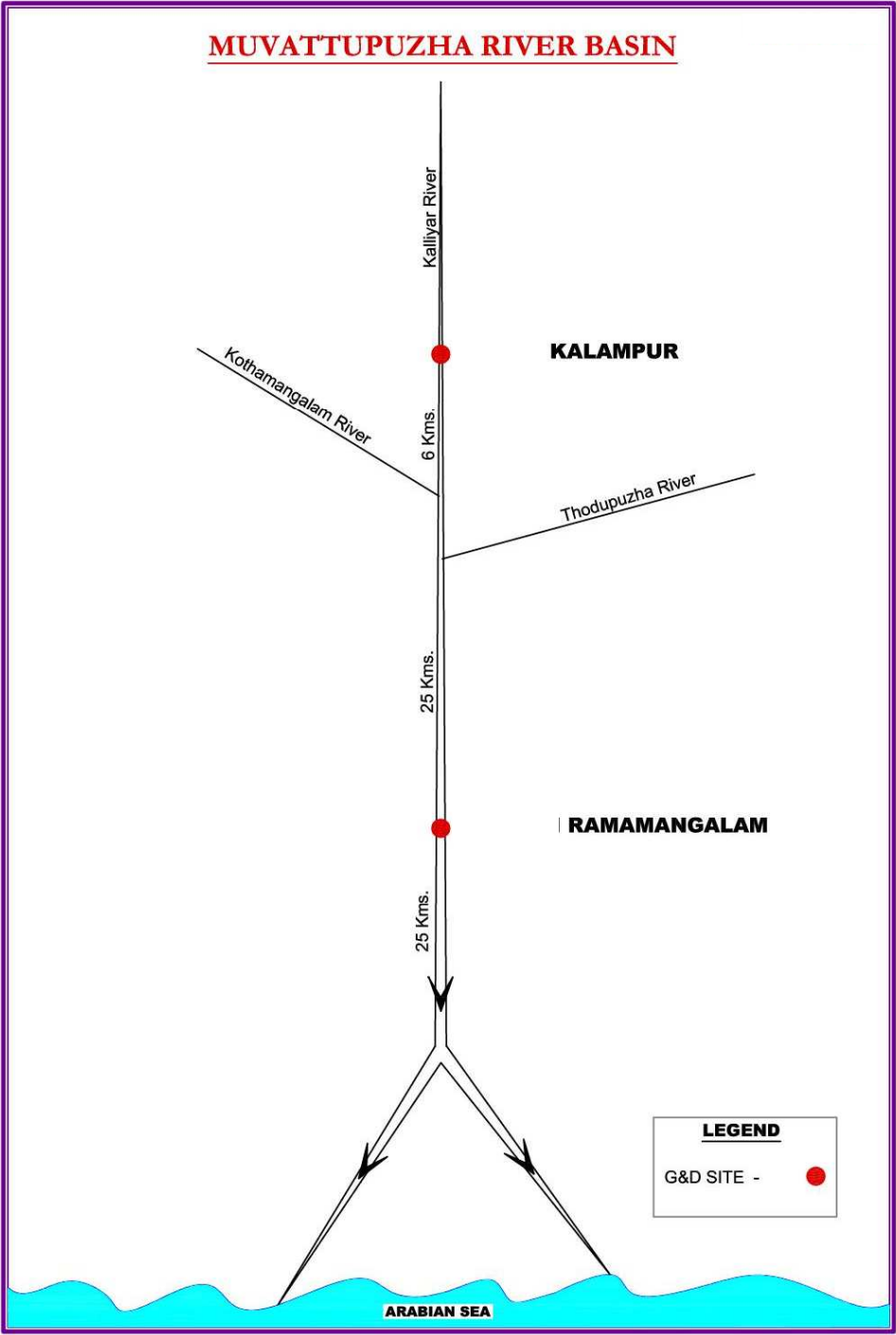
2.24. PAZHAYAR RIVER BASIN

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 397 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.

BHARATHAPUZHA RIVER BASIN







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 and 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. 2005 – 2006 to 2014 – 2015 and One year (2015 – 2016) 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	2005-06 to 2014-15	2015 - 2016
	Kumbidi	1980 - 1981	2005-06 to 2014-15	2015 - 2016
Aliyar & Kannadipuzha	Ambarampalayam	1979 - 1980	2005-06 to 2014-15	2015 – 2016
	Pudur	1986 - 1987	2005-06 to 2014-15	2015 - 2016
Periyar	Vandiperiyar	2002 - 2003	2005-06 to 2014-15	2015 - 2016
	Neeleswaram	1980 - 1981	2005-06 to 2014-15	2015 - 2016
Muvattupuzha	Kalampur	1988 - 1989	2005-06 to 2014-15	2015 - 2016
	Ramamangalam	1980 - 1981	2005-06 to 2014-15	2015 - 2016

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	480	462	385	170	173	29	299	299	217
Kumbidi	215	211	309	79	89	24	138	140	120

Figure - 1.1

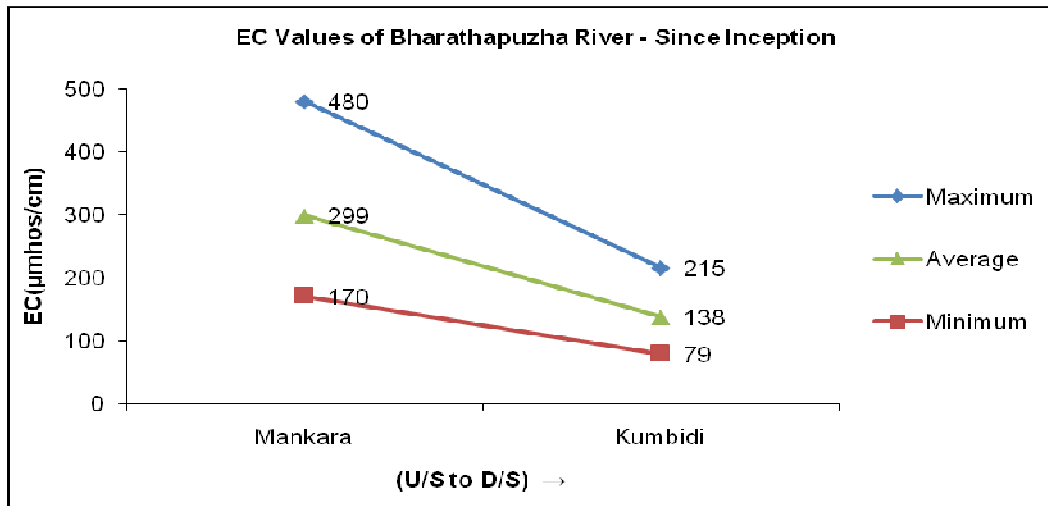


Figure - 1.2

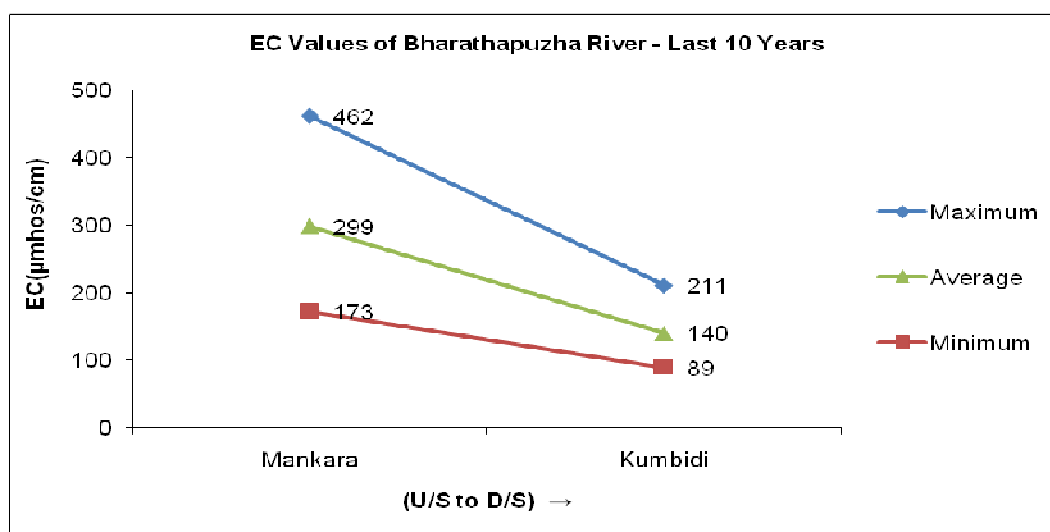
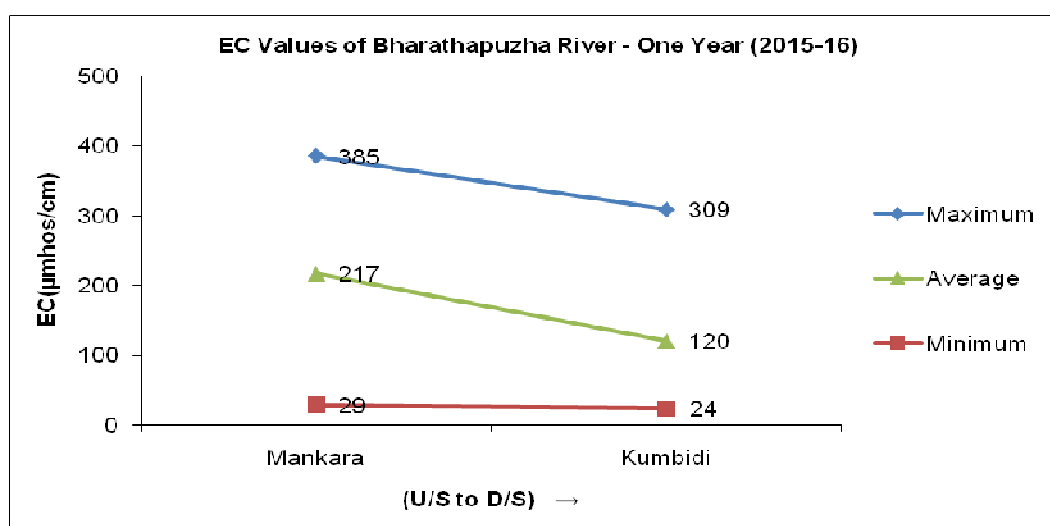


Figure - 1.3



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	8.0	7.5	7.2	7.1	6.2	7.7	7.5	7.0
Kumbidi	7.8	7.6	7.1	6.9	6.8	6.0	7.3	7.2	6.5

Figure - 2.1

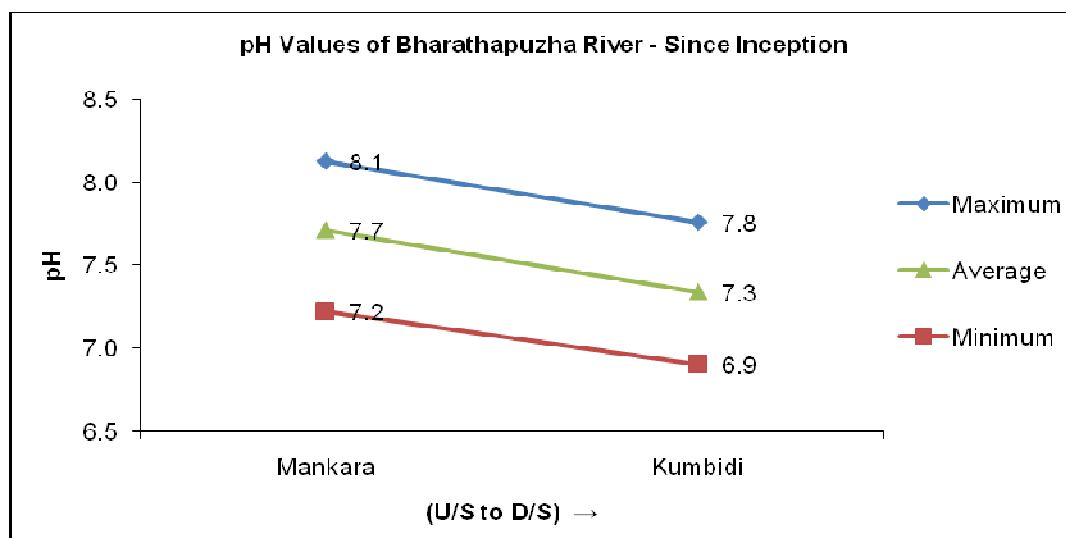


Figure - 2.2

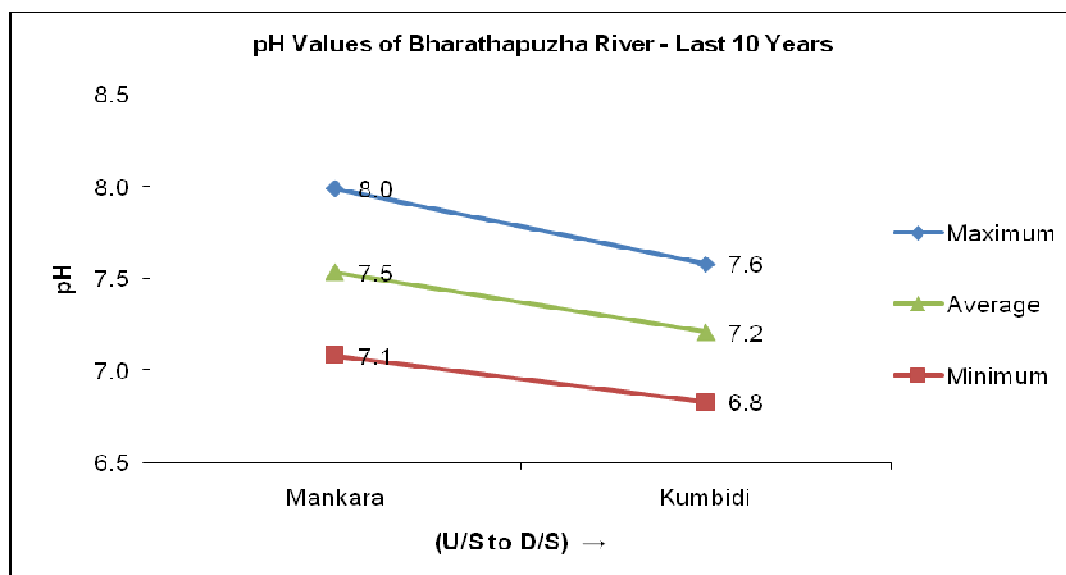
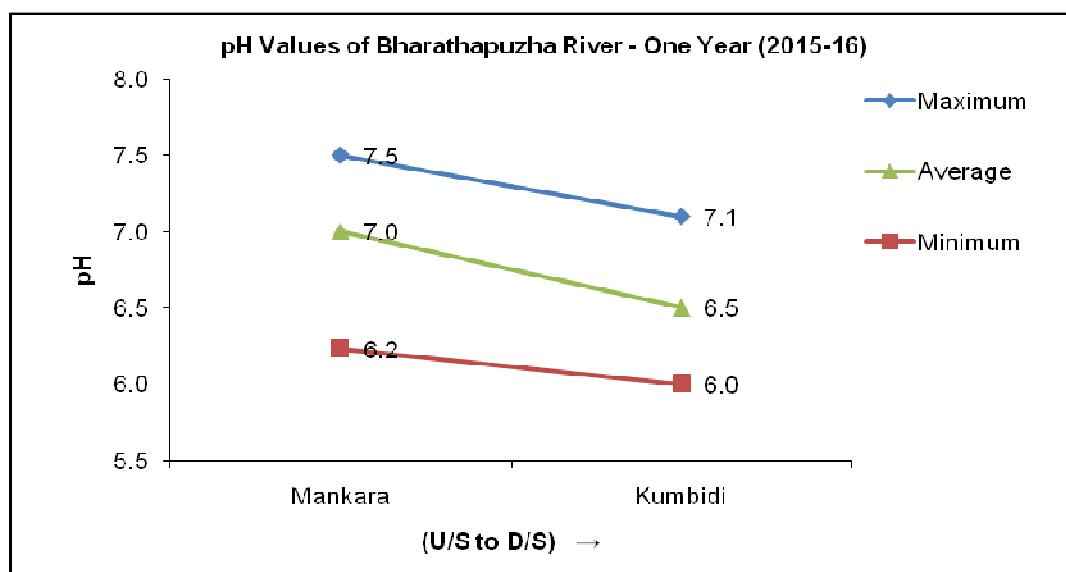


Figure - 2.3



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.

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	1.36	1.66	NA	0.22	0.19	NA	0.64	0.73	NA
Kumbidi	0.71	0.82	NA	0.09	0.09	NA	0.32	0.36	NA

Figure - 3.1

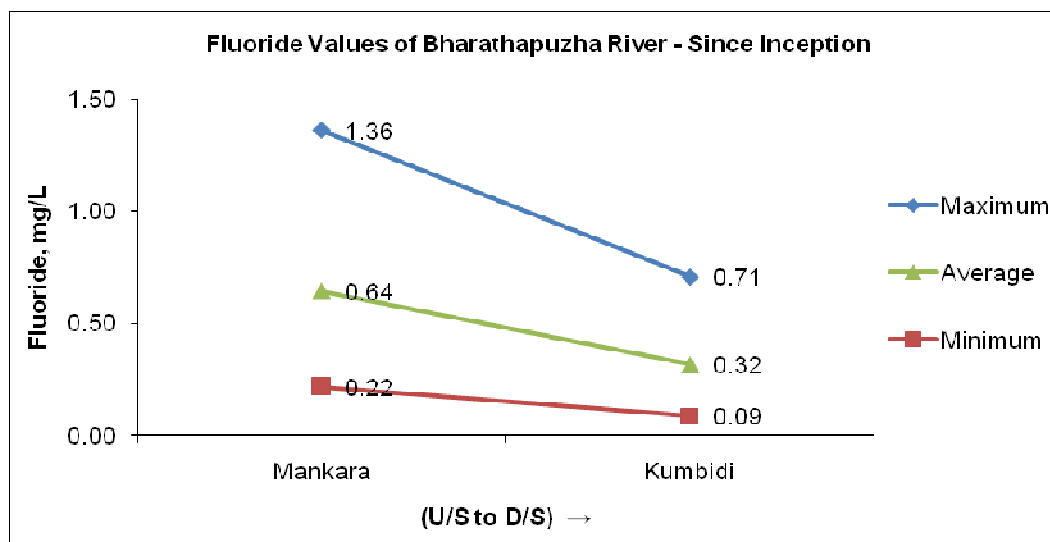
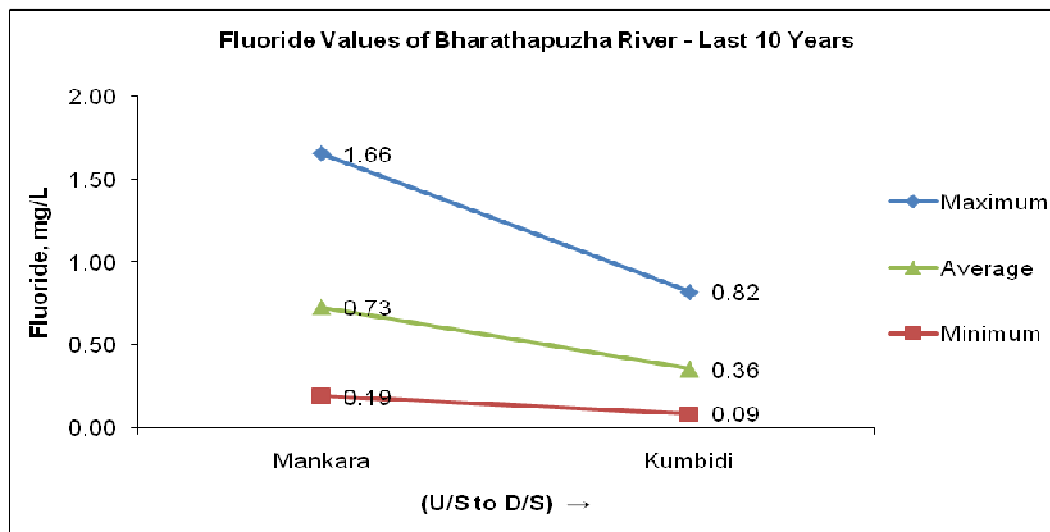


Figure - 3.2



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	1.4	0.9	0.9	0.6	1.1	1.2	0.9
Kumbidi	1.5	1.5	2.2	0.3	0.3	0.2	0.8	0.8	0.9

Figure - 4.1

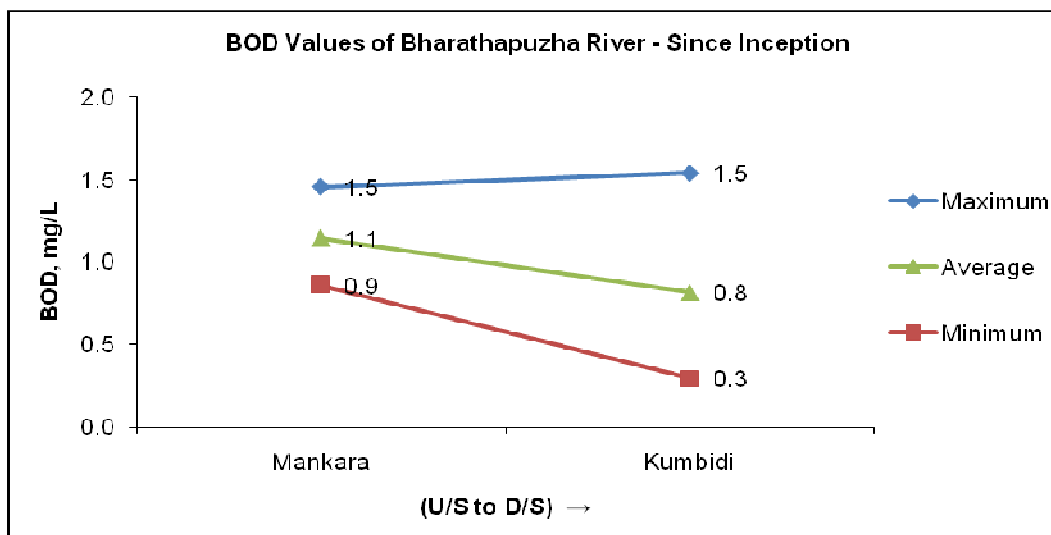


Figure - 4.2

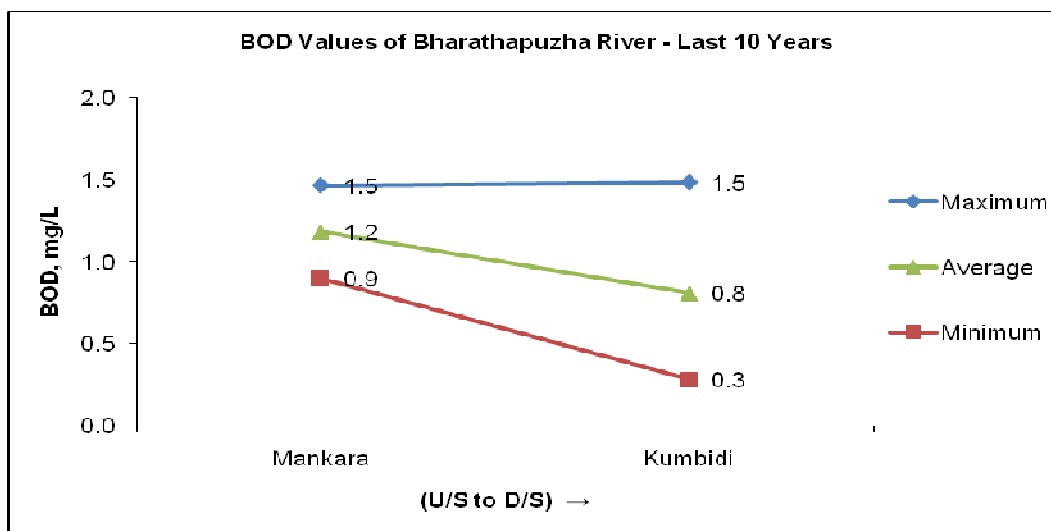
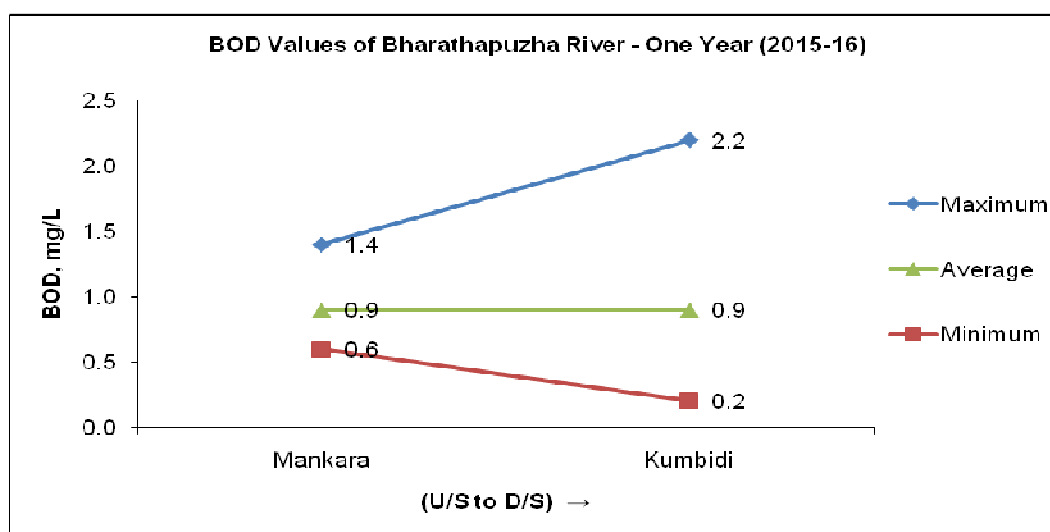


Figure - 4.3



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	7.0	6.0	7.2	4.7	4.1	5.8	6.1	5.2	6.4
Kumbidi	7.8	7.7	7.2	6.0	6.1	5.8	7.0	7.1	6.4

Figure - 5.1

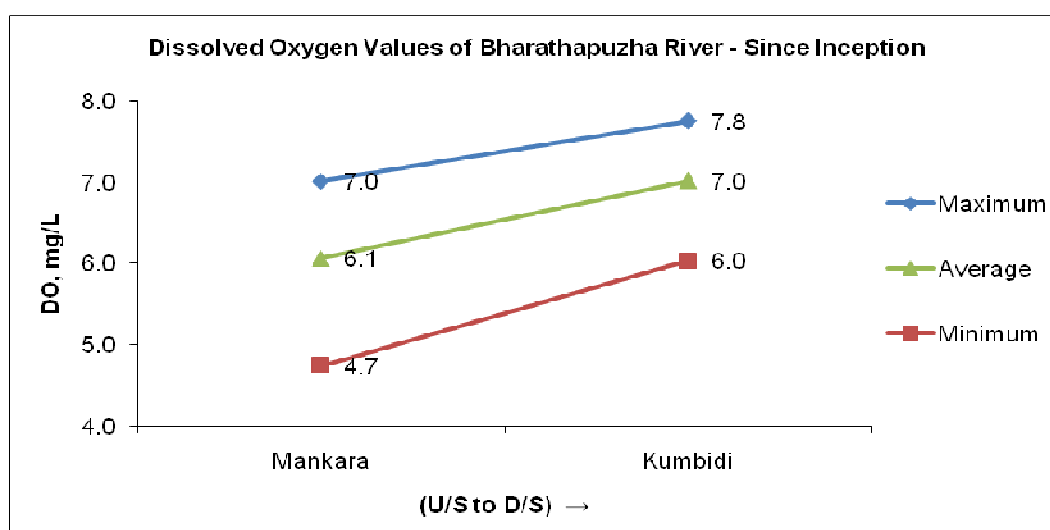


Figure - 5.2

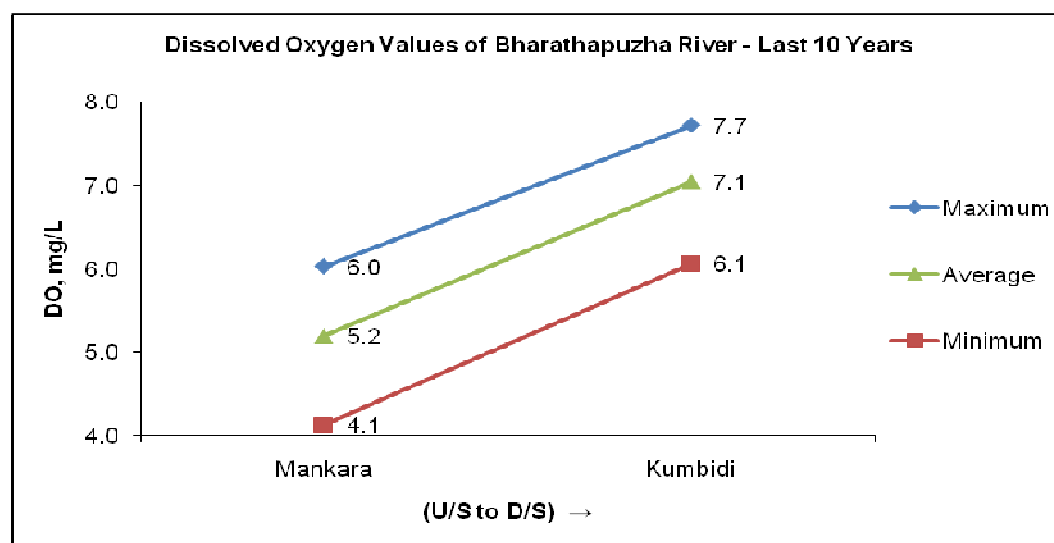
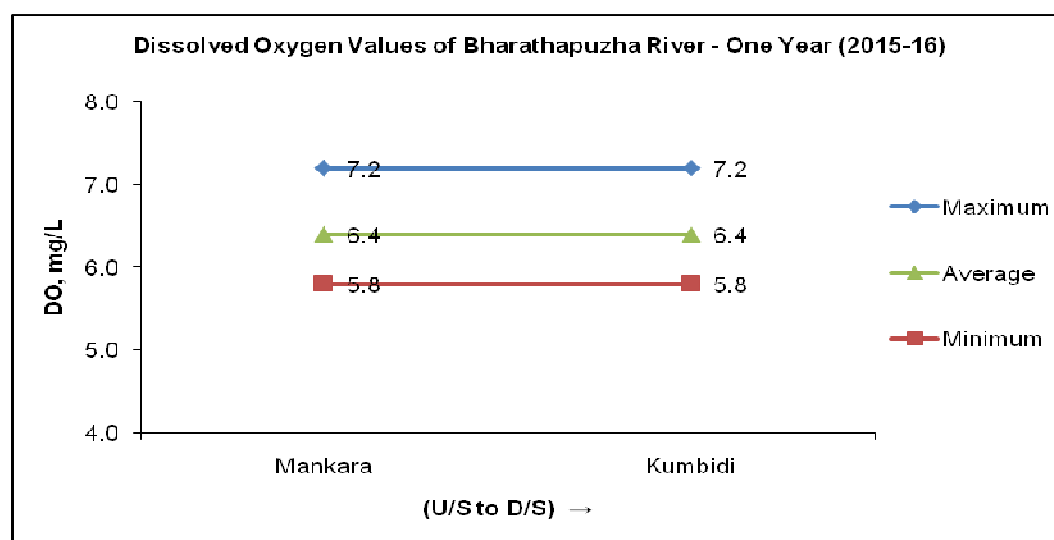


Figure - 5.3



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) ($\mu\text{mhos/cm}$)

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	560	413	428	127	101	119	273	226	225
Pudur	514	497	432	280	282	24	385	370	171

Figure - 6.1

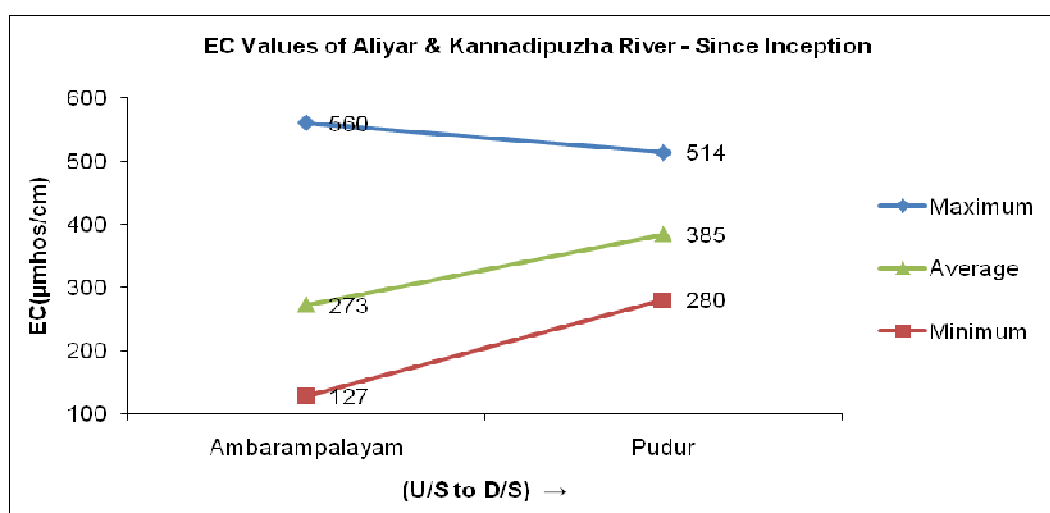


Figure - 6.2

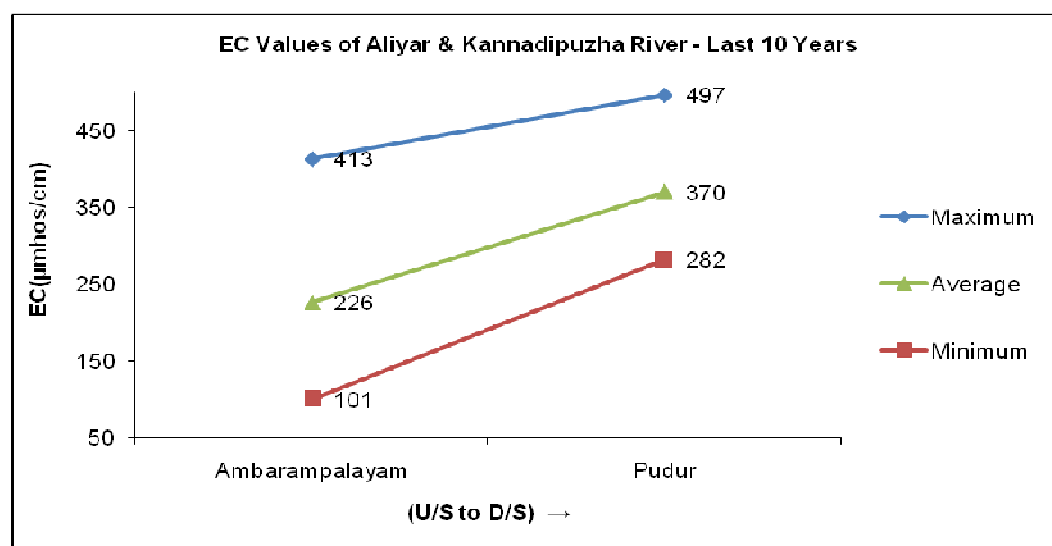
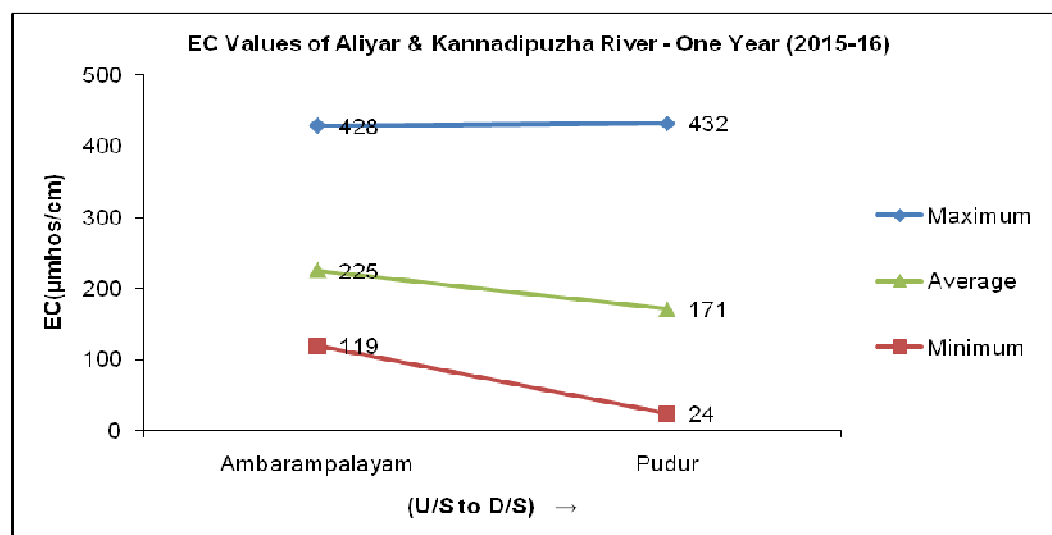


Figure - 6.3



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	8.1	7.2	7.4	7.4	7.7	7.8	7.8
Pudur	8.2	8.0	8.0	7.5	7.4	6.0	7.8	7.7	7.0

Figure - 7.1

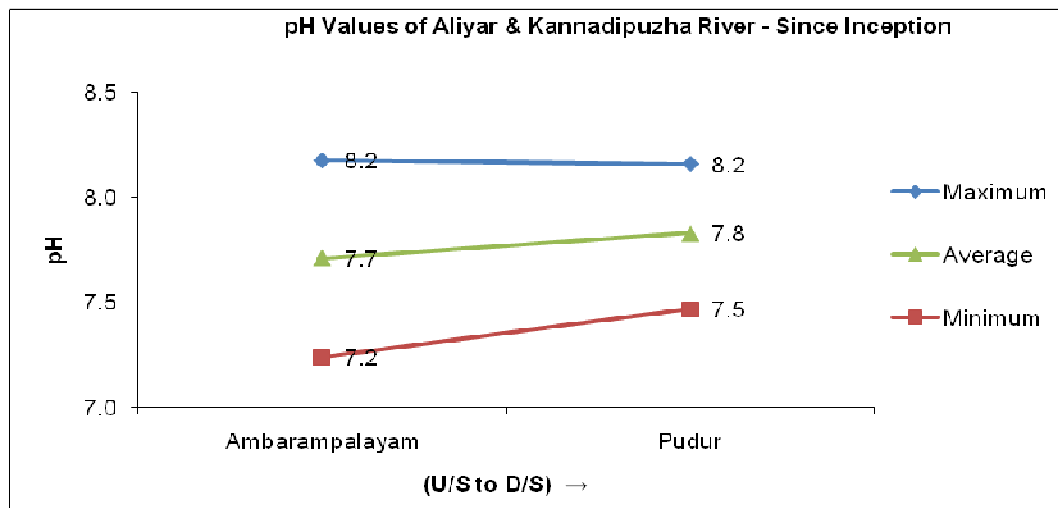


Figure - 7.2

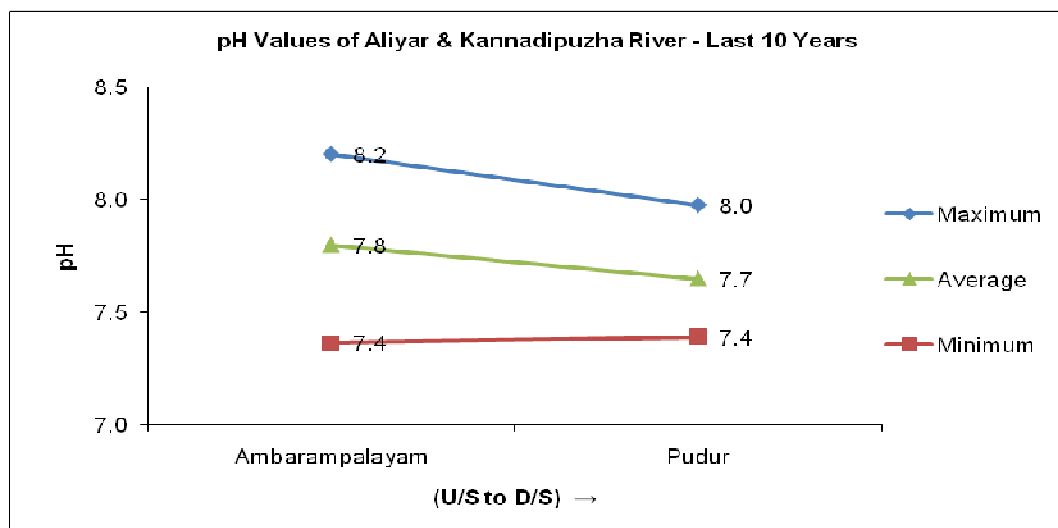
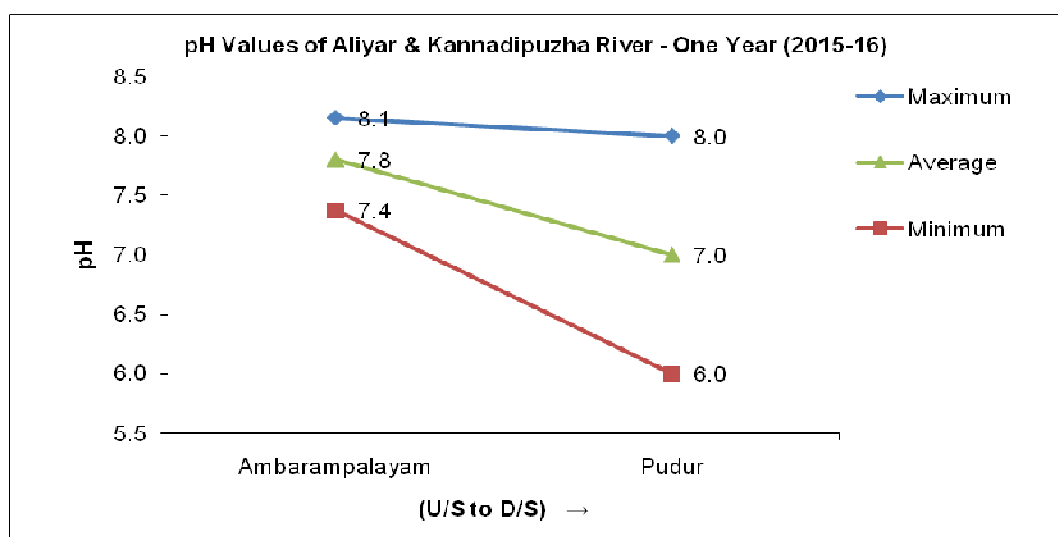


Figure - 7.3



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.

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	0.99	0.79	0.74	0.19	0.19	0.09	0.48	0.41	0.34
Pudur	1.77	2.21	NA	0.31	0.25	NA	0.82	0.92	NA

Figure - 8.1

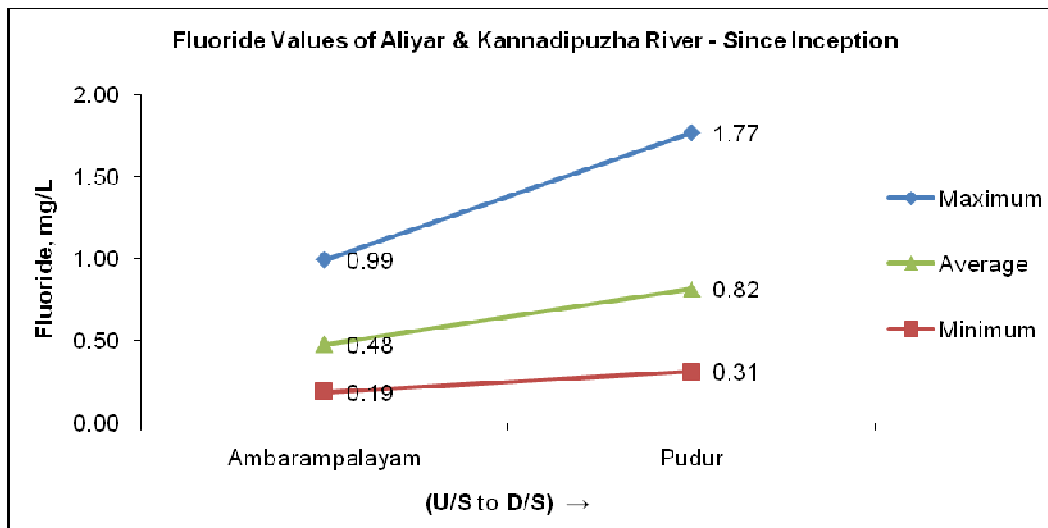
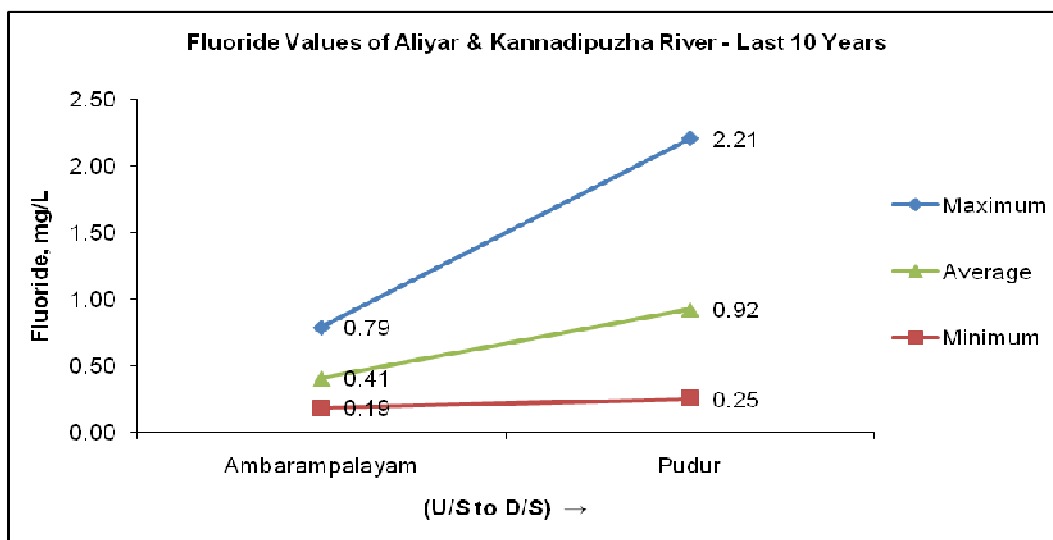


Figure - 8.2



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	1.8	0.6	0.5	0.6	1.2	1.2	1.0
Pudur	2.2	2.5	1.2	1.0	1.2	0.1	1.5	1.7	0.6

Figure - 9.1

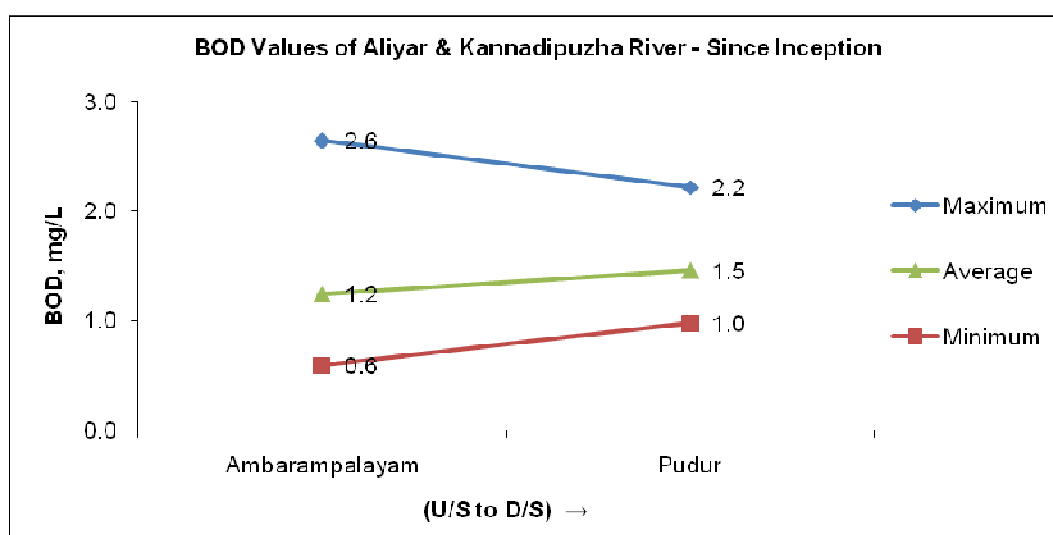


Figure - 9.2

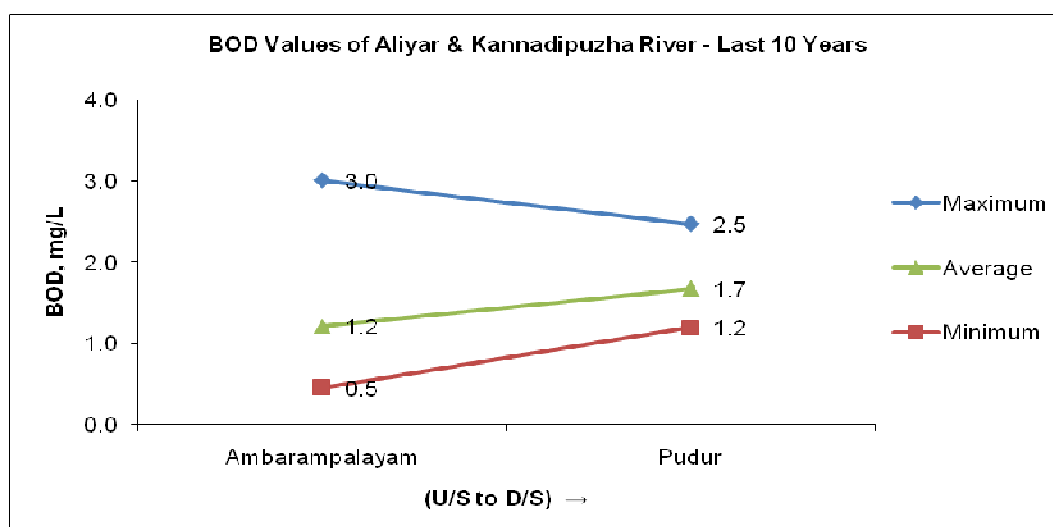
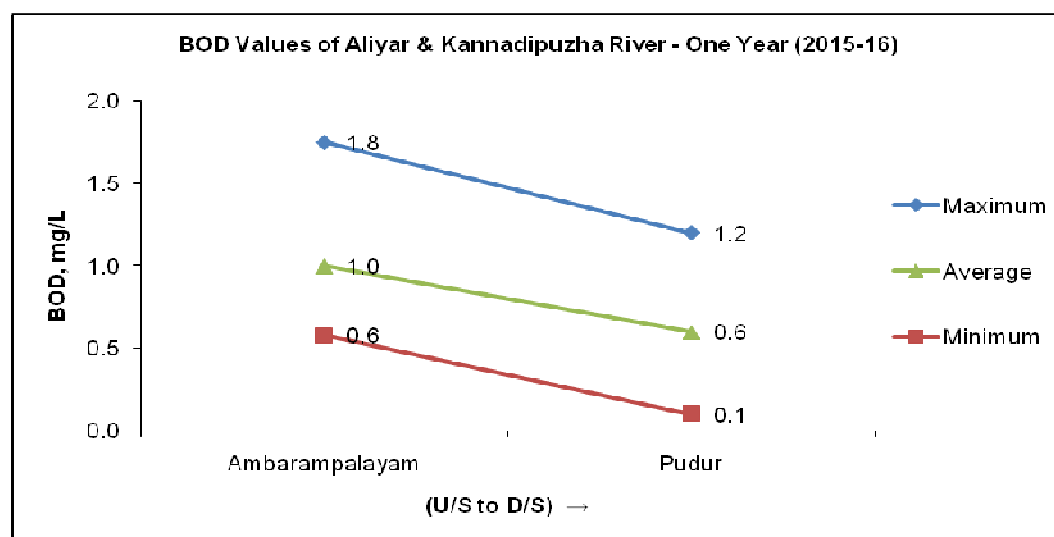


Figure - 9.3



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	7.8	7.5	6.2	6.1	6.1	7.0	6.8	6.5
Pudur	7.2	5.8	7.2	5.1	3.9	5.8	6.2	5.0	6.5

Figure - 10.1

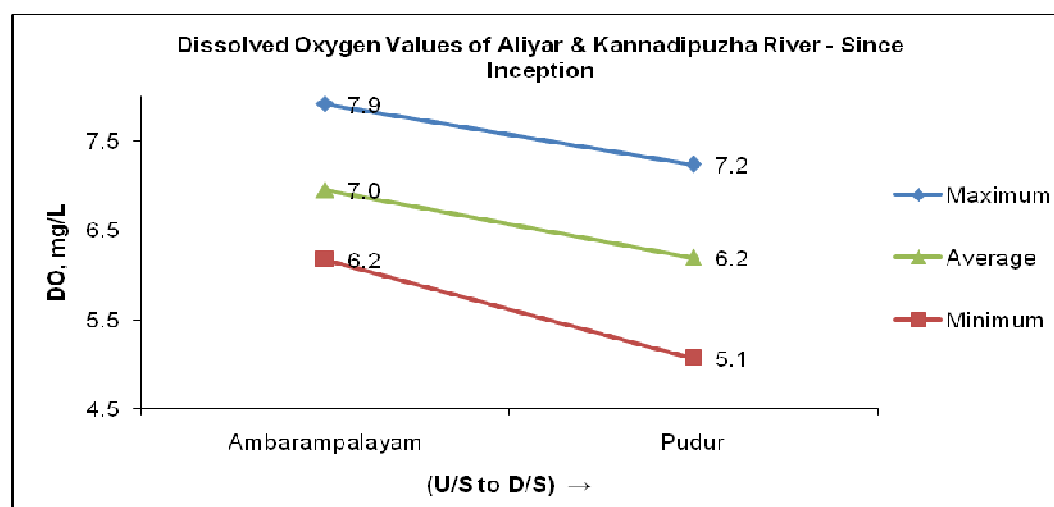


Figure - 10.2

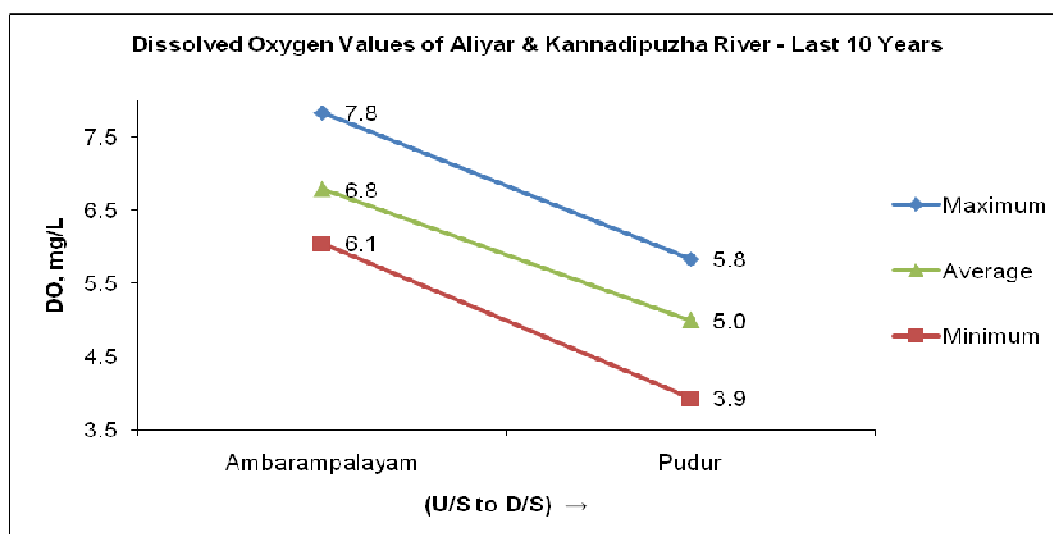
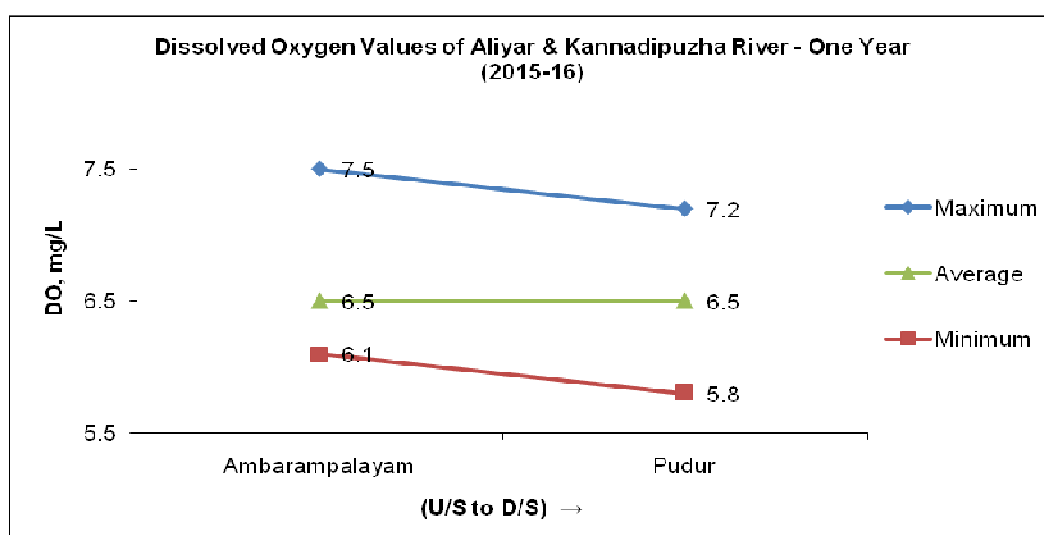


Figure - 10.3



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	128	122	200	50	50	37	81	77	116
Neeleswaram	74	51	70	33	34	23	45	42	42

Figure - 11.1

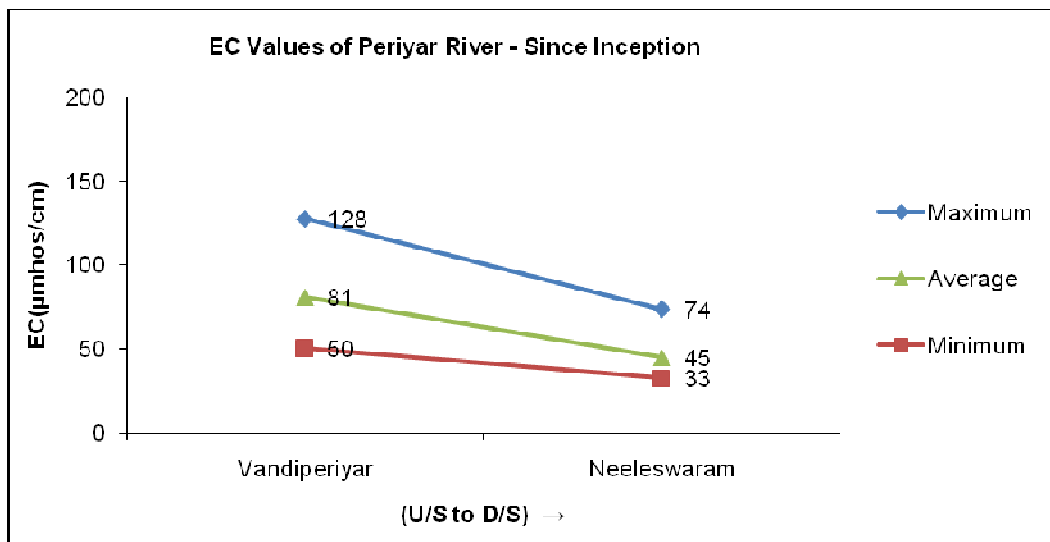


Figure - 11.2

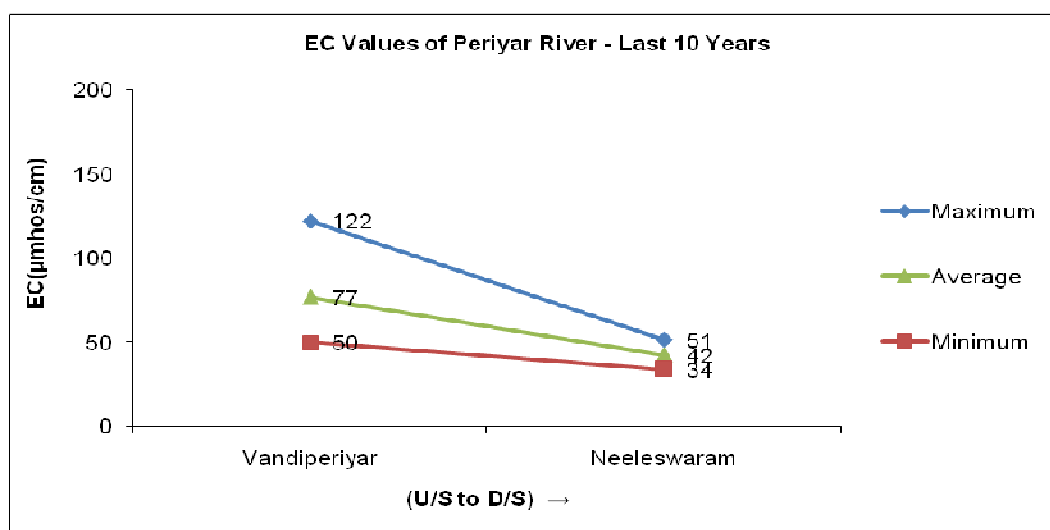
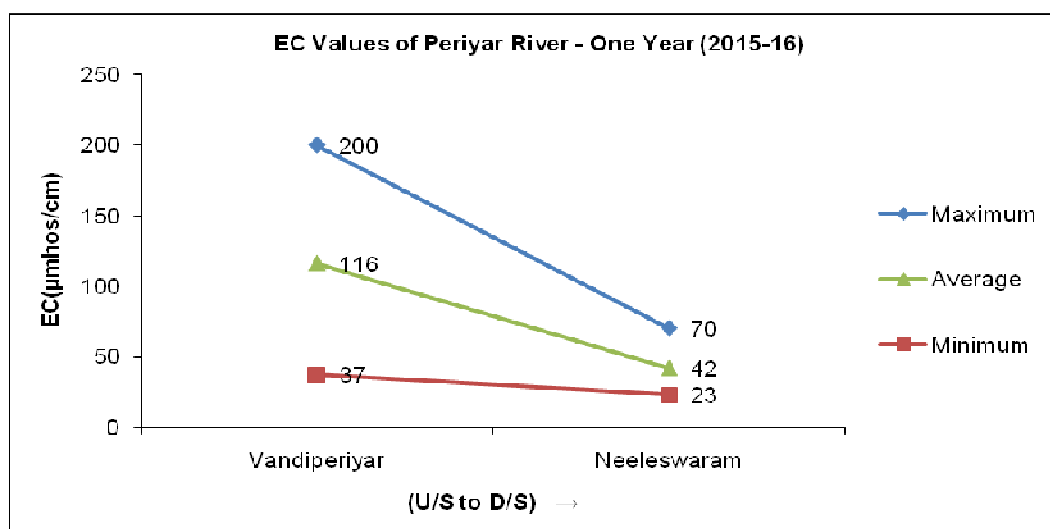


Figure - 11.3



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	7.1	7.9	6.5	6.5	6.4	6.9	6.8	7.3
Neeleswaram	7.6	7.2	7.9	6.5	6.3	6.2	7.1	6.8	7.0

Figure - 12.1

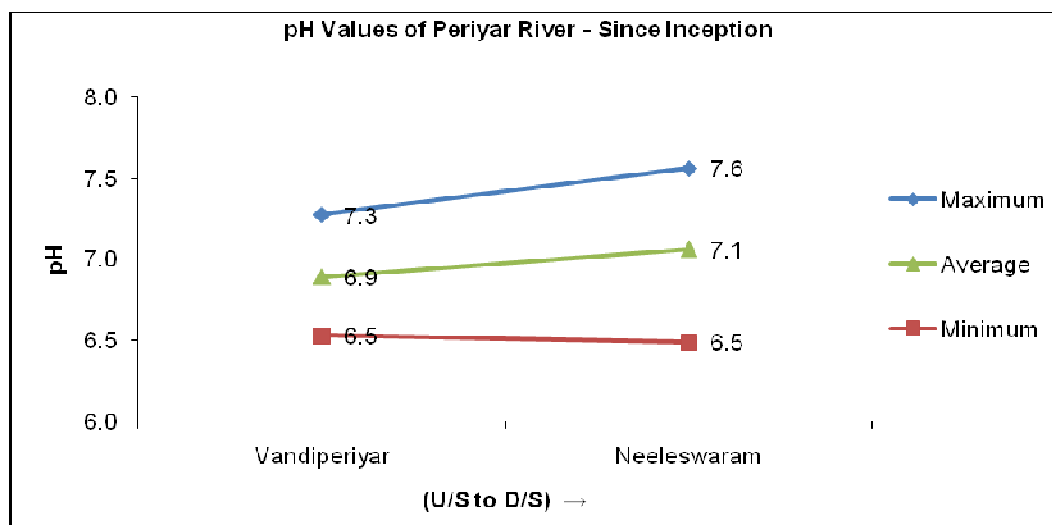


Figure - 12.2

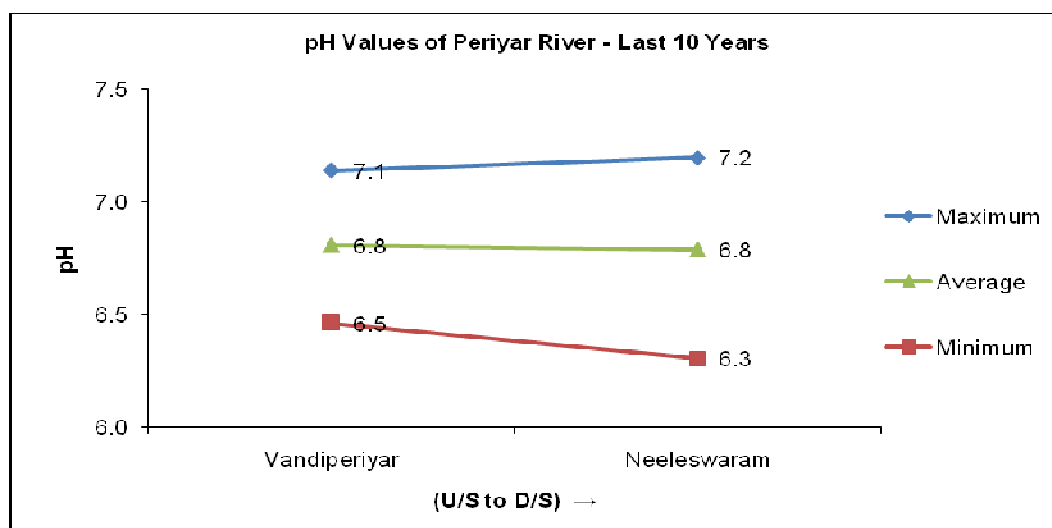
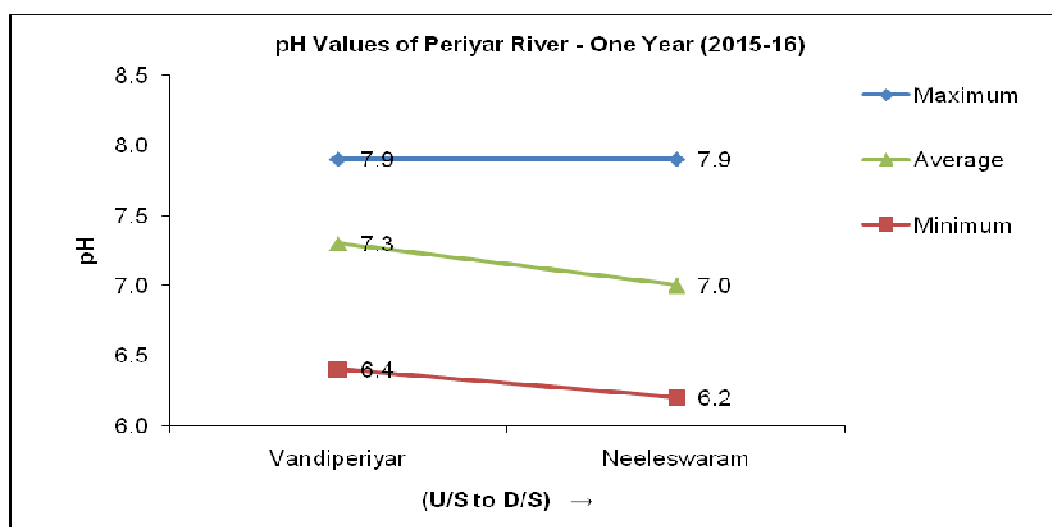


Figure - 12.3



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.

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	0.32	0.35	NA	0.06	0.05	NA	0.16	0.16	NA
Neeleswaram	0.21	0.22	NA	0.06	0.05	NA	0.12	0.12	NA

Figure - 13.1

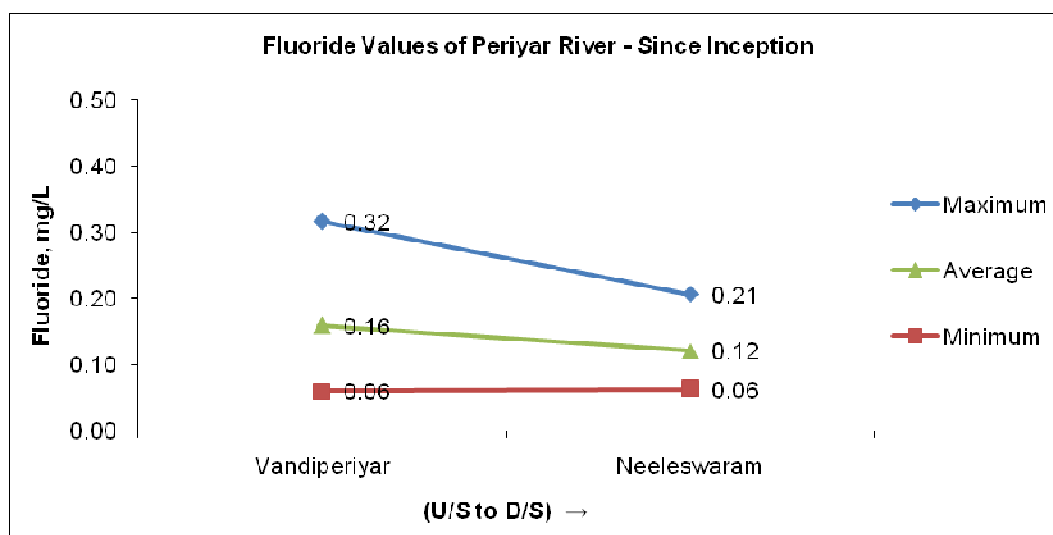
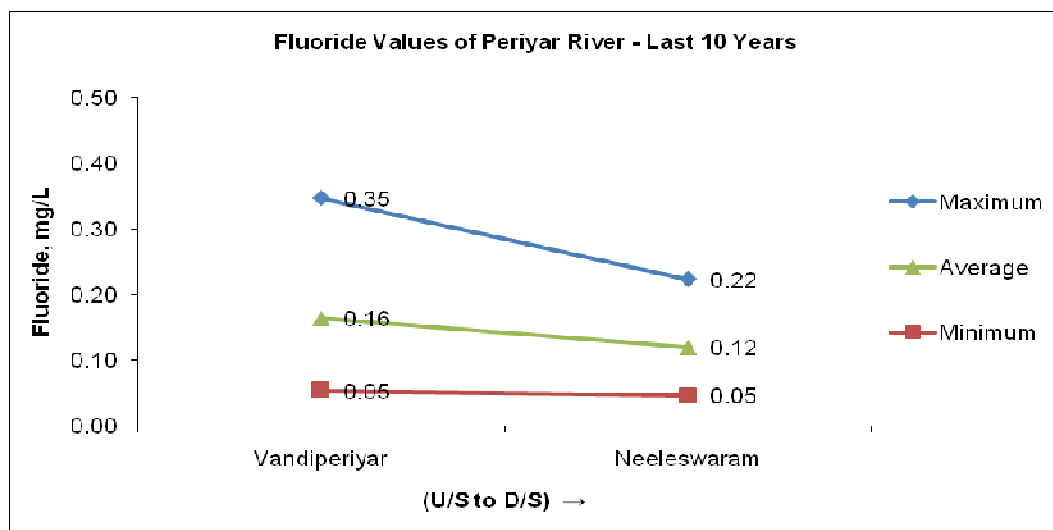


Figure - 13.2



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	1.8	1.8	1.6	0.3	0.3	0.4	0.9	1.0	0.8
Neeleswaram	1.4	1.3	1.6	0.4	0.2	0.4	0.8	0.7	0.8

Figure - 14.1

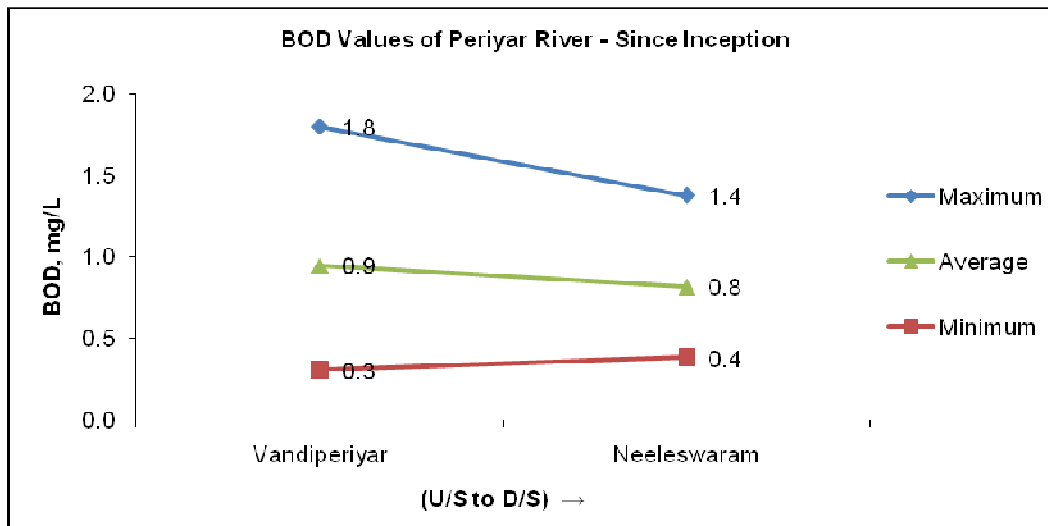


Figure - 14.2

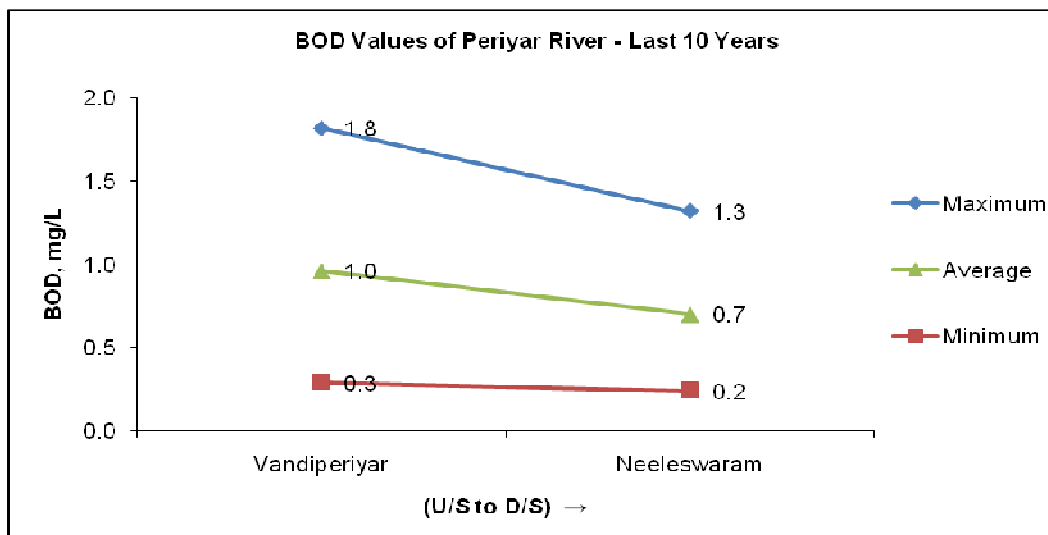
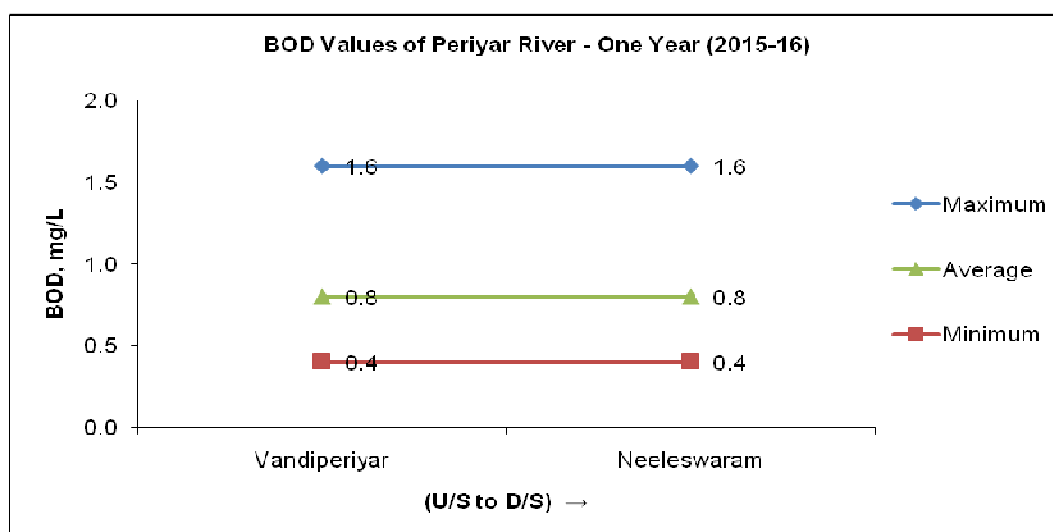


Figure - 14.3



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	7.2	5.3	5.5	4.6	6.3	6.4	5.9
Neeleswaram	8.1	7.8	7.8	6.4	6.3	6.0	7.3	7.0	6.8

Figure - 15.1

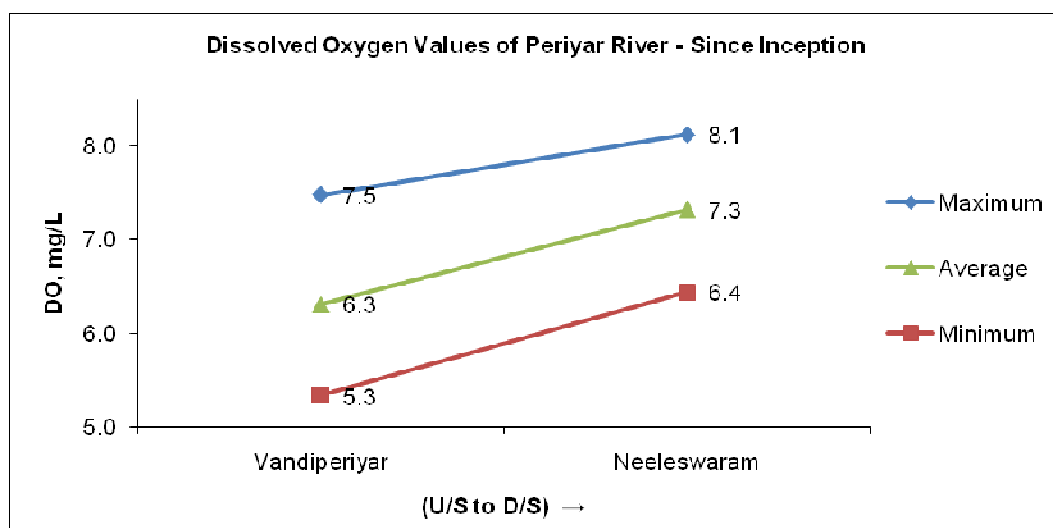


Figure - 15.2

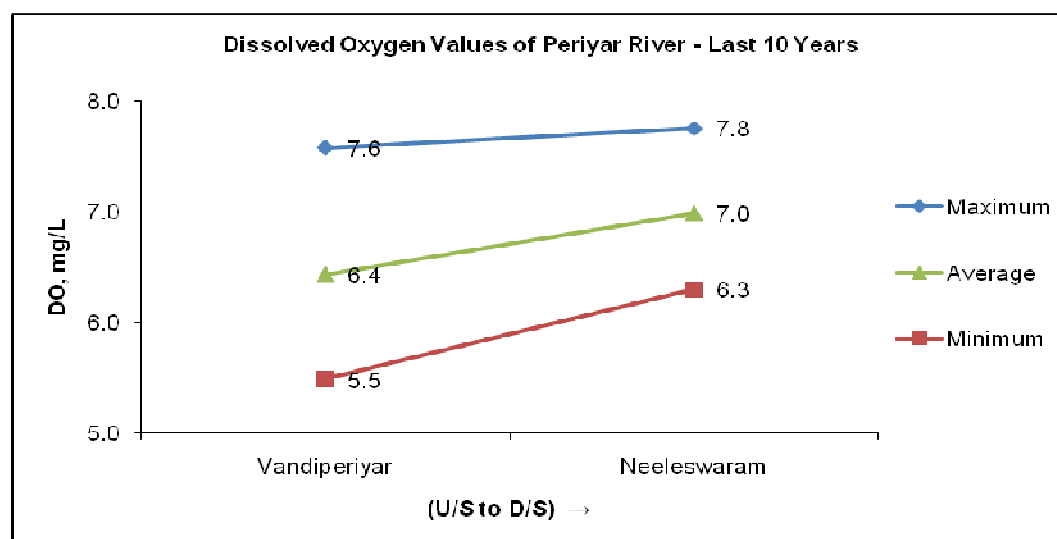
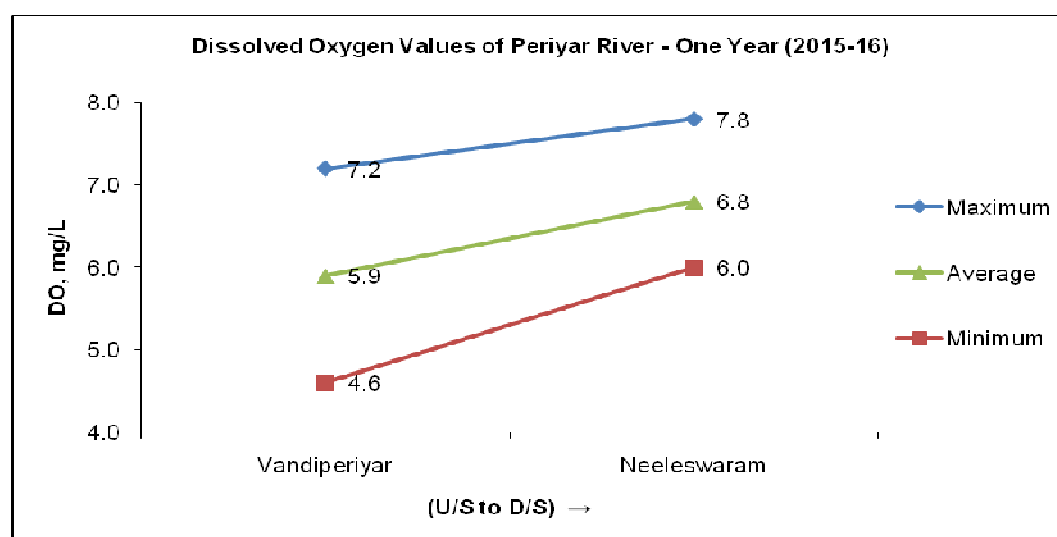


Figure - 15.3



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	78	55	104	33	35	21	48	44	51
Ramamangalam	68	66	74	40	43	26	53	53	50

Figure - 16.1

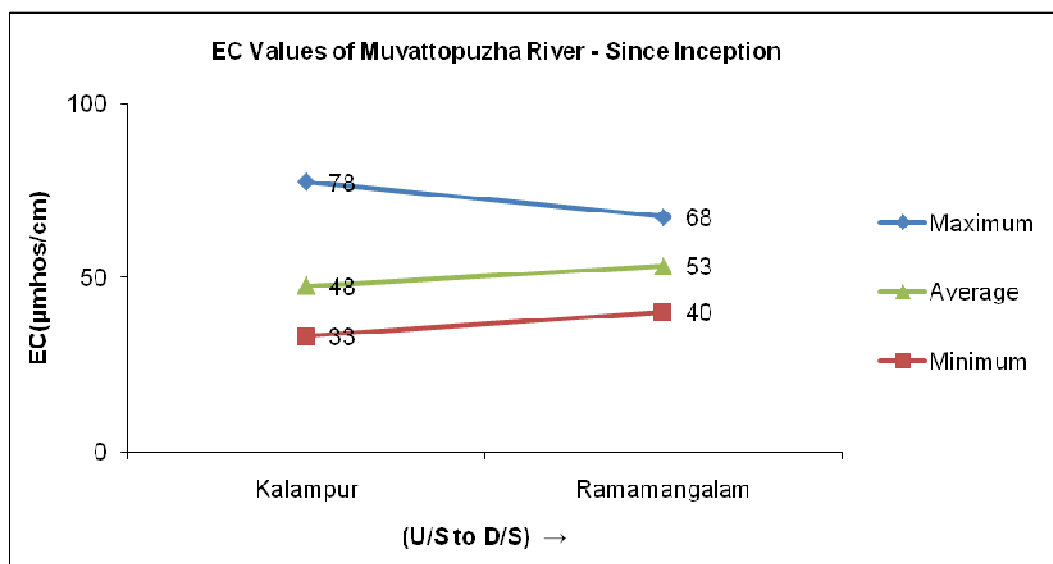


Figure - 16.2

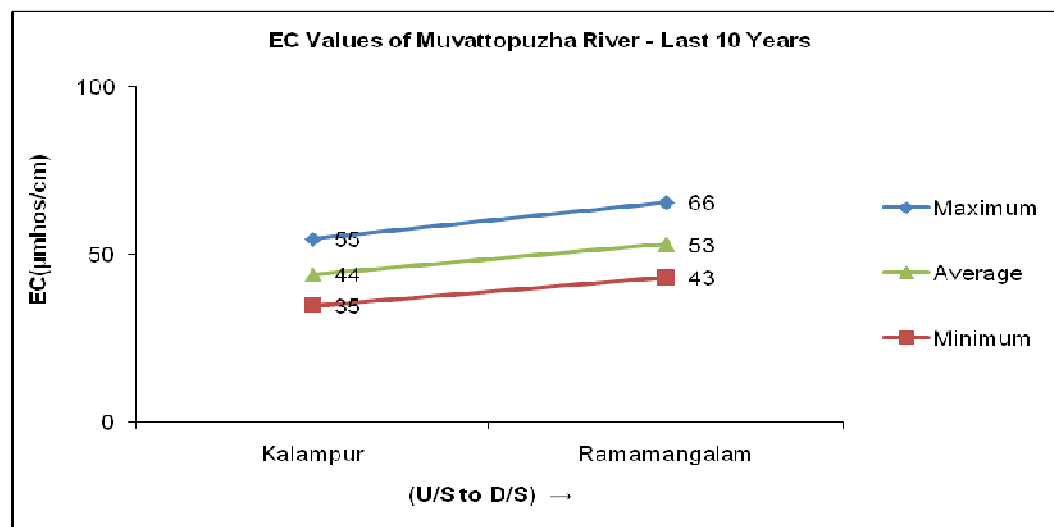
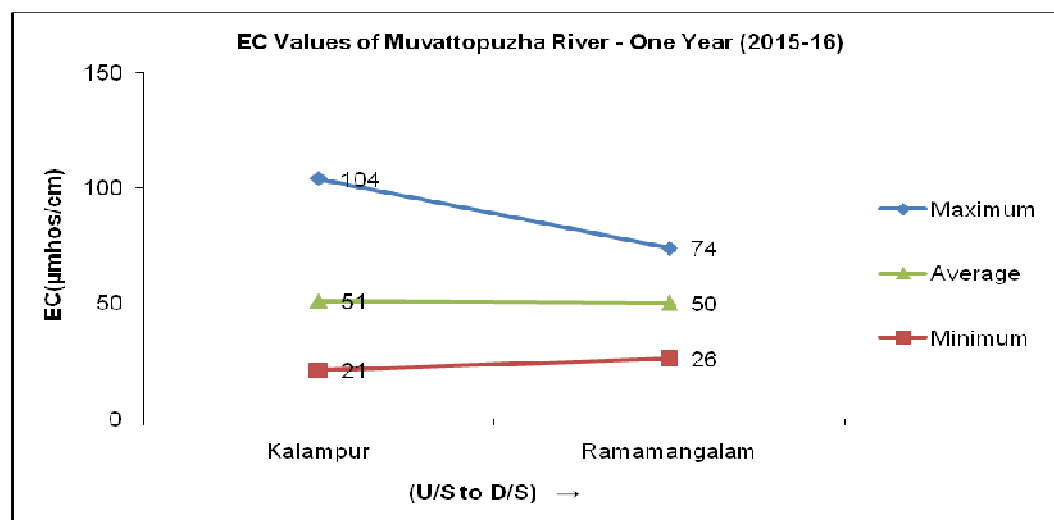


Figure - 16.3



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	7.0	7.6	6.3	6.2	6.0	6.9	6.6	6.9
Ramamangalam	7.5	7.2	7.8	6.6	6.3	6.8	7.0	6.8	7.1

Figure - 17.1

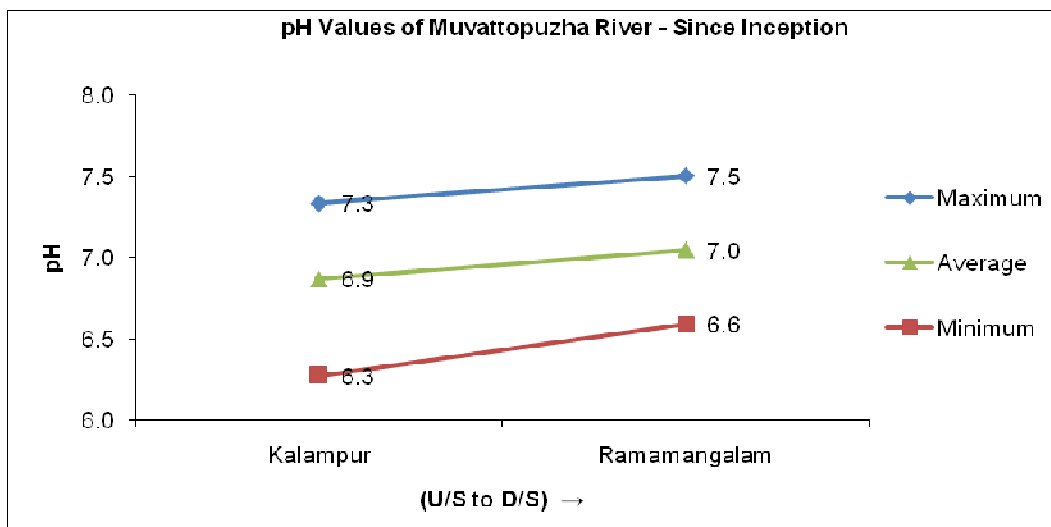


Figure - 17.2

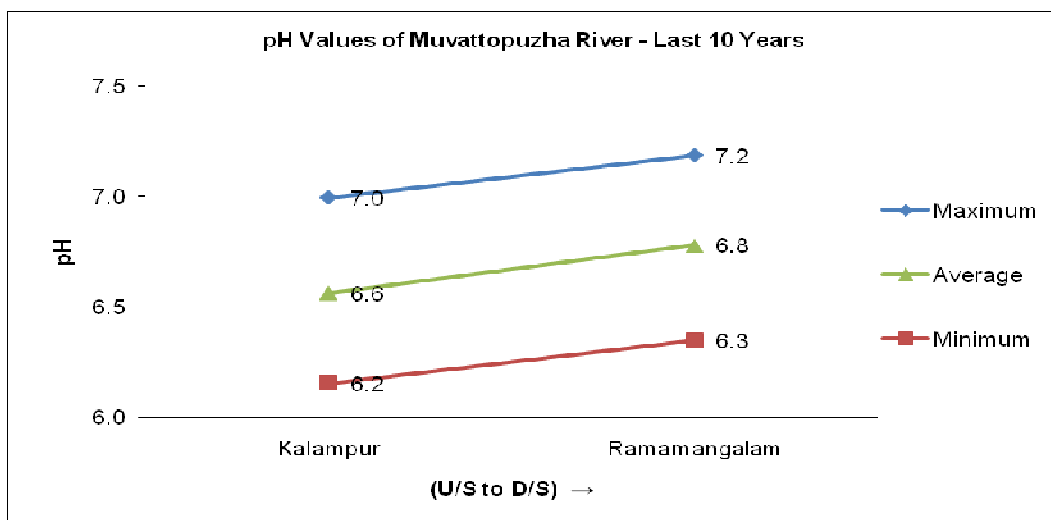
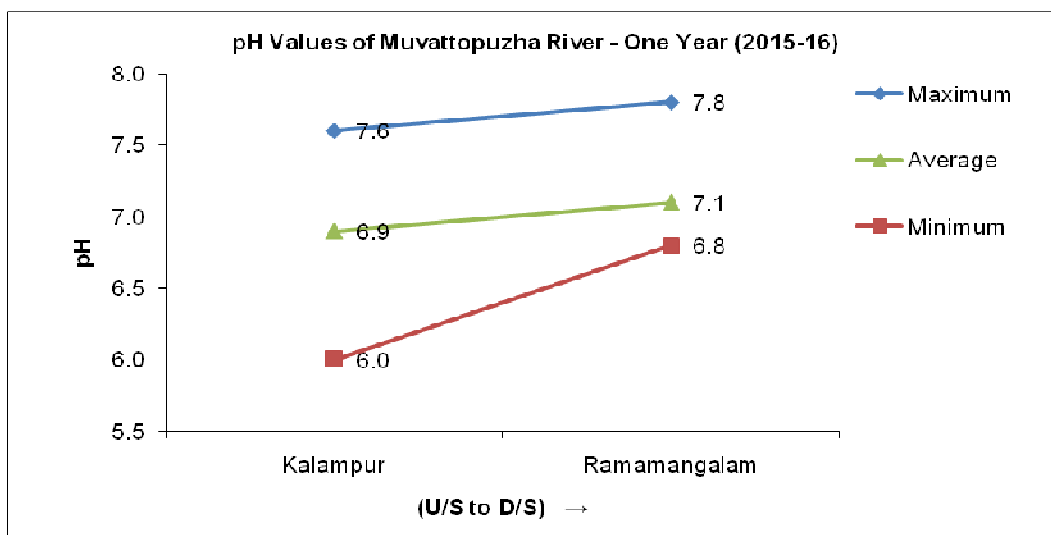


Figure - 17.3



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.

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	0.20	0.24	NA	0.07	0.07	NA	0.13	0.13	NA
Ramamangalam	0.30	0.33	NA	0.05	0.05	NA	0.14	0.15	NA

Figure - 18.1

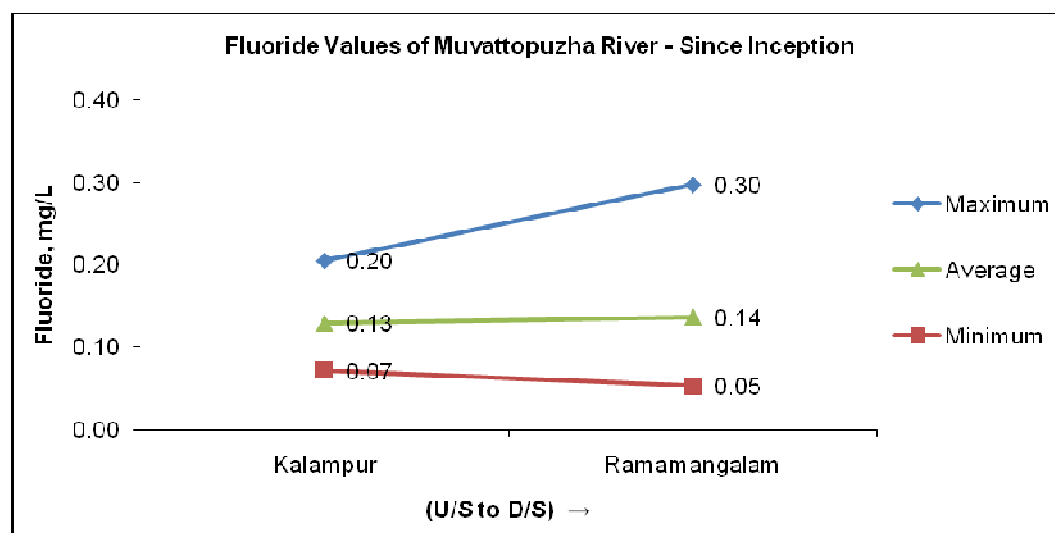
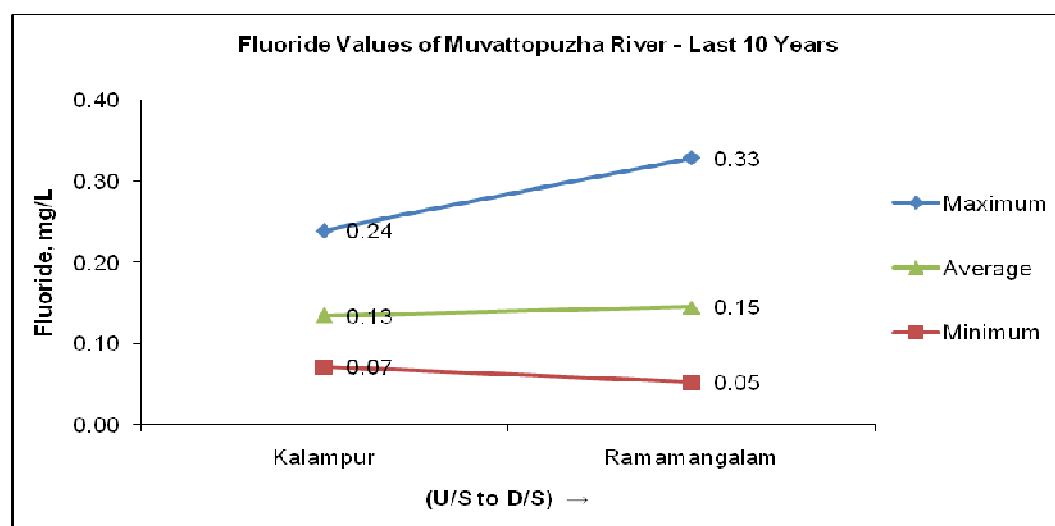


Figure - 18.2



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	0.9	1.0	1.0	0.3	0.3	0.2	0.6	0.7	0.7
Ramamangalam	1.4	1.3	1.8	0.4	0.3	0.1	0.8	0.6	0.6

Figure - 19.1

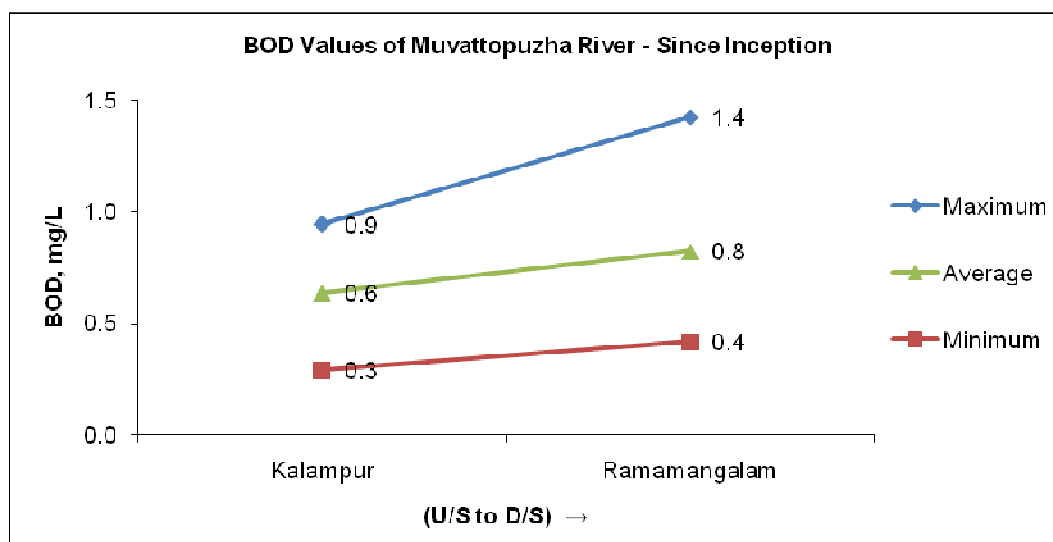


Figure - 19.2

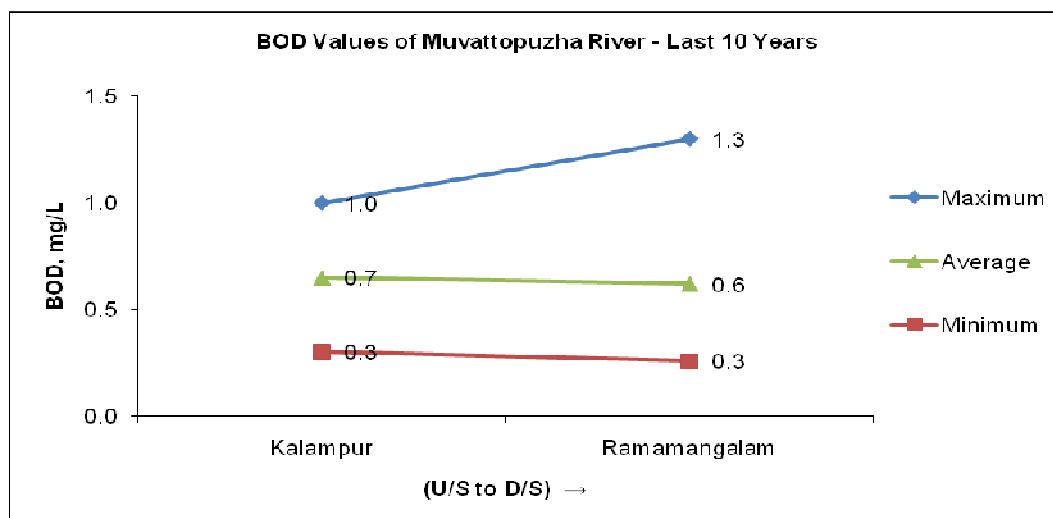
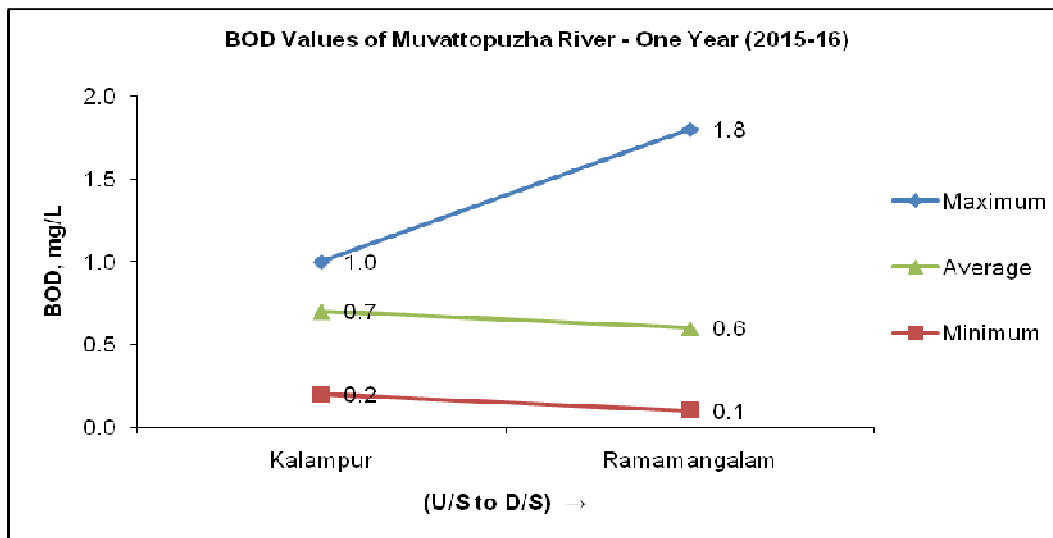


Figure - 19.3



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	7.2	6.0	6.0	6.2	7.1	6.8	6.8
Ramamangalam	8.9	7.8	8.0	6.6	6.5	5.8	7.5	7.0	7.0

Figure - 20.1

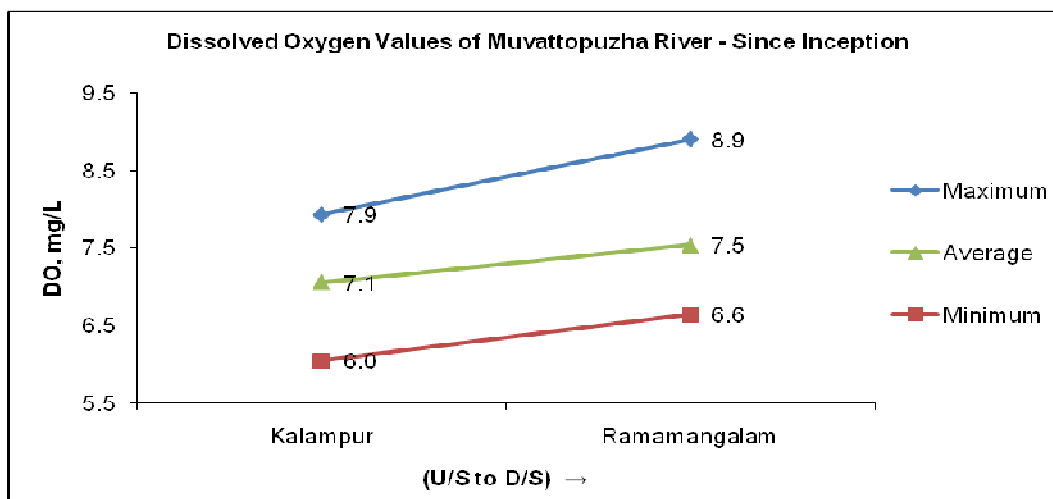


Figure - 20.2

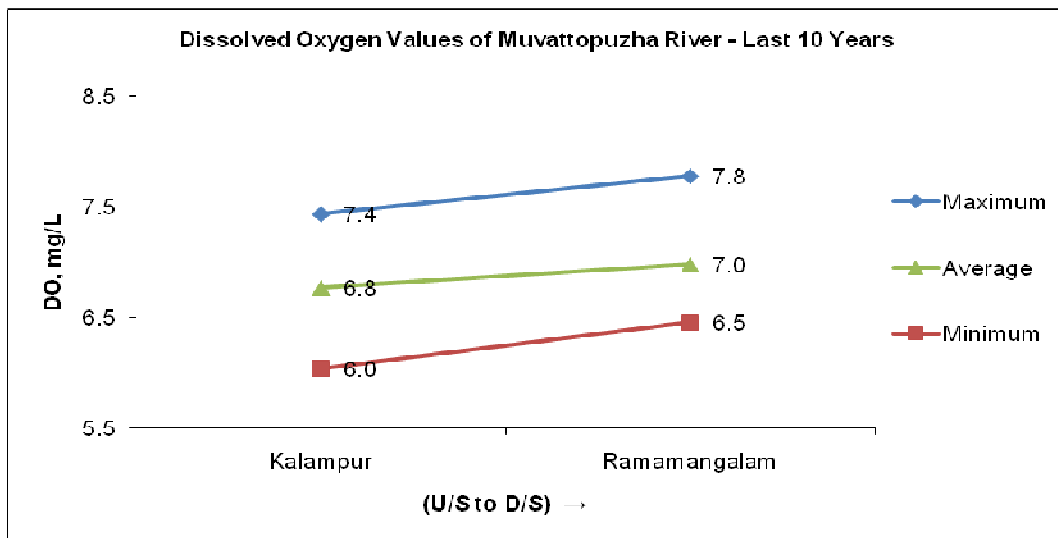
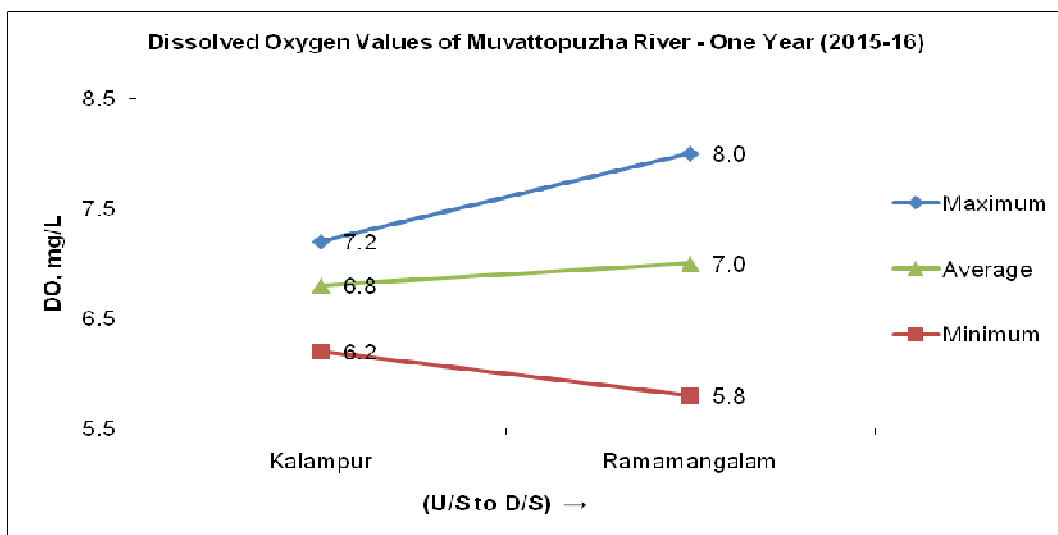


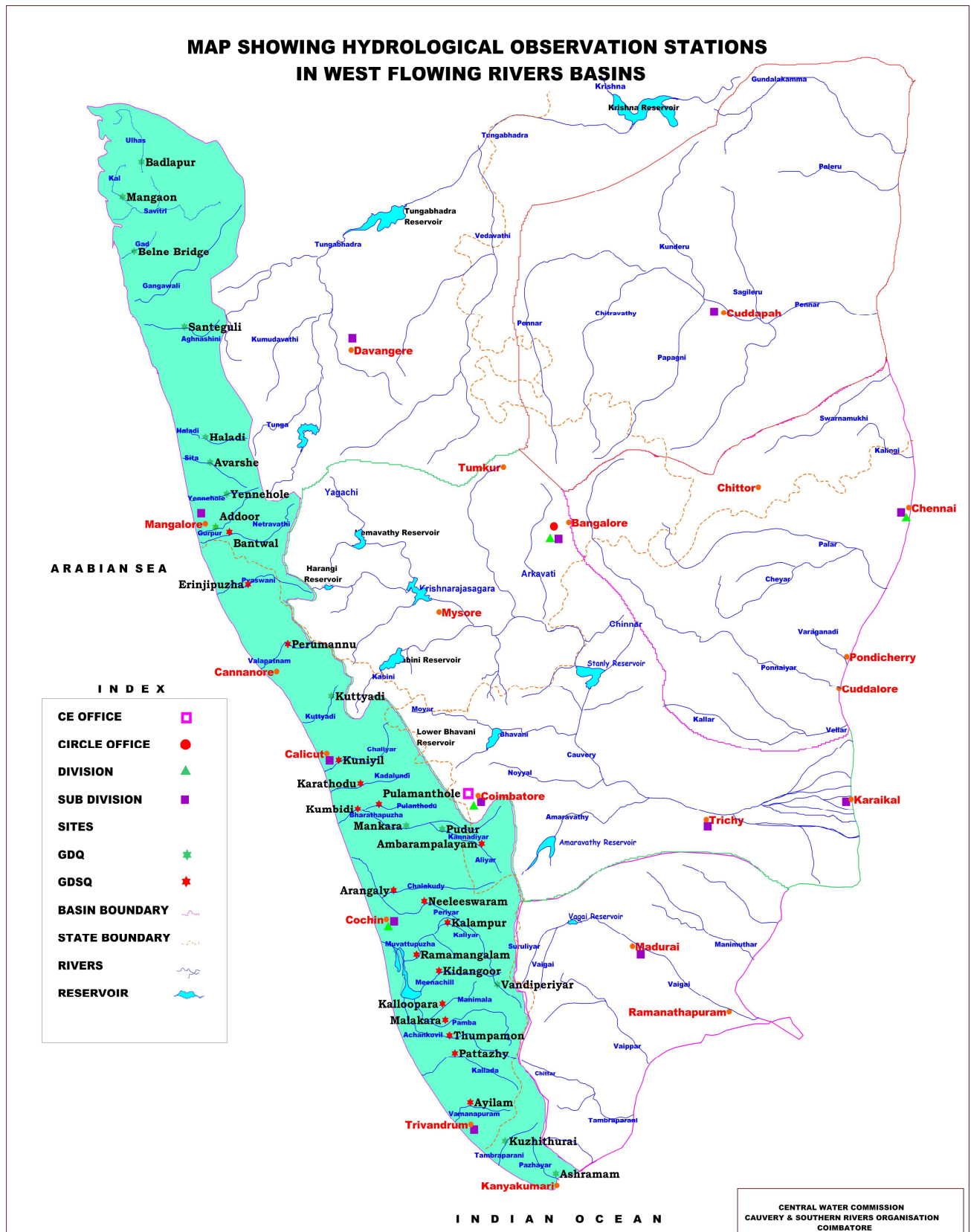
Figure - 20.3



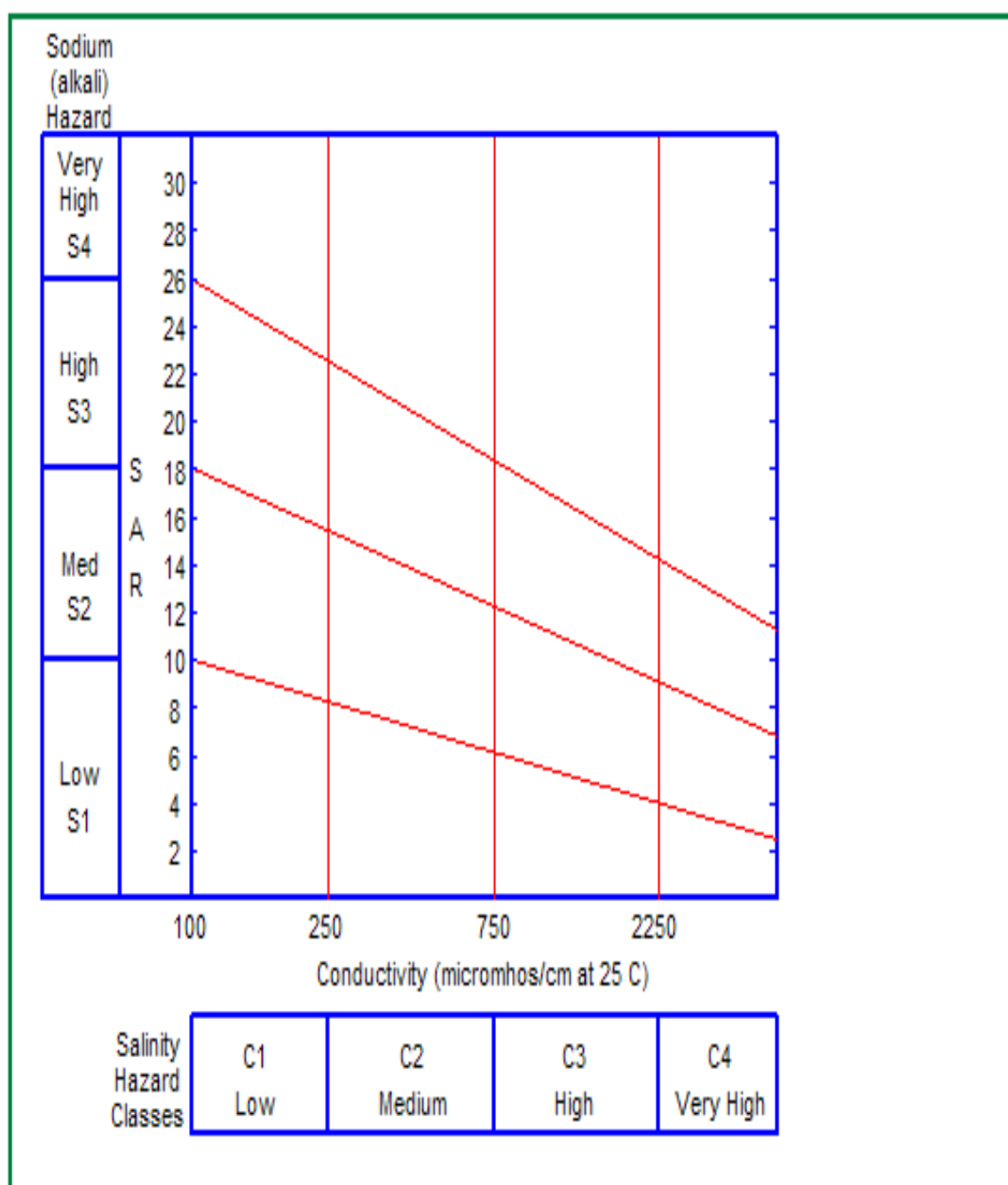
5.4 General Remarks / Conclusion about Water Quality Trend:

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 meter 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.