

खंड-3
(केवल कार्यालय उपयोग हेतु)

Volume-III
(FOR OFFICIAL USE ONLY)



भारत सरकार

GOVERNMENT OF INDIA

जल संसाधन नदी विकास और गंगा संरक्षण मंत्रालय

MINISTRY OF WATER RESOURCES, RIVER
DEVELOPMENT & GANGA REJUVENATION

केन्द्रीय जल आयोग

CENTRAL WATER COMMISSION

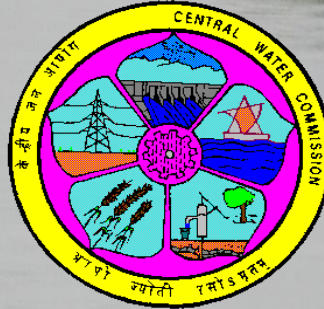
जलवर्ष पुस्तिका

WATER YEAR BOOK

(जून 2015 - मई 2016) (June 2015 - May 2016)

बैतरणी, सुर्बणरेखा एवं बूढाबलंग बेसिन

BAITARANI, SUBERNAREKHA & BURHABALANG BASIN



जल विज्ञानीय प्रेक्षण परिमंडल

HYDROLOGICAL OBSERVATION CIRCLE

भुवनेश्वर (BHUBANESWAR)

February: 2017

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Volume-III

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FOREWORD

Proper assessment, analysis and compilation of hydro-meteorological data are essential for planning and management of precious water resources, which is vital not only for economic development but also for providing basic needs for such a large population of our country. Water reaches the land-mass through precipitation, a part of which evaporates, a portion of it percolates into ground as natural ground water and the excess runoff flows through rivulets and rivers and drain into the sea. Central Water Commission (CWC), an apex technical Organisation of Government of India for surface water resources, carries out systematic collection of hydro-meteorological data and assessment of surface water as one of its prime functions.

Hydro-meteorological observation stations have been established by CWC in almost all the river basins of India in a phased manner. These are further modernised and strengthened under various schemes. In the process, additional Divisions, Circles and Regional offices have been set up on a basin-wise concept.

The basin encompassing the east flowing rivers in-between the Ganga and the Godavari basins viz. Subarnarekha, Burhabalang, Baitarani, Brahmani, Mahanadi, Rushikulya, Vamsadhara, Nagavali and Sarada has been identified as Mahanadi and Eastern Rivers Basin which is dealt by Mahanadi and Eastern Rivers Organisation (MERO), CWC, Bhubaneswar. Hydrological Observation Circle (HOC), Bhubaneswar under MERO carries out hydrological observation and flood forecasting activities in these 9 river basins flowing mainly through Odisha along with its neighbouring States of Jharkhand, Chattisgarh, Andhra Pradesh and West Bengal through two Divisions under its jurisdiction viz. Mahanadi Division (MD), Burla and Eastern Rivers Division (ERD), Bhubaneswar.

There are a total of 104 observation stations under MERO. Systematic gauge and discharge observations are regularly conducted at 42 hydrological stations (out of the above 104) throughout the year. Sediment, Water Quality and Meteorological data are also observed at some of the stations. After scrutiny and checking, the collected & processed data are stored in a database through a custom made software "Surface Water Data Entry System (SWDES) and published in the form of Water Year Books. The present publication of Water Year Book contains Hydrological, Sediment and Water Quality data for the hydrological year 2015-16, i.e. from June 2015 to May 2016.

Water Year Book pertaining to the Hydrological Observation Circle, CWC, Bhubaneswar is published in four volumes. While Volume-I incorporates data of Mahanadi basin, Volume-II contains data of Brahmani basin, Volume-III of Subarnarekha, Burhabalang & Baitarani basins and Volume-IV of Rushikulya, Vamsadhara, Nagavali and Sarada basins. Each Volume contains Discharge data as Section-I, Sediment data as Section-II and Water Quality data as Section-III for respective river basins.

This Volume-III covers hydrological, sediment and water quality data for Water Year 2015-16 of eight sites of Subarnarekha, Burhabalang & Baitarani river basins and three effluent stations alongwith salient features and other important statistical information. Sincere effort put in by the officers and staff of ERD, CWC, Bhubaneswar namely, Smt. Dr. Shanthala Devi B.S, Extra Assistant Director and S.S. Mohanty, Senior Computer of Hydromet Sections under the able leadership of Shri N.C. Nanda, Executive Engineer, in collecting & processing the data and bringing out this publication is highly commendable. The guidance and encouragement of Shri A.K.Nayak, Chief Engineer, MERO, Bhubaneswar and co-operation of the officials of H.O. Circle and Chief Engineer's office are duly acknowledged.

Place: Bhubaneswar
Date: February, 2017

(D.K. Jena)
Superintending Engineer
HOC, CWC
Bhubaneswar

LIST OF ABBREVIATIONS USED:

General:

CWC	:	Central Water Commission
H.P.	:	Hydrology Project
IMD	:	India Meteorological Department
msl	:	mean sea level
Q	:	Discharge
WL	:	Water level

Type of station:

G	:	Gauge (Water Level)
D	:	Discharge (Average discharge passing across a cross section of the river)
S	:	Sediment (suspended sediment load)
Q	:	Water Quality

Units:

m	:	meter
mm	:	milli meter
km	:	kilometer
s	:	second
MCM	:	million cubic meters
MT	:	metric tonne
g	:	gramme
l	:	litre

CONTENTS

(VOLUME-III)

BAITARANI, SUBARNAREKHA & BURHABALANG BASINS

SI NO.	SUBJECT	PAGE No.
1	BAITARANI Basin Description	1 – 6
2	CHAMPUA	7 – 31
3	ANANDPUR	32 – 57
4	SUBARNAREKHA Basin Description	58 – 64
5	MURI	65 – 84
6	ADITYAPUR	85 – 110
7	JAMSHEDPUR	111 – 136
8	GHATSILA	137 – 162
9	JAMSOLAGHAT	163 – 169
10	FEKOGHAT	170 - 177
12	RAJGHAT	178-186
13	GOPIBALLAVPUR	187-193
12	GHATSILA ROAD BRIDGE	194-202
13	BARIDHI NALA	203-211
14	KULPATANGA	212-220
15	BURHABALANG Basin Description	221-225
16	NH-5 GOVINDPUR	226-250

BAITARANI BASIN

BAITARANI BASIN

1. GENERAL

1.1 Introduction

Baitarani is one of the important east flowing rivers of peninsular India, falling into Bay of Bengal. Major portion of its catchment lies in the state of Orissa and a small patch of the upper reach lies in Jharkhand. The river originates from the hill ranges of Keonjhar district of Orissa near Mankarancho village at an elevation of about 900 m. The total catchment area of this basin is 10,982 sq. km. The basin is situated approximately between East longitudes of 85°10' to 87°03' and between North latitudes of 20°35' to 22°15'. The basin is surrounded by the Brahmani basin on the south and west, the Subarnarekha basin on the north, the Burhabalang and the Bay of Bengal on the east. The river is flashy in nature, having a total length of 355 km, with the upper reach upto Anandpur in the hilly region. There is a considerable fall in elevation from RL 367 m at Champua to RL 28 m at Anandpur. State-wise distribution of the catchment area is tabulated below:

State-wise Catchment area distribution

Sl. No.	Name of State	Catchment Area (sq. km)	Percentage of total catchment area
1.	Jharkhand	736	6.7
2.	Orissa	10,246	93.3
	Total	10,982	100.0

Basin Map of Baitarani river system showing the various hydrological and hydro meteorological observation stations maintained by CWC, State Governments and India Meteorological Department, is enclosed herewith. Central Water Commission is maintaining 6 sites (including seasonal rainfall site at Thakurmunda which remains operative only during monsoon), out of which 2 are of GDSQ type, 3 are of G type and 1 is RF type.

1.2 River system

Details of the tributaries which join Baitarani River on both sides are tabulated below:

Name of River	River/Tributary	Length (km)	Catchment area (sq.km)	Percentage of total catchment area
Baitarani	Main stream	355.00	4112.45	37.45
Mohida	Left Tributary	33.99	222.74	2.03
Baradpara	Left Tributary	49.88	331.52	3.02
Kangira	Left Tributary	40.00	458.43	4.17
Orarai	Right Tributary	72.41	821.03	7.48
Korribhandhan	Left Tributary	88.50	116.29	1.07
Deo	Left Tributary	78.84	722.61	6.58
Kanjhari	Right Tributary	59.53	497.69	4.53
Sita	Right Tributary	38.62	505.05	4.60
Kusal	Right Tributary	59.53	530.95	4.83
Kusai	Right Tributary	78.84	870.24	7.92
Salandi	Left Tributary	144.00	1793.00	16.32
	Total		10982	100.00

1.3 Climatic Characteristics

The basin receives most of the rainfall from the South-West monsoons during the period from June to October. Summer months from March to May are highly humid. Moderate cold winter is experienced from November to February. The average annual rainfall for the basin is approximately 1450 mm. The maximum temperature varies from 25 to 38⁰ C and the minimum from 12 to 24⁰ C.

1.4 Geology

The rocks of the basin belong to the iron ore series of the Upper Dharwar system of the Archean group. There is intrusion of Epidiorite with some Quartzite and at higher altitudes; intrusions of Hematite-Quartzite are seen. In the Zonal area of the Sundargarh district, Shales, Phyllites and Dolomites are found. At some places, Hematite deposits are seen over layers of Shale and Manganese. In the hills and forests between the Dhenkanal border and Anandpur, Quartzites, Shales, Phyllites, Granites and Genesis are also found

1.5 Site Details

Details of water storage/ diversion structures in the Baitarani Basin are as below:

Sl. No.	Name of Project	River	Status
1.	Akhuapada System	Baitarani	Existing
2.	Remal	Remal (Tributary of Kusei)	Existing
3.	Salandi	Salandi (Tributary of Baitarani)	Existing
4.	Kanupur	Baitarani	Under Construction
5.	Deo	Baitarani	Existing
6.	Kusei	(Tributary of Baitarani)	Existing
7.	Kanjhari	Baitarani	Existing
8.	Integrated Anandpur Barrage	Baitarani	Under Construction

2. STREAM FLOW DATA

2.1 Methodology

Area-velocity method is generally adopted for measuring discharge at sites. Cup type current meter is used to measure the velocity of the flow and the depth is measured by using sounding rod for depths upto 3 m and by log line beyond 3 m. Discharge by area velocity method is being observed once in a day starting at 0800 Hrs. at all the sites except on Sundays and holidays. Besides, silt and water quality observation are also being carried out at Anandpur and Champua sites of CWC.

The observed stage and discharge figures for each season (monsoon and non-monsoon) are plotted and a mean Stage V/s. Discharge curve is drawn, giving due attention to the scattered points with reference to area, velocity etc.

The factors responsible for the shifting of the curves are also taken care of by studying the river cross section at regular intervals and with super imposition of previous years' Stage V/s. Discharge curves. Accordingly, the trend of the current curve is finalised. Finally, the discharges of the non observed days are computed from these Stage V/s. Discharge Curves.

2.2 Data Availability

Details of data availability for Baitarani Basin is tabulated below:

Sl. No.	Code No.	Station Name	Type	Data available	
				From	To
1.	EC000K3	Anandpur	GDSQ		
			1) Gauge	07.03.72	Continuing
			2) Discharge	07.03.72	Continuing
			3) Sediment	26.08.72	-do-
			4) Water Quality	01.09.72	-do-
2.	EC000R5	Champua	GDSQ		
			1) Gauge	01.02.80	Continuing
			2) Discharge	20.07.90	Continuing
			3) Sediment	09.08.01	-do-
			4) Water Quality	08.09.01	-do-
3.	Keonjhar	Keonjhar	G		
			1)Gauge	01.10.94	Continuing
4.	Swampatana	Swampatana	G		
			1)Gauge	15.06.70	Continuing
5.	Akhuapada	Akhuapada	G		
			1)Gauge	01.06.73	Continuing

2.3 Explanatory Notes on Water Year Book

SWDES (Surface Water Data Entry Software), a custom made software for processing hydrological data, has been used for preparation of this volume. The explanatory notes described below can be used for interpretation of data presented in this volume.

- i) Water Year ranges from June 1st of one calendar year to May 31st of the next calendar year and covers one complete hydrological cycle.
- ii) Discharge is given in cubic meters per second.
- iii) Discharges are expressed as 0.000 when river bed is dry and 0.000 N.F. when velocity is observed as 'NIL'.
- iv) The zero R.L. of gauge is a datum level fixed for given site, which is kept 1 or 2 m lower than the lowest water level recorded in a perennial stream. In a non-perennial stream, it is kept 1 or 2 m lower than the lowest bed level of the stream.
- v) Discharges are rounded off as per standard practice.
- vi) Runoff in mm is the notional depth of water in millimeters over the catchment, equivalent to annual runoff volume calculated at the discharge measurement station. It is computed using the relation:

$$\text{Runoff (mm)} = \frac{\text{Annual runoff (Mm}^3\text{)} \times 1000}{\text{Catchment area (km}^2\text{)}}$$

- vii) Peak and lowest flow correspond to the highest and lowest water levels recorded from 'SWDES' entered data.
- viii) Measuring Authority refers to the field division of Central Water Commission (Eastern Rivers Division) responsible for the operation of the gauging station.

- ix) The gauging station code number is a unique seven column alphanumeric reference number which facilitates storage and retrieval of flow data in data base. The first column is identifier of either an integral river basin or, for the sake of convenience, a region having several contiguous river catchments. This is followed by a column which identifies an independent river system which either has one or more outlets to the sea or crosses international border to enter another country. The third, fourth and fifth column spaces 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.

3. HYDROLOGICAL DATA

This volume contains the following information for each site stated above:

- i. History Sheet: Site Name, State, District, River Basin, Tributary, Sub-Tributary, Catchment Area, Latitude / Longitude, Opening / Closing date for various types of data.
- ii. Annual maximum/minimum discharge since period of observation.
- iii. Daily Water level and observed/ computed discharge data including 10-daily, monthly and annual totals etc.
- iv. Histogram and Hydrograph showing current year monthly mean discharges, Historical monthly mean discharges, historical monthly minimum and monthly maximum discharges.
- v. Histogram showing Annual Run off volume since beginning of observation.
- vi. Pie-Chart showing monthly mean run off (as percentage of Annual Run off) historical for the current year.
- vii. Plot of Pre and Post Monsoon Cross-section of the rivers for current year.
- viii. Water Level hydrograph for 3(three) major flood events of current year.

4. SEDIMENT DATA (In case of Sediment Observation sites)

The frequency of sediment observation is carried out daily during monsoon season and once in a week (on Monday) during the non-monsoon period. Data for non-observed days is estimated/ interpolated from the relationship of discharge v/s. sediment load, prepared on the basis of observed sediment concentration and weighted mean discharge of the same year.

Sediment samples are collected from 0.6 depth, using Punjab type bottle sampler, from all the verticals along the hydrological observation sections where velocity is observed for computation of discharge. The collected samples from all the segments are combined in 3 to 7 groups having compartments or groups of equal or nearly equal discharges for analysis. Quantum of suspended sediment load is estimated in three grades, viz. Coarse, Medium and Fine. Coarse and medium grades are separated by sieving process and the fine grade by filtration of left over samples after sieving through filter paper. Grade wise concentration is derived gravimetrically as per standard procedure. The following parameters are derived and recorded:

- Daily Observed suspended sediment (g/l).
- Corresponding discharge.
- Average sediment load in tonnes/day (10 daily & monthly basis).
- Annual sediment load for the current year.

- Annual & seasonal sediment load and the corresponding volume of inflow for all the years since inception.
- Grain size distribution of bed load.

5. WATER QUALITY DATA (In case of Water Quality Observation sites)

The water samples are collected at a regular interval of once in a month for trend stations and once in two month for base station (on 1st working day), from the main flowing segment of the stream just below the water surface (20 to 30 cm) on the Station Gauge line where depth of flow and velocity are maximum, preferably in the mid stream. The water samples are collected in the pre-rinsed and cleaned one-litre capacity polythene bottle having double stopper (inside and out side) facility. Sampling bottle is filled to its full capacity without entrapping air bubbles inside.

After sampling, the collected samples are sent to the Water Quality Laboratory (Level-II) based at Bhubaneswar (under the Eastern Rivers Division) and to Raipur laboratory (under Mahanadi Division, Burla), along with in-situ physical characteristics, for analysis. The samples received from the sites are preserved in a refrigerator in the water quality laboratories for analysis.

Analysis of parameters, namely pH, Electrical conductivity, Sodium, Potassium, Iron, Aluminum, Ammonia, Fluoride, Nitrate, Nitrite, Phosphate, Silicate, Boron, Sulphate, Calcium, Magnesium, Carbonate, Bi-carbonate, Chloride, Dissolved Oxygen, BOD and COD, are carried out at the Level II laboratory by using standard methodology. Micro biological parameters like total coliform and faecal coliform are also being analyzed. For analysis of trace and toxic elements, samples are sent to Level-II+ laboratory at Hyderabad once in a year, in the month of April.

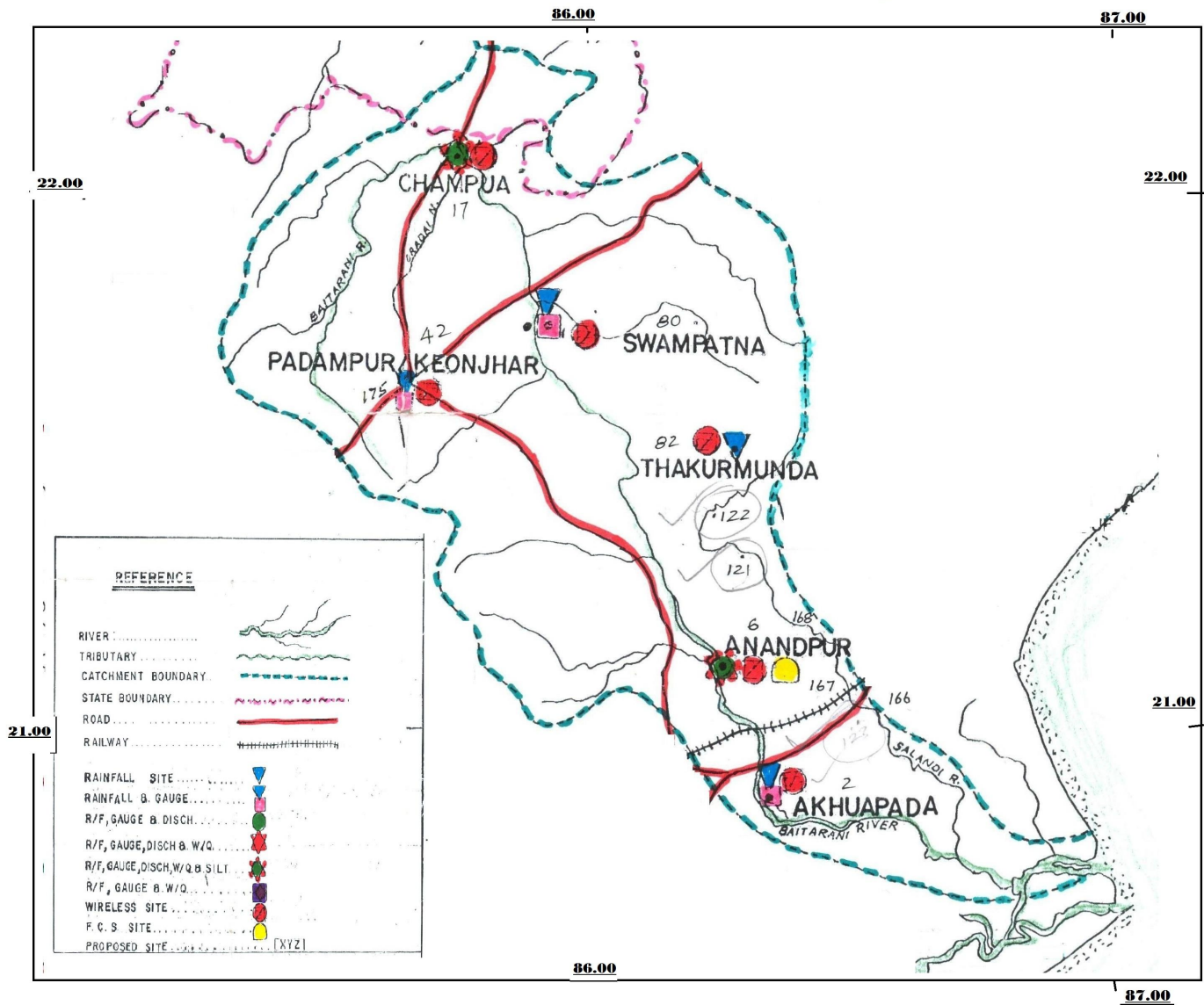
The following parameters are analyzed and recorded:

- Monthly Values: Physical; Chemical (mg/l); Biological (mg/l); Traces & Toxic (mg/l) and Chemical Indices.
- Average Values for the Year: 10 Years data to be given season wise averages:-
 - Average for Summer (March to June).
 - Average for Floods (July to October).
 - Average for Winter (November to February)

NAME OF THE SITES IN OPERATION UNDER BAITARANI BASIN

Sl. No.	Station Name	River/ Tributary	Code No.	Type	Latitude	Longitude
1.	Keonjhar	Aridi		G	21°-.40-'00"	85°-35-'00"
2.	Champua	Baitarini	EC000R5	GDSQ	22°-03 '-57"	85°-40-'56"
3.	Ananadpur	Baitarini	EC000K3	GDSQ	22°-12 '-34"	86°-07-'83"
4.	Swampatana	Baitarini		G	21°-37 '-00"	85°-55-'00"
5.	Akhuapada	Baitarini		G	20°-56 '-00"	86°-17-'00"
6	Thakurmunda	Baitarini		RF	21°-31'-00"	86°-09'-00"

Note : Thakurmunda is a seasonal rainfall site, remaining operative only during monsoon.



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site	: CHAMPUA	Code	: EC000R5
State	: Orissa	District	Keonjhar
Basin	: Brahmani-Baitarani	Independent River	: Baitarani
Tributary	: Baitarani	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Baitarani
Division	: E.E., Bhubaneswar	Sub-Division	: Bhubaneswar
Drainage Area	: 1710 Sq. Km.	Bank	: Right
Latitude	: 22°03'57"	Longitude	: 85°40'56"
Zero of Gauge (m)	: 0 (m.s.l) 367 (m.s.l)	01.02.1980	- 31.05.1991
		01.06.1991	- 31.12.2050
	Opening Date	Closing Date	
Gauge	: 01.02.1980	01.01.2100	
Discharge	: 20.07.1990	01.01.2100	
Sediment	: 09.08.2001	01.01.2100	
Water Quality	: 08.09.2001	01.01.2100	

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1991-1992	1010	376.350	13.08.1991	3.006	370.950	22.04.1992
1992-1993	159.1	372.760	01.08.1992	1.331	370.870	15.05.1993
1993-1994	479.5	374.160	16.07.1993	1.763	370.790	09.05.1994
1994-1995	652.8	375.700	20.07.1994	2.445	370.880	03.06.1994
1995-1996	403.5	374.470	10.08.1995	2.286	370.890	18.05.1996
1996-1997	503.2	374.890	23.06.1996	2.308	370.895	02.06.1996
1997-1998	752.6	375.075	06.08.1997	2.884	370.850	11.06.1997
1998-1999	343.0	373.465	11.09.1998	1.608	370.950	03.05.1999
1999-2000	880.0	375.620	19.10.1999	3.947	370.940	25.04.2000
2000-2001	439.0	374.020	18.07.2000	2.821	370.860	16.05.2001
2001-2002	499.7	373.720	22.07.2001	2.753	370.880	24.05.2002
2002-2003	105.2	372.680	10.09.2002	2.277	370.870	20.05.2003
2003-2004	430.7	375.285	09.10.2003	2.700	370.920	08.06.2003
2004-2005	363.0	374.585	21.08.2004	4.037	370.940	01.06.2004
2005-2006	920.8	376.120	29.06.2005	3.251	370.930	02.05.2006
2006-2007	420.7	374.820	23.08.2006	4.015	370.920	31.05.2007
2007-2008	731.3	376.895	20.08.2007	3.632	370.930	10.06.2007
2008-2009	538.9	372.310	18.06.2008	2.808	370.880	02.05.2009
2009-2010	263.2	373.270	22.07.2009	1.821	370.750	27.04.2010
2010-2011	204.6	372.950	26.07.2010	1.985	370.790	24.03.2011
2011-2012	1705	378.950	23.09.2011	1.821	370.780	31.05.2012
2012-2013	213.4	372.680	17.09.2012	0.425	370.820	24.05.2013
2013-2014	550.8	373.910	21.08.2013	3.001	370.920	04.06.2013
2014-2015	1159	376.090	05.08.2014	2.205	370.800	31.05.2015
2015-2016	309.8	373.160	28.07.2015	0.083	370.720	07.05.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : CHAMPUA (EC000R5)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	370.800	2.205	371.680	42.70	372.005	83.46	372.420	123.1	371.480	33.90	371.150	10.86
2	370.810	2.324	371.600	41.57	372.100	94.40 *	372.080	85.52	371.470	32.46 *	371.140	10.35
3	370.850	2.750	371.575	40.37	372.250	113.3	371.850	62.09	371.460	31.97	371.140	10.52
4	370.870	3.266	371.550	39.19	372.330	117.3	371.980	77.02	371.450	31.18 *	371.130	10.24
5	370.950	4.806	371.560	39.60 *	372.080	94.70	371.860	63.32	371.440	29.92	371.130	10.07
6	370.960	5.149	371.710	45.52	372.005	83.80	371.800	59.61 *	371.380	23.41	371.120	9.779
7	371.020	6.220 *	371.560	39.17	371.865	66.43	371.785	58.79	371.350	22.11	371.120	9.771
8	370.990	5.728	371.700	44.60	371.740	56.13	371.705	50.09	371.330	20.41	371.110	9.601 *
9	370.970	5.421	371.670	42.65	371.710	52.93 *	371.630	47.36	371.320	18.29	371.110	9.508
10	370.960	5.198	371.840	58.60	371.690	51.84	371.670	47.37	371.310	17.80	371.110	9.493
11	370.940	4.848	372.460	127.2	371.680	48.58	371.580	42.78	371.290	16.63 *	371.100	9.280 *
12	370.910	4.209	372.240	97.63 *	371.670	47.15	371.560	40.62	371.290	15.67	371.100	9.276
13	370.890	3.681	371.930	59.07	371.740	54.71	371.630	44.67 *	371.230	13.97	371.100	71.17
14	371.220	10.31 *	371.740	48.00	371.690	49.75	371.555	40.18	371.220	13.66	371.090	8.932
15	371.100	7.773	371.680	43.00	371.720	53.15 *	371.540	38.32	371.210	12.94	371.090	8.828 *
16	370.970	5.585	371.660	41.95	371.660	47.17 *	371.580	41.85	371.210	12.80	371.090	8.715
17	371.690	27.50	371.640	41.80	371.750	54.85	371.800	57.90 *	371.200	12.65	371.080	8.293
18	371.200	11.14	371.630	39.33 *	371.660	46.21	371.800	58.66	371.200	12.65 *	371.080	8.174
19	371.070	8.097	371.620	38.30 *	371.600	44.59	371.700	48.92	371.190	12.44	371.080	8.085
20	371.120	9.215	371.610	37.30	371.590	43.97	371.630	46.04 *	371.190	12.25	371.080	7.793
21	371.150	10.51 *	371.790	50.08	371.580	43.26	371.740	50.61	371.190	12.17 *	371.055	7.539
22	371.160	10.25	371.660	49.24	371.570	42.33	372.020	75.03	371.180	11.90	371.070	7.421 *
23	371.260	14.35	371.720	53.07	371.570	40.84 *	371.740	50.98	371.180	11.90	371.070	7.303
24	372.430	125.8	371.640	49.39	371.550	39.37	371.640	48.51	371.170	11.55 *	371.060	7.057
25	372.140	87.97	371.620	47.27	371.530	36.68	371.630	47.99 *	371.160	11.19 *	371.060	7.041 *
26	371.680	38.13	372.320	158.4 *	371.570	42.14	371.620	47.47	371.160	11.19	371.060	6.919
27	371.550	34.80	372.960	230.4	371.680	43.66	371.610	46.67 *	371.150	10.84	371.060	7.005
28	371.700	50.11 *	373.160	309.8	371.630	41.98	371.580	44.24	371.152	10.86	371.050	7.066
29	371.630	42.42	372.770	180.7	371.860	63.89	371.520	36.67	371.150	10.72	371.050	7.231
30	371.660	38.52	372.310	115.3	371.850	60.60 *	371.490	33.75	371.160	11.08	371.050	7.300
31			372.100	96.96	372.920	221.3			377.000	11.12		
Ten-Daily Mean												
I Ten-Daily	370.918	4.307	371.645	43.40	371.977	81.43	371.878	67.42	371.399	26.14	371.126	10.02
II Ten-Daily	371.111	9.236	371.821	57.36	371.676	49.01	371.638	45.99	371.223	13.57	371.089	14.85
III Ten-Daily	371.636	45.28	372.186	121.9	371.755	61.46	371.659	48.19	371.696	11.32	371.059	7.188
Monthly												
Min.	370.800	2.205	371.550	37.30	371.530	36.68	371.490	33.75	371.150	10.72	371.050	6.919
Max.	372.430	125.8	373.160	309.8	372.920	221.3	372.420	123.1	377.000	33.90	371.150	71.17
Mean	371.222	19.61	371.894	75.75	371.801	63.89	371.725	53.87	371.447	16.83	371.091	10.69

Annual Runoff in MCM = 703 Annual Runoff in mm = 411

Peak Observed Discharge = 309.8 cumecs on 28/07/2015 Corres. Water Level :373.16 m

Lowest Observed Discharge = 0.083 cumecs on 07/05/2016 Corres. Water Level :370.72 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2015 - 2016

Station Name : CHAMPUA (EC000R5)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	371.050	7.143	371.040	6.000	370.950	4.329	371.010	5.412	370.830	2.733	370.740	1.087 *
2	371.040	11.73	371.040	6.161	370.950	4.308	371.000	5.296	370.830	2.719	370.740	0.580
3	371.040	6.938	371.030	5.880 *	370.940	4.172	370.990	4.785	370.820	2.627 *	370.730	0.571
4	371.060	7.223	371.030	5.880	370.940	4.163	370.980	4.922	370.820	2.560	370.730	0.567
5	371.060	7.174	371.030	5.715	370.940	4.176	370.970	4.732	370.820	2.664	370.730	0.563
6	371.060	7.178 *	371.020	5.653	370.930	4.044	370.970	4.734 *	370.820	2.590	370.720	0.159
7	371.050	7.040	371.010	5.522	370.930	4.043 *	370.960	4.563 *	370.810	2.566	370.720	0.083
8	371.050	7.082	371.010	5.506	370.930	3.898	370.950	4.391	370.810	2.482	370.720	0.923 *
9	371.050	7.011	371.010	5.361	370.920	3.884	370.930	4.259	370.810	2.496	370.740	0.578
10	371.040	6.976	371.000	5.218 *	370.920	3.852	370.920	4.034	370.810	2.489 *	370.740	0.559
11	371.040	6.719	370.990	5.019	370.910	3.778	370.910	3.844	370.800	2.442	371.020	5.849
12	371.040	6.648	370.980	4.977	370.900	3.669	370.910	3.824	370.800	2.424	371.000	5.355
13	371.030	6.234 *	370.980	4.975	370.900	3.637	370.910	3.719 *	370.800	2.441	371.080	8.133
14	371.030	6.813	370.980	4.931	370.900	3.638 *	370.900	3.736	370.800	2.420 *	371.040	6.932
15	371.030	6.598	370.970	4.800	370.890	3.539	370.890	3.698	370.790	1.473	371.000	5.658 *
16	371.030	6.510	370.960	4.717	370.890	3.494	370.890	3.423	370.790	1.425	370.920	3.105
17	371.020	6.372	370.960	4.713 *	370.890	3.462	370.890	3.380	370.790	1.604 *	370.940	3.865
18	371.050	7.049	370.950	4.651	370.880	3.367	370.880	3.113	370.790	1.366	370.910	2.949
19	371.060	6.829	370.950	4.619	370.880	3.321	370.880	3.317	370.780	1.127	371.000	5.096
20	371.060	6.827 *	370.950	4.578	370.880	3.320	370.870	3.771	370.760	1.062	370.960	4.057
21	371.050	6.720	370.990	4.911	370.880	3.322 *	370.870	3.771	370.760	1.416	370.940	3.456 *
22	371.060	7.028	370.990	4.993	370.870	3.266	370.870	3.101	370.760	1.037	370.950	3.757 *
23	371.080	7.657	370.980	4.869	370.880	3.164	370.860	2.998	370.760	1.005	371.050	6.761
24	371.080	7.661 *	370.980	4.867 *	370.880	3.121	370.860	3.001 *	370.760	1.341 *	371.010	5.258
25	371.070	7.293 *	370.970	4.762	370.870	3.097	370.860	3.001 *	370.750	0.966	370.950	3.914
26	371.070	7.289	370.970	4.758 *	370.890	3.516	370.850	2.953	370.750	0.921	370.940	3.717
27	371.060	6.943 *	370.960	4.575	371.000	4.945	370.850	2.953	370.750	0.921	370.990	4.185
28	371.050	6.593	370.960	4.510	371.080	6.931 *	370.840	2.633	370.750	0.798	371.000	4.255
29	371.050	6.435	370.960	4.484	370.020	5.627	370.830	2.781	370.740	0.583	371.000	4.253 *
30	371.040	6.223	370.950	4.396			370.820	2.653	370.740	0.576	370.960	3.998
31	371.400	6.193	370.950	4.363 *			370.830	2.759			370.940	3.730
Ten-Daily Mean												
I Ten-Daily	371.050	7.549	371.022	5.690	370.935	4.087	370.968	4.713	370.818	2.593	370.731	0.567
II Ten-Daily	371.039	6.660	370.967	4.798	370.892	3.523	370.893	3.583	370.790	1.779	370.987	5.100
III Ten-Daily	371.092	6.912	370.969	4.681	370.819	4.110	370.849	2.965	370.752	0.960	370.975	4.299
Monthly												
Min.	371.020	6.193	370.950	4.363	370.020	3.097	370.820	2.633	370.740	0.576	370.720	0.083
Max.	371.400	11.73	371.040	6.161	371.080	6.931	371.010	5.412	370.830	2.733	371.080	8.133
Mean	371.061	7.036	370.985	5.044	370.884	3.899	370.904	3.753	370.788	1.805	370.900	3.353

Peak Computed Discharge = 158.4 cumecs on 26/07/2015

Corres. Water Level :372.32 m

Lowest Computed Discharge = 0.923 cumecs on 08/05/2016

Corres. Water Level :370.72 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

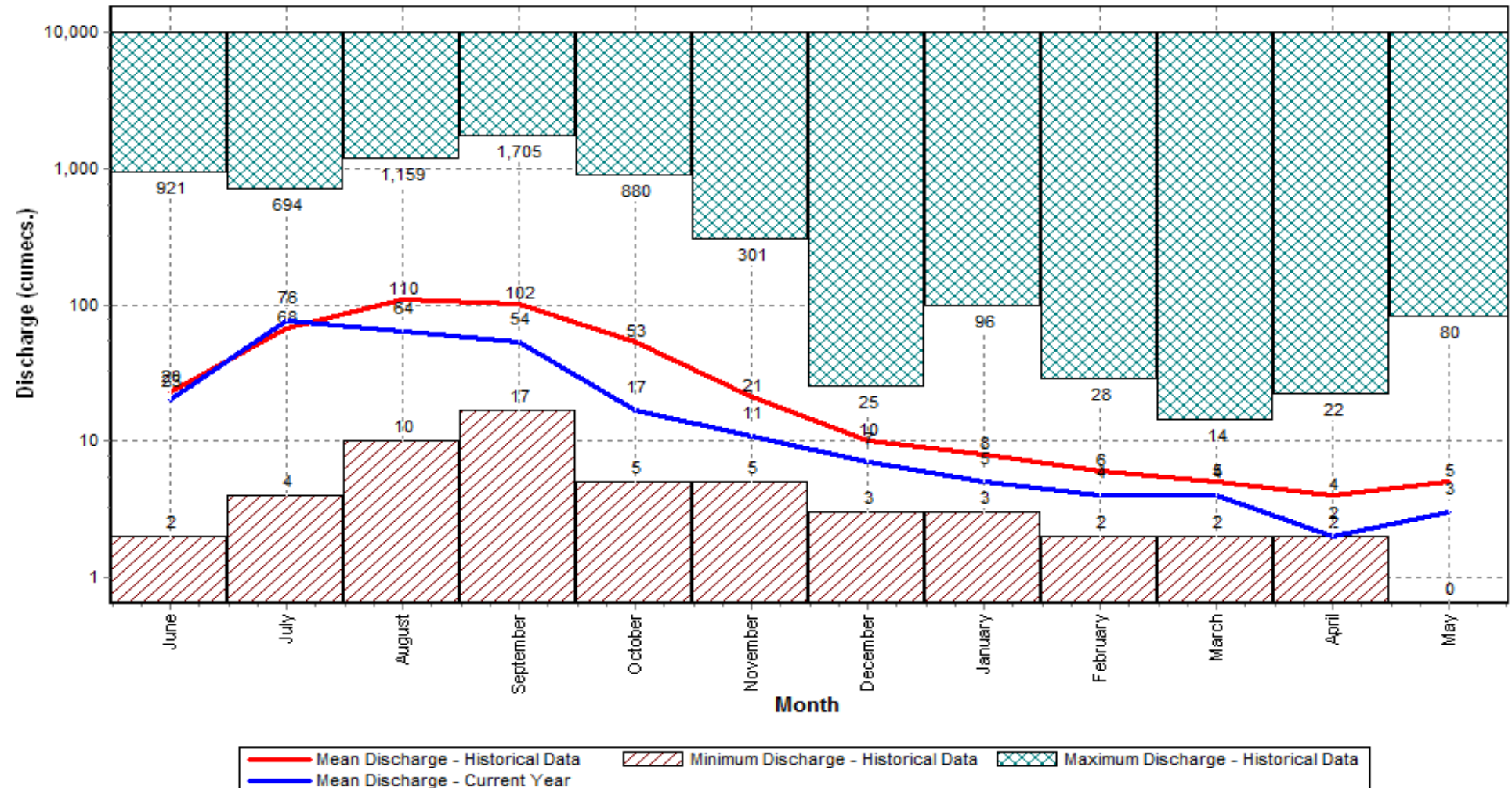
Station Name : CHAMPUA (EC000R5)

Data considered : 1991-2016

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar



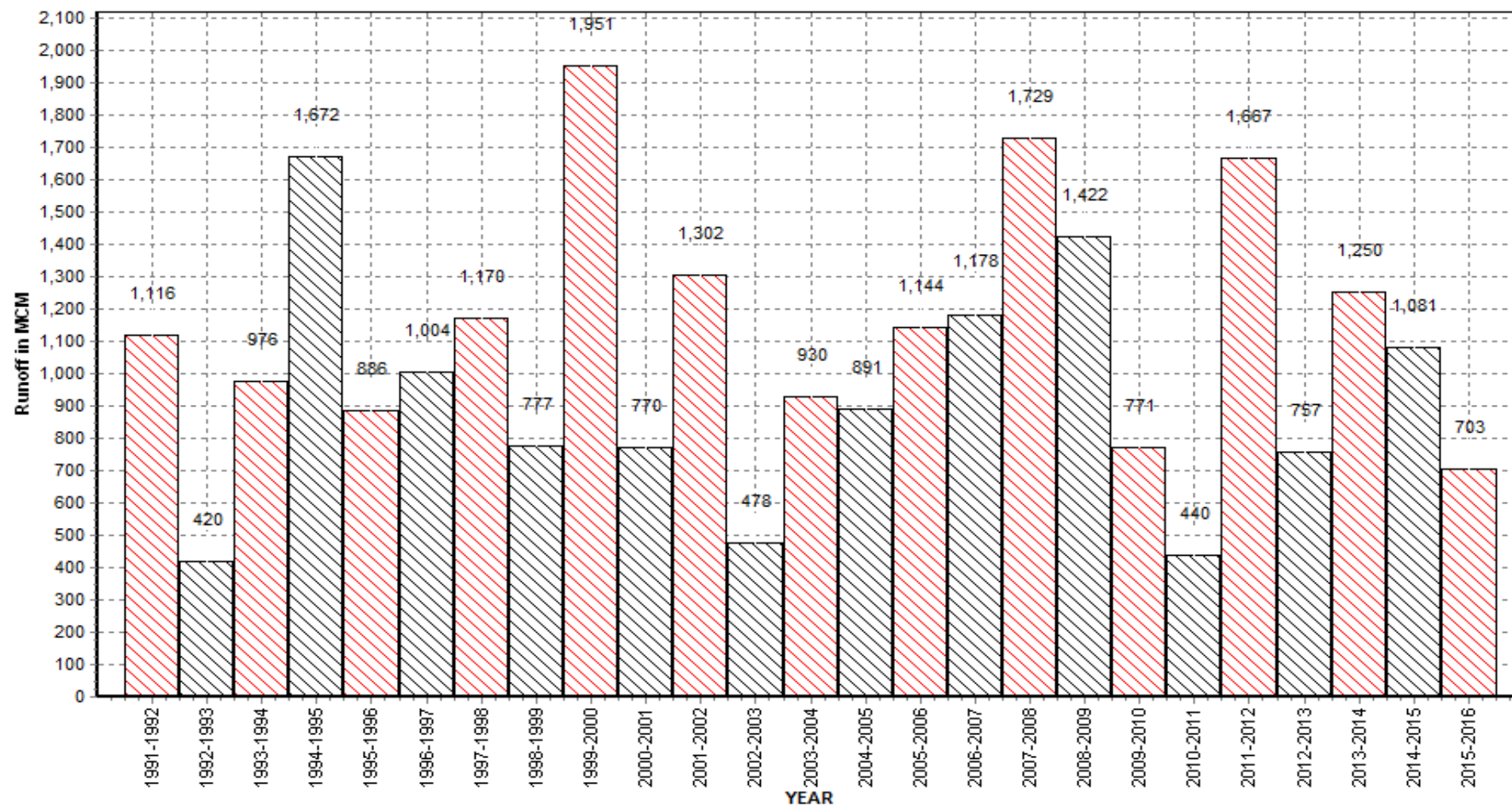
Annual Runoff Values for the period: 1991 - 2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



Note: Missing values have not been considered while arriving at Annual Runoff

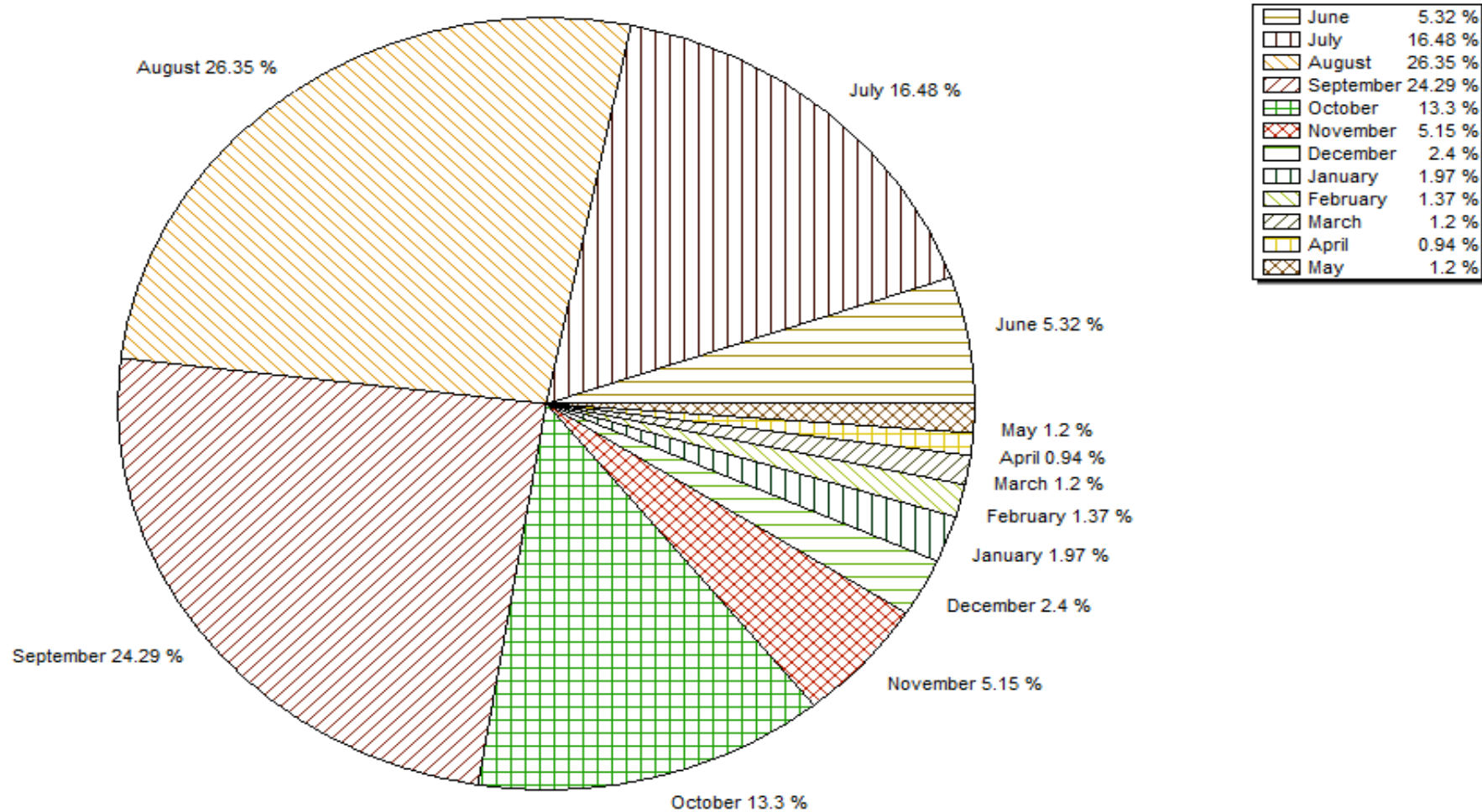
Monthly Average Runoff based on period : 1991-2015

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



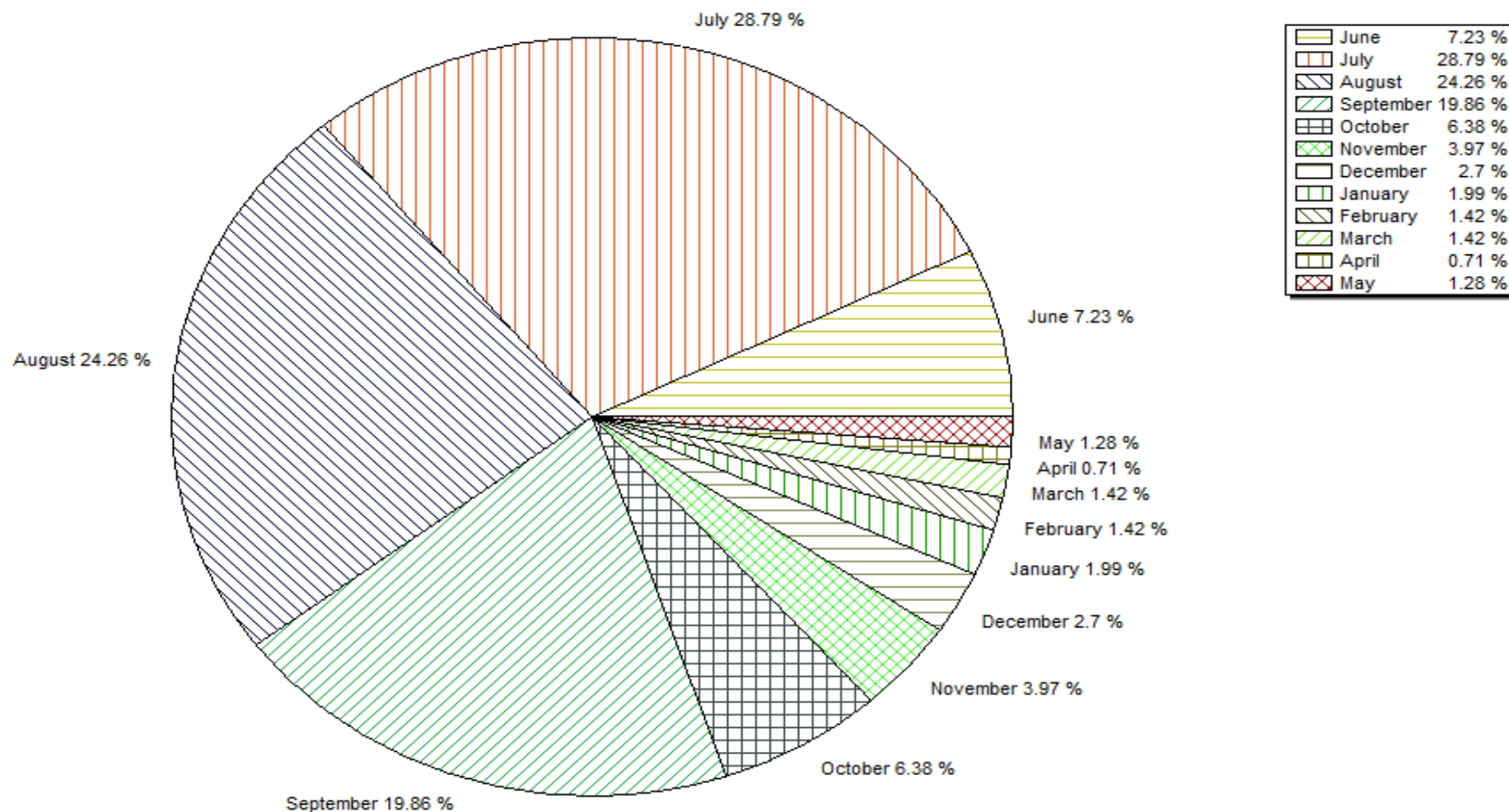
Monthly Runoff for the Year : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



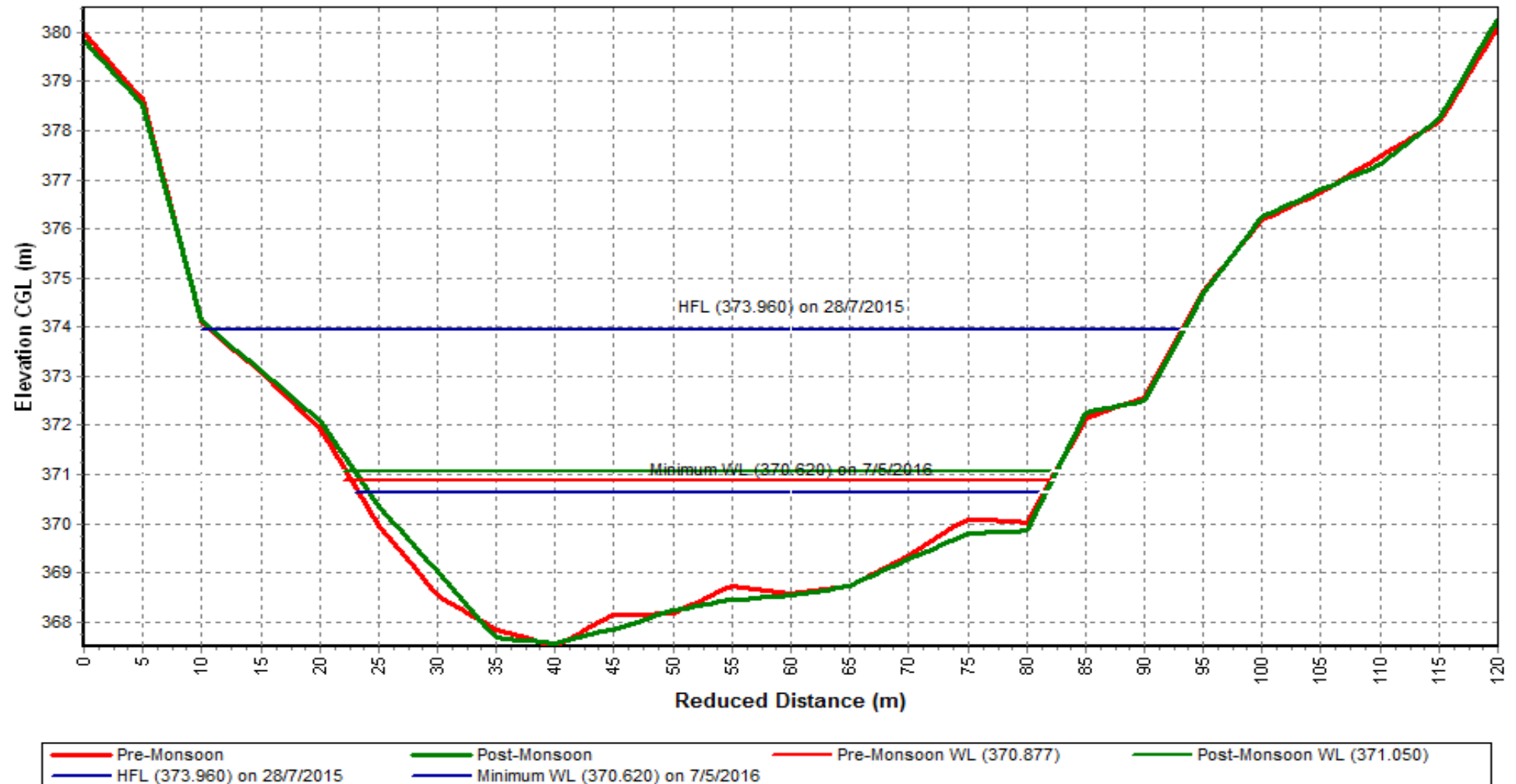
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



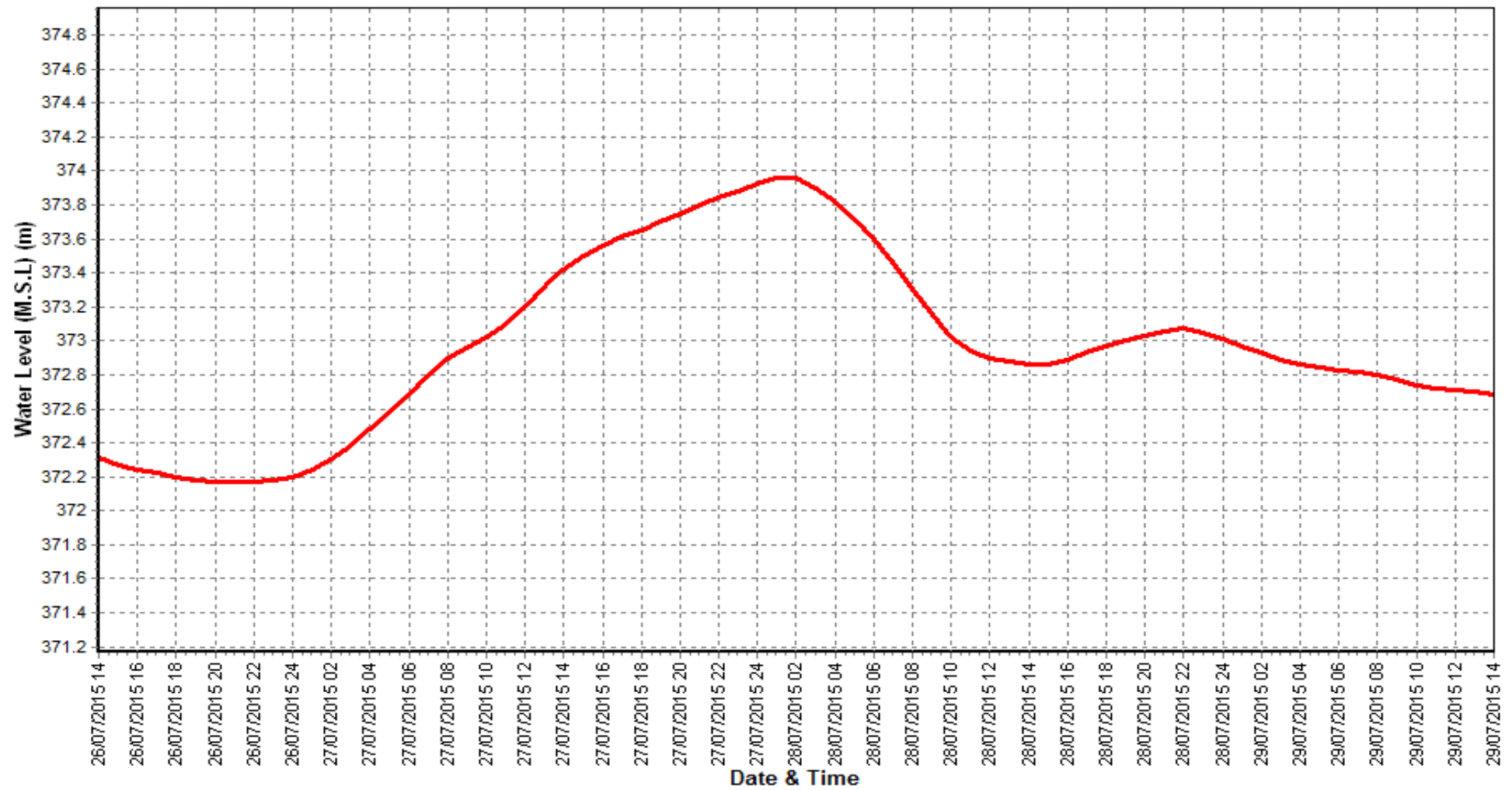
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



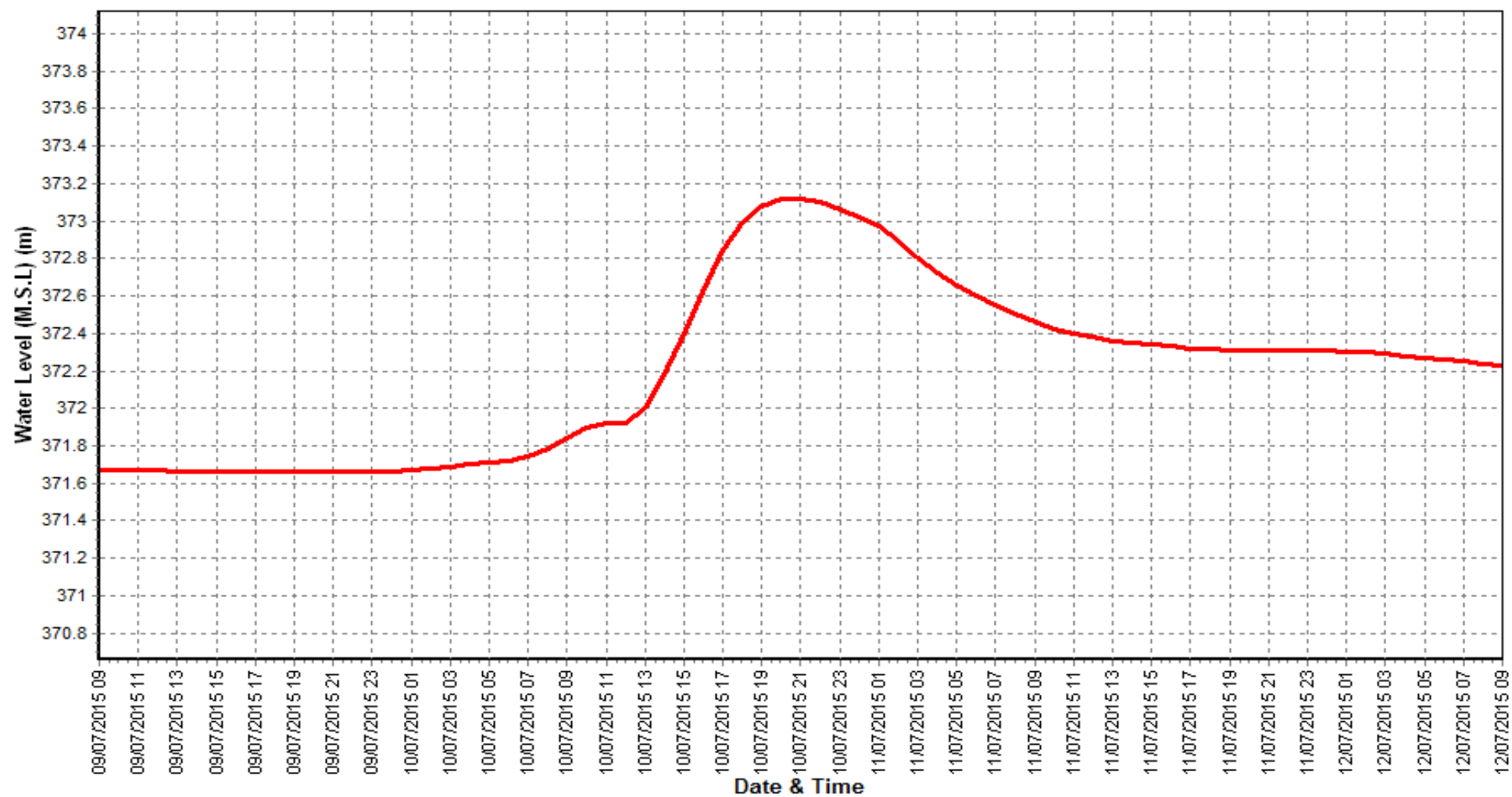
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



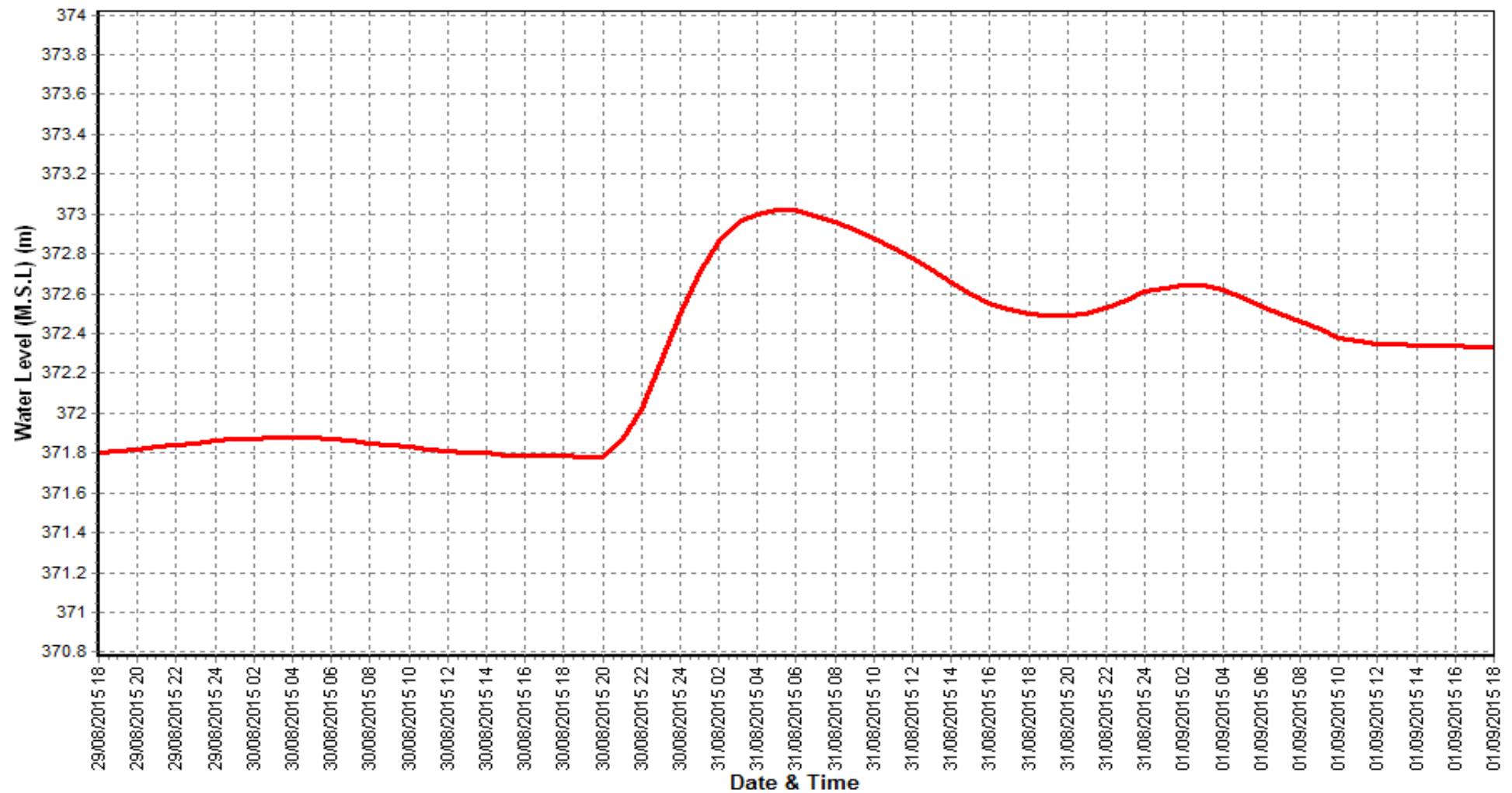
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	2.205	0.000	0.000	0.020	0.020	4	42.70	0.000	0.000	0.424	0.424	1564	83.46	0.000	0.000	0.340	0.340	2452
2	2.324	0.000	0.000	0.034	0.034	7	41.57	0.000	0.000	0.463	0.463	1663	94.40					
3	2.750	0.000	0.000	0.043	0.043	10	40.37	0.000	0.000	0.343	0.343	1196	113.3	0.000	0.000	0.219	0.219	2144
4	3.266	0.000	0.000	0.041	0.041	12	39.19	0.000	0.000	0.213	0.213	721	117.3	0.000	0.074	0.306	0.380	3852
5	4.806	0.000	0.000	0.034	0.034	14	39.60						94.70	0.000	0.000	0.214	0.214	1751
6	5.149	0.000	0.000	0.038	0.038	17	45.52	0.000	0.000	0.231	0.231	909	83.80	0.000	0.000	0.243	0.243	1759
7	6.220						39.17	0.000	0.000	0.245	0.245	829	66.43	0.000	0.000	0.280	0.280	1607
8	5.728	0.000	0.000	0.039	0.039	19	44.60	0.000	0.000	0.473	0.473	1823	56.13	0.000	0.000	0.234	0.234	1135
9	5.421	0.000	0.000	0.042	0.042	20	42.65	0.000	0.000	0.670	0.670	2469	52.93					
10	5.198	0.000	0.000	0.025	0.025	11	58.60	0.000	0.000	0.494	0.494	2501	51.84	0.000	0.000	0.139	0.139	623
11	4.848	0.000	0.000	0.024	0.024	10	127.2	0.089	0.105	1.178	1.372	15079	48.58	0.000	0.000	0.115	0.115	483
12	4.209	0.000	0.000	0.022	0.022	8	97.63						47.15	0.000	0.000	0.156	0.156	636
13	3.681	0.000	0.000	0.023	0.023	7	59.07	0.000	0.000	0.600	0.600	3062	54.71	0.000	0.000	0.193	0.193	912
14	10.31						48.00	0.000	0.000	0.211	0.211	875	49.75	0.000	0.000	0.166	0.166	714
15	7.773	0.000	0.000	0.230	0.230	154	43.00	0.000	0.000	0.112	0.112	416	53.15					
16	5.585	0.000	0.000	0.118	0.118	57	41.95	0.000	0.000	0.093	0.093	337	47.17					
17	27.50	0.000	0.000	0.188	0.188	447	41.80	0.000	0.000	0.090	0.090	325	54.85	0.000	0.000	0.181	0.181	858
18	11.14	0.000	0.000	0.238	0.238	229	39.33						46.21	0.000	0.000	0.184	0.184	735
19	8.097	0.000	0.000	0.300	0.300	210	38.30						44.59	0.000	0.000	0.138	0.138	532
20	9.215	0.000	0.000	0.134	0.134	107	37.30	0.000	0.000	0.104	0.104	335	43.97	0.000	0.000	0.173	0.173	657
21	10.51						50.08	0.000	0.000	0.303	0.303	1311	43.26	0.000	0.000	0.177	0.177	662
22	10.25	0.000	0.000	0.155	0.155	137	49.24	0.000	0.000	0.208	0.208	885	42.33	0.000	0.000	0.191	0.191	699
23	14.35	0.000	0.000	0.706	0.706	876	53.07	0.000	0.000	0.459	0.459	2105	40.84					
24	125.8	0.087	0.102	1.285	1.474	16017	49.39	0.000	0.000	0.184	0.184	785	39.37	0.000	0.000	0.195	0.195	663
25	87.97	0.000	0.070	0.642	0.712	5411	47.27	0.000	0.000	0.151	0.151	617	36.68	0.000	0.000	0.199	0.199	631
26	38.13	0.000	0.000	0.446	0.446	1469	158.4						42.14	0.000	0.000	0.237	0.237	863
27	34.80	0.000	0.000	0.339	0.339	1019	230.4	0.110	0.233	0.685	1.028	20460	43.66	0.000	0.000	0.209	0.209	788
28	50.11						309.8	0.100	0.183	1.009	1.292	34585	41.98	0.000	0.000	0.219	0.219	794
29	42.42	0.000	0.000	0.527	0.527	1932	180.7	0.095	0.132	0.891	1.118	17457	63.89	0.000	0.000	0.188	0.188	1038
30	38.52	0.000	0.000	0.499	0.499	1661	115.3	0.042	0.085	0.785	0.912	9084	60.60					
31							96.96	0.000	0.000	0.626	0.626	5244	221.3	0.083	0.141	0.605	0.829	15853
Ten Daily Mean																		
Ten Daily I	4.307	0.000	0.000	0.035	0.035	13	43.40	0.000	0.000	0.395	0.395	1519	81.43	0.000	0.009	0.247	0.256	1915
Ten Daily II	9.236	0.000	0.000	0.142	0.142	137	57.36	0.013	0.015	0.341	0.369	2918	49.01	0.000	0.000	0.163	0.163	691
Ten Daily III	45.28	0.011	0.022	0.575	0.607	3565	121.9	0.035	0.063	0.530	0.628	9253	61.46	0.009	0.016	0.247	0.272	2443
Monthly																		
Total						29865						126638						42838

Annual Sediment Load (Metric Tonnes) : 230305

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	123.1	0.000	0.086	0.494	0.580	6166	33.90	0.000	0.000	0.076	0.076	223	10.86					
2	85.52	0.000	0.000	0.394	0.394	2911	32.46						10.35	0.000	0.000	0.030	0.030	27
3	62.09	0.000	0.000	0.228	0.228	1223	31.97	0.000	0.000	0.067	0.067	185	10.52	0.000	0.000	0.028	0.028	25
4	77.02	0.000	0.000	0.264	0.264	1757	31.18						10.24	0.000	0.000	0.028	0.028	25
5	63.32	0.000	0.000	0.234	0.234	1280	29.92	0.000	0.000	0.065	0.065	168	10.07	0.000	0.000	0.025	0.025	22
6	59.61						23.41	0.000	0.000	0.082	0.082	166	9.779	0.000	0.000	0.024	0.024	20
7	58.79	0.000	0.000	0.170	0.170	864	22.11	0.000	0.000	0.079	0.079	151	9.771	0.000	0.000	0.023	0.023	19
8	50.09	0.000	0.000	0.131	0.131	567	20.41	0.000	0.000	0.066	0.066	116	9.601					
9	47.36	0.000	0.000	0.161	0.161	659	18.29	0.000	0.000	0.059	0.059	93	9.508	0.000	0.000	0.024	0.024	20
10	47.37	0.000	0.000	0.185	0.185	757	17.80	0.000	0.000	0.051	0.051	78	9.493	0.000	0.000	0.021	0.021	17
11	42.78	0.000	0.000	0.165	0.165	610	16.63						9.280					
12	40.62	0.000	0.000	0.163	0.163	572	15.67	0.000	0.000	0.051	0.051	69	9.276	0.000	0.000	0.021	0.021	17
13	44.67						13.97	0.000	0.000	0.045	0.045	54	71.17	0.000	0.000	0.021	0.021	129
14	40.18	0.000	0.000	0.271	0.271	941	13.66	0.000	0.000	0.047	0.047	55	8.932	0.000	0.000	0.018	0.018	14
15	38.32	0.000	0.000	0.237	0.237	785	12.94	0.000	0.000	0.042	0.042	47	8.828					
16	41.85	0.000	0.000	0.275	0.275	994	12.80	0.000	0.000	0.042	0.042	46	8.715	0.000	0.000	0.019	0.019	14
17	57.90						12.65	0.000	0.000	0.370	0.370	404	8.293	0.000	0.000	0.018	0.018	13
18	58.66	0.000	0.000	0.227	0.227	1151	12.65						8.174	0.000	0.000	0.018	0.018	13
19	48.92	0.000	0.000	0.213	0.213	900	12.44	0.000	0.000	0.038	0.038	41	8.085	0.000	0.000	0.019	0.019	13
20	46.04						12.25	0.000	0.000	0.039	0.039	41	7.793	0.000	0.000	0.018	0.018	12
21	50.61	0.000	0.000	0.189	0.189	826	12.17						7.539	0.000	0.000	0.018	0.018	12
22	75.03	0.000	0.000	0.202	0.202	1309	11.90						7.421					
23	50.98	0.000	0.000	0.194	0.194	855	11.90	0.000	0.000	0.035	0.035	36	7.303	0.000	0.000	0.019	0.019	12
24	48.51	0.000	0.000	0.186	0.186	780	11.55						7.057	0.000	0.000	0.017	0.017	10
25	47.99						11.19						7.041					
26	47.47	0.000	0.000	0.165	0.165	677	11.19	0.000	0.000	0.036	0.036	35	6.919	0.000	0.000	0.018	0.018	11
27	46.67						10.84	0.000	0.000	0.034	0.034	32	7.005	0.000	0.000	0.017	0.017	10
28	44.24	0.000	0.000	0.114	0.114	436	10.86	0.000	0.000	0.038	0.038	36	7.066	0.000	0.000	0.016	0.016	10
29	36.67	0.000	0.000	0.100	0.100	317	10.72	0.000	0.000	0.037	0.037	34	7.231					
30	33.75	0.000	0.000	0.091	0.091	265	11.08	0.000	0.000	0.034	0.034	33	7.300	0.000	0.000	0.015	0.015	9
31							11.12	0.000	0.000	0.031	0.031	30						
Ten Daily Mean																		
Ten Daily I	67.42	0.000	0.010	0.251	0.261	1798	26.14	0.000	0.000	0.068	0.068	148	10.02	0.000	0.000	0.025	0.025	22
Ten Daily II	45.99	0.000	0.000	0.222	0.222	850	13.57	0.000	0.000	0.084	0.084	95	14.85	0.000	0.000	0.019	0.019	28
Ten Daily III	48.19	0.000	0.000	0.155	0.155	683	11.32	0.000	0.000	0.035	0.035	34	7.188	0.000	0.000	0.017	0.017	11
Monthly																		
Total						27601						2174						475

Annual Sediment Load (Metric Tonnes) : 230305

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	7.143						6.000						4.329	0.000	0.000	0.015	0.015	6
2	11.73						6.161						4.308					
3	6.938						5.880						4.172					
4	7.223						5.880	0.000	0.000	0.016	0.016	8	4.163					
5	7.174						5.715				0.000	0	4.176					
6	7.178						5.653						4.044					
7	7.040	0.000	0.000	0.015	0.015	9	5.522						4.043					
8	7.082						5.506						3.898	0.000	0.000	0.017	0.017	6
9	7.011						5.361						3.884					
10	6.976						5.218						3.852					
11	6.719						5.019	0.000	0.000	0.019	0.019	8	3.778					
12	6.648						4.977						3.669					
13	6.234						4.975						3.637					
14	6.813	0.000	0.000	0.017	0.017	10	4.931						3.638					
15	6.598						4.800						3.539	0.000	0.000	0.015	0.015	5
16	6.510						4.717						3.494					
17	6.372						4.713						3.462					
18	7.049						4.651	0.000	0.000	0.016	0.016	6	3.367					
19	6.829						4.619						3.321					
20	6.827						4.578						3.320					
21	6.720	0.000	0.000	0.016	0.016	9	4.911						3.322					
22	7.028						4.993						3.266	0.000	0.000	0.014	0.014	4
23	7.657						4.869						3.164					
24	7.661						4.867						3.121					
25	7.293						4.762	0.000	0.000	0.016	0.016	7	3.097					
26	7.289						4.758						3.516					
27	6.943						4.575						4.945					
28	6.593	0.000	0.000	0.017	0.017	10	4.510						6.931					
29	6.435						4.484						5.627	0.000	0.000	0.708	0.708	344
30	6.223						4.396											
31	6.193						4.363											
Ten Daily Mean																		
Ten Daily I	7.549	0.000	0.000	0.015	0.015	9	5.690	0.000	0.000	0.016	0.008	4	4.087	0.000	0.000	0.016	0.016	6
Ten Daily II	6.660	0.000	0.000	0.017	0.017	10	4.798	0.000	0.000	0.018	0.018	7	3.523	0.000	0.000	0.015	0.015	5
Ten Daily III	6.912	0.000	0.000	0.017	0.017	9	4.681	0.000	0.000	0.016	0.016	7	4.110	0.000	0.000	0.361	0.361	174
Monthly																		
Total						38						29						364

Annual Sediment Load (Metric Tonnes) : 230305

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	5.412						2.733						1.087					
2	5.296						2.719						0.580	0.000	0.000	0.016	0.016	1
3	4.785						2.627						0.571					
4	4.922						2.560	0.000	0.000	0.020	0.020	4	0.567					
5	4.732						2.664						0.563					
6	4.734						2.590						0.159					
7	4.563						2.566						0.083					
8	4.391	0.000	0.000	0.043	0.043	16	2.482						0.923					
9	4.259						2.496						0.578	0.000	0.000	0.059	0.059	3
10	4.034						2.489						0.559					
11	3.844						2.442	0.000	0.000	0.020	0.020	4	5.849					
12	3.824						2.424						5.355					
13	3.719						2.441						8.133					
14	3.736	0.000	0.000	0.025	0.025	8	2.420						6.932					
15	3.698						1.473						5.658					
16	3.423						1.425						3.105	0.000	0.000	0.154	0.154	41
17	3.380						1.604						3.865					
18	3.113						1.366	0.000	0.000	0.018	0.018	2	2.949					
19	3.317						1.127						5.096					
20	3.771						1.062						4.057					
21	3.771	0.000	0.000	0.030	0.030	10	1.416						3.456					
22	3.101						1.037						3.757					
23	2.998						1.005						6.761	0.000	0.000	0.195	0.195	114
24	3.001						1.341						5.258					
25	3.001						0.966	0.000	0.000	0.018	0.018	2	3.914					
26	2.953						0.921						3.717					
27													4.185					
28	2.633	0.000	0.000	0.021	0.021	5	0.798						4.255					
29	2.781						0.583						4.253					
30	2.653						0.576						3.998	0.000	0.000	0.208	0.208	72
31	2.759												3.730					
Ten Daily Mean																		
Ten Daily I	4.713	0.000	0.000	0.043	0.043	16	2.593	0.000	0.000	0.020	0.020	4	0.567	0.000	0.000	0.038	0.038	2
Ten Daily II	3.583	0.000	0.000	0.025	0.025	8	1.779	0.000	0.000	0.019	0.019	3	5.100	0.000	0.000	0.154	0.154	41
Ten Daily III	2.965	0.000	0.000	0.026	0.026	7	0.960	0.000	0.000	0.018	0.018	2	4.299	0.000	0.000	0.202	0.202	93
Monthly																		
Total						39						12						231

Annual Sediment Load (Metric Tonnes) : 230305

Annual Sediment Load for period : 2002-2016**Station Name : CHAMPUA (EC000R5)****Local River : Baitarani****Division : E.E., Bhubaneswar****Sub-Division : Bhubaneswar**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
2002-2003	178766	1566	180332	478
2003-2004	573618	1443	575061	930
2004-2005	519075	1602	520677	891
2005-2006	583976	1962	585938	1144
2006-2007	554886	1890	556775	1178
2007-2008	865725	2771	868496	1729
2008-2009	1085022	1448	1086469	1422
2009-2010	178094	998	179092	771
2010-2011	119800	4729	124529	440
2011-2012	821117	4948	826065	1667
2012-2013	203423	252	203675	757
2013-2014	443770	802	444571	1250
2014-2015	480249	451	480700	1081
2015-2016	229591	714	230305	703

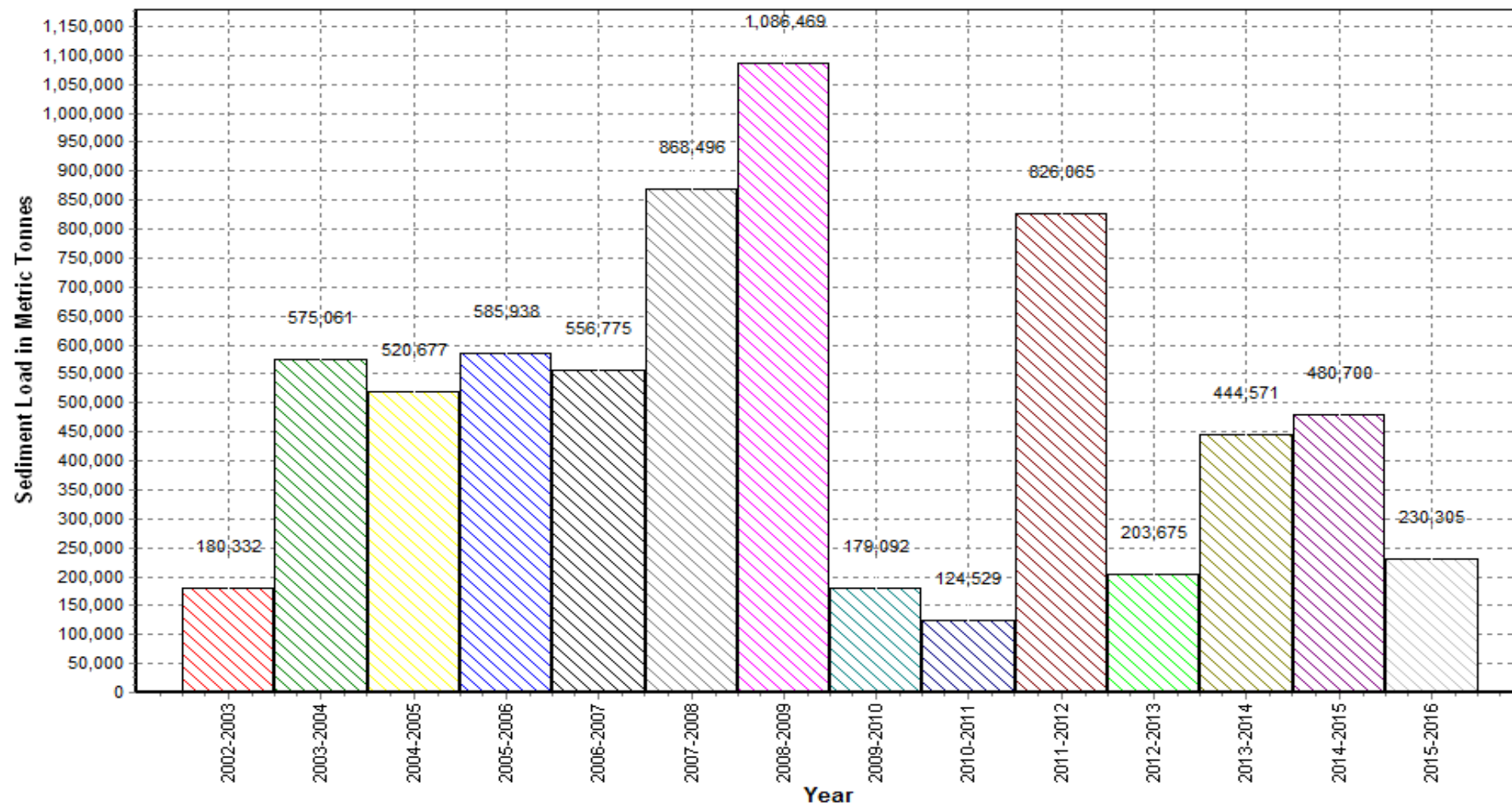
Annual Sediment Load for the period: 2002-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

Division : E.E., Bhubaneswar

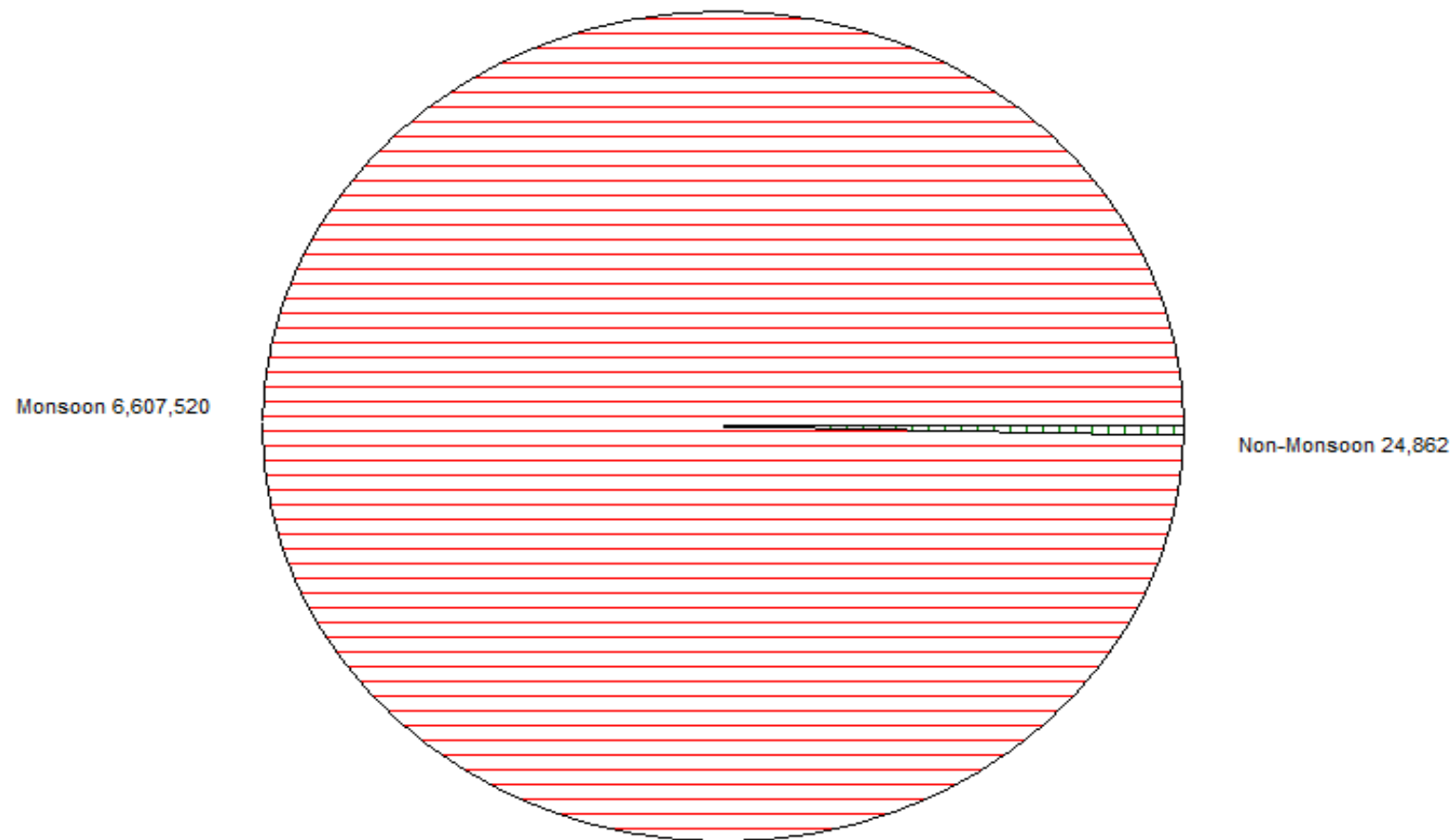
Sub-Division : Bhubaneswar



Seasonal Sediment Load for the period : 2002-2015

Station Name : CHAMPUA (EC000R5)
Local River : Baitarani

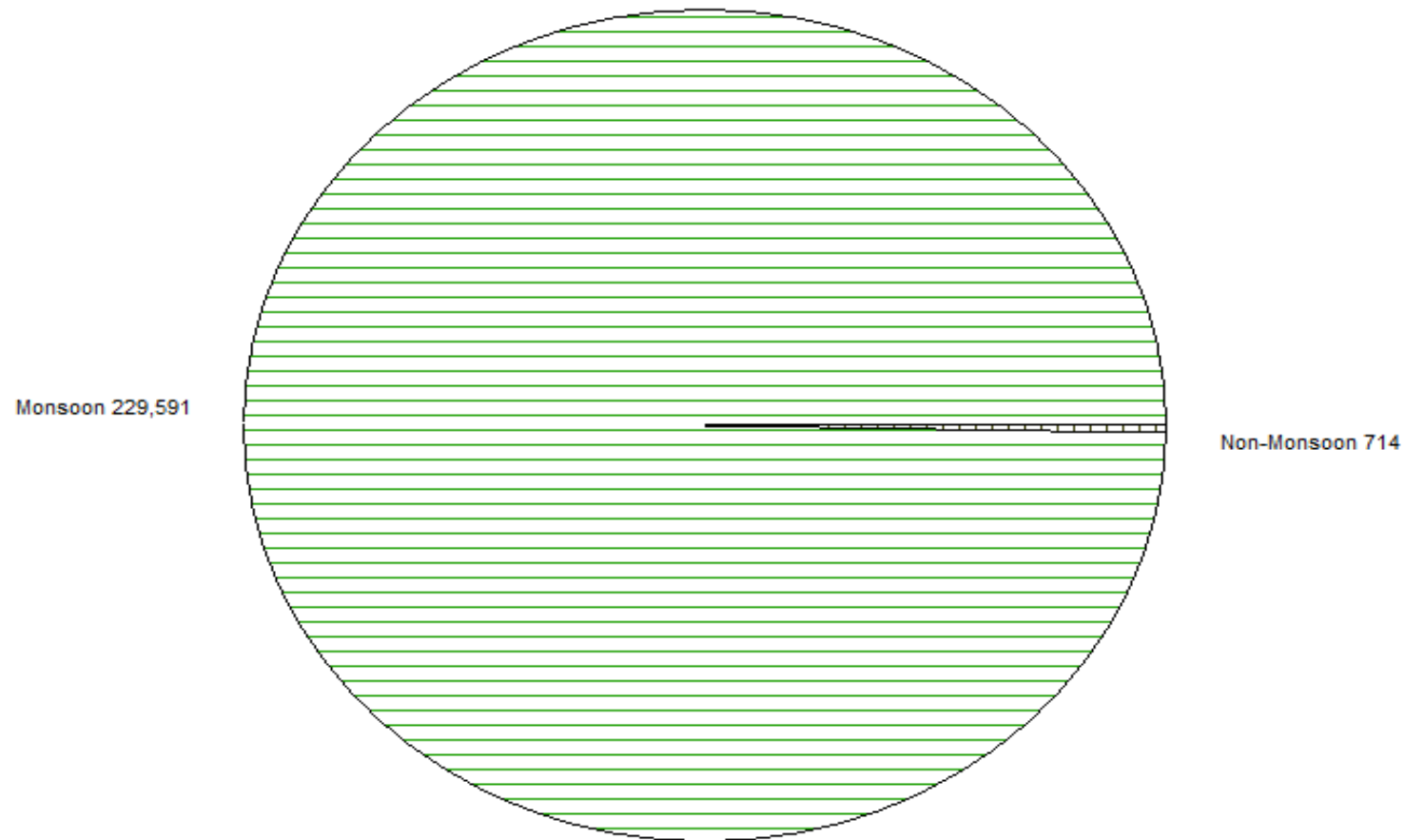
Division : E.E., Bhubaneswar
Sub-Division : Bhubaneswar



Seasonal Sediment Load for the Year: 2015-2016

Station Name : CHAMPUA (EC000R5)
Local River : Baitarani

Division : E.E., Bhubaneswar
Sub-Division : Bhubaneswar



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Division : E.E., Bhubaneswar

Local River : Baitarani

River Water Analysis

Sub-Division : Bhubaneswar

S.No	Parameters	01.06.2015	01.08.2015	01.10.2015	01.12.2015	01.02.2016	01.04.2016
		A	A	A	A	A	A
	PHYSICAL						
1	Q (cumec)						
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	158	190	225	202	336	254
4	EC_GEN (µmho/cm)	169	184	215	190	340	266
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.1	6.7	6.8	6.5	8.4	7.9
7	pH_GEN (pH units)	7.4	6.8	6.7	7.3	8.5	7.6
8	Temp (deg C)	26.5	26.5	20.0	29.0	26.0	23.0
	CHEMICAL						
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	13.8	0.0
2	ALK-TOT (mgCaCO3/L)	88	83	46	51	74	51
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	26	24	21	19	22	29
5	Cl (mg/L)	11.3	13.2	13.2	13.2	22.6	24.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	16.6	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.2	0.3	0.7	0.2	0.2	0.3
9	HCO3 (mg/L)	107	101	56	62	56	62
10	K (mg/L)	2.7	7.3	3.9	6.8	4.3	1.8
11	Mg (mg/L)	14.6	13.6	9.7	10.7	12.6	13.6
12	Na (mg/L)	3.5	11.9	4.6	15.8	10.3	37.0
13	NO2+NO3 (mg N/L)	1.06	0.98	0.91	0.94	0.69	0.78
14	NO2-N (mgN/L)	0.00	0.00	0.07	0.03	0.00	0.01
15	NO3-N (mgN/L)	1.06	0.98	0.84	0.91	0.69	0.77
16	P-Tot (mgP/L)	0.001	0.010	0.001	0.010	0.010	0.010
17	SiO2 (mg/L)	7.0	5.0	6.0	5.0	5.0	5.0
18	SO4 (mg/L)	1.3	8.0	8.0	56.0	52.0	52.9
	BIOLOGICAL/BACTERIOLOGICAL						
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	64	60	52	48	56	72
2	HAR_Total (mgCaCO3/L)	125	117	93	93	109	129
3	Na% (%)	6	17	9	25	16	38
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.1	0.5	0.2	0.7	0.4	1.4
	PESTICIDES						

Water Quality Summary for the period : 2015-2016

Station Name : CHAMPUA (EC000R5)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (μmho/cm)	6	336	158	228
3	EC_GEN (μmho/cm)	6	340	169	227
4	pH_FLD (pH units)	6	8.4	6.5	7.2
5	pH_GEN (pH units)	6	8.5	6.7	7.4
6	Temp (deg C)	6	29.0	20.0	25.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	13.8	0.0	2.3
2	ALK-TOT (mgCaCO3/L)	6	88	46	65
3	B (mg/L)	6	0.01	0.01	0.01
4	Ca (mg/L)	6	29	19	24
5	Cl (mg/L)	6	24.5	11.3	16.3
6	CO3 (mg/L)	6	16.6	0.0	2.8
7	F (mg/L)	6	0.05	0.05	0.05
8	Fe (mg/L)	6	0.7	0.2	0.3
9	HCO3 (mg/L)	6	107	56	74
10	K (mg/L)	6	7.3	1.8	4.5
11	Mg (mg/L)	6	14.6	9.7	12.5
12	Na (mg/L)	6	37.0	3.5	13.8
13	NO2+NO3 (mg N/L)	6	1.06	0.69	0.89
14	NO2-N (mgN/L)	6	0.07	0.00	0.02
15	NO3-N (mgN/L)	6	1.06	0.69	0.88
16	P-Tot (mgP/L)	6	0.010	0.001	0.007
17	SiO2 (mg/L)	6	7.0	5.0	5.5
18	SO4 (mg/L)	6	56.0	1.3	29.7
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	72	48	59
2	HAR_Total (mgCaCO3/L)	6	129	93	111
3	Na% (%)	6	38	6	19
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	1.4	0.1	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

River Water

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

S.No	Parameters	Flood																
		Jun - Oct														2001-2002	2002-2003	2003-2004
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
	PHYSICAL																	
1	Q (cumec)																	
2	EC_FLD (µmho/cm)	80	184		88			133		115	129	94	107	135	162	191	79	94
3	EC_GEN (µmho/cm)	80	182		88			131		115	129	94	107	135	162	189	79	94
4	pH_FLD (pH units)	7.9	7.7		7.6			7.5		7.6	7.6	8.1	7.6	7.4	7.3	6.8	7.6	7.6
5	pH_GEN (pH units)	7.9	7.7		7.6			7.5		7.6	7.6	8.1	7.6	7.4	7.3	7.0	7.6	7.6
6	Temp (deg C)	25.5	26.9		25.7			23.7		27.5	28.0	26.0	26.9	26.8	27.5	24.3	22.1	22.5
	CHEMICAL																	
1	Alk-Phen (mgCaCO3/L)		0.0		0.0			0.0		0.0	0.0	0.0		0.0		0.0		0.0
2	ALK-TOT (mgCaCO3/L)		132		39			64		40	41	55		56		72		67
3	B (mg/L)	0.00	0.00		0.00			0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)	8	18		9			12		10	12	12	20	12	22	24	8	9
5	Cl (mg/L)	5.8	10.5		5.4			11.8		9.1	9.4	12.6	14.1	13.3	10.4	12.6	5.8	5.8
6	CO3 (mg/L)	0.0	0.0		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.50	0.44		0.48			0.00		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.39	0.27
8	Fe (mg/L)	0.1	0.1		0.1			0.0		0.0	0.1	0.0	1.4	0.1	0.6	0.4	0.1	0.1
9	HCO3 (mg/L)	25	81		33			54		44	50	68	108	64	88	88	34	41
10	K (mg/L)	0.9	1.8		1.6			1.8		1.6	1.7	1.4	3.8	1.0	2.8	4.6	0.8	1.3
11	Mg (mg/L)	2.4	7.0		2.9			4.2		4.9	4.9	3.6	4.1	2.2	9.7	12.6	2.9	3.2
12	Na (mg/L)	4.0	6.9		3.7			7.8		5.4	5.5	2.3	5.8	4.1	5.5	6.7	3.6	3.7
13	NO2+NO3 (mg N/L)	1.01	1.04		0.38			0.51		0.51	0.78	0.37	0.96	0.64	0.90	0.99	0.57	0.76
14	NO2-N (mgN/L)	0.00	0.00		0.00			0.00		0.00	0.00	0.07	0.01	0.00	0.00	0.02	0.01	0.00
15	NO3-N (mgN/L)	1.01	1.04		0.38			0.51		0.51	0.78	0.30	0.95	0.64	0.90	0.96	0.56	0.76
16	o-PO4-P (mg P/L)		0.000		0.000			0.000		0.000								0.000
17	P-Tot (mgP/L)	0.001	0.001		0.001			0.001		0.007	0.004	0.010	0.001	0.001	0.001	0.004	0.001	0.001
18	SiO2 (mg/L)	8.7	13.4		19.3			9.1		8.0	8.0	9.3	16.4	9.4	6.7	6.0	8.8	9.7
19	SO4 (mg/L)	5.9	6.3		6.4			4.6		5.4	5.1	7.4	14.2	13.7	8.9	5.8	1.6	1.7
	BIOLOGICAL/BACTERIOLOGICAL																	
	TRACE & TOXIC																	
	CHEMICAL INDICES																	
1	HAR_Ca (mgCaCO3/L)	20	44		22			31		24	29	29	51	30	55	59	19	23
2	HAR_Total (mgCaCO3/L)	30	73		32			48		44	50	44	68	39	95	111	31	36
3	Na% (%)	22	19		19			28		19	19	10	14	18	10	11	20	18
4	RSC (-)	0.0	0.0		0.0			0.0		0.0	0.0	0.3	0.4	0.3	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4		0.3			0.5		0.3	0.3	0.1	0.3	0.3	0.2	0.3	0.3	0.3
	PESTICIDES																	

Water Quality Seasonal Average for the period: 2001-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

River Water

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

S.No	Parameters	Winter																	
		Nov - Feb																	
		2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007
	PHYSICAL																		
1	Q (cumec)																		
2	EC_FLD (µmho/cm)	103			85		91	183	106	101	120	200	269	105	136				
3	EC_GEN (µmho/cm)	103			78		91	183	106	101	120	200	265	105	132				
4	pH_FLD (pH units)	7.8			7.5		7.5	7.5	7.8	7.4	7.4	7.2	7.4	7.7	7.8				
5	pH_GEN (pH units)	7.8			7.5		7.5	7.5	7.8	7.4	7.3	7.2	7.9	7.7	7.8				
6	Temp (deg C)	23.0			22.0		19.5	21.5	19.0	19.6	25.3	18.8	27.5	23.0	25.3				
	CHEMICAL																		
1	Alk-Phen (mgCaCO3/L)				0.0		0.0	0.0	0.0	0.0			6.9		8.2				
2	ALK-TOT (mgCaCO3/L)				55		26	59	60	65			62		111				
3	B (mg/L)	0.00			0.00		0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00				
4	Ca (mg/L)	10			7		8	14	12	15	14	10	21	9	11				
5	Cl (mg/L)	6.8			9.5		10.7	15.1	12.3	18.7	14.3	11.3	17.9	6.5	7.1				
6	CO3 (mg/L)	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	9.9				
7	F (mg/L)	0.56			0.00		0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.13	0.66				
8	Fe (mg/L)	0.3			0.0		0.0	0.1	0.0	3.0	0.1	0.4	0.2	0.0	0.3				
9	HCO3 (mg/L)	51			26		32	72	73	84	62	57	59	46	57				
10	K (mg/L)	1.3			0.4		1.0	2.3	1.1	2.2	1.0	1.6	5.6	2.5	11.7				
11	Mg (mg/L)	3.4			1.8		3.4	6.8	5.8	6.6	4.1	5.4	11.7	3.9	3.6				
12	Na (mg/L)	4.5			6.0		6.1	8.6	2.6	7.4	4.2	9.0	13.1	4.0	4.3				
13	NO2+NO3 (mg N/L)	0.40			0.81		0.46	0.72	0.36	1.02	0.56	0.95	0.81	0.78	1.01				
14	NO2-N (mgN/L)	0.00			0.00		0.00	0.00	0.07	0.00	0.01	0.01	0.01	0.00	0.00				
15	NO3-N (mgN/L)	0.40			0.81		0.46	0.72	0.29	1.02	0.55	0.93	0.80	0.78	1.01				
16	o-PO4-P (mg P/L)				0.000		0.000								0.000				
17	P-Tot (mgP/L)	0.001			0.001		0.010	0.001	0.010	0.001	0.001	0.001	0.010	0.001	0.001				
18	SiO2 (mg/L)	20.4			6.3		7.9	9.2	7.5	19.4	10.3	6.0	5.0	9.1	11.5				
19	SO4 (mg/L)	1.6			2.7		2.2	5.4	1.3	4.0	11.7	1.8	54.0	2.2	3.9				
	BIOLOGICAL/BACTERIOLOGICAL																		
	TRACE & TOXIC																		
	CHEMICAL INDICES																		
1	HAR_Ca (mgCaCO3/L)	26			19		20	34	30	38	35	26	52	23	28				
2	HAR_Total (mgCaCO3/L)	40			26		34	62	54	66	52	48	101	39	43				
3	Na% (%)	19			33		28	22	9	18	15	24	21	17	14				
4	RSC (-)	0.0			0.0		0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.5				
5	SAR (-)	0.3			0.5		0.5	0.5	0.2	0.4	0.3	0.5	0.6	0.3	0.3				
	PESTICIDES																		

Water Quality Seasonal Average for the period: 2001-2016

Station Name : CHAMPUA (EC000R5)

Local River : Baitarani

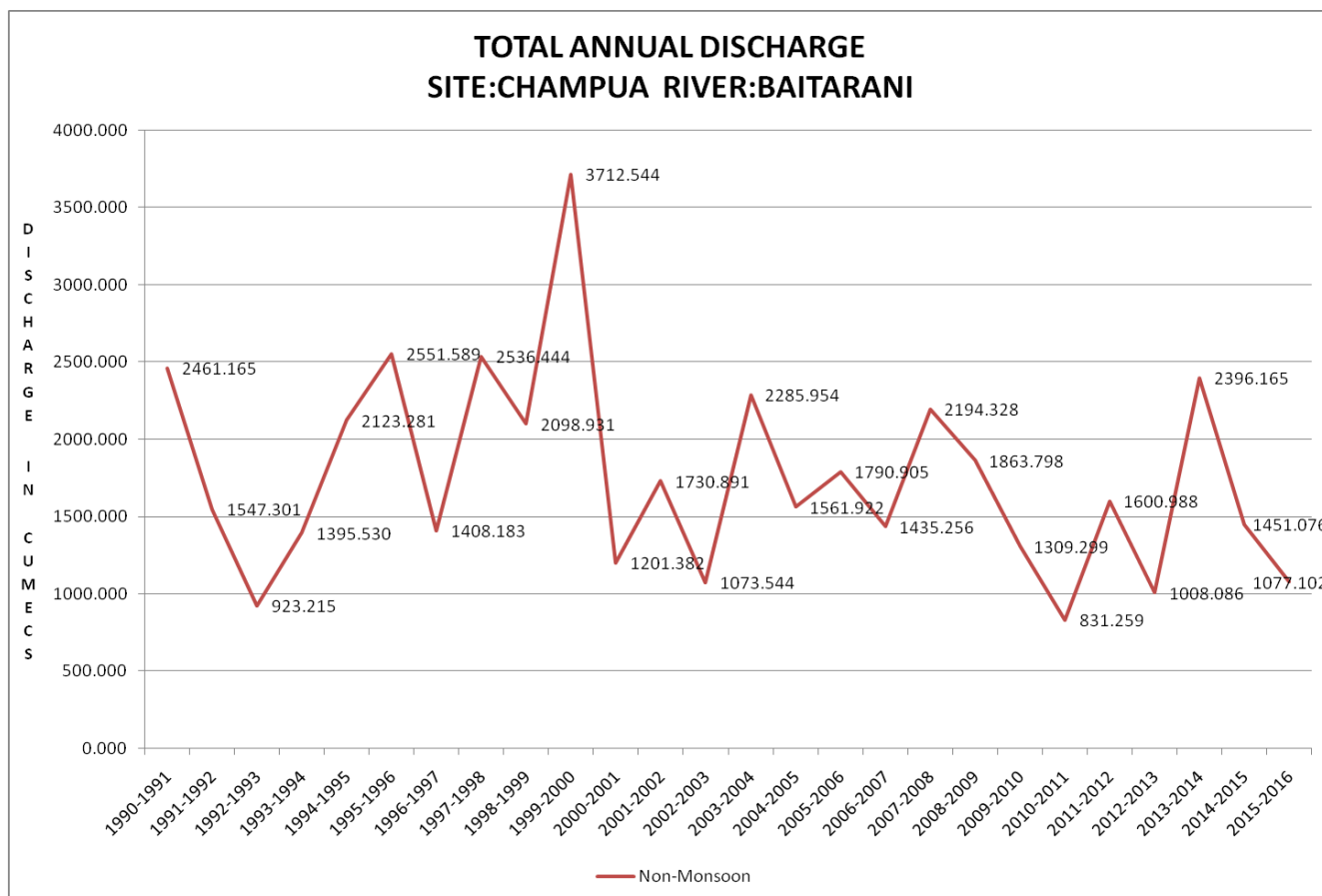
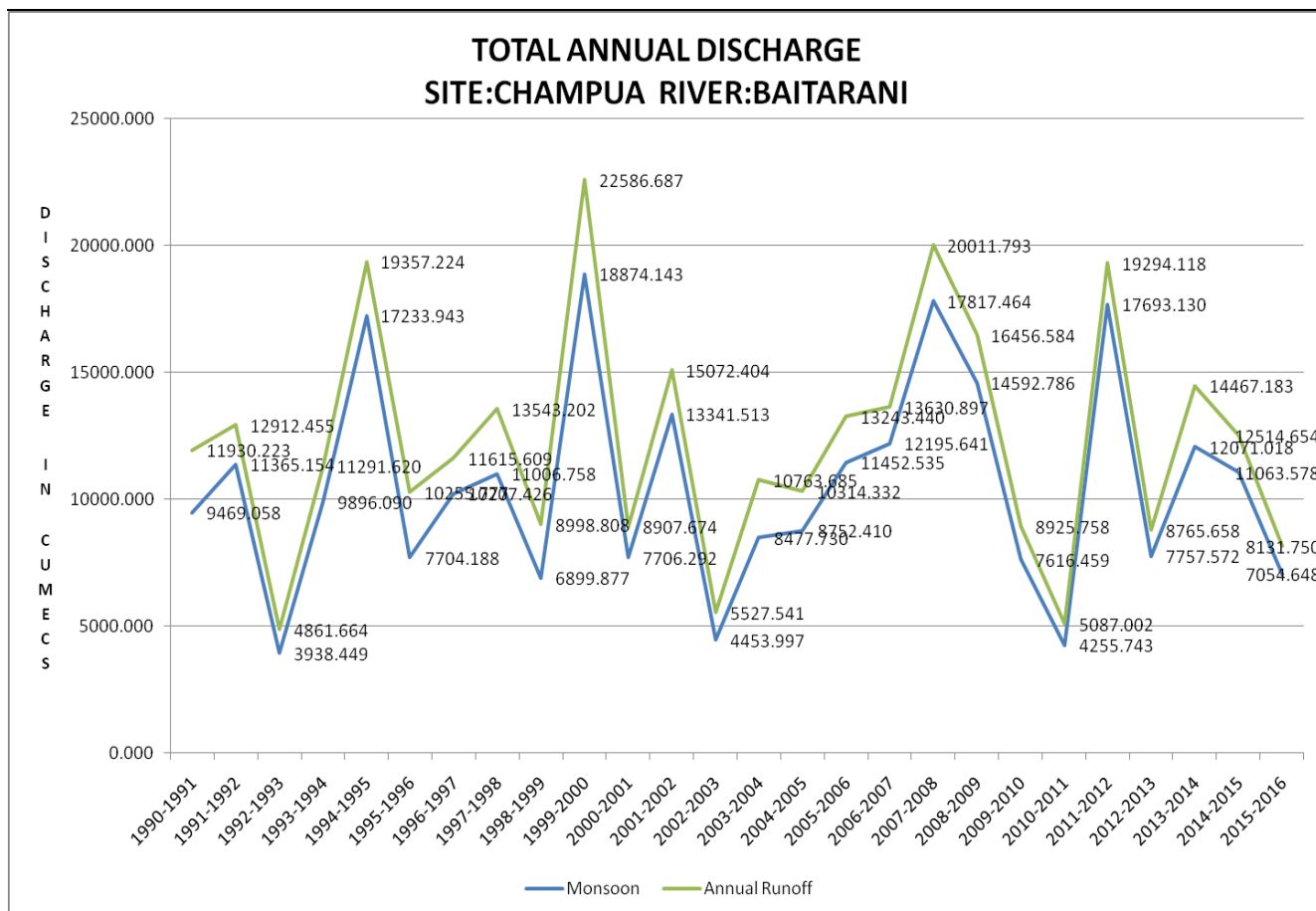
River Water

Division : E.E., Bhubaneswar

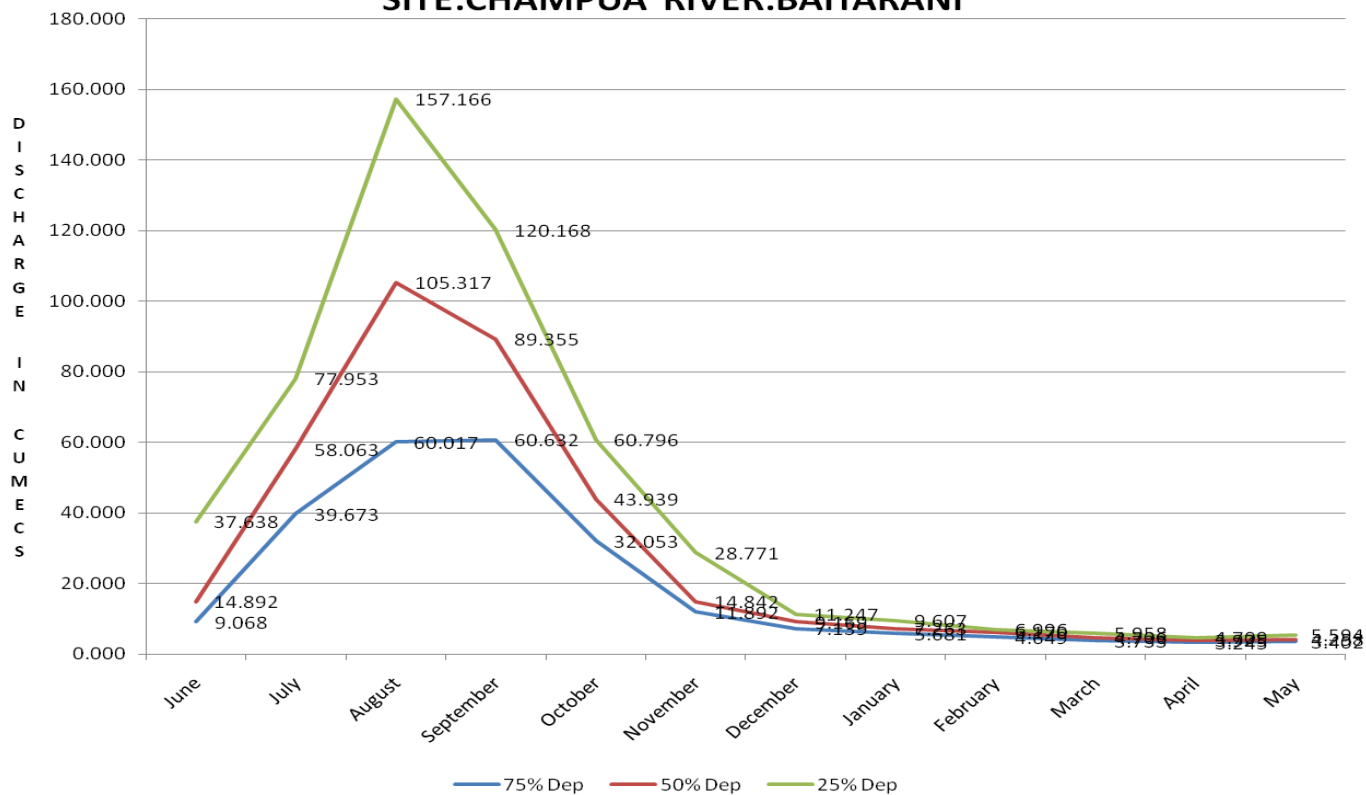
Sub-Division : Bhubaneswar

S.No	Parameters	Summer								
		Mar - May								
		2008	2009	2010	2011	2012	2013	2014	2015	2016
	PHYSICAL									
1	Q (cumec)									
2	EC_FLD (µmho/cm)	100		142	195	138	103	114	180	254
3	EC_GEN (µmho/cm)	105		142	194	138	103	114	180	266
4	pH_FLD (pH units)	8.1		7.8	7.8	7.6	7.2	7.6	7.4	7.9
5	pH_GEN (pH units)	8.1		7.8	7.8	7.6	7.2	7.6	7.4	7.6
6	Temp (deg C)	22.5		28.0	26.5		23.1	26.5	26.5	23.0
	CHEMICAL									
1	Alk-Phen (mgCaCO3/L)			0.0		0.0				0.0
2	ALK-TOT (mgCaCO3/L)			58		55				51
3	B (mg/L)	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	11		13	18	18	20	13	22	29
5	Cl (mg/L)	7.8		5.6	15.1	24.5	22.6	12.5	32.1	24.5
6	CO3 (mg/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.23		0.00	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)			0.0	0.2	0.0	2.2	0.1	0.3	0.3
9	HCO3 (mg/L)	46		71	79	68	117	73	96	62
10	K (mg/L)	0.6		2.1	2.6	1.6	5.9	0.6	2.3	1.8
11	Mg (mg/L)	2.9		6.8	7.8	4.9	6.3	1.8	6.8	13.6
12	Na (mg/L)	5.8		3.3	7.9	2.9	12.6	3.2	9.8	37.0
13	NO2+NO3 (mg N/L)	0.90		0.38	0.94	0.39	0.95	0.67	0.81	0.78
14	NO2-N (mgN/L)	0.00		0.00	0.00	0.07	0.00	0.00	0.00	0.01
15	NO3-N (mgN/L)	0.90		0.38	0.94	0.32	0.95	0.67	0.81	0.77
16	o-PO4-P (mg P/L)	0.010		0.000						
17	P-Tot (mgP/L)	0.050		0.010	0.001	0.010	0.001	0.001	0.001	0.010
18	SiO2 (mg/L)	9.8		8.7	9.5	7.0	24.6	8.6	3.0	5.0
19	SO4 (mg/L)	1.9		2.0	2.9	29.7	6.5	16.2	12.6	52.9
	BIOLOGICAL/BACTERIOLOGICAL									
	TRACE & TOXIC									
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	28		32	44	44	49	32	56	72
2	HAR_Total (mgCaCO3/L)	40		60	77	64	75	39	84	129
3	Na% (%)	24		10	18	9	25	15	20	38
4	RSC (-)	0.0		0.0	0.0	0.0	0.4	0.4	0.0	0.0
5	SAR (-)	0.4		0.2	0.4	0.2	0.6	0.2	0.5	1.4
	PESTICIDES									

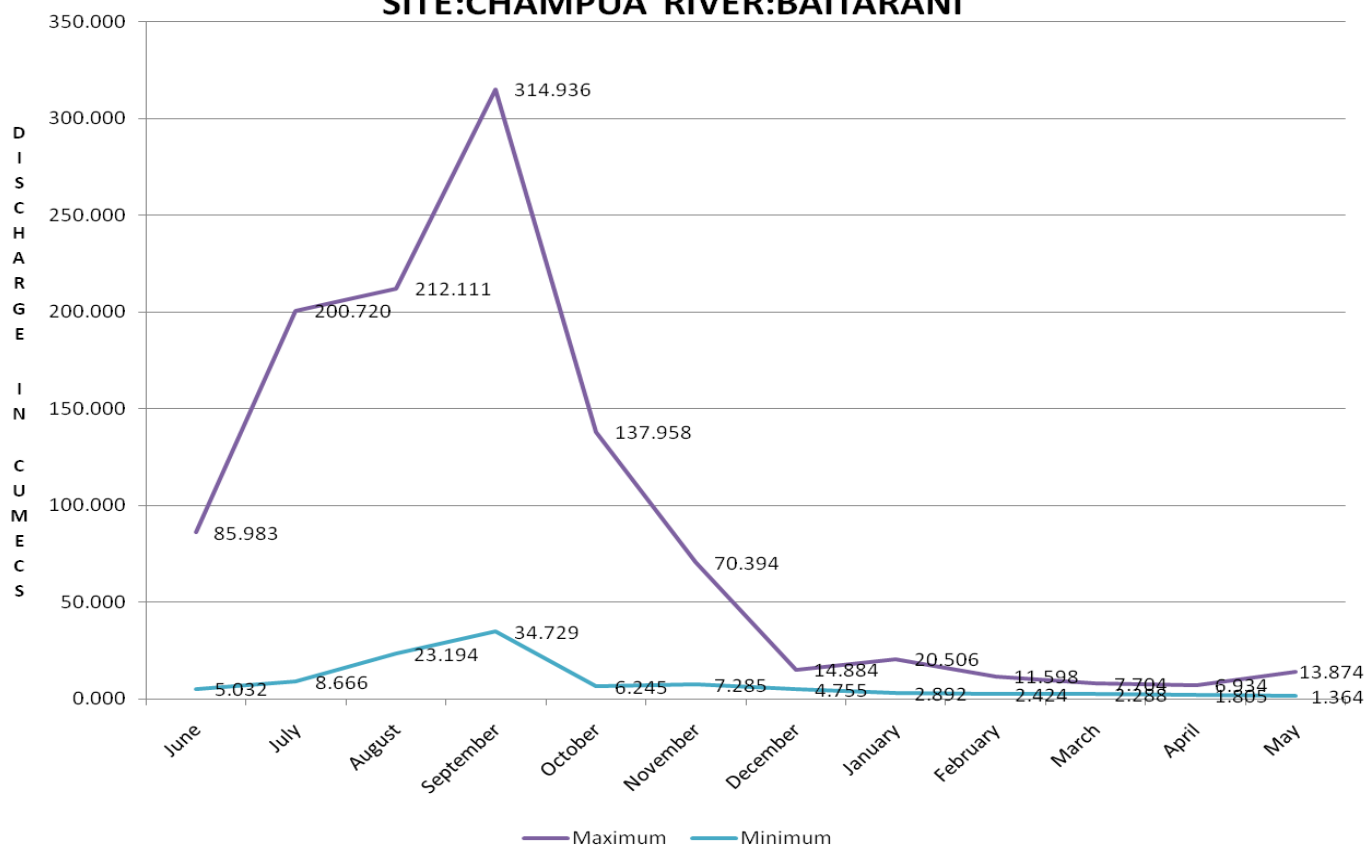
TREND ANALYSIS

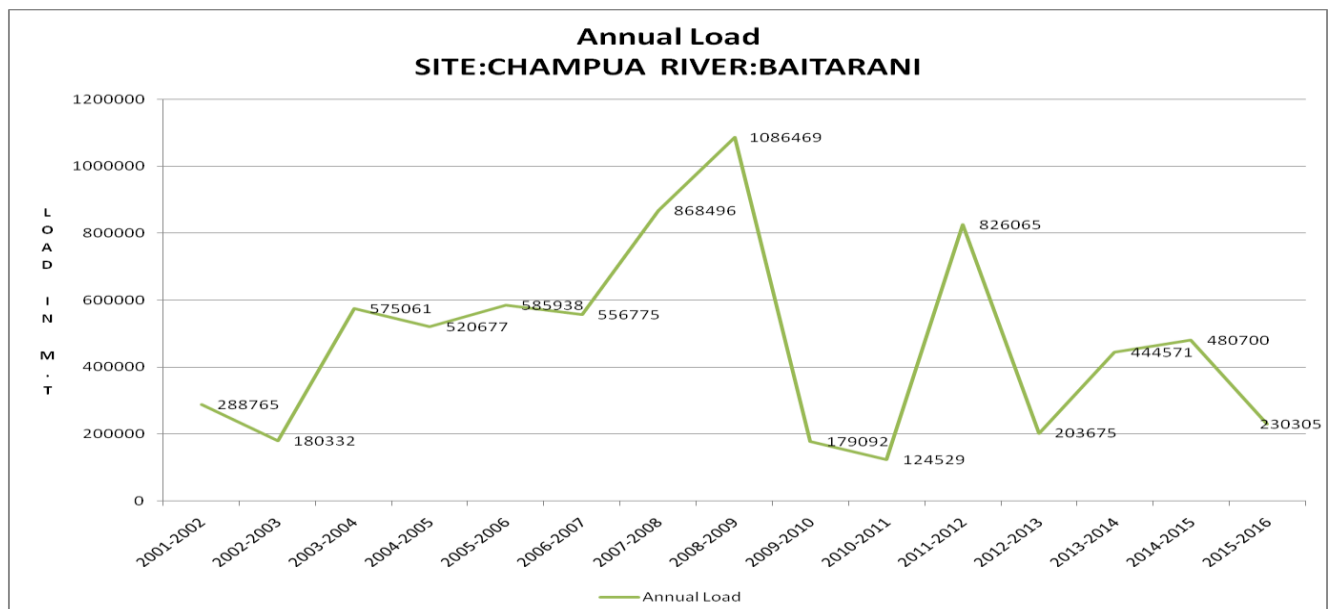
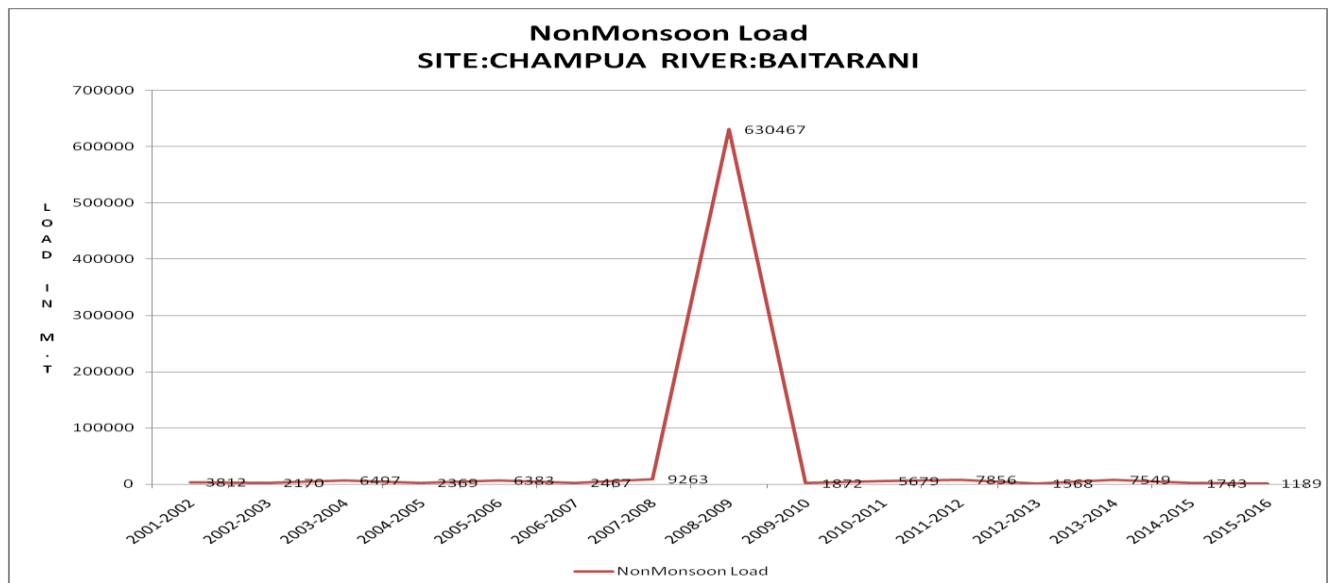
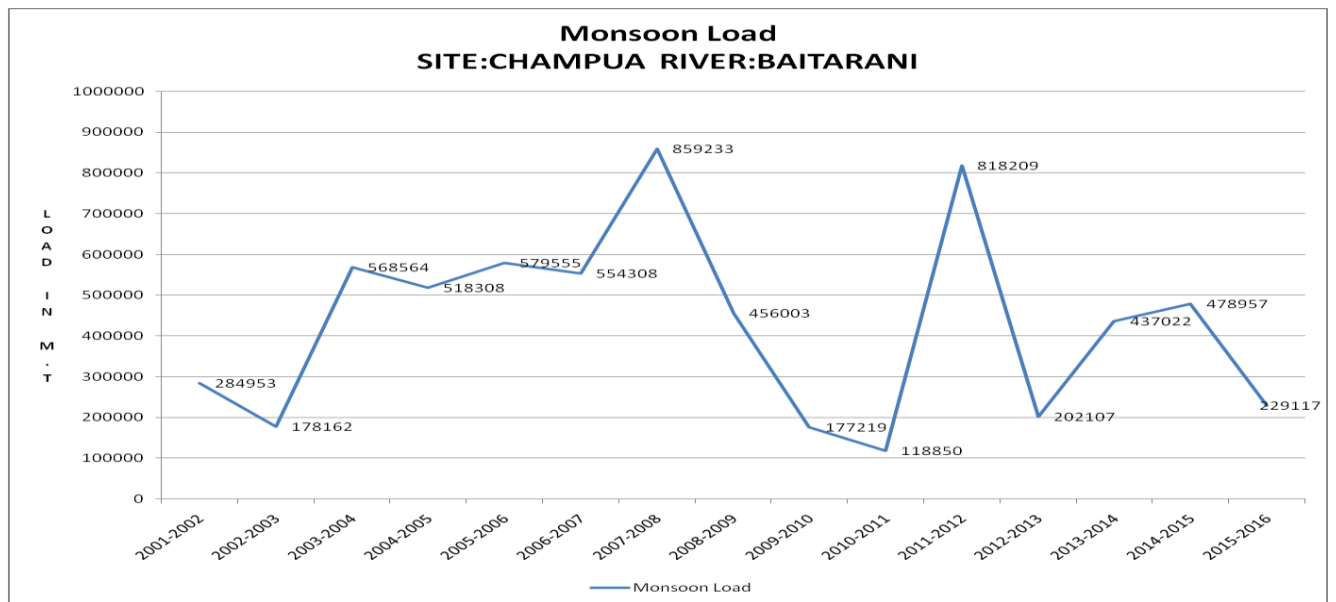


DEPENDIBILITY FLOW FROM JUNE TO MAY SITE:CHAMPUA RIVER:BAITARANI

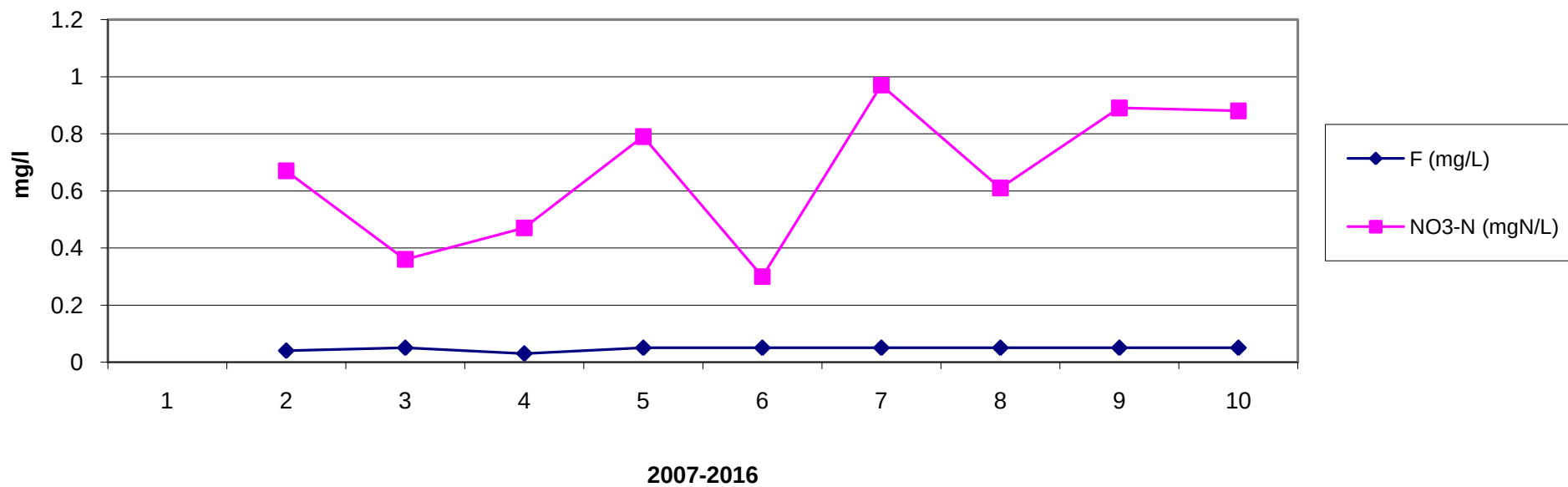


MAXIMUM-MINIMUM FLOW FROM JUNE TO MAY SITE:CHAMPUA RIVER:BAITARANI

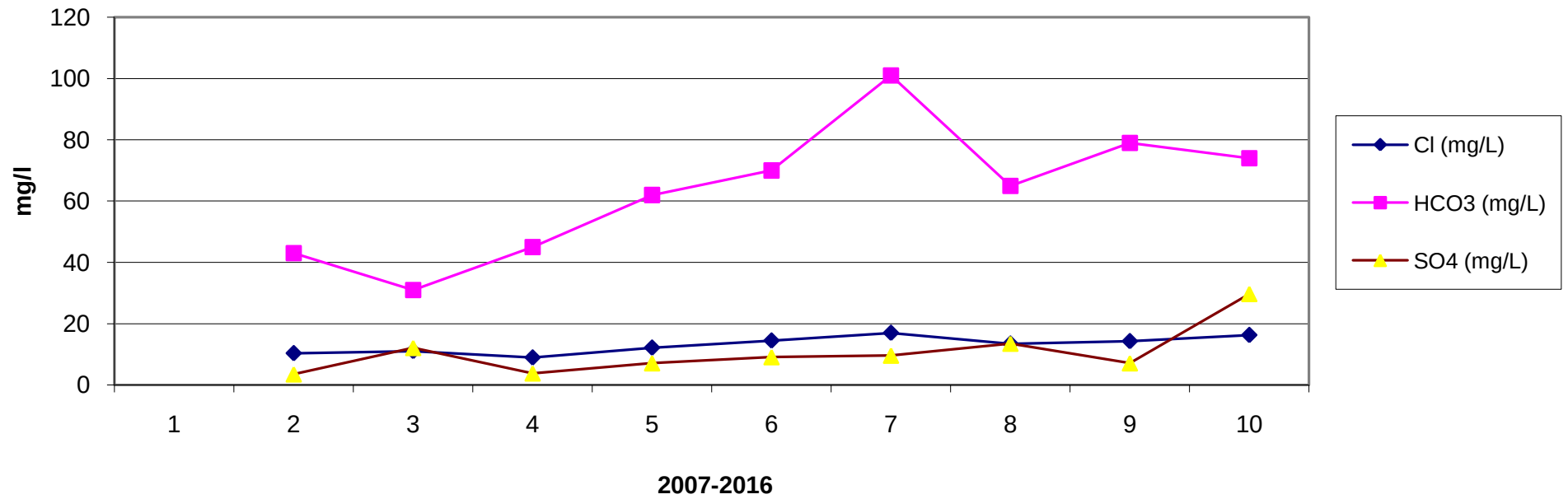




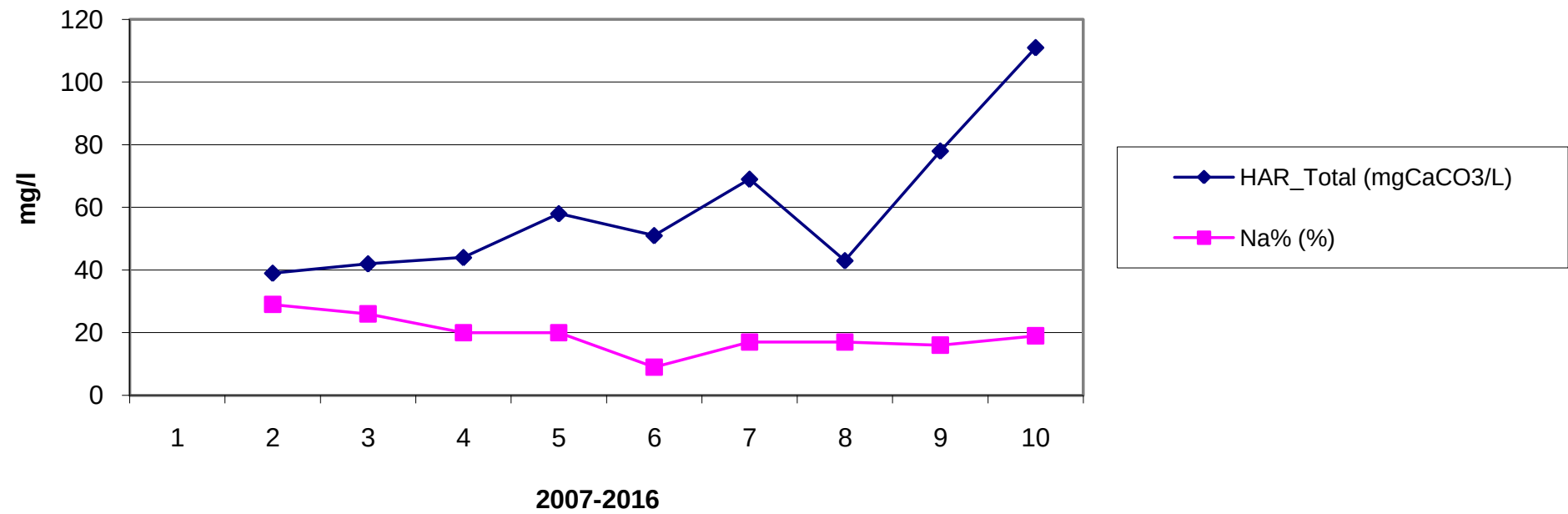
Year Wise Trend For Champua



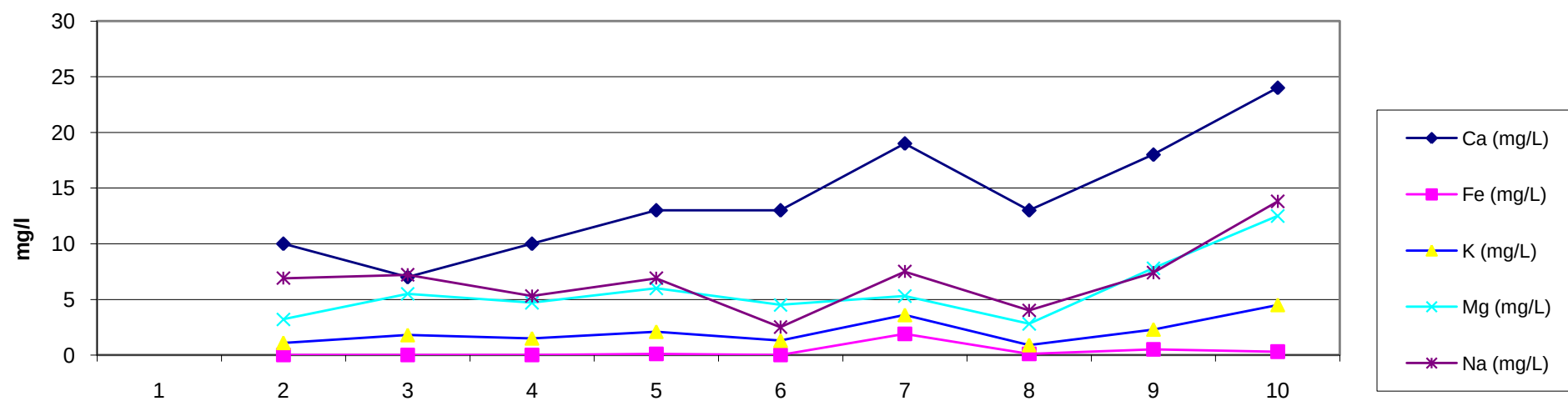
Year Wise Trend For Champua



Year Wise Trend For Champua



Year Wise Trend For Champua



2007-2016

HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : ANANDPUR

Code : EC000K3

State : Orissa

District : Keonjhar

Basin : Brahmani-Baitarani

Independent River : Baitarani

Tributary : Baitarani

Sub Tributary :

Sub-Sub Tributary :

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Drainage Area : 8570 Sq. Km.

Bank : Right

Latitude : 21°12'34"

Longitude : 86°07'23"

Zero of Gauge (m) : 28 (m.s.l)

01.01.1970 - 31.12.2050

Opening Date

Closing Date

Gauge : 07.03.1972

01.01.2100

Discharge : 07.03.1972

01.01.2100

Sediment : 01.06.1972

01.01.2100

Water Quality : 01.09.1972

01.01.2100

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1972-1973	4426	38.745	12.09.1972	1.500	32.565	27.04.1973
1973-1974	8100	39.918	03.09.1973	2.700	32.415	13.05.1974
1974-1975	3902	39.005	16.08.1974	1.500	32.320	17.05.1975
1975-1976	10394	40.625	19.08.1975	3.400	32.295	09.05.1976
1976-1977	2299	38.195	14.08.1976	2.900	32.200	25.03.1977
1977-1978	1568	36.455	06.07.1977	3.500	32.300	19.04.1978
1978-1979	3254	38.535	02.09.1978	1.600	32.305	28.05.1979
1979-1980	4936	39.178	08.08.1979	0.996	32.130	15.05.1980
1980-1981	1078	36.023	23.06.1980	3.447	32.225	17.04.1981
1981-1982	2631	37.140	22.06.1981	3.492	32.290	10.05.1982
1982-1983	1635	36.830	22.08.1982	1.920	32.310	13.04.1983
1983-1984	4189	38.670	17.09.1983	1.338	32.665	10.05.1984
1984-1985	3666	38.480	27.08.1984	1.318	32.585	25.04.1985
1985-1986	7974	39.675	16.10.1985	4.100	32.710	21.04.1986
1986-1987	1052	36.353	03.10.1986	2.900	32.610	27.04.1987
1987-1988	869.4	35.945	18.07.1987	2.700	32.640	17.02.1988
1988-1989	4294	39.168	03.08.1988	0.500	32.380	11.05.1989
1989-1990	5482	39.345	04.08.1989	2.600	32.805	14.02.1990
1990-1991	2835	37.680	15.07.1990	2.570	32.650	23.05.1991
1991-1992	4760	38.900	13.08.1991	2.590	32.810	01.05.1992
1992-1993	869.4	35.990	16.08.1992	1.347	32.730	08.04.1993
1993-1994	4075	37.745	16.07.1993	2.000	32.990	03.04.1994

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1994-1995	4223	38.650	29.06.1994	2.960	33.090	02.05.1995
1995-1996	5218	38.923	09.08.1995	3.105	33.100	23.05.1996
1996-1997	5450	39.095	23.06.1996	2.928	33.100	24.03.1997
1997-1998	5762	39.300	06.08.1997	5.260	33.140	01.06.1997
1998-1999	1363	36.650	13.09.1998	1.298	33.140	05.05.1999
1999-2000	5856	39.500	30.10.1999	9.590	33.390	13.04.2000
2000-2001	2528	38.210	15.09.2000	5.488	33.235	22.03.2001
2001-2002	2788	38.245	04.07.2001	4.953	33.200	16.05.2002
2002-2003	1030	36.715	11.09.2002	3.724	33.075	30.04.2003
2003-2004	1998	38.015	31.07.2003	3.256	33.175	28.05.2004
2004-2005	3728	38.565	21.08.2004	5.177	33.220	09.03.2005
2005-2006	4106	39.160	29.06.2005	4.500	33.145	07.05.2006
2006-2007	3134	38.730	23.08.2006	8.151	33.140	30.04.2007
2007-2008	5779	39.750	24.09.2007	8.678	33.125	01.06.2007
2008-2009	6328	68.140	18.06.2008	5.600	33.100	10.05.2009
2009-2010	1844	37.500	21.07.2009	2.000	33.160	02.05.2010
2010-2011	567.7	35.495	20.09.2010	3.844	32.890	01.04.2011
2011-2012	7424	40.085	23.09.2011	6.000	33.000	08.04.2012
2012-2013	750.0	36.720	12.08.2012	0.008	28.008	10.03.2013
2013-2014	4840	40.240	14.10.2013	2.933	32.880	24.05.2014
2014-2015	7689	40.920	05.08.2014	4.127	32.795	16.04.2015
2015-2016	2382	38.645	28.07.2015	0.000	32.520	11.05.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	32.850	6.430	33.885	116.1	34.955	377.4	35.210	249.7	33.570	114.4	33.170	53.98
2	32.840	6.322	33.970	116.2	34.730	350.0 *	34.625	186.8	33.550	112.0 *	33.170	53.98
3	32.830	6.287	34.120	120.9	35.400	381.9	34.480	170.5	33.480	104.2	33.170	52.18
4	32.830	6.244	33.980	121.3	35.150	226.1	34.260	164.4	33.450	102.0 *	33.160	49.43
5	32.820	6.197	34.135	123.6 *	35.020	290.4	34.185	158.0	33.440	101.9	33.160	47.19
6	32.820	6.203	33.805	111.4	34.740	255.9	34.340	166.0 *	33.460	104.0	33.150	44.08
7	32.980	6.200 *	34.025	121.1	34.350	216.9	34.290	164.0	33.470	103.9	33.150	44.13
8	32.820	6.176	33.915	117.5	34.185	210.5	33.970	138.4	33.460	101.6	33.140	42.80 *
9	32.810	6.069	33.935	117.9	34.075	190.0	33.830	130.0	33.420	95.62	33.140	42.63
10	32.810	6.040	33.815	113.2	33.995	176.8	33.710	125.8	33.410	95.20	33.130	41.85
11	32.810	6.018	34.050	123.1	33.880	167.5	33.680	125.0	33.405	93.50 *	33.120	40.90 *
12	32.810	6.007	34.930	200.0 *	33.810	157.6	33.650	124.2	33.390	0.000	33.110	40.88
13	32.810	5.969	34.620	154.5	33.895	171.0	33.620	123.0 *	33.370	93.62	33.100	39.31
14	32.750	6.021 *	34.200	132.4	33.980	176.7	33.600	118.8	33.345	75.30	33.090	38.51
15	32.820	6.073	33.920	118.3	33.930	170.0	33.665	126.4	33.320	62.00	33.080	37.20 *
16	32.870	7.887	33.815	112.9	33.970	175.0	33.800	128.0	33.330	69.01	33.080	35.79
17	33.070	13.88	34.050	123.1	34.070	182.2	34.040	139.0 *	33.520	76.49	33.070	34.29
18	33.105	14.11	33.920	118.0 *	33.965	171.9	34.650	181.8	33.500	75.65 *	33.070	33.60
19	32.990	12.94	33.795	82.00 *	33.930	159.7	34.330	163.1	33.484	70.08	33.050	29.52
20	33.090	13.74	33.645	68.93	33.875	154.1	34.410	163.0 *	33.470	70.21	33.040	26.69
21	32.770	13.00 *	33.760	101.2	33.745	134.4	34.170	153.7	33.390	64.00 *	33.030	24.11
22	33.265	23.80	34.320	146.8	33.730	124.2	34.145	147.9	33.325	62.50 *	33.030	24.00 *
23	33.555	59.02	34.825	216.9	33.665	120.0	34.310	161.2	33.300	62.00	33.010	24.03
24	34.350	125.2	34.790	210.5	33.800	126.7	34.060	142.1	33.250	60.00 *	33.000	21.35
25	34.755	137.4	34.500	200.9	34.030	133.5	33.935	136.9 *	33.220	58.00 *	33.000	20.00 *
26	34.580	124.1	34.930	240.0 *	33.980	131.6	33.785	131.7	33.210	63.35	33.000	19.68
27	34.110	91.66	35.195	290.3	34.245	145.2	33.685	128.0 *	33.200	57.73	32.990	17.82
28	33.590	41.91 *	38.645	2382	34.305	146.3	33.630	124.3	33.200	55.98	32.990	16.87
29	33.590	41.91	38.250	2309	34.205	139.3	33.580	120.4	33.190	56.15	33.980	18.20 *
30	33.655	69.00	35.950	513.1	34.670	150.0	33.580	119.9	33.190	55.91	32.980	16.67
31			35.360	367.1	34.560	148.3			33.180	54.80		
Ten-Daily Mean												
I Ten-Daily	32.841	6.217	33.958	117.9	34.660	267.6	34.290	165.4	33.471	103.5	33.154	47.22
II Ten-Daily	32.912	9.264	34.094	123.3	33.931	168.6	33.944	139.2	33.424	68.59	33.081	35.67
III Ten-Daily	33.822	72.70	35.502	634.4	34.085	136.3	33.888	136.6	33.241	59.13	33.101	20.27
Monthly												
Min.	32.750	5.969	33.645	68.93	33.665	120.0	33.580	118.8	33.180	0.000	32.980	16.67
Max.	34.755	137.4	38.645	2382	35.400	381.9	35.210	249.7	33.570	114.4	33.980	53.98
Mean	33.192	29.39	34.550	302.9	34.221	189.1	34.041	147.1	33.373	76.49	33.111	34.39

Annual Runoff in MCM = 2160 Annual Runoff in mm = 252

Peak Observed Discharge = 2382 cumecs on 28/07/2015 Corres. Water Level :38.645 m

Lowest Observed Discharge = 0.000 cumecs on 12/10/2015 Corres. Water Level :33.39 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2015 - 2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	32.980	18.56	32.950	10.43	32.810	5.557	32.010	5.473	32.680	4.804	32.540	1.600 *
2	32.980	16.83	32.950	10.13	32.810	6.023	32.780	5.385	32.680	4.804	32.530	1.574
3	32.970	16.39	32.940	10.30 *	32.800	6.022	32.780	5.335	32.680	4.680 *	32.530	1.547
4	32.970	16.00	32.940	10.02	32.800	6.006	32.780	5.309	32.660	4.732	32.520	1.413
5	32.970	14.22	32.940	10.30	32.790	5.962	32.770	5.214	32.670	4.776	32.520	1.394
6	32.960	15.00 *	32.925	8.880	32.790	5.956	32.770	5.214	32.660	4.698	32.520	1.370
7	32.960	14.91	32.900	8.490	32.790	6.280 *	32.770	5.214	32.650	4.640	32.530	1.573
8	32.960	13.80	32.890	7.984	32.780	5.723	32.760	5.194	32.650	4.637	32.530	1.390 *
9	32.950	12.51	32.890	7.946	32.780	5.883	32.750	5.128	32.640	4.219	32.520	1.380
10	32.950	12.06	32.880	8.100 *	32.780	7.960	32.750	5.251	32.640	4.160 *	32.520	1.346
11	32.940	11.01	32.880	7.943	32.770	5.623	32.750	5.452	32.630	3.677	32.520	0.000
12	32.940	10.88	32.880	7.819	32.770	5.611	32.740	5.390	32.630	3.589	32.510	1.284
13	32.940	10.98 *	32.860	6.909	32.760	5.401	32.740	5.390	32.620	3.298	32.510	1.233
14	32.940	11.02	32.850	6.668	32.760	5.750 *	32.740	5.384	32.620	3.158 *	32.510	1.173
15	32.950	11.13	32.850	6.694	32.760	5.344	32.730	5.269	32.610	2.815	32.510	1.180 *
16	32.950	11.03	32.840	6.580	32.750	5.083	32.730	5.212	32.600	2.758	32.500	0.000
17	32.940	10.95	32.840	6.935 *	32.750	5.107	32.730	5.190	32.600	2.675 *	32.500	1.119
18	32.950	11.12	32.840	6.589	32.750	5.038	32.720	4.891	32.590	2.572	32.500	1.070
19	32.960	11.22	32.840	6.516	32.740	5.018	32.720	5.040	32.590	2.546	32.550	1.340
20	32.960	11.30 *	32.830	5.928	32.740	4.817	32.720	5.040	32.580	2.320 *	32.630	1.790
21	32.970	11.40	32.830	6.470	32.740	5.150 *	32.710	4.914	32.570	2.346	32.670	1.960 *
22	32.970	11.29	32.830	6.438	32.730	4.711	32.710	4.905	32.570	2.162	32.680	2.320 *
23	32.970	11.02	32.820	6.357	32.730	4.993	32.710	4.911	32.570	2.040	32.700	2.914
24	32.970	11.09 *	32.820	6.650 *	32.730	4.674	32.710	4.911	32.570	2.010 *	32.730	3.383
25	32.980	11.10 *	32.820	6.290	32.720	4.613	32.710	4.911	32.560	2.000	32.760	3.445
26	32.980	11.19	32.820	6.29	32.740	4.742	32.700	4.857	32.560	1.846	32.900	4.973
27	32.970	11.00 *	32.810	6.277	32.760	5.281	32.700	4.857	32.550	1.683	32.930	5.149
28	32.960	10.63	32.820	8.442	32.790	5.720 *	32.700	4.640	32.550	1.696	32.920	5.032
29	32.960	10.37	32.820	6.193	32.780	5.437	32.690	4.803	32.540	1.657	32.910	4.800 *
30	32.960	10.40	32.810	6.111			32.690	4.704	32.540	1.636	32.900	4.821
31	32.960	10.63	32.810	6.450 *			32.690	4.803 *			32.880	4.693
Ten-Daily Mean												
I Ten-Daily	32.965	15.03	32.921	9.258	32.793	6.137	32.673	5.286	32.659	4.594	32.526	1.459
II Ten-Daily	32.947	11.07	32.851	6.858	32.755	5.279	32.732	5.228	32.607	2.941	32.524	1.019
III Ten-Daily	32.968	10.92	32.819	6.568	32.747	5.036	32.700	4.817	32.558	1.908	32.816	3.954
Monthly												
Min.	32.940	10.37	32.810	5.928	32.720	4.613	32.010	4.640	32.540	1.636	32.500	0.000
Max.	32.980	18.56	32.950	10.43	32.810	7.960	32.780	5.473	32.680	4.804	32.930	5.149
Mean	32.960	12.29	32.864	7.561	32.766	5.499	32.702	5.11	32.606	3.098	32.628	2.202

Peak Computed Discharge = 350.0 cumecs on 02/08/2015

Corres. Water Level :34.73 m

Lowest Computed Discharge = 1.180 cumecs on 15/05/2016

Corres. Water Level :32.51 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

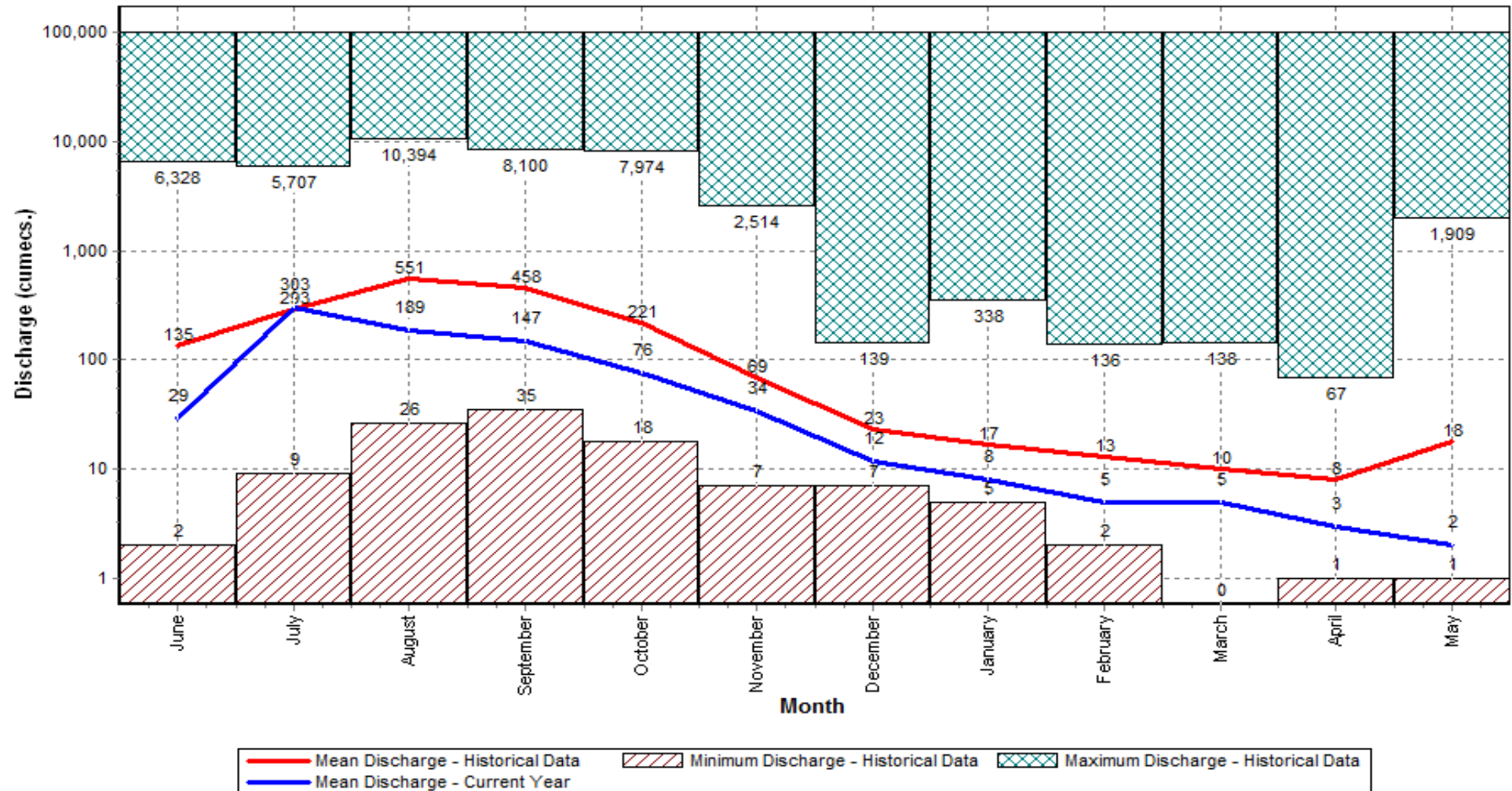
Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

Station Name : ANANDPUR (EC000K3)
Local River : Baitarani

Data considered : 1972-2016

Division : E.E., Bhubaneswar
Sub-Division : Bhubaneswar



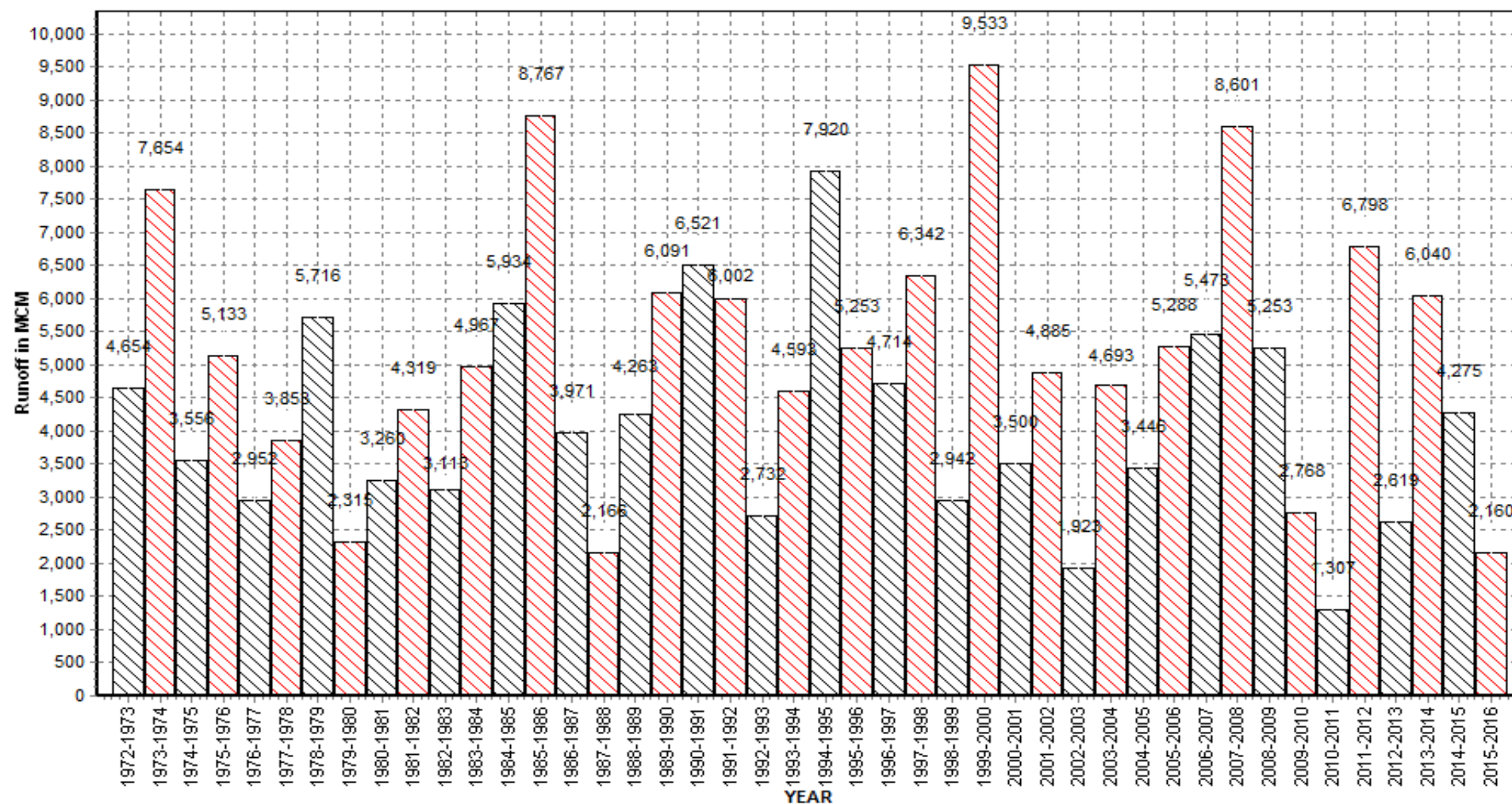
Annual Runoff Values for the period: 1972 - 2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



Note: Missing values have not been considered while arriving at Annual Runoff

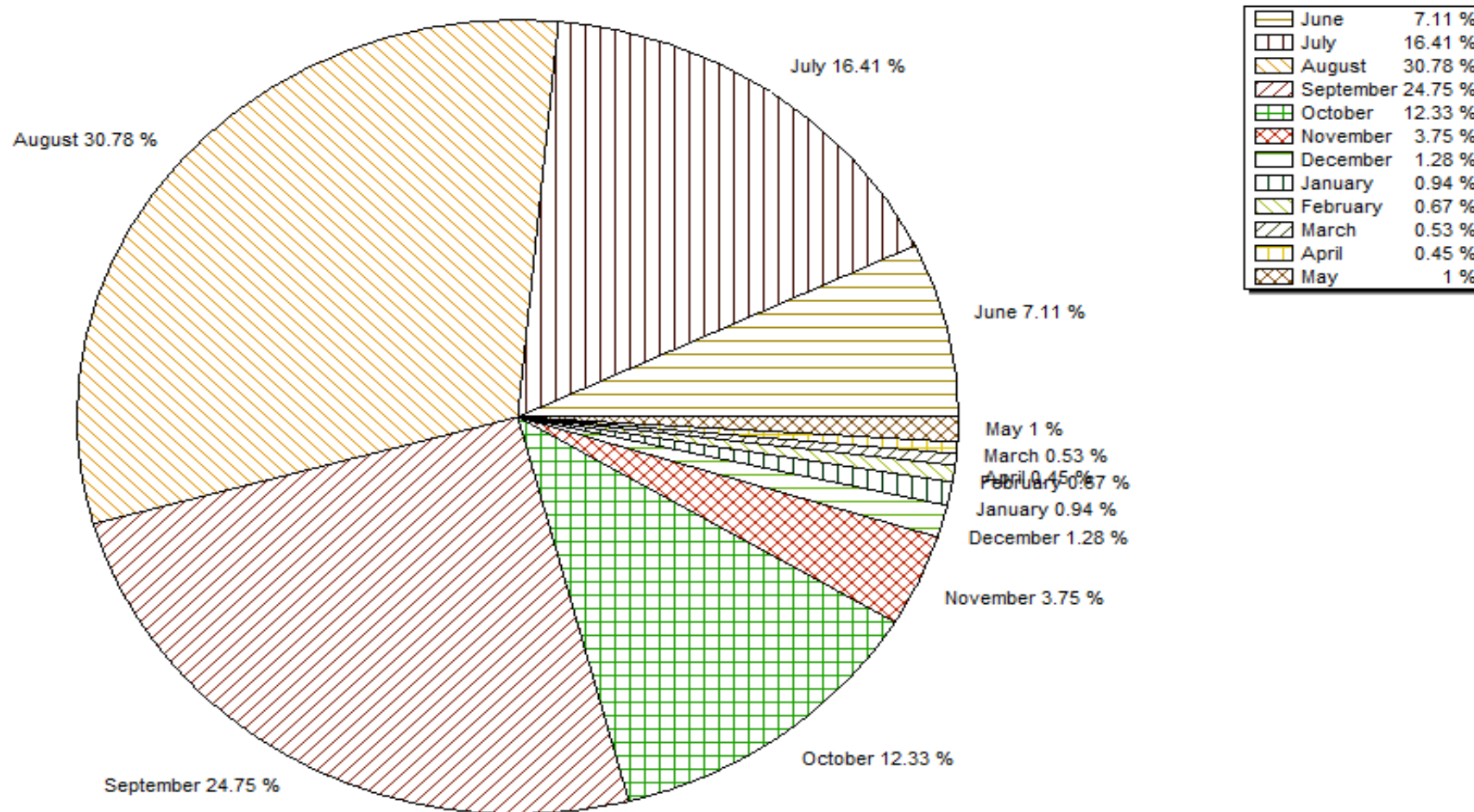
Monthly Average Runoff based on period : 1972-2015

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



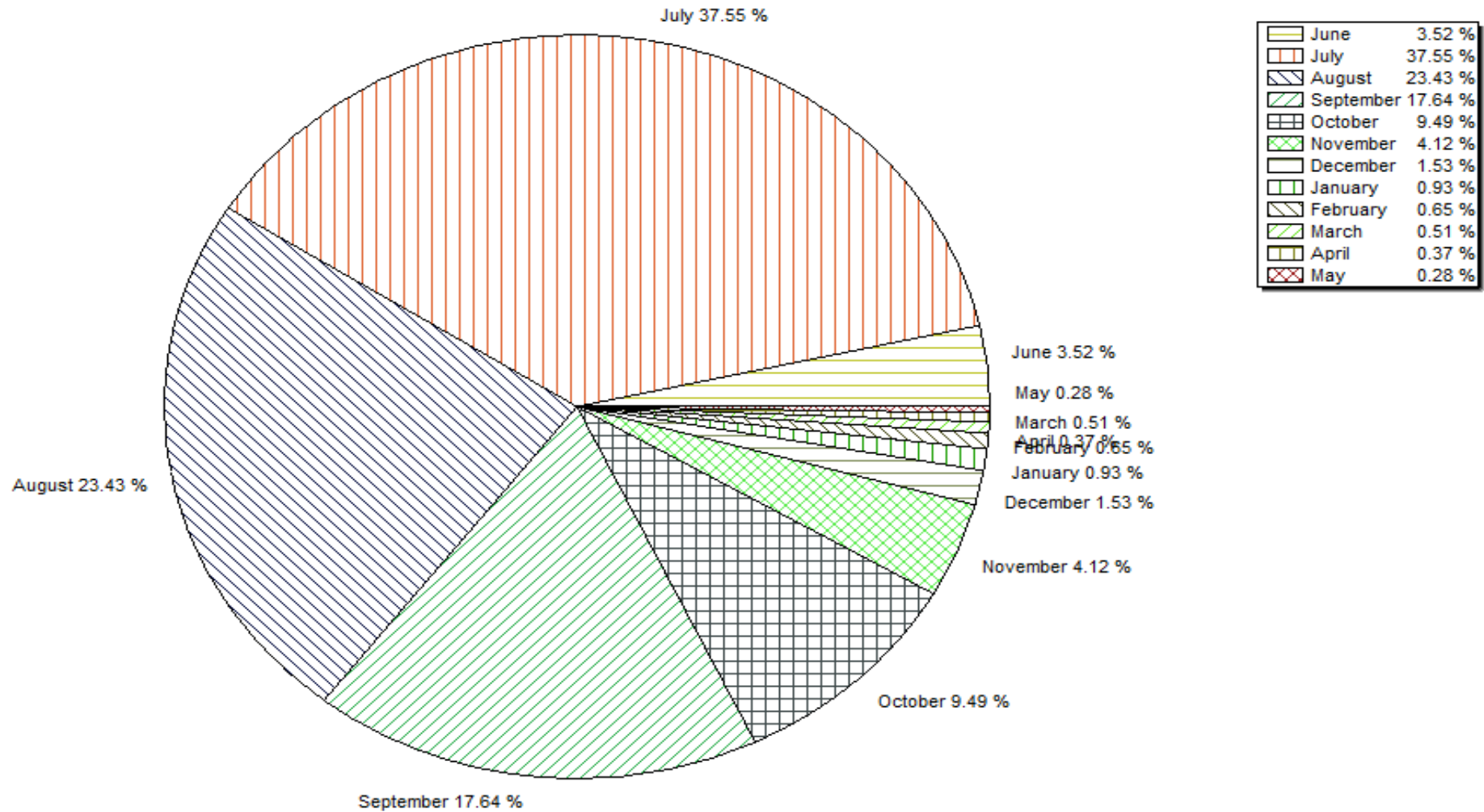
Monthly Runoff for the Year : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



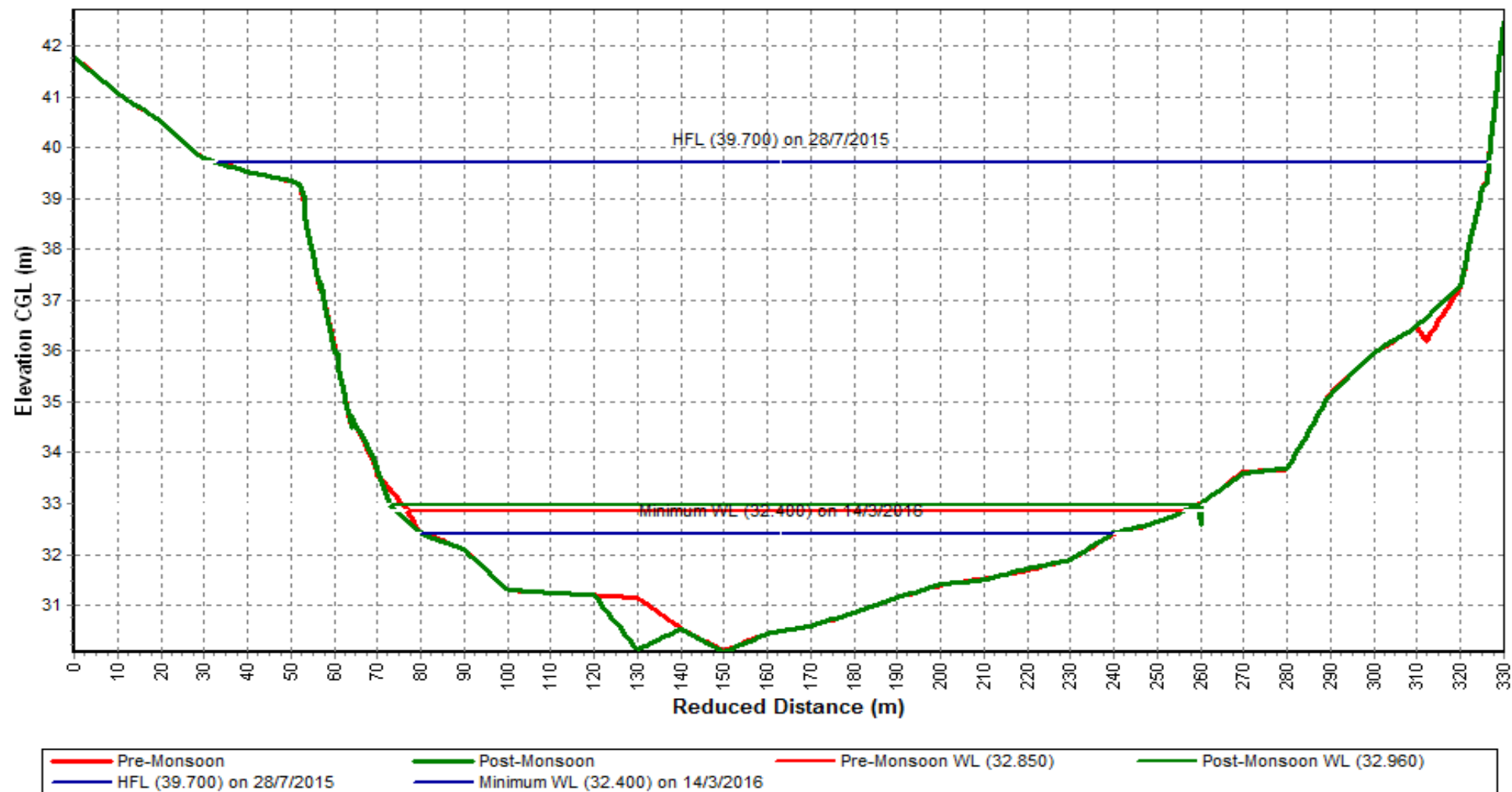
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



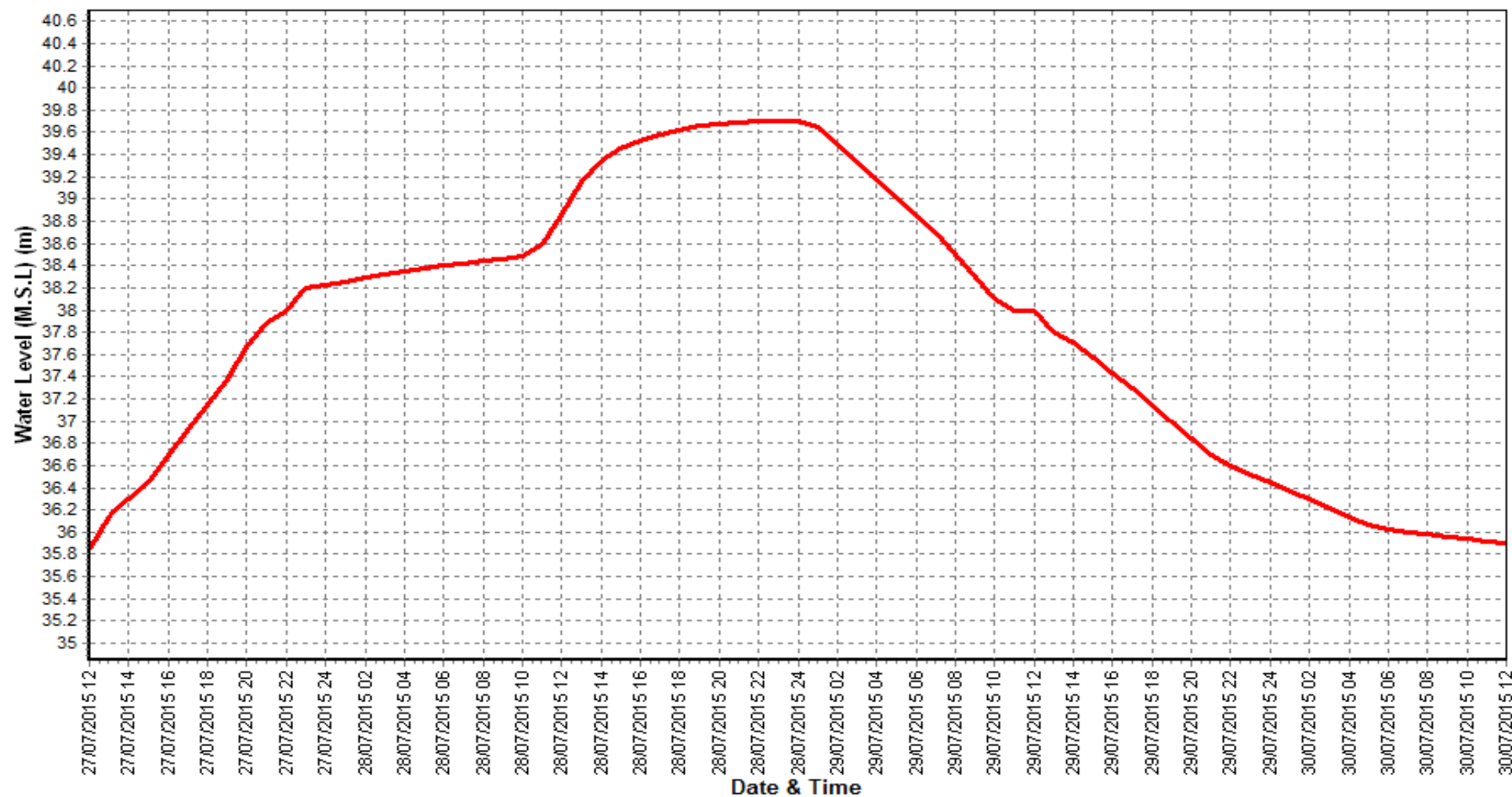
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

L

war



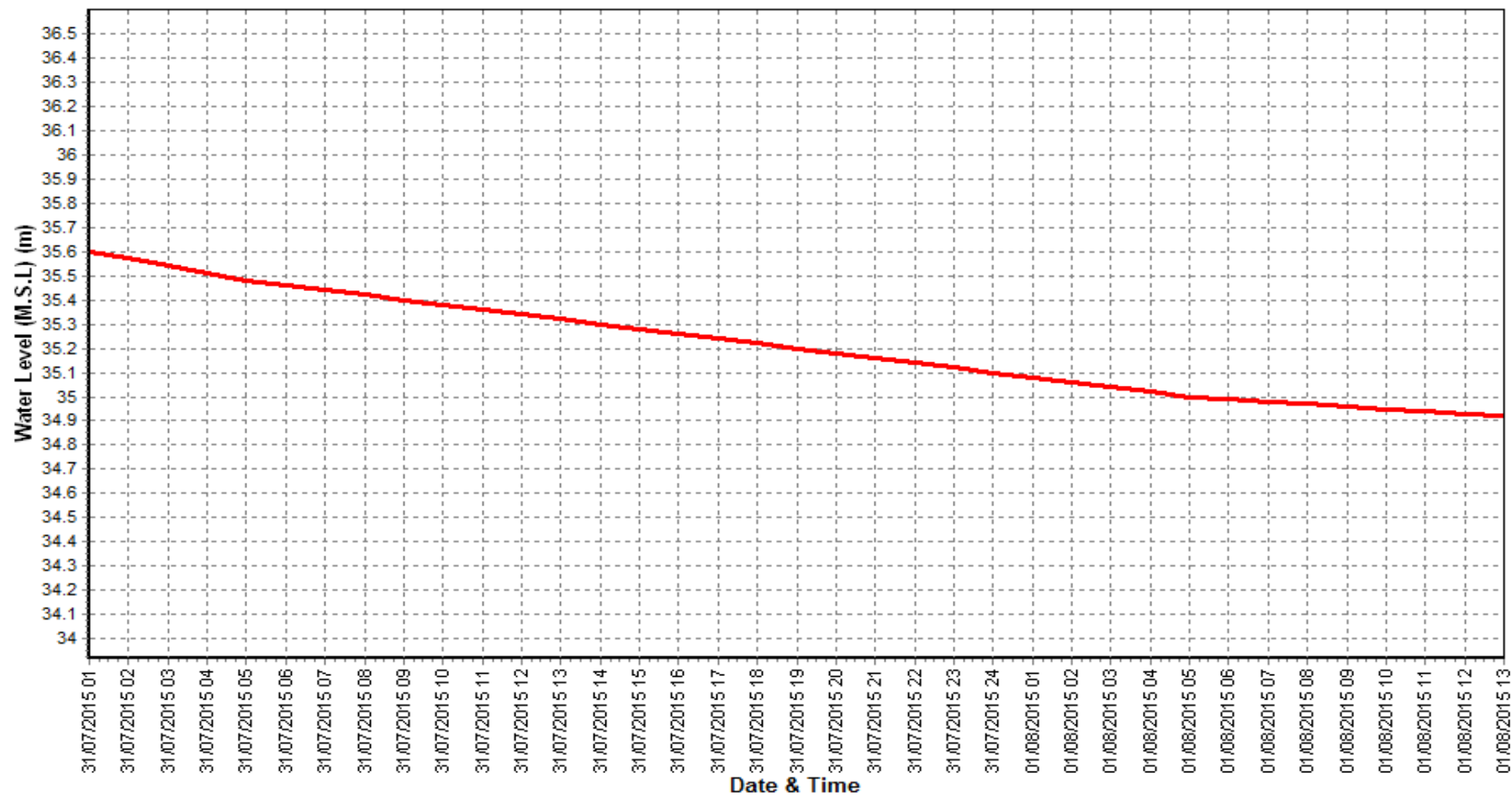
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

L

war



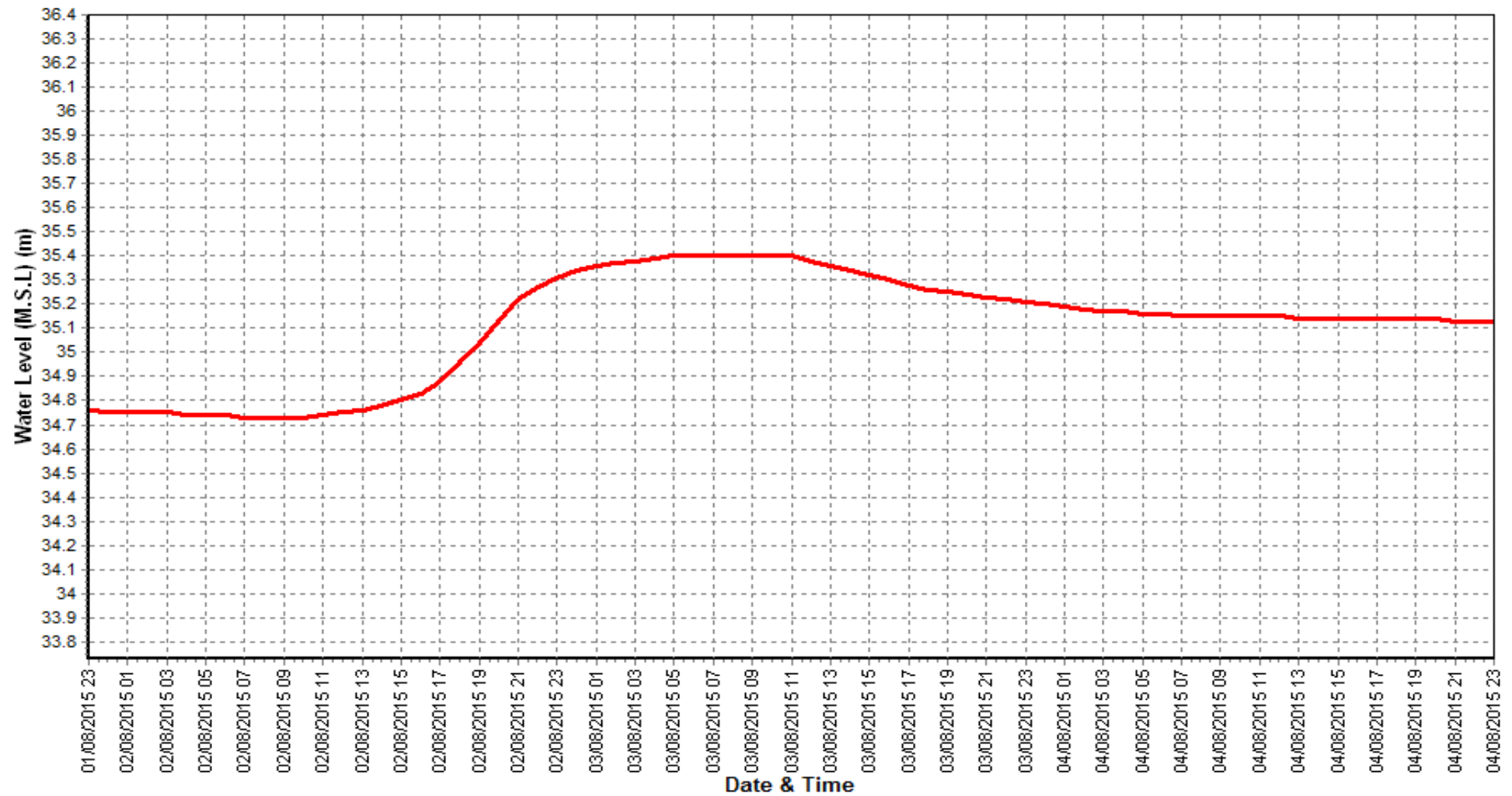
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	6.430	0.000	0.000	0.092	0.092	51	116.1	0.000	0.079	0.049	0.128	1283	377.4	0.034	0.042	0.096	0.172	5609
2	6.322	0.000	0.000	0.092	0.092	50	116.2	0.000	0.073	0.049	0.122	1225	350.0					
3	6.287	0.000	0.000	0.091	0.091	49	120.9	0.000	0.079	0.052	0.131	1369	381.9	0.058	0.050	0.135	0.243	8017
4	6.244	0.000	0.000	0.093	0.093	50	121.3	0.000	0.080	0.051	0.131	1373	226.1	0.044	0.059	0.106	0.209	4082
5	6.197	0.000	0.000	0.091	0.091	49	123.6						290.4	0.027	0.046	0.108	0.181	4541
6	6.203	0.000	0.000	0.085	0.085	46	111.4	0.000	0.092	0.058	0.150	1444	255.9	0.041	0.039	0.155	0.235	5195
7	6.200						121.1	0.000	0.068	0.052	0.120	1255	216.9	0.024	0.045	0.177	0.246	4611
8	6.176	0.000	0.000	0.090	0.090	48	117.5	0.000	0.123	0.049	0.172	1746	210.5	0.010	0.042	0.126	0.178	3237
9	6.069	0.000	0.000	0.088	0.088	46	117.9	0.000	0.035	0.049	0.084	856	190.0					
10	6.040	0.000	0.000	0.093	0.093	49	113.2	0.000	0.033	0.052	0.085	832	176.8	0.009	0.023	0.078	0.110	1681
11	6.018	0.000	0.000	0.103	0.103	54	123.1	0.000	0.044	0.058	0.102	1084	167.5	0.009	0.023	0.082	0.114	1649
12	6.007	0.000	0.000	0.101	0.101	52	200.0						157.6	0.007	0.023	0.083	0.113	1539
13	5.969	0.000	0.000	0.097	0.097	50	154.5	0.043	0.110	0.054	0.207	2763	171.0	0.008	0.029	0.082	0.119	1758
14	6.021						132.4	0.013	0.042	0.049	0.104	1190	176.7	0.016	0.033	0.087	0.136	2077
15	6.073	0.000	0.000	0.098	0.098	51	118.3	0.014	0.045	0.050	0.109	1115	170.0					
16	7.887	0.000	0.000	0.098	0.098	67	112.9	0.019	0.036	0.050	0.105	1025	175.0					
17	13.88	0.000	0.000	0.062	0.062	74	123.1	0.020	0.037	0.057	0.114	1212	182.2	0.017	0.026	0.101	0.144	2267
18	14.11	0.000	0.000	0.116	0.116	141	118.0						171.9	0.017	0.026	0.107	0.150	2228
19	12.94	0.000	0.000	0.060	0.060	67	82.00						159.7	0.016	0.026	0.091	0.133	1836
20	13.74	0.000	0.000	0.058	0.058	69	68.93	0.002	0.052	0.057	0.111	661	154.1	0.016	0.032	0.087	0.135	1797
21	13.00						101.2	0.008	0.043	0.057	0.108	944	134.4	0.018	0.038	0.117	0.173	2008
22	23.80	0.000	0.000	0.061	0.061	125	146.8	0.011	0.043	0.055	0.109	1382	124.2	0.018	0.032	0.125	0.175	1878
23	59.02	0.000	0.000	0.070	0.070	357	216.9	0.015	0.051	0.047	0.113	2118	120.0					
24	125.2	0.000	0.000	0.091	0.091	984	210.5	0.035	0.044	0.095	0.174	3165	126.7	0.017	0.029	0.111	0.157	1719
25	137.4	0.000	0.065	0.107	0.172	2042	200.9	0.027	0.034	0.119	0.180	3125	133.5	0.020	0.040	0.122	0.182	2099
26	124.1	0.000	0.140	1050.770	1050.910	11268109	240.0						131.6	0.018	0.033	0.105	0.156	1773
27	91.66	0.000	0.075	0.069	0.144	1140	290.3	0.026	0.038	0.105	0.169	4239	145.2	0.019	0.039	0.113	0.171	2145
28	41.91						2382	0.062	0.069	0.274	0.405	83347	146.3	0.022	0.043	0.126	0.191	2414
29	41.91	0.000	0.088	0.057	0.145	525	2309	0.049	0.069	0.228	0.346	69040	139.3	0.021	0.041	0.111	0.173	2082
30	69.00	0.000	0.047	0.071	0.118	703	513.1	0.058	0.085	0.261	0.404	17910	150.0					
31							367.1	0.048	0.088	0.238	0.374	11864	148.3	0.039	0.043	0.113	0.195	2499
Ten Daily Mean																		
Ten Daily I	6.217	0.000	0.000	0.091	0.091	49	117.9	0.000	0.074	0.051	0.125	1265	267.6	0.031	0.043	0.123	0.197	4622
Ten Daily II	9.264	0.000	0.000	0.088	0.088	70	123.3	0.016	0.052	0.054	0.122	1293	168.6	0.013	0.027	0.090	0.131	1894
Ten Daily III	72.70	0.000	0.052	131.412	131.464	1409248	634.4	0.034	0.056	0.148	0.238	19713	136.3	0.021	0.038	0.116	0.175	2069
Monthly																		
Total						11275051						217564						70740

Annual Sediment Load (Metric Tonnes) : 11628622

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	249.7	0.050	0.053	0.068	0.171	3690	114.4	0.000	0.000	0.072	0.072	712	53.98					
2	186.8	0.062	0.062	0.095	0.219	3535	112.0						53.98	0.000	0.000	0.045	0.045	210
3	170.5	0.034	0.037	0.057	0.128	1886	104.2	0.000	0.000	0.111	0.111	999	52.18	0.000	0.000	0.038	0.038	171
4	164.4	0.019	0.038	0.097	0.154	2187	102.0						49.43	0.000	0.000	0.033	0.033	141
5	158.0	0.019	0.038	0.106	0.163	2225	101.9	0.000	0.000	0.064	0.064	563	47.19	0.000	0.000	0.066	0.066	269
6	166.0						104.0	0.000	0.000	0.115	0.115	1033	44.08	0.000	0.000	0.058	0.058	221
7	164.0	0.019	0.039	0.107	0.165	2337	103.9	0.000	0.000	0.075	0.075	673	44.13	0.000	0.000	0.054	0.054	206
8	138.4	0.018	0.039	0.105	0.162	1937	101.6	0.000	0.000	0.062	0.062	544	42.80					
9	130.0	0.016	0.052	0.116	0.184	2066	95.62	0.000	0.000	0.108	0.108	892	42.63	0.000	0.000	0.054	0.054	199
10	125.8	0.022	0.041	0.114	0.177	1924	95.20	0.000	0.000	0.069	0.069	568	41.85	0.000	0.000	0.062	0.062	224
11	125.0	0.021	0.060	0.116	0.197	2128	93.50						40.90					
12	124.2	0.022	0.059	0.108	0.189	2027	0.000	0.000	0.000	0.063	0.063	0	40.88	0.000	0.000	0.059	0.059	208
13	123.0						93.62	0.000	0.000	0.061	0.061	493	39.31	0.000	0.000	0.055	0.055	187
14	118.8	0.078	0.051	0.112	0.241	2475	75.30	0.000	0.000	0.050	0.050	325	38.51	0.000	0.000	0.056	0.056	186
15	126.4	0.022	0.060	0.099	0.181	1977	62.00	0.000	0.000	0.044	0.044	236	37.20					
16	128.0	0.002	0.040	0.054	0.096	1062	69.01	0.000	0.000	0.047	0.047	280	35.79	0.000	0.000	0.055	0.055	170
17	139.0						76.49	0.000	0.000	0.047	0.047	311	34.29	0.000	0.000	0.065	0.065	193
18	181.8	0.018	0.061	0.049	0.128	2010	75.65						33.60	0.000	0.000	0.066	0.066	192
19	163.1	0.011	0.045	0.049	0.105	1480	70.08	0.000	0.000	0.047	0.047	285	29.52	0.000	0.000	0.064	0.064	163
20	163.0						70.21	0.000	0.000	0.047	0.047	285	26.69	0.000	0.000	0.065	0.065	150
21	153.7	0.019	0.036	0.047	0.102	1354	64.00						24.11	0.000	0.000	0.103	0.103	215
22	147.9	0.014	0.045	0.059	0.118	1507	62.50						24.00					
23	161.2	0.190	0.049	0.058	0.297	4135	62.00	0.000	0.000	0.097	0.097	520	24.03	0.000	0.000	0.111	0.111	230
24	142.1	0.014	0.048	0.058	0.120	1473	60.00						21.35	0.000	0.000	0.105	0.105	194
25	136.9						58.00						20.00					
26	131.7	0.020	0.038	0.064	0.122	1388	63.35	0.000	0.000	0.051	0.051	279	19.68	0.000	0.000	0.142	0.142	241
27	128.0						57.73	0.000	0.000	0.054	0.054	269	17.82	0.000	0.000	0.101	0.101	155
28	124.3	0.002	0.055	0.056	0.113	1214	55.98	0.000	0.000	0.050	0.050	242	16.87	0.000	0.000	0.091	0.091	133
29	120.4	0.000	0.048	0.114	0.162	1685	56.15	0.000	0.000	0.050	0.050	243	18.20					
30	119.9	0.000	0.051	0.125	0.176	1823	55.91	0.000	0.000	0.054	0.054	261	16.67	0.000	0.000	0.090	0.090	130
31							54.80	0.000	0.000	0.054	0.054	256						
Ten Daily Mean																		
Ten Daily I	165.4	0.029	0.044	0.096	0.169	2421	103.5	0.000	0.000	0.085	0.085	748	47.22	0.000	0.000	0.051	0.051	205
Ten Daily II	139.2	0.025	0.054	0.084	0.162	1880	68.59	0.000	0.000	0.051	0.051	277	35.67	0.000	0.000	0.061	0.061	181
Ten Daily III	136.6	0.032	0.046	0.073	0.151	1822	59.13	0.000	0.000	0.059	0.059	296	20.27	0.000	0.000	0.106	0.106	185
Monthly																		
Total						49525						10269						4388

Annual Sediment Load (Metric Tonnes) : 11628622

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	18.56						10.43						5.557	0.000	0.000	0.081	0.081	39
2	16.83						10.13						6.023					
3	16.39						10.30						6.022					
4	16.00						10.02	0.000	0.000	0.076	0.076	66	6.006					
5	14.22						10.30						5.962					
6	15.00						8.880						5.956					
7	14.91	0.000	0.000	0.102	0.102	131	8.490						6.280					
8	13.80						7.984						5.723	0.000	0.000	0.067	0.067	33
9	12.51						7.946						5.883					
10	12.06						8.100						7.960					
11	11.01						7.943	0.000	0.000	0.081	0.081	56	5.623					
12	10.88						7.819						5.611					
13	10.98						6.909						5.401					
14	11.02	0.000	0.000	0.077	0.077	73	6.668						5.750					
15	11.13						6.694						5.344	0.000	0.000	0.070	0.070	32
16	11.03						6.580						5.083					
17	10.95						6.935						5.107					
18	11.12						6.589	0.000	0.000	0.086	0.086	49	5.038					
19	11.22						6.516						5.018					
20	11.30						5.928						4.817					
21	11.40	0.000	0.000	0.084	0.084	83	6.470						5.150					
22	11.29						6.438						4.711	0.000	0.000	0.064	0.064	26
23	11.02						6.357						4.993					
24	11.09						6.650						4.674					
25	11.10						6.290	0.000	0.000	0.082	0.082	45	4.613					
26	11.19												4.742					
27	11.00						6.277						5.281					
28	10.63	0.000	0.000	0.079	0.079	73	8.442						5.720					
29	10.37						6.193						5.437	0.000	0.000	0.068	0.068	32
30	10.40						6.111											
31	10.63						6.450											
Ten Daily Mean																		
Ten Daily I	15.03	0.000	0.000	0.102	0.102	131	9.258	0.000	0.000	0.076	0.076	66	6.137	0.000	0.000	0.074	0.074	36
Ten Daily II	11.07	0.000	0.000	0.077	0.077	73	6.858	0.000	0.000	0.084	0.084	52	5.279	0.000	0.000	0.070	0.070	32
Ten Daily III	10.92	0.000	0.000	0.082	0.082	78	6.568	0.000	0.000	0.082	0.082	45	5.036	0.000	0.000	0.066	0.066	29
Monthly																		
Total						360						215						162

Annual Sediment Load (Metric Tonnes) : 11628622

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	5.473												1.600					
2	5.385						4.804						1.574	0.000	0.000	0.076	0.076	10
3	5.335						4.680						1.547					
4	5.309				0.065	30	4.732	0.000	0.000	0.065	0.065	27	1.413					
5	5.214						4.776						1.394					
6							4.698						1.370					
7							4.640						1.573					
8	5.194	0.000	0.000	0.080	0.080	36	4.637						1.390					
9	5.128						4.219						1.380	0.000	0.000	0.086	0.086	10
10	5.251						4.160						1.346					
11	5.452				0.067	32	3.677	0.000	0.000	0.067	0.067	21	0.000					
12	5.390						3.589						1.284					
13							3.298						1.233					
14	5.384	0.000	0.000	0.063	0.063	29	3.158						1.173					
15	5.269						2.815						1.180					
16	5.212						2.758						0.000	0.000	0.000	0.106	0.106	0
17	5.190						2.675						1.119					
18	4.891				0.058	25	2.572	0.000	0.000	0.058	0.058	13	1.070					
19	5.040						2.546						1.340					
20							2.320						1.790					
21	4.914	0.000	0.000	0.068	0.068	29	2.346						1.960					
22	4.905						2.162						2.320					
23	4.911						2.040						2.914	0.000	0.000	0.081	0.081	20
24							2.010						3.383					
25							2.000	0.000	0.000	0.062	0.062	11	3.445					
26	4.857						1.846						4.973					
27							1.683						5.149					
28	4.640	0.000	0.000	0.072	0.072	29	1.696						5.032					
29	4.803						1.657						4.800	0.000	0.000	0.064	0.064	27
30	4.704						1.636						4.821					
31	4.803												4.693					
Ten Daily Mean																		
Ten Daily I	5.286	0.000	0.000	0.080	0.073	33	4.594	0.000	0.000	0.065	0.065	27	1.459	0.000	0.000	0.081	0.081	10
Ten Daily II	5.228	0.000	0.000	0.063	0.063	28	2.941	0.000	0.000	0.063	0.063	17	1.019	0.000	0.000	0.106	0.106	0
Ten Daily III	4.817	0.000	0.000	0.070	0.070	29	1.908	0.000	0.000	0.062	0.062	11	3.954	0.000	0.000	0.073	0.073	23
Monthly																		
Total						209						71						68

Annual Sediment Load (Metric Tonnes) : 11628622

Annual Sediment Load for period : 1972-2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1972-1973	60141	1925	62066	4654
1973-1974	403492	4501	407993	7654
1974-1975	4425803	14522	4440324	3556
1975-1976	18975623	45415	19021038	5133
1976-1977	2829707	241561	3071268	2950
1977-1978	2405897	49202	2455099	3853
1978-1979	3312461	2535	3314996	5716
1979-1980	3481235	34593	3515828	2315
1980-1981	1988771	122493	2111264	3260
1981-1982	5141697	38303	5180000	4319
1982-1983	2384603	60456	2445059	3113
1983-1984	5132526	2969	5135495	4967
1984-1985	5919527	48089	5967616	5934
1985-1986	15938995	30571	15969566	8767
1986-1987	1967417	13896	1981313	3971
1987-1988	1449752	137628	1587380	2166
1988-1989	3754425	51870	3806295	4263
1989-1990	6456690	43615	6500306	6091
1990-1991	4442577	11352	4453929	6521
1991-1992	10340815	98387	10439202	6002
1992-1993	1263618	67053	1330671	2732
1993-1994	2551737	6144	2557881	4593
1994-1995	6265349	2403877	8669225	7920
1995-1996	2873624	7819	2881442	5253
1996-1997	2945811	20511	2966323	4670
1997-1998	3804487	79893	3884380	6342
1998-1999	1017179	21071	1038251	2942
1999-2000	5009740	11210	5020951	9520
2000-2001	2099965	4653	2104618	3500
2001-2002	1955255	10262	1965517	4885
2002-2003	499797	7713	507510	1923
2003-2004	1542136	6578	1548714	4693
2004-2005	1138740	7467	1146207	3446
2005-2006	2476820	11323	2488143	5288
2006-2007	2802117	7225	2809342	5473
2007-2008	4181890	12743	4194633	8601
2008-2009	2136834	8608	2145441	5253
2009-2010	685319	3090	688410	2768
2010-2011	191810	5447	197257	1307
2011-2012	2514495	17673	2532168	6798
2012-2013	310051	862	310912	2619
2013-2014	1579388	4465	1583854	6040
2014-2015	1636413	2550	1638963	4274
2015-2016	11627537	1085	11628622	2160

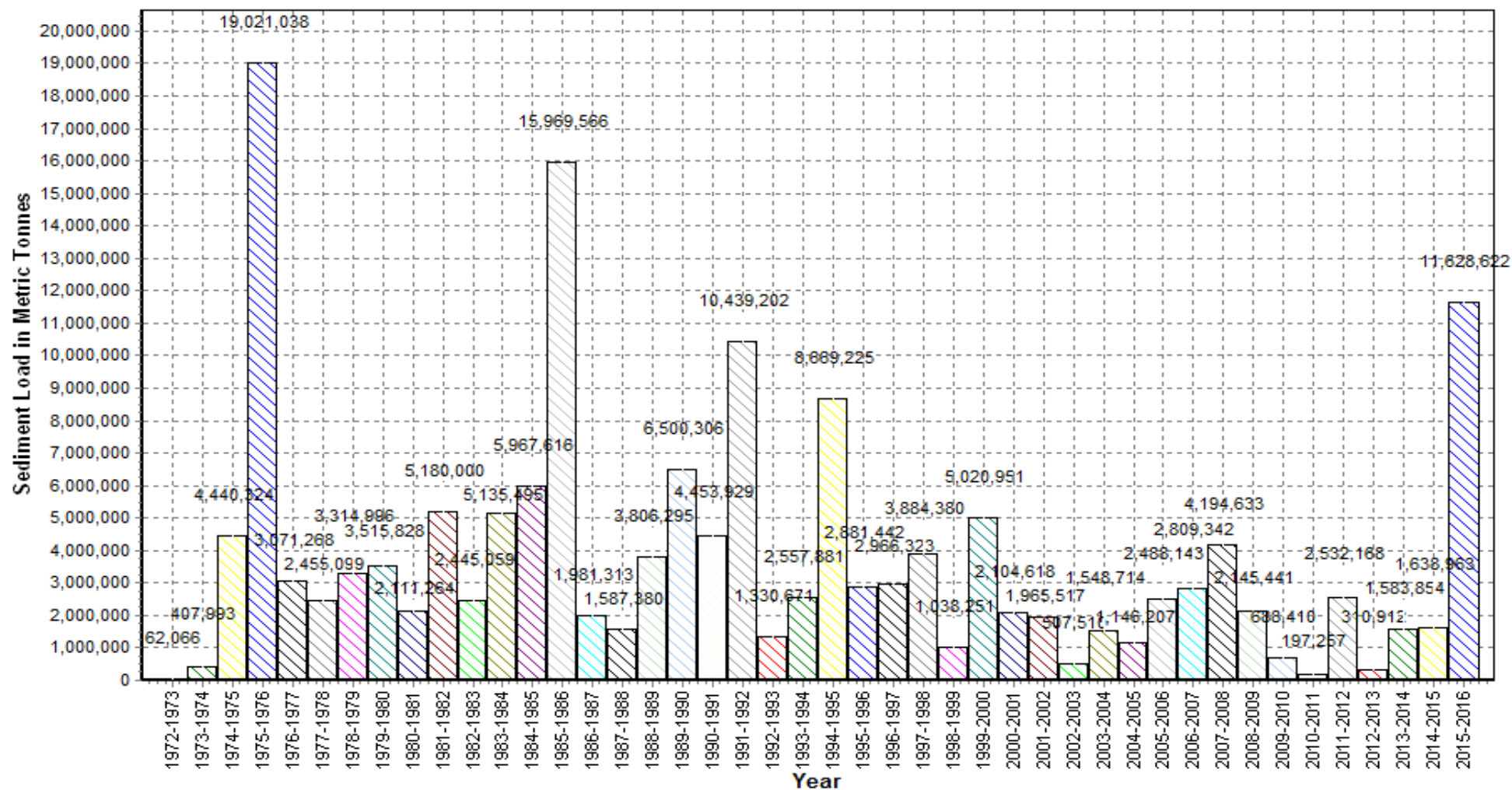
Annual Sediment Load for the period: 1972-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

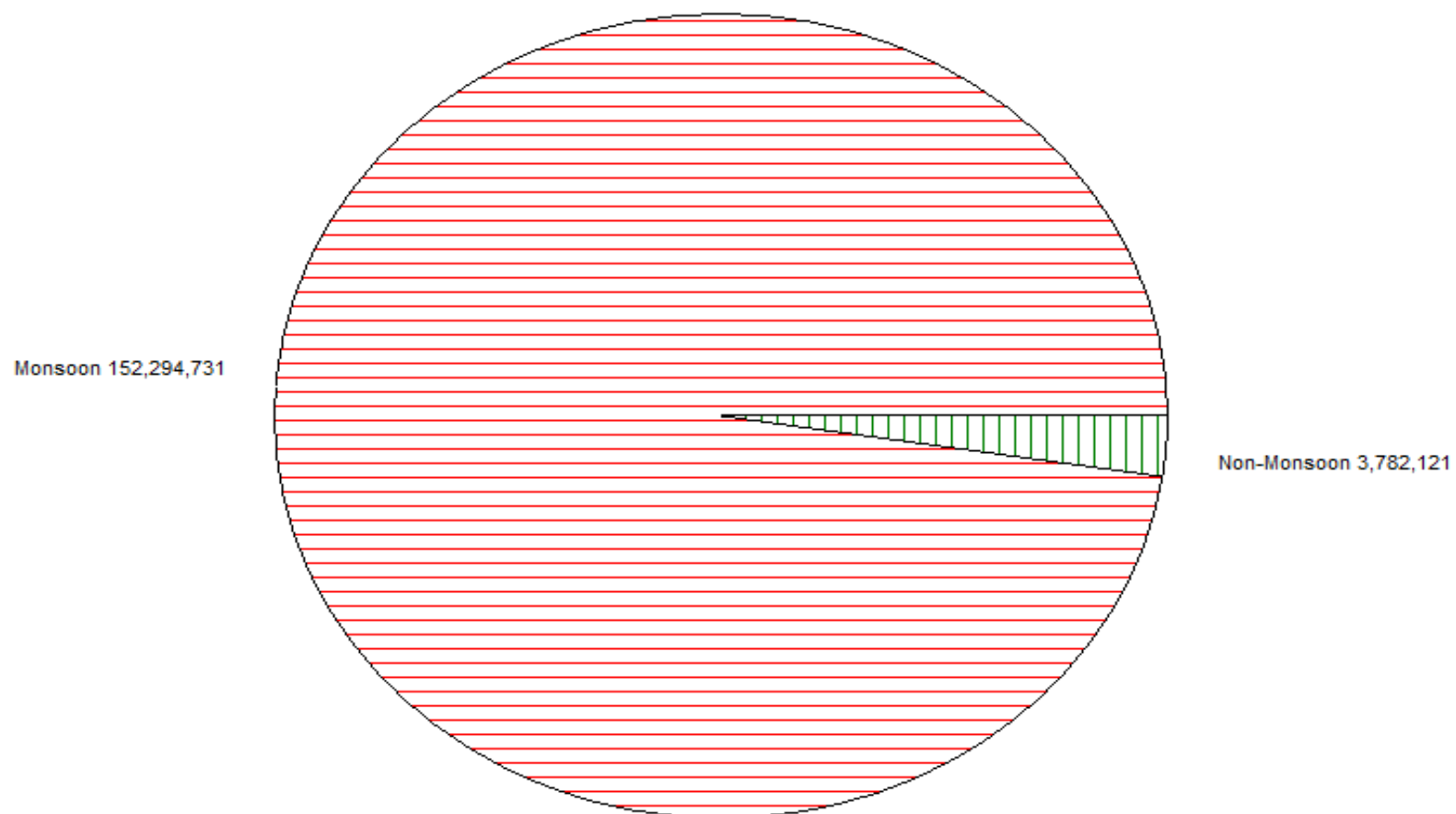
Sub-Division : Bhubaneswar



Station Name : ANANDPUR (EC000K3)
Local River : Baitarani

Seasonal Sediment Load for the period : 1972-2015

Division : E.E., Bhubaneswar
Sub-Division : Bhubaneswar



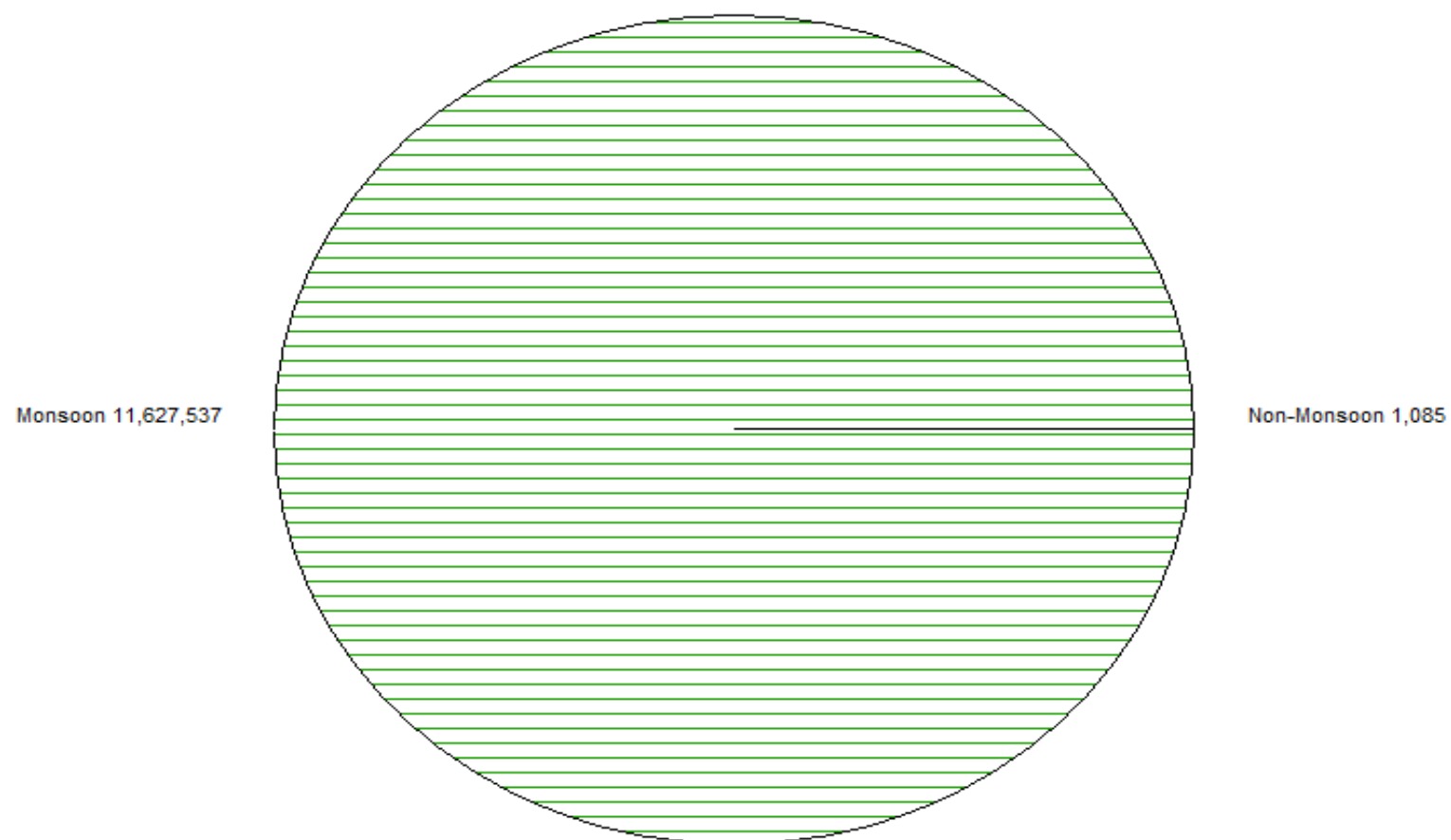
Seasonal Sediment Load for the Year: 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	232	128	103	256	298	356	330	332	409	213	354	245
4	EC_GEN (µmho/cm)	202	124	95	268	326	340	332	329	412	217	356	241
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	6.8	7.6	7.9	7.2	7.8	7.1	7.6	8.3	6.6	7.9	8.1
7	pH_GEN (pH units)	7.7	7.3	7.3	7.6	7.5	7.6	7.6	7.7	8.5	7.8	8.1	8.2
8	Temp (deg C)	29.0	29.0	29.0	30.0	29.0	25.0	19.0	19.0	19.5	25.5	26.5	29.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	0.0	46.0	9.2
2	ALK-TOT (mgCaCO3/L)	92	88	74	51	46	51	55	65	111	42	148	111
3	B (mg/L)	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	26	24	21	18	16	19	19	21	21	32	26	35
5	Cl (mg/L)	11.3	18.9	13.2	7.5	17.0	18.9	15.1	17.0	18.9	9.4	11.3	45.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	55.4	11.1
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.5	0.3	0.4	0.5	0.2	0.5	0.4	0.4	0.4	0.4	0.4
9	HCO3 (mg/L)	113	107	90	62	56	62	68	79	90	51	68	113
10	K (mg/L)	1.0	2.4	1.9	1.4	1.4	1.4	1.8	1.9	2.8	5.3	0.9	0.9
11	Mg (mg/L)	21.4	20.4	11.7	9.7	9.7	10.7	9.7	10.7	11.7	11.7	11.7	14.6
12	Na (mg/L)	5.0	7.9	4.3	5.6	5.4	5.8	8.1	8.9	19.6	19.9	10.0	10.1
13	NO2+NO3 (mg N/L)	1.12	0.73	1.01	1.19	1.19	0.88	1.20	0.92	0.83	0.95	1.05	0.87
14	NO2-N (mgN/L)	0.07	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.01	0.00	0.00	0.01
15	NO3-N (mgN/L)	1.05	0.73	1.01	1.19	1.19	0.81	1.19	0.91	0.81	0.95	1.05	0.85
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	6.0	5.0	5.0
18	SO4 (mg/L)	12.2	8.0	8.1	7.0	7.0	7.3	3.9	2.0	4.0	47.3	4.9	5.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.8	1.0	0.8	0.8	0.8	0.8	2.8	1.0	1.6	0.4	0.6
2	DO (mg/L)	4.4	6.2	7.2	6.4	7.0	7.6	6.8	8.5	9.5	3.4	6.2	7.9
3	DO_SAT% (%)	57	80	93	84	90	91	73	92	103	41	76	103
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	64	60	52	44	40	48	48	52	52	80	64	88
2	HAR_Total (mgCaCO3/L)	153	145	101	85	81	93	89	97	101	129	113	149
3	Na% (%)	7	10	8	12	13	12	16	16	29	24	16	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.7	0.0
5	SAR (-)	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.9	0.8	0.4	0.4
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

Local River : Baitarani

Sub-Division : Bhubaneswar

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (μmho/cm)	12	409	103	271
3	EC_GEN (μmho/cm)	12	412	95	270
4	pH_FLD (pH units)	12	8.3	6.6	7.5
5	pH_GEN (pH units)	12	8.5	7.3	7.7
6	Temp (deg C)	12	30.0	19.0	25.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	46.0	0.0	6.1
2	ALK-TOT (mgCaCO3/L)	12	148	42	78
3	B (mg/L)	12	0.03	0.01	0.01
4	Ca (mg/L)	12	35	16	23
5	Cl (mg/L)	12	45.3	7.5	17
6	CO3 (mg/L)	12	55.4	0.0	7.4
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.5	0.2	0.4
9	HCO3 (mg/L)	12	113	51	80
10	K (mg/L)	12	5.3	0.9	1.9
11	Mg (mg/L)	12	21.4	9.7	12.8
12	Na (mg/L)	12	19.9	4.3	9.2
13	NO2+NO3 (mg N/L)	12	1.20	0.73	1
14	NO2-N (mgN/L)	12	0.07	0.00	0.02
15	NO3-N (mgN/L)	12	1.19	0.73	0.98
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	6.0	5.0	5.7
18	SO4 (mg/L)	12	47.3	2.0	9.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.8	0.4	1
2	DO (mg/L)	12	9.5	3.4	6.7
3	DO_SAT% (%)	12	103	41	82
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	88	40	58
2	HAR_Total (mgCaCO3/L)	12	153	81	111
3	Na% (%)	12	29	7	15
4	RSC (-)	12	0.7	0.0	0.1
5	SAR (-)	12	0.9	0.2	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : ANANDPUR (EC000K3)

Division : E.E., Bhubaneswar

Local River : Baitarani

River Water

Sub-Division : Bhubaneswar

S.No	Parameters	Flood Jun - Oct																				
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	135	104	114	122	112	162	119		123	142	132	121	95	134	203	115	119	127	123	132	386
3	EC_GEN (µmho/cm)	135	111	119	121	109	158	110		123	142	127	121	95	134	203	115	127	139	129	128	216
4	pH_FLD (pH units)	7.5	7.2	7.6	7.7	7.7	7.5	7.8		7.9	7.9	8.3	7.6	7.5	7.7	7.4	7.4	7.5	7.4	7.8	8.0	8.1
5	pH_GEN (pH units)	7.5	7.2	7.4	7.6	7.8	7.5	7.9		7.9	7.9	8.2	7.6	7.5	7.7	7.5	7.5	7.4	7.2	7.8	8.0	8.1
6	Temp (deg C)	28.1	28.6	27.9	28.0	27.9	27.6	29.7		29.6	28.4	26.8	28.8	28.3	28.9	29.2	22.4	26.7	22.8	21.4	21.4	21.9
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)						0.0	0.0		0.0	2.0	11.7	0.0			0.0						0.0
2	ALK-TOT (mgCaCO3/L)						80	35		31	43	102	64			70						96
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	15	10	10	11	11	18	12		11	13	12	14	14	12	21	12	11	10	12	13	22
5	Cl (mg/L)	7.9	10.5	8.9	12.4	11.0	15.5	9.8		9.2	11.5	15.8	15.8	17.5	15.8	13.6	9.6	12.2	13.0	11.1	10.3	17.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	1.9	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.00	0.00	0.00	0.34	0.02	0.00	0.00		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.07	0.03	0.28	0.00	0.12
8	Fe (mg/L)	0.1	0.3	0.1	0.1	0.1	0.1	0.1		0.1	0.3	0.0	135.0	0.1	0.8	0.4	0.3	0.2	0.1	0.2	0.1	0.1
9	HCO3 (mg/L)	62	42	39	61	42	78	43		38	50	96	65	60	96	86	52	50	44	58	48	96
10	K (mg/L)	1.3	1.6	1.4	2.6	1.5	1.6	1.6		1.4	1.9	1.2	2.4	1.5	1.4	1.6	1.4	1.7	1.7	1.6	1.5	1.9
11	Mg (mg/L)	4.1	3.5	2.4	4.7	2.4	4.9	3.4		5.2	5.5	6.4	3.2	3.8	6.4	14.6	3.6	4.1	2.4	4.6	2.8	7.5
12	Na (mg/L)	5.6	6.9	6.1	9.1	7.1	9.6	6.6		5.3	6.5	4.1	7.5	11.6	4.8	5.6	6.9	8.1	9.2	6.5	7.2	11.6
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	0.41	0.66	0.77	0.69	0.86	0.29	1.17		0.92	0.59	0.39	0.91	0.78	1.24	1.05	0.20	0.44	0.30	0.29	0.89	0.88
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.07	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01
16	NO3-N (mgN/L)	0.41	0.66	0.77	0.69	0.86	0.29	1.17		0.92	0.59	0.32	0.91	0.77	1.22	1.03	0.20	0.44	0.30	0.29	0.89	0.87
17	o-PO4-P (mg P/L)					0.000	0.019	0.000		0.021										0.000	0.000	0.013
18	P-Tot (mgP/L)	0.001	0.007	0.013	0.001	0.001	0.019	0.001		0.013	0.001	0.010	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.015
19	SiO2 (mg/L)	7.5	7.9	10.2	20.1	24.0	13.7	8.6		8.1	7.5	9.4	18.7	8.8	5.8	6.0	7.6	8.2	6.6	22.0	25.0	20.7
20	SO4 (mg/L)	1.4	5.3	1.3	2.7	1.6	1.4	3.9		11.3	7.7	10.3	24.7	19.5	14.9	8.5	1.0	3.1	0.9	1.9	2.2	5.1
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)					0.7	1.0	1.0		1.3	1.2	1.3	0.6	0.8	1.0	0.8				1.0	0.7	0.8
2	COD (mg/L)										1.3											
3	DO (mg/L)					6.6	6.9	7.0		7.3	6.8	6.6	7.0	7.1	5.4	6.2				8.7	8.4	8.1
4	DO_SAT% (%)					84	87	92		96	87	83	90	91	70	81				94	95	92
5	FCol-MPN (MPN/100mL)						7	80		22	127		12									17
6	Tcol-MPN (MPN/100mL)						11	130		26	215		18									17
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	37	25	25	28	28	44	29		28	33	30	34	36	30	52	29	28	25	31	33	56
2	HAR_Total (mgCaCO3/L)	54	39	35	49	38	65	43		50	56	56	47	52	56	113	44	45	35	52	44	87
3	Na% (%)	20	27	27	27	29	22	25		19	20	14	22	32	15	10	25	28	35	22	25	24
4	RSC (-)	0.0	0.0	0.0	0.1	0.0	0.0	0.0		0.0	0.0	1.1	0.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	0.5	0.6	0.5	0.5	0.4		0.3	0.4	0.2	0.5	0.7	0.3	0.2	0.5	0.5	0.7	0.4	0.5	0.6
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

Station Name : ANANDPUR (EC000K3)

Local River : Baitarani

Division : E.E., Bhubaneswar

Sub-Division : Bhubaneswar

River Water

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	178		136	195	123	163	117	167	357	149	166	176	155	166	154	150		174	244	157	197
3	EC_GEN (µmho/cm)	172		136	190	123	163	117	167	353	149	170	182	151	160	149	154		174	244	157	197
4	pH_FLD (pH units)	8.1		8.0	7.8	7.8	7.6	8.0	7.9	7.7	7.7	7.5	7.7	8.0	7.7	8.2	8.1		8.1	8.4	7.9	7.8
5	pH_GEN (pH units)	8.1		8.0	7.8	7.8	7.6	8.0	7.9	7.8	7.7	7.3	7.6	8.1	7.8	8.1	8.1		8.1	8.4	7.9	7.8
6	Temp (deg C)	23.1		19.0	20.9	21.3	19.8	21.1	20.9	20.6	27.8	30.5	27.0	27.3	26.8	26.3	25.7		27.3	23.7	27.0	27.7
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0	0.0			4.6						0.0			1.3	3.9	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	55		37	78	61	76			70						92			59	90	69	69
3	B (mg/L)	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00
4	Ca (mg/L)	17		11	16	16	17	15	14	20	14	18	16	14	16	14	17		15	17	21	24
5	Cl (mg/L)	15.4		13.6	13.7	9.9	17.3	19.3	10.4	17.4	14.9	14.3	12.7	10.3	10.4	13.2	10.5		13.6	14.5	20.7	16.9
6	CO3 (mg/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0		1.6	4.7	0.0	0.0
7	F (mg/L)	0.07		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.00	0.00	0.13	0.04	0.00	0.05		0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.1		0.1	0.3	0.0	1.7	0.1	0.3	0.4	0.9	0.2	0.1	0.3	0.1	0.3	0.1		0.1	0.4	0.0	0.4
9	HCO3 (mg/L)	67		45	90	75	86	78	73	75	63	72	71	68	82	63	63		69	100	85	94
10	K (mg/L)	2.0		1.1	1.3	1.1	2.8	1.6	1.0	2.0	2.0	2.3	1.9	2.5	1.7	2.0	0.7		1.4	7.9	2.3	3.1
11	Mg (mg/L)	4.2		5.3	9.0	6.1	6.6	3.2	8.1	10.7	4.9	5.2	5.2	5.0	6.6	4.9	4.5		7.5	12.2	5.5	6.6
12	Na (mg/L)	10.7		7.7	7.9	5.5	8.8	12.4	4.6	10.6	9.2	9.1	8.4	6.7	7.1	8.6	7.3		8.2	8.5	9.2	9.1
13	NH3-N (mg N/L)																0.05					
14	NO2+NO3 (mg N/L)	1.60		0.51	0.40	0.37	0.94	0.81	0.94	0.96	0.37	0.84	0.74	0.56	1.19	0.85	0.28		0.53	0.76	0.35	0.98
15	NO2-N (mgN/L)	0.00		0.00	0.00	0.07	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.07	0.01
16	NO3-N (mgN/L)	1.60		0.51	0.40	0.30	0.94	0.81	0.94	0.93	0.37	0.84	0.74	0.56	1.19	0.85	0.28		0.53	0.76	0.28	0.97
17	o-PO4-P (mg P/L)	0.000		0.000										0.000	0.000	0.010			0.000			
18	P-Tot (mgP/L)	0.001		0.002	0.001	0.010	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.001	0.011	0.053		0.007	0.001	0.010	0.001
19	SiO2 (mg/L)	9.4		8.1	7.3	10.0	16.5	11.5	4.8	5.5	8.6	15.9	18.4	20.7	24.8	15.4	11.8		8.4	9.3	11.0	19.1
20	SO4 (mg/L)	4.0		7.4	3.1	2.5	2.2	17.3	3.3	4.3	1.9	1.9	2.9	1.8	4.7	2.6	7.4		8.1	4.8	2.5	2.6
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	0.9		1.2	1.1	1.5	1.7	0.5	0.8	1.3				0.9	0.8	1.1	1.0		1.1	1.2	1.3	0.6
2	COD (mg/L)																					
3	DO (mg/L)	8.1		8.1	8.4	7.7	7.4	7.7	9.2	8.1				6.8	7.8	7.4	6.9		7.1	6.8	7.0	6.5
4	DO_SAT% (%)	94		88	93	87	81	86	102	90				86	97	92	85		89	79	88	83
5	FCol-MPN (MPN/100mL)	48		8	20		12									7	11		176	19		14
6	Tcol-MPN (MPN/100mL)	88		11	25		18									12	13		176	19		18
	TRACE & TOXIC																					
1	Al (mg/L)															0.00						
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	43		28	40	40	44	37	35	50	36	44	40	35	41	34	42		39	41	53	59
2	HAR_Total (mgCaCO3/L)	61		50	78	65	71	51	69	95	56	66	62	53	69	55	61		70	92	76	87
3	Na% (%)	27		24	18	15	20	34	13	18	25	23	22	20	18	25	20		20	16	19	18
4	RSC (-)	0.0		0.0	0.0	0.0	0.1	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.0	0.1
5	SAR (-)	0.6		0.5	0.4	0.3	0.5	0.8	0.2	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4		0.4	0.4	0.5	0.4
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

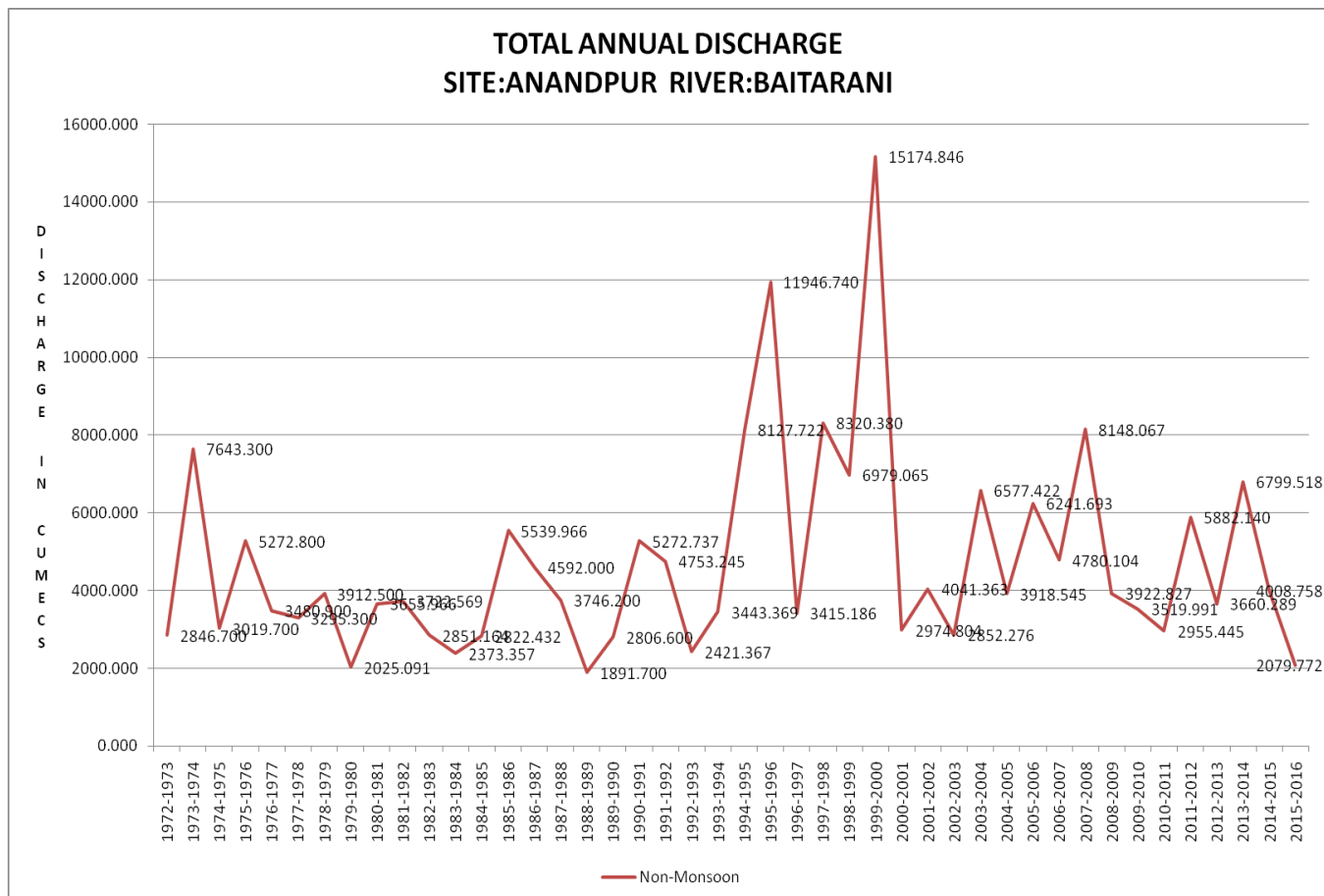
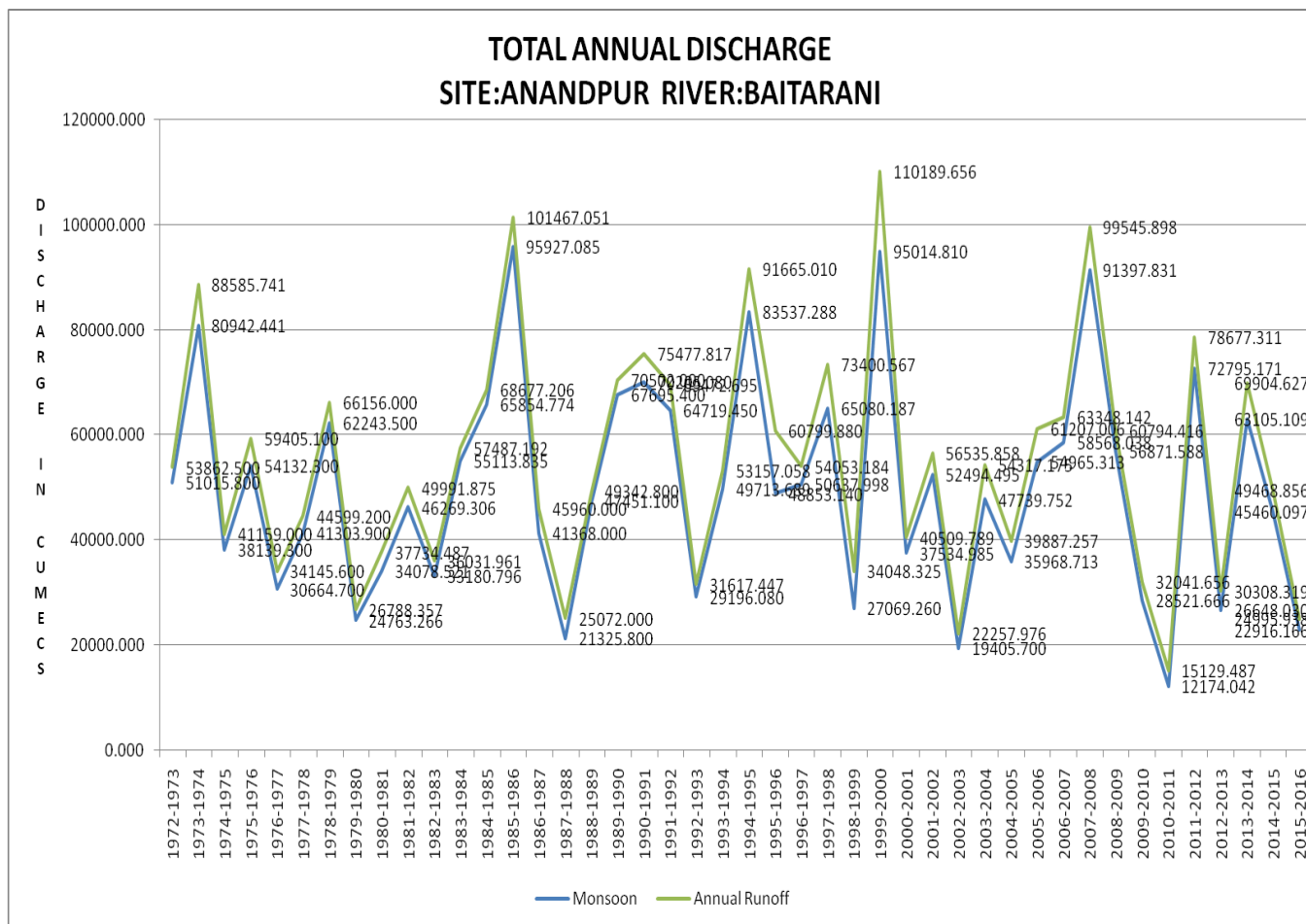
Station Name : ANANDPUR (EC000K3)
Local River : Baitarani

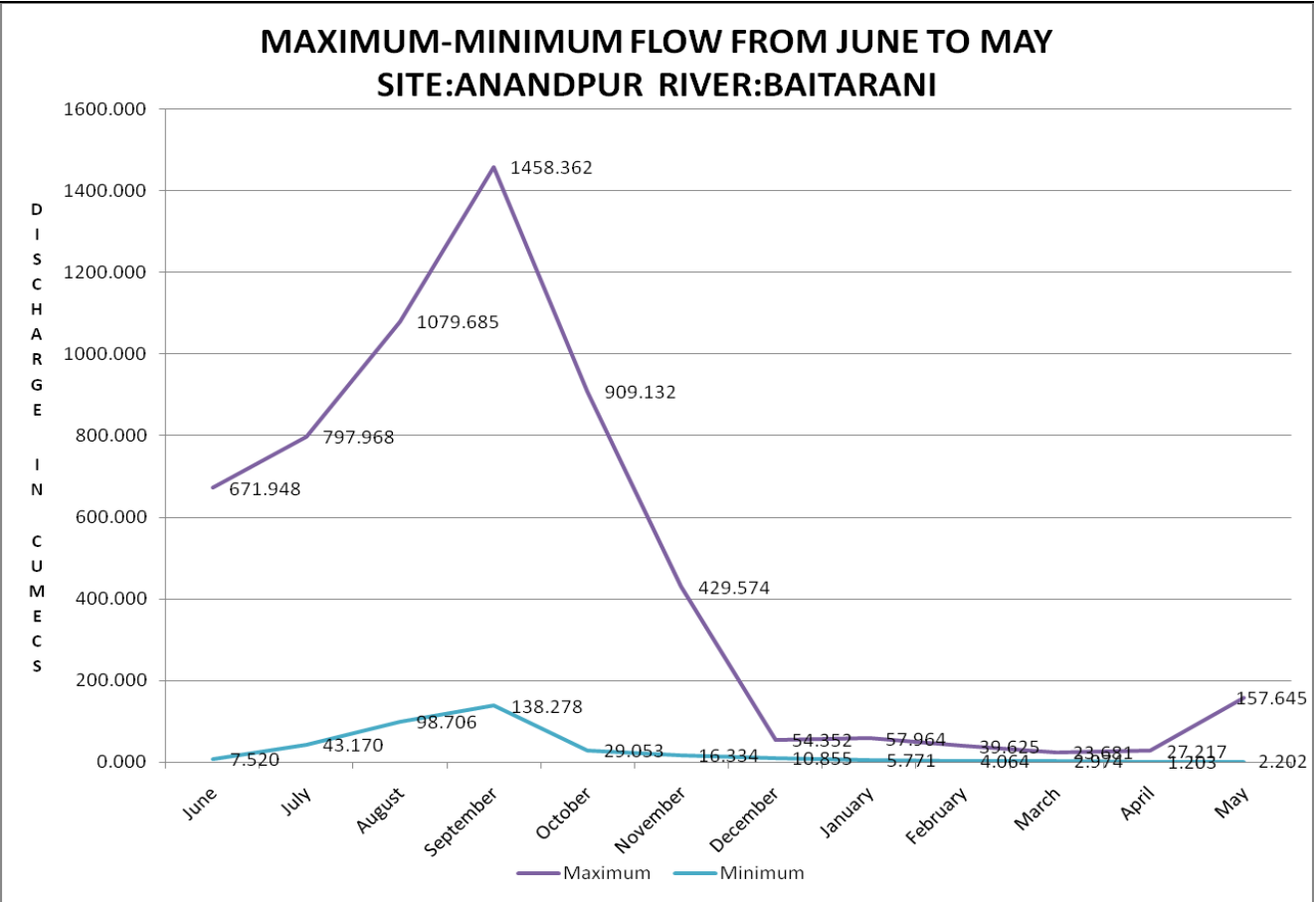
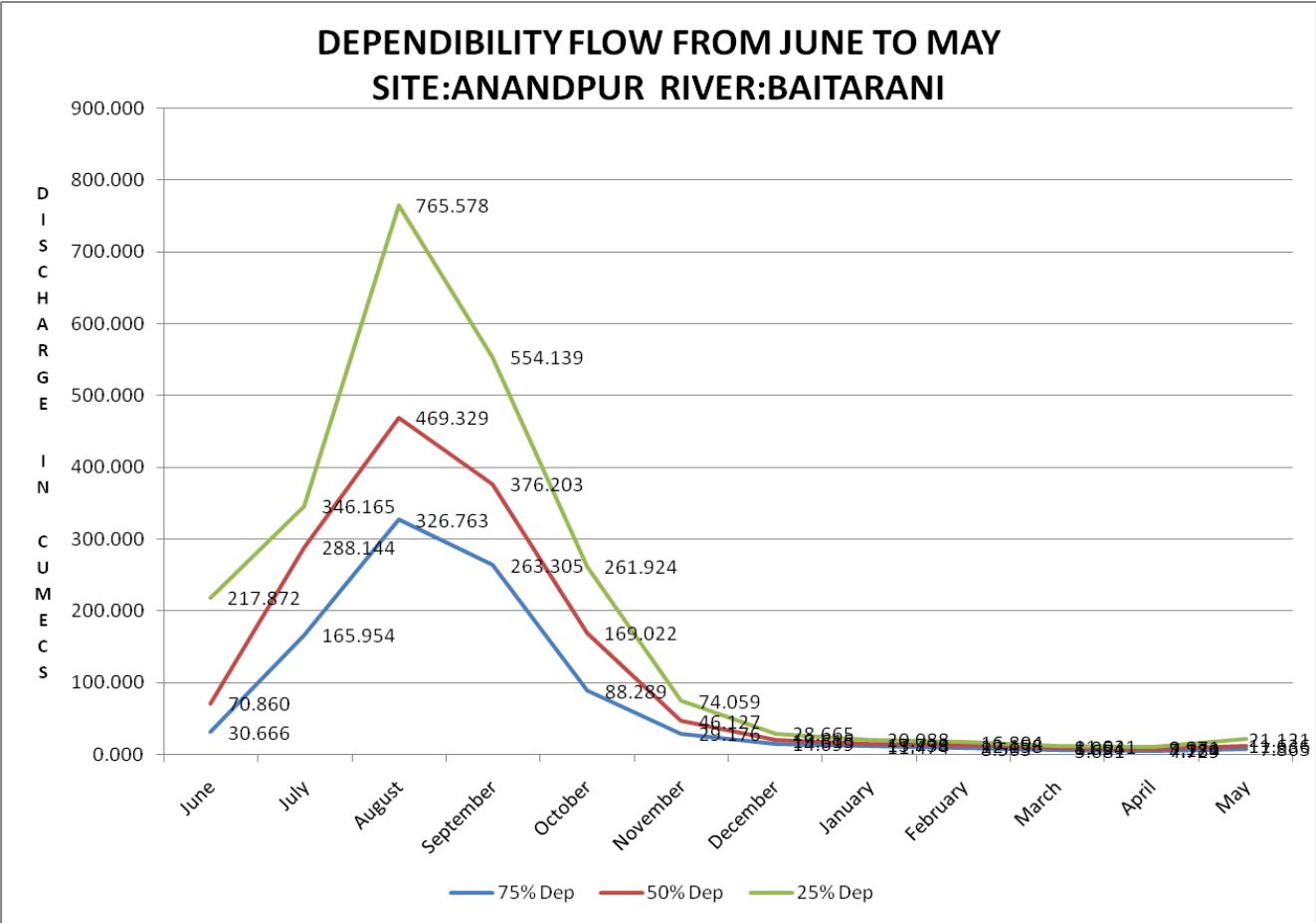
Division : E.E., Bhubaneswar
Sub-Division : Bhubaneswar

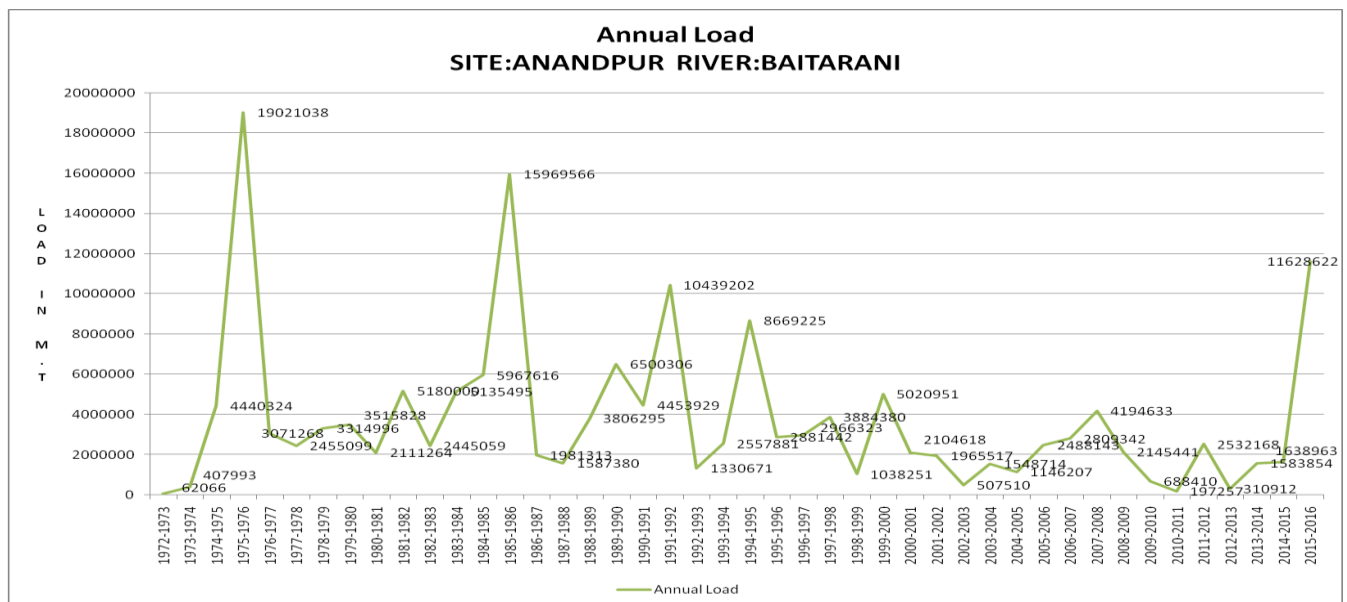
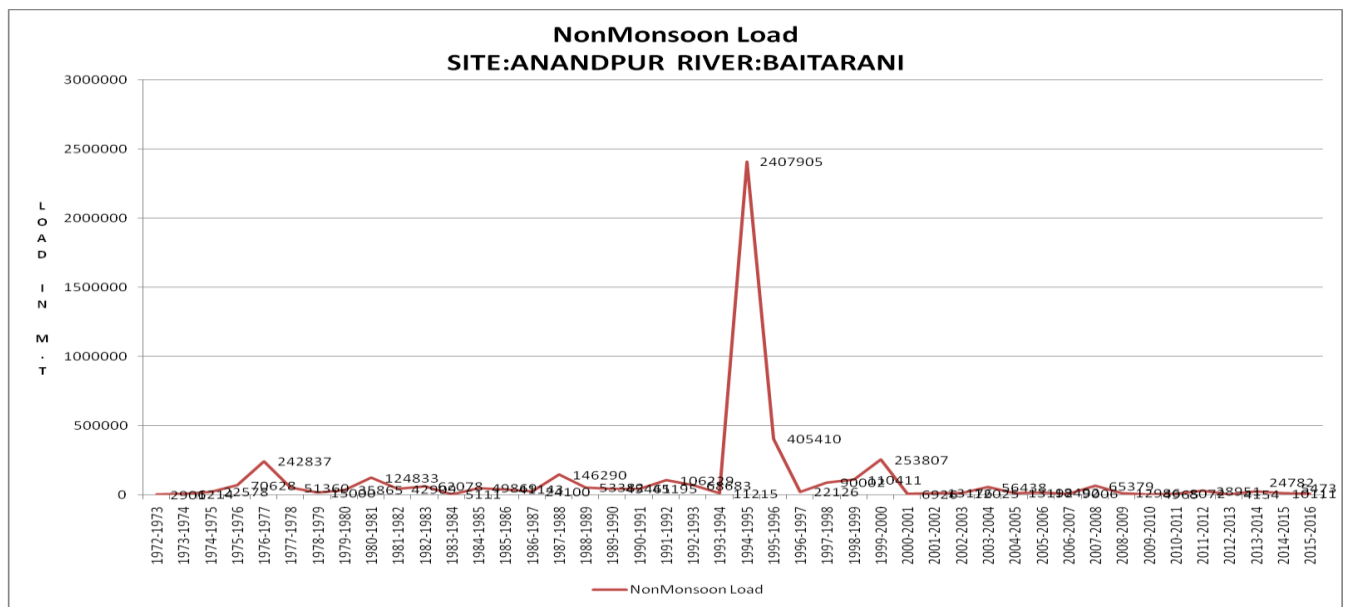
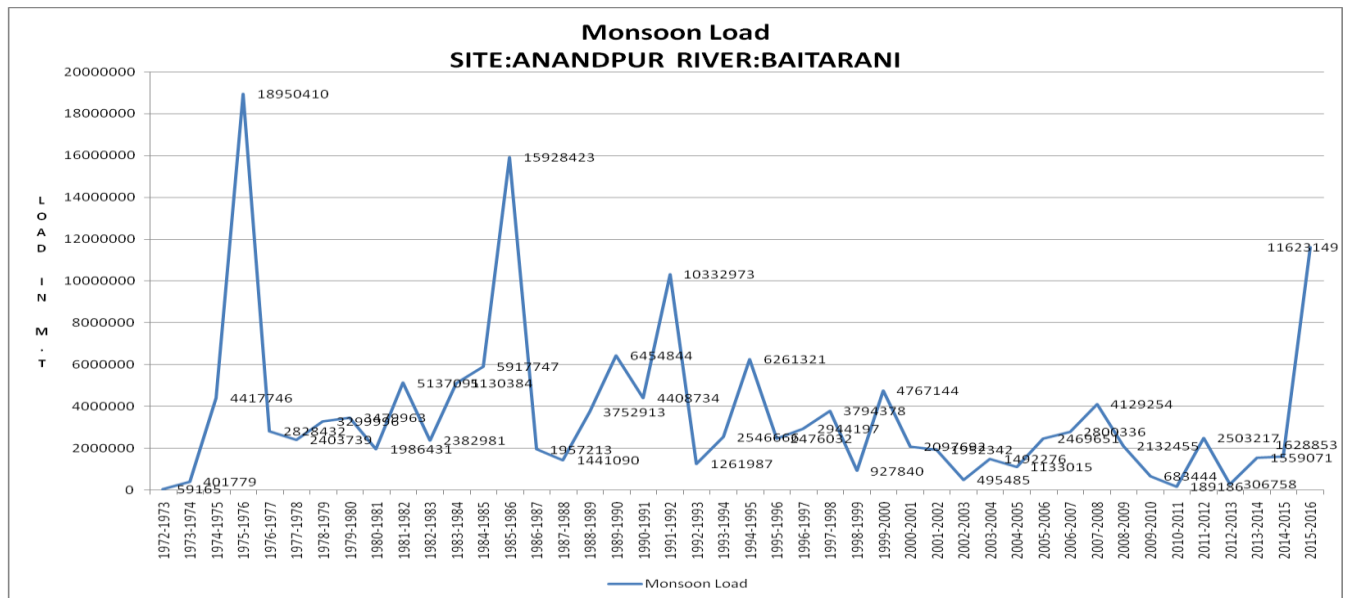
River Water

S.No	Parameters			
		2014	2015	2016
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (μmho/cm)	147	233	271
3	EC_GEN (μmho/cm)	147	233	271
4	pH_FLD (pH units)	7.8	8.1	7.5
5	pH_GEN (pH units)	7.8	8.1	8.0
6	Temp (deg C)	28.1	26.3	27.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	18.4
2	ALK-TOT (mgCaCO3/L)		16	100
3	B (mg/L)	0.00	0.00	0.01
4	Ca (mg/L)	15	24	31
5	Cl (mg/L)	17.0	20.9	22.0
6	CO3 (mg/L)	0.0	0.0	22.2
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.0	0.4	0.4
9	HCO3 (mg/L)	54	67	77
10	K (mg/L)	1.6	2.0	2.4
11	Mg (mg/L)	4.2	7.5	12.6
12	Na (mg/L)	13.4	8.9	13.3
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.68	1.13	0.96
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.68	1.13	0.95
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.001	0.010
19	SiO2 (mg/L)	9.6	3.8	5.3
20	SO4 (mg/L)	12.4	1.9	19.0
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.3	0.7	0.9
2	COD (mg/L)			
3	DO (mg/L)	6.6	6.5	5.8
4	DO_SAT% (%)	83	81	73
5	FCol-MPN (MPN/100mL)			
6	Tcol-MPN (MPN/100mL)			
	TRACE & TOXIC			
1	Al (mg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	38	60	77
2	HAR_Total (mgCaCO3/L)	55	91	130
3	Na% (%)	34	17	18
4	RSC (-)	0.0	0.0	0.2
5	SAR (-)	0.8	0.4	0.5
	PESTICIDES			

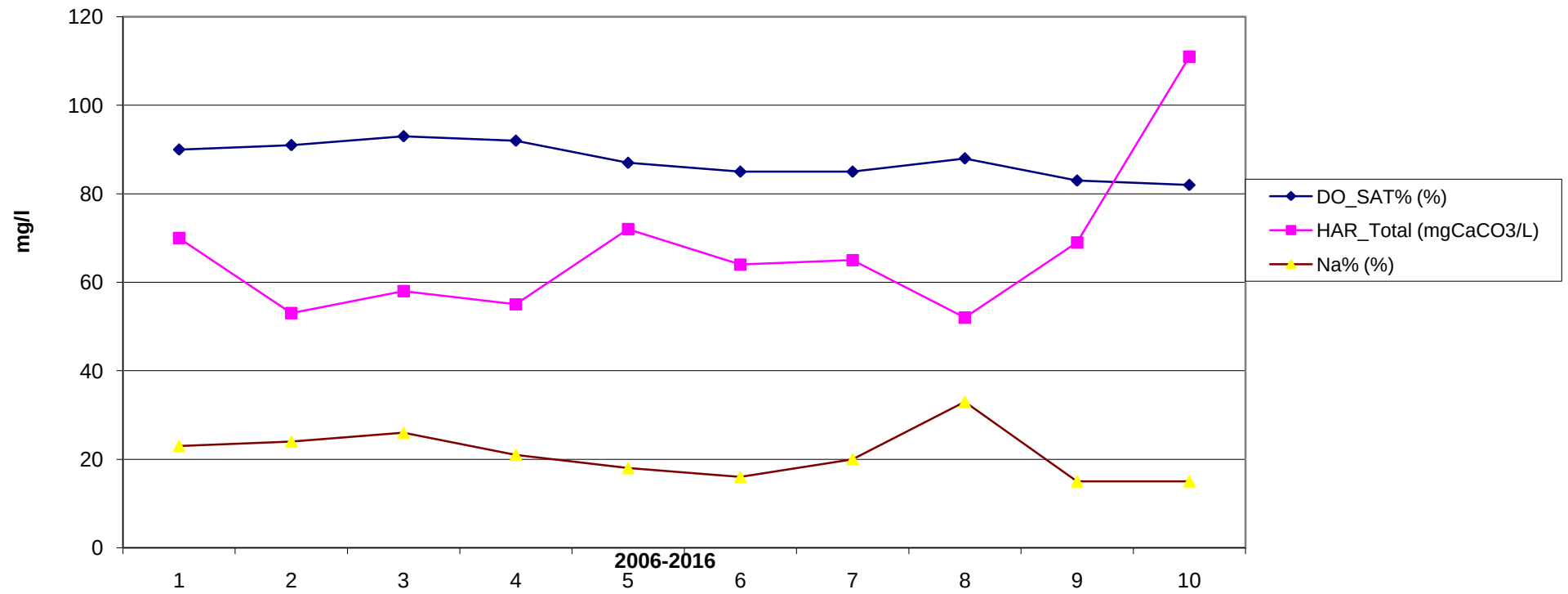
TREND ANALYSIS

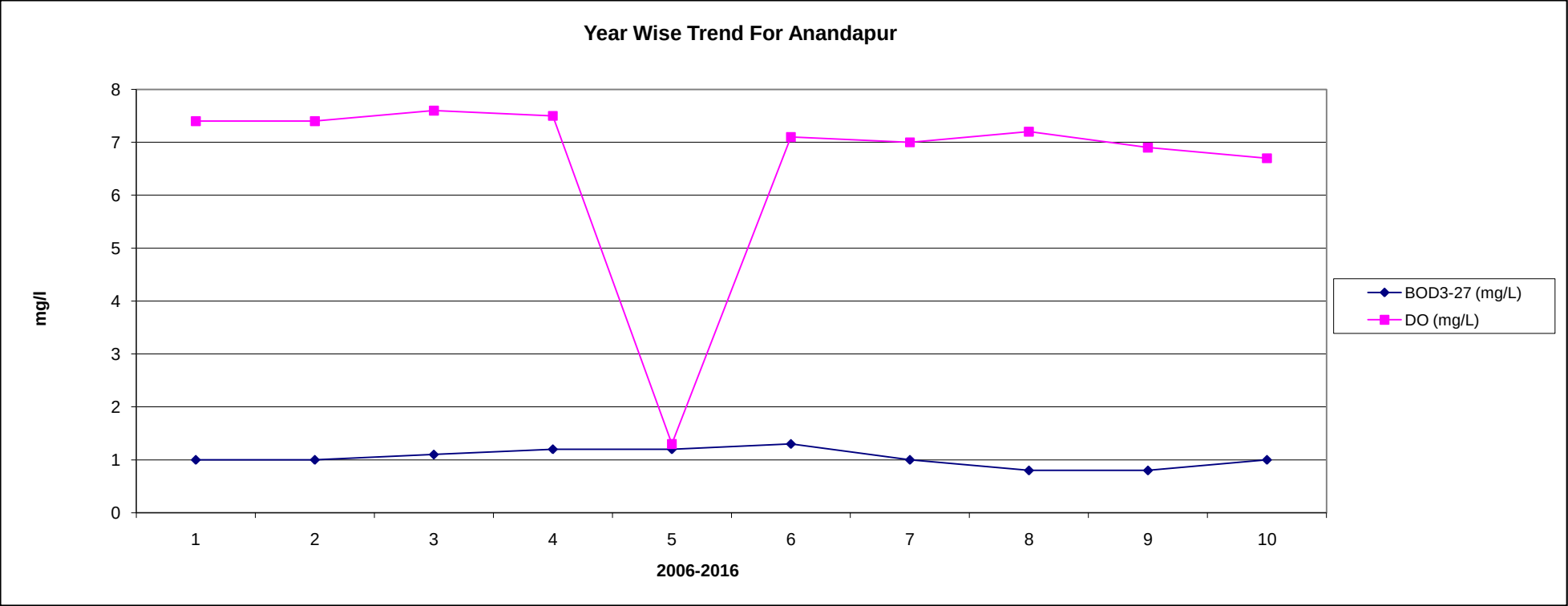




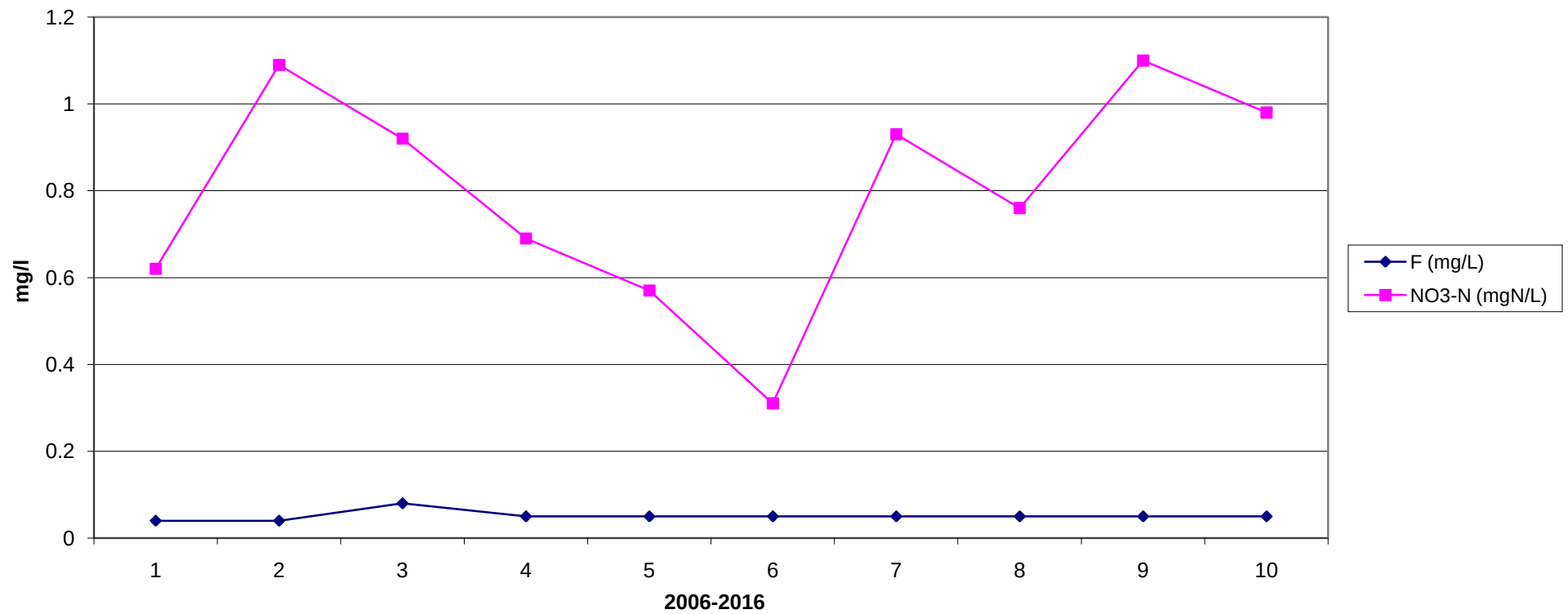


Year Wise Trend For Anandapur

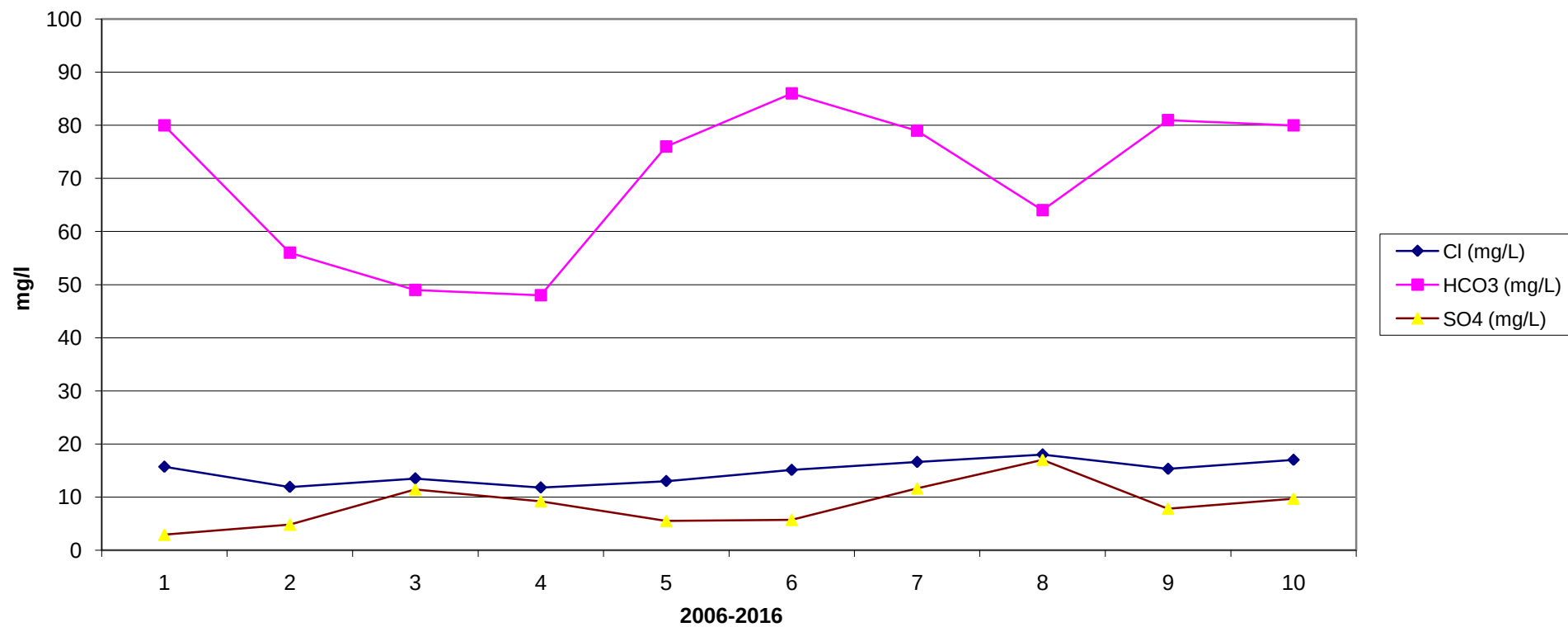




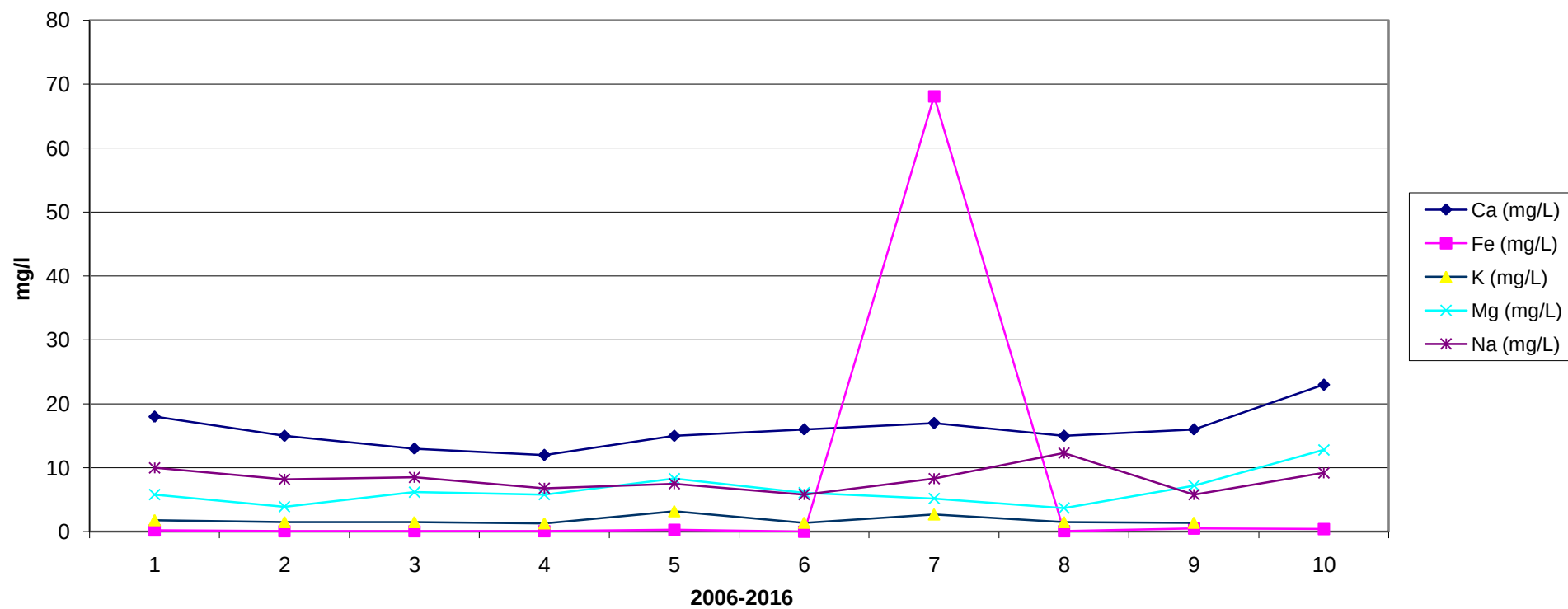
Year Wise Trend For Anandapur



Year Wise Trend For Anandapur



Year wise trend for Anandapur



SUBARNAREKHA BASIN

SUBARNAREKHA BASIN

1. GENERAL

1.1 Introduction

Subarnarekha is one of the longest east flowing inter-state rivers. It originates near Nagri village in Ranchi district of Jharkhand at an elevation of 600 m. The total length of the river is about 395 km. The principal tributaries of the river are Kanchi, Kharkai and Karkari. The basin lies between north latitudes of 21° 33' to 23° 32' and east longitudes of 85° 09' to 87° 27' situated in the North-East corner of the peninsular India. It is bounded on the North-West by the Chhotanagpur Plateau, in the South-West by Brahmani basin, in the South by Burhabalang basin and in the South-East by the Bay of Bengal.

The total catchment area of the basin is 18,951 sq.km. State-wise distribution of the drainage area is tabulated below:

Sl. No.	Name of State	Catchment Area (sq. km)	Percentage of total catchment area
1.	Jharkhand	13,590	71.7
2.	Orissa	3,201	16.9
3.	West Bengal	2,160	11.4
	Total	18,951	100.0

Basin Map of Subarnarekha river system showing the various hydrological and hydro meteorological observation stations maintained by CWC, State Governments and the India Meteorological Department is enclosed herewith. Central Water Commission is maintaining six discharge sites in this basin of which Fekoghat and Jamsolaghat are seasonal discharge sites. Details are given in the table at the end of this chapter.

1.2 River System

The catchment areas of the important tributaries are given below:

Name of River	River/Tributary	Length (km)	Catchment area (sq.km)	Percentage of total catchment area
Subarnarekha	Main Stream	395	7,383	39.0
Kanchi	Right Tributary	76	1,096	5.8
Karkari	Right Tributary	110	1,341	7.0
Kharkai	Right Tributary	136	6,611	34.9
Raru	Right Tributary	52	680	3.6
Garru	Right Tributary	58	640	3.4
Dulang	Left Tributary	84	1,200	6.3
	Total		18,951	100.0

1.3 Climatic Characteristics

The basin is generally influenced by the south-west monsoon, which onsets in the month of June and extends upto October. The average annual rainfall for the basin is around 1800 mm. The climate in the sub-basin is tropical with hot summers and mild winters. The mean monthly temperature varies from 40.5°C (May) to 9.00 °C (December). The highest temperature recorded is 47.2°C and the lowest is 2.8°C. Annual average maximum and minimum temperatures vary from 32.4° C to 18.0°C.

1.4 Geology

The geological formations occurring in the basin are (i) Pre-Cambrian or Achaean (ii) Tertiary and (iii) Alluvium plains. Out of these, Pre-Cambrian formations mostly cover Jharkhand and West Bengal regions and Tertiary and Alluvium plains cover the basin area in Orissa. The Achaean formations mostly comprise Gneiss, Micagenists, Phyllites, Dolomites and Granites. The underlying rock is highly undulating. This region contains some of the richest coal and ore deposits like iron and bauxite.

1.5 Site Details

Sl. No.	Name of Project	River	Status
1.	Torlow	(Tributary of Kharkai)	Existing
2.	Kadkai (Icha dam)	Kharkai	Existing
3.	Nesa	Nesa	Existing
4.	Kanchi	Kanchi	Existing
5.	Aradih	Kanchi	Existing
6.	Kokro	Kokro	Existing
7.	Roru	Barager	Existing
8.	Bamninala	Bamninala	Existing
9.	Bijoy	Sanjal	Existing
10.	Sona weir	Sona	Existing
11.	Kharkai Dam	Kharkai	Ongoing
12.	Kharkai Barrage	Kharkai	Ongoing
13.	Chandil Dam	Subernarekha	Ongoing
14.	Galudih Barrage	Subernarekha	Ongoing

2. STREAM FLOW DATA

2.1 Methodology

Area-velocity method is generally adopted for measuring discharge at sites. Cup type current meter is used to measure the velocity of the flow and the depth is measured by using sounding rod for depths upto 3 m and by log line beyond 3 m. Discharge by area velocity method is being observed once in a day starting at 0800 Hrs. at all the sites except on Sundays and holidays. Besides, silt and water quality observation are also being carried out at the CWC sites detailed as listed above..

The observed stage and discharge figures for each season (monsoon and non-monsoon) are plotted and a mean Stage V/s. Discharge curve is drawn, giving due attention to the scattered points with reference to area, velocity etc.

The factors responsible for the shifting of the curves are also taken care of by studying the river cross section at regular intervals and with super imposition of previous years' Stage V/s. Discharge curves. Accordingly, the trend of the current curve is finalised. Finally, the discharges of the non observed days are computed from these Stage V/s. Discharge Curves.

2.2 Data Availability

Sl. No.	Code No.	Station Name	Type	Data available From To	
1.	ES000R3	Muri	GDQ	G-20.08.88 D-01.11.89 Q-01.05.91	Continuing -do- -do-
2.	ES000N5	Jamshedpur	GDSQ	G-24.06.71 D-01.02.72 S-27.11.72 Q-01.09.72	Continuing -do- -do- -do-
3.	ESB00D5	Adityapur	GDSQ	G-23.06.71 D-22.11.71 S-02.06.75 Q-01.01.76	Continuing -do- -do- -do-
4.	ES000K7	Ghatsila	GDSQ	G-16.03.71 D-16.03.71 S-30.12.72 Q-01.09.72	Continuing -do- -do- -do-
5.	ESA00F3	Fekoghat	F.F &GD	G-01.07.87 D-18.06.88	Continuing -do- (Seasonal)
6.		Jamsholaghat	GD	G -21.06.73 D -17.06.04	Continuing -do- (Seasonal)
7.		Rajghat	GD	G -01.06.72 D -01.03.13	Continuing -do-
8.		Gopiballavpur	GD	G -07.08.14 D -15.09.14	Continuing
9.	-	Ghatsila Rd Bridge *	Q	Q-01.04.91	Continuing
10.	-	Baridhi Nala *	Q	Q-01.04.91	Continuing
11.	-	Kulpatanga *	Q	Q-01.04.91	Continuing

Note: * These are Water Quality sample collection points. No regular CWC set up exists.

2.3 Explanatory Notes on Water Year Book

SWDES (Surface Water Data Entry Software), a custom made software for processing hydrological data, has been used for preparation of this volume. The explanatory notes described below can be used for interpretation of data presented in this volume.

- i) Water Year ranges from June 1st of one calendar year to May 31st of the next calendar year and covers one complete hydrological cycle.
- ii) Discharge is given in cubic meters per second.
- iii) Discharges are expressed as 0.000 when river bed is dry and 0.000 N.F. when velocity is observed as 'NIL'.
- iv) The zero R.L. of gauge is a datum level fixed for given site, which is kept 1 or 2 m lower than the lowest water level recorded in a perennial stream. In a non-perennial stream, it is kept 1 or 2 m lower than the lowest bed level of the stream.
- v) Discharges are rounded off as per standard practice.
- vi) Runoff in mm is the notional depth of water in millimeters over the catchment, equivalent to annual runoff volume calculated at the discharge measurement station. It is computed using the relation:

$$\text{Runoff (mm)} = \frac{\text{Annual runoff (Mm}^3\text{)} \times 1000}{\text{Catchment area (km}^2\text{)}}$$

- vii) Peak and lowest flow correspond to the highest and lowest water levels recorded from 'SWDES' entered data.
- viii) Measuring Authority refers to the field division of Central Water Commission (Eastern Rivers Division) responsible for the operation of the gauging station.
- ix) The gauging station code number is a unique seven column alphanumeric reference number which facilitates storage and retrieval of flow data in data base. The first column is identifier of either an integral river basin or, for the sake of convenience, a region having several contiguous river catchments. This is followed by a column which identifies an independent river system which either has one or more outlets to the sea or crosses international border to enter another country. The third, fourth and fifth column spaces 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.

3. HYDROLOGICAL DATA

This volume contains the following information for each site stated above:

- i. History Sheet: Site Name, State, District, River Basin, Tributary, Sub-Tributary, Catchment Area, Latitude / Longitude, Opening / Closing date for various types of data.
- ii. Annual maximum/minimum discharge since period of observation.
- iii. Daily Water level and observed/ computed discharge data including 10-daily, monthly and annual totals etc.
- iv. Histogram and Hydrograph showing current year monthly mean discharges, Historical monthly mean discharges, historical monthly minimum and monthly maximum discharges.
- v. Histogram showing Annual Run off volume since beginning of observation.
- vi. Pie-Chart showing monthly mean run off (as percentage of Annual Run off) historical for the current year.
- vii. Plot of Pre and Post Monsoon Cross-section of the rivers for current year.
- viii. Water Level hydrograph for 3(three) major flood events of current year.

4. SEDIMENT DATA (In case of Sediment Observation sites)

The frequency of sediment observation is carried out daily during monsoon season and once in a week (on Monday) during the non-monsoon period. Data for non-observed days is estimated/ interpolated from the relationship of discharge v/s. sediment load, prepared on the basis of observed sediment concentration and weighted mean discharge of the same year.

Sediment samples are collected from 0.6 depth, using Punjab type bottle sampler, from all the verticals along the hydrological observation sections where velocity is observed for computation of discharge. The collected samples from all the segments are combined in 3 to 7 groups having compartments or groups of equal or nearly equal discharges for analysis. Quantum of suspended sediment load is estimated in three grades, viz. Coarse, Medium and Fine. Coarse and medium grades are separated by sieving process and the fine grade by filtration of left over samples after sieving through filter paper. Grade wise concentration is

derived gravimetrically as per standard procedure. The following parameters are derived and recorded:

- Daily Observed suspended sediment (g/l).
- Corresponding discharge.
- Average sediment load in tonnes/day (10 daily & monthly basis).
- Annual sediment load for the current year.
- Annual & Seasonal sediment load and the corresponding volume of inflow for all the years since inception.
- Grain size distribution of bed load.

5. WATER QUALITY DATA (In case of Water Quality Observation sites)

The water samples are collected at a regular interval of once in a month for trend stations and once in two month for base station (on 1st working day), from the main flowing segment of the stream just below the water surface (20 to 30 cm) on the Station Gauge line where depth of flow and velocity are maximum, preferably in the mid stream. The water samples are collected in the pre-rinsed and cleaned one-litre capacity polythene bottle having double stopper (inside and outside) facility. Sampling bottle is filled to its full capacity without entrapping air bubbles inside.

After sampling, the collected samples are sent to the Water Quality Laboratory (Level-II) based at Bhubaneswar (under the Eastern Rivers Division) and to Raipur laboratory (under Mahanadi Division, Burla), along with in-situ physical characteristics, for analysis. The samples received from the sites are preserved in a refrigerator in the water quality laboratories for analysis.

Analysis of parameters, namely pH, Electrical conductivity, Sodium, Potassium, Iron, Aluminum, Ammonia, Fluoride, Nitrate, Nitrite, Phosphate, Silicate, Boron, Sulphate, Calcium, Magnesium, Carbonate, Bi-carbonate, Chloride, Dissolved Oxygen, BOD and COD, are carried out at the Level II laboratory by using standard methodology. Micro biological parameters like total colliform and faecal colliform are also being analyzed. For analysis of trace and toxic elements, samples are sent to Level-II+ laboratory at Hyderabad once in a year, in the month of April.

The following parameters are analyzed and recorded:

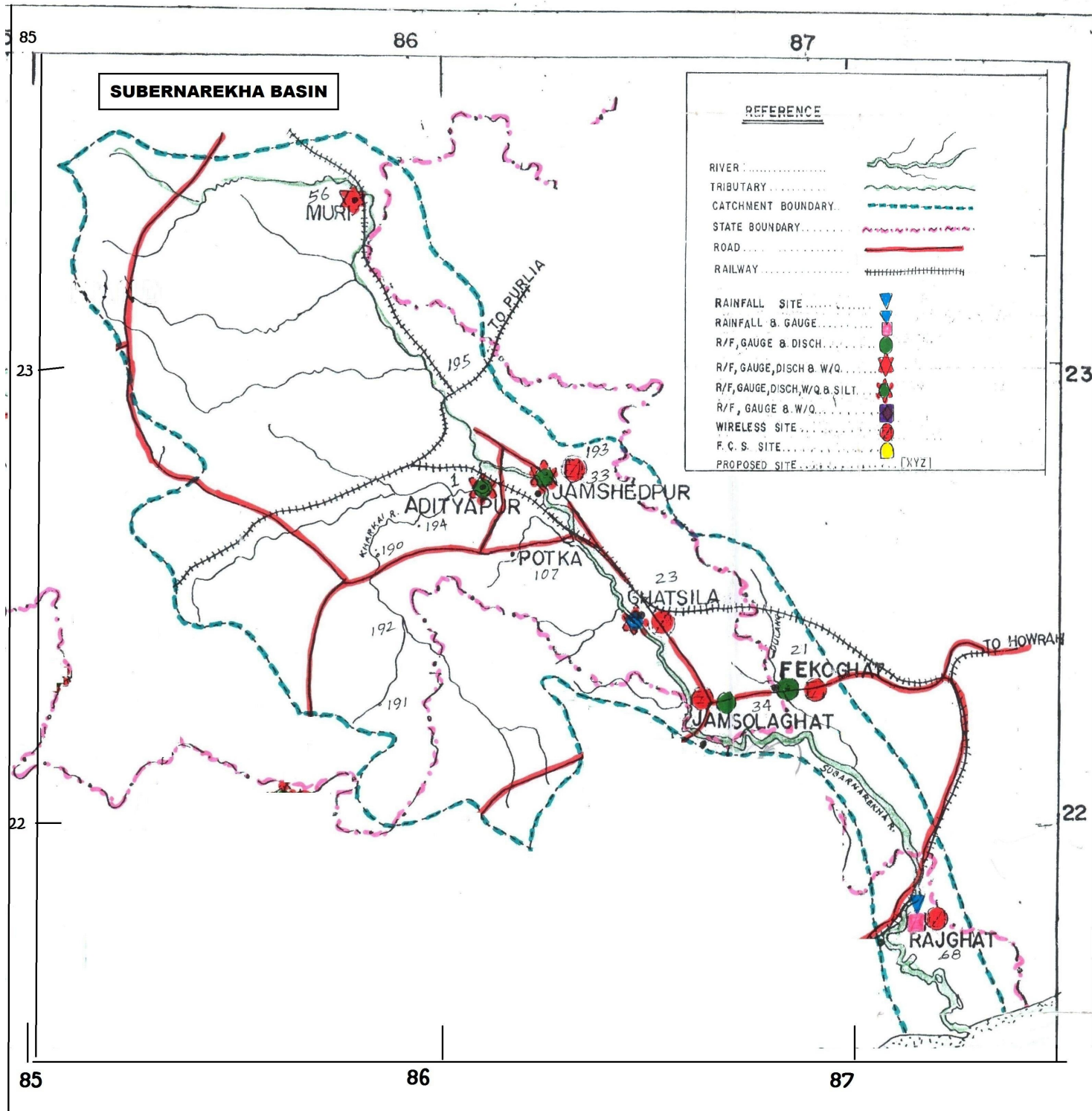
- Monthly Values: Physical; Chemical (mg/l); Biological (mg/l); Traces & Toxic (mg/l) and Chemical Indices.
- Average Values for the Year: 10 Years data to be given season wise averages:-
 - Average for Summer (March to June).
 - Average for Floods (July to October).
 - Average for Winter (November to February)

NAME OF THE SITES IN OPERATION UNDER SUBARNAREKHA BASIN

Sl. No.	Station Name	River/ Tributary	Code No.	Type	Latitude	Longitude
1.	Adityapur	Kharkhai	ESB00D5	GDSQ	22° 47' 29"	86° 10' 06"
2.	Fekoghat	Dulong	ESA00F3	GD	22° 18' 28"	86° 55' 11"
3.	Ghatsila	Subarnarekha	ES000K7	GDSQ	22° 34' 49"	86° 20' 08"
4.	Jamshedpur	Subarnarekha	ES000N5	GDSQ	22° 47' 00"	86° 12' 00"
5.	Jamsholaghat	Subarnarekha		GD	22° 13' 08"	86° 43' 00"
6.	Muri	Subarnarekha	ES000R3	GDQ	22° 48' 56"	86° 12' 47"
7.	Rajghat	Subarnarekha		G	21° 46' 04"	87° 09' 51"

In addition, Water Quality observation samples are also collected from the following locations, which are not CWC sites per-se. The data of these sites is also presented in this report.

Sl. No.	Station Name	River/tributary	Type	Co-ordinates	
				Latitude	longitude
1	Ghatsila road bridge	Subarnrekha	Q	22°-35 '-15"	86°-27 '-12"
2	Baridhinala	Baridhinala	Q	86°-14 '-33"	22°-49 '-05"
3	Kulpatanga	Kharkhai	Q	86°-06 '-10"	22°-49 '-04"



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site	: MURI	Code	: ES000R3
State	: Jharkhand	District	Ranchi
Basin	: Subarnarekha	Independent River	: Subarnarekha
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Subarnarekha
Division	: E.E., Bhubaneswar	Sub-Division	: Balasore
Drainage Area	: 1330 Sq. Km.	Bank	: Right
Latitude	: 22°48'56"	Longitude	: 86°12'47"
Zero of Gauge (m)	: 231 (m.s.l)	20.08.1988	- 20.08.2028
	Opening Date	Closing Date	
Gauge	: 20.08.1988		
Discharge	: 01.11.1989		
Sediment	:		
Water Quality	: 01.05.1991		

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1990-1991	350.1	235.840	05.10.1990	0.700	234.595	14.06.1990
1991-1992	431.3	236.400	07.09.1991	0.640	234.460	05.06.1991
1992-1993	133.5	236.010	07.08.1992	0.081	234.230	28.05.1993
1993-1994	72.72	235.120	21.08.1993	0.209	234.260	01.06.1993
1994-1995	296.0	237.335	09.07.1994	0.743	234.380	31.05.1995
1995-1996	261.8	236.990	06.09.1995	0.466	234.395	29.05.1996
1996-1997	226.2	236.580	23.08.1996	0.150	234.365	04.06.1996
1997-1998	189.0	236.680	07.08.1997	0.061	234.290	12.06.1997
1998-1999	209.4	236.720	12.09.1998	0.090	234.270	12.06.1998
1999-2000	220.6	236.540	29.07.1999	0.098	234.470	22.04.2000
2000-2001	65.25	235.240	27.07.2000	0.200	234.270	27.05.2001
2001-2002	141.1	235.970	31.08.2001	0.270	234.320	03.06.2001
2002-2003	74.57	235.500	11.09.2002	0.424	234.180	31.05.2003
2003-2004	123.7	236.035	09.10.2003	0.000	234.135	13.06.2003
2004-2005	93.20	235.450	07.10.2004	0.322	234.070	31.05.2005
2005-2006	83.78	235.250	22.08.2005	0.000	234.050	23.06.2005
2006-2007	428.2	237.500	24.09.2006	0.000	233.540	10.04.2007
2007-2008	225.9	236.020	18.08.2007	0.198	233.640	24.04.2008
2008-2009	206.7	237.025	09.07.2008	0.180	233.640	23.05.2009
2009-2010	118.0	236.020	07.09.2009	0.000	233.480	25.05.2010
2010-2011	44.80	234.515	16.09.2010	0.000	233.390	16.06.2010
2011-2012	140.0	236.200	14.08.2011	0.000	233.560	08.06.2011
2012-2013	86.97	234.590	17.09.2012	0.000	233.250	23.05.2013
2013-2014	145.0	235.440	14.10.2013	0.000	233.260	22.05.2014
2014-2015	90.00	234.500	21.09.2014	0.000	233.440	03.03.2015
2015-2016	92.57	233.980	27.07.2015	0.000	233.280	22.02.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : MURI (ES000R3)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	233.380	0.941	233.690	5.014	233.940	25.48	233.760	13.74	233.430	0.898	233.480	1.100 *
2	233.370	0.915	233.840	15.43	234.620	70.00 *	233.760	13.75	233.420	0.750 *	233.460	0.887
3	233.370	0.840	233.795	13.46	234.840	84.32	233.650	10.19	233.410	0.671	233.480	1.098
4	233.340	0.124	233.970	26.18	234.400	58.81	233.620	9.662	233.400	0.500 *	233.460	0.841
5	233.340	0.000	233.740	13.00 *	234.260	61.64	233.920	33.07	233.400	0.633	233.450	0.946
6	233.340	0.000	234.000	28.82	234.190	58.26	233.630	10.00 *	233.400	0.617	233.450	0.895
7	233.380	0.120 *	234.225	45.12	234.160	54.37	233.560	4.406	233.400	0.555	233.440	0.833
8	233.360	0.108	234.070	33.96	234.110	50.57	233.540	4.201	233.400	0.608	233.440	0.830 *
9	233.380	0.121	233.870	20.32	234.110	50.00 *	233.530	3.162	233.400	0.607	233.430	0.596
10	233.350	0.000	235.140	87.80	234.090	45.03	233.520	2.912	233.380	0.320	233.430	0.629
11	233.310	0.000	234.350	70.62	234.090	44.12	233.460	1.527	233.420	0.800 *	233.430	0.600 *
12	234.200	57.89	234.000	50.00 *	234.080	43.83	233.480	2.023	233.390	0.340	233.430	0.599
13	233.640	4.904	233.820	18.01	234.070	41.75	233.480	2.000 *	233.380	0.331	233.420	0.572
14	233.520	2.000 *	233.760	9.939	234.020	39.40	233.450	1.585	233.410	0.828	233.480	0.818
15	233.490	0.835	233.700	5.433	233.990	40.00 *	233.440	0.947	233.390	0.516	233.460	0.630 *
16	233.480	0.894	233.875	20.28	233.990	38.00 *	233.440	0.925	233.380	0.331	233.420	0.582
17	234.200	50.26	233.810	18.63	234.040	41.27	233.470	1.800 *	233.380	0.281	233.420	0.497
18	234.200	51.04	234.260	80.00 *	234.000	36.49	233.480	1.806	233.370	0.250 *	233.400	0.500
19	233.940	24.32	234.260	80.00 *	233.980	36.39	233.470	1.561	233.370	0.245	233.400	0.471
20	233.660	4.196	233.970	21.54	234.000	37.37	233.470	1.500 *	233.370	0.786	233.390	0.446
21	233.550	0.900 *	235.140	79.98	233.980	32.72	233.500	1.915	233.370	0.790 *	233.390	0.451
22	233.680	4.560	234.200	62.04	233.980	35.31	233.520	2.086	233.570	0.700 *	233.390	0.450 *
23	233.580	3.241	234.710	72.92	233.890	28.00 *	233.500	1.844	233.555	4.580	233.390	0.463
24	233.590	2.363	234.640	68.82	233.600	4.891	233.530	2.151	233.470	4.000 *	233.400	0.490
25	233.690	4.976	234.400	63.50	233.560	4.285	233.510	2.100 *	233.420	1.800 *	233.400	0.490 *
26	233.600	4.112	234.270	58.00 *	233.560	4.406	233.490	1.677	233.400	0.599	233.400	0.464
27	233.570	2.126	233.980	92.57	233.740	12.74	233.490	1.800 *	233.390	0.561	233.400	0.470
28	233.540	0.900 *	234.340	59.98	233.650	11.15	233.450	0.984	233.390	0.560	233.400	0.419
29	234.140	45.49	234.010	31.89	234.040	40.01	233.430	0.915	233.390	0.494	233.390	0.600 *
30	233.780	19.99	233.850	17.21	233.620	6.000 *	233.430	0.893	233.570	4.763	233.390	0.599
31			233.790	14.54	233.750	13.25			233.490	1.288		
Ten-Daily Mean												
I Ten-Daily	233.361	0.317	234.034	28.91	234.272	55.85	233.649	10.51	233.404	0.616	233.452	0.866
II Ten-Daily	233.764	19.63	233.980	37.45	234.026	39.86	233.464	1.567	233.386	0.471	233.425	0.572
III Ten-Daily	233.672	8.866	234.303	56.49	233.761	17.52	233.485	1.636	233.456	1.830	233.395	0.490
Monthly												
Min.	233.310	0.000	233.690	5.014	233.560	4.285	233.430	0.893	233.370	0.245	233.390	0.419
Max.	234.200	57.89	235.140	92.57	234.840	84.32	233.920	33.07	233.570	4.763	233.480	1.100
Mean	233.599	9.605	234.112	41.45	234.011	37.09	233.533	4.571	233.417	1	233.424	0.642

Annual Runoff in MCM = 257 Annual Runoff in mm = 193

Peak Observed Discharge = 92.57 cumecs on 27/07/2015 Corres. Water Level :233.98 m

Lowest Observed Discharge = 0.000 cumecs on 05/06/2015 Corres. Water Level :233.34 m

Stage-Discharge Data for the period 2015 - 2016

Station Name : MURI (ES000R3)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	233.390	0.430	233.380	0.413	233.380	0.317	233.270	0.000	233.250	0.000	233.520	1.100 *
2	233.390	0.420	233.380	0.410	233.370	0.302	233.270	0.000	233.240	0.000	233.450	0.810
3	233.420	0.560	233.380	0.400 *	233.360	0.401	233.320	0.199	233.560	0.000 *	233.400	0.506
4	233.440	0.575	233.380	0.365	233.360	0.420	233.320	0.000	233.480	1.059	233.360	0.481
5	233.440	0.581	233.380	0.382	233.350	0.401	233.310	0.000	233.410	0.671	233.370	0.478
6	233.440	0.580 *	233.390	0.380	233.350	0.391	233.310	0.000 *	233.390	0.000	233.370	0.480
7	233.420	0.544	233.390	0.434	233.350	0.390 *	233.290	0.000 *	233.350	0.370	233.350	0.471
8	233.420	0.540	233.390	0.419	233.350	0.391	233.380	0.491	233.290	0.000	233.340	0.000 *
9	233.420	0.534	233.390	0.412	233.350	0.397	233.360	0.432	233.350	0.413	233.290	0.000
10	233.420	0.539	233.390	0.400 *	233.350	0.392	233.380	0.447	233.350	0.400 *	233.290	0.000
11	233.420	0.507	233.380	0.378	233.320	0.334	233.370	0.397	233.340	0.397	233.280	0.000
12	233.420	0.486	233.380	0.390	233.320	0.335	233.370	0.324	233.300	0.194	233.280	0.000
13	233.410	0.480 *	233.360	0.159	233.320	0.348	233.320	0.100 *	233.300	0.146	233.270	0.000
14	233.400	0.468	233.360	0.268	233.320	0.350 *	233.310	0.150	233.290	0.000 *	233.250	0.000
15	233.400	0.468	233.360	0.329	233.320	0.335	233.320	0.136	233.280	0.000	233.250	0.000 *
16	233.390	0.409	233.360	0.337	233.320	0.309	233.300	0.000	233.240	0.000	233.230	0.000
17	233.390	0.432	233.360	0.330 *	233.320	0.352	233.300	0.000	233.230	0.000 *	233.220	0.000
18	233.410	0.486	233.360	0.327	233.320	0.340	233.290	0.000	233.230	0.000	233.420	1.269
19	233.410	0.396	233.400	0.469	233.310	0.215	233.280	0.000	233.230	0.000	233.480	3.361
20	233.410	0.400 *	233.400	0.433	233.310	0.209	233.280	0.000 *	233.220	0.000 *	233.400	0.691
21	233.400	0.356	233.390	0.414	233.300	0.000 *	233.300	0.000	233.480	2.576	233.350	0.470 *
22	233.390	0.456	233.380	0.222	233.280	0.000	233.490	2.570	233.410	0.810	233.350	0.470 *
23	233.390	0.416	233.380	0.338	233.270	0.000	233.410	1.327	233.350	0.621	233.380	0.418
24	233.390	0.420 *	233.380	0.340 *	233.270	0.000	233.400	0.000 *	233.330	0.480 *	233.380	0.435
25	233.390	0.430 *	233.400	0.430	233.270	0.000	233.360	0.000 *	233.320	0.437	233.370	0.655
26	233.390	0.427	233.390	0.400 *	233.270	0.000	233.310	0.184	233.320	0.385	233.370	0.476
27	233.390	0.430 *	233.380	0.356	233.260	0.000	233.300	0.000 *	233.310	0.000	233.380	0.393
28	233.390	0.430	233.400	0.434	233.260	0.000 *	233.290	0.000	233.300	0.000	233.370	0.344
29	233.380	0.394	233.380	0.313	233.260	0.000	233.280	0.000	233.290	0.000	233.350	0.470 *
30	233.380	0.421	233.380	0.342			233.260	0.000	233.280	0.000	233.340	0.341
31	233.380	0.362	233.380	0.340 *			233.260	0.000			233.320	0.000
Ten-Daily Mean												
I Ten-Daily	233.420	0.530	233.385	0.402	233.357	0.380	233.321	0.157	233.367	0.291	233.374	0.432
II Ten-Daily	233.406	0.453	233.372	0.342	233.318	0.313	233.314	0.111	233.266	0.074	233.308	0.532
III Ten-Daily	233.388	0.413	233.385	0.357	233.271	0.000	233.333	0.371	233.339	0.531	233.360	0.407
Monthly												
Min.	233.380	0.356	233.360	0.159	233.260	0.000	233.260	0.000	233.220	0.000	233.220	0.000
Max.	233.440	0.581	233.400	0.469	233.380	0.420	233.490	2.570	233.560	2.576	233.520	3.361
Mean	233.404	0.464	233.381	0.367	233.317	0.239	233.323	0.218	233.324	0.299	233.348	0.455

Peak Computed Discharge = 80.00 cumecs on 18/07/2015

Corres. Water Level :234.26 m

Lowest Computed Discharge = 0.000 cumecs on 21/02/2016

Corres. Water Level :233.3 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

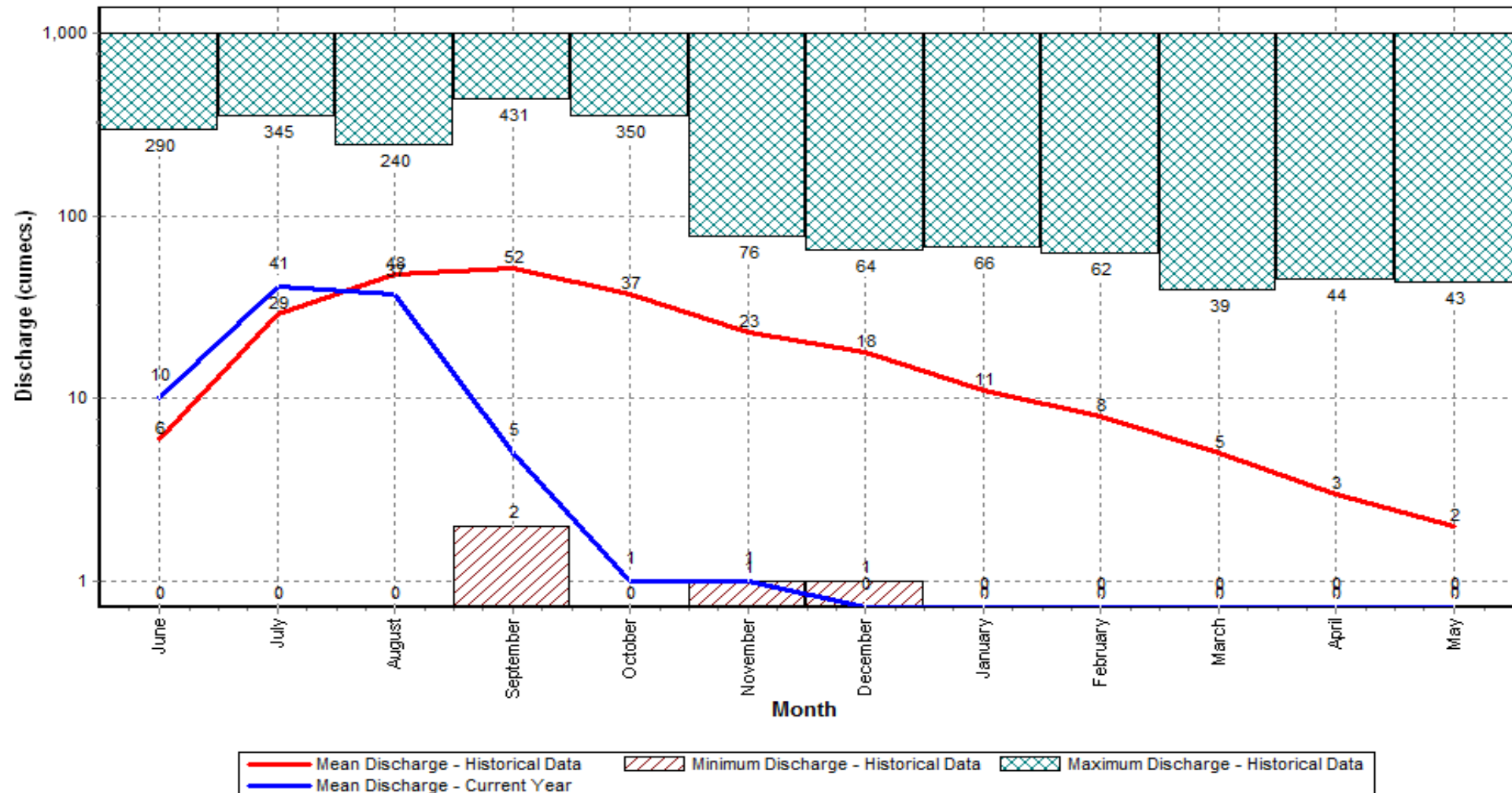
Station Name : MURI (ES000R3)

Data considered : 1990-2016

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



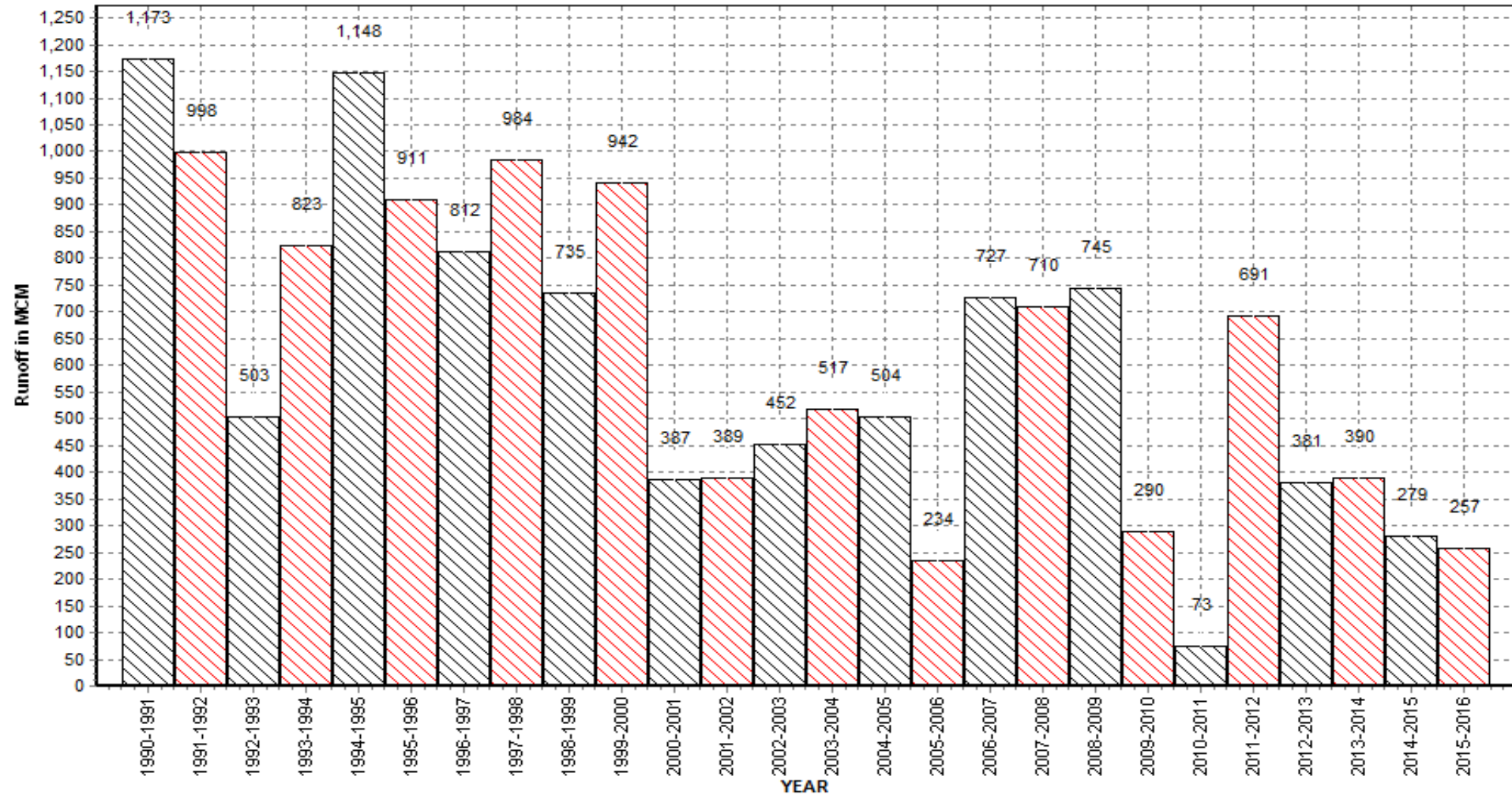
Annual Runoff Values for the period: 1990 - 2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

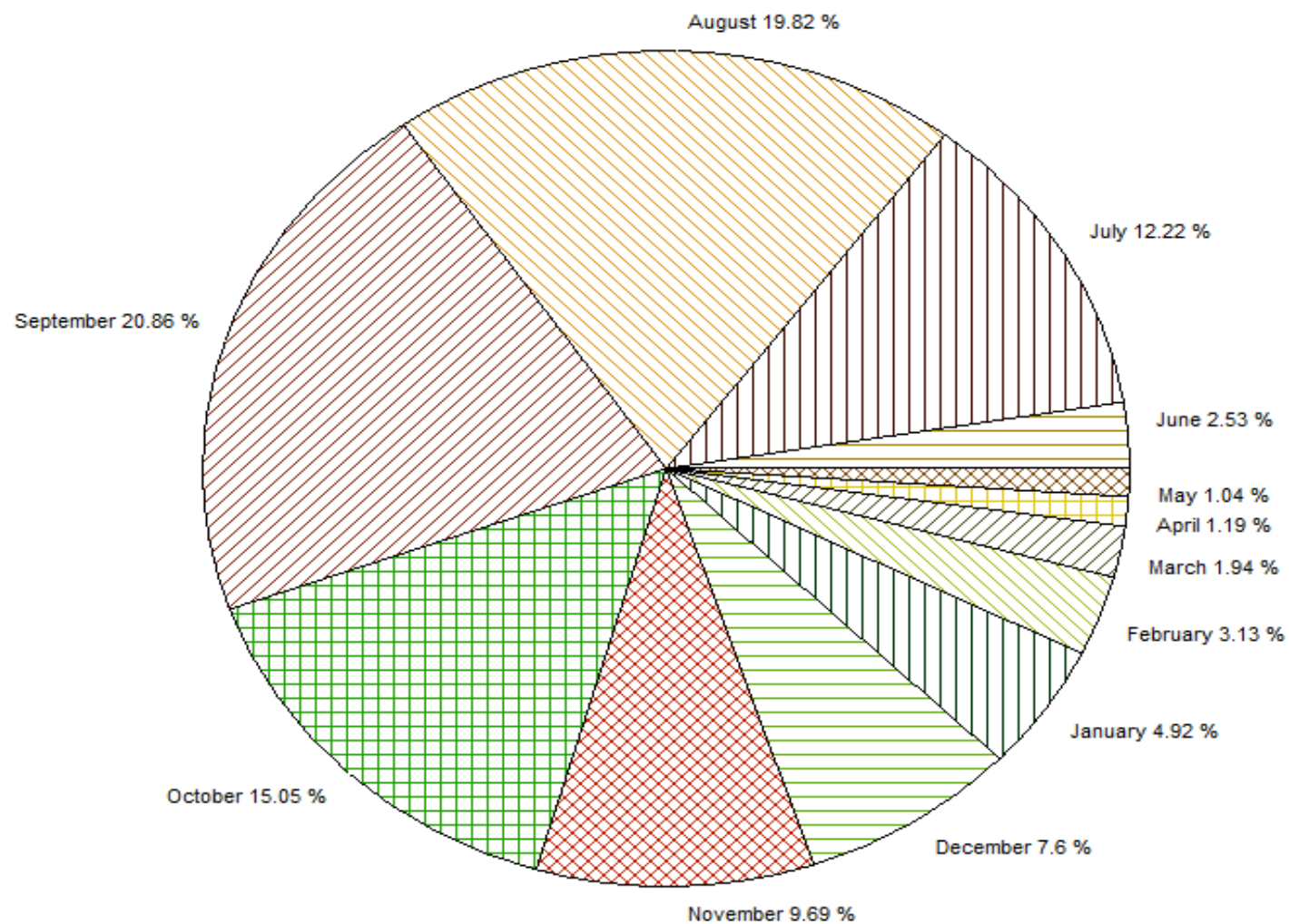


Note: Missing values have not been considered while arriving at Annual Runoff

Station Name : MURI (ES000R3)
Local River : Subarnarekha

Monthly Average Runoff based on period : 1990-2015

Division : E.E., Bhubaneswar
Sub-Division : Balasore



June	2.53 %
July	12.22 %
August	19.82 %
September	20.86 %
October	15.05 %
November	9.69 %
December	7.6 %
January	4.92 %
February	3.13 %
March	1.94 %
April	1.19 %
May	1.04 %

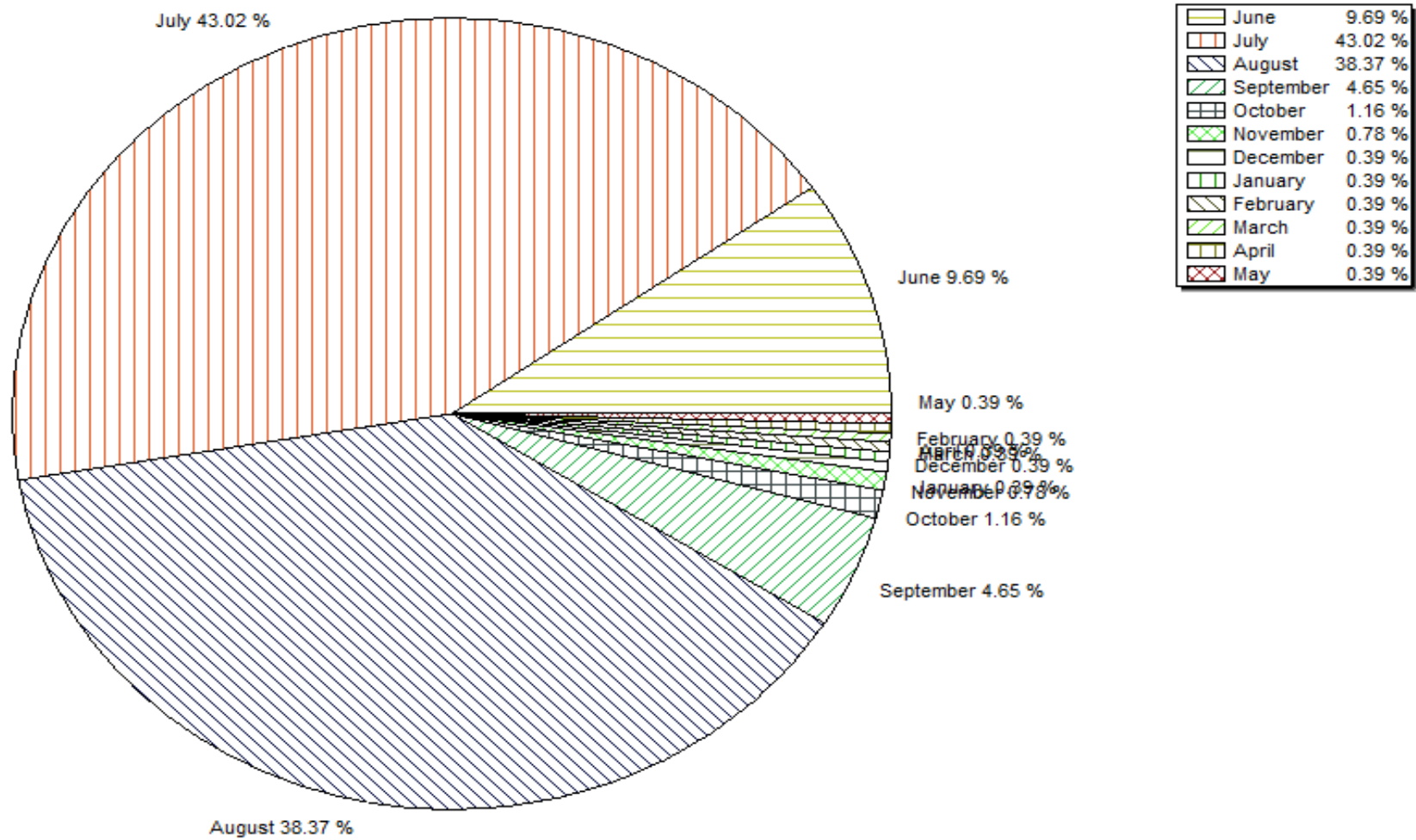
Monthly Runoff for the Year : 2015-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



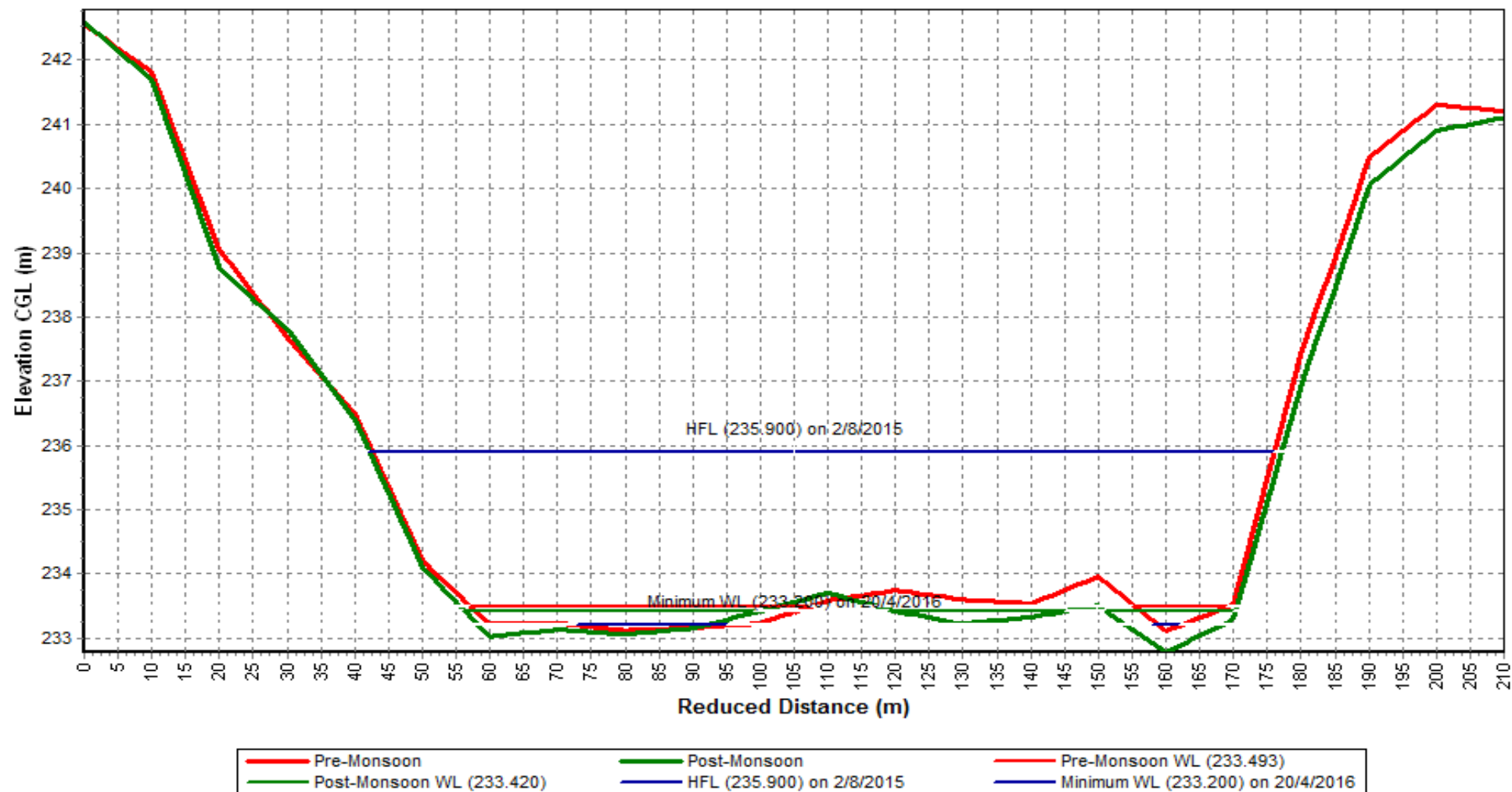
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



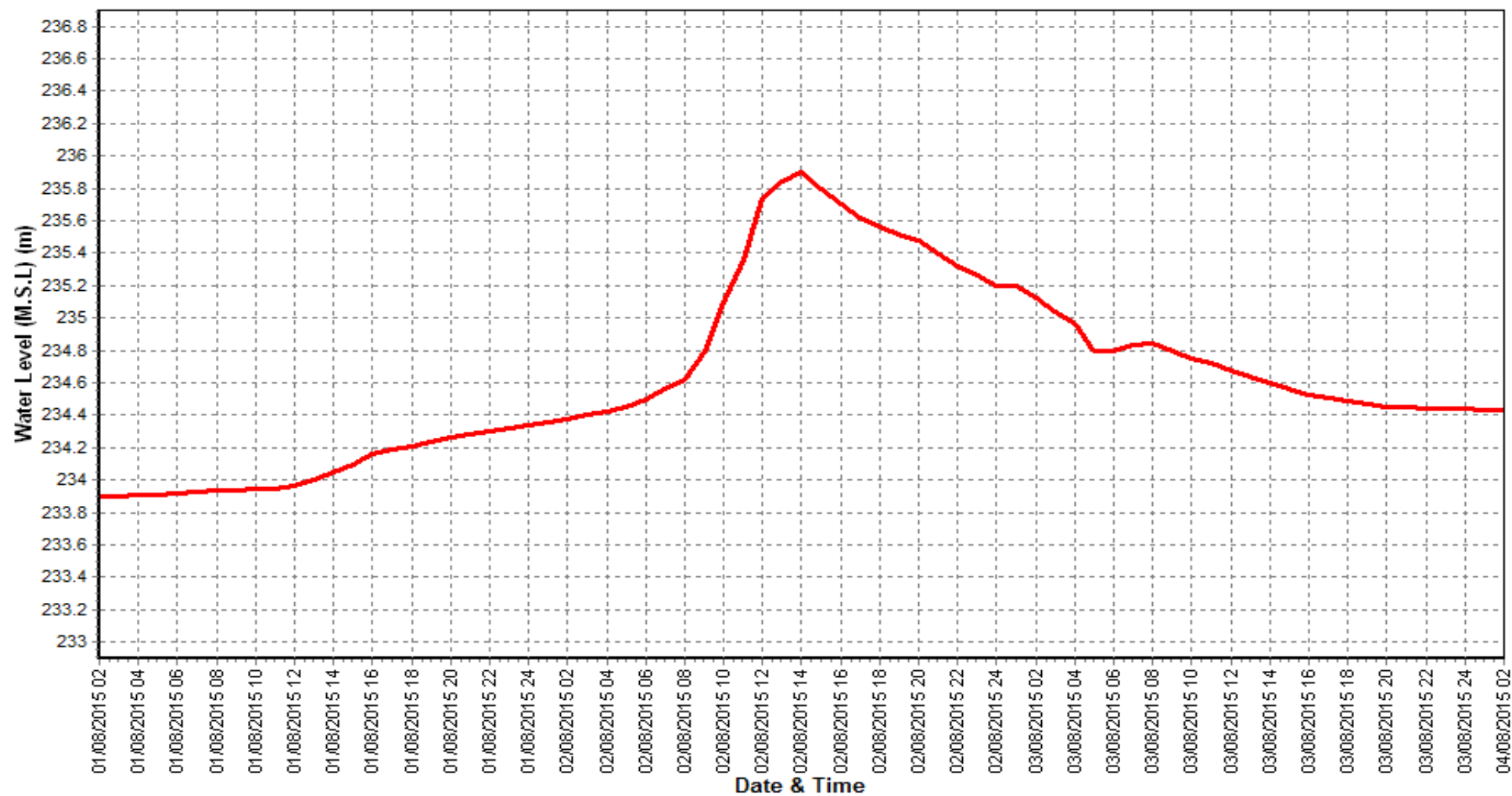
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



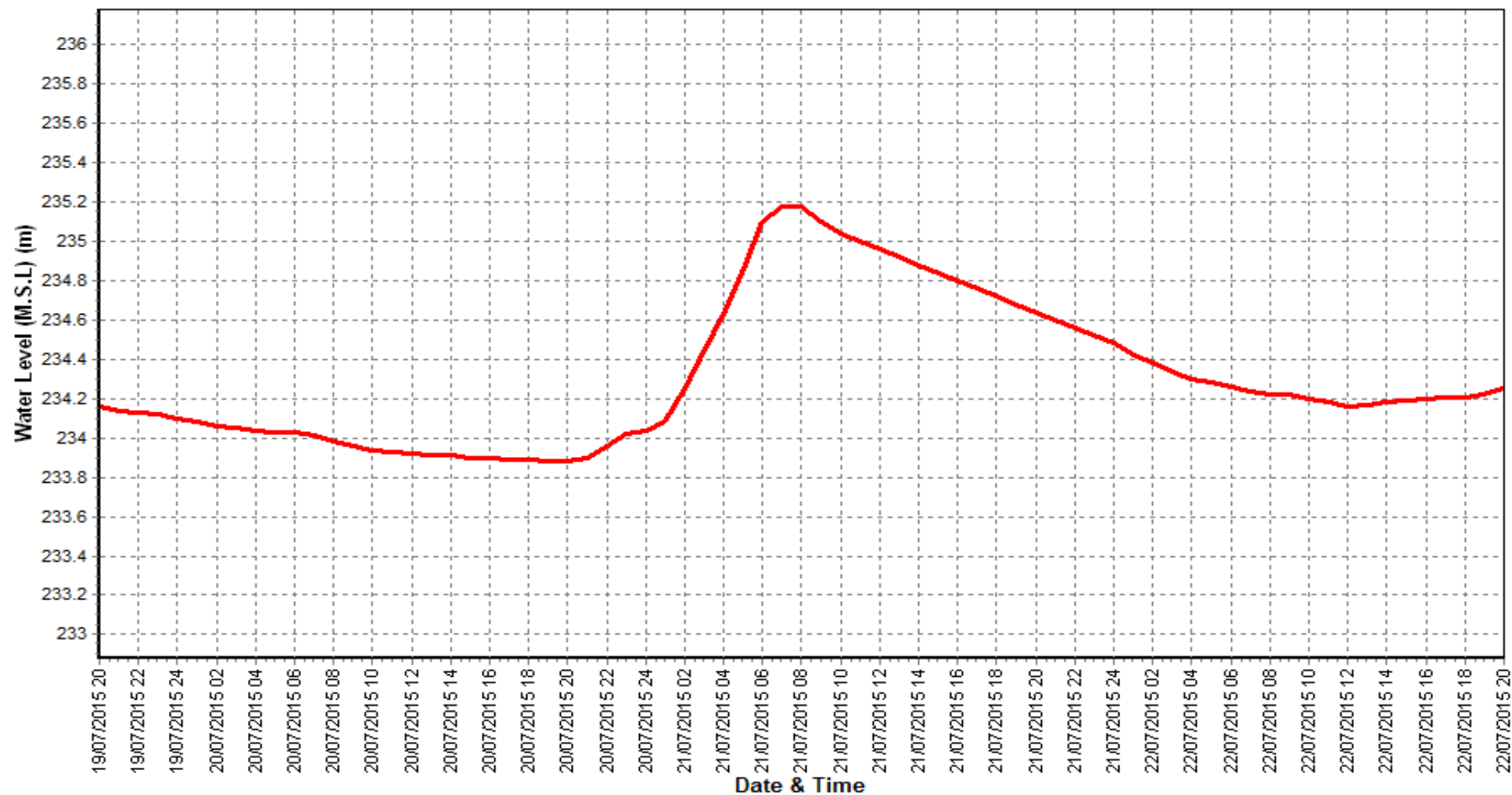
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

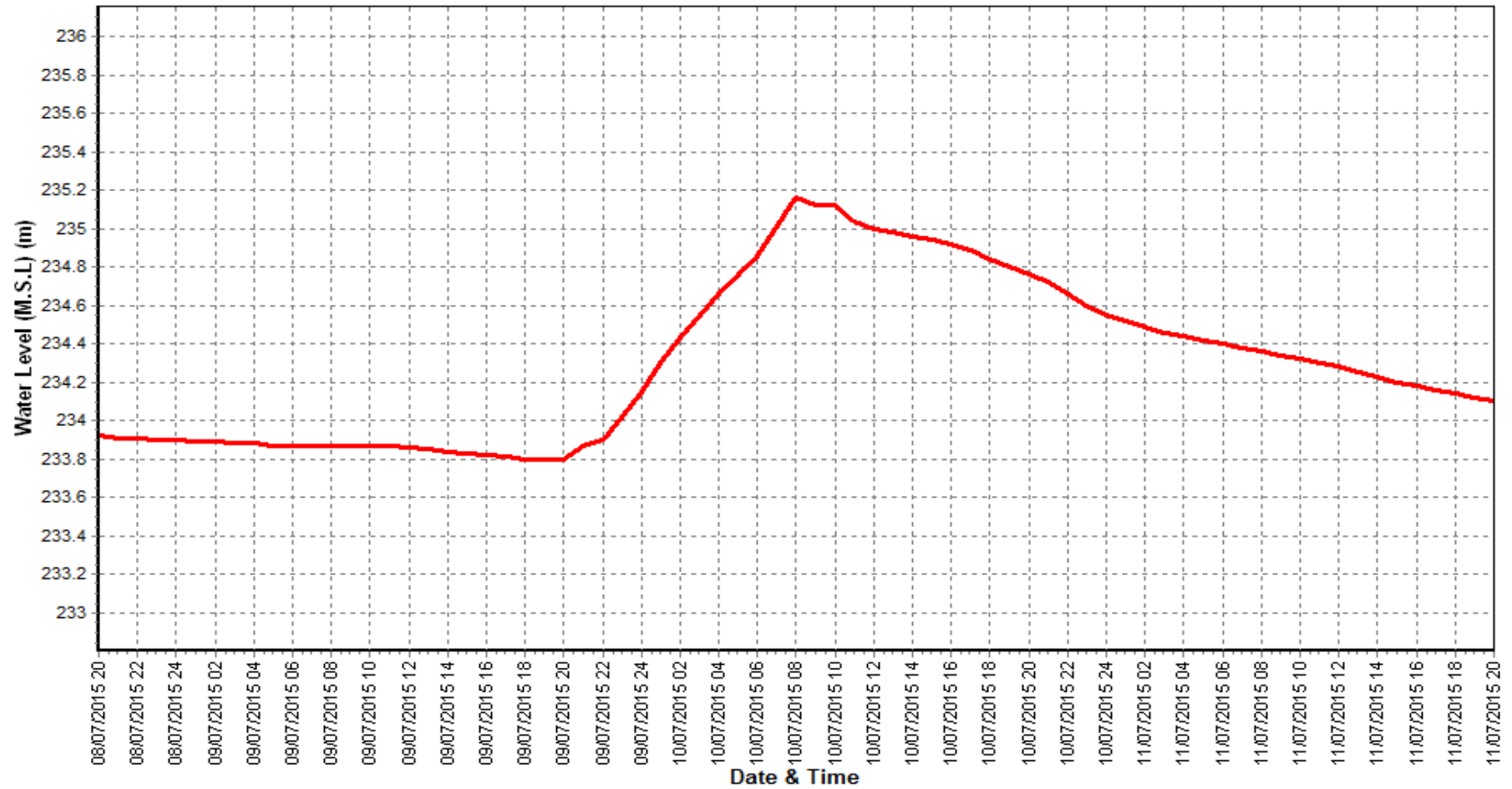
Sub-Division : Balasore



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : MURI (ES000R3)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	370	389	386	690	825	758	125	834	911	1127	1147	412
4	EC_GEN (µmho/cm)	386	413	390	683	830	762	120	839	916	1130	1150	409
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4	8.2	7.7	8.3	8.2	7.4	7.9	7.8	8.9	8.6	8.6	8.0
7	pH_GEN (pH units)	7.6	8.3	7.4	8.4	8.3	7.8	8.1	7.6	9.3	8.9	8.8	8.1
8	Temp (deg C)	31.5	29.5	28.5	30.0	31.5	24.5	21.5	17.0	19.5	21.5	26.5	30.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	13.8	0.0	18.4	9.2	0.0	4.6	0.0	18.4	13.8	13.8	9.2
2	ALK-TOT (mgCaCO3/L)	129	148	83	139	115	106	111	60	134	245	129	115
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	22	21	21	19	38	38	34	35	35	29	38	48
5	Cl (mg/L)	32.1	18.9	18.9	17.0	13.2	15.1	13.2	17.0	17.0	39.6	43.4	45.3
6	CO3 (mg/L)	0.0	16.6	0.0	22.2	11.1	0.0	5.5	0.0	22.2	16.6	16.6	11.1
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.6	0.4	0.3	0.4	0.5	0.6	0.4	0.4	0.4	0.2	0.4	0.3
9	HCO3 (mg/L)	158	147	101	124	118	130	124	73	118	265	124	118
10	K (mg/L)	3.3	4.6	2.3	2.4	4.1	4.2	2.9	2.6	1.3	1.9	3.4	3.6
11	Mg (mg/L)	12.6	11.7	9.7	8.8	11.7	12.6	12.6	13.6	13.6	12.6	15.6	16.5
12	Na (mg/L)	17.9	44.2	11.9	11.5	16.0	17.0	19.8	18.0	18.4	19.0	108.0	8.3
13	NO2+NO3 (mg N/L)	1.22	1.12	1.11	1.22	1.12	1.19	1.18	1.09	1.09	0.84	1.09	0.99
14	NO2-N (mgN/L)	0.00	0.00	0.01	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	NO3-N (mgN/L)	1.22	1.12	1.09	1.22	1.05	1.19	1.18	1.09	1.09	0.84	1.09	0.99
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0	5.0	6.0
18	SO4 (mg/L)	26.6	26.1	28.2	27.5	27.4	27.8	12.0	14.0	12.4	36.8	14.1	21.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.4	0.8	2.4	1.2	1.2	1.0	2.6	1.2	0.4	1.0	0.6	0.8
2	DO (mg/L)	5.8	6.4	4.6	6.2	7.6	7.6	9.7	12.9	7.9	6.0	6.6	5.4
3	DO_SAT% (%)	78	83	58	81	102	90	109	133	86	67	81	71
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	56	52	52	48	96	96	84	88	88	72	96	120
2	HAR_Total (mgCaCO3/L)	109	101	93	85	145	149	137	145	145	125	161	189
3	Na% (%)	26	48	21	22	19	19	24	21	22	25	59	9
4	RSC (-)	0.4	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0
5	SAR (-)	0.7	1.9	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	3.7	0.3
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : MURI (ES000R3)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (μmho/cm)	12	1147	125	665
3	EC_GEN (μmho/cm)	12	1150	120	669
4	pH_FLD (pH units)	12	8.9	7.4	8.1
5	pH_GEN (pH units)	12	9.3	7.4	8.2
6	Temp (deg C)	12	31.5	17.0	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	18.4	0.0	8.4
2	ALK-TOT (mgCaCO3/L)	12	245	60	126
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	48	19	32
5	Cl (mg/L)	12	45.3	13.2	24.2
6	CO3 (mg/L)	12	22.2	0.0	10.2
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.2	0.4
9	HCO3 (mg/L)	12	265	73	133
10	K (mg/L)	12	4.6	1.3	3
11	Mg (mg/L)	12	16.5	8.8	12.6
12	Na (mg/L)	12	108.0	8.3	25.8
13	NO2+NO3 (mg N/L)	12	1.22	0.84	1.11
14	NO2-N (mgN/L)	12	0.07	0.00	0.01
15	NO3-N (mgN/L)	12	1.22	0.84	1.1
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	6.0	5.0	5.7
18	SO4 (mg/L)	12	36.8	12.0	22.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.6	0.4	1.1
2	DO (mg/L)	12	12.9	4.6	7.2
3	DO_SAT% (%)	12	133	58	87
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	120	48	79
2	HAR_Total (mgCaCO3/L)	12	189	85	132
3	Na% (%)	12	59	9	26
4	RSC (-)	12	2.4	0.0	0.4
5	SAR (-)	12	3.7	0.3	1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : MURI (ES000R3)
Local River : Subarnarekha

River Water

Division : E.E., Bhubaneswar
Sub-Division : Balasore

S.No	Parameters	Flood																			
		Jun - Oct															2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015					
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	228	243	264	260	271	199	264		430	401	296	320	215	288	532	212	199	209	185	295
3	EC_GEN (µmho/cm)	228	243	264	260	268	194	262		430	401	296	320	215	288	540	212	199	209	185	290
4	pH_FLD (pH units)	7.8	8.2	7.7	8.0	8.1	8.1	8.1		8.2	8.7	8.4	7.8	7.8	8.1	7.9	8.0	7.8	7.4	7.9	8.3
5	pH_GEN (pH units)	7.8	8.2	7.7	8.0	8.2	8.1	8.1		8.2	8.7	8.4	7.8	7.8	8.1	8.0	8.0	7.8	7.5	7.9	8.4
6	Temp (deg C)	24.2	29.7	30.3	29.6	28.8	28.2	29.4		28.4	29.5	28.8	29.2	27.6	29.4	30.2	18.5	19.3	19.8	19.0	19.4
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)							0.0		5.6	19.9	4.4				8.3					
2	ALK-TOT (mgCaCO3/L)							74		50	132	75				123					
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	20	22	19	23	22	19	22		27	26	19	25	29	19	24	18	16	21	16	23
5	Cl (mg/L)	17.1	22.0	29.8	20.5	31.3	23.8	28.3		52.5	38.7	34.3	29.4	24.2	34.3	20.0	17.6	20.4	19.4	19.4	31.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		6.7	19.2	5.3	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.16	0.17	0.16	0.61	0.20	0.10	0.10		0.27	0.05	0.05	0.05	0.05	0.05	0.05	0.23	0.30	0.00	0.38	0.14
8	Fe (mg/L)	0.2			0.1	0.1	0.2	0.1		0.2	0.2	0.0	1.4	0.1	0.3	0.4	0.2			0.1	0.1
9	HCO3 (mg/L)	92	95	78	106	89	65	91		47	92	81	104	119	81	130	89	76	83	69	82
10	K (mg/L)	2.3	2.9	2.6	3.0	2.4	2.6	2.8		4.2	3.5	3.8	3.1	2.7	3.8	3.3	2.9	2.7	2.2	2.6	2.7
11	Mg (mg/L)	7.2	8.0	5.9	9.3	6.9	3.7	9.1		12.7	16.1	7.2	10.9	6.6	7.2	10.9	6.4	5.3	4.2	4.1	5.5
12	Na (mg/L)	13.8	14.6	22.1	13.5	22.9	15.1	19.0		38.0	24.8	24.1	25.3	17.4	24.1	20.3	12.5	14.8	13.6	13.9	22.2
13	NO2+NO3 (mg N/L)	0.91	0.94	1.83	1.13	2.64	1.06	1.67		2.83	3.51	0.39	0.83	0.75	1.41	1.16	0.82	0.54	0.49	0.79	2.68
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.02	0.00	0.00	0.00		0.00	0.00	0.07	0.00	0.01	0.01	0.02	0.00	0.00	0.02	0.01	0.00
15	NO3-N (mgN/L)	0.91	0.94	1.83	1.11	2.64	1.06	1.67		2.83	3.51	0.32	0.83	0.74	1.41	1.14	0.82	0.54	0.48	0.78	2.68
16	o-PO4-P (mg P/L)	0.093		0.052		0.000	0.000	0.000		0.053										0.000	0.013
17	P-Tot (mgP/L)	0.079	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.010	0.001	0.002	0.001	0.001	0.024	0.001	0.001	0.001	0.013
18	SiO2 (mg/L)	9.8	15.6	12.0	20.6	23.8	10.0	9.4		8.9	8.5	9.6	12.4	9.4	5.6	5.8	11.3	12.1	13.2	21.3	22.1
19	SO4 (mg/L)	7.4	7.7	7.5	9.4	6.6	7.2	12.4		58.6	18.1	21.4	27.2	36.5	21.4	27.2	3.9	4.1	0.8	6.5	7.8
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.9	0.9	1.0	0.8	1.1	1.2	1.1		1.3	1.3	1.5	4.8	0.6	0.5	1.2	0.7	1.2	0.7	1.3	1.0
2	DO (mg/L)	6.3	7.2	6.2	7.0	6.7	6.9	6.8		7.0	7.4	7.0	5.5	6.8	5.8	6.1	7.3	7.5	8.3	8.0	8.2
3	DO_SAT% (%)	74	94	82	91	87	88	89		89	96	91	71	86	76	80	78	80	90	86	88
	TRACE & TOXIC																				
1	Al (mg/L)																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	50	54	48	58	54	47	54		68	66	46	62	72	46	61	46	41	53	41	59
2	HAR_Total (mgCaCO3/L)	80	87	73	84	83	63	92		121	133	76	107	99	76	106	73	63	70	63	82
3	Na% (%)	27	26	39	23	38	33	31		34	26	38	32	26	38	27	27	33	30	33	38
4	RSC (-)	0.0	0.0	0.1	0.0	0.1	0.0	0.0		0.0	0.0	0.2	0.0	0.2	0.1	0.5	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.7	1.2	0.6	1.2	0.8	0.9		1.3	0.9	1.2	1.1	0.8	1.2	0.9	0.6	0.8	0.7	0.8	1.2
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	217	213		233	398	230	253	216	335	657	263	247	203	244	336	372	388		260	700
3	EC_GEN (µmho/cm)	215	201		233	398	230	253	216	335	659	263	247	203	242	330	370	380		260	820
4	pH_FLD (pH units)	8.1	8.1		7.9	8.3	7.8	7.6	8.0	8.1	8.0	8.1	8.0	7.8	8.2	8.2	8.1	8.7		8.2	8.9
5	pH_GEN (pH units)	8.1	8.1		7.9	8.3	7.8	7.6	8.0	8.1	8.2	8.1	8.0	7.8	8.3	8.2	8.1	8.8		8.2	8.9
6	Temp (deg C)	20.5	19.1		21.6	21.3	20.4	23.6	20.3	19.9	20.6	27.8	26.8	27.0	25.0	25.0	27.7	25.5		24.0	25.5
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)		0.0		0.0	13.7	4.6			0.0	5.8						0.0	0.8		0.0	27.3
2	ALK-TOT (mgCaCO3/L)		57		57	114	91			46	103						222	137		70	163
3	B (mg/L)	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
4	Ca (mg/L)	19	16		17	26	28	23	30	27	36	23	20	19	22	32	33	46		17	51
5	Cl (mg/L)	23.9	26.6		25.3	43.2	22.2	24.5	33.9	24.0	15.6	25.9	25.9	18.4	19.2	27.9	25.7	22.7		31.0	57.2
6	CO3 (mg/L)	0.0	0.0		0.0	12.3	5.5	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	1.0		0.0	32.9
7	F (mg/L)	0.15	0.00		0.17	0.05	0.05	0.05	0.05	0.05	0.05	0.08	0.00	0.00	0.35	0.74	0.30	0.05		0.01	0.05
8	Fe (mg/L)	0.2	0.1		0.1	0.1	0.0	1.3	0.1	0.2	0.5	0.2			0.1	0.1	0.2	0.1		0.1	0.3
9	HCO3 (mg/L)	77	69		69	113	100	57	137	97	111	109	97	75	108	121	143	165		86	132
10	K (mg/L)	2.9	2.7		2.8	3.2	2.6	3.3	2.7	2.8	2.7	3.5	3.4	2.9	2.1	2.7	3.4	6.6		3.7	5.3
11	Mg (mg/L)	5.2	5.1		8.7	12.9	9.2	7.3	9.0	4.4	13.1	7.8	6.8	4.6	8.4	11.4	14.1	7.0		8.7	24.6
12	Na (mg/L)	17.1	17.9		15.7	31.9	13.4	17.5	22.2	16.1	18.3	16.6	20.1	13.8	13.0	20.4	16.6	15.6		21.4	42.3
13	NO2+NO3 (mg N/L)	0.95	1.47		1.43	1.25	0.43	0.86	0.88	0.94	1.14	0.99	1.08	0.76	0.65	4.94	2.11	1.23		0.77	3.12
14	NO2-N (mgN/L)	0.00	0.02		0.02	0.00	0.07	0.00	0.01	0.01	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00		0.02	0.00
15	NO3-N (mgN/L)	0.95	1.45		1.41	1.25	0.36	0.86	0.87	0.93	1.14	0.98	1.06	0.74	0.64	4.94	2.11	1.23		0.74	3.12
16	o-PO4-P (mg P/L)	0.000	0.000		0.047										0.010	0.055	0.000	0.010		0.050	
17	P-Tot (mgP/L)	0.001	0.001		0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.097	0.001	0.001	0.001	0.055	0.001	0.050		0.001	0.001
18	SiO2 (mg/L)	17.9	9.7		8.3	5.5	10.0	13.0	12.3	3.9	5.5	13.9	13.1	11.1	22.1	19.8	15.4	9.7		9.6	5.0
19	SO4 (mg/L)	8.7	8.5		13.7	18.1	9.8	12.5	46.1	15.0	16.6	4.4	3.5	5.2	4.8	9.1	12.9	14.8		10.4	76.4
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	1.0	1.7		1.4	1.4	2.0	0.4	0.9	0.8	1.3	0.9	1.8	0.8	1.0	1.3	1.7	1.4		1.6	1.7
2	DO (mg/L)	8.2	7.9		7.8	8.4	7.8	7.8	8.0	9.8	9.5	6.9	6.5	6.9	6.9	7.6	6.9	6.6		7.1	7.5
3	DO_SAT% (%)	90	84		88	94	86	92	88	106	105	88	81	85	83	91	88	81		84	91
	TRACE & TOXIC																				
1	Al (mg/L)																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	46	41		43	65	71	58	76	66	89	59	51	47	54	80	82	115		41	128
2	HAR_Total (mgCaCO3/L)	68	62		80	119	109	88	114	85	144	91	79	66	72	128	140	144		78	231
3	Na% (%)	33	37		29	35	21	29	29	28	21	27	35	30	24	26	20	21		36	28
4	RSC (-)	0.0	0.0		0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0		0.0	0.0
5	SAR (-)	0.9	1.0		0.8	1.3	0.6	0.8	0.9	0.8	0.7	0.8	1.0	0.7	0.6	0.8	0.6	0.6		1.1	1.2
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : MURI (ES000R3)

Local River : Subarnarekha

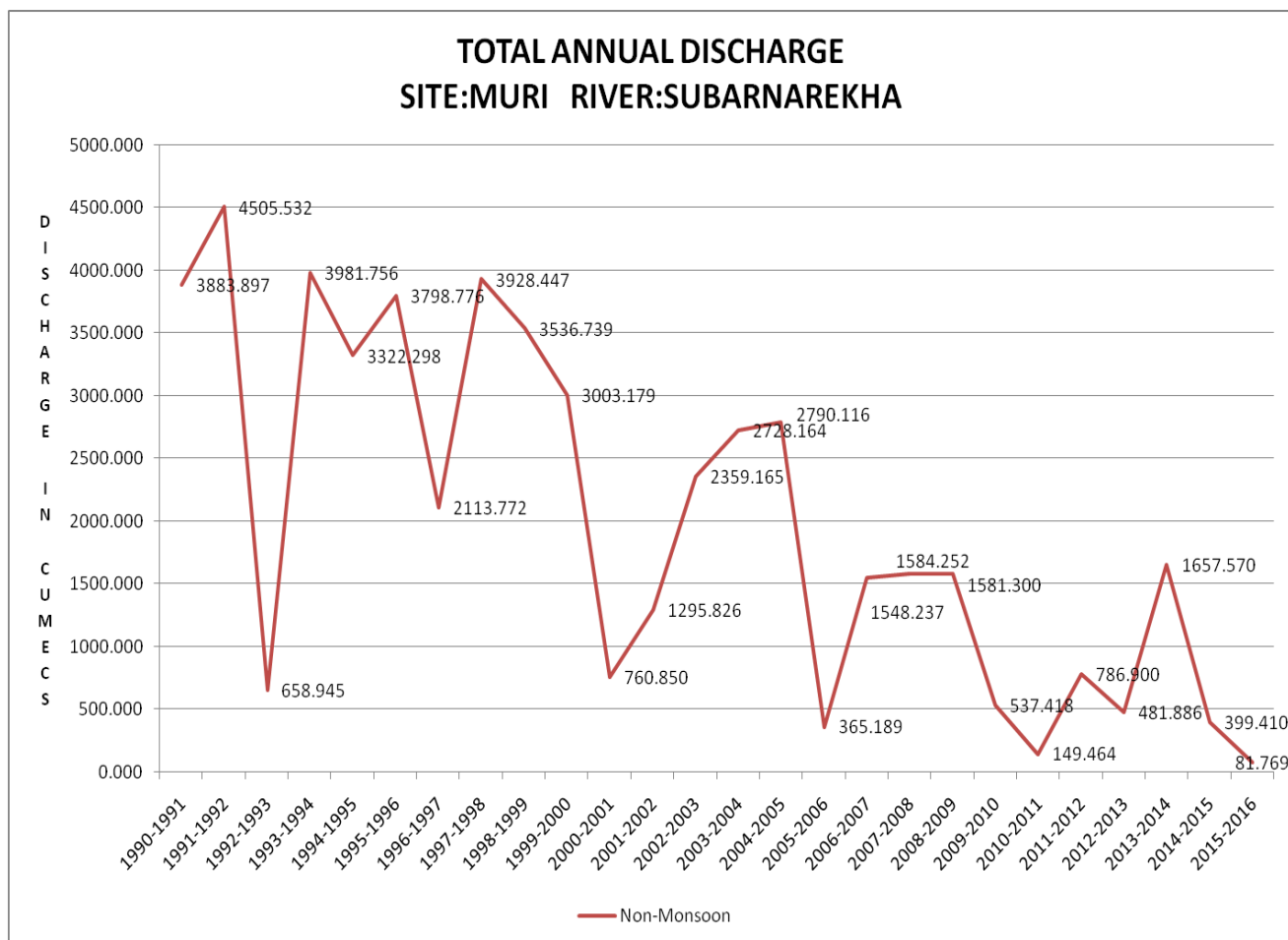
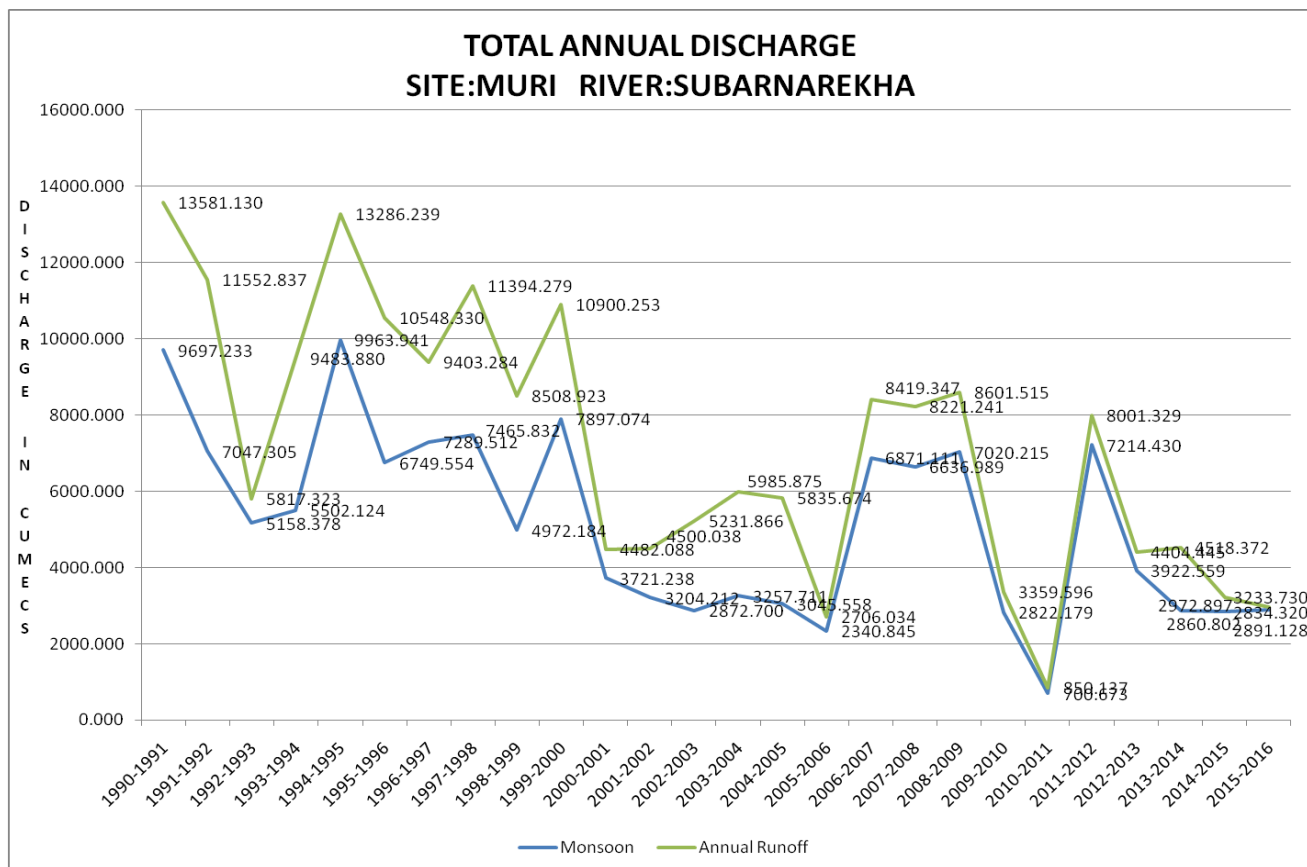
Division : E.E., Bhubaneswar

Sub-Division : Balasore

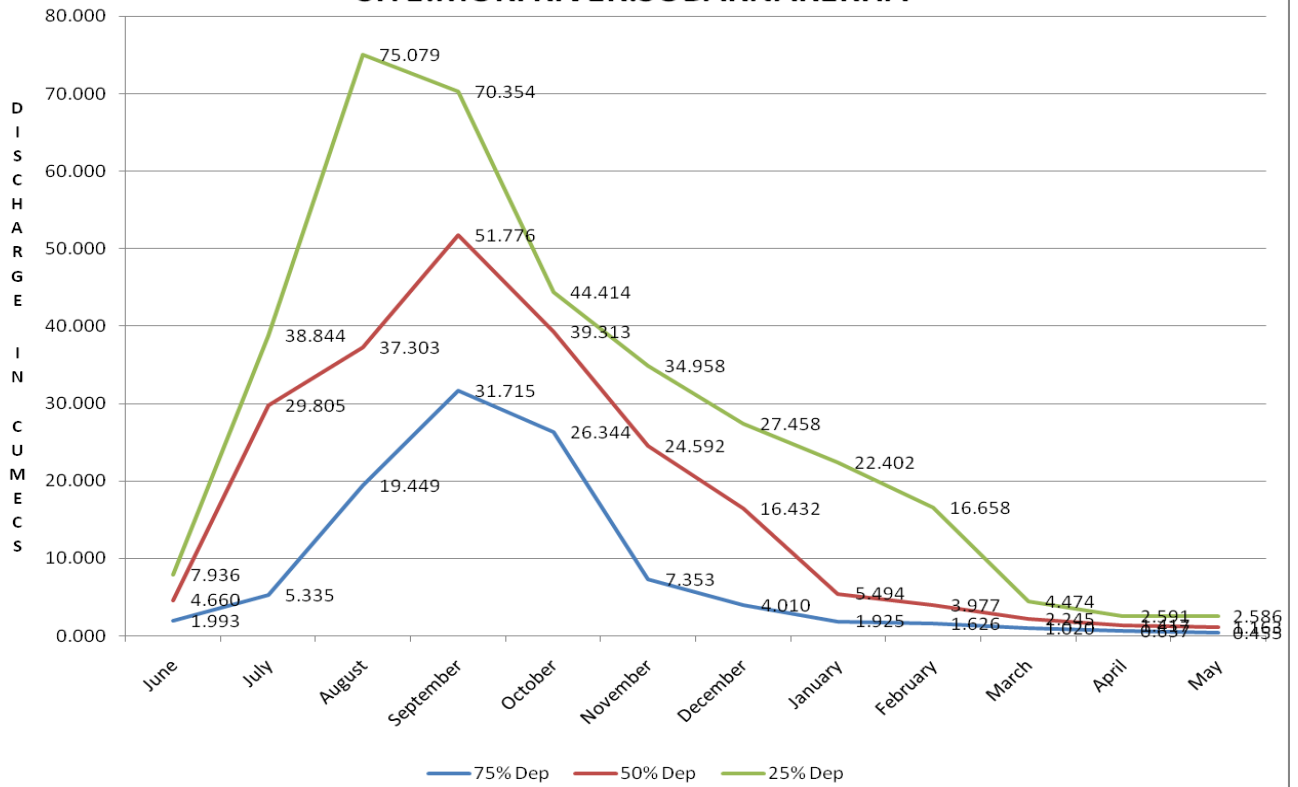
River Water

S.No	Parameters					
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	503	480	323	389	895
3	EC_GEN (µmho/cm)	503	480	323	389	896
4	pH_FLD (pH units)	8.3	8.2	8.2	7.6	8.4
5	pH_GEN (pH units)	8.3	8.2	8.2	7.6	8.6
6	Temp (deg C)	25.3	25.0	25.8	25.5	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0			0.0	12.3
2	ALK-TOT (mgCaCO3/L)	111			16	163
3	B (mg/L)	0.01	0.01	0.00	0.00	0.01
4	Ca (mg/L)	32	22	29	26	38
5	Cl (mg/L)	33.9	41.8	33.1	21.8	42.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	14.8
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.0	1.5	0.1	0.3	0.3
9	HCO3 (mg/L)	135	151	113	78	169
10	K (mg/L)	3.1	4.2	2.5	2.6	3.0
11	Mg (mg/L)	9.1	4.9	8.1	9.7	14.9
12	Na (mg/L)	48.9	58.6	21.6	25.7	45.1
13	NO2+NO3 (mg N/L)	0.39	0.91	0.87	1.13	0.98
14	NO2-N (mgN/L)	0.07	0.00	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.32	0.91	0.87	1.13	0.98
16	o-PO4-P (mg P/L)					
17	P-Tot (mgP/L)	0.010	0.001	0.002	0.001	0.010
18	SiO2 (mg/L)	10.0	13.0	12.2	5.0	5.7
19	SO4 (mg/L)	41.1	28.2	40.7	26.5	24.1
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	1.1	2.5	0.8	0.8
2	DO (mg/L)	6.9	6.5	7.4	5.1	6.0
3	DO_SAT% (%)	83	78	90	62	73
	TRACE & TOXIC					
1	Al (mg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	80	55	71	64	96
2	HAR_Total (mgCaCO3/L)	118	76	105	105	158
3	Na% (%)	42	56	30	33	31
4	RSC (-)	0.4	1.0	0.0	0.0	0.8
5	SAR (-)	2.2	3.0	0.9	1.3	1.6
	PESTICIDES					

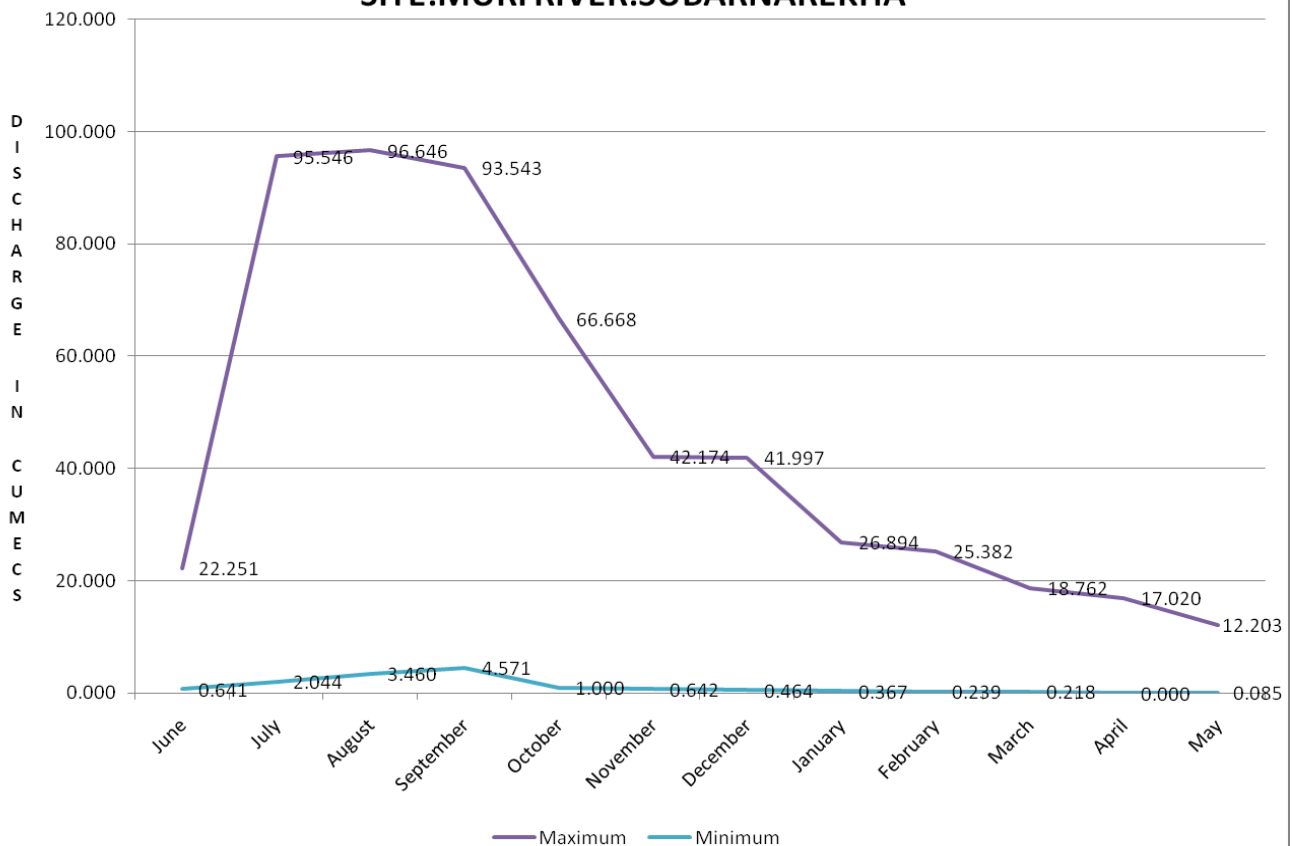
TREND ANALYSIS



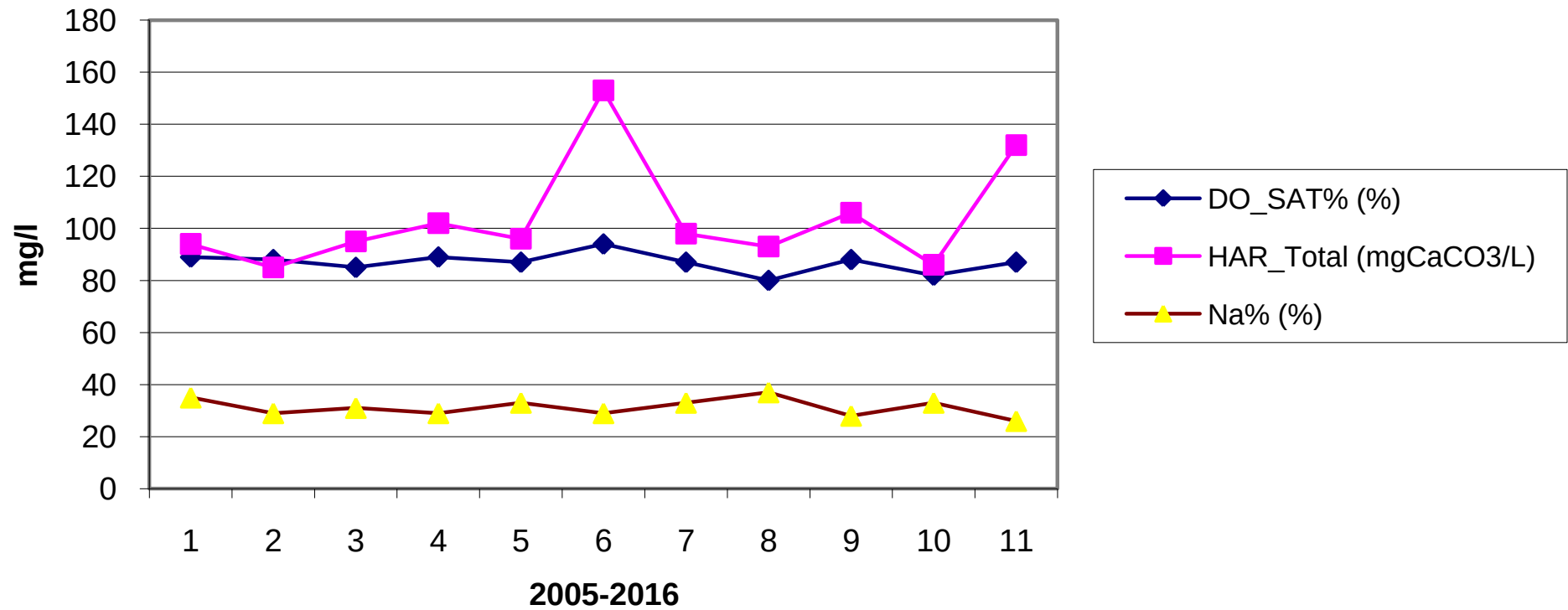
DEPENDIBILITY FLOW FROM JUNE TO MAY SITE:MURI RIVER:SUBARNAREKHA

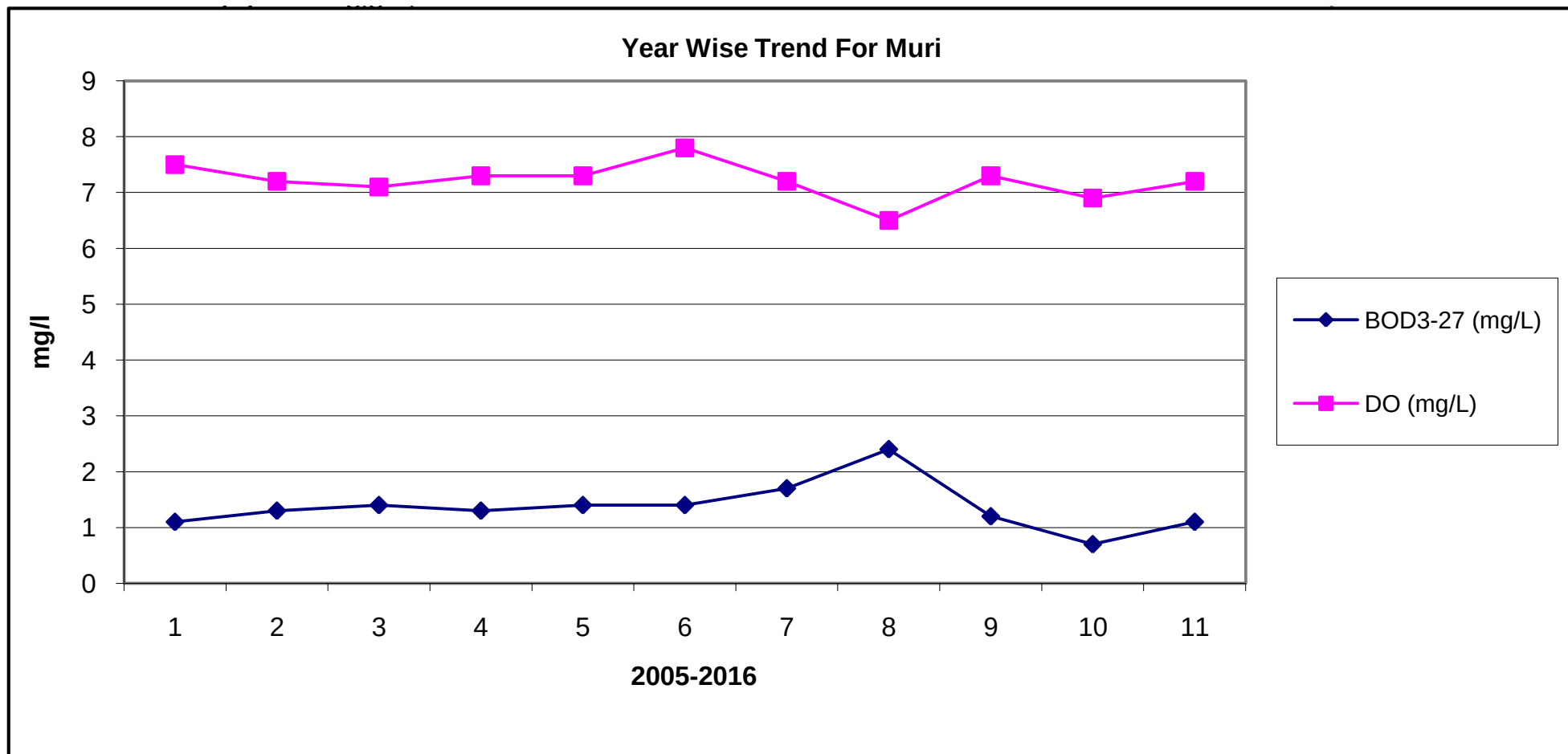


MAXIMUM-MINIMUM FLOW FROM JUNE TO MAY SITE:MURI RIVER:SUBARNAREKHA

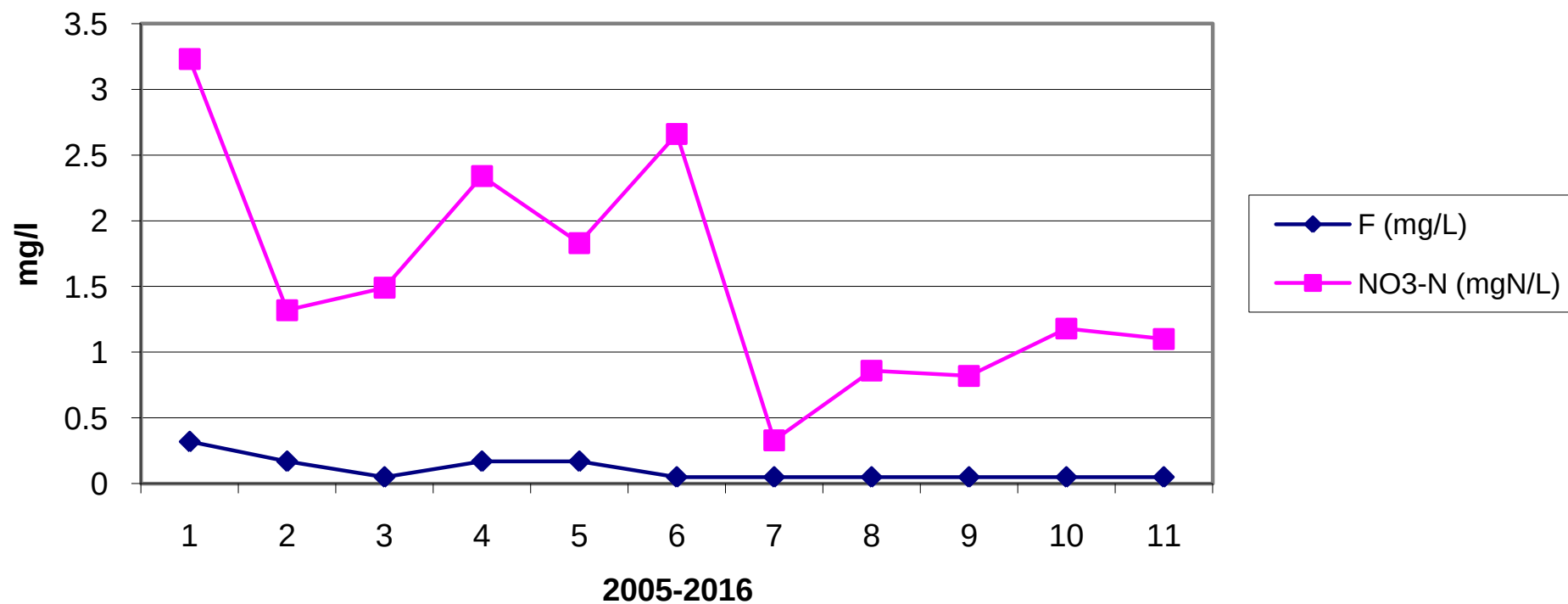


Year Wise Trend For Muri

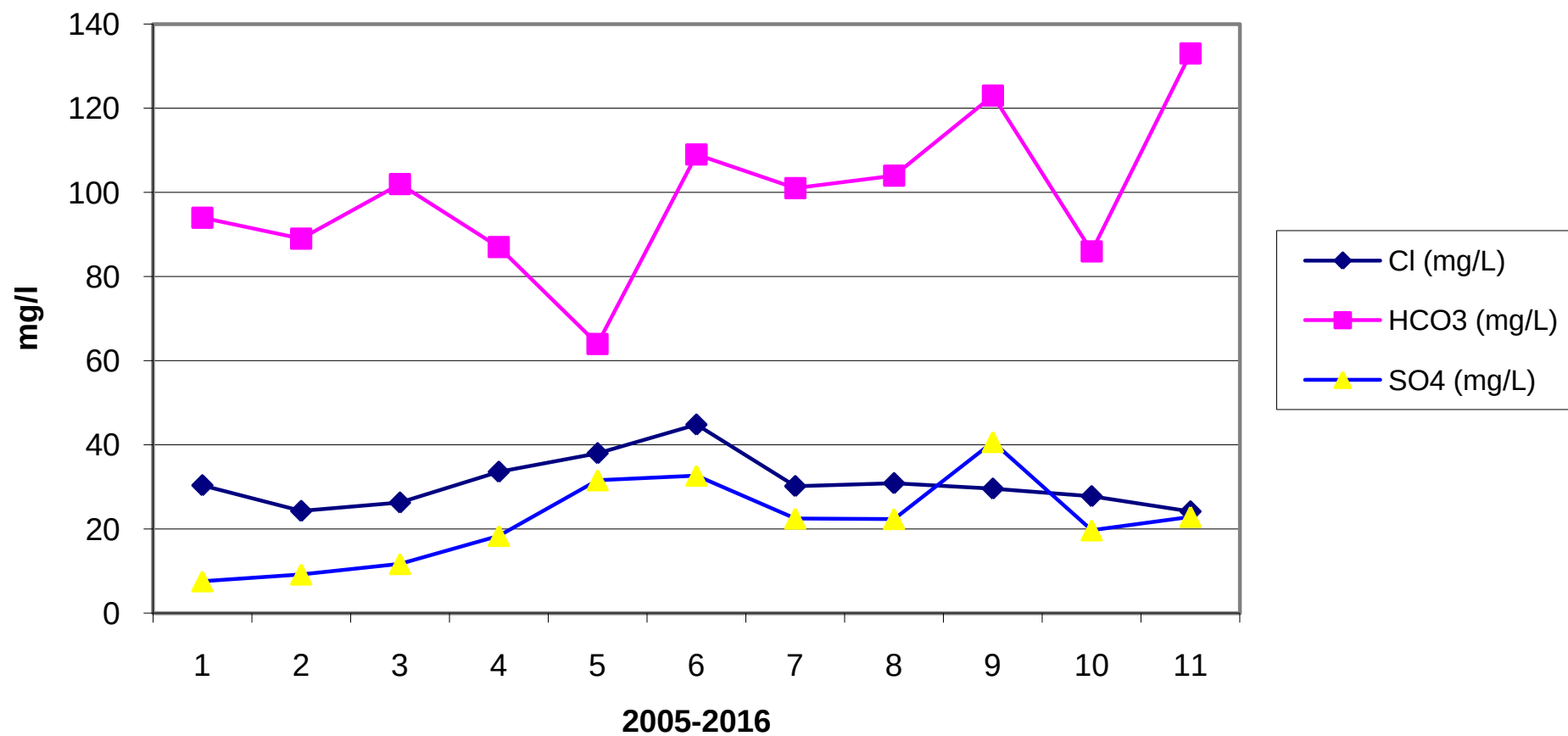




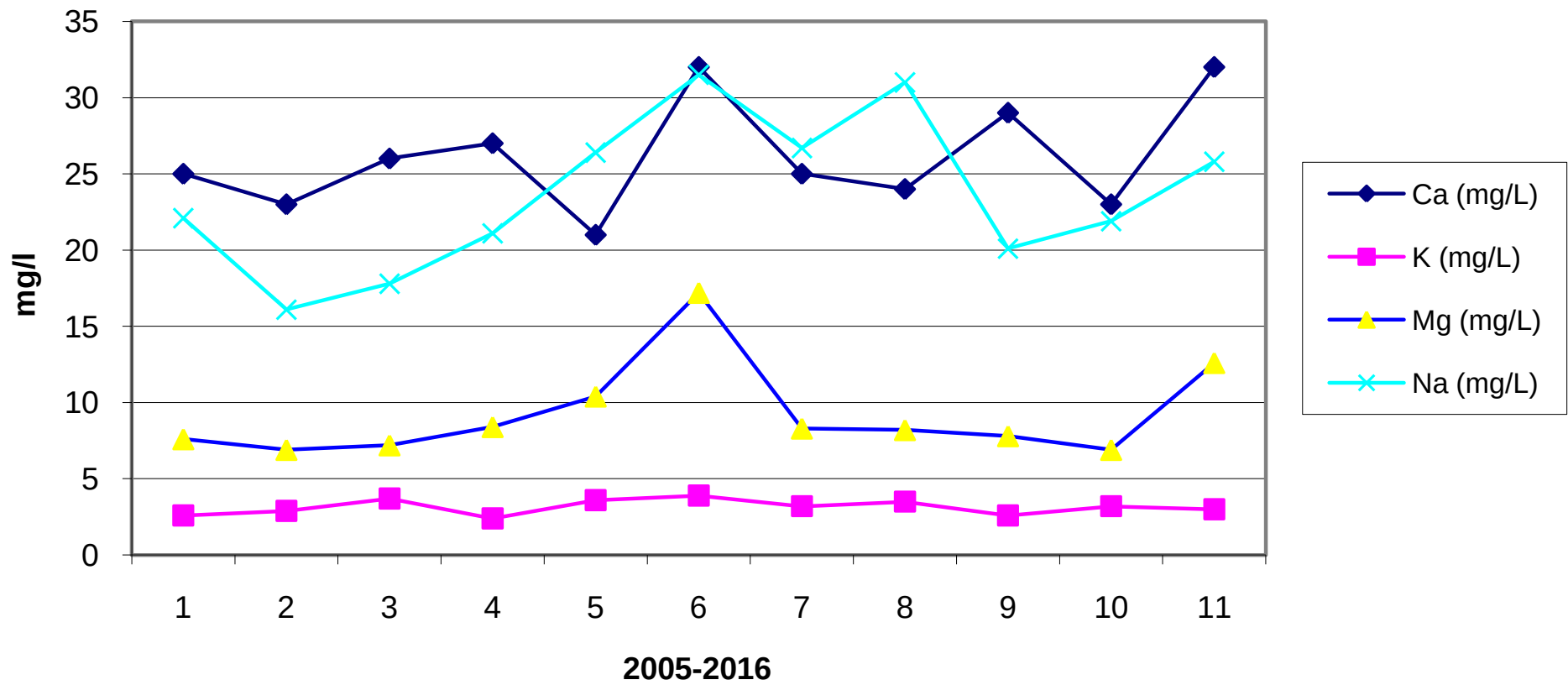
Year Wise Trend For Muri



Year Wise Trend For Muri



Year Wise Trend For Muri



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : ADITYAPUR

Code : ESB00D5

State : Jharkhand

District : Purba Singhbhum

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : Kharkhai

Sub Tributary :

Sub-Sub Tributary :

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 6309 Sq. Km.

Bank : Left

Latitude : 22°47'29"

Longitude : 86°10'06"

Zero of Gauge (m) : 125 (m.s.l)
123 (m.s.l)

22.11.1971 - 31.05.1972
01.06.1972 - 31.12.2031

Opening Date

Closing Date

Gauge : 23.06.1971

Discharge : 22.11.1971

Sediment : 06.02.1975

Water Quality : 01.01.1976

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1972-1973	1711	131.598	14.08.1972	0.000	125.615	05.11.1972
1973-1974	3431	133.225	12.10.1973	0.500	125.150	10.05.1974
1974-1975	5812	137.130	30.09.1974	0.400	124.645	18.05.1975
1975-1976	6416	137.560	20.08.1975	0.060	124.993	12.05.1976
1976-1977	1690	131.500	12.09.1976	0.500	124.810	15.03.1977
1977-1978	3020	133.400	07.08.1977	1.500	124.820	05.06.1977
1978-1979	895.7	125.325	27.06.1978	0.200	125.125	16.05.1979
1979-1980	650.0	128.905	08.08.1979	0.080	125.140	27.05.1980
1980-1981	524.7	128.880	03.07.1980	0.309	125.275	19.04.1981
1981-1982	1883	131.610	22.06.1981	0.379	125.190	31.05.1982
1982-1983	819.2	129.680	07.08.1982	0.367	125.175	03.06.1982
1983-1984	2081	131.160	05.09.1983	1.078	125.050	07.05.1984
1984-1985	2959	132.673	27.08.1984	0.460	124.870	04.05.1985
1985-1986	4532	135.000	17.10.1985	0.820	124.670	06.04.1986
1986-1987	614.5	128.960	05.08.1986	0.900	125.025	15.04.1987
1987-1988	1335	130.250	20.07.1987	0.470	124.925	11.04.1988
1988-1989	1231	130.780	04.08.1988	0.056	124.880	12.05.1989
1989-1990	2500	132.650	05.08.1989	1.110	124.940	10.05.1990
1990-1991	2137	130.975	04.09.1990	1.220	124.820	18.05.1991
1991-1992	3517	132.900	23.08.1991	1.004	124.660	01.05.1992
1992-1993	770.0	128.900	27.09.1992	1.096	124.650	06.06.1992

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1993-1994	1000	129.320	15.08.1993	1.085	124.600	15.05.1994
1994-1995	4101	133.295	04.08.1994	0.669	124.590	10.05.1995
1995-1996	2340	131.880	09.08.1995	0.494	124.440	25.05.1996
1996-1997	2692	133.075	26.07.1996	0.177	124.495	30.04.1997
1997-1998	6700	136.400	06.08.1997	0.524	124.520	02.06.1997
1998-1999	1200	129.700	13.09.1998	0.772	124.460	11.05.1999
1999-2000	3300	133.430	08.08.1999	1.234	124.490	22.04.2000
2000-2001	933.7	130.700	26.07.2000	0.857	124.450	28.02.2001
2001-2002	3970	133.750	12.07.2001	0.710	124.430	23.05.2002
2002-2003	938.5	129.400	11.09.2002	0.760	124.440	03.06.2002
2003-2004	556.8	127.790	09.10.2003	1.400	124.410	01.06.2003
2004-2005	2828	131.850	21.08.2004	1.614	124.420	26.05.2005
2005-2006	1041	129.440	30.06.2005	2.000	124.420	11.04.2006
2006-2007	5180	133.700	30.07.2006	2.941	124.440	09.04.2007
2007-2008	3879	133.700	20.08.2007	2.759	124.440	09.06.2007
2008-2009	5856	136.950	18.06.2008	2.000	124.410	26.04.2009
2009-2010	1848	130.225	08.09.2009	1.880	124.380	14.03.2010
2010-2011	139.7	126.410	20.09.2010	0.860	124.390	19.04.2011
2011-2012	2400	132.620	23.09.2011	1.061	124.430	02.06.2011
2012-2013	967.6	128.675	22.06.2012	1.490	124.350	12.04.2013
2013-2014	3033	131.200	20.09.2013	2.038	124.380	22.07.2013
2014-2015	1931	129.600	21.07.2014	1.880	124.140	26.03.2015
2015-2016	2030	132.620	29.07.2015	1.846	124.130	11.04.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	124.190	5.496	124.800	44.25	126.085	199.9	126.995	416.4	124.720	40.50	124.750	50.00 *
2	124.190	5.512	125.565	132.0	127.130	400.0 *	126.315	292.4	124.690	39.00 *	124.680	38.64
3	124.190	5.497	125.685	146.9	127.720	622.6	125.970	214.8	124.670	37.75	124.620	30.18
4	124.210	6.129	125.150	68.72	126.665	339.3	125.690	147.4	124.660	37.00 *	124.590	27.81
5	124.230	6.313	125.090	74.00 *	126.120	217.6	125.420	124.7	124.650	36.65	124.550	20.30
6	124.230	6.201	125.290	79.91	125.745	152.2	125.270	100.0 *	124.700	39.37	124.520	19.75
7	124.220	6.200 *	126.180	210.7	125.500	128.9	125.165	73.61	124.670	37.73	124.500	19.48
8	124.210	5.900	126.010	189.5	125.265	79.62	125.045	57.97	124.690	39.17	124.460	18.00 *
9	124.210	5.825	125.365	127.9	125.130	68.00 *	124.960	54.03	124.830	47.89	124.430	18.23
10	124.220	6.258	125.470	127.4	125.040	70.74	125.000	51.15	124.810	45.86	124.400	17.78
11	124.220	6.234	126.360	293.7	124.980	66.70	125.140	70.27	124.750	42.00 *	124.380	15.00 *
12	124.230	5.769	126.120	240.0 *	124.950	64.24	124.965	53.91	124.680	38.70	124.370	11.67
13	124.210	5.863	125.630	144.9	124.900	56.55	124.870	50.00 *	124.650	28.73	124.360	11.39
14	124.220	6.000 *	125.390	120.3	124.985	67.20	124.810	46.06	124.610	29.50	124.350	11.23
15	124.220	6.179	125.290	81.86	125.050	70.00 *	124.795	45.78	124.590	27.79	124.340	10.00 *
16	124.230	6.348	125.150	69.83	125.030	70.00 *	124.890	50.88	124.590	26.26	124.330	11.05
17	124.200	5.691	125.210	78.68	125.125	71.61	125.060	64.00 *	124.580	25.16	124.320	10.82
18	124.190	5.480	125.100	220.0 *	125.010	66.06	125.325	118.0	124.570	22.00 *	124.310	10.54
19	124.180	4.127	125.100	220.0 *	125.060	69.85	125.235	79.83	124.560	20.10	124.300	10.34
20	124.200	5.755	125.655	145.9	125.155	72.90	125.110	56.00 *	124.540	19.58	124.300	10.33
21	124.210	5.800 *	126.245	270.2	125.240	83.78	125.020	58.27	124.510	18.00 *	124.300	10.17
22	124.220	6.269	126.560	283.2	125.180	77.30	125.490	127.9	124.510	18.00 *	124.290	7.700 *
23	124.270	7.381	126.540	294.1	125.050	70.00 *	125.440	126.4	124.490	17.40	124.290	7.775
24	124.280	7.719	126.570	307.7	125.600	141.5	125.235	79.56	124.490	17.00 *	124.290	7.621
25	124.990	64.52	125.970	188.4	125.515	128.6	125.120	56.00 *	124.480	17.00 *	124.280	7.200 *
26	124.840	50.80	125.870	200.0 *	126.030	253.2	124.995	57.16	124.480	16.99	124.270	7.284
27	124.710	39.14	125.970	214.6	126.215	267.4	124.920	54.00 *	124.475	17.10	124.260	7.293
28	124.610	31.00 *	130.110	1792	125.970	212.2	124.860	48.83	124.470	16.95	124.260	7.198
29	124.610	31.58	132.620	2030	125.645	118.4	124.800	43.10	124.470	16.94	124.250	6.500 *
30	124.620	31.45	128.380	1015	125.560	118.0 *	124.760	41.98	124.560	20.36	124.250	6.546
31			126.580	296.5	125.845	163.0			124.615	29.99		
Ten-Daily Mean												
I Ten-Daily	124.210	5.933	125.460	120.1	126.040	227.9	125.583	153.2	124.709	40.09	124.550	26.02
II Ten-Daily	124.210	5.745	125.501	161.5	125.025	67.51	125.020	63.47	124.612	27.98	124.336	11.24
III Ten-Daily	124.536	27.57	127.401	626.5	125.623	148.5	125.064	69.32	124.505	18.70	124.274	7.529
Monthly												
Min.	124.180	4.127	124.800	44.25	124.900	56.55	124.760	41.98	124.470	16.94	124.250	6.500
Max.	124.990	64.52	132.620	2030	127.720	622.6	126.995	416.4	124.830	47.89	124.750	50.00
Mean	124.319	13.08	126.162	313.2	125.564	148	125.222	95.35	124.605	28.6	124.387	14.93

Annual Runoff in MCM = 1696 Annual Runoff in mm = 269

Peak Observed Discharge = 2030 cumecs on 29/07/2015 Corres. Water Level :132.62 m

Lowest Observed Discharge = 1.846 cumecs on 11/04/2016 Corres. Water Level :124.13 m

Stage-Discharge Data for the period 2015 - 2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	124.250	6.492	124.230	7.442	124.160	5.144	124.170	4.596	124.130	1.914	124.130	
2	124.250	6.463	124.230	7.420	124.160	5.058	124.170	4.596	124.130	1.926	124.130	1.945
3	124.250	6.481	124.230	7.400 *	124.160	4.877	124.160	3.989	124.130	1.900 *	124.130	1.946
4	124.240	6.404	124.230	7.404	124.160	4.865	124.150	2.948	124.130	1.923	124.170	4.561
5	124.240	6.416	124.220	7.062	124.160	4.867	124.150	2.921	124.130	2.143	124.180	5.042
6	124.240	6.400 *	124.220	6.899	124.160	4.854	124.150	2.900 *	124.130	2.023	124.170	4.559
7	124.250	6.512	124.240	7.890	124.160	4.800 *	124.150	2.900 *	124.130	1.912	124.150	2.817
8	124.240	6.268	124.230	7.461	124.150	3.696	124.140	2.556	124.130	1.920	124.140	
9	124.240	6.381	124.230	7.442	124.150	3.692	124.140	2.548	124.130	1.984	124.140	2.419
10	124.240	6.369	124.220	7.000 *	124.150	3.668	124.140	2.535	124.130	1.900 *	124.130	1.950
11	124.230	6.264	124.210	6.934	124.150	3.661	124.160	3.931	124.130	1.846	124.190	5.966
12	124.230	6.136	124.200	6.856	124.150	3.673	124.160	3.873	124.120	1.860	124.160	3.804
13	124.230	6.100 *	124.200	6.855	124.150	3.659	124.160	3.850 *	124.120	1.876	124.140	2.379
14	124.220	5.777	124.190	6.760	124.150	3.600 *	124.160	3.843	124.120	1.880 *	124.130	1.945
15	124.220	5.723	124.190	6.781	124.150	3.808	124.150	2.915	124.120	2.014	124.130	
16	124.220	5.746	124.190	6.788	124.150	3.616	124.150	2.907	124.120	1.864	124.130	1.933
17	124.220	5.516	124.190	6.700 *	124.150	2.790	124.140	2.562	124.120	1.850 *	124.160	3.798
18	124.240	6.390	124.200	6.913	124.140	2.500	124.140	2.564	124.120	1.856	124.180	5.028
19	124.230	6.336	124.200	6.889	124.140	2.483	124.140	2.552	124.120	1.859	124.170	4.526
20	124.230	6.300 *	124.230	7.532	124.140	2.477	124.130	2.500 *	124.120	1.850 *	124.150	2.827
21	124.220	5.817	124.220	7.095	124.140	2.400 *	124.130	2.500 *	124.120	1.860	124.140	
22	124.220	5.804	124.200	6.862	124.140	2.445	124.130	2.080	124.120	1.906	124.140	
23	124.230	6.108	124.190	6.799	124.130	2.076	124.130	2.067	124.140	2.503	124.130	1.959
24	124.230	6.100 *	124.190	6.700 *	124.130	2.112	124.130	2.000 *	124.140	2.500 *	124.130	1.966
25	124.240	6.400 *	124.180	6.456	124.150	2.790	124.130	2.000 *	124.130	1.921	124.210	5.464
26	124.240	6.418	124.180	6.300 *	124.150	2.754	124.130	2.046	124.130	1.913	124.190	5.035
27	124.240	6.400 *	124.180	6.383	124.140	2.454	124.130	2.000 *	124.130	1.914	124.160	4.526
28	124.230	6.074	124.170	6.039	124.140	2.400 *	124.130	2.042	124.130	1.914	124.420	8.295
29	124.230	6.071	124.170	6.002	124.150	2.614	124.130	2.048	124.120	1.882	124.390	
30	124.230	6.075	124.170	5.951			124.130	2.039	124.120	1.873	124.350	7.412
31	124.230	6.188	124.160	5.300 *			124.130	2.039			124.350	7.114
Ten-Daily Mean												
I Ten-Daily	124.244	6.418	124.228	7.342	124.157	4.552	124.152	3.249	124.130	1.954	124.147	3.155
II Ten-Daily	124.227	6.029	124.200	6.901	124.147	3.227	124.149	3.150	124.121	1.876	124.154	3.578
III Ten-Daily	124.231	6.132	124.183	6.353	124.141	2.449	124.130	2.078	124.128	2.019	124.237	5.222
Monthly												
Min.	124.220	5.516	124.160	5.300	124.130	2.076	124.130	2.000	124.120	1.846	124.130	1.933
Max.	124.250	6.512	124.240	7.890	124.160	5.144	124.170	4.596	124.140	2.503	124.420	8.295
Mean	124.234	6.191	124.203	6.849	124.149	3.442	124.143	2.802	124.126	1.95	124.181	3.969

Peak Computed Discharge = 400.0 cumecs on 02/08/2015

Corres. Water Level :127.13 m

Lowest Computed Discharge = 1.850 cumecs on 17/04/2016

Corres. Water Level :124.12 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

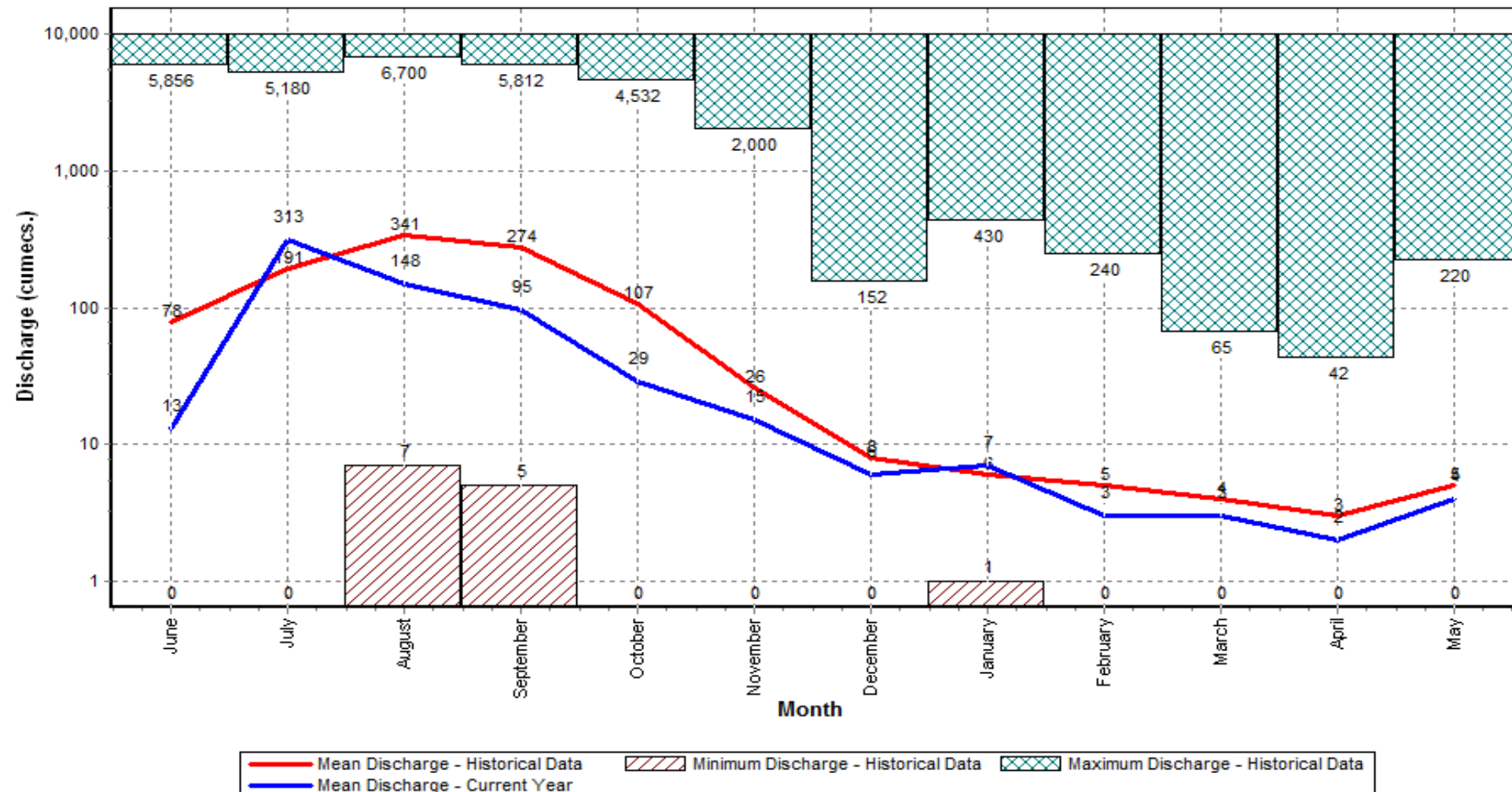
Station Name : ADITYAPUR (ESB00D5)

Data considered : 1972-2016

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore



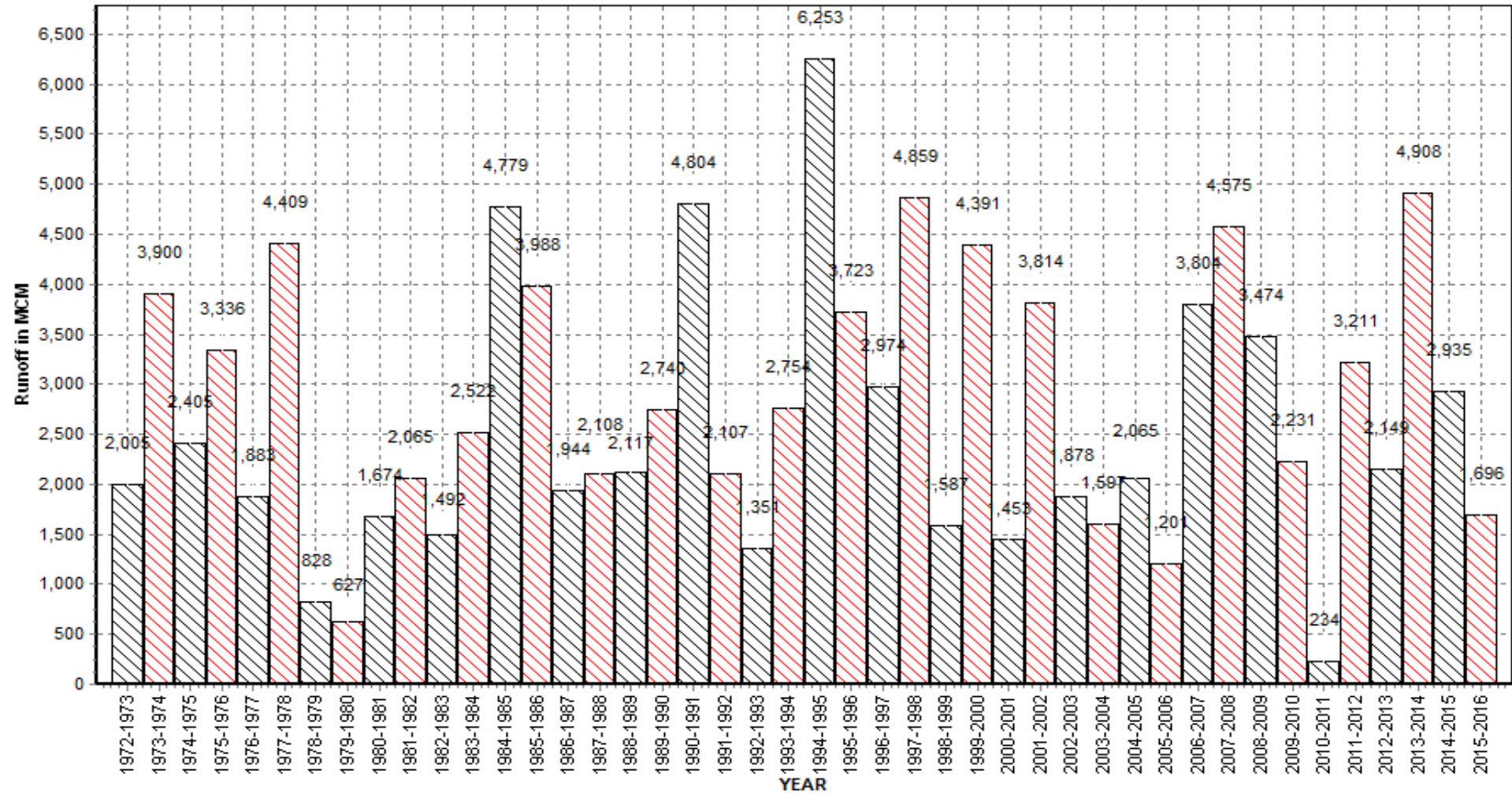
Annual Runoff Values for the period: 1972 - 2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore



Note: Missing values have not been considered while arriving at Annual Runoff

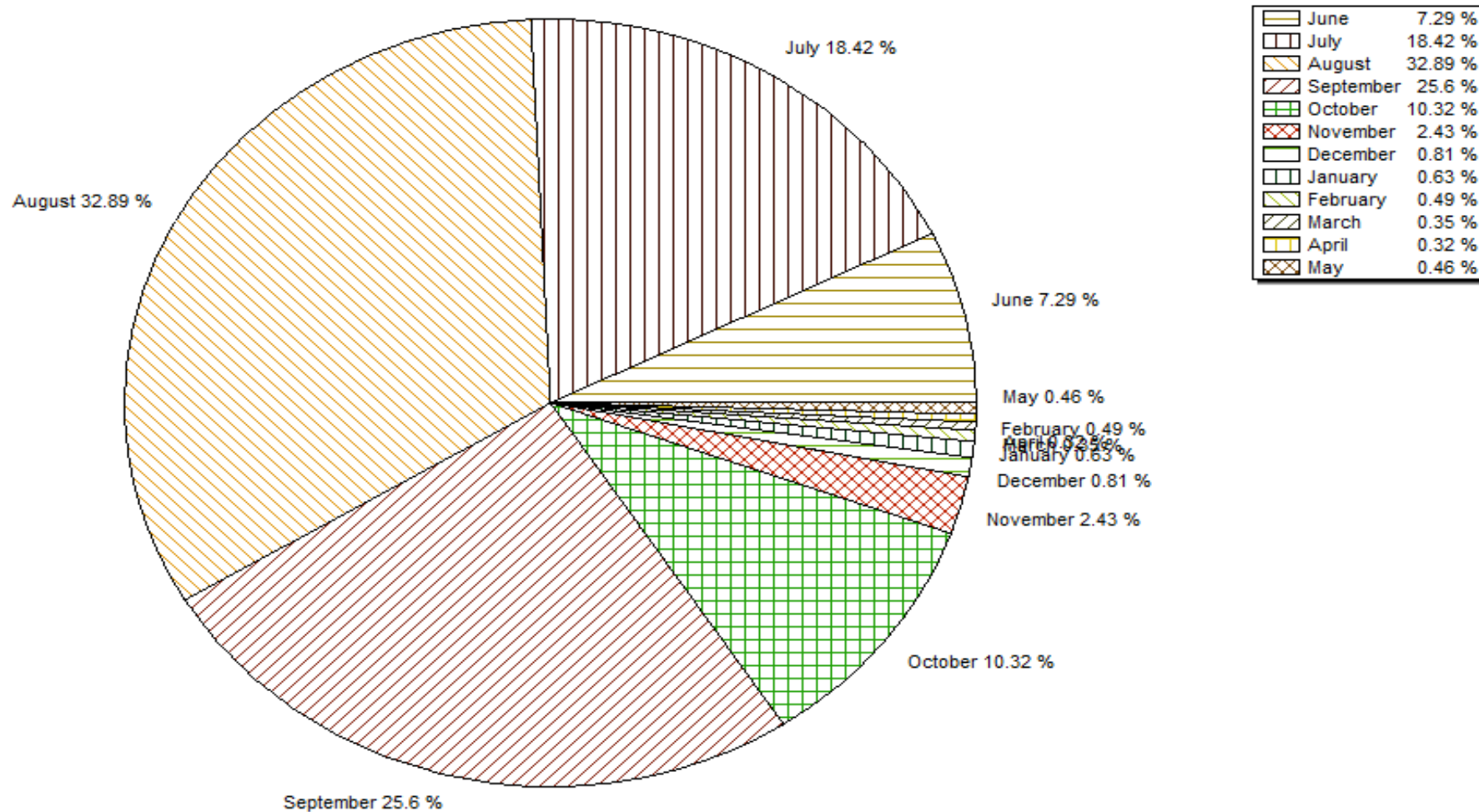
Monthly Average Runoff based on period : 1972-2015

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



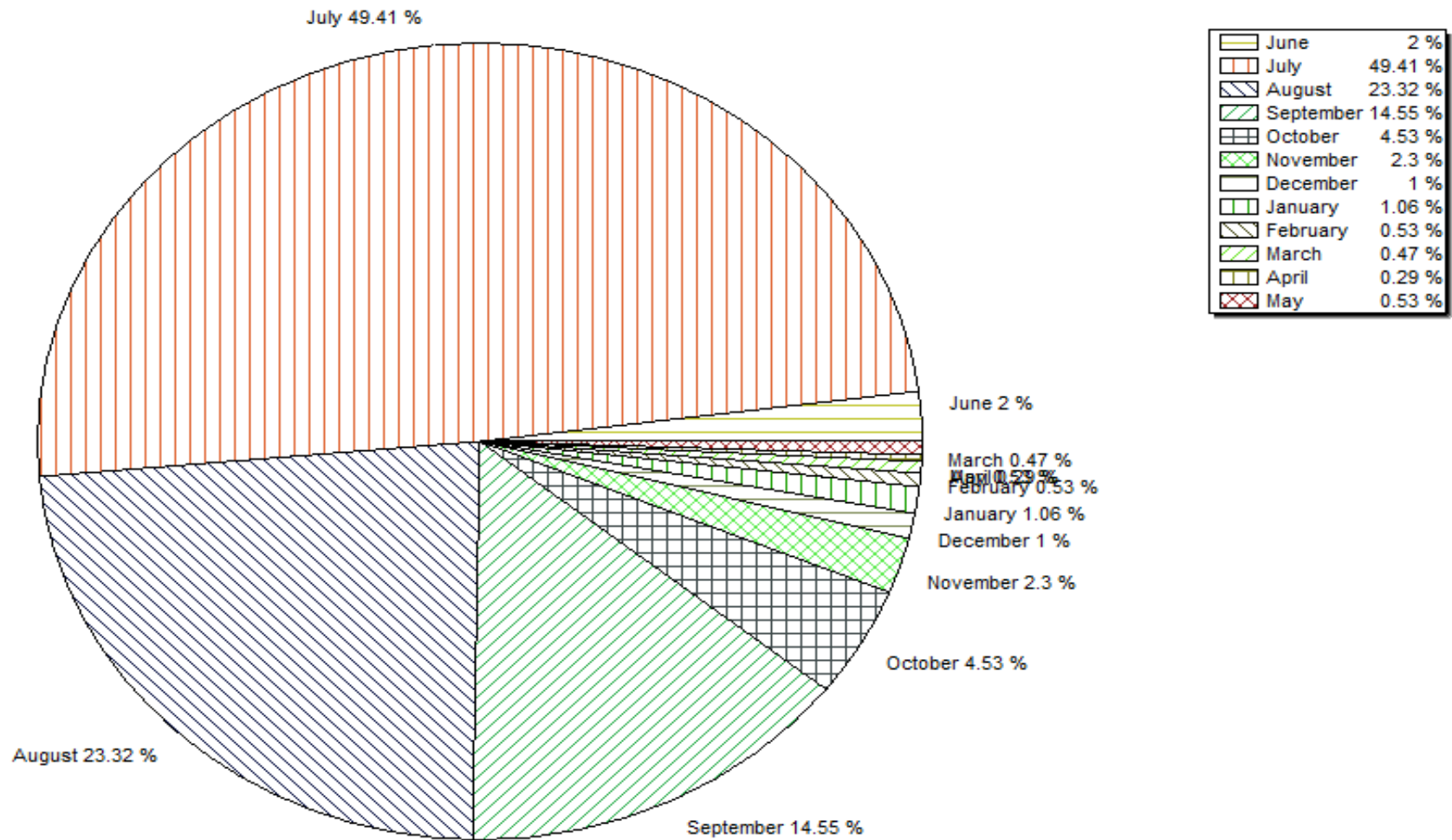
Monthly Runoff for the Year : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



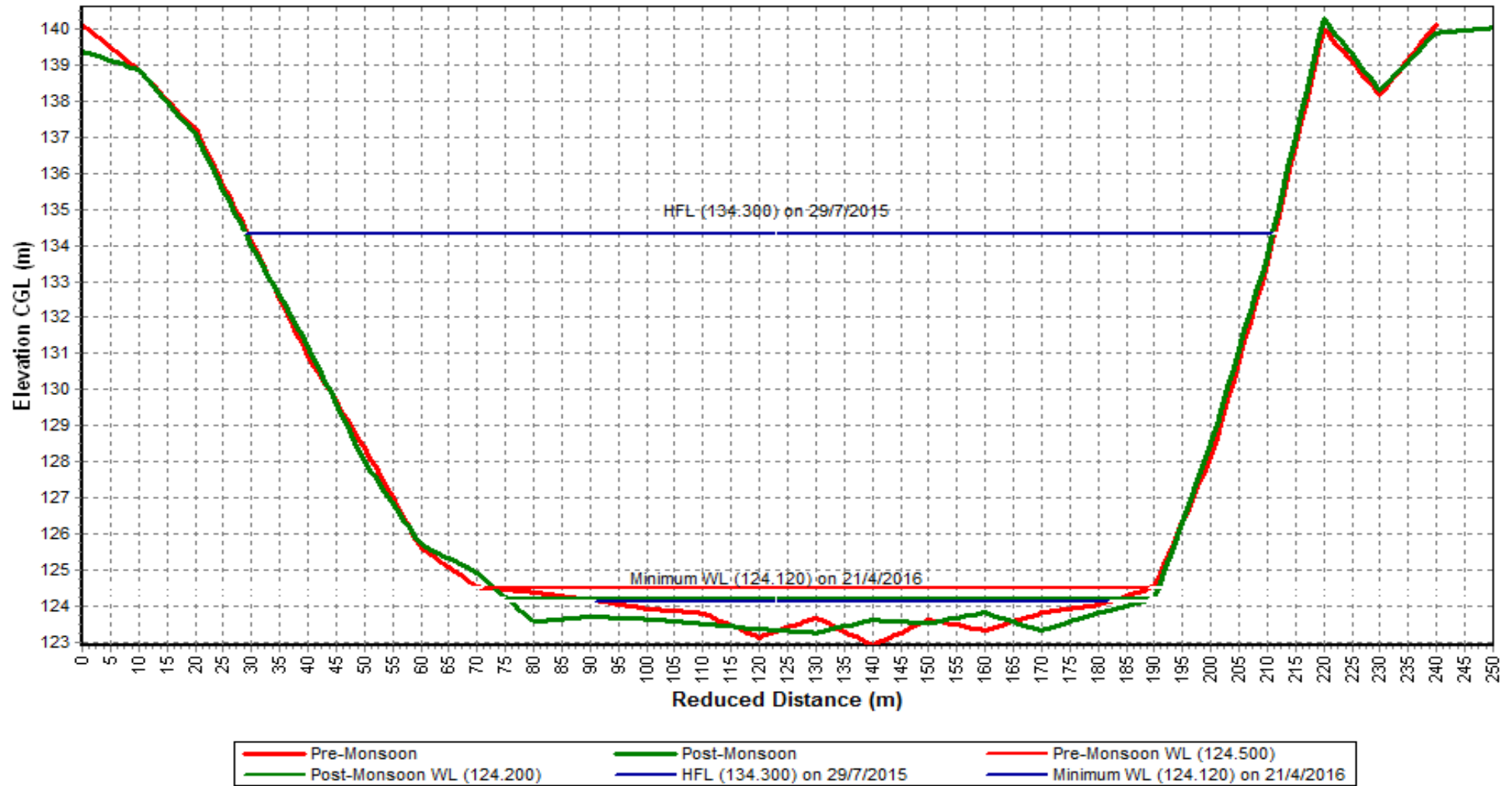
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



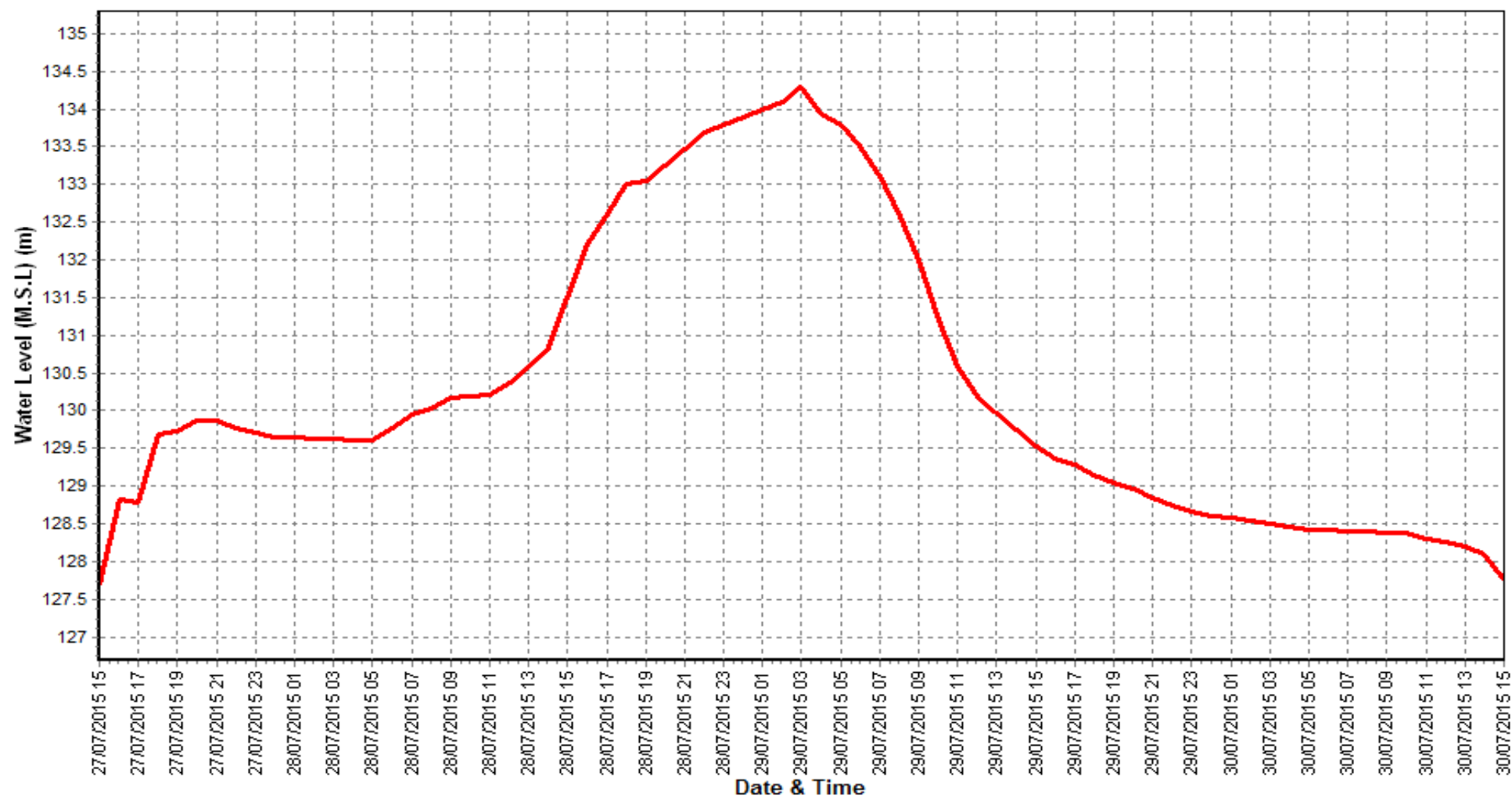
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



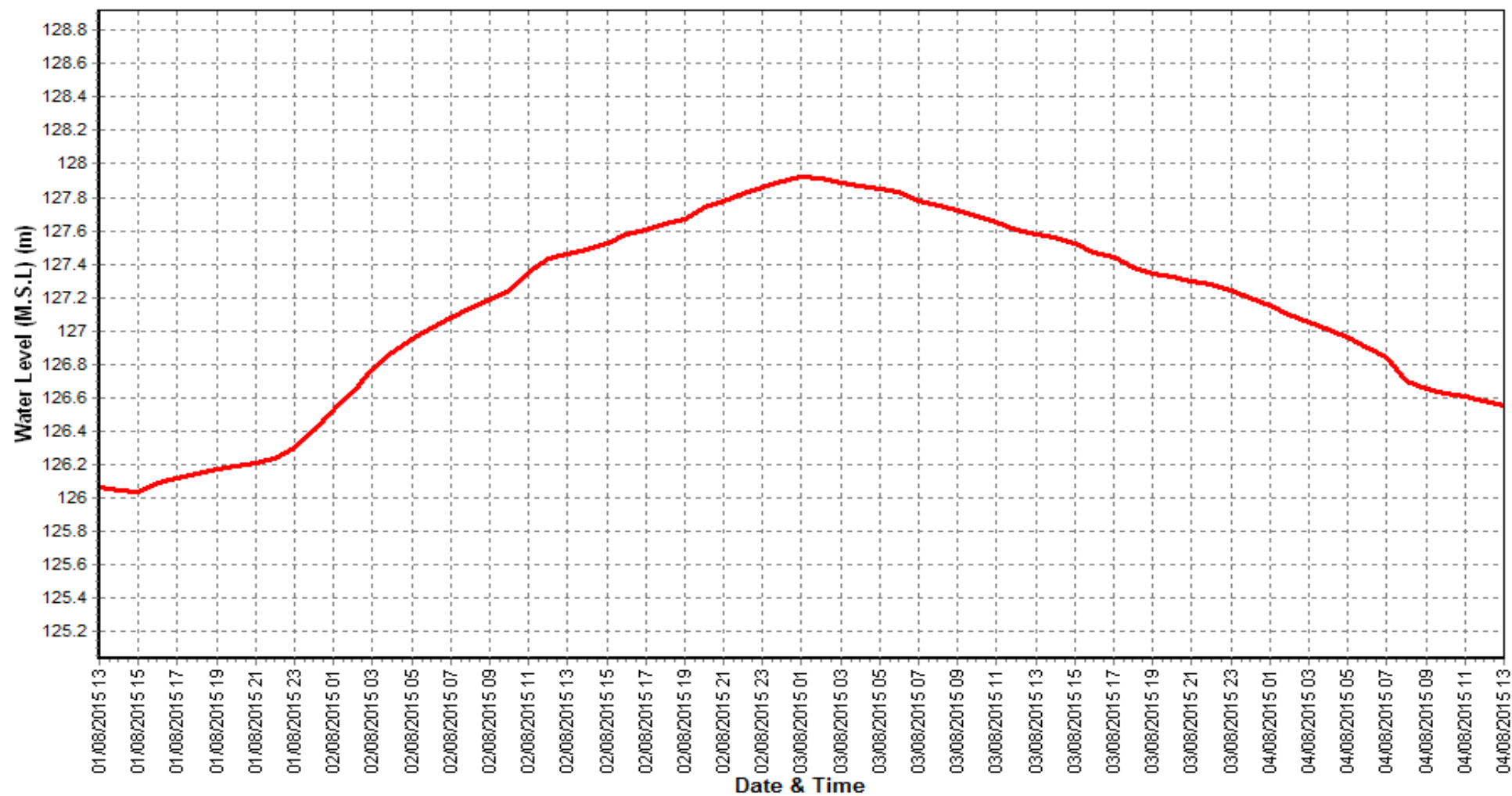
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



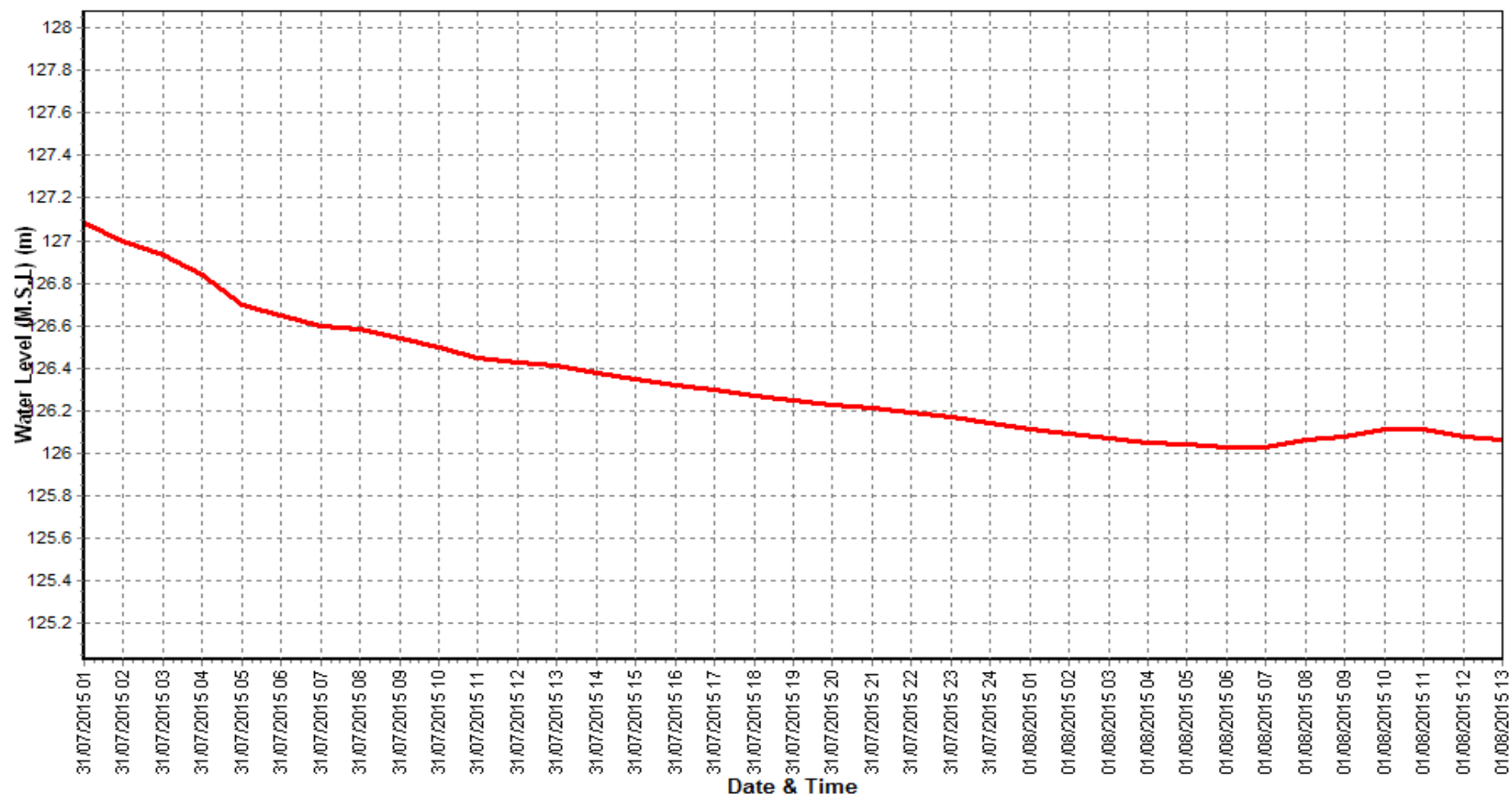
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	5.496	0.000	0.000	0.128	0.128	61	44.25	0.000	0.000	0.056	0.056	214	199.9	0.000	0.000	0.226	0.226	3903
2	5.512	0.000	0.000	0.053	0.053	25	132.0	0.000	0.000	0.113	0.113	1289	400.0	0.000	0.000	0.226	0.226	7811
3	5.497	0.000	0.000	0.171	0.171	81	146.9	0.000	0.000	0.201	0.201	2551	622.6	0.000	0.000	0.224	0.224	12049
4	6.129	0.000	0.000	0.104	0.104	55	68.72	0.000	0.000	0.344	0.344	2043	339.3	0.000	0.000	0.143	0.143	4192
5	6.313	0.000	0.000	0.139	0.139	76	74.00	0.000	0.000	0.344	0.344	2199	217.6	0.000	0.000	0.105	0.105	1974
6	6.201	0.000	0.000	0.102	0.102	55	79.91	0.000	0.000	0.256	0.256	1767	152.2	0.000	0.000	0.114	0.114	1499
7	6.200	0.000	0.000	0.102	0.102	55	210.7	0.000	0.000	0.226	0.226	4115	128.9	0.000	0.000	0.116	0.116	1292
8	5.900	0.000	0.000	0.108	0.108	55	189.5	0.000	0.000	0.223	0.223	3651	79.62	0.000	0.000	0.115	0.115	791
9	5.825	0.000	0.000	0.122	0.122	61	127.9	0.000	0.000	0.110	0.110	1215	68.00	0.000	0.000	0.115	0.115	676
10	6.258	0.000	0.000	0.063	0.063	34	127.4	0.000	0.000	0.288	0.288	3170	70.74	0.000	0.000	0.046	0.046	281
11	6.234	0.000	0.000	0.084	0.084	45	293.7	0.000	0.000	0.268	0.268	6801	66.70	0.000	0.000	0.045	0.045	259
12	5.769	0.000	0.000	0.053	0.053	26	240.0	0.000	0.000	0.268	0.268	5557	64.24	0.000	0.000	0.039	0.039	216
13	5.863	0.000	0.000	0.109	0.109	55	144.9	0.000	0.000	0.108	0.108	1352	56.55	0.000	0.000	0.055	0.055	269
14	6.000	0.000	0.000	0.109	0.109	57	120.3	0.000	0.000	0.143	0.143	1486	67.20	0.000	0.000	0.036	0.036	209
15	6.179	0.000	0.000	0.060	0.060	32	81.86	0.000	0.000	0.135	0.135	955	70.00	0.000	0.000	0.036	0.036	218
16	6.348	0.000	0.000	0.146	0.146	80	69.83	0.000	0.000	0.120	0.120	724	70.00	0.000	0.000	0.036	0.036	218
17	5.691	0.000	0.000	0.081	0.081	40	78.68	0.000	0.000	0.148	0.148	1006	71.61	0.000	0.000	0.036	0.036	223
18	5.480	0.000	0.000	0.075	0.075	36	220.0	0.000	0.000	0.148	0.148	2813	66.06	0.000	0.000	0.045	0.045	257
19	4.127	0.000	0.000	0.125	0.125	45	220.0	0.000	0.000	0.148	0.148	2813	69.85	0.000	0.000	0.029	0.029	175
20	5.755	0.000	0.000	0.118	0.118	59	145.9	0.000	0.000	0.149	0.149	1878	72.90	0.000	0.000	0.025	0.025	157
21	5.800	0.000	0.000	0.118	0.118	59	270.2	0.000	0.000	0.160	0.160	3735	83.78	0.000	0.000	0.046	0.046	333
22	6.269	0.000	0.000	0.136	0.136	74	283.2	0.000	0.000	0.279	0.279	6826	77.30	0.000	0.000	0.088	0.088	588
23	7.381	0.000	0.000	0.043	0.043	27	294.1	0.000	0.000	0.156	0.156	3964	70.00	0.000	0.000	0.088	0.088	532
24	7.719	0.000	0.000	0.068	0.068	45	307.7	0.000	0.000	0.211	0.211	5609	141.5	0.000	0.000	0.100	0.100	1223
25	64.52	0.000	0.000	0.019	0.019	106	188.4	0.000	0.000	0.146	0.146	2376	128.6	0.000	0.000	0.039	0.039	433
26	50.80	0.000	0.000	0.034	0.034	149	200.0	0.000	0.000	0.146	0.146	2523	253.2	0.000	0.000	0.113	0.113	2472
27	39.14	0.000	0.000	0.036	0.036	122	214.6	0.000	0.000	0.214	0.214	3968	267.4	0.000	0.000	0.121	0.121	2796
28	31.00	0.000	0.000	0.036	0.036	96	1792	0.000	0.000	0.653	0.653	101076	212.2	0.000	0.000	0.100	0.100	1833
29	31.58	0.000	0.000	0.063	0.063	172	2030	0.000	0.000	0.536	0.536	94032	118.4	0.000	0.000	0.089	0.089	911
30	31.45	0.000	0.000	0.054	0.054	147	1015	0.000	0.000	0.173	0.173	15174	118.0	0.000	0.000	0.089	0.089	907
31							296.5	0.000	0.000	0.110	0.110	2818	163.0	0.000	0.000	0.074	0.074	1042
Ten Daily Mean																		
Ten Daily I	5.933	0.000	0.000	0.109	0.109	56	120.1	0.000	0.000	0.216	0.216	2221	227.9	0.000	0.000	0.143	0.143	3447
Ten Daily II	5.745	0.000	0.000	0.096	0.096	47	161.5	0.000	0.000	0.164	0.164	2539	67.51	0.000	0.000	0.038	0.038	220
Ten Daily III	27.57	0.000	0.000	0.061	0.061	100	626.5	0.000	0.000	0.253	0.253	22009	148.5	0.000	0.000	0.086	0.086	1188
Monthly																		
Total						2030						289701						49738

Annual Sediment Load (Metric Tonnes) : 376454

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	416.4	0.000	0.000	0.134	0.134	4820	40.50	0.000	0.000	0.053	0.053	185	50.00	0.000	0.000	0.101	0.101	436
2	292.4	0.000	0.000	0.130	0.130	3285	39.00	0.000	0.000	0.053	0.053	179	38.64	0.000	0.000	0.101	0.101	337
3	214.8	0.000	0.000	0.081	0.081	1509	37.75	0.000	0.000	0.070	0.070	228	30.18	0.000	0.000	0.101	0.101	263
4	147.4	0.000	0.000	0.071	0.071	904	37.00	0.000	0.000	0.070	0.070	224	27.81	0.000	0.000	0.101	0.101	243
5	124.7	0.000	0.000	0.065	0.065	701	36.65	0.000	0.000	0.048	0.048	152	20.30	0.000	0.000	0.101	0.101	177
6	100.0	0.000	0.000	0.065	0.065	562	39.37	0.000	0.000	0.034	0.034	116	19.75	0.000	0.000	0.101	0.101	172
7	73.61	0.000	0.000	0.050	0.050	318	37.73	0.000	0.000	0.031	0.031	101	19.48	0.000	0.000	0.074	0.074	125
8	57.97	0.000	0.000	0.036	0.036	180	39.17	0.000	0.000	0.033	0.033	112	18.00	0.000	0.000	0.074	0.074	115
9	54.03	0.000	0.000	0.025	0.025	117	47.89	0.000	0.000	0.110	0.110	455	18.23	0.000	0.000	0.074	0.074	117
10	51.15	0.000	0.000	0.031	0.031	137	45.86	0.000	0.000	0.075	0.075	297	17.78	0.000	0.000	0.074	0.074	114
11	70.27	0.000	0.000	0.050	0.050	304	42.00	0.000	0.000	0.075	0.075	272	15.00	0.000	0.000	0.074	0.074	96
12	53.91	0.000	0.000	0.043	0.043	200	38.70	0.000	0.000	0.060	0.060	201	11.67	0.000	0.000	0.074	0.074	75
13	50.00	0.000	0.000	0.043	0.043	186	28.73	0.000	0.000	0.061	0.061	151	11.39	0.000	0.000	0.074	0.074	73
14	46.06	0.000	0.000	0.033	0.033	131	29.50	0.000	0.000	0.045	0.045	115	11.23	0.000	0.000	0.122	0.122	118
15	45.78	0.000	0.000	0.023	0.023	91	27.79	0.000	0.000	0.059	0.059	142	10.00	0.000	0.000	0.122	0.122	105
16	50.88	0.000	0.000	0.033	0.033	145	26.26	0.000	0.000	0.049	0.049	111	11.05	0.000	0.000	0.122	0.122	116
17	64.00	0.000	0.000	0.033	0.033	182	25.16	0.000	0.000	0.039	0.039	85	10.82	0.000	0.000	0.122	0.122	114
18	118.0	0.000	0.000	0.024	0.024	245	22.00	0.000	0.000	0.039	0.039	74	10.54	0.000	0.000	0.122	0.122	111
19	79.83	0.000	0.000	0.021	0.021	145	20.10	0.000	0.000	0.038	0.038	66	10.34	0.000	0.000	0.122	0.122	109
20	56.00	0.000	0.000	0.021	0.021	102	19.58	0.000	0.000	0.050	0.050	85	10.33	0.000	0.000	0.122	0.122	109
21	58.27	0.000	0.000	0.028	0.028	141	18.00	0.000	0.000	0.050	0.050	78	10.17	0.000	0.000	0.084	0.084	74
22	127.9	0.000	0.000	0.053	0.053	586	18.00	0.000	0.000	0.050	0.050	78	7.700	0.000	0.000	0.084	0.084	56
23	126.4	0.000	0.000	0.133	0.133	1453	17.40	0.000	0.000	0.071	0.071	107	7.775	0.000	0.000	0.084	0.084	56
24	79.56	0.000	0.000	0.098	0.098	674	17.00	0.000	0.000	0.071	0.071	104	7.621	0.000	0.000	0.084	0.084	55
25	56.00	0.000	0.000	0.098	0.098	474	17.00	0.000	0.000	0.071	0.071	104	7.200	0.000	0.000	0.084	0.084	52
26	57.16	0.000	0.000	0.110	0.110	543	16.99	0.000	0.000	0.113	0.113	166	7.284	0.000	0.000	0.084	0.084	53
27	54.00	0.000	0.000	0.110	0.110	513	17.10	0.000	0.000	0.150	0.150	222	7.293	0.000	0.000	0.084	0.084	53
28	48.83	0.000	0.000	0.076	0.076	321	16.95	0.000	0.000	0.038	0.038	56	7.198	0.000	0.000	0.102	0.102	63
29	43.10	0.000	0.000	0.073	0.073	272	16.94	0.000	0.000	0.125	0.125	183	6.500	0.000	0.000	0.102	0.102	57
30	41.98	0.000	0.000	0.053	0.053	192	20.36	0.000	0.000	0.121	0.121	213	6.546	0.000	0.000	0.102	0.102	58
31							29.99	0.000	0.000	0.069	0.069	179						
Ten Daily Mean																		
Ten Daily I	153.2	0.000	0.000	0.069	0.069	1253	40.09	0.000	0.000	0.058	0.058	205	26.02	0.000	0.000	0.090	0.090	210
Ten Daily II	63.47	0.000	0.000	0.032	0.032	173	27.98	0.000	0.000	0.052	0.052	130	11.24	0.000	0.000	0.108	0.108	103
Ten Daily III	69.32	0.000	0.000	0.083	0.083	517	18.70	0.000	0.000	0.084	0.084	135	7.529	0.000	0.000	0.089	0.089	58
Monthly																		
Total						19431						4839						3703

Annual Sediment Load (Metric Tonnes) : 376454

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	6.492	0.000	0.000	0.107	0.107	60	7.442						5.144	0.000	0.000	0.317	0.317	141
2	6.463	0.000	0.000	0.107	0.107	60	7.420						5.058	0.000	0.000	0.317	0.317	139
3	6.481	0.000	0.000	0.107	0.107	60	7.400						4.877	0.000	0.000	0.317	0.317	134
4	6.404	0.000	0.000	0.107	0.107	59	7.404			0.052			4.865	0.000	0.000	0.317	0.317	133
5	6.416	0.000	0.000	0.107	0.107	59	7.062						4.867	0.000	0.000	0.317	0.317	133
6	6.400	0.000	0.000	0.107	0.107	59	6.899						4.854	0.000	0.000	0.138	0.138	58
7	6.512	0.000	0.000	0.107	0.107	60	7.890						4.800	0.000	0.000	0.138	0.138	57
8	6.268	0.000	0.000	0.107	0.107	58	7.461						3.696	0.000	0.000	0.138	0.138	44
9	6.381	0.000	0.000	0.107	0.107	59	7.442						3.692	0.000	0.000	0.138	0.138	44
10	6.369	0.000	0.000	0.107	0.107	59	7.000						3.668	0.000	0.000	0.138	0.138	44
11	6.264	0.000	0.000	0.121	0.121	65	6.934			0.194			3.661	0.000	0.000	0.138	0.138	44
12	6.136	0.000	0.000	0.121	0.121	64	6.856						3.673	0.000	0.000	0.176	0.176	56
13	6.100	0.000	0.000	0.121	0.121	64	6.855						3.659	0.000	0.000	0.176	0.176	56
14	5.777	0.000	0.000	0.121	0.121	60	6.760						3.600	0.000	0.000	0.176	0.176	55
15	5.723	0.000	0.000	0.121	0.121	60	6.781						3.808	0.000	0.000	0.176	0.176	58
16	5.746	0.000	0.000	0.121	0.121	60	6.788						3.616	0.000	0.000	0.176	0.176	55
17	5.516	0.000	0.000	0.121	0.121	58	6.700						2.790	0.000	0.000	0.176	0.176	42
18	6.390	0.000	0.000	0.076	0.076	42	6.913			0.219			2.500	0.000	0.000	0.176	0.176	38
19	6.336	0.000	0.000	0.076	0.076	42	6.889						2.483	0.000	0.000	0.066	0.066	14
20	6.300	0.000	0.000	0.076	0.076	41	7.532						2.477	0.000	0.000	0.066	0.066	14
21	5.817	0.000	0.000	0.076	0.076	38	7.095						2.400	0.000	0.000	0.066	0.066	14
22	5.804	0.000	0.000	0.076	0.076	38	6.862						2.445	0.000	0.000	0.066	0.066	14
23	6.108	0.000	0.000	0.076	0.076	40	6.799						2.076	0.000	0.000	0.066	0.066	12
24	6.100						6.700						2.112	0.000	0.000	0.066	0.066	12
25	6.400	0.000	0.000	0.076	0.076	42	6.456			0.242			2.790	0.000	0.000	0.066	0.066	16
26	6.418	0.000	0.000	0.110	0.110	61	6.300						2.754	0.000	0.000	0.132	0.132	31
27	6.400	0.000	0.000	0.110	0.110	61	6.383						2.454	0.000	0.000	0.132	0.132	28
28	6.074	0.000	0.000	0.110	0.110	58	6.039						2.400	0.000	0.000	0.132	0.132	27
29	6.071	0.000	0.000	0.110	0.110	58	6.002						2.614	0.000	0.000	0.132	0.132	30
30	6.075	0.000	0.000	0.110	0.110	58	5.951											
31	6.188	0.000	0.000	0.110	0.110	59	5.300											
Ten Daily Mean																		
Ten Daily I	6.418	0.000	0.000	0.107	0.107	59	7.342			0.052			4.552	0.000	0.000	0.228	0.228	93
Ten Daily II	6.029	0.000	0.000	0.108	0.108	56	6.901			0.207			3.227	0.000	0.000	0.150	0.150	43
Ten Daily III	6.132	0.000	0.000	0.096	0.096	51	6.353			0.242			2.449	0.000	0.000	0.095	0.095	20
Monthly																		
Total						1662												1542

Annual Sediment Load (Metric Tonnes) : 376454

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	4.596	0.000	0.000	0.120	0.120	48	1.914	0.000	0.000	0.279	0.279	46		0.000	0.000	0.232	0.232	
2	4.596	0.000	0.000	0.120	0.120	48	1.926	0.000	0.000	0.279	0.279	46	1.945	0.000	0.000	0.232	0.232	39
3	3.989	0.000	0.000	0.120	0.120	41	1.900	0.000	0.000	0.279	0.279	46	1.946	0.000	0.000	0.232	0.232	39
4	2.948	0.000	0.000	0.120	0.120	31	1.923	0.000	0.000	0.279	0.279	46	4.561	0.000	0.000	0.232	0.232	91
5	2.921	0.000	0.000	0.120	0.120	30	2.143	0.000	0.000	0.279	0.279	52	5.042	0.000	0.000	0.232	0.232	101
6	2.900	0.000	0.000	0.120	0.120	30	2.023	0.000	0.000	0.279	0.279	49	4.559	0.000	0.000	0.232	0.232	91
7	2.900	0.000	0.000	0.120	0.120	30	1.912	0.000	0.000	0.279	0.279	46	2.817	0.000	0.000	0.176	0.176	43
8	2.556	0.000	0.000	0.120	0.120	27	1.920	0.000	0.000	0.260	0.260	43		0.000	0.000	0.176	0.176	
9	2.548	0.000	0.000	0.120	0.120	26	1.984	0.000	0.000	0.260	0.260	45	2.419	0.000	0.000	0.176	0.176	37
10	2.535	0.000	0.000	0.120	0.120	26	1.900	0.000	0.000	0.260	0.260	43	1.950	0.000	0.000	0.176	0.176	30
11	3.931	0.000	0.000	0.104	0.104	35	1.846	0.000	0.000	0.260	0.260	41	5.966	0.000	0.000	0.176	0.176	91
12	3.873	0.000	0.000	0.104	0.104	35	1.860	0.000	0.000	0.260	0.260	42	3.804	0.000	0.000	0.176	0.176	58
13	3.850	0.000	0.000	0.104	0.104	35	1.876	0.000	0.000	0.260	0.260	42	2.379	0.000	0.000	0.176	0.176	36
14	3.843	0.000	0.000	0.104	0.104	35	1.880	0.000	0.000	0.260	0.260	42	1.945	0.000	0.000	0.290	0.290	49
15	2.915	0.000	0.000	0.104	0.104	26	2.014	0.000	0.000	0.284	0.284	49		0.000	0.000	0.290	0.290	
16	2.907	0.000	0.000	0.104	0.104	26	1.864	0.000	0.000	0.284	0.284	46	1.933	0.000	0.000	0.290	0.290	48
17	2.562	0.000	0.000	0.104	0.104	23	1.850	0.000	0.000	0.284	0.284	45	3.798	0.000	0.000	0.290	0.290	95
18	2.564	0.000	0.000	0.133	0.133	29	1.856	0.000	0.000	0.284	0.284	46	5.028	0.000	0.000	0.290	0.290	126
19	2.552	0.000	0.000	0.133	0.133	29	1.859	0.000	0.000	0.284	0.284	46	4.526	0.000	0.000	0.290	0.290	113
20	2.500	0.000	0.000	0.133	0.133	29	1.850	0.000	0.000	0.284	0.284	45	2.827	0.000	0.000	0.290	0.290	71
21	2.500	0.000	0.000	0.133	0.133	29	1.860	0.000	0.000	0.284	0.284	46		0.000	0.000	0.086	0.086	
22	2.080	0.000	0.000	0.133	0.133	24	1.906	0.000	0.000	0.284	0.284	47		0.000	0.000	0.086	0.086	
23	2.067	0.000	0.000	0.133	0.133	24	2.503	0.000	0.000	0.284	0.284	61	1.959	0.000	0.000	0.086	0.086	15
24	2.000	0.000	0.000	0.133	0.133	23	2.500	0.000	0.000	0.284	0.284	61	1.966	0.000	0.000	0.086	0.086	15
25	2.000	0.000	0.000	0.133	0.133	23	1.921	0.000	0.000	0.182	0.182	30	5.464	0.000	0.000	0.086	0.086	41
26	2.046	0.000	0.000	0.159	0.159	28	1.913	0.000	0.000	0.182	0.182	30	5.035	0.000	0.000	0.086	0.086	37
27	2.000	0.000	0.000	0.159	0.159	27	1.914	0.000	0.000	0.182	0.182	30	4.526	0.000	0.000	0.086	0.086	34
28	2.042	0.000	0.000	0.159	0.159	28	1.914	0.000	0.000	0.182	0.182	30	8.295	0.000	0.000	0.142	0.142	102
29	2.048	0.000	0.000	0.159	0.159	28	1.882	0.000	0.000	0.182	0.182	30		0.000	0.000	0.142	0.142	
30	2.039	0.000	0.000	0.159	0.159	28	1.873	0.000	0.000	0.182	0.182	29	7.412	0.000	0.000	0.142	0.142	91
31	2.039	0.000	0.000	0.159	0.159	28							7.114	0.000	0.000	0.142	0.142	87
Ten Daily Mean																		
Ten Daily I	3.249	0.000	0.000	0.120	0.120	34	1.954	0.000	0.000	0.273	0.273	46	3.155	0.000	0.000	0.210	0.210	59
Ten Daily II	3.150	0.000	0.000	0.113	0.113	30	1.876	0.000	0.000	0.274	0.274	44	3.578	0.000	0.000	0.256	0.256	76
Ten Daily III	2.078	0.000	0.000	0.147	0.147	26	2.019	0.000	0.000	0.223	0.223	39	5.222	0.000	0.000	0.106	0.106	53
Monthly																		
Total						929						1301						1579

Annual Sediment Load (Metric Tonnes) : 376454

Annual Sediment Load for period : 1975-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1975-1976	1151131	1494	1152626	3336
1976-1977	1256133	823	1256956	1883
1977-1978	4835077	6078	4841155	4409
1978-1979	288002	340	288342	828
1979-1980	524423	3776	528199	627
1980-1981	928082	45479	973560	1674
1981-1982	2043532	23682	2067214	2065
1982-1983	606944	5103	612047	1492
1983-1984	2014081	3792	2017872	2522
1984-1985	4573074	681	4573755	4779
1985-1986	2756086	13046	2769133	3988
1986-1987	864289	10743	875032	1944
1987-1988	1122440	2354	1124794	2108
1988-1989	737224	22272	759495	2117
1989-1990	1831524	12668	1844192	2740
1990-1991	1543769	5419	1549187	4804
1991-1992	438272	1940	440211	2107
1992-1993	222561	1742	224302	1351
1993-1994	765125	2578	767703	2754
1994-1995	3535876	43063	3578939	6253
1995-1996	873616	1403	875019	3716
1996-1997	614582	139	614722	2974
1997-1998	1805168	18218	1823387	4859
1998-1999	301871	813	302684	1587
1999-2000	1745055	1979	1747034	4391
2000-2001	190605	406	191011	1453
2001-2002	944168	956	945124	3814
2002-2003	433997	2854	436851	1878
2003-2004	232565	1772	234337	1597
2004-2005	732934	2823	735757	2065
2005-2006	345089	4394	349484	1201
2006-2007	2151212	1839	2153051	3804
2007-2008	1527750	1819	1529569	4575
2008-2009	1203124	1399	1204523	3474
2009-2010	1054676	582	1055257	2231
2010-2011	12288	523	12811	234
2011-2012	43578	366	43944	3211
2012-2013	33992	827	34820	2149
2013-2014	809099	13496	822595	4908
2014-2015	772606	7117	779724	2935
2015-2016	369441	7013	376454	1696

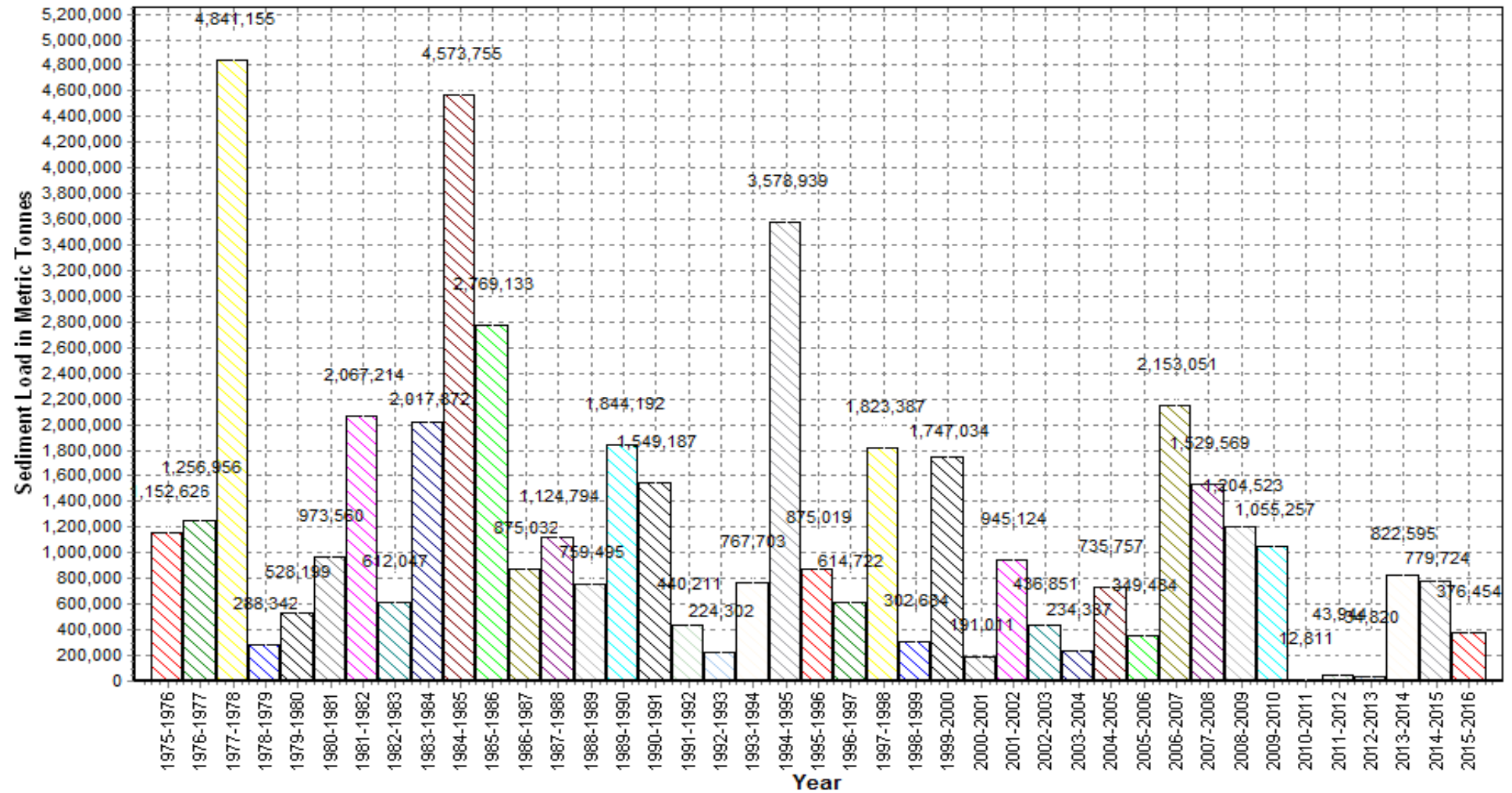
Annual Sediment Load for the period: 1975-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore



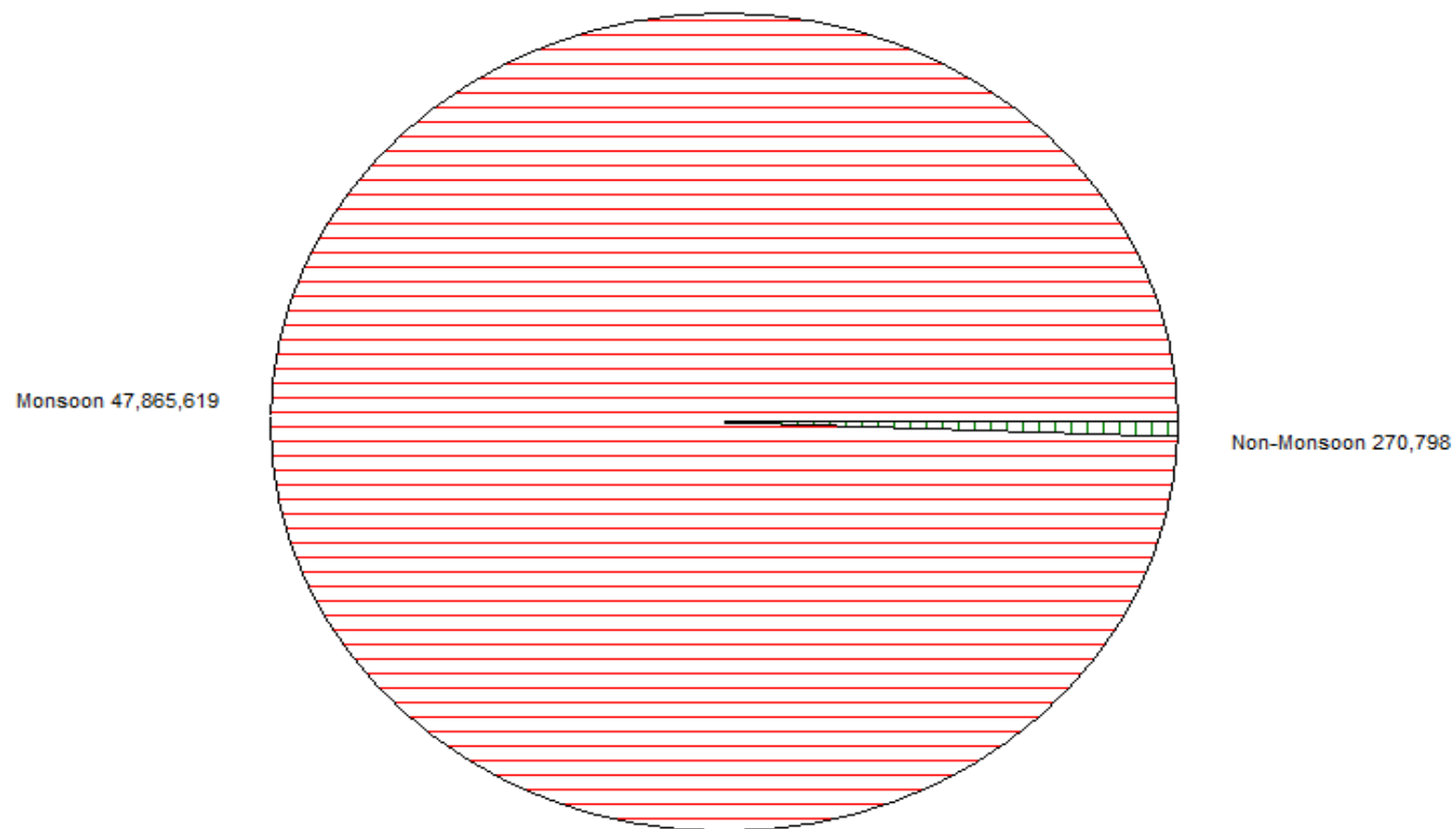
Seasonal Sediment Load for the period : 1975-2015

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

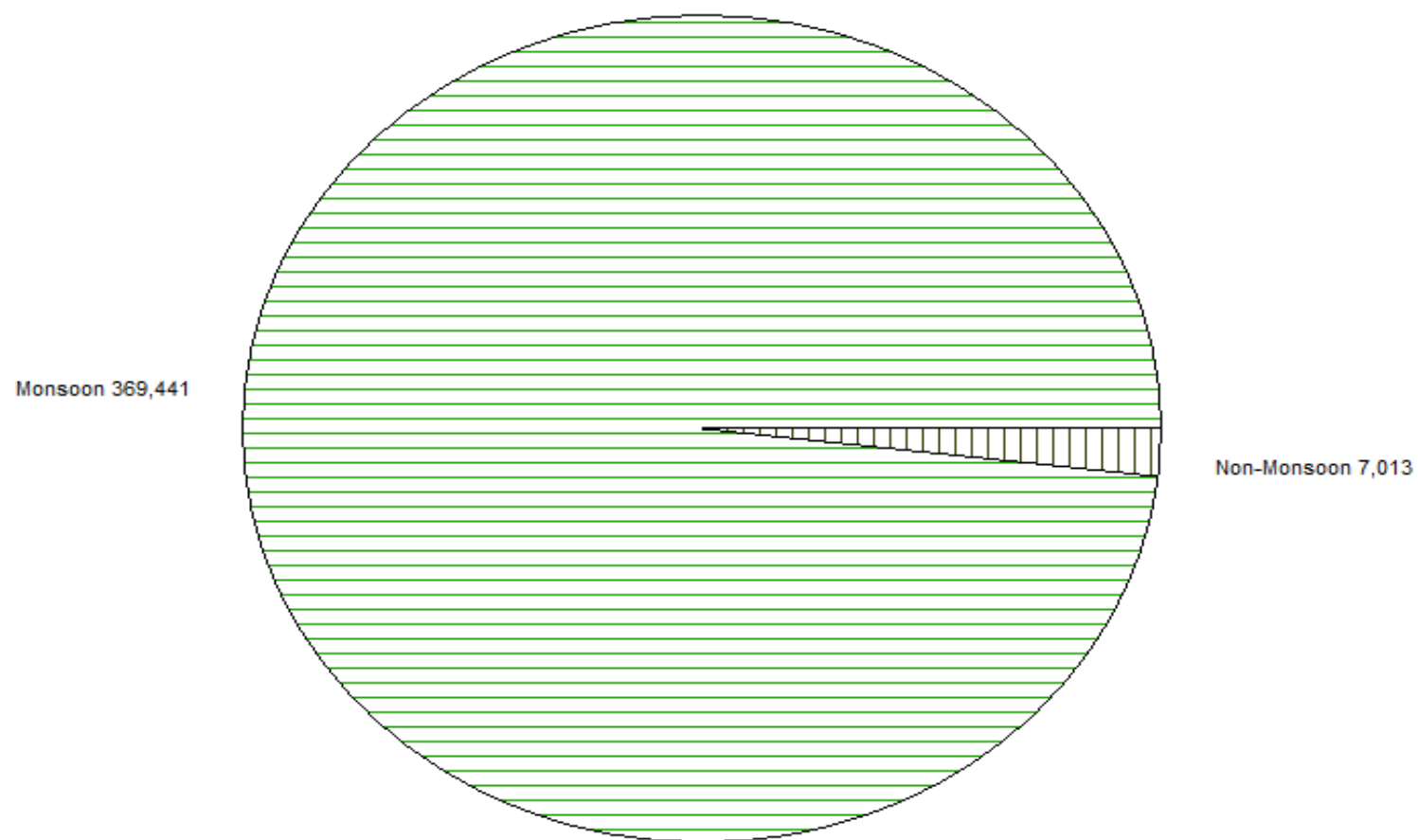
Sub-Division : Balasore



Seasonal Sediment Load for the Year: 2015-2016

Station Name : ADITYAPUR (ESB00D5)
Local River : Kharkhai

Division : E.E., Bhubaneswar
Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	866	341	185	521	636	638	918	1038	1243	1646	924	421
4	EC_GEN (µmho/cm)	879	346	173	513	624	618	922	1042	1245	1650	921	417
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	7.4	7.7	7.5	7.8	7.8	7.3	7.5	7.8	7.7	7.5	8.2
7	pH_GEN (pH units)	7.7	7.6	7.3	7.4	7.7	7.7	7.2	7.6	7.9	7.8	7.1	8.6
8	Temp (deg C)	31.0	31.0	29.0	30.0	31.0	26.5	24.0	18.0	18.0	24.5	27.0	29.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4
2	ALK-TOT (mgCaCO3/L)	92	88	106	83	69	83	83	106	79	180	74	356
3	B (mg/L)	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	38	35	34	32	30	29	30	32	32	114	37	48
5	Cl (mg/L)	62.2	18.9	11.3	9.4	13.2	15.1	13.2	15.1	17.0	84.9	86.8	116.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.6	0.2	0.5	0.5	0.3	0.4	0.5	0.4	0.4	0.4	0.6	0.4
9	HCO3 (mg/L)	113	107	130	101	85	101	101	130	96	220	90	389
10	K (mg/L)	2.2	2.9	1.4	1.3	2.7	2.8	1.8	1.9	3.2	1.5	20.8	22.0
11	Mg (mg/L)	8.8	7.8	8.8	6.8	6.8	7.8	7.8	7.8	8.8	45.7	12.6	46.7
12	Na (mg/L)	21.8	11.1	5.9	5.6	20.5	20.0	16.8	13.6	15.9	16.1	116.3	118.0
13	NO2+NO3 (mg N/L)	0.94	0.99	0.85	0.97	0.92	1.12	0.98	0.73	1.05	0.80	0.90	0.91
14	NO2-N (mgN/L)	0.03	0.01	0.01	0.01	0.01	0.00	0.03	0.00	0.00	0.01	0.00	0.00
15	NO3-N (mgN/L)	0.91	0.98	0.84	0.95	0.91	1.12	0.95	0.73	1.05	0.78	0.90	0.91
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0	6.0
18	SO4 (mg/L)	19.1	3.4	3.4	3.1	11.2	3.6	13.6	12.3	14.0	12.9	14.7	19.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	60.0	0.6	1.2	1.0	0.6	0.8	0.8	0.8	1.4	119.0	0.4	0.6
2	DO (mg/L)	0.6	4.2	7.2	5.8	7.0	7.0	2.0	4.8	8.9	1.2	6.2	6.4
3	DO_SAT% (%)	8	56	93	76	94	86	24	50	94	14	77	83
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	96	88	84	80	76	72	76	80	80	285	92	120
2	HAR_Total (mgCaCO3/L)	133	121	121	108	104	105	109	113	117	475	145	315
3	Na% (%)	26	16	10	10	29	29	25	21	22	7	60	43
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
5	SAR (-)	0.8	0.4	0.2	0.2	0.9	0.9	0.7	0.6	0.6	0.3	4.2	2.9
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : ADITYAPUR (ESB00D5)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1646	185	781
3	EC_GEN (µmho/cm)	12	1650	173	779
4	pH_FLD (pH units)	12	8.2	7.3	7.6
5	pH_GEN (pH units)	12	8.6	7.1	7.6
6	Temp (deg C)	12	31.0	18.0	26.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	18.4	0.0	1.5
2	ALK-TOT (mgCaCO3/L)	12	356	69	117
3	B (mg/L)	12	0.02	0.01	0.01
4	Ca (mg/L)	12	114	29	41
5	Cl (mg/L)	12	116.9	9.4	38.7
6	CO3 (mg/L)	12	22.2	0.0	1.8
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.2	0.4
9	HCO3 (mg/L)	12	389	85	139
10	K (mg/L)	12	22.0	1.3	5.4
11	Mg (mg/L)	12	46.7	6.8	14.7
12	Na (mg/L)	12	118.0	5.6	31.8
13	NO2+NO3 (mg N/L)	12	1.12	0.73	0.93
14	NO2-N (mgN/L)	12	0.03	0.00	0.01
15	NO3-N (mgN/L)	12	1.12	0.73	0.92
16	P-Tot (mgP/L)	12	0.010	0.001	0.007
17	SiO2 (mg/L)	12	6.0	5.0	5.7
18	SO4 (mg/L)	12	19.2	3.1	10.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	119.0	0.4	15.6
2	DO (mg/L)	12	8.9	0.6	5.1
3	DO_SAT% (%)	12	94	8	63
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	285	72	103
2	HAR_Total (mgCaCO3/L)	12	475	104	164
3	Na% (%)	12	60	7	25
4	RSC (-)	12	0.9	0.0	0.1
5	SAR (-)	12	4.2	0.2	1.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : ADITYAPUR (ESB00D5)
Local River : Kharkhai

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Flood Jun - Oct																				
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	189	267	274	270	224	199	233		243	302	266	324	160	257	510	250	268	240	253	272	288
3	EC_GEN (µmho/cm)	189	267	274	270	219	195	227		243	302	266	324	160	257	507	250	268	240	253	268	290
4	pH_FLD (pH units)	7.7	7.7	7.7	7.9	7.9	8.0	7.9		7.9	8.0	8.3	7.8	7.6	8.0	7.6	7.9	7.9	7.7	8.2	8.1	8.0
5	pH_GEN (pH units)	7.7	7.7	7.7	7.9	7.9	8.1	8.0		7.9	8.0	8.3	7.8	7.6	8.0	7.5	8.0	7.9	7.7	8.2	8.2	8.1
6	Temp (deg C)	28.9	28.8	28.6	28.9	28.6	28.4	28.1		27.5	29.3	28.0	30.4	24.5	30.5	30.4	19.9	21.6	20.0	17.5	17.8	18.3
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)							0.0		2.4	0.8	11.0		0.0	0.0	0.0						
2	ALK-TOT (mgCaCO3/L)							69		64	90	101		79	74	88						
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	20	29	30	26	26	22	23		23	29	21	27	21	21	34	24	30	26	25	28	33
5	Cl (mg/L)	14.8	22.2	17.4	24.8	18.6	15.7	17.9		18.3	24.5	21.5	25.6	23.8	21.5	23.0	23.8	16.1	19.1	15.7	23.5	25.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		2.9	1.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.02	0.13	0.20	0.60	0.00	0.00	0.19		0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.05	0.00	0.52	0.00	0.00
8	Fe (mg/L)	0.2			0.1	0.1	0.2	0.1		0.2	0.1	0.0	1.3	0.1	0.4	0.4	0.1			0.1	0.2	0.2
9	HCO3 (mg/L)	86	102	112	113	85	86	84		72	108	96	99	88	96	107	101	123	101	122	113	110
10	K (mg/L)	1.4	3.0	1.9	4.6	2.2	1.7	2.0		1.9	3.7	1.7	2.9	1.7	1.7	2.1	2.5	3.5	2.1	1.4	2.6	1.9
11	Mg (mg/L)	5.2	8.2	8.2	7.8	5.9	5.1	6.6		8.7	9.7	7.8	8.4	23.9	7.8	7.8	6.3	7.3	4.9	9.5	5.8	5.4
12	Na (mg/L)	10.5	13.9	12.1	16.7	11.6	10.6	12.5		10.5	15.3	12.9	14.3	13.1	12.9	13.0	16.2	12.1	14.2	10.3	16.0	18.0
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	0.47	1.95	1.00	0.63	2.49	0.95	2.44		1.14	0.69	0.40	0.76	0.83	1.17	0.94	0.87	2.18	0.56	0.59	1.03	3.87
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.07	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.47	1.95	1.00	0.63	2.49	0.95	2.44		1.14	0.69	0.33	0.76	0.82	1.15	0.92	0.87	2.18	0.56	0.59	1.03	3.87
17	o-PO4-P (mg P/L)	0.000				0.000	0.000	0.000		0.020											0.000	0.013
18	P-Tot (mgP/L)	0.001	0.001	0.001	0.041	0.001	0.001	0.001		0.003	0.002	0.010	0.001	0.001	0.001	0.003	0.036	0.001	0.001	0.001	0.001	0.014
19	SiO2 (mg/L)	8.6	14.6	15.8	30.1	28.3	10.2	10.5		9.0	7.6	9.0	11.6	9.5	6.8	5.6	13.9	15.1	12.9	31.9	21.8	14.6
20	SO4 (mg/L)	2.1	9.1	13.8	6.2	10.6	3.2	9.9		18.2	19.0	12.7	22.7	28.1	38.9	8.0	2.5	4.6	1.7	3.2	1.5	3.1
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	0.7	1.5	1.0	1.1	1.2	1.0	1.3		1.5	1.9	2.1	8.7	0.7	0.6	12.7	1.3	1.3	1.7	1.4	1.3	1.5
2	DO (mg/L)	5.6	6.1	5.6	5.5	6.7	6.6	6.6		6.2	5.6	6.2	5.3	6.7	5.5	4.9	7.9	7.4	8.2	8.2	7.8	8.0
3	DO_SAT% (%)	73	80	72	71	86	85	85		79	73	79	70	79	73	65	87	84	90	86	81	84
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	51	72	74	64	64	55	58		57	71	52	67	53	52	85	59	75	64	63	70	82
2	HAR_Total (mgCaCO3/L)	77	106	108	93	89	76	86		93	112	84	101	152	84	117	83	105	84	111	94	105
3	Na% (%)	23	25	21	24	23	22	24		19	22	22	19	24	22	18	29	19	26	18	26	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.4	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0
5	SAR (-)	0.5	0.6	0.5	0.7	0.5	0.5	0.6		0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.8	0.5	0.7	0.4	0.7	0.8
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

Station Name : ADITYAPUR (ESB00D5)
Local River : Kharkhai

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	302		368	623	308	328	272	440	959	367	503	357	343	483	358	390		943	1723	623	740
3	EC_GEN (µmho/cm)	298		368	623	308	328	272	440	957	367	503	357	347	480	357	403		943	1723	623	740
4	pH_FLD (pH units)	8.4		7.9	7.6	8.0	7.5	8.1	8.3	7.6	8.0	7.9	7.7	7.5	7.6	8.1	8.2		7.8	8.4	7.5	7.3
5	pH_GEN (pH units)	8.4		7.9	7.6	8.0	7.5	8.1	8.3	7.6	8.0	7.9	7.7	7.7	7.7	8.1	8.2		7.8	8.4	7.5	7.3
6	Temp (deg C)	15.3		18.6	20.3	19.8	18.9	21.6	20.5	21.6	23.7	25.7	24.7	26.3	27.3	23.3	24.7		28.7	24.7	27.3	27.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0			0.0	0.0						0.0	0.0		5.3	41.0	0.0	
2	ALK-TOT (mgCaCO3/L)	95		84	129	128			111	88						194	132		176	265	143	
3	B (mg/L)	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00
4	Ca (mg/L)	28		37	50	34	29	25	31	31	31	60	40	38	46	42	49		67	100	53	42
5	Cl (mg/L)	21.7		22.8	53.7	18.4	26.4	24.9	16.5	15.1	30.4	36.2	30.0	22.7	35.7	24.2	26.2		90.4	171.0	44.0	38.4
6	CO3 (mg/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		6.4	32.9	0.0	0.0
7	F (mg/L)	0.30		0.18	0.05	0.05	0.05	0.05	0.05	0.05	0.11	0.59	0.00	0.17	0.00	0.22	0.05		0.12	0.05	0.05	0.06
8	Fe (mg/L)	0.2		0.2	0.1	0.0	1.3	0.1	0.2	0.4	0.2			0.1	0.1	0.3	0.1		0.3	0.1	0.0	1.4
9	HCO3 (mg/L)	116		107	152	156	144	121	135	107	156	203	103	165	183	143	161		202	299	175	106
10	K (mg/L)	3.4		2.1	4.0	1.9	2.5	2.4	1.6	2.4	3.6	4.8	2.3	2.1	4.2	3.2	3.9		12.5	19.4	7.0	3.6
11	Mg (mg/L)	9.9		12.4	20.7	12.6	13.1	6.4	9.2	8.0	12.3	10.7	7.1	11.7	17.7	9.5	9.4		27.9	49.3	18.1	16.9
12	Na (mg/L)	14.8		15.3	37.9	15.1	20.5	18.7	13.3	16.6	21.3	26.2	19.5	14.4	23.9	16.8	16.2		69.3	125.1	38.1	30.9
13	NH3-N (mg N/L)																0.05					
14	NO2+NO3 (mg N/L)	0.74		4.03	0.79	0.39	0.83	0.99	0.98	0.97	1.19	4.90	7.48	0.71	4.00	5.52	2.49		9.44	1.93	0.38	0.94
15	NO2-N (mgN/L)	0.00		0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.07	0.00
16	NO3-N (mgN/L)	0.74		4.03	0.79	0.33	0.83	0.99	0.98	0.96	1.19	4.90	7.48	0.71	4.00	5.52	2.49		9.44	1.93	0.31	0.94
17	o-PO4-P (mg P/L)	0.000		0.035										0.005	0.038	0.003			0.180			
18	P-Tot (mgP/L)	0.001		0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.076	0.001	0.001	0.001	0.038	0.004	0.050		0.001	0.001	0.010	0.001
19	SiO2 (mg/L)	10.5		9.5	7.4	9.0	11.3	9.5	5.3	5.5	17.4	23.4	18.7	27.2	29.7	16.3	12.3		9.9	7.9	9.3	12.7
20	SO4 (mg/L)	20.3		34.8	82.3	14.8	16.9	35.1	45.3	10.9	3.6	20.9	13.1	2.3	22.6	8.5	12.7		108.4	228.3	50.0	54.4
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.5		2.0	1.9	2.7	1.8	0.5	7.4	0.9	1.3	1.4	13.7	1.6	17.3	1.4	2.1		20.0	8.7	18.0	0.9
2	DO (mg/L)	8.6		7.6	6.2	6.7	7.5	8.1	7.6	5.7	4.8	3.2	6.9	6.1	5.8	6.6	5.4		0.0	2.5	1.9	5.3
3	DO_SAT% (%)	84		81	69	73	81	92	84	64	56	40	83	76	74	76	64		0	28	21	68
	TRACE & TOXIC																					
1	Al (mg/L)			0.00																		0.00
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	71		93	124	86	73	62	78	77	77	149	100	94	114	106	122		167	250	132	105
2	HAR_Total (mgCaCO3/L)	112		145	210	139	128	88	117	111	129	194	130	132	188	145	161		283	455	208	175
3	Na% (%)	24		18	26	19	25	31	19	24	26	22	25	17	21	20	19		34	37	28	27
4	RSC (-)	0.0		0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
5	SAR (-)	0.7		0.5	1.1	0.6	0.8	0.9	0.5	0.7	0.8	0.8	0.7	0.5	0.8	0.6	0.6		1.8	2.6	1.2	1.0
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

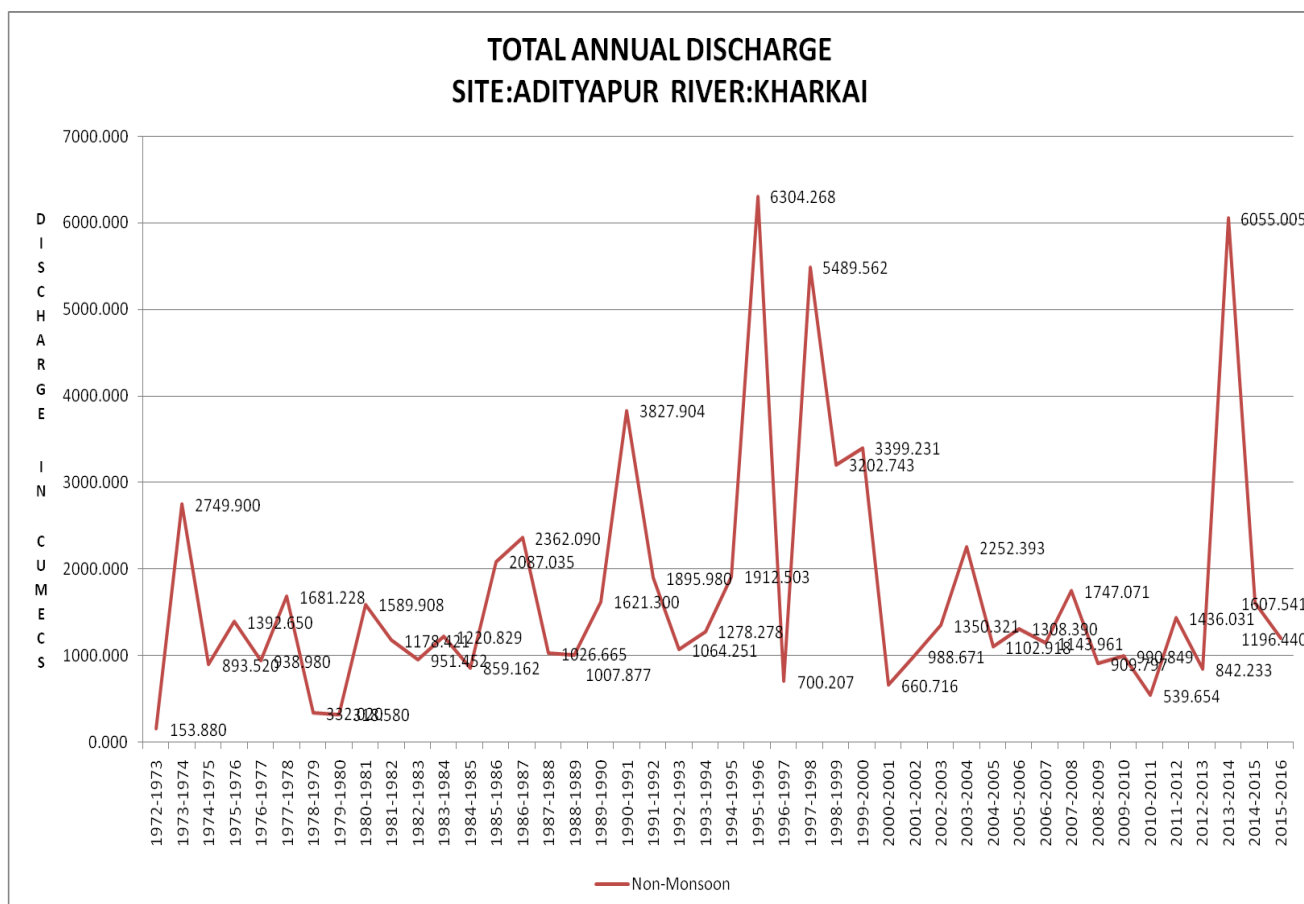
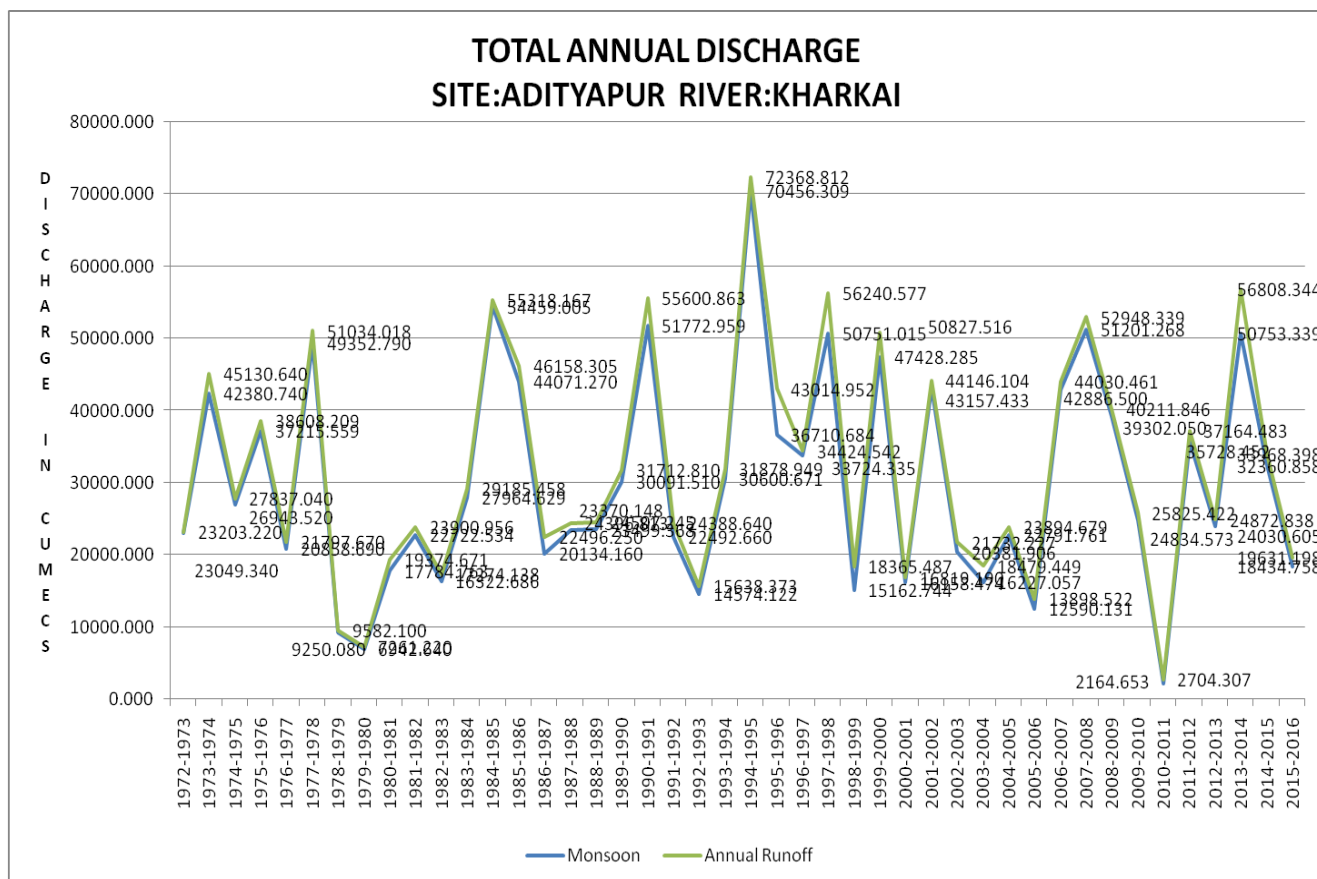
Station Name : ADITYAPUR (ESB00D5)
Local River : Kharkhai

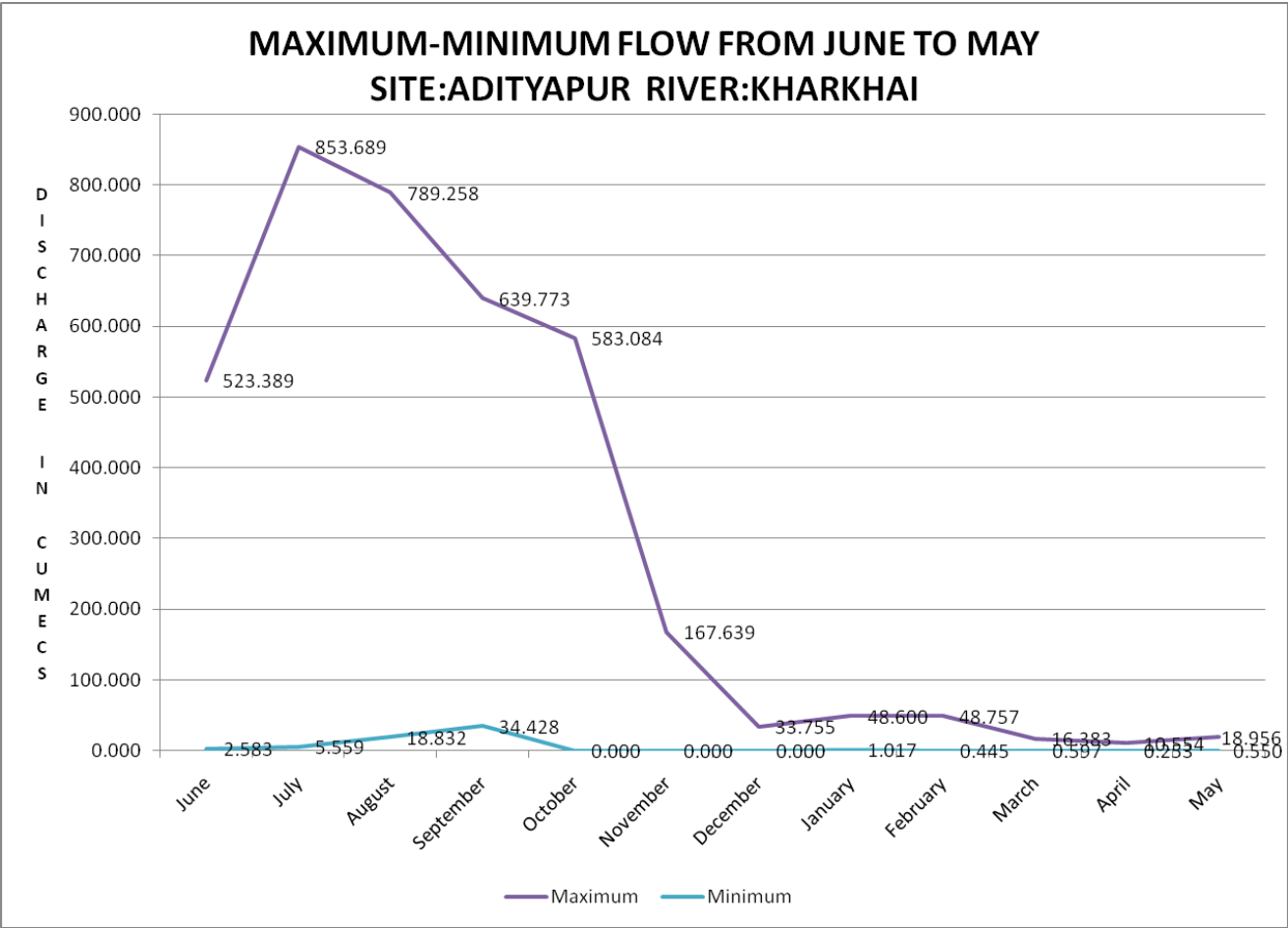
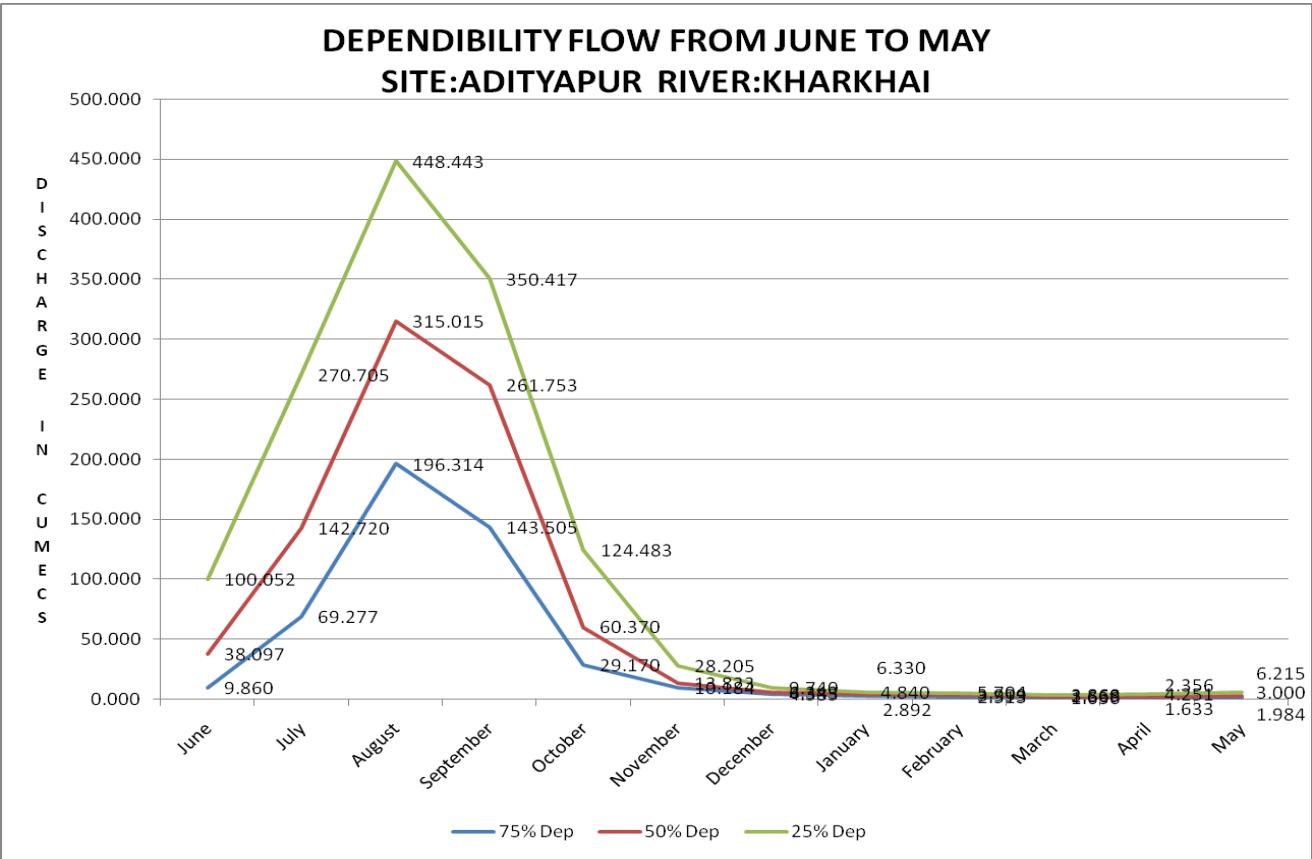
Division : E.E., Bhubaneswar
Sub-Division : Balasore

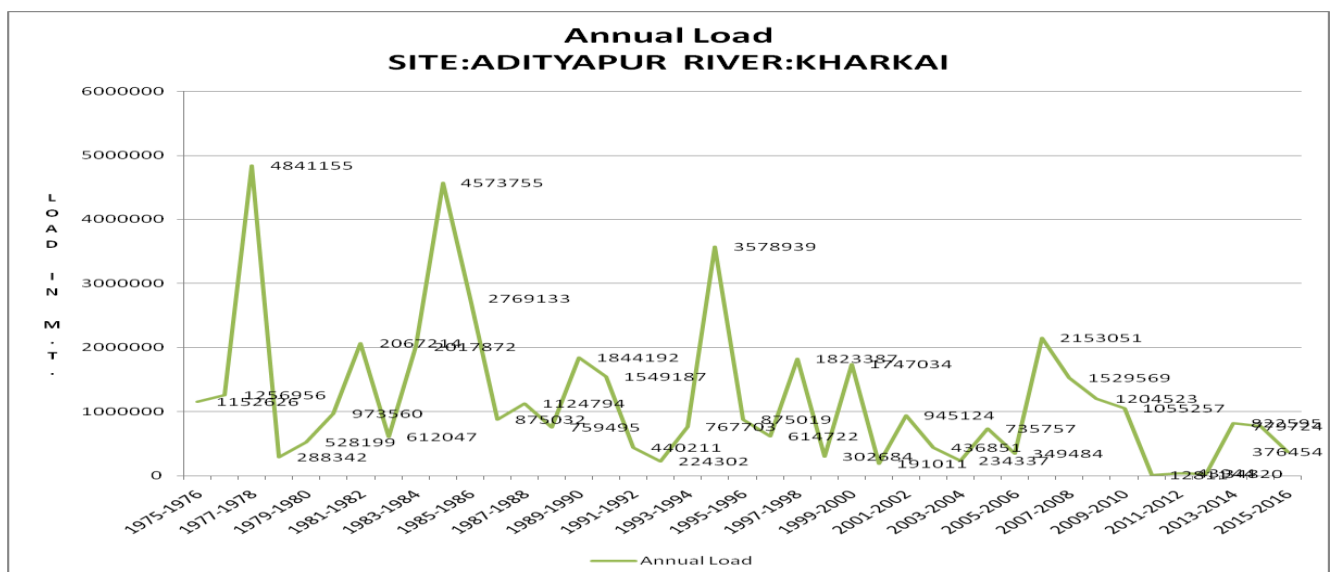
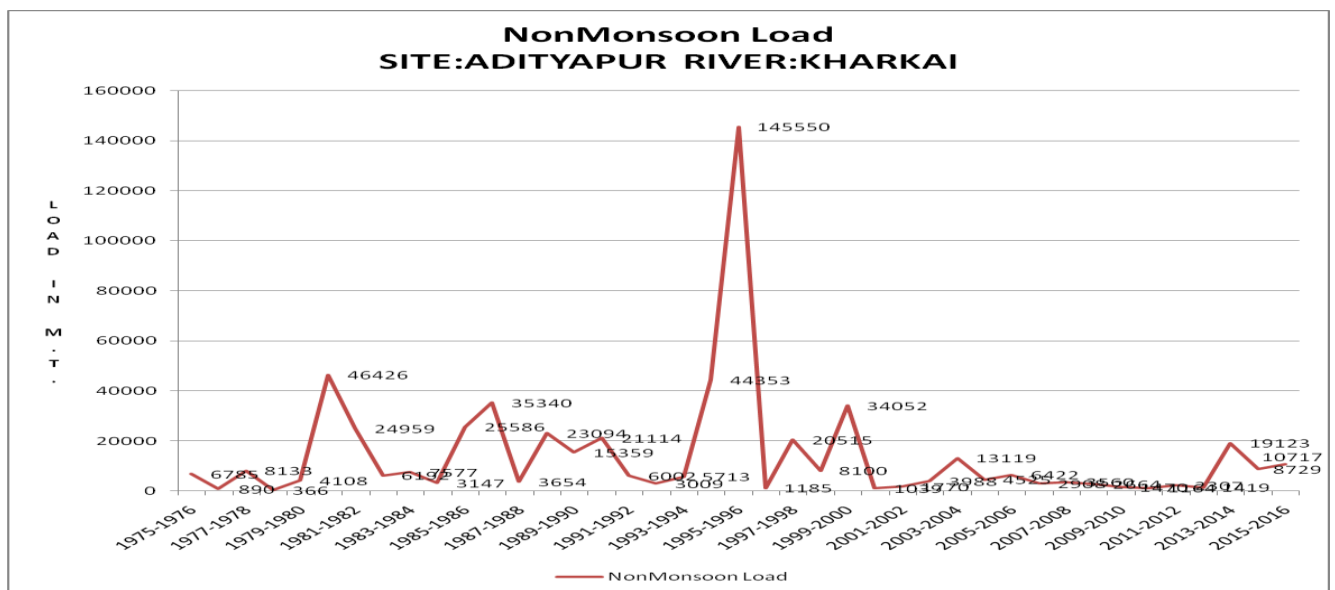
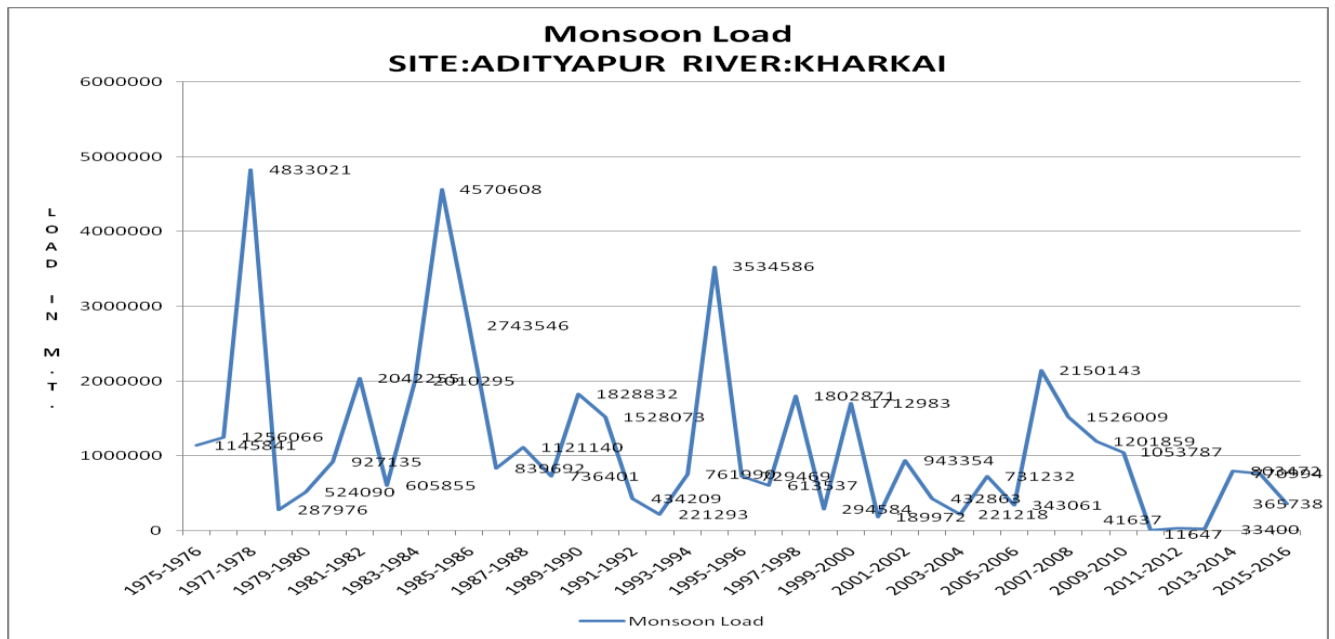
River Water

S.No	Parameters			
		2014	2015	2016
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	453	1078	997
3	EC_GEN (µmho/cm)	453	1060	996
4	pH_FLD (pH units)	7.6	7.5	7.8
5	pH_GEN (pH units)	7.6	7.5	7.8
6	Temp (deg C)	27.0	26.7	26.8
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	6.1
2	ALK-TOT (mgCaCO3/L)		80	203
3	B (mg/L)	0.00	0.00	0.01
4	Ca (mg/L)	38	42	66
5	Cl (mg/L)	36.4	26.8	96.2
6	CO3 (mg/L)	0.0	0.0	7.4
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.4	0.5
9	HCO3 (mg/L)	149	116	233
10	K (mg/L)	5.2	3.2	14.8
11	Mg (mg/L)	15.0	15.9	35.0
12	Na (mg/L)	27.7	23.9	83.5
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.96	0.86	0.87
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.95	0.86	0.86
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.001	0.010
19	SiO2 (mg/L)	11.1	6.7	6.0
20	SO4 (mg/L)	45.5	45.0	15.6
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	33.5	40.0
2	DO (mg/L)	4.3	1.9	4.6
3	DO_SAT% (%)	54	24	58
	TRACE & TOXIC			
1	Al (mg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	96	105	166
2	HAR_Total (mgCaCO3/L)	158	171	311
3	Na% (%)	27	22	37
4	RSC (-)	0.0	0.0	0.3
5	SAR (-)	1.0	0.8	2.5
	PESTICIDES			

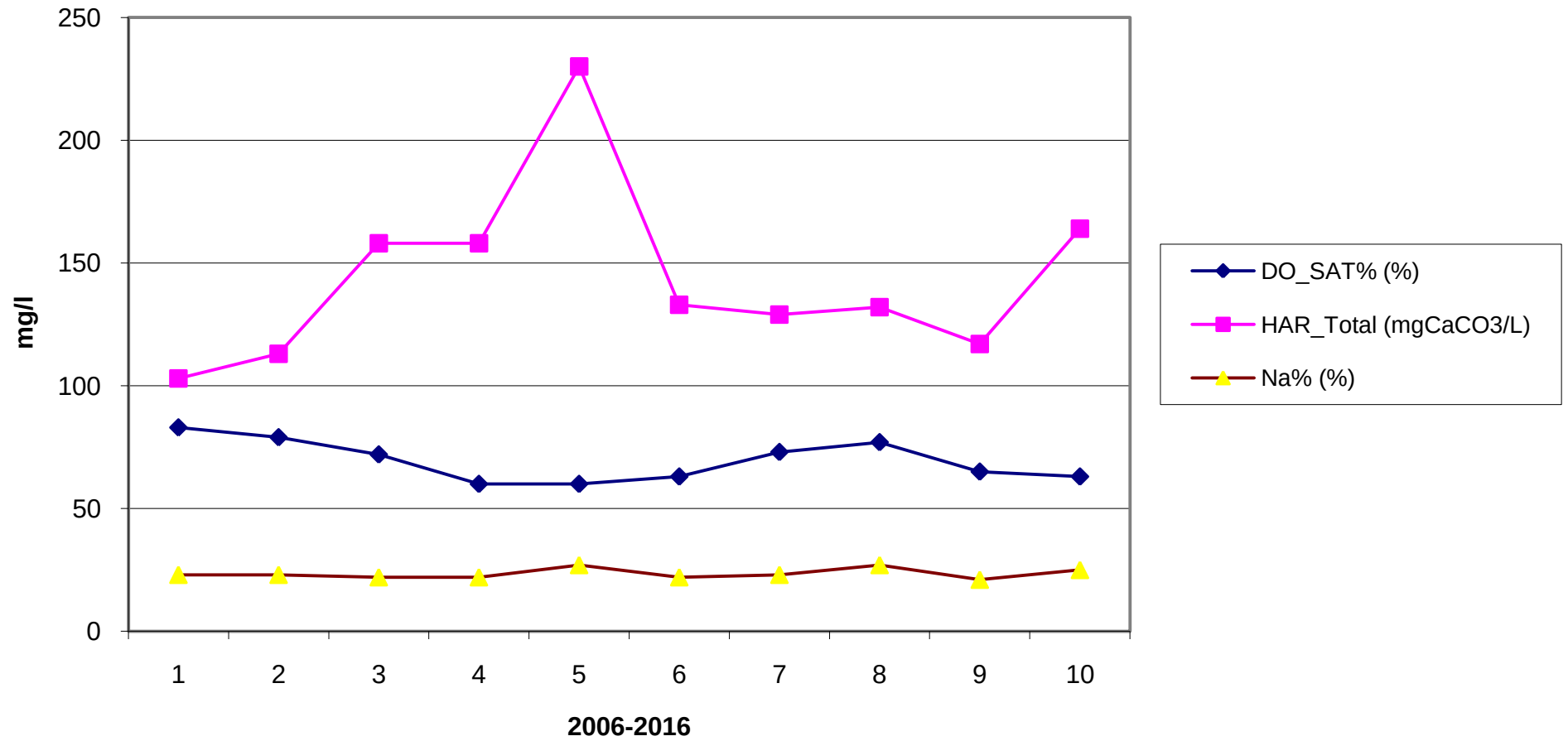
TREND ANALYSIS



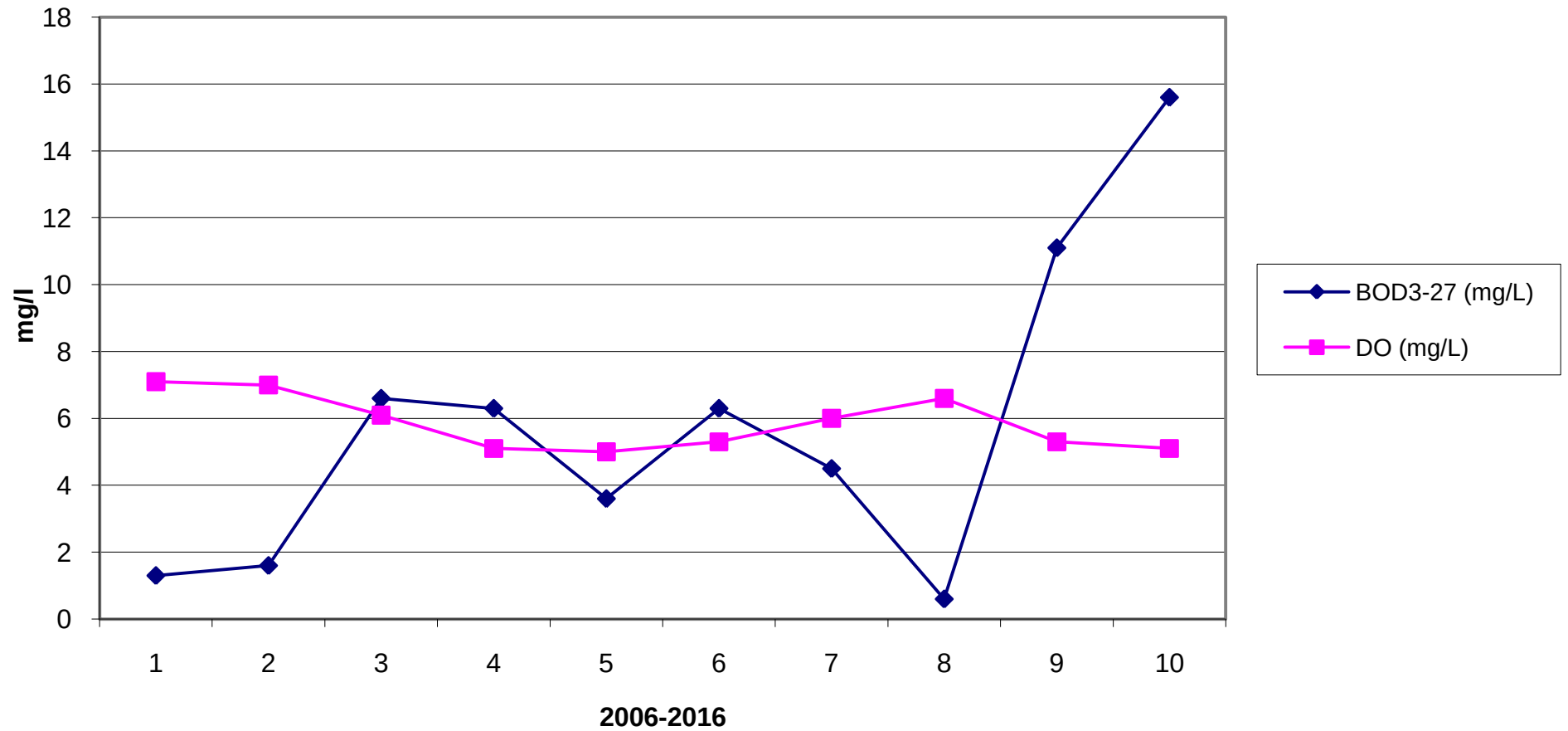


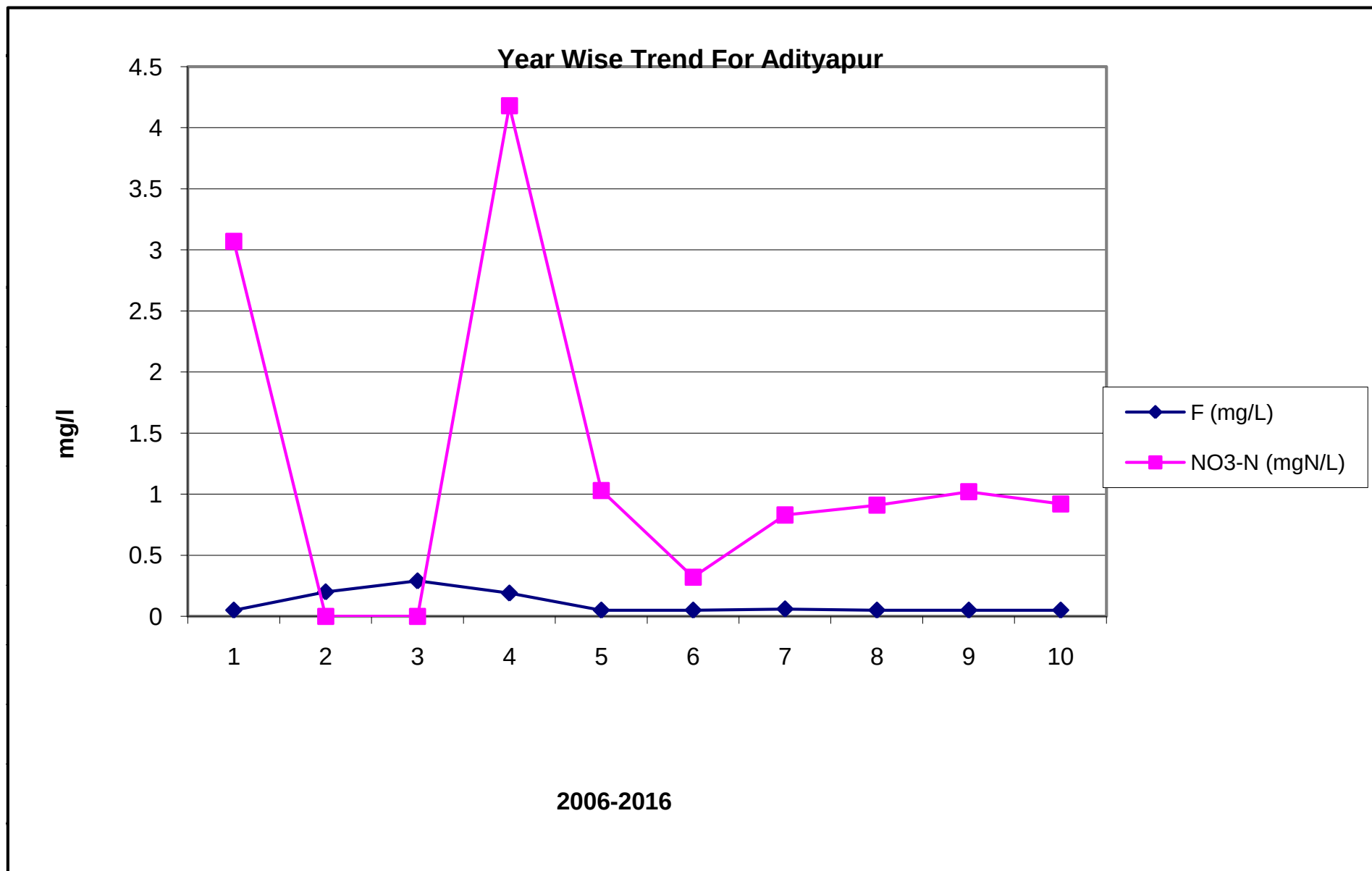


Year Wise Trend For Adityapur

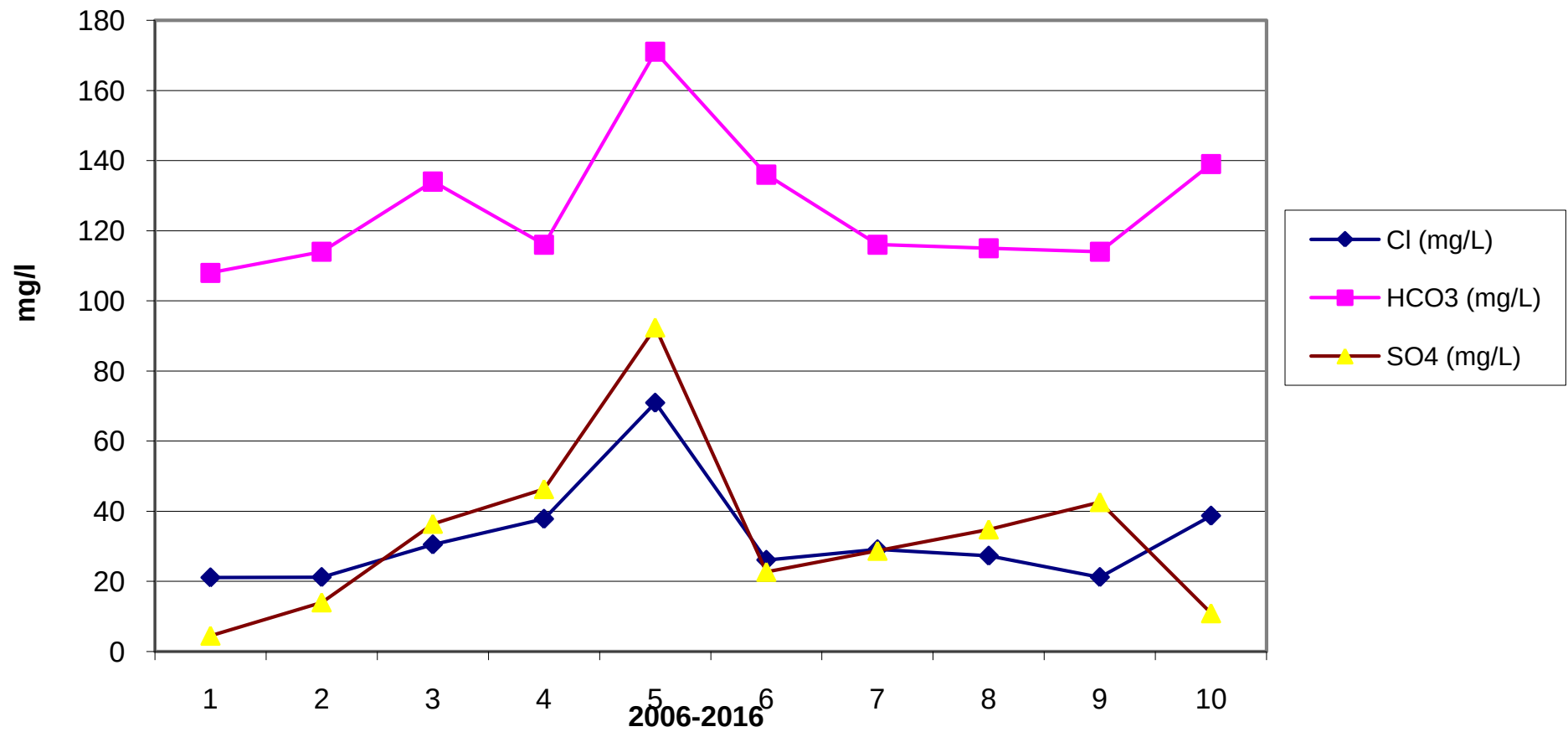


Year Wise Trend For Adityapur

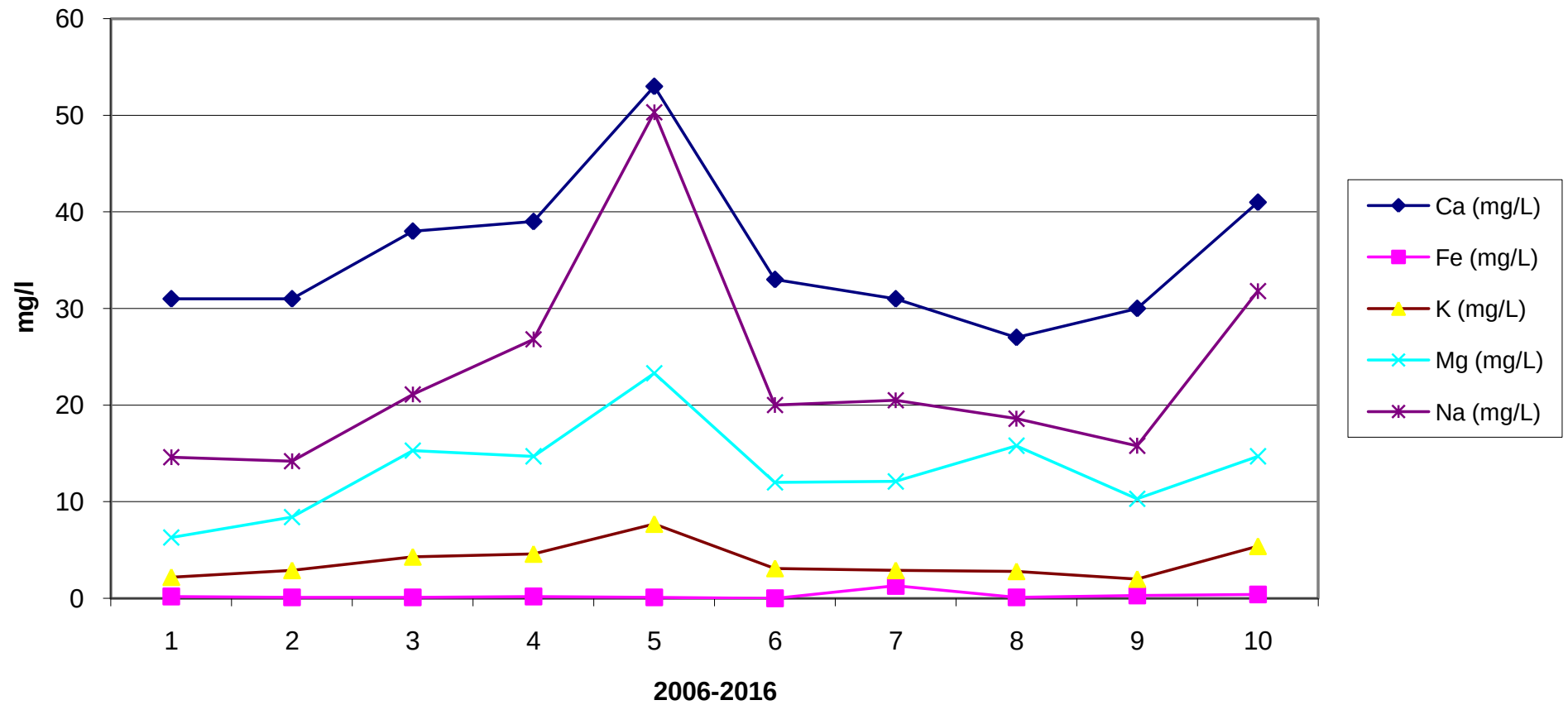




Year Wise Trend for Adityapur



Year-wise trend of Adityapur



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : JAMSHEDPUR

Code : ES000N5

State : Jharkhand

District : Purba Singhbhum

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 12649 Sq. Km.

Bank : Right

Latitude : 22°47'00"

Longitude : 86°12'00"

Zero of Gauge (m) : 111 (m.s.l)

24.06.1971 - 24.06.2021

Opening Date

Closing Date

Gauge : 24.06.1971

Discharge : 01.02.1972

Sediment : 27.11.1972

Water Quality : 01.09.1972

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1972-1973	2533	120.850	12.09.1972	0.000	114.625	15.06.1972
1973-1974	7674	126.255	03.09.1973	1.100	114.730	17.03.1974
1974-1975	7695	124.755	30.09.1974	0.661	114.500	14.04.1975
1975-1976	8367	125.500	20.08.1975	0.230	114.725	28.02.1976
1976-1977	7908	124.700	18.09.1976	0.086	114.780	12.02.1977
1977-1978	6830	123.150	07.08.1977	0.067	114.730	14.04.1978
1978-1979	4122	124.465	03.09.1978	1.350	114.780	29.05.1979
1979-1980	1949	119.650	09.08.1979	0.076	114.950	22.02.1980
1980-1981	960.3	118.050	24.06.1980	2.420	114.800	25.03.1981
1981-1982	1697	119.600	22.06.1981	0.365	114.700	12.05.1982
1982-1983	1172	119.000	21.08.1982	0.420	114.690	04.06.1982
1983-1984	2408	119.850	05.09.1983	2.100	114.770	06.05.1984
1984-1985	3654	122.850	09.08.1984	1.670	114.795	04.06.1984
1985-1986	4593	124.390	17.10.1985	0.225	114.875	21.04.1986
1986-1987	1117	119.720	05.08.1986	0.870	114.820	12.06.1986
1987-1988	2956	121.875	28.08.1987	0.990	114.875	25.05.1988
1988-1989	3051	123.150	28.06.1988	0.001	114.990	21.05.1989
1989-1990	2780	121.727	05.08.1989	0.977	114.815	02.05.1990
1990-1991	2280	120.700	15.07.1990	0.900	114.815	19.05.1991
1991-1992	3451	122.625	23.08.1991	4.812	114.860	11.04.1992
1992-1993	1680	118.300	27.09.1992	0.219	114.765	09.02.1993
1993-1994	1524	118.270	15.09.1993	1.814	114.840	16.06.1993

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1994-1995	4836	122.650	04.08.1994	0.680	114.695	10.05.1995
1995-1996	3464	120.575	10.11.1995	1.159	114.830	19.04.1996
1996-1997	4436	121.350	07.08.1996	0.400	114.780	14.03.1997
1997-1998	6254	124.575	06.08.1997	14.43	115.410	12.06.1997
1998-1999	2362	120.080	13.09.1998	2.681	114.450	31.05.1999
1999-2000	3785	121.870	08.08.1999	6.356	114.990	10.06.1999
2000-2001	2270	119.650	26.07.2000	4.500	114.920	13.05.2001
2001-2002	4092	121.700	12.07.2001	6.039	115.000	14.05.2002
2002-2003	1625	119.020	12.09.2002	7.058	115.000	06.06.2002
2003-2004	1212	118.180	10.10.2003	4.122	114.860	30.03.2004
2004-2005	3201	120.145	21.08.2004	6.080	114.810	27.05.2005
2005-2006	1150	118.250	30.06.2005	5.739	114.800	03.06.2005
2006-2007	3320	120.950	23.08.2006	7.082	114.830	31.05.2007
2007-2008	3856	122.650	06.07.2007	4.500	114.800	14.04.2008
2008-2009	7382	124.950	18.06.2008	7.680	114.520	18.04.2009
2009-2010	3578	121.165	08.09.2009	7.196	115.070	26.04.2010
2010-2011	240.0	116.250	19.09.2010	6.000	114.800	03.04.2011
2011-2012	4548	122.270	23.09.2011	8.500	115.080	30.05.2012
2012-2013	2020	120.400	15.08.2012	7.155	115.030	18.06.2012
2013-2014	8770	123.300	21.08.2013	9.895	115.150	26.05.2014
2014-2015	3686	121.300	05.08.2014	8.217	115.020	27.12.2014
2015-2016	4107	122.250	29.07.2015	9.233	115.060	29.04.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	115.120	23.07	115.440	148.5	117.060	626.9	116.500	498.0	115.400	145.7	115.320	34.40 *
2	115.120	22.88	115.650	219.7	117.700	900.0 *	116.280	442.0	115.380	141.6 *	115.320	34.42
3	115.120	22.71	115.700	256.1	119.080	2051	116.020	336.1	115.360	140.5	115.300	32.69
4	115.130	23.76	115.680	250.1	118.400	1472	115.800	275.5	115.360	140.0 *	115.300	32.43
5	115.130	23.84	115.540	190.0 *	118.130	1295	115.580	219.8	115.360	138.7	115.280	32.37
6	115.140	25.48	115.680	251.4	116.780	568.8	115.620	206.0 *	115.340	136.2	115.280	32.77
7	115.140	28.00 *	116.200	411.3	116.580	510.0	115.580	172.9	115.320	130.1	115.260	29.30
8	115.130	24.03	116.340	433.9	116.160	442.8	115.460	151.0	115.320	128.3	115.260	29.00 *
9	115.130	23.90	115.760	279.4	116.040	330.0 *	115.440	151.9	115.340	137.4	115.240	28.17
10	115.140	26.09	115.820	296.7	116.000	332.2	115.440	151.0	115.360	141.9	115.240	28.64
11	115.150	27.12	119.000	1999	115.600	214.0	115.440	151.2	115.360	141.0 *	115.240	28.00 *
12	115.150	27.36	118.440	1500 *	115.460	150.3	115.420	149.7	115.340	139.9	115.220	27.75
13	115.140	26.11	115.900	317.5	116.000	333.1	115.400	148.0 *	115.340	30.31	115.220	27.92
14	115.140	26.00 *	115.780	302.4	116.000	331.5	115.400	148.2	115.340	30.12	115.220	26.77
15	115.130	17.84	115.760	296.5	116.000	332.0 *	115.400	136.5	115.320	31.51	115.200	26.00 *
16	115.130	24.27	116.265	428.7	116.000	331.0 *	115.420	152.5	115.320	29.03	115.200	26.60
17	115.140	25.56	118.400	1551	115.560	177.2	115.460	168.0 *	115.320	28.46	115.200	25.51
18	115.140	25.67	116.920	460.0 *	115.530	165.7	115.640	220.1	115.320	28.00 *	115.360	37.68
19	115.140	25.67	116.800	540.0 *	115.560	173.5	115.620	203.9	115.320	28.25	115.220	27.42
20	115.150	25.76	116.930	619.1	115.560	171.1	115.600	198.0 *	115.300	27.99	115.200	25.88
21	115.160	27.00 *	117.300	862.4	115.600	174.5	115.600	198.5	115.300	27.00 *	115.200	25.67
22	115.170	29.42	118.120	1225	115.600	174.6	115.700	219.5	115.300	27.20 *	115.180	24.00 *
23	115.180	29.96	118.700	1749	115.580	174.0 *	115.800	283.3	115.280	27.62	115.180	24.23
24	115.190	33.43	117.250	791.8	115.580	174.1	115.620	201.6	115.280	27.60 *	115.180	24.10
25	115.190	33.19	118.080	1238	115.700	253.6	115.600	194.0 *	115.300	40.00 *	115.180	24.00 *
26	115.530	190.9	116.760	580.0 *	115.975	333.3	115.760	295.1	115.240	25.59	115.160	23.17
27	115.520	164.7	116.820	592.0	116.200	408.9	115.600	198.0 *	115.220	24.30	115.160	23.33
28	115.500	160.0 *	120.700	2822	116.000	329.9	115.420	152.2	115.220	24.41	115.160	23.11
29	115.440	149.9	122.250	0.000	115.800	281.0	115.400	150.2	115.220	24.48	115.180	24.00 *
30	115.420	141.5	118.080	1231	115.780	280.0 *	115.400	148.6	115.360	37.76	115.200	25.85
31			118.300	1238	115.840	291.8			115.300	32.97		
<u>Ten-Daily Mean</u>												
I Ten-Daily	115.130	24.38	115.781	273.7	117.193	852.9	115.772	260.4	115.354	138.0	115.280	31.42
II Ten-Daily	115.141	25.14	117.020	801.4	115.727	237.9	115.480	167.6	115.328	51.46	115.228	27.95
III Ten-Daily	115.330	96.00	118.396	1121	115.787	261.4	115.590	204.1	115.275	28.99	115.178	24.15
<u>Monthly</u>												
Min.	115.120	17.84	115.440	0.000	115.460	150.3	115.400	136.5	115.220	24.30	115.160	23.11
Max.	115.530	190.9	122.250	2822	119.080	2051	116.500	498.0	115.400	145.7	115.360	37.68
Mean	115.200	48.5	117.109	744.5	116.221	444.7	115.614	210.7	115.317	71.42	115.229	27.84

Annual Runoff in MCM = 4303 Annual Runoff in mm = 340

Peak Observed Discharge = 2822 cumecs on 28/07/2015 Corres. Water Level :120.7 m

Lowest Observed Discharge = 0.000 cumecs on 29/07/2015 Corres. Water Level :122.25 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2015 - 2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	115.200	25.80	115.070	10.66	115.080	11.29	115.080	10.40 *	115.070	9.870	115.060	9.800 *
2	115.180	24.80	115.070	10.54	115.080	11.35	115.080	10.56	115.070	9.970	115.070	9.849
3	115.180	24.99	115.070	10.50 *	115.070	11.16	115.080	10.00	115.070	9.900 *	115.070	10.21
4	115.180	25.09	115.070	10.69	115.070	10.95	115.080	10.66	115.080	10.18	115.070	10.01
5	115.180	24.78	115.070	10.51	115.070	10.96	115.080	11.38	115.080	10.14	115.080	10.19
6	115.180	24.70 *	115.070	10.43	115.070	10.93	115.080	10.69 *	115.080	10.13	115.080	10.14
7	115.180	24.57	115.070	10.51	115.070	10.90 *	115.080	11.20 *	115.080	10.96	115.080	10.33
8	115.180	24.43	115.070	10.43	115.070	10.90	115.070	10.60	115.070	9.849	115.080	10.30 *
9	115.200	30.22	115.070	10.51	115.070	10.80	115.070	10.60	115.070	9.747	115.080	11.33
10	115.200	30.08	115.070	10.51 *	115.070	10.98	115.070	10.85	115.070	9.700 *	115.070	10.29
11	115.200	29.62	115.060	10.06	115.070	10.92	115.080	11.07	115.070	9.733	115.070	10.35
12	115.100	12.05	115.060	9.830	115.070	10.86	115.080	10.50	115.060	9.661	115.070	10.48
13	115.100	12.00 *	115.060	9.867	115.070	10.92	115.080	10.60 *	115.060	9.481	115.070	10.26
14	115.100	12.68	115.060	9.849	115.070	10.92 *	115.080	10.82	115.060	9.400 *	115.070	10.44
15	115.100	13.07	115.060	10.04	115.080	11.31	115.080	10.54	115.060	9.915	115.070	10.40 *
16	115.100	12.90	115.060	10.14	115.090	10.99	115.080	10.50	115.060	9.458	115.080	11.09
17	115.100	12.77	115.060	10.20 *	115.090	11.10	115.080	10.39	115.060	9.400 *	115.080	10.50
18	115.100	12.98	115.060	9.964	115.090	11.03	115.080	10.49	115.060	9.410	115.090	10.87
19	115.090	12.30	115.060	10.10	115.090	10.97	115.080	10.41	115.060	9.450	115.090	11.03
20	115.090	12.00 *	115.090	11.72	115.090	10.93	115.080	10.00 *	115.060	9.400 *	115.090	10.95
21	115.090	12.14	115.090	11.67	115.090	10.90 *	115.070	10.31	115.060	9.397	115.090	10.70 *
22	115.090	12.18	115.090	11.92	115.080	10.55	115.070	10.09	115.060	9.783	115.090	10.70 *
23	115.090	12.31	115.090	11.56	115.080	10.54	115.070	10.17	115.060	9.281	115.090	10.63
24	115.090	12.00 *	115.090	11.56 *	115.080	10.56	115.070	10.00 *	115.060	9.400 *	115.090	10.76
25	115.090	12.00 *	115.080	11.47	115.080	10.66	115.070	10.00 *	115.060	9.358	115.090	10.90
26	115.080	11.07	115.080	11.40 *	115.080	10.54	115.070	10.07	115.060	9.469	115.090	10.92
27	115.080	12.00 *	115.080	10.65	115.080	10.66	115.070	10.00 *	115.060	9.494	115.100	11.10
28	115.080	10.97	115.080	11.41	115.080	10.40 *	115.070	10.24	115.060	9.590	115.100	11.08
29	115.080	10.94	115.080	10.76	115.080	10.89	115.070	10.15	115.060	9.233	115.100	11.08 *
30	115.080	10.97	115.080	11.68			115.070	10.06	115.060	9.481	115.100	11.05
31	115.080	10.87	115.080				115.070	9.945			115.100	10.99
Ten-Daily Mean												
I Ten-Daily	115.186	25.95	115.070	10.53	115.072	11.02	115.077	10.69	115.074	10.04	115.074	10.25
II Ten-Daily	115.108	14.24	115.063	10.18	115.081	10.99	115.080	10.53	115.061	9.531	115.078	10.64
III Ten-Daily	115.085	11.59	115.084	11.41	115.081	10.63	115.070	10.09	115.060	9.449	115.095	10.90
Monthly												
Min.	115.080	10.87	115.060	9.830	115.070	10.40	115.070	9.945	115.060	9.233	115.060	9.800
Max.	115.200	30.22	115.090	11.92	115.090	11.35	115.080	11.38	115.080	10.96	115.100	11.33
Mean	115.125	17.07	115.073	10.71	115.078	10.89	115.075	10.43	115.065	9.675	115.083	10.6

Peak Computed Discharge = 1500 cumecs on 12/07/2015

Corres. Water Level :118.44 m

Lowest Computed Discharge = 9.400 cumecs on 14/04/2016

Corres. Water Level :115.06 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

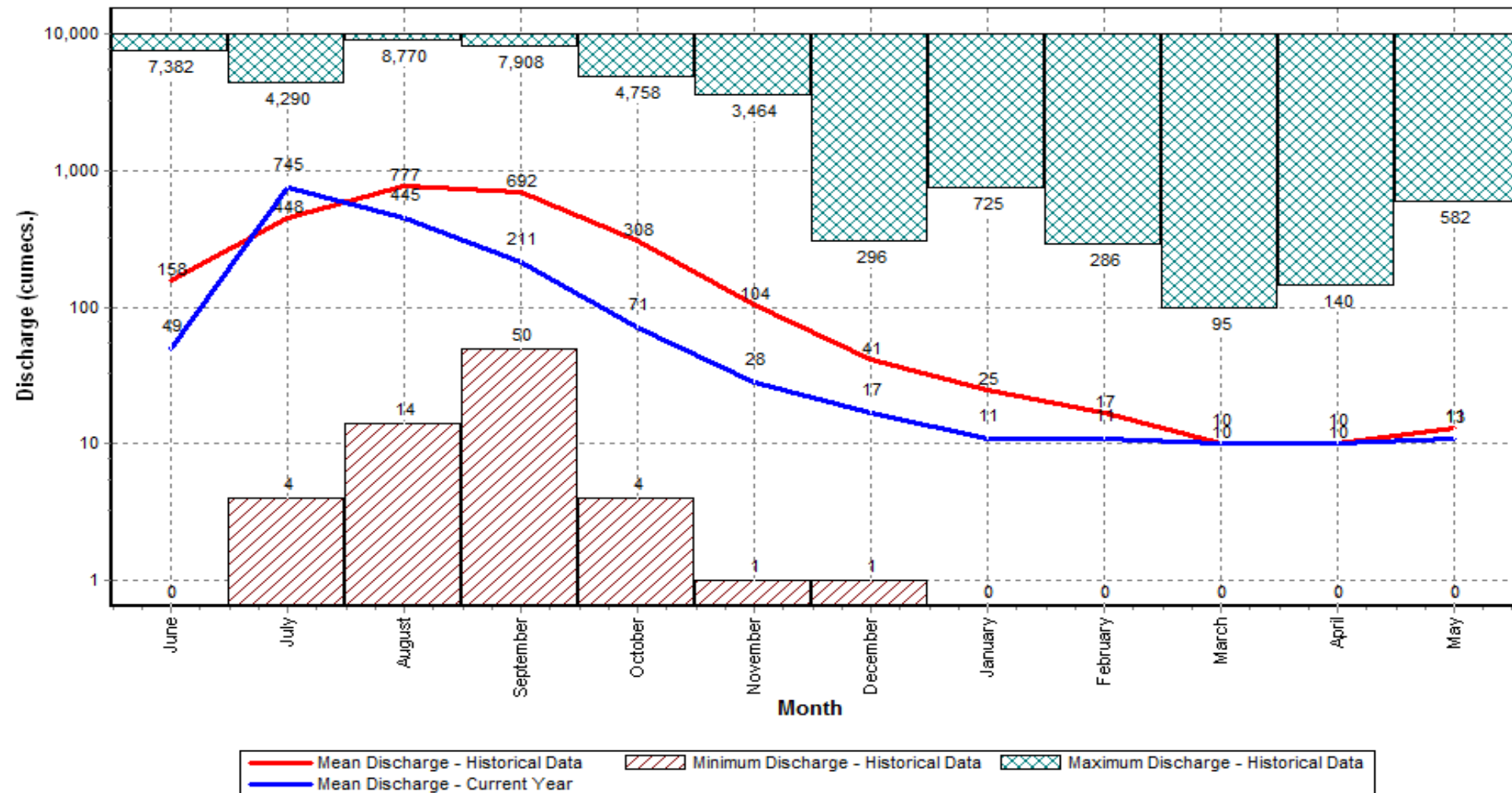
Station Name : JAMSHEDPUR (ES000N5)

Data considered : 1972-2016

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



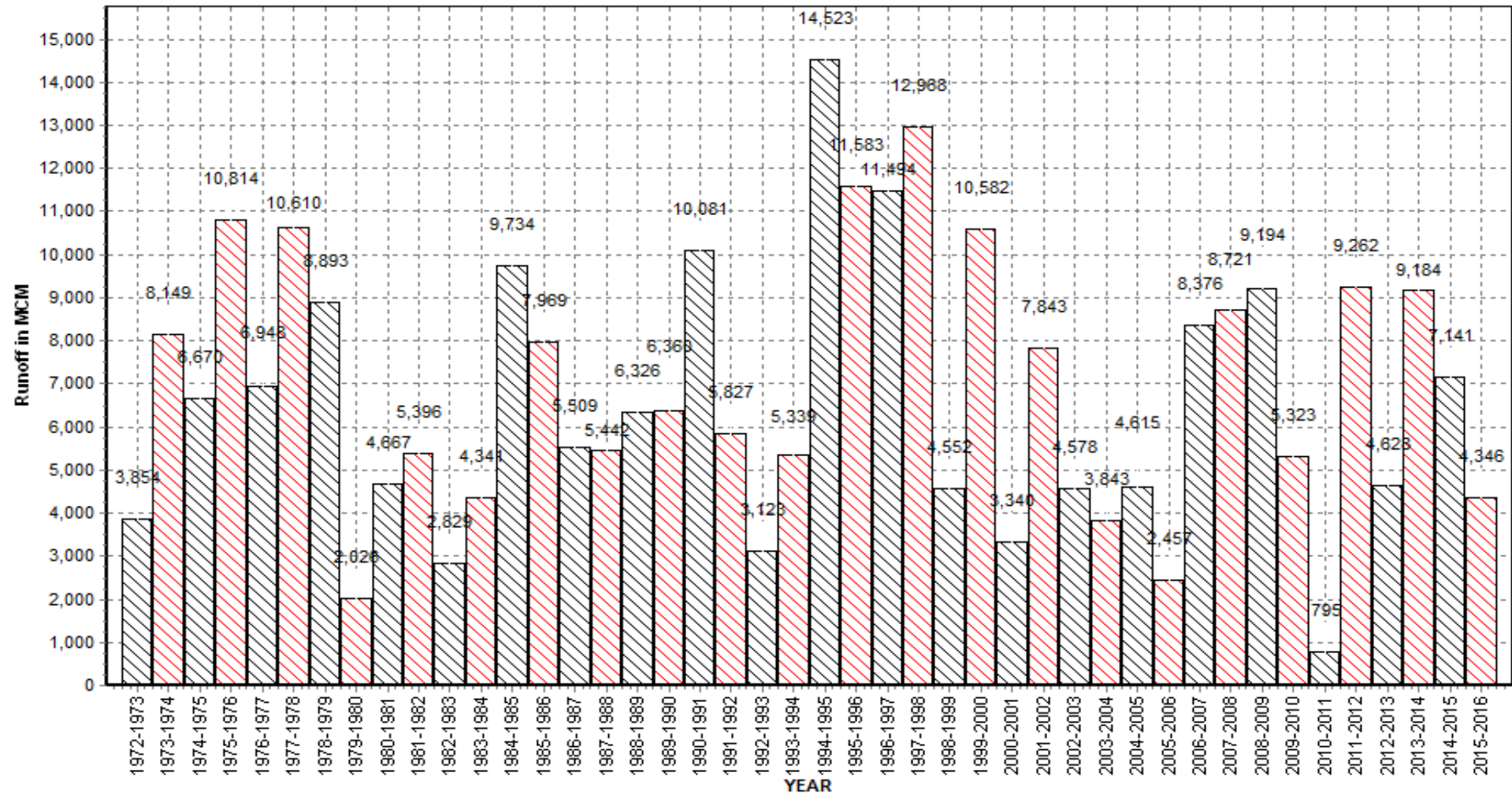
Annual Runoff Values for the period: 1972 - 2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

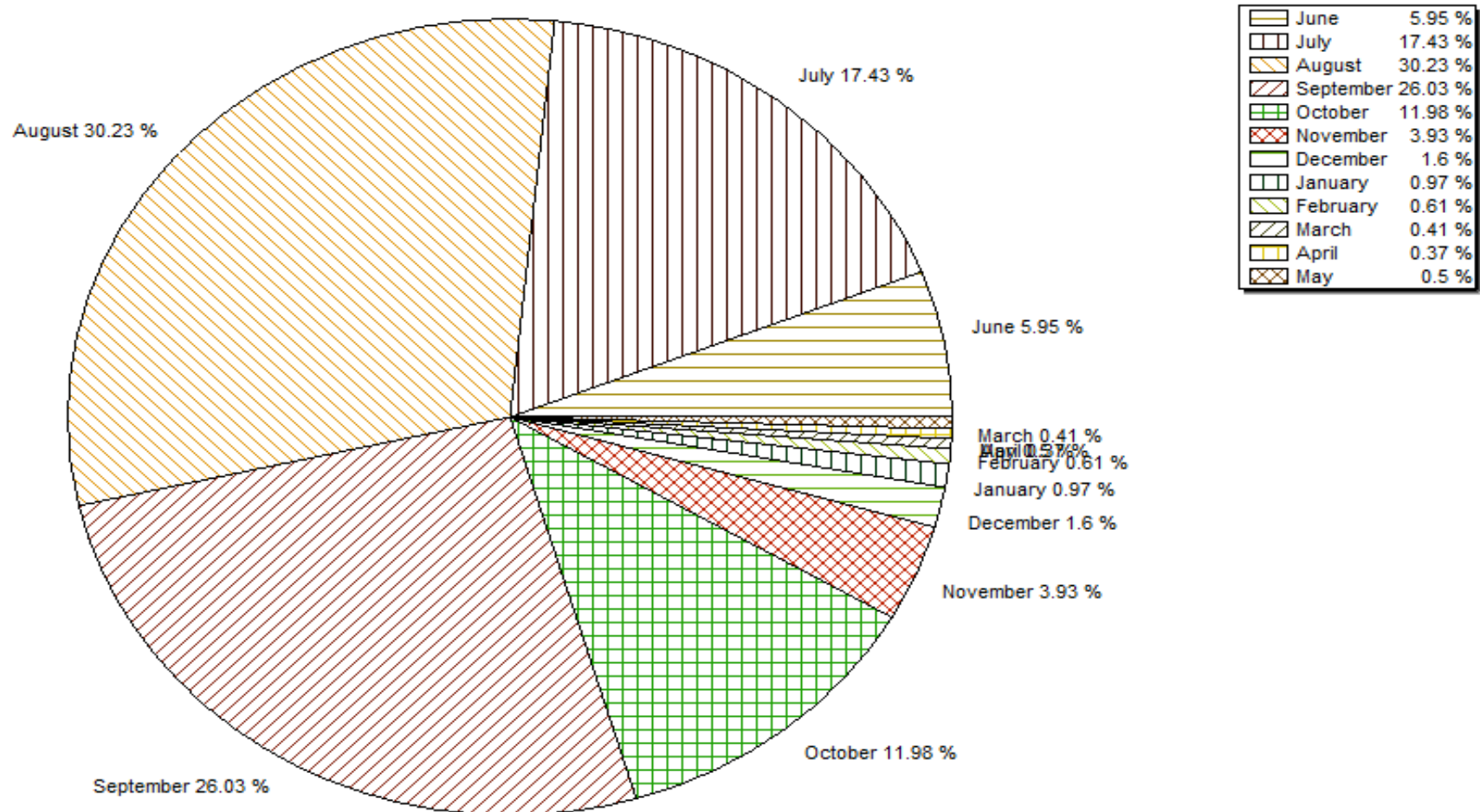


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1972-2015

Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore



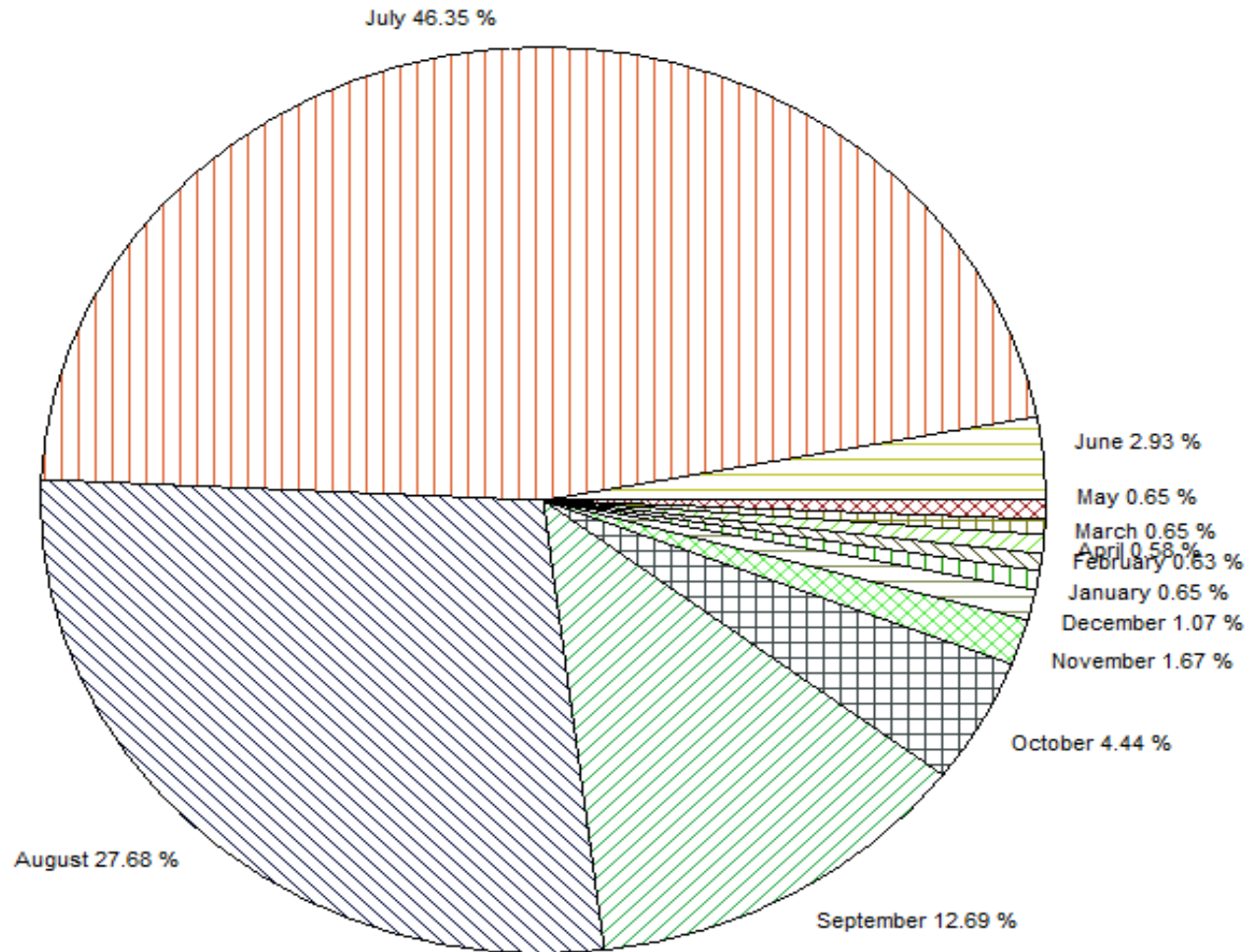
Monthly Runoff for the Year : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



June	2.93 %
July	46.35 %
August	27.68 %
September	12.69 %
October	4.44 %
November	1.67 %
December	1.07 %
January	0.65 %
February	0.63 %
March	0.65 %
April	0.58 %
May	0.65 %

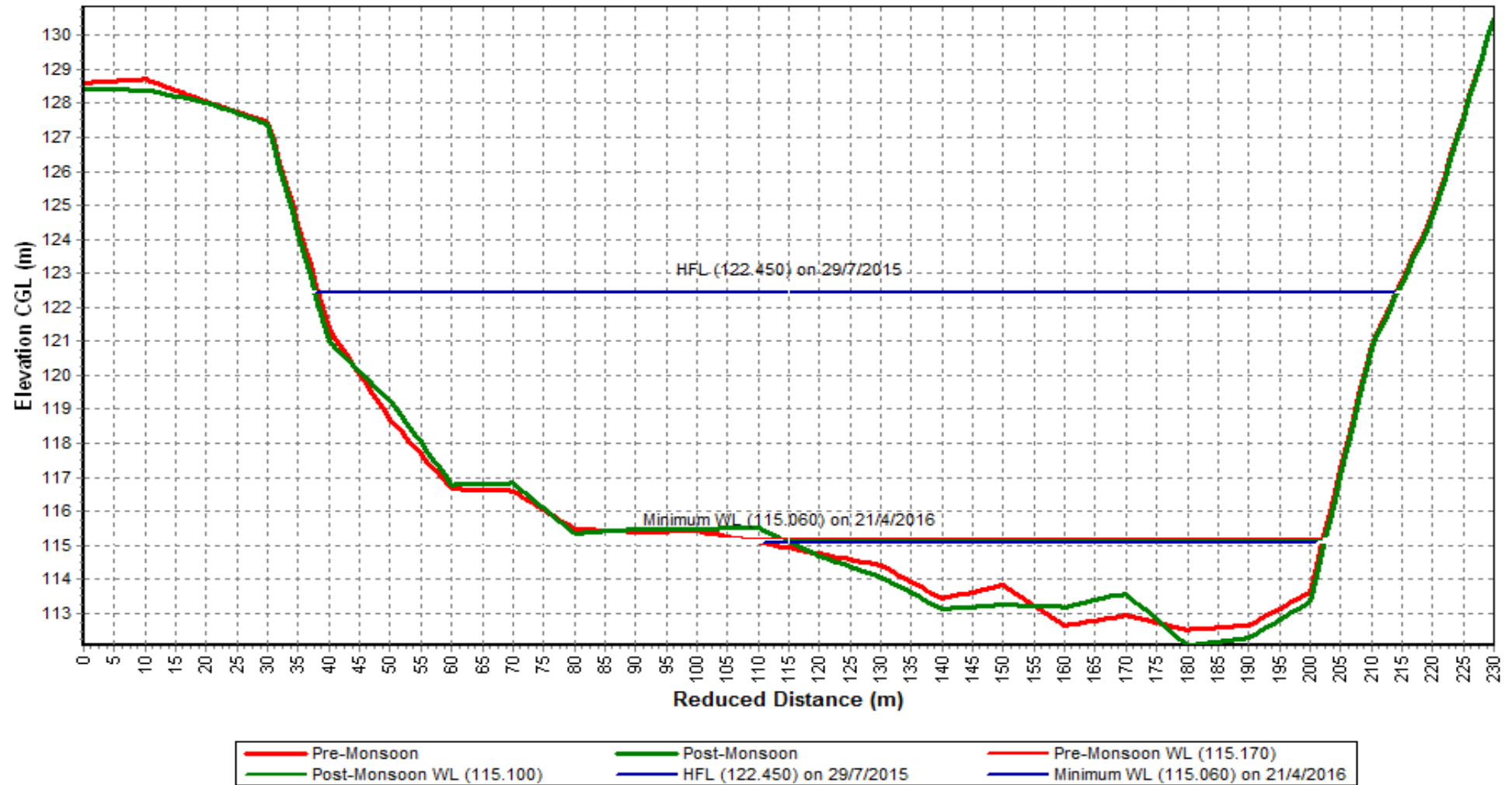
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



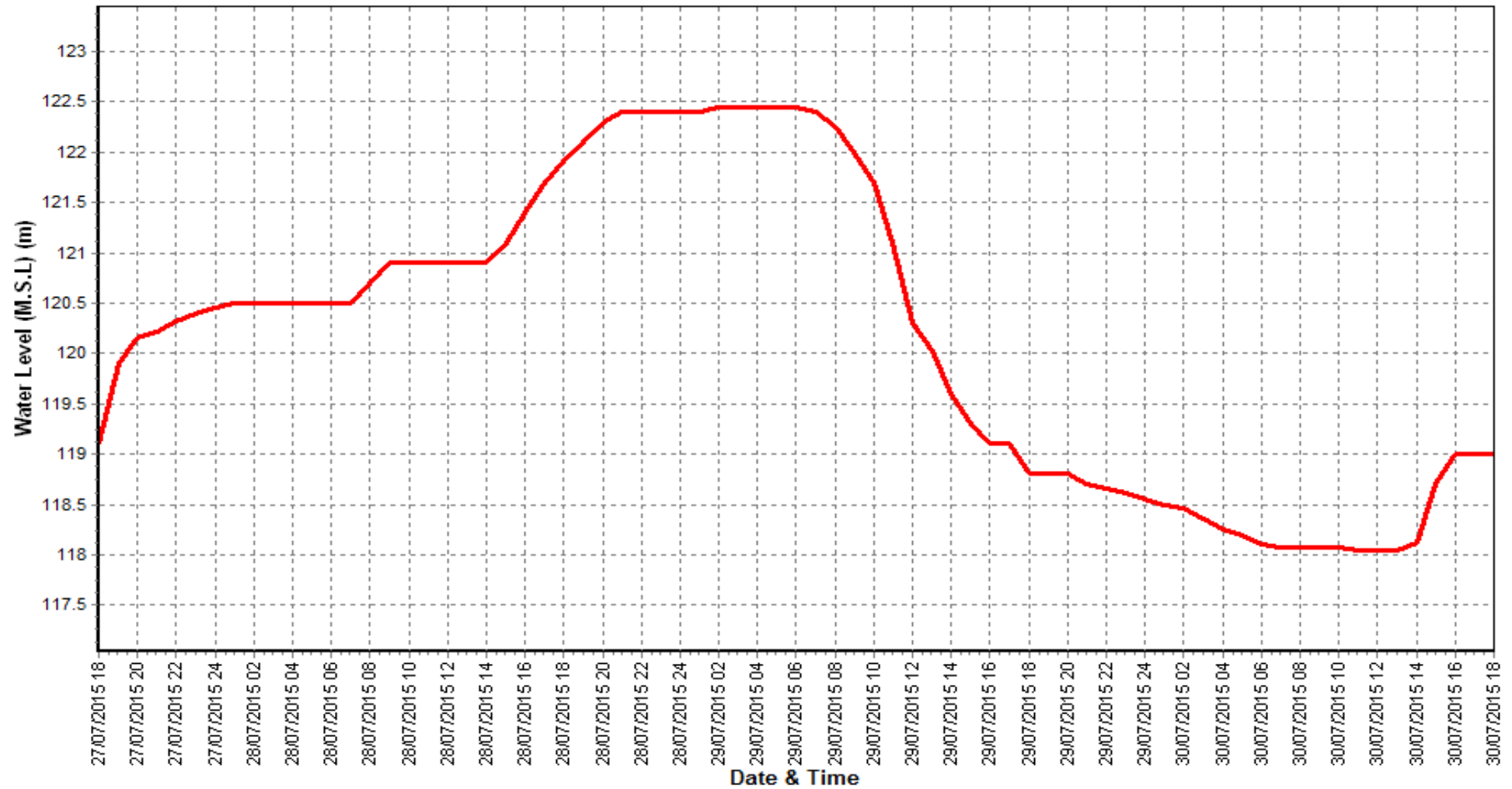
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



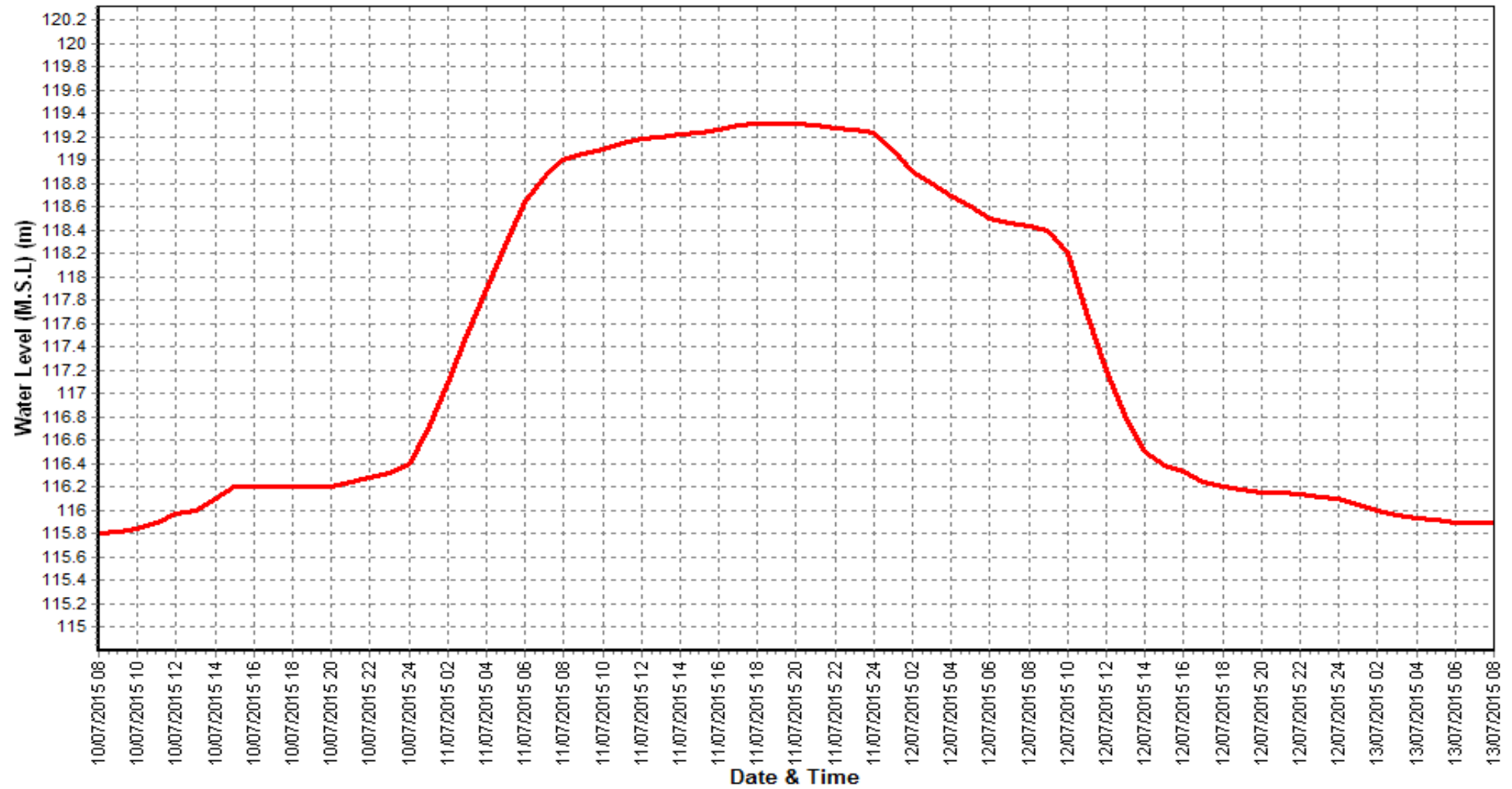
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



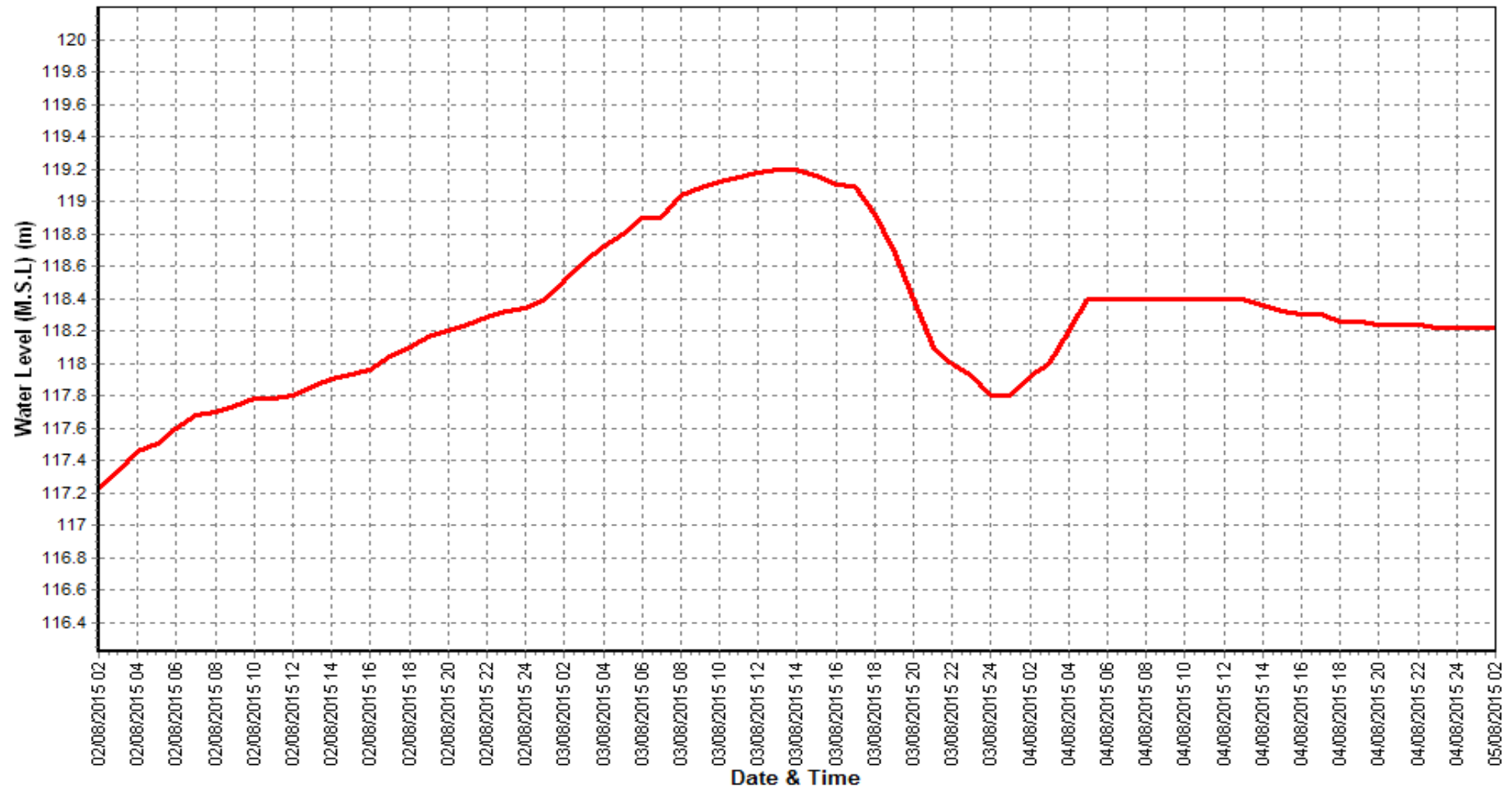
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	23.07	0.000	0.000	0.013	0.013	26	148.5	0.000	0.000	0.117	0.117	1498	626.9	0.000	0.000	0.333	0.333	18054
2	22.88	0.000	0.000	0.013	0.013	26	219.7	0.000	0.000	0.082	0.082	1551	900.0	0.000	0.000	0.333	0.333	25917
3	22.71	0.000	0.000	0.017	0.017	33	256.1	0.000	0.000	0.078	0.078	1733	2051	0.000	0.000	0.068	0.068	12101
4	23.76	0.000	0.000	0.017	0.017	36	250.1	0.000	0.000	0.187	0.187	4034	1472	0.000	0.000	0.643	0.643	81840
5	23.84	0.000	0.000	0.017	0.017	35	190.0	0.000	0.000	0.187	0.187	3065	1295	0.000	0.000	0.377	0.377	42141
6	25.48	0.000	0.000	0.017	0.017	38	251.4	0.000	0.000	0.112	0.112	2426	568.8	0.000	0.000	0.347	0.347	17039
7	28.00	0.000	0.000	0.017	0.017	42	411.3	0.000	0.000	0.143	0.143	5092	510.0	0.000	0.000	0.158	0.158	6975
8	24.03	0.000	0.000	0.018	0.018	36	433.9	0.000	0.000	0.340	0.340	12747	442.8	0.000	0.000	0.217	0.217	8290
9	23.90	0.000	0.000	0.018	0.018	37	279.4	0.000	0.000	0.163	0.163	3943	330.0	0.000	0.000	0.217	0.217	6179
10	26.09	0.000	0.000	0.020	0.020	44	296.7	0.000	0.000	0.114	0.114	2912	332.2	0.000	0.000	0.142	0.142	4067
11	27.12	0.000	0.000	0.034	0.034	80	1999	0.000	0.000	0.260	0.260	44902	214.0	0.000	0.000	0.102	0.102	1881
12	27.36	0.000	0.000	0.031	0.031	73	1500	0.000	0.000	0.260	0.260	33696	150.3	0.000	0.000	0.210	0.210	2727
13	26.11	0.000	0.000	0.027	0.027	61	317.5	0.000	0.000	0.193	0.193	5303	333.1	0.000	0.000	0.213	0.213	6139
14	26.00	0.000	0.000	0.027	0.027	60	302.4	0.000	0.000	0.108	0.108	2829	331.5	0.000	0.000	0.525	0.525	15037
15	17.84	0.000	0.000	0.014	0.014	22	296.5	0.000	0.000	0.118	0.118	3030	332.0	0.000	0.000	0.525	0.525	15060
16	24.27	0.000	0.000	0.033	0.033	69	428.7	0.000	0.000	0.238	0.238	8827	331.0	0.000	0.000	0.525	0.525	15014
17	25.56	0.000	0.000	0.033	0.033	72	1551	0.000	0.000	0.253	0.253	33934	177.2	0.000	0.000	0.300	0.300	4592
18	25.67	0.000	0.000	0.012	0.012	26	460.0	0.000	0.000	0.253	0.253	10067	165.7	0.000	0.000	0.057	0.057	809
19	25.67	0.000	0.000	0.052	0.052	114	540.0	0.000	0.000	0.253	0.253	11818	173.5	0.000	0.000	0.193	0.193	2897
20	25.76	0.000	0.000	0.027	0.027	60	619.1	0.000	0.000	0.188	0.188	10072	171.1	0.000	0.000	0.368	0.368	5443
21	27.00	0.000	0.000	0.027	0.027	63	862.4	0.000	0.000	0.198	0.198	14776	174.5	0.000	0.000	0.153	0.153	2311
22	29.42	0.000	0.000	0.033	0.033	84	1225	0.000	0.000	0.290	0.290	30694	174.6	0.000	0.000	0.102	0.102	1535
23	29.96	0.000	0.000	0.029	0.029	76	1749	0.000	0.000	0.267	0.267	40306	174.0	0.000	0.000	0.102	0.102	1529
24	33.43	0.000	0.000	0.030	0.030	85	791.8	0.000	0.000	0.298	0.298	20408	174.1	0.000	0.000	0.115	0.115	1730
25	33.19	0.000	0.000	0.010	0.010	29	1238	0.000	0.000	0.255	0.255	27280	253.6	0.000	0.000	0.115	0.115	2520
26	190.9	0.000	0.000	0.075	0.075	1237	580.0	0.000	0.000	0.255	0.255	12779	333.3	0.000	0.000	0.092	0.092	2641
27	164.7	0.000	0.000	0.112	0.112	1590	592.0	0.000	0.000	0.290	0.290	14834	408.9	0.000	0.000	0.385	0.385	13603
28	160.0	0.000	0.000	0.112	0.112	1544	2822	0.000	0.000	0.392	0.392	95495	329.9	0.000	0.000	0.095	0.095	2708
29	149.9	0.000	0.000	0.052	0.052	669	0.000	0.000	0.000	0.392	0.392	0	281.0	0.000	0.000	0.085	0.085	2064
30	141.5	0.000	0.000	0.113	0.113	1385	1231	0.000	0.000	0.670	0.670	71259	280.0	0.000	0.000	0.085	0.085	2056
31							1238	0.000	0.000	0.245	0.245	26213	291.8	0.000	0.000	0.047	0.047	1177
Ten Daily Mean																		
Ten Daily I	24.38	0.000	0.000	0.017	0.017	35	273.7	0.000	0.000	0.152	0.152	3900	852.9	0.000	0.000	0.283	0.283	22260
Ten Daily II	25.14	0.000	0.000	0.029	0.029	64	801.4	0.000	0.000	0.213	0.213	16448	237.9	0.000	0.000	0.302	0.302	6960
Ten Daily III	96.00	0.000	0.000	0.059	0.059	676	1121	0.000	0.000	0.323	0.323	32186	261.4	0.000	0.000	0.125	0.125	3079
Monthly																		
Total						7753						557523						326075

Annual Sediment Load (Metric Tonnes) : 951407

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	498.0	0.000	0.000	0.020	0.020	839	145.7	0.000	0.000	0.178	0.178	2245	34.40	0.000	0.000	0.029	0.029	86
2	442.0	0.000	0.000	0.043	0.043	1654	141.6	0.000	0.000	0.178	0.178	2181	34.42	0.000	0.000	0.029	0.029	87
3	336.1	0.000	0.000	0.070	0.070	2033	140.5	0.000	0.000	0.077	0.077	931	32.69	0.000	0.000	0.019	0.019	53
4	275.5	0.000	0.000	0.072	0.072	1707	140.0	0.000	0.000	0.077	0.077	928	32.43	0.000	0.000	0.021	0.021	58
5	219.8	0.000	0.000	0.035	0.035	665	138.7	0.000	0.000	0.022	0.022	260	32.37	0.000	0.000	0.018	0.018	50
6	206.0	0.000	0.000	0.035	0.035	623	136.2	0.000	0.000	0.013	0.013	156	32.77	0.000	0.000	0.022	0.022	63
7	172.9	0.000	0.000	0.187	0.187	2789	130.1	0.000	0.000	0.013	0.013	150	29.30	0.000	0.000	0.022	0.022	55
8	151.0	0.000	0.000	0.088	0.088	1152	128.3	0.000	0.000	0.028	0.028	314	29.00	0.000	0.000	0.022	0.022	54
9	151.9	0.000	0.000	0.050	0.050	656	137.4	0.000	0.000	0.010	0.010	119	28.17	0.000	0.000	0.028	0.028	67
10	151.0	0.000	0.000	0.017	0.017	218	141.9	0.000	0.000	0.063	0.063	776	28.64	0.000	0.000	0.022	0.022	55
11	151.2	0.000	0.000	0.078	0.078	1023	141.0	0.000	0.000	0.063	0.063	771	28.00	0.000	0.000	0.022	0.022	53
12	149.7	0.000	0.000	0.047	0.047	604	139.9	0.000	0.000	0.058	0.058	705	27.75	0.000	0.000	0.025	0.025	59
13	148.0	0.000	0.000	0.047	0.047	597	30.31	0.000	0.000	0.043	0.043	113	27.92	0.000	0.000	0.025	0.025	61
14	148.2	0.000	0.000	0.068	0.068	875	30.12	0.000	0.000	0.014	0.014	36	26.77	0.000	0.000	0.023	0.023	54
15	136.5	0.000	0.000	0.048	0.048	570	31.51	0.000	0.000	0.042	0.042	114	26.00	0.000	0.000	0.023	0.023	52
16	152.5	0.000	0.000	0.175	0.175	2306	29.03	0.000	0.000	0.043	0.043	107	26.60	0.000	0.000	0.016	0.016	36
17	168.0	0.000	0.000	0.175	0.175	2540	28.46	0.000	0.000	0.044	0.044	108	25.51	0.000	0.000	0.018	0.018	40
18	220.1	0.000	0.000	0.248	0.248	4722	28.00	0.000	0.000	0.044	0.044	106	37.68	0.000	0.000	0.023	0.023	73
19	203.9	0.000	0.000	0.047	0.047	823	28.25	0.000	0.000	0.043	0.043	104	27.42	0.000	0.000	0.021	0.021	49
20	198.0	0.000	0.000	0.047	0.047	799	27.99	0.000	0.000	0.030	0.030	73	25.88	0.000	0.000	0.016	0.016	37
21	198.5	0.000	0.000	0.123	0.123	2114	27.00	0.000	0.000	0.030	0.030	70	25.67	0.000	0.000	0.016	0.016	35
22	219.5	0.000	0.000	0.085	0.085	1612	27.20	0.000	0.000	0.030	0.030	71	24.00	0.000	0.000	0.016	0.016	33
23	283.3	0.000	0.000	0.208	0.208	5099	27.62	0.000	0.000	0.050	0.050	119	24.23	0.000	0.000	0.016	0.016	34
24	201.6	0.000	0.000	0.105	0.105	1828	27.60	0.000	0.000	0.050	0.050	119	24.10	0.000	0.000	0.014	0.014	30
25	194.0	0.000	0.000	0.105	0.105	1760	40.00	0.000	0.000	0.050	0.050	173	24.00	0.000	0.000	0.014	0.014	30
26	295.1	0.000	0.000	0.042	0.042	1063	25.59	0.000	0.000	0.033	0.033	74	23.17	0.000	0.000	0.013	0.013	25
27	198.0	0.000	0.000	0.042	0.042	713	24.30	0.000	0.000	0.041	0.041	87	23.33	0.000	0.000	0.013	0.013	26
28	152.2	0.000	0.000	0.043	0.043	569	24.41	0.000	0.000	0.021	0.021	44	23.11	0.000	0.000	0.014	0.014	27
29	150.2	0.000	0.000	0.085	0.085	1103	24.48	0.000	0.000	0.072	0.072	152	24.00	0.000	0.000	0.014	0.014	28
30	148.6	0.000	0.000	0.057	0.057	728	37.76	0.000	0.000	0.010	0.010	33	25.85	0.000	0.000	0.015	0.015	34
31							32.97	0.000	0.000	0.023	0.023	64						
Ten Daily Mean																		
Ten Daily I	260.4	0.000	0.000	0.062	0.062	1233	138.0	0.000	0.000	0.066	0.066	806	31.42	0.000	0.000	0.023	0.023	63
Ten Daily II	167.6	0.000	0.000	0.098	0.098	1486	51.46	0.000	0.000	0.042	0.042	224	27.95	0.000	0.000	0.021	0.021	51
Ten Daily III	204.1	0.000	0.000	0.090	0.090	1659	28.99	0.000	0.000	0.037	0.037	92	24.15	0.000	0.000	0.015	0.015	30
Monthly																		
Total						43784						11302						1445

Annual Sediment Load (Metric Tonnes) : 951407

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	25.80	0.000	0.000	0.014	0.014	31	10.66						11.29	0.000	0.000	0.023	0.023	22
2	24.80	0.000	0.000	0.014	0.014	30	10.54						11.35	0.000	0.000	0.023	0.023	22
3	24.99	0.000	0.000	0.014	0.014	30	10.50						11.16	0.000	0.000	0.023	0.023	22
4	25.09	0.000	0.000	0.014	0.014	30	10.69						10.95	0.000	0.000	0.023	0.023	22
5	24.78	0.000	0.000	0.014	0.014	30	10.51						10.96	0.000	0.000	0.023	0.023	22
6	24.70	0.000	0.000	0.014	0.014	30	10.43						10.93	0.000	0.000	0.025	0.025	24
7	24.57	0.000	0.000	0.014	0.014	30	10.51						10.90	0.000	0.000	0.025	0.025	24
8	24.43	0.000	0.000	0.014	0.014	30	10.43						10.90	0.000	0.000	0.025	0.025	24
9	30.22	0.000	0.000	0.014	0.014	37	10.51						10.80	0.000	0.000	0.025	0.025	24
10	30.08	0.000	0.000	0.013	0.013	34	10.51						10.98	0.000	0.000	0.025	0.025	24
11	29.62	0.000	0.000	0.013	0.013	34	10.06						10.92	0.000	0.000	0.025	0.025	24
12	12.05	0.000	0.000	0.013	0.013	14	9.830						10.86	0.000	0.000	0.023	0.023	21
13	12.00	0.000	0.000	0.013	0.013	14	9.867						10.92	0.000	0.000	0.023	0.023	22
14	12.68	0.000	0.000	0.013	0.013	14	9.849						10.92	0.000	0.000	0.023	0.023	22
15	13.07	0.000	0.000	0.013	0.013	15	10.04						11.31	0.000	0.000	0.023	0.023	22
16	12.90	0.000	0.000	0.013	0.013	15	10.14						10.99	0.000	0.000	0.023	0.023	22
17	12.77	0.000	0.000	0.013	0.013	14	10.20						11.10	0.000	0.000	0.023	0.023	22
18	12.98	0.000	0.000	0.013	0.013	14	9.964						11.03	0.000	0.000	0.023	0.023	22
19	12.30	0.000	0.000	0.013	0.013	13	10.10						10.97	0.000	0.000	0.027	0.027	26
20	12.00	0.000	0.000	0.013	0.013	13	11.72						10.93	0.000	0.000	0.027	0.027	26
21	12.14	0.000	0.000	0.013	0.013	13	11.67						10.90	0.000	0.000	0.027	0.027	26
22	12.18	0.000	0.000	0.013	0.013	13	11.92						10.55	0.000	0.000	0.027	0.027	25
23	12.31	0.000	0.000	0.013	0.013	13	11.56						10.54	0.000	0.000	0.027	0.027	25
24	12.00	0.000	0.000	0.013	0.013	13	11.56						10.56	0.000	0.000	0.027	0.027	25
25	12.00	0.000	0.000	0.013	0.013	13	11.47						10.66	0.000	0.000	0.027	0.027	25
26	11.07	0.000	0.000	0.018	0.018	17	11.40						10.54	0.000	0.000	0.029	0.029	26
27	12.00	0.000	0.000	0.018	0.018	18	10.65						10.66	0.000	0.000	0.029	0.029	26
28	10.97	0.000	0.000	0.018	0.018	17	11.41						10.40	0.000	0.000	0.029	0.029	26
29	10.94	0.000	0.000	0.018	0.018	17	10.76						10.89	0.000	0.000	0.029	0.029	27
30	10.97	0.000	0.000	0.018	0.018	17	11.68											
31	10.87	0.000	0.000	0.018	0.018	16												
Ten Daily Mean																		
Ten Daily I	25.95	0.000	0.000	0.014	0.014	31	10.53						11.02	0.000	0.000	0.024	0.024	23
Ten Daily II	14.24	0.000	0.000	0.013	0.013	16	10.18						10.99	0.000	0.000	0.024	0.024	23
Ten Daily III	11.59	0.000	0.000	0.015	0.015	15	11.41						10.63	0.000	0.000	0.028	0.028	26
Monthly																		

Total

637

687

Annual Sediment Load (Metric Tonnes) : 951407

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	10.40	0.000	0.000	0.029	0.029	26	9.870	0.000	0.000	0.030	0.030	25	9.800	0.000	0.000	0.024	0.024	20
2	10.56	0.000	0.000	0.029	0.029	26	9.970	0.000	0.000	0.030	0.030	25	9.849	0.000	0.000	0.024	0.024	20
3	10.00	0.000	0.000	0.029	0.029	25	9.900	0.000	0.000	0.030	0.030	25	10.21	0.000	0.000	0.024	0.024	21
4	10.66	0.000	0.000	0.029	0.029	26	10.18	0.000	0.000	0.030	0.030	26	10.01	0.000	0.000	0.024	0.024	21
5	11.38	0.000	0.000	0.029	0.029	28	10.14	0.000	0.000	0.030	0.030	26	10.19	0.000	0.000	0.024	0.024	21
6	10.69	0.000	0.000	0.029	0.029	26	10.13	0.000	0.000	0.030	0.030	26	10.14	0.000	0.000	0.024	0.024	21
7	11.20	0.000	0.000	0.029	0.029	28	10.96	0.000	0.000	0.030	0.030	28	10.33	0.000	0.000	0.030	0.030	26
8	10.60	0.000	0.000	0.029	0.029	26	9.849	0.000	0.000	0.030	0.030	25	10.30	0.000	0.000	0.030	0.030	26
9	10.60	0.000	0.000	0.029	0.029	26	9.747	0.000	0.000	0.032	0.032	27	11.33	0.000	0.000	0.030	0.030	29
10	10.85	0.000	0.000	0.024	0.024	22	9.700	0.000	0.000	0.032	0.032	27	10.29	0.000	0.000	0.030	0.030	26
11	11.07	0.000	0.000	0.024	0.024	23	9.733	0.000	0.000	0.032	0.032	27	10.35	0.000	0.000	0.030	0.030	26
12	10.50	0.000	0.000	0.024	0.024	22	9.661	0.000	0.000	0.032	0.032	27	10.48	0.000	0.000	0.030	0.030	27
13	10.60	0.000	0.000	0.024	0.024	22	9.481	0.000	0.000	0.032	0.032	26	10.26	0.000	0.000	0.030	0.030	26
14	10.82	0.000	0.000	0.024	0.024	22	9.400	0.000	0.000	0.032	0.032	26	10.44	0.000	0.000	0.028	0.028	25
15	10.54	0.000	0.000	0.024	0.024	22	9.915	0.000	0.000	0.032	0.032	27	10.40	0.000	0.000	0.028	0.028	25
16	10.50	0.000	0.000	0.024	0.024	22	9.458	0.000	0.000	0.022	0.022	18	11.09	0.000	0.000	0.028	0.028	27
17	10.39	0.000	0.000	0.024	0.024	21	9.400	0.000	0.000	0.022	0.022	18	10.50	0.000	0.000	0.028	0.028	25
18	10.49	0.000	0.000	0.024	0.024	22	9.410	0.000	0.000	0.022	0.022	18	10.87	0.000	0.000	0.028	0.028	26
19	10.41	0.000	0.000	0.029	0.029	26	9.450	0.000	0.000	0.022	0.022	18	11.03	0.000	0.000	0.028	0.028	27
20	10.00	0.000	0.000	0.029	0.029	25	9.400	0.000	0.000	0.022	0.022	18	10.95	0.000	0.000	0.028	0.028	27
21	10.31	0.000	0.000	0.029	0.029	26	9.397	0.000	0.000	0.022	0.022	18	10.70	0.000	0.000	0.031	0.031	28
22	10.09	0.000	0.000	0.029	0.029	26	9.783	0.000	0.000	0.023	0.023	20	10.70	0.000	0.000	0.031	0.031	28
23	10.17	0.000	0.000	0.029	0.029	26	9.281	0.000	0.000	0.023	0.023	19	10.63	0.000	0.000	0.031	0.031	28
24	10.00	0.000	0.000	0.029	0.029	25	9.400	0.000	0.000	0.023	0.023	19	10.76	0.000	0.000	0.031	0.031	28
25	10.00	0.000	0.000	0.029	0.029	25	9.358	0.000	0.000	0.023	0.023	19	10.90	0.000	0.000	0.031	0.031	29
26	10.07	0.000	0.000	0.021	0.021	18	9.469	0.000	0.000	0.023	0.023	19	10.92	0.000	0.000	0.031	0.031	29
27	10.00	0.000	0.000	0.021	0.021	18	9.494	0.000	0.000	0.023	0.023	19	11.10	0.000	0.000	0.031	0.031	29
28	10.24	0.000	0.000	0.021	0.021	18	9.590	0.000	0.000	0.023	0.023	19	11.08	0.000	0.000	0.029	0.029	28
29	10.15	0.000	0.000	0.021	0.021	18	9.233	0.000	0.000	0.023	0.023	19	11.08	0.000	0.000	0.029	0.029	28
30	10.06	0.000	0.000	0.021	0.021	18	9.481	0.000	0.000	0.023	0.023	19	11.05	0.000	0.000	0.029	0.029	28
31	9.945	0.000	0.000	0.021	0.021	18							10.99	0.000	0.000	0.029	0.029	28
Ten Daily Mean																		
Ten Daily I	10.69	0.000	0.000	0.028	0.028	26	10.04	0.000	0.000	0.030	0.030	26	10.25	0.000	0.000	0.026	0.026	23
Ten Daily II	10.53	0.000	0.000	0.025	0.025	23	9.531	0.000	0.000	0.027	0.027	22	10.64	0.000	0.000	0.029	0.029	26
Ten Daily III	10.09	0.000	0.000	0.025	0.025	21	9.449	0.000	0.000	0.023	0.023	19	10.90	0.000	0.000	0.030	0.030	28
Monthly																		
Total						723						671						806

Annual Sediment Load (Metric Tonnes) : 951407

Annual Sediment Load for period : 1973-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1973-1974	1068248	211	1068459	8149
1974-1975	1537923	0	1537923	6670
1975-1976	1111859	0	1111859	10814
1976-1977	8274424	94715	8369139	6948
1977-1978	7090119	4957	7095076	10610
1978-1979	3525517	8964	3534482	8893
1979-1980	1229436	4101	1233537	2026
1980-1981	2573679	75437	2649117	4667
1981-1982	3534712	11538	3546250	5396
1982-1983	469706	5201	474907	2829
1983-1984	4508651	1695	4510345	4341
1984-1985	13783405	3607	13787012	9734
1985-1986	2230948	52265	2283213	7969
1986-1987	1197523	467705	1665228	5509
1987-1988	3618081	9742	3627824	5442
1988-1989	2653330	8566	2661896	6326
1989-1990	4572461	7096	4579557	6331
1990-1991	5858316	20773	5879089	10081
1991-1992	780902	12814	793716	5824
1992-1993	510889	1307	512196	3123
1993-1994	3243095	6618	3249713	5339
1994-1995	6124335	60501	6184836	14523
1995-1996	4050479	64851	4115330	11583
1996-1997	4062817	4643	4067461	11494
1997-1998	4286352	79046	4365398	12968
1998-1999	743811	18933	762743	4552
1999-2000	3174341	9158	3183500	10582
2000-2001	470089	2307	472396	3340
2001-2002	2383840	26325	2410165	7843
2002-2003	685114	53200	738314	4578
2003-2004	970631	24399	995031	3843
2004-2005	2152535	6325	2158861	4615
2005-2006	849622	17730	867352	2457
2006-2007	5800155	38002	5838157	8376
2007-2008	2651605	10458	2662062	8720
2008-2009	2803252	28355	2831607	9194
2009-2010	1153452	58115	1211567	5322
2010-2011	53147	5332	58479	795
2011-2012	2996260	24235	3020495	9262
2012-2013	796162	23362	819523	4628
2013-2014	2375509	16112	2391621	9184
2014-2015	1242693	7789	1250482	7133
2015-2016	947882	3524	951407	4303

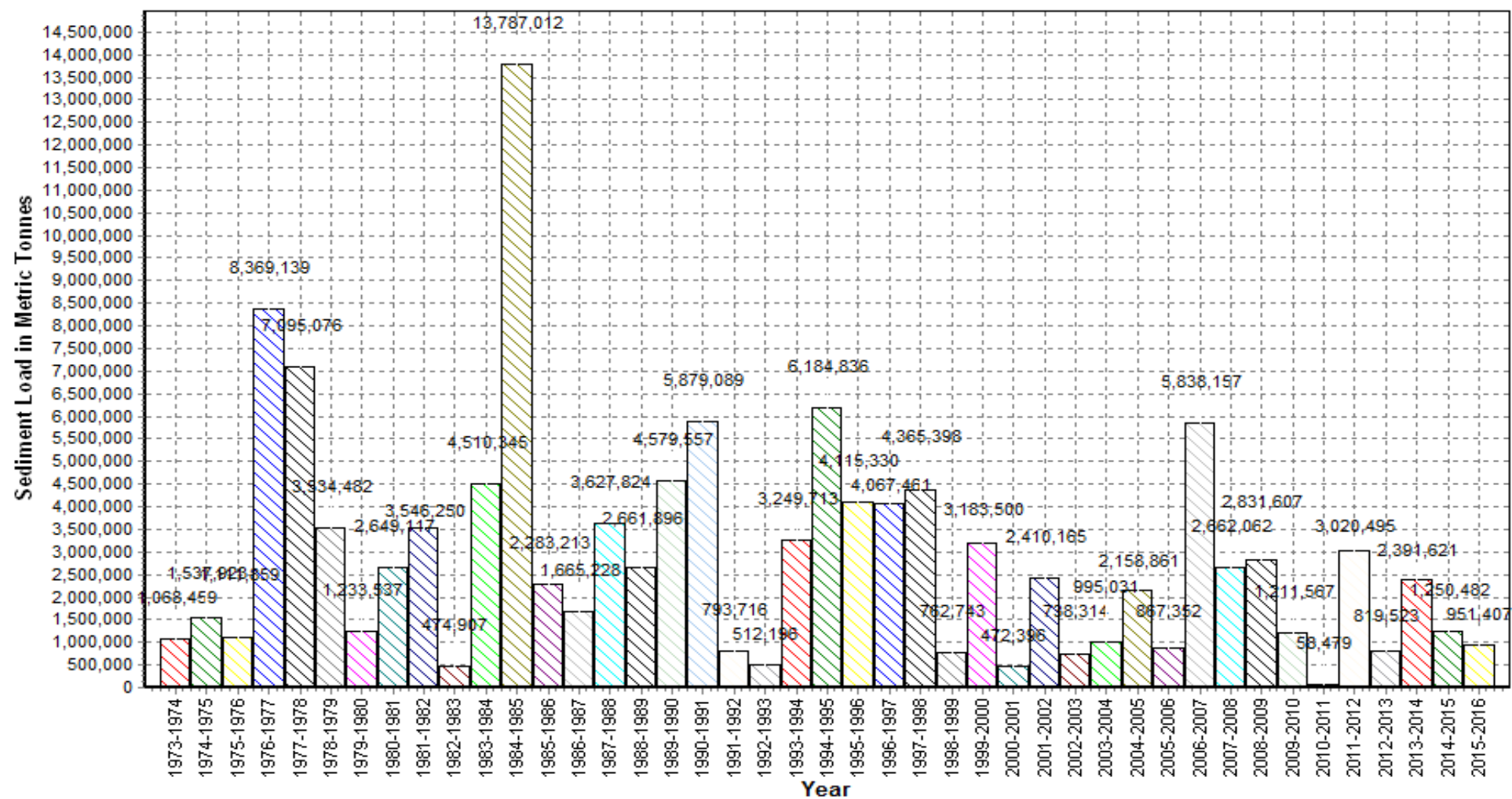
Annual Sediment Load for the period: 1973-2016

Station Name : JAMSHEDPUR (ES000N5)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

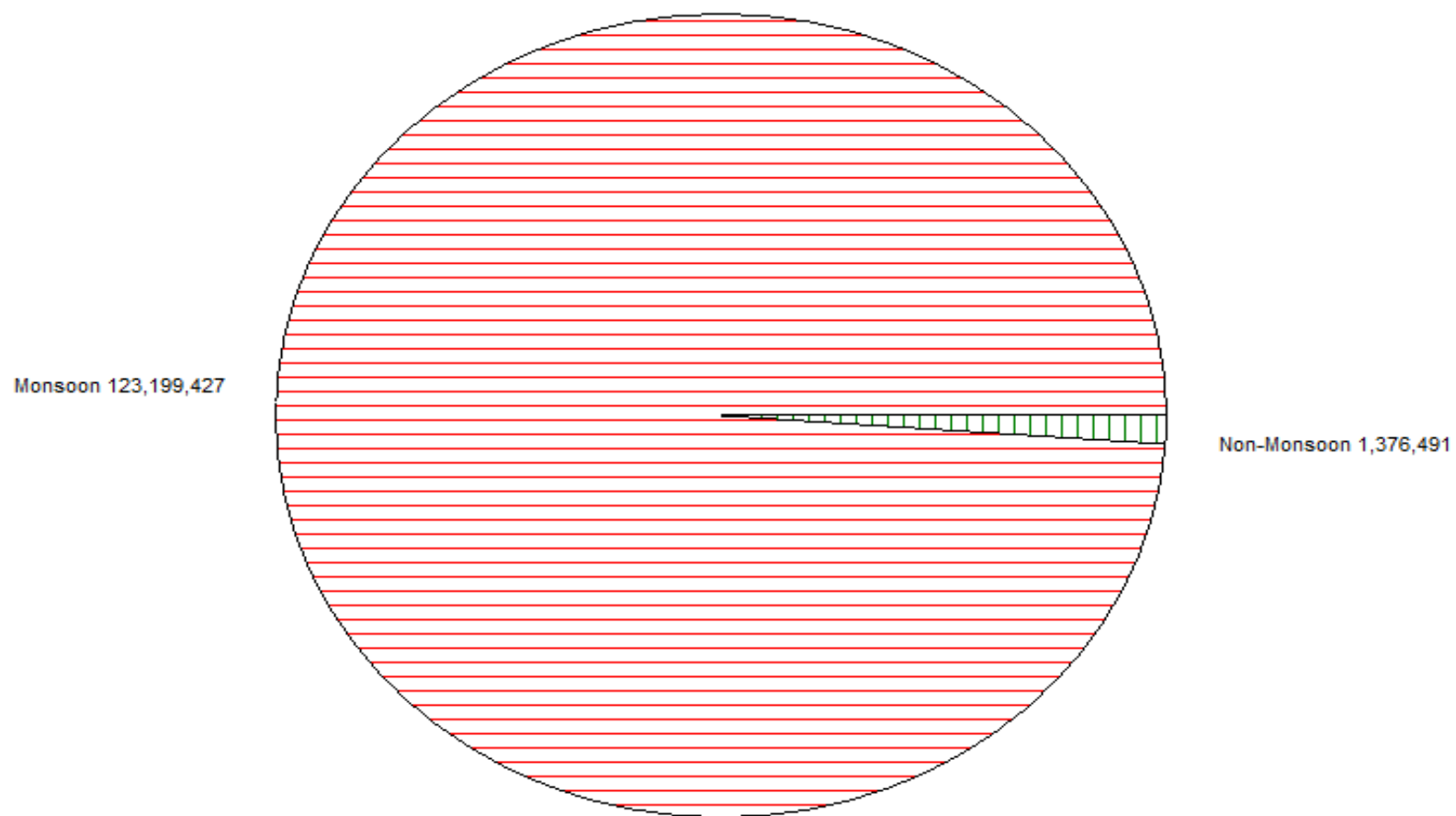
Sub-Division : Balasore



Seasonal Sediment Load for the period : 1973-2015

Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

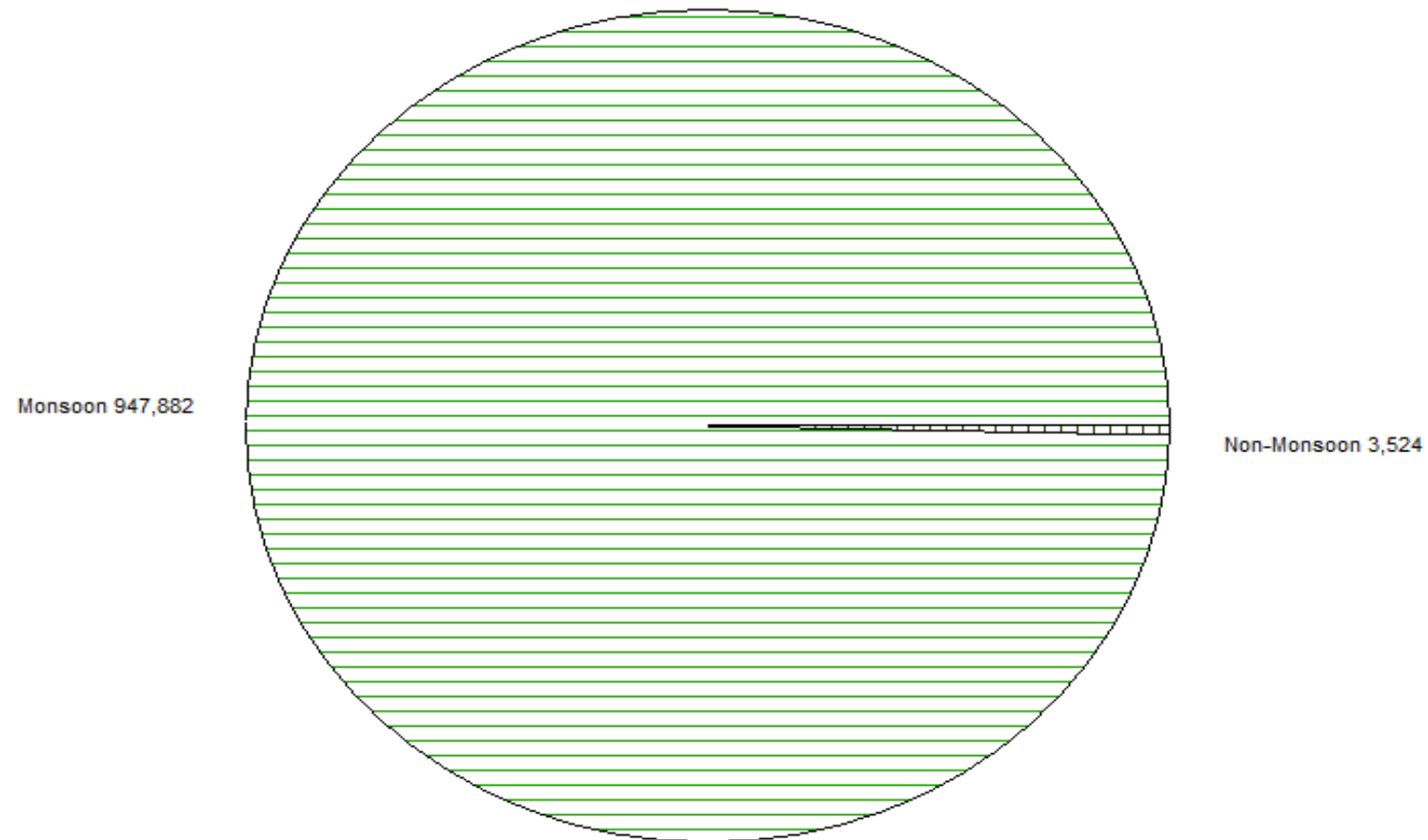
Division : E.E., Bhubaneswar
Sub-Division : Balasore



Seasonal Sediment Load for the Year: 2015-2016

Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

River Water Analysis

Sub-Division : Balasore

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	316	354	169	879	630	640	480	710	981	752	842	563
4	EC_GEN (µmho/cm)	327	367	172	882	638	645	488	716	985	760	848	560
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	6.8	6.8	7.6	7.3	7.6	7.4	7.8	8.3	7.9	7.9	7.7
7	pH_GEN (pH units)	7.9	7.2	7.3	7.2	7.5	7.5	7.2	7.5	8.4	7.7	8.1	7.5
8	Temp (deg C)	30.0	28.0	27.5	28.0	27.5	23.5	24.0	18.0	19.0	26.0	30.5	31.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	0.0	18.4	0.0
2	ALK-TOT (mgCaCO3/L)	88	65	88	46	42	55	60	92	83	92	97	208
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	37	38	37	34	30	30	32	34	30	53	35	93
5	Cl (mg/L)	18.9	15.1	15.1	13.2	15.1	17.0	15.1	17.0	15.1	24.5	28.3	24.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	0.0	22.2	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.5	0.2	0.6	0.3	0.6	0.4	0.3	0.2	0.3	0.4	0.4	0.4
9	HCO3 (mg/L)	107	79	107	56	51	68	73	113	68	113	73	254
10	K (mg/L)	2.5	2.9	1.8	1.3	2.6	2.8	2.9	2.8	5.2	8.4	0.3	0.3
11	Mg (mg/L)	22.5	11.7	9.7	7.8	6.8	7.8	7.8	8.8	9.7	22.4	13.6	38.9
12	Na (mg/L)	14.8	10.8	6.8	6.8	13.0	12.1	16.5	17.8	26.5	26.9	27.1	38.1
13	NO2+NO3 (mg N/L)	1.02	1.26	1.12	1.28	1.26	1.26	0.91	0.84	1.12	0.81	1.18	0.84
14	NO2-N (mgN/L)	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00
15	NO3-N (mgN/L)	1.01	1.26	1.12	1.28	1.26	1.26	0.90	0.81	1.12	0.81	1.18	0.84
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	7.0	6.0	6.0	6.0	6.0	8.0	5.0	6.0	5.0	6.0	5.0	6.0
18	SO4 (mg/L)	14.7	11.3	11.9	10.9	10.5	11.0	16.8	16.1	17.2	7.2	17.8	4.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.4	40.0	0.8	1.4	0.6	0.6	0.8	1.0	0.6	79.0	0.2	40.0
2	DO (mg/L)	2.8	1.8	6.4	3.6	6.2	6.0	5.0	3.8	7.9	0.8	1.0	3.6
3	DO_SAT% (%)	37	23	80	46	77	70	59	40	86	10	13	48
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	92	96	92	84	76	76	80	84	76	132	88	232
2	HAR_Total (mgCaCO3/L)	186	145	133	117	104	109	113	121	117	225	145	394
3	Na% (%)	15	14	10	11	21	19	24	24	32	20	29	17
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.3	0.3	0.6	0.5	0.7	0.7	1.1	0.8	1.0	0.8
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : JAMSHEDPUR (ES000N5)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	981	169	610
3	EC_GEN (µmho/cm)	12	985	172	616
4	pH_FLD (pH units)	12	8.3	6.8	7.5
5	pH_GEN (pH units)	12	8.4	7.2	7.6
6	Temp (deg C)	12	31.0	18.0	26.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	18.4	0.0	2.7
2	ALK-TOT (mgCaCO3/L)	12	208	42	85
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	93	30	40
5	Cl (mg/L)	12	28.3	13.2	18.2
6	CO3 (mg/L)	12	22.2	0.0	3.2
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.2	0.4
9	HCO3 (mg/L)	12	254	51	97
10	K (mg/L)	12	8.4	0.3	2.8
11	Mg (mg/L)	12	38.9	6.8	13.9
12	Na (mg/L)	12	38.1	6.8	18.1
13	NO2+NO3 (mg N/L)	12	1.28	0.81	1.08
14	NO2-N (mgN/L)	12	0.03	0.00	0
15	NO3-N (mgN/L)	12	1.28	0.81	1.07
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	8.0	5.0	6
18	SO4 (mg/L)	12	17.8	4.5	12.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	79.0	0.2	13.8
2	DO (mg/L)	12	7.9	0.8	4.1
3	DO_SAT% (%)	12	86	10	49
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	232	76	101
2	HAR_Total (mgCaCO3/L)	12	394	104	159
3	Na% (%)	12	32	10	20
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	1.1	0.3	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Flood																				
		Jun - Oct																				
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	195	206	225	250	255	199	233		242	368	290	218	177	256	470	249	333	229	222	264	299
3	EC_GEN (µmho/cm)	195	206	225	250	249	195	228		242	368	290	218	177	256	477	249	333	229	222	260	295
4	pH_FLD (pH units)	7.8	7.9	7.7	7.9	7.6	7.8	7.9		7.8	8.1	8.1	7.6	7.6	7.8	7.2	7.7	7.6	7.6	8.0	8.2	8.1
5	pH_GEN (pH units)	7.8	7.9	7.7	7.9	7.7	7.9	7.9		7.8	8.1	8.1	7.6	7.5	7.8	7.4	7.7	7.6	7.6	8.0	8.2	8.1
6	Temp (deg C)	29.2	30.6	29.6	30.5	29.1	29.7	29.4		30.2	29.3	29.5	31.0	28.7	29.4	28.2	21.5	22.8	22.2	22.9	20.4	20.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)							0.0		0.0	4.0	5.5			0.0	0.0						
2	ALK-TOT (mgCaCO3/L)							74		60	113	99			189	66						
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	21	22	23	21	25	21	20		22	33	26	24	27	20	35	25	18	26	19	25	29
5	Cl (mg/L)	18.6	19.5	20.9	20.6	25.5	16.5	21.1		16.7	26.4	37.0	18.5	29.7	37.0	15.5	20.1	30.1	14.8	19.3	24.6	24.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	6.7	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.07	0.04	0.04	0.46	0.19	0.04	0.03		0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.05	0.04	0.52	0.07	0.08
8	Fe (mg/L)	0.2			0.1	0.1	0.2	0.2		0.2	0.2	0.0	0.7	0.2	0.3	0.4	0.1		0.0	0.1	0.1	0.1
9	HCO3 (mg/L)	71	84	91	108	98	85	90		73	119	107	95	110	107	80	101	71	94	95	102	110
10	K (mg/L)	2.2	2.5	2.4	4.5	4.4	2.2	2.7		1.8	4.6	1.5	1.9	1.6	1.5	2.2	2.5	2.8	2.4	1.9	3.1	2.6
11	Mg (mg/L)	4.3	4.9	4.3	8.0	7.3	5.0	7.0		7.8	12.8	8.2	6.8	3.8	8.2	11.7	6.6	4.4	5.7	8.0	6.8	6.7
12	Na (mg/L)	10.7	13.8	15.6	14.5	17.0	10.9	14.9		10.3	16.2	10.9	8.1	13.8	10.9	10.4	16.0	20.0	11.0	12.5	16.4	17.7
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	1.19	0.85	0.61	0.97	2.23	1.01	0.66		0.82	0.92	0.39	0.85	0.80	1.16	1.19	1.32	0.74	1.08	0.66	0.86	1.22
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.01	0.00	0.00		0.00	0.00	0.07	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	NO3-N (mgN/L)	1.19	0.85	0.61	0.97	2.22	1.01	0.66		0.82	0.92	0.32	0.85	0.78	1.14	1.19	1.32	0.74	1.08	0.66	0.86	1.22
17	o-PO4-P (mg P/L)			0.134	0.000	0.025	0.000	0.000		0.038	0.083										0.000	0.010
18	P-Tot (mgP/L)	0.037	0.001	0.001	0.017	0.025	0.001	0.001		0.001	0.053	0.010	0.001	0.003	0.001	0.001	0.034	0.001	0.001	0.001	0.001	0.011
19	SiO2 (mg/L)	8.0	11.3	11.6	22.0	21.9	11.2	9.7		9.2	9.2	9.2	12.2	10.9	5.2	6.2	11.8	10.8	16.4	22.0	23.8	12.2
20	SO4 (mg/L)	4.4	3.1	7.2	7.2	9.4	5.0	11.5		15.9	19.9	36.6	50.5	37.3	36.6	11.9	8.2	3.6	8.5	5.1	4.8	7.6
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.0	1.3	1.0	1.1	1.7	1.8	1.8		2.5	17.6	9.7	1.3	0.9	1.3	8.6	1.6	1.4	1.7	1.9	2.3	6.4
2	DO (mg/L)	5.7	6.2	5.0	5.7	6.0	6.4	6.4		5.9	4.8	5.4	6.0	6.4	5.4	4.1	7.0	4.8	7.7	7.1	8.0	4.8
3	DO_SAT% (%)	74	83	66	76	78	84	84		78	62	72	80	83	70	52	77	55	87	82	88	54
	TRACE & TOXIC																					
1	Al (mg/L)						4.72															
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	53	54	57	54	63	52	50		55	83	65	60	68	51	88	62	44	64	48	62	72
2	HAR_Total (mgCaCO3/L)	61	75	75	84	93	72	79		87	137	99	88	84	85	137	89	62	88	80	90	100
3	Na% (%)	24	28	31	23	25	25	27		20	20	18	16	26	19	14	28	40	21	25	27	27
4	RSC (-)	0.0	0.0	0.1	0.1	0.0	0.1	0.0		0.0	0.0	0.2	0.0	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.7	0.8	0.7	0.7	0.6	0.7		0.5	0.6	0.4	0.4	0.7	0.5	0.4	0.7	1.1	0.5	0.6	0.8	0.8
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	247		258	353	330	265	208	333	703	333	230	247	512	294	296	338		673	397	243	257
3	EC_GEN (µmho/cm)	243		258	353	330	265	208	333	709	333	263	247	507	290	293	333		673	397	243	257
4	pH_FLD (pH units)	7.9		7.9	7.4	7.9	7.3	7.7	7.6	7.7	7.9	7.7	7.6	7.7	7.6	7.7	7.9		7.4	8.1	7.5	7.4
5	pH_GEN (pH units)	8.0		7.8	7.4	7.9	7.3	7.7	7.6	7.6	7.9	7.7	7.6	7.9	7.6	7.8	7.9		7.4	8.1	7.5	7.4
6	Temp (deg C)	20.3		19.8	21.0	21.8	20.1	19.3	19.4	21.1	25.3	26.0	26.8	26.3	26.7	26.3	25.7		26.3	24.1	27.0	26.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0				3.5						0.0	0.0		0.0	20.5	0.0	
2	ALK-TOT (mgCaCO3/L)	86		69	94	91				73						153	111		193	165	85	
3	B (mg/L)	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02		0.00	0.00	0.01	0.00
4	Ca (mg/L)	23		21	28	27	20	23	24	32	27	20	26	54	31	23	35		48	38	38	20
5	Cl (mg/L)	18.9		19.4	24.5	28.3	21.2	27.7	28.8	16.0	33.6	23.9	21.0	39.0	25.0	37.5	19.7		44.6	25.1	34.6	21.1
6	CO3 (mg/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	30.6	0.0	0.0
7	F (mg/L)	0.00		0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.16	0.17	0.06	0.08	0.05		0.35	0.05	0.05	0.05
8	Fe (mg/L)	0.2		0.2	0.2	0.0	0.8	0.1	0.2	0.3	0.1			0.1	0.1	0.3	0.3		0.2	0.2	0.0	1.4
9	HCO3 (mg/L)	105		84	126	111	104	111	106	80	121	94	95	212	114	94	136		236	112	103	91
10	K (mg/L)	2.2		1.7	2.9	1.9	2.6	2.0	1.9	3.4	2.5	2.6	2.4	8.0	2.6	2.3	3.2		5.2	3.2	2.6	2.6
11	Mg (mg/L)	8.2		10.2	14.1	9.5	9.0	6.4	5.3	8.5	10.0	5.8	5.7	12.6	6.5	6.0	11.1		27.9	14.3	7.8	4.8
12	Na (mg/L)	12.9		13.2	18.1	10.3	13.8	16.0	9.8	18.2	26.7	18.8	14.5	25.0	18.6	23.6	12.5		27.3	16.1	16.8	14.0
13	NH3-N (mg N/L)																0.05					0.00
14	NO2+NO3 (mg N/L)	1.03		1.13	0.65	0.39	0.82	1.09	1.06	1.03	1.16	0.78	0.72	0.77	0.97	0.51	1.00		3.04	0.78	0.40	0.85
15	NO2-N (mgN/L)	0.00		0.00	0.00	0.07	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.03	0.00	0.07	0.29
16	NO3-N (mgN/L)	1.03		1.13	0.65	0.32	0.82	1.06	1.04	1.02	1.16	0.78	0.72	0.77	0.97	0.51	1.00		3.00	0.77	0.33	0.85
17	o-PO4-P (mg P/L)	0.000		0.025										0.067	0.045	0.007			0.253			
18	P-Tot (mgP/L)	0.001		0.001	0.001	0.010	0.001	0.002	0.001	0.010	0.045	0.004	0.001	0.001	0.046	0.024	0.050		0.001	0.001	0.010	0.001
19	SiO2 (mg/L)	9.5		9.0	5.3	11.3	13.0	11.2	5.1	6.0	13.6	16.8	12.7	22.2	17.5	18.0	9.5		9.5	8.0	11.3	13.0
20	SO4 (mg/L)	8.2		17.1	26.3	9.2	13.4	35.7	8.8	15.3	13.5	2.3	8.7	20.2	8.7	2.3	14.9		33.9	15.5	31.7	18.4
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.9		2.8	2.3	7.1	0.8	1.0	10.6	0.7	42.8	1.8	13.7	52.0	9.0	6.8	20.0		2.4	3.4	2.6	1.1
2	DO (mg/L)	7.6		6.7	5.5	5.4	6.1	6.9	5.8	5.7	3.3	5.1	3.3	1.5	3.4	4.3	2.4		4.6	4.3	4.9	5.8
3	DO_SAT% (%)	83		73	62	61	67	75	62	63	39	63	42	19	42	53	29		54	50	61	71
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	57		53	71	67	50	58	59	79	67	51	65	135	78	58	89		120	95	95	50
2	HAR_Total (mgCaCO3/L)	91		96	130	107	88	85	81	115	109	75	88	162	105	83	135		236	154	127	70
3	Na% (%)	24		23	23	17	26	29	20	25	34	35	26	22	27	39	17		23	19	22	30
4	RSC (-)	0.0		0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.1
5	SAR (-)	0.6		0.6	0.7	0.4	0.7	0.8	0.5	0.7	1.1	1.0	0.7	0.8	0.8	1.2	0.5		0.8	0.6	0.7	0.7
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2001-2016

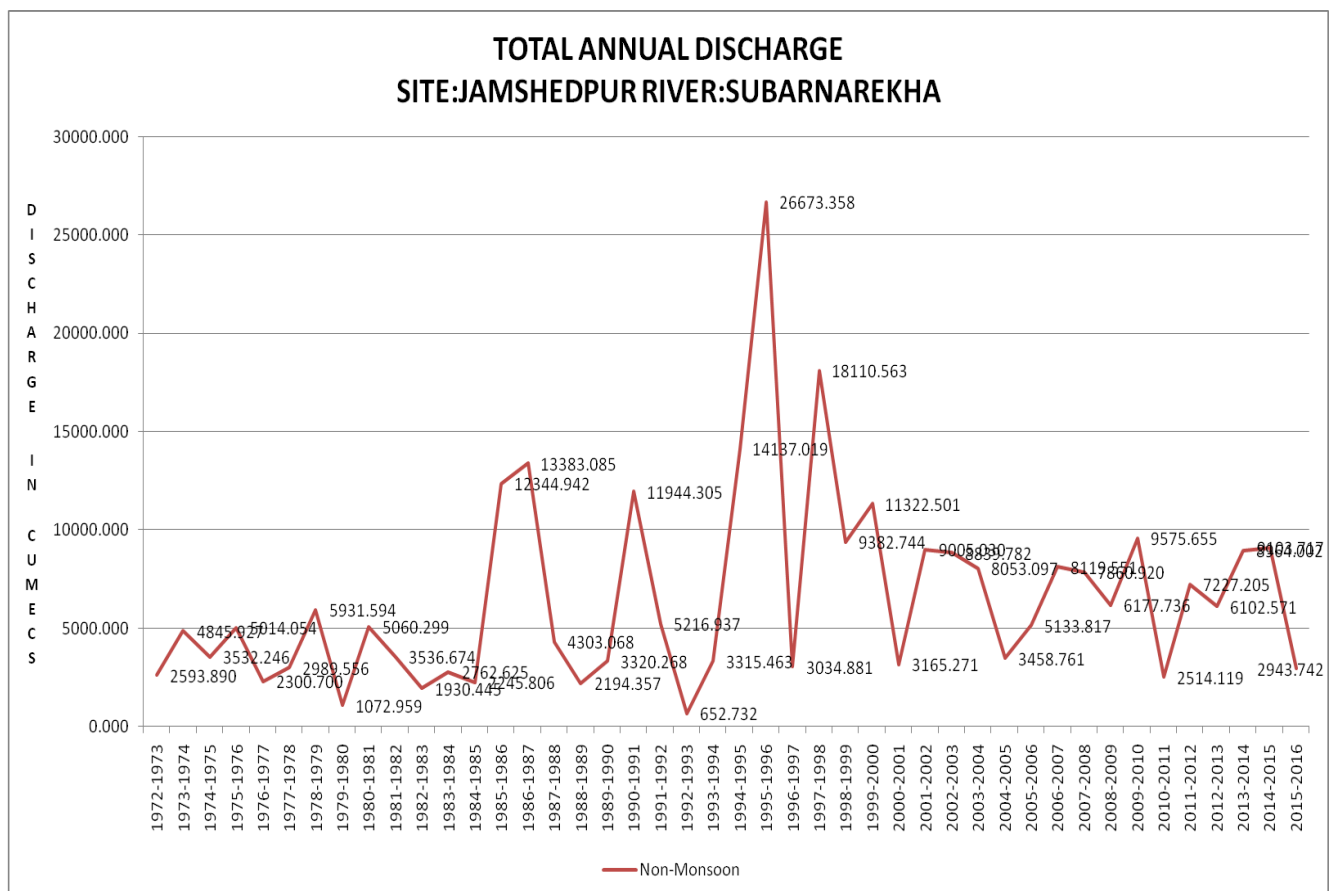
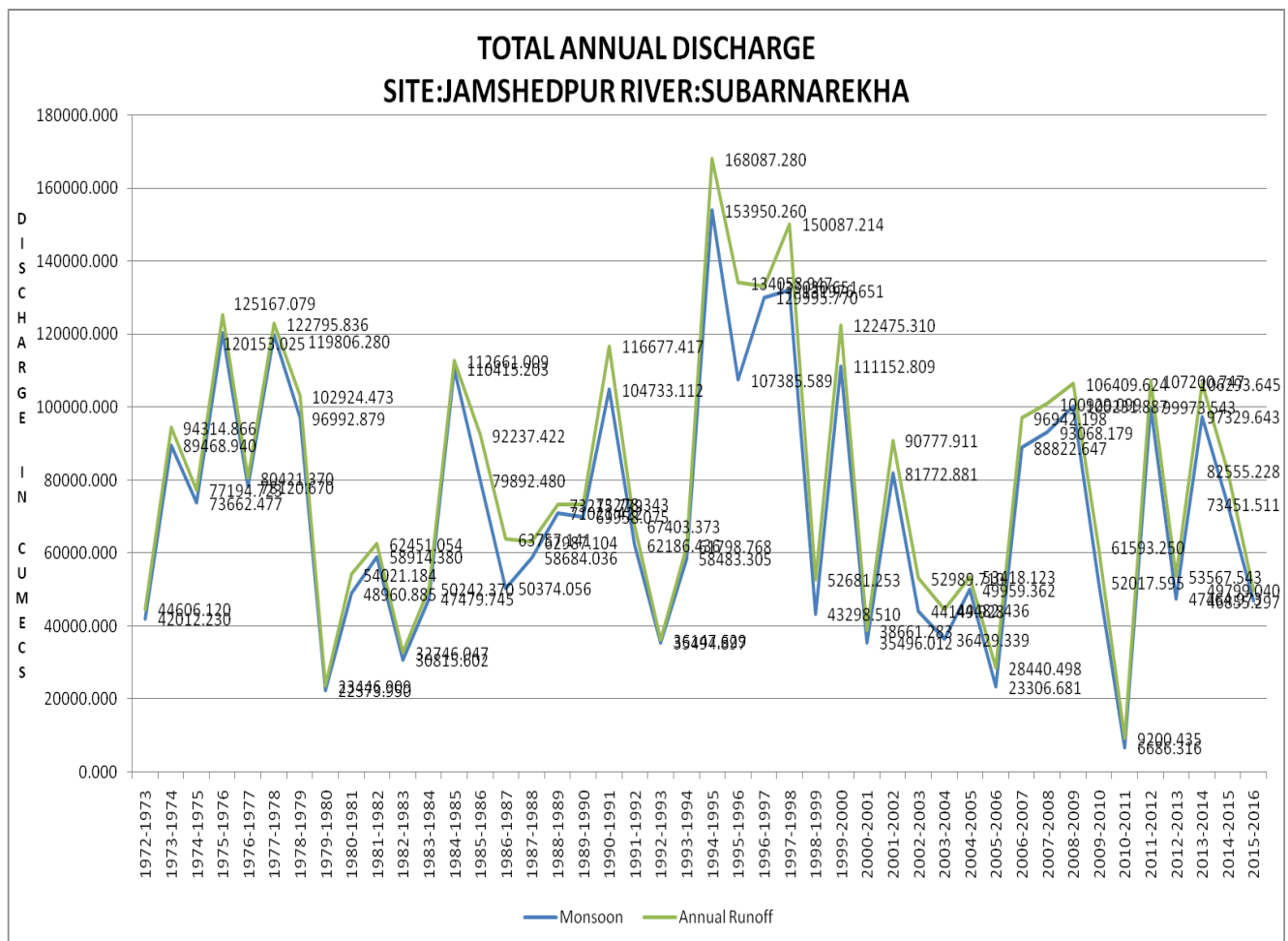
Station Name : JAMSHEDPUR (ES000N5)
Local River : Subarnarekha

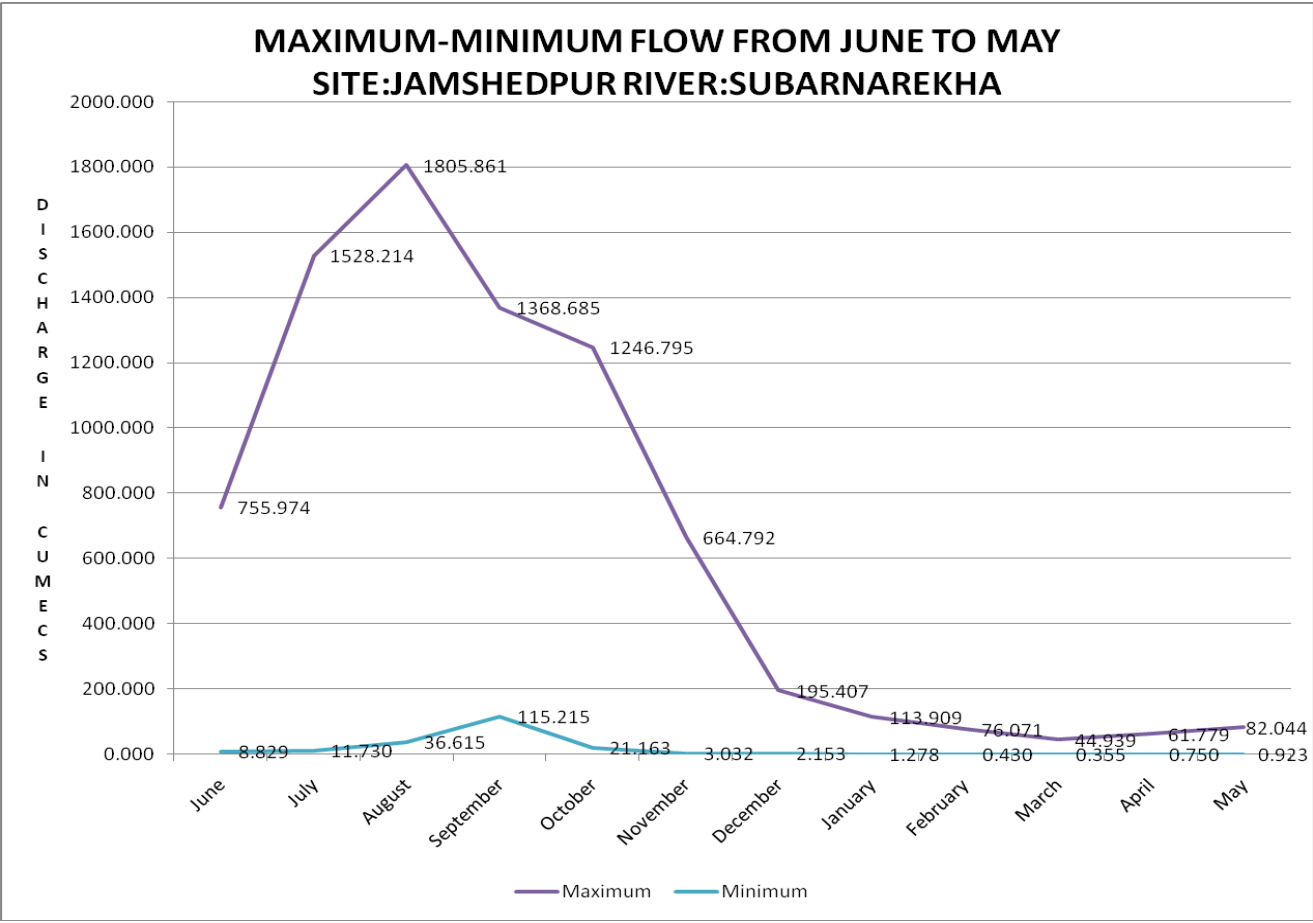
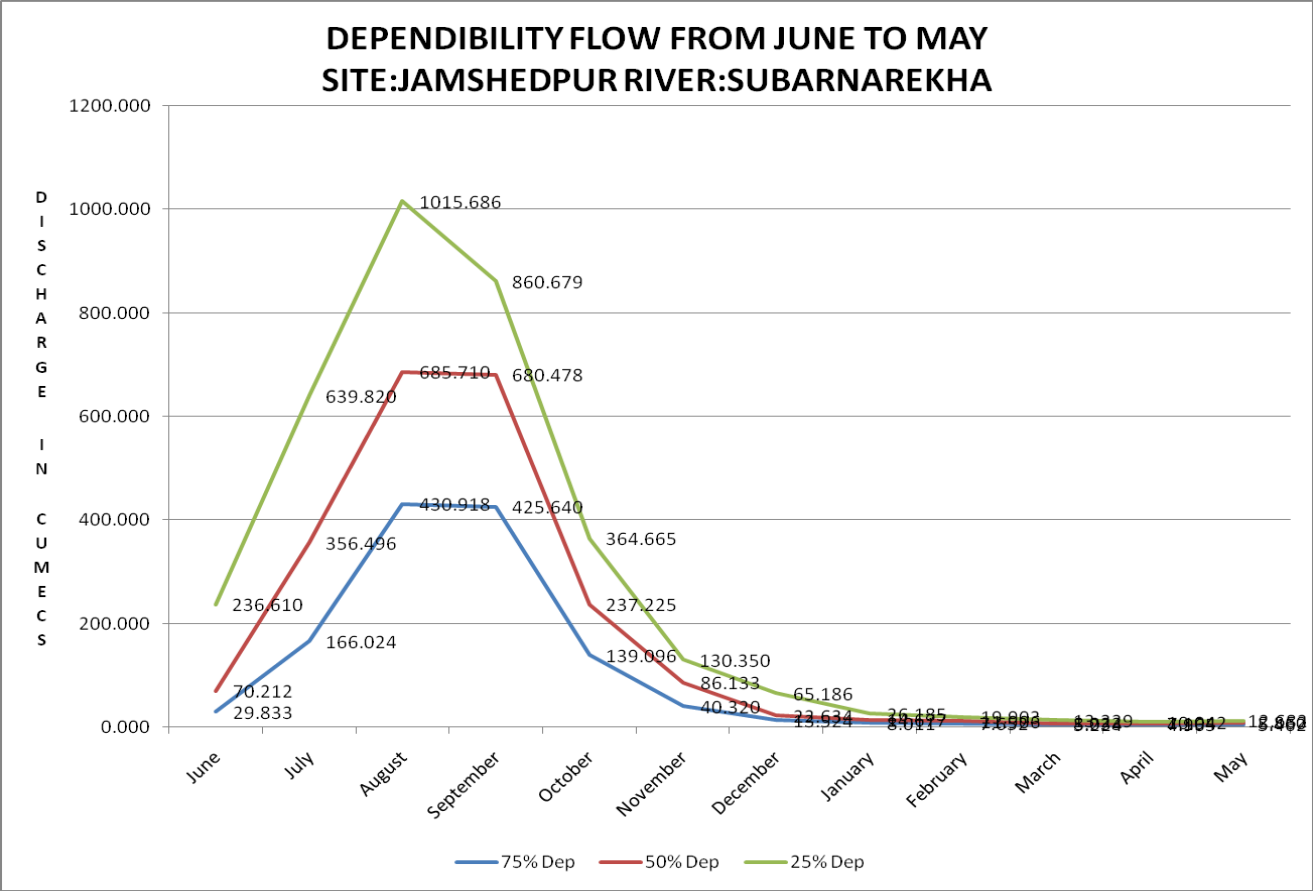
Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

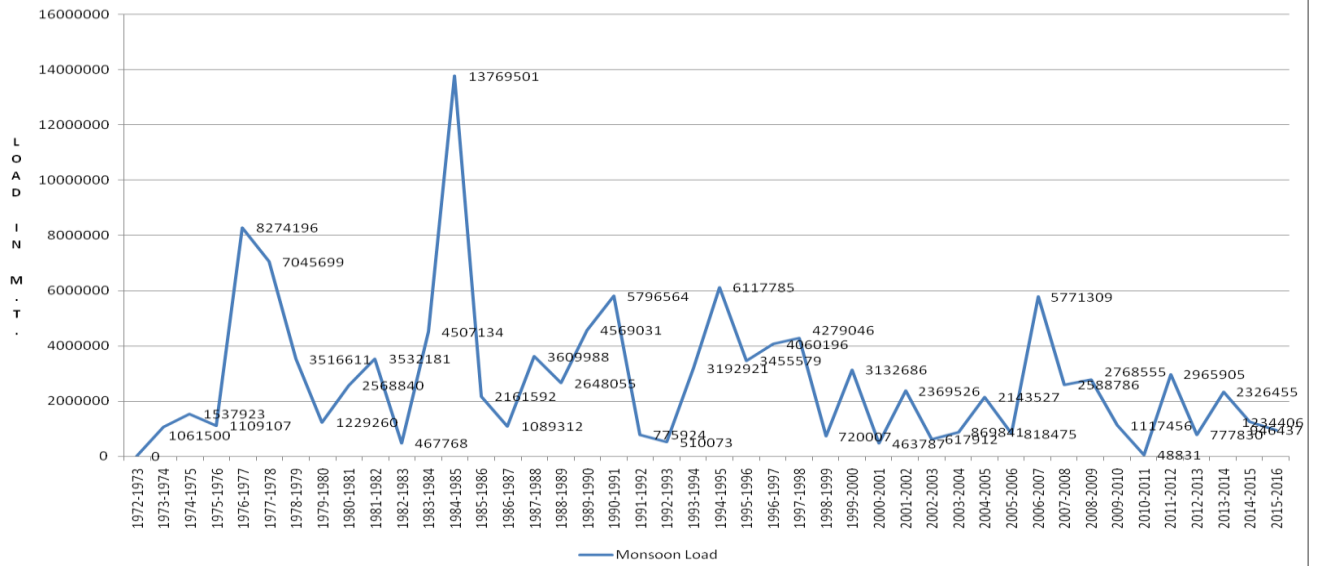
S.No	Parameters			
		2014	2015	2016
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	260	503	719
3	EC_GEN (µmho/cm)	243	503	723
4	pH_FLD (pH units)	7.3	7.9	7.8
5	pH_GEN (pH units)	7.3	7.9	7.8
6	Temp (deg C)	26.5	27.7	29.2
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)			6.1
2	ALK-TOT (mgCaCO3/L)			132
3	B (mg/L)	0.00	0.00	0.01
4	Ca (mg/L)	40	40	60
5	Cl (mg/L)	43.7	32.2	25.8
6	CO3 (mg/L)	0.0	0.0	7.4
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.2	0.4
9	HCO3 (mg/L)	168	81	147
10	K (mg/L)	3.0	2.4	3.0
11	Mg (mg/L)	10.3	10.4	25.0
12	Na (mg/L)	22.1	16.8	30.7
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	1.04	1.25	0.94
15	NO2-N (mgN/L)	0.03	0.00	0.00
16	NO3-N (mgN/L)	1.01	1.25	0.94
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.005	0.001	0.010
19	SiO2 (mg/L)	12.5	4.3	5.7
20	SO4 (mg/L)	75.8	32.9	9.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	2.0	1.2	39.7
2	DO (mg/L)	3.8	4.4	1.8
3	DO_SAT% (%)	45	55	24
	TRACE & TOXIC			
1	Al (mg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	101	100	151
2	HAR_Total (mgCaCO3/L)	144	143	255
3	Na% (%)	25	20	22
4	RSC (-)	0.3	0.0	0.0
5	SAR (-)	0.8	0.6	0.9
	PESTICIDES			

TREND ANALYSIS

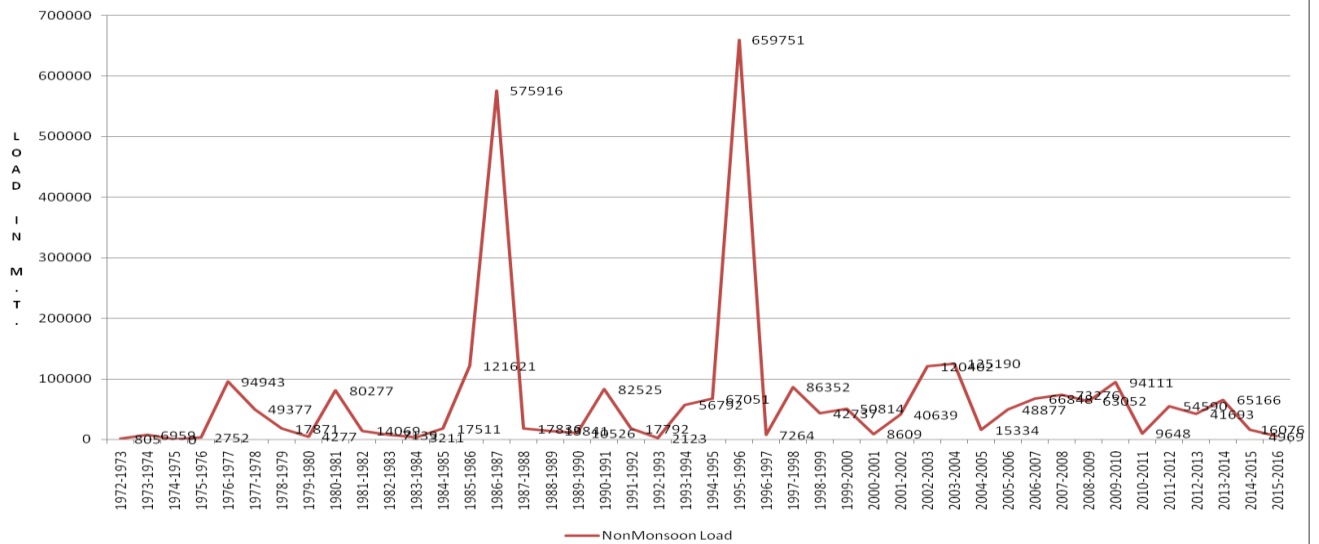




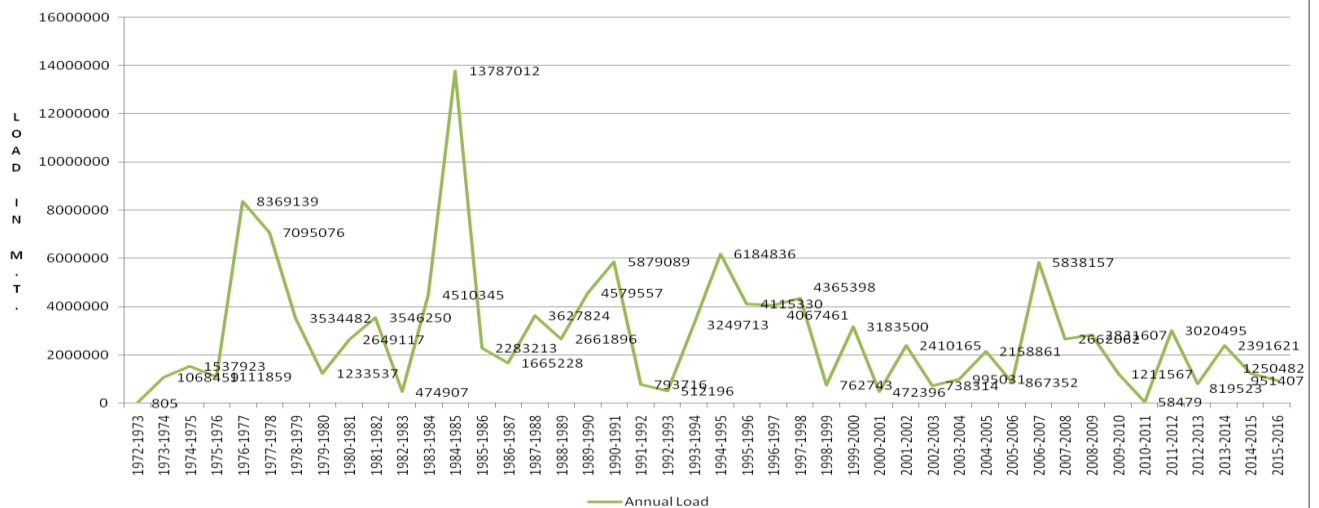
Monsoon Load SITE:JAMSHEDPUR RIVER:SUBARNAREKHA



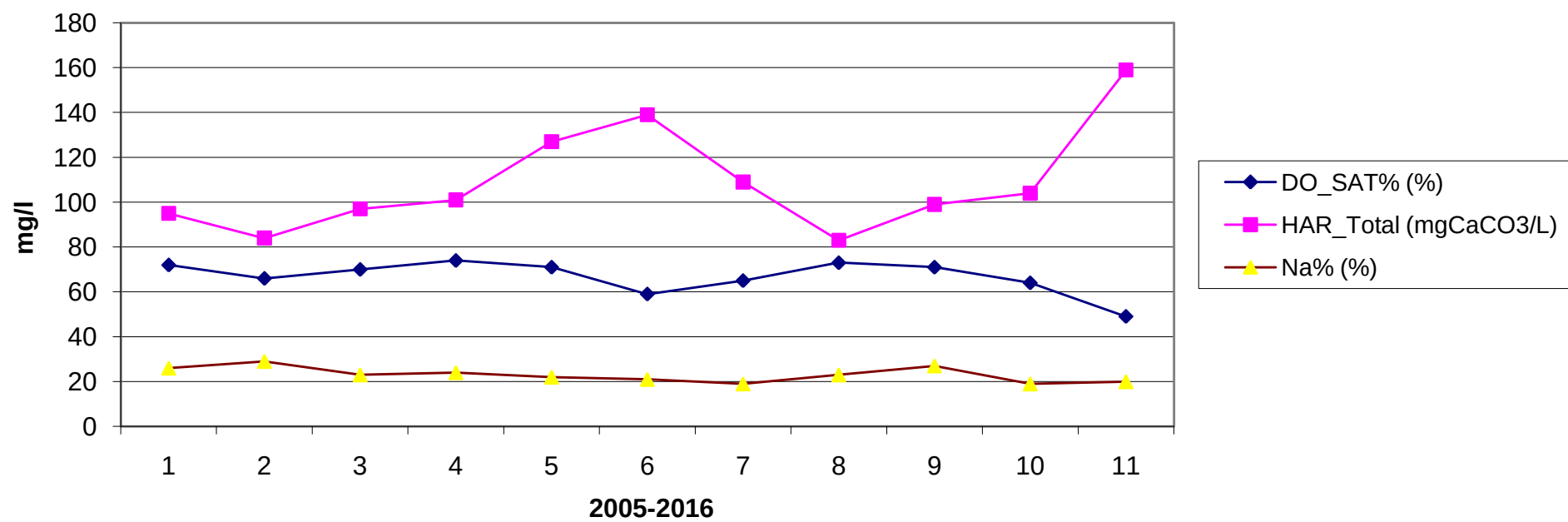
NonMonsoon Load SITE:JAMSHEDPUR RIVER:SUBARNAREKHA



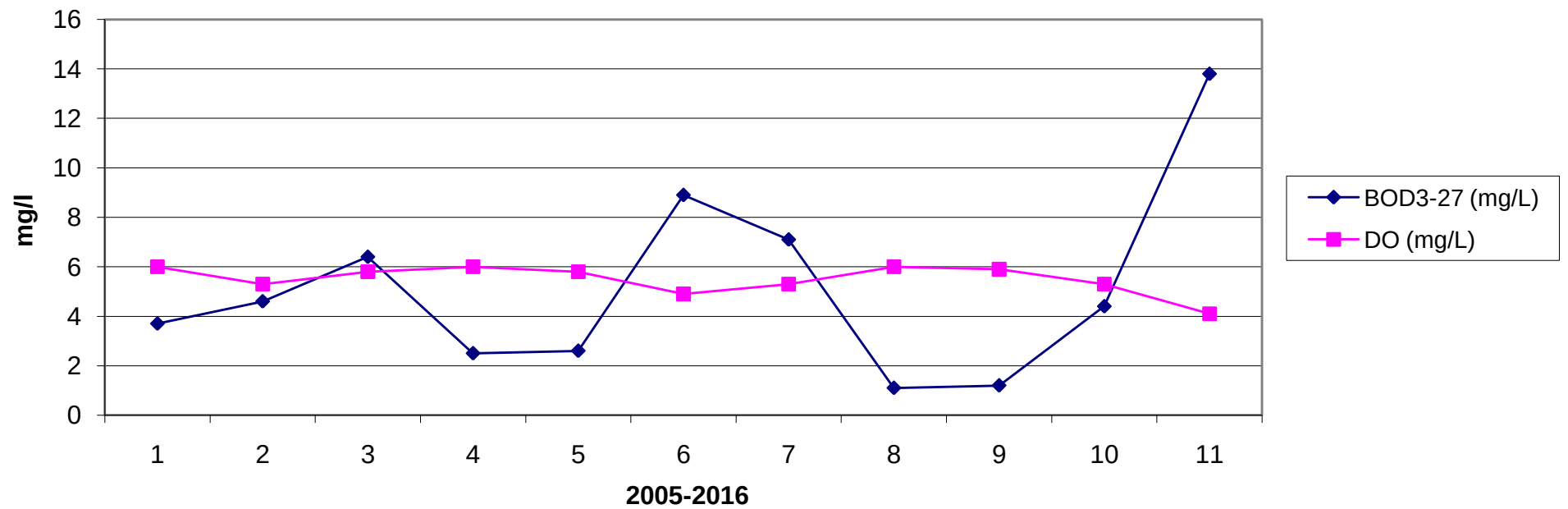
Annual Load SITE:JAMSHEDPUR RIVER:SUBARNAREKHA



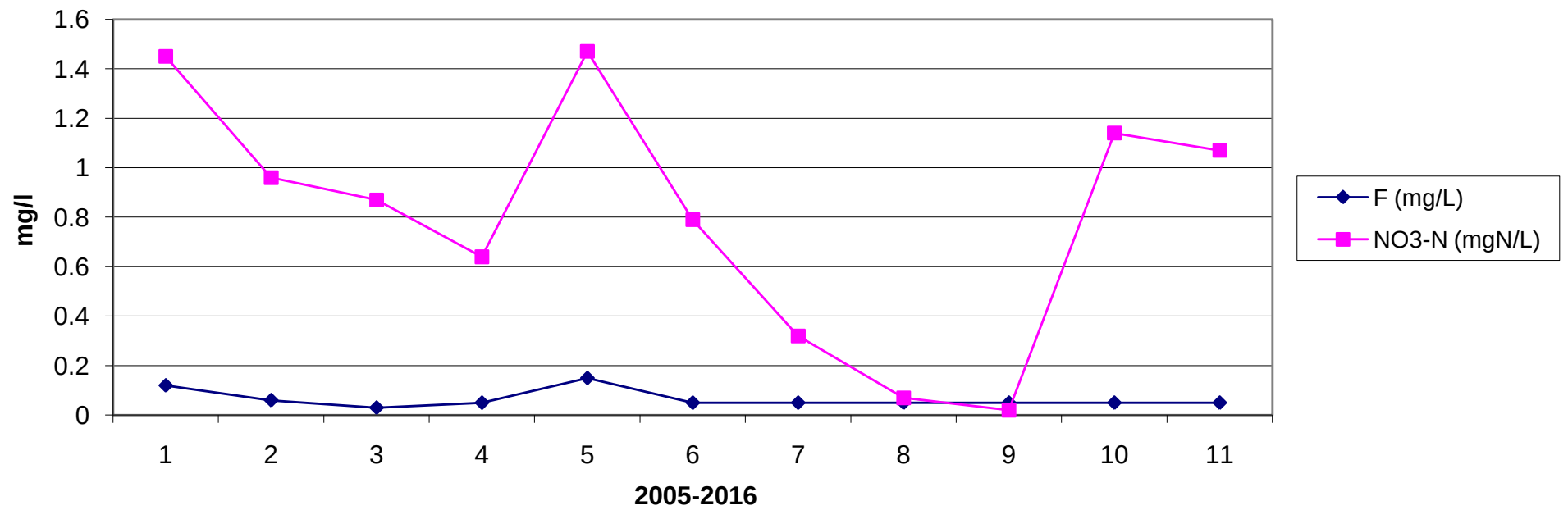
Year Wise Trend For Jamshedpur



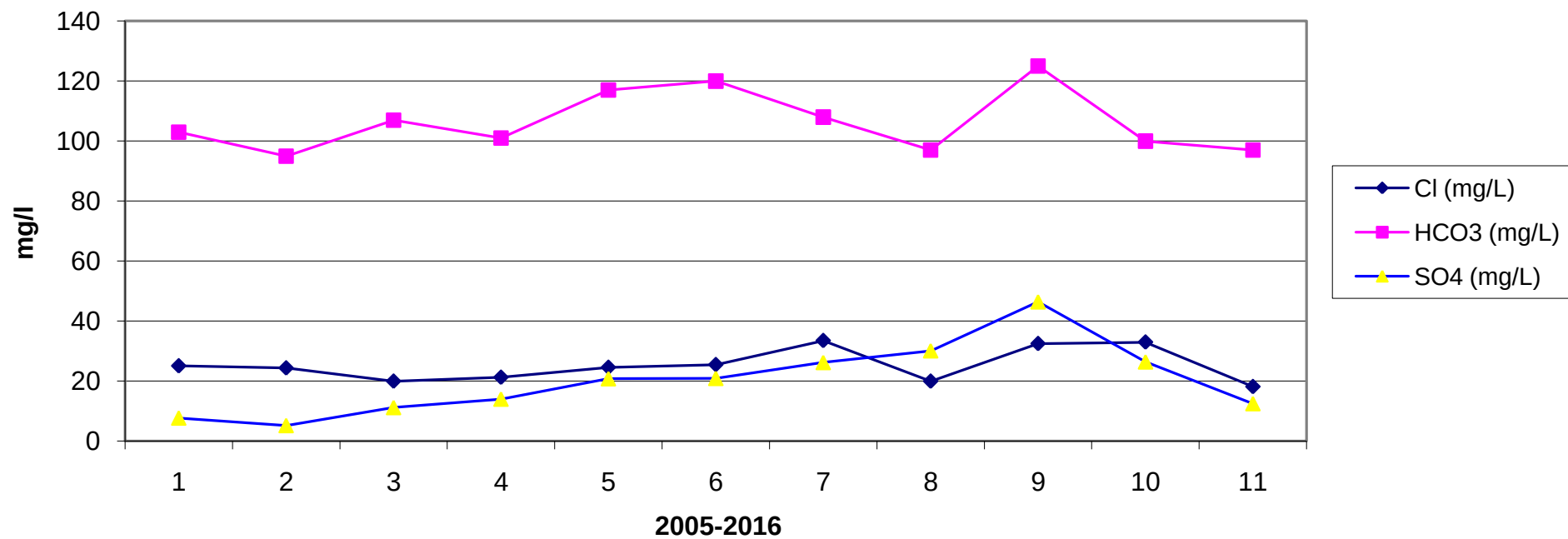
Year Wise Trend For Jamshedpur



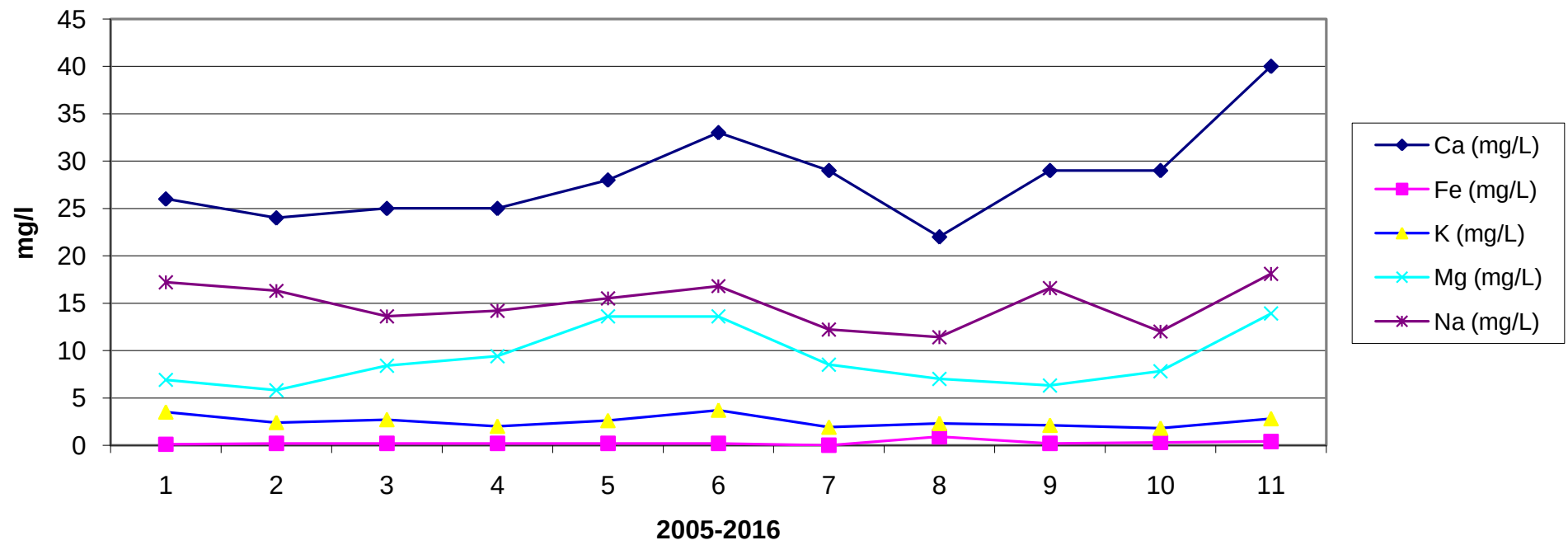
Year Wise Trend For Jamshedpur



Year Wise Trend For Jamshedpur



Year Wise Trend For Jamshedpur



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : GHATSHILA

Code : ES000K7

State : Jharkhand

District : Purba Singhbhum

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 14176 Sq. Km.

Bank : Left

Latitude : 22°34'49"

Longitude : 86°20'08"

Zero of Gauge (m) : 45 (m.s.l)
72 (m.s.l)

16.03.1971 - 20.04.1972
21.04.1972 - 16.03.2031

Opening Date

Closing Date

Gauge : 16.03.1971

Discharge : 16.03.1971

Sediment : 30.12.1972

Water Quality : 01.09.1972

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1971-1972	5820	54.825	10.08.1971	1.000	74.363	22.05.1972
1972-1973	1968	80.360	12.09.1972	0.600	74.418	03.06.1972
1973-1974	8102	84.915	13.10.1973	1.000	74.340	07.05.1974
1974-1975	9580	85.050	17.08.1974	1.100	74.310	15.04.1975
1975-1976	8424	83.695	20.08.1975	0.900	74.338	10.05.1976
1976-1977	8792	82.450	18.09.1976	1.032	74.000	04.06.1976
1977-1978	5560	82.200	07.08.1977	1.890	74.105	17.04.1978
1978-1979	9210	84.680	03.09.1978	2.280	74.055	31.05.1979
1979-1980	2386	79.140	09.08.1979	1.280	74.020	06.06.1979
1980-1981	910.7	77.920	07.09.1980	5.110	74.230	14.04.1981
1981-1982	972.5	78.510	21.08.1981	1.080	74.295	16.05.1982
1982-1983	1474	78.950	21.08.1982	0.730	74.255	13.04.1983
1983-1984	1686	79.105	07.09.1983	1.830	74.395	08.05.1984
1984-1985	3845	81.730	09.08.1984	1.386	74.135	02.05.1985
1985-1986	8630	82.450	17.10.1985	0.500	74.280	11.05.1986
1986-1987	1480	79.050	08.07.1986	1.100	74.230	31.05.1987
1987-1988	5086	80.800	28.08.1987	1.220	74.220	01.06.1987
1988-1989	6666	82.685	28.06.1988	1.100	73.945	26.05.1989
1989-1990	5400	81.560	05.08.1989	1.900	74.040	27.04.1990
1990-1991	3068	79.955	03.08.1990	2.000	74.125	19.05.1991
1991-1992	3776	80.410	23.08.1991	2.000	74.200	24.05.1992

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1992-1993	2020	79.120	27.09.1992	0.679	74.180	22.02.1993
1993-1994	1761	78.705	15.09.1993	3.080	74.315	10.05.1994
1994-1995	5989	81.860	04.08.1994	1.219	74.030	09.05.1995
1995-1996	3745	80.370	18.09.1995	2.777	74.470	23.04.1996
1996-1997	5867	80.590	23.06.1996	1.238	74.100	15.03.1997
1997-1998	10582	83.650	06.08.1997	15.68	74.460	12.06.1997
1998-1999	3015	79.850	13.09.1998	9.500	74.280	30.04.1999
1999-2000	5400	81.560	08.08.1999	4.728	74.230	22.03.2000
2000-2001	2521	79.080	26.07.2000	5.921	74.260	24.02.2001
2001-2002	4699	81.280	12.07.2001	11.29	74.530	07.05.2002
2002-2003	2037	79.000	12.09.2002	11.33	74.300	30.05.2003
2003-2004	1703	78.440	28.10.2003	7.697	74.320	24.04.2004
2004-2005	4000	80.260	22.08.2004	5.113	74.240	03.05.2005
2005-2006	1602	78.210	30.06.2005	4.238	74.130	30.03.2006
2006-2007	4600	81.220	30.07.2006	14.50	74.130	15.04.2007
2007-2008	6061	82.315	07.07.2007	16.30	73.920	23.03.2008
2008-2009	9609	84.590	18.06.2008	21.40	74.010	13.02.2009
2009-2010	4192	80.555	08.09.2009	0.399	73.600	12.03.2010
2010-2011	410.9	75.800	20.09.2010	20.12	73.770	04.01.2011
2011-2012	5580	80.890	23.09.2011	40.51	74.180	10.06.2011
2012-2013	2300	79.080	15.08.2012	18.07	74.180	19.03.2013
2013-2014	4886	81.650	21.08.2013	16.94	73.600	01.07.2013
2014-2015	5619	76.980	03.09.2014	30.00	74.280	01.06.2014
2015-2016	1747	81.350	29.07.2015	17.00	74.300	17.04.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	74.560	39.03	74.560	38.23	77.500	611.5	76.070	212.8	74.650	104.9	74.470	88.00 *
2	74.580	39.90	75.100	49.98	77.930	890.0 *	75.700	187.9	74.650	104.0 *	74.480	88.71
3	74.580	39.25	74.940	45.80	78.250	1126	75.530	171.3	74.600	101.5	74.480	85.23
4	74.550	38.75	74.580	38.37	78.050	990.2	75.420	168.4	74.650	104.0 *	74.530	86.99
5	74.550	38.53	75.120	90.00 *	77.860	924.8	75.480	166.4	74.650	104.8	74.470	84.40
6	74.570	38.92	74.960	46.26	76.900	288.4	75.130	142.8 *	74.560	96.98	74.540	87.82
7	74.680	42.00 *	75.250	46.83	76.380	218.6	74.920	114.7	74.560	95.84	74.560	89.16
8	74.590	39.69	76.450	193.8	76.020	249.3	74.900	110.8	74.620	109.6	74.560	89.00 *
9	74.570	38.97	75.770	186.2	75.850	194.0 *	74.900	108.6	74.660	114.7	74.540	86.63
10	74.540	38.50	75.400	177.6	75.840	194.3	74.680	101.4	74.680	113.4	74.580	88.85
11	74.540	38.12	76.120	192.0	75.600	188.6	74.840	109.9	74.760	110.0 *	74.580	88.80 *
12	74.560	39.01	78.180	600.0 *	75.400	181.4	74.840	106.1	74.620	107.4	74.560	87.48
13	74.600	42.40	75.450	185.5	75.460	184.9	74.880	110.0 *	74.620	104.2	74.470	77.67
14	74.580	40.00 *	75.560	183.9	75.400	180.9	74.700	106.2	74.620	102.5	74.490	83.27
15	74.560	39.01	75.460	181.4	75.430	190.0 *	74.720	110.2	74.560	97.28	74.490	83.20 *
16	74.560	38.86	75.580	185.3	75.720	220.8 *	74.700	103.5	74.560	96.03	74.510	86.22
17	74.560	38.39	77.800	915.0	75.820	190.9	74.980	118.6 *	74.520	91.66	74.530	87.33
18	74.620	38.42	76.500	200.0 *	75.620	103.3	74.880	109.4	74.480	88.00 *	74.480	85.35
19	74.560	38.39	76.720	220.0 *	75.260	142.3	74.980	118.6	74.500	90.95	74.650	108.2
20	74.560	38.57	76.820	259.5	74.980	129.8	74.840	108.0 *	74.580	96.20	74.600	103.3
21	74.560	38.55 *	77.100	471.9	74.920	125.0	74.940	111.3	74.540	92.00 *	74.540	94.09
22	74.570	40.85	77.980	1296	75.020	134.0	75.040	128.5	74.500	90.00 *	74.620	98.00 *
23	74.650	42.36	78.210	1080	74.930	129.0 *	75.260	169.2	74.480	90.05	74.580	96.36
24	74.780	45.64	77.600	669.9	74.840	124.7	75.370	171.9	74.480	91.00 *	74.740	105.6
25	74.670	42.71	77.500	661.0	75.500	188.3	75.120	158.0 *	74.780	102.0 *	74.700	100.0 *
26	74.650	42.80	77.640	690.0 *	75.560	175.4	75.260	161.4	74.540	92.75	74.720	102.9
27	74.540	40.88	77.000	465.4	76.080	209.5	74.990	140.0 *	74.420	78.43	74.720	100.3
28	75.100	44.00 *	81.000	1729	75.650	190.7	74.850	110.5	74.340	76.16	74.720	96.18
29	74.540	37.77	81.350	1747	75.520	178.5	74.600	99.05	74.550	90.89	74.720	96.00 *
30	74.540	37.84	77.980	986.5	75.280	142.6 *	74.640	102.3	74.440	83.95	74.720	92.32
31			78.070	1007	75.280	139.0			74.750	100.5		
Ten-Daily Mean												
I Ten-Daily	74.577	39.35	75.213	91.30	77.058	568.7	75.273	148.5	74.628	105.0	74.521	87.48
II Ten-Daily	74.570	39.12	76.419	312.3	75.469	171.3	74.836	110.1	74.582	98.42	74.536	89.08
III Ten-Daily	74.660	41.34	78.312	982.1	75.325	157.9	75.007	135.2	74.529	89.79	74.678	98.17
Monthly												
Min.	74.540	37.77	74.560	38.23	74.840	103.3	74.600	99.05	74.340	76.16	74.470	77.67
Max.	75.100	45.64	81.350	1747	78.250	1126	76.070	212.8	74.780	114.7	74.740	108.2
Mean	74.602	39.94	76.702	478.7	75.931	294.7	75.039	131.3	74.578	97.48	74.578	91.58

Annual Runoff in MCM = 3491 Annual Runoff in mm = 246

Peak Observed Discharge = 1747 cumecs on 29/07/2015 Corres. Water Level :81.35 m

Lowest Observed Discharge = 17.01 cumecs on 08/04/2016 Corres. Water Level :74.18 m

Stage-Discharge Data for the period 2015 - 2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	74.700	88.37	74.620	41.08	74.560	51.40	74.580	31.31	74.520	21.78	74.360	
2	74.700	86.32	74.620	39.70	74.570	42.70	74.560	25.67	74.500	21.85	74.380	17.41
3	74.700	85.11	74.610	37.00 *	74.580	40.67	74.560	25.68	74.500	21.80 *	74.360	17.31
4	74.720	87.63	74.610	37.81	74.580	34.41	74.530	21.85	74.480	21.65	74.540	21.92
5	74.720	81.87	74.600	37.97	74.580	36.38	74.540	21.92	74.480	21.63	74.540	21.94
6	74.720	81.00 *	74.600	36.88	74.540	35.33	74.540	21.80 *	74.480	21.74	74.520	21.89
7	74.700	82.11	74.600	35.98	74.560		74.540	21.80 *	74.480	21.71	74.520	21.86
8	74.720	82.92	74.600	32.96	74.580	34.28	74.540	21.86	74.180	17.01	74.520	21.85
9	74.680	74.68	74.610	32.77	74.600	35.19	74.560	22.05	74.440	17.57	74.520	21.80 *
10	74.630	69.06	74.610	32.40 *	74.600	40.51	74.560	22.08	74.440	17.50 *	74.480	21.35
11	74.630	63.23	74.620	31.41	74.600	40.95	74.540	21.97	74.420	17.54	74.480	21.67
12	74.630	51.57	74.620	35.53	74.570	36.88	74.560	22.10	74.430	17.55	74.460	21.59
13	74.680	70.00 *	74.620	30.95	74.590	37.31	74.560	23.00 *	74.430	17.53	74.520	21.55
14	74.600	48.11	74.600	30.11	74.590		74.570	22.25	74.420	17.50 *	74.520	21.81
15	74.620	47.32	74.600	30.22	74.590	37.43	74.560	22.09	74.420	17.50	74.520	21.80 *
16	74.620	45.16	74.580	29.91	74.580	37.16	74.560	22.06	74.380	17.42	74.520	21.84
17	74.620	42.45	74.580	29.00 *	74.580	37.25	74.540	21.86	74.300	17.00 *	74.540	21.89
18	74.640	43.12	74.590	30.19	74.580	37.22	74.560	22.11	74.400	17.43	74.550	21.92
19	74.630	41.46	74.600	30.34	74.560	36.78	74.560	22.09	74.490	17.64	74.550	21.93
20	74.630	41.00 *	74.610	30.35	74.560	36.76	74.560	22.00 *	74.490	17.00 *	74.530	21.86
21	74.600	39.77	74.640	31.13	74.560		74.540	21.94	74.480	21.69	74.530	21.60 *
22	74.600	39.79	74.640	31.43	74.560	36.81	74.540	21.93	74.460	21.62	74.530	21.80 *
23	74.630	41.98	74.620	30.84	74.520	25.67	74.540	21.94	74.460	21.61	74.520	21.82
24	74.630	41.00 *	74.600	30.00 *	74.540	25.72	74.540	21.80 *	74.460	21.60 *	74.520	21.85
25	74.630	41.00 *	74.580	29.58	74.530	17.80	74.540	21.80 *	74.390	17.45	74.540	21.90
26	74.620	41.52	74.580	29.50 *	74.540	17.81	74.540	21.98	74.370	17.38	74.560	22.67
27	74.620	41.00 *	74.580	26.35	74.560	25.75	74.560	23.00 *	74.340	17.31	74.590	22.02
28	74.620	41.47	74.590	23.36	74.560		74.540	21.97	74.340	17.32	74.590	22.00
29	74.630	41.73	74.590	23.05	74.580	31.23	74.540	21.93	74.320	17.27	74.590	22.00 *
30	74.610	40.91	74.580	22.72			74.530	21.84	74.360	17.30	74.580	21.96
31	74.610	39.88	74.580	22.60 *			74.530	21.86			74.580	21.89
Ten-Daily Mean												
I Ten-Daily	74.699	81.91	74.608	36.45	74.575	38.98	74.551	23.60	74.450	20.42	74.474	20.81
II Ten-Daily	74.630	49.34	74.602	30.80	74.580	37.53	74.557	22.15	74.418	17.41	74.519	21.79
III Ten-Daily	74.618	40.91	74.598	27.33	74.550	25.83	74.540	22.00	74.398	19.05	74.557	21.96
Monthly												
Min.	74.600	39.77	74.580	22.60	74.520	17.80	74.530	21.80	74.180	17.00	74.360	17.31
Max.	74.720	88.37	74.640	41.08	74.600	51.40	74.580	31.31	74.520	21.85	74.590	22.67
Mean	74.648	56.86	74.603	31.39	74.569	34.78	74.549	22.57	74.422	18.96	74.518	21.56

Peak Computed Discharge = 890.0 cumecs on 02/08/2015

Corres. Water Level :77.93 m

Lowest Computed Discharge = 17.00 cumecs on 17/04/2016

Corres. Water Level :74.3 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

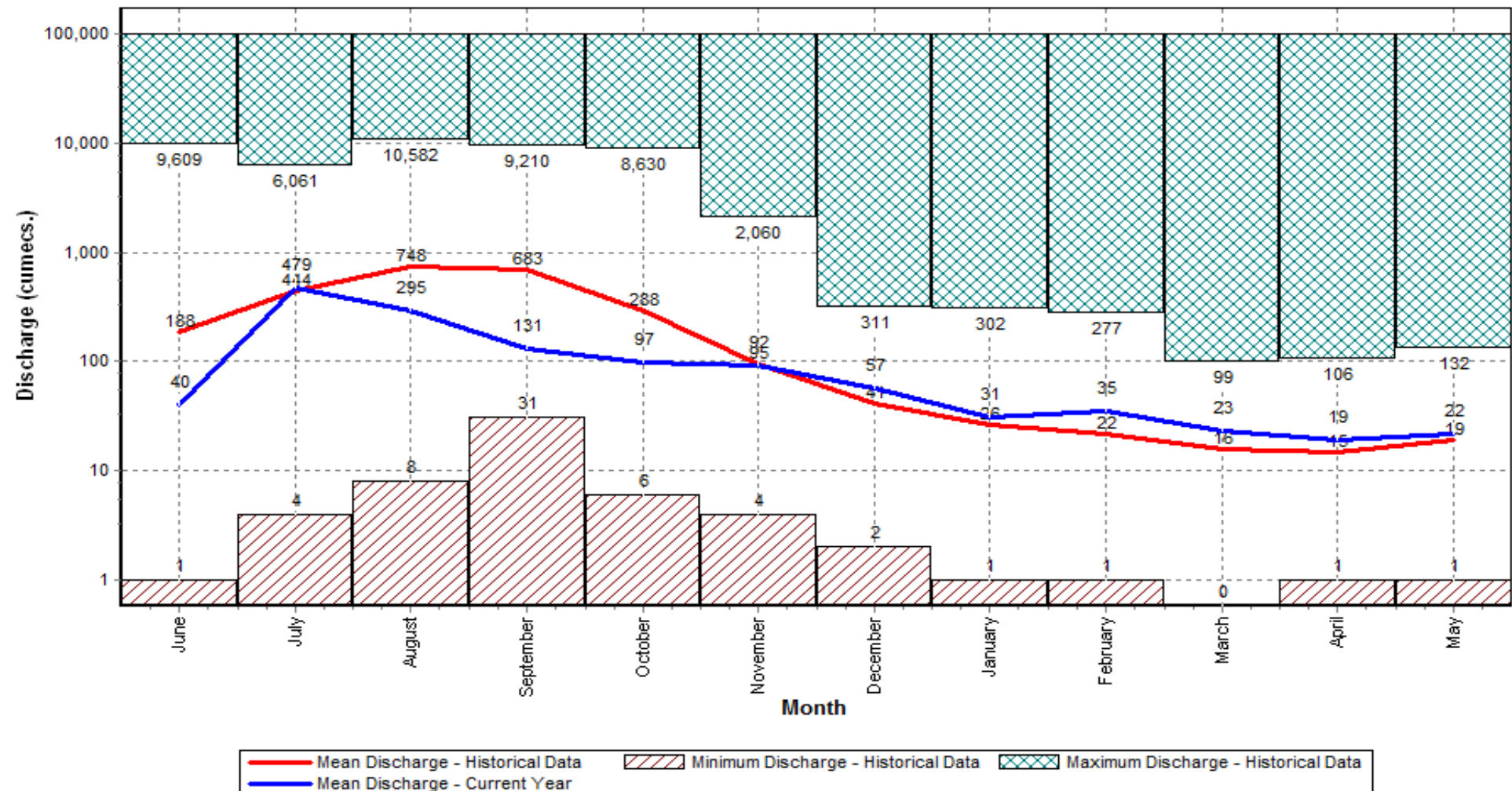
Station Name : GHATSHILA (ES000K7)

Data considered : 1971-2016

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



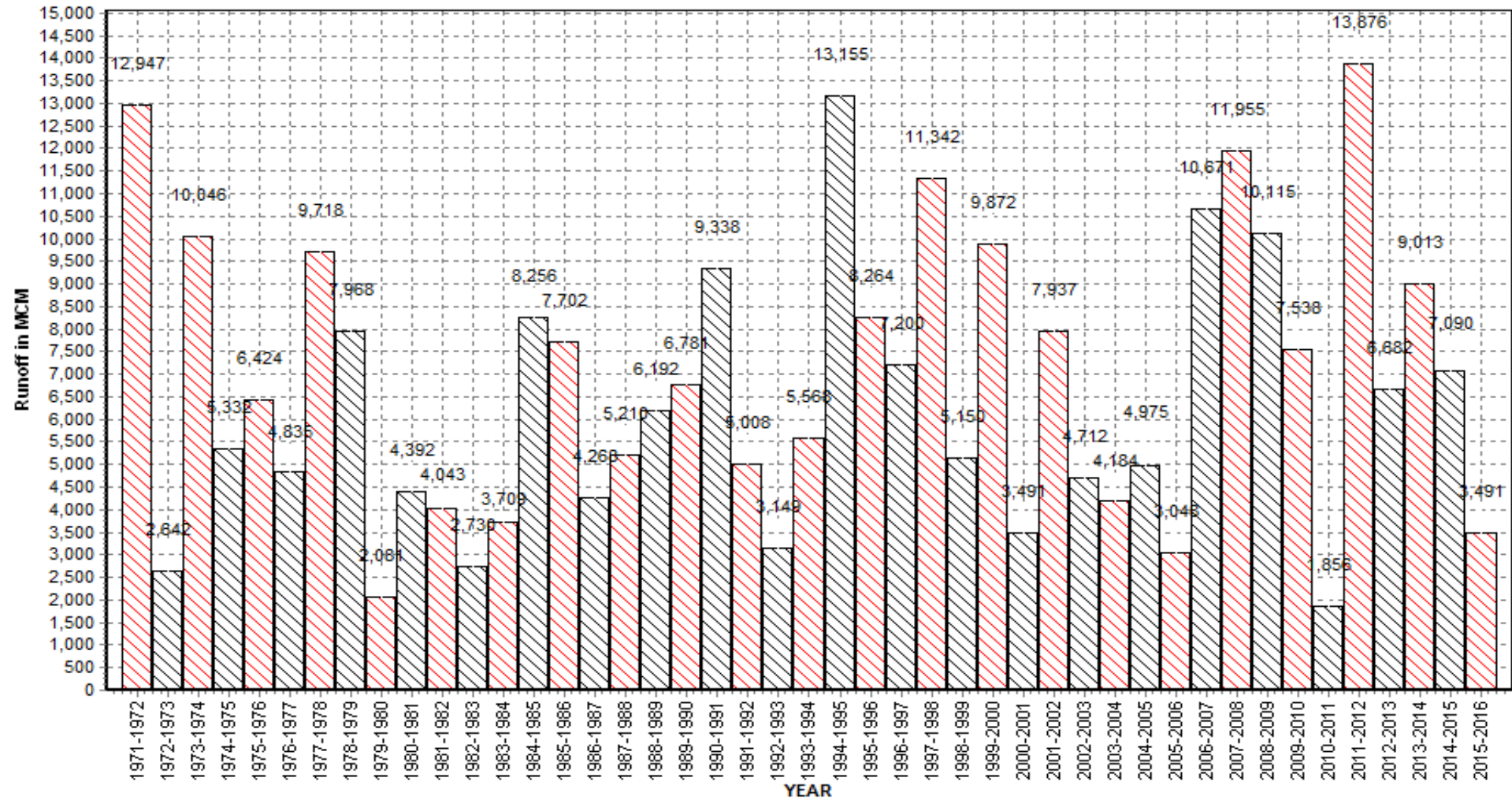
Annual Runoff Values for the period: 1971 - 2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



Note: Missing values have not been considered while arriving at Annual Runoff

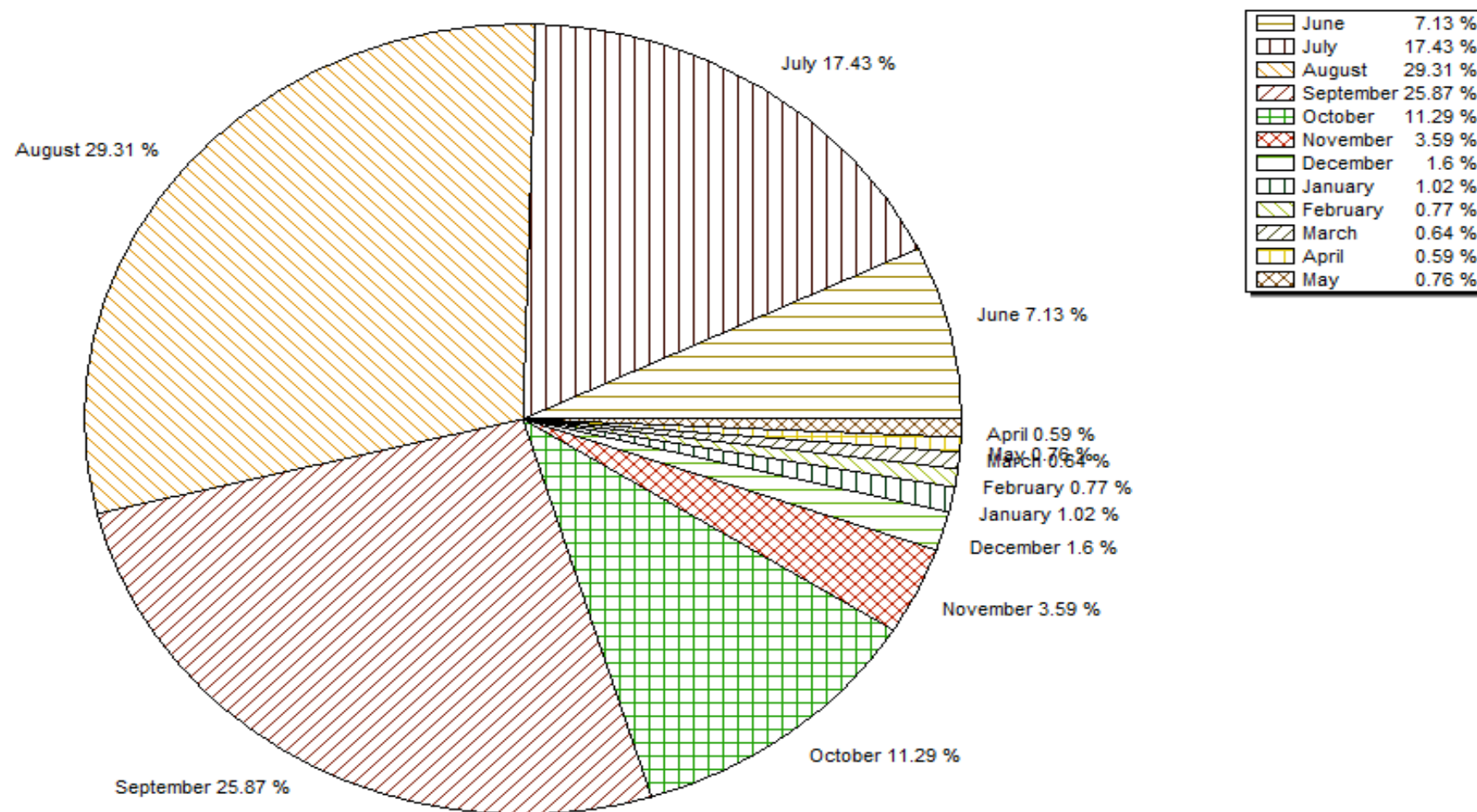
Monthly Average Runoff based on period : 1971-2015

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



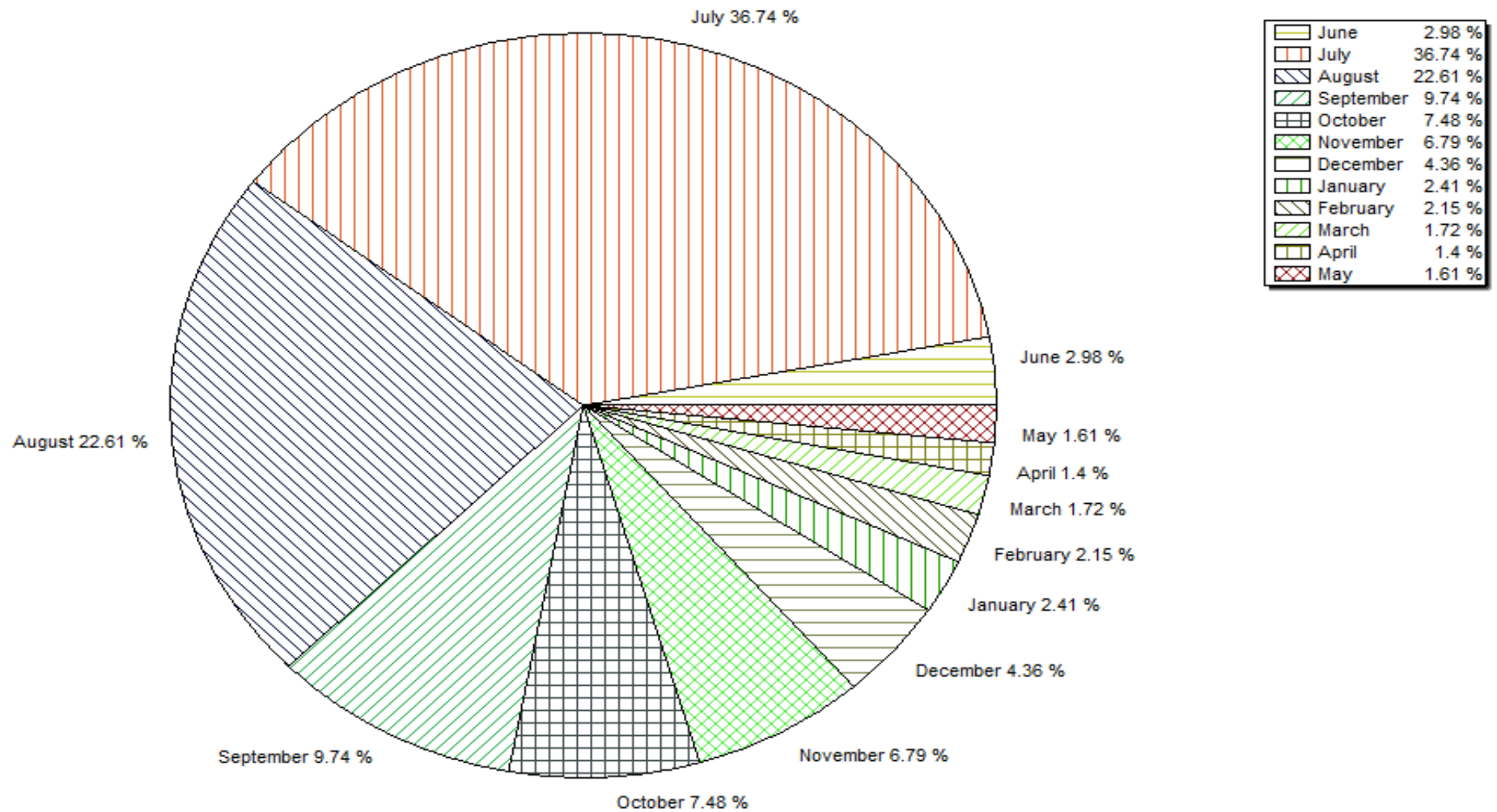
Monthly Runoff for the Year : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



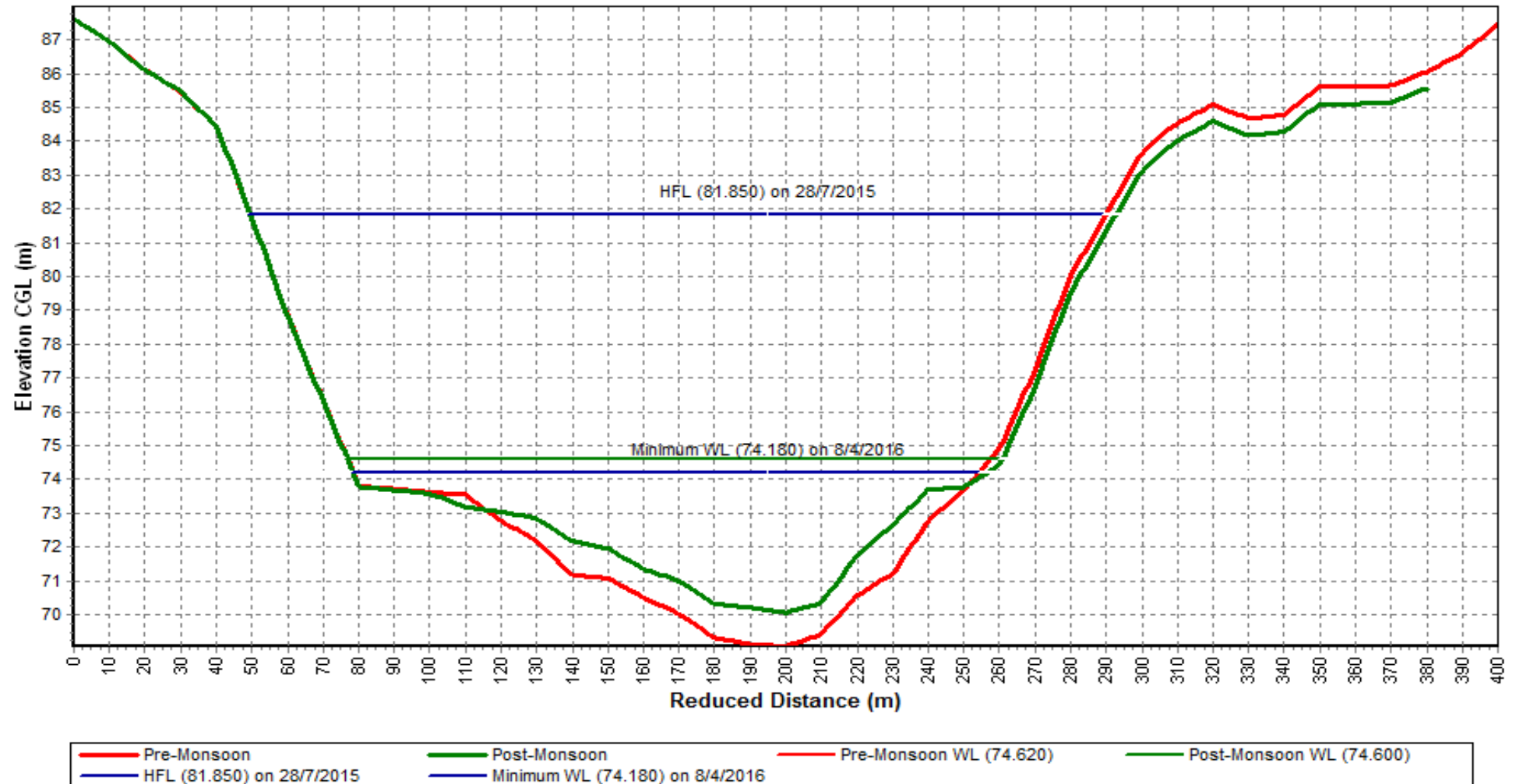
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



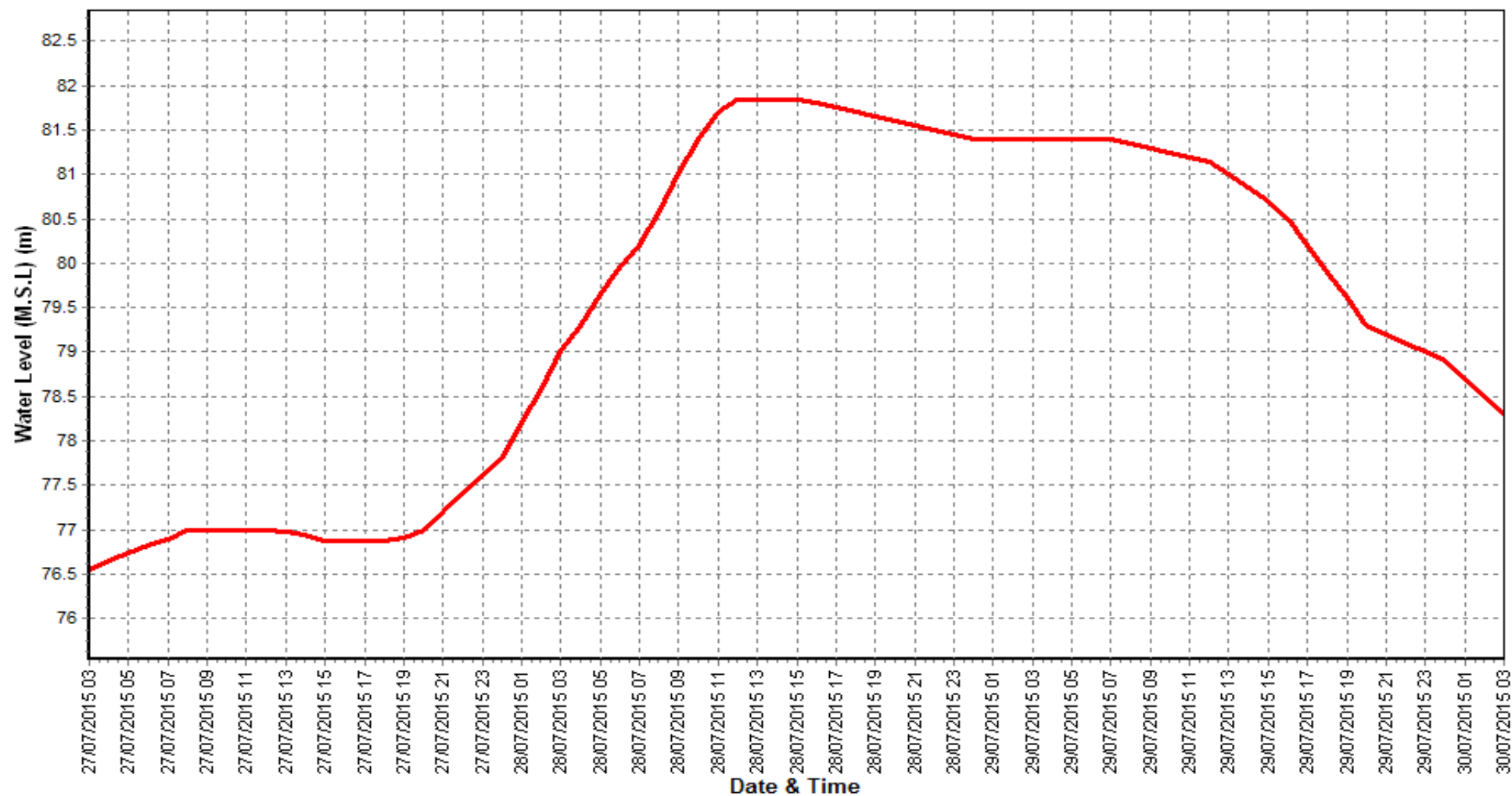
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



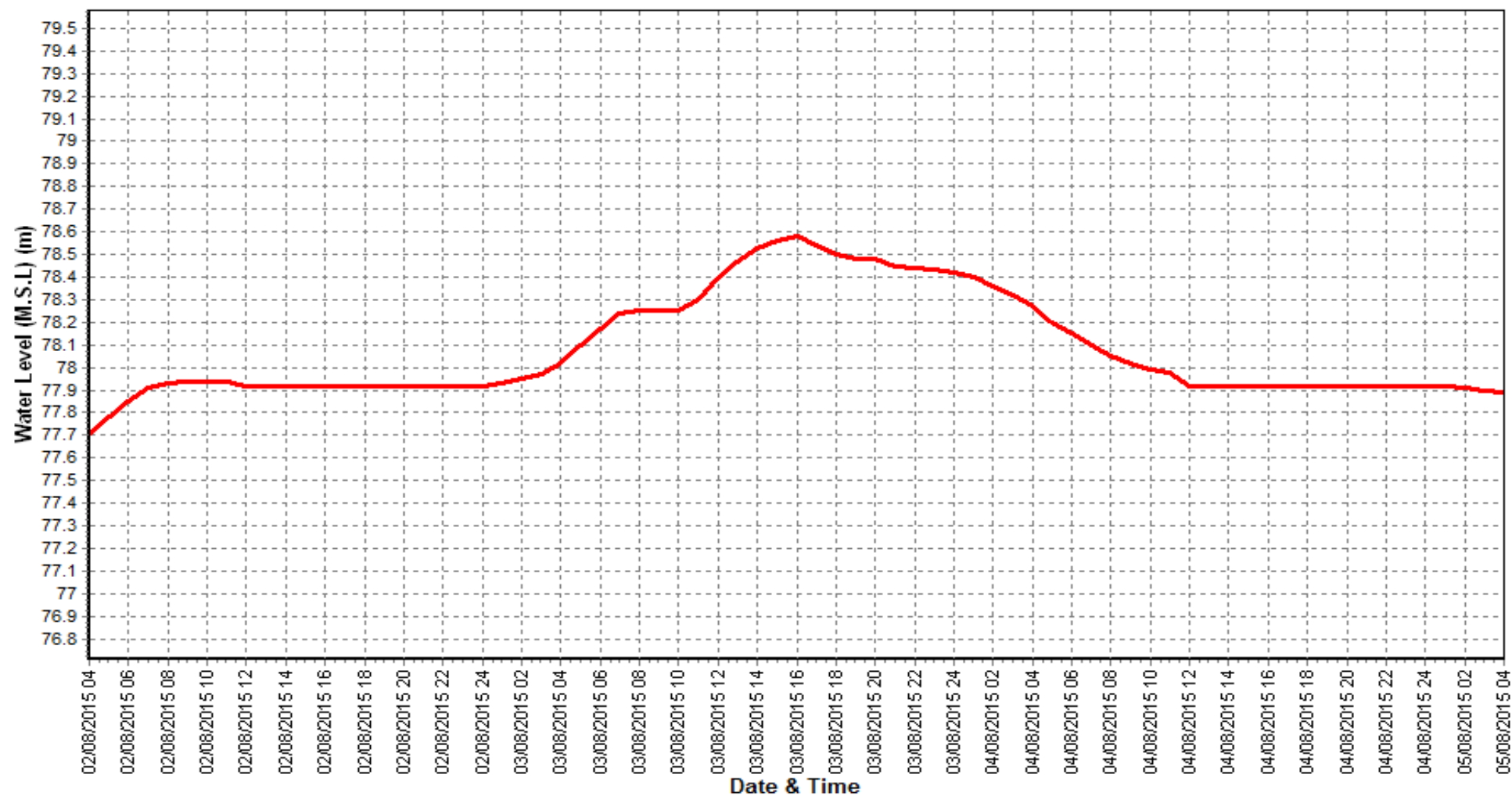
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



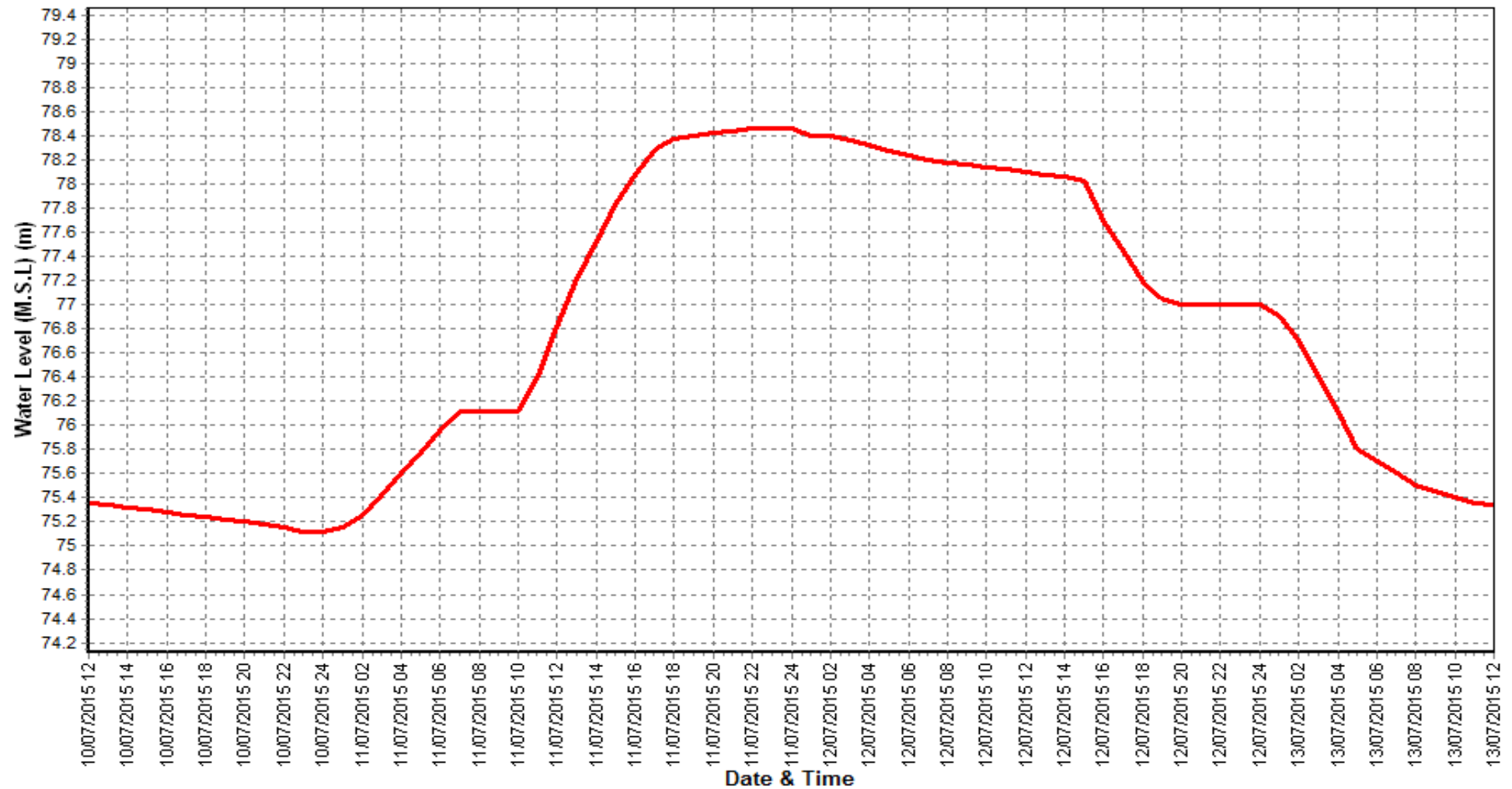
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	39.03	0.000	0.000	0.008	0.008	28	38.23	0.000	0.000	0.031	0.031	103	611.5	0.000	0.000	0.050	0.050	2657
2	39.90	0.000	0.000	0.008	0.008	28	49.98	0.000	0.000	0.025	0.025	106	890.0	0.000	0.000	0.050	0.050	3868
3	39.25	0.000	0.000	0.008	0.008	28	45.80	0.000	0.000	0.042	0.042	164	1126	0.000	0.000	0.283	0.283	27484
4	38.75	0.000	0.000	0.007	0.007	22	38.37	0.000	0.000	0.033	0.033	109	990.2	0.000	0.000	0.276	0.276	23588
5	38.53	0.000	0.000	0.007	0.007	22	90.00	0.000	0.000	0.033	0.033	255	924.8	0.000	0.000	0.255	0.255	20343
6	38.92	0.000	0.000	0.008	0.008	28	46.26	0.000	0.000	0.028	0.028	112	288.4	0.000	0.000	0.141	0.141	3506
7	42.00	0.000	0.000	0.008	0.008	30	46.83	0.000	0.000	0.041	0.041	165	218.6	0.000	0.000	0.089	0.089	1685
8	39.69	0.000	0.000	0.007	0.007	22	193.8	0.000	0.000	0.057	0.057	946	249.3	0.000	0.000	0.055	0.055	1176
9	38.97	0.000	0.000	0.007	0.007	22	186.2	0.000	0.000	0.029	0.029	462	194.0	0.000	0.000	0.055	0.055	915
10	38.50	0.000	0.000	0.007	0.007	22	177.6	0.000	0.000	0.029	0.029	439	194.3	0.000	0.000	0.054	0.054	910
11	38.12	0.000	0.000	0.008	0.008	27	192.0	0.000	0.000	0.031	0.031	516	188.6	0.000	0.000	0.051	0.051	829
12	39.01	0.000	0.000	0.008	0.008	28	600.0	0.000	0.000	0.031	0.031	1612	181.4	0.000	0.000	0.049	0.049	772
13	42.40	0.000	0.000	0.009	0.009	32	185.5	0.000	0.000	0.027	0.027	433	184.9	0.000	0.000	0.049	0.049	783
14	40.00	0.000	0.000	0.009	0.009	30	183.9	0.000	0.000	0.035	0.035	548	180.9	0.000	0.000	0.048	0.048	744
15	39.01	0.000	0.000	0.008	0.008	28	181.4	0.000	0.000	0.025	0.025	398	190.0	0.000	0.000	0.048	0.048	781
16	38.86	0.000	0.000	0.008	0.008	28	185.3	0.000	0.000	0.012	0.012	195	220.8	0.000	0.000	0.048	0.048	908
17	38.39	0.000	0.000	0.008	0.008	27	915.0	0.000	0.000	0.042	0.042	3320	190.9	0.000	0.000	0.049	0.049	813
18	38.42	0.000	0.000	0.010	0.010	34	200.0	0.000	0.000	0.042	0.042	726	103.3	0.000	0.000	0.054	0.054	484
19	38.39	0.000	0.000	0.008	0.008	27	220.0	0.000	0.000	0.042	0.042	798	142.3	0.000	0.000	0.033	0.033	404
20	38.57	0.000	0.000	0.008	0.008	27	259.5	0.000	0.000	0.012	0.012	276	129.8	0.000	0.000	0.021	0.021	230
21	38.55	0.000	0.000	0.008	0.008	27	471.9	0.000	0.000	0.016	0.016	632	125.0	0.000	0.000	0.037	0.037	399
22	40.85	0.000	0.000	0.008	0.008	29	1296	0.000	0.000	0.045	0.045	5049	134.0	0.000	0.000	0.048	0.048	560
23	42.36	0.000	0.000	0.009	0.009	32	1080	0.000	0.000	0.051	0.051	4741	129.0	0.000	0.000	0.048	0.048	539
24	45.64	0.000	0.000	0.008	0.008	32	669.9	0.000	0.000	0.058	0.058	3351	124.7	0.000	0.000	0.026	0.026	275
25	42.71	0.000	0.000	0.009	0.009	33	661.0	0.000	0.000	0.017	0.017	971	188.3	0.000	0.000	0.030	0.030	481
26	42.80	0.000	0.000	0.010	0.010	38	690.0	0.000	0.000	0.017	0.017	1013	175.4	0.000	0.000	0.026	0.026	400
27	40.88	0.000	0.000	0.008	0.008	29	465.4	0.000	0.000	0.017	0.017	684	209.5	0.000	0.000	0.028	0.028	509
28	44.00	0.000	0.000	0.008	0.008	31	1729	0.000	0.000	0.017	0.017	2539	190.7	0.000	0.000	0.029	0.029	478
29	37.77	0.000	0.000	0.008	0.008	27	1747	0.000	0.000	0.173	0.173	26031	178.5	0.000	0.000	0.022	0.022	335
30	37.84	0.000	0.000	0.007	0.007	21	986.5	0.000	0.000	0.057	0.057	4841	142.6	0.000	0.000	0.022	0.022	267
31							1007	0.000	0.000	0.058	0.058	5054	139.0	0.000	0.000	0.018	0.018	219
Ten Daily Mean																		
Ten Daily I	39.35	0.000	0.000	0.007	0.007	25	91.30	0.000	0.000	0.035	0.035	286	568.7	0.000	0.000	0.131	0.131	8613
Ten Daily II	39.12	0.000	0.000	0.009	0.009	29	312.3	0.000	0.000	0.030	0.030	882	171.3	0.000	0.000	0.045	0.045	675
Ten Daily III	41.34	0.000	0.000	0.008	0.008	30	982.1	0.000	0.000	0.048	0.048	4992	157.9	0.000	0.000	0.030	0.030	406
Monthly																		
Total						838						66591						97344

Annual Sediment Load (Metric Tonnes) : 182969

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	212.8	0.000	0.000	0.026	0.026	484	104.9	0.000	0.000	0.019	0.019	171	88.00					
2	187.9	0.000	0.000	0.028	0.028	456	104.0	0.000	0.000	0.019	0.019	170	88.71	0.000	0.000	0.011	0.011	82
3	171.3	0.000	0.000	0.022	0.022	318	101.5	0.000	0.000	0.015	0.015	132	85.23	0.000	0.000	0.012	0.012	86
4	168.4	0.000	0.000	0.027	0.027	394	104.0	0.000	0.000	0.015	0.015	135	86.99	0.000	0.000	0.012	0.012	88
5	166.4	0.000	0.000	0.017	0.017	239	104.8	0.000	0.000	0.017	0.017	153	84.40	0.000	0.000	0.010	0.010	70
6	142.8	0.000	0.000	0.017	0.017	205	96.98	0.000	0.000	0.016	0.016	132	87.82	0.000	0.000	0.012	0.012	89
7	114.7	0.000	0.000	0.016	0.016	157	95.84	0.000	0.000	0.016	0.016	132	89.16	0.000	0.000	0.013	0.013	99
8	110.8	0.000	0.000	0.017	0.017	159	109.6	0.000	0.000	0.016	0.016	150	89.00	0.000	0.000	0.013	0.013	98
9	108.6	0.000	0.000	0.017	0.017	157	114.7	0.000	0.000	0.017	0.017	166	86.63	0.000	0.000	0.012	0.012	88
10	101.4	0.000	0.000	0.019	0.019	166	113.4	0.000	0.000	0.018	0.018	180	88.85	0.000	0.000	0.013	0.013	98
11	109.9	0.000	0.000	0.018	0.018	166	110.0	0.000	0.000	0.018	0.018	175	88.80	0.000	0.000	0.013	0.013	98
12	106.1	0.000	0.000	0.018	0.018	162	107.4	0.000	0.000	0.017	0.017	156	87.48	0.000	0.000	0.012	0.012	88
13	110.0	0.000	0.000	0.018	0.018	168	104.2	0.000	0.000	0.019	0.019	170	77.67	0.000	0.000	0.010	0.010	64
14	106.2	0.000	0.000	0.018	0.018	164	102.5	0.000	0.000	0.018	0.018	159	83.27	0.000	0.000	0.011	0.011	77
15	110.2	0.000	0.000	0.017	0.017	166	97.28	0.000	0.000	0.011	0.011	92	83.20	0.000	0.000	0.011	0.011	77
16	103.5	0.000	0.000	0.019	0.019	169	96.03	0.000	0.000	0.018	0.018	150	86.22	0.000	0.000	0.012	0.012	87
17	118.6	0.000	0.000	0.019	0.019	194	91.66	0.000	0.000	0.017	0.017	135	87.33	0.000	0.000	0.010	0.010	72
18	109.4	0.000	0.000	0.020	0.020	185	88.00	0.000	0.000	0.017	0.017	129	85.35	0.000	0.000	0.010	0.010	71
19	118.6	0.000	0.000	0.018	0.018	187	90.95	0.000	0.000	0.010	0.010	75	108.2	0.000	0.000	0.012	0.012	112
20	108.0	0.000	0.000	0.018	0.018	170	96.20	0.000	0.000	0.012	0.012	97	103.3	0.000	0.000	0.012	0.012	106
21	111.3	0.000	0.000	0.017	0.017	160	92.00	0.000	0.000	0.012	0.012	93	94.09	0.000	0.000	0.011	0.011	86
22	128.5	0.000	0.000	0.020	0.020	221	90.00	0.000	0.000	0.012	0.012	91	98.00	0.000	0.000	0.011	0.011	90
23	169.2	0.000	0.000	0.022	0.022	327	90.05	0.000	0.000	0.012	0.012	91	96.36	0.000	0.000	0.012	0.012	97
24	171.9	0.000	0.000	0.024	0.024	356	91.00	0.000	0.000	0.012	0.012	92	105.6	0.000	0.000	0.011	0.011	102
25	158.0	0.000	0.000	0.024	0.024	328	102.0	0.000	0.000	0.012	0.012	103	100.0	0.000	0.000	0.011	0.011	97
26	161.4	0.000	0.000	0.022	0.022	312	92.75	0.000	0.000	0.012	0.012	94	102.9	0.000	0.000	0.010	0.010	92
27	140.0	0.000	0.000	0.022	0.022	271	78.43	0.000	0.000	0.012	0.012	78	100.3	0.000	0.000	0.009	0.009	81
28	110.5	0.000	0.000	0.020	0.020	187	76.16	0.000	0.000	0.014	0.014	90	96.18	0.000	0.000	0.010	0.010	83
29	99.05	0.000	0.000	0.018	0.018	154	90.89	0.000	0.000	0.013	0.013	101	96.00	0.000	0.000	0.010	0.010	83
30	102.3	0.000	0.000	0.017	0.017	149	83.95	0.000	0.000	0.012	0.012	85	92.32	0.000	0.000	0.010	0.010	80
31							100.5	0.000	0.000	0.011	0.011	97						
Ten Daily Mean																		
Ten Daily I	148.5	0.000	0.000	0.020	0.020	273	105.0	0.000	0.000	0.017	0.017	152	87.48	0.000	0.000	0.012	0.012	89
Ten Daily II	110.1	0.000	0.000	0.018	0.018	173	98.42	0.000	0.000	0.016	0.016	134	89.08	0.000	0.000	0.011	0.011	85
Ten Daily III	135.2	0.000	0.000	0.021	0.021	247	89.79	0.000	0.000	0.012	0.012	92	98.17	0.000	0.000	0.010	0.010	89
Monthly																		
Total						6931						3872						2542

Annual Sediment Load (Metric Tonnes) : 182969

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	88.37	0.000	0.000	0.011	0.011	82	41.08	0.000	0.000	0.011	0.011	39	51.40	0.000	0.000	0.010	0.010	43
2	86.32	0.000	0.000	0.011	0.011	80	39.70	0.000	0.000	0.011	0.011	37	42.70	0.000	0.000	0.010	0.010	35
3	85.11	0.000	0.000	0.011	0.011	79	37.00	0.000	0.000	0.011	0.011	35	40.67	0.000	0.000	0.010	0.010	34
4	87.63	0.000	0.000	0.011	0.011	81	37.81	0.000	0.000	0.011	0.011	36	34.41	0.000	0.000	0.010	0.010	29
5	81.87	0.000	0.000	0.011	0.011	76	37.97	0.000	0.000	0.011	0.011	36	36.38	0.000	0.000	0.010	0.010	30
6	81.00	0.000	0.000	0.011	0.011	75	36.88	0.000	0.000	0.011	0.011	35	35.33	0.000	0.000	0.010	0.010	32
7	82.11	0.000	0.000	0.011	0.011	76	35.98	0.000	0.000	0.011	0.011	34		0.000	0.000	0.010	0.010	
8	82.92	0.000	0.000	0.011	0.011	77	32.96	0.000	0.000	0.012	0.012	33	34.28	0.000	0.000	0.010	0.010	31
9	74.68	0.000	0.000	0.011	0.011	69	32.77	0.000	0.000	0.012	0.012	33	35.19	0.000	0.000	0.010	0.010	32
10	69.06	0.000	0.000	0.011	0.011	64	32.40	0.000	0.000	0.012	0.012	32	40.51	0.000	0.000	0.010	0.010	36
11	63.23	0.000	0.000	0.012	0.012	67	31.41	0.000	0.000	0.012	0.012	31	40.95	0.000	0.000	0.010	0.010	37
12	51.57	0.000	0.000	0.012	0.012	55	35.53	0.000	0.000	0.012	0.012	36	36.88	0.000	0.000	0.010	0.010	33
13	70.00	0.000	0.000	0.012	0.012	74	30.95	0.000	0.000	0.012	0.012	31	37.31	0.000	0.000	0.010	0.010	33
14	48.11	0.000	0.000	0.012	0.012	51	30.11	0.000	0.000	0.012	0.012	30		0.000	0.000	0.010	0.010	
15	47.32	0.000	0.000	0.012	0.012	50	30.22	0.000	0.000	0.013	0.013	35	37.43	0.000	0.000	0.010	0.010	33
16	45.16	0.000	0.000	0.012	0.012	48	29.91	0.000	0.000	0.013	0.013	34	37.16	0.000	0.000	0.010	0.010	33
17	42.45	0.000	0.000	0.012	0.012	45	29.00	0.000	0.000	0.013	0.013	33	37.25	0.000	0.000	0.010	0.010	33
18	43.12	0.000	0.000	0.012	0.012	45	30.19	0.000	0.000	0.013	0.013	35	37.22	0.000	0.000	0.010	0.010	33
19	41.46	0.000	0.000	0.012	0.012	44	30.34	0.000	0.000	0.013	0.013	35	36.78	0.000	0.000	0.008	0.008	27
20	41.00	0.000	0.000	0.012	0.012	43	30.35	0.000	0.000	0.013	0.013	35	36.76	0.000	0.000	0.008	0.008	27
21	39.77	0.000	0.000	0.012	0.012	42	31.13	0.000	0.000	0.013	0.013	36		0.000	0.000	0.008	0.008	
22	39.79	0.000	0.000	0.012	0.012	42	31.43	0.000	0.000	0.013	0.013	36	36.81	0.000	0.000	0.008	0.008	27
23	41.98	0.000	0.000	0.012	0.012	44	30.84	0.000	0.000	0.013	0.013	35	25.67	0.000	0.000	0.008	0.008	19
24	41.00	0.000	0.000	0.012	0.012	43	30.00	0.000	0.000	0.013	0.013	34	25.72	0.000	0.000	0.008	0.008	19
25	41.00	0.000	0.000	0.012	0.012	43	29.58	0.000	0.000	0.013	0.013	34	17.80	0.000	0.000	0.008	0.008	13
26	41.52	0.000	0.000	0.012	0.012	44	29.50	0.000	0.000	0.013	0.013	34	17.81	0.000	0.000	0.008	0.008	13
27	41.00	0.000	0.000	0.012	0.012	43	26.35	0.000	0.000	0.013	0.013	30	25.75	0.000	0.000	0.013	0.013	28
28	41.47	0.000	0.000	0.012	0.012	44	23.36	0.000	0.000	0.013	0.013	27		0.000	0.000	0.013	0.013	
29	41.73	0.000	0.000	0.012	0.012	44	23.05	0.000	0.000	0.013	0.013	26	31.23	0.000	0.000	0.013	0.013	34
30	40.91	0.000	0.000	0.012	0.012	43	22.72	0.000	0.000	0.013	0.013	26						
31	39.88	0.000	0.000	0.012	0.012	42	22.60			0.013								
Ten Daily Mean																		
Ten Daily I	81.91	0.000	0.000	0.011	0.011	76	36.45	0.000	0.000	0.011	0.011	35	38.98	0.000	0.000	0.010	0.010	33
Ten Daily II	49.34	0.000	0.000	0.012	0.012	52	30.80	0.000	0.000	0.013	0.013	34	37.53	0.000	0.000	0.010	0.010	32
Ten Daily III	40.91	0.000	0.000	0.012	0.012	43	27.33	0.000	0.000	0.013	0.013	32	25.83	0.000	0.000	0.010	0.010	22
Monthly																		
Total						1755						1004						742

Annual Sediment Load (Metric Tonnes) : 182969

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	31.31	0.000	0.000	0.010	0.010	26	21.78	0.000	0.000	0.006	0.006	12		0.000	0.000	0.007	0.007	
2	25.67	0.000	0.000	0.010	0.010	21	21.85	0.000	0.000	0.006	0.006	12	17.41	0.000	0.000	0.007	0.007	11
3	25.68	0.000	0.000	0.010	0.010	21	21.80	0.000	0.000	0.006	0.006	12	17.31	0.000	0.000	0.007	0.007	11
4	21.85	0.000	0.000	0.010	0.010	18	21.65	0.000	0.000	0.006	0.006	12	21.92	0.000	0.000	0.007	0.007	13
5	21.92	0.000	0.000	0.010	0.010	18	21.63	0.000	0.000	0.006	0.006	12	21.94	0.000	0.000	0.007	0.007	13
6	21.80	0.000	0.000	0.010	0.010	18	21.74	0.000	0.000	0.006	0.006	12	21.89	0.000	0.000	0.007	0.007	13
7	21.80	0.000	0.000	0.010	0.010	18	21.71	0.000	0.000	0.006	0.006	12	21.86	0.000	0.000	0.007	0.007	13
8	21.86	0.000	0.000	0.010	0.010	18	17.01	0.000	0.000	0.007	0.007	10	21.85	0.000	0.000	0.006	0.006	10
9	22.05	0.000	0.000	0.010	0.010	18	17.57	0.000	0.000	0.007	0.007	11	21.80	0.000	0.000	0.006	0.006	10
10	22.08	0.000	0.000	0.010	0.010	18	17.50	0.000	0.000	0.007	0.007	11	21.35	0.000	0.000	0.006	0.006	10
11	21.97	0.000	0.000	0.010	0.010	18	17.54	0.000	0.000	0.007	0.007	11	21.67	0.000	0.000	0.006	0.006	10
12	22.10	0.000	0.000	0.010	0.010	18	17.55	0.000	0.000	0.007	0.007	11	21.59	0.000	0.000	0.006	0.006	10
13	23.00	0.000	0.000	0.010	0.010	19	17.53	0.000	0.000	0.007	0.007	11	21.55	0.000	0.000	0.006	0.006	10
14	22.25	0.000	0.000	0.010	0.010	18	17.50	0.000	0.000	0.007	0.007	11	21.81	0.000	0.000	0.006	0.006	11
15	22.09	0.000	0.000	0.010	0.010	18	17.50	0.000	0.000	0.007	0.007	11	21.80	0.000	0.000	0.006	0.006	11
16	22.06	0.000	0.000	0.010	0.010	18	17.42	0.000	0.000	0.007	0.007	11	21.84	0.000	0.000	0.006	0.006	11
17	21.86	0.000	0.000	0.010	0.010	18	17.00	0.000	0.000	0.007	0.007	10	21.89	0.000	0.000	0.006	0.006	11
18	22.11	0.000	0.000	0.020	0.020	38	17.43	0.000	0.000	0.007	0.007	11	21.92	0.000	0.000	0.006	0.006	11
19	22.09	0.000	0.000	0.020	0.020	38	17.64	0.000	0.000	0.007	0.007	11	21.93	0.000	0.000	0.006	0.006	11
20	22.00	0.000	0.000	0.020	0.020	38	17.00	0.000	0.000	0.007	0.007	10	21.86	0.000	0.000	0.006	0.006	11
21	21.94	0.000	0.000	0.020	0.020	38	21.69	0.000	0.000	0.007	0.007	13	21.60	0.000	0.000	0.006	0.006	10
22	21.93	0.000	0.000	0.020	0.020	38	21.62	0.000	0.000	0.007	0.007	13	21.80	0.000	0.000	0.006	0.006	11
23	21.94	0.000	0.000	0.020	0.020	38	21.61	0.000	0.000	0.007	0.007	13	21.82	0.000	0.000	0.006	0.006	11
24	21.80	0.000	0.000	0.009	0.009	17	21.60	0.000	0.000	0.007	0.007	13	21.85	0.000	0.000	0.006	0.006	11
25	21.80	0.000	0.000	0.009	0.009	17	17.45	0.000	0.000	0.007	0.007	11	21.90	0.000	0.000	0.006	0.006	11
26	21.98	0.000	0.000	0.009	0.009	17	17.38	0.000	0.000	0.007	0.007	11	22.67	0.000	0.000	0.006	0.006	11
27	23.00	0.000	0.000	0.009	0.009	18	17.31	0.000	0.000	0.007	0.007	11	22.02	0.000	0.000	0.006	0.006	11
28	21.97	0.000	0.000	0.009	0.009	17	17.32	0.000	0.000	0.007	0.007	11	22.00	0.000	0.000	0.006	0.006	11
29	21.93	0.000	0.000	0.009	0.009	17	17.27	0.000	0.000	0.007	0.007	11	22.00	0.000	0.000	0.006	0.006	11
30	21.84	0.000	0.000	0.009	0.009	17	17.30	0.000	0.000	0.007	0.007	11	21.96	0.000	0.000	0.006	0.006	11
31	21.86	0.000	0.000	0.009	0.009	17							21.89	0.000	0.000	0.006	0.006	11
Ten Daily Mean																		
Ten Daily I	23.60	0.000	0.000	0.010	0.010	19	20.42	0.000	0.000	0.007	0.007	11	20.81	0.000	0.000	0.007	0.007	12
Ten Daily II	22.15	0.000	0.000	0.013	0.013	24	17.41	0.000	0.000	0.007	0.007	11	21.79	0.000	0.000	0.006	0.006	10
Ten Daily III	22.00	0.000	0.000	0.012	0.012	23	19.05	0.000	0.000	0.007	0.007	12	21.96	0.000	0.000	0.006	0.006	11
Monthly																		
Total						687						338						328

Annual Sediment Load (Metric Tonnes) : 182969

Annual Sediment Load for period : 1973-2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1973-1974	3710541	9724	3720264	10046
1974-1975	11216411	5500	11221911	5332
1975-1976	4835503	21868	4857371	6424
1976-1977	9534127	63973	9598100	4835
1977-1978	8023490	12710	8036199	9718
1978-1979	5729988	20207	5750195	7873
1979-1980	1522045	8042	1530088	2081
1980-1981	2781916	65661	2847577	4392
1981-1982	2072685	9345	2082031	4043
1982-1983	2043672	10935	2054607	2730
1983-1984	1968814	2993	1971807	3709
1984-1985	6093516	3527	6097043	8256
1985-1986	4413784	3758	4417542	7702
1986-1987	1487648	9471	1497118	4268
1987-1988	5750036	13958	5763993	5210
1988-1989	5355921	4862	5360784	6192
1989-1990	7554215	13133	7567348	6781
1990-1991	6158738	14592	6173331	9337
1991-1992	2530789	36926	2567715	5007
1992-1993	2568006	2184	2570190	3148
1993-1994	2075188	7102	2082290	5568
1994-1995	6712243	17769	6730012	13155
1995-1996	2454144	4397	2458541	8264
1996-1997	2502298	8384	2510682	7110
1997-1998	6520952	139862	6660814	11342
1998-1999	1083889	36343	1120232	5150
1999-2000	1172898	14424	1187322	9872
2000-2001	248389	0	248389	3491
2001-2002	2115624	21580	2137204	7937
2002-2003	590640	7968	598608	4711
2003-2004	674002	27539	701540	4184
2004-2005	1810346	8686	1819033	4975
2005-2006	293790	590	294380	3048
2006-2007	6156100	90552	6246652	10671
2007-2008	11146331	25956	11172287	11955
2008-2009	2009046	996	2010043	10115
2009-2010	862365	424	862789	7538
2010-2011	48318	16585	64903	1856
2011-2012	2505608	2942	2508550	13876
2012-2013	852447	42323	894770	6682
2013-2014	2325630	27211	2352841	9013
2014-2015	531207	5337	536543	7090
2015-2016	178117	4852	182969	3491

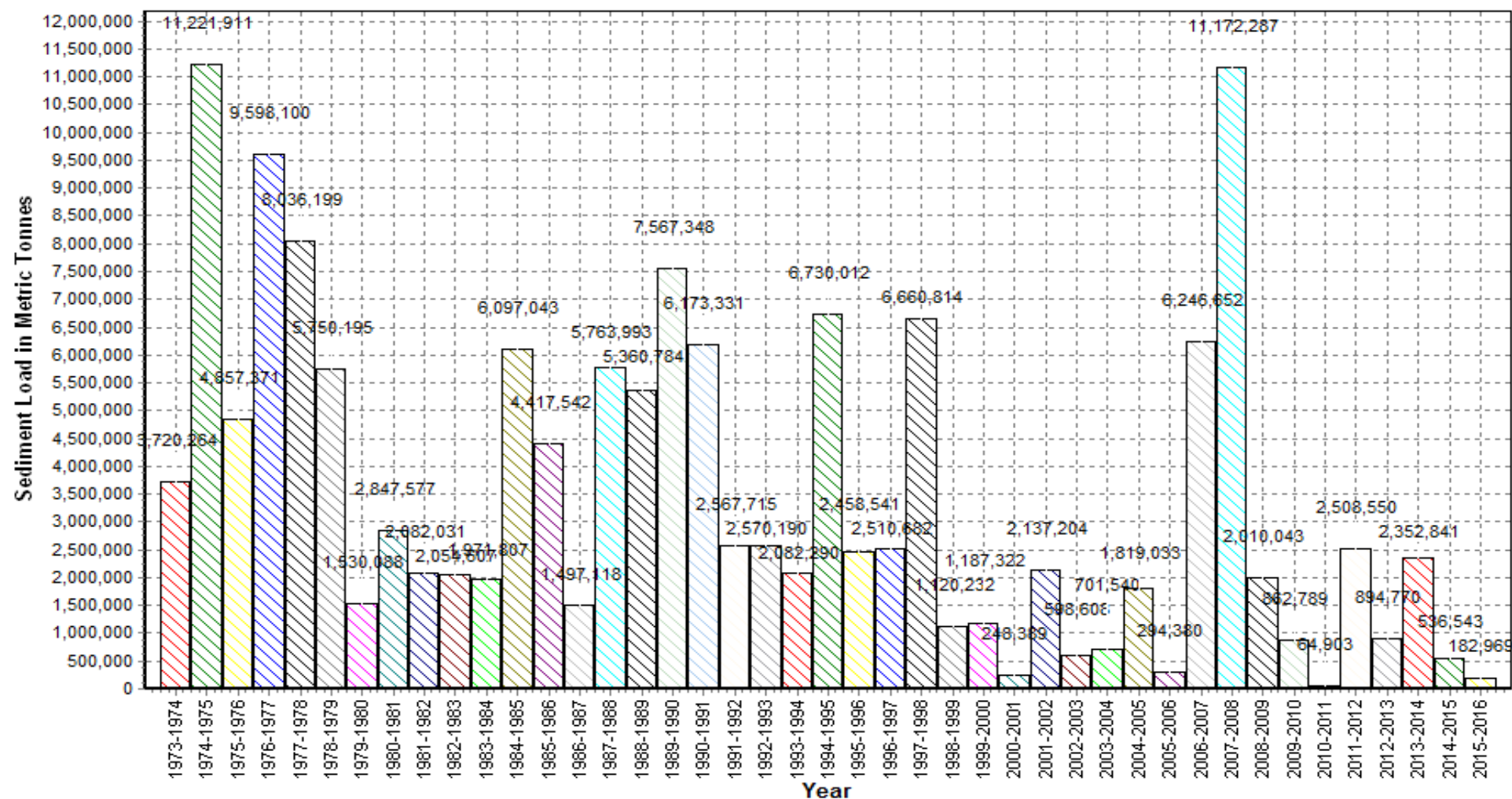
Annual Sediment Load for the period: 1973-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

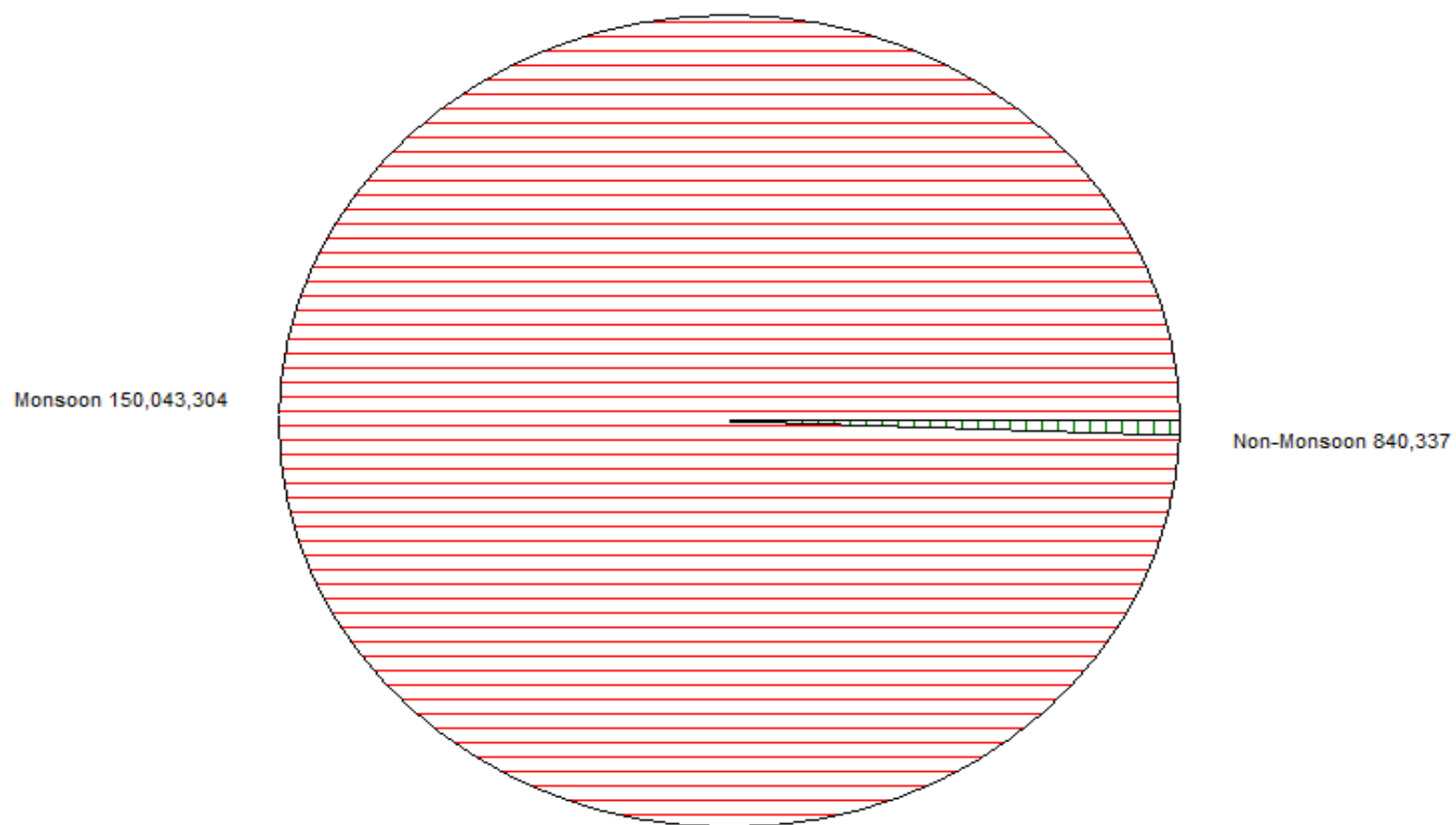
Sub-Division : Balasore



Station Name : GHATSHILA (ES000K7)
Local River : Subarnarekha

Seasonal Sediment Load for the period : 1973-2015

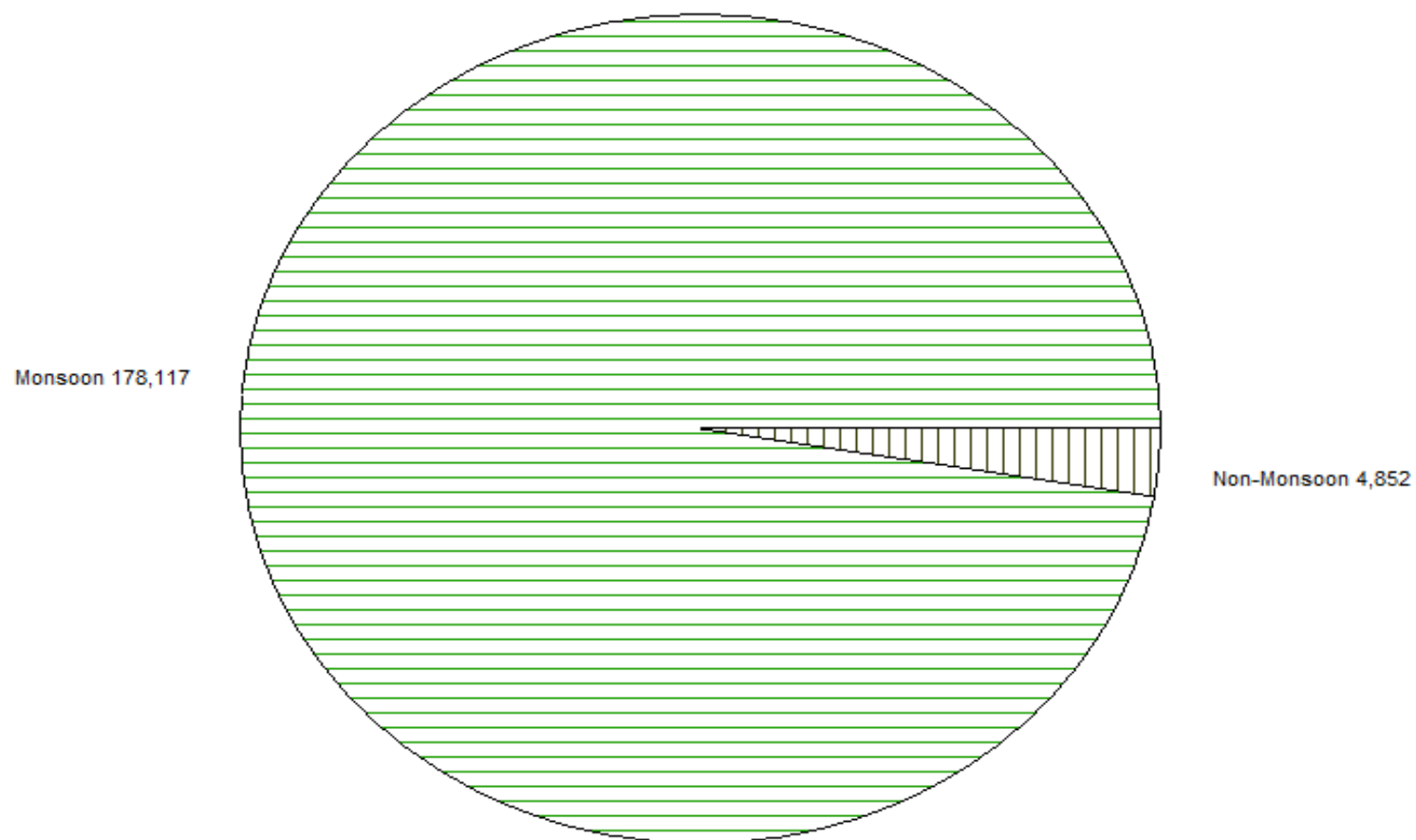
Division : E.E., Bhubaneswar
Sub-Division : Balasore



Station Name : GHATSHILA (ES000K7)
Local River : Subarnarekha

Seasonal Sediment Load for the Year: 2015-2016

Division : E.E., Bhubaneswar
Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	439	518	177	620	704	743	610	1043	663	835	840	483
4	EC_GEN (µmho/cm)	448	508	163	629	715	752	604	1040	668	840	844	481
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.4	7.5	7.2	7.5	7.7	7.1	7.6	7.4	8.5	7.4	7.9	8.3
7	pH_GEN (pH units)	7.9	7.3	7.1	7.4	7.3	7.3	7.5	7.3	8.6	7.7	8.1	8.4
8	Temp (deg C)	30.0	27.5	28.0	27.5	26.0	24.0	20.0	17.0	18.5	23.5	25.5	29.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	0.0	46.0	13.8
2	ALK-TOT (mgCaCO3/L)	74	65	46	97	102	111	115	106	129	92	166	129
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	24	34	40	37	37	38	35	34	37	61	37	50
5	Cl (mg/L)	34.0	17.0	18.9	17.0	15.1	17.0	17.0	18.9	17.0	43.4	86.8	47.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	55.4	16.6
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.2	0.6	0.3	0.5	0.5	0.3	0.5	0.3	0.2	0.2	0.3	0.5
9	HCO3 (mg/L)	90	79	56	118	124	135	141	130	135	113	90	124
10	K (mg/L)	4.6	3.8	2.2	1.9	4.7	4.9	7.2	7.4	5.1	5.8	20.8	5.7
11	Mg (mg/L)	8.8	13.6	10.7	8.8	7.8	8.8	8.8	8.8	9.7	24.3	12.6	20.4
12	Na (mg/L)	23.0	11.1	7.3	7.6	22.2	23.1	26.0	27.1	29.2	30.1	116.3	51.1
13	NO2+NO3 (mg N/L)	0.88	0.85	0.95	1.05	1.22	1.11	1.09	1.15	0.87	0.70	1.09	1.05
14	NO2-N (mgN/L)	0.11	0.00	0.00	0.00	0.03	0.01	0.03	0.00	0.03	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.77	0.85	0.95	1.05	1.19	1.09	1.06	1.15	0.84	0.70	1.09	1.05
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0	6.0	6.0	5.0	5.0
18	SO4 (mg/L)	23.6	28.8	28.7	27.2	26.9	27.3	45.2	4.0	45.6	18.1	14.7	48.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	1.0	1.2	0.6	0.6	1.2	1.0	1.0	1.0	0.8	0.8
2	DO (mg/L)	5.4	4.4	6.8	5.0	6.2	7.4	7.2	10.1	10.7	6.0	4.8	5.0
3	DO_SAT% (%)	71	55	86	62	76	87	79	105	113	70	58	65
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	60	84	100	92	92	96	88	84	92	152	92	124
2	HAR_Total (mgCaCO3/L)	97	141	145	129	125	133	125	121	133	254	145	209
3	Na% (%)	33	14	10	11	27	27	30	31	31	20	60	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
5	SAR (-)	1.0	0.4	0.3	0.3	0.9	0.9	1.0	1.1	1.1	0.8	4.2	1.5
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

River Water Summary					
S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1043	177	640
3	EC_GEN (µmho/cm)	12	1040	163	641
4	pH_FLD (pH units)	12	8.5	7.1	7.6
5	pH_GEN (pH units)	12	8.6	7.1	7.6
6	Temp (deg C)	12	30.0	17.0	24.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	46.0	0.0	5.8
2	ALK-TOT (mgCaCO3/L)	12	166	46	103
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	61	24	39
5	Cl (mg/L)	12	86.8	15.1	29.1
6	CO3 (mg/L)	12	55.4	0.0	6.9
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.2	0.4
9	HCO3 (mg/L)	12	141	56	111
10	K (mg/L)	12	20.8	1.9	6.2
11	Mg (mg/L)	12	24.3	7.8	11.9
12	Na (mg/L)	12	116.3	7.3	31.2
13	NO2+NO3 (mg N/L)	12	1.22	0.70	1
14	NO2-N (mgN/L)	12	0.11	0.00	0.02
15	NO3-N (mgN/L)	12	1.19	0.70	0.98
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	6.0	5.0	5.6
18	SO4 (mg/L)	12	48.8	4.0	28.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	1.2	0.6	0.9
2	DO (mg/L)	12	10.7	4.4	6.6
3	DO_SAT% (%)	12	113	55	77
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	152	60	97
2	HAR_Total (mgCaCO3/L)	12	254	97	146
3	Na% (%)	12	60	10	27
4	RSC (-)	12	0.4	0.0	0
5	SAR (-)	12	4.2	0.3	1.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

River Water

Sub-Division : Balasore

S.No	Parameters	Flood																			
		Jun - Oct															2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015					
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	202	247	326	310	248	236	279		245	377	259	246	212	302	492	277	250	438	268	349
3	EC_GEN (µmho/cm)	202	247	326	310	246	231	273		245	377	259	246	212	302	493	277	250	438	268	348
4	pH_FLD (pH units)	7.8	7.8	7.6	7.8	7.7	7.8	7.8		7.8	8.0	8.2	7.2	7.3	7.6	7.4	8.2	7.8	7.6	7.8	7.9
5	pH_GEN (pH units)	7.8	7.8	7.6	7.8	7.7	7.8	7.9		7.8	8.0	8.2	7.5	7.3	7.6	7.4	8.1	7.8	7.6	7.8	7.9
6	Temp (deg C)	29.4	29.4	30.0	29.1	29.1	30.1	27.4		27.7	27.2	28.0	27.6	27.6	28.8	27.8	22.0	20.4	19.0	22.3	19.8
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)							0.0		0.0	7.2	10.8				0.0					
2	ALK-TOT (mgCaCO3/L)							89		58	99	85				77					
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	20	28	33	38	24	24	28		21	33	21	25	25	21	34	30	35	42	28	37
5	Cl (mg/L)	14.0	12.7	24.1	14.5	16.7	16.4	17.0		18.7	21.9	20.7	20.7	26.9	20.7	20.4	15.6	25.7	36.3	15.6	26.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	8.6	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.36	0.00	0.11	0.67	0.00	0.51	0.57		0.12	0.05	0.05	0.06	0.05	0.05	0.05	0.89	0.46	0.13	0.61	0.52
8	Fe (mg/L)	0.4			0.1	0.3	0.4	0.3		0.4	0.5	0.0	1.2	0.3	3.1	0.4	0.5			0.1	0.2
9	HCO3 (mg/L)	68	102	109	103	98	89	108		61	103	78	82	91	78	94	100	90	149	117	148
10	K (mg/L)	2.3	3.0	2.6	5.7	3.8	2.3	3.1		2.5	4.2	3.3	2.8	4.2	3.3	3.4	2.3	5.3	4.6	3.2	3.8
11	Mg (mg/L)	6.0	8.4	8.9	7.7	7.0	6.7	9.3		9.1	15.6	9.3	6.8	7.5	9.3	9.9	7.8	9.2	12.0	9.2	9.7
12	Na (mg/L)	9.1	7.9	17.3	10.0	12.1	11.9	11.8		12.2	14.1	10.9	10.5	17.0	10.9	14.2	11.2	17.1	25.5	10.8	18.6
13	NH3-N (mg N/L)																				
14	NO2+NO3 (mg N/L)	2.33	0.83	2.57	1.47	1.97	2.40	1.30		2.01	1.80	0.41	0.84	1.01	1.41	0.99	3.58	3.16	1.23	1.04	1.98
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.02	0.00	0.00	0.00		0.00	0.00	0.07	0.00	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00
16	NO3-N (mgN/L)	2.33	0.83	2.57	1.44	1.97	2.40	1.30		2.01	1.80	0.34	0.84	0.99	1.40	0.96	3.58	3.16	1.23	1.04	1.98
17	o-PO4-P (mg P/L)			0.062		0.012	0.000	0.000		0.012											0.000
18	P-Tot (mgP/L)	0.015	0.003	0.001	0.013	0.003	0.001	0.001		0.011	0.001	0.010	0.001	0.001	0.001	0.001	0.014	0.001	0.001	0.001	0.001
19	SiO2 (mg/L)	9.4	14.0	14.0	22.3	23.4	8.5	9.1		8.2	8.1	9.4	11.8	11.4	5.6	5.6	10.5	11.4	19.8	22.1	23.3
20	SO4 (mg/L)	15.8	15.6	18.6	44.8	8.3	11.4	17.2		26.7	36.7	22.4	64.0	32.7	21.6	27.0	16.2	43.2	23.0	12.6	10.8
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.7	0.8	0.8	1.7	0.9	1.0	1.0		1.2	5.2	1.2	0.8	0.8	0.5	0.8	0.7	1.0	1.0	1.3	0.9
2	DO (mg/L)	6.4	6.6	6.4	7.0	6.4	6.9	7.1		6.4	6.5	6.3	5.5	6.4	5.3	5.5	7.9	7.9	7.8	8.0	8.6
3	DO_SAT% (%)	83	87	84	91	83	92	89		81	82	81	70	81	69	70	90	87	84	91	93
	TRACE & TOXIC																				
1	Al (mg/L)				0.90	2.20															
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	51	70	83	95	60	60	69		54	83	52	62	62	52	86	75	87	105	70	93
2	HAR_Total (mgCaCO3/L)	80	105	120	106	90	88	108		92	148	91	90	93	91	127	107	125	155	104	133
3	Na% (%)	21	15	23	15	22	23	20		23	18	19	20	27	19	19	18	21	25	18	23
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.6	0.4	0.5	0.5	0.5		0.6	0.5	0.5	0.5	0.8	0.5	0.6	0.5	0.6	0.8	0.5	0.7
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSHILA (ES000K7)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

River Water

Sub-Division : Balasore

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	328	274		333	503	275	301	265	470	765	370	333	493	402	421	439	455		403	540
3	EC_GEN (µmho/cm)	328	270		333	503	275	301	265	470	766	370	333	493	397	413	437	467		403	540
4	pH_FLD (pH units)	7.9	8.0		7.9	7.5	7.6	7.8	7.8	7.7	7.6	8.2	7.9	8.0	7.6	7.5	7.9	8.1		8.1	8.1
5	pH_GEN (pH units)	7.9	8.1		7.9	7.5	7.6	7.8	7.8	7.7	7.7	8.3	7.9	7.8	7.4	7.5	8.0	8.2		8.1	8.1
6	Temp (deg C)	19.9	16.9		17.6	18.1	18.8	17.3	21.4	18.9	19.9	30.5	23.5	27.5	25.7	26.5	24.2	24.5		26.7	23.0
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)		0.0		0.0	0.0	0.0				2.3						0.0	0.0		0.0	15.6
2	ALK-TOT (mgCaCO3/L)		89		73	106	83				115						231	170		97	129
3	B (mg/L)	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
4	Ca (mg/L)	35	27		22	39	31	31	22	28	36	38	42	53	39	44	40	49		28	45
5	Cl (mg/L)	23.9	21.2		26.2	42.0	27.3	32.1	27.3	25.0	17.4	22.4	16.7	25.5	32.4	30.0	32.9	26.4		39.0	46.5
6	CO3 (mg/L)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	18.8
7	F (mg/L)	0.30	0.57		0.36	0.05	0.05	0.06	0.05	0.05	0.05	1.38	0.49	0.97	0.40	0.49	0.55	0.05		0.99	0.05
8	Fe (mg/L)	0.3	0.5		0.3	0.5	0.0	1.3	0.1	0.3	0.3	0.8			0.1	0.1	0.6	0.8		0.1	0.6
9	HCO3 (mg/L)	121	109		89	129	101	96	96	96	135	144	95	187	115	153	149	208		119	120
10	K (mg/L)	3.8	3.4		3.0	4.9	2.9	5.9	3.0	2.8	6.1	3.4	6.4	2.4	3.6	4.4	5.6	3.9		5.5	5.8
11	Mg (mg/L)	8.0	8.0		17.0	19.9	7.8	11.4	6.2	7.8	9.0	10.2	8.1	14.9	12.0	10.6	18.1	17.5		15.9	16.8
12	Na (mg/L)	16.5	14.8		17.4	29.5	12.3	23.6	14.1	12.6	26.4	18.1	10.0	19.1	20.3	20.4	22.0	16.9		26.9	29.9
13	NH3-N (mg N/L)																	0.05			
14	NO2+NO3 (mg N/L)	1.41	1.37		1.24	2.73	0.42	0.82	1.08	0.81	1.05	3.24	4.95	0.78	0.78	2.29	2.25	1.15		0.89	5.42
15	NO2-N (mgN/L)	0.00	0.00		0.00	0.02	0.07	0.00	0.02	0.03	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00		0.00	0.00
16	NO3-N (mgN/L)	1.41	1.37		1.24	2.71	0.35	0.82	1.05	0.78	1.04	3.24	4.92	0.78	0.78	2.29	2.25	1.15		0.89	5.42
17	o-PO4-P (mg P/L)	0.000	0.005		0.005											0.000	0.007			0.023	
18	P-Tot (mgP/L)	0.001	0.005		0.002	0.001	0.010	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.001	0.007	0.050		0.001	0.001
19	SiO2 (mg/L)	12.9	9.4		9.2	5.7	9.3	12.0	11.3	4.4	5.8	11.6	13.2	18.2	22.9	24.5	16.5	9.6		9.1	8.2
20	SO4 (mg/L)	20.9	14.5		42.5	61.4	30.8	42.3	32.5	25.7	30.5	19.1	44.3	31.8	51.9	19.8	42.3	14.8		44.0	44.9
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	1.1	1.1		1.9	1.6	1.4	0.7	0.7	0.6	0.9	0.7	1.4	1.2	0.8	0.9	1.1	1.1		1.0	1.9
2	DO (mg/L)	8.2	8.4		8.9	7.9	7.2	8.7	7.5	8.9	8.8	6.0	6.7	7.3	5.9	7.6	6.7	6.1		7.2	6.9
3	DO_SAT% (%)	90	83		93	84	77	91	84	95	96	80	78	92	72	94	79	72		89	80
	TRACE & TOXIC																				
1	Al (mg/L)	5.26																			
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	87	68		54	97	77	78	56	69	90	94	105	133	97	110	100	121		71	112
2	HAR_Total (mgCaCO3/L)	120	101		125	180	110	126	82	101	128	137	139	195	147	154	176	194		137	182
3	Na% (%)	22	23		23	26	19	28	27	20	30	22	13	18	24	22	20	16		29	26
4	RSC (-)	0.0	0.0		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0		0.0	0.0
5	SAR (-)	0.7	0.6		0.7	1.0	0.5	0.9	0.7	0.5	1.0	0.7	0.4	0.6	0.8	0.7	0.7	0.5		1.0	1.0
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSHILA (ES000K7)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

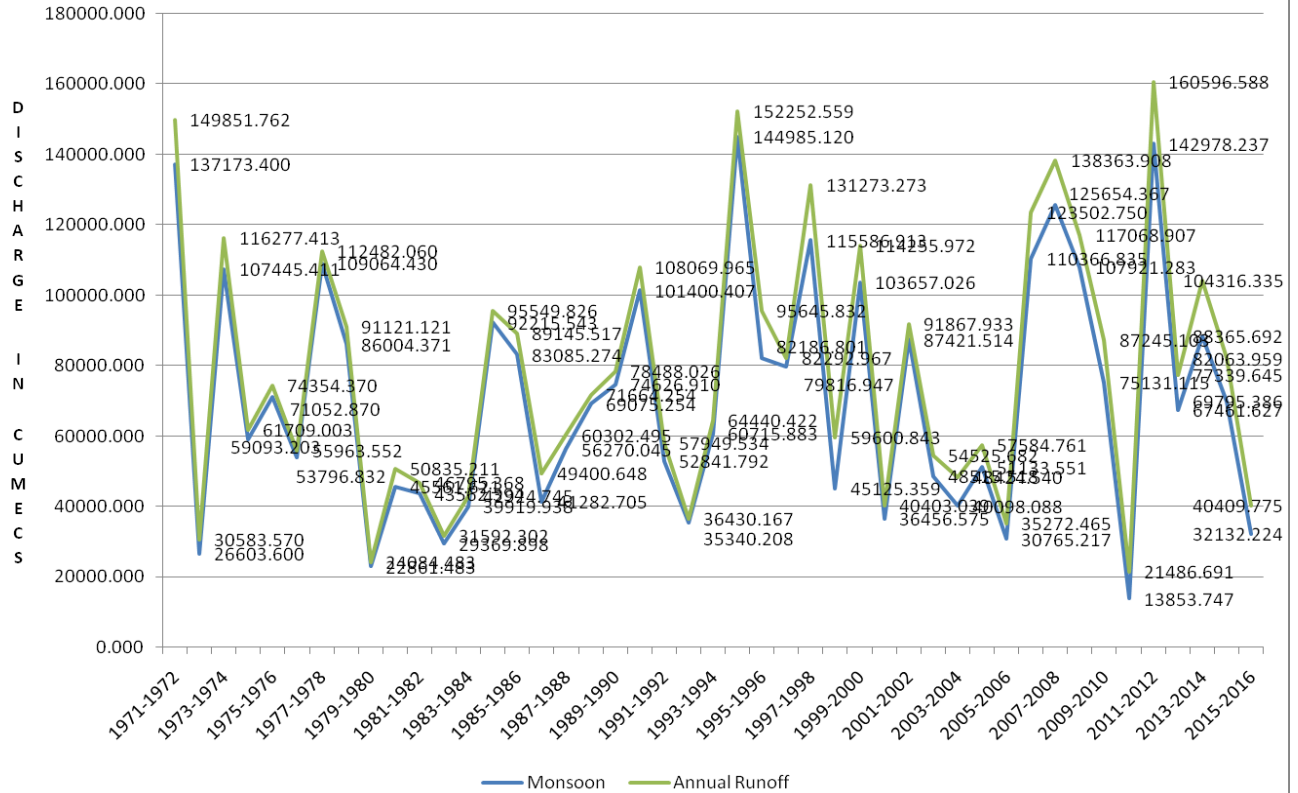
Sub-Division : Balasore

River Water

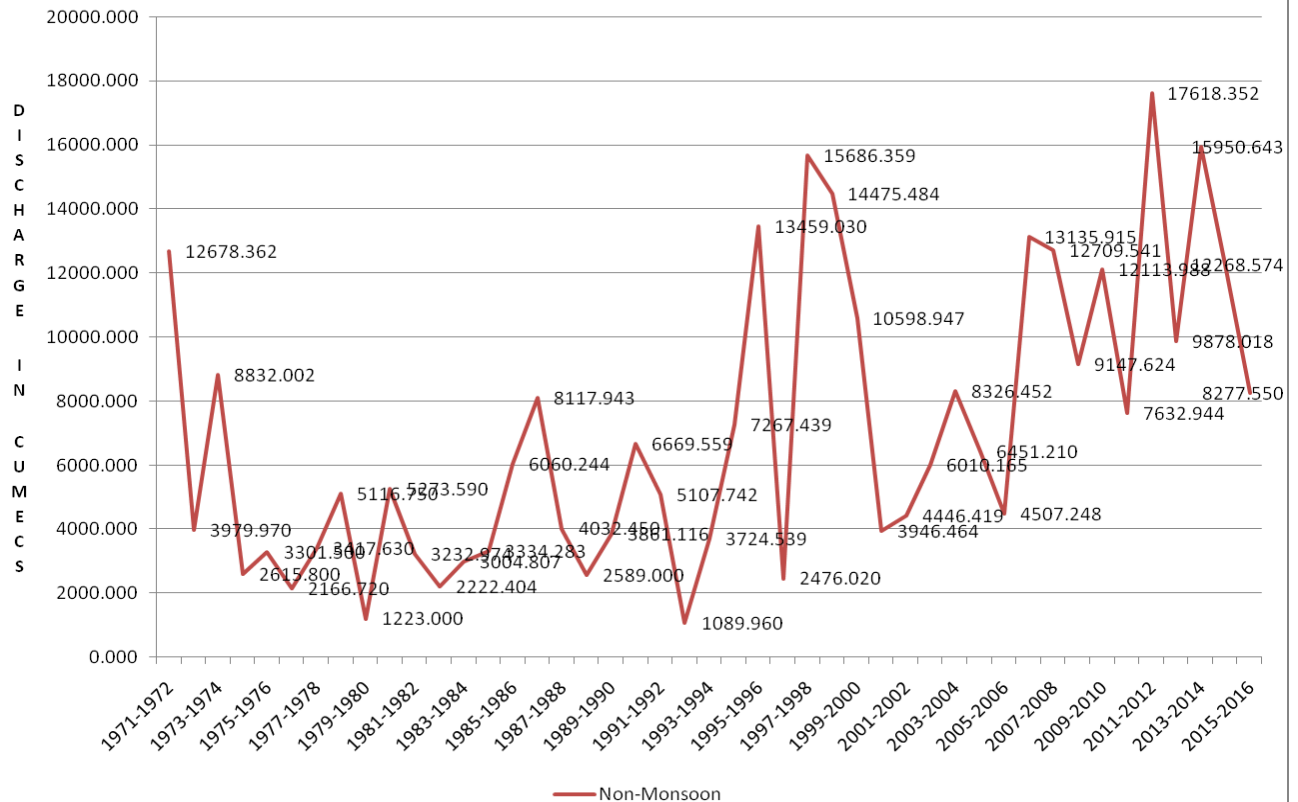
S.No	Parameters					
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	310	537	333	556	719
3	EC_GEN (µmho/cm)	310	537	333	556	722
4	pH_FLD (pH units)	7.7	7.7	7.6	7.6	7.9
5	pH_GEN (pH units)	7.7	7.7	7.6	7.6	8.1
6	Temp (deg C)	25.3	25.7	26.8	26.7	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0			19.9
2	ALK-TOT (mgCaCO3/L)	77	83			129
3	B (mg/L)	0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	34	21	24	31	49
5	Cl (mg/L)	25.8	23.5	28.4	22.2	59.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	24.0
7	F (mg/L)	0.05	0.06	0.05	0.05	0.05
8	Fe (mg/L)	0.0	1.2	0.4	0.4	0.3
9	HCO3 (mg/L)	94	81	96	72	109
10	K (mg/L)	13.1	8.5	2.9	12.2	10.8
11	Mg (mg/L)	9.1	9.4	7.9	9.4	19.1
12	Na (mg/L)	26.1	30.5	15.3	24.1	65.8
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.38	0.78	1.23	0.92	0.95
15	NO2-N (mgN/L)	0.07	0.00	0.03	0.00	0.00
16	NO3-N (mgN/L)	0.31	0.78	1.20	0.92	0.95
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)	0.010	0.001	0.001	0.001	0.010
19	SiO2 (mg/L)	10.3	11.3	11.1	5.0	5.3
20	SO4 (mg/L)	22.0	46.2	35.4	21.6	27.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.7	0.9	1.5	1.1	0.9
2	DO (mg/L)	6.4	5.0	5.9	5.6	5.2
3	DO_SAT% (%)	78	62	73	70	64
	TRACE & TOXIC					
1	Al (mg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	84	53	61	78	123
2	HAR_Total (mgCaCO3/L)	122	92	94	117	203
3	Na% (%)	28	39	26	26	38
4	RSC (-)	0.0	0.0	0.0	0.0	0.1
5	SAR (-)	1.0	1.4	0.7	1.0	2.2
	PESTICIDES					

TREND ANALYSIS

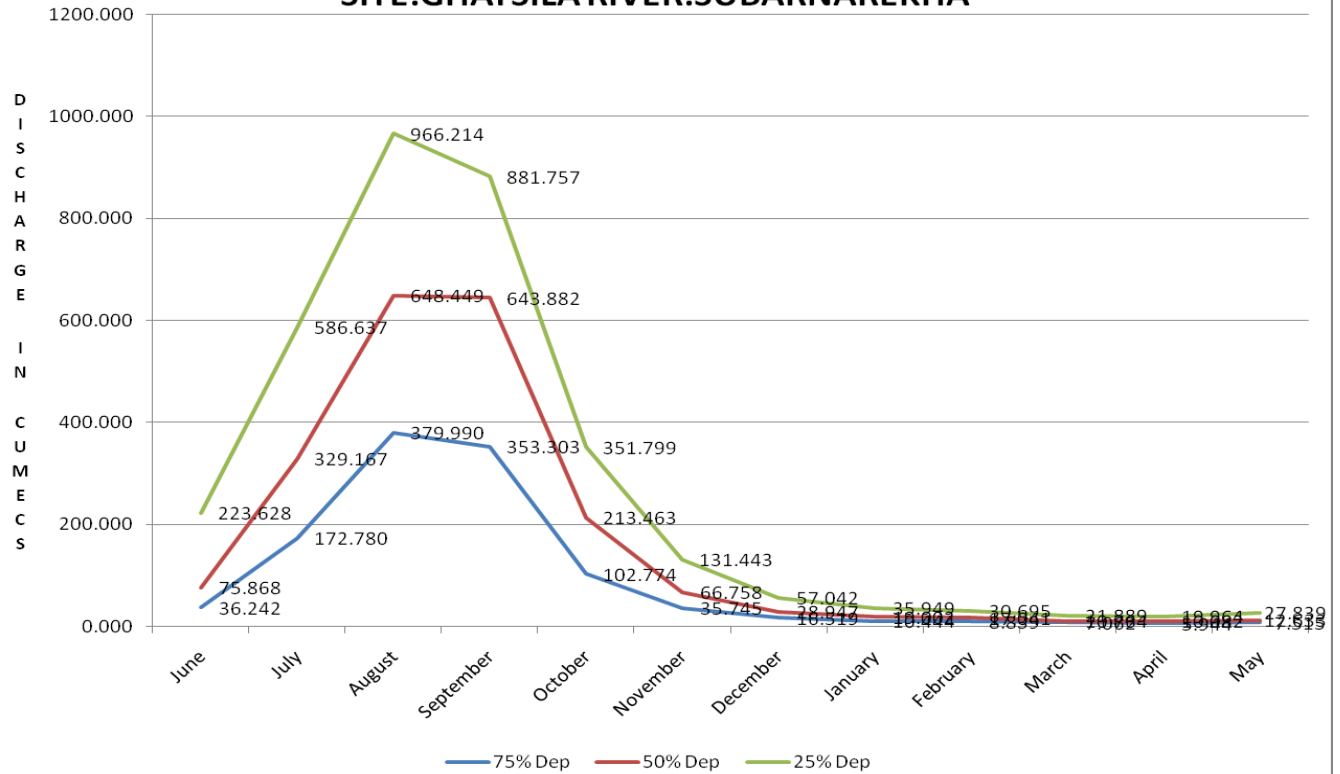
TOTAL ANNUAL DISCHARGE **SITE:GHATSILA RIVER:SUBARNAREKHA**



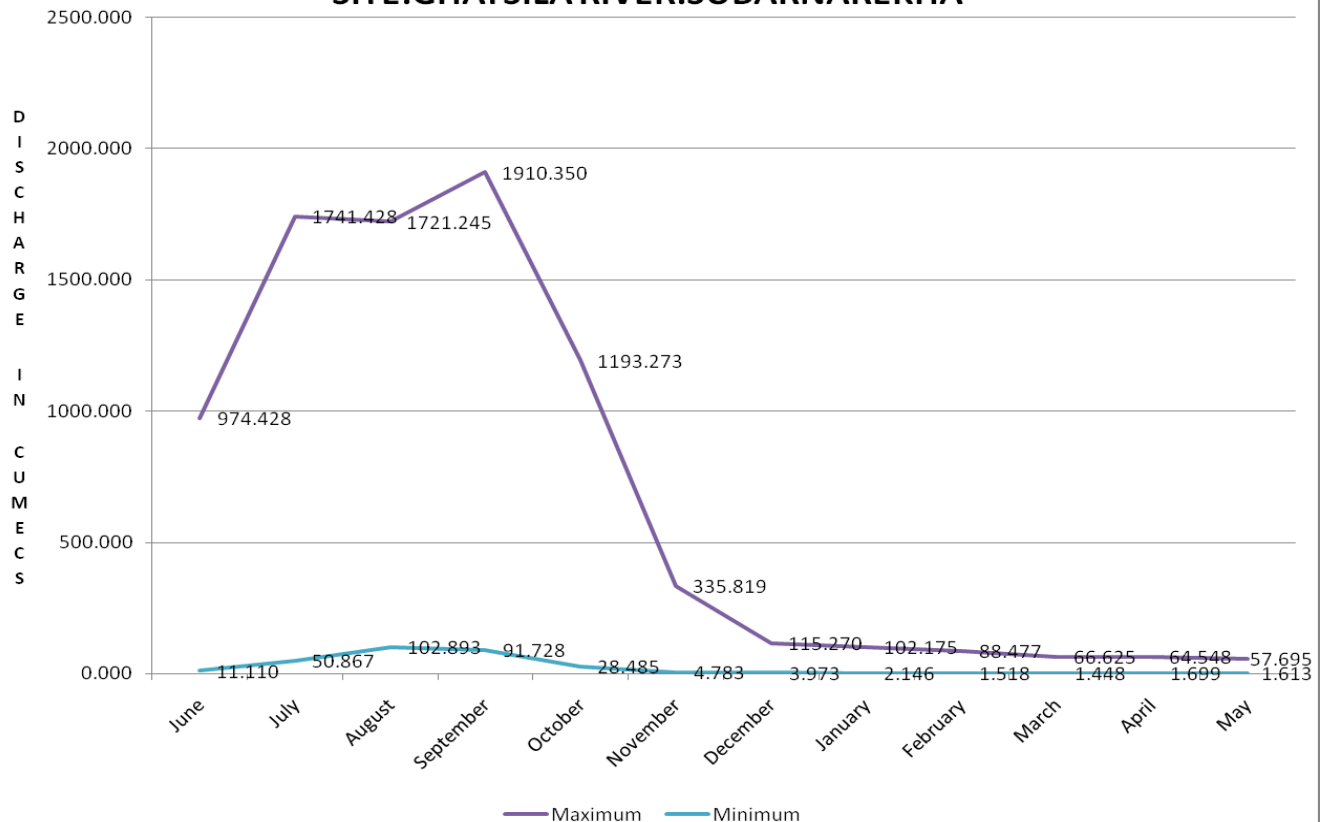
TOTAL ANNUAL DISCHARGE **SITE:GHATSILA RIVER:SUBARNAREKHA**

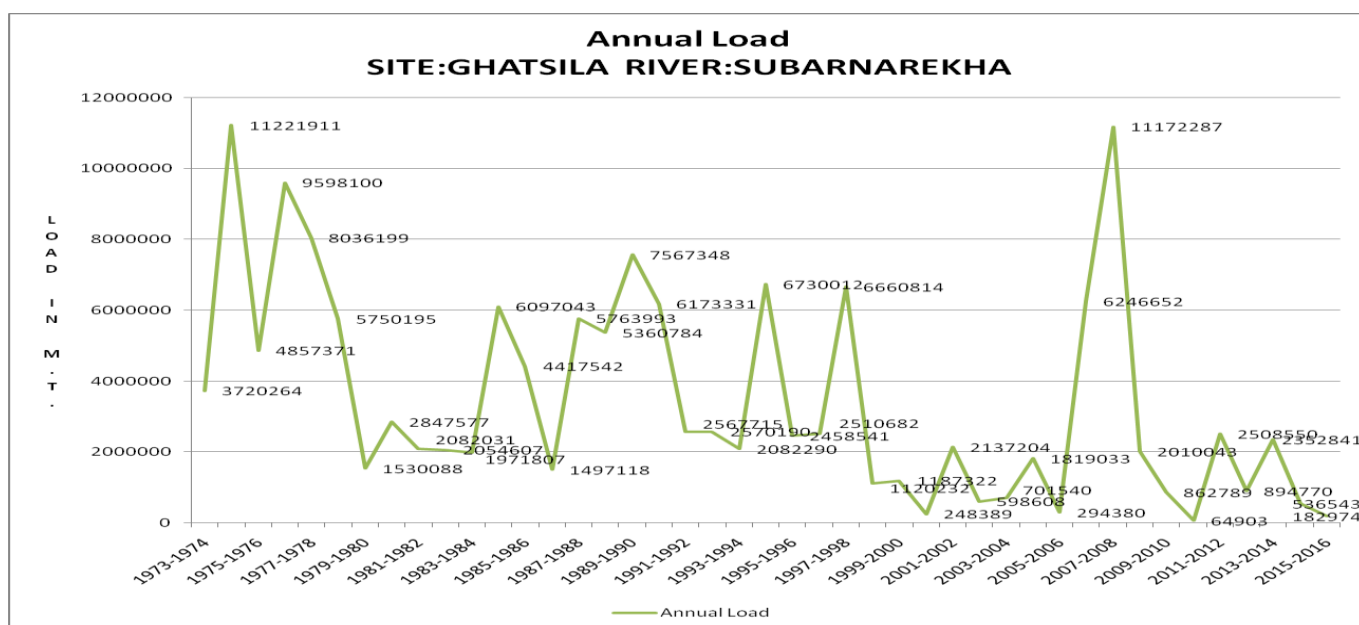
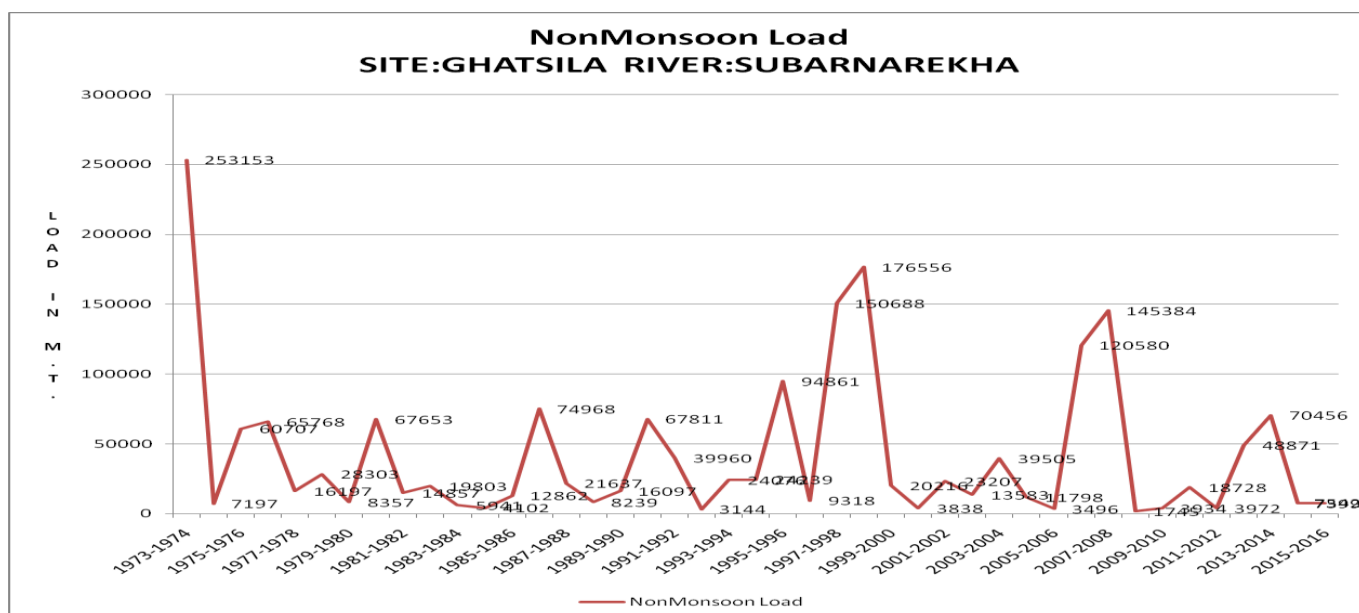
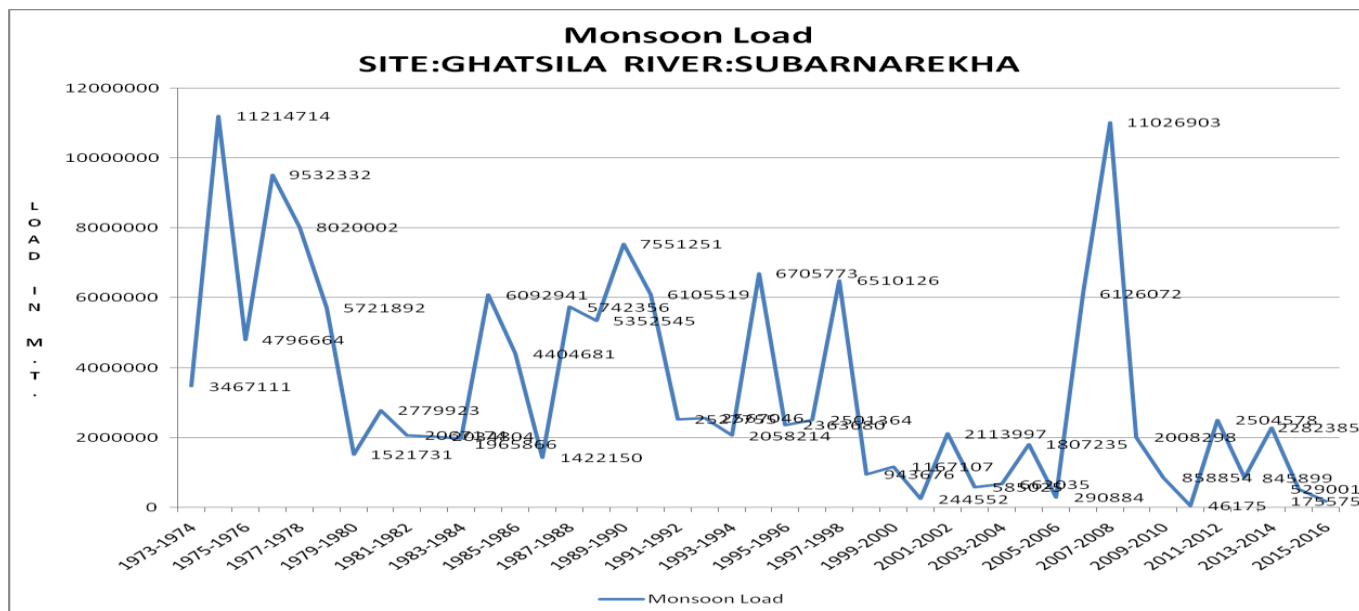


DEPENDIBILITY FLOW FROM JUNE TO MAY SITE:GHATSILA RIVER:SUBARNAREKHA

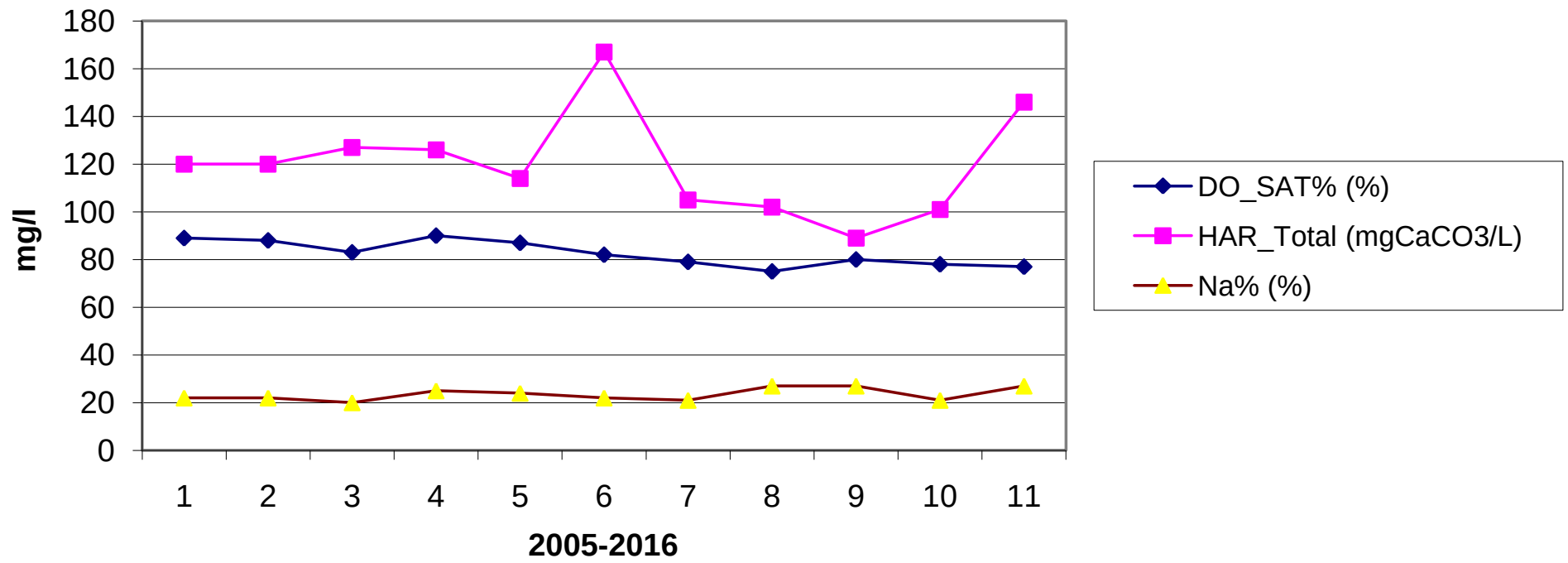


MAXIMUM-MINIMUM FLOW FROM JUNE TO MAY SITE:GHATSILA RIVER:SUBARNAREKHA

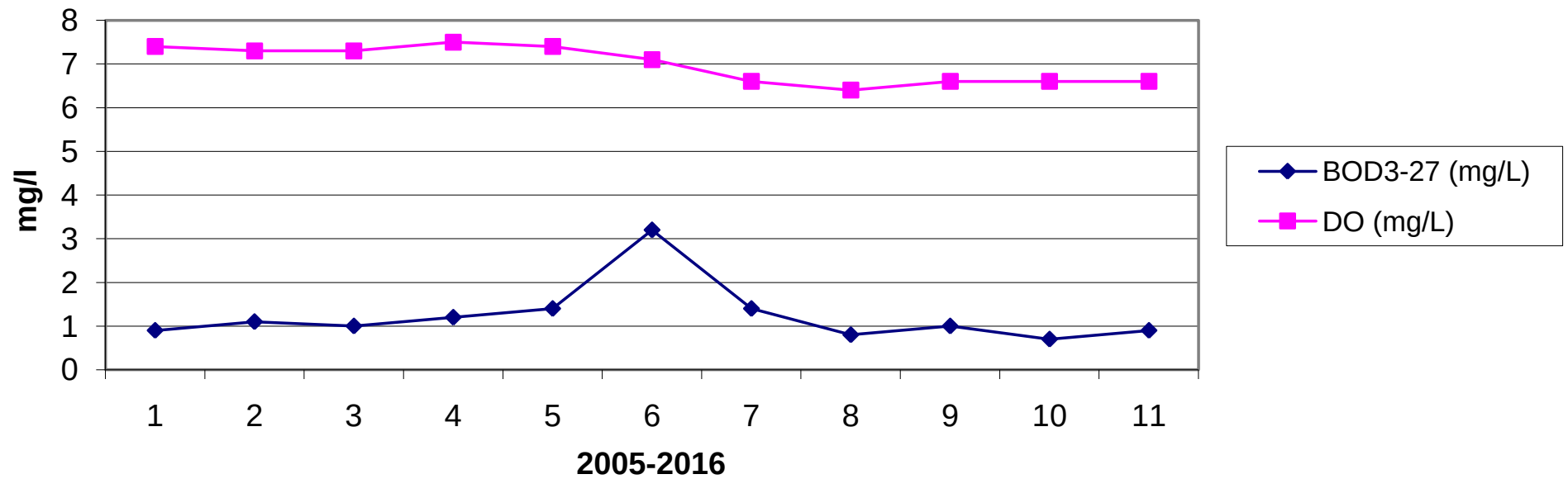




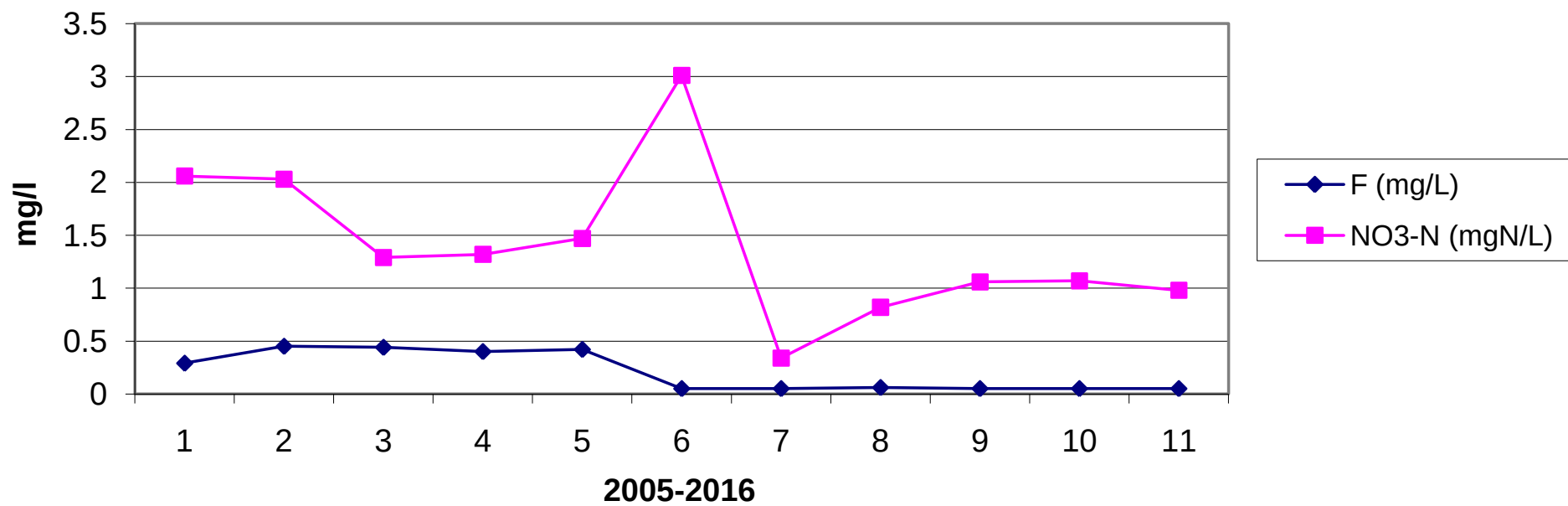
Year Wise Trend For Ghatshila



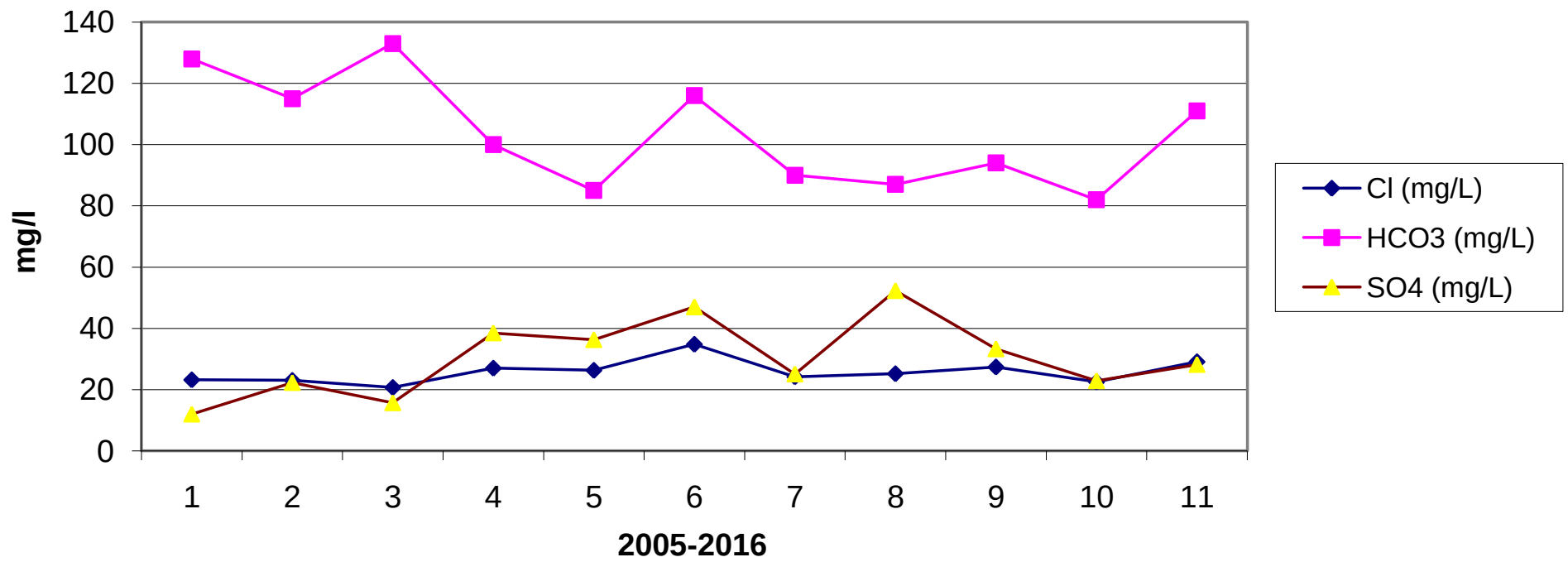
Year Wise Trend For Ghatshila



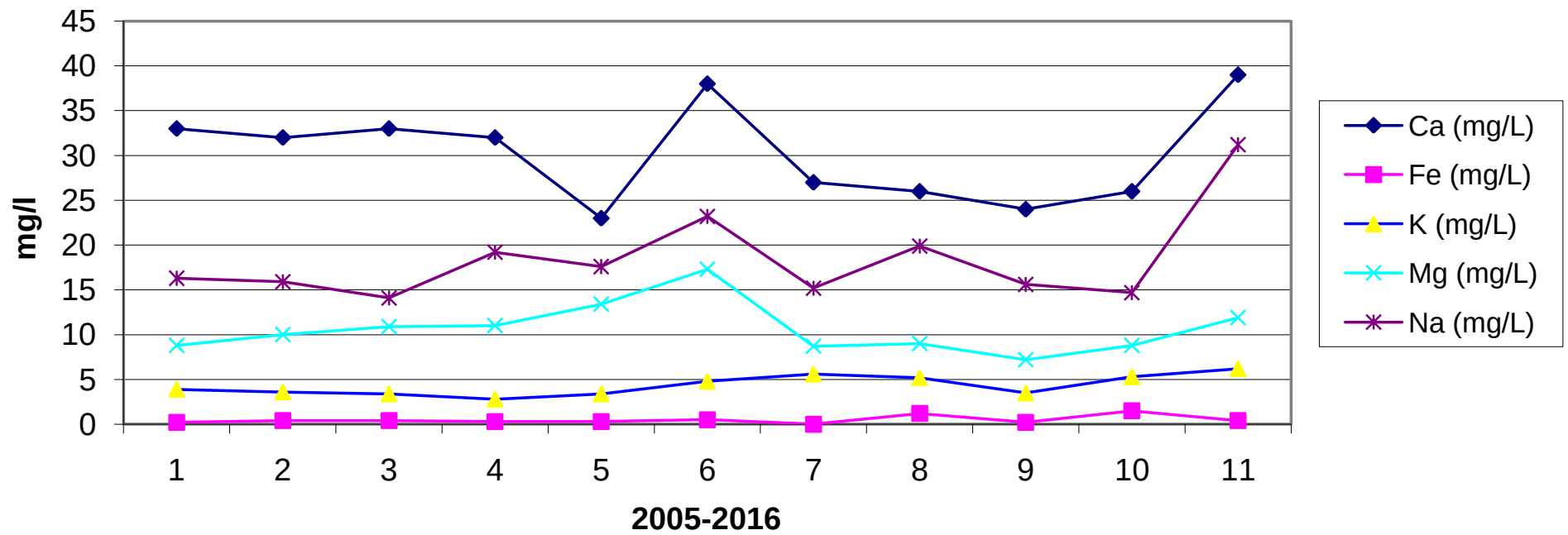
Year Wise Trend For Ghatshila



Year Wise Trend For Ghatshila



Year WiseTrend For Ghatshila



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : JAMSHOLAGHAT

Code : JAMSHOLAGHAT

State : Orissa

District : Mayurbhanj

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 16000 Sq. Km.

Bank : Left

Latitude : 22°13'08"

Longitude : 86°43'00"

Zero of Gauge (m) : 42.32 (m.s.l)
42 (m.s.l)
42 (m.s.l)

21.06.1973 - 30.11.2004
01.12.2004 - 31.01.2020
21.06.2005 - 21.06.2013

Opening Date

Closing Date

Gauge : 01.06.1976

01.06.2026

Discharge : 16.06.2004

30.10.2015

Sediment :

Water Quality :

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2011-2012	3750	51.720	24.09.2011	0.000	43.680	13.06.2011
2012-2013	2557	48.230	16.08.2012	61.03	43.900	27.07.2012
2013-2014	2267	47.880	24.08.2013	27.35	43.800	13.07.2013

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

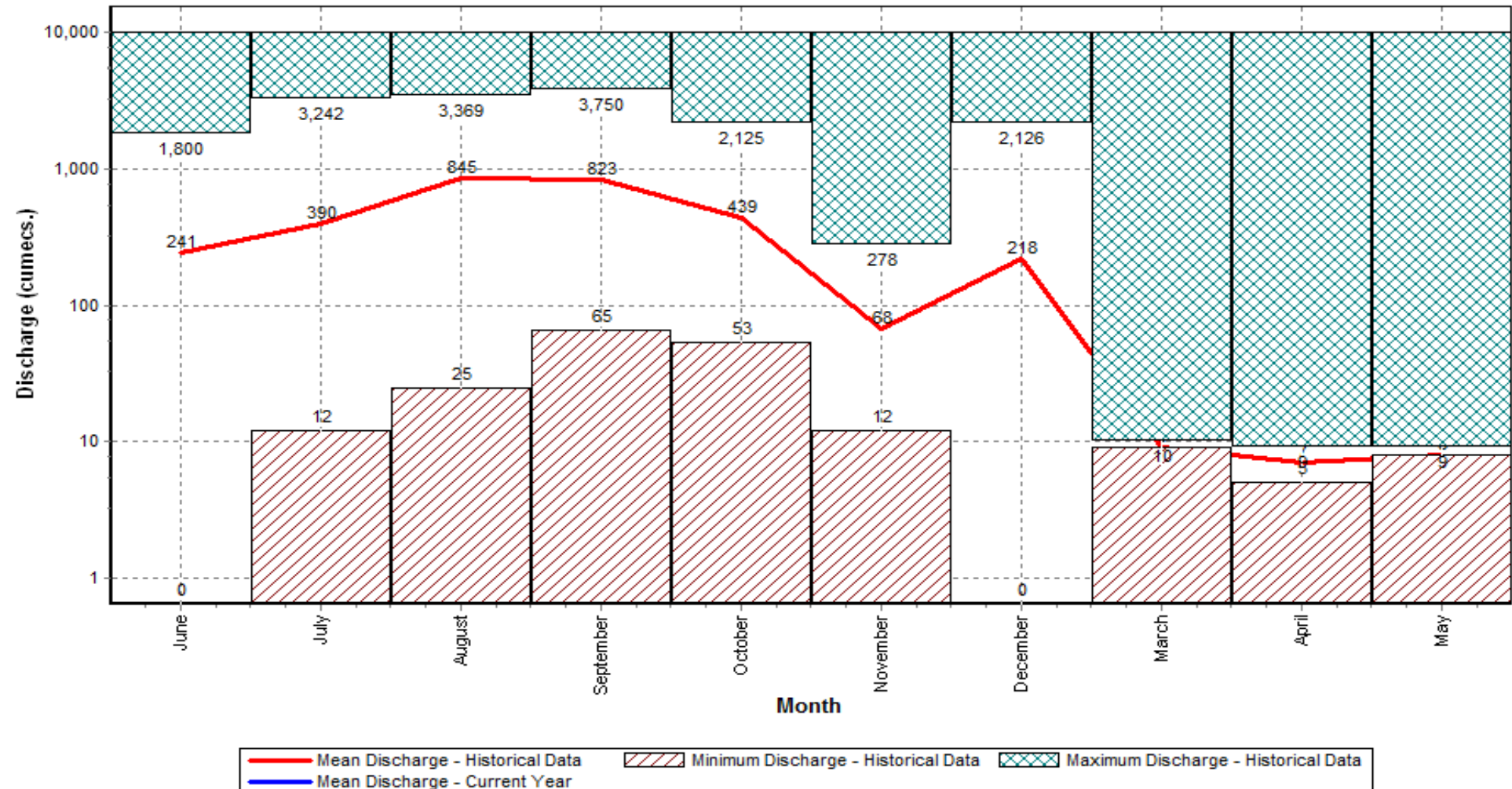
Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Data considered : 2011-2014

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



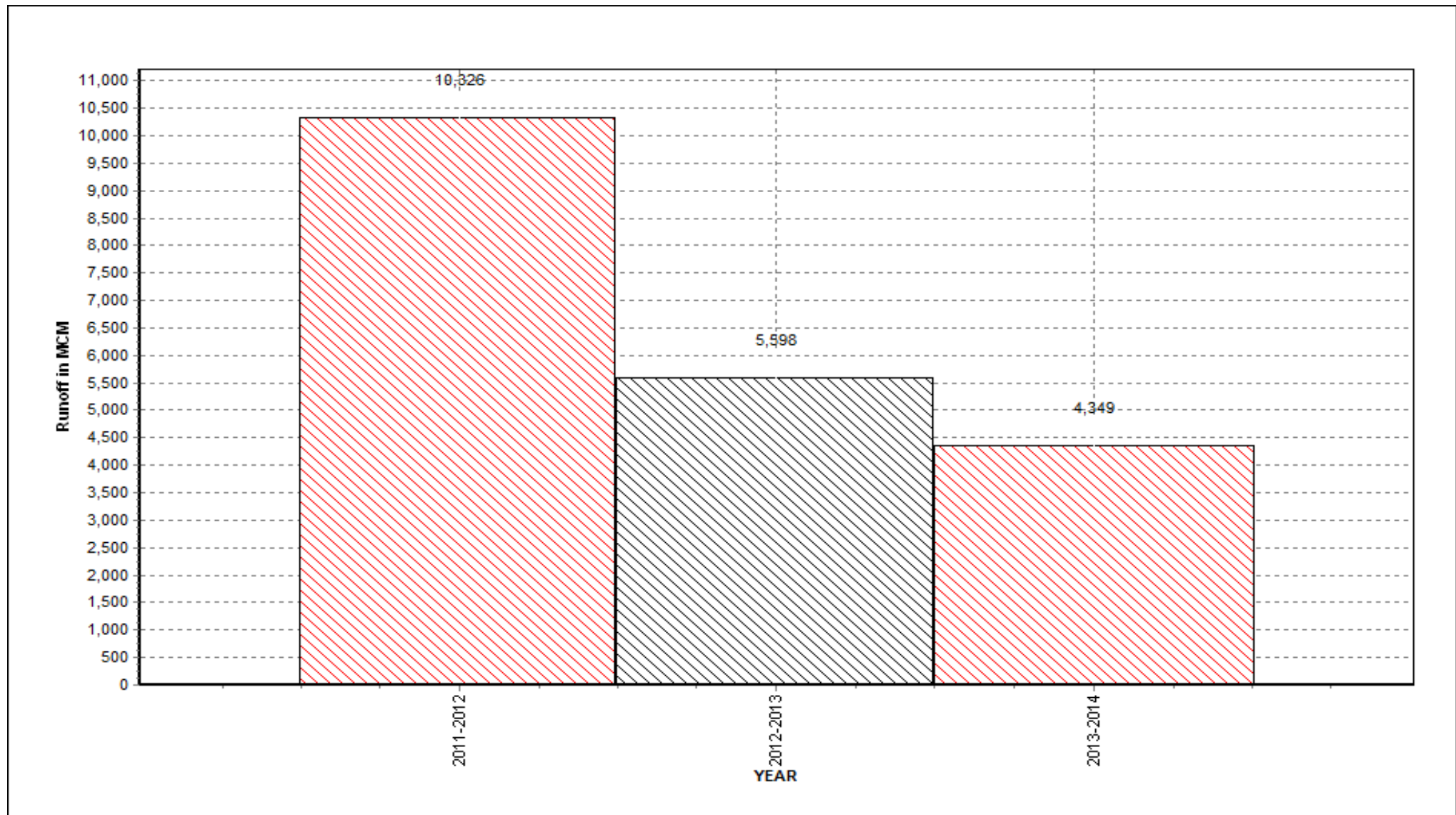
Annual Runoff Values for the period: 2011 - 2014

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

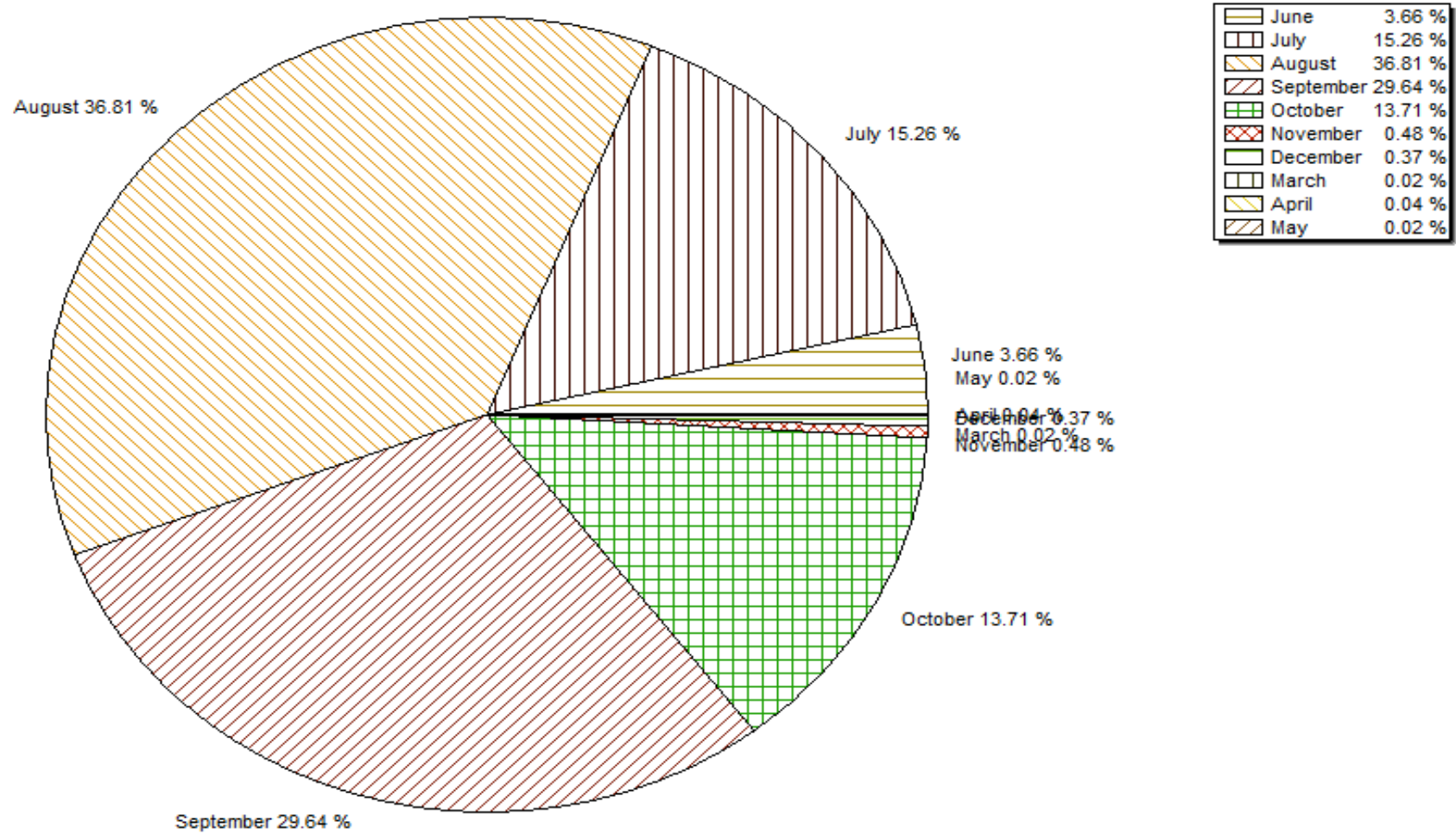


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 2011-2015

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)
Local River : Subarnarekha

Division : E.E., Bhubaneswar
Sub-Division : Balasore



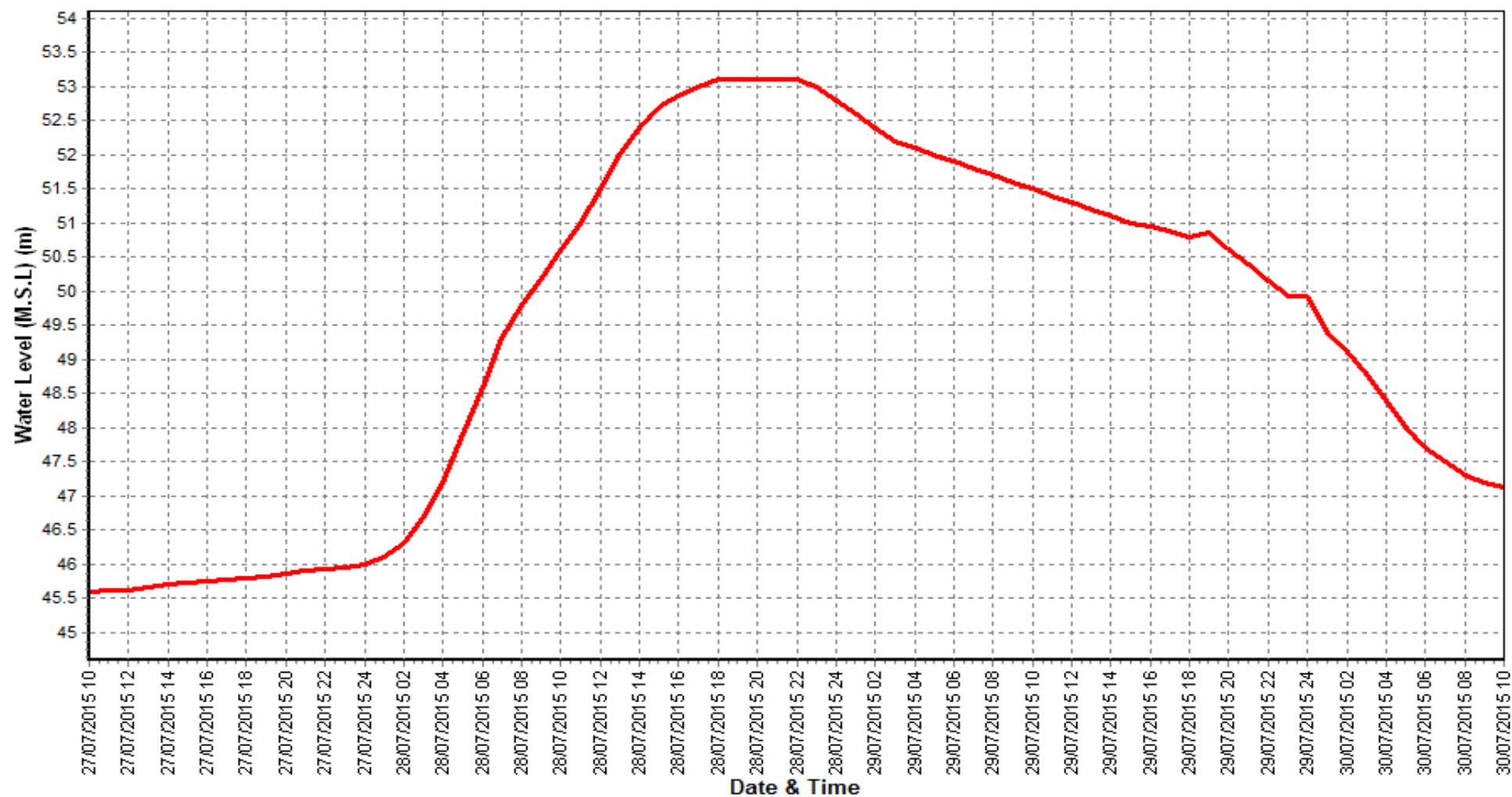
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



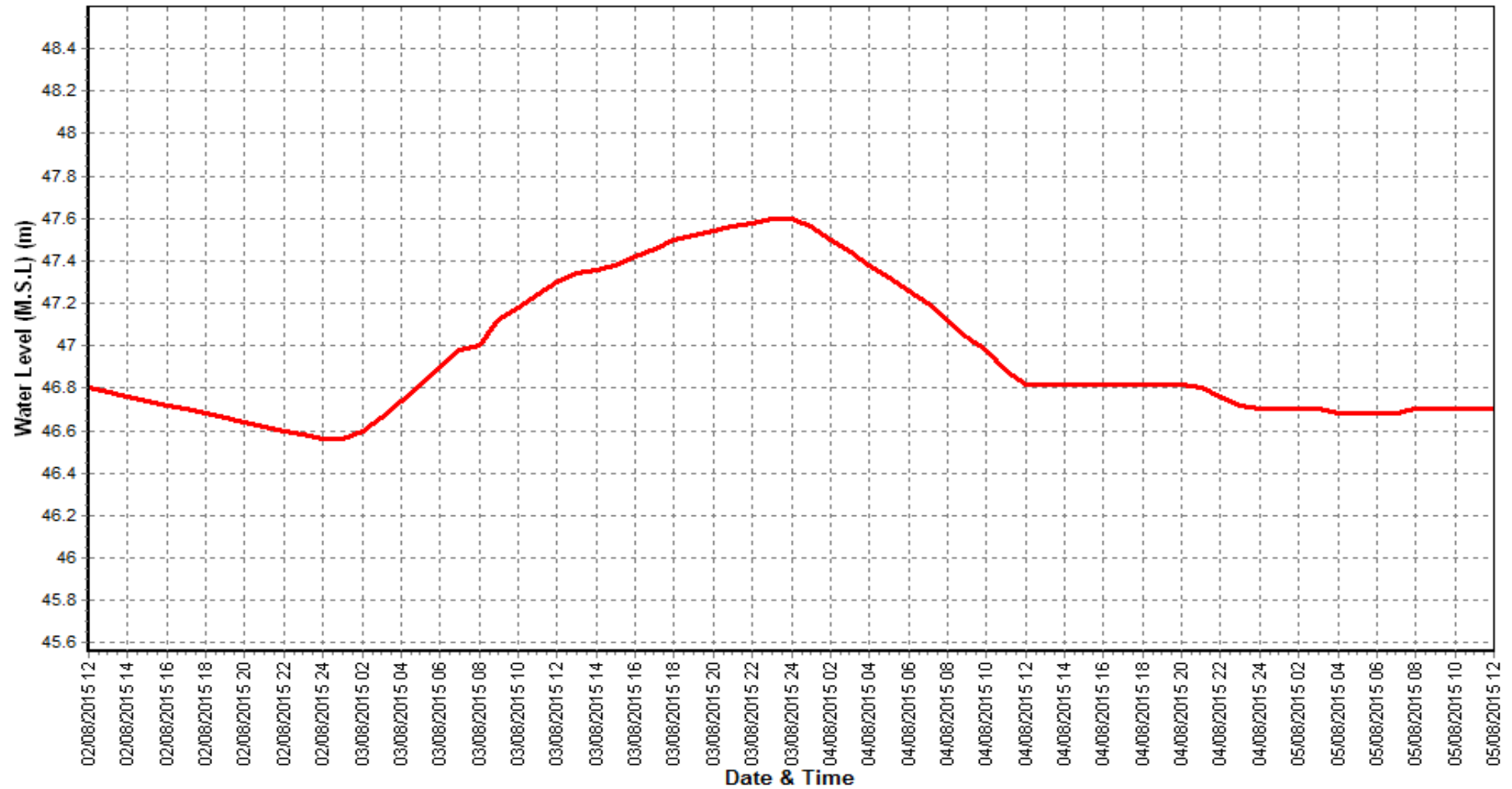
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



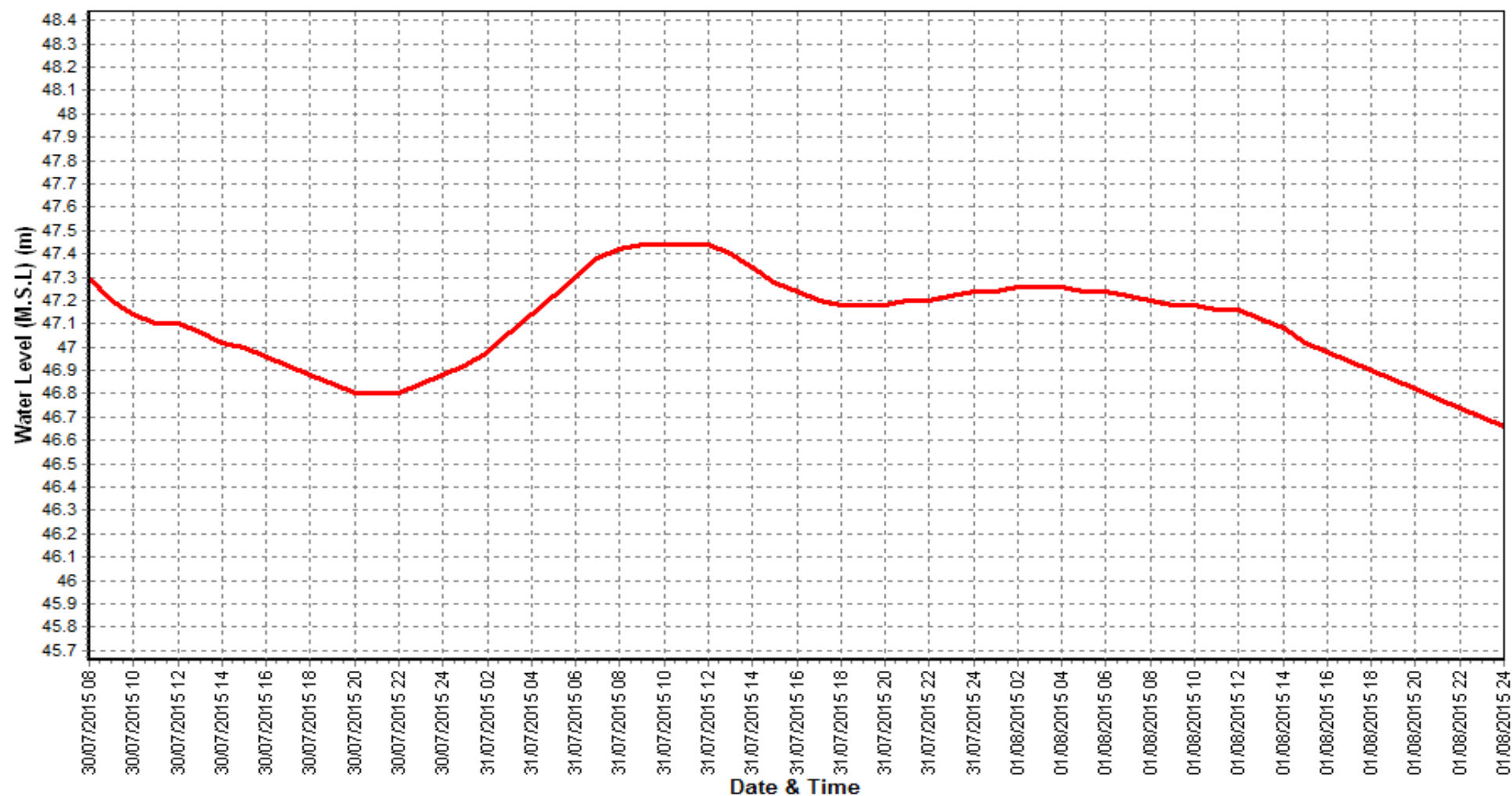
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	460	442	144	235	186	725	560	889	634	807	809	518
4	EC_GEN (µmho/cm)	464	446	134	203	190	715	562	891	638	813	812	516
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.8	7.8	7.4	8.2	7.7	7.7	8.0	7.5	8.4	7.8	8.1	7.9
7	pH_GEN (pH units)	7.9	7.5	7.2	8.1	7.8	7.6	8.1	7.6	8.6	8.0	8.2	8.0
8	Temp (deg C)	30.0	29.0	26.0	29.0	27.5	26.0	25.0	18.0	22.0	27.0	29.5	31.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	9.2	0.0	23.0	13.8	23.0	18.4
2	ALK-TOT (mgCaCO3/L)	74	69	60	74	60	69	88	74	111	120	111	129
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	26	22	32	30	29	30	27	29	38	61	32	48
5	Cl (mg/L)	30.2	17.0	15.1	13.2	15.1	17.0	17.0	18.9	22.6	37.7	41.5	11.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	27.7	16.6	27.7	22.2
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.5	0.4	0.4	0.6	0.3	0.4	0.3	0.4	0.4	0.6	0.5	0.5
9	HCO3 (mg/L)	90	85	73	90	73	85	85	90	79	113	79	113
10	K (mg/L)	1.4	1.8	1.5	1.7	1.4	1.3	1.3	1.8	0.8	6.0	4.9	5.1
11	Mg (mg/L)	8.8	7.8	12.6	11.7	10.7	11.7	11.7	13.6	10.7	21.4	17.5	17.5
12	Na (mg/L)	2.4	4.9	2.5	2.5	6.7	6.8	6.2	6.8	4.7	4.9	60.0	61.6
13	NO2+NO3 (mg N/L)	1.09	0.83	1.12	1.11	0.95	1.21	1.13	0.83	1.21	1.28	1.19	1.22
14	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
15	NO3-N (mgN/L)	1.09	0.81	1.12	1.11	0.94	1.21	1.13	0.81	1.21	1.28	1.19	1.22
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
17	SiO2 (mg/L)	5.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0
18	SO4 (mg/L)	47.4	16.2	15.8	14.4	14.4	14.8	3.2	4.2	3.6	45.6	4.0	49.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.4	0.8	1.2	0.8	0.8	1.0	1.2	1.6	0.8	1.0	0.4	1.0
2	DO (mg/L)	6.0	5.8	6.8	6.8	9.0	7.0	7.4	9.7	8.9	6.4	6.0	7.3
3	DO_SAT% (%)	79	75	83	88	112	86	89	103	102	80	78	99
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	64	56	80	76	72	76	68	71	96	152	80	120
2	HAR_Total (mgCaCO3/L)	101	89	133	125	117	125	117	128	141	241	153	193
3	Na% (%)	5	11	4	4	11	11	10	10	7	4	45	40
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.1	0.2	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.1	2.1	1.9
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (μmho/cm)	12	889	144	534
3	EC_GEN (μmho/cm)	12	891	134	532
4	pH_FLD (pH units)	12	8.4	7.4	7.8
5	pH_GEN (pH units)	12	8.6	7.2	7.9
6	Temp (deg C)	12	31.5	18.0	26.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	23.0	0.0	7.3
2	ALK-TOT (mgCaCO3/L)	12	129	60	87
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	61	22	34
5	Cl (mg/L)	12	41.5	11.3	21.4
6	CO3 (mg/L)	12	27.7	0.0	8.8
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.3	0.4
9	HCO3 (mg/L)	12	113	73	88
10	K (mg/L)	12	6.0	0.8	2.4
11	Mg (mg/L)	12	21.4	7.8	13
12	Na (mg/L)	12	61.6	2.4	14.2
13	NO2+NO3 (mg N/L)	12	1.28	0.83	1.1
14	NO2-N (mgN/L)	12	0.01	0.00	0
15	NO3-N (mgN/L)	12	1.28	0.81	1.09
16	P-Tot (mgP/L)	12	0.001	0.001	0.001
17	SiO2 (mg/L)	12	6.0	5.0	5.5
18	SO4 (mg/L)	12	49.6	3.2	19.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	1.6	0.4	0.9
2	DO (mg/L)	12	9.7	5.8	7.2
3	DO_SAT% (%)	12	112	75	89
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	152	56	84
2	HAR_Total (mgCaCO3/L)	12	241	89	138
3	Na% (%)	12	45	4	13
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	2.1	0.1	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2015-2016

Station Name : JAMSHOLAGHAT (JAMSHOLAGHAT)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

River Water

Sub-Division : Balasore

S.No	Parameters	Flood Jun - Oct 2015	Winter Nov - Feb 2015-2016	Summer Mar - May 2016
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	293	702	711
3	EC_GEN (µmho/cm)	287	702	714
4	pH_FLD (pH units)	7.7	7.9	7.9
5	pH_GEN (pH units)	7.7	8.0	8.1
6	Temp (deg C)	28.3	22.8	29.3
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	8.1	18.4
2	ALK-TOT (mgCaCO3/L)	67	85	120
3	B (mg/L)	0.01	0.01	0.01
4	Ca (mg/L)	28	31	47
5	Cl (mg/L)	18.1	18.9	30.2
6	CO3 (mg/L)	0.0	9.7	22.2
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.5
9	HCO3 (mg/L)	82	85	101
10	K (mg/L)	1.6	1.3	5.3
11	Mg (mg/L)	10.3	11.9	18.8
12	Na (mg/L)	3.8	6.1	42.2
13	NO2+NO3 (mg N/L)	1.02	1.09	1.23
14	NO2-N (mgN/L)	0.01	0.00	0.00
15	NO3-N (mgN/L)	1.01	1.09	1.23
16	P-Tot (mgP/L)	0.001	0.001	0.001
17	SiO2 (mg/L)	5.6	5.3	5.7
18	SO4 (mg/L)	21.6	6.5	33.1
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	1.1	0.8
2	DO (mg/L)	6.8	8.2	6.6
3	DO_SAT% (%)	87	95	85
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	70	78	118
2	HAR_Total (mgCaCO3/L)	113	128	196
3	Na% (%)	7	9	30
4	SAR (-)	0.2	0.2	1.4
	PESTICIDES			

HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : FEKOGHAT

Code : ESA00F3

State : West Bengal

District : Mednipur

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : Dulang

Sub Tributary :

Sub-Sub Tributary :

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 700 Sq. Km.

Bank : Left

Latitude : 22°18'28"

Longitude : 86°55'11"

Zero of Gauge (m) : 41.48 (m.s.l)
40 (m.s.l)
40 (m.s.l)

01.07.1987 - 30.11.2004
01.12.2004 - 31.01.2020
01.07.2005 - 01.07.2017

Opening Date

Closing Date

Gauge : 01.07.1987

Discharge : 18.06.1988

Sediment :

Water Quality :

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1990-1991	331.7	44.920	04.09.1990	2.104	41.900	29.06.1990
1991-1992	255.8	44.540	22.07.1991	1.240	41.840	14.07.1991
1992-1993	129.5	43.920	08.08.1992	3.070	41.840	09.07.1992
1993-1994	176.0	43.880	14.09.1993	5.559	42.000	22.07.1993
1994-1995	275.3	44.820	20.07.1994	6.026	42.150	30.09.1994
1995-1996	280.1	44.720	27.09.1995	1.887	41.640	01.07.1995
1996-1997	219.0	44.300	26.07.1996	0.420	41.500	20.06.1996
1997-1998	1488	47.660	28.06.1997	3.775	41.700	24.06.1997
1998-1999	532.0	44.840	10.09.1998	1.127	41.460	19.06.1998
1999-2000	685.0	45.320	07.08.1999	3.310	41.840	03.08.1999
2000-2001	153.0	43.260	20.09.2000	1.330	41.560	06.07.2000
2001-2002	597.5	45.200	31.08.2001	6.454	41.640	28.09.2001
2002-2003	392.2	44.140	11.09.2002	2.198	41.380	16.07.2002
2003-2004	509.3	44.830	08.10.2003	2.571	41.580	18.06.2003
2004-2005	420.1	44.280	08.08.2004	2.861	41.540	01.07.2004
2005-2006	375.0	43.960	14.09.2005	0.610	41.320	23.06.2005
2006-2007	410.0	45.890	21.09.2006	3.095	41.480	17.06.2006
2007-2008	650.4	50.000	06.07.2007	3.985	41.560	03.07.2007
2008-2009	480.2	47.060	18.06.2008	21.45	41.780	06.10.2008
2009-2010	195.0	44.420	07.09.2009	0.897	41.260	26.06.2009
2010-2011	40.00	42.180	19.09.2010	1.010	41.260	24.06.2010
2011-2012	200.0	45.100	19.06.2011	10.50	41.460	31.07.2011
2012-2013	179.6	43.770	07.09.2012	0.960	41.220	20.06.2012
2013-2014	569.5	46.160	21.08.2013	9.600	41.540	21.07.2013
2014-2015	60.51	42.360	02.09.2014	1.268	41.100	19.06.2014
2015-2016	93.94	42.260	22.07.2015	0.965	41.000	10.06.2015

Stage-Discharge Data for the period 2015 - 2016

Station Name : FEKOGHAT (ESA00F3)

Division : E.E., Bhubaneswar

Local River : Dulang

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1		1.401		3.567	42.440	63.82	42.460	63.83	41.260	12.04	41.040	
2		1.431		3.278	43.260		42.220	52.30	41.240		41.040	
3		1.229		3.455	43.260	68.50	41.800	30.15	41.220	10.96	41.040	
4		1.390		3.136	42.300	55.69	41.640	24.28	41.200		41.040	
5		1.355	41.140		41.920	39.09	41.520	19.50	41.180	9.205	41.040	
6		1.316		4.971	41.720	30.92	41.440		41.160	8.988	41.040	
7	41.000			6.292	41.560	20.63	41.400	15.46	41.140	8.614	41.040	
8		1.018		5.350	41.480	19.89	41.360	13.71	41.230	11.05	41.040	
9		0.985		5.140	41.420		41.320	12.99	41.280	12.22	41.040	
10		0.965		6.317	41.340	15.43	41.260	11.53	41.260	12.04	41.040	
11		1.361		7.270	41.340	13.52	41.240	11.08	41.200		41.040	
12		1.682	41.580		41.300	12.79	41.200	9.324	41.200	9.835	41.040	
13		1.631		6.617	41.840	38.63	41.200		41.180	9.205	41.040	
14	41.040			5.906	41.740	29.83	41.180	8.687	41.160	9.026	41.040	
15		1.480		5.273	41.600		41.180	8.253	41.160	8.754	41.020	
16		3.158		6.701	41.500		41.480	16.38	41.160	8.394	41.020	
17		1.251		6.996	41.440	21.19	41.540		41.160	8.124	41.020	
18		1.454	41.720		41.480	18.70	41.540	19.11	41.140		41.020	
19		1.543	41.700		41.740	27.11	41.560	20.15	41.140	9.729	41.020	
20		1.452		9.669	41.720	27.10	41.840		41.160	8.508	41.020	
21	41.060			36.02	41.640	23.69	41.820	26.69	41.100		41.020	
22		1.561	42.260	93.94	41.540	20.93	41.720	24.25	41.080		41.020	
23		4.005	41.880	28.88	41.440		41.760	25.85	41.080	7.513	41.020	
24		3.298	41.700	23.70	41.660	26.02	41.800	26.98	41.080		41.060	
25		3.233	41.720	28.11	41.780	28.57	41.700		41.100		41.080	
26		3.318	42.360		41.620	23.90	41.580	21.68	41.080	7.513	41.080	
27		2.768	42.380	61.76	41.560	22.31	41.480		41.080	7.513	41.080	
28	41.120		43.260	78.30	41.640	23.66	41.400	15.20	41.060	7.373	41.080	
29		3.719	43.170	67.20	41.720	25.64	41.360	13.71	41.060	7.345	41.080	
30		3.666	42.400	56.98	41.660		41.300	13.08	41.060	7.261	41.080	
31			42.050	46.70	41.760	26.50			41.220	7.261		
Ten-Daily Mean												
I Ten-Daily	41.000	1.232	41.140	4.612	42.070	39.25	41.642	27.08	41.217	10.64	41.040	
II Ten-Daily	41.040	1.668	41.667	6.919	41.570	23.61	41.396	13.28	41.166	8.947	41.028	
III Ten-Daily	41.090	3.196	42.318	52.16	41.638	24.58	41.592	20.93	41.091	7.397	41.060	
Monthly												
Min.	41.000	0.965	41.140	3.136	41.300	12.79	41.180	8.253	41.060	7.261	41.020	
Max.	41.120	4.005	43.260	93.94	43.260	68.50	42.460	63.83	41.280	12.22	41.080	
Mean	41.055	1.987	42.094	23.52	41.755	28.96	41.543	21.01	41.156	9.064	41.043	

Annual Runoff in MCM = 181 Annual Runoff in mm = 259

Peak Observed Discharge = 93.94 cumecs on 22/07/2015 Corres. Water Level :42.26 m

Lowest Observed Discharge = 0.965 cumecs on 10/06/2015

Stage-Discharge Data for the period 2015 - 2016

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	41.080		41.080				41.140		40.900		40.820	
2	41.080		41.080				41.120		40.900		40.920	
3	41.080		41.080				41.100		40.900		40.980	
4	41.120		41.080				41.080		40.880		40.000	
5	41.120		41.080				41.060		40.880		41.020	
6	41.120		41.080				41.060		40.880		41.160	
7	41.100		41.080				41.040		40.880		41.080	
8	41.100		41.080				41.040		40.860		41.120	
9	41.100		41.080				41.040		40.860		41.140	
10	41.100		41.060				41.040		40.860		41.120	
11	41.080		41.060				41.020		40.840		41.080	
12	41.080		41.060				41.020		40.840		41.060	
13	41.080		41.060				41.020		40.840		41.040	
14	41.080		41.060				41.020		40.820		41.040	
15	41.080		41.060				41.000		40.820		41.040	
16	41.080		41.060				41.000		40.820		41.040	
17	41.080		41.060				40.980		40.800		41.040	
18	41.100		41.040				40.980		40.800		41.040	
19	41.100		41.040				40.980		40.800		41.040	
20	41.100		41.060				40.960		40.800		41.040	
21	41.100		41.060				40.960		40.800		41.020	
22	41.100		41.060				40.960		40.780		41.020	
23	41.100		41.060				40.940		40.780		41.020	
24	41.100		41.060				40.940		40.780		41.060	
25			41.060				40.940		40.760		41.060	
26	41.100		41.040				40.920		40.760		41.060	
27	41.100		41.040				40.920		40.760		41.040	
28	41.100		41.040				40.920		40.740		41.040	
29	41.100		41.020				40.900		40.740		41.040	
30	41.100		41.020				40.900		40.780		41.040	
31	41.080		41.020				40.900				41.060	
<u>Ten-Daily Mean</u>												
I Ten-Daily	41.100		41.078				41.072		40.880		40.936	
II Ten-Daily	41.086		41.056				40.998		40.818		41.046	
III Ten-Daily	41.098		41.044				40.927		40.768		41.042	
<u>Monthly</u>												
Min.	41.080		41.020				40.900		40.740		40.000	
Max.	41.120		41.080				41.140		40.900		41.160	
Mean	41.095		41.059				40.997		40.822		41.009	

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

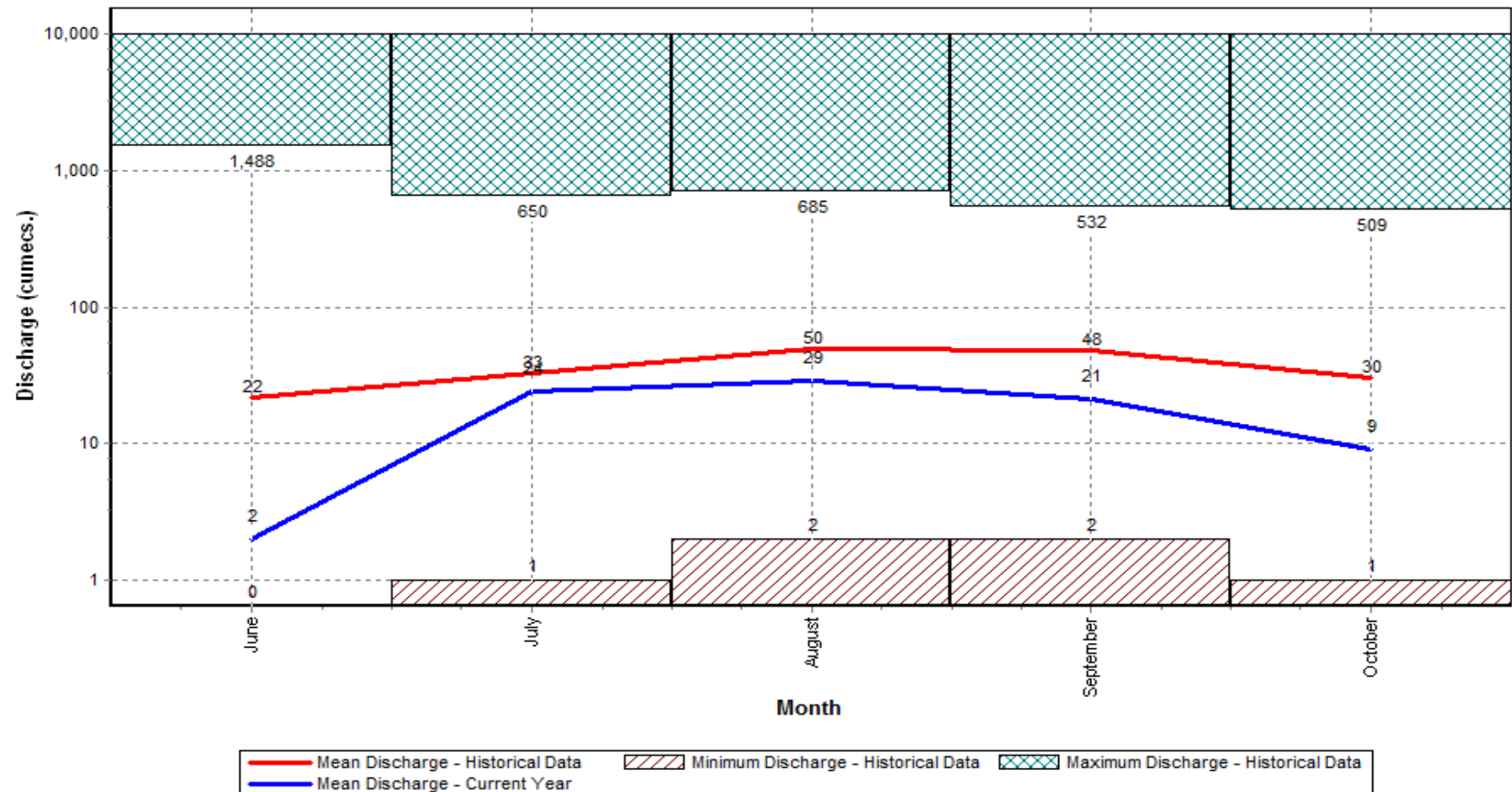
Station Name : FEKOGHAT (ESA00F3)

Data considered : 1990-2016

Division : E.E., Bhubaneswar

Local River : Dulang

Sub-Division : Balasore



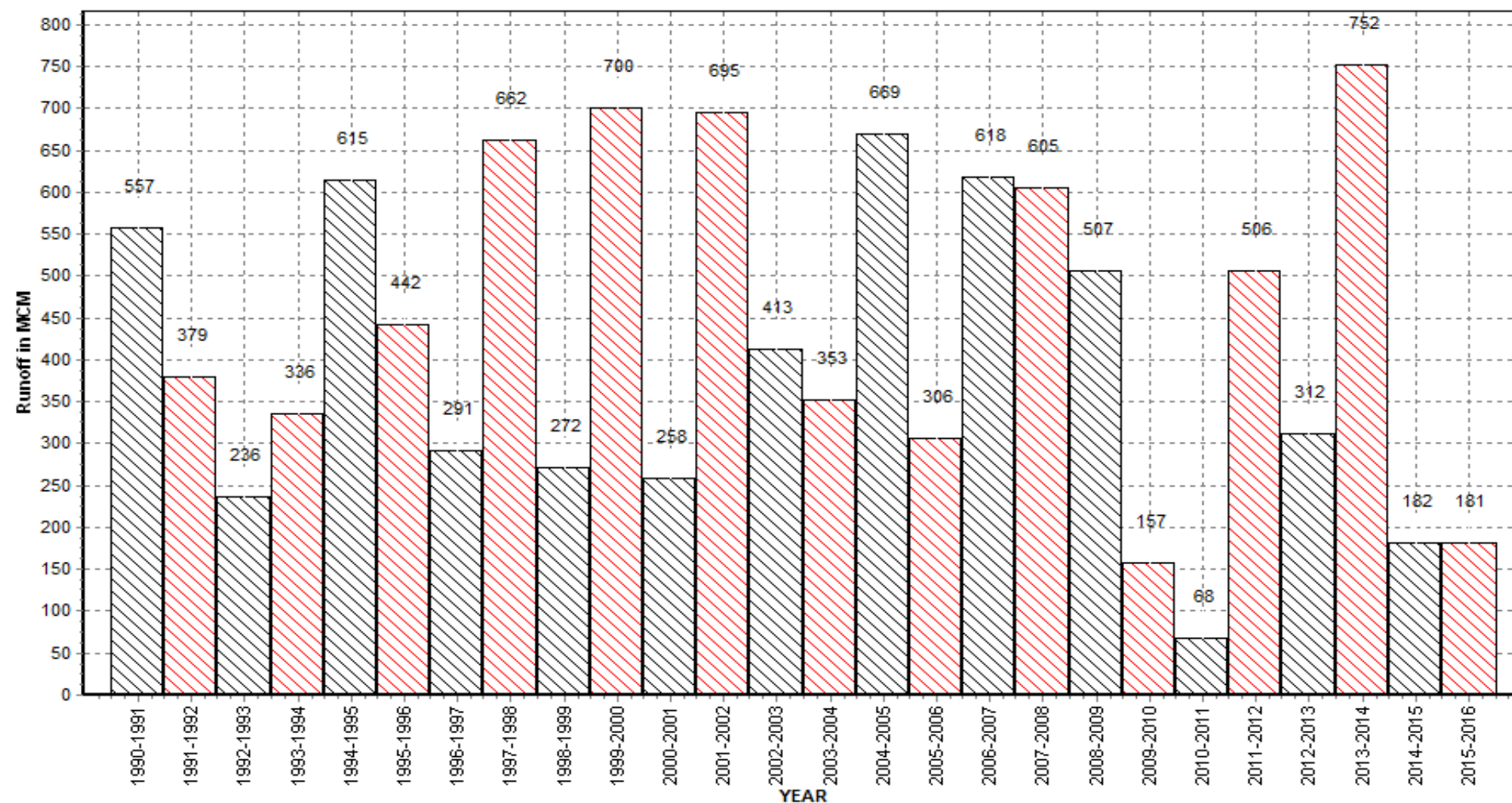
Annual Runoff Values for the period: 1990 - 2016

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



Note: Missing values have not been considered while arriving at Annual Runoff

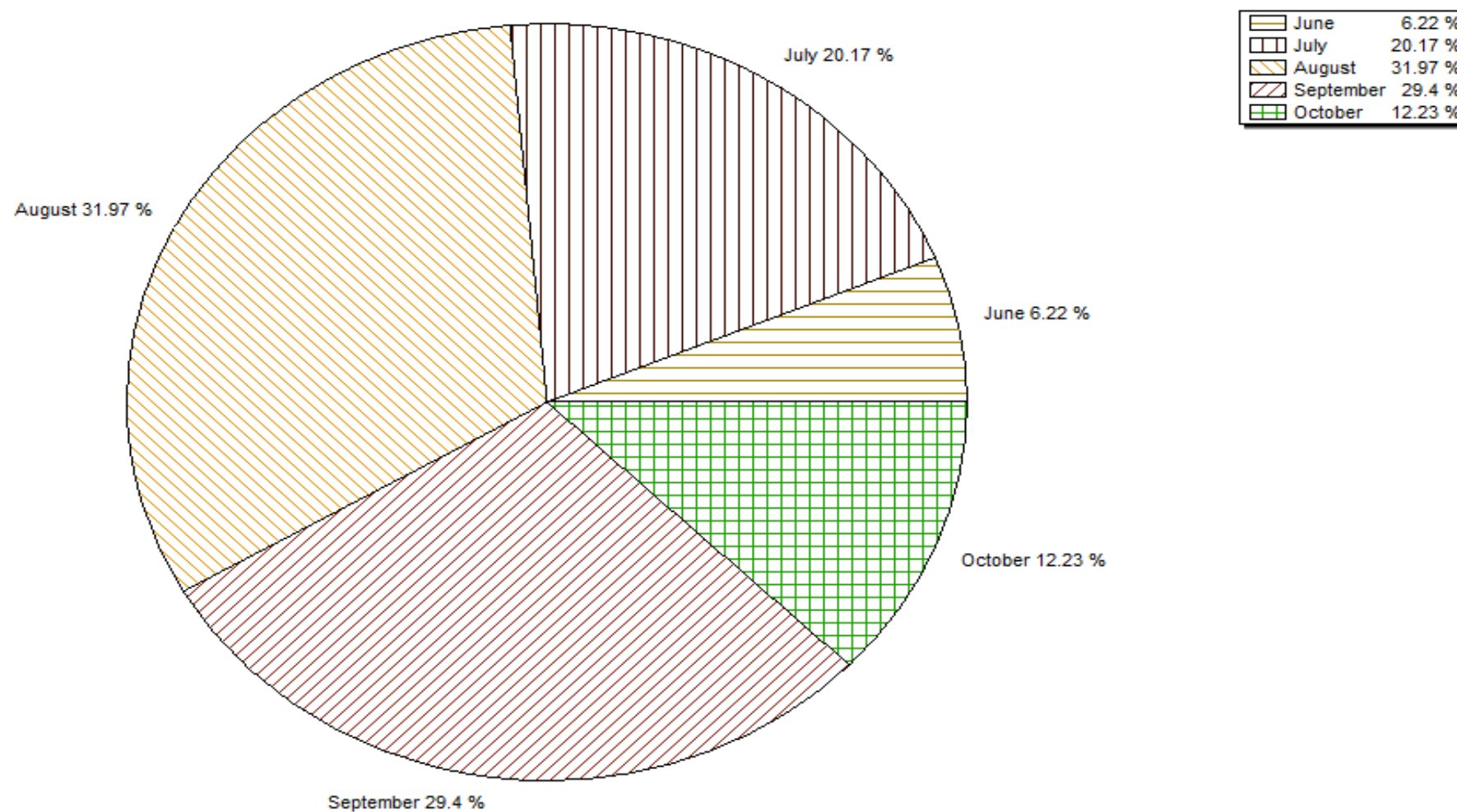
Monthly Average Runoff based on period : 1990-2015

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



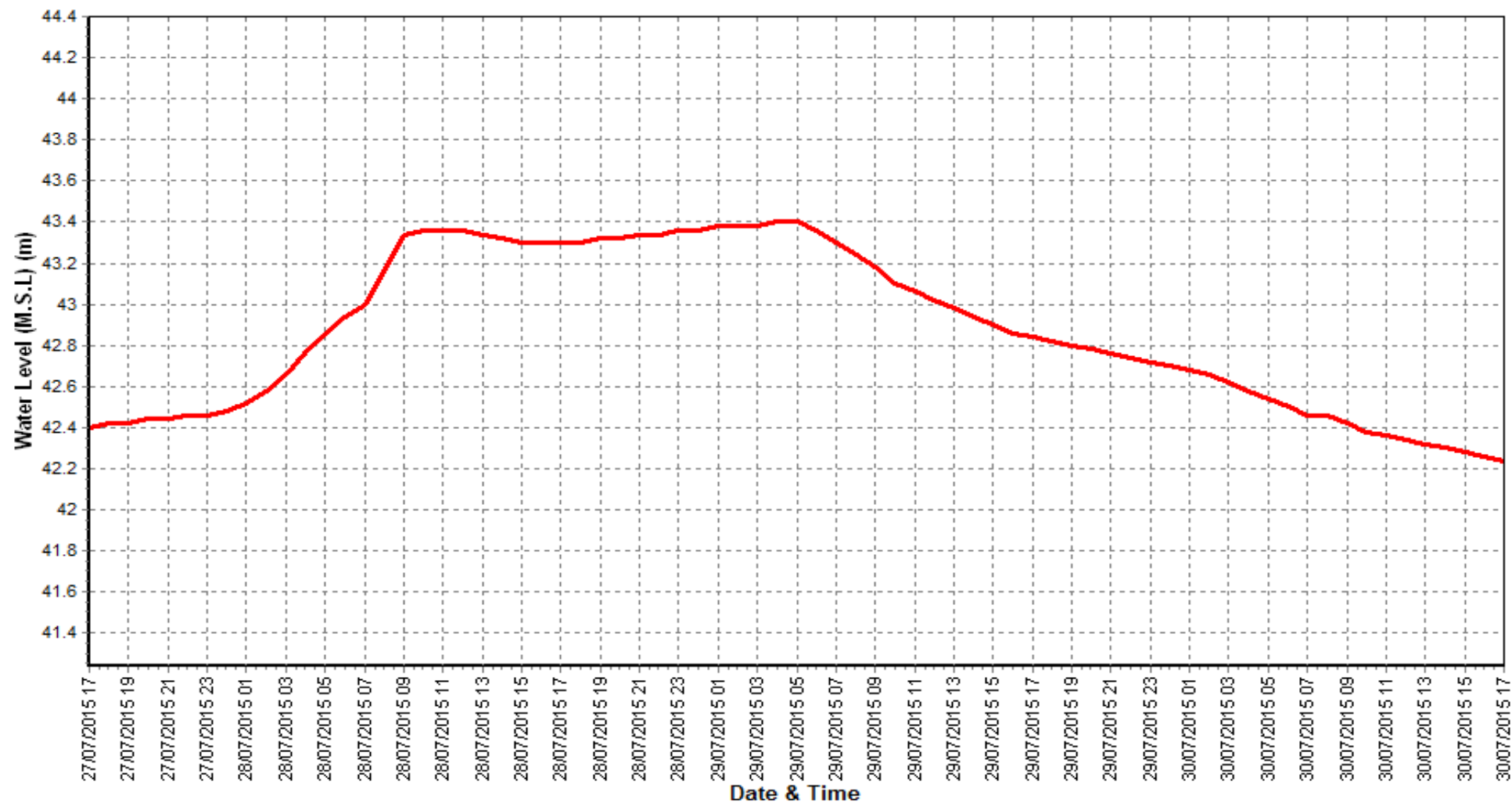
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



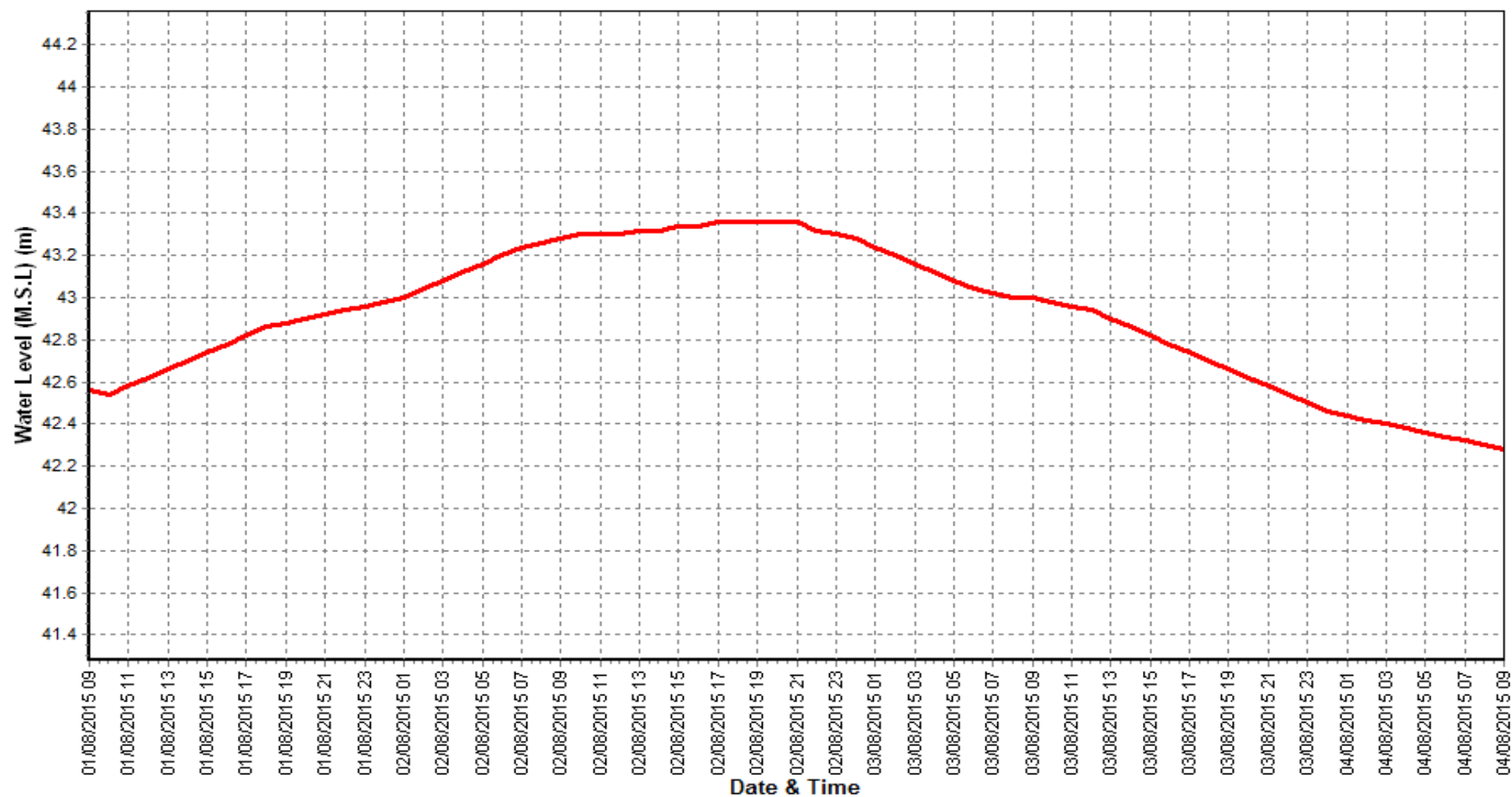
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



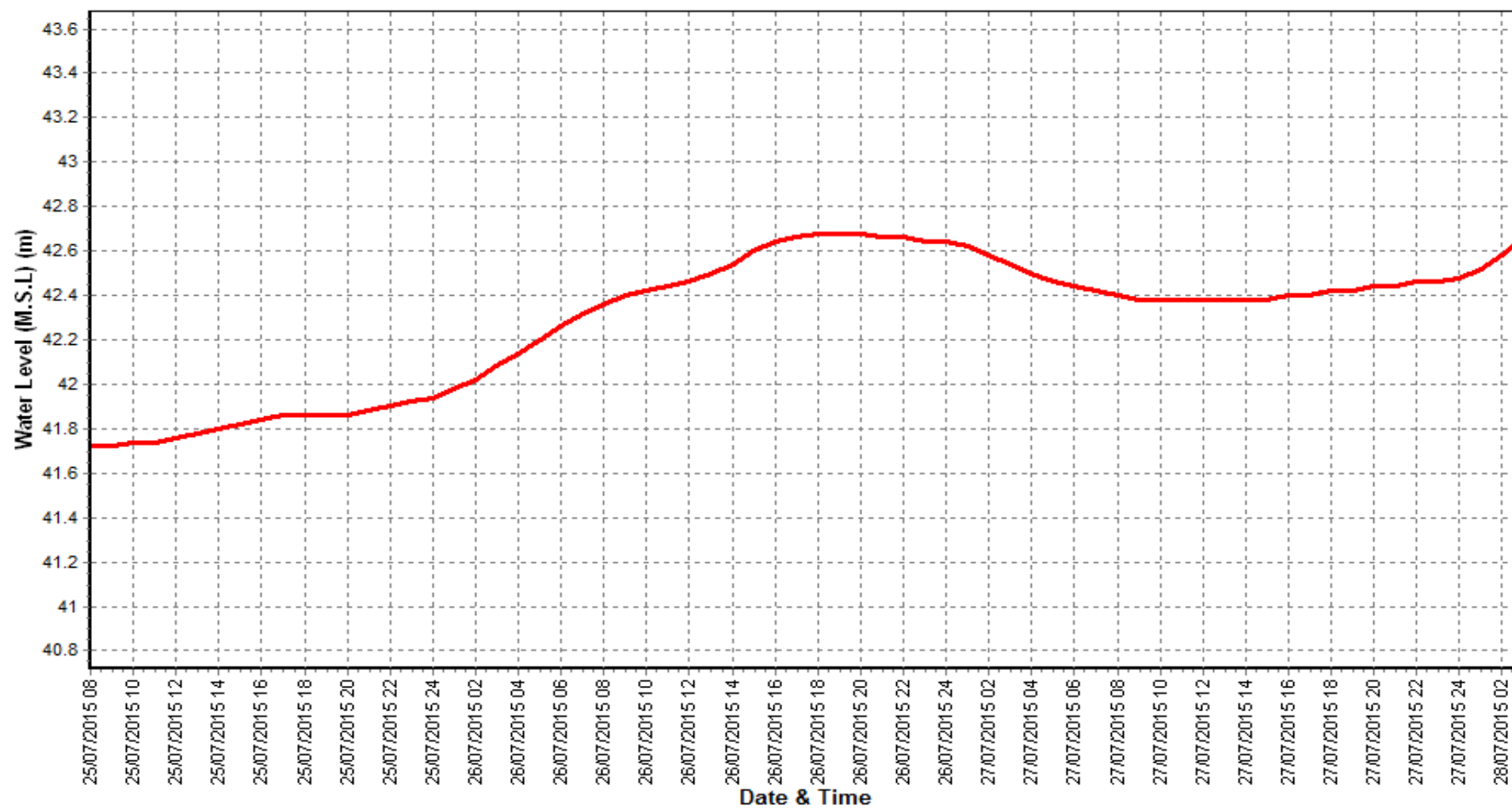
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : FEKOGHAT (ESA00F3)

Local River : Dulang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : RAJGHAT

Code : RAJGHAT

State : Orissa

District : Balasore

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 18260 Sq. Km.

Bank :

Latitude : 21°46'04"

Longitude : 87°09'51"

Zero of Gauge (m) : 3 (m.s.l)
5.79 (m.s.l)

01.01.2013
01.06.1972 - 01.06.2012

Opening Date

Closing Date

Gauge : 01.06.1972

Discharge :

Sediment :

Water Quality :

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2014-2015	3648.519	10.540	12.08.2015	12.81	4.270	31.03.2015
2015-2016	4143.952	11.920	29.07.2015	7.984	7.460	03.05.2015

Stage-Discharge Data for the period 2015 - 2016

Station Name : RAJGHAT (RAJGHAT)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	7.390	14.59	7.660	22.41	11.840	1963	8.900	113.2	8.200	99.51	4.790	
2	7.380	14.61	7.650	21.90	8.640		9.270	190.5	5.120		7.810	73.99
3	7.380	14.28	7.630	21.63	11.540	1917	9.620	489.9	8.100	97.44	7.800	73.39
4	7.370	14.20	7.590	20.75	11.720	1931	9.440	486.4	5.100		7.850	73.77
5	7.370	14.22	7.550	50.75	11.420	1827	9.160	478.2	8.040	94.66	7.880	75.42
6	7.380	14.33	8.130	90.33	11.070	1553	8.960	256.6	8.020	93.74	7.840	73.77
7	7.380	14.30 *	7.950	84.24	10.380	1327	8.770	113.0	8.020	100.9	7.840	73.89
8	7.370	14.11	8.150	90.23	9.760	1118	8.640	114.6	8.020	90.47	4.830	
9	7.370	14.10	8.280	88.47	9.630	856.26	8.500	110.0	8.000	90.69	7.800	72.58
10	7.370	14.00	8.950	100.9	9.230	471.3	8.430	109.5	8.000	90.45	7.800	72.34
11	7.380	14.32	8.710	91.72	9.180	462.7	8.340	107.8	5.080		4.800	
12	7.410	15.51	8.500	120.52	9.080	301.9	8.310	107.3	8.040	94.36	7.860	74.92
13	7.390	14.50	10.895	1400	9.000	222.4	8.230		8.030	90.63	7.840	73.63
14	7.420	15.50 *	9.880	1249	8.770	96.41	8.310	101.3	8.030	91.46	7.960	77.43
15	7.430	16.27	8.700	96.32	8.760	95.68	8.230	99.16	8.020	90.76	4.910	
16	7.430	16.16	8.480	94.60	8.980	98.63	8.240	99.43	8.000	89.55	7.850	74.19
17	7.450	16.61	8.410	94.72	8.980	113.4	5.240		7.990	82.90	7.850	72.61
18	7.470	17.49	7.640	115.26	9.100	192.2	8.260	102.3	4.980		7.820	71.94
19	7.460	17.10	7.640	150.56	8.970	196.8	8.340	103.8	7.950	90.64	7.810	71.32
20	7.490	18.23	9.540	522.3	8.680	115.7	5.410		7.900	80.51	7.790	70.61
21	7.500	18.50 *	9.510	511.3	8.750	116.1	8.590	111.0	7.890	80.52	7.780	69.88
22	7.530	19.14	10.220	1268	8.660	113.8	8.610	107.6	7.870	80.23	4.800	
23	7.570	20.94	10.430	1299	5.600		8.600	111.5	7.870	79.14	7.890	73.23
24	7.550	20.01	11.020	1470	8.580	112.3	8.480	106.7	7.870		7.840	71.30
25	7.540	20.06	11.100	1471	8.520	109.3	5.680		7.870		4.810	
26	7.530	19.82	7.530		8.650	110.5	8.720	115.1	7.860	77.19	7.780	69.19
27	7.530	20.35	10.900	1406	8.790	112.1	5.460		7.840	77.60	7.770	68.56
28	7.570	18.60 *	10.140	1250	8.750	111.6	8.460	108.9	7.960	81.37	7.720	68.01
29	7.560	18.33	11.920	4144	9.080	117.0	8.460	106.8	7.890	78.12	4.770	
30	7.550	19.18	11.320	3704	6.090		8.380	103.7	7.830	75.99	7.760	68.04
31			11.120	2150	8.940	113.9			7.810	79.21		
<u>Ten-Daily Mean</u>												
I Ten-Daily	7.376	14.27	7.654	60.10	10.223	1513	8.669	245.0	7.462	94.74	7.224	73.64
II Ten-Daily	7.433	16.17	8.340	507.0	8.350	212.7	7.391	103.0	7.402	88.85	7.249	73.33
III Ten-Daily	7.543	19.49	11.110	1867	8.219	113.0	7.944	108.9	6.778	78.38	6.892	69.74
<u>Monthly</u>												
Min.	7.370	14.00	7.550	20.75	5.600	96.41	5.230	99.16	5.080	75.99	4.770	68.01
Max.	7.570	20.94	11.920	4144	11.840	1963	9.620	489.9	8.200	100.9	7.960	77.43
Mean	7.451	16.64	9.730	875.5	8.908	593	8.001	158.2	6.550	87.71	7.122	72.35

Annual Runoff in MCM = 4259 Annual Runoff in mm = 233

Peak Observed Discharge = 4144 cumecs on 29/07/2015 Corres. Water Level :14.92 m

Lowest Observed Discharge = 7.984 cumecs on 03/05/2016 Corres. Water Level :7.46 m

Stage-Discharge Data for the period 2015 - 2016

Station Name : RAJGHAT (RAJGHAT)

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	7.760	67.79	7.740	61.38	7.650	18.31	7.640	14.29	7.560	11.76	7.460	8.58
2	7.760	68.06	7.730	60.79	7.650	18.23	7.630	13.97	7.550	11.74	7.460	8.258
3	7.810	72.01	4.730		7.650	18.01	7.620	13.71	7.550	1.58	7.460	7.984
4	7.800	70.49	7.720	60.21	7.650	17.96	7.610	13.65	7.550	9.349	7.460	8.085
5	7.800	70.42	7.720	59.90	7.650	17.83	7.610	13.57	7.540	9.594	7.460	8.066
6	4.790		7.720	59.76	7.640	17.72	7.600	13.42	7.720	15.67	7.510	9.323
7	7.780	69.28	7.720	59.96	4.640		7.590	13.20	7.790	17.97	7.520	10.76
8	7.740	65.01	7.720	59.64	7.630	17.32	7.590	12.75	7.760	17.45	7.520	10.236
9	7.730	64.89	7.710	59.44	7.630	17.18	7.590	12.79	7.750	17.45	7.520	9.901
10	7.730	64.21	4.710		7.620	16.88	7.590	12.63	7.740	17.23	7.570	9.573
11	7.720	63.84	7.710	58.63	7.620	16.56	7.580	12.93	7.740	17.20	7.550	9.580
12	7.750	65.54	7.700	58.42	7.620	16.25	7.580	12.90	7.730	17.03	7.530	9.349
13	4.750		7.700	19.98	7.620	16.25	7.570	12.9	7.510	9.247	7.530	9.333
14	7.760	66.69	7.700	19.56	4.620		7.570	12.91	7.490	9.23	7.550	9.595
15	7.750	65.45	7.700	19.65	7.620	17.07	7.570	12.27	7.490	9.191	7.530	9.152
16	7.750	65.79	7.690	19.20	7.620	16.10	7.570	12.59	7.490	8.780	7.520	8.910
17	7.750	64.94	4.690		7.620	16.09	7.560	12.41	7.480	8.54	7.510	8.690
18	7.740	64.11	7.630	19.07	7.620	15.94	7.560	12.71	7.480	8.689	7.540	8.661
19	7.740	65.22	7.690	18.90	7.620	15.94	7.560	12.64	7.470	8.436	7.570	8.840
20	4.790		7.680	18.69	7.620	17.27	7.590	12.52	7.470	8.25	7.590	9.263
21	7.780	65.74	7.680	18.54	4.610		7.620	13.10	7.470	8.499	7.700	9.123
22	7.750	64.40	7.680	18.38	7.610	15.51	7.630	13.23	7.470	8.372	7.700	10.52
23	7.750	63.26	7.680	18.34	7.610	15.43	7.610	13.05	7.470	8.272	7.680	12.08
24	4.750		4.680		7.600	15.28	7.590		4.470		7.670	11.73
25	4.750		7.670	17.83	7.600	14.45	7.590		7.470	8.416	7.640	11.01
26	7.750	64.94	4.670		7.600	13.89	7.580	12.81	7.470	8.806	7.630	10.73
27	4.740		7.670	18.14	7.600	13.38	7.570		7.470	8.437	7.620	10.66
28	7.740	62.64	7.670	17.63	4.640		7.570	12.21	7.470	8.385	7.640	11.25
29	7.740	62.04	7.660	17.46	7.650	14.10	7.570	12.15	7.470	8.177	7.640	11.55
30	7.740	61.79	7.660	17.24			7.570	12.13	7.460	8.096	7.630	12.21
31	7.740	61.69	4.660				7.560	11.96			7.630	11.18
Ten-Daily Mean												
I Ten-Daily	7.470	68.02	7.122	60.13	7.341	17.72	7.007	13.42	6.751	13.36	6.894	8.994
II Ten-Daily	7.150	65.20	7.389	28.01	7.320	16.39	6.971	12.67	6.635	11.23	7.242	9.136
III Ten-Daily	6.930	63.31	6.853	17.94	6.947	14.58	6.769	12.58	7.169	8.384	6.835	11.36
Monthly												
Min.	4.740	61.69	4.660	17.24	4.610	13.38	7.560	11.96	7.470	8.096	7.460	7.984
Max.	7.810	72.01	7.740	61.38	7.650	18.31	7.640	14.29	7.790	17.97	7.680	12.21
Mean	7.175	65.61	7.113	35.07	7.211	16.36	6.911	12.89	7.600	10.76	7.660	9.801

Peak Computed Discharge = 18.60 cumecs on 28/06/2015

Corres. Water Level :7.57 m

Lowest Computed Discharge = 14.30 cumecs on 07/06/2015

Corres. Water Level :7.38 m

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

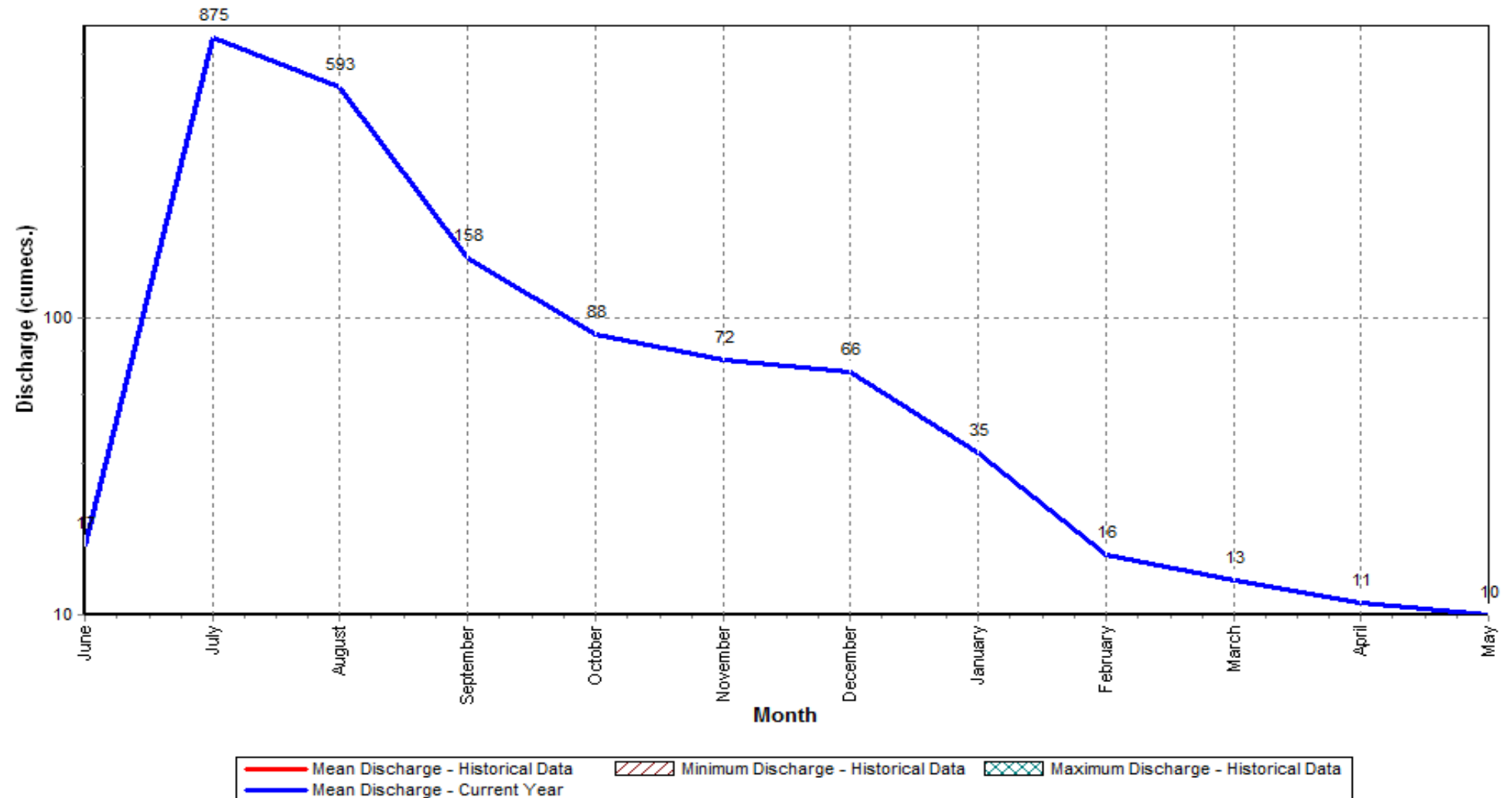
Station Name : RAJGHAT (RAJGHAT)

Data considered : 2015-2016

Division : E.E., Bhubaneswar

Local River : Subarnarekha

Sub-Division : Balasore



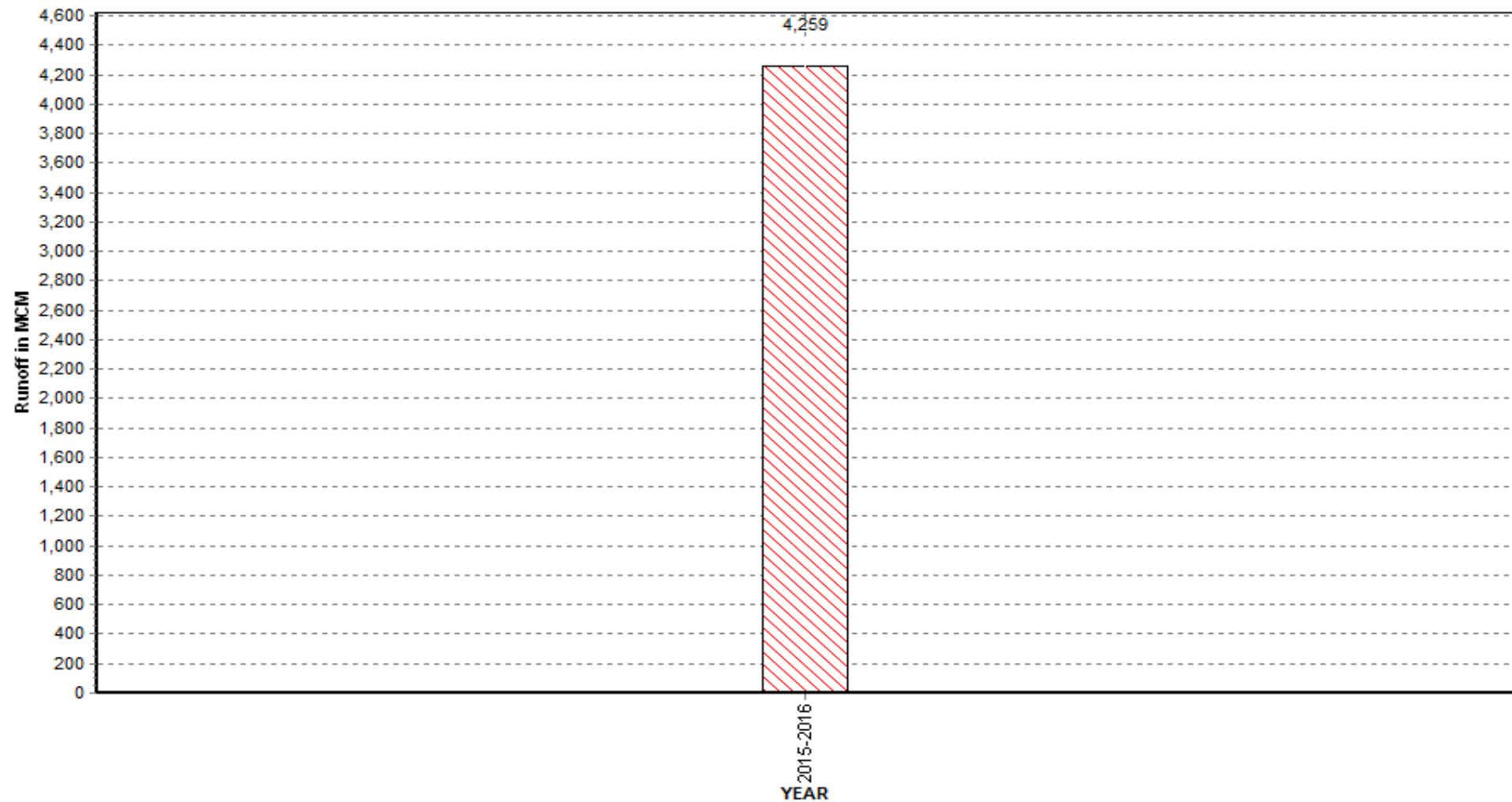
Annual Runoff Values for the period: 2015 - 2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



Note: Missing values have not been considered while arriving at Annual Runoff

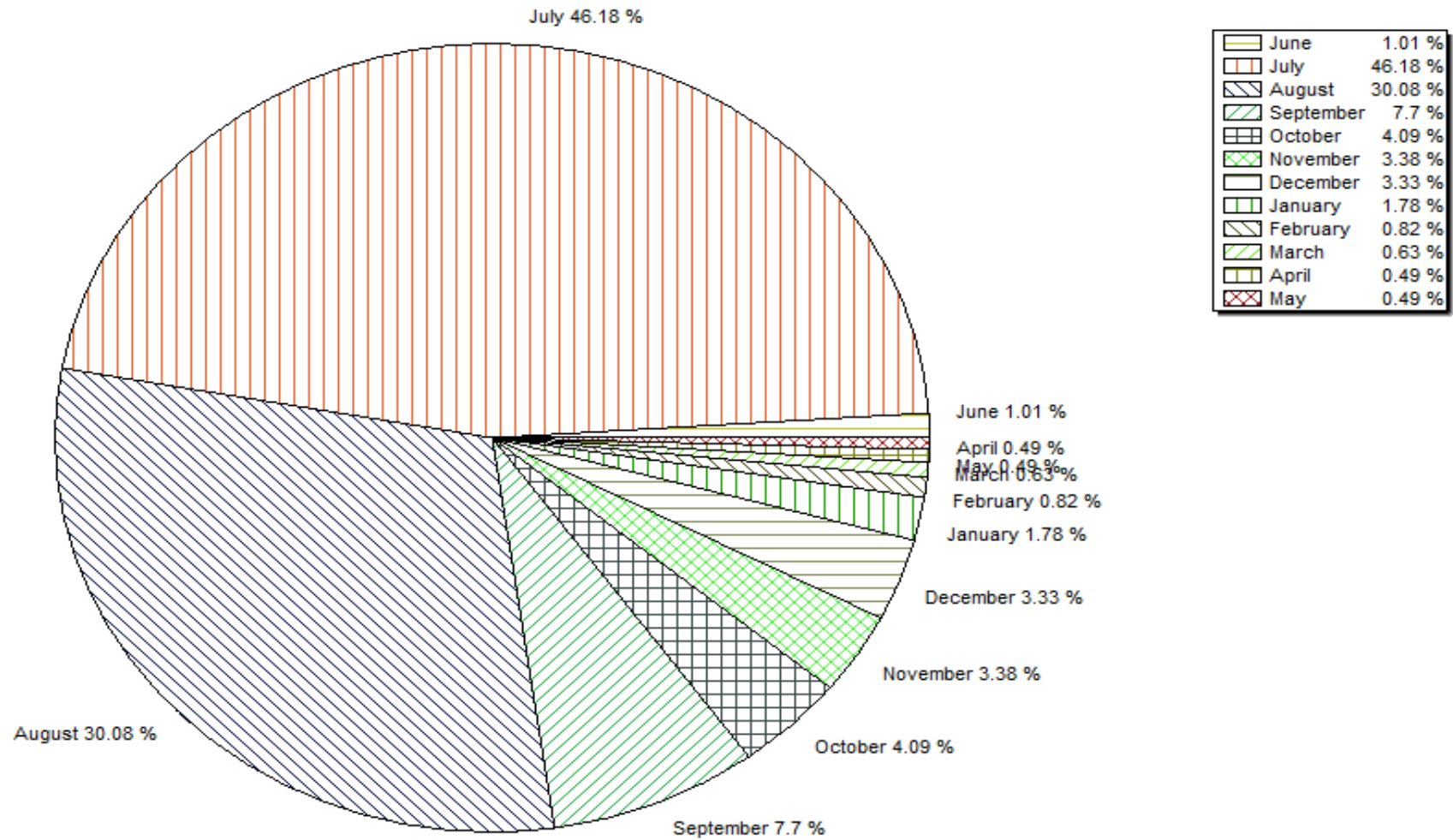
Monthly Runoff for the Year : 2015-2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



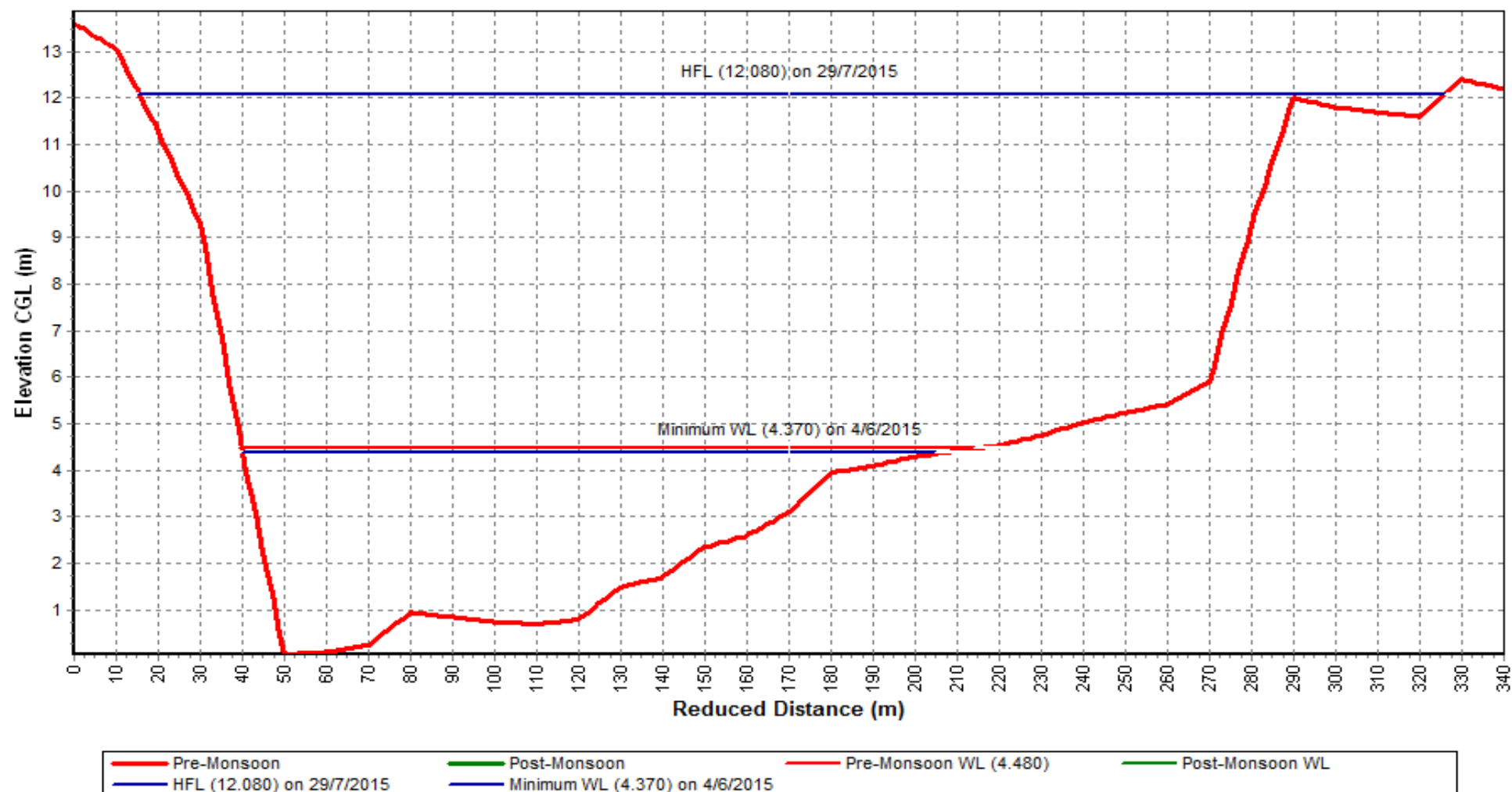
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



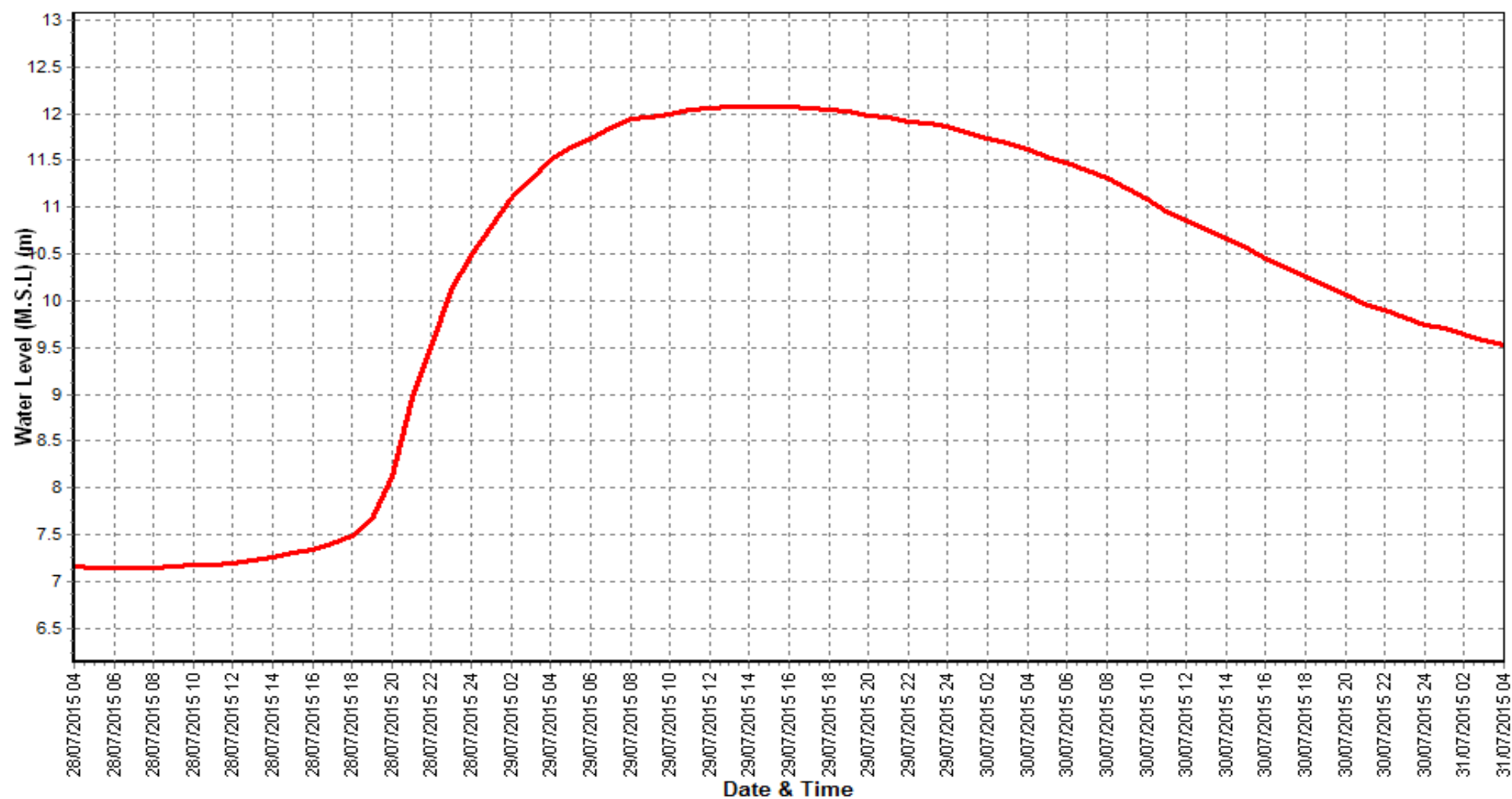
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



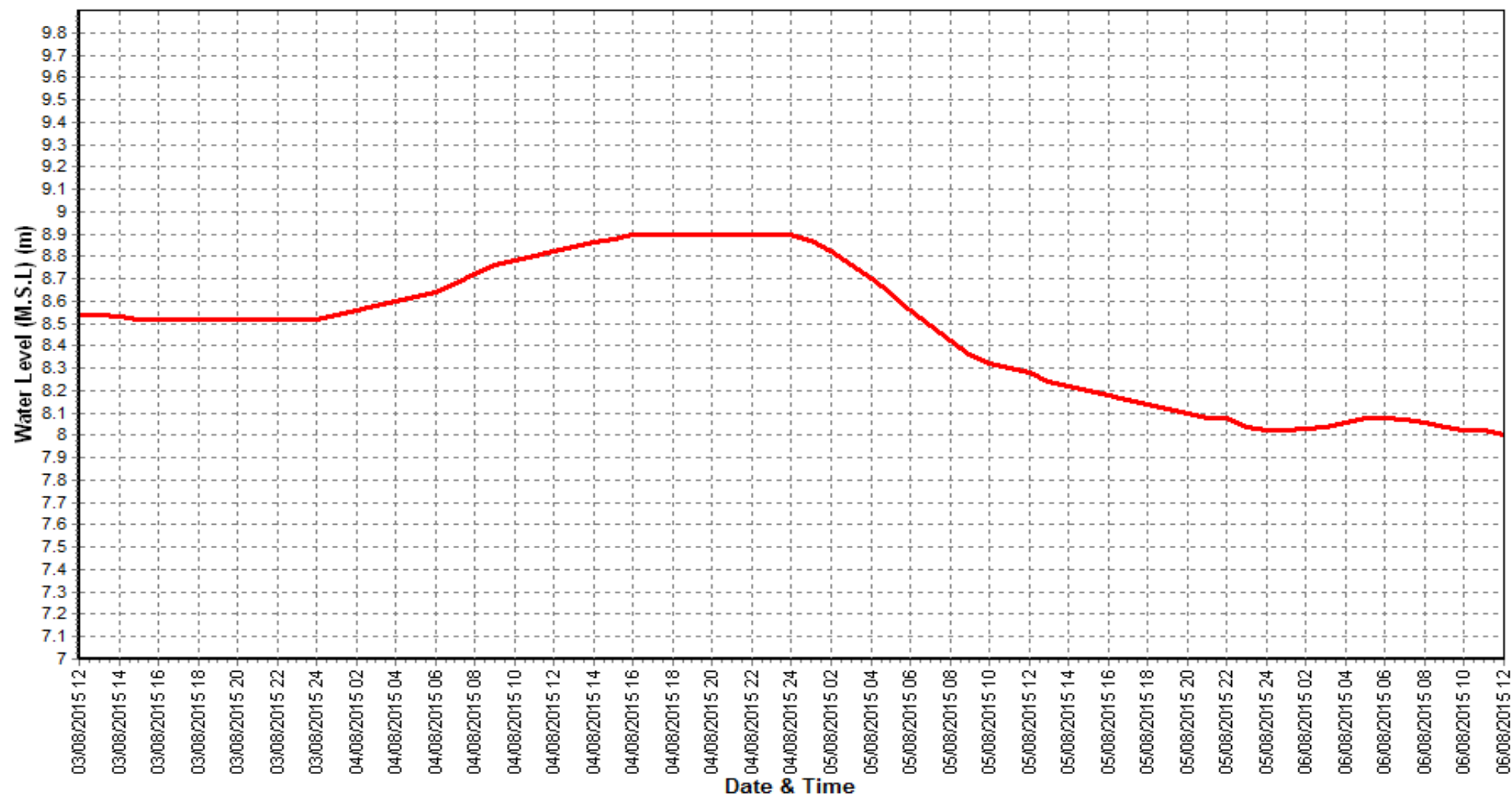
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



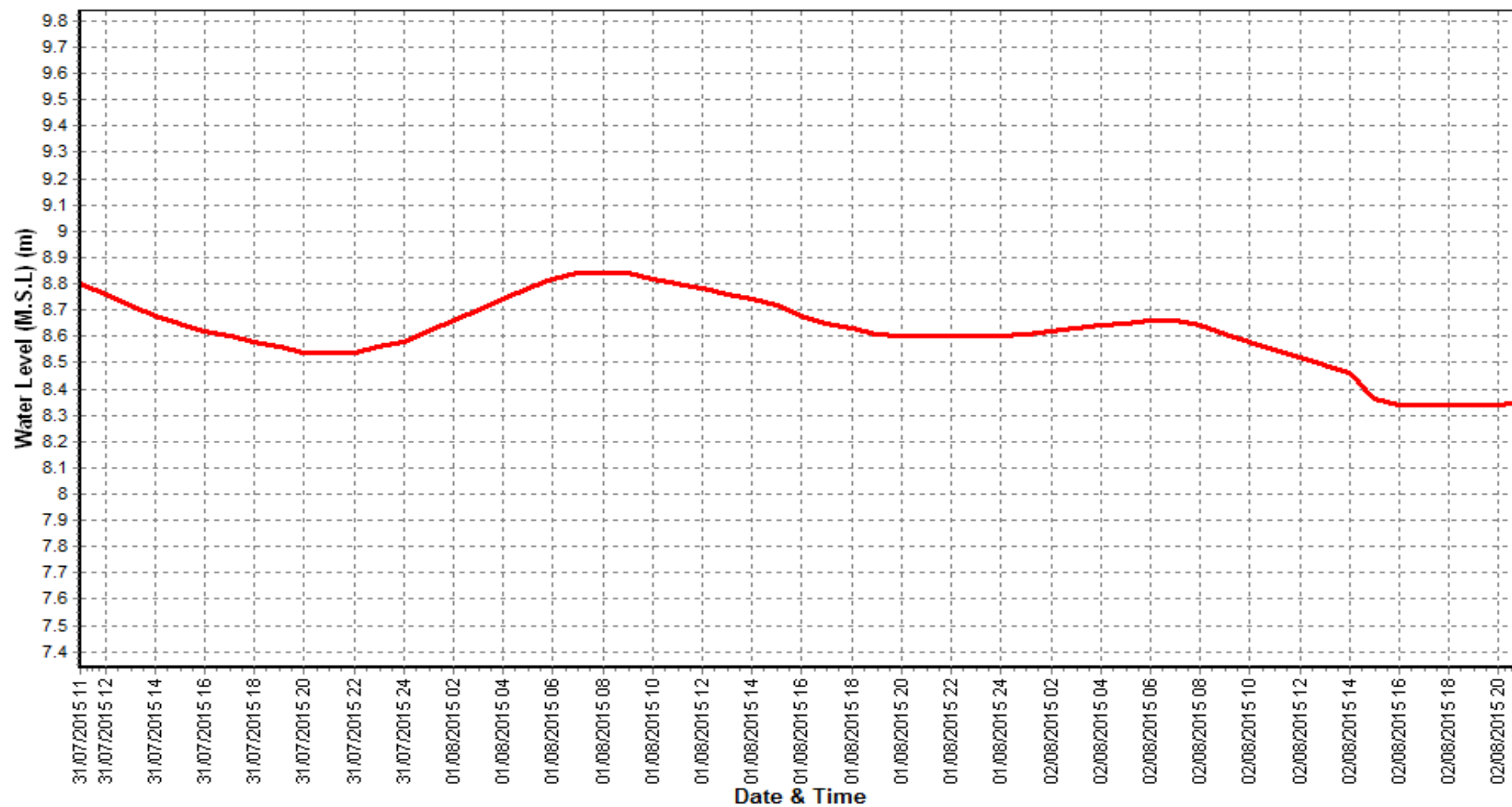
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : RAJGHAT (RAJGHAT)

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore



HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : GOPIBALLAVPUR

Code : GOPIBALLAVPUR

State : West Bengal

District : Medinipur

Basin : Subarnarekha

Independent River : Subarnarekha

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Subarnarekha

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area :

Bank :

Latitude : 22°12'12"

Longitude : 86°65'20"

Zero of Gauge (m) : 31.5 (m.s.l)

07.08.2014

Opening Date

Closing Date

Gauge : 07.08.2014

Discharge : 15.09.2014

Sediment :

Water Quality :

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2014-2015	1377.000	36.280	23.09.2014	10.100	32.560	24.03.2015
2015-2016	1164.707	38.500	29.07.2015	4.268	32.320	06.05.2015

Stage-Discharge Data for the period 2015 - 2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Division : E.E., Bhubaneswar

Local River : SUBARNAREKHA

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	32.740	15.23	33.420	27.49	36.280	470.9	34.280	347.2	33.280	110.3	32.510	25.56
2	32.730	15.62	33.370	24.82	35.640	471.23	34.760	439.6	32.760	100.25	32.510	24.42
3	32.730	16.22	33.350	23.90	36.270	476.1	34.650	424.5	33.240	97.51	32.500	23.86
4	33.230	16.09	33.740	143.2	36.100	475.36	34.290	350.1	32.760	97.25	32.580	27.18
5	34.240	16.75	33.440	158.23	36.000	451.5	34.100	331.8	33.260	96.01	32.540	25.57
6	33.220	16.02	33.970	273.9	35.810	436.1	33.410	300.25	33.260	96.64	32.530	24.94
7	32.710	15.68	33.890	95.41	34.880	391.2	33.820	289.4	33.250	96.48	32.530	24.80
8	33.210	15.48	34.110	171.7	34.700	397.8	33.660	261.1	33.240	96.83	32.560	25.56
9	33.260	16.81	34.680	513.9	33.720	380.25	33.550	225.0	33.350	115.8	32.570	26.54
10	33.250	16.74	34.420	460.6	34.230	372.8	33.540	222.1	33.380	113.7	32.540	26.02
11	33.230	16.60	34.220	445.3	34.140	362.1	33.400	98.23	32.820	112.23	32.580	36.58
12	33.260	19.89	35.780	750.23	34.040	158.8	33.340	93.04	32.900	110.25	32.760	44.09
13	33.230	19.66	35.650	810.5	33.660	149.6	33.000	96.32	33.330	109.4	32.600	33.56
14	32.760	18.56	34.120	184.6	33.720	99.96	33.380	94.44	33.330	108.2	32.530	26.79
15	33.290	24.33	33.970	168.4	33.600	120.56	33.300	87.34	33.310	101.6	32.530	26.54
16	33.340	33.36	34.020	162.4	33.590	130.25	33.320	87.49	33.290	99.62	32.500	26.09
17	33.330	33.18	34.280	395.3	34.230	372.4	32.860	85.23	33.280	96.29	32.490	25.27
18	33.300	31.73	35.560	400.56	34.050	323.8	33.530	108.8	32.740	500.223	32.480	24.10
19	33.390	38.45	34.360	421.30	33.340	309.6	33.550	89.08	32.710	39.08	32.470	23.93
20	33.350	33.65	34.880	510.7	33.830	304.9	33.150	90.52	33.180	38.88	32.460	23.09
21	32.830	32.89	35.380	540.7	33.650	295.5	33.660	119.6	32.650	35.68	32.450	22.77
22	33.370	35.63	35.720	559.8	33.620	281.3	33.630	121.2	32.610	36.52	32.490	22.25
23	33.360	34.80	35.930	669.5	32.930	258.23	33.650	160.5	32.580	32.14	32.460	22.97
24	33.370	32.47	36.280	680.9	33.440	277.5	33.960	248.0	32.560	30.26	32.440	22.95
25	33.380	33.88	35.320	532.9	33.650	280.8	33.320	152.65	32.550	28.25	32.460	22.86
26	33.480	30.98	35.510	520.13	33.970	317.9	33.590	158.8	33.040	27.94	32.470	23.67
27	33.450	28.55	35.220	520.5	33.850	304.6	33.100	155.68	33.140	31.85	32.470	23.14
28	32.880	27.65	36.450	525.0	34.280	341.8	33.580	152.9	33.100	30.63	32.460	22.82
29	33.820	172.4	38.500	1165	34.120	337.4	33.500	138.1	33.080	29.28	32.460	21.95
30	33.480	30.68	37.160	570.9	33.560		33.380	121.7	33.060	27.67	32.450	21.95
31			36.300	490.8	33.960	298.3			33.040	27.65		
Ten-Daily Mean												
I Ten-Daily	33.132	16.32	33.839	192.8	35.363	428.0	33.934	321.2	33.178	102.9	32.537	25.42
II Ten-Daily	33.248	27.87	34.684	382.5	33.820	260.1	33.283	94.07	33.089	84.71	32.540	28.36
III Ten-Daily	33.342	49.92	36.161	625.6	33.730	303.9	33.537	152.6	32.855	29.17	32.461	22.89
Monthly												
Min.	32.710	15.48	33.350	23.90	32.930	99.96	32.860	87.34	32.550	27.65	32.440	21.95
Max.	34.240	172.4	38.500	1165	36.280	476.1	34.760	439.6	33.380	115.8	32.760	44.09
Mean	33.241	32.53	34.935	410.3	34.286	325.5	33.573	198.8	33.035	75.77	32.513	25.67

Annual Runoff in MCM = 2408 Annual Runoff in mm =

Peak Observed Discharge = 1165 cumecs on 29/07/2015 Corres. Water Level :38.5 m

Lowest Observed Discharge = 4.628 cumecs on 06/05/2016 Corres. Water Level :32.32 m

Stage-Discharge Data for the period 2015 - 2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Division : E.E., Bhubaneswar

Local River : SUBARNAREKHA

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	32.450	21.92	32.450	17.22	32.420	13.87	32.410	9.763	32.360	7.027	32.320	5.120
2	32.450	20.98	32.440	16.86	32.420	13.72	32.410	9.366	32.360	7.092	32.320	4.780
3	32.460	22.44	32.440	16.55	32.410	13.62	32.400	10.46	32.360	1.065	32.320	4.739
4	32.460	22.36	32.440	16.47	32.410	13.25	32.400	10.53	32.360	7.160	32.320	4.726
5	32.460	22.22	32.440	16.28	32.410	12.94	32.400	10.26	32.360	7.029	32.320	4.708
6	32.450	21.88	32.430	15.99	32.410	12.81	32.400	10.26	32.350	6.995	32.320	4.628
7	32.450	21.35	32.430	16.06	32.410	12.45	32.400	10.26	32.350	7.089	32.340	6.802
8	32.450	22.78	32.430	15.97	32.410	12.01	32.400	10.23	32.350	7.117	32.340	6.814
9	32.440	20.24	32.430	15.64	32.410	12.00	32.400	10.19	32.340	7.375	32.340	6.851
10	32.440	20.31	32.430	16.55	32.410	11.71	32.390	10.03	32.340	7.215	32.340	6.856
11	32.440	19.24	32.430	15.46	32.400	11.16	32.390	9.758	32.340	6.671	32.340	6.745
12	32.450	20.08	32.430	15.15	32.400	11.13	32.390	9.283	32.340	6.956	32.330	6.570
13	32.460	20.15	32.430	14.95	32.400	11.03	32.390	9.289	32.330	6.651	32.330	6.476
14	32.460	20.26	32.430	14.73	32.400	10.88	32.390	8.990	32.330	6.215	32.330	6.287
15	32.460	20.20	32.430	14.56	32.400	10.58	32.390	8.411	32.330	6.316	32.330	6.222
16	32.460	19.86	32.430	14.32	32.410	10.88	32.390	8.286	32.330	6.045	32.330	6.216
17	32.460	19.76	32.420	14.22	32.410	10.53	32.380	8.077	32.330	5.984	32.330	6.230
18	32.480	20.60	32.420	14.06	32.410	10.51	32.380	7.981	32.330	5.704	32.320	6.291
19	32.480	20.33	32.420	13.69	32.410	10.44	32.380	7.817	32.330	5.724	32.320	6.206
20	32.480	20.11	32.420	13.58	32.410	10.16	32.380	7.95	32.320	5.624	32.320	5.549
21	32.480	20.11	32.420	14.13	32.400	10.05	32.380	8.005	32.320	5.674	32.320	5.549
22	32.480	19.90	32.420	14.04	32.400	9.916	32.380	7.487	32.320	5.693	32.340	5.520
23	32.480	19.69	32.420	14.15	32.400	10.01	32.380	7.547	32.320	5.611	32.360	7.557
24	32.480	19.62	32.420	14.12	32.400	9.697	32.380	7.54	32.320	5.622	32.360	7.480
25	32.470	19.50	32.420	14.00	32.400	9.912	32.370	7.648	32.320	5.629	32.360	7.487
26	32.470	19.33	32.420	13.95	32.400	9.827	32.370	7.444	32.320	5.522	32.360	7.405
27	32.460	19.23	32.420	13.81	32.420	10.57	32.370	7.335	32.320	5.200	32.410	9.683
28	32.460	19.09	32.420	13.98	32.420	10.08	32.370	7.205	32.320	5.218	32.440	15.61
29	32.450	18.41	32.420	13.98	32.420	9.884	32.370	7.190	32.320	5.138	32.450	15.52
30	32.450	18.16	32.420	13.90			32.360	7.177	32.320	5.133	32.440	15.07
31	32.450	17.76	32.420	13.9			32.360	7.036			32.440	14.84
Ten-Daily Mean												
I Ten-Daily	32.451	21.62	32.436	16.18	32.412	12.88	32.401	10.10	32.353	7.111	32.328	5.511
II Ten-Daily	32.463	20.04	32.426	14.50	32.405	10.71	32.386	8.575	32.331	6.295	32.328	6.286
III Ten-Daily	32.466	19.06	32.420	14.00	32.407	9.973	32.372	7.386	32.320	5.424	32.389	10.64
Monthly												
Min.	32.440	17.76	32.420	13.58	32.400	9.697	32.360	7.036	32.320	5.133	32.320	4.628
Max.	32.480	22.78	32.450	16.86	32.420	13.87	32.410	10.53	32.360	7.375	32.450	15.61
Mean	32.460	20.29	32.427	14.82	32.408	11.29	32.386	8.688	32.335	6.24	32.350	7.432

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

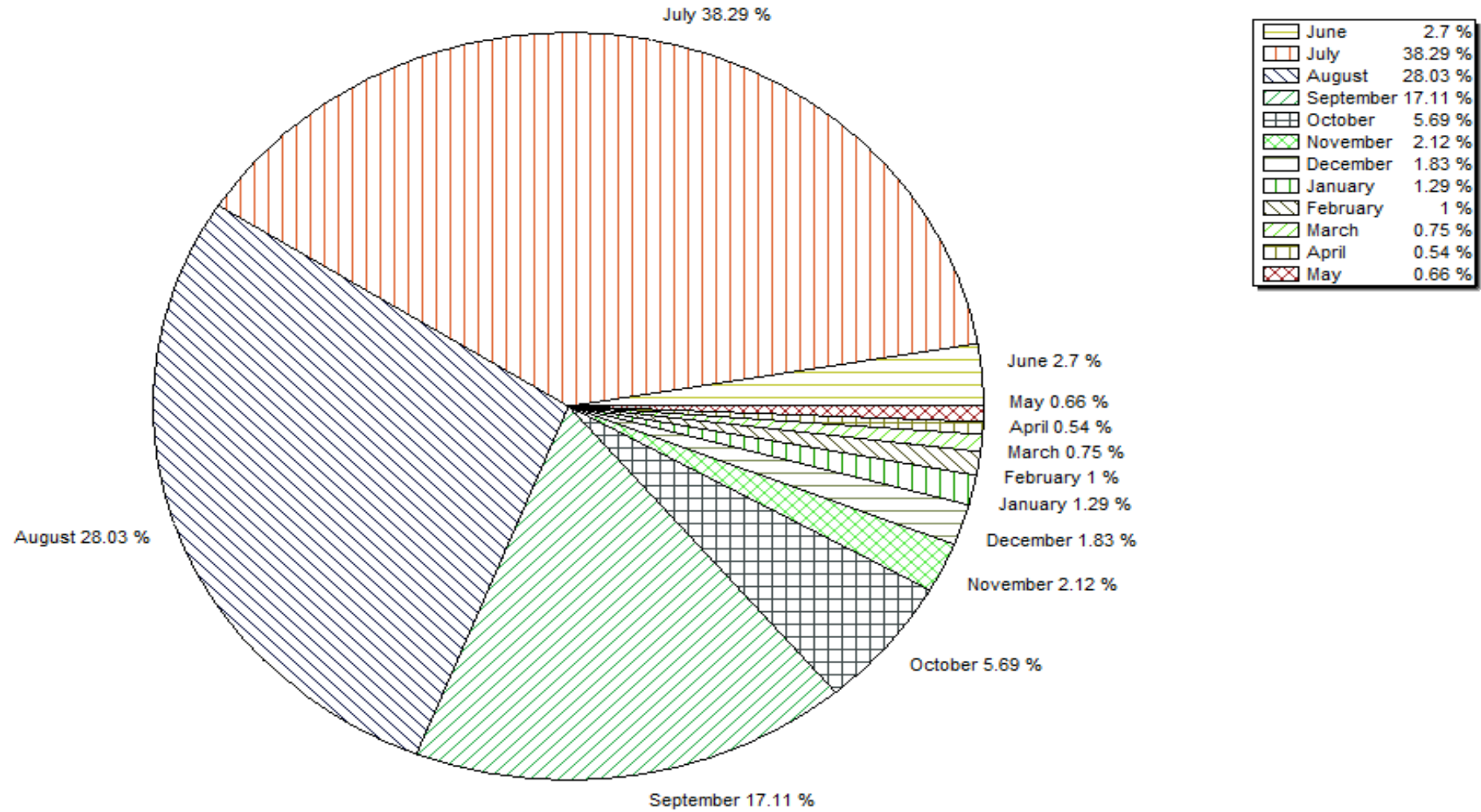
Monthly Runoff for the Year : 2015-2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Local River : SUBARNAREKHA

Division : E.E., Bhubaneswar

Sub-Division : Balasore



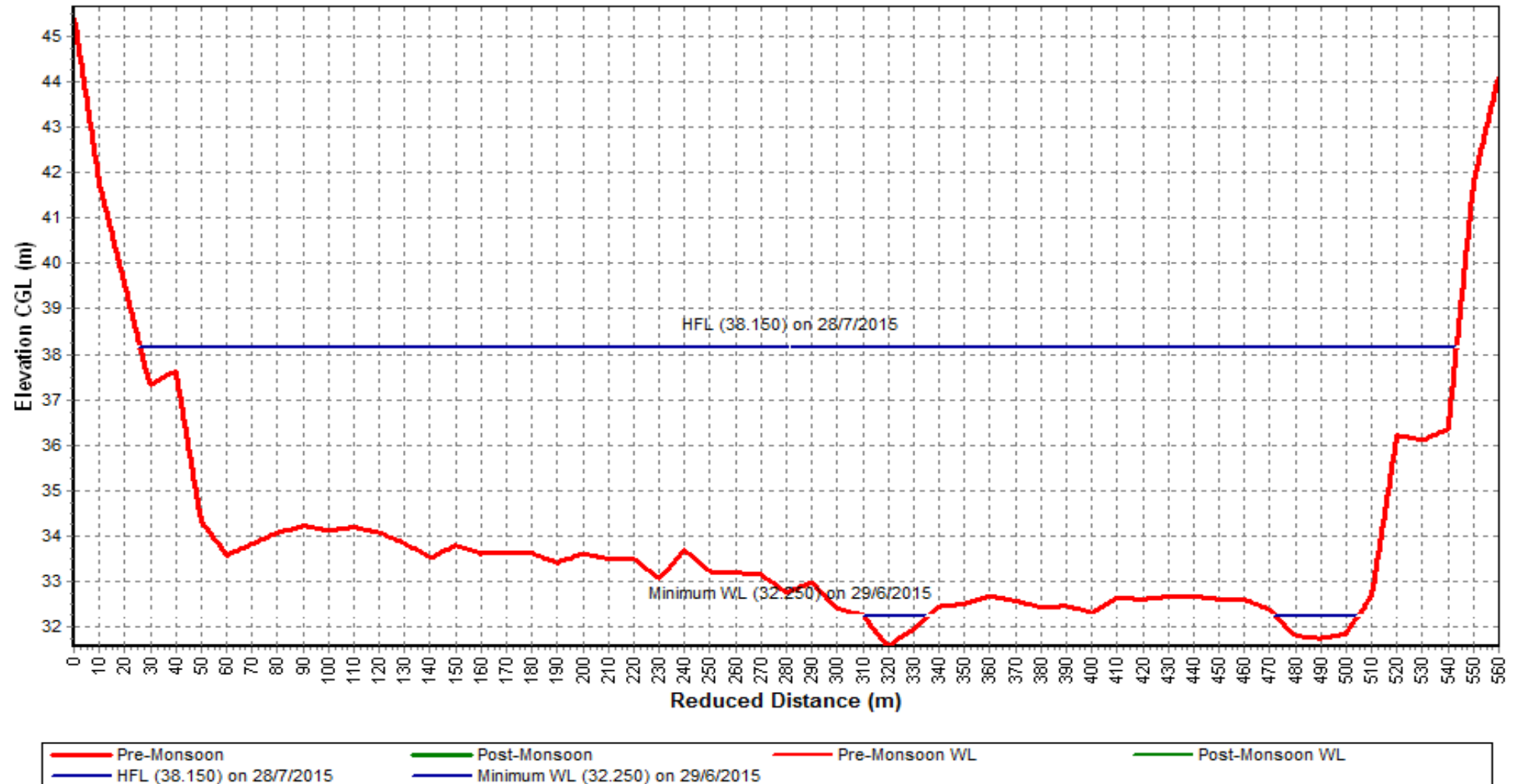
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : GOPIBALLAVPUR (GOIBALAVPUR)

Local River : SUBARNAREKHA

Division : E.E., Bhubaneswar

Sub-Division : Balasore



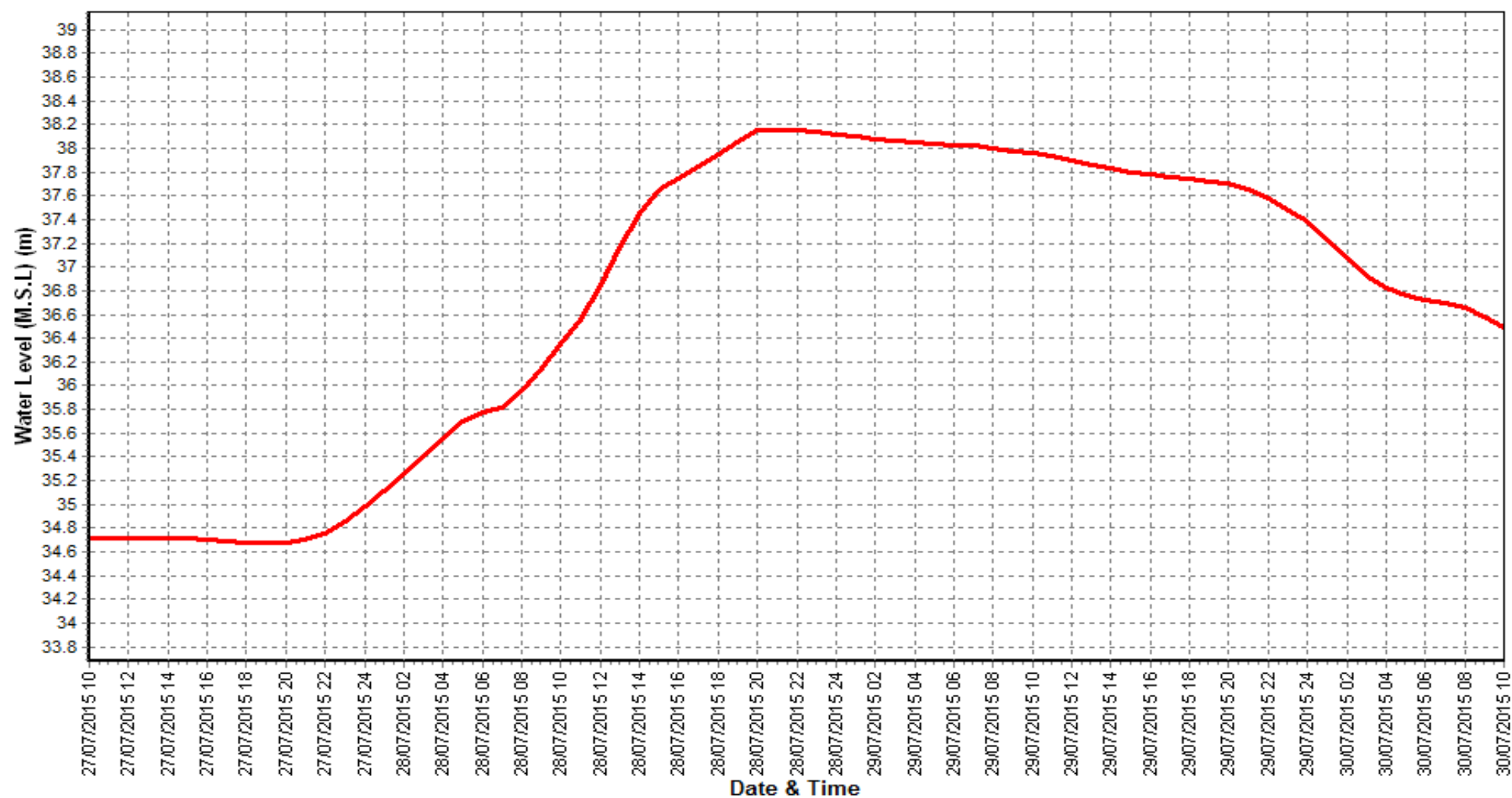
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Local River : SUBARNAREKHA

Division : E.E., Bhubaneswar

Sub-Division : Balasore



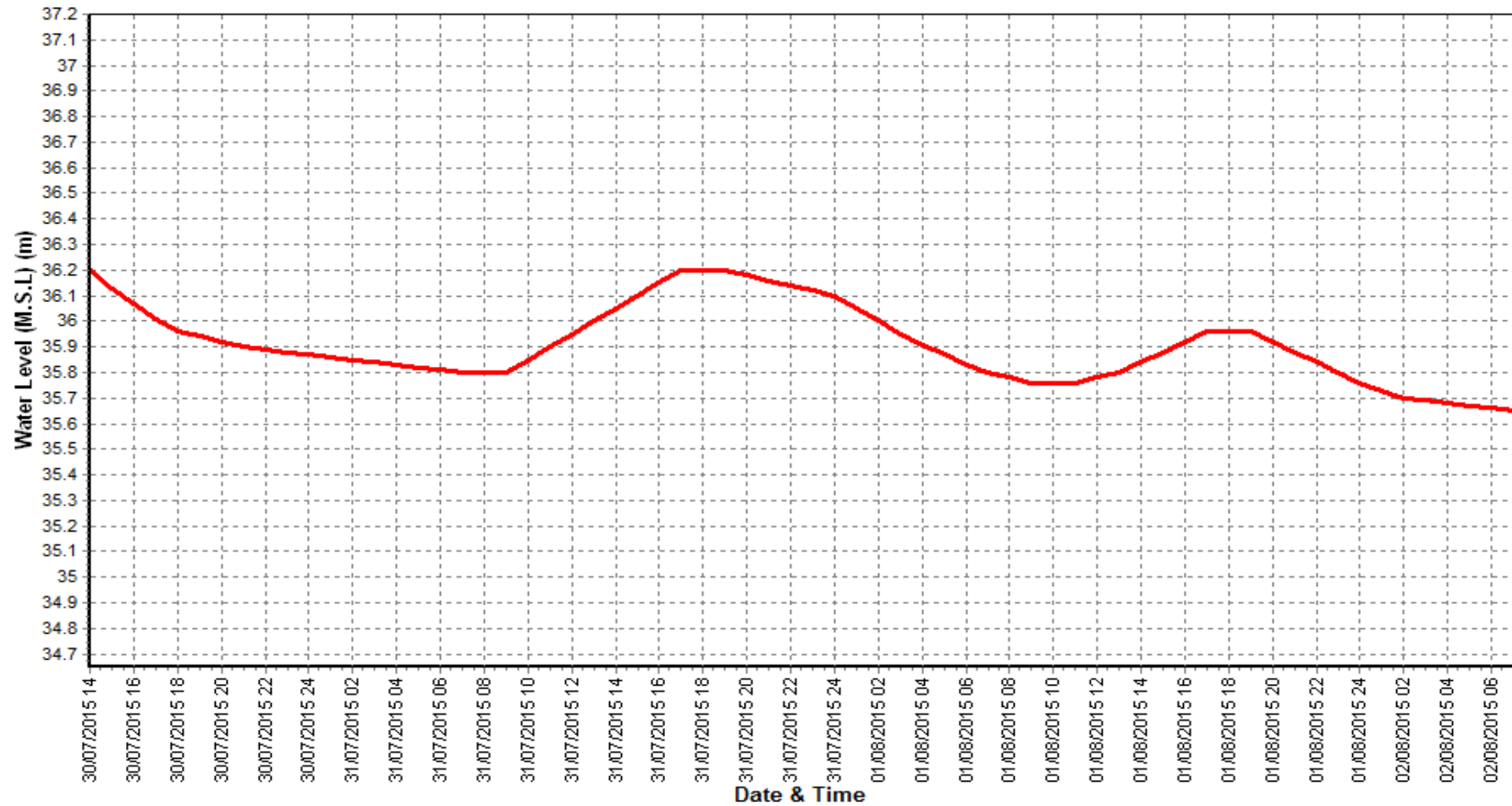
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Local River : SUBARNAREKHA

Division : E.E., Bhubaneswar

Sub-Division : Balasore



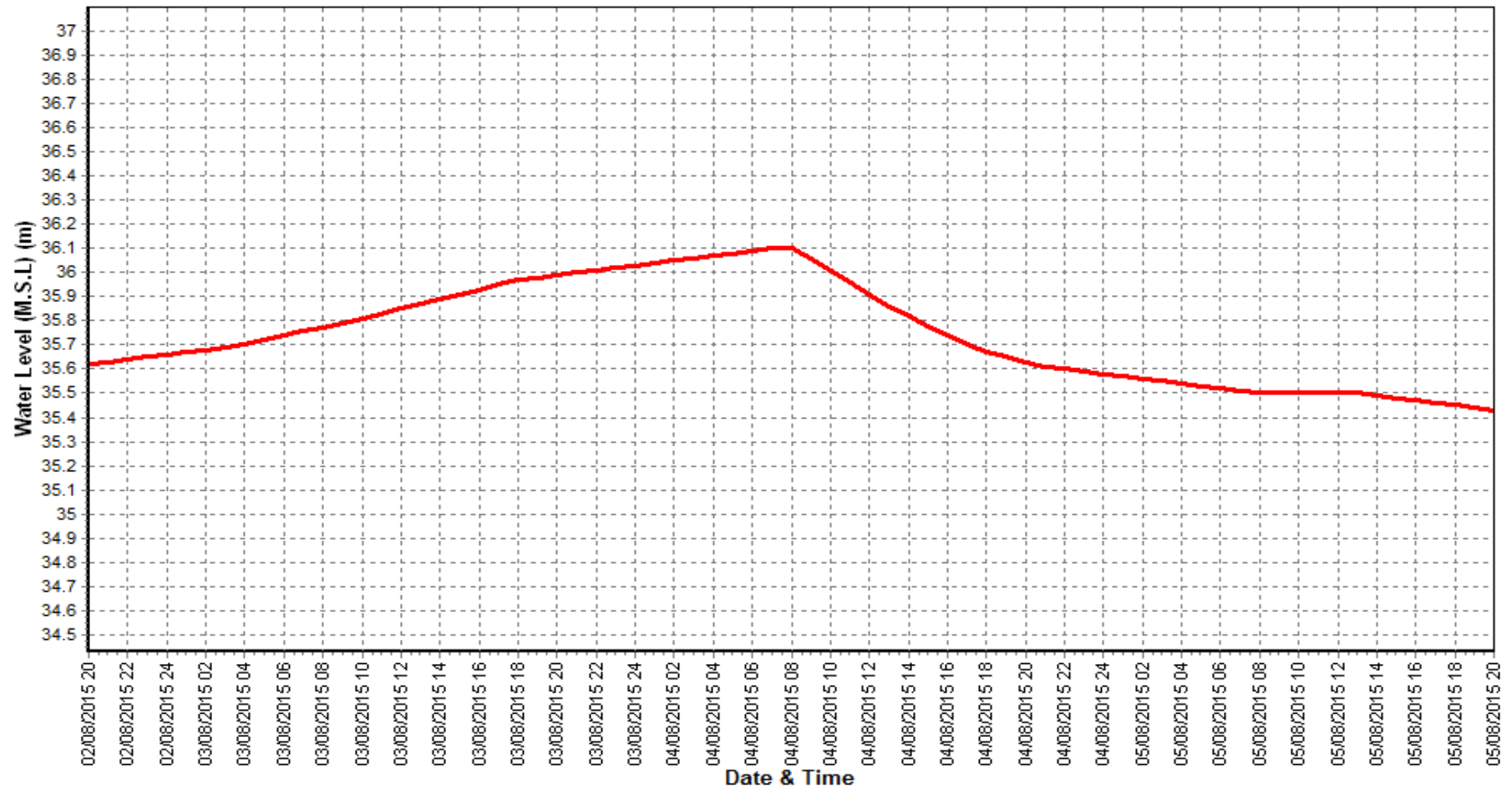
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : GOPIBALLAVPUR (GOPIBALAVPUR)

Local River : SUBARNAREKHA

Division : E.E., Bhubaneswar

Sub-Division : Balasore



WATER QUALITY DATA

HISTORY SHEET

		Water Year	: 2015-2016
Site	: GHATSILA ROAD BRIDGE	Code	: GHAT RB
State	: Orissa	District	Angul
Basin	: Subarnarekha	Independent River	: Subarnarekha
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	:
Division	: E.E., Bhubaneswar	Sub-Division	: Balasore
Drainage Area	: Sq. Km.	Bank	:
Latitude	: °'''	Longitude	: °'''
	Opening Date	Closing Date	
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	: 01.06.1990		

Water Quality Datasheet for the period : 2015-2016

Station Name : GHATSILA ROAD BRIDGE (GHAT RB)

Division : E.E., Bhubaneswar

Local River :

River Water Analysis

Sub-Division : Balasore

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	480	546	365	553	854	865	1028	1080	688	818	850	524
4	EC_GEN (µmho/cm)	465	552	370	565	866	871	1023	1086	691	820	848	520
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.5	7.2	7.7	7.1	7.3	7.5	7.5	8.5	7.6	8.0	8.0
7	pH_GEN (pH units)	7.8	7.3	7.1	7.6	6.9	7.2	7.4	7.4	8.6	7.5	8.1	8.2
8	Temp (deg C)	30.5	27.5	28.0	27.5	26.0	24.0	20.0	17.0	18.5	23.5	25.5	29.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0	9.2	18.4
2	ALK-TOT (mgCaCO3/L)	97	92	83	83	79	88	83	55	125	97	102	139
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	37	40	38	35	32	34	45	46	146	63	48	55
5	Cl (mg/L)	34.0	17.0	15.1	11.3	13.2	15.1	15.1	17.0	17.0	45.3	49.0	50.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7	0.0	11.1	22.2
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.3	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.6
9	HCO3 (mg/L)	118	113	101	101	96	107	101	68	96	118	101	124
10	K (mg/L)	4.5	3.9	2.4	2.6	5.2	5.6	6.3	6.4	5.9	5.4	5.2	5.6
11	Mg (mg/L)	13.6	12.6	11.7	9.7	8.8	9.7	7.8	8.8	9.7	24.3	11.7	13.6
12	Na (mg/L)	23.1	11.2	7.3	7.8	20.0	21.8	25.2	26.0	32.2	32.9	32.9	33.1
13	NO2+NO3 (mg N/L)	0.74	1.08	0.95	1.01	0.95	1.25	1.25	0.87	0.91	0.70	1.04	1.05
14	NO2-N (mgN/L)	0.07	0.03	0.00	0.01	0.00	0.00	0.03	0.00	0.01	0.03	0.00	0.00
15	NO3-N (mgN/L)	0.67	1.05	0.95	0.99	0.95	1.25	1.22	0.87	0.90	0.67	1.04	1.05
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	7.0	7.0	6.0	6.0	6.0	7.0	5.0	6.0	5.0	6.0	5.0	5.0
18	SO4 (mg/L)	26.1	24.1	26.2	24.5	24.2	24.8	42.7	40.6	44.0	17.7	46.4	48.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	1.4	0.8	0.6	0.6	1.4	1.6	0.4	1.0	0.6	0.8
2	DO (mg/L)	5.6	4.8	3.8	6.2	4.8	6.6	7.8	9.1	7.9	4.2	6.2	5.0
3	DO_SAT% (%)	74	60	48	77	59	78	85	94	84	49	75	65
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	92	100	96	88	80	84	112	116	366	156	120	136
2	HAR_Total (mgCaCO3/L)	149	153	145	129	117	125	145	153	407	258	169	193
3	Na% (%)	25	13	10	11	26	27	26	26	14	21	29	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.8	0.4	0.3	0.3	0.8	0.9	0.9	0.9	0.7	0.9	1.1	1.0
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : GHATSILA ROAD BRIDGE (GHAT RB)

Division : E.E., Bhubaneswar

Local River :

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1080	365	721
3	EC_GEN (µmho/cm)	12	1086	370	723
4	pH_FLD (pH units)	12	8.5	7.1	7.6
5	pH_GEN (pH units)	12	8.6	6.9	7.6
6	Temp (deg C)	12	30.5	17.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	23.0	0.0	4.2
2	ALK-TOT (mgCaCO3/L)	12	139	55	94
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	146	32	52
5	Cl (mg/L)	12	50.9	11.3	25
6	CO3 (mg/L)	12	27.7	0.0	5.1
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.1	0.4
9	HCO3 (mg/L)	12	124	68	104
10	K (mg/L)	12	6.4	2.4	4.9
11	Mg (mg/L)	12	24.3	7.8	11.8
12	Na (mg/L)	12	33.1	7.3	22.8
13	NO2+NO3 (mg N/L)	12	1.25	0.70	0.98
14	NO2-N (mgN/L)	12	0.07	0.00	0.01
15	NO3-N (mgN/L)	12	1.25	0.67	0.97
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	7.0	5.0	5.9
18	SO4 (mg/L)	12	48.0	17.7	32.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	1.6	0.4	0.9
2	DO (mg/L)	12	9.1	3.8	6
3	DO_SAT% (%)	12	94	48	71
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	366	80	129
2	HAR_Total (mgCaCO3/L)	12	407	117	178
3	Na% (%)	12	29	10	21
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	1.1	0.3	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSILA ROAD BRIDGE (GHAT RB)

Division : E.E., Bhubaneswar

Local River :

River Water

Sub-Division : Balasore

S.No	Parameters	Flood Jun - Oct																			
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	214	246	237	304	274	236	273		256	384	261	276	264	318	560	280	260	258	273	385
3	EC_GEN (µmho/cm)	214	252	239	304	269	233	267		256	384	261	276	264	318	564	280	284	250	273	381
4	pH_FLD (pH units)	7.8	7.8	7.7	7.8	7.6	7.8	7.9		7.8	8.1	8.2	7.5	7.3	7.6	7.4	8.1	7.9	7.9	7.8	7.8
5	pH_GEN (pH units)	7.8	7.6	7.6	7.6	7.7	7.8	7.9		7.8	8.1	8.2	7.5	7.3	7.6	7.3	8.1	7.6	7.8	7.8	7.8
6	Temp (deg C)	29.6	29.9	31.5	29.1	29.4	28.5	27.0		27.9	27.1	28.0	29.2	27.8	28.8	27.9	20.5	22.0	20.0	22.7	18.3
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)							0.0		0.0	13.9	6.4			0.0	0.0					
2	ALK-TOT (mgCaCO3/L)							82		64	110	79			66	87					
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	21	27	26	29	29	25	28		23	30	20	24	20	22	37	26	28	28	27	37
5	Cl (mg/L)	15.5	15.6	15.9	21.6	17.5	21.6	18.1		18.3	26.8	22.3	20.7	22.3	24.3	18.1	32.1	10.2	15.5	26.5	28.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	7.7	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
7	F (mg/L)	0.00	0.00	0.05	0.31	0.09	0.14	0.06		0.12	0.05	0.05	0.06	0.05	0.05	0.05	0.35	0.00	0.08	0.40	0.37
8	Fe (mg/L)	0.4	0.3	0.3	0.3	0.2	0.3	0.4		0.3	0.3	0.0	1.3	0.1	1.0	0.3	0.2	0.2	0.3	0.2	0.3
9	HCO3 (mg/L)	75	97	87	101	106	87	100		67	100	81	80	88	81	106	100	121	110	67	119
10	K (mg/L)	2.7	3.5	1.9	3.3	2.5	3.4	3.0		2.0	5.5	3.0	3.0	2.4	3.0	3.7	4.3	5.9	3.0	5.1	3.6
11	Mg (mg/L)	4.9	7.0	5.9	9.4	8.4	6.2	8.3		9.3	14.4	7.6	7.8	5.0	7.6	11.3	5.9	10.0	6.8	5.8	13.5
12	Na (mg/L)	11.4	10.5	10.9	14.0	11.7	14.4	12.4		12.5	17.8	10.5	10.7	13.1	10.5	13.9	20.8	6.2	10.3	17.8	19.4
13	NO2+NO3 (mg N/L)	1.99	2.49	2.74	1.96	2.26	2.26	2.04		1.98	1.74	0.42	0.80	0.92	1.26	0.95	1.87	2.05	1.80	6.07	7.89
14	NO2-N (mgN/L)	0.00	0.00	0.01	0.06	0.01	0.00	0.00		0.05	0.01	0.07	0.00	0.03	0.02	0.02	0.00	0.00	0.01	0.13	0.39
15	NO3-N (mgN/L)	1.99	2.49	2.73	1.89	2.26	2.26	2.04		1.93	1.73	0.36	0.80	0.89	1.23	0.92	1.87	2.05	1.79	5.93	7.50
16	o-PO4-P (mg P/L)				0.052	0.050	0.009	0.000		0.048											0.023
17	P-Tot (mgP/L)	0.001	0.001	0.047	0.001	0.050	0.010	0.001		0.002	0.001	0.010	0.001	0.004	0.001	0.001	0.019	0.001	0.034	0.001	0.009
18	SiO2 (mg/L)	11.4	10.2	13.1	33.4	26.2	15.0	10.4		8.8	9.0	10.0	11.4	11.5	6.2	6.4	14.5	8.3	15.4	33.0	24.2
19	SO4 (mg/L)	9.4	12.1	8.0	25.2	13.4	14.1	15.7		30.1	35.9	21.7	33.2	29.1	15.5	25.0	8.6	7.8	6.9	30.9	26.9
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	1.5	1.1	0.9	1.4	1.4	1.4	1.3		1.6	5.7	1.7	0.8	0.7	0.7	0.8	1.2	1.2	1.8	1.3	1.3
2	DO (mg/L)	6.8	6.9	6.2	6.7	6.0	6.7	7.0		6.4	5.3	6.3	5.8	5.2	6.0	5.0	6.5	7.7	7.7	8.0	8.4
3	DO_SAT% (%)	89	91	84	86	79	86	87		81	67	80	75	66	77	64	75	87	84	92	88
	TRACE & TOXIC																				
1	Al (mg/L)						6.66														
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	53	67	65	72	74	62	70		57	76	50	59	49	56	91	64	71	70	69	92
2	HAR_Total (mgCaCO3/L)	73	96	90	117	109	88	104		96	136	81	92	70	88	138	83	112	98	79	148
3	Na% (%)	25	18	21	22	20	25	23		22	22	20	19	28	18	17	32	10	19	29	22
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
5	SAR (-)	0.6	0.4	0.5	0.6	0.5	0.7	0.6		0.6	0.7	0.5	0.5	0.7	0.5	0.5	1.0	0.3	0.5	0.8	0.7
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSILA ROAD BRIDGE (GHAT RB)

Division : E.E., Bhubaneswar

Local River :

River Water

Sub-Division : Balasore

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	327	303		343	495	283	370	249	470	915	360	330	630	368	490	456	480		407	557
3	EC_GEN (µmho/cm)	325	299		343	495	283	370	249	470	918	360	328	633	367	488	454	472		407	557
4	pH_FLD (pH units)	7.9	8.2		7.8	7.5	7.6	7.8	7.7	7.6	7.7	8.2	8.0	8.0	7.6	7.4	7.9	7.9		8.1	8.0
5	pH_GEN (pH units)	7.9	8.2		7.8	7.5	7.6	7.8	7.7	7.6	7.6	8.2	8.1	7.8	7.6	7.5	7.9	7.9		8.1	8.0
6	Temp (deg C)	18.2	16.9		16.5	18.0	18.5	17.0	21.4	20.0	19.9	27.5	22.7	28.5	25.8	25.8	25.4	25.5		26.0	23.0
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)		0.2		0.0	0.0	0.0			0.0	5.8						0.0			4.0	15.6
2	ALK-TOT (mgCaCO3/L)		93		63	107	76			77	88						256			84	131
3	B (mg/L)	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
4	Ca (mg/L)	34	31		29	37	26	32	24	26	68	27	38	59	38	46	51	50		26	44
5	Cl (mg/L)	20.5	22.9		29.6	41.5	20.3	31.6	28.4	21.6	16.0	38.9	14.8	33.1	37.1	40.5	23.3	31.5		42.1	52.8
6	CO3 (mg/L)	0.0	0.3		0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		3.2	18.8
7	F (mg/L)	0.06	0.12		0.25	0.05	0.05	0.06	0.05	0.05	0.05	1.23	0.00	0.23	0.46	0.25	0.24	0.05		0.29	0.05
8	Fe (mg/L)	0.3	0.3		0.3	0.1	0.0	1.2	0.1	0.3	0.4	0.2	0.4	0.2	0.4	0.2	0.3	0.3		0.2	0.2
9	HCO3 (mg/L)	139	111		76	131	93	123	90	89	93	121	146	236	94	173	172	184		105	122
10	K (mg/L)	3.6	3.4		3.3	4.9	2.7	5.4	2.8	2.6	6.1	7.9	7.6	5.9	3.6	5.7	4.4	3.8		5.6	5.3
11	Mg (mg/L)	10.9	8.6		12.1	20.2	12.3	10.0	6.0	10.6	9.0	8.7	10.4	23.3	8.3	15.1	15.4	12.8		14.9	20.7
12	Na (mg/L)	14.0	15.4		19.0	29.1	11.6	21.4	15.7	11.8	26.3	28.7	10.6	26.0	23.5	26.8	16.1	22.6		30.9	32.2
13	NO2+NO3 (mg N/L)	2.36	2.18		3.02	1.95	0.40	0.86	0.90	0.87	1.07	2.55	2.28	3.99	10.43	2.79	8.92	2.58		1.79	1.42
14	NO2-N (mgN/L)	0.00	0.01		0.09	0.11	0.07	0.00	0.03	0.02	0.01	0.00	0.00	0.00	0.06	0.00	0.00	0.00		0.08	0.00
15	NO3-N (mgN/L)	2.36	2.17		2.93	1.85	0.33	0.86	0.88	0.85	1.06	2.55	2.28	3.99	10.36	2.79	8.92	2.58		1.71	1.42
16	o-PO4-P (mg P/L)	0.025	0.008		0.083										0.026	0.048	0.019			0.037	
17	P-Tot (mgP/L)	0.025	0.021		0.001	0.001	0.010	0.001	0.005	0.001	0.010	0.104	0.001	0.001	0.001	0.050	0.019	0.050		0.004	0.001
18	SiO2 (mg/L)	15.0	9.3		8.1	5.9	12.0	11.8	10.9	5.8	5.8	16.1	10.5	15.2	31.6	18.2	20.3	9.7		7.3	7.9
19	SO4 (mg/L)	14.2	15.1		44.2	62.5	30.8	46.1	32.2	26.1	38.0	14.6	15.5	58.2	19.9	36.4	22.1	23.4		43.8	60.1
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	1.4	1.4		2.6	1.8	2.7	0.9	1.1	1.0	1.0	0.6	1.5	1.4	1.3	1.2	1.4	1.4		1.6	2.2
2	DO (mg/L)	7.8	8.4		9.1	8.2	7.7	8.7	7.3	9.0	7.8	5.2	6.8	6.8	5.9	7.7	6.4	5.8		7.2	5.8
3	DO_SAT% (%)	82	85		92	86	82	90	82	98	85	66	79	88	73	94	77	71		89	67
	TRACE & TOXIC																				
1	Al (mg/L)														0.02						
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	84	77		72	93	66	80	60	64	170	68	94	148	94	114	127	126		65	110
2	HAR_Total (mgCaCO3/L)	129	112		123	177	117	122	84	108	207	104	138	245	132	177	191	179		128	196
3	Na% (%)	19	22		24	26	17	27	28	19	23	35	13	18	26	25	16	22		34	26
4	RSC (-)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
5	SAR (-)	0.5	0.6		0.8	1.0	0.5	0.9	0.7	0.5	0.8	1.2	0.4	0.7	0.9	0.9	0.5	0.7		1.2	1.0
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : GHATSILA ROAD BRIDGE (GHAT RB)

Local River :

Division : E.E., Bhubaneswar

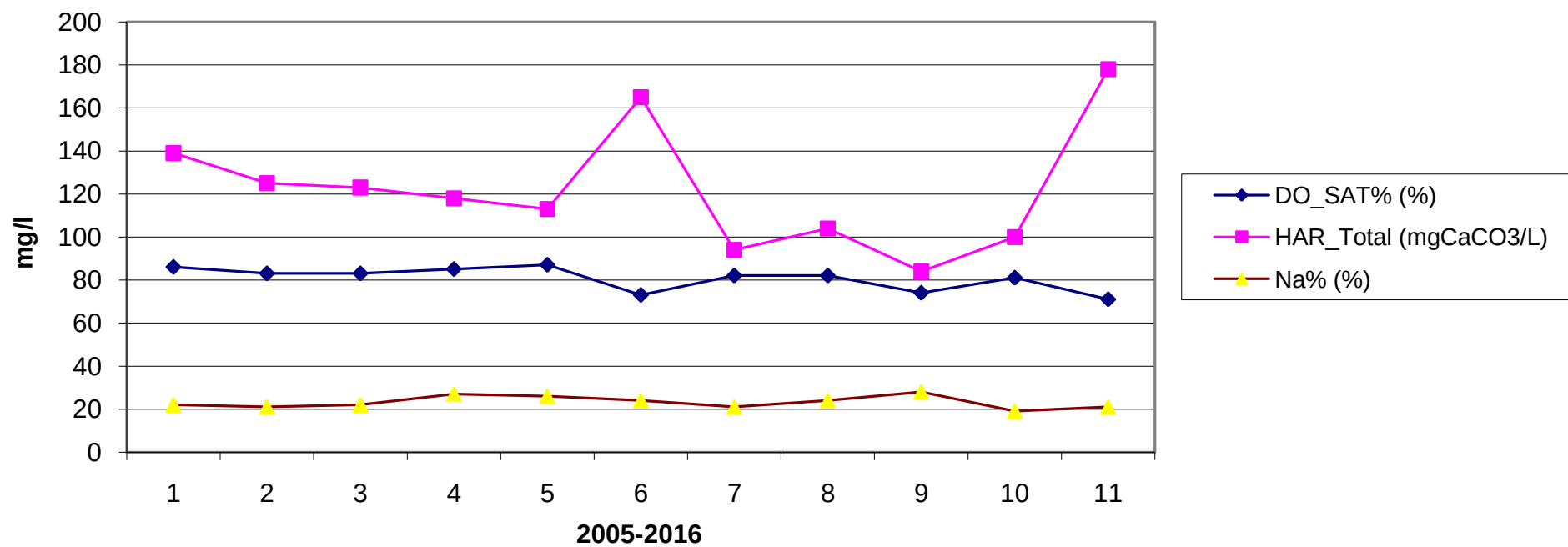
Sub-Division : Balasore

River Water

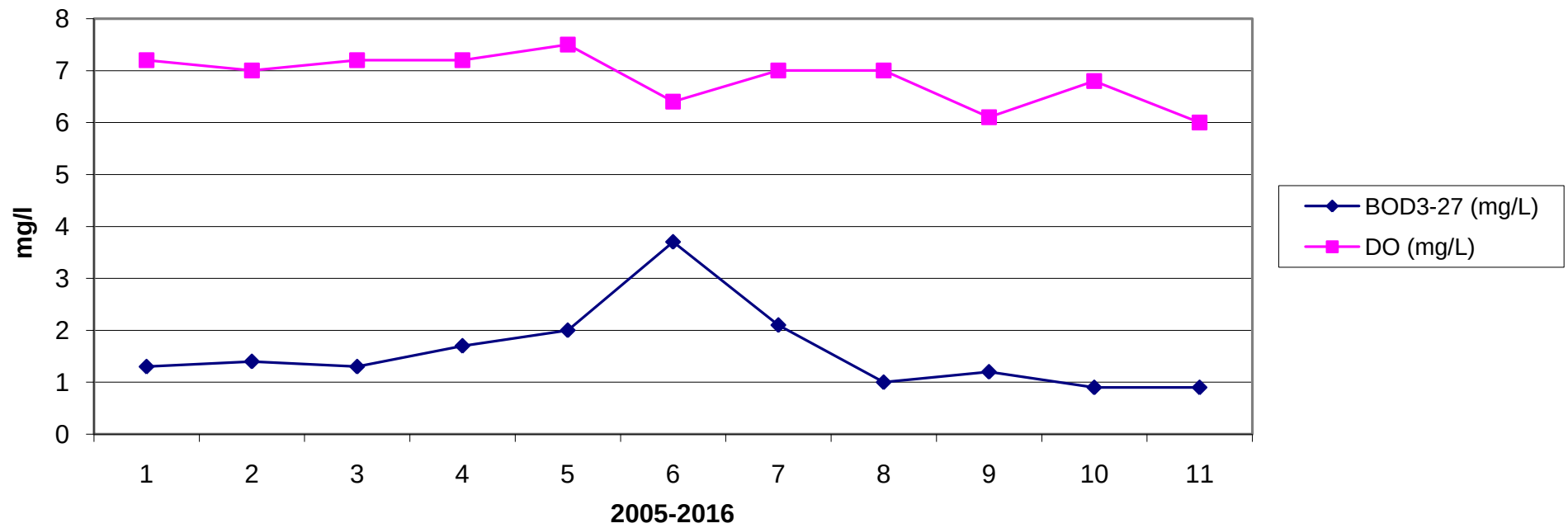
S.No	Parameters					
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	303	360	413	560	731
3	EC_GEN (µmho/cm)	303	360	413	560	729
4	pH_FLD (pH units)	7.8	7.9	7.4	7.5	7.9
5	pH_GEN (pH units)	7.8	7.9	7.4	7.5	7.9
6	Temp (deg C)	25.2	27.7	27.0	26.7	26.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	1.5			0.0	9.2
2	ALK-TOT (mgCaCO3/L)	89			77	112
3	B (mg/L)	0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	25	29	27	28	55
5	Cl (mg/L)	27.7	30.2	32.9	33.5	48.4
6	CO3 (mg/L)	1.8	0.0	4.2	0.0	11.1
7	F (mg/L)	0.05	0.06	0.05	0.05	0.05
8	Fe (mg/L)	0.0	1.3	0.1	0.3	0.4
9	HCO3 (mg/L)	105	97	104	101	115
10	K (mg/L)	3.4	5.2	4.9	2.4	5.4
11	Mg (mg/L)	5.5	6.9	9.7	9.4	16.5
12	Na (mg/L)	15.1	20.9	18.8	13.1	33.0
13	NO2+NO3 (mg N/L)	0.41	0.84	0.80	0.91	0.93
14	NO2-N (mgN/L)	0.07	0.00	0.03	0.00	0.01
15	NO3-N (mgN/L)	0.34	0.84	0.78	0.91	0.92
16	o-PO4-P (mg P/L)					
17	P-Tot (mgP/L)	0.010	0.001	0.005	0.001	0.010
18	SiO2 (mg/L)	9.7	12.7	11.8	4.5	5.3
19	SO4 (mg/L)	19.6	42.7	38.4	19.2	37.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	2.0	1.3	2.0	1.1	0.8
2	DO (mg/L)	7.2	6.6	6.2	5.3	5.1
3	DO_SAT% (%)	87	82	77	66	63
	TRACE & TOXIC					
1	Al (mg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	61	73	67	70	138
2	HAR_Total (mgCaCO3/L)	84	101	107	109	206
3	Na% (%)	27	30	27	21	26
4	RSC (-)	0.2	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.9	0.8	0.6	1.0
	PESTICIDES					

TREND ANALYSIS

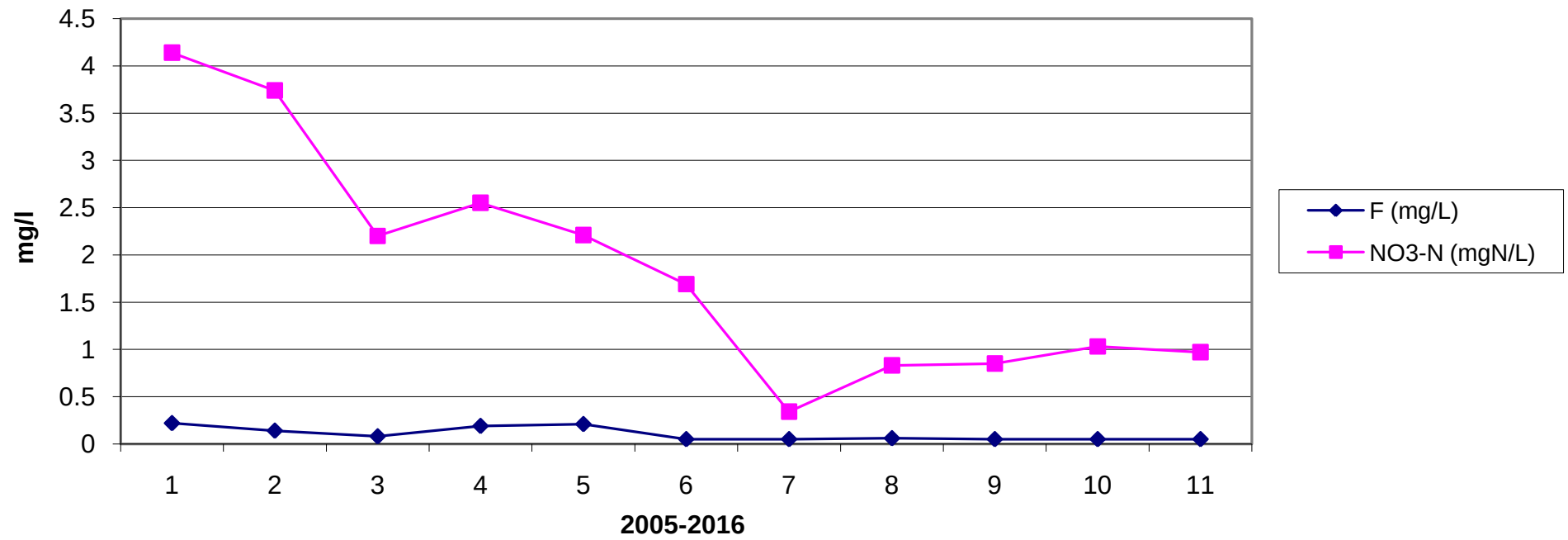
Year Wise Trend For Ghatsila Road Bridge



Year Wise Trend For Ghatsila road Bridge



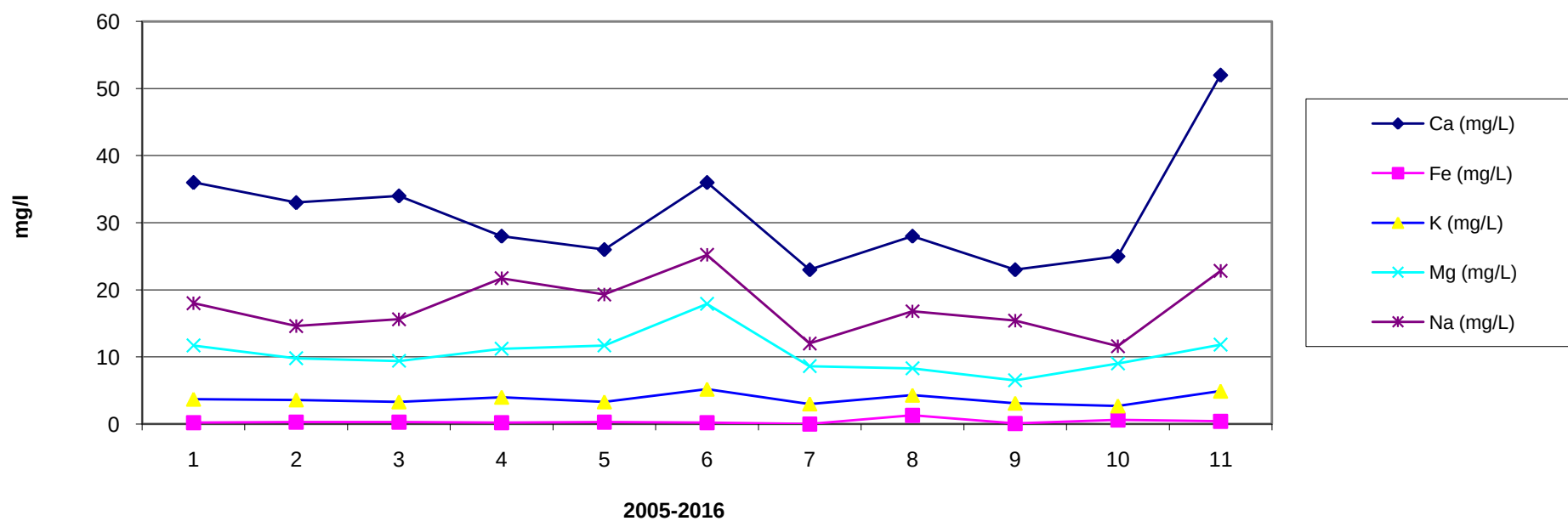
Year Wise Trend For Ghatsila Road Bridge



YEAR WISE TREND FOR GHATSHILA ROAD BRIDGE



Year wise trend for Ghatshila Road bridge



WATER QUALITY DATA

HISTORY SHEET

		Water Year	: 2015-2016
Site	: BARIDHI NALA	Code	: BARIDHI
State	: Jharkhand	District	Paschim Singbhum
Basin	: Subarnarekha	Independent River	: Subarnarekha
Tributary	: Baridhinala	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Baridhinala
Division	: E.E., Bhubaneswar	Sub-Division	: Balasore
Drainage Area	: Sq. Km.	Bank	: Left
Latitude	: °'''	Longitude	: °'''
	Opening Date	Closing Date	
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	: 01.04.1991		

Water Quality Datasheet for the period : 2015-2016

Station Name : BARIDHI NALA (BARIDHI)

Division : E.E., Bhubaneswar

Local River : Baridhinala

River Water Analysis

Sub-Division : Balasore

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	1225	416	179	860	906	661	1038	632	643	678	762	292
4	EC_GEN (µmho/cm)	1230	408	184	863	914	668	1047	637	645	671	767	298
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.3	7.2	7.3	7.2	7.3	7.2	7.6	7.8	7.6	7.0	7.4
7	pH_GEN (pH units)	7.8	7.2	7.3	7.2	7.1	7.3	7.1	7.5	7.9	7.4	6.9	7.6
8	Temp (deg C)	29.5	28.5	28.0	28.5	28.0	23.5	25.5	18.5	20.5	26.5	31.0	32.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	134	125	106	102	92	106	102	88	97	97	92	88
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	42	40	42	38	38	38	37	38	38	53	42	56
5	Cl (mg/L)	120.7	13.2	17.0	13.2	15.1	17.0	17.0	18.9	18.9	30.2	32.1	18.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.3	0.2	0.3	0.7	0.2	0.3	0.4	0.4	0.4	0.3	0.4
9	HCO3 (mg/L)	163	152	130	124	112	130	124	107	118	118	113	107
10	K (mg/L)	20.4	30.0	27.2	25.8	4.1	4.6	2.9	2.8	5.9	3.6	6.1	6.3
11	Mg (mg/L)	10.7	9.7	8.8	6.8	5.8	6.8	6.8	8.8	8.8	22.4	14.6	10.7
12	Na (mg/L)	48.7	44.3	36.4	34.5	14.8	15.9	16.8	15.9	32.5	32.8	43.2	44.0
13	NO2+NO3 (mg N/L)	0.73	0.83	1.19	1.09	1.18	1.06	1.12	0.95	0.98	0.99	1.09	0.87
14	NO2-N (mgN/L)	0.00	0.01	0.00	0.00	0.06	0.01	0.00	0.00	0.03	0.01	0.00	0.00
15	NO3-N (mgN/L)	0.73	0.81	1.19	1.09	1.12	1.05	1.12	0.95	0.95	0.98	1.09	0.87
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	6.0	5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
18	SO4 (mg/L)	129.1	15.6	15.2	15.6	19.3	14.5	17.5	46.4	17.6	14.4	18.8	21.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	20.0	1.2	4.0	1.8	40.0	0.6	2.2	0.8	1.0	60.0	0.8	0.6
2	DO (mg/L)	0.4	2.6	6.2	3.0	1.2	4.6	3.4	6.4	4.8	1.0	3.0	4.4
3	DO_SAT% (%)	5	33	79	38	15	53	41	67	53	12	40	60
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	104	100	104	96	96	96	92	96	96	132	104	140
2	HAR_Total (mgCaCO3/L)	149	141	141	125	120	125	121	133	133	225	165	185
3	Na% (%)	38	35	31	32	20	21	23	20	34	24	35	33
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	1.7	1.6	1.3	1.3	0.6	0.6	0.7	0.6	1.2	1.0	1.5	1.4
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : BARIDHI NALA (BARIDHI)

Division : E.E., Bhubaneswar

Local River : Baridhinala

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1225	179	691
3	EC_GEN (µmho/cm)	12	1230	184	694
4	pH_FLD (pH units)	12	7.8	7.0	7.4
5	pH_GEN (pH units)	12	7.9	6.9	7.3
6	Temp (deg C)	12	32.0	18.5	26.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	134	88	102
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	56	37	42
5	Cl (mg/L)	12	120.7	13.2	27.7
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.7	0.2	0.4
9	HCO3 (mg/L)	12	163	107	125
10	K (mg/L)	12	30.0	2.8	11.6
11	Mg (mg/L)	12	22.4	5.8	10
12	Na (mg/L)	12	48.7	14.8	31.7
13	NO2+NO3 (mg N/L)	12	1.19	0.73	1.01
14	NO2-N (mgN/L)	12	0.06	0.00	0.01
15	NO3-N (mgN/L)	12	1.19	0.73	1
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	6.0	5.0	5.7
18	SO4 (mg/L)	12	129.1	14.4	28.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	60.0	0.6	11.1
2	DO (mg/L)	12	6.4	0.4	3.4
3	DO_SAT% (%)	12	79	5	41
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	140	92	105
2	HAR_Total (mgCaCO3/L)	12	225	120	147
3	Na% (%)	12	38	20	29
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	1.7	0.6	1.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : BARIDHI NALA (BARIDHI)

Division : E.E., Bhubaneswar

Local River : Baridhinala

River Water

Sub-Division : Balasore

S.No	Parameters	Flood																			
		Jun - Oct															2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015					
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	1110	761	656	910	847	910	872		988	1070	1008	656	470	580	717	550	675	777	584	1673
3	EC_GEN (µmho/cm)	1110	786	662	908	845	906	862		988	1066	1008	656	470	580	720	550	688	783	583	669
4	pH_FLD (pH units)	7.9	8.0	7.8	7.7	7.3	7.6	7.6		7.9	7.8	8.3	7.4	7.7	7.7	7.3	7.4	7.5	7.8	7.6	7.5
5	pH_GEN (pH units)	8.0	7.8	7.7	7.8	7.4	7.6	7.7		8.0	7.9	8.3	7.4	7.7	7.7	7.3	7.4	7.4	7.6	7.7	7.5
6	Temp (deg C)	29.9	32.3	31.3	31.3	29.7	29.7	30.1		30.5	30.1	31.3	32.4	28.8	29.5	28.5	22.0	24.1	24.9	24.0	20.4
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)							0.0		2.0	2.0	16.6			0.0	0.0					
2	ALK-TOT (mgCaCO3/L)							250		160	214	176			164	112					
3	B (mg/L)	0.00	0.00	0.48	0.02	0.52	0.00	0.49		0.14	0.23	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.43	0.18	0.49
4	Ca (mg/L)	119	77	68	86	73	94	73		88	94	57	45	33	58	40	50	70	74	57	74
5	Cl (mg/L)	47.6	36.6	50.9	63.0	61.5	53.6	67.2		77.7	83.6	64.5	50.1	42.2	64.3	35.8	49.8	45.9	56.6	49.2	49.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		1.9	9.6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	2.98	2.03	1.42	1.62	3.30	4.38	1.82		1.67	2.31	0.05	0.05	0.05	0.05	0.05	0.46	0.67	0.94	1.80	2.02
8	Fe (mg/L)	0.2	0.1	0.2	0.3	0.6	0.2	0.8		0.3	0.2	0.0	1.9	0.1	0.2	0.4	0.1	0.2	0.2	0.2	0.3
9	HCO3 (mg/L)	385	301	175	240	259	336	317		162	276	175	134	164	169	136	229	295	253	107	139
10	K (mg/L)	13.2	8.5	7.5	6.8	17.7	11.8	15.2		21.6	28.4	25.5	21.9	9.0	25.5	21.5	5.1	8.4	16.3	11.3	7.3
11	Mg (mg/L)	39.1	25.1	16.8	21.6	26.8	29.2	30.5		20.2	26.4	14.6	11.2	10.9	14.6	8.4	16.0	19.9	21.1	13.5	21.4
12	Na (mg/L)	35.7	27.3	34.8	42.5	40.3	36.8	46.6		51.0	55.1	45.5	34.3	26.2	45.5	35.7	35.0	32.8	41.6	34.4	35.1
13	NH3-N (mg N/L)																				
14	NO2+NO3 (mg N/L)	16.08	8.87	13.13	12.53	10.68	12.11	8.44		13.86	12.32	0.39	0.81	1.26	1.95	1.00	3.11	4.91	14.86	13.38	14.63
15	NO2-N (mgN/L)	0.00	0.00	0.08	0.05	0.00	0.00	0.00		0.27	0.00	0.07	0.00	0.04	0.05	0.01	0.00	0.00	0.00	0.04	0.42
16	NO3-N (mgN/L)	16.08	8.87	13.05	12.48	10.68	12.11	8.44		13.59	12.32	0.33	0.81	1.22	1.90	0.99	3.11	4.91	14.86	13.34	14.21
17	o-PO4-P (mg P/L)	0.124			0.305	0.507	0.238	0.122		0.330										0.214	0.110
18	P-Tot (mgP/L)	0.304	0.084	0.157	0.001	0.034	0.236	0.975		0.002	0.284	0.010	0.001	0.007	0.001	0.001	0.124	0.072	0.277	0.001	0.062
19	SiO2 (mg/L)	28.9	19.2	15.6	24.6	26.9	19.8	8.4		10.0	8.3	11.6	15.1	12.4	5.6	5.8	17.2	18.8	18.7	24.7	25.2
20	SO4 (mg/L)	82.6	40.7	56.2	59.2	70.7	51.1	48.0		146.8	107.6	122.1	56.7	61.4	121.9	39.0	11.1	17.6	58.6	65.3	110.4
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	162.8	151.6	39.0	73.0	55.1	68.8	49.5		33.0	68.2	39.2	36.1	0.8	32.1	13.4	129.3	34.5	74.3	67.3	53.3
2	DO (mg/L)	0.5	1.0	1.0	0.5	0.3	1.0	1.0		0.6	1.4	0.9	2.5	4.1	1.8	2.7	1.5	1.2	2.1	1.2	1.6
3	DO_SAT% (%)	6	14	14	6	4	13	13		8	19	12	34	53	24	34	17	13	26	15	17
	TRACE & TOXIC																				
1	Al (mg/L)																		0.00		
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	298	194	170	214	181	236	184		220	235	143	113	82	146	100	125	174	185	143	185
2	HAR_Total (mgCaCO3/L)	461	298	240	304	301	357	311		305	345	204	160	127	207	135	192	257	273	220	274
3	Na% (%)	14	16	24	23	22	18	24		26	25	30	28	29	29	31	28	22	23	27	21
4	RSC (-)	0.0	0.0	0.0	0.0	0.1	0.1	0.1		0.0	0.0	0.7	0.0	0.3	0.0	0.0	0.2	0.1	0.3	0.0	0.0
5	SAR (-)	0.7	0.7	1.0	1.1	1.0	0.9	1.1		1.3	1.4	1.4	1.2	1.0	1.4	1.3	1.1	0.9	1.1	1.1	0.9
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : BARIDHI NALA (BARIDHI)

Division : E.E., Bhubaneswar

Local River : Baridhinala

River Water

Sub-Division : Balasore

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	738	730		763	830	663	420	508	665	744	885	557	617	738	870	887	965		817	1090
3	EC_GEN (µmho/cm)	736	725		763	830	663	420	508	665	749	887	618	622	730	865	888	962		817	1090
4	pH_FLD (pH units)	7.7	7.6		7.5	7.2	7.6	7.1	7.7	7.5	7.5	8.1	7.7	7.8	7.8	7.3	7.7	7.7		7.4	8.1
5	pH_GEN (pH units)	7.7	7.7		7.5	7.2	7.6	7.1	7.7	7.5	7.4	8.1	7.6	7.6	7.8	7.3	7.7	7.7		7.4	8.1
6	Temp (deg C)	20.2	21.4		21.5	22.1	22.9	21.1	19.6	21.5	22.0	27.3	28.0	28.7	26.5	29.6	28.2	28.6		27.9	25.9
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)		0.0		0.0	0.0	0.0				0.0						0.0	0.0		0.0	15.6
2	ALK-TOT (mgCaCO3/L)		170		92	210	85				98						563	248		169	241
3	B (mg/L)	0.00	0.24		0.11	0.17	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.60	0.00	0.34	0.00	0.07		0.17	0.27
4	Ca (mg/L)	76	75		62	79	47	41	41	60	38	87	54	76	75	76	93	96		49	97
5	Cl (mg/L)	46.0	53.7		69.0	66.0	37.2	27.7	49.7	50.0	17.9	49.2	45.8	56.4	47.4	66.3	57.7	62.7		87.0	75.4
6	CO3 (mg/L)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	18.8
7	F (mg/L)	1.21	2.47		0.87	0.72	0.05	0.05	0.05	0.05	0.05	0.00	0.00	3.35	2.21	0.98	1.03	1.18		3.16	0.64
8	Fe (mg/L)	0.3	0.2		0.2	0.1	0.0	1.9	0.1	0.2	0.3	0.2	0.4	0.2	0.2	0.6	0.3	0.3		0.2	0.7
9	HCO3 (mg/L)	272	208		113	256	104	136	139	155	120	385	238	166	205	296	302	303		207	256
10	K (mg/L)	10.0	17.2		17.1	17.9	21.2	16.3	7.5	25.8	4.1	6.6	6.0	14.0	11.0	15.2	11.9	14.4		26.5	25.4
11	Mg (mg/L)	22.5	18.8		18.5	20.4	6.1	11.4	13.3	9.0	7.8	35.0	15.9	18.1	22.8	28.2	20.9	27.6		24.6	32.4
12	Na (mg/L)	30.0	37.5		49.8	46.2	30.6	31.3	26.1	38.6	20.3	31.6	30.5	36.0	29.7	42.9	38.3	42.4		63.7	50.3
13	NH3-N (mg N/L)																	0.05			
14	NO2+NO3 (mg N/L)	9.86	13.70		10.74	7.72	0.41	0.72	1.37	1.10	1.03	3.39	1.84	7.12	13.44	9.35	9.41	8.83		7.37	12.43
15	NO2-N (mgN/L)	0.02	0.03		0.26	0.00	0.07	0.00	0.06	0.01	0.01	0.00	0.00	0.02	0.06	0.00	0.00	0.11		0.12	0.00
16	NO3-N (mgN/L)	9.83	13.68		10.48	7.72	0.34	0.72	1.32	1.09	1.02	3.39	1.84	7.10	13.38	9.35	9.41	8.72		7.24	12.43
17	o-PO4-P (mg P/L)	0.083	0.443		0.275							0.124			0.346	0.140	0.186	0.111		0.180	
18	P-Tot (mgP/L)	0.084	0.196		0.002	0.305	0.010	0.001	0.005	0.001	0.010	0.102	0.039	0.107	0.001	0.104	0.198	0.141		0.001	0.293
19	SiO2 (mg/L)	20.0	8.2		8.9	5.4	11.5	23.3	14.1	7.0	5.5	27.0	16.2	21.3	22.5	25.1	25.2	8.8		7.8	7.2
20	SO4 (mg/L)	38.3	69.5		117.0	58.8	62.2	68.6	81.6	77.9	24.0	18.3	10.5	109.7	65.9	49.8	46.5	73.7		64.0	137.4
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	51.5	47.8		60.0	11.6	68.5	1.7	15.4	11.4	1.1	129.0	91.3	90.3	124.5	60.2	133.0	53.7		47.3	38.3
2	DO (mg/L)	1.9	0.0		0.8	3.7	0.0	6.3	3.9	3.8	4.8	0.7	1.1	0.0	0.0	1.3	0.0	0.0		0.0	1.6
3	DO_SAT% (%)	21	0		10	43	0	70	42	42	53	8	14	0	0	18	0	0		0	19
	TRACE & TOXIC																				
1	Al (mg/L)	0.00																			
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	190	188		155	197	117	103	102	149	95	219	135	189	189	189	232	240		123	243
2	HAR_Total (mgCaCO3/L)	284	266		232	282	143	150	157	187	128	364	201	265	273	307	319	355		226	378
3	Na% (%)	18	22		31	24	27	27	25	28	24	17	24	22	20	23	20	20		35	22
4	RSC (-)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0		0.0	0.0
5	SAR (-)	0.8	1.0		1.5	1.2	1.1	1.1	0.9	1.2	0.8	0.8	0.9	1.0	0.8	1.1	0.9	1.0		1.9	1.2
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : BARIDHI NALA (BARIDHI)

Local River : Baridhinala

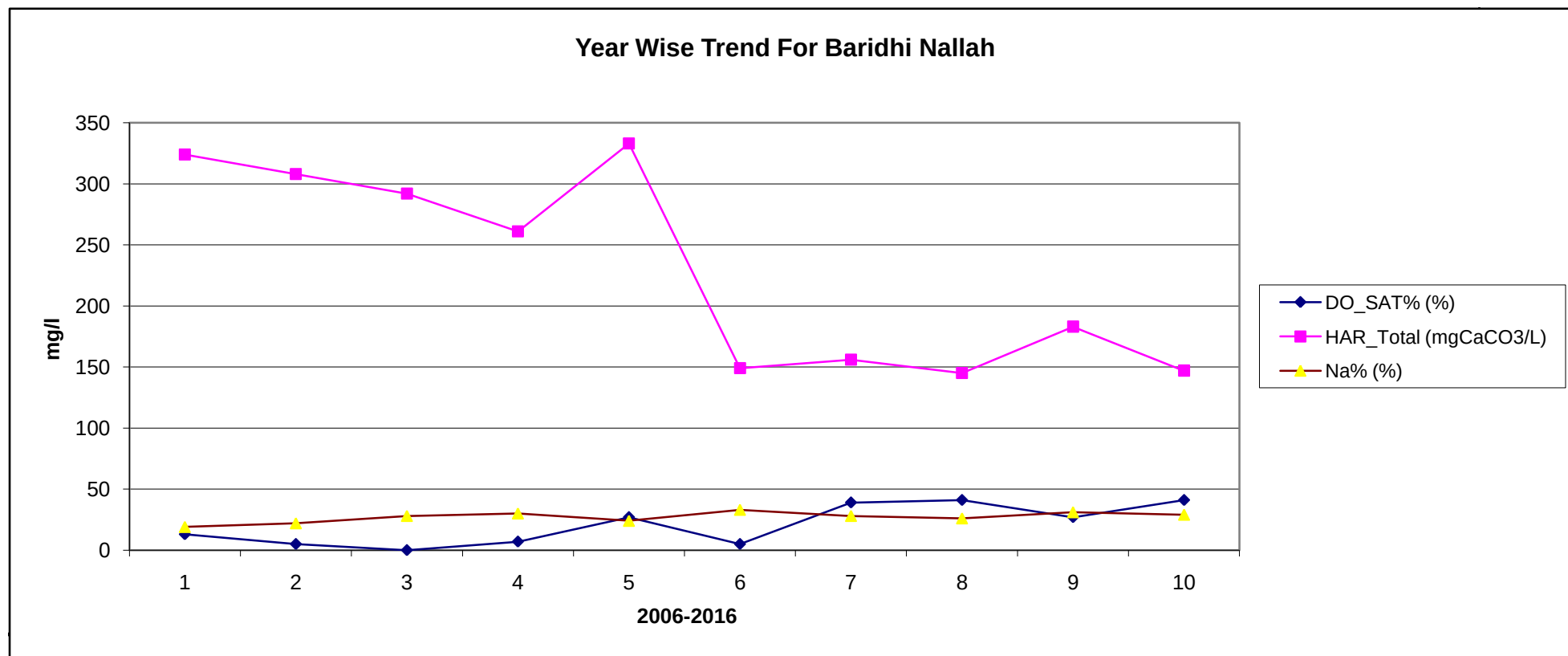
Division : E.E., Bhubaneswar

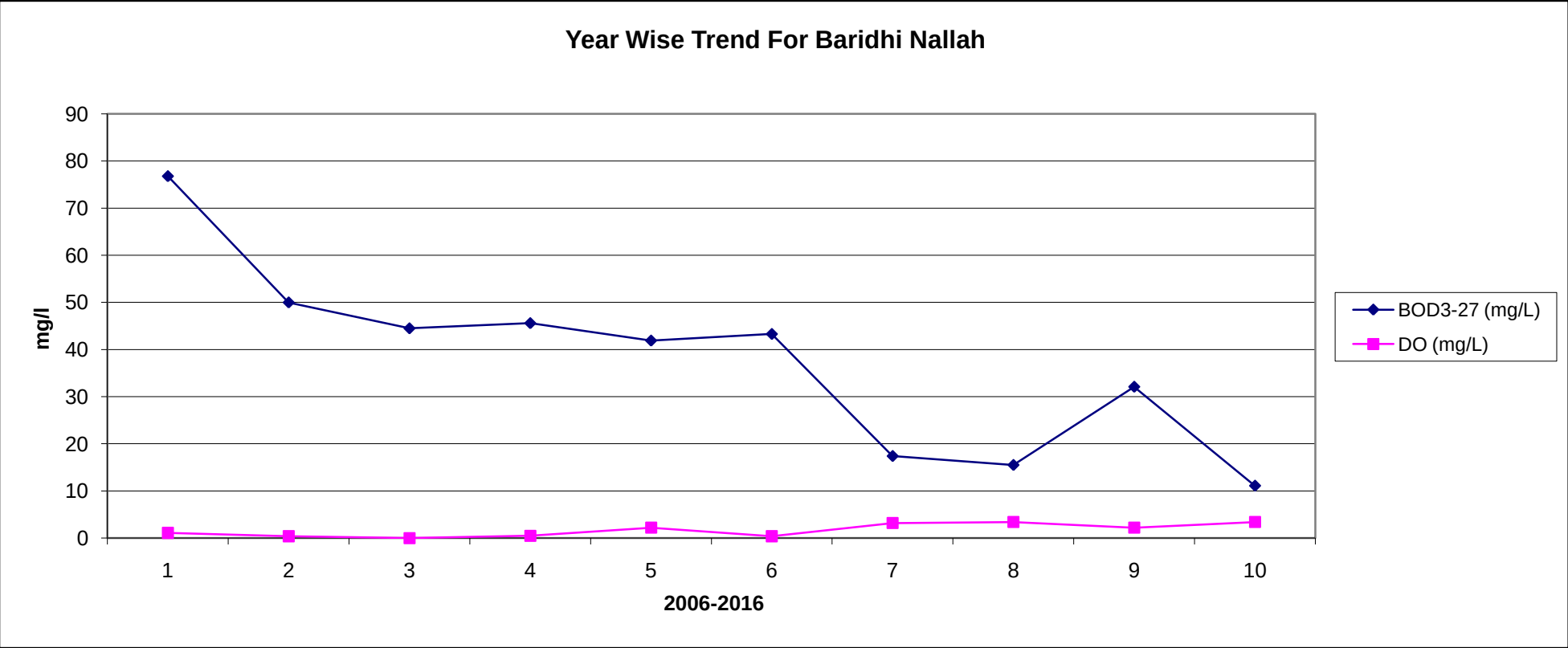
Sub-Division : Balasore

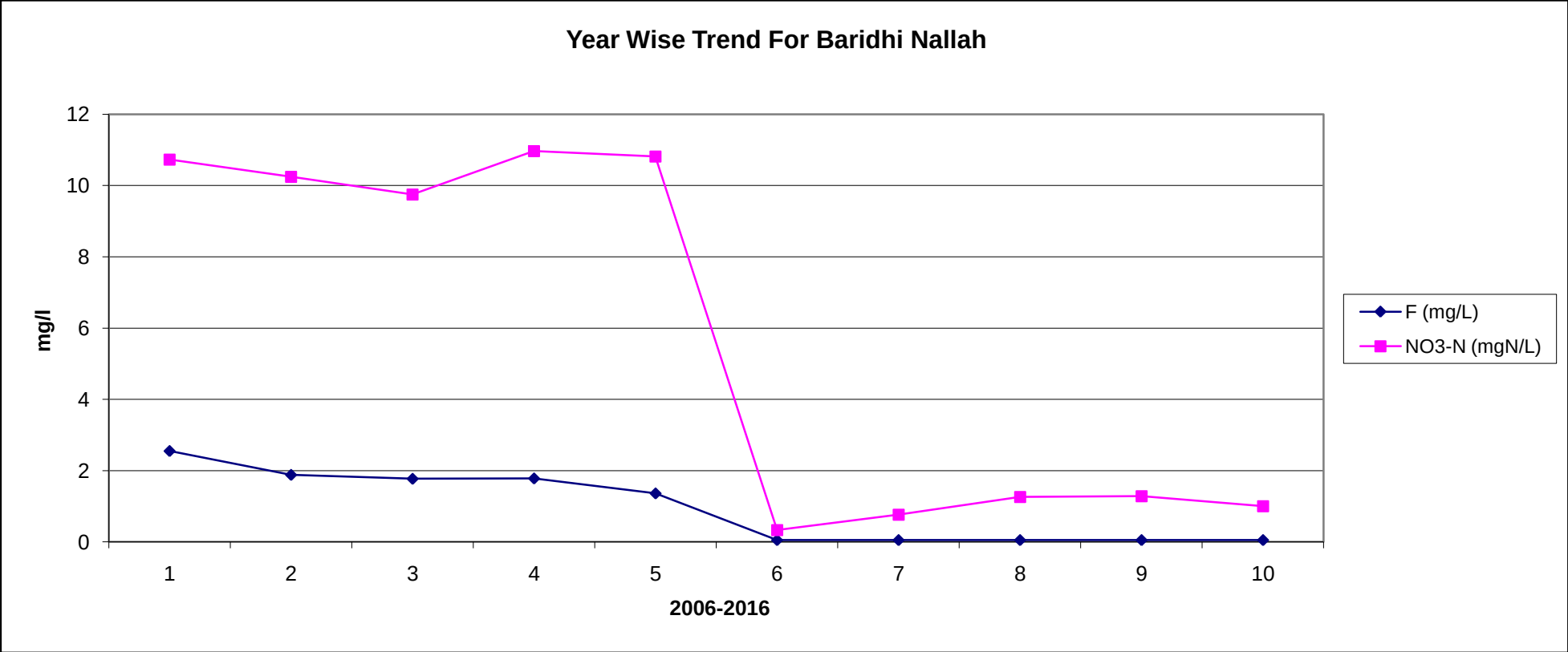
River Water

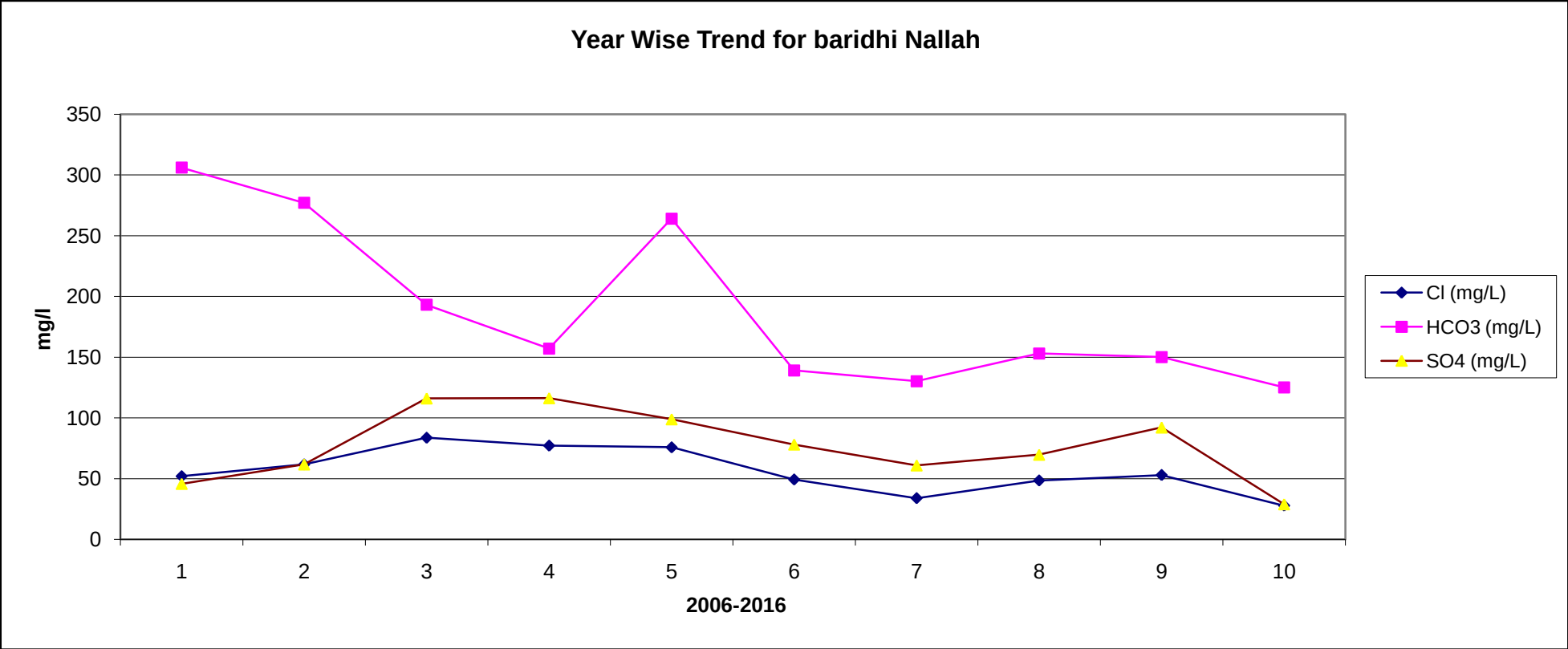
S.No	Parameters					
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	607	743	687	952	577
3	EC_GEN (µmho/cm)	607	743	687	952	579
4	pH_FLD (pH units)	7.3	7.4	7.3	7.3	7.3
5	pH_GEN (pH units)	7.3	7.4	7.3	7.3	7.3
6	Temp (deg C)	26.0	26.2	26.7	27.5	29.8
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0			0.0	0.0
2	ALK-TOT (mgCaCO3/L)	102			137	92
3	B (mg/L)	0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	17	45	45	41	50
5	Cl (mg/L)	39.6	14.8	56.8	37.8	27.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.0	1.9	0.2	0.6	0.4
9	HCO3 (mg/L)	124	114	153	109	113
10	K (mg/L)	11.0	24.0	5.5	17.9	5.3
11	Mg (mg/L)	5.0	10.3	11.2	16.5	15.9
12	Na (mg/L)	26.7	43.5	21.3	37.6	40.0
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.40	0.73	1.27	0.50	0.99
15	NO2-N (mgN/L)	0.07	0.00	0.00	0.02	0.00
16	NO3-N (mgN/L)	0.33	0.73	1.26	0.48	0.98
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)	0.010	0.001	0.007	0.001	0.010
19	SiO2 (mg/L)	10.7	24.7	13.7	4.8	5.7
20	SO4 (mg/L)	25.7	57.4	67.4	61.1	18.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	16.7	6.9	40.1	59.7	20.5
2	DO (mg/L)	0.0	0.4	1.7	0.8	2.8
3	DO_SAT% (%)	0	5	20	10	37
	TRACE & TOXIC					
1	Al (mg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	43	113	113	102	126
2	HAR_Total (mgCaCO3/L)	64	156	160	171	192
3	Na% (%)	46	29	22	34	31
4	RSC (-)	0.8	0.0	0.0	0.0	0.0
5	SAR (-)	1.8	1.5	0.7	1.5	1.3
	PESTICIDES					

TREND ANALYSIS

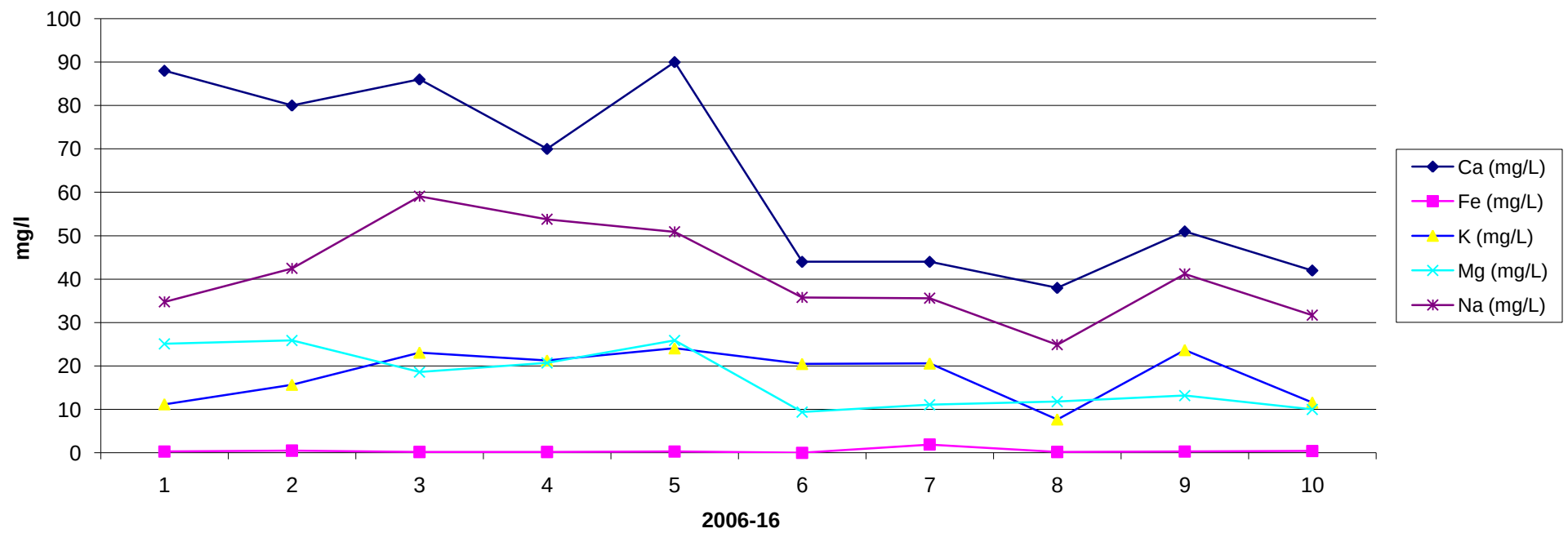








Year wise trend for Baridhi Nallah



WATER QUALITY DATA

HISTORY SHEET

		Water Year : 2015-2016	
Site	: KULPATANGA	Code	: KULPATANGA
State	: Jharkhand	District	Dumka
Basin	: Subarnarekha	Independent River	: Subarnarekha
Tributary	: Kharkhai	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kharkhai
Division	: E.E., Bhubaneswar	Sub-Division	: Balasore
Drainage Area	: Sq. Km.	Bank	: Left
Latitude	: °'''	Longitude	: °'''
	Opening Date	Closing Date	
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	: 01.04.1991		

Water Quality Datasheet for the period : 2015-2016

Station Name : KULPATANGA (KULPATANGA)

Local River : Kharkhai

Division : E.E., Bhubaneswar

Sub-Division : Balasore

River Water Analysis

S.No	Parameters	01.06.2015	01.07.2015	01.08.2015	01.09.2015	01.10.2015	02.11.2015	01.12.2015	01.01.2016	01.02.2016	01.03.2016	01.04.2016	02.05.2016
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	343	272	171	503	585	598	582	658	766	758	2405	508
4	EC_GEN (µmho/cm)	345	278	176	511	581	593	587	661	760	761	2400	502
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.3	7.8	7.9	7.5	7.7	7.9	7.8	7.4	8.8	8.5	7.5	7.9
7	pH_GEN (pH units)	7.8	7.7	7.5	7.4	7.8	7.7	7.7	7.7	8.9	8.8	7.6	7.6
8	Temp (deg C)	32.0	30.0	29.0	29.5	31.5	27.0	25.0	18.5	18.0	25.0	28.0	32.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	18.4	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	97	92	60	88	79	83	88	74	129	162	88	115
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	26	27	29	30	29	30	26	24	27	50	32	53
5	Cl (mg/L)	17.0	17.0	13.2	9.4	15.1	17.0	17.0	17.0	18.9	24.5	26.4	56.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7	22.2	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.6	0.5	0.5	0.4	0.4	0.2	0.4	0.3	0.2	0.3
9	HCO3 (mg/L)	118	113	73	107	96	101	107	90	101	152	107	141
10	K (mg/L)	2.0	1.9	1.5	1.1	1.8	1.9	1.4	1.3	8.2	3.8	1.6	1.9
11	Mg (mg/L)	13.6	14.6	13.6	12.6	5.8	6.8	8.8	8.8	9.7	17.5	11.7	14.6
12	Na (mg/L)	22.0	8.2	5.9	5.8	14.5	15.1	13.6	12.8	54.0	55.1	40.8	41.2
13	NO2+NO3 (mg N/L)	0.85	0.84	1.12	1.12	0.92	1.13	0.88	1.02	0.92	1.13	1.23	1.01
14	NO2-N (mgN/L)	0.07	0.03	0.03	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
15	NO3-N (mgN/L)	0.78	0.81	1.09	1.12	0.91	1.12	0.87	1.01	0.91	1.13	1.23	1.01
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	6.0	5.0	5.0	5.0	6.0	6.0	5.0	5.0	6.0
18	SO4 (mg/L)	9.7	3.6	3.2	2.6	10.9	3.2	6.5	6.3	6.9	9.4	7.6	33.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.4	0.6	0.2	1.2	1.2	0.8	0.8	1.2	1.2	1.4	0.6	80.0
2	DO (mg/L)	6.0	6.0	7.2	6.6	7.9	7.6	7.2	8.9	8.9	5.0	4.6	1.4
3	DO_SAT% (%)	82	79	93	85	107	95	87	95	94	60	58	19
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	64	68	72	76	72	76	64	60	68	124	80	132
2	HAR_Total (mgCaCO3/L)	121	129	129	129	96	104	101	97	109	197	129	193
3	Na% (%)	28	12	9	9	24	24	23	22	50	37	41	32
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
5	SAR (-)	0.9	0.3	0.2	0.2	0.6	0.6	0.6	0.6	2.3	1.7	1.6	1.3
	PESTICIDES												

Water Quality Summary for the period : 2015-2016

Station Name : KULPATANGA (KULPATANGA)

Division : E.E., Bhubaneswar

Local River : Kharkhai

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	2405	171	679
3	EC_GEN (µmho/cm)	12	2400	176	680
4	pH_FLD (pH units)	12	8.8	7.3	7.8
5	pH_GEN (pH units)	12	8.9	7.4	7.9
6	Temp (deg C)	12	32.0	18.0	27.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	23.0	0.0	3.5
2	ALK-TOT (mgCaCO3/L)	12	162	60	96
3	B (mg/L)	12	0.01	0.01	0.01
4	Ca (mg/L)	12	53	24	32
5	Cl (mg/L)	12	56.6	9.4	20.7
6	CO3 (mg/L)	12	27.7	0.0	4.2
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.6	0.2	0.4
9	HCO3 (mg/L)	12	152	73	109
10	K (mg/L)	12	8.2	1.1	2.4
11	Mg (mg/L)	12	17.5	5.8	11.5
12	Na (mg/L)	12	55.1	5.8	24.1
13	NO2+NO3 (mg N/L)	12	1.23	0.84	1.02
14	NO2-N (mgN/L)	12	0.07	0.00	0.02
15	NO3-N (mgN/L)	12	1.23	0.78	1
16	P-Tot (mgP/L)	12	0.010	0.001	0.006
17	SiO2 (mg/L)	12	6.0	5.0	5.6
18	SO4 (mg/L)	12	33.0	2.6	8.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	80.0	0.2	7.5
2	DO (mg/L)	12	8.9	1.4	6.4
3	DO_SAT% (%)	12	107	19	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	132	60	80
2	HAR_Total (mgCaCO3/L)	12	197	96	128
3	Na% (%)	12	50	9	26
4	RSC (-)	12	0.4	0.0	0
5	SAR (-)	12	2.3	0.2	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : KULPATANGA (KULPATANGA)

Division : E.E., Bhubaneswar

Local River : Kharkhai

River Water

Sub-Division : Balasore

S.No	Parameters	Flood																			
		Jun - Oct															2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015					
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	228	299	270	267	240	217	222		242	466	266	235	150	248	375	250	248	247	253	285
3	EC_GEN (µmho/cm)	228	301	272	267	238	213	219		242	466	266	235	150	248	378	250	259	237	253	280
4	pH_FLD (pH units)	7.7	7.9	7.8	7.9	7.8	8.0	7.9		7.9	7.8	8.3	7.9	7.6	8.1	7.6	8.0	7.8	7.6	8.2	8.1
5	pH_GEN (pH units)	7.7	7.9	7.7	7.9	7.9	8.0	8.0		7.9	7.8	8.3	7.9	7.6	8.1	7.6	8.0	7.8	7.4	8.2	8.2
6	Temp (deg C)	28.6	30.8	30.3	30.7	28.9	29.0	28.6		28.2	29.9	28.6	31.0	28.2	30.5	30.4	20.9	23.5	21.3	18.9	19.0
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)							0.0		3.2	0.8	10.1		3.4	0.0	0.0					
2	ALK-TOT (mgCaCO3/L)							54		58	90	90		75	113	83					
3	B (mg/L)	0.00	0.00	0.00	0.01	0.00	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
4	Ca (mg/L)	27	30	27	18	25	22	22		20	43	20	24	23	22	28	29	24	26	20	28
5	Cl (mg/L)	18.2	21.8	15.7	21.5	20.7	18.0	18.2		17.5	33.5	24.5	15.1	21.5	24.5	14.3	14.3	14.4	19.4	26.2	25.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		3.8	1.0	12.2	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.13	0.27	0.33	0.75	0.24	0.32	0.23		0.57	0.21	0.05	0.06	0.05	0.05	0.05	0.39	0.16	0.13	0.73	0.29
8	Fe (mg/L)	0.2	0.3	0.3	0.2	0.3	0.4	0.2		0.4	0.1	0.0	3.7	0.2	0.3	0.5	0.2	0.2	0.2	0.2	0.2
9	HCO3 (mg/L)	88	112	84	60	86	86	80		63	108	85	97	81	137	101	98	103	100	68	101
10	K (mg/L)	2.9	5.2	2.0	3.3	3.1	3.0	2.5		1.6	3.8	1.6	1.4	2.4	1.5	1.7	2.6	2.9	2.5	4.1	2.9
11	Mg (mg/L)	4.6	8.0	7.3	4.0	5.2	5.7	6.2		9.7	13.4	8.6	5.2	6.9	8.6	12.1	6.1	8.7	5.2	5.0	7.9
12	Na (mg/L)	11.4	14.8	10.9	14.6	13.9	11.7	12.2		12.3	21.4	12.2	8.3	13.5	6.3	11.3	8.8	10.5	14.2	17.7	17.0
13	NH3-N (mg N/L)																				
14	NO2+NO3 (mg N/L)	1.56	2.96	3.92		1.58	1.76	1.74		3.78	1.82	0.41	0.80	0.73	1.04	0.97	1.89	2.17	1.16		2.49
15	NO2-N (mgN/L)	0.00	0.01	0.03		0.01	0.01	0.02		0.03	0.00	0.07	0.00	0.02	0.06	0.03	0.00	0.00	0.03		0.00
16	NO3-N (mgN/L)	1.56	2.95	3.90		1.58	1.74	1.72		3.75	1.82	0.34	0.80	0.70	0.98	0.94	1.89	2.17	1.13		2.48
17	o-PO4-P (mg P/L)					0.073	0.116	0.116		0.078	0.124										0.070
18	P-Tot (mgP/L)	0.097	0.116	0.083	0.001	0.064	0.116	0.346		0.002	0.168	0.010	0.001	0.002	0.001	0.001	0.077	0.074	0.074	0.001	0.070
19	SiO2 (mg/L)	8.4	12.0	12.5	32.3	26.8	11.4	9.7		7.8	8.5	10.8	11.4	10.0	8.4	5.8	8.6	11.1	17.4	33.0	20.6
20	SO4 (mg/L)	8.9	13.4	14.1	20.6	10.5	8.1	9.0		17.2	59.3	10.7	48.9	28.7	32.4	6.0	9.7	9.3	5.6	22.6	12.5
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	26.4	1.7	1.0	47.7	1.1	1.5	1.3		2.0	10.0	5.8	1.0	0.7	0.3	0.7	1.6	1.4	0.8	1.5	1.5
2	DO (mg/L)	4.7	6.2	5.5	5.3	6.4	6.8	6.5		6.1	5.2	5.9	6.2	6.9	6.3	6.7	6.2	6.9	7.6	8.4	7.9
3	DO_SAT% (%)	60	83	73	72	83	88	84		78	69	75	83	88	83	89	70	81	86	90	84
	TRACE & TOXIC																				
1	Al (mg/L)							0.00													
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	67	76	68	46	61	56	56		49	108	50	61	57	56	71	73	59	65	50	71
2	HAR_Total (mgCaCO3/L)	87	109	98	68	83	80	82		89	164	85	83	86	92	121	98	95	87	71	104
3	Na% (%)	22	22	22	32	26	25	26		24	22	21	17	25	13	16	16	19	25	34	25
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.5	0.8	0.7	0.6	0.6		0.6	0.7	0.6	0.4	0.6	0.3	0.5	0.4	0.5	0.7	0.9	0.7
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : KULPATANGA (KULPATANGA)

Division : E.E., Bhubaneswar

Local River : Kharkhai

River Water

Sub-Division : Balasore

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	298	277		348	630	335	265	234	333	651	370	470	360	413	408	348	359		943	1717
3	EC_GEN (µmho/cm)	296	275		348	630	335	265	234	333	650	370	577	368	413	403	344	368		943	1717
4	pH_FLD (pH units)	8.2	8.1		7.9	7.6	7.9	7.6	8.2	8.1	7.9	8.0	7.8	7.8	7.8	7.5	8.1	8.2		7.7	8.4
5	pH_GEN (pH units)	8.1	8.2		7.9	7.6	7.9	7.6	8.2	8.1	8.0	8.0	7.7	7.6	7.8	7.5	8.1	8.2		7.7	8.4
6	Temp (deg C)	18.8	16.3		19.9	20.8	19.8	19.4	21.9	20.5	22.1	25.7	27.0	26.0	28.3	27.1	26.2	27.0		29.2	25.3
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)				0.0	0.0	0.0		9.3	0.0	5.8						0.0			2.7	37.1
2	ALK-TOT (mgCaCO3/L)				95	119	94		138	108	94						223			185	341
3	B (mg/L)	0.00	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00		0.00	0.00
4	Ca (mg/L)	33	30		36	48	36	27	24	32	27	41	52	34	39	38	34	41		71	120
5	Cl (mg/L)	23.1	22.1		24.3	54.2	21.7	17.9	25.7	18.9	17.4	26.2	22.7	29.9	24.6	42.3	20.7	27.5		90.4	164.1
6	CO3 (mg/L)	0.0	0.4		0.0	0.0	0.0	0.0	8.4	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5		3.2	44.7
7	F (mg/L)	0.33	0.25		0.33	0.24	0.05	0.06	0.05	0.05	0.05	2.93	0.54	0.29	0.64	0.24	0.25	0.43		0.59	1.15
8	Fe (mg/L)	0.2	0.2		0.3	0.1	0.0	1.2	0.1	0.2	0.3	0.3	0.4	0.1	0.2	0.2	0.3	0.2		0.3	0.2
9	HCO3 (mg/L)	108	103		107	145	115	131	127	135	100	151	200	115	173	123	146	152		219	325
10	K (mg/L)	2.6	2.8		1.6	3.8	2.0	1.3	2.9	1.7	3.2	2.9	4.2	4.2	8.5	6.3	4.0	3.7		15.4	22.7
11	Mg (mg/L)	8.7	7.4		11.4	22.1	8.0	11.2	5.7	11.7	8.5	9.7	14.3	9.4	11.3	11.2	12.6	7.5		30.8	50.5
12	Na (mg/L)	14.9	15.4		15.3	39.6	16.0	14.4	16.5	13.8	23.9	16.6	17.4	20.4	15.3	28.3	13.5	19.7		67.4	110.8
13	NH3-N (mg N/L)																	0.05			
14	NO2+NO3 (mg N/L)	3.97	2.45		1.89	3.23	0.43	0.80	0.82	1.15	0.99	2.43	2.98	6.75		4.52	3.35	2.46		12.11	16.22
15	NO2-N (mgN/L)	0.02	0.00		0.06	0.00	0.07	0.00	0.03	0.01	0.01	0.01	0.00	0.00		0.00	0.00	0.00		0.08	0.22
16	NO3-N (mgN/L)	3.94	2.45		1.83	3.23	0.36	0.80	0.79	1.14	0.98	2.42	2.98	6.75		4.52	3.35	2.46		12.03	16.00
17	o-PO4-P (mg P/L)	0.056	0.169		0.088											0.088	0.031	0.098		0.247	
18	P-Tot (mgP/L)	0.056	0.001		0.001	0.046	0.010	0.001	0.001	0.001	0.010	0.127	0.066	0.114	0.001	0.081	0.032	0.050		0.001	0.074
19	SiO2 (mg/L)	17.9	9.3		8.3	5.6	12.5	12.0	11.9	7.9	5.5	14.3	14.4	11.2	32.6	17.4	18.5	11.0		9.8	9.0
20	SO4 (mg/L)	12.8	9.5		35.0	84.3	15.9	5.5	32.2	35.9	5.7	10.8	22.1	15.8	20.9	33.2	6.9	14.0		103.2	169.9
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	1.3	2.3		2.2	2.5	2.5	0.8	0.5	1.0	1.0	1.4	19.1	1.8	1.4	5.3	17.3	1.8		20.0	14.7
2	DO (mg/L)	8.2	8.1		7.1	7.2	6.0	7.6	8.0	9.1	8.1	3.8	3.0	6.8	5.7	4.0	5.9	6.1		0.0	2.6
3	DO_SAT% (%)	87	81		78	79	65	82	91	99	93	46	37	84	73	51	72	77		0	30
	TRACE & TOXIC																				
1	Al (mg/L)																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	82	75		89	120	90	67	60	80	67	101	129	86	97	94	84	102		177	299
2	HAR_Total (mgCaCO3/L)	118	105		137	212	124	113	84	128	103	142	189	125	145	141	137	133		305	510
3	Na% (%)	22	24		19	27	22	22	29	18	30	20	17	24	18	29	17	25		31	31
4	RSC (-)	0.0	0.0		0.0	0.0	0.0	0.0	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
5	SAR (-)	0.6	0.7		0.6	1.1	0.6	0.6	0.8	0.5	1.0	0.6	0.5	0.8	0.6	1.1	0.5	0.8		1.7	2.2
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2001-2016

Station Name : KULPATANGA (KULPATANGA)

Local River : Kharkhai

Division : E.E., Bhubaneswar

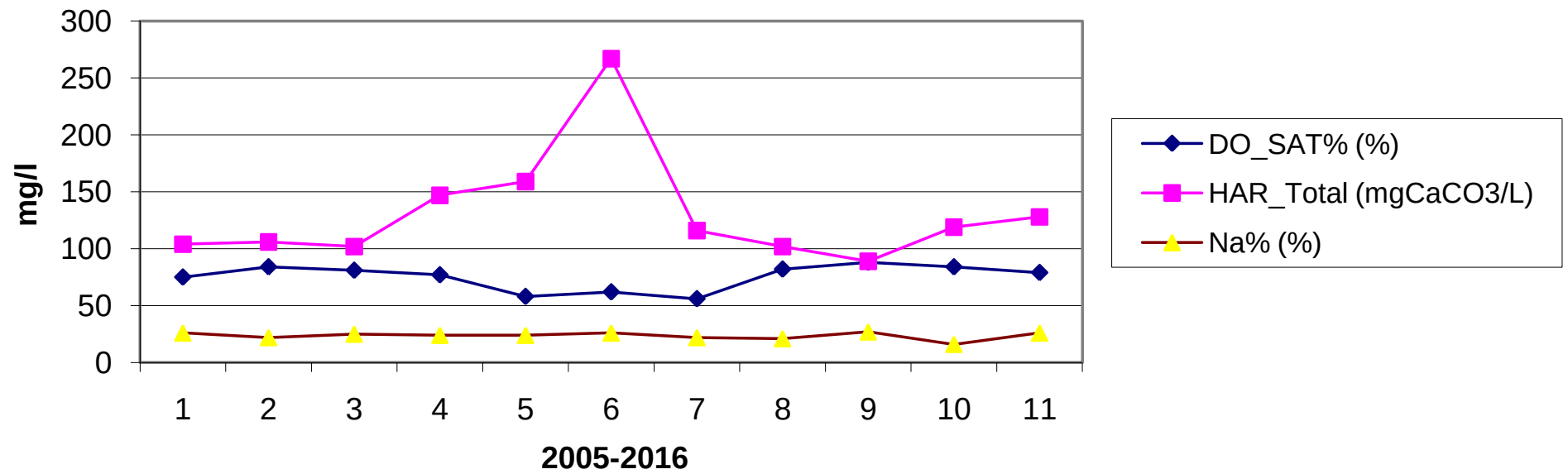
Sub-Division : Balasore

River Water

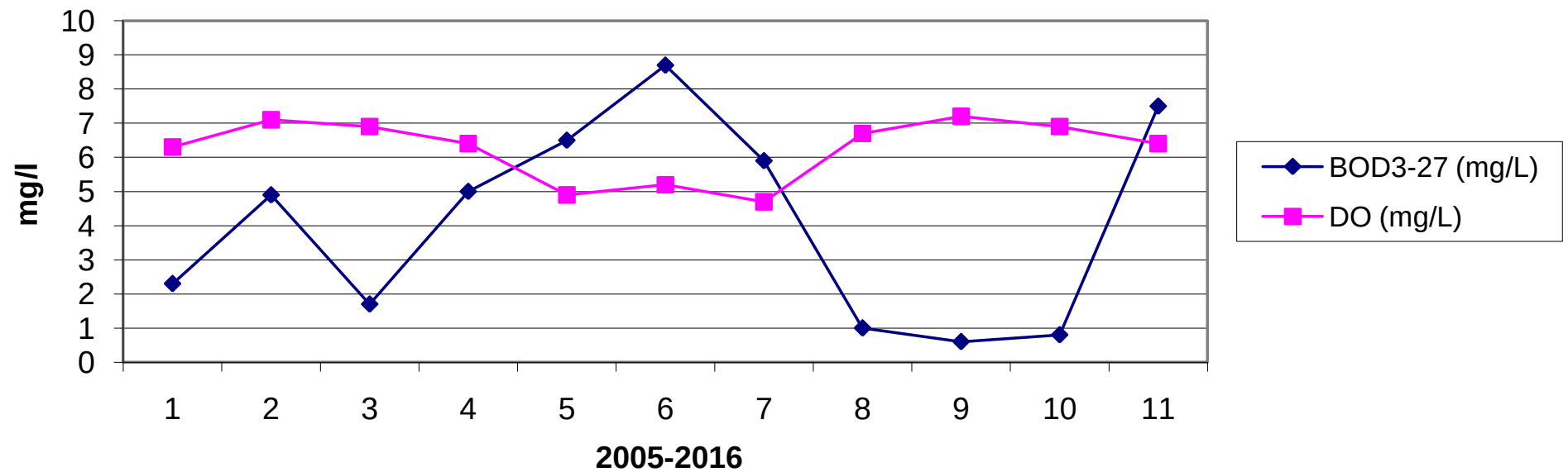
S.No	Parameters					
		2012	2013	2014	2015	2016
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	617	340	270	499	1224
3	EC_GEN (µmho/cm)	617	340	270	499	1221
4	pH_FLD (pH units)	7.5	7.9	8.0	7.9	8.0
5	pH_GEN (pH units)	7.5	7.9	8.0	7.9	8.0
6	Temp (deg C)	27.5	28.2	27.2	26.7	28.3
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	6.1
2	ALK-TOT (mgCaCO3/L)	172		133	119	122
3	B (mg/L)	0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	49	26	29	35	45
5	Cl (mg/L)	44.6	21.9	33.3	27.9	35.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	7.4
7	F (mg/L)	0.05	0.06	0.05	0.05	0.05
8	Fe (mg/L)	0.0	1.1	0.1	0.1	0.3
9	HCO3 (mg/L)	210	132	133	119	133
10	K (mg/L)	6.4	1.7	3.1	2.6	2.4
11	Mg (mg/L)	8.1	12.8	6.8	15.1	14.6
12	Na (mg/L)	30.2	17.4	18.5	15.5	45.7
13	NH3-N (mg N/L)					
14	NO2+NO3 (mg N/L)	0.41	0.81	0.71	1.09	1.13
15	NO2-N (mgN/L)	0.07	0.00	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.34	0.81	0.71	1.09	1.13
17	o-PO4-P (mg P/L)					
18	P-Tot (mgP/L)	0.010	0.001	0.004	0.001	0.010
19	SiO2 (mg/L)	10.3	11.3	12.3	7.2	5.3
20	SO4 (mg/L)	48.5	7.8	41.4	33.9	16.7
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	10.8	1.1	0.5	1.3	27.3
2	DO (mg/L)	1.1	6.4	6.8	5.2	3.6
3	DO_SAT% (%)	12	80	85	64	46
	TRACE & TOXIC					
1	Al (mg/L)					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	123	65	72	88	112
2	HAR_Total (mgCaCO3/L)	157	118	100	150	173
3	Na% (%)	24	24	28	18	36
4	RSC (-)	0.7	0.1	0.4	0.5	0.0
5	SAR (-)	1.0	0.7	0.8	0.6	1.5
	PESTICIDES					

TREND ANALYSIS

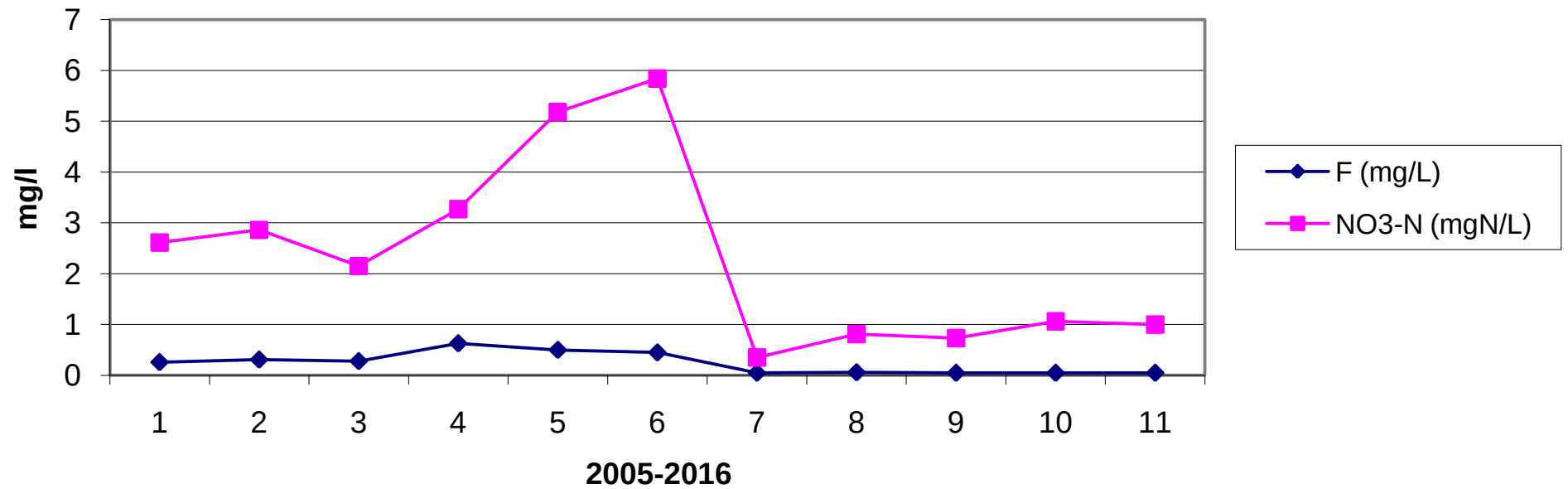
Year Wise Trend For Kulpatanga



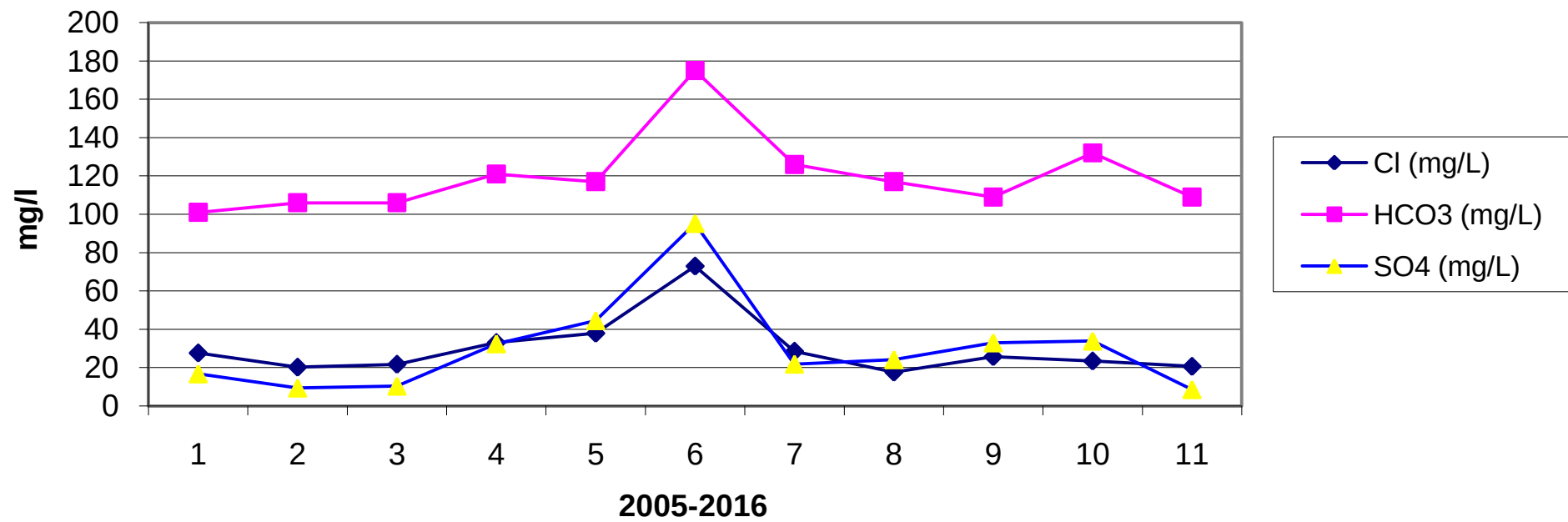
Year Wise Trend For Kulpatanga



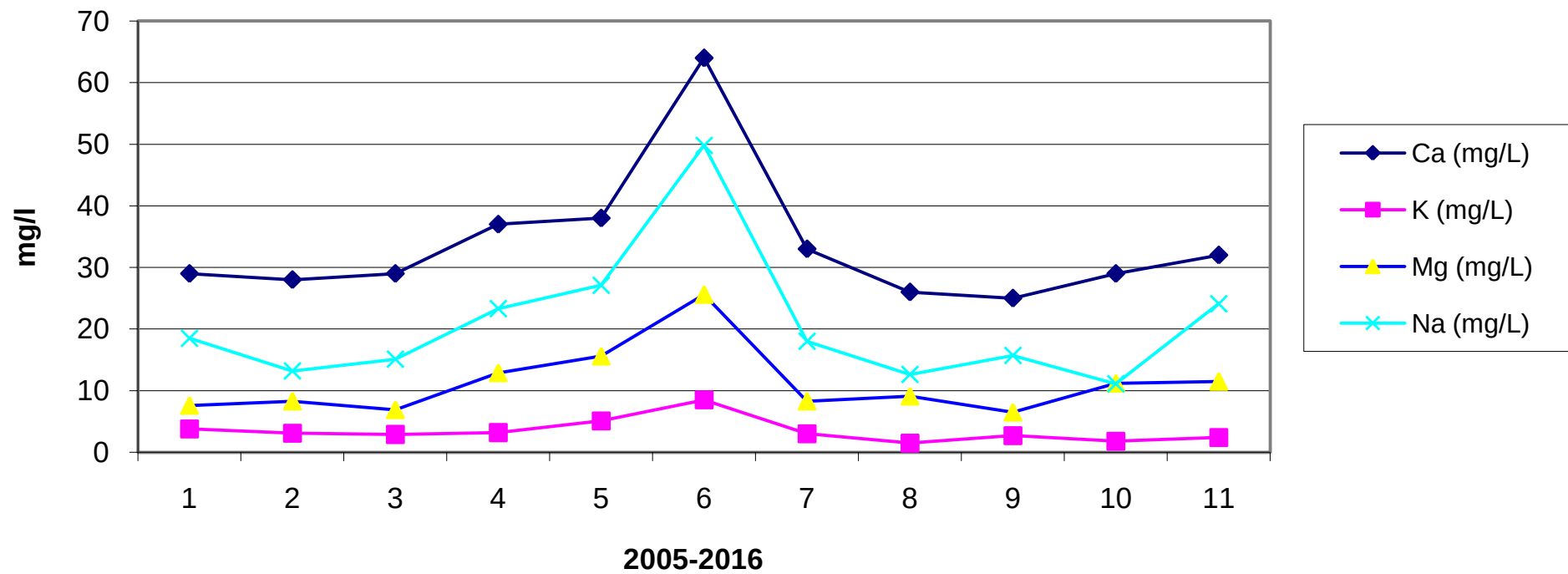
Year Wise Trend For Kulpatanga



Year Wise Trend For Kulpatanga



Year Wise Trend For Kulpatanga



BURHABALANGA BASIN

BURHABALANG BASIN

1 GENERAL

1.1 Introduction

Burhabalang is one of the east flowing rivers situated in the northern part of Orissa State. It is bounded by the geographical co-ordinates of north latitudes between 21°22' to 22°20' and east longitudes 86°20' to 87°05'. It drains parts of the areas in Mayurbhanj and Balasore districts of Orissa with a total catchment area of 4800 sq.km. This is a flashy river originating near Bishaldanga in Mayurbhanj District of Orissa State at an elevation of 800 m, and out-falls into Bay of Bengal after traversing a total distance of 125 km.

Basin Map of Burhabalang river system showing the various hydrological and hydro meteorological observation stations maintained by CWC, State Government and India Meteorological Department are given at Page No. 184 herewith.

1.2 River System

Burhabalang river during its traverse receives contribution from various tributaries on both the banks. The principal tributaries of this river are: Katranala, Gangahar and Sone.

The catchment area details are furnished below:

Name of River	River/Tributary	Length (km)	Catchment area (sq.km)	Percentage of total catchment area
Burhabalang	Main stream	125	2,363	49.3
Katranala	Left Tributary		325	6.7
Gangahar	Right Tributary		656	13.7
Sone	Right Tributary		1,456	30.3
		Total	4,800	100.0

1.3 Climatic Characteristics

The basin is greatly influenced by the south-west monsoon, which sets in June and withdraws in middle of October. The average annual rainfall in this basin is about 1800 mm. The maximum temperature in the plains of the basin rises between 42 to 49 °C during May and goes down to 8 to 14 °C during December-January.

1.4 Geology

Geologically, the basin belongs mostly to the Archean terrains. The rocks in the basin include Gneisses, Schist, Quartzite and Amphibolites. Igneous rocks are also seen in the river bed at some places. Iron ore, China clay, Quartz and Soap stone are found in limited areas in the Mayurbhanj portion of the basin. Lime stone is found in the Similipal hill ranges.

1.5 Site Details

Sl. No.	Name of Project	River	Status
1.	Beldiha	Palpada	Existing
2.	Kalo	Kalo	Existing
3.	Sunei Reservoir	Sunei	Existing

2. STREAM FLOW DATA

2.1 Methodology

Area-velocity method is generally adopted for measuring discharge at sites. Cup type current meter is used to measure the velocity of the flow and the depth is measured by using sounding rod for depths upto 3 m and by log line beyond 3 m. Discharge by area velocity method is being observed once in a day starting at 0800 Hrs. at all the sites except on Sundays and holidays. Besides, silt and water quality observation are also being carried out at CWC sites as listed above.

The observed stage and discharge figures for each season (monsoon and non-monsoon) are plotted and a mean Stage V/s. Discharge curve is drawn, giving due attention to the scattered points with reference to area, velocity etc.

The factors responsible for the shifting of the curves are also taken care of by studying the river cross section at regular intervals and with super imposition of previous years' Stage V/s. Discharge curves. Accordingly, the trend of the current curve is finalised. Finally, the discharges of the non observed days are computed from these Stage V/s. Discharge Curves.

2.2 Data Availability

Code No.	Station Name	Type	Data Available	
			From	To
ED000E4	NH-5 Road Bridge Govindpur	GDSQ	G-24.04.91 D-07.03.92 S-21.03.03 Q-01.05.03	Continuing -do- -do- -do-
BALIMUNDULI	Balimunduli	G	G-14.07.87	Continuing
BARIPADA	Baripada	G	G-01.07.72	Continuing
CHANDANPUR	Chandanpur	G	G-01.07.87	Continuing
JAIPUR	Jaipur	G	G-20.06.78	Continuing

2.3 Explanatory Notes on Water Year Book

SWDES (Surface Water Data Entry Software), a custom made software for processing hydrological data, has been used for preparation of this volume. The explanatory notes described below can be used for interpretation of data presented in this volume.

- Water Year ranges from June 1st of one calendar year to May 31st of the next calendar year and covers one complete hydrological cycle.
- Discharge is given in cubic meters per second.
- Discharges are expressed as 0.000 when river bed is dry and 0.000 N.F. when velocity is observed as 'NIL'.
- The zero R.L. of gauge is a datum level fixed for given site, which is kept 1 or 2 m lower than the lowest water level recorded in a perennial stream. In a non-perennial stream, it is kept 1 or 2 m lower than the lowest bed level of the stream.
- Discharges are rounded off as per standard practice.
- Runoff in mm is the notional depth of water in millimeters over the catchment, equivalent to annual runoff volume calculated at the discharge measurement station. It is computed using the relation:

$$\text{Runoff (mm)} = \frac{\text{Annual runoff (Mm}^3\text{)} \times 1000}{\text{Catchment area (km}^2\text{)}}$$

- vii) Peak and lowest flow correspond to the highest and lowest water levels recorded from 'SWDES' entered data.
- viii) Measuring Authority refers to the field division of Central Water Commission (Eastern Rivers Division) responsible for the operation of the gauging station.
- ix) The gauging station code number is a unique seven column alphanumeric reference number which facilitates storage and retrieval of flow data in data base. The first column is identifier of either an integral river basin or, for the sake of convenience, a region having several contiguous river catchments. This is followed by a column which identifies an independent river system which either has one or more outlets to the sea or crosses international border to enter another country. The third, fourth and fifth column spaces 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.

1. HYDROLOGICAL DATA

This volume contains the following information for each site stated above:

- i. History Sheet: Site Name, State, District, River Basin, Tributary, Sub-Tributary, Catchment Area, Latitude / Longitude, Opening / Closing date for various types of data.
- ii. Annual maximum/minimum discharge since period of observation.
- iii. Daily Water level and observed/ computed discharge data including 10-daily, monthly and annual totals etc.
- iv. Histogram and Hydrograph showing current year monthly mean discharges, Historical monthly mean discharges, historical monthly minimum and monthly maximum discharges.
- v. Histogram showing Annual Run off volume since beginning of observation.
- vi. Pie-Chart showing monthly mean run off (as percentage of Annual Run off) historical for the current year
- vii. Plot of Pre and Post Monsoon Cross-section of the rivers for current year.
- viii. Water Level hydrograph for 3(three) major flood events of current year.

4. SEDIMENT DATA (In case of Sediment Observation sites)

The frequency of sediment observation is carried out daily during monsoon season and once in a week (on Monday) during the non-monsoon period. Data for non-observed days is estimated/ interpolated from the relationship of discharge v/s. sediment load, prepared on the basis of observed sediment concentration and weighted mean discharge of the same year.

Sediment samples are collected from 0.6 depth, using Punjab type bottle sampler, from all the verticals along the hydrological observation sections where velocity is observed for computation of discharge. The collected samples from all the segments are combined in 3 to 7 groups having compartments or groups of equal or nearly equal discharges for analysis. Quantum of suspended sediment load is estimated in three grades, viz. Coarse, Medium and Fine. Coarse and medium grades are separated by sieving process and the fine grade by filtration of left over samples after sieving through filter paper. Grade wise concentration is derived gravimetrically as per standard procedure. The following parameters are derived and recorded:

- Daily Observed suspended sediment (g/l).
- Corresponding discharge.
- Average sediment load in tonnes/day (10 daily & monthly basis).
- Annual sediment load for the current year.

- Annual & Seasonal sediment load and the corresponding volume of inflow for all the years since inception.
- Grain size distribution of bed load.

3. WATER QUALITY DATA (In case of Water Quality Observation sites)

The water samples are collected at a regular interval of once in a month for trend stations and once in two month for base station (on 1st working day), from the main flowing segment of the stream just below the water surface (20 to 30 cm) on the Station Gauge line where depth of flow and velocity are maximum, preferably in the mid stream. The water samples are collected in the pre-rinsed and cleaned one-litre capacity polythene bottle having double stopper (in side and out side) facility. Sampling bottle is filled to its full capacity without entrapping air bubbles inside.

After sampling, the collected samples are sent to the Water Quality Laboratory (Level-II) based at Bhubaneswar (under the Eastern Rivers Division) and to Raipur laboratory (under Mahanadi Division, Burla), along with in-situ physical characteristics, for analysis. The samples received from the sites are preserved in a refrigerator in the water quality laboratories for analysis.

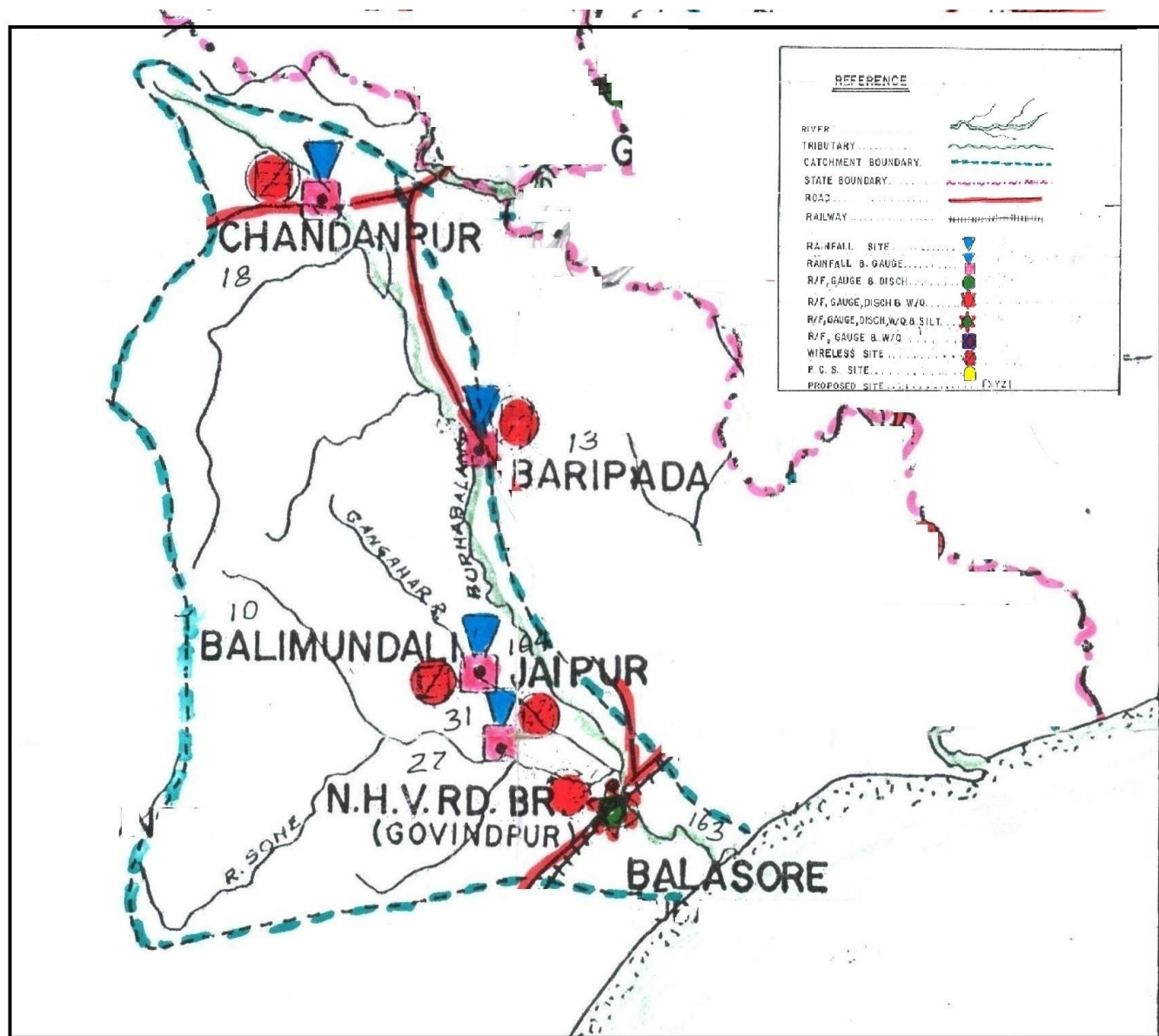
Analysis of parameters, namely pH, Electrical conductivity, Sodium, Potassium, Iron, Aluminum, Ammonia, Fluoride, Nitrate, Nitrite, Phosphate, Silicate, Boron, Sulphate, Calcium, Magnesium, Carbonate, Bi-carbonate, Chloride, Dissolved Oxygen, BOD and COD, are carried out at the Level II laboratory by using standard methodology. Micro biological parameters like total coliform and faecal coliform are also being analyzed. For analysis of trace and toxic elements, samples are sent to Level-II+ laboratory at Hyderabad once in a year, in the month of April.

The following parameters are analyzed and recorded:

- Monthly Values: Physical; Chemical (mg/l); Biological (mg/l); Traces & Toxic (mg/l) and Chemical Indices.
- Average Values for the Year: 10 Years data to be given season wise averages:-
 - Average for Summer (March to June).
 - Average for Floods (July to October).
 - Average for Winter (November to February)

NAME OF THE SITES IN OPERATION UNDER BURHABALANG BASIN

Sl. No.	Station Name	River/ Tributary	Code No.	Type	Latitude	Longitude
1.	Balimunduli	Gangahar		G	21° 43' 58"	86° 38' 08"
2.	Baripada	Burhabalang		G	21° 55' 52"	86° 43' 11"
3.	Chandanpur	Katranalla		G	22° 09' 59"	86° 34' 24"
4.	Govindpur	Burhabalang	ED000E4	GDSQ	21° 32' 52"	86° 55' 14"
5.	Jaipur	Sone		G	21° 37' 08"	86° 10' 41"



22

225

87

HYDROLOGICAL DATA

HISTORY SHEET

Water Year : 2015-2016

Site : GOVINDPUR

Code : ED000E4

State : Orissa

District : Balasore

Basin : Subarnarekha

Independent River : Burhabalang

Tributary : -

Sub Tributary :

Sub-Sub Tributary :

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore

Drainage Area : 4495 Sq. Km.

Bank : Left

Latitude : 21°32'52"

Longitude : 86°55'14"

Zero of Gauge (m) : 0 (m.s.l)
0 (m.s.l)

01.03.1990 - 01.02.2090
01.03.1992 - 01.03.2023

Opening Date

Closing Date

Gauge : 22.06.1978

Discharge : 07.03.1992

Sediment : 21.03.2003

Water Quality : 01.05.2003

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1992-1993	696.4	6.900	28.07.1992	1.230	2.600	27.03.1993
1993-1994	650.6	6.700	14.09.1993	3.147	2.600	29.03.1994
1994-1995	1263	7.740	19.07.1994	0.700	2.610	01.05.1995
1995-1996	1321	8.110	11.11.1995	2.610	2.420	30.05.1996
1996-1997	1043	7.260	07.08.1996	0.063	2.500	31.01.1997
1997-1998	1451	8.290	22.08.1997	3.632	2.580	17.06.1997
1998-1999	1418	7.860	14.09.1998	0.826	2.070	19.04.1999
1999-2000	1725	8.900	31.10.1999	3.180	2.360	14.04.2000
2000-2001	1649	7.840	15.09.2000	2.920	2.280	21.03.2001
2001-2002	1305	7.700	02.10.2001	4.612	2.280	29.05.2002
2002-2003	1184	7.520	24.09.2002	4.149	1.780	27.03.2003
2003-2004	1511	8.630	08.10.2003	1.755	1.300	09.03.2004
2004-2005	1110	7.610	07.10.2004	0.916	1.700	14.02.2005
2005-2006	1317	7.770	15.09.2005	1.369	1.440	03.06.2005
2006-2007	1422	7.930	23.08.2006	4.060	1.160	08.04.2007
2007-2008	2559	8.840	24.09.2007	3.417	1.320	07.05.2008
2008-2009	2886	7.910	18.06.2008	0.700	0.920	03.05.2009
2009-2010	2625	8.000	03.10.2009	0.540	0.600	29.04.2010
2010-2011	1270	7.080	19.09.2010	2.956	0.680	28.03.2011
2011-2012	2686	8.010	23.09.2011	2.011	0.880	31.03.2012
2012-2013	878.1	5.770	10.09.2012	2.000	0.960	24.03.2013
2013-2014	2200	7.920	27.10.2013	8.160	1.080	09.06.2013
2014-2015	1443	8.360	05.08.2014	58.36	1.020	02.03.2015
2015-2016	1047	7.460	29.07.2015	4.004	0.560	23.05.2016

Stage-Discharge Data for the period 2015 - 2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	1.040	66.35	1.390	100.5	3.060	296.0	2.780	147.7	1.380	81.41	1.260	58.00 *
2	1.040	68.00	1.280	95.33	3.160	320.0 *	3.200	134.5	1.360	79.00 *	1.200	50.40
3	1.080	68.50	1.340	94.18	3.480	231.5	3.140	133.8	1.320	78.62	1.180	50.14
4	1.020	67.57	1.520	98.12	3.360	196.8	2.700	125.6	1.300	74.00 *	1.200	50.35
5	1.020	67.65	1.340	94.10 *	2.980	171.3	2.740	128.1	1.260	73.30	1.180	50.24
6	1.040	67.64	1.130	92.06	2.840	159.0	2.000	110.0 *	1.220	72.23	1.180	49.96
7	1.080	68.50 *	1.250	93.50	2.300	148.7	1.780	97.20	1.500	79.53	1.220	50.53
8	1.020	67.75	1.290	93.40	1.820	125.2	1.500	90.01	1.390	69.44	1.240	54.00 *
9	1.040	67.18	1.270	94.40	1.600	120.0 *	1.380	75.67	1.370	75.09	1.260	51.00
10	1.080	67.75	1.920	141.0	1.560	115.8	1.300	75.11	1.240	76.45	1.200	50.15
11	1.140	67.84	1.820	137.7	1.580	102.1	1.300	75.49	1.280	75.00 *	1.200	50.00 *
12	1.120	66.93	1.680	94.00 *	1.320	95.30	1.340	75.43	1.510	82.07	1.220	50.89
13	1.060	67.13	1.620	94.14	1.260	93.51	1.320	75.20 *	1.510	76.89	1.240	50.99
14	1.060	67.10 *	1.520	85.49	1.580	93.56	1.460	90.44	1.300	74.43	1.180	49.47
15	1.060	66.03	1.540	83.94	1.800	100.0 *	1.600	91.37	1.240	73.78	1.220	52.00 *
16	1.040	66.97	2.600	83.87	1.800	100.0 *	3.820	218.9	1.420	74.95	1.200	49.41
17	1.080	66.35	1.780	90.38	2.180	99.67	4.920	260.0 *	1.320	74.48	1.200	50.21
18	1.120	67.54	2.260	110.0 *	2.100	98.72	4.000	247.2	1.340	80.00 *	1.180	49.37
19	1.080	67.50	2.300	120.0 *	2.020	96.81	3.480	190.5	1.240	92.22	1.180	51.94
20	1.480	79.18	1.960	93.24	1.920	95.73	2.740	130.0 *	1.280	72.99	1.160	48.14
21	1.580	102.0 *	2.760	129.3	2.000	96.39	2.480	125.1	1.240	70.00 *	1.180	48.47
22	2.200	219.3	3.480	145.0	1.480	79.27	2.780	139.9	1.280	75.00 *	1.280	54.00 *
23	2.720	225.5	2.960	127.3	1.400	80.00 *	2.060	115.3	1.320	73.57	1.180	48.87
24	1.760	194.9	2.560	121.9	1.440	76.85	1.900	114.7	1.300	75.00 *	1.200	50.86
25	1.280	111.3	2.160	118.5	1.780	90.22	1.680	100.0 *	1.320	78.00 *	1.200	50.00 *
26	1.140	94.19	2.200	110.0 *	2.540	120.6	1.460	94.51	1.330	72.99	1.220	54.31
27	1.280	95.41	2.140	103.4	2.160	110.0	1.480	92.00 *	1.360	56.46	1.160	47.60
28	1.240	80.00 *	3.390	136.9	2.500	116.9	1.340	85.45	1.300	54.04	1.180	47.97
29	1.380	98.87	7.460	1047	3.380	158.8	1.460	85.29	1.250	56.11	1.200	48.70 *
30	1.320	96.85	6.560	944.1	3.700	160.0 *	1.440	80.08	1.320	54.61	1.200	48.76
31			4.200	615.0	3.480	158.5			1.210	54.07		
Ten-Daily Mean												
I Ten-Daily	1.046	67.69	1.373	99.66	2.616	188.4	2.252	111.8	1.334	75.91	1.212	51.48
II Ten-Daily	1.124	68.26	1.908	99.28	1.756	97.54	2.598	145.5	1.344	77.68	1.198	50.24
III Ten-Daily	1.590	131.8	3.625	327.1	2.351	113.4	1.808	103.2	1.294	65.44	1.200	49.95
Monthly												
Min.	1.020	66.03	1.130	83.87	1.260	76.85	1.300	75.11	1.210	54.04	1.160	47.60
Max.	2.720	225.5	7.460	1047	3.700	320.0	4.920	260.0	1.510	92.22	1.280	58.00
Mean	1.253	89.26	2.345	180.2	2.245	132.5	2.219	120.1	1.323	72.77	1.203	50.56

Annual Runoff in MCM = 2185 Annual Runoff in mm = 486

Peak Observed Discharge = 1047 cumecs on 29/07/2015 Corres. Water Level :7.46 m

Lowest Observed Discharge = 4.004 cumecs on 23/05/2016 Corres. Water Level :0.56 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2015 - 2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	1.160	48.10	1.140	47.51	1.060	30.23	1.080	28.90	1.040	27.78	1.040	24.00 *
2	1.220	48.70	1.100	41.44	1.060	29.90	1.040	28.38	1.080	29.36	1.020	23.94
3	1.220	48.34	1.140	47.00 *	1.080	29.69	1.040	28.15	1.080	29.00 *	1.020	23.54
4	1.200	47.75	1.100	41.60	1.080	29.68	1.060	28.44	1.080	28.33	1.060	22.69
5	1.160	47.21	1.160	42.95	1.100	30.55	1.060	28.45	1.100	28.50	1.040	20.30
6	1.240	50.00 *	1.180	43.67	1.060	29.56	1.080	28.80 *	1.060	27.95	1.020	16.08
7	1.200	48.41	1.140	41.59	1.080	29.00 *	1.060	28.60 *	1.080	28.21	0.900	13.25
8	1.180	47.77	1.140	41.60	1.060	29.36	1.040	28.33	1.060	28.00	0.920	14.00 *
9	1.140	44.09	1.120	45.76	1.080	29.42	1.040	28.18	1.080	28.54	0.840	12.73
10	1.140	42.97	1.100	41.00 *	1.100	30.41	1.040	28.21	1.080	28.00 *	0.820	12.65
11	1.180	47.82	1.120	46.27	1.060	29.22	1.060	28.52	1.060	27.83	0.800	12.47
12	1.120	43.84	1.100	40.55	1.060	29.07	1.060	28.41	1.060	27.98	0.820	12.91
13	1.140	44.00 *	1.140	46.09	1.080	29.40	1.040	28.00 *	1.060	27.99	0.620	5.212
14	1.160	44.65	1.160	40.82	1.100	30.00 *	1.060	28.30	1.060	28.00 *	0.820	9.033
15	1.140	44.11	1.100	39.92	1.060	28.90	1.040	28.12	1.080	28.13	0.800	8.020 *
16	1.100	42.98	1.100	39.42	1.080	29.33	1.040	27.86	1.080	28.09	0.840	10.02
17	1.140	43.77	1.120	40.00 *	1.060	28.68	1.060	28.29	1.100	29.00 *	0.760	9.184
18	1.120	43.57	1.140	41.23	1.040	27.80	1.080	28.46	1.060	28.04	0.700	8.344
19	1.100	43.30	1.120	40.76	1.040	28.47	1.100	29.07	1.060	28.09	0.600	4.409
20	1.140	44.00 *	1.160	41.08	1.060	28.67	1.080	28.30 *	1.040	27.50 *	0.580	4.406
21	1.140	44.09	1.180	38.85	1.080	30.00 *	1.080	28.34	1.040	27.58	0.620	5.060 *
22	1.100	41.67	1.100	44.98	1.040	28.44	1.040	27.87	1.020	27.29	0.600	4.400 *
23	1.160	44.78	1.080	38.90	1.080	28.73	1.040	27.65	1.060	27.77	0.560	4.004
24	1.160	44.00 *	1.100	39.00 *	1.060	28.55	1.060	28.20 *	1.040	27.40 *	0.620	5.059
25	1.180	46.00 *	1.100	39.42	1.040	28.44	1.040	27.60 *	1.040	27.55	0.500	4.844
26	1.180	45.44	1.100	39.00 *	1.080	28.93	1.060	27.95	1.020	28.03	0.560	5.477
27	1.160	44.00 *	1.080	32.48	1.060	28.58	1.060	27.90 *	1.060	27.59	0.650	6.192
28	1.140	43.53	1.080	33.00 *	1.080	29.00 *	1.060	27.93	1.040	25.75	0.700	6.603
29	1.160	44.61	1.080	33.29	1.100	29.67	1.060	27.51	1.040	25.39	0.680	6.200 *
30	1.100	41.50	1.060	33.91			1.080	28.16	1.040	24.87	0.760	6.907
31	1.120	41.59	1.180	43.00 *			1.060	28.03			0.820	4.502
Ten-Daily Mean												
I Ten-Daily	1.186	47.34	1.132	43.41	1.076	29.78	1.054	28.44	1.074	28.37	0.968	18.32
II Ten-Daily	1.134	44.20	1.126	41.61	1.064	28.95	1.062	28.33	1.066	28.07	0.734	8.401
III Ten-Daily	1.145	43.75	1.104	37.80	1.069	28.93	1.058	27.92	1.040	26.92	0.643	5.386
Monthly												
Min.	1.100	41.50	1.060	32.48	1.040	27.80	1.040	27.51	1.020	24.87	0.500	4.004
Max.	1.240	50.00	1.180	47.51	1.100	30.55	1.100	29.07	1.100	29.36	1.060	24.00
Mean	1.155	45.05	1.120	40.84	1.070	29.23	1.058	28.22	1.060	27.78	0.777	10.53

Peak Computed Discharge = 320.0 cumecs on 02/08/2015

Corres. Water Level :3.16 m

Lowest Computed Discharge = 4.400 cumecs on 22/05/2016

Corres. Water Level :0.6 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2015-2016

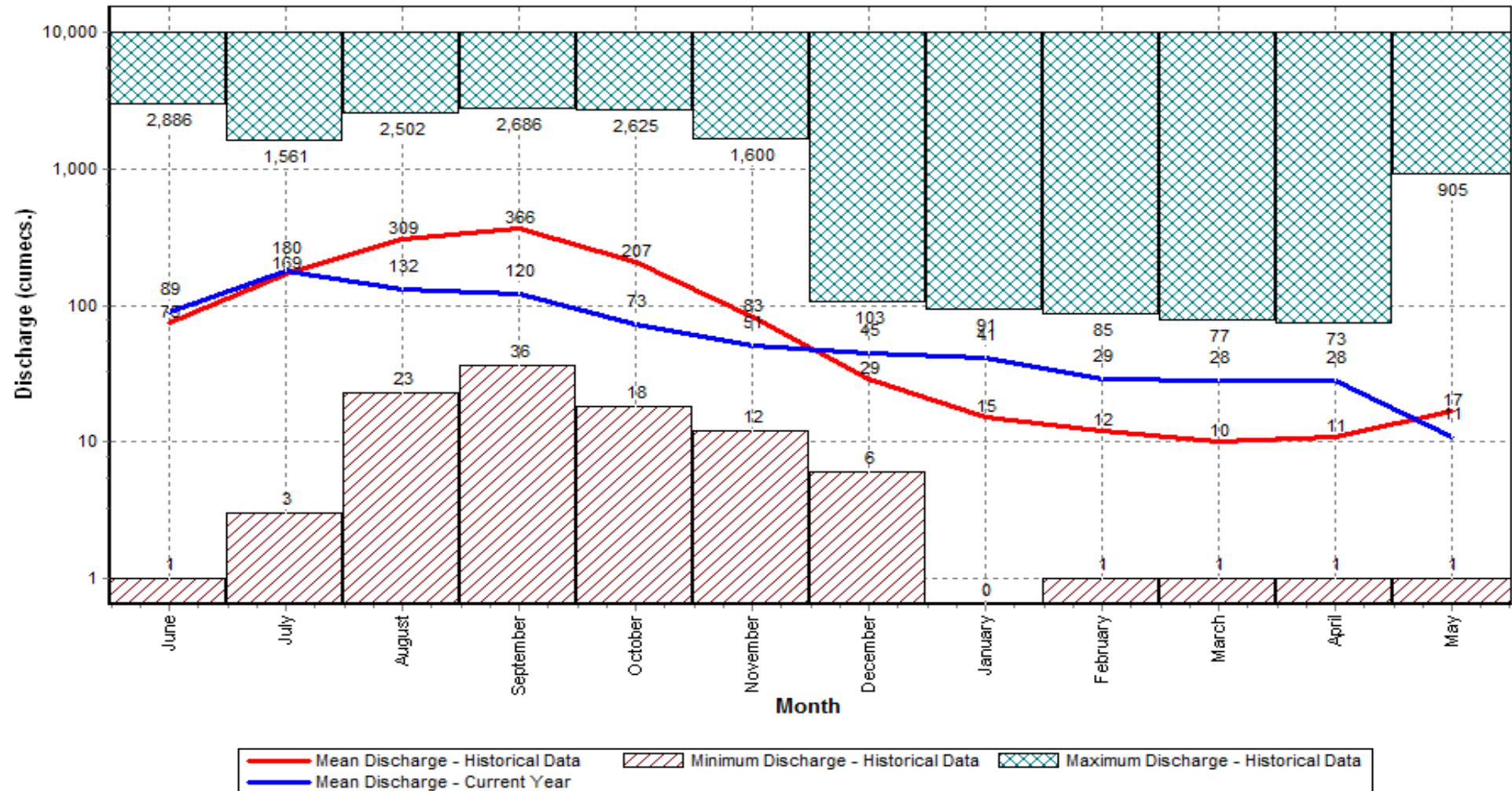
Station Name : GOVINDPUR (ED000E4)

Data considered : 1992-2016

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore



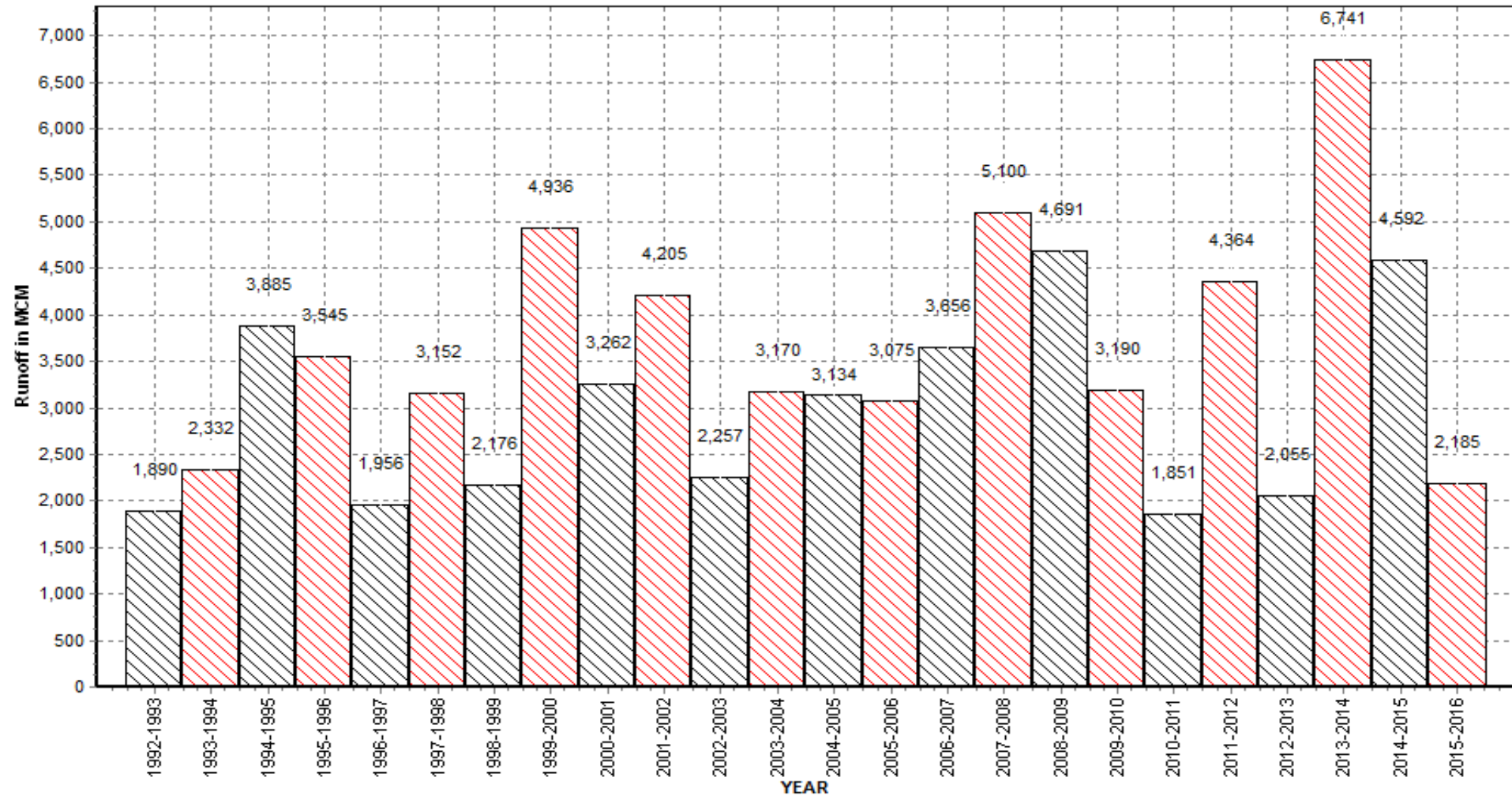
Annual Runoff Values for the period: 1992 - 2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



Note: Missing values have not been considered while arriving at Annual Runoff

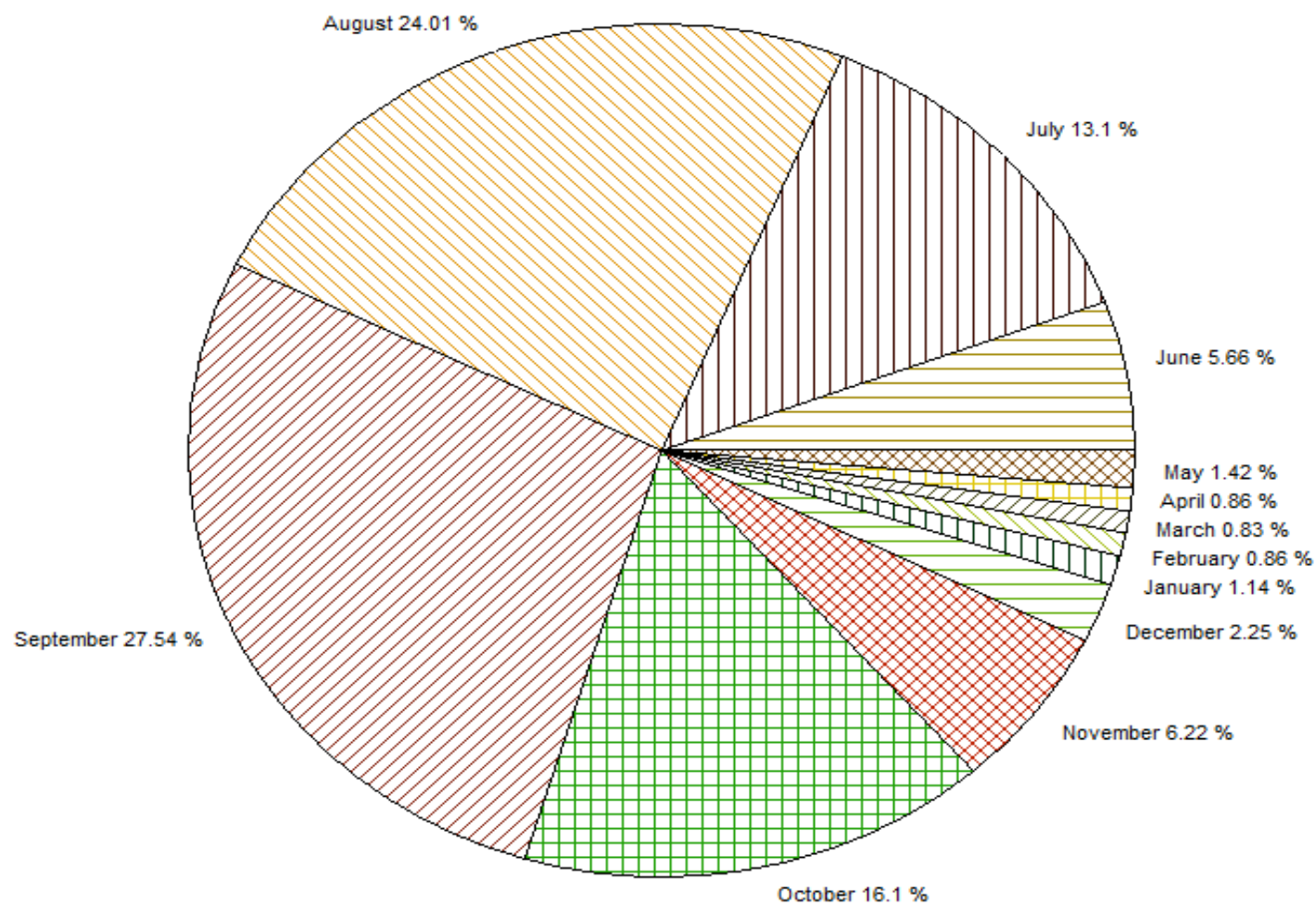
Monthly Average Runoff based on period : 1992-2015

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



June	5.66 %
July	13.1 %
August	24.01 %
September	27.54 %
October	16.1 %
November	6.22 %
December	2.25 %
January	1.14 %
February	0.86 %
March	0.83 %
April	0.86 %
May	1.42 %

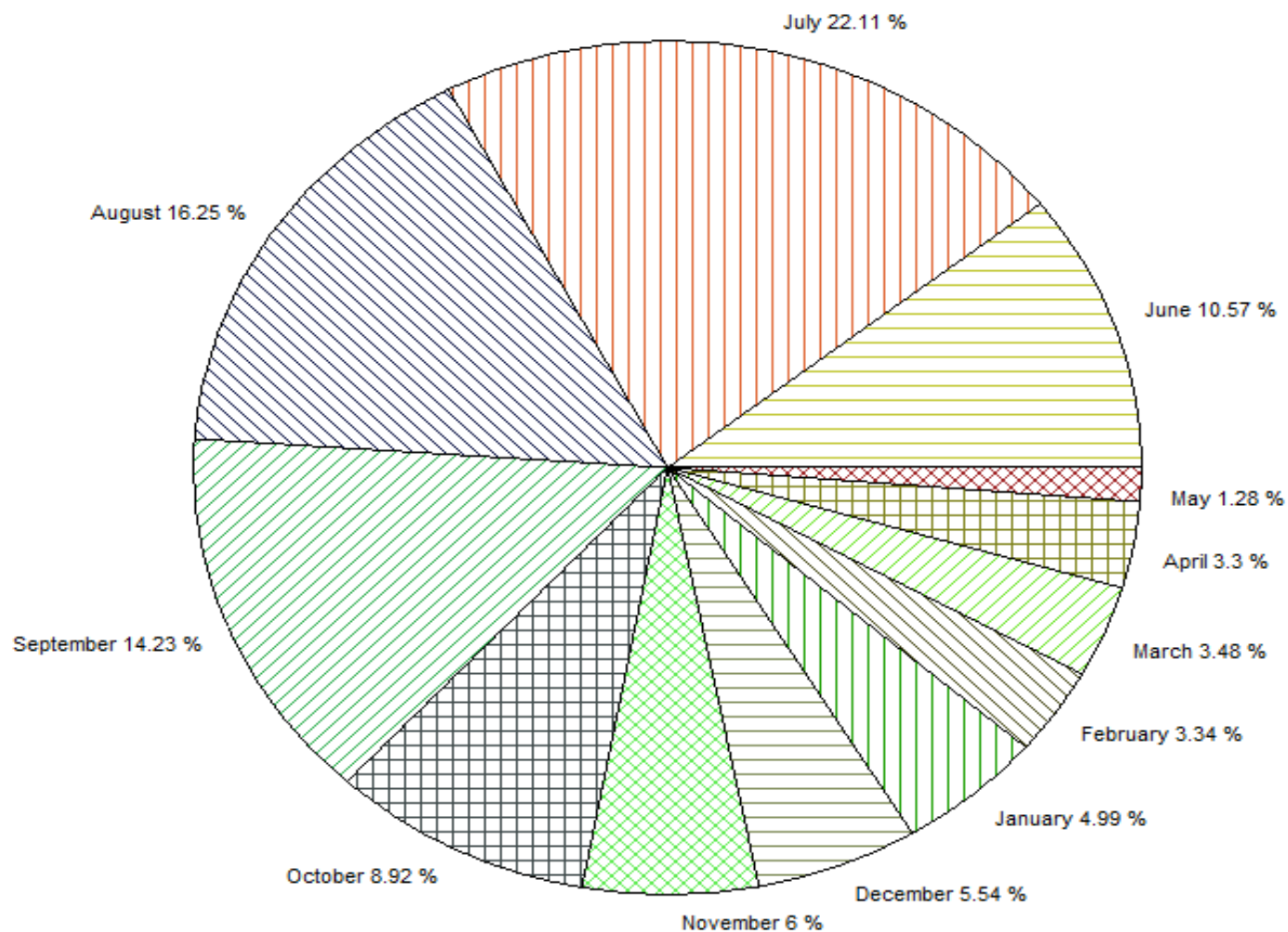
Monthly Runoff for the Year : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



June	10.57 %
July	22.11 %
August	16.25 %
September	14.23 %
October	8.92 %
November	6 %
December	5.54 %
January	4.99 %
February	3.34 %
March	3.48 %
April	3.3 %
May	1.28 %

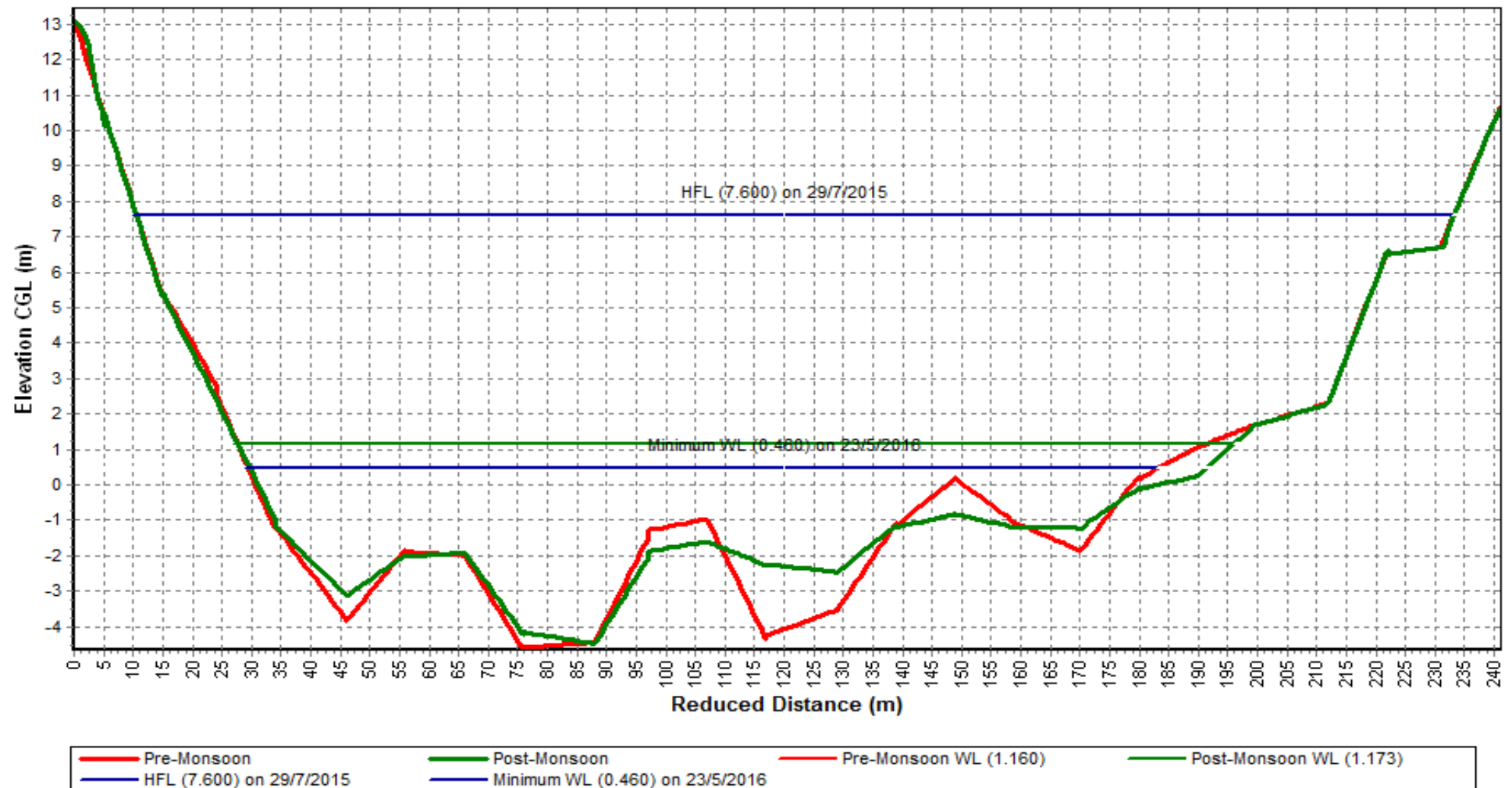
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



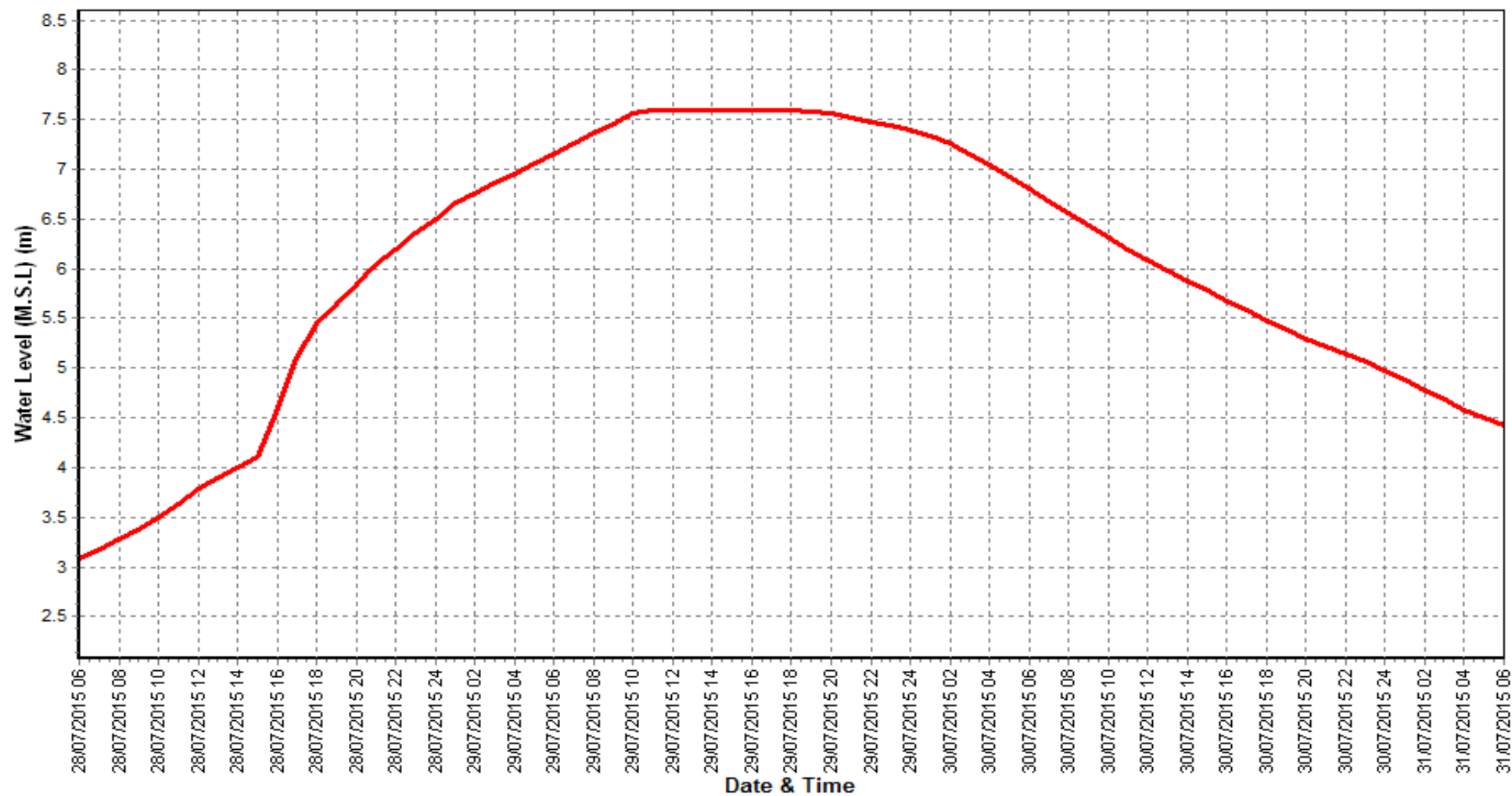
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



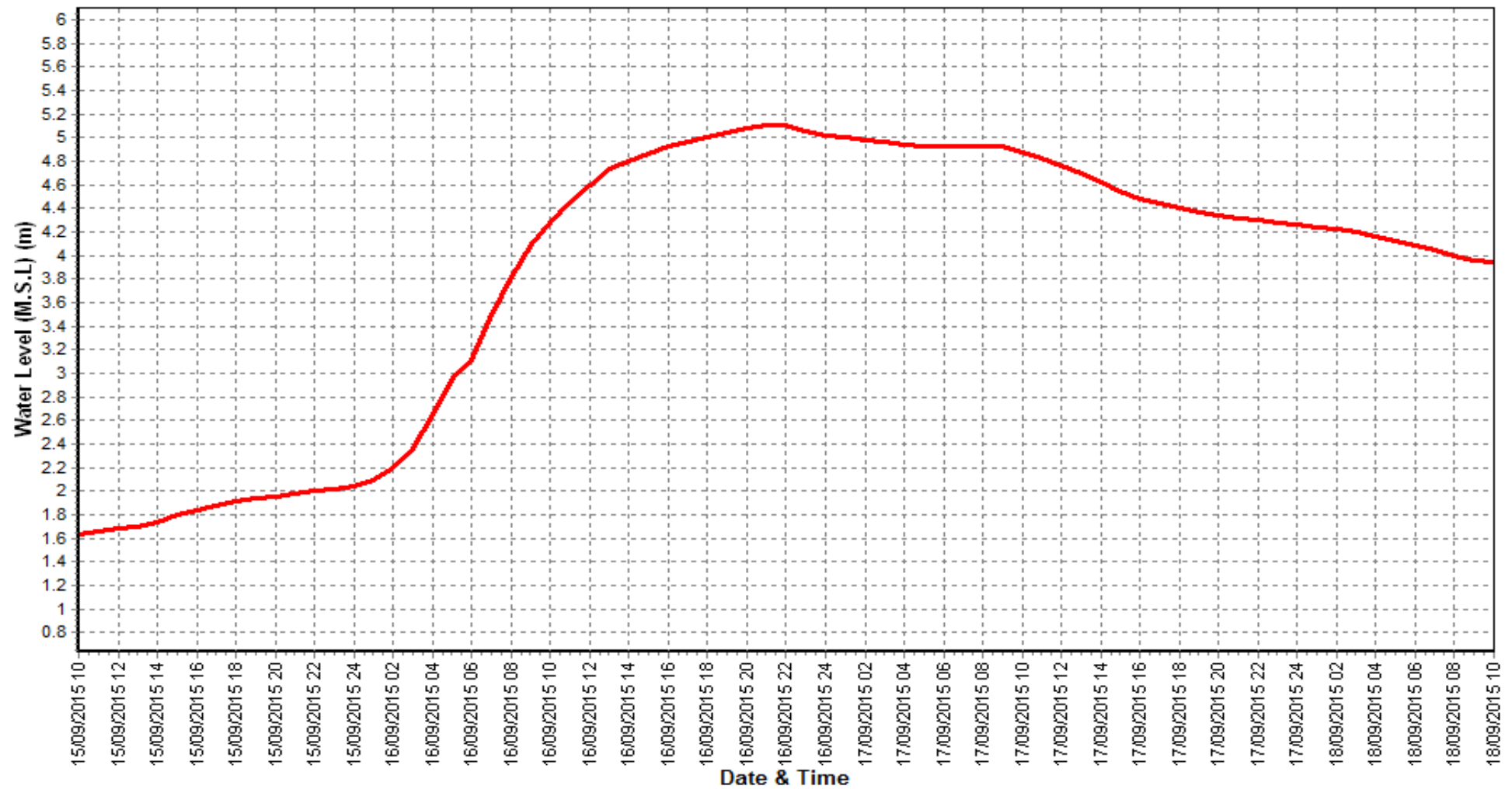
Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



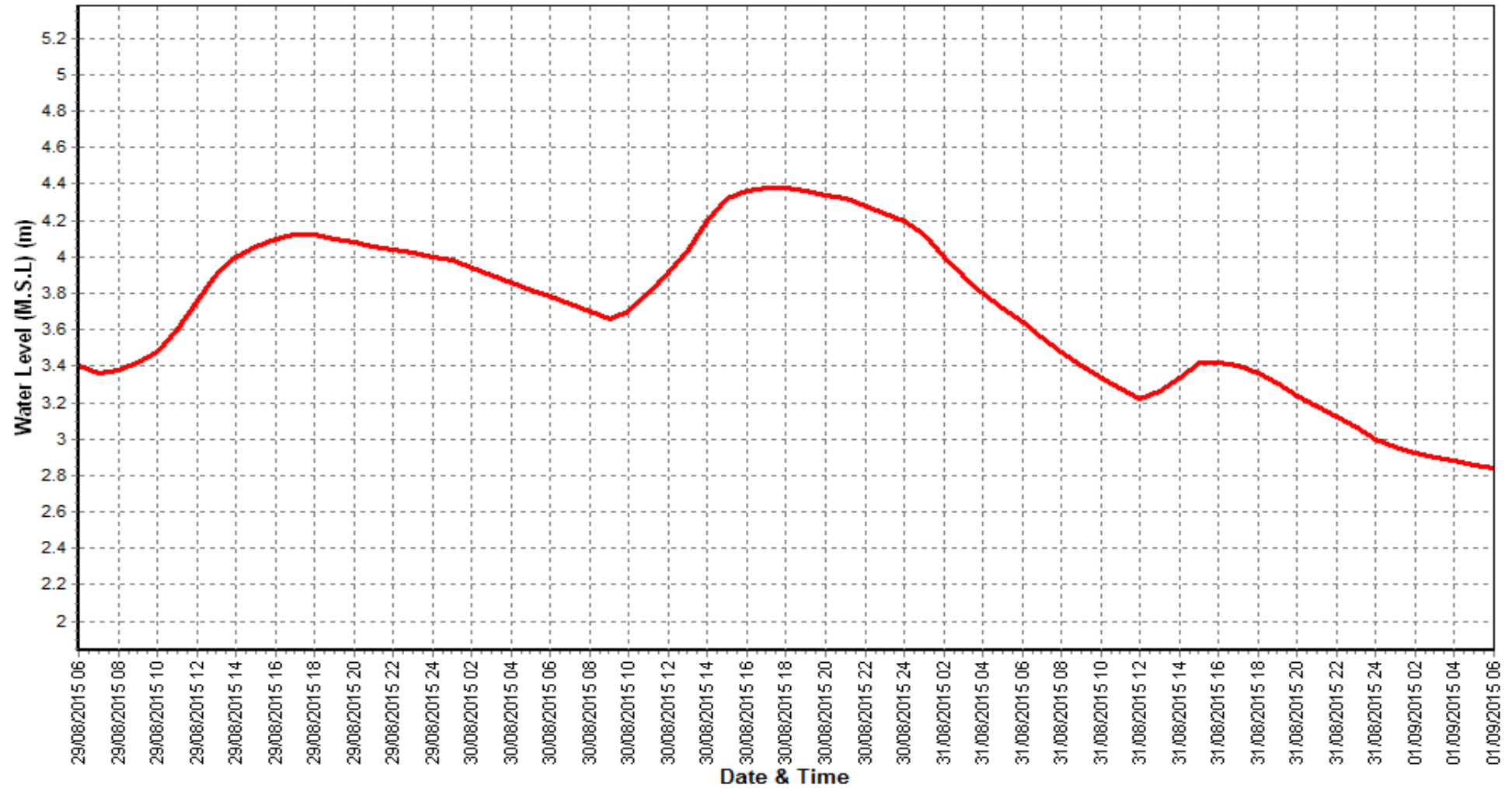
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



SEDIMENT DATA

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	66.35	0.000	0.000	0.014	0.014	80	100.5	0.000	0.000	0.007	0.007	64	296.0	0.000	0.000	0.006	0.006	141
2	68.00	0.000	0.000	0.002	0.002	9	95.33	0.000	0.000	0.008	0.008	65	320.0	0.000	0.000	0.006	0.006	152
3	68.50	0.000	0.000	0.007	0.007	43	94.18	0.000	0.000	0.010	0.010	81	231.5	0.000	0.000	0.005	0.005	108
4	67.57	0.000	0.000	0.006	0.006	33	98.12	0.000	0.000	0.008	0.008	67	196.8	0.000	0.000	0.004	0.004	71
5	67.65	0.000	0.000	0.006	0.006	36	94.10	0.000	0.000	0.008	0.008	64	171.3	0.000	0.000	0.008	0.008	121
6	67.64	0.000	0.000	0.007	0.007	40	92.06	0.000	0.000	0.008	0.008	63	159.0	0.000	0.000	0.009	0.009	129
7	68.50	0.000	0.000	0.007	0.007	41	93.50	0.000	0.000	0.006	0.006	50	148.7	0.000	0.000	0.008	0.008	98
8	67.75	0.000	0.000	0.008	0.008	47	93.40	0.000	0.000	0.008	0.008	65	125.2	0.000	0.000	0.006	0.006	65
9	67.18	0.000	0.000	0.006	0.006	34	94.40	0.000	0.000	0.008	0.008	61	120.0	0.000	0.000	0.006	0.006	62
10	67.75	0.000	0.000	0.006	0.006	37	141.0	0.000	0.000	0.008	0.008	95	115.8	0.000	0.000	0.005	0.005	49
11	67.84	0.000	0.000	0.006	0.006	36	137.7	0.000	0.000	0.008	0.008	93	102.1	0.000	0.000	0.007	0.007	57
12	66.93	0.000	0.000	0.008	0.008	47	94.00	0.000	0.000	0.008	0.008	63	95.30	0.000	0.000	0.008	0.008	67
13	67.13	0.000	0.000	0.005	0.005	31	94.14	0.000	0.000	0.008	0.008	65	93.51	0.000	0.000	0.007	0.007	56
14	67.10	0.000	0.000	0.005	0.005	31	85.49	0.000	0.000	0.008	0.008	56	93.56	0.000	0.000	0.006	0.006	49
15	66.03	0.000	0.000	0.007	0.007	39	83.94	0.000	0.000	0.008	0.008	57	100.0	0.000	0.000	0.006	0.006	52
16	66.97	0.000	0.000	0.006	0.006	37	83.87	0.000	0.000	0.008	0.008	60	100.0	0.000	0.000	0.006	0.006	52
17	66.35	0.000	0.000	0.007	0.007	37	90.38	0.000	0.000	0.006	0.006	48	99.67	0.000	0.000	0.007	0.007	61
18	67.54	0.000	0.000	0.007	0.007	39	110.0	0.000	0.000	0.006	0.006	59	98.72	0.000	0.000	0.008	0.008	65
19	67.50	0.000	0.000	0.006	0.006	34	120.0	0.000	0.000	0.006	0.006	64	96.81	0.000	0.000	0.007	0.007	60
20	79.18	0.000	0.000	0.007	0.007	47	93.24	0.000	0.000	0.008	0.008	60	95.73	0.000	0.000	0.008	0.008	65
21	102.0	0.000	0.000	0.007	0.007	61	129.3	0.000	0.000	0.005	0.005	59	96.39	0.000	0.000	0.008	0.008	62
22	219.3	0.000	0.000	0.006	0.006	112	145.0	0.000	0.000	0.008	0.008	99	79.27	0.000	0.000	0.007	0.007	47
23	225.5	0.000	0.000	0.006	0.006	109	127.3	0.000	0.000	0.005	0.005	59	80.00	0.000	0.000	0.007	0.007	48
24	194.9	0.000	0.000	0.006	0.006	98	121.9	0.000	0.000	0.006	0.006	58	76.85	0.000	0.000	0.007	0.007	47
25	111.3	0.000	0.000	0.005	0.005	51	118.5	0.000	0.000	0.007	0.007	71	90.22	0.000	0.000	0.007	0.007	51
26	94.19	0.000	0.000	0.006	0.006	49	110.0	0.000	0.000	0.007	0.007	66	120.6	0.000	0.000	0.006	0.006	63
27	95.41	0.000	0.000	0.006	0.006	50	103.4	0.000	0.000	0.008	0.008	71	110.0	0.000	0.000	0.008	0.008	74
28	80.00	0.000	0.000	0.006	0.006	42	136.9	0.000	0.000	0.005	0.005	61	116.9	0.000	0.000	0.008	0.008	76
29	98.87	0.000	0.000	0.006	0.006	55	1047	0.000	0.000	0.008	0.008	696	158.8	0.000	0.000	0.009	0.009	117
30	96.85	0.000	0.000	0.008	0.008	67	944.1	0.000	0.000	0.005	0.005	392	160.0	0.000	0.000	0.009	0.009	118
31							615.0	0.000	0.000	0.008	0.008	430	158.5	0.000	0.000	0.007	0.007	93
Ten Daily Mean																		
Ten Daily I	67.69	0.000	0.000	0.007	0.007	40	99.66	0.000	0.000	0.008	0.008	67	188.4	0.000	0.000	0.006	0.006	100
Ten Daily II	68.26	0.000	0.000	0.006	0.006	38	99.28	0.000	0.000	0.007	0.007	63	97.54	0.000	0.000	0.007	0.007	58
Ten Daily III	131.8	0.000	0.000	0.006	0.006	69	327.1	0.000	0.000	0.007	0.007	188	113.4	0.000	0.000	0.007	0.007	72
Monthly																		
Total						1472						3364						2376

Annual Sediment Load (Metric Tonnes) : 16862

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	147.7	0.000	0.000	0.014	0.014	176	81.41	0.000	0.000	0.008	0.008	56	58.00	0.000	0.000	0.010	0.010	52
2	134.5	0.000	0.000	0.013	0.013	149	79.00	0.000	0.000	0.008	0.008	55	50.40	0.000	0.000	0.010	0.010	45
3	133.8	0.000	0.000	0.013	0.013	150	78.62	0.000	0.000	0.009	0.009	60	50.14	0.000	0.000	0.010	0.010	45
4	125.6	0.000	0.000	0.011	0.011	117	74.00	0.000	0.000	0.009	0.009	57	50.35	0.000	0.000	0.010	0.010	45
5	128.1	0.000	0.000	0.012	0.012	137	73.30	0.000	0.000	0.006	0.006	39	50.24	0.000	0.000	0.010	0.010	45
6	110.0	0.000	0.000	0.012	0.012	118	72.23	0.000	0.000	0.009	0.009	59	49.96	0.000	0.000	0.010	0.010	44
7	97.20	0.000	0.000	0.013	0.013	108	79.53	0.000	0.000	0.011	0.011	73	50.53	0.000	0.000	0.010	0.010	42
8	90.01	0.000	0.000	0.012	0.012	96	69.44	0.000	0.000	0.008	0.008	46	54.00	0.000	0.000	0.010	0.010	45
9	75.67	0.000	0.000	0.011	0.011	73	75.09	0.000	0.000	0.009	0.009	61	51.00	0.000	0.000	0.010	0.010	42
10	75.11	0.000	0.000	0.014	0.014	88	76.45	0.000	0.000	0.011	0.011	74	50.15	0.000	0.000	0.010	0.010	42
11	75.49	0.000	0.000	0.013	0.013	82	75.00	0.000	0.000	0.011	0.011	73	50.00	0.000	0.000	0.010	0.010	41
12	75.43	0.000	0.000	0.013	0.013	87	82.07	0.000	0.000	0.009	0.009	61	50.89	0.000	0.000	0.010	0.010	42
13	75.20	0.000	0.000	0.013	0.013	87	76.89	0.000	0.000	0.011	0.011	73	50.99	0.000	0.000	0.009	0.009	38
14	90.44	0.000	0.000	0.013	0.013	99	74.43	0.000	0.000	0.011	0.011	71	49.47	0.000	0.000	0.009	0.009	37
15	91.37	0.000	0.000	0.011	0.011	87	73.78	0.000	0.000	0.008	0.008	53	52.00	0.000	0.000	0.009	0.009	39
16	218.9	0.000	0.000	0.013	0.013	244	74.95	0.000	0.000	0.012	0.012	75	49.41	0.000	0.000	0.009	0.009	37
17	260.0	0.000	0.000	0.013	0.013	290	74.48	0.000	0.000	0.012	0.012	74	50.21	0.000	0.000	0.009	0.009	38
18	247.2	0.000	0.000	0.013	0.013	276	80.00	0.000	0.000	0.012	0.012	79	49.37	0.000	0.000	0.009	0.009	37
19	190.5	0.000	0.000	0.013	0.013	211	92.22	0.000	0.000	0.011	0.011	88	51.94	0.000	0.000	0.011	0.011	48
20	130.0	0.000	0.000	0.013	0.013	144	72.99	0.000	0.000	0.009	0.009	55	48.14	0.000	0.000	0.011	0.011	44
21	125.1	0.000	0.000	0.013	0.013	139	70.00	0.000	0.000	0.009	0.009	53	48.47	0.000	0.000	0.011	0.011	44
22	139.9	0.000	0.000	0.013	0.013	156	75.00	0.000	0.000	0.009	0.009	56	54.00	0.000	0.000	0.011	0.011	49
23	115.3	0.000	0.000	0.013	0.013	125	73.57	0.000	0.000	0.009	0.009	55	48.87	0.000	0.000	0.011	0.011	45
24	114.7	0.000	0.000	0.013	0.013	130	75.00	0.000	0.000	0.009	0.009	56	50.86	0.000	0.000	0.011	0.011	47
25	100.0	0.000	0.000	0.013	0.013	113	78.00	0.000	0.000	0.009	0.009	59	50.00	0.000	0.000	0.009	0.009	38
26	94.51	0.000	0.000	0.013	0.013	105	72.99	0.000	0.000	0.006	0.006	40	54.31	0.000	0.000	0.009	0.009	42
27	92.00	0.000	0.000	0.013	0.013	102	56.46	0.000	0.000	0.005	0.005	24	47.60	0.000	0.000	0.009	0.009	37
28	85.45	0.000	0.000	0.013	0.013	93	54.04	0.000	0.000	0.009	0.009	42	47.97	0.000	0.000	0.009	0.009	37
29	85.29	0.000	0.000	0.012	0.012	91	56.11	0.000	0.000	0.009	0.009	43	48.70	0.000	0.000	0.009	0.009	37
30	80.08	0.000	0.000	0.013	0.013	91	54.61	0.000	0.000	0.009	0.009	42	48.76	0.000	0.000	0.009	0.009	37
31							54.07	0.000	0.000	0.011	0.011	50						
Ten Daily Mean																		
Ten Daily I	111.8	0.000	0.000	0.013	0.013	121	75.91	0.000	0.000	0.009	0.009	58	51.48	0.000	0.000	0.010	0.010	45
Ten Daily II	145.5	0.000	0.000	0.013	0.013	161	77.68	0.000	0.000	0.010	0.010	70	50.24	0.000	0.000	0.009	0.009	40
Ten Daily III	103.2	0.000	0.000	0.013	0.013	115	65.44	0.000	0.000	0.008	0.008	47	49.95	0.000	0.000	0.010	0.010	41
Monthly																		
Total						3964						1803						1261

Annual Sediment Load (Metric Tonnes) : 16862

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	48.10	0.000	0.000	0.006	0.006	25	47.51	0.000	0.000	0.007	0.007	30	30.23	0.000	0.000	0.008	0.008	21
2	48.70	0.000	0.000	0.006	0.006	25	41.44	0.000	0.000	0.007	0.007	26	29.90	0.000	0.000	0.008	0.008	21
3	48.34	0.000	0.000	0.006	0.006	25	47.00	0.000	0.000	0.007	0.007	30	29.69	0.000	0.000	0.008	0.008	21
4	47.75	0.000	0.000	0.006	0.006	25	41.60	0.000	0.000	0.007	0.007	27	29.68	0.000	0.000	0.008	0.008	21
5	47.21	0.000	0.000	0.006	0.006	24	42.95	0.000	0.000	0.007	0.007	27	30.55	0.000	0.000	0.008	0.008	21
6	50.00	0.000	0.000	0.006	0.006	26	43.67	0.000	0.000	0.007	0.007	28	29.56	0.000	0.000	0.008	0.008	21
7	48.41	0.000	0.000	0.006	0.006	25	41.59	0.000	0.000	0.007	0.007	27	29.00	0.000	0.000	0.008	0.008	20
8	47.77	0.000	0.000	0.006	0.006	25	41.60	0.000	0.000	0.010	0.010	35	29.36	0.000	0.000	0.008	0.008	21
9	44.09	0.000	0.000	0.006	0.006	23	45.76	0.000	0.000	0.010	0.010	38	29.42	0.000	0.000	0.008	0.008	21
10	42.97	0.000	0.000	0.006	0.006	22	41.00	0.000	0.000	0.010	0.010	34	30.41	0.000	0.000	0.008	0.008	21
11	47.82	0.000	0.000	0.004	0.004	17	46.27	0.000	0.000	0.010	0.010	38	29.22	0.000	0.000	0.008	0.008	20
12	43.84	0.000	0.000	0.004	0.004	15	40.55	0.000	0.000	0.010	0.010	34	29.07	0.000	0.000	0.006	0.006	15
13	44.00	0.000	0.000	0.004	0.004	15	46.09	0.000	0.000	0.010	0.010	38	29.40	0.000	0.000	0.006	0.006	15
14	44.65	0.000	0.000	0.004	0.004	15	40.82	0.000	0.000	0.010	0.010	34	30.00	0.000	0.000	0.006	0.006	16
15	44.11	0.000	0.000	0.004	0.004	15	39.92	0.000	0.000	0.010	0.010	33	28.90	0.000	0.000	0.006	0.006	15
16	42.98	0.000	0.000	0.004	0.004	15	39.42	0.000	0.000	0.005	0.005	18	29.33	0.000	0.000	0.006	0.006	15
17	43.77	0.000	0.000	0.004	0.004	15	40.00	0.000	0.000	0.005	0.005	18	28.68	0.000	0.000	0.006	0.006	15
18	43.57	0.000	0.000	0.007	0.007	25	41.23	0.000	0.000	0.005	0.005	19	27.80	0.000	0.000	0.006	0.006	14
19	43.30	0.000	0.000	0.007	0.007	25	40.76	0.000	0.000	0.005	0.005	18	28.47	0.000	0.000	0.008	0.008	20
20	44.00	0.000	0.000	0.007	0.007	25	41.08	0.000	0.000	0.005	0.005	18	28.67	0.000	0.000	0.008	0.008	20
21	44.09	0.000	0.000	0.007	0.007	25	38.85	0.000	0.000	0.005	0.005	17	30.00	0.000	0.000	0.008	0.008	21
22	41.67	0.000	0.000	0.007	0.007	24	44.98	0.000	0.000	0.005	0.005	20	28.44	0.000	0.000	0.008	0.008	20
23	44.78	0.000	0.000	0.007	0.007	26	38.90	0.000	0.000	0.008	0.008	27	28.73	0.000	0.000	0.008	0.008	20
24	44.00	0.000	0.000	0.006	0.006	23	39.00	0.000	0.000	0.008	0.008	27	28.55	0.000	0.000	0.008	0.008	20
25	46.00	0.000	0.000	0.006	0.006	24	39.42	0.000	0.000	0.008	0.008	28	28.44	0.000	0.000	0.008	0.008	20
26	45.44	0.000	0.000	0.005	0.005	18	39.00	0.000	0.000	0.008	0.008	27	28.93	0.000	0.000	0.008	0.008	20
27	44.00	0.000	0.000	0.005	0.005	18	32.48	0.000	0.000	0.008	0.008	23	28.58	0.000	0.000	0.004	0.004	11
28	43.53	0.000	0.000	0.005	0.005	18	33.00	0.000	0.000	0.008	0.008	23	29.00	0.000	0.000	0.004	0.004	11
29	44.61	0.000	0.000	0.005	0.005	18	33.29	0.000	0.000	0.008	0.008	23	29.67	0.000	0.000	0.004	0.004	11
30	41.50	0.000	0.000	0.005	0.005	17	33.91	0.000	0.000	0.008	0.008	24						
31	41.59	0.000	0.000	0.005	0.005	17	43.00	0.000	0.000	0.008	0.008	30						
Ten Daily Mean																		
Ten Daily I	47.34	0.000	0.000	0.006	0.006	25	43.41	0.000	0.000	0.008	0.008	30	29.78	0.000	0.000	0.008	0.008	21
Ten Daily II	44.20	0.000	0.000	0.005	0.005	18	41.61	0.000	0.000	0.007	0.007	27	28.95	0.000	0.000	0.007	0.007	17
Ten Daily III	43.75	0.000	0.000	0.005	0.005	21	37.80	0.000	0.000	0.008	0.008	25	28.93	0.000	0.000	0.007	0.007	17
Monthly																		
Total						654						840						530

Annual Sediment Load (Metric Tonnes) : 16862

Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	28.90	0.000	0.000	0.004	0.004	11	27.78	0.000	0.000	0.003	0.003	6	24.00	0.000	0.000	0.001	0.001	3
2	28.38	0.000	0.000	0.004	0.004	11	29.36	0.000	0.000	0.003	0.003	7	23.94	0.000	0.000	0.001	0.001	3
3	28.15	0.000	0.000	0.004	0.004	11	29.00	0.000	0.000	0.003	0.003	7	23.54	0.000	0.000	0.001	0.001	3
4	28.44	0.000	0.000	0.004	0.004	11	28.33	0.000	0.000	0.003	0.003	7	22.69	0.000	0.000	0.001	0.001	3
5	28.45	0.000	0.000	0.004	0.004	11	28.50	0.000	0.000	0.003	0.003	7	20.30	0.000	0.000	0.003	0.003	4
6	28.80	0.000	0.000	0.004	0.004	11	27.95	0.000	0.000	0.003	0.003	7	16.08	0.000	0.000	0.003	0.003	3
7	28.60	0.000	0.000	0.004	0.004	11	28.21	0.000	0.000	0.003	0.003	7	13.25	0.000	0.000	0.003	0.003	3
8	28.33	0.000	0.000	0.004	0.004	11	28.00	0.000	0.000	0.003	0.003	7	14.00	0.000	0.000	0.003	0.003	3
9	28.18	0.000	0.000	0.004	0.004	11	28.54	0.000	0.000	0.003	0.003	7	12.73	0.000	0.000	0.003	0.003	3
10	28.21	0.000	0.000	0.004	0.004	11	28.00	0.000	0.000	0.003	0.003	7	12.65	0.000	0.000	0.003	0.003	3
11	28.52	0.000	0.000	0.004	0.004	11	27.83	0.000	0.000	0.003	0.003	6	12.47	0.000	0.000	0.003	0.003	3
12	28.41	0.000	0.000	0.003	0.003	6	27.98	0.000	0.000	0.003	0.003	7	12.91	0.000	0.000	0.003	0.003	3
13	28.00	0.000	0.000	0.003	0.003	6	27.99	0.000	0.000	0.003	0.003	7	5.212	0.000	0.000	0.004	0.004	2
14	28.30	0.000	0.000	0.003	0.003	6	28.00	0.000	0.000	0.003	0.003	7	9.033	0.000	0.000	0.004	0.004	3
15	28.12	0.000	0.000	0.003	0.003	6	28.13	0.000	0.000	0.003	0.003	7	8.020	0.000	0.000	0.004	0.004	3
16	27.86	0.000	0.000	0.003	0.003	6	28.09	0.000	0.000	0.004	0.004	10	10.02	0.000	0.000	0.004	0.004	4
17	28.29	0.000	0.000	0.003	0.003	6	29.00	0.000	0.000	0.004	0.004	10	9.184	0.000	0.000	0.004	0.004	3
18	28.46	0.000	0.000	0.004	0.004	11	28.04	0.000	0.000	0.004	0.004	10	8.344	0.000	0.000	0.004	0.004	3
19	29.07	0.000	0.000	0.004	0.004	11	28.09	0.000	0.000	0.004	0.004	10	4.409	0.000	0.000	0.002	0.002	1
20	28.30	0.000	0.000	0.004	0.004	11	27.50	0.000	0.000	0.004	0.004	10	4.406	0.000	0.000	0.002	0.002	1
21	28.34	0.000	0.000	0.004	0.004	11	27.58	0.000	0.000	0.004	0.004	10	5.060	0.000	0.000	0.002	0.002	1
22	27.87	0.000	0.000	0.004	0.004	11	27.29	0.000	0.000	0.004	0.004	10	4.400	0.000	0.000	0.002	0.002	1
23	27.65	0.000	0.000	0.004	0.004	11	27.77	0.000	0.000	0.003	0.003	7	4.004	0.000	0.000	0.002	0.002	1
24	28.20	0.000	0.000	0.004	0.004	11	27.40	0.000	0.000	0.003	0.003	7	5.059	0.000	0.000	0.002	0.002	1
25	27.60	0.000	0.000	0.004	0.004	10	27.55	0.000	0.000	0.003	0.003	7	4.844	0.000	0.000	0.002	0.002	1
26	27.95	0.000	0.000	0.004	0.004	11	28.03	0.000	0.000	0.003	0.003	7	5.477	0.000	0.000	0.002	0.002	1
27	27.90	0.000	0.000	0.004	0.004	11	27.59	0.000	0.000	0.003	0.003	7	6.192	0.000	0.000	0.003	0.003	1
28	27.93	0.000	0.000	0.004	0.004	11	25.75	0.000	0.000	0.003	0.003	7	6.603	0.000	0.000	0.003	0.003	1
29	27.51	0.000	0.000	0.004	0.004	10	25.39	0.000	0.000	0.003	0.003	7	6.200	0.000	0.000	0.003	0.003	1
30	28.16	0.000	0.000	0.004	0.004	11	24.87	0.000	0.000	0.003	0.003	6	6.907	0.000	0.000	0.003	0.003	1
31	28.03	0.000	0.000	0.004	0.004	11							4.502					
Ten Daily Mean																		
Ten Daily I	28.44	0.000	0.000	0.004	0.004	11	28.37	0.000	0.000	0.003	0.003	7	18.32	0.000	0.000	0.002	0.002	3
Ten Daily II	28.33	0.000	0.000	0.003	0.003	8	28.07	0.000	0.000	0.003	0.003	8	8.401	0.000	0.000	0.003	0.003	2
Ten Daily III	27.92	0.000	0.000	0.004	0.004	11	26.92	0.000	0.000	0.003	0.003	7	5.386	0.000	0.000	0.002	0.002	1
Monthly																		
Total						306						224						67

Annual Sediment Load (Metric Tonnes) : 16862

Annual Sediment Load for period : 2003-2016**Station Name : GOVINDPUR (ED000E4)****Division : E.E., Bhubaneswar****Local River : Burhabalang****Sub-Division : Balasore**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
2003-2004	911645	24562	936207	3170
2004-2005	1204010	16705	1220715	3134
2005-2006	1373050	15439	1388489	3075
2006-2007	1936696	7309	1944005	3656
2007-2008	2174291	20120	2194411	5100
2008-2009	1710229	4818	1715047	4691
2009-2010	1393627	6328	1399954	3190
2010-2011	425907	205	426112	1851
2011-2012	16087	1702	17789	4364
2012-2013	253388	666	254055	2055
2013-2014	883614	18171	901785	6741
2014-2015	393494	8347	401840	4592
2015-2016	14240	2622	16862	2185

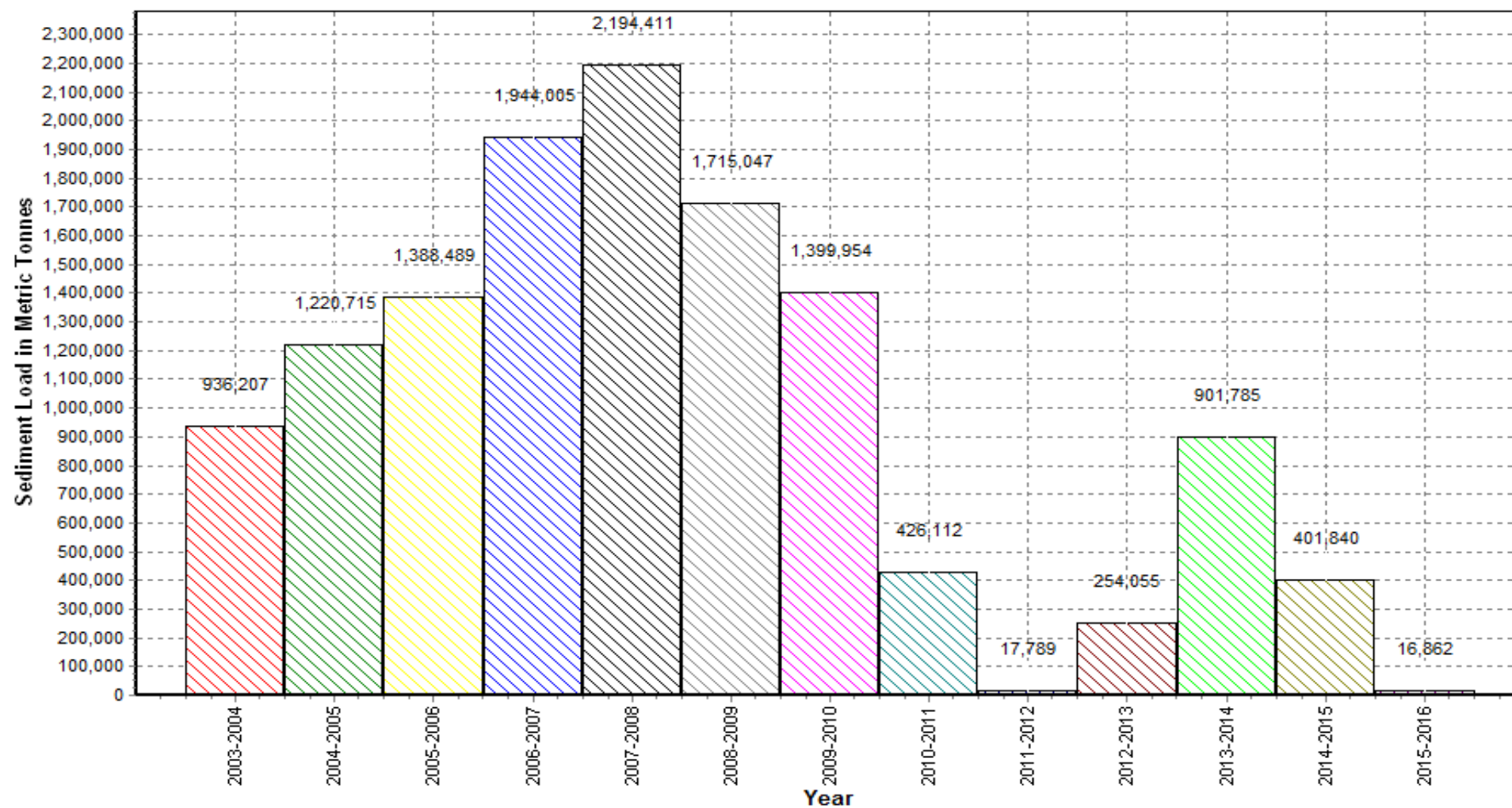
Annual Sediment Load for the period: 2003-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

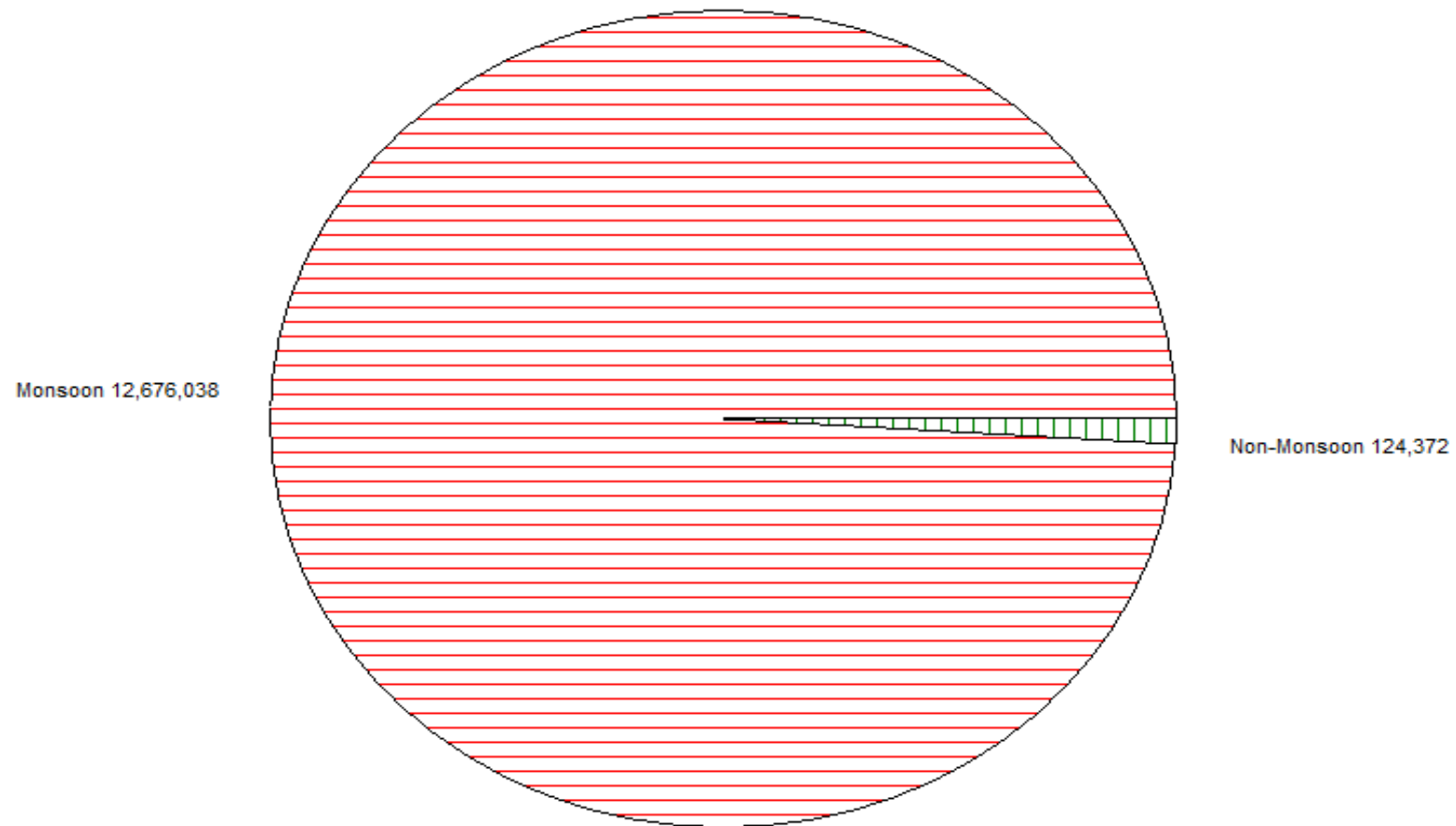
Sub-Division : Balasore



Station Name : GOVINDPUR (ED000E4)
Local River : Burhabalang

Seasonal Sediment Load for the period : 2003-2015

Division : E.E., Bhubaneswar
Sub-Division : Balasore



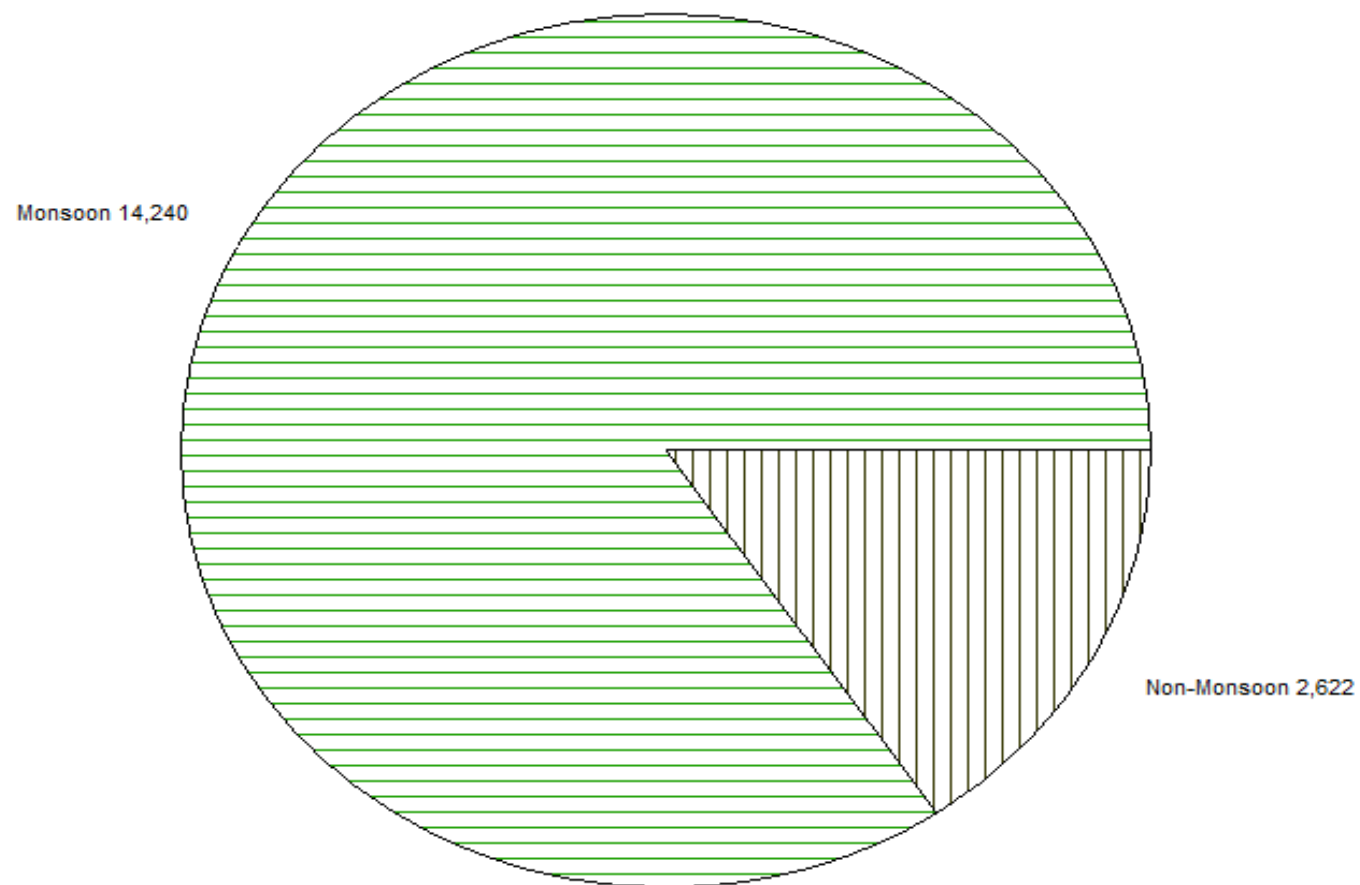
Seasonal Sediment Load for the Year: 2015-2016

Station Name : GOVINDPUR (ED000E4)

Local River : Burhabalang

Division : E.E., Bhubaneswar

Sub-Division : Balasore



WATER QUALITY DATA

Water Quality Datasheet for the period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

River Water Analysis

Sub-Division : Balasore

S.No	Parameters	01.06.2015	01.08.2015	01.10.2015	01.12.2015	01.02.2016	01.04.2016
		A	A	A	A	A	A
	PHYSICAL						
1	Q (cumec)						
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Clear	Clear	Clear
3	EC_FLD (μmho/cm)	338	226	416	252	542	653
4	EC_GEN (μmho/cm)	344	230	422	264	520	662
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.3	6.2	7.6	7.4	7.6	7.4
7	pH_GEN (pH units)	7.5	6.6	7.2	7.7	7.7	7.2
8	Temp (deg C)	25.0	21.0	28.0	27.0	30.0	25.0
	CHEMICAL						
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	83	42	55	69	65	69
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01
4	Ca (mg/L)	27	26	24	22	24	32
5	Cl (mg/L)	17.0	15.1	11.3	13.2	17.0	18.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.5	0.4	0.2	0.3	0.2
9	HCO3 (mg/L)	101	51	68	85	79	85
10	K (mg/L)	1.1	1.9	3.7	3.4	2.8	13.0
11	Mg (mg/L)	11.7	11.7	8.8	7.8	8.8	12.6
12	Na (mg/L)	21.6	4.0	3.9	16.2	16.7	20.9
13	NO2+NO3 (mg N/L)	1.09	0.88	0.78	0.84	0.81	0.88
14	NO2-N (mgN/L)	0.00	0.00	0.01	0.03	0.00	0.00
15	NO3-N (mgN/L)	1.09	0.88	0.77	0.81	0.81	0.88
16	P-Tot (mgP/L)	0.001	0.010	0.001	0.010	0.010	0.010
17	SiO2 (mg/L)	8.0	6.0	5.0	5.0	5.0	5.0
18	SO4 (mg/L)	20.4	9.7	9.6	54.5	56.0	57.8
	BIOLOGICAL/BACTERIOLOGICAL						
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	68	64	60	56	60	80
2	HAR_Total (mgCaCO3/L)	117	113	97	89	97	133
3	Na% (%)	29	7	8	28	27	23
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.9	0.2	0.2	0.8	0.7	0.8
	PESTICIDES						

Water Quality Summary for the period : 2015-2016

Station Name : GOVINDPUR (ED000E4)

Division : E.E., Bhubaneswar

Local River : Burhabalang

Sub-Division : Balasore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	6	653	226	405
3	EC_GEN (µmho/cm)	6	662	230	407
4	pH_FLD (pH units)	6	7.6	6.2	7.2
5	pH_GEN (pH units)	6	7.7	6.6	7.3
6	Temp (deg C)	6	30.0	21.0	26
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	83	42	64
3	B (mg/L)	6	0.01	0.01	0.01
4	Ca (mg/L)	6	32	22	26
5	Cl (mg/L)	6	18.9	11.3	15.4
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.05	0.05	0.05
8	Fe (mg/L)	6	0.5	0.2	0.3
9	HCO3 (mg/L)	6	101	51	78
10	K (mg/L)	6	13.0	1.1	4.3
11	Mg (mg/L)	6	12.6	7.8	10.2
12	Na (mg/L)	6	21.6	3.9	13.9
13	NO2+NO3 (mg N/L)	6	1.09	0.78	0.88
14	NO2-N (mgN/L)	6	0.03	0.00	0.01
15	NO3-N (mgN/L)	6	1.09	0.77	0.88
16	P-Tot (mgP/L)	6	0.010	0.001	0.007
17	SiO2 (mg/L)	6	8.0	5.0	5.7
18	SO4 (mg/L)	6	57.8	9.6	34.7
	BIOLOGICAL/BACTERIOLOGICAL				
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	80	56	65
2	HAR_Total (mgCaCO3/L)	6	133	89	107
3	Na% (%)	6	29	7	20
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	0.9	0.2	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2016

Station Name : GOVINDPUR (ED000E4)
Local River : Burhabalang

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)		165	131			157		140	187	185	170	181	240	327		178	173			185
3	EC_GEN (µmho/cm)		165	131			151		140	187	185	170	181	240	332		178	173			176
4	pH_FLD (pH units)		7.6	7.8			7.6		7.8	7.6	8.0	7.4	7.6	7.8	7.0		7.5	8.0			8.0
5	pH_GEN (pH units)		7.6	7.8			7.6		7.8	7.6	8.0	7.4	7.6	7.8	7.1		7.4	7.8			8.1
6	Temp (deg C)		28.5	28.4			22.8		25.7	21.7	29.1	26.5	29.4	27.8	24.7		20.0	23.5			18.8
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)						0.0		0.0	0.0	0.0				0.0						0.0
2	ALK-TOT (mgCaCO3/L)						45		44	56	82				60						56
3	B (mg/L)		0.00	0.00			0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01		0.00	0.00			0.00
4	Ca (mg/L)		15	12			14		11	16	19	18	19	24	26		18	15			17
5	Cl (mg/L)		14.0	10.1			13.0		9.7	14.9	13.2	18.1	22.5	13.2	14.5		13.6	11.7			15.1
6	CO3 (mg/L)		0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
7	F (mg/L)		0.05	0.39			0.00		0.07	0.05	0.05	0.05	0.05	0.05	0.05		0.00	0.41			0.00
8	Fe (mg/L)			0.1			0.1		0.1	0.1	0.0	1.3	0.0	0.6	0.4		0.0	0.0			0.1
9	HCO3 (mg/L)		62	57			55		54	70	100	109	70	81	73		77	82			68
10	K (mg/L)		2.1	2.4			3.0		1.0	2.4	0.9	3.3	1.4	1.4	2.2		2.3	1.1			2.5
11	Mg (mg/L)		3.8	3.3			4.8		7.1	7.5	7.1	7.8	4.9	11.0	10.7		4.3	7.3			5.0
12	Na (mg/L)		10.0	7.6			9.6		5.6	8.6	7.3	9.9	10.9	10.1	9.8		10.3	7.7			10.8
13	NO2+NO3 (mg N/L)		0.25	0.30			0.54		0.32	0.36	0.38	0.95	0.41	1.03	0.92		0.35	0.19			0.38
14	NO2-N (mgN/L)		0.00	0.00			0.00		0.00	0.00	0.07	0.00	0.00	0.00	0.00		0.00	0.00			0.00
15	NO3-N (mgN/L)		0.25	0.30			0.54		0.32	0.36	0.31	0.95	0.41	1.03	0.92		0.35	0.19			0.38
16	o-PO4-P (mg P/L)						0.000		0.067								0.000				0.000
17	P-Tot (mgP/L)			0.001			0.001		0.010	0.001	0.010	0.004	0.001	0.001	0.004			0.001			0.001
18	SiO2 (mg/L)		11.6	34.5			8.9		6.3	6.5	11.0	21.8	9.0	7.3	6.3		22.0	35.2			9.0
19	SO4 (mg/L)		2.0	3.8			13.9		7.6	10.0	9.3	7.5	19.2	13.2	13.2		1.6	2.7			11.0
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)		1.0	0.7													0.7	0.8			
2	DO (mg/L)		6.1	6.5													8.4	7.6			
3	DO_SAT% (%)		78	84													91	89			
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)		38	30			34		28	40	47	45	48	59	64		45	38			43
2	HAR_Total (mgCaCO3/L)		53	47			54		58	71	76	78	68	105	109		62	62			64
3	Na% (%)		30	26			27		17	20	17	19	26	15	14		27	20			26
4	RSC (-)		0.0	0.1			0.0		0.0	0.0	0.1	0.2	0.0	0.0	0.0		0.0	0.0			0.0
5	SAR (-)		0.6	0.5			0.6		0.3	0.4	0.4	0.5	0.6	0.4	0.4		0.6	0.4			0.6
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2002-2016

Station Name : GOVINDPUR (ED000E4)
Local River : Burhabalang

Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water

S.No	Parameters	Winter								Summer											
		Nov - Feb								Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)		221	255	215	208	169	345	397		240				210		340	370	260	230	186
3	EC_GEN (µmho/cm)		221	255	215	208	169	345	392		240				220		340	370	260	230	186
4	pH_FLD (pH units)		7.7	7.7	7.8	7.3	7.6	7.3	7.5		7.9				8.2		8.4	8.1	7.6	7.3	8.1
5	pH_GEN (pH units)		7.7	7.7	7.8	7.3	7.5	7.3	7.7		7.9				8.3		8.4	8.1	7.6	7.3	8.1
6	Temp (deg C)		18.0	17.5	24.3	20.3	22.9	23.0	28.5		27.0				23.0		24.0	25.5		28.0	27.0
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0				0.0						0.0		5.8	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)		56	100	53				67						73		99	112	106		
3	B (mg/L)		0.00	0.00	0.01	0.00	0.00	0.00	0.01		0.00				0.00		0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)		17	20	20	22	16	23	23		24				25		18	27	30	15	15
5	Cl (mg/L)		22.3	17.0	18.9	22.3	19.4	17.0	15.1		17.3				15.2		31.6	28.3	34.0	22.1	25.3
6	CO3 (mg/L)		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0				0.0		7.0	0.0	0.0	0.0	0.0
7	F (mg/L)		0.00	0.05	0.05	0.05	0.05	0.05	0.05		0.00				0.05		0.08	0.05	0.05	0.05	0.05
8	Fe (mg/L)		0.1	0.1	0.0	3.8	0.1	0.5	0.3								0.1	0.1	0.0	2.6	0.0
9	HCO3 (mg/L)		68	111	65	151	98	107	82		115				89		107	136	130	122	93
10	K (mg/L)		1.1	1.0	0.9	2.6	1.3	1.1	3.1		2.3				0.8		1.5	1.2	1.1	6.3	2.6
11	Mg (mg/L)		9.2	12.2	8.7	8.5	4.5	7.8	8.3		7.5				5.8		17.5	15.6	5.8	6.3	3.1
12	Na (mg/L)		12.6	10.8	9.1	17.2	11.2	10.4	16.5		11.8				10.3		22.7	22.0	18.2	12.4	12.3
13	NO2+NO3 (mg N/L)		0.30	0.39	0.36	1.04	0.90	1.25	0.83		0.24				0.48		0.57	0.55	0.42	1.16	0.73
14	NO2-N (mgN/L)		0.00	0.00	0.07	0.00	0.00	0.00	0.01		0.00				0.00		0.00	0.00	0.07	0.00	0.00
15	NO3-N (mgN/L)		0.30	0.39	0.29	1.04	0.90	1.25	0.81		0.24				0.48		0.57	0.55	0.35	1.16	0.73
16	o-PO4-P (mg P/L)		0.045														0.080				
17	P-Tot (mgP/L)		0.010	0.001	0.010	0.001	0.001	0.001	0.010						0.050		0.010	0.001	0.010	0.001	0.001
18	SiO2 (mg/L)		7.7	5.8	9.0	20.5	9.5	5.5	5.0		20.7				9.4		8.1	9.5	9.0	18.6	9.8
19	SO4 (mg/L)		10.9	5.2	3.7	13.6	21.6	4.7	55.2		1.5				10.8		20.1	22.9	21.8	6.2	21.2
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)										0.9										
2	DO (mg/L)										7.5										
3	DO_SAT% (%)										94										
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)		42	50	50	55	41	57	58		60				63		44	68	76	37	38
2	HAR_Total (mgCaCO3/L)		81	101	87	91	59	90	93		91				87		117	133	100	63	51
3	Na% (%)		25	19	20	28	29	20	27		21				20		30	26	28	28	33
4	RSC (-)		0.0	0.0	0.0	0.7	0.4	0.1	0.0		0.1				0.0		0.0	0.0	0.1	0.8	0.5
5	SAR (-)		0.6	0.5	0.4	0.8	0.6	0.5	0.7		0.5				0.5		0.9	0.8	0.8	0.7	0.8
	PESTICIDES																				

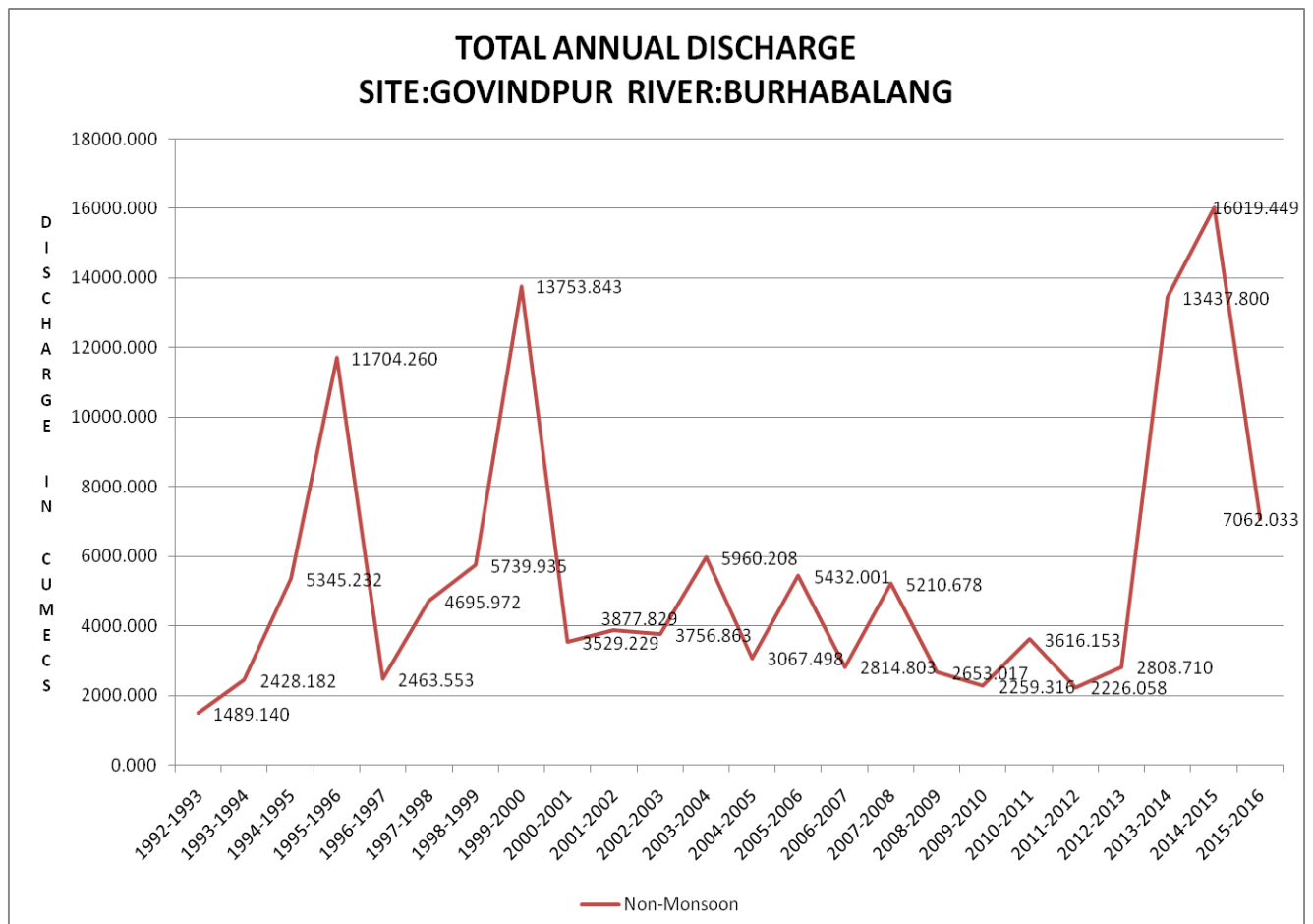
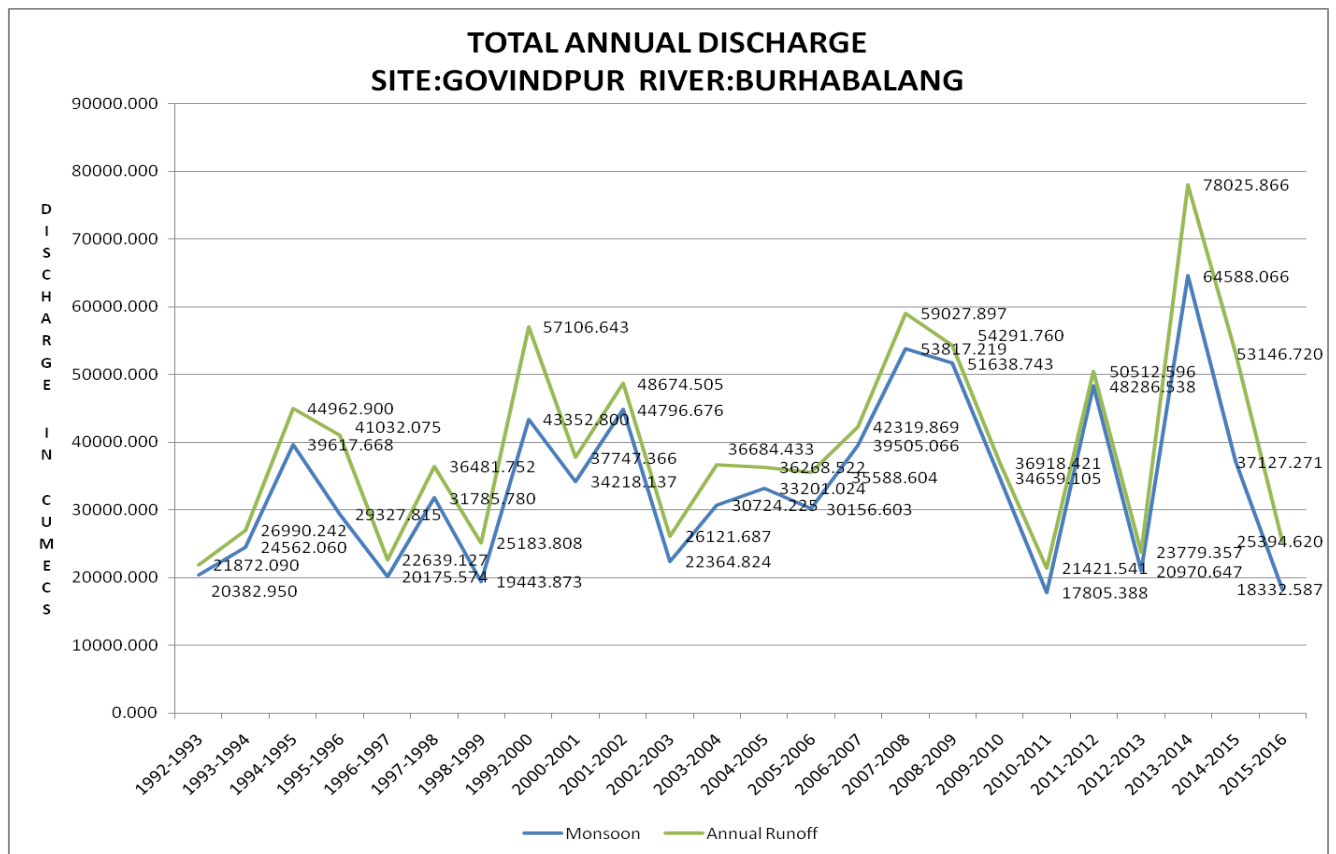
Water Quality Seasonal Average for the period: 2002-2016

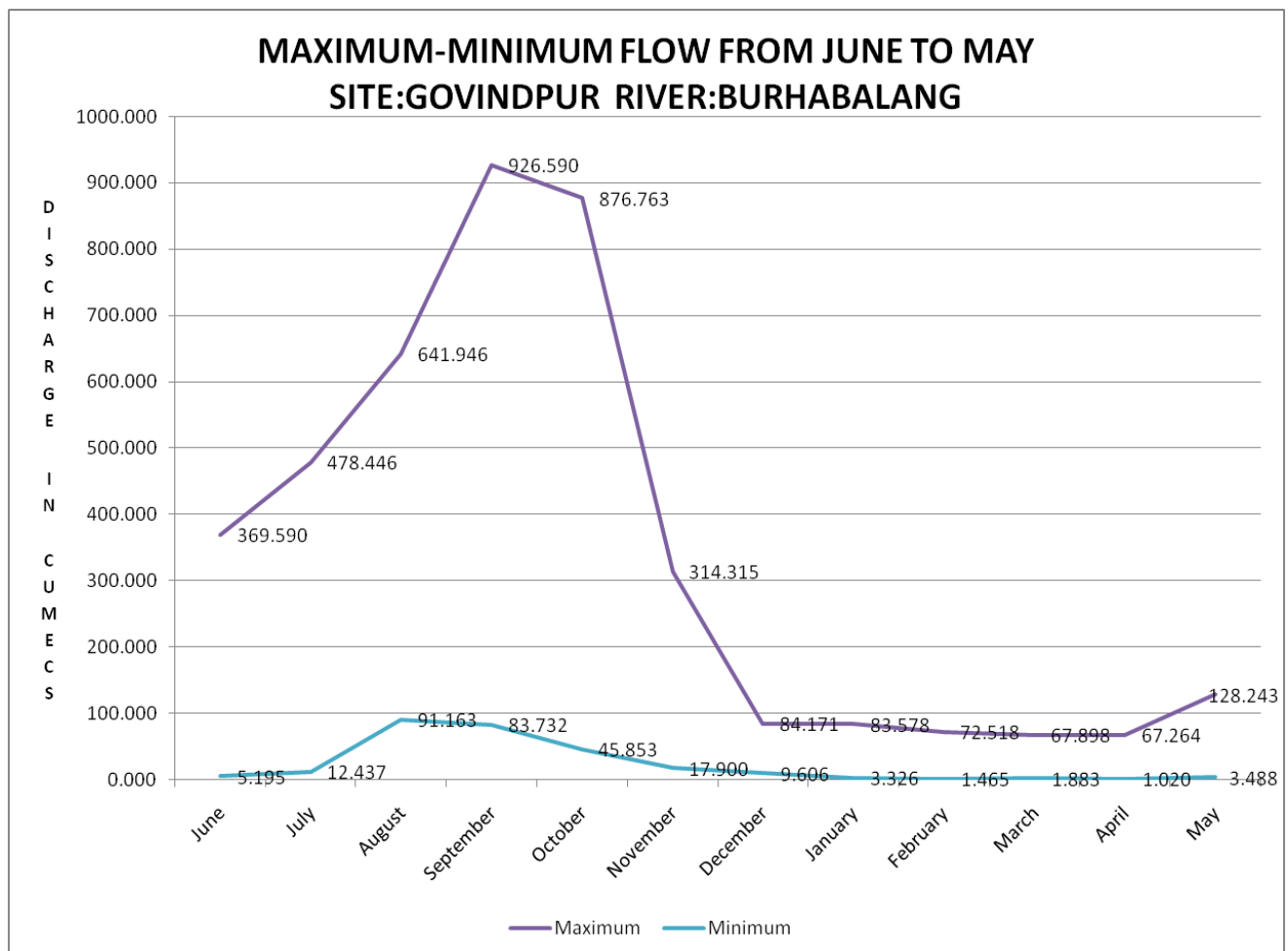
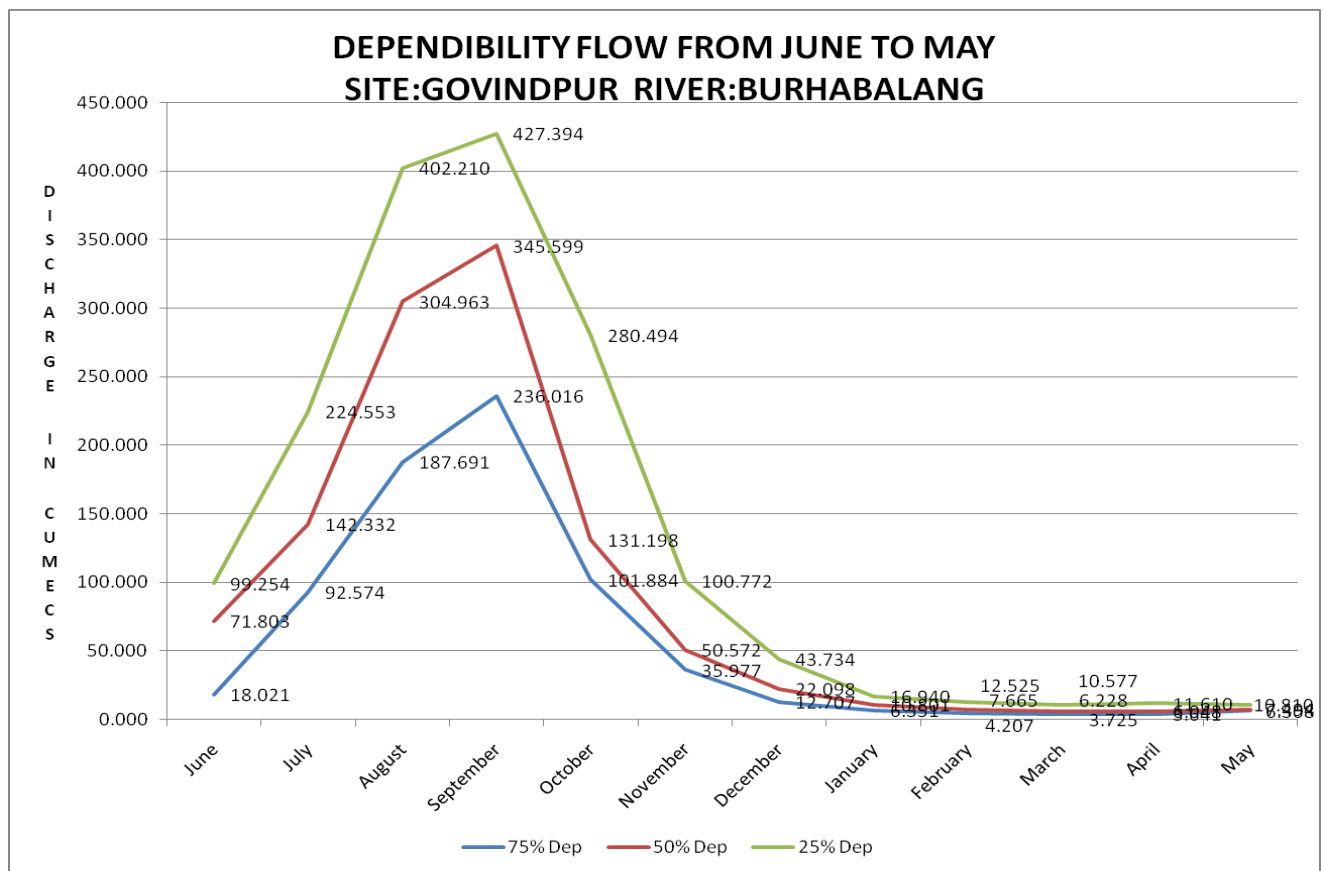
Station Name : GOVINDPUR (ED000E4)
Local River : Burhabalang

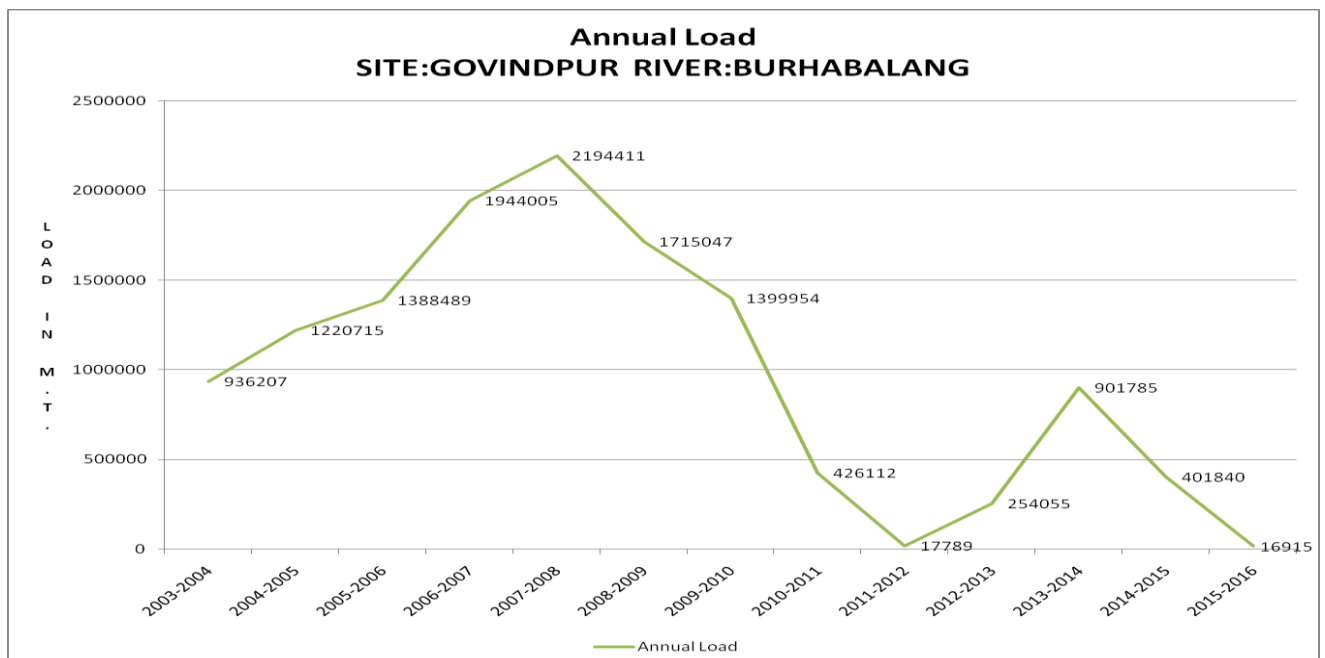
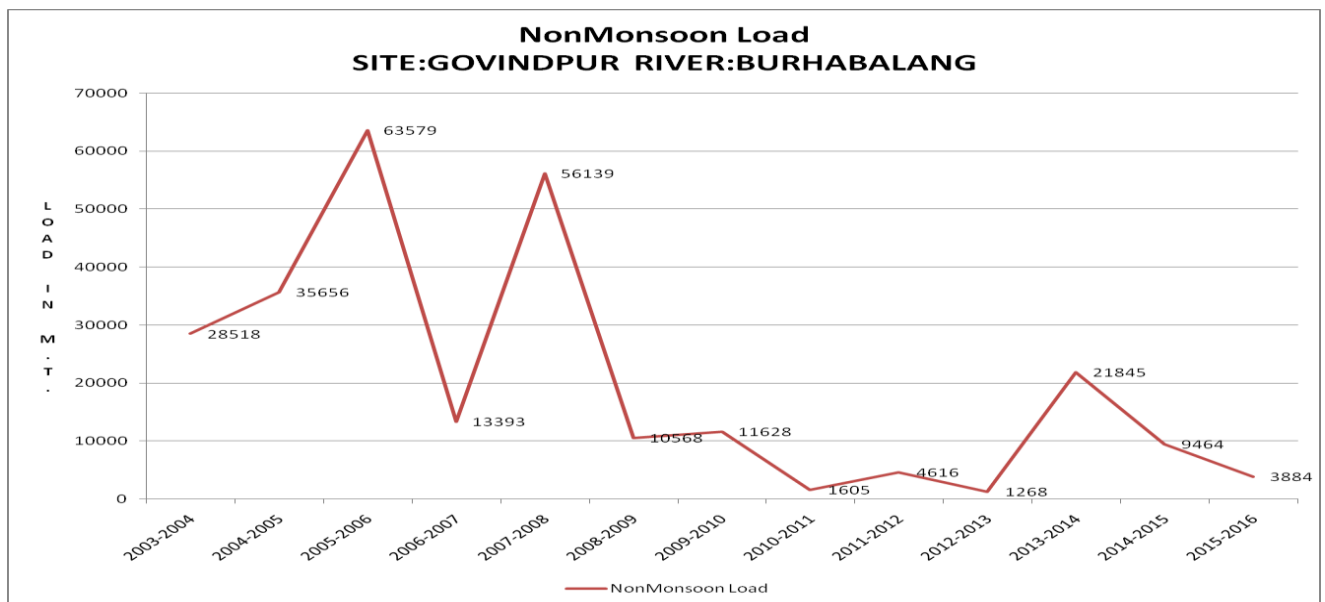
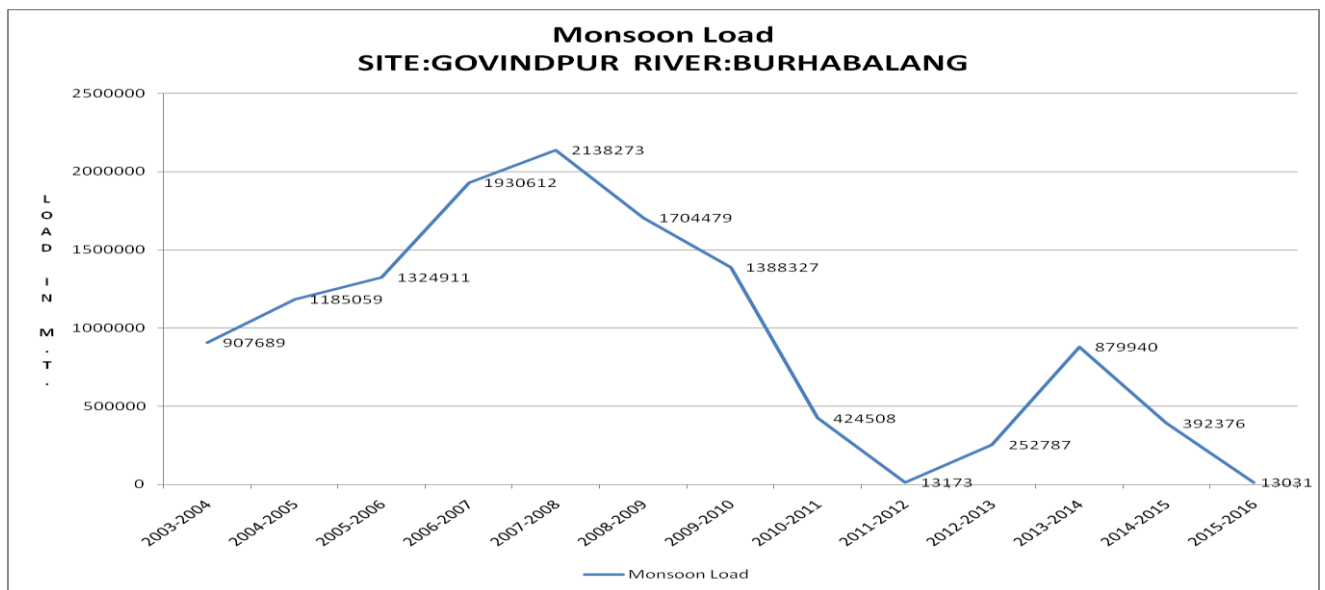
Division : E.E., Bhubaneswar
Sub-Division : Balasore

River Water			
S.No	Parameters		
		2015	2016
	PHYSICAL		
1	Q (cumec)		
2	EC_FLD (µmho/cm)	530	653
3	EC_GEN (µmho/cm)	530	662
4	pH_FLD (pH units)	7.1	7.4
5	pH_GEN (pH units)	7.1	7.2
6	Temp (deg C)	32.5	25.0
	CHEMICAL		
1	Alk-Phen (mgCaCO3/L)		0.0
2	ALK-TOT (mgCaCO3/L)		69
3	B (mg/L)	0.00	0.01
4	Ca (mg/L)	31	32
5	Cl (mg/L)	35.0	18.9
6	CO3 (mg/L)	0.0	0.0
7	F (mg/L)	0.05	0.05
8	Fe (mg/L)	0.4	0.2
9	HCO3 (mg/L)	131	85
10	K (mg/L)	1.2	13.0
11	Mg (mg/L)	5.9	12.6
12	Na (mg/L)	18.6	20.9
13	NO2+NO3 (mg N/L)	1.20	0.88
14	NO2-N (mgN/L)	0.01	0.00
15	NO3-N (mgN/L)	1.19	0.88
16	o-PO4-P (mg P/L)		
17	P-Tot (mgP/L)	0.001	0.010
18	SiO2 (mg/L)	8.0	5.0
19	SO4 (mg/L)	21.7	57.8
	BIOLOGICAL/BACTERIOLOGICAL		
1	BOD3-27 (mg/L)		
2	DO (mg/L)		
3	DO_SAT% (%)		
	TRACE & TOXIC		
	CHEMICAL INDICES		
1	HAR_Ca (mgCaCO3/L)	79	80
2	HAR_Total (mgCaCO3/L)	103	133
3	Na% (%)	28	23
4	RSC (-)	0.1	0.0
5	SAR (-)	0.8	0.8
	PESTICIDES		

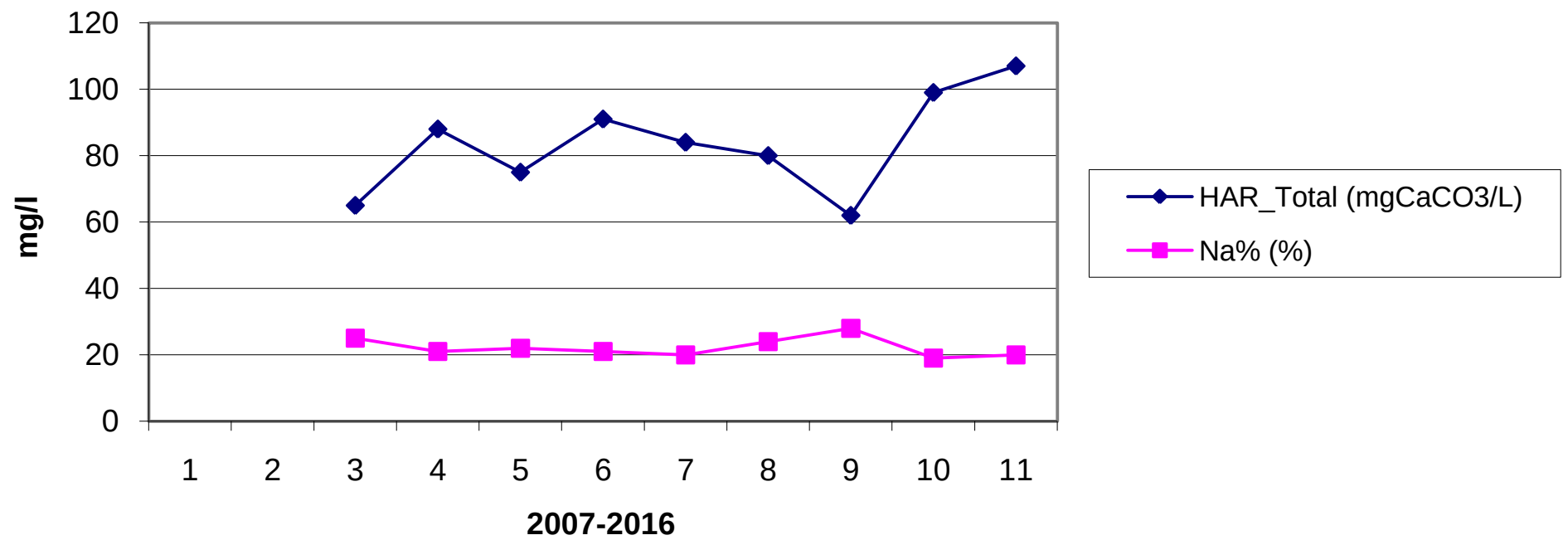
TREND ANALYSIS



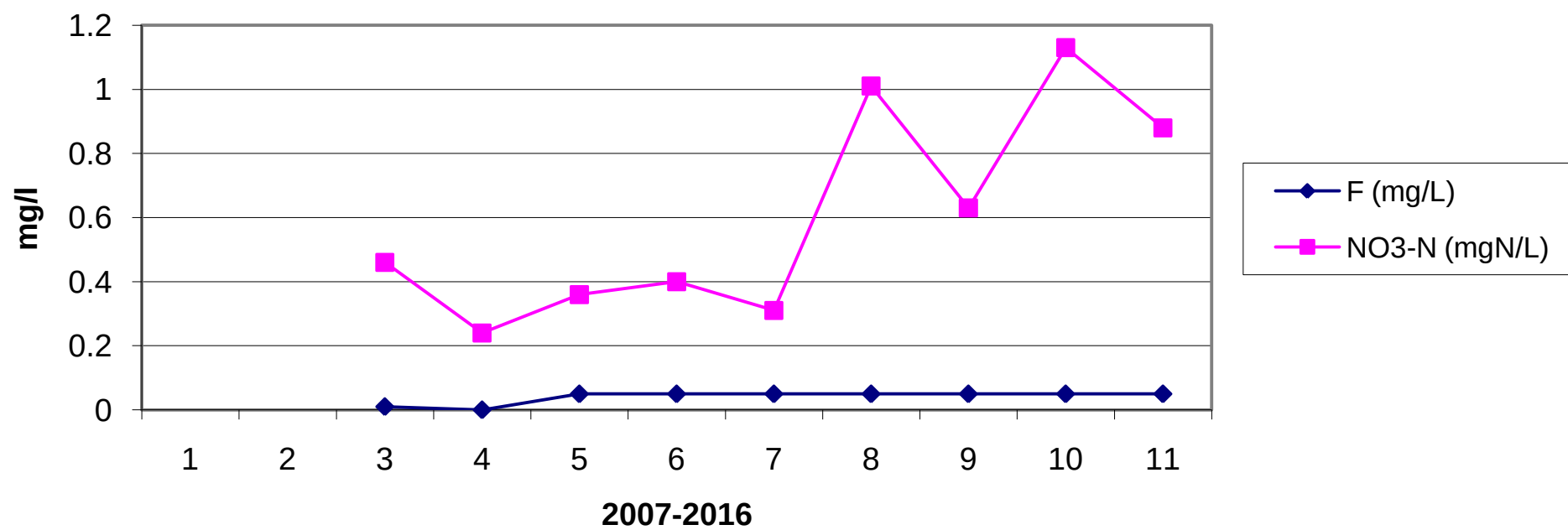




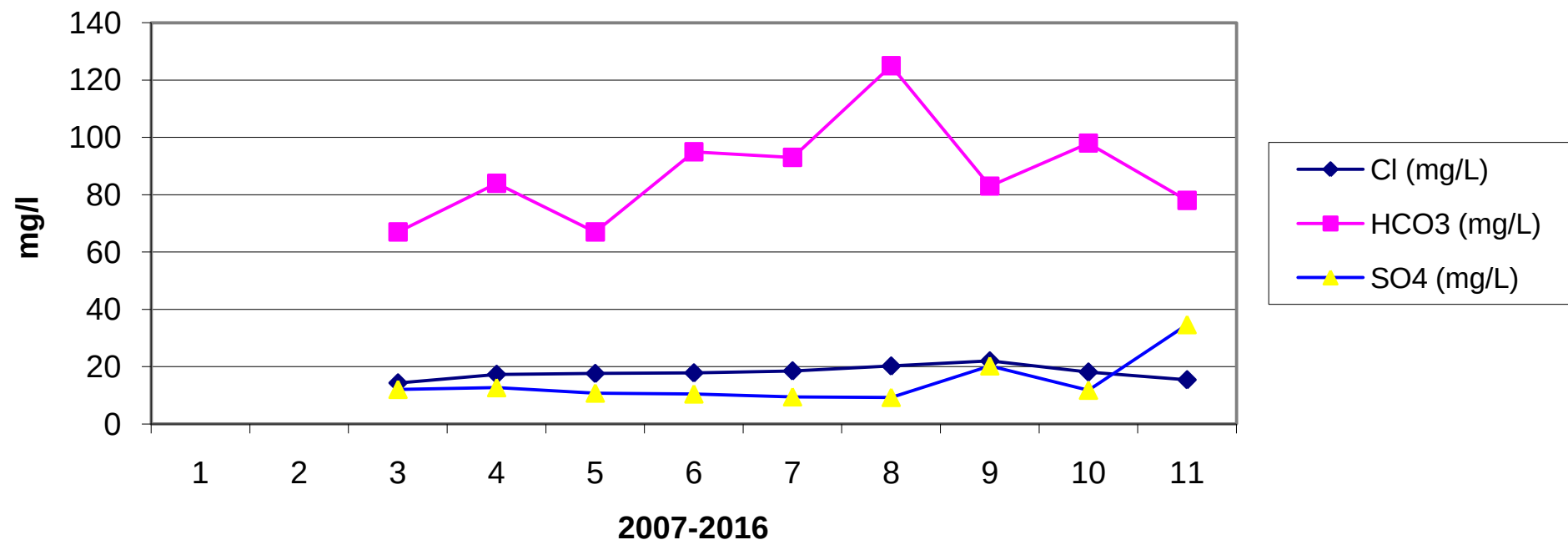
Year Wise Trend For Govindpur



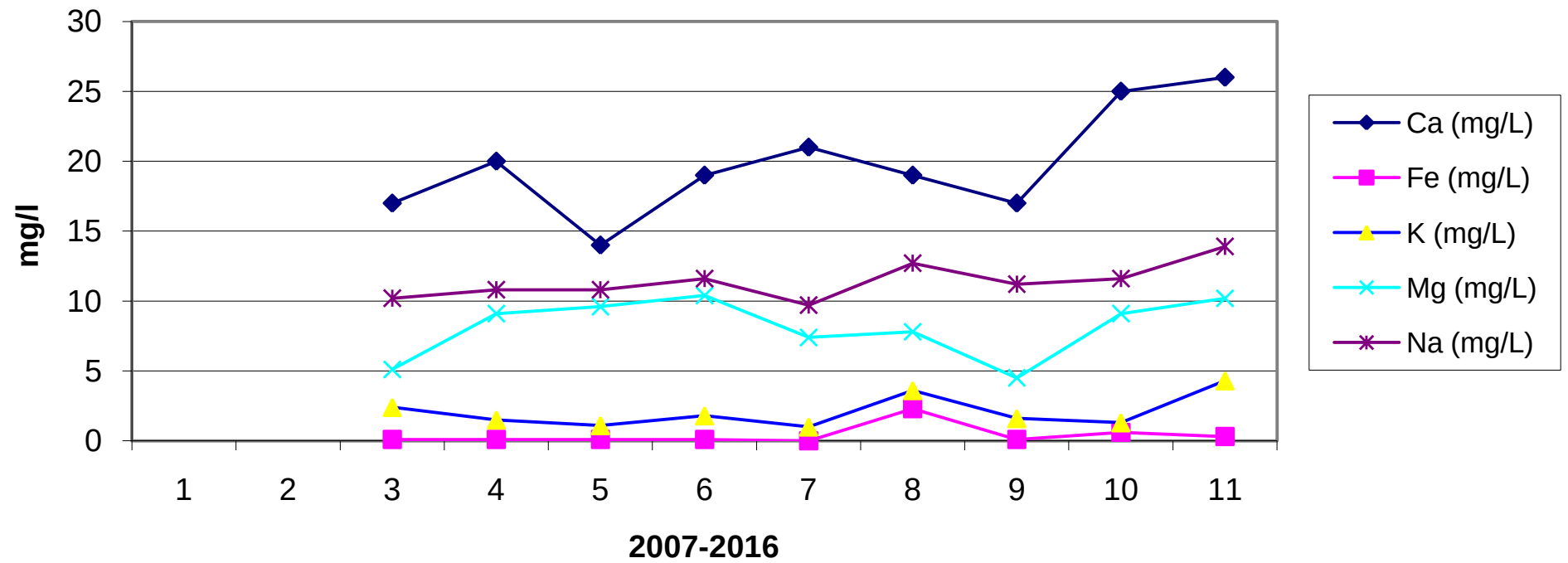
Year Wise Trend For Govinpur



Year Wise Trend For Govinpur



Year Wise Trend For Govindpur



LIST OF PERSONS INVOLVED IN THE PREPARATION OF WATER YEAR BOOK

1. Sri. N.C. Nanda, Executive Engineer, ERD, CWC, Bhubaneswar
2. Sri. D.S. Prasad, AEE, H.O. Circle, CWC, Bhubaneswar
3. Sri. S. K. Jagat, AEE, ERD, CWC, Bhubaneswar
4. Sri. G. Satyanarayana, SDE, Baitarani Sub-Division, CWC, Bhubaneswar
5. Sri. Asok Chaudury, SDE, Subarnarekha Sub-Division, CWC, Balasore
6. Smt. B.S Shanthala Devi, EAD, ERD, CWC, Bhubaneswar
7. Sri. N.K. Bhuyan, SRA, ERD, CWC, Bhubaneswar
8. Sri. B.B. Nayak, JE (HQS), ERD, CWC, Bhubaneswar
9. Sri. S.S. Mohanty, Sr. Computer, ERD, CWC, Bhubaneswar
10. Sri. Ashok Mishra, SWA, ERD, Bhubaneswar

