WATER QUALITY STATUS OF MAHARASHTRA *2016-17*

Maharashtra Pollution Control Board
महाराष्ट्र प्रदूषण नियंत्रण मंडळ

The Energy & Resources

Water Quality Status of Maharashtra 2016-17

(Compilation of Water Quality Data Recorded by MPCB)

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Prepared by

The Energy and Resources Institute

...towards global sustainable development

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MAHARASHTRA POLLUTION CONTROL BOARD

Preface

Maharashtra Pollution Control Board is monitoring water quality in Maharashtra to comply with the mandate of Water (Prevention & Control of Pollution) Act, 1974 and to disseminate status of water quality in the State of Maharashtra. Board is monitoring water quality under National Water Monitoring Programme (NWMP) and State Water Monitoring Programme (SWMP) at various locations as per the Uniform Monitoring Protocol of Central Pollution Control Board / Ministry of Environment, Forest and Climate Change, New Delhi.

This document contains compilation & statistical analysis of Water Quality Monitoring data observed at 294 monitoring stations during the period April 2016 to March 2017. Also National Sanitation Foundation, USA's formula has been used to calculate Water Quality Index (WQI) to depict the water quality in an easy to understand the general public at large. The WQI is also used to compare with the water quality of last few years.

Also presents a comparison for the trend in water quality index for intra-basin analysis for the past ten years and specifically for last three years. Graphical presentation of water quality trend for last 10 years of 294 stations and also riverwise is added in this report. Spatial presentation of water quality indices for the peak summer and post monsoon months is shown for the year 2016-17. In 2016-17 the Godavari Upper, Middle and Manjara sub-basins have recorded the highest percentage of observations in Good to Excellent category. The water quality in Wardha, Weinganaga and Pranhita sub basins has deteriorated, also reduced in Krishna Upper and Bhima sub basin. Spatial maps have been generated in GIS platform to present the status of water quality at a glance. Also maps showing status of surface and ground water quality are attached. I trust findings of this report will help all concerned departments to prepare suitable action plans for improvement of water quality.

I place a record of gratitude to *Hon'ble Minister for Environment, Shri Ramdasbhai Kadam, Hon'ble Minister of State for Environment, Shri Pravin Pote Patil and Hon'ble Additional Chief Secretary (Environment) Govt. of Maharashtra, Shri Satish Gavai, IAS, Shri Milind Mhaiskar, IAS, Chairman, MPCB* for having guided through the process.

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Abbreviations

BIS	Bureau of Indian Standards
BOD	Biochemical Oxygen Demand
CGWB	Central Ground Water Board
CPCB	Central Pollution Control Board
CWC	Central Water Commission
DO	Dissolved Oxygen
FC	Fecal Coliform
GEMS	Global Environment Monitoring System
GIS	Geographical Information System
GSDA	Groundwater Surveys & Development Agency
MINARS	Monitoring of Indian National Aquatic Resources System
MoEF	Ministry of Environment and Forests
MPCB	Maharashtra Pollution Control Board
NSFWQI	National Sanitation Foundation Water Quality Index
NWMP	National Water Monitoring Program
pH	Power of Hydrogen
RO	Regional Office
SD	Standards Deviation
Shp	Shape files
SPCBs	State Pollution Control Boards
SW	Surface Water
WHO	World Health Organisation
WQMS	Water Quality Monitoring Stations
YAP	Yamuna Action Plan

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Executive Summary

Maharashtra Pollution Control Board (MPCB), being the state nodal agency under Central Pollution Control Board (CPCB), regularly monitors the water quality across 294 WQMS (Water Quality Monitoring Stations) for both surface (176 on rivers, 36 on sea/creeks, 12 on drains, 4 dams) and ground water (29 Borewells, 35 Dugwell, 1 Handpump, 1 Tubewell) under two programs of National Water Quality Monitoring Program (NWMP) and State Water Quality Monitoring Program (SWMP). Surface water samples are monitored once every month whereas the ground water samples are monitored bi-anually.

This report presents the statistical analysis of the data representing water quality monitored in the year 2016-17, along with illustrations and spatial representations to have an overview on the performance for quality of surface and ground water in the state. The report further discusses the highlights on the annual and seasonal performance of the Water quality Index (WQI) for major basins (Tapi, Godavari, Krishna, and West Flowing) as well as for the water samples representing saline (sea/creek) and groundwater for general classification (Table No. 1) The WQI has been determined based on the formula developed by National Sanitation Foundation (NSF) and modified by CPCB[1] (Table No. 1) which depicts the water quality in simple and easy way for general public at large.

Table No. 1: Formula and classification of Water quality indices for surface and groundwater

Surface Water Quality Index		**Ground Water Quality Index**	
$WQI = \sum_{i=1}^{p} WiIi$		$WQI = \sum_{i=1}^{n=9} qi.wi$	
Where; Ii = sub index for water quality parameter Wi = weight (in terms of importance) associated with water quality parameter P = number of water quality parameters		Where; qi = quality rating wi = relative of each weight	
WQI	Quality classification	Remarks	Colour code
Surface Water Quality			
63 - 100	Good to Excellent	Non Polluted	
50 - 63	Medium to Good	Non Polluted	
38 - 50	Bad	Polluted	
38 and less	Bad to Very Bad	Heavily Polluted	
Ground Water Quality			
<50	Excellent	Non Polluted	
50-100	Good water	Non Polluted	
100-200	Poor Water	Polluted	
200-300	Very Very Poor	Polluted	
>300	Water Unsuitable for drinking	Heavily Polluted	

[1] Maharashtra Pollution Control Board, Methodology for Data Interpretation

Surface Water Quality

In the year 2016-17, surface (rivers, sea, creek and nallahs) water quality was monitored at about 228 locations (WQMS). The four major basins namely Tapi, Godavari, Krishna and West flowing rivers were considered to categorize the rivers in respective basins and sub basins (Table No. 2). Based on the annual average WQI for the 228 WQMS, it was recorded that 127 WQMS were recorded to be in the 'Good to Excellent' category while 58 WQMS were in 'Medium to Good' category. As for the polluted categories around 34 and 9 WQMS were recorded in 'Bad' and 'Bad to Very Bad' categories respectively.

Table No. 2: Annual Average WQI for surface WQMS in various basins and sub basins

Basin	Sub basins	Name of Rivers	Category wise No. of WQMS				
			G2E	M2G	B	B2V	Total
Tapi	Tapi Upper	Tapi, Purna, Pedhi	4	1			5
	Tapi Middle	Tapi, Girna, Rangavali, Amravati, Bori, Burai, Gomai, Hiwara, Kan, Mor, Panzara, Titur, Waghur,	15				15
Godavari 1	Godavari Upper	Godavari, Darna	20				20
	Godavari Middle	Godavari, Bindusara	11				11
	Manjra	Godavari, Manjra	2				2
Godavari 2	Wardha	Wardha, Penganga	3	9			12
	Weinganga	Kolar, Kanhan, Weinganga	9	2	3	1	15
	Pranhita and others	Wainganga		1			1
Krishna	Bhima Upper	Bhima, Nira, Chandrabhaga, Mutha, Ghod, Indrayani,Pawana, Sina, Vel, Nalla, Mula-Mutha	7	12	18		37
	Krishna Upper	Krishna, Panchganga, Koyna, Urmodi, Venna	15	6			21
West Flowing s		Kalu, Ulhas, Patalganga, Bhatsa, Vashishti, Mithi, Kundalika, Savitri, Amba, Kundalik, Muchkundi, Surya, Tansa, Vaitarna,	37	3		1	41
Nallah		Rabodi nalla, Colour Chem nalla, Sandoz nalla, BPT Navapur, Tarapur MIDC nalla, Pimpal-Paneri nalla	3	2		7	12
Saline			1	22	13		36
Total			**127**	**58**	**34**	**9**	**228**

Legend

G2E: Good to Excellent	M2G: Medium to Good	B: Bad	B2V: Bad to Very bad

The quality of water is affected by various factors like rate of precipitation, flow rate of water, high evaporation rate during the summers, sporadic pollution loads from various anthropogenic activities and so on. Hence, there could be varied fluctuations in the quality of water at the same monitoring location leading to seasonal and monthly variations. Thus to eliminate this shortcoming an interbasin analysis for the occurrence and share of water quality index across the basins has been developed without averaging any values.

As seen in Figure No. 1, it is interesting to note that the Godavari Upper, Middle and Manjra sub basins recorded the most number of observations, more than 60% of the observations in 'Good to Excellent' category as compared to any other sub basins in Maharashtra. As one travels downstream to the sub basins, namely the sub basins of Wardha, Weinganga and Pranhita the water quality is increased namely in Weinganga which recorded about 58% of observations under 'Good to Excellent' category as compared to previous year. The WQI of Krishna Upper sub-basin was observed to be about 65%, less than 20% as compared to last year, under Good to excellent category. The Bhima sub basin also recorded similar profile in this year and more than 55% of the observations were under 'Bad' and 'Bad to Very Bad' category. Majority of the observations in Tapi basin were not recorded as the WQMS were found to be 'Dry' most of the year.Sea/Creek samples recorded marginal increase of observations in Medium to Good category and decrease of observations in 'Bad' category by around 5% as compared to last year.

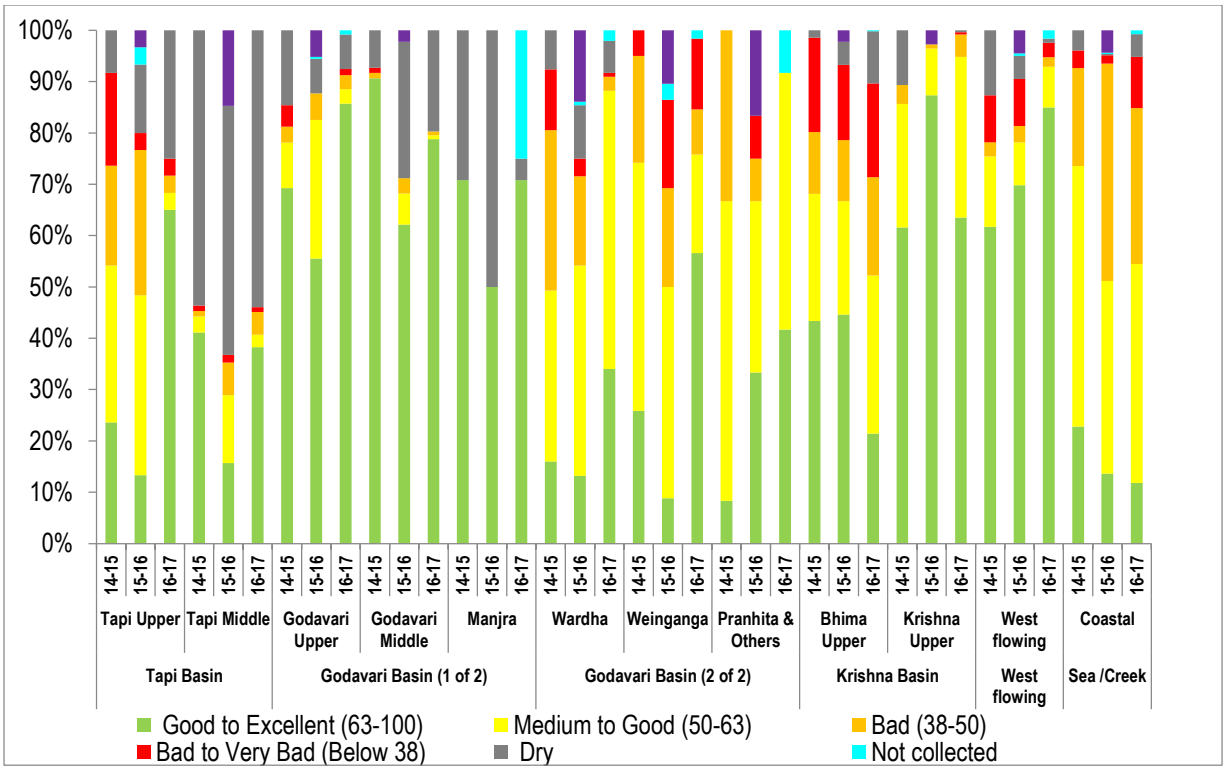


Figure No. 1: Average occurrence of different category of WQI across WQMS in respective sub basins of Maharashtra

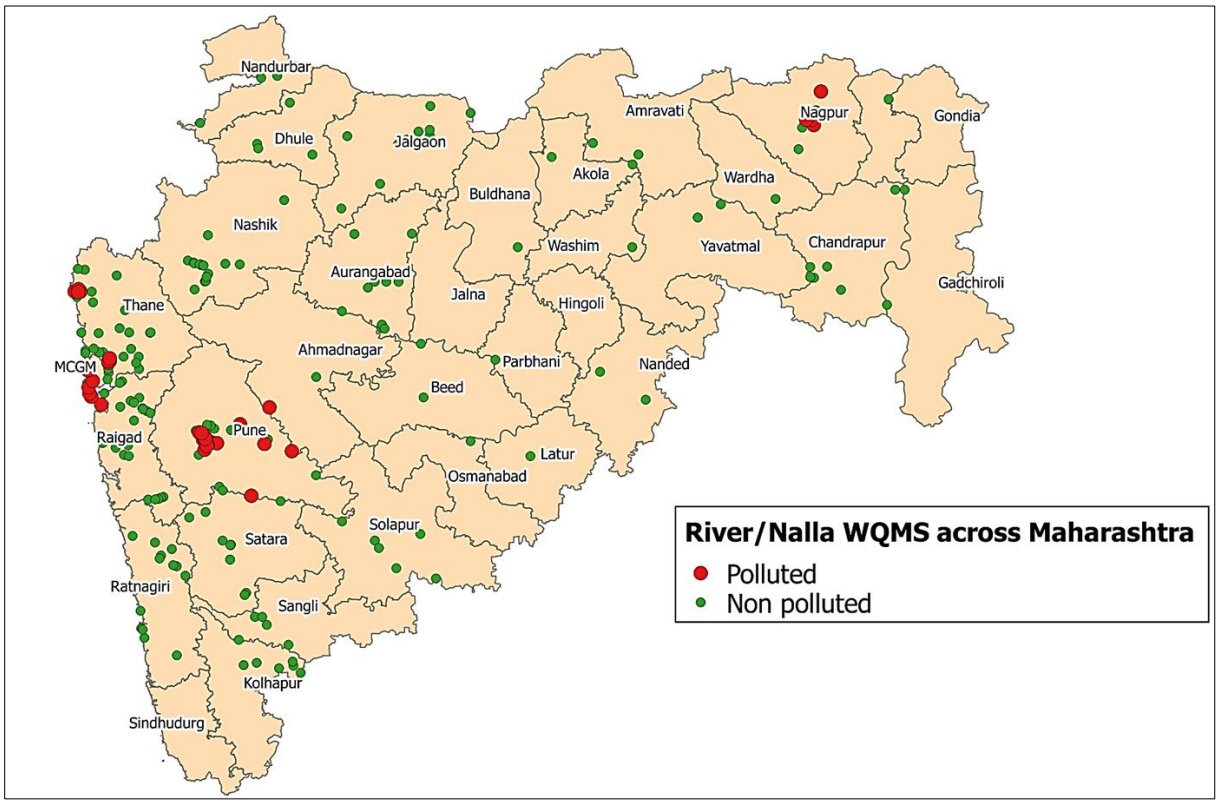
Note: *The above comparison is based on the WQI recorded at a monitoring station and the average number of times the WQI was of a certain category at all the WQMS in that basin.*

** West Flowing basin also include the water monitoring done at Nallas of Rabodi, Colourchem, Sandoz and MIDC Tarapur*

A spatial representation of the polluted locations, WQI<50 for more than 50% of the observations, has been presented in Map No. 1 and the corresponding details of the WQMS have been enlisted in Table No. 3. The disctricts of Mumbai, Thane, Pune, and Nagpur have been detected to have polluted rivers.

In the year 2016-17, saline water quality was monitored at around 36 locations across the 720km long coastline of the state. In terms of the monitoring done for sea and creek water along the coastline of the state, a majority of the WQMS are located in Mumbai (8), Mumbai Suburban (2) and Thane (19) districts. The Raigad and Ratnagiri districts have 3 and 4 WQMS respectively while there is no WQMS in the Sindhudurg district.

Sea water samples from Mumbai and Thane were recorded to be polluted throughout the year and the WQI at these locations was in the category of 'Medium to Bad'. This could be attributed to release of semi-treated sewage directly into the sea and creek water in Mumbai and Thane.



Map No. 1: Spatial representation surface WQMS which recorded WQI as polluted for more than 50% of the observations

Table No. 3: WQMS which recorded WQI as polluted for more than 50% observations in 2016-17

Station code	Water Body	Station Name	Village	Taluka	District
186	Nag River	Nag River Near, Bhandewadi Bridge, Nagpur	Nagpur	Nagpur	Nagpur
187	Nag River	Nag River Near, Asoli Bridge, Bhandara Road, Nagpur	Nagpur	Nagpur	Nagpur
188	Pill River	Pill River Near, Wanjra Layout Kamptee Road, Nagpur	Nagpur	Nagpur	Nagpur
189	Pill River	Pill River Near, Mankapur on Koradi Road, Nagpur	Nagpur	Nagpur	Nagpur
191	Sea Water	Arabian Sea behind ONGC Uran	Uran	Uran	Raigad
1189	Bhima river	Bhima river at Pune(Mutha river) at U/s of Vithalwadi near Sankar Mandir	Vithalwadi	Haweli	Pune
1190	Bhima river	Bhima river at D/s of Bundgarden, Pune	Yerwada	Haweli	Pune
1192	Bhima river	Bhima river at Daund near Mahadev temple	Daund	Daund	Pune
2165	Sea	Sea Water at Gateway of India	Colaba	Colaba	Mumbai
2166	Sea	Sea Water at Charni Road Choupathy	Girgaon	Mumbai	Mumbai
2167	Sea	Sea Water at Worli Seaface	Worli	Worli	Mumbai
2168	Mithi river	Mithi River at near bridge	Mahim	Bandra	Mumbai
2169	Sea	Sea Water at Varsova Beach	Versova	Andheri	Mumbai
2191	Mutha river	Mutha River at Sangam Bridge Near Ganpathi Ghat	Shivaji Nagar	Pune	Pune
2192	Mula-Mutha river	Mula-Mutha River at Mundhwa Bridge	Mundhawa	Haweli	Pune
2193	Mula river	Mula River at Aundh Bridge - Aundgaon	Aundhgaon	Haweli	Pune
2194	Mula river	Mula River at Harrison Bridge near Mula -Pawana Sangam	Bopodi	Haweli	Pune
2195	Nira river	Nira River at D/s of Jubilant Organosis Pune	Nimbut	Baramati	Pune
2196	Pawana river	Pawana River at Sangavigaon, Pune	Sangavigaon	Haweli	Pune
2665	Ghod river	Ghod River at Shirur, Pune	Shirur	Shirur	Pune
2677	Mula-Mutha river	Mula-Mutha River at D/s of Theur, Pune	Theur	Haweli	Pune
2678	Mutha river	Mutha River near Veer Savarkar Bhavan	Pune M.C	Pune	Pune
2679	Mutha river	Mutha River at Deccan Bridge, Pune	Deccan	Pune	Pune
2690	Pawana river	Pawana River at Kasarwadi Pune	Kasarwadi	Haweli	Pune
2691	Pawana river	Pawana River at Dapodi Bridge at Pawana-Mulla Sangan Pune	Dapodi	Haweli	Pune
2693	Pawana river	Pawana River at Chinchwadgaon, Pune	Chinchwadgaon	Haweli	Pune

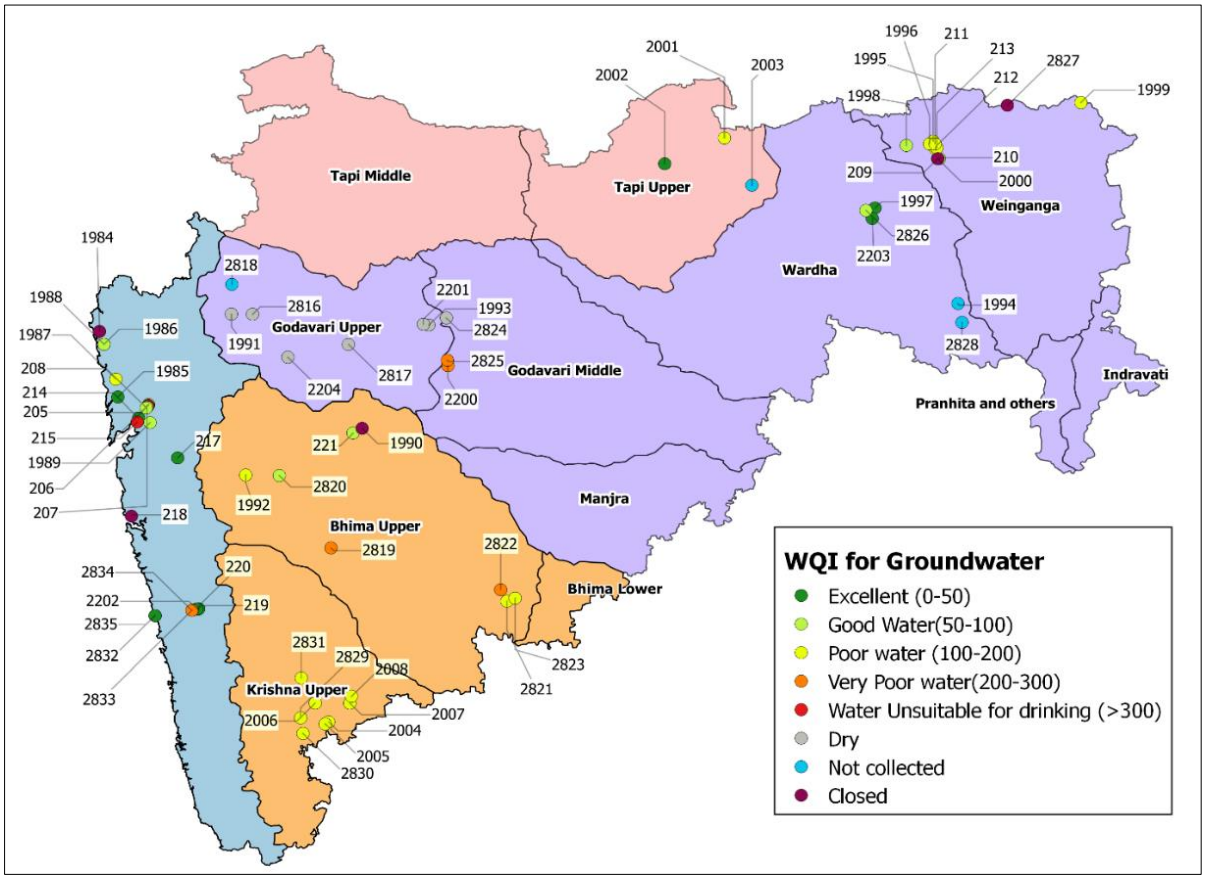
Station code	Water Body	Station Name	Village	Taluka	District
2694	Pawana river	Pawana River at Pimprigaon, Pune	Pimprigaon	Haweli	Pune
2715	Vel river	Vel River at Shikrapur, Pune	Shikrapur	Shirur	Pune
2782	Rabodi nalla	Rabodi Nalla	Rabodi	Thane	Thane
2783	Colour Chem nalla	Colour Chem Nalla	Majiwada	Thane	Thane
2784	Sandoz nalla	Sandoz Nalla	Sandozbaug	Thane	Thane
2785	BPT Navapur	BPT Navapur	Navapur	Palghar	Palghar
2786	Tarapur MIDC nalla	Tarapur MIDC Nalla, near sump No1	MIDC Tarapur	Palghar	Palghar
2787	Tarapur MIDC nalla	Tarapur MIDC Nalla	MIDC Tarapur	Palghar	Palghar
2788	Tarapur MIDC nalla	Tarapur MIDC Nalla near sump-III	MIDC Tarapur	Palghar	Palghar

Ground water Quality

Maharashtra Pollution Control Board (MPCB), monitors the ground water quality for 66 ground water monitoring stations with a frequency of twice a year for parameters like pH, Nitrate, TDS (Total Dissolved Solids), Hardness, Fluoride, Microbial content, Sulphates and so on. The ground water quality analysis for the year 2015-16 has been done for 66.monitoring stations. In the year 2016-17, out of the 66 WQMS, there were 49 active stations while 6 WQMS were reported to be closed, water samples from 4 WQMS were not collected and 7 WQMS were reported to be dry for both the sampling months (April and October). This year a total of 92 observations were collected for the active stations out of which 5 observations for the stations 215, 2819, 2822, 2834, and 2200 (Table No. 4) were recorded to be in the category 'Water Unsuitable for Drinking'. These stations recorded high level of TDS, Hardness, Calcium and chlorides levels were found to be high. A total of 27 WQMS recorded in the districts of Kolhapur, Nagpur, Aurangabad, Kalyan, Pune and Thane districts recorded average WQI in the polluted category in this year as depicted in Map No. 2. The pH levels for all ground WQMS were observed in the range of 6.5-9. The highest hardness and calcium level and of about 5960 (CaCO3) mg/litre and 1320 (CaCO3) mg/litre was recorded for the water sample collected from a bore well in Turbhe, Navi Mumbai (Station code 215). This station also recorded very high TDS levels of 43650 mg/litre. This was particularly observed in the month of April indicating peak summer (pre-monsoon) season.

Table No. 4: List of WQMS which recorded WQI in 'Water not suitable for drinking'

Station ID	Regional Office	Water Body	Station Name	Village	Taluka	District
215	Navi Mumbai	Dug well	Well water at Turbhe Store, Turbhe	Turbhe	Thane	Thane
2200	Aurangabad	Bore well	Bore Well at Katpur, Near Z.P.School	Katpur	Paithan	Aurangabad
2818	Nashik	Bore well	Bore Well at M/s. Spectron Ethers Rasegaon near Siddeshwar Mahadev Mandir	Rasegaon	Dindori	Nashik
2834	Kolhapur	Dug well	Dug Well No.2 at Arketwadi	Arketwadi	Khed	Ratnagiri
2822	Pune	Bore well	Bore Well near Chincholi	Chincholi	Mohol	Solapur



Map No. 2: Spatial representation for average groundwater WQI

**Station No. 206, 218, 1984, 1990, 2000 and 2827 were non-functional in reporting year*

Introduction

As per WHO, any change in the physical, chemical and biological properties of water that has a harmful effect on living things is termed as water pollution[2]. Rapid growth of population, urbanization and industrialization exerts pressure on water resources and unregulated or illegal discharge of effluents results in water pollution. Central Pollution Control Board (CPCB) reports that, the major sources of water pollution in India are release of untreated sewage from urban centres, the release of industrial effluents and organic runoffs from agricultural fields[3]. Along with human activities, various micro-biological agents like bacteria, viruses and protozoa also cause water pollution which may cause various water-borne diseases like amoebiasis dysentery, typhoid, jaundice, cholera. Water contaminated with heavy meatsls like arsenic, lead, cadmium can cause skin cancer, anaemia, headache, suppression on immune system, softening of the bones and kidney failure[4],[5],[6]. Physical deformaties such as hooked beaks in birds and thinning of egg shell can occur in avifauna due to contaminated water.[7]

Growing demand for water in agriculture, industrial and domestic sectors has led to over-exploitation of the groundwater resource resulting in decline in groundwater levels. Dumping of solid wastes is also an important factor resulting in deterioration of the groundwater quality. About 90% of Municipal Solid waste is dumped on land. During rainfall, the surface water percolates from waste gets dissolve or leach out with harmful chemicals through the soil and reaches the groundwater thus contaminating it. Dumping of sewage into water bodies directly results in accumulation of toxic substances which not only affects the water quality by depleting of oxygen in the water affecting the aquatic life resulting in algal bloom but affects the food chain of birds and animals[8].

In order to provide prevention and control of water pollution, MoEF (Ministry of Environment and Forests), Government of India, under a policy decision enacted The Water (Prevention and Control of Pollution) Act in 1974. Under the Act, MoEF has established and delegated the powers and functions to CPCB which in collaboration with State Pollution Control Board (SPCB) has established a network of monitoring stations on rivers across the country. Presently, water quality-monitoring network is operated under a three-tier programme i.e. Global Environmental Monitoring System (GEMS), Monitoring of Indian National Aquatic Resources System (MINARS) and Yamuna Action Plan (YAP). The water samples are analysed for 9 core parameters and 19 general parameters, 10 trace metals (Table No. 5).

GEMS

CPCB has been identified as the Government of India's agency to carry out water quality monitoring under the United Nation's, Global Environment Monitoring System (GEMS) Water Programme under World Health Organisation (WHO). The GEMS programme is

[2] R.Gambhir, *Water Pollution: Impact of Pollutants and New Promising Techniques in Purification Process*
[3] Central Pollution Control Board, *Status of Sewage treatment plant in Ganga basin*
[4] http://www.yourarticlelibrary.com/essay/water-pollution-effects-and-health-hazards-of-water-pollution/28280/
[5] http://www.who.int/mediacentre/factsheets/fs372/en/
[6] http://www.who.int/water_sanitation_health/dwq/chemicals/cadmium.pdf
[7] A.Agrawal & R.Pandey, *Water Pollution with Special Reference to Pesticide Contamination in India*, 2010
[8] N.Raman & D.Narayan, *Impact of solid waste effect on groundwater and soil qualitynearer to Pallavaram solid waste landfill site in Chennai*, 2008

dedicated to provide water quality data and information of the highest integrity, accessibility and interoperability.

MINARS

A national programme titled Monitoring of Indian National Aquatic Resources (MINARS) was started in 1984, with a total of 113 stations spread over 10 basins. Water samples are being analysed for 28 parameters consisting of physico-chemical and bacteriological parameters for ambient water samples apart from field observations.

Table No. 5: List of parameters tested and analyzed by CPCB and SPCB

Sr No	Field observations	Core parameters	General parameters	Micropollutants (Trace metals & Pesticides)
1	Weather	Temperature	Turbidity	Cadmium
2	Depth of Water Body	Dissolved Oxygen	Phenophthalein alkalinity	Copper
3	Human activities	pH	Total Alkalinity	Lead
4	Floating Matter (Visible Effluent discharge)	Conductivity	Chlorides	Chromium total
5	Color	BOD	COD	Nickel
6	Odour	Nitrate	Total Kjeldahl-N	Zinc
7		Nitrite	Ammonia-N as N mg/l	Iron
8		Fecal Coliform	Hardness as CaCO3	Arsenic
9		Total coliform	Calcium CaCO3	Mercury
10			Magnesium CaCO3	
11			Sulphate	
12			Sodium	
13			Total dissolved solids	
14			Total fixed solids	
15			Total suspended solids	
16			Phosphate	
17			Boron	
18			Potassium	
19			Fluoride	

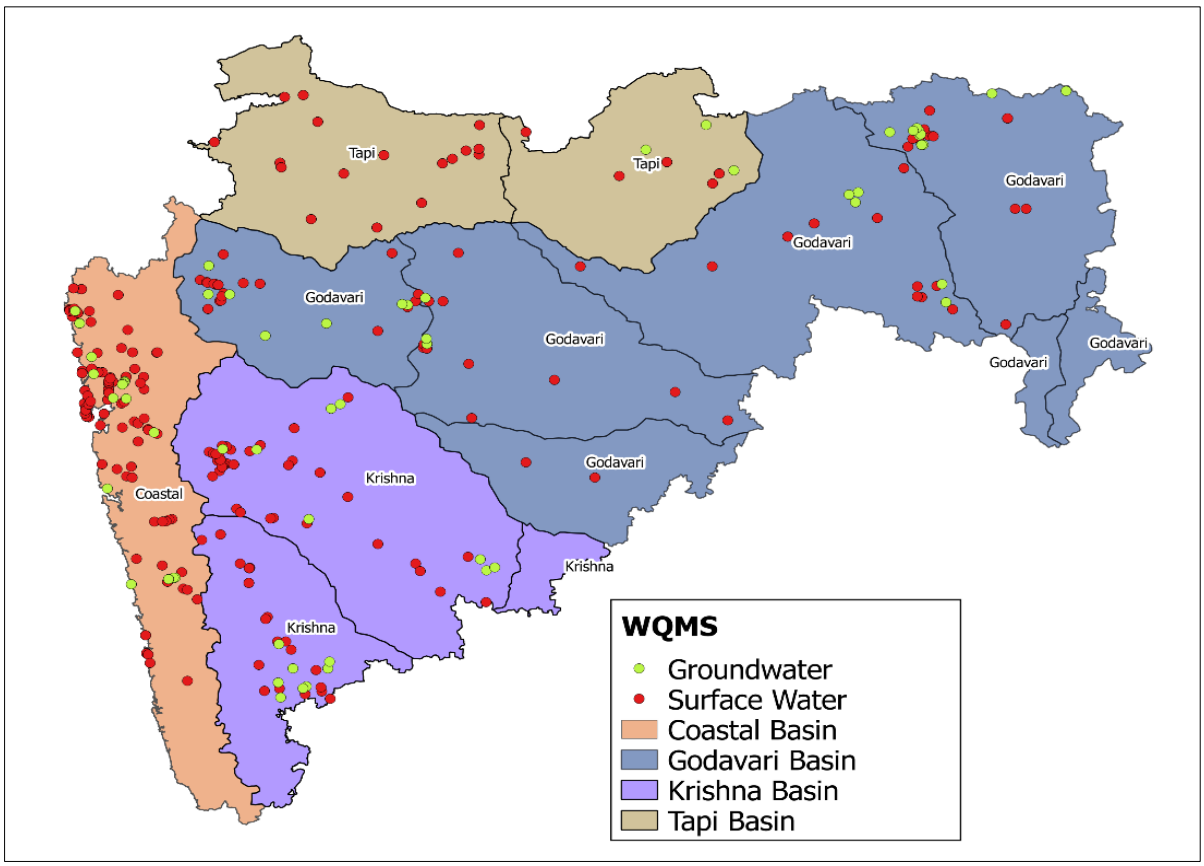
Water Quality Monitoring in Maharashtra

As per provisions made by Water Quality Assessment Authority constituted under sub sections (1) and (3) of section 3 of the Environment (Protection) Act, 1986 (Act No.29 of 1986) water quality in Maharashtra is monitored by various agencies namely Hydrology Project (SW), Groundwater Surveys & Development Agency (GSDA), CPCB, Maharashtra Pollution Control Board (MPCB), Central Water Commission (CWC) and Central Ground Water Board (CGWB). The water quality testing under the GEMS and MINARS program under NWMP in Maharashtra is monitored by MPCB (state nodal agency). Maharashtra has highest number of monitoring stations (250 WQMS) under NWMP across all the states in India. MPCB has infrastructure to monitor 44 parameters covering field observations, general parameters, core parameters and trace metals (Table No. 5) and the samples are monitored with a monthly and six monthly frequency for surface and groundwater stations respectively. In order to have contionous vigilance check on water quality across the state, MPCB has installed WQMS (Water Quality Monitoring Stations) across the state. The network of WQMS for year 2016-17 are represented in the Map No. 3 and Table No.6.

Table No. 6: Basin and water body typewise tally of WQMS in Maharashtra

Type	Water bodies/Basin	Programme								
		NWMP				SWMP				Total
		Coastal	Godavari	Krishna	Tapi	Coastal	Godavari	Krishna	Tapi	
Surface water	Rivers	34	48	53	20	6	11	4		176
	Creek	19				1				20
	Dam	1				1	2			4
	Nalla	8	1	1					2	12
	Sea	15				1				16
Ground water	Dug well	6	12	5	1	7	3	1	0	35
	Bore well	5	8	10	1	3	2	0	0	29
	Tube well				1					1
	Hand pump		1							1
	Grand Total	**88**	**70**	**69**	**23**	**19**	**18**	**5**	**2**	**294**

Source: Maharashtra Pollution Control Board



Map No. 3: Spatial representation of network of WQMS monitored by MPCB across Maharashtra 2016-17

Water quality is monitored per month across all the stations. The spatial presence of the stations is presented basin wise in the respective sections. Basin wise water quality index is presented in this section for the basins of Krishna, Godvari, Tapi and West flowing. Annex I presents the illustrations of the parameters pH, DO, BOD and FC recorded across the 228 surface water quality monitoring stations of MPCB in a lucid format.

Methodology and Calculation

The comprehensive data sets recorded by WQMS across the state were organised basin wise for evaluation for both surface and groundwater quality. The water monitoring stations were further arranged from upstream to downstream in order to study basin wise trend of water quality. The classification of the various rivers, their basins and subbasins considered in this report is presented in Table No. 7. The Water quality index is determined by calculating the basic parameters like pH, BOD (mg/l), DO (mg/l to %) and FC (MPN/100ml). The WQI has been calculated separately for surface water and groundwater water samples using the formula provided by National Sanitation Foundation (NSF) and the relative weights modified by CPCB. To present the data in a spatial format GIS (Geographical Information System) maps were generated.

Table No. 7: Classification of the rivers considered under basins and sub basins in the report

Basin	Sub basins	Name of rivers	Number of WQM stations
Tapi	Tapi Upper	Tapi, Purna, Pedhi	8
	Tapi Middle	Tapi, Girna, Rangavali, Amravati, Bori, Burai, Gomai, Hiwara, Kan, Mor, Panzara, Titur, Waghur, Waghur	17
Godavari 1	Godavari Upper	Godavari, Chikhali nalla, Darna	28
	Godavari Middle	Godavari, Bindusara	14
	Manjra	Godavari, Manjra	2
Godavari 2	Wardha	Wardha, Penganga	17
	Weinganga	Kolar, Kanhan, Wainganga	26
	Pranhita and others	Wainganga	1
Krishna	Bhima Upper	Bhima, Nira, Chandrabhaga, Mutha, Ghod, Indrayani, Pawana, Sina, Vel, Nalla, Mula-Mutha	45
	Krishna Upper	Krishna, Panchganga, Koyna, Urmodi, Venna	29
West Flowing rivers		Kalu, Ulhas, Patalganga, Bhatsa, Vashishti, Mithi, Kundalika, Savitri, Amba, Kundalik, Muchkundi, Surya, Tansa, Vaitarna, Rabodi nalla, Colour Chem nalla, Sandoz nalla, BPT Navapur, Tarapur MIDC nalla, Pimpal-Paneri nalla	71
Saline			36
Total			**294**

Spatial Maps

Sub -basin level maps

Of the 5 major basin, Narmada basin comprises of just 0.5%[9] of the total area. Hence, it was included in the Tapi basin for ease and convenience, while the remaining WQMS were divided into the remaining four basins. Since the basins are huge and have many WQMS within them, the sub basin level map was generated as per data and demarcation published by CGWB[10] (Central Ground Water Board), Ministry of Water Resources Government of India. The imageries, for the basins of Tapi, Krishna and Godavari, were downloaded and upon geo-referencing those, the maps were digitized on GIS platform to generate shape (.shp) files.

MPCB Regional Office (RO) maps

Maps depicting the jurisdiction of the regional offices of MPCB, superimposed with district boundaries have been generated as part of this report. The peak season water quality index for the stations in each RO have been compiled for the necessary action by the respective RO's of MPCB.

Organizing and presentation of the data sets

The data sets for water quality parameters like temperature, dissolved oxygen, pH, conductivity, BOD, COD, and Fecal Coliform and so on were shared by MPCB in soft copy for the years 2008 to 2012. The data sets were organised in spread sheets for further analysis and illustrative presentation. Stock graphs have been generated to depict the minimum, maximum, 25th and 75th percentile values along with the mean values observed for parameters namely pH, BOD, DO and FC. The standard deviation (SD) values were calculated and have been presented along with the data sets in the spread sheets.

Water Quality Index

A water quality index provides a single number (like a grade) that expresses overall water quality of a certain water sample (location and time specific) for several water quality parameters. The objective of developing an index is to simplify the complex water quality parametric data into comprehensive information for easy understanding. A water index based on important parameters provides a simple indicator of water quality and a general idea on the possible problems with the water in the region.

In 1970, the National Sanitation Foundation, USA developed the Water Quality Index (NSFWQI), a standardized method for comparing the water quality of various water bodies. NSFWQI is one of the most respected and utilized water quality index in the United States. Nine water quality parameters selected for calculating the index included

[9] Maharashtra Water Resources Regulatory Authority, http://www.mwrra.org/introduction.php?link=wr
[10] Central Ground Water Board, http://cgwb.gov.in/watershed/list-ws.html

- Dissolved Oxygen (DO)
- Faecal Coliform (FC)
- pH
- Biochemical Oxygen Demand (BOD) (5-day)
- Temperature change (from 1 mile upstream)
- Total phosphate
- Nitrate
- Turbidity
- Total Solids

The expression for calculation the NSFWQI is expressed as;

$$\text{NSFWQI} = \sum_{i=1}^{p} \text{WiIi}$$

Where;

Ii= sub index for i^{th} water quality parameter

Wi= weight (in terms of importance) associated with water quality parameter

P= number of water quality parameters

WQI for surface water

Given the parameters monitored in India under the NWMP and to maintain the uniformity while comparing the WQI across the nation, the NSF WQI has been modified and relative weights been assigned by CPCB. The modified weights as per CPCB are given in Table No. 8 and the equations used to determine the sub index values are given Table No. 9. Upon determining the Water Quality Index, the water quality is described for easy understanding and interpretation. The description used in the report for classifying and the describing the water quality is presented in Table No. 10.

Table No. 8: Modified weights for computation of WQI based on DO, FC, pH and BOD

Parameters	Original Weights from NSF WQI	Modified Weights by CPCB
Dissolved Oxygen (DO)	0.17	0.31
Fecal Coliform (FC)	0.15	0.28
pH	0.12	0.22
BOD	0.1	0.19
Total	0.54	1

Table No. 9: Sub index equation used to calculate NSF WQI for DO, FC, pH and BOD

Water Quality Parameters (units)	Range Applicable	Equation
Dissolved Oxygen (DO)(% Saturation)	0-40	0.18 + 0.66 X % Saturation DO
	40-100	(-13.55) + 1.17 X % Saturation DO
	100-140	163.34 - 0.62 X % Saturation DO
Fecal Coliform (FC) (counts/100 ml)	1 - 10^3	97.2 - 26.6 X log FC
	10^3 - 10^5	42.33 - 7.75 X log FC
	>10^5	2
pH	02 - 05	16.1 + 7.35 X (pH)
	05 - 7.3	(-142.67) + 33.5 X (pH)
	7.3 - 10	316.96 - 29.85 X (pH)
	10 – 12	96.17 - 8.0 X (pH)
	<2, >12	0
BOD (mg/l)	0 – 10	96.67 - 7 X (BOD)
	10 – 30	38.9 - 1.23 X (BOD
	>30	2

Table No. 10: Water Quality Classification and Best Designated use

WQI	Quality classification	Class by CPCB	Class by MPCB	Remarks	Colour code
63 - 100	Good to Excellent	A	A-I	Non Polluted	
50 - 63	Medium to Good	B	Not Prescribed	Non Polluted	
38 - 50	Bad	C	A-II	Polluted	
38 and less	Bad to Very Bad	D, E	A-III, A-IV	Heavily Polluted	

Sample calculation for determining Surface WQI

Parameters considered in the year 2014-15- Biological Oxygen Demand (BOD), Dissolved Oxygen (DO), pH, Fecal Coliform (FC)

Station Name	:	Wainganga at Ashti	Station Code	:	11
Sub basin	:	Pranhita	Basin	:	Godavari
BOD	:	6.9 mg/l	DO	:	5mg/l
FC	:	70 MPN/100 ml	pH	:	8.66

Formula

$$NSFWQI = \sum_{i=1}^{p} WiIi$$

Where;

Ii= sub index for water quality parameter

Wi= weight (in terms of importance) associated with water quality parameter

P= number of water quality parameters

Sub index for BOD

BOD value = 6.9 mg/l

Since 6.9 lies in range (0-10), the corresponding formula is used from Table No. 9

Sub Index (BOD) = 96.67 – 7 X (BOD value)

= 96.67 – 7 X 6.9

= 48.37 X Modified Weights by CPCB for BOD (Table No. 8)

= 48.37 X 0.19

= 9.1903

Sub index for Dissolved Oxygen (DO)

DO value = 5 mg/l

DO (saturation %) = 5 /6.5 X 100 [6.5 has been taken as constant as per DO vs temp]

= 76.92308

Since 76.92 lies in range (40-100), the corresponding formula is used from Table No. 9

Sub Index (DO) = (-13.55) + 1.17 X % Saturation DO value

= (-13.55) + 1.17 X 76.92

= 76.4464 X Modified Weights by CPCB for DO (Table No. 8)

= 76.4464* 0.31

= 23.69839

Sub index for Fecal Coliform (FC)

Fecal Coliform value = 70 MPN/100ml

Since 70 lies in range (0-10^3), the corresponding formula is used from Table No. 9

Sub Index (FC) = 97.2 - 26.6 X log FC

= 97.2-26.6 X log 70

= 48.12039 X Modified Weights by CPCB for FC (Table No. 8)

= 48.12039 X 0.28

= 13.47371

Sub Index for pH

pH value = 8.66

Since 8.6 lies in range (7.3-10), the corresponding formula is used from Table No. 9

Sub Index (pH) = 316.96 - 29.85 X (pH)

= 316.96-29.85 X 8.66

= 58.459 X Modified Weights by CPCB for pH (Table No. 8)

= 58.459 X 0.22

= 12.86098

WQI of Wainganga at Ashti

WQI = ∑ (sub –index of all parameters)

= ∑ (9.1903+23.69839+13.47371+12.86098)

= 59

Quality Classification: Medium to Good

WQI for groundwater

MPCB monitors ground water quality for parameters like pH, total hardness, Calcium, Magnesium, Chloride, total dissolved solids, Fluoride, Manganese, Nitrate, Sulphates and so on once in six months. Based on the stringency of the parameters and its relative importance in the overall quality of water for drinking purposes each parameter has been assigned specific weightage[11]. The relative weights of the same have been determined (

Table No. 11) for the parameters monitored and recorded by MPCB for the water samples monitored in the year 2014-15.These weights indicate the relative harmfulness when present in water. The maximum weight assigned is 5 and minimum is 1.

Table No. 11: Relative Weight of chemical parameters used for calculating WQI for Ground water

Chemical Parameters	**Indian Standards for Drinking Water Quality[12]**		**Weight (Wi)**			
	Acceptable Limit	Permissible Limits	Weight	Relative Weight	Weight w/o Iron, Manganese and Bicarbonate	Relative Weight w/o Iron, Manganese and Bicarbonate
pH	6.5-8.5	No relaxation	4	0.09756	4	0.13333
Total Hardness (TH)	300	600	2	0.04878	2	0.06667
Calcium	75	200	2	0.04878	2	0.06667
Magnesium	30	No relaxation	2	0.04878	2	0.06667
Bicarbonate	244	732	3	0.07317	-	-
Chloride	250	1000	3	0.07317	3	0.10000
Total Dissolved Solids (TDS)	500	2000	4	0.09756	4	0.13333
Fluoride	1	1.5	4	0.09756	4	0.13333
Manganese	0.1	0.3	4	0.09756	-	-
Nitrate	45	No relaxation	5	0.12195	5	0.16667
Iron	0.3	No relaxation	4	0.09756	-	-
Sulphate	200	400	4	0.09756	4	0.13333
			41	1	30	1

Source: BIS 10500 and CPCB 2001

[11] C. R. Ramakrishnaiah, *Assessment of Water Quality Index for the Groundwater* , E-Journal of Chemistry, 2009, 6(2), 523-530; ISSN: 0973-4945

[12] Bureau of Indian Standards, *Draft Indian Standard Drinking Water – Specification*; Second Revision of IS 10500, ICS No. 13.060.20

The maximum weight of 5 has been assigned to the parameter nitrate due to its major importance in water quality while, magnesium is given the minimum weight of 1 as may notbe harmful.

The relative weight is then computed from the following equation

$$Wi = \frac{wi}{\sum_{i=1}^{n} wi}$$

Where;

Wi = the relative weight

wi = the weight of each parameter

n = number of parameters

In the next step a quality rating scale (qi) for each parameter is assigned by dividing its concentration in each water sample by its respective standard according to the guidelines published by BIS (Bureau of Indian Standards) and the result thus obtained is multiplied by 100.

$$qi = (Ci/Si) \times 100$$

Where;

Qi = quality rating

Ci = the concentration of each chemical parameter in each water sample in mg/L

Si = the Indian drinking water standard for each chemical parameter in mg/L according to the guidelines of the BIS 10500, (2004-2005).

Based on the absolute value of the index determined from the calculations, water quality is classified as presented below in Table No. 12.

Table No. 12: Groundwater classification based on the Water Quality Index

WQI Value	Water Quality	Colour code used in this report
<50	Excellent	
50-100	Good water	
100-200	Poor Water	
200-300	Very Very Poor water	
>300	Water Unsuitable for drinking	

Sample Calculation for determining Ground WQI

Station name : Bore well at Parvati Industrial Estate, Yadrav, Kolhapur

Station code	: 2004	Sub basin	: Krishna Upper	Basin	: Krishna
Calcium	: 235 mg/l	Chlorides	: 473 mg/l	Fluoride: BDL	
Magnesium	: 925 mg/l	Nitrate	: 0.62 mg/l	Sulphate: 278.5 mg/l	
pH	: 6.9	TDS	: 2166 mg/l	TH	: 1160 mg/l

Formula

$$\text{WQI} = \sum_{i=1}^{n=9} qi.wi$$

Where;

Wi = relative weight

qi = quality rating

wi = relative of each weight

$$qi = (Ci/Si) \times 100$$

Where;

Ci = the concentration of each chemical parameter in each water sample in mg/l

Si = the Indian drinking water standard for each chemical parameter in mg/l according to the guidelines of the BIS 10500, (2004-2005)

Parameters considered for groundwater monitoring: pH, Total hardness, Calcium, Magnesium, Chloride, Total Dissolved Solids, Fluoride and Sulphate.

*The relative weight (wi) without iron, manganese and Bicarbonate has been considered in calculation.

Sub Index for pH

pH = 6.9

Sub index (pH) = Concentration /Standard X 100

= 6.9/7.5 X 100

= 92 X relative weight (Table No. 11)

= 92 X 0.13333

= 12.26636

Sub index for Total hardness

Total hardness = 1160

Sub index (TH) = Concentration /Standard X 100

= 1160/ 300*100

= 386.6667 X relative weight (Table No. 11)

= 386.667 X 0.06667

= 25.77907

Sub index Calcium

Calcium = 235

Sub index (Calcium) = Concentration /Standard *100

= 235/ 75 X 100

= 313.3333 X relative weight (Table No. 11)

= 313.3333 X 0.0666

= 20.88993

Sub index for Chloride

Chloride = 473

Sub index (Chloride) = Concentration /Standard X 100

= 473/ 250 X 100

= 189.2 X relative weight (Table No. 11)

= 189.2 X 0.1

= 18.92

Sub index for Fluoride

Fluoride = 0

Sub index (Fluoride) = Concentration /Standard X 100

= 0/ 1 X 100

= 0 X relative weight (Table No. 11)

= 0 X 0.1333

= 0

Sub index for Magnesium

Magnesium = 925

Sub index (Mg) = Concentration/ Standard X 100

= 925/ 30*100

= 3083.333 X relative weight (Table No. 11)

= 3083.333 X 0.06667

= 205.5658

Sub index for Nitrate

Nitrate = 0.62

Sub index (Nitrate) = Concentration/ Standard X 100

= 0.62/45 *100

= 1.377778 X relative weight (Table No. 11)

= 1.377778 X 0.16667

= 0.229634

Sub index for Sulphate

Sulphate = 278.5

Sub index (Sulphate) = Concentration/ Standard X 100

= 278.5/ 200 X 100

= 139.25 X relative weight (Table No. 11)

= 139.25 X 0.13333

= 18.5662

Total Dissolved Solids

Total Dissolved Solids= 2166

Sub index (TDS) = Concentration/ Standard X 100

= 2166/ 500 X 100

= 433.2 X relative weight (Table No. 11)

= 433.2 X 0.13333

= 57.75856

WQI of Bore well at Parvati Industrial Estate, Yadrav, Kolhapur

WQI = ∑ (sub –index of all parameters)

= ∑ (12.26636 + 25.77907 + 20.88993+ 18.92 + 0+ 205.5658 + 0.229634+ 18.5662 + 57.75856)

= 360

Quality Classification: Water Unsuitable for drinking

CAGR: Compound Annual Growth Rate

Compound Annual Growth Rate= ((End value/Start value) ^ (1/Number of intervals))- 1

Number of intervals = (Number of observations)-1 *100

Sample Calculation for determining CAGR

Example Station code: 1317
WQI

(End value) : 48; WQI of 2007-08 (Start value) 57; Number of intervals 08

CAGR % = ((End value/Start Value) ^1/Number of intervals)) - 1 X 100

= ((48/57) ^ (1/8)-1 *100

= -2.29%

=Quality Deteriorated

Inter Basin Analysis

Tapi Basin

In Maharashtra, the Tapi Basin could be divided into two sub-basins Tapi Upper and Tapi Middle and there are a total of 22 surface water monitoring stations (5 on upper and 15 on middle) in Tapi basin in Maharashtra.

As seen in **Figure No. 2**, the interbasin anlaysis for Tapi Basin, one may observe that The occurrence of "Medium to Good" and "Bad" categories of WQI are more than double in the Tapi Upper compared to Tapi Middle indicating that the water quality in Tapi Upper is better compared to Tapi Middle. In the year 2016-17 more than 50% & 35% of observations of readings were recorded Dry in Tapi Middle and Tapi Upper respectively.

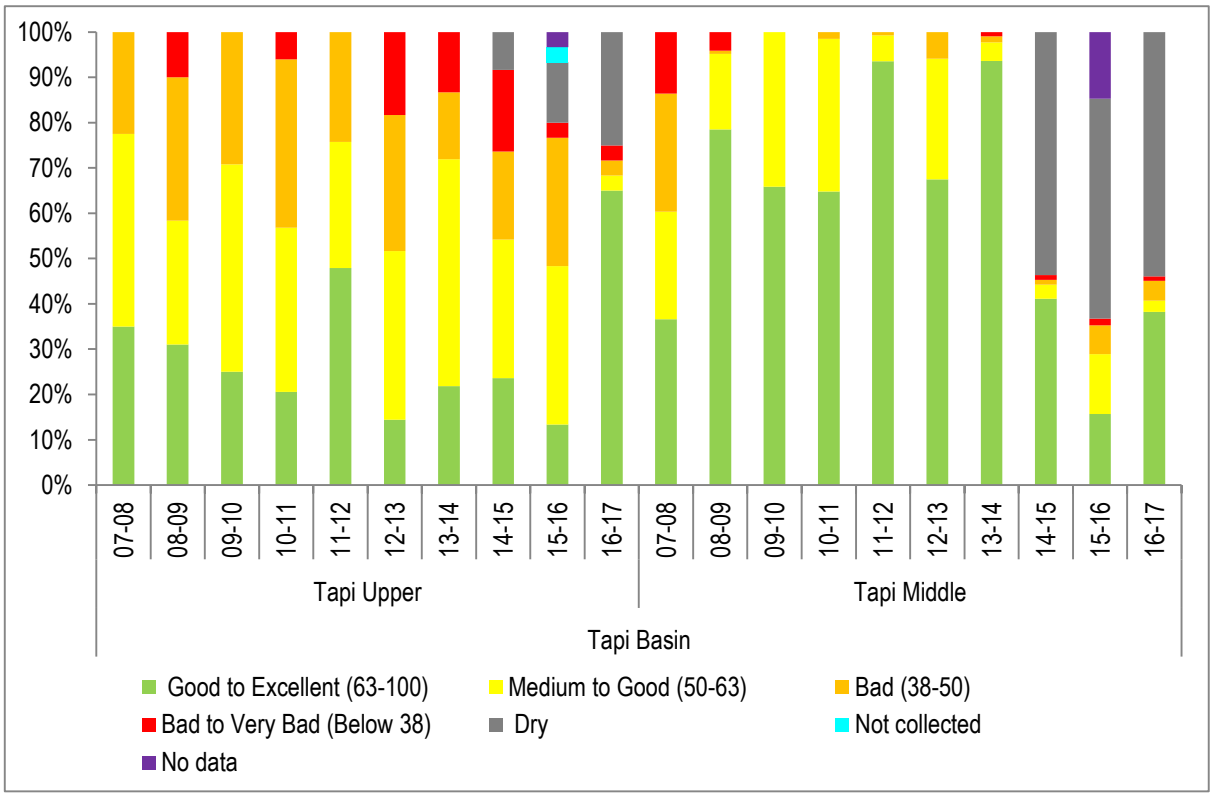


Figure No. 2: Trend of average occurrence for different category of WQI in Tapi basin

Water Quality Index for WQMS in Tapi Basin

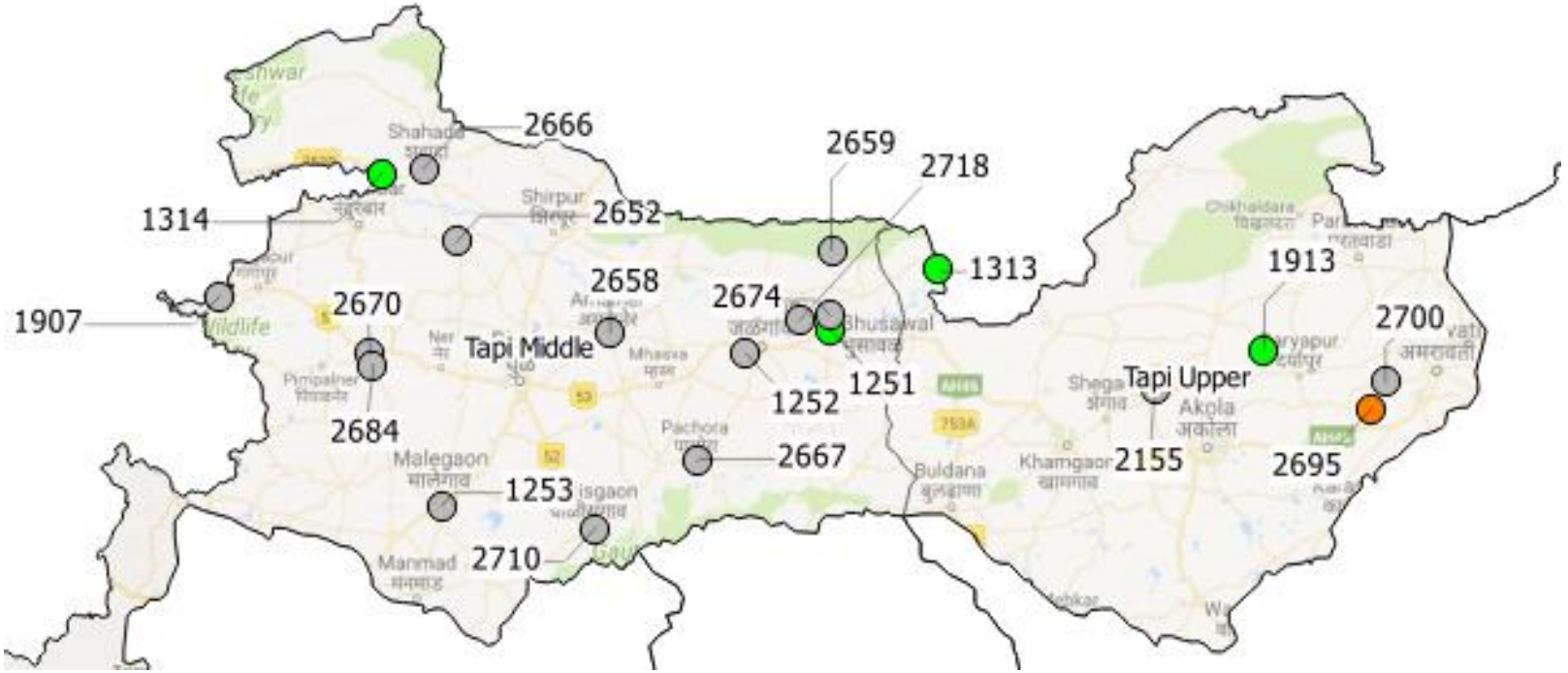
Apr		49		69	85			81			87								
May		49		74	91			88			87								
Jun		71		76	87			88			81								
Jul	71	73	70	79	75			80			86								
Aug	68	70	69	68	92	78	81	91	72	70	90	87		63			66		76	89
Sep	76	75	66	75	87	90	89	87	89		90	88		88			89		90	87
Oct	65	66	69	75	83	86	88	91	88	89	86	83	87	91	90	90	85		87	81
Nov		52	77	77	91	91	79	91	88	86	91	88		89			91		90	91
Dec		69		72	92			91	92	91	90	90								88
Jan		36		35	92			91			89	90						89		86
Feb		68		70	62			61	61		72									
Mar		69		73	90			88			82									
Station code	**2700**	**2695**	**2155**	**1913**	**1313**	**2718**	**2710**	**1251**	**1252**	**1253**	**1314**	**1907**	**2652**	**2658**	**2659**	**2666**	**2667**	**2670**	**2674**	**2684**
Sub basin	**Tapi Upper**					**Tapi Middle**														
Basin	**Tapi**																			

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 13: Surface water quality monitoring stations in Tapi basin

Prog	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	2700	Purna river	Purna River near Achalpur-Amravati Road Bridge, Asegaon	Asegaon	Chandur bazaar	Amravati
NWMP	2695	Pedhi river	Pedhi River near Road Bridge at Dadhi-Pedhi village	Asegaon	Chandur Bazar	Amravati
NWMP	2155	Purna river	Purna River at D/s of confluence of Morna & Purna at Andhura village	Andura	Balapur	Akola
NWMP	1913	Purna river	Purna River at Dhupeshwar at U/s of Malkapur Water works	Malkapur	Akola	Akola
NWMP	1313	Tapi river	Tapi River at Ajnad	Ajnad	Raver	Jalgaon
NWMP	2718	Waghur river	Waghur River at Sakegaon before Confluence with Tapi River	Sakegaon	Jalgaon	Jalgaon
NWMP	2710	Titur river	Titur River D/s of Chalisgaon	Chalisgaon	Jalgaon	Jalgaon
NWMP	1251	Tapi river	Tapi River at Bhusawal	Bhusawal Railway Colony	Bhusawal	Jalgaon
NWMP	1252	Girna river	Girna river at Jalgaon at intake of Girna pump house	Girna pump house area	Jalgaon	Jalgaon
NWMP	1253	Girna river	Girna river at Malegaon at Malegaon road bridge	Malegaon	Malegaon	Nashik
NWMP	1314	Tapi river	Tapi river at Ubad village near Gujrat border	Ubad	Shahada	Nandurbar
NWMP	1907	Rangavali river	Rangavali river at D/s of Navapur near Rangavali bridge	Navapur	Navapur	Nandurbar
NWMP	2652	Amravati river	Amravati River D/s of Dondaicha	Dondaicha	Dhule	Dhule
NWMP	2658	Bori river	Bori River D/s of Amalner	Amalner	Jalgaon	Jalgaon
NWMP	2659	Burai river	Burai River before confluece to Tapi River	Mukudas	Dhule	Dhule
NWMP	2666	Gomai river	Gomai River D/s of Shahada	Shahada	Dhule	Dhule
NWMP	2667	Hiwara river	Hiwara River D/s of Pachora	Pachora	Jalgaon	Jalgaon
NWMP	2670	Kan river	Kan River near Sakri water works	Sakri	Dhule	Dhule
NWMP	2674	Mor river	Mor River near Padalshe	Padalashe	Jalgaon	Jalgaon
NWMP	2684	Panzara river	Panzara River near Panzarakan SSK Ltd	Panzare	Dhule	Dhule

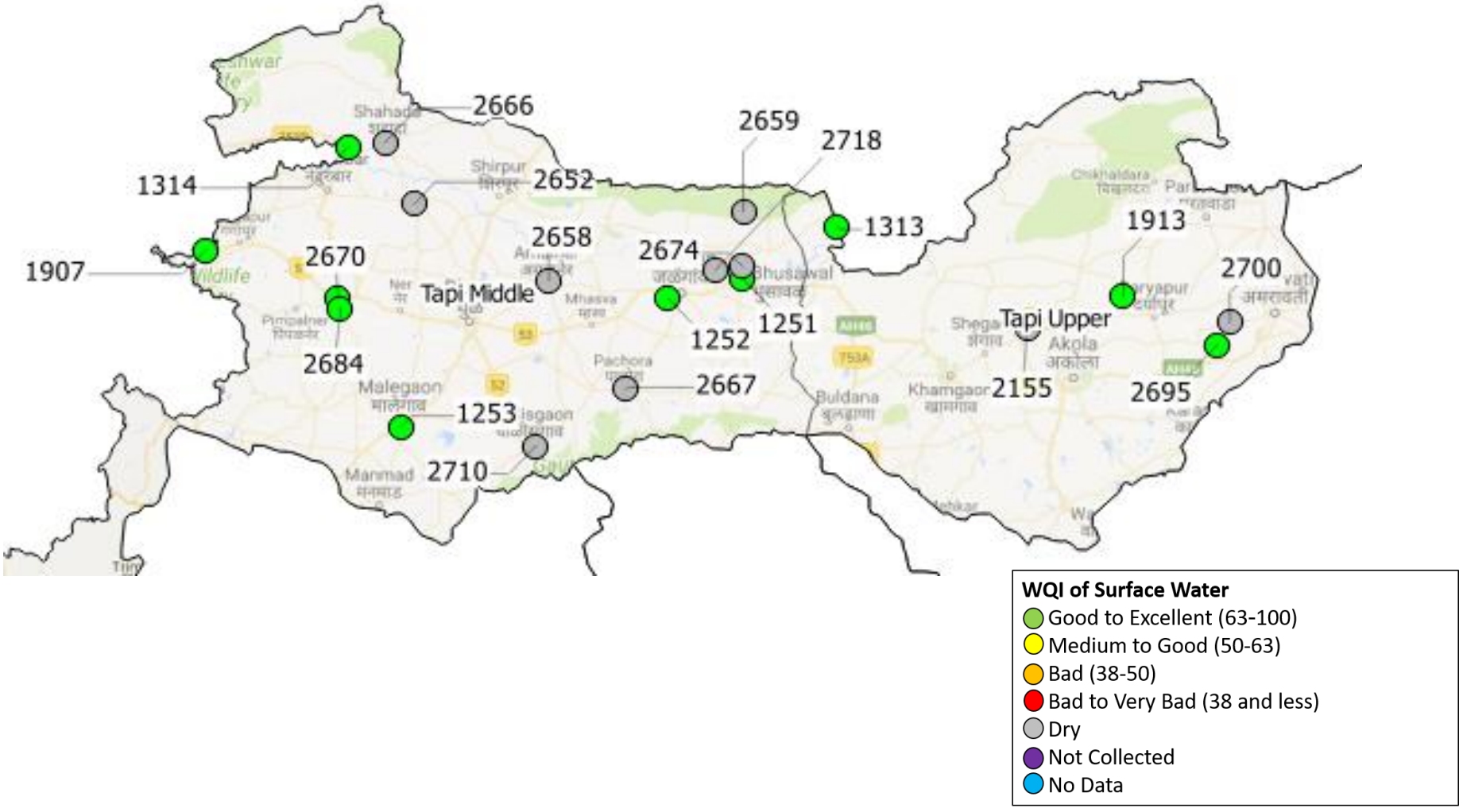
Spatial map of Surface WQI at Tapi Basin (April -2016)



WQI of Surface Water

- Good to Excellent (63-100)
- Medium to Good (50-63)
- Bad (38-50)
- Bad to Very Bad (38 and less)
- Dry
- Not Collected
- No Data

Spatial map of Surface WQI at Tapi Basin (December-2016)



Godavari Basin (1 of 2): Godavari upper, Godavari Middle and Manjra Sub basin

The Godavari basin passes through six states (third largest basin in India) and drains about 10% of the total geographical area of the country[13]. Approximately 50 percent of the catchment area comes under the state of Maharashtra. In Maharashtra the Godavari Basin could be divided into six sub-basins Godavari Upper, Godavari Middle, Manjra, Wardha, Weinganga, Indravati and Pranhita. In this report for the ease of analysis the sub-basins have been categorized into two, Godavari 1 Basin covering Upper, middle and Manjra sub-basin and Godavari 2 basin covering Wardha, Weinganga, Indravati and Pranhita. The highlights of both the basins have been discussed in two separate sections below.

In basin 1 there are a total of 34 surface water monitoring stations (21 on upper, 11 on middle and 2 on Manjra). The list of the station and the codes has been provided below in Table No. 14 and Table No. 15. The intra basin performance of Godavari (1 of 2) is depicted in Figure No. 3. The majority of observations (60%) for the year 2016-17 within Godavari Basin (1 of 2) were recorded under 'Good to Excellent' category. The maximum occurrence of'Moderate to Good' category of WQI was recorded in Godavari Upper as compared to Godavari Middle and Manjra. About 2-3 % of observations were recorded under 'Bad' category in Godavari Upper. Thus water pollution in Godavari Upper is more as compared to other subbasins (Godavari middle and Manjra) of Godavari sub basin.Manjra recorded 35% of observations are under 'Not collected' category while 5% under 'Dry' category. Similarly 20% of observations were for Godavari middle and 5% observations for Godavari Upper Sub basin.

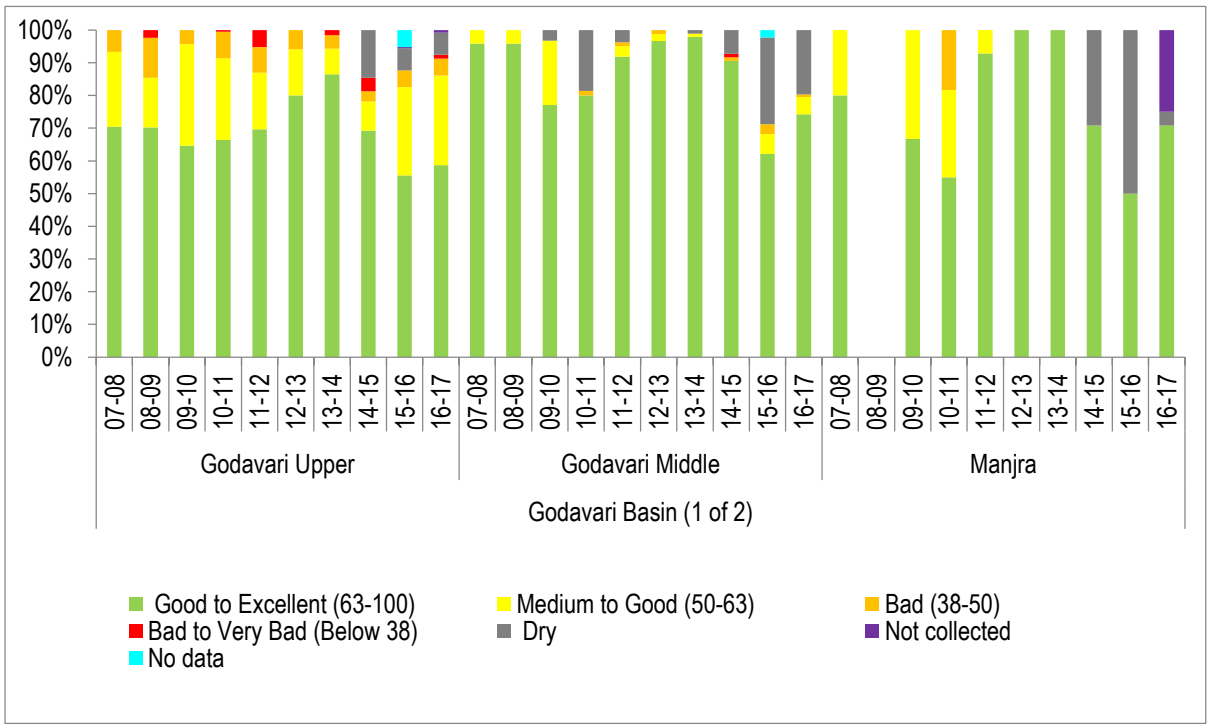


Figure No. 3: Trend of average occurrence for different category of WQI in Godavari basin (1 of 2)

[13] http://www.kgbo-cwc.ap.nic.in/About%20Basins/About%20Godavari%20Basin.pdf

Water Quality Index for WQMS in Godavari Basin (1 of 2): Sub-Basin - Godavari Upper

Apr		80	77	80	91	81	75	66	83	77	70	89	93	85	90	89	89	87	92	89
May		81	72	82		90	84		83	90	78			89	85	90	90	90	91	87
Jun		81	76	80	83	88	82		82	87	90			92	86	89	90	89	78	81
Jul		82	60		84	84	80	78	83	86	82	78	69	78	86	91	92	90	89	89
Aug	85	86	42	83	88	88	87	78	86	85	92	88	93	88	90	89	86	86	90	90
Sep	84		85	85	90	89	88	87	87	92	89	87	88	90	88	88	89	91	90	87
Oct	76	72	78	78	91	90	90	91	86	86	90	92	90	91	86		90	90	90	91
Nov	82	61	64	77	89	91	83	78	87	86	79	85	85	87	89	89	86	86	83	83
Dec	84	60	65	81	92	92	65	80	86	88	89	82	83	89	92	92	90	92	91	89
Jan	83	56	38	78	89	88	91	92	82	88	85	73	92	86	87	90	88	82	90	89
Feb	83	35	35	80	86	87	54	57	85	43	32	43	42	85	85	90	88	87	88	91
Mar		41	83	83	86	84	88	86	86	87		83	85	86	87	87	87	87	70	87
Station code	178	180	181	184	194	1095	1096	1211	2160	2177	2179	2180	2181	2182	2183	2660	2661	2662	2663	2664
Sub basin	Godavari Upper																			
Basin	Godavari																			

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 14: Surface water quality monitoring stations in Godavari Basin (1 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	178	Shivna River	Kannad - D/S of Kannad near Bridge	Kannad	Kannad	Aurangabad
SWMP	180	Kham River	Aurangabad - Near Holly cross bridge	Aurangabad	Aurangabad	Aurangabad
SWMP	181	Kham River	Aurangabad - Near Patoda Village	Aurangabad	Aurangabad	Aurangabad
SWMP	184	Harsool Dam	Aurangabad - Harsool Dam	Aurangabad	Aurangabad	Aurangabad
SWMP	194	Kadwa River	Kadwa River at Awankhed Village, Taluka - Dindori, District - Nashik	Awankhed Village	Dindori	Nashik
NWMP	1095	Godavari river	Godavari River at U/s of Gangapur Dam	Gangapur	Nashik	Nashik
NWMP	1096	Godavari river	Godavari River at Panchavati at Ramkund	Panchavati	Nashik	Nashik
NWMP	1211	Godavari river	Godavari River at Nashik D/s of near Amardham	Gadgebaba Maharaj Nagar	Nashik	Nashik
NWMP	2160	Godavari river	Godavari River at U/s of Aurangabad Reservoir Kaigaon Tokka near, Kaigaon Bridge	Kaigaon	Gangapur	Aurangabad
NWMP	2177	Godavari river	Godavari River near Someshwar Temple	Someshwar	Nashik	Nashik
NWMP	2179	Godavari river	Godavari River at Hanuman Ghat	Nashik city	Nashik	Nashik
NWMP	2180	Godavari river	Godavari River at near Tapovan	Tapovan	Nashik	Nashik
NWMP	2181	Godavari river	Godavari River at Kapila -Godavari confluence point	Tapovan	Nashik	Nashik
NWMP	2182	Godavari river	Godavari River at Saikheda	Saikheda	Niphad	Nashik
NWMP	2183	Godavari river	Godavari River at Nandur-Madhameshwar Dam	Nandur	Niphad	Nashik
NWMP	2660	Darna river	Darna River at Chehedi pumping station	Chehedi	Nashik	Nashik
NWMP	2661	Darna river	Darna River at Aswali (Darna Dam)	Aswali	Igatpuri	Nashik
NWMP	2662	Darna river	Darna River at MES site Pumping station	Bhagur	Nashik	Nashik
NWMP	2663	Darna river	Darna River at Bhagur Pumping station near Pandhurli Bridge	Bhagur	Nashik	Nashik
NWMP	2664	Darna river	Darna River at Sansari	Sansari	Nashik	Nashik

Water Quality Index for WQMS in Godavari Basin (1 of 2): Sub-Basin - Godavari Middle and Manjra

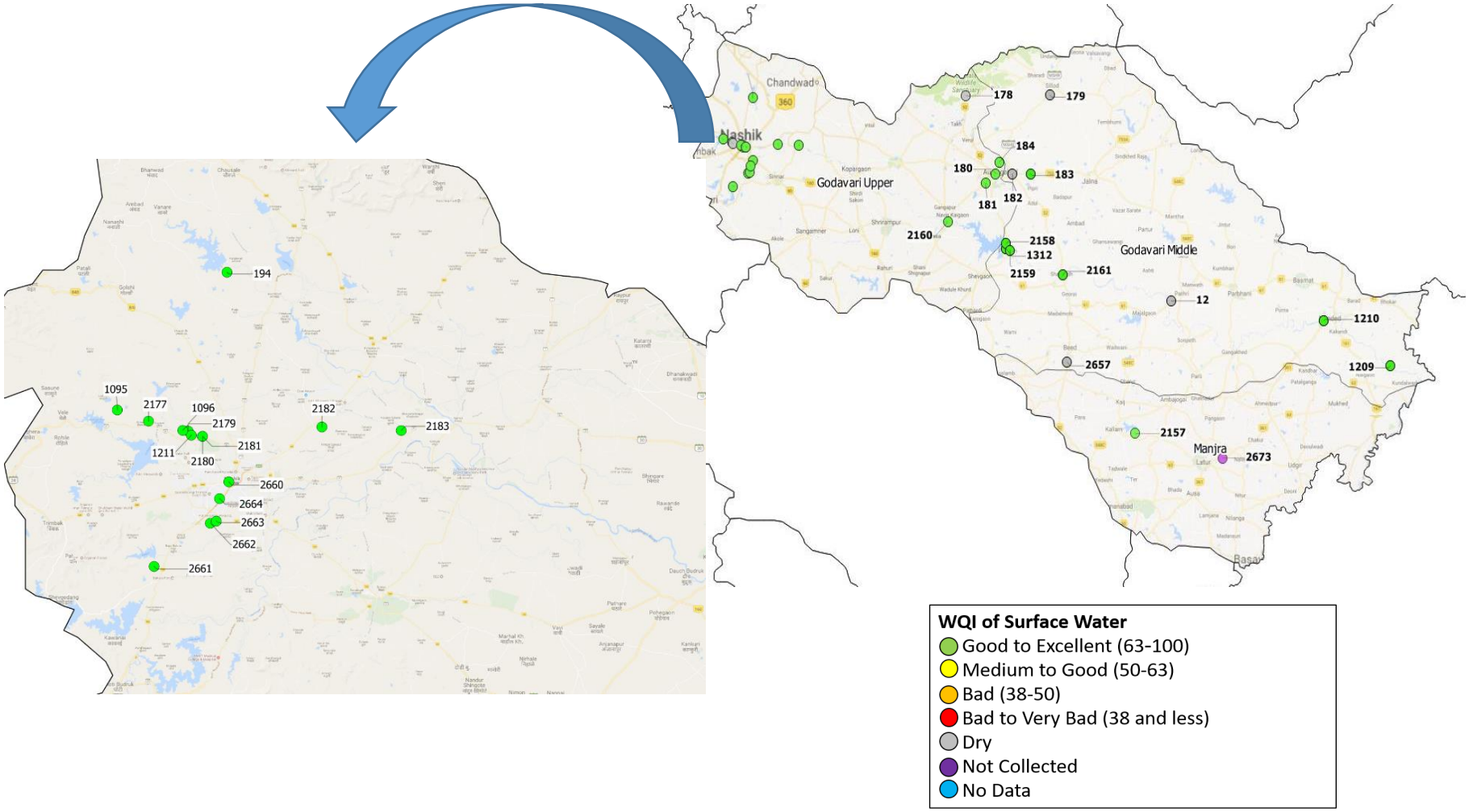
Apr				78	82	80	81	83	83	84		80	
May				69	80	82	85	86	81	82		80	
Jun				79	80	80	83	79	79	79			
Jul					83	86	81	83	83	75		80	
Aug		82	81	81	83	85	88	86	89	86			87
Sep	85	84	81	86	88	85	78	86	88	84			87
Oct	51	82	63	69	82	84	93	88	88	84	80	80	82
Nov	84	76	49	66	82	85	88	85	83	82	85	83	85
Dec	92	82	65	81	84	82	83	85	84	80	82	84	85
Jan	84			78	83	84	85	86	83	81	82	83	81
Feb	88			79	86	86	86	86	83	83	85	84	84
Mar	86			67	86	86	85	82	84	83	85	84	85
Station code	12	179	182	183	1209	1210	1312	2158	2159	2161	2657	2157	2673
Sub basin	Godavari Middle											Manjra	
Basin	Godavari												

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

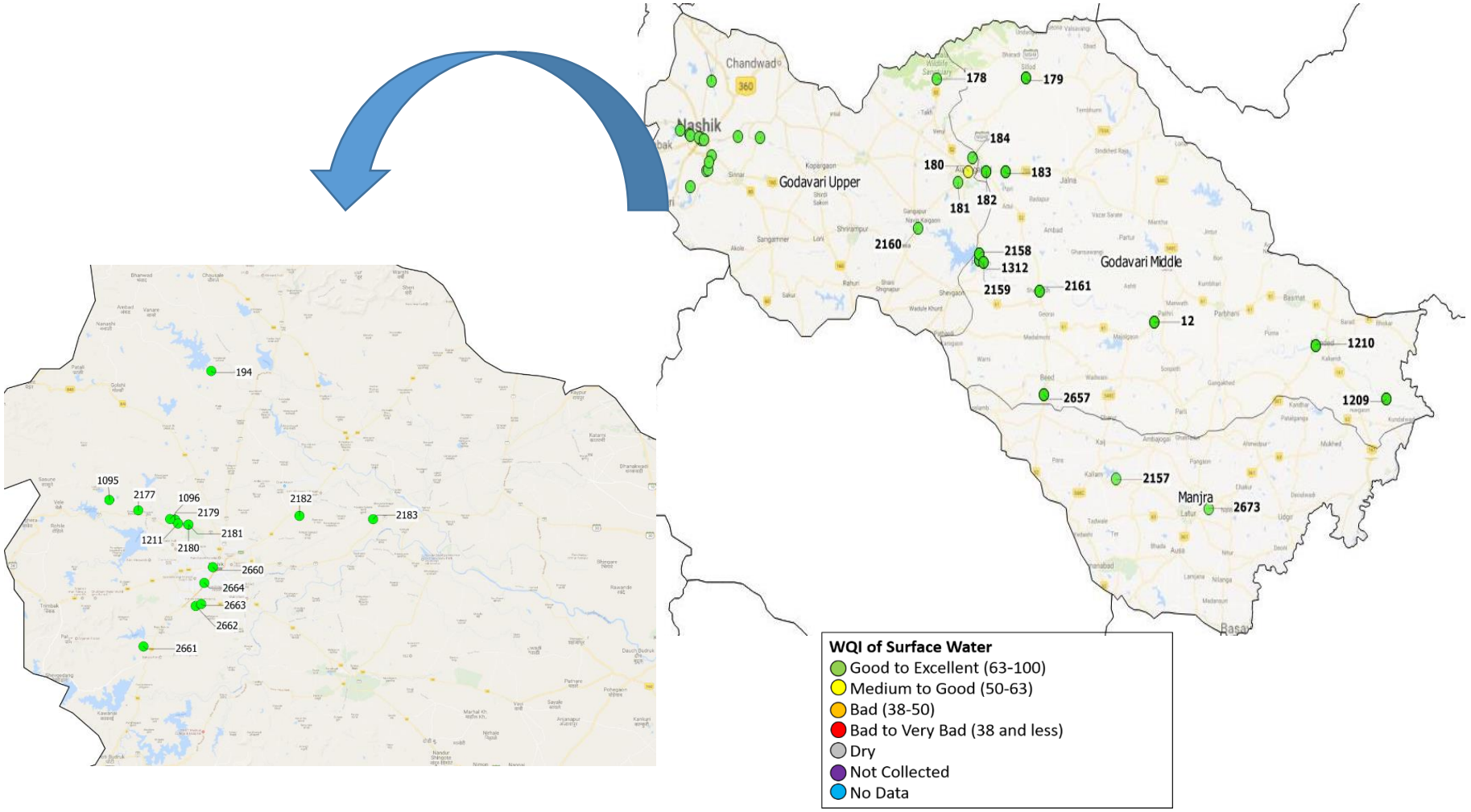
Table No. 15: Surface water quality monitoring stations in Godavari Basin (1 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	12	Godavari river	Godavari River at Dhalegaon	Dhalegaon	Pathari	Parbhani
SWMP	179	Purna River	Sillod - D/S of Sillod near bridge at bhavan	Sillod	Sillod	Aurangabad
SWMP	182	Sukhna River	Aurangabad - Near Chikhalthana Bridge	Aurangabad	Aurangabad	Aurangabad
SWMP	183	Sukhna Dam	Aurangabad - At Sukhna Dam	Aurangabad	Aurangabad	Aurangabad
NWMP	1209	Godavari river	Godavari River at Raher	Raher	Nayagaon	Nanded
NWMP	1210	Godavari river	Godavari River at Intake of pump house	Vishnupuri	Nanded	Nanded
NWMP	1312	Godavari river	Godavari river at Jaikwadi Dam, Paithan	Paithan	Paithan	Aurangabad
NWMP	2158	Godavari river	Godavari River at Paithan U/s of Paithan Intake pump house	Jayakwadi	Paithan	Aurangabad
NWMP	2159	Godavari river	Godavari River at D/s of Paithan at Pathegaon bridge	Pathegaon	Paithan	Aurangabad
NWMP	2161	Godavari river	Godavari River at Jalna Intake water pump house Shahagad	Shahabad	Ambad	Jalna
NWMP	2657	Bindusara river	Bindusara River at Beed, near Intake water pump house at Dam	Paligaon	Beed	Beed
NWMP	2157	Godavari river	Godavari River at Latur Water intake near pump house	Dhamegaon	Kalumb	Osmanabad
NWMP	2673	Manjra river	Manjra River at D/s of Latur, near Latur-Nanded Bridge	Bhatkheda	Latur	Latur

Spatial map of SurfaceWQI at Godavari Basin (1 of 2) (April 2016)



Spatial map of Surface WQI at Godavari Basin (1 of 2) (December 2016)



Godavari Basin (2 of 2): Wardha, Weinganga and Pranhita Sub basin

In basin 2 there are a total of 29 surface water monitoring stations (12 on Wardha, 16 on Weinganga and 1 on Pranhita). The list of stations and codes has been provided below in Table No. 16 and Table No. 17 .The trend of intra sub basin wise water quality for Godavari (2 of 2) basin shows that occurrence of 'Moderate to Good' catergory of WQI was highest in Pranhita and others compared to Weinganga and Wardha. Almost 25% observations were recorded under Bad to Very Bad category for Wardha while 13% observations for Weinganga.

The Weinganga recorded the highest occurrence of Good to Excellent category of WQI as compared to Wardha.In current year 2016-17 , Pranhita and others did not record any observations under Good to Excellent category. 10-15% of observations were noted to be under Bad category for each of the subbasin of Godavari (2 of 2) Data not collected accounted for about 10% of the total observations for Pranhita and others while 2% for Wardha and Weinganga.

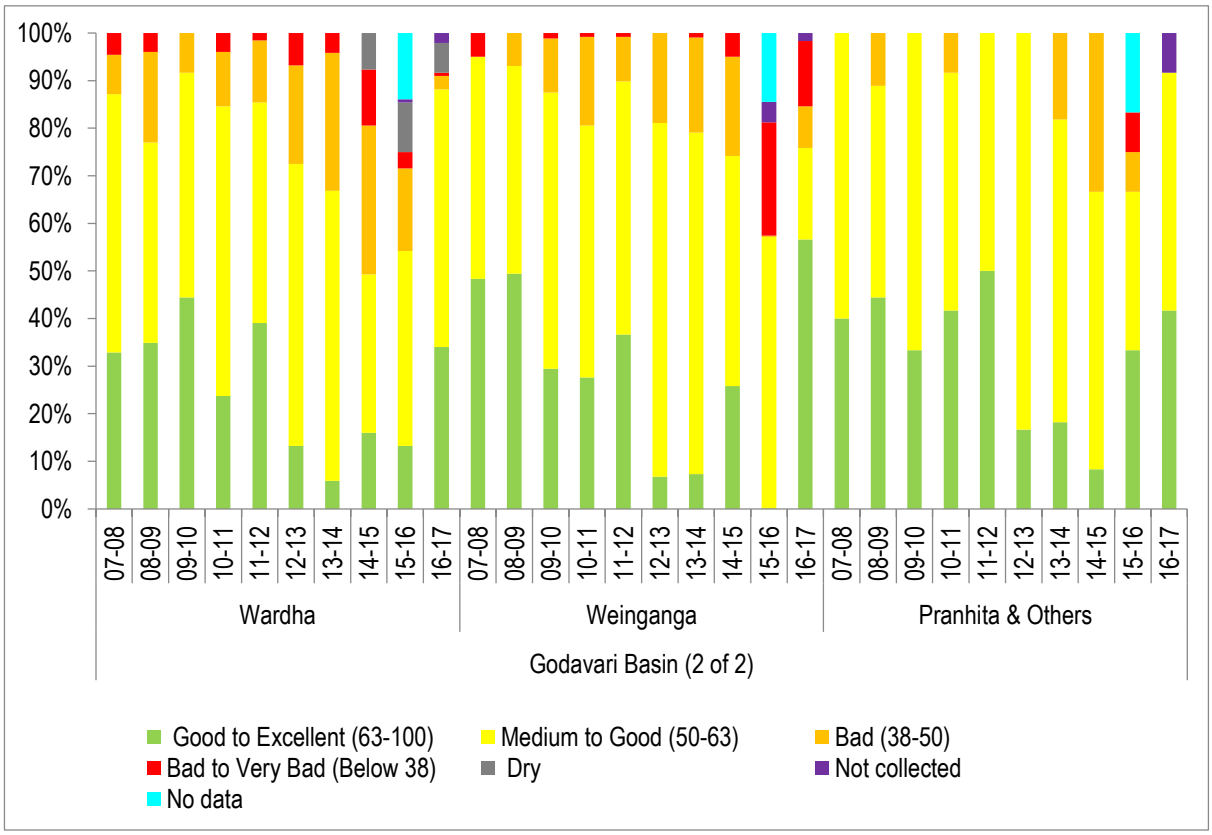


Figure No. 4: Trend of average occurrence for different category of WQI in Godavari basin (2 of 2)

Water Quality Index for WQMS at Godavari Basin (2 of 2): Sub-basin- Wardha

Apr	62	65	64	62	59	64	60		60	61	64	75
May	54	69		57		57	58		57	58	58	71
Jun	47	72	50	58		54	53		55	58	60	70
Jul	47	59	63	54	77	65	65	76	62	68	57	61
Aug	63	74	53	56	62	65	65	67	61	66	62	72
Sep	65	75	63	58	65	66	65	80	61	65	65	76
Oct	62	69	61	57	72	60	59	76	62	63	61	68
Nov	62	72	60	56	56	62	61	50	56	62	63	74
Dec	60		58	57	74	58	58		56	59	61	
Jan	53	70	56	55	30	55	54		54	56	57	70
Feb	56	70	55	52	67	57	55		55	58	57	71
Mar	60	74	60	56	66	59	60		57	60	60	79
Station code	1212	1315	2156	2174	2675	2697	2698	2699	2719	2720	2721	2723
Sub basin		Wardha										
Basin		Godavari										

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 16: Surface water quality monitoring stations in Godavari Basin (2 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	1212	Wardha river	Wardha river at Rajura bridge	Rajura	Chandrapur	Chandrapur
NWMP	1315	Wardha river	Wardha River at Pulgaon Railway Bridge	Pulgaon	Wardha	Wardha
NWMP	2156	Wardha river	Wardha River at confluence point of Penganga & Wardha	Jugad	Wani	Yavatmal
NWMP	2174	Wardha river	Wardha River at D/s of ACC Ghuggus	Ghuggus	Chandrapur	Chandrapur
NWMP	2675	Morna river	Morna River at D/s of Railway Bridge	Akola	Akola	Akola
NWMP	2697	Penganga river	Penganga River near water supply scheme of Umarkhed MC	Belkhed	Umarkhed	Yavatmal
NWMP	2698	Penganga river	Penganga River D/s of Isapur Dam	Isapur	Pusad	Yavatmal
NWMP	2699	Penganga river	Penganga River at Mehkar-Buldana Road Bridge	Mehkar	Mehkar	Buldana
NWMP	2719	Wardha river	Wardha River at D/s of Erai River	Hadasti	Chandrapur	Chandrapur
NWMP	2720	Wardha river	Wardha River at U/s of Erai River	Hadasti	Chandrapur	Chandrapur
NWMP	2721	Wardha river	Wardha River at U/s of ACC Ghuggus	Ghuggus	Chandrapur	Chandrapur
NWMP	2723	Wena river	Wena River at D/s of Mohata Mills, near Bridge on Hinganghat-Wadner Road	Hinganghat	Hinganghat	Wardha

Water Quality Index for WQMS at Godavari Basin (2 of 2): Sub-basin- Weinganga and Pranhita

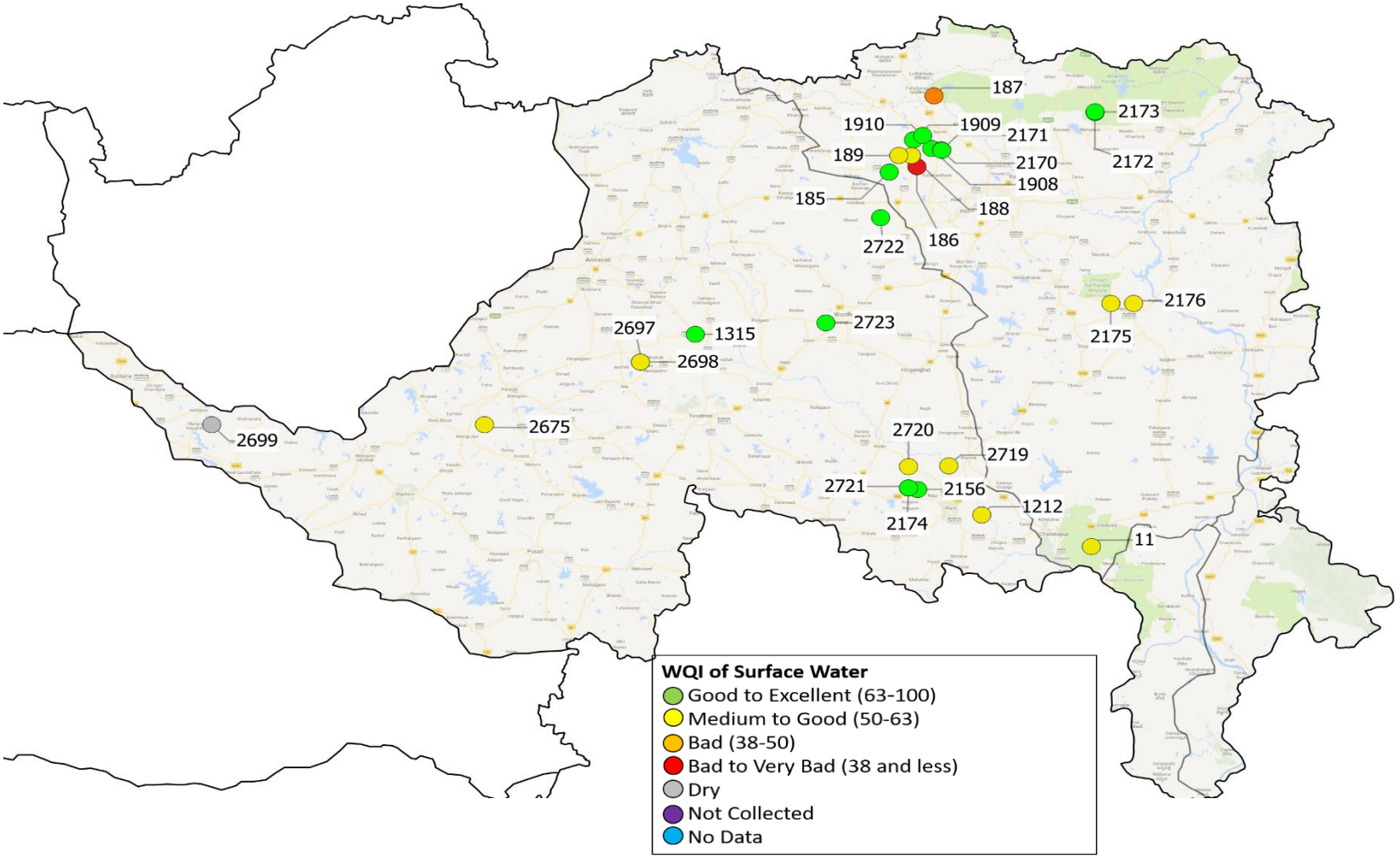
Apr	78	34	39	62	59	75	69	74	84	79	76	71	60	61	82	62
May	69	50	64	39	70	71	69	71	75	68	56	58	57	56	76	
Jun	74	37	38	33	37	81	63	69	83	79	60	61	60	60	74	60
Jul	55	37	32	32	40	73	63	64	77	67	54	60	66	57	72	67
Aug	78	34	38	34	33	72	71	70	72	63	63	64	65	64	81	66
Sep	71	35	38	43	52	79	71	76	83	76	64	67	66	55	81	67
Oct	72	33	41	45	48	74	68	75	79	70	60	62	61	60	77	66
Nov	69	48	43	38	41	75	72	78	77	74	77	79	62	57	80	63
Dec	74	51	40	56	46	68			76	73	70	75	57	55		56
Jan	66	32	31	47	46	64	68	73	71	65	72	76	56	54	74	55
Feb	71	32	34	34	35	70	72	66	75	72	69	77	54	56	76	57
Mar	70	32	37	35	37	65	73	75	76	73	75	78	63	58	82	63
Station code	185	186	187	188	189	1908	1909	1910	2170	2171	2172	2173	2175	2176	2722	11
Sub basin	Weinganga															Pranhita & Others
Basin	Godavari															

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

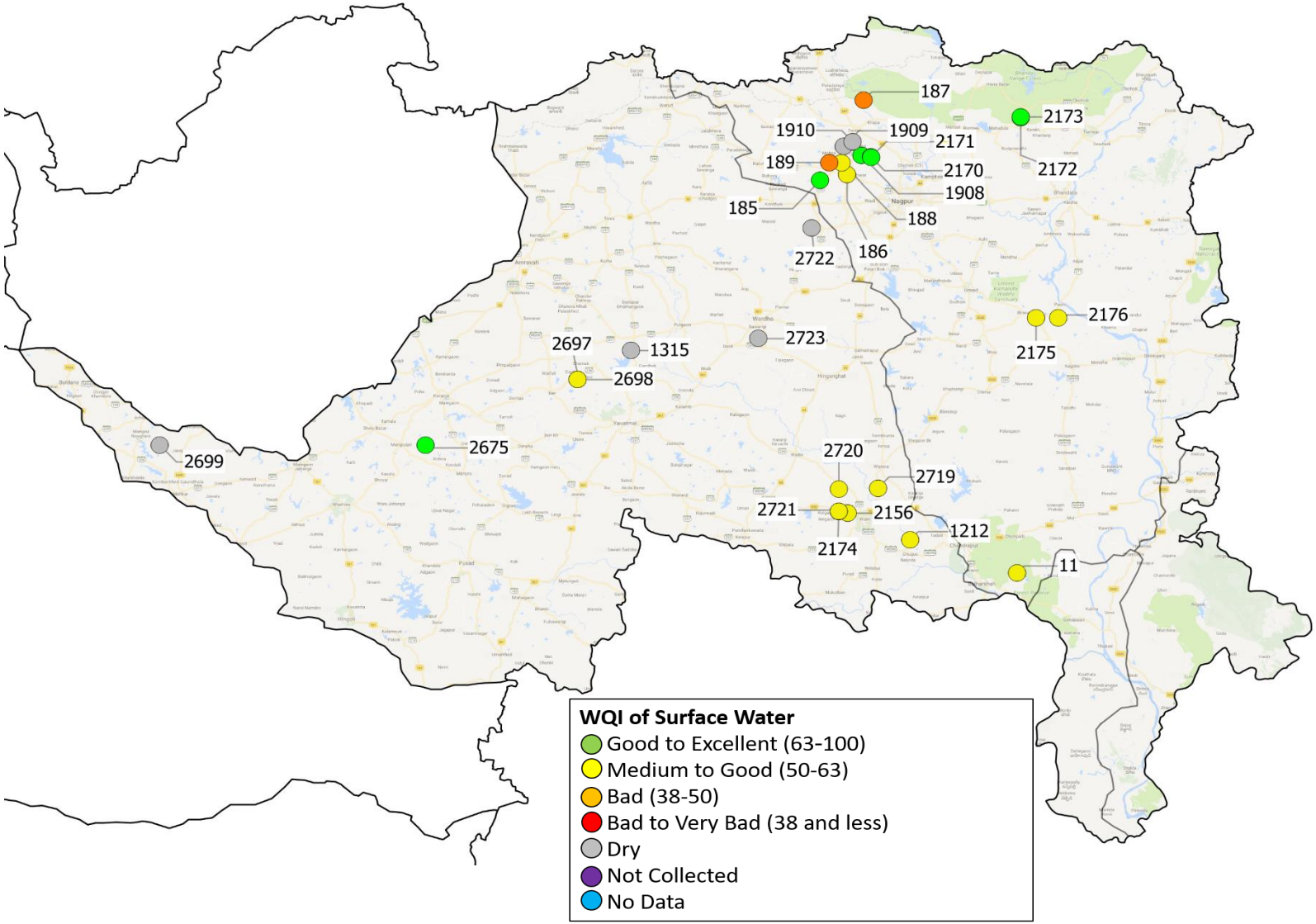
Table No. 17: Surface water quality monitoring stations in Godavari Basin (2 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	185	Nag River	Nag River Near, Ambazari Lake, Nagpur	Nagpur	Nagpur	Nagpur
SWMP	186	Nag River	Nag River Near, Bhandewadi Bridge, Nagpur	Nagpur	Nagpur	Nagpur
SWMP	187	Nag River	Nag River Near, Asoli Bridge, Bhandara Road, Nagpur	Nagpur	Nagpur	Nagpur
SWMP	188	Pill River	Pill River Near, Wanjra Layout Kamptee Road, Nagpur	Nagpur	Nagpur	Nagpur
SWMP	189	Pill River	Pill River Near, Mankapur on Koradi Road, Nagpur	Nagpur	Nagpur	Nagpur
NWMP	1908	Kolar river	Kolar river before confluence with Kanhan river at Waregaon Bridge	Waregaon	Kamptee	Nagpur
NWMP	1909	Kanhan river	Kanhan river at D/s of Nagpur	Agargaon	Kuhi	Nagpur
NWMP	1910	Wainganga river	Wainganga river after confluence with Kanhan river	Ambhora	Kuhi	Nagpur
NWMP	2170	Kanhan river	Kanhan River (Wainganga basin) at U/s of M/s Vidharba Paper Mill	Sinora	Parseoni	Nagpur
NWMP	2171	Kanhan river	Kanhan River (Wainganga basin) at D/s of M/s Vidharbha Paper Mills	Sinora	Parseoni	Nagpur
NWMP	2172	Wainganga river	Wainganga River at D/s of Ellora Paper Mill	Tumsar	Tumsar	Bandara
NWMP	2173	Wainganga river	Wainganga River at U/s of Ellora Paper Mills	Tumsar	Tumsar	Bandara
NWMP	2175	Wainganga river	Wainganga at U/s of Gaurav Paper Mills near Jack Well	Bramhpuri	Chandrapur	Chandrapur
NWMP	2176	Wainganga river	Wainganga River at D/s of Gaurav Paper Mills Near Jackwell	Bramhpuri	Chandrapur	Chandrapur
NWMP	2722	Wena river	Wena River at U/s of Mohata Mills, nearby Brigde on Hinganghat Wadner Road	Hinganghat	Hinganghat	Wardha
NWMP	11	Wainganga river	Wainganga River at Ashti	Ashti	Gondpipri	Chandrapur

Spatial map of Surface WQI in Godavari Basin (2 of 2) (April 2016)



Spatial map of Surface WQI in Godavari Basin (2 of 2) (December 2016)



Krishna Basin

The Krishna river originates as the Upper Krishna basin in the Western Ghats of Maharashtra and Karnataka, drains the Deccan Plateau, and discharges into the Bay of Bengal. The Krishna basin spreads across the states of Maharashtra(69,425sq km), Karnataka (113,271 sq km) and Andhra Pradesh (76,252 sq km) covering total area of 2,58,948 sq km which is about 8% of total geographical area of country. The principal tributaries joining Krishna are the Ghataprabha, the Malaprabha, the Bhima, the Tungabhadra and the Musi[14]. The Krishna basin is divided into Krishna upper (21 stations) and Bhima Upper (37 stations) for analysis in this report.

Intra sub basins results for Krishna basin are depicted in **Figure No. 5**. The maximum occurrence of Bad category is recorde in Bhima Upper (30%) as compared to Krishna Upper sub basin. About 25% of observations for Bhima Upper and 20% observation for Krishna Upper are recorded in current yaer 2016-17. About 10% observations for bhima upper are recorded as while only 0.5 % observations are for krishna upper sub basin.krishna upper basin has hmaximum observations under moderate category as compared to bhima upper.The overall preview for Krishna Upper is better in terms of WQI as compared to Bhima Upper.

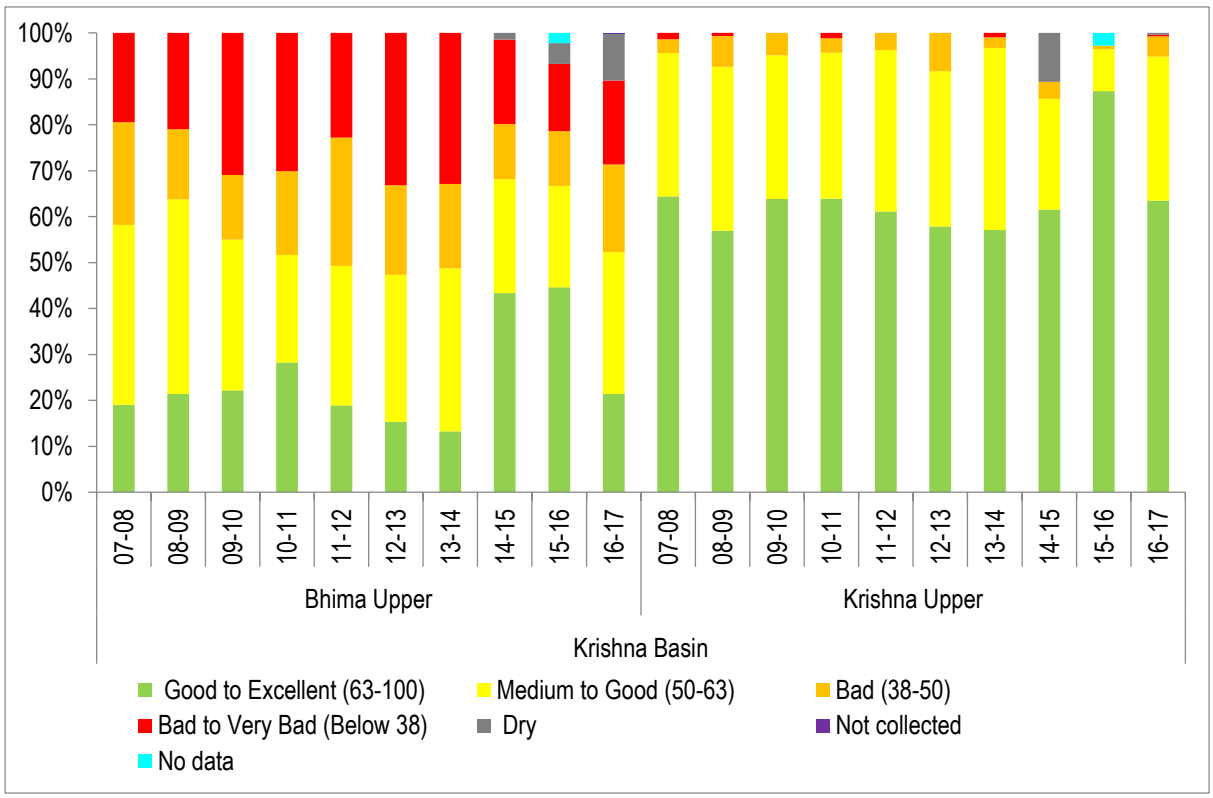


Figure No. 5: Trend of average occurrence for different category of WQI in Krishna basin

[14] India,WRIS

Water Quality Index for WQMS at Krishna Basin (1 of 2): Sub-basin - Bhima upper (1 of 2)

Apr	53	34	30	36	47	38	40	45		70	30	33	62	39	41	62	43	42
May	38	32	29	33	37	32	33	39	38	50	31	29	65	42	38	58	39	43
Jun	32	30	28	41	51	42	45	76	77	78	30	30	62	38	57	63	43	36
Jul	38	43	41	54	56	52	43	82	71	74	30	36	67	31	31	55	47	55
Aug	68	62	62	64	62	59	60	61	58	68	64	58	65	60	62	57	48	61
Sep	68	65	72	76	80	66	42	56	54	57	63	56	64	39	41	49	37	48
Oct	74	74	75	75	76	69	76	58	59	64	69	60	62	76	68	61	59	61
Nov	62	56	56	69	46	69	58	49	52	57	68	62	60	55	63	62	52	58
Dec	22	23	20	24	25	23	32	57		44	23	22	67	33	30	54	62	22
Jan	22	23	18	20	24	23	37	44	41	45	19	19	62	37	28	76	56	41
Feb	28	42	37	40	27	27	38	57	44	49	33	33	61	40	41	59	51	37
Mar	30	27	24	21	36	31	32	55	53	57	26	29	63	32	30	61	46	33
Station code	1189	1190	2191	2192	2193	2194	2196	2197	2668	2669	2678	2679	2680	2690	2691	2692	2693	2694
Sub basin	Bhima Upper (1 of 2)																	
Basin	Krishna																	

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 18: Surface water quality monitoring stations in Krishna Basin (1 of 2) Sub Basin –Bhima Upper (1 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	1189	Bhima river	Bhima river at Pune(Mutha river) at U/s of Vithalwadi near Sankar Mandir	Vithalwadi	Haweli	Pune
NWMP	1190	Bhima river	Bhima river at D/s of Bundgarden, Pune	Yerwada	Haweli	Pune
NWMP	2191	Mutha river	Mutha River at Sangam Bridge Near Ganpathi Ghat	Shivaji Nagar	Pune	Pune
NWMP	2192	Mula-Mutha river	Mula-Mutha River at Mundhwa Bridge	Mundhawa	Haweli	Pune
NWMP	2193	Mula river	Mula River at Aundh Bridge -Aundgaon	Aundhgaon	Haweli	Pune
NWMP	2194	Mula river	Mula River at Harrison Bridge near Mula -Pawana Sangam	Bopodi	Haweli	Pune
NWMP	2196	Pawana river	Pawana River at Sangavigaon, Pune	Sangavigaon	Haweli	Pune
NWMP	2197	Indrayani river	Indrayani River at D/s of Alandigaon, Pune	Alandigaon	Haweli	Pune
NWMP	2668	Indrayani river	Indrayani River at D/s of Moshi village	Moshi	Haveli	Pune
NWMP	2669	Indrayani river	Indrayani River at U/s of Moshigaon, Pune	Moshigaon	Haweli	Pune
NWMP	2678	Mutha river	Mutha River near Veer Savarkar Bhavan	Pune M.C	Pune	Pune
NWMP	2679	Mutha river	Mutha River at Deccan Bridge, Pune	Deccan	Pune	Pune
NWMP	2680	Mutha river	Mutha River at Khadakvasla Dam Pune	Kadakvasla	Haweli	Pune
NWMP	2690	Pawana river	Pawana River at Kasarwadi Pune	Kasarwadi	Haweli	Pune
NWMP	2691	Pawana river	Pawana River at Dapodi Bridge at Pawana-Mulla Sangan Pune	Dapodi	Haweli	Pune
NWMP	2692	Pawana river	Pawana River at Ravet Weir, Pune	Ravet	Haweli	Pune
NWMP	2693	Pawana river	Pawana River at Chinchwadgaon, Pune	Chinchwadgaon	Haweli	Pune
NWMP	2694	Pawana river	Pawana River at Pimprigaon, Pune	Pimprigaon	Haweli	Pune

Water Quality Index for WQMS at Krishna Basin (1 of 2): Sub-basin - Bhima upper (2 of 2)

Apr	67	76		43	40	48	69	58	38	60	72		48	57	58	54		
May	82	82		66	63	47	71	47	33	61	78		52	62	49	71		47
Jun	72			56		58	77	58	24	76	51		63	33	35	35		
Jul	72	67		49		62	80	60	47	79	57		64	46	50	48		
Aug	66	77	72	64	49	62	74	65	54	47	63	50	53	60	55	65		47
Sep	38	65	56	76	50	58	60	56	42	51	63	46	44	75	46	85		43
Oct	72	46	74	56	51	60	65	64	60	57	52	54	59	58	58	59	76	52
Nov	78	64		54	60	70	82	56	67	51	51	52	43	52	66	60	80	
Dec	73	55		35	51	62	69	70	47	55	57	46	51	61	59	84		
Jan	48	63		24	25	53	69	62	47	47	45	42	34	44	49	53		
Feb	74	27		54	54	58	76	76	47	53	55	41	31	66	54	80		
Mar	62	43		43	49	54	75	67	48	58	54	50	44	63	47	79		56
Station code	28	195	1188	1191	1192	1463	1911	1912	2195	2655	2656	2665	2677	2681	2682	2683	2705	2715
Sub basin	Bhima Upper (2 of 2)																	
Basin	Krishna																	

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 19: Surface water monitoring stations at Krishna Basin (1 of 2) Sub Basin Bhima Upper (2 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	28	Bhima river	Bhima River at Takli	Takali	South Solapur	Solapur
SWMP	195	Sina River	Sina River Bridge At Burudgaon Road, A/P Ahmednagar, Taluka & District Ahmednagar	Burudgaon	Ahmednagar	Ahmednagar
NWMP	1188	Bhima river	Bhima River at Narshingpur near Sangam Bridge after confluence with Nira	Narsingpur	Malshiros	Solapur
NWMP	1191	Bhima river	Bhima river after confluence with Mula-Mutha at Pargaon near Vasant Bandara	Pargaon	Daund	Pune
NWMP	1192	Bhima river	Bhima river at Daund near Mahadev temple	Daund	Daund	Pune
NWMP	1463	Nira river	Nira river at Sarola bridge	Sarola	Bhor	Pune
NWMP	1911	Chandrabhaga river	Chandrabhaga river at U/s of Pandharpur town	Gursale	Pandarpur	Solapur
NWMP	1912	Chandrabhaga river	Chandrabhaga river at D/s of Pandharpur town near Vishnupant Mandir	Gopalpur	Pandarpur	Solapur
NWMP	2195	Nira river	Nira River at D/s of Jubilant Organosis Pune	Nimbut	Baramati	Pune
NWMP	2655	Bhima river	Bhima River at Koregaon near Koregaon Bridge, Pune	Koregaon	Shirur	Pune
NWMP	2656	Bhima river	Bhima River Backwater of Ujani Dam near raw water pump house	Kumbargaon	Indapur	Pune
NWMP	2665	Ghod river	Ghod River at Shirur, Pune	Shirur	Shirur	Pune
NWMP	2677	Mula-Mutha river	Mula-Mutha River at D/s of Theur, Pune	Theur	Haweli	Pune
NWMP	2681	Nira river	Nira River at Sangavi	Sangavi	Phaltan	Satara
NWMP	2682	Nira river	Nira River at U/s of Jubilant Organosis Pune	Nira(Datta ghat)	Baramati	Pune
NWMP	2683	Nira river	Nira River at Shindewadi	Shindewadi, Shirwal	Khandala	Satara
NWMP	2705	Sina river	Sina River near Laboti till naka Solapur	Laboti	Mohal	Solapur
NWMP	2715	Vel river	Vel River at Shikrapur, Pune	Shikrapur	Shirur	Pune

Water Quality Index for WQMS at Krishna Basin (2 of 2): Sub-Basin - Krishna upper

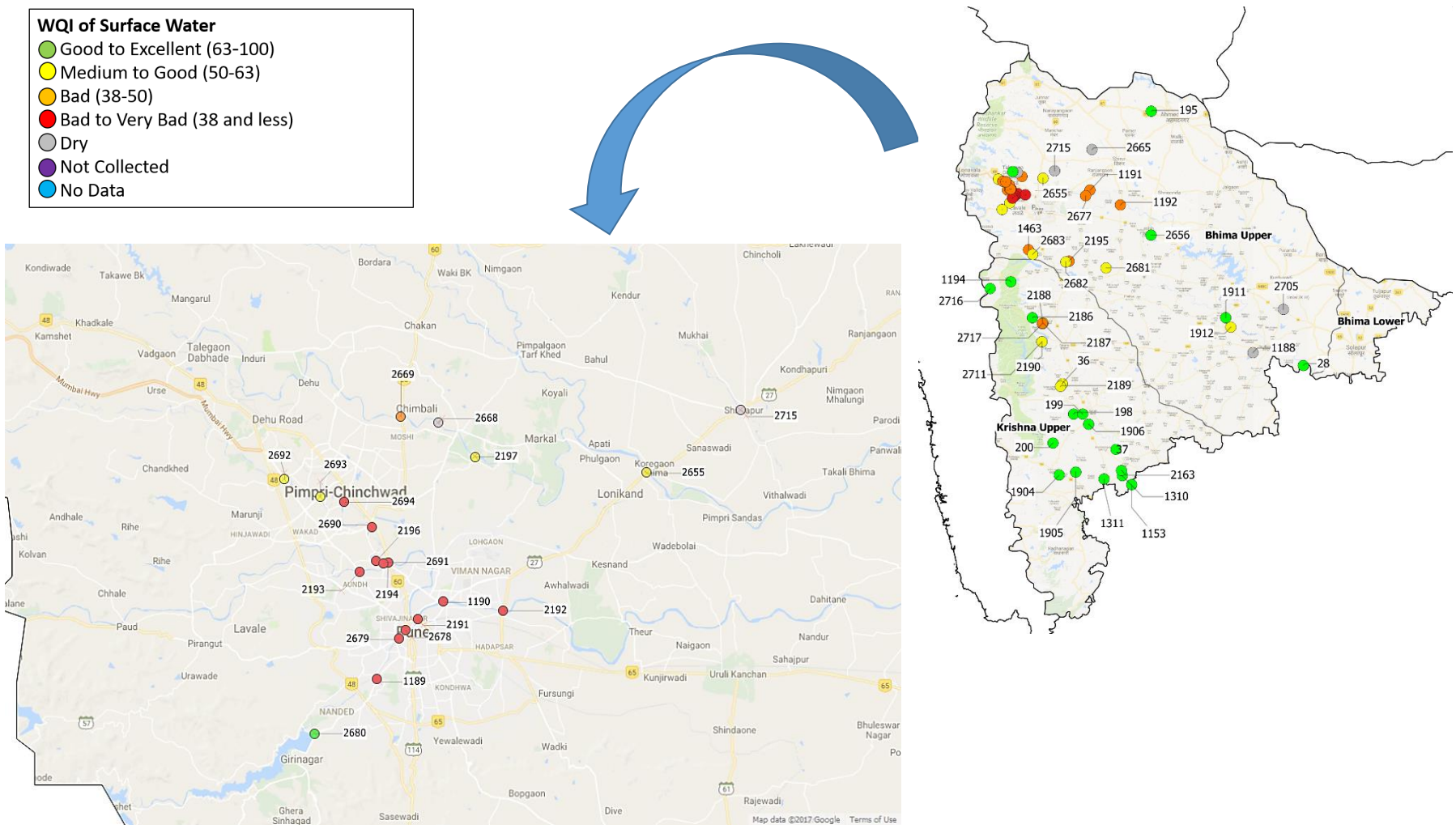
Apr	53	65	63	65	66	66	67	67	66	67	68	66	66	73	54	77	55	70	56	74	42
May	65	64	56	58	60	58	52	55	53	57	58	63	58	67	62	63	63	78	78		72
Jun	64	62	58	56	58	63	65	56	48	63	51	60	51	59	63	62	59	58	61	60	64
Jul	62	66	65	64	64	64	64	65	66	67	66	65	64	56	37	40	56	43	57	62	49
Aug	53	66	69	67	68	68	60	69	68	68	69	67	67	53	63	63	62	64	48	65	59
Sep	75	66	64	67	66	66	67	65	66	68	69	64	68	71	72	78	69	81	62	85	62
Oct	55	68	67	66	66	67	66	63	65	59	59	66	65	57	57	58	54	55	61	65	58
Nov	58	65	68	66	67	63	82	64	66	68	67	67	68	57	56	58	55	79	63	87	59
Dec	79	68	65	69	64	65	85	64	63	64	63	66	63	75	69	77	72	66	75	80	73
Jan	72	64	61	61	62	61	79	62	50	61	62	67	50	51	46	48	72	66	54	74	46
Feb	77	68	67	66	66	65	79	64	66	64	66	66	67	72	74	71	71	78	70	77	76
Mar	80	64	63	66	66	55	80	59	56	55	63	63	56	76	71	73	74	75	67	86	50
Station code	36	37	198	199	200	1153	1194	1310	1311	1904	1905	1906	2163	2186	2187	2188	2189	2190	2711	2716	2717
Sub basin	Krishna Upper																				
Basin	Krishna																				

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

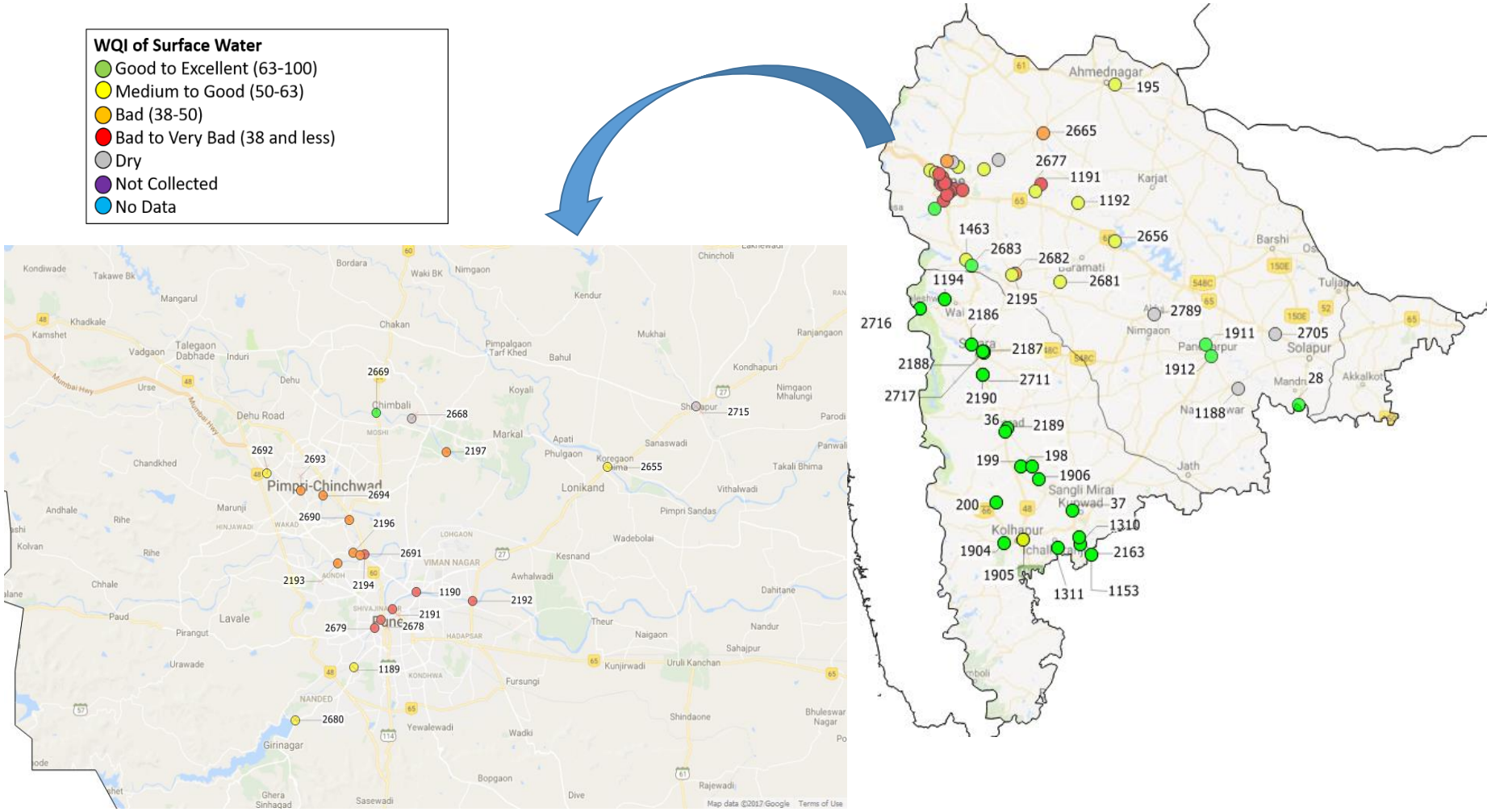
Table No. 20: Surface water quality monitoring stations in Krishna Basin (1 of 2): Sub basin Bhima upper (1 of 3)

Prog	Station code	River/Nalla	Station Name	Village	Taluka	District
NWMP	36	Krishna river	Krishna River at Krishna Bridge, Karad	Karad	Karad	Satara
NWMP	37	Krishna river	Krishna River at Maighat, Sangli	Gawali gally	Miraj	Sangli
SWMP	198	Krishna River	Bahe KT Weir, Bahe, Taluka - Walwa, District - Sangli	Bahe	Walwa	Sangli
SWMP	199	Krishna River	Borgaon KT Weir, Borgaon, Taluka - Walwa, District - Sangli	Borgaon	Walwa	Sangli
SWMP	200	Warna River (After Confluence of Morna River)	Mangle Bridge, Mangle, Taluka - Shirala, District - Sangli	Mangle	Shirala	Sangli
NWMP	1153	Krishna river	Krishna River at Rajapur Weir	Rajapur	Shirol	Kolhapur
NWMP	1194	Krishna river	Krishna river at Dhom Dam	Wai	Mahabaleshwar	Satara
NWMP	1310	Krishna river	Krishna River at Kurundwad	Narshingwadi, Kurundwad	Shirol	Kolhapur
NWMP	1311	Panchganga river	Panchganga River at Ichalkaranji near MIDC intake well	Shiradhwad (Ichalkaranji ghat)	Hatkananagle	Kolhapur
NWMP	1904	Panchganga river	Panchganga River at U/s of Kolhapur town near Balinga Pumping Station	Balinga	Karvir	Kolhapur
NWMP	1905	Panchaganga river	Panchaganga river at D/s of Kolhapur town at Gandhi nagar near NH-4 bridge and MIDC intake well	Uchegaon	Kolhapur	Kolhapur
NWMP	1906	Krishna river	Krishna river at Walwa, D/s of Islampur near Vithal Temple	Walwa	Walwa	Sangli
NWMP	2163	Panchganga river	Panchganga River at Shirol near Shirol intake well	Shirol	Shirol	Kolhapur
NWMP	2186	Venna river	Venna River at Varya, Satara	Varye	Satara	Satara
NWMP	2187	Krishna river	Krishna River at Kshetra Mahuli Satara	Kshetra Mahuli	Mahuli	Satara
NWMP	2188	Krishna river	Krishna River at Krishna-Venna Sangam, Mahuli	Mahuli	Mahuli	Satara
NWMP	2189	Koyna river	Koyna River at Karad	Karad	Karad	Satara
NWMP	2190	Krishna river	Krishna River at Wai	Wai	Wai	Satara
NWMP	2711	Urmodi river	Urmodi River at Nagthane Satara	Nagthane	Satara	Satara
NWMP	2716	Venna river	Venna River at Mahabaleshwar	Mahabaleshwar	Mahabaleshwar	Satara
NWMP	2717	Venna river	Venna River at Mahuli	Mahuli	Satara	Satara

Spatial map of Surface WQI at Krishna Basin (April 2016)



Spatial map of Surface WQI at Krishna Basin (December 2016)



West Flowing Rivers

Maharashtra has many westwards flowing rivers originating from the Western Ghats like Damanganga, Surya, Vaitarna, Ulhas, Savitri, Kundalika, Patalganga, Vashisti, Shastri, Karli, Terekhol and so on[15]. These are an important source of drinking water, agricultural applications and industrial purposes and are known to contribute about 44.54% of the yield at 75% dependability of Maharashtra. Rivers like Vaitarna, Patalganga, Ulhas, and Balganga and so on with tributaries such as Tansa, Bhasta and Barvi are used as sources of drinking water. While Rivers like Ulhas, Patalganga, Panvel, Bhogeshwari and Amba & few other tributaries like Vashishthi and Kundalika lie very close to industrial areas and are thus prone to water pollution due to release of industrial effluents. Total 41 WQMS are installed by MPCB along the west flowing rivers.

From Figure No. 6 , it is observed that in 2016-17, 48% of observation were noted under 'Good to Excellent' category as against more than 70% observations in the year 2015-16 in the same category. Thi was followed by followed by 20% of the observations under 'Medium to good' category and 20 % observations under bad to Very bad category. Almost 8% observations of water quality is 'Bad' while remaining 12% of observations is noted to be ''. Only 2% of readings fall under 'Not Collected' category.

Figure No. 6: Trend of average occurrence for different category of WQI in West flowing

[15] http://sandrp.in/rivers/Rivers_of_Maharashtra_Dec_2011.PDF

Water Quality Index of WQMS on West Flowing rivers (1 of 2)

Apr	67	66	66		63	82	82	81	85	68	31	81	79	67	83	82	84	77	79	76	66	65
May	65	69	68		48	78	79	80	80	70	35	81	79	68	80	88	86	83	74	76	68	63
Jun	63	63	65		54	84	83	80	81	66	30	84	82	56	85	82	84	78	72	74	67	63
Jul	66	63	63	64	46	82	83	81	83	66	51	70	73	63	80	85	81	80	79	80	65	66
Aug	45	68	67	67	64	83	81	81	83	68	47	70	69	67	78	83	84	82	79	80	66	66
Sep	66	68	66	68	65	83	83	81	84	67	25	79	70	66	83	83	80	84	88	87	68	67
Oct	65	64	66	63	75	82	85	83	86	66	31	83	83	61	63	84	90	84	80	84	66	67
Nov	67	67	67	68	72	81	83	88	85	67	24	77	83	68	91	70	76	91	83		68	68
Dec	66	64	65	64	53	77	86	84	80	65	27	79	81	61	74	85	83	82	79		68	66
Jan	68	61	64	62	42	82	79	83	86	61	27	79	83	62	84	87	83	82			61	63
Feb	68	65	66	67	33	84	80	80	80	66	26	84	85	67	80	85	82	83			66	68
Mar	68	63	63	65	38	93	87	85	89	62	25	71	79	59	81	85	79	81			64	64
Station code	201	202	203	204	1092	1093	1094	1461	2162	2164	2168	2653	2654	2676	2696	2706	2707	2708	2709	2712	2713	2714
Sub basin	West Flowing Rivers (1 of 2)																					
Basin	Coastal																					

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 21: Surface water monitoring stations at West Flowing rivers (1 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	201	Sonpatra River	Sonpatra River At Kotwali Village, Taluka - Khed, District - Ratnagiri	Kotwali	Khed	Ratnagiri
SWMP	202	Vashisti River	Vashisti River At Khadpoli, Taluka Chiplun, District - Ratnagiri	Khadpoli	Chiplun	Ratnagiri
SWMP	203	Jagbudi River	Jagbudi River, D/S of Khed City, Taluka - Khed, District Ratnagiri	Khed City	Khed	Ratnagiri
SWMP	204	Jog River	Jog river at Dapoli, Taluka Dapoli, District - Rantnagiri	Dapoli	Dapoli	Ratnagiri
NWMP	1092	Kalu river	Kalu River at Atale village	Atale	Kalyan	Thane
NWMP	1093	Ulhas river	Ulhas river at U/s of NRC Bund	Mohane	Kalyan	Thane
NWMP	1094	Ulhas river	Ulhas River at U/s of Badlapur water works	Kulgaon	Ambernath	Thane
NWMP	1461	Bhatsa river	Bhatsa river at D/s of Pise Dam	Pise	Bhiwandi	Thane
NWMP	2162	Ulhas river	Ulhas River at Jambhul water works	Jambhul	Ambernath	Thane
NWMP	2164	Vashishti river	Vashishti River at U/s of Three M Paper Mills near M/s Multifilms Plastic Pvt Ltd	Kherdi	Chiplun	Ratnagiri
NWMP	2168	Mithi river	Mithi River at near bridge	Mahim	Bandra	Mumbai
NWMP	2653	Bhatsa river	Bhatsa River at D/s of Liberty Oil Mills	Satne	Shahapur	Thane
NWMP	2654	Bhatsa river	Bhatsa River at D/s of Liberty Oil Mills	Satne	Shahapur	Thane
NWMP	2676	Muchkundi river	Muchkundi River at Waked Ratnagiri near M/s Asahi India Glass	Waked	Lanja	Ratnagiri
NWMP	2696	Dam	Pelhar dam	Pelhar	Vasai	Palghar
NWMP	2706	Surya river	Surya River U/s of Surya Dam	Dhamni	Vikramgad	Thane
NWMP	2707	Surya river	Surya River at MIDC pumping station	Garvashet	Palghar	Thane
NWMP	2708	Surya river	Surya River at Intake of Vasai-Virar water scheme	Masvan	Palghar	Thane
NWMP	2709	Tansa river	Tansa River near road bridge	Dakewali	Wada	Thane
NWMP	2712	Vaitarna river	Vaitarna River near Road Bridge	Gandhare	Wada	Thane
NWMP	2713	Vashishti river	Vashishti River at D/s of Three M Paper Mills near Chiplun water intake Jackwell	Kherdi	Chiplun	Ratnagiri
NWMP	2714	Vashishti river	Vashishti River at U/s of Pophali near Konphansawane Bridge	Pophali	Chiplun	Ratnagiri

Water Quality Index of WQMS on West Flowing rivers (Coastal basin) (2 of 2)

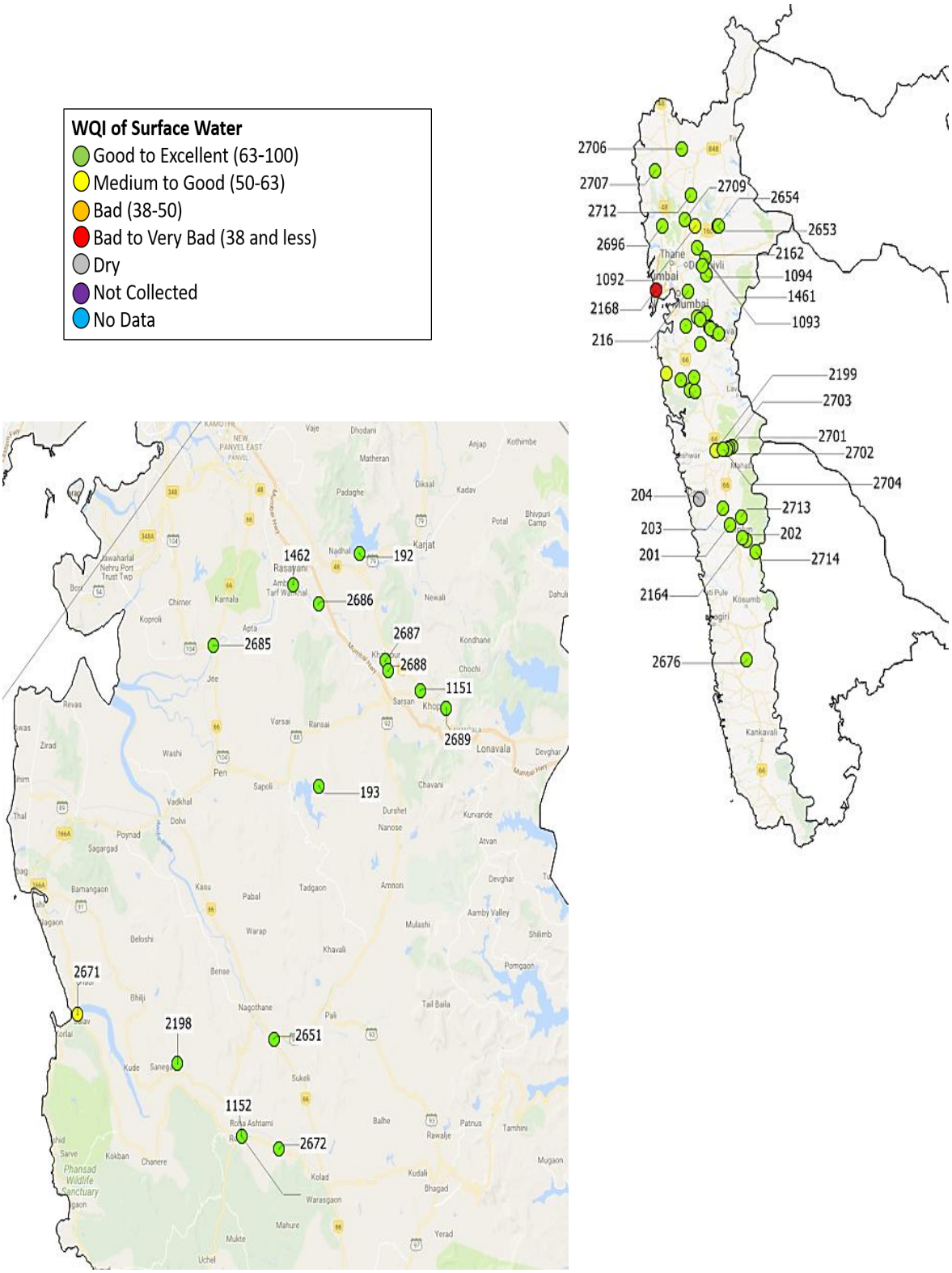
Apr	83	86	68	82	80	81	76	63	82	59	78	68	86	84	78	82	67	66	64	64
May	84	80	75	75	76	74	65	65	78	68	82	80	78	76	76	74	69	67	64	65
Jun	85	85	52	77	82	87	81	60	80	54	83	84	85	80	83	77	67	66	59	62
Jul	80	79	77	80	83	79	78	65	72	79	83	81	83	82	81	82	66	66	64	65
Aug	81	82	82	80	72	81	36	67	75	32	79	78	82	83	72	79	67	67	66	67
Sep	85	82	74	76	78	78	81	68	78	63	73	82	84	82	82	83	66	66	67	68
Oct	86	85	67	86	86	75	83	64	82	55	85	81	84	82	79	83	65	67	65	65
Nov	81	80	45	80	73	78	60	67	78	65	75	76	80	82	75	77	68	67	66	65
Dec	87	90	39	75	84	73	73	53	79	83	85	45	79	80	75	73	60	60	64	64
Jan	69	52	59	84	80	79	64	63	76	70	81	79	86	85	77	80	66	65	67	64
Feb	87	87	72	83	78	75	75	66	81	54	80	77	83	83	78	81	67	68	65	65
Mar	89	77	36	79	78	79	66	63	81	55	81	61	81	80	73	86	65	64	66	67
Station code	192	193	216	1151	1152	1462	2198	2199	2651	2671	2672	2685	2686	2687	2688	2689	2701	2702	2703	2704
Sub basin	West Flowing Rivers (2 of 2)																			
Basin	Coastal																			

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

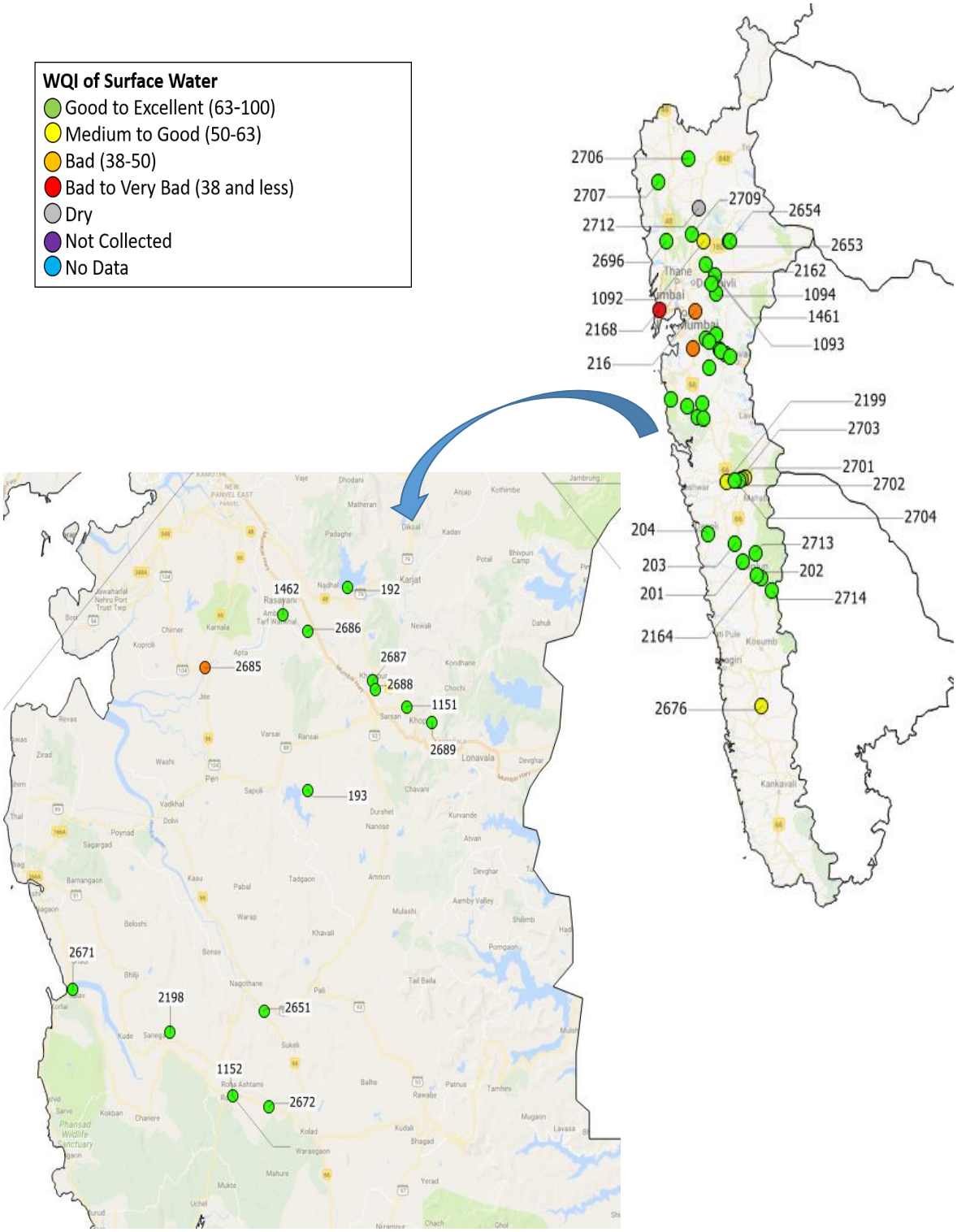
Table No. 22: Surface water quality monitoring stations on West flowing s (2 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	192	Dam	Morbe Dam, Taluka - Khalapur, District - Raigad	Khalapur	Khalapur	Raigad
SWMP	193	Balganga River	Balganga River, Village Ransai, Taluka - Khalapur, District - Raigad	Ransai	Khalapur	Raigad
SWMP	216	River	Kasardi River near Ganesh Ghat	Taloja	Panvel	Raigad
NWMP	1151	Patalganga river	Patalganga River at Shilphata Bridge	Khopoli	Khalapur	Raigad
NWMP	1152	Kundalika river	Kundalika River at Roha Bridge	Roha	Roha	Raigad
NWMP	1462	Patalganga river	Patalganga near intake of MIDC water works(Turade w/w)	Turade	Khalapur	Raigad
NWMP	2198	Kundalika river	Kundalika River at Are Khurd (Saline Zone)	Are Khurd	Roha	Raigad
NWMP	2199	Savitri river	Savitri River at Ovale village	Ovale	Mahad	Raigad
NWMP	2651	Amba river	Amba River at D/s of Waken Bridge	Waken Phata	Roha	Raigad
NWMP	2671	Kundalik river	Kundalik River near Salav Bridge (Saline Zone)	Salav	Roha	Raigad
NWMP	2672	Kundalika river	Kundalika River at Dhatav at Jackwell	Dhatav	Roha	Raigad
NWMP	2685	Patalganga river	Patalganga River at D/s of Kharpada Bridge	Kharpada	Khalapur	Raigad
NWMP	2686	Patalganga river	Patalganga River at Vyal pump house	Vyal	Khalapur	Raigad
NWMP	2687	Patalganga river	Patalganga River at Khalapur pumping house	Khalapur	Khalapur	Raigad
NWMP	2688	Patalganga river	Patalganga River at Savroli Bridge	Savroli	Khalapur	Raigad
NWMP	2689	Patalganga river	Patalganga River at Gagangiri Maharaj Temple	Khopoli	Khalapur	Raigad
NWMP	2701	Savitri river	Savitri River Jackwell at Upsa kendra	Nangalwadi	Mahad	Raigad
NWMP	2702	Savitri river	Savitri River at Shedav Doh	Shedav Dov	Mahad	Raigad
NWMP	2703	Savitri river	Savitri River at Dadli Bridge	Dadli	Mahad	Raigad
NWMP	2704	Savitri river	Savitri River at Muthavali village	Muthavali	Mahad	Raigad

Spatial map of Surface WQI of West Flowing rivers (April 2016)

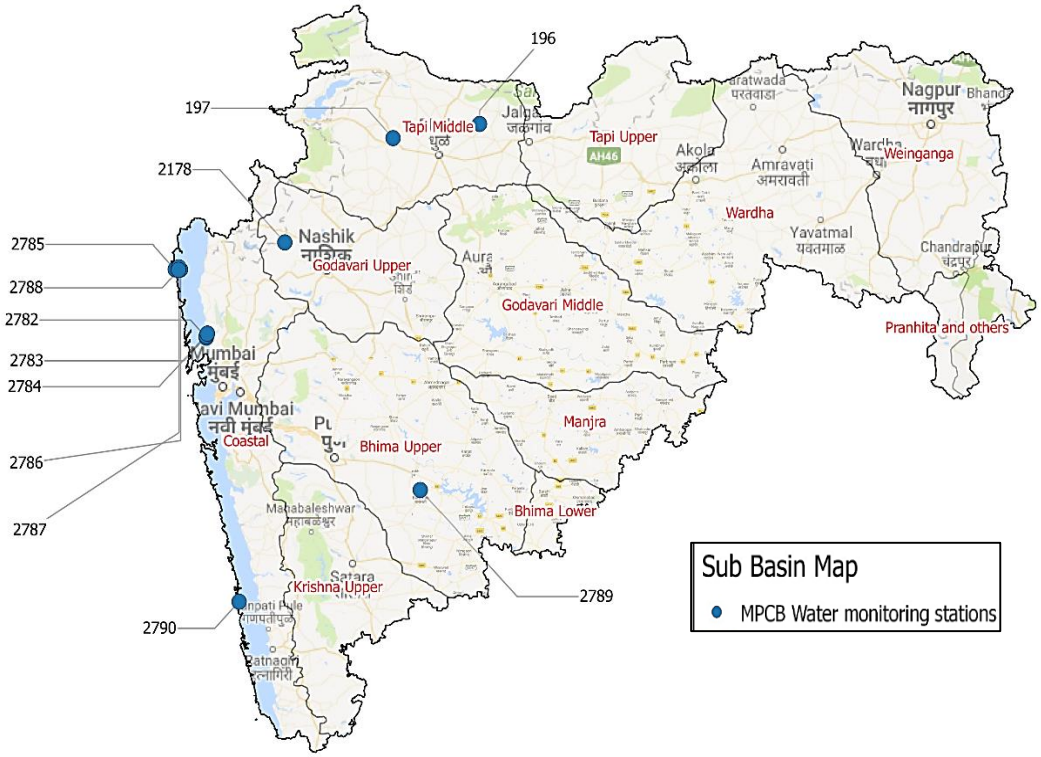


Spatial map of Surface WQI of West Flowing rivers (December 2016)



Nallahs

There are 12 water monitoring stations across nallahs in the state .The majority of nallahs of coastal basin are located in Thane district. The BPT Navpur, Sandoz nalla and Rabodi nalla of Thane are noted to be polluted throughout the year.



Map No. 4: Water monitoring network across Nallahs

Water Quality Index of WQMS on Nallahs (Coastal basin)

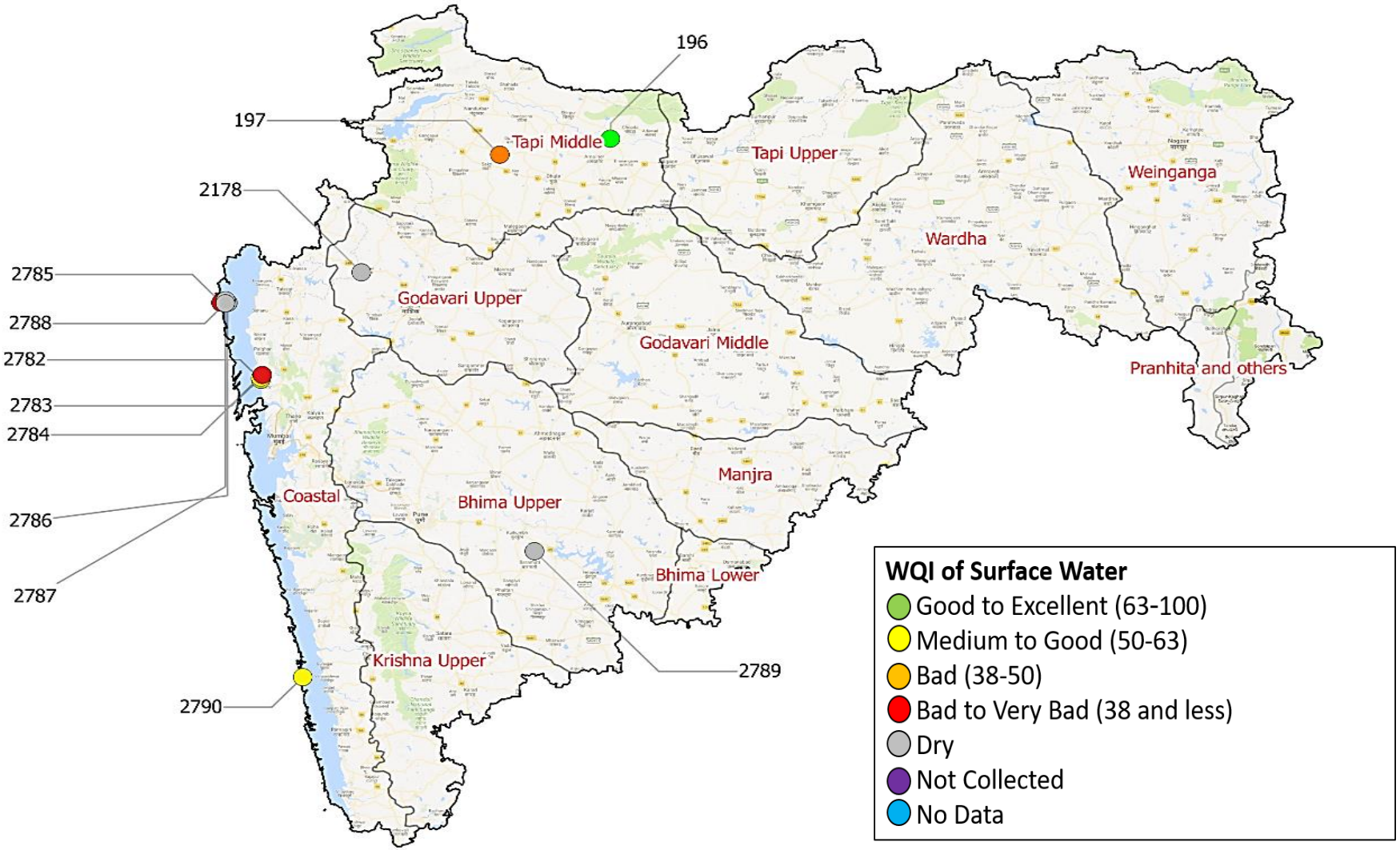
Apr	54	83	40			56	27	28				56
May	55	74	47			51	28	21				63
Jun	45	40	45			42	29	24				52
Jul	38	55	60	73		47	31	22	23	23	23	
Aug	35	62	46	84		35	57	23	36	34	36	
Sep	27	81	79	56		26	24	27	22	15	15	
Oct	31	77	78	81	70	36	26	24	67	25	29	
Nov	28	76	35	87		31	29	26				61
Dec	32	49	70	64		28	26	24				57
Jan	24	46	70	89		27	27	26				59
Feb	23	47	48	40		24	27	24				60
Mar	27	86	35			27	29	47				62
Station code	2782	196	197	2178	2789	2783	2784	2785	2786	2787	2788	2790
Sub basin					Nallah							
Basin					Coastal							

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

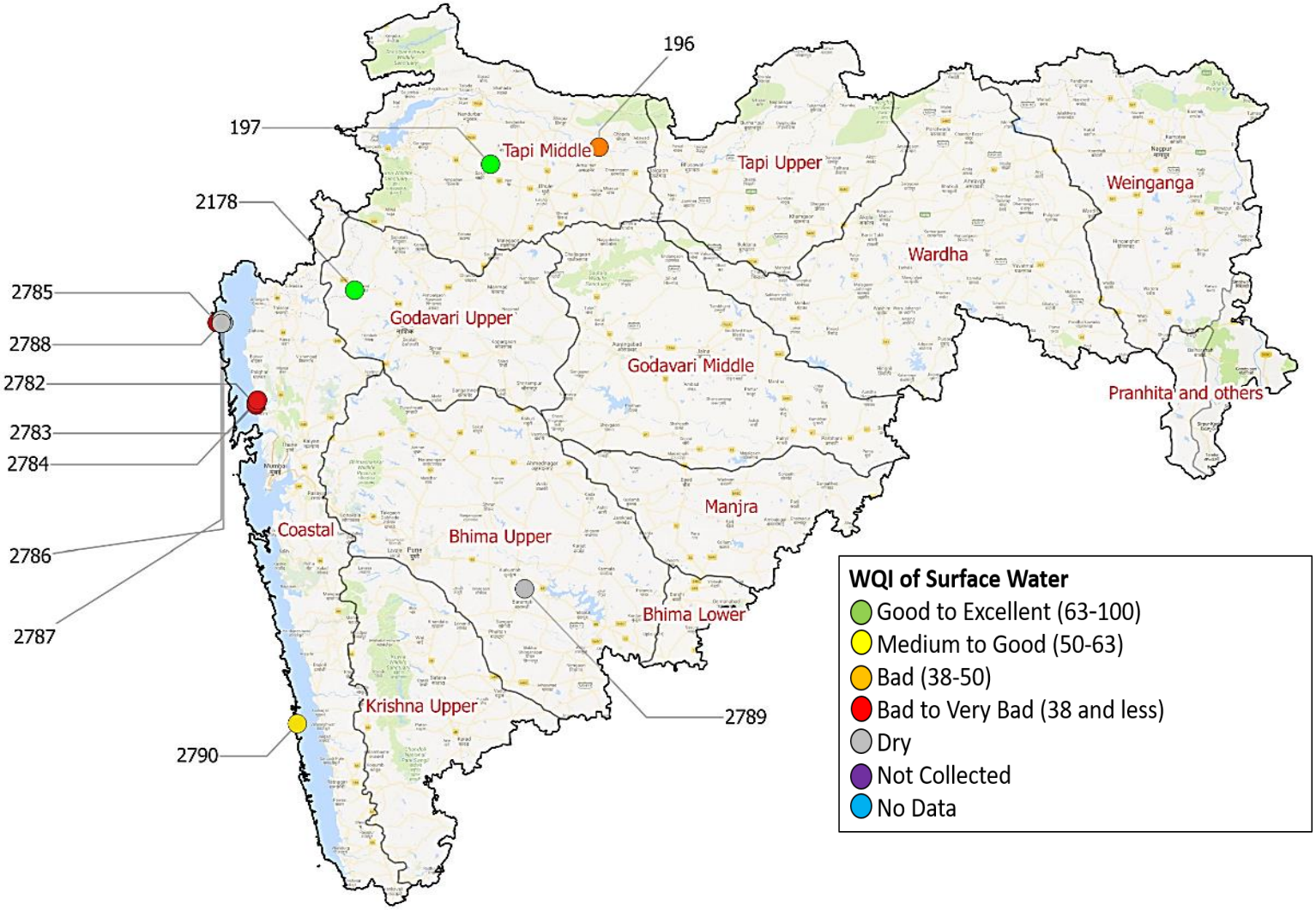
Table No. 23 : Surface water quality monitoring stations monitoring at Nallahs along the Coastal Basin.

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	196	Nalla	Lowki Nalla At Khedi, Taluka & District - Jalgaon	Khedi	Khedi	Jalgaon
SWMP	197	Nalla	Moti Nalla before Confluence with Panjara river Dhule, Taluka & District - Dhule	Dhule	Dhule	Dhule
NWMP	2178	Nalla	Chikhali Nalla Meets Godavari River	Chikhali	Nashik	Nashik
NWMP	2789	Nalla	Nalla at D/s of Alkai Mandir, Solapur	Aklai	Malshiras	Solapur
NWMP	2782	Nalla	Rabodi Nalla	Rabodi	Thane	Thane
NWMP	2783	Nalla	Colour Chem Nalla	Majiwada	Thane	Thane
NWMP	2784	Nalla	Sandoz Nalla	Sandozbaug	Thane	Thane
NWMP	2785	Nalla	BPT Navapur	Navapur	Palghar	Palghar
NWMP	2786	Nalla	Tarapur MIDC Nalla, near sump No1	MIDC Tarapur	Palghar	Palghar
NWMP	2787	Nalla	Tarapur MIDC Nalla	MIDC Tarapur	Palghar	Palghar
NWMP	2788	Nalla	Tarapur MIDC Nalla near sump-III	MIDC Tarapur	Palghar	Palghar
NWMP	2790	Nalla	Pimpal-Paneri Nalla at Ratnagiri near Finolex Industries	Yahganigaon	Ratnagiri	Ratnagiri

Spatial map of WQI for Nallahs (April 2016)



Spatial map of WQI for Nallahs (Dec 2016)



Saline (Sea and Creek) Water Quality

Maharashtra is bestowed with a coast line of about 720 kms. Thane, Mumbai, Raigad, Ratnagiri and Sindhudurg districts are all located along the coastal front in Maharashtra. These districts are blessed with beaches, mangroves, migratory birds, corals and a lot of unique marine biodiversity. Rapid industrialization has taken place along the coastline which adds to water pollution. These have direct impact on marine ecosystem and humans, hence it is important to monitor the sea water quality.

MPCB has 45 monitoring stations (36 stations on sea/creek and 9 stations along nallahs) along the sensitive and pollution prone areas of coastline of the state. Regular monitoring for basic parameters like DO, FC, pH and BOD data is conducted at these monitoring stations.

The trend in average occurrence for WQI across the WQMS was noted and it is observed that 64% of observations are recorded under Bad category. The occurrence of 'Bad to very bad' category has increased as compared to previous three years by almost 10%. This year more than 70% of the observatiosn for water quality of coastal basin water samples was recorded in 'Bad' category. 'Medium to Good' category accounted for 19% of observations while only 2% of observations were under 'Good to Excellent' category.

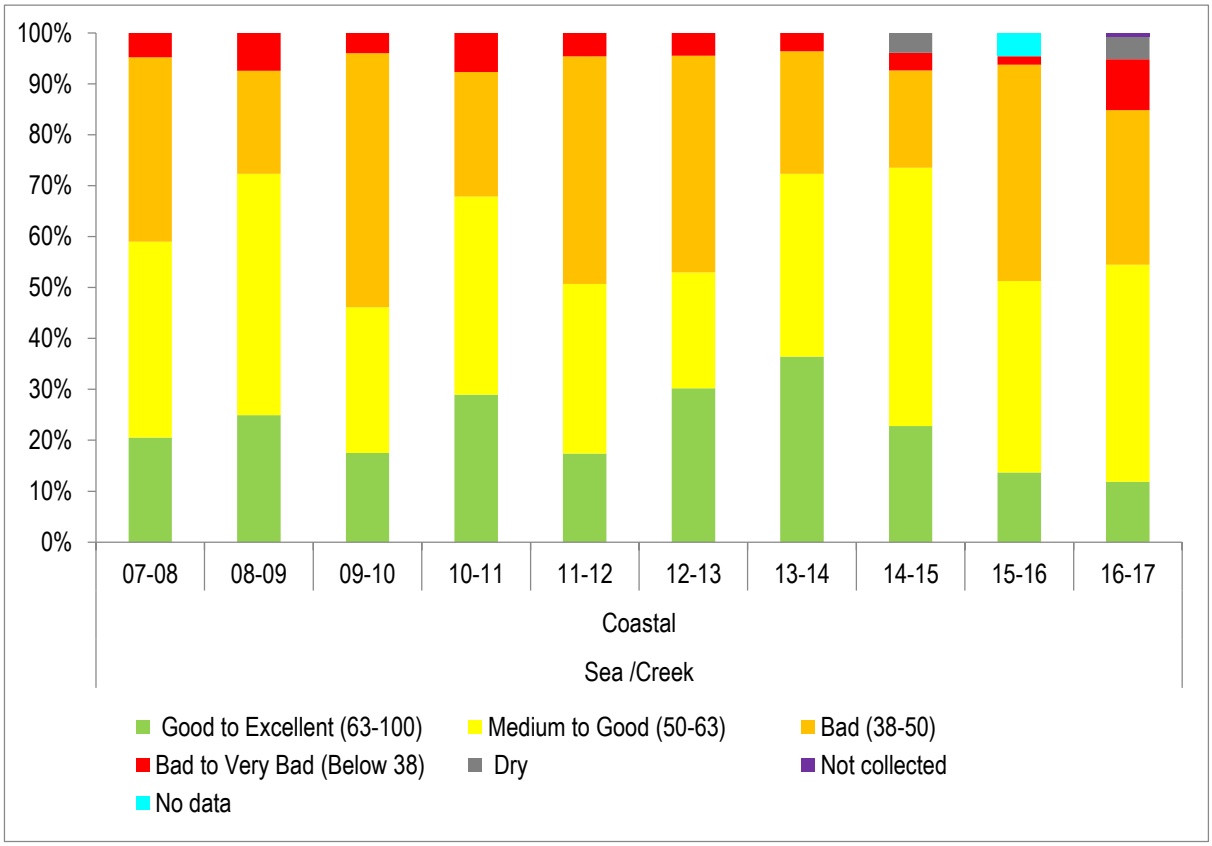


Figure No. 7: Trend of average occurrence for different category of WQI Coastal basin

Water Quality Index of WQMS on Saline/Creek (Coastal basin) (1 of 2)

Apr	49	58	52	61	62	62	60	62	56	59	61	59	69	57	57	50	51	50
May	50	61	48	43	57	56	58	52	63	61	51	53	63	63	51	54	50	46
Jun	56	55	58	58	54	58	59	54	50	51	48	49	68	59	56	43	45	49
Jul	60	58	60	44	55	66	67	59	77	64	50	54	59	58	55	54	52	48
Aug	65	58	57	55	58	59	61	59	60	64	55	58	70	68	64	53	55	47
Sep	51	67	57	63	61	54	59	53	54	65	59	54	46	66	49	52	49	45
Oct	55	54	58	68	53	61	57	62	69	55	71	56	54	55	55	54	50	49
Nov	51	49	55	57	46	50	54	52	57	53	52	48	63	48	58	50	48	43
Dec	50	46	52	55	52	53	57	53	47	52	47	46	49	57	51	45	46	43
Jan	49	43	50	54	51	48	52	56	50	46	52	43	51	47	46	43	40	43
Feb	51	54	50	48	53	52	52	50	27	25	60	60	53	54	56	55	55	53
Mar	48	56	43	32	57	57	60	56	46	52	38	47	73	75	74	45	53	25
Station code	190	1316	2184	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2805	2806	2807
Sub basin	Sea/Creek (1 of 2)																	
Basin	Coastal																	

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

Table No. 24: Surface water quality monitoring stations monitoring Sea/Creek water (1 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	190	Creek water	TTC Creek At Ghansoli Jetty	Ghansoli	Thane	Thane
NWMP	1316	Bassein creek	Bassein creek at Vasai Fort, Thane	Bassein	Vasai	Thane
NWMP	2184	Vashi creek	Vashi Creek at Airoli Bridge	Airoli	Thane	Thane
NWMP	2791	Ulhas creek	Ulhas Creek at Reti Bunder, D/s of Kalyan-Bhiwandi Bridge	Kalyan	Kalyan	Thane
NWMP	2792	Ulhas creek	Ulhas Creek at Mumbra Reti Bunder	Mumbra	Thane	Thane
NWMP	2793	Thane creek	Thane Creek at Kalwa Road Bridge	Kalwa	Thane	Thane
NWMP	2794	Ulhas creek	Ulhas Creek at Kolshet Reti Bunder	Kolshet	Thane	Thane
NWMP	2795	Ulhas creek	Ulhas Creek at Gaimukh at Nagla Bunder on Ghod Bunder Road	Nagla	Thane	Thane
NWMP	2796	Ulhas creek	Ulhas Creek at Versova Bridge	Versova	Vasai	Thane
NWMP	2797	Bhayander creek	Bhayander Creek at D/s of Railway Bridge at Jasal Park Choupathy	Navghar	Bhayander	Thane
NWMP	2798	Kharekuran Murbe creek	Kharekuran Murbe Creek	Kharekuran	Palghar	Thane
NWMP	2799	Dandi creek	Dandi Creek	Dandi	Palghar	Thane
NWMP	2800	Sarwali creek	Sarwali Creek	Sarwali	Palghar	Thane
NWMP	2801	Savta creek	Savta Creek	Savta	Dahanu	Thane
NWMP	2802	Dahanu creek	Dahanu Creek at Dahanu Fort	Danugaon	Dahanu	Thane
NWMP	2805	Arnala sea	Arnala Sea	Arnala	Vasai	Thane
NWMP	2806	Uttan sea	Uttan Sea at Bhayander	Uttan	Bhayander	Thane
NWMP	2807	Navapur sea	Navapur Sea	Navapur	Palghar	Thane

Water Quality Index of WQMS on Saline/Creek (Coastal basin) (2 of 2)

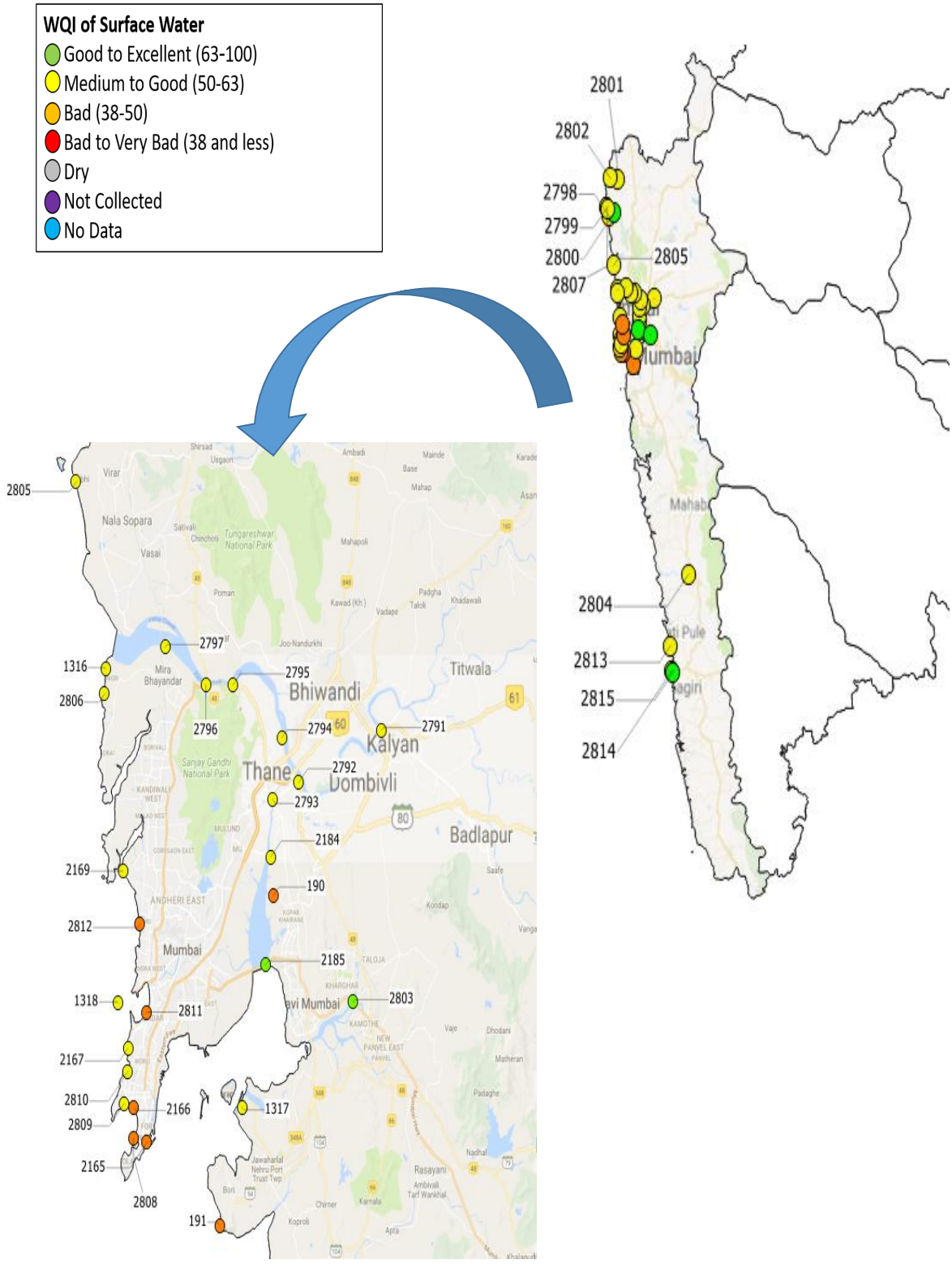
Apr	46	50	51	48	47	54	52	75	65	61	49	51	55	50	50	60	60	63
May	52	49	53	48	51	41	49	55	57	67	48	50	50	48	48	65	64	65
Jun	48	51	51	45	43	45	42	58	62	52	44	47	44	44	43	56	53	51
Jul	54	60	58	50	54	50	50	62	64	67	51	50	50	50	53	61	61	59
Aug	54	65	59	50	51	50	53	67	68	66	49	49	53	50	49	65	65	63
Sep	50	55	55	50	50	48	50	51	49	66	48	51	54	57	50	55	53	50
Oct	51	52	44	51	50	49	47	54	76	67	53	48	45	47	48	63	63	63
Nov	44	53	47	41	46	42	42	44	38	67	40	43	45	49	42	67	65	65
Dec	47	50	46	41	45	44	47	54	43	66	44	44	50	44	50	58	56	57
Jan	40	43	44	41	42	45	47	52	70	64	42	44	40	43	46	56	53	53
Feb	45	51	45	47	45	43	38	51	64	66	50	49	44	46	44	58	58	59
Mar	44	49	46	46	43	48	50	45	41	54	49	49	47	48	43	55	53	51
Station code	191	1317	1318	2165	2166	2167	2169	2185	2803	2804	2808	2809	2810	2811	2812	2813	2814	2815
Sub basin	Sea/Creek (2 of 2)																	
Basin	Coastal																	

Good to Excellent	Medium to good	Bad	Bad to Very Bed	Dry	Not collected

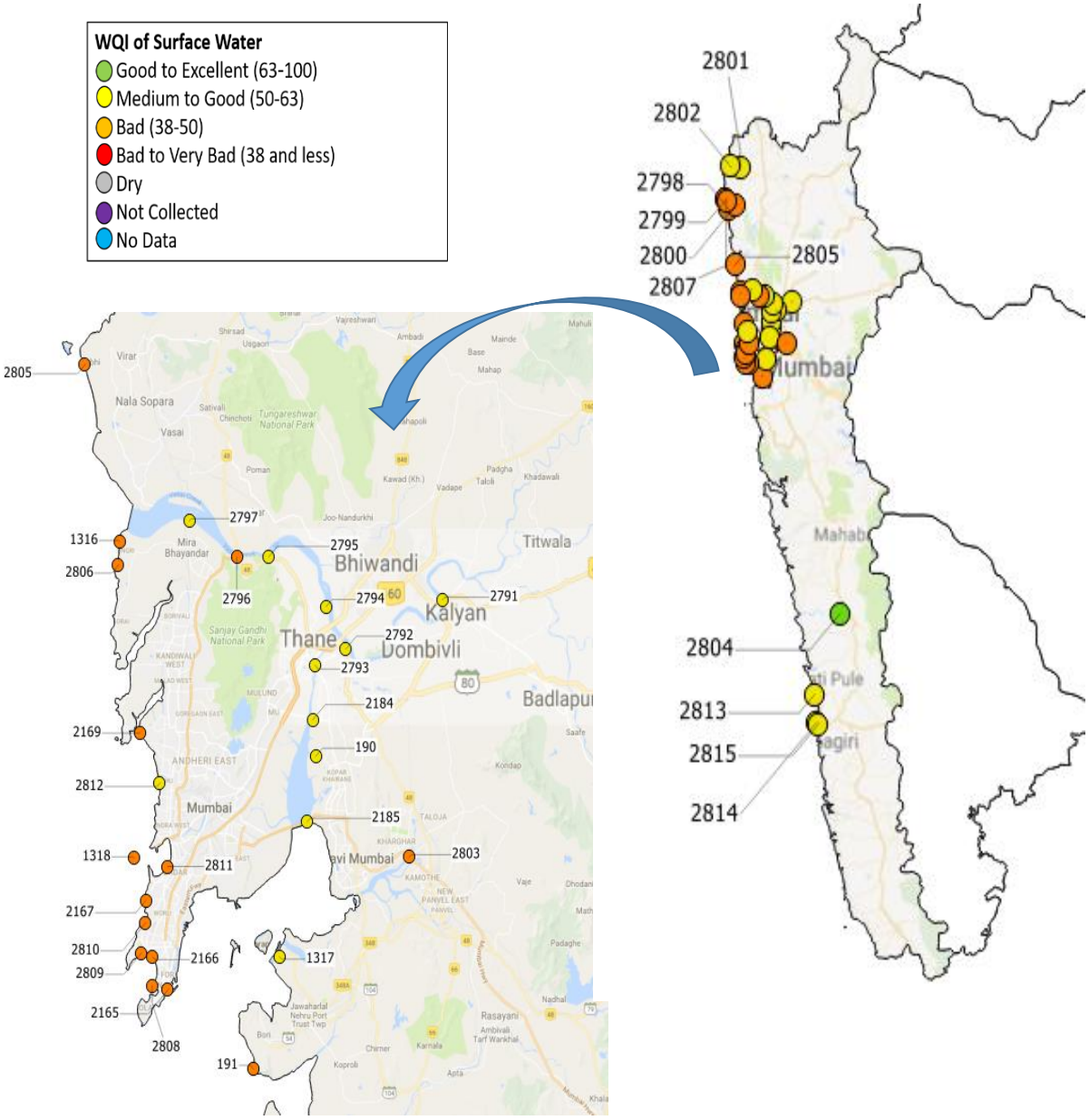
Table No. 25: Surface water quality monitoring stations monitoring Sea/Creek water (2 of 2)

Program	Station code	River/Nalla	Station Name	Village	Taluka	District
SWMP	191	Sea Water	Arabian Sea behind ONGC Uran	Uran	Uran	Raigad
NWMP	1317	Thane creek	Thane creek at Elephanta Island	Gharapuri, Elephanta Island	Uran	Raigad
NWMP	1318	Mahim creek	Mahim creek at Mahim Bay	Mahim	Bandra	Mumbai
NWMP	2165	Sea	Sea Water at Gateway of India	Colaba	Colaba	Mumbai
NWMP	2166	Sea	Sea Water at Charni Road Choupathy	Girgaon	Mumbai	Mumbai
NWMP	2167	Sea	Sea Water at Worli Seaface	Worli	Worli	Mumbai
NWMP	2169	Sea	Sea Water at Varsova Beach	Versova	Andheri	Mumbai
NWMP	2185	Vashi creek	Vashi Creek at Vashi Bridge	Vashi	Thane	Thane
NWMP	2803	Panvel creek	Panvel Creek at Kopra Bridge	Kopra	Panvel	Raigad
NWMP	2804	Karambavane creek	Karambavane Creek at Chiplun	Karambavane	Chiplun	Ratnagiri
NWMP	2808	Sea	Sea Water at Nariman Point	Colaba	Colaba	Mumbai
NWMP	2809	Sea	Sea Water at Malabar Hill	Walkeshwar	Mumbai	Mumbai
NWMP	2810	Sea	Sea Water at Haj Ali	Worli	Worli	Mumbai
NWMP	2811	Sea	Sea Water at Shivaji Park (Dadar Choupathy)	Dadar	Dadar	Mumbai
NWMP	2812	Sea	Sea Water at Juhu Beach	Juhugaon	Santacruz	Mumbai
NWMP	2813	Sea	Sea Water at Ganapatipule	Ganapatipule	Ratnagiri	Ratnagiri
NWMP	2814	Sea	Sea Water at Bhagwati Bunder, Ratnagiri near Ultra Tech Cement Jetty	Mirkarwada	Ratnagiri	Ratnagiri
NWMP	2815	Madvi sea	Madvi Sea Water at Ratnagiri near Jodhale Maruti Temple	Madvigaon	Ratnagiri	Ratnagiri

Spatial map of WQI for Sea /Creek (April 2016)

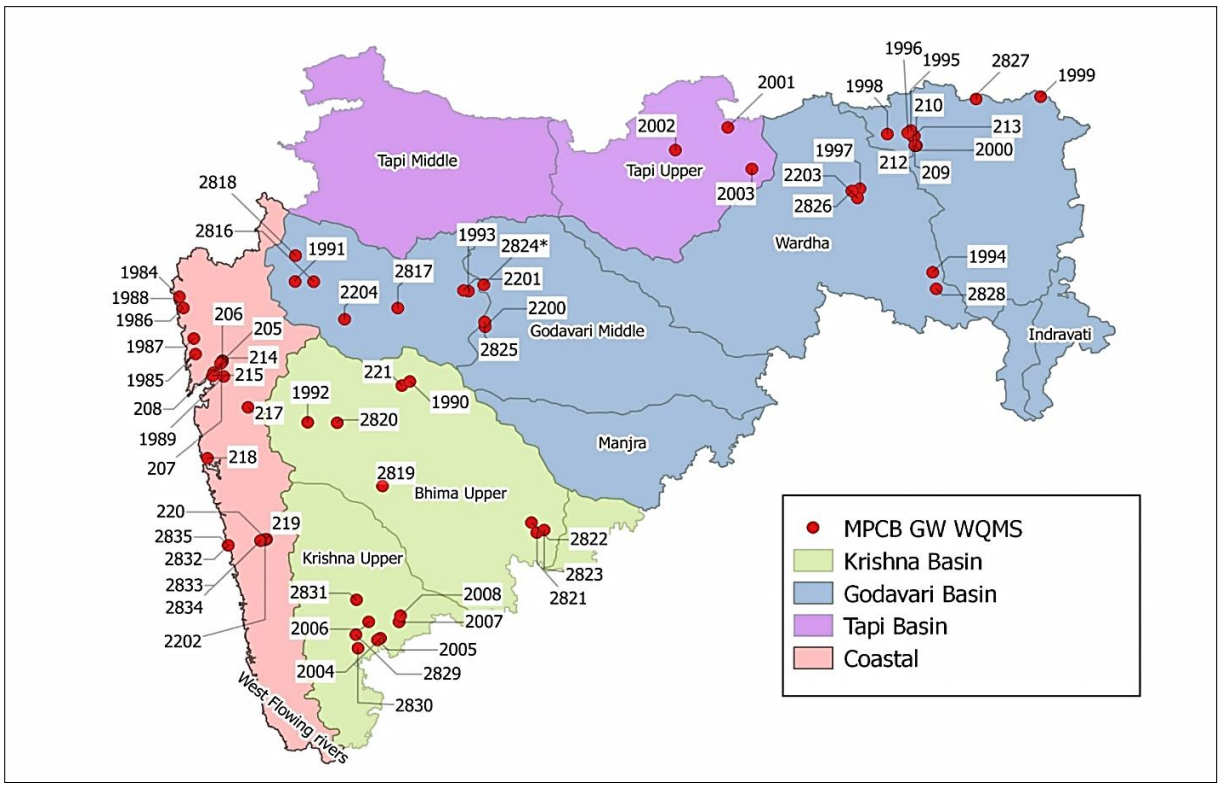


Spatial map of WQI for Sea /Creek (December 2016)



Groundwater Quality

Water located beneath the earth's surface in soil pore spaces and aquifers formed due to formation of cracks in the rocks is termed as Groundwater. It is recharged from rain and surface water and at times the only source for water supply in many regions. Groundwater constitutes about two thirds of the freshwater resources of the world[16] and accounts for nearly 80 per cent of the rural and 50 per cent of the urban water needs in India[17]. Groundwater is intensively drawn for agricultural, irrigationand industrial purposes. The accumulation and inadequade disposal of waste generated by the industries leads to groundwater pollution. The overall estimates of ground water resources of the entire country shows a marginal decrease about 2 bcm as compared to 2004[18]. In Maharashtra, CGWB (Central Ground Water Board), GSDA (Groundwater Survey and Development Agency) and MPCB, monitor the ground water quality across various districts of the state. MPCB has 65 ground water monitoring stations which monitor water quality twice a year for parameters like pH, Nitrate, TDS, Hardness, Fluoride, microbial content, Sulphates and so on. The network of ground water monitoring stations is spatially presented in Map No. 5.



Map No. 5: Network of ground water quality monitoring stations in Maharashtra

[16]UNESCO/WHO/UNEP, *Water Quality Assessments - A Guide to Use of Biota, Sediments and Water in Environmental Monitoring - Second Edition*
[17]M. Dinesh Kumar and Tushaar Shah, *Groundwater Pollution and Contamination in India: The Emerging Challenge*
[18] Central ground water committee,*Groundwater Year Book –India 2013-14*

Water Quality Index for ground water at Kalyan, Navi Mumbai, Raigad and Thane.

Apr					37	3662	46		135		31	42	39	65
Oct	174		115	82	50	27	50		49		64	93	201	97
Station code	**205**	**206**	**207**	**208**	**214**	**215**	**217**	**218**	**1989**	**1984**	**1985**	**1986**	**1987**	**1988**
Region	Kalyan				Navi Mumbai		Raigad			Thane				

Legend

Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	Closed

Table No. 26: Groundwater quality monitoring stations at Kalyan, Navi Mumbai, Raigad and Thane.

Programme	Regional Office	Station ID	Station Name	District	Taluka	Type of well	Village
SWMP	Kalyan	205	Dug well opp. KAMA office, MIDC Ph-I, Dombivali	Kalyan	Dombivali	Dug well	MIDC,Dombivali
SWMP	Kalyan	206	Dug well near Mamta Hospital, Milap Nagar, Dombivali	Kalyan	Dombivali	Dug well	MIDC,Dombivali
SWMP	Kalyan	207	Dug well at pimpleshwar Temple, MIDC Ph-II, Dombivali	Kalyan	Dombivali	Dug well	MIDC,Dombivali
SWMP	Kalyan	208	Dug well addjusent to M/S. Altra pure chem., Sr. No. 45, Hissa No. 3, MIDC Ph-II, Dombivali.	Kalyan	Dombivali	Dug well	MIDC,Dombivali
SWMP	Navi Mumbai	214	Borewell at TTCWMA, Mahape	Thane	Thane	Borewell	TTCWMA,Mahape
SWMP	Navi Mumbai	215	Well water at Turbhe Store, Turbhe	Thane	Thane	Well	Turbhe
SWMP	Raigad	217	Borewell water at village Milgaon, Taluka - Khalapur, District - Raigad.	Raigad	Khalapur	Borewell	Milgaon
SWMP	Raigad	218	Borewell water near MSW site, Murud -Janjira.			Borewell	Murud Janjira
NWMP	Raigad	1989	Bore well at MWML Site at Taloja	Raigad	Panvel	Bore well	Karawla- Taloja
NWMP	Thane	1984	Bore well at M/s Tata Iron {} Steel Co. Ltd, S-76	Thane	Palghar	Bore well	MIDCTarapur, Industrial Estate, Tarapur
NWMP	Thane	1985	Dug well at 5 Star Industrial Estate	Thane	Mira-Bhayander	Dug well	Kashimira
NWMP	Thane	1986	Bore well at Motapada	Thane	Dahanu	Bore well	Motapada
NWMP	Thane	1987	Bore well at Vasai	Thane	Vasai	Bore well	Gokhiware
NWMP	Thane	1988	Bore well at Gharatwadi, Palghar	Thane	Palghar	Bore well	Aliyali

Water Quality Index for ground water at Amravati, Aurangabad and Nashik.

Apr	164	69			137			244	74						
Oct	79	12			310			242	96						
Station code	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
Region	Amravati			Aurangabad					Nashik						

Legend

Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	Closed

Table No. 27: Groundwaterquality monitoring stations at Amravati, Aurangabad and Nashik.

Programme	Station ID	GW Type	Station Name	District	Taluka	Village
NWMP	2001	Tube well	Tube well at water treatment plant of M.C.Achalpur near Post Office.	Amravati	Achalpur	Paratwada
NWMP	2002	Bore well	Bore well Opp. Gajanan Maharaj Temple at Anjangaon road.	Akola	Akot	Anjangaon
NWMP	2003	Dug well	Dug well at Plot No- 4, Street No. 49-C, at Nehru Bal Udyan Azad Maidan, owned by Yavatmal M.C.	Yavatmal	Yavatmal	Nehru Bal Udyan Azad Maidan
NWMP	1993	Dug well	Dug well at Pandarpur, Gangapur, Aurangabad	Aurangabad	Gangapur	Pandharpur
NWMP	2200	Bore well	Bore Well at Katpur, Near Z.P.School	Aurangabad	Paithan	Katpur
NWMP	2201	Dug well	Dug Well at Ranjangaon	Aurangabad	Gangapur	Ranjangaon
NWMP	2824	Dug well	Dug Well at Naregaon	Aurangabad	Aurangabad	Naregaon
NWMP	2825	Bore well	Bore Well at Wahegaon, near Zilla Parishet School	Aurangabad	Paithan	Wahegaon
SWMP	221	Well	Well water of Bappaji, Akolner, Ahmadnagar, Nashik	Nashik	Ahmadnagar	Akolner
NWMP	1990	Bore well	Bore well at BMW Site , Burudgaon	Ahmadnagar	Ahmednagar	Burudgaon
NWMP	1991	Bore well	Bore well at MSW Site, Pathardi, Nashik	Nashik	Nashik	Pathardi
NWMP	2204	Dug well	Dug well at Gunjalwadi, Sangamner near Primary Health Care Center.	Ahmadnagar	Sangamner	Gunjalwadi
NWMP	2816	Dug well	Dug Well of Mr. Sampat Walunj, near M/s. Mahajeet Clayton	Nashik	Nashik	Shinde village

Programme	Station ID	GW Type	Station Name	District	Taluka	Village
NWMP	2817	Bore well	Bore Well at Chitali near Wagh vasthi	Ahmadnagar	Rahata	Chitali
NWMP	2818	Bore well	Bore Well at M/s. Spectron Ethers Rasegaon near Siddeshwar Mahadev Mandir	Nashik	Dindori	Rasegaon

Water Quality Index for ground water at Chandrapur and Nagpur.

Apr		71	56	77	128	132		103	136		83					
Oct		113	136	146	151	134		112	103	40	86	106		41	71	
Station code	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
Region	Chandrapur	Nagpur														

Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	Closed

Table No. 28: Groundwater quality monitoring stations at Chandrapur and Nagpur.

Programme	Station ID	GW Type	Station Name	District	Taluka	Village
NWMP	2828	Dug well	Dug Well near Jilla Parishad Primary School Visapur	Chandrapur	Ballarpur	Visapur
SWMP	209	Borewell	Bore well near Pardhi House, Bhandewadi, Nagpur	Nagpur	Mouda	Bhandewadi
SWMP	210	Bore well	Bore well near Dearao Kale House, Bhandewadi, Nagpur	Nagpur	Mouda	Bhandewadi
SWMP	212	Dug well	Grampanchayat Mhasala, Dugwell On Nalla At Mhasala, Taluka - Kamptee, District - Nagpur	Nagpur	Kamptee	Mhasala
SWMP	213	Dug well	Grampanchayat Kawtha, Dugwell At Kawtha, Taluka - Kamptee, District - Nagpur	Nagpur	Kamptee	Kawtha
NWMP	1994	Dug well	Dug well At TPS Durgapur near Naseeb Kirana {} general Store.	Chandrapur	Chandrapur	Durgapur

Programme	Station ID	GW Type	Station Name	District	Taluka	Village
NWMP	1995	Dug well	Gram Panchayath Dug well , Near Balaji Gajbhiye House, Khaperkheda	Nagpur	Saoner	Khaperkheda(Ward No.4)
NWMP	1996	Dug well	Gram Panchayath Dug well , Near Jagadamba G M S Mandir Sahakari Sanstha	Nagpur	Kamptee	Koradi
NWMP	1997	Bore well	Bore well near Primary Health Centre, Raipur(Hingna)	Nagpur	Hingna	Raipur
NWMP	1998	Dug well	Gram Panchayat Dug well near Gram Panchayat Office, Brahmni	Nagpur	Kalmeshwar	Brahmni
NWMP	1999	Bore well	Bore well Near Gram Panchayat, Changera.	Gondia	Gondia	Changera
NWMP	2000	Dug well	Dug well near Sarode Kirana Store, Bhandewadi	Nagpur	Nagpur	Bhandewadi
NWMP	2203	Hand pump	Hand Pump in the premises of Z.P.Primary School	Wardha	wardha	Bhugaon
NWMP	2826	Dug well	Dug Well near Railway Station, Cottaon Market	Wardha	wardha	Wardha
NWMP	2827	Bore well	Bore Well near Railway crossing at Dongi Buzurg	Bandara	Tumsar	Dongri-Buzurg

Water Quality Index for ground water at Kolhapur and Pune.

Apr	27	33	158	152	135	128	132	25	56	135	140	38	24	497	28	126	310	51	96	414	205
Oct	62	19	182	112	157	145	191	23	198	101	117	20	35	36	19	125	133	132	222	133	142
Station code	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	2823
Region	Kolhapur															Pune					

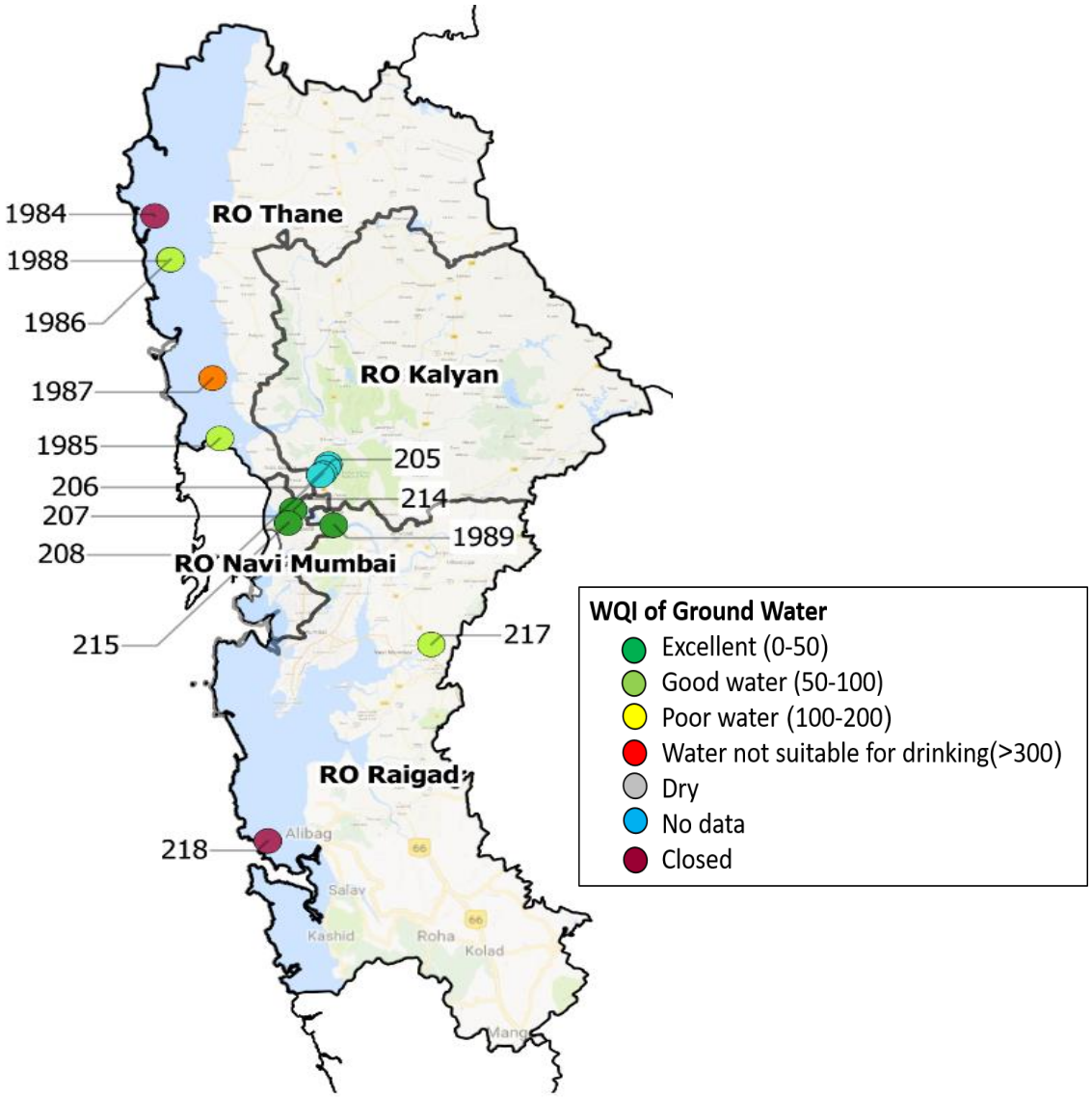
Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	Closed

Table No. 29: Groundwater quality monitoring stations at Kolhapur and Pune.

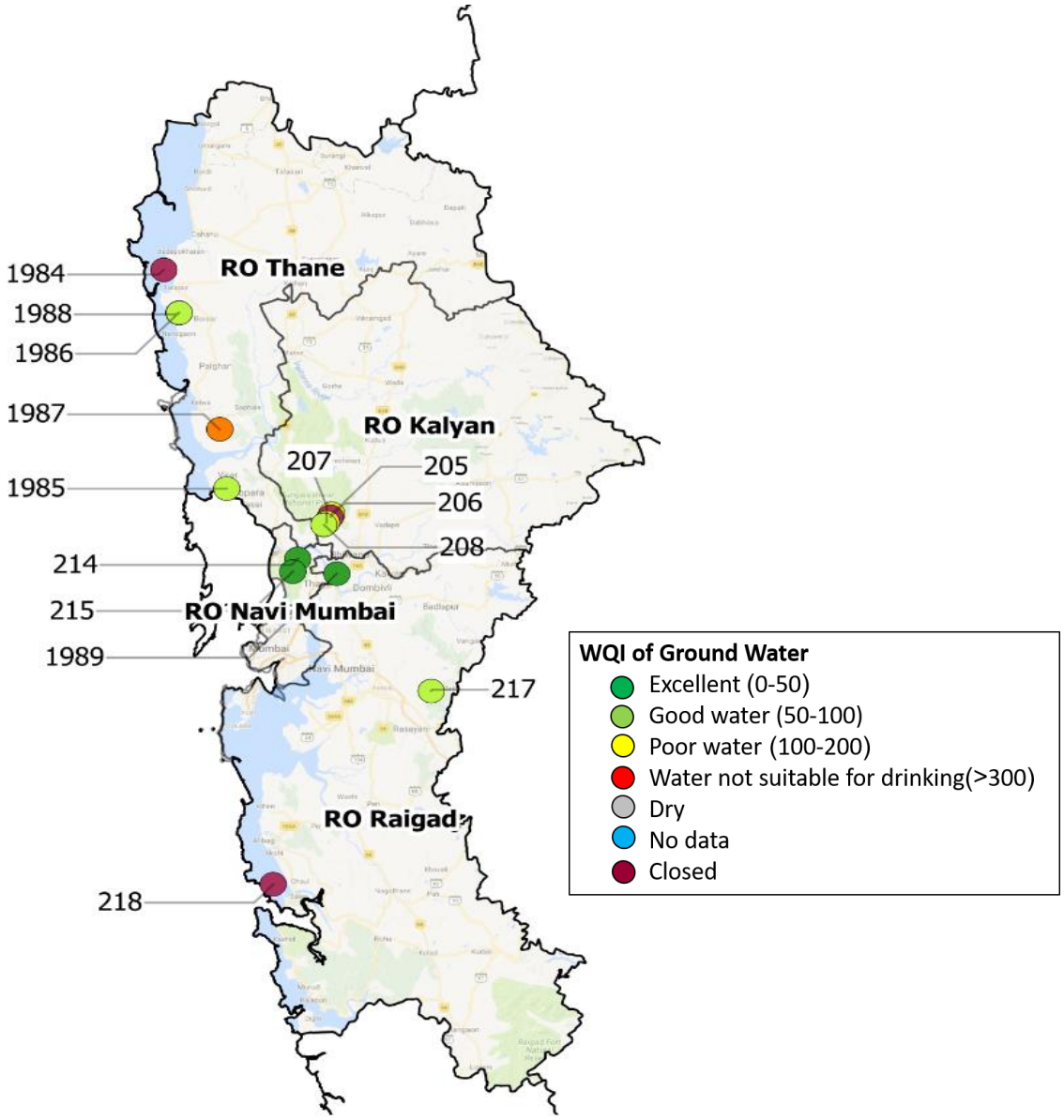
Programme	Regional Office	Station ID	Station Name	District	Taluka		Village
SWMP	Kolhapur	219	Commen well Water At Patwardhan, Lote, Taluka - Khed, District - Rantnagiri	Ratnagiri	Khed	Well	Lote
SWMP	Kolhapur	220	Dugwell backside Excel India At Chalkewadi, Taluka - Khed, District - Ratnagiri.	Ratnagiri	Khed	Dug well	Chalkewadi
NWMP	Kolhapur	2004	Bore well at Parvati Industrial Estate, Yadrav, Kolhapur	Kolhapur	Shirol	Bore well	Yadrav
NWMP	Kolhapur	2005	Bore well at Khanjirenagar, Kolhapur	Kolhapur	Hatkanangale	Bore well	Khanjirenagar
NWMP	Kolhapur	2006	Bore well at Shinoli near M/s Aqua Alloy Steel.	Kolhapur	Chandgad	Bore well	Shinoli
NWMP	Kolhapur	2007	Bore well at Savali, near Gram Panchayat office.	Sangli	Miraj	Bore well	Savali
NWMP	Kolhapur	2008	Dug well at Sambarwadi, owned by Shri. Kishan Hali Rajput.	Sangli	Miraj	Dug well	Sambarwadi
NWMP	Kolhapur	2202	Dug Well at Ghane Kunt, near Awashi, onwed by shri Rajendra Amre	Ratnagiri	Khed	Dug well	Ghane Kunt

Programme	Regional Office	Station ID	Station Name	District	Taluka		Village
NWMP	Kolhapur	2829	Bore Well at MIDC Shiroli near M/s. Pratibha Enterprises	Kolhapur	Hatkanangale	Bore well	Shiroli
NWMP	Kolhapur	2830	Bore Well at MIDC Gokul Shirgaon	Kolhapur	Karvir	Bore well	Gokul-Shirgaon
NWMP	Kolhapur	2831	Dug Well at Sakharali near MIDC Islampur near Krishna Milk Industry	Sangli	Walwa	Dug well	Sakharali
NWMP	Kolhapur	2832	Dug Well No.1 at Brahmanwadi-Anjanwel, owned by Shri Vaidya	Ratnagiri	Guhagar	Dug well	Anjanwel
NWMP	Kolhapur	2833	Dug Well No.1 at Group Gram Panchayat at Arketwadi, near Masjid	Ratnagiri	Khed	Dug well	Arketwadi
NWMP	Kolhapur	2834	Dug Well No.2 at Arketwadi	Ratnagiri	Khed	Dug well	Arketwadi
NWMP	Kolhapur	2835	Dug Well No.2 at owned by Group Gram Panchayat, Brahmanwadi-Anjanwel	Ratnagiri	Guhagar	Dug well	Anjanwel
NWMP	Pune	1992	Dug well at MSW Site, owned by Shri.Dattu Kondiba Borate at Borate Vasthi.	Pune	Haveli	Dug well	Moshi
NWMP	Pune	2819	Dug Well Owned by Shri Deshmukh	Pune	Baramati	Dug well	Malegaon
NWMP	Pune	2820	Dug Well Owned by Shri Shivaji Baban Darekar	Pune	Shirur	Dug well	Sanaswadi
NWMP	Pune	2821	Bore Well at Bale Railway Station premises Owned by Shri Digambar Joshi	Solapur	North Solapur	Bore well	Dahegaon
NWMP	Pune	2822	Bore Well near Chincholi	Solapur	Mohol	Bore well	Chincholi
NWMP	Pune	2823	Bore Well at Shete Vasti near old Tuljapur Road	Solapur	Solapur	Dug well	Shete vasthi, Tuljapur Naka

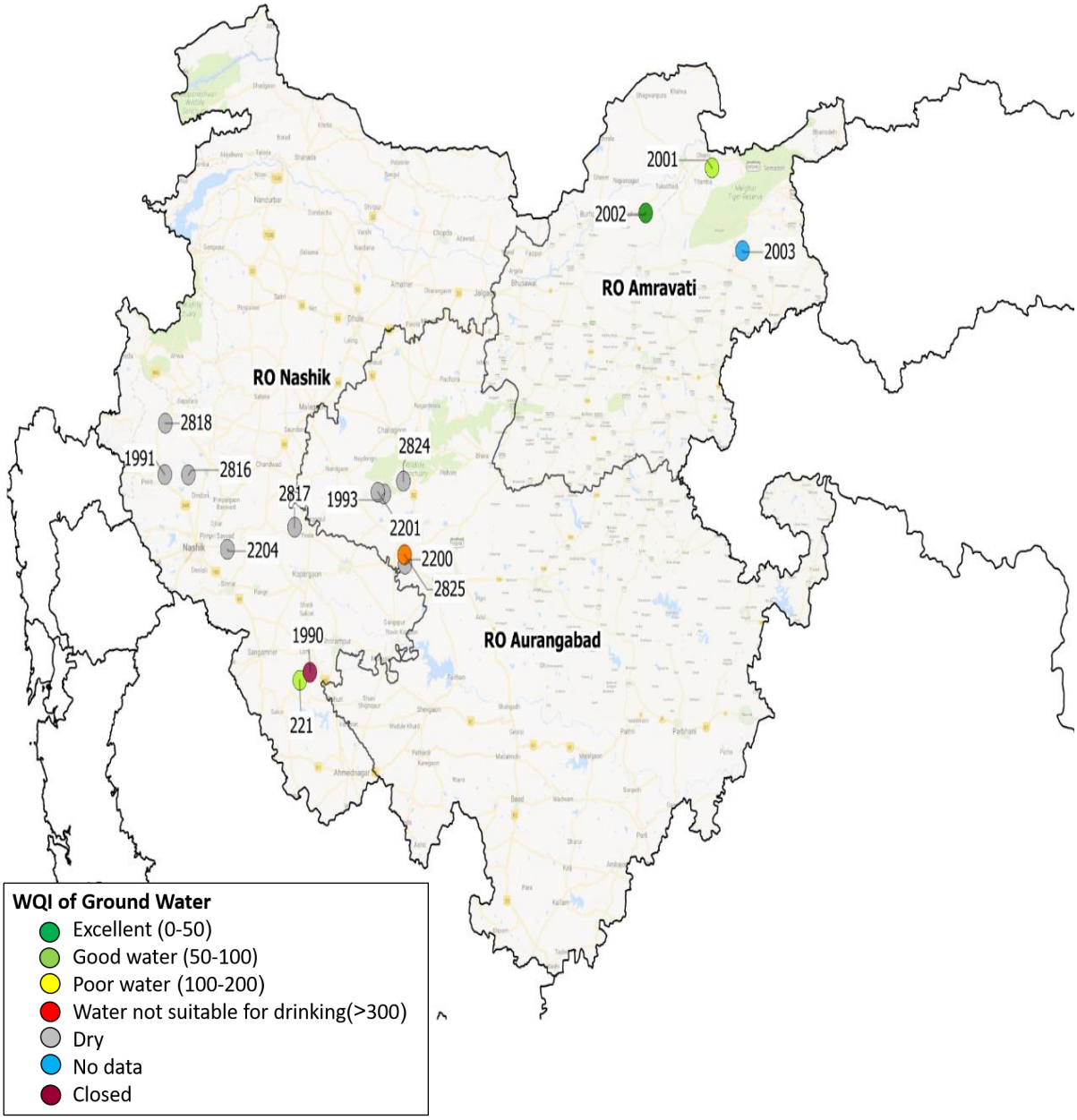
Spatial map for Ground WQI in Kalyan, Navi Mumbai, Raigad and Thane 2016-17 (April 2016)



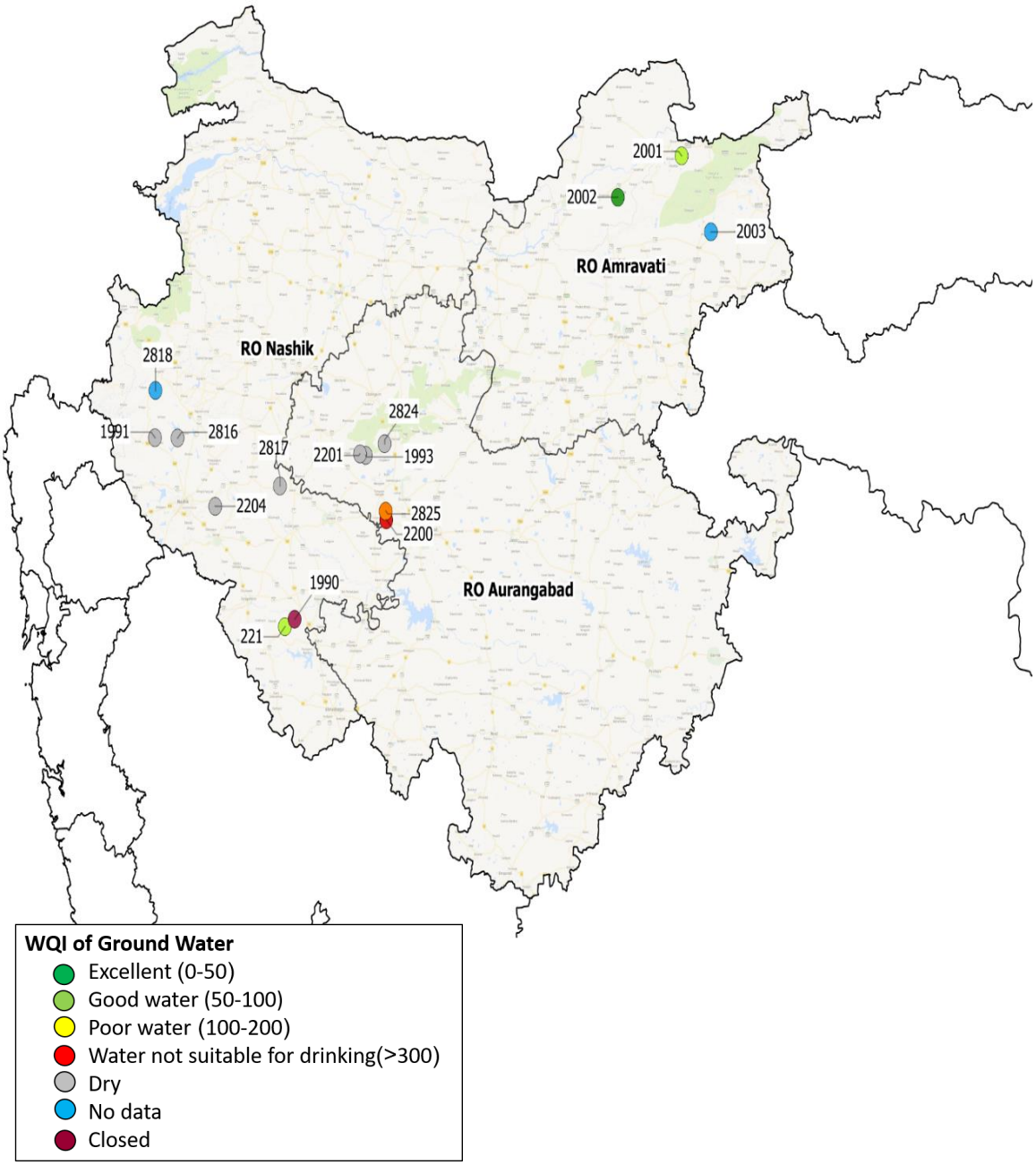
Spatial map for Ground WQI in Kalyan, Navi Mumbai, Raigad and Thane 2016-17 (October 2016)



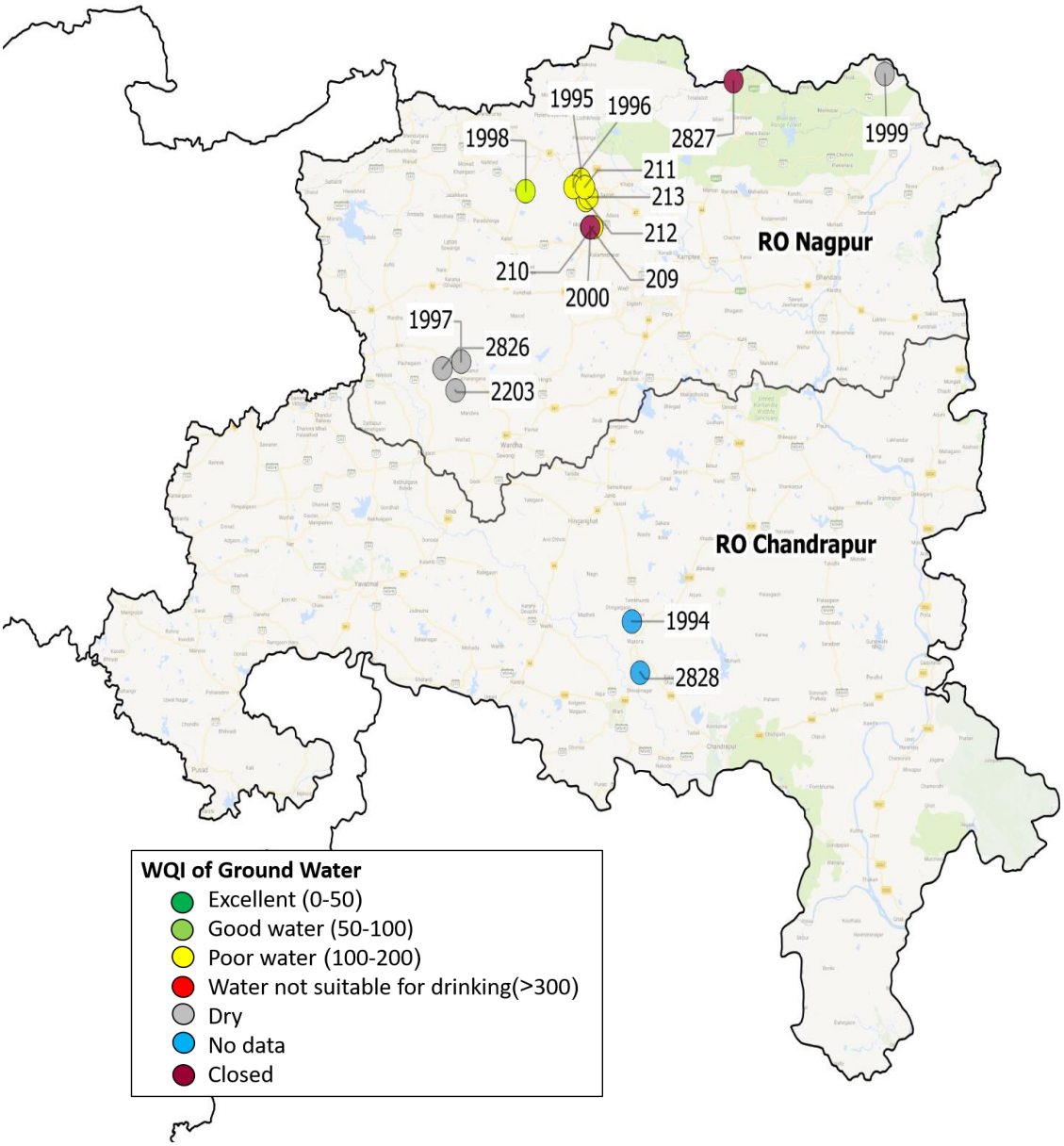
Spatial map for Ground WQI in Amravati, Aurangabad and Nashik 2016-17 (April 2016)



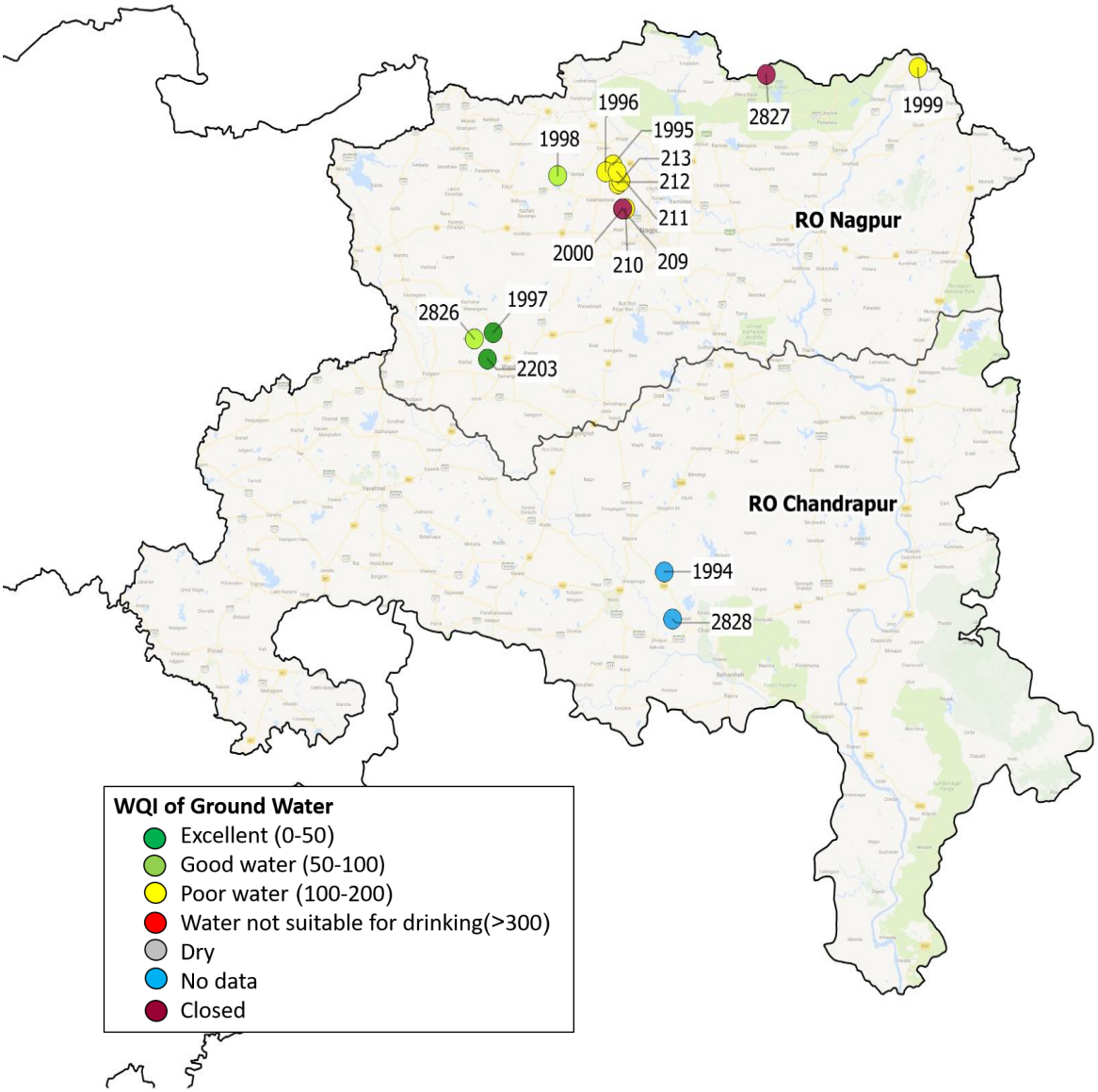
Spatial map for Ground WQI in Amravati, Aurangabad and Nashik 2016-17 (October 2016)



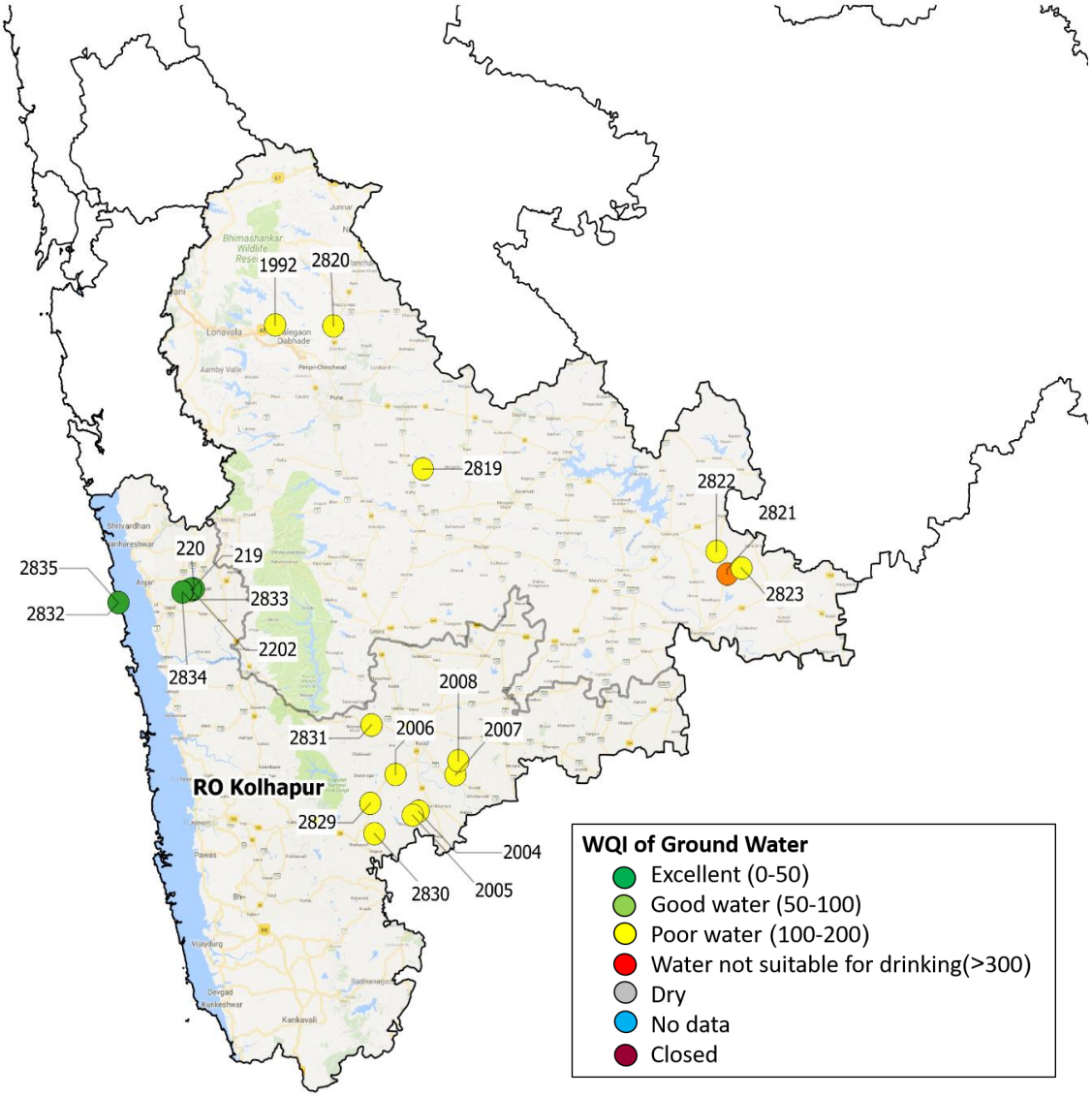
Spatial map for Ground WQI in Chandrapur and Nagpur 2016-17 (April 2016)



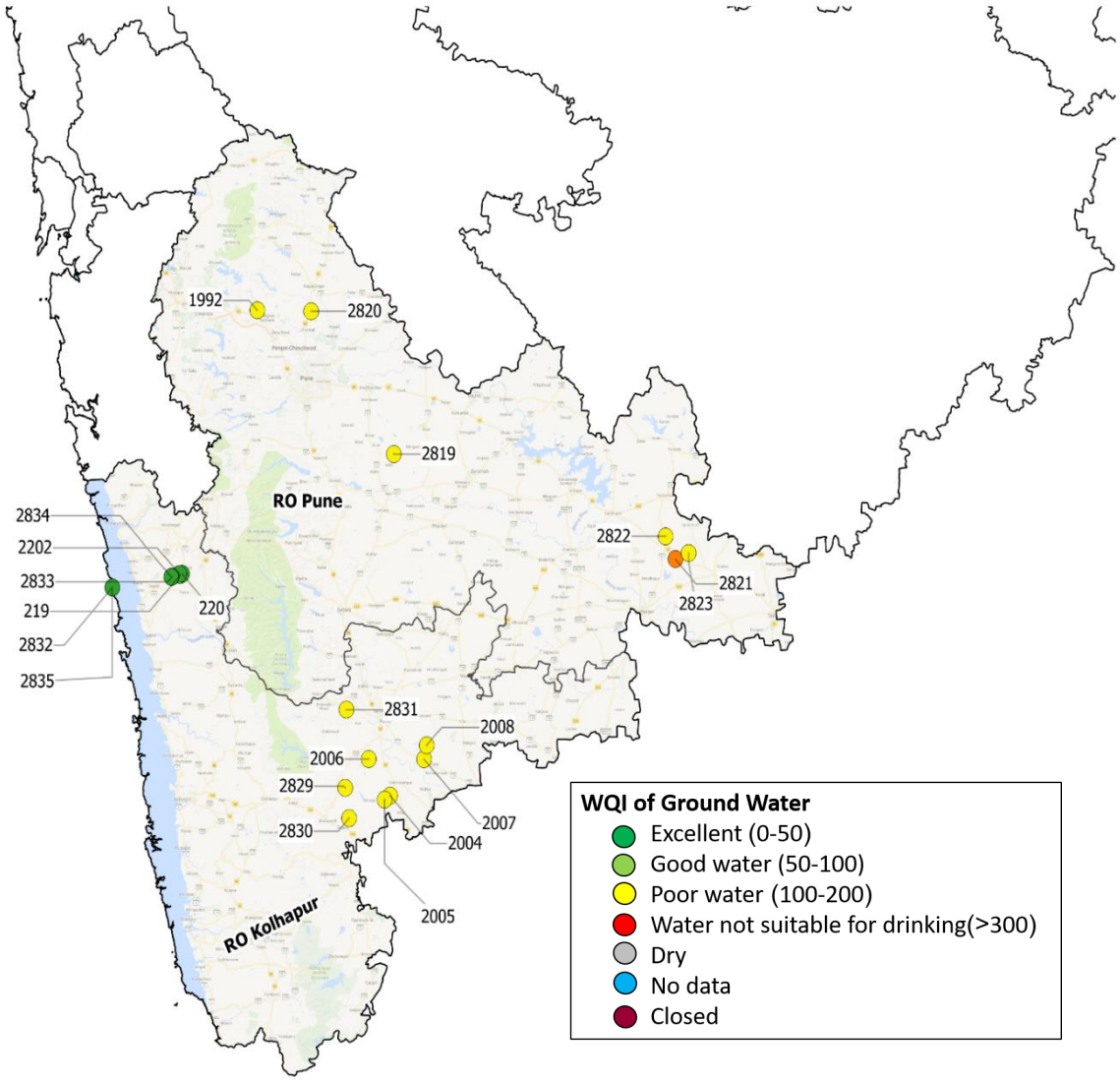
Spatial map for Ground WQI in Chandrapur and Nagpur 2016-17 (October 2016)



Spatial map for Ground WQI in Kolhapur and Pune 2016-17 (April 2016)



Spatial map for Ground WQI in Kolhapur and Pune 2016-17 (October 2016



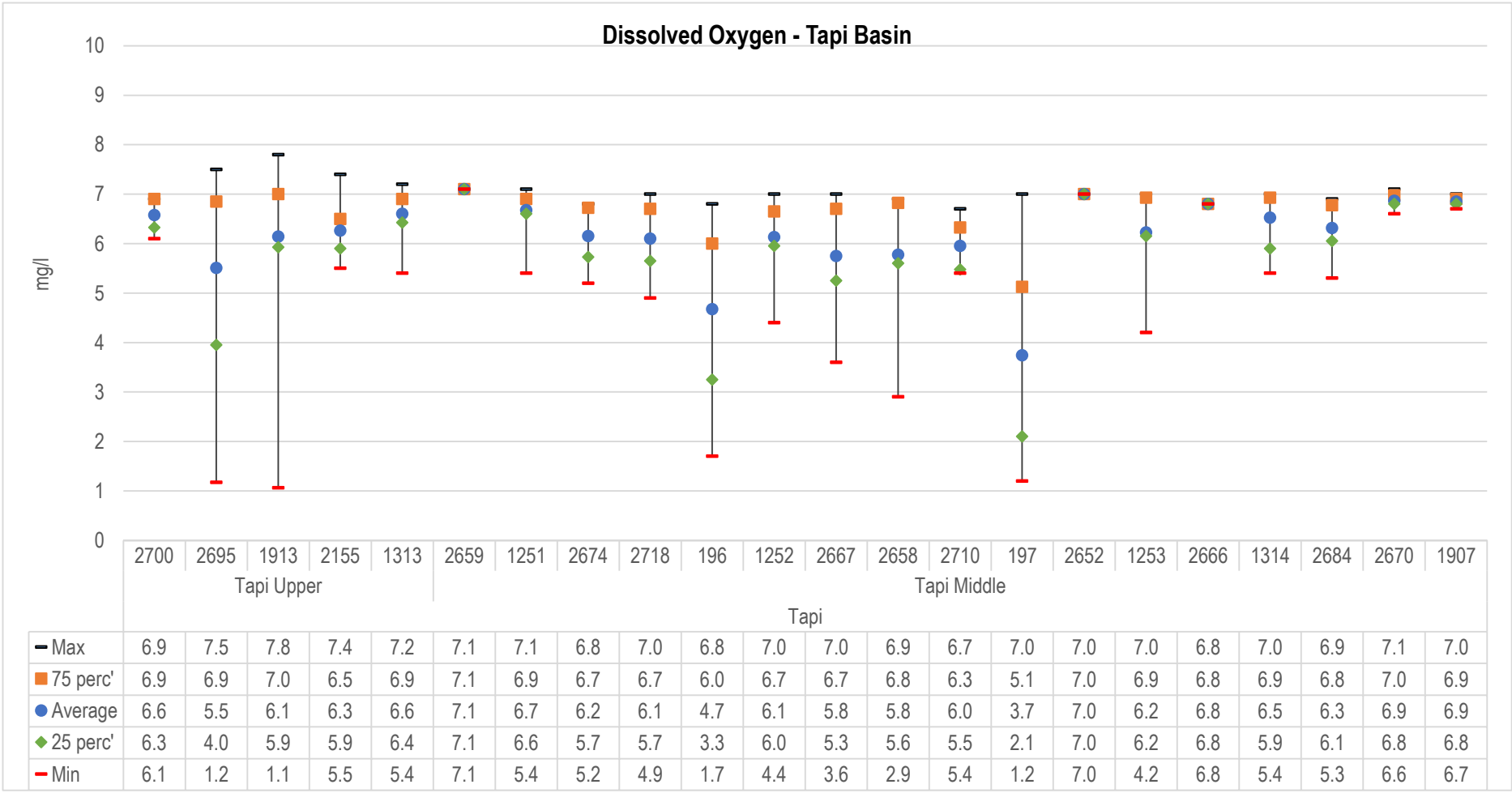
Conclusion

In the year 2016-17, polluted rivers were found in districts of Pune, Mumbai, Nagpur and Thane. Pawana river, Mutha river, Mithi river, Nag river were polluted throughout the year. Most of the stations were recorded with the dry category which could be attributed to low rainfall in the year. Whereas few of the samples, 37 observations (10 ground water and 27 surface water), were recorded as Not collected accounting to about 1.3% of the total observations (2882).

The annual average Water Quality Index (WQI) along the basins in Maharashtra shows increasing trend as compared to previous year except Krishna Basin. The WQI of Krishna Upper sub-basin was observed to be about 65%, less than 20% as compared to last year, under Good to Excellent category. Also most of the observations of Bhima Upper were noted under 'Bad' and 'Bad to Very Bad' category. As compared to other sub basins across Maharashtra, Godavari Upper, Middle and Manjra sub basins recorded the most number of observations (greater than 60%) in 'Good to Excellent' category. The water samples of sea at Mumbai and Thane were noted WQI in the category of 'Medium to Bad' and noted to be polluted throughout the year.

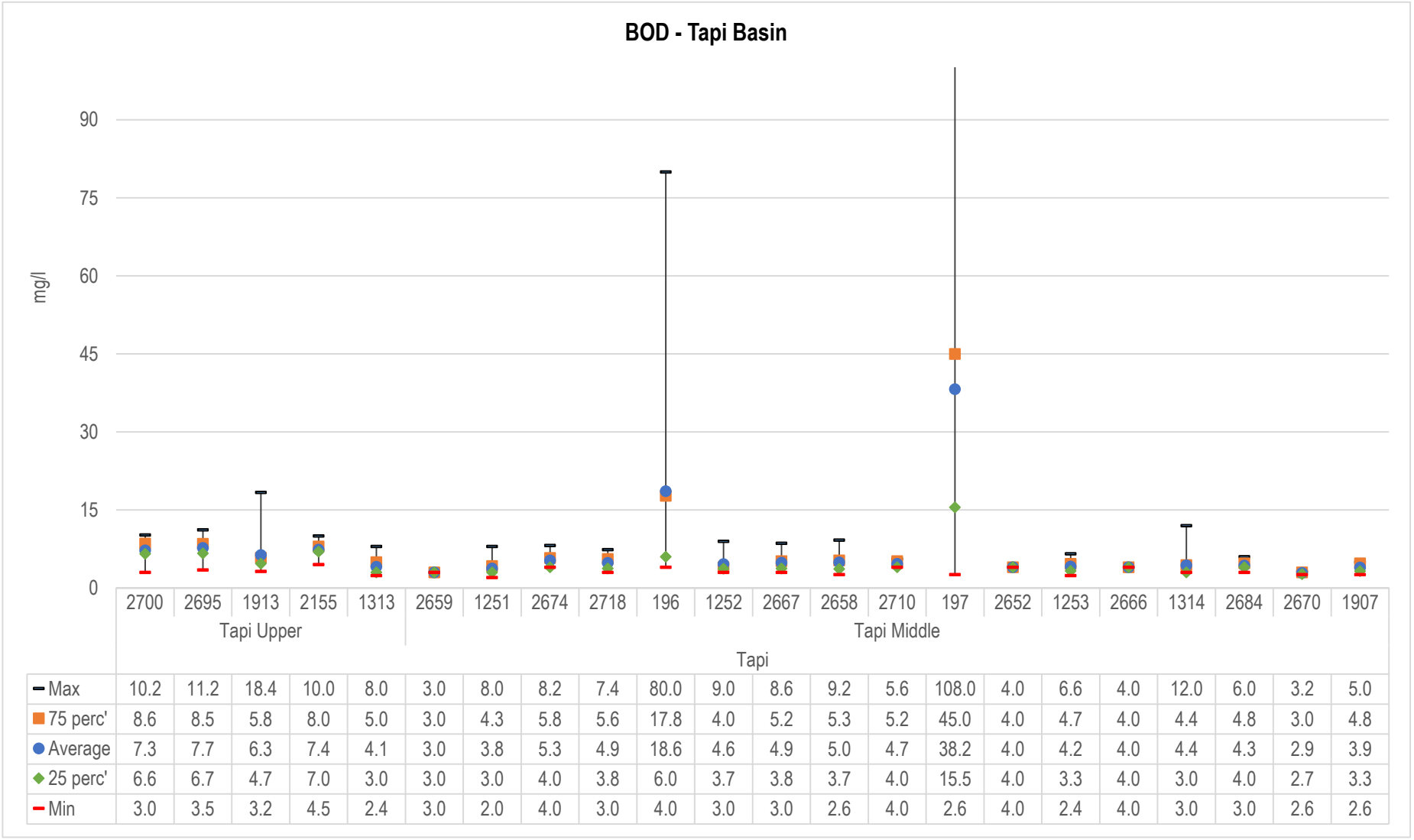
Out of 66 WQMS of groundwater, 5 WQMS (215, 2819, 2822, 2834, and 2200) recorded WQI in the category 'Water Unsuitable for Drinking' due to high levels of TDS, Hardness, Calcium and chlorides. The bore well in Turbhe, Navi Mumbai (Station code 215) recorded highest hardness (5960 ($CaCO_3$) mg/litre) and calcium level (1320 ($CaCO_3$) mg/litre) and TDS levels (43650 mg/litre).

Annexure –I: Parametric graphs – Surface water and Ground water



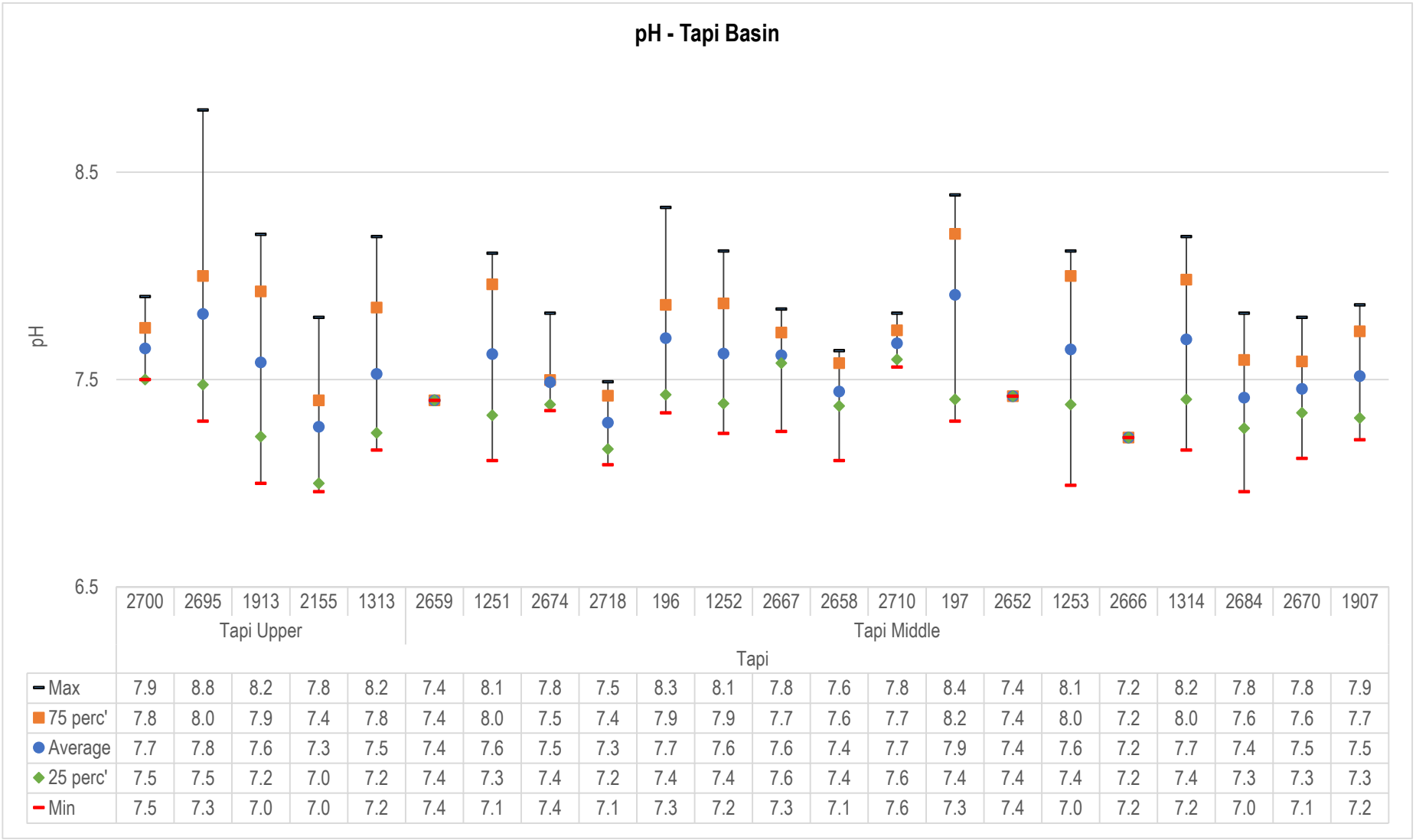
	2700	2695	1913	2155	1313	2659	1251	2674	2718	196	1252	2667	2658	2710	197	2652	1253	2666	1314	2684	2670	1907
Max	6.9	7.5	7.8	7.4	7.2	7.1	7.1	6.8	7.0	6.8	7.0	7.0	6.9	6.7	7.0	7.0	7.0	6.8	7.0	6.9	7.1	7.0
75 perc'	6.9	6.9	7.0	6.5	6.9	7.1	6.9	6.7	6.7	6.0	6.7	6.7	6.8	6.3	5.1	7.0	6.9	6.8	6.9	6.8	7.0	6.9
Average	6.6	5.5	6.1	6.3	6.6	7.1	6.7	6.2	6.1	4.7	6.1	5.8	5.8	6.0	3.7	7.0	6.2	6.8	6.5	6.3	6.9	6.9
25 perc'	6.3	4.0	5.9	5.9	6.4	7.1	6.6	5.7	5.7	3.3	6.0	5.3	5.6	5.5	2.1	7.0	6.2	6.8	5.9	6.1	6.8	6.8
Min	6.1	1.2	1.1	5.5	5.4	7.1	5.4	5.2	4.9	1.7	4.4	3.6	2.9	5.4	1.2	7.0	4.2	6.8	5.4	5.3	6.6	6.7

Figure No. 8: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Tapi basin



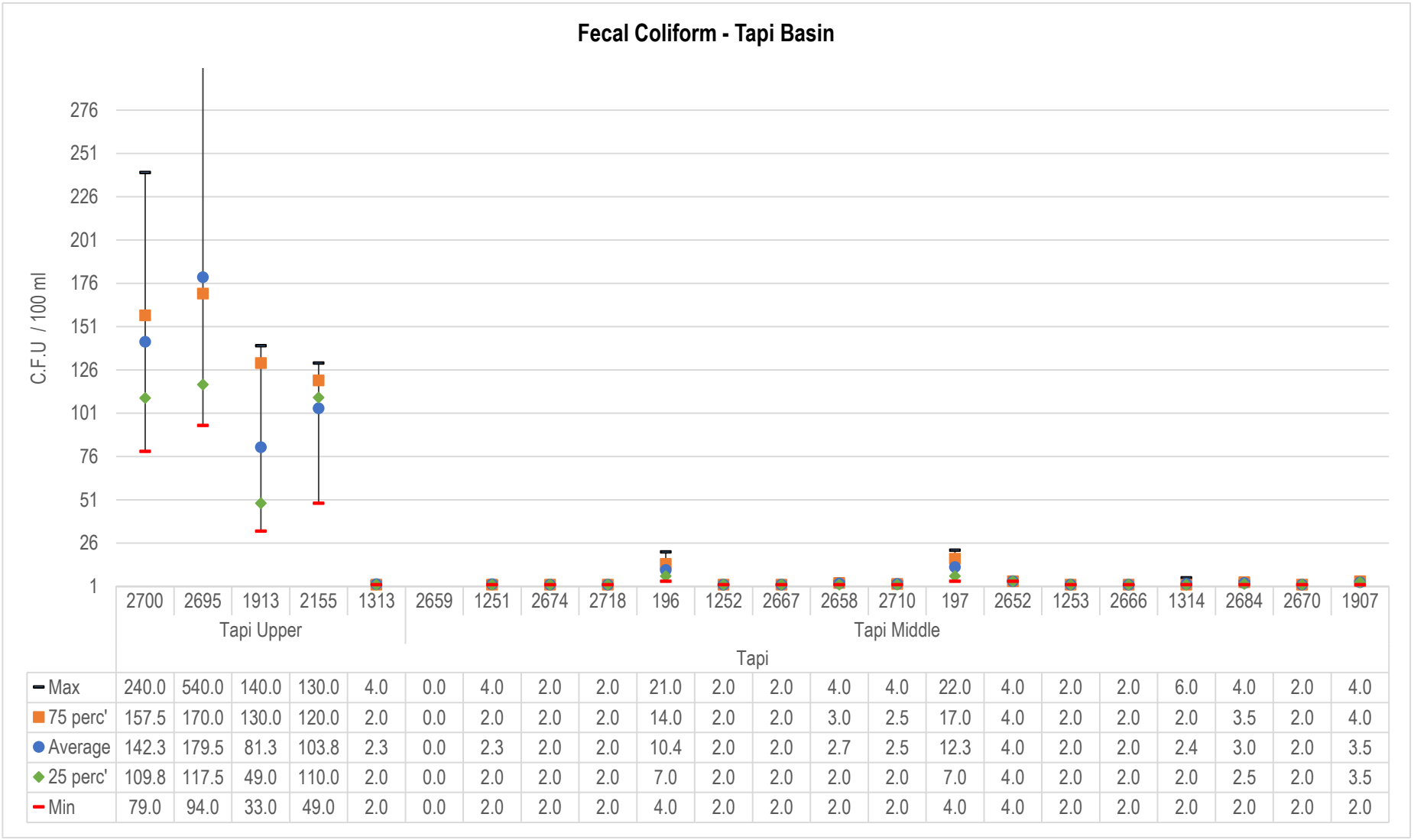
	2700	2695	1913	2155	1313	2659	1251	2674	2718	196	1252	2667	2658	2710	197	2652	1253	2666	1314	2684	2670	1907
Max	10.2	11.2	18.4	10.0	8.0	3.0	8.0	8.2	7.4	80.0	9.0	8.6	9.2	5.6	108.0	4.0	6.6	4.0	12.0	6.0	3.2	5.0
75 perc'	8.6	8.5	5.8	8.0	5.0	3.0	4.3	5.8	5.6	17.8	4.0	5.2	5.3	5.2	45.0	4.0	4.7	4.0	4.4	4.8	3.0	4.8
Average	7.3	7.7	6.3	7.4	4.1	3.0	3.8	5.3	4.9	18.6	4.6	4.9	5.0	4.7	38.2	4.0	4.2	4.0	4.4	4.3	2.9	3.9
25 perc'	6.6	6.7	4.7	7.0	3.0	3.0	3.0	4.0	3.8	6.0	3.7	3.8	3.7	4.0	15.5	4.0	3.3	4.0	3.0	4.0	2.7	3.3
Min	3.0	3.5	3.2	4.5	2.4	3.0	2.0	4.0	3.0	4.0	3.0	3.0	2.6	4.0	2.6	4.0	2.4	4.0	3.0	3.0	2.6	2.6

Figure No. 9: Trend of BOD levels recorded at WQMS at Tapi basin



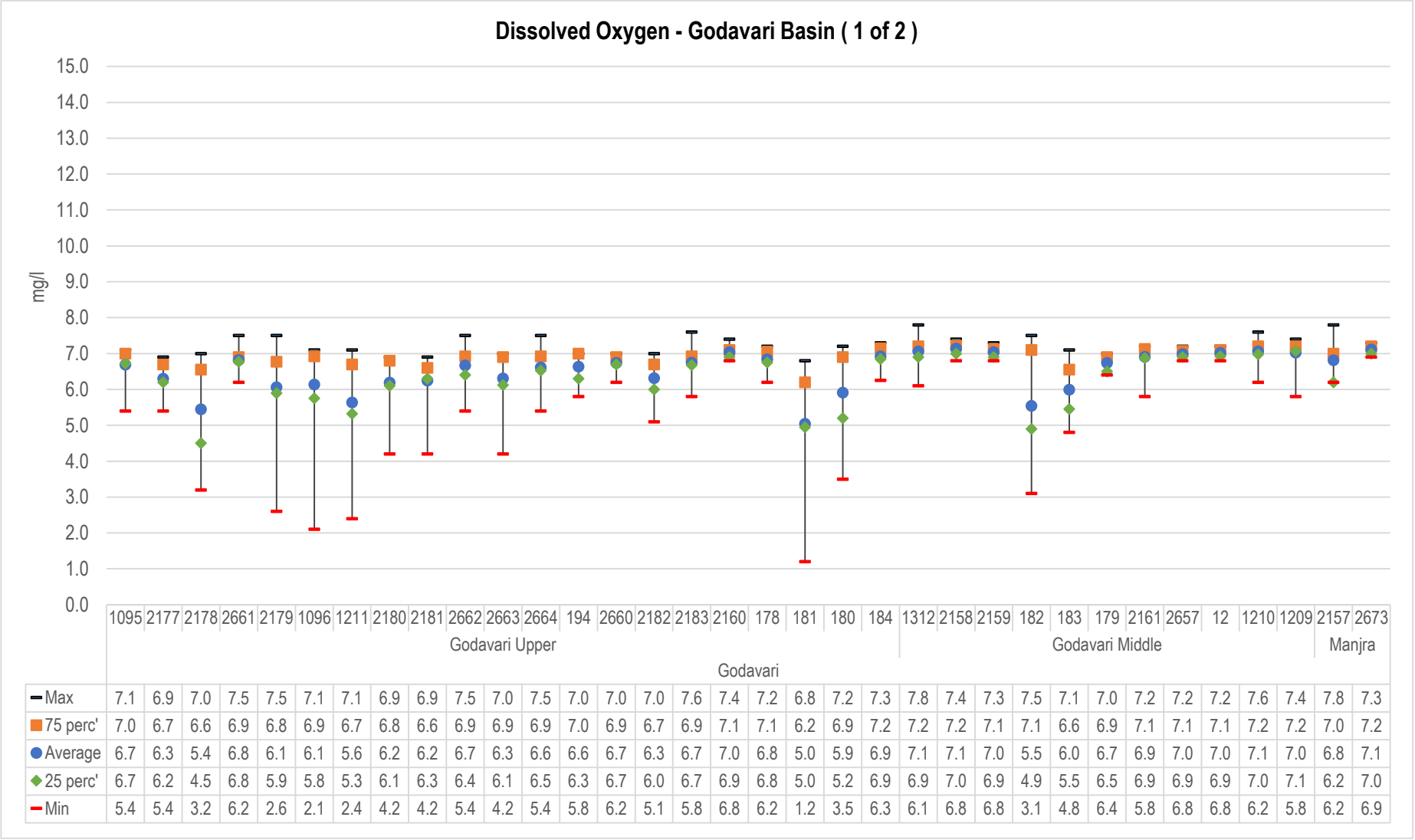
	2700	2695	1913	2155	1313	2659	1251	2674	2718	196	1252	2667	2658	2710	197	2652	1253	2666	1314	2684	2670	1907
	Tapi Upper					Tapi Middle																
	Tapi																					
Max	7.9	8.8	8.2	7.8	8.2	7.4	8.1	7.8	7.5	8.3	8.1	7.8	7.6	7.8	8.4	7.4	8.1	7.2	8.2	7.8	7.8	7.9
75 perc'	7.8	8.0	7.9	7.4	7.8	7.4	8.0	7.5	7.4	7.9	7.9	7.7	7.6	7.7	8.2	7.4	8.0	7.2	8.0	7.6	7.6	7.7
Average	7.7	7.8	7.6	7.3	7.5	7.4	7.6	7.5	7.3	7.7	7.6	7.6	7.4	7.7	7.9	7.4	7.6	7.2	7.7	7.4	7.5	7.5
25 perc'	7.5	7.5	7.2	7.0	7.2	7.4	7.3	7.4	7.2	7.4	7.4	7.6	7.4	7.6	7.4	7.4	7.4	7.2	7.4	7.3	7.3	7.3
Min	7.5	7.3	7.0	7.0	7.2	7.4	7.1	7.4	7.1	7.3	7.2	7.3	7.1	7.6	7.3	7.4	7.0	7.2	7.2	7.0	7.1	7.2

Figure No. 10: Trend of pH levels recorded at WQMS at Tapi basin



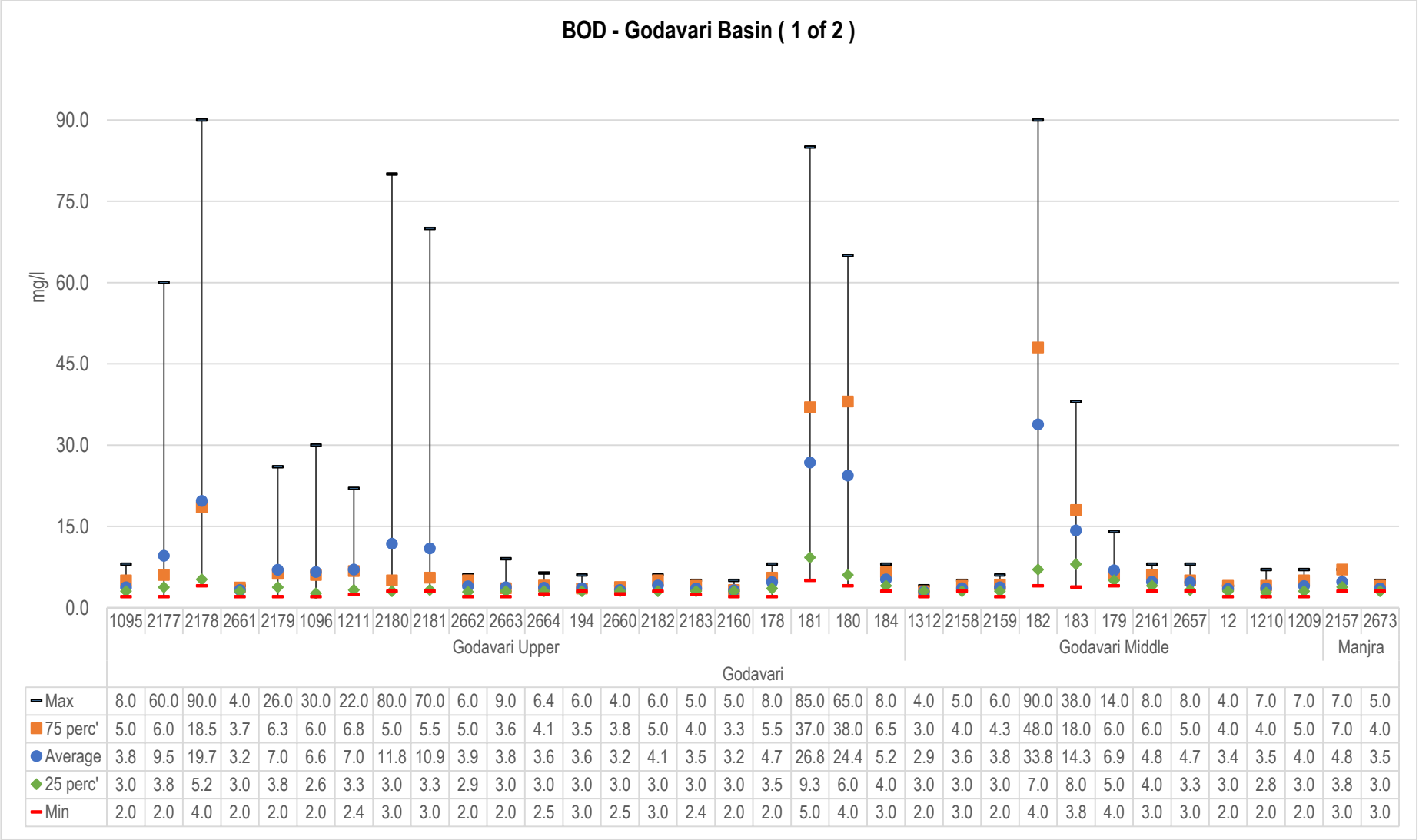
	2700	2695	1913	2155	1313	2659	1251	2674	2718	196	1252	2667	2658	2710	197	2652	1253	2666	1314	2684	2670	1907
Max	240.0	540.0	140.0	130.0	4.0	0.0	4.0	2.0	2.0	21.0	2.0	2.0	4.0	4.0	22.0	4.0	2.0	2.0	6.0	4.0	2.0	4.0
75 perc'	157.5	170.0	130.0	120.0	2.0	0.0	2.0	2.0	2.0	14.0	2.0	2.0	3.0	2.5	17.0	4.0	2.0	2.0	2.0	3.5	2.0	4.0
Average	142.3	179.5	81.3	103.8	2.3	0.0	2.3	2.0	2.0	10.4	2.0	2.0	2.7	2.5	12.3	4.0	2.0	2.0	2.4	3.0	2.0	3.5
25 perc'	109.8	117.5	49.0	110.0	2.0	0.0	2.0	2.0	2.0	7.0	2.0	2.0	2.0	2.0	7.0	4.0	2.0	2.0	2.0	2.5	2.0	3.5
Min	79.0	94.0	33.0	49.0	2.0	0.0	2.0	2.0	2.0	4.0	2.0	2.0	2.0	2.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0

Figure No. 11: Trend of Fecal Coliform levels recorded at WQMS at Tapi basin



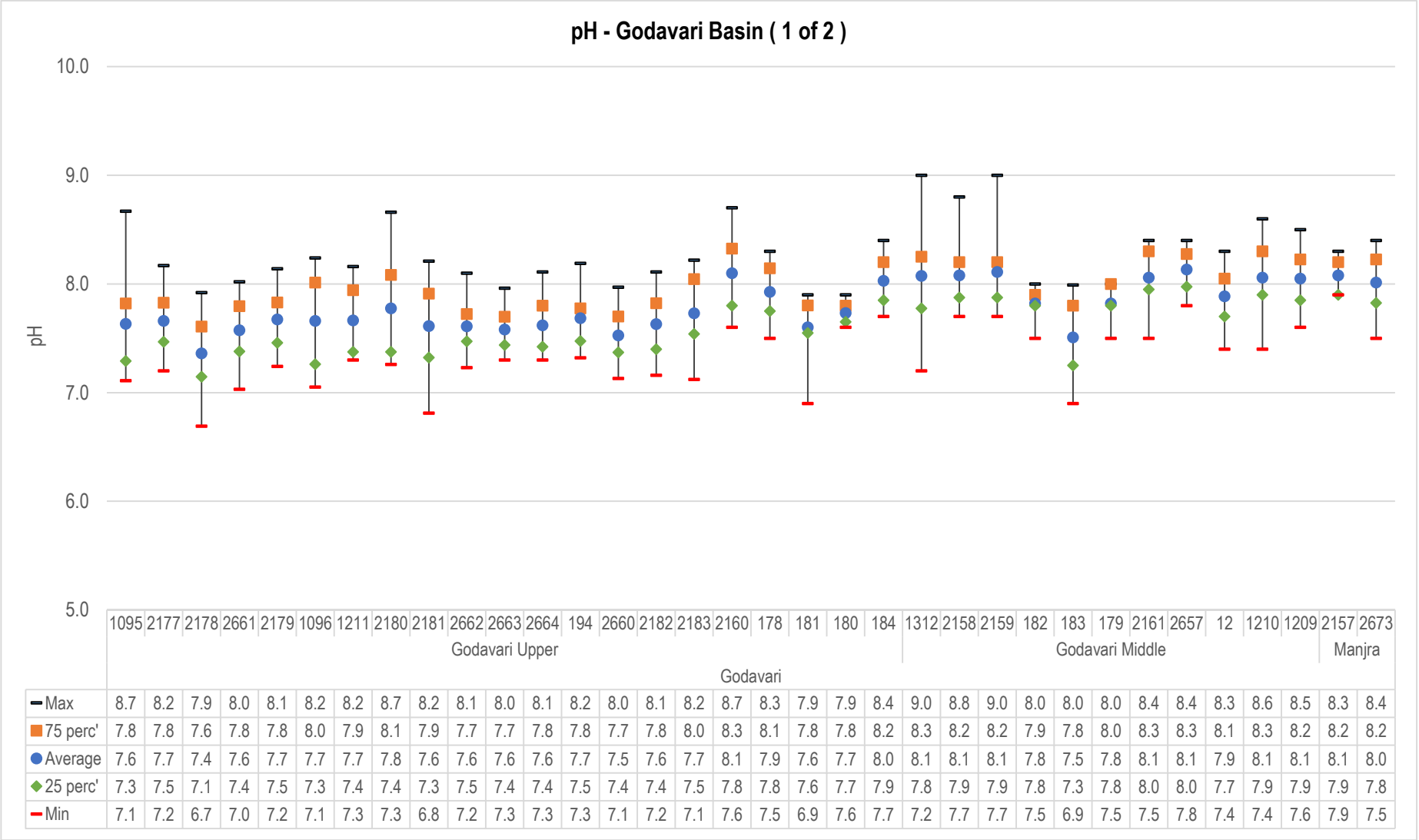
	1095	2177	2178	2661	2179	1096	1211	2180	2181	2662	2663	2664	194	2660	2182	2183	2160	178	181	180	184	1312	2158	2159	182	183	179	2161	2657	12	1210	1209	2157	2673
	Godavari Upper																					Godavari Middle											Manjra	
	Godavari																																		
Max	7.1	6.9	7.0	7.5	7.5	7.1	7.1	6.9	6.9	7.5	7.0	7.5	7.0	7.0	7.0	7.6	7.4	7.2	6.8	7.2	7.3	7.8	7.4	7.3	7.5	7.1	7.0	7.2	7.2	7.2	7.6	7.4	7.8	7.3
75 perc'	7.0	6.7	6.6	6.9	6.8	6.9	6.7	6.8	6.6	6.9	6.9	6.9	7.0	6.9	6.7	6.9	7.1	7.1	6.2	6.9	7.2	7.2	7.2	7.1	7.1	6.6	6.9	7.1	7.1	7.1	7.2	7.2	7.0	7.2
Average	6.7	6.3	5.4	6.8	6.1	6.1	5.6	6.2	6.2	6.7	6.3	6.6	6.6	6.7	6.3	6.7	7.0	6.8	5.0	5.9	6.9	7.1	7.1	7.0	5.5	6.0	6.7	6.9	7.0	7.0	7.1	7.0	6.8	7.1
25 perc'	6.7	6.2	4.5	6.8	5.9	5.8	5.3	6.1	6.3	6.4	6.1	6.5	6.3	6.7	6.0	6.7	6.9	6.8	5.0	5.2	6.9	6.9	7.0	6.9	4.9	5.5	6.5	6.9	6.9	6.9	7.0	7.1	6.2	7.0
Min	5.4	5.4	3.2	6.2	2.6	2.1	2.4	4.2	4.2	5.4	4.2	5.4	5.8	6.2	5.1	5.8	6.8	6.2	1.2	3.5	6.3	6.1	6.8	6.8	3.1	4.8	6.4	5.8	6.8	6.8	6.2	5.8	6.2	6.9

Figure No. 12: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Godavari basin (1of 2)



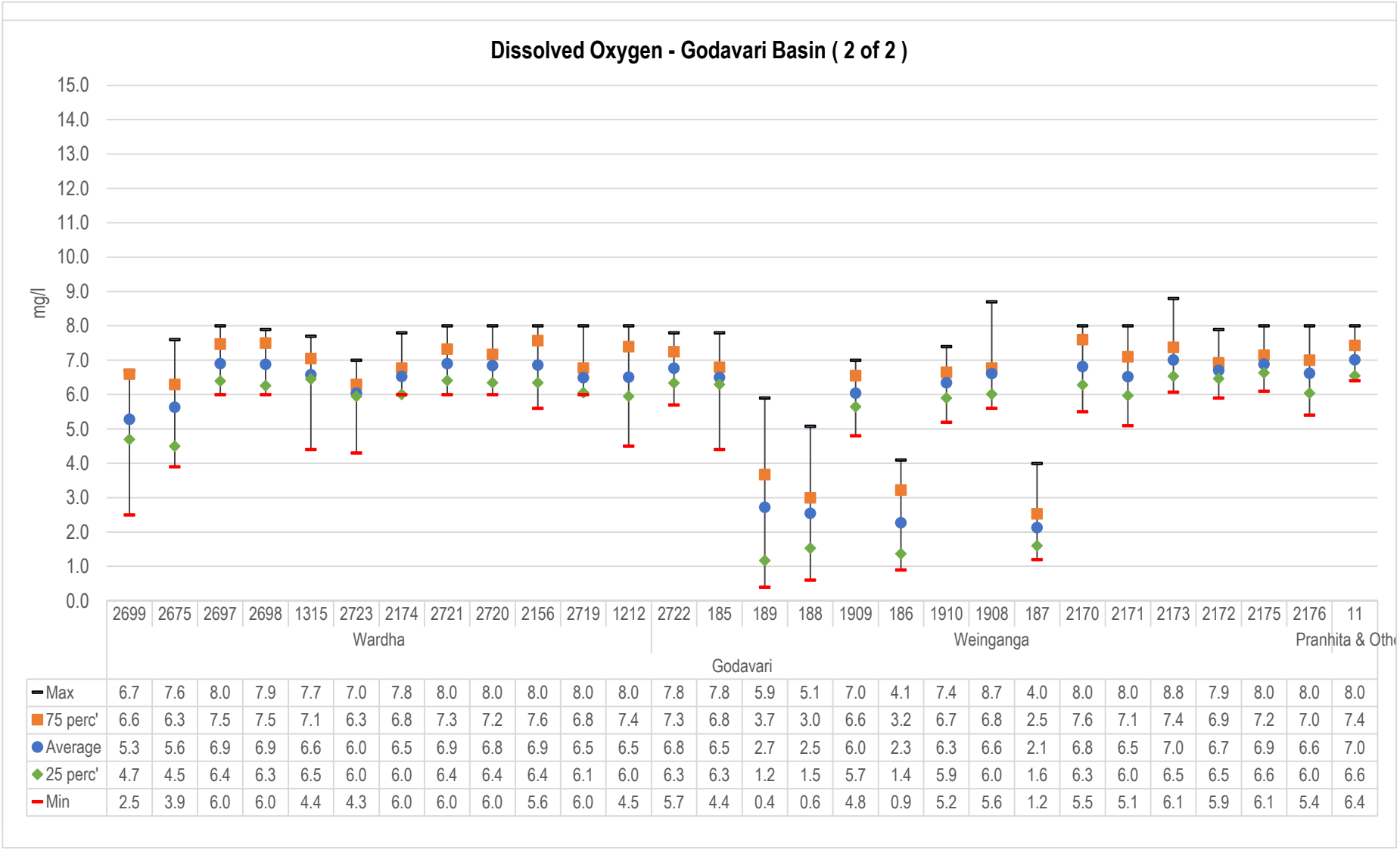
	1095	2177	2178	2661	2179	1096	1211	2180	2181	2662	2663	2664	194	2660	2182	2183	2160	178	181	180	184	1312	2158	2159	182	183	179	2161	2657	12	1210	1209	2157	2673
Max	8.0	60.0	90.0	4.0	26.0	30.0	22.0	80.0	70.0	6.0	9.0	6.4	6.0	4.0	6.0	5.0	5.0	8.0	85.0	65.0	8.0	4.0	5.0	6.0	90.0	38.0	14.0	8.0	8.0	4.0	7.0	7.0	7.0	5.0
75 perc'	5.0	6.0	18.5	3.7	6.3	6.0	6.8	5.0	5.5	5.0	3.6	4.1	3.5	3.8	5.0	4.0	3.3	5.5	37.0	38.0	6.5	3.0	4.0	4.3	48.0	18.0	6.0	6.0	5.0	4.0	4.0	5.0	7.0	4.0
Average	3.8	9.5	19.7	3.2	7.0	6.6	7.0	11.8	10.9	3.9	3.8	3.6	3.6	3.2	4.1	3.5	3.2	4.7	26.8	24.4	5.2	2.9	3.6	3.8	33.8	14.3	6.9	4.8	4.7	3.4	3.5	4.0	4.8	3.5
25 perc'	3.0	3.8	5.2	3.0	3.8	2.6	3.3	3.0	3.3	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	9.3	6.0	4.0	3.0	3.0	3.0	7.0	8.0	5.0	4.0	3.3	3.0	2.8	3.0	3.8	3.0
Min	2.0	2.0	4.0	2.0	2.0	2.0	2.4	3.0	3.0	2.0	2.0	2.5	3.0	2.5	3.0	2.4	2.0	2.0	5.0	4.0	3.0	2.0	3.0	2.0	4.0	3.8	4.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0

Figure No. 13: Trend of BOD levels recorded at WQMS at Godavari basin (1 of 2)



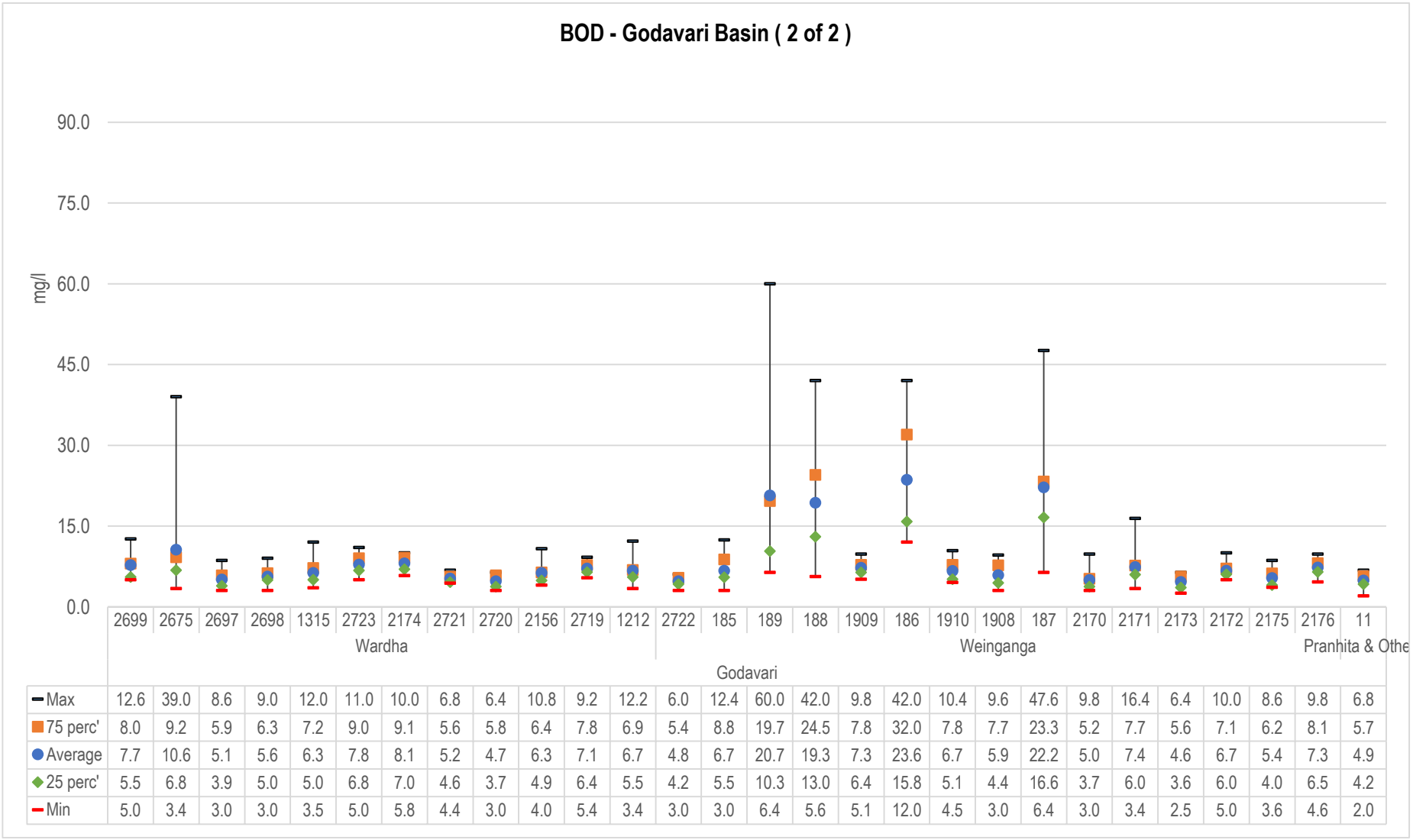
	1095	2177	2178	2661	2179	1096	1211	2180	2181	2662	2663	2664	194	2660	2182	2183	2160	178	181	180	184	1312	2158	2159	182	183	179	2161	2657	12	1210	1209	2157	2673
	Godavari Upper																					Godavari Middle											Manjra	
	Godavari																																		
Max	8.7	8.2	7.9	8.0	8.1	8.2	8.2	8.7	8.2	8.1	8.0	8.1	8.2	8.0	8.1	8.2	8.7	8.3	7.9	7.9	8.4	9.0	8.8	9.0	8.0	8.0	8.0	8.4	8.4	8.3	8.6	8.5	8.3	8.4
75 perc'	7.8	7.8	7.6	7.8	7.8	8.0	7.9	8.1	7.9	7.7	7.7	7.8	7.8	7.7	7.8	8.0	8.3	8.1	7.8	7.8	8.2	8.3	8.2	8.2	7.9	7.8	8.0	8.3	8.3	8.1	8.3	8.2	8.2	8.2
Average	7.6	7.7	7.4	7.6	7.7	7.7	7.7	7.8	7.6	7.6	7.6	7.6	7.7	7.5	7.6	7.7	8.1	7.9	7.6	7.7	8.0	8.1	8.1	8.1	7.8	7.5	7.8	8.1	8.1	7.9	8.1	8.1	8.1	8.0
25 perc'	7.3	7.5	7.1	7.4	7.5	7.3	7.4	7.4	7.3	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.8	7.8	7.6	7.7	7.9	7.8	7.9	7.9	7.8	7.3	7.8	8.0	8.0	7.7	7.9	7.9	7.9	7.8
Min	7.1	7.2	6.7	7.0	7.2	7.1	7.3	7.3	6.8	7.2	7.3	7.3	7.3	7.1	7.2	7.1	7.6	7.5	6.9	7.6	7.7	7.2	7.7	7.7	7.5	6.9	7.5	7.5	7.8	7.4	7.4	7.6	7.9	7.5

Figure No. 14: Trend of pH levels recorded at WQMS at Godavari basin (1 of 2)



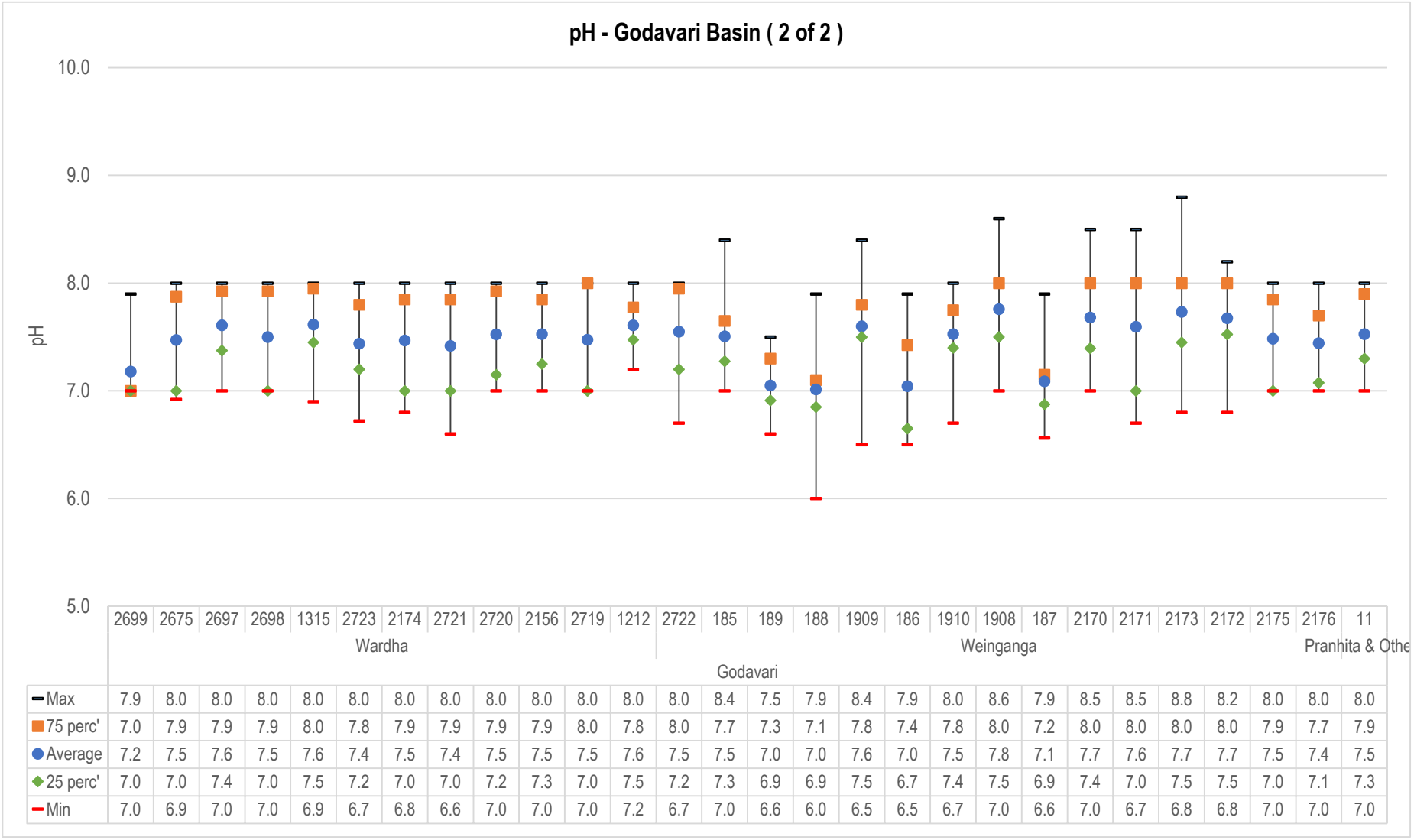
	2699	2675	2697	2698	1315	2723	2174	2721	2720	2156	2719	1212	2722	185	189	188	1909	186	1910	1908	187	2170	2171	2173	2172	2175	2176	11
Max	6.7	7.6	8.0	7.9	7.7	7.0	7.8	8.0	8.0	8.0	8.0	8.0	7.8	7.8	5.9	5.1	7.0	4.1	7.4	8.7	4.0	8.0	8.0	8.8	7.9	8.0	8.0	8.0
75 perc'	6.6	6.3	7.5	7.5	7.1	6.3	6.8	7.3	7.2	7.6	6.8	7.4	7.3	6.8	3.7	3.0	6.6	3.2	6.7	6.8	2.5	7.6	7.1	7.4	6.9	7.2	7.0	7.4
Average	5.3	5.6	6.9	6.9	6.6	6.0	6.5	6.9	6.8	6.9	6.5	6.5	6.8	6.5	2.7	2.5	6.0	2.3	6.3	6.6	2.1	6.8	6.5	7.0	6.7	6.9	6.6	7.0
25 perc'	4.7	4.5	6.4	6.3	6.5	6.0	6.0	6.4	6.4	6.4	6.1	6.0	6.3	6.3	1.2	1.5	5.7	1.4	5.9	6.0	1.6	6.3	6.0	6.5	6.5	6.6	6.0	6.6
Min	2.5	3.9	6.0	6.0	4.4	4.3	6.0	6.0	6.0	5.6	6.0	4.5	5.7	4.4	0.4	0.6	4.8	0.9	5.2	5.6	1.2	5.5	5.1	6.1	5.9	6.1	5.4	6.4

Figure No. 15: Trend of Fecal Coliform levels recorded at WQMS at Godavari basin (1 of 2) Figure No. 16: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Godavari basin (2 of 2)



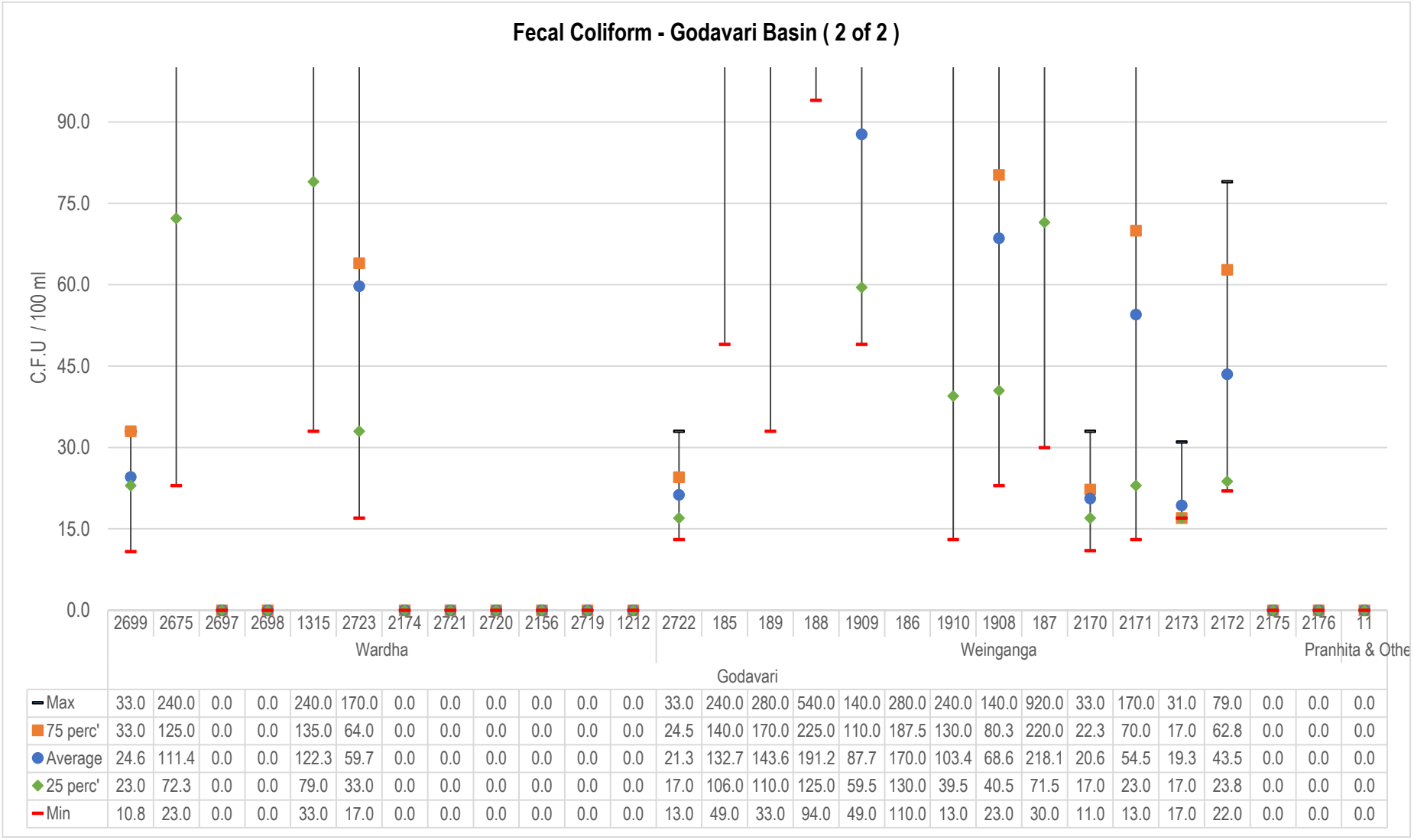
	2699	2675	2697	2698	1315	2723	2174	2721	2720	2156	2719	1212	2722	185	189	188	1909	186	1910	1908	187	2170	2171	2173	2172	2175	2176	11
Max	12.6	39.0	8.6	9.0	12.0	11.0	10.0	6.8	6.4	10.8	9.2	12.2	6.0	12.4	60.0	42.0	9.8	42.0	10.4	9.6	47.6	9.8	16.4	6.4	10.0	8.6	9.8	6.8
75 perc'	8.0	9.2	5.9	6.3	7.2	9.0	9.1	5.6	5.8	6.4	7.8	6.9	5.4	8.8	19.7	24.5	7.8	32.0	7.8	7.7	23.3	5.2	7.7	5.6	7.1	6.2	8.1	5.7
Average	7.7	10.6	5.1	5.6	6.3	7.8	8.1	5.2	4.7	6.3	7.1	6.7	4.8	6.7	20.7	19.3	7.3	23.6	6.7	5.9	22.2	5.0	7.4	4.6	6.7	5.4	7.3	4.9
25 perc'	5.5	6.8	3.9	5.0	5.0	6.8	7.0	4.6	3.7	4.9	6.4	5.5	4.2	5.5	10.3	13.0	6.4	15.8	5.1	4.4	16.6	3.7	6.0	3.6	6.0	4.0	6.5	4.2
Min	5.0	3.4	3.0	3.0	3.5	5.0	5.8	4.4	3.0	4.0	5.4	3.4	3.0	3.0	6.4	5.6	5.1	12.0	4.5	3.0	6.4	3.0	3.4	2.5	5.0	3.6	4.6	2.0

Figure No. 17: Trend of BOD levels recorded at WQMS at Godavari basin (2 of 2)



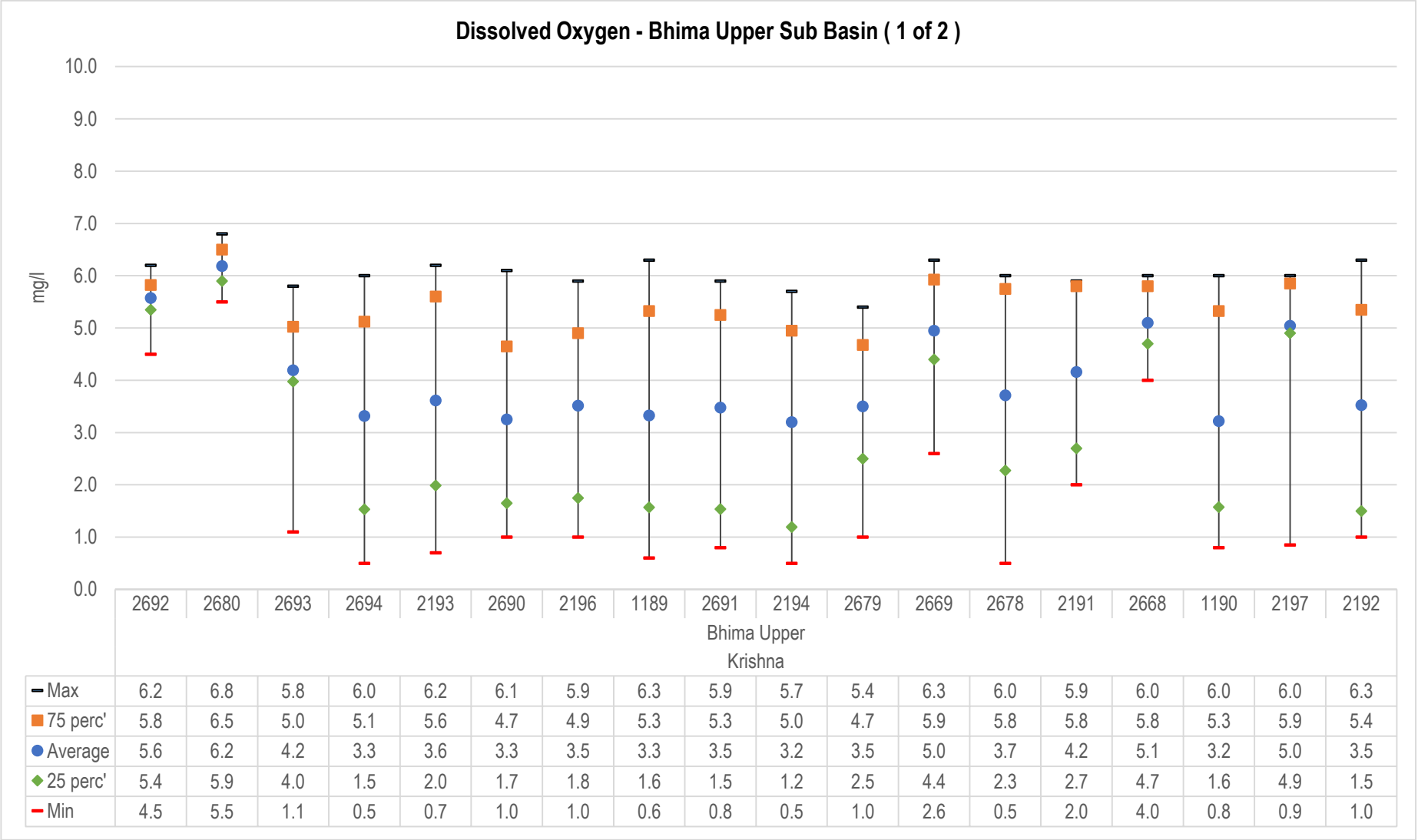
	2699	2675	2697	2698	1315	2723	2174	2721	2720	2156	2719	1212	2722	185	189	188	1909	186	1910	1908	187	2170	2171	2173	2172	2175	2176	11
	Wardha												Godavari						Weinganga									Pranhita & Othe
Max	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.4	7.5	7.9	8.4	7.9	8.0	8.6	7.9	8.5	8.5	8.8	8.2	8.0	8.0	8.0
75 perc'	7.0	7.9	7.9	7.9	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.8	8.0	7.7	7.3	7.1	7.8	7.4	7.8	8.0	7.2	8.0	8.0	8.0	8.0	7.9	7.7	7.9
Average	7.2	7.5	7.6	7.5	7.6	7.4	7.5	7.4	7.5	7.5	7.5	7.6	7.5	7.5	7.0	7.0	7.6	7.0	7.5	7.8	7.1	7.7	7.6	7.7	7.7	7.5	7.4	7.5
25 perc'	7.0	7.0	7.4	7.0	7.5	7.2	7.0	7.0	7.2	7.3	7.0	7.5	7.2	7.3	6.9	6.9	7.5	6.7	7.4	7.5	6.9	7.4	7.0	7.5	7.5	7.0	7.1	7.3
Min	7.0	6.9	7.0	7.0	6.9	6.7	6.8	6.6	7.0	7.0	7.0	7.2	6.7	7.0	6.6	6.0	6.5	6.5	6.7	7.0	6.6	7.0	6.7	6.8	6.8	7.0	7.0	7.0

Figure No. 18: Trend of pH levels recorded at WQMS at Godavari basin (2 of 2)



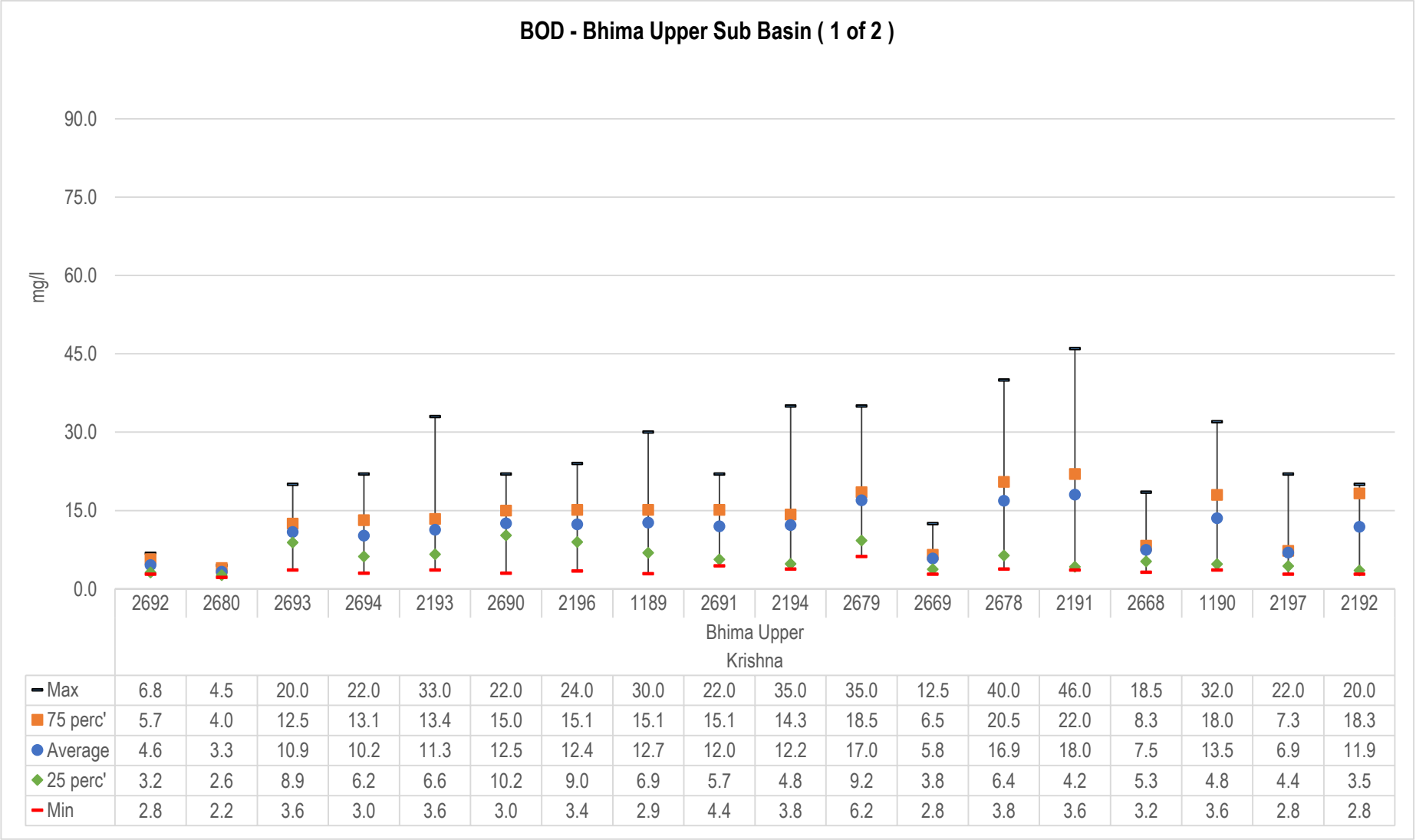
	2699	2675	2697	2698	1315	2723	2174	2721	2720	2156	2719	1212	2722	185	189	188	1909	186	1910	1908	187	2170	2171	2173	2172	2175	2176	11
Max	33.0	240.0	0.0	0.0	240.0	170.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	240.0	280.0	540.0	140.0	280.0	240.0	140.0	920.0	33.0	170.0	31.0	79.0	0.0	0.0	0.0
75 perc'	33.0	125.0	0.0	0.0	135.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5	140.0	170.0	225.0	110.0	187.5	130.0	80.3	220.0	22.3	70.0	17.0	62.8	0.0	0.0	0.0
Average	24.6	111.4	0.0	0.0	122.3	59.7	0.0	0.0	0.0	0.0	0.0	0.0	21.3	132.7	143.6	191.2	87.7	170.0	103.4	68.6	218.1	20.6	54.5	19.3	43.5	0.0	0.0	0.0
25 perc'	23.0	72.3	0.0	0.0	79.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	106.0	110.0	125.0	59.5	130.0	39.5	40.5	71.5	17.0	23.0	17.0	23.8	0.0	0.0	0.0
Min	10.8	23.0	0.0	0.0	33.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	49.0	33.0	94.0	49.0	110.0	13.0	23.0	30.0	11.0	13.0	17.0	22.0	0.0	0.0	0.0

Figure No. 19: Trend of Fecal Coliform levels recorded at WQMS at Godavari basin (2 of 2)



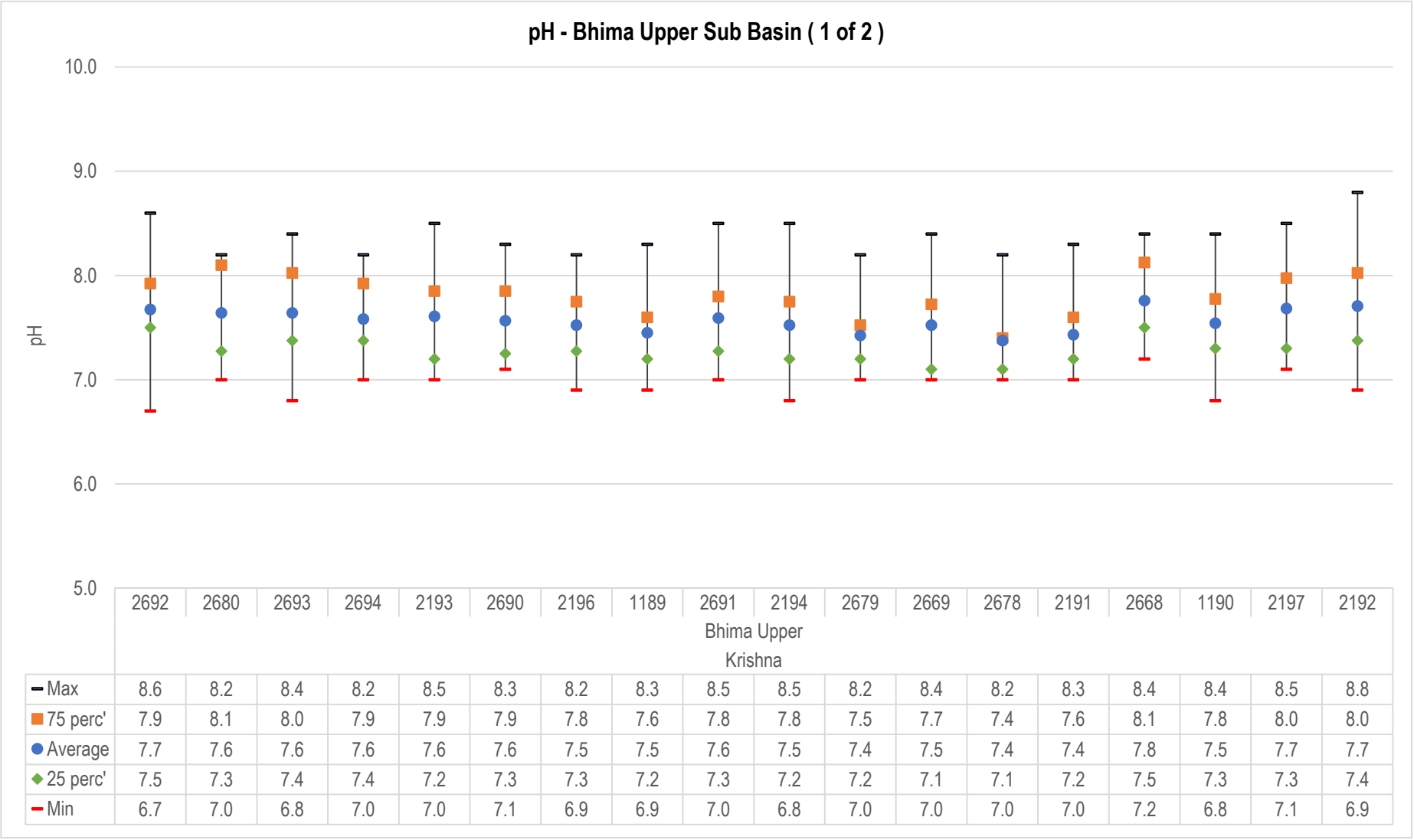
	2692	2680	2693	2694	2193	2690	2196	1189	2691	2194	2679	2669	2678	2191	2668	1190	2197	2192
Max	6.2	6.8	5.8	6.0	6.2	6.1	5.9	6.3	5.9	5.7	5.4	6.3	6.0	5.9	6.0	6.0	6.0	6.3
75 perc'	5.8	6.5	5.0	5.1	5.6	4.7	4.9	5.3	5.3	5.0	4.7	5.9	5.8	5.8	5.8	5.3	5.9	5.4
Average	5.6	6.2	4.2	3.3	3.6	3.3	3.5	3.3	3.5	3.2	3.5	5.0	3.7	4.2	5.1	3.2	5.0	3.5
25 perc'	5.4	5.9	4.0	1.5	2.0	1.7	1.8	1.6	1.5	1.2	2.5	4.4	2.3	2.7	4.7	1.6	4.9	1.5
Min	4.5	5.5	1.1	0.5	0.7	1.0	1.0	0.6	0.8	0.5	1.0	2.6	0.5	2.0	4.0	0.8	0.9	1.0

Figure No. 20: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (1 of 2)



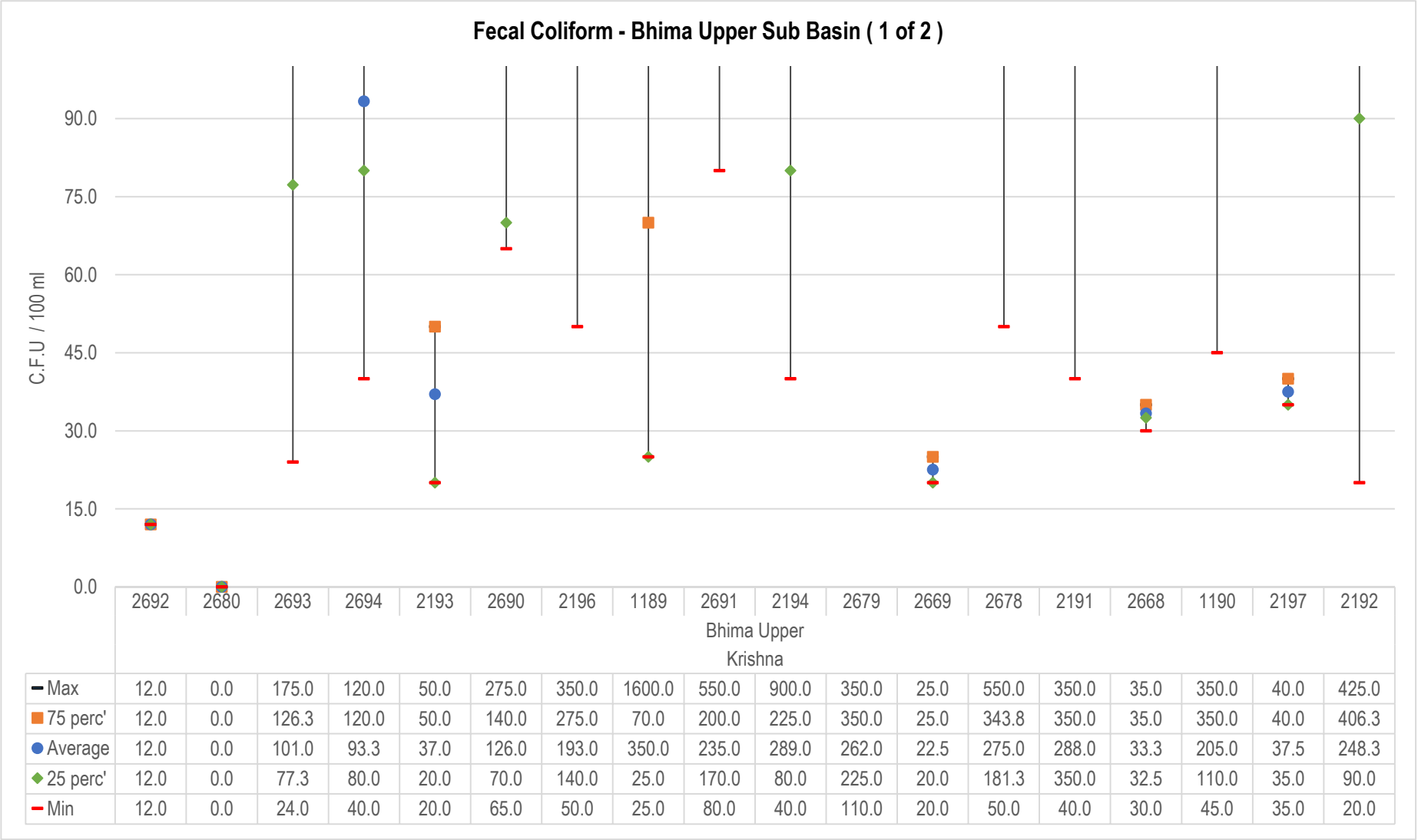
	2692	2680	2693	2694	2193	2690	2196	1189	2691	2194	2679	2669	2678	2191	2668	1190	2197	2192
Max	6.8	4.5	20.0	22.0	33.0	22.0	24.0	30.0	22.0	35.0	35.0	12.5	40.0	46.0	18.5	32.0	22.0	20.0
75 perc'	5.7	4.0	12.5	13.1	13.4	15.0	15.1	15.1	15.1	14.3	18.5	6.5	20.5	22.0	8.3	18.0	7.3	18.3
Average	4.6	3.3	10.9	10.2	11.3	12.5	12.4	12.7	12.0	12.2	17.0	5.8	16.9	18.0	7.5	13.5	6.9	11.9
25 perc'	3.2	2.6	8.9	6.2	6.6	10.2	9.0	6.9	5.7	4.8	9.2	3.8	6.4	4.2	5.3	4.8	4.4	3.5
Min	2.8	2.2	3.6	3.0	3.6	3.0	3.4	2.9	4.4	3.8	6.2	2.8	3.8	3.6	3.2	3.6	2.8	2.8

Figure No. 21: Trend of Biological Oxygen Demand (BOD) levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (1 of 2)



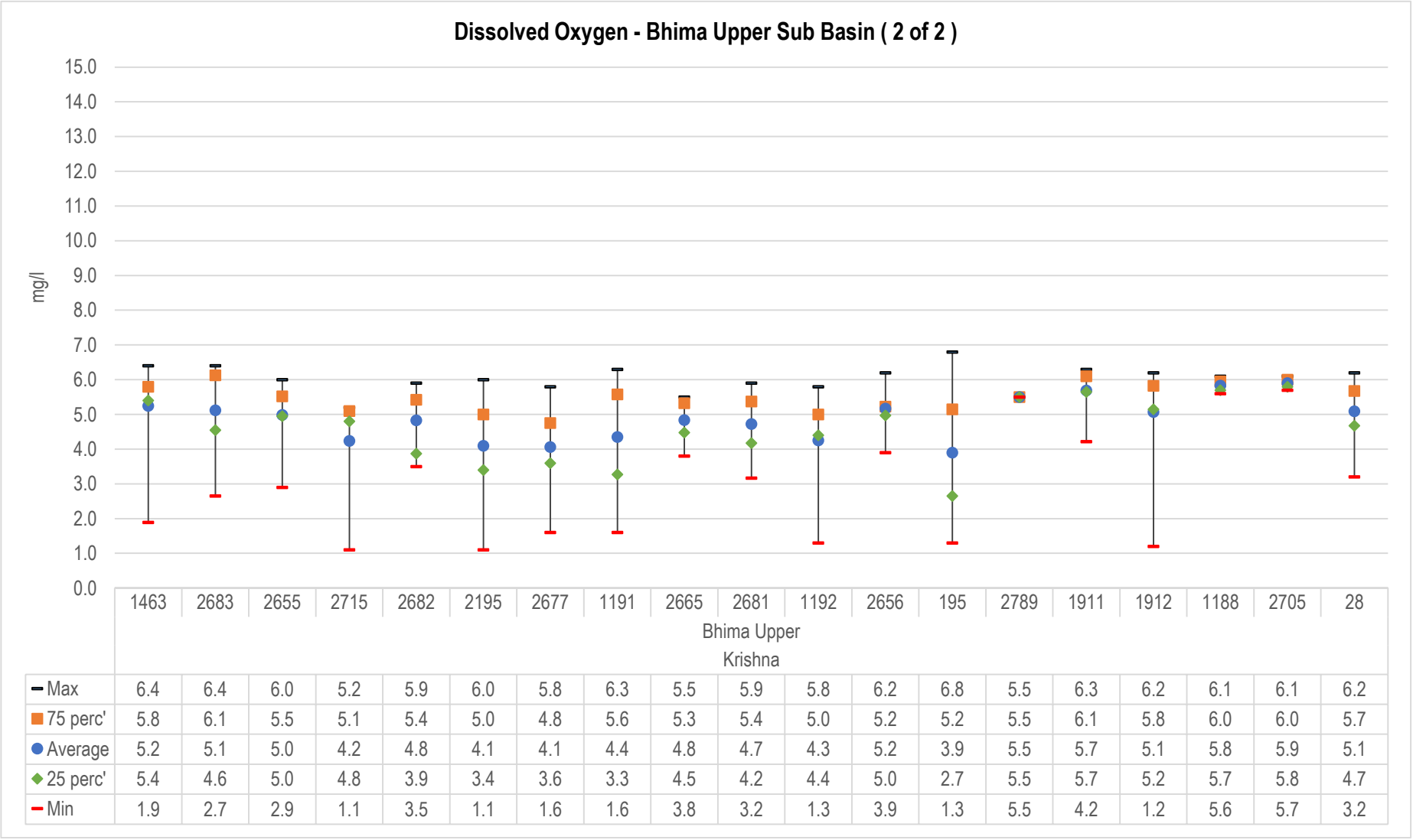
	2692	2680	2693	2694	2193	2690	2196	1189	2691	2194	2679	2669	2678	2191	2668	1190	2197	2192
	Bhima Upper Krishna																	
Max	8.6	8.2	8.4	8.2	8.5	8.3	8.2	8.3	8.5	8.5	8.2	8.4	8.2	8.3	8.4	8.4	8.5	8.8
75 perc'	7.9	8.1	8.0	7.9	7.9	7.9	7.8	7.6	7.8	7.8	7.5	7.7	7.4	7.6	8.1	7.8	8.0	8.0
Average	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.6	7.5	7.4	7.5	7.4	7.4	7.8	7.5	7.7	7.7
25 perc'	7.5	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.3	7.2	7.2	7.1	7.1	7.2	7.5	7.3	7.3	7.4
Min	6.7	7.0	6.8	7.0	7.0	7.1	6.9	6.9	7.0	6.8	7.0	7.0	7.0	7.0	7.2	6.8	7.1	6.9

Figure No. 22: Trend of pH levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (1 of 2)



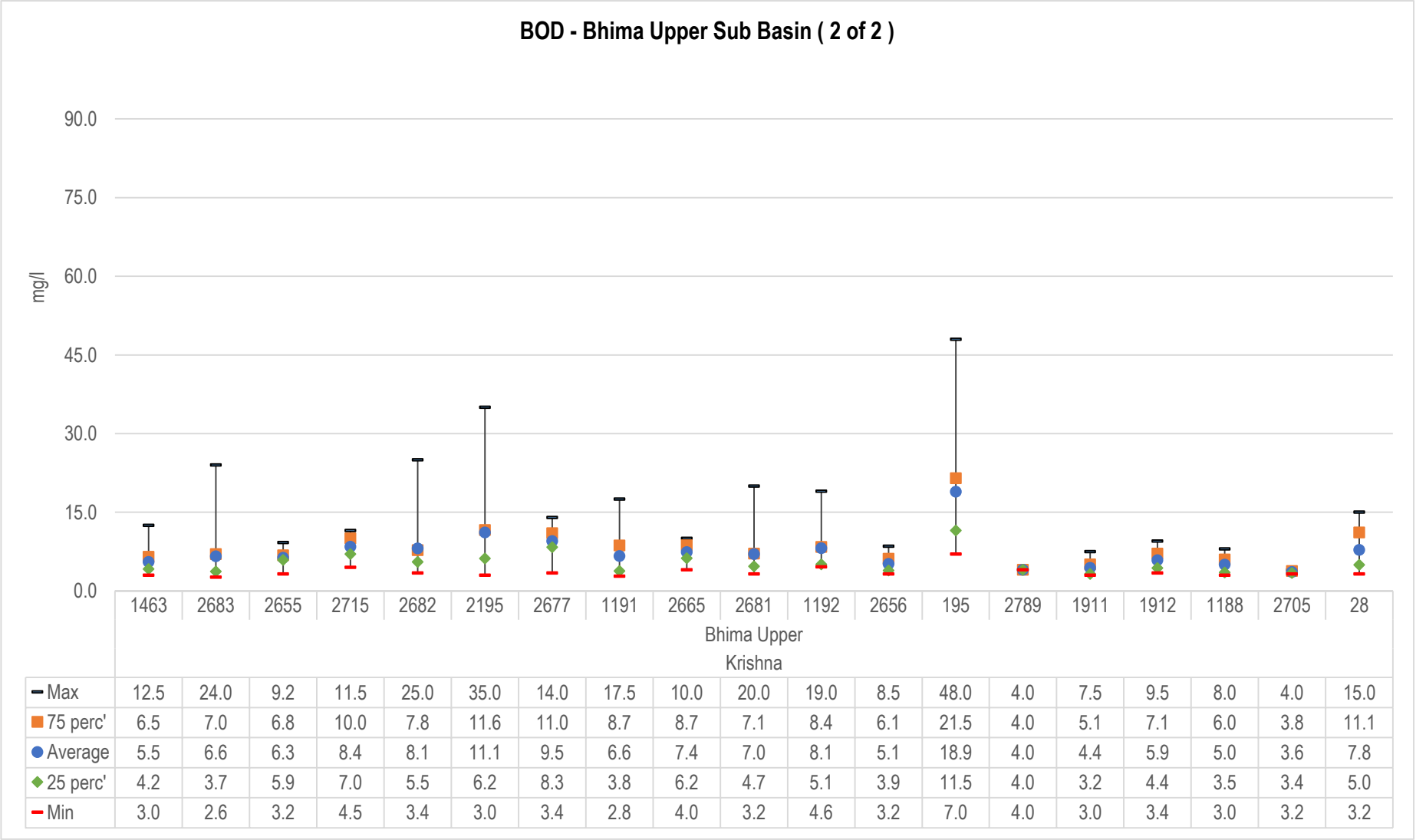
	2692	2680	2693	2694	2193	2690	2196	1189	2691	2194	2679	2669	2678	2191	2668	1190	2197	2192
Max	12.0	0.0	175.0	120.0	50.0	275.0	350.0	1600.0	550.0	900.0	350.0	25.0	550.0	350.0	35.0	350.0	40.0	425.0
75 perc'	12.0	0.0	126.3	120.0	50.0	140.0	275.0	70.0	200.0	225.0	350.0	25.0	343.8	350.0	35.0	350.0	40.0	406.3
Average	12.0	0.0	101.0	93.3	37.0	126.0	193.0	350.0	235.0	289.0	262.0	22.5	275.0	288.0	33.3	205.0	37.5	248.3
25 perc'	12.0	0.0	77.3	80.0	20.0	70.0	140.0	25.0	170.0	80.0	225.0	20.0	181.3	350.0	32.5	110.0	35.0	90.0
Min	12.0	0.0	24.0	40.0	20.0	65.0	50.0	25.0	80.0	40.0	110.0	20.0	50.0	40.0	30.0	45.0	35.0	20.0

Figure No. 23: Trend of Fecal Coliform levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (1 of 2)



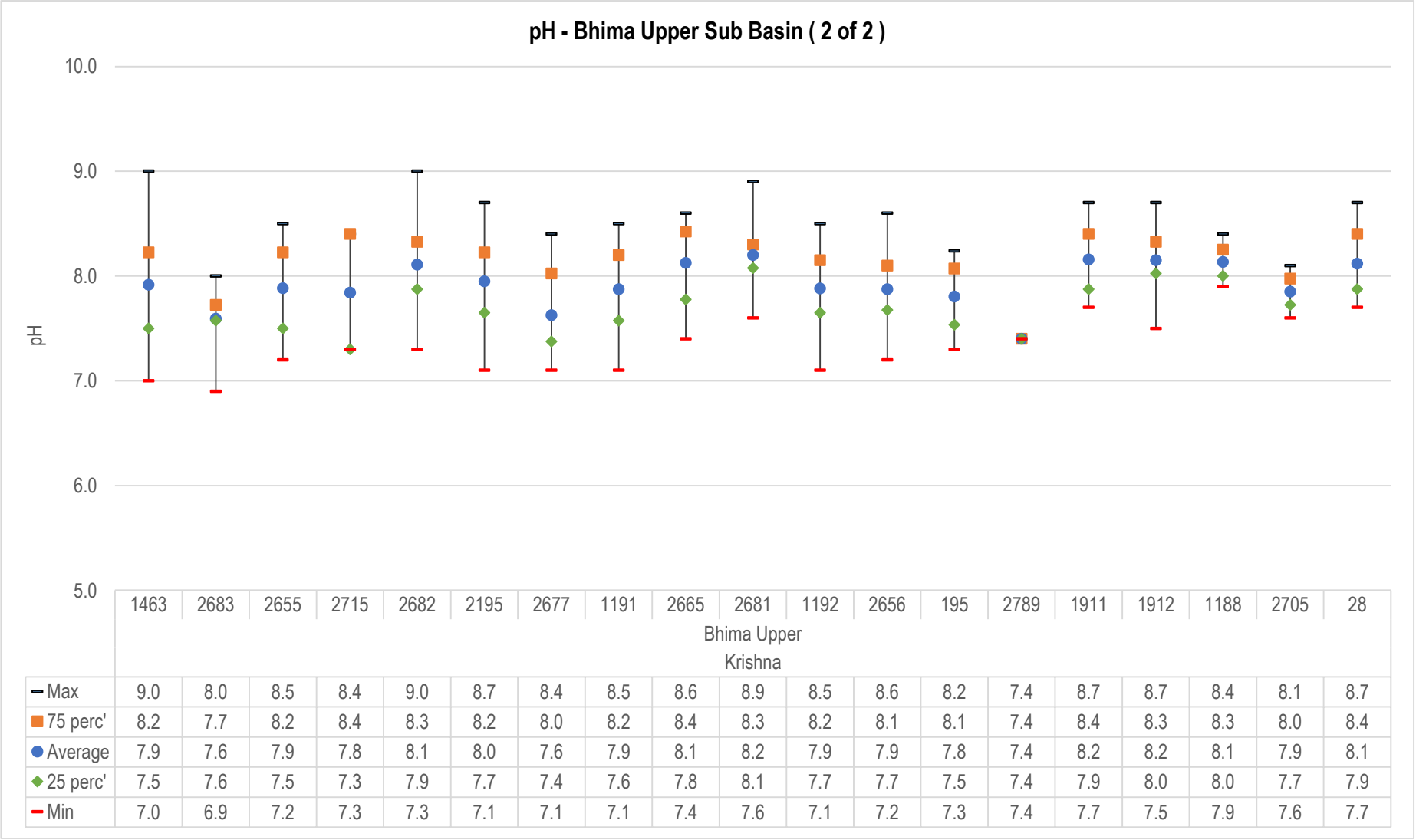
	1463	2683	2655	2715	2682	2195	2677	1191	2665	2681	1192	2656	195	2789	1911	1912	1188	2705	28
Max	6.4	6.4	6.0	5.2	5.9	6.0	5.8	6.3	5.5	5.9	5.8	6.2	6.8	5.5	6.3	6.2	6.1	6.1	6.2
75 perc'	5.8	6.1	5.5	5.1	5.4	5.0	4.8	5.6	5.3	5.4	5.0	5.2	5.2	5.5	6.1	5.8	6.0	6.0	5.7
Average	5.2	5.1	5.0	4.2	4.8	4.1	4.1	4.4	4.8	4.7	4.3	5.2	3.9	5.5	5.7	5.1	5.8	5.9	5.1
25 perc'	5.4	4.6	5.0	4.8	3.9	3.4	3.6	3.3	4.5	4.2	4.4	5.0	2.7	5.5	5.7	5.2	5.7	5.8	4.7
Min	1.9	2.7	2.9	1.1	3.5	1.1	1.6	1.6	3.8	3.2	1.3	3.9	1.3	5.5	4.2	1.2	5.6	5.7	3.2

Figure No. 24: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (2 of 2)



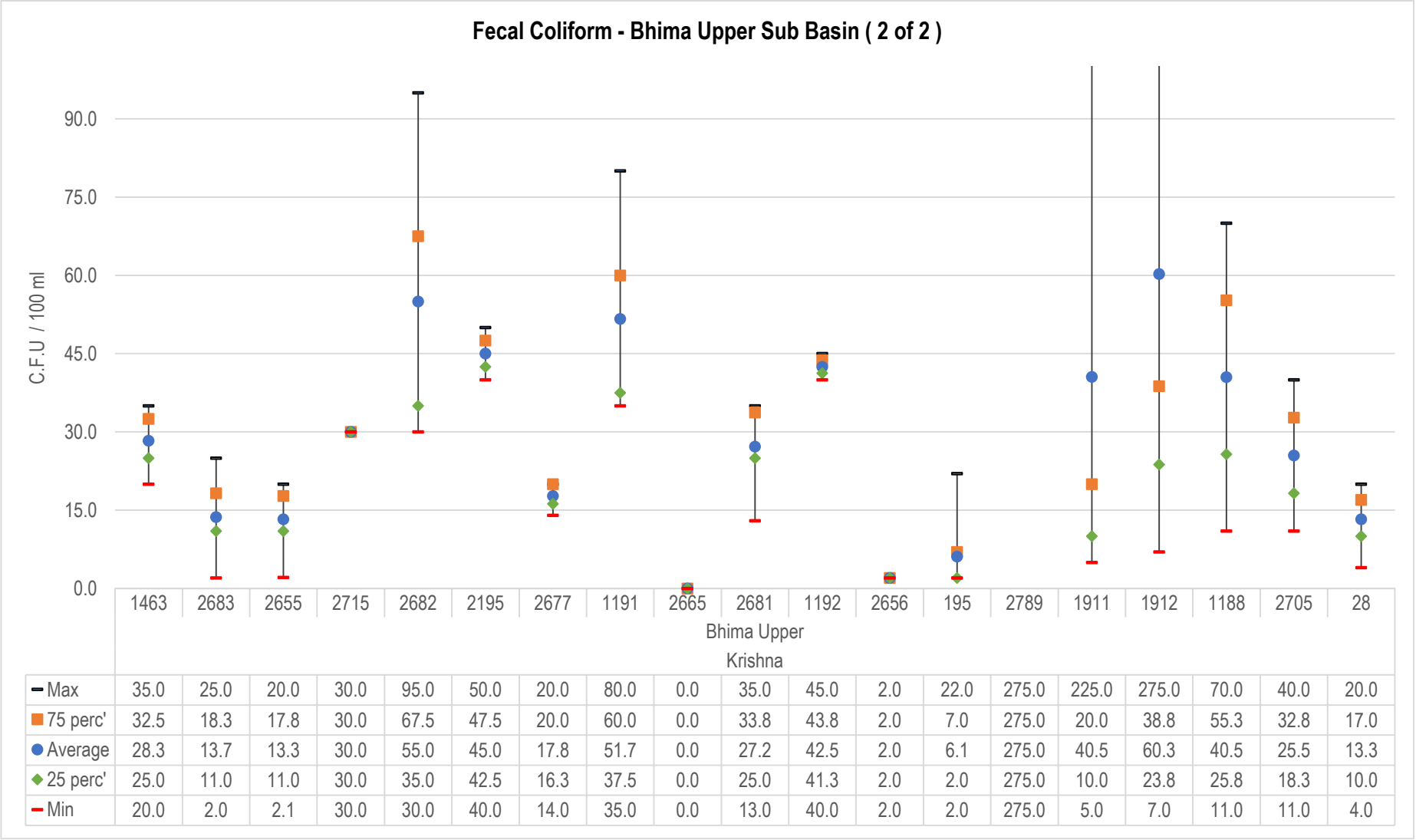
	1463	2683	2655	2715	2682	2195	2677	1191	2665	2681	1192	2656	195	2789	1911	1912	1188	2705	28
Max	12.5	24.0	9.2	11.5	25.0	35.0	14.0	17.5	10.0	20.0	19.0	8.5	48.0	4.0	7.5	9.5	8.0	4.0	15.0
75 perc'	6.5	7.0	6.8	10.0	7.8	11.6	11.0	8.7	8.7	7.1	8.4	6.1	21.5	4.0	5.1	7.1	6.0	3.8	11.1
Average	5.5	6.6	6.3	8.4	8.1	11.1	9.5	6.6	7.4	7.0	8.1	5.1	18.9	4.0	4.4	5.9	5.0	3.6	7.8
25 perc'	4.2	3.7	5.9	7.0	5.5	6.2	8.3	3.8	6.2	4.7	5.1	3.9	11.5	4.0	3.2	4.4	3.5	3.4	5.0
Min	3.0	2.6	3.2	4.5	3.4	3.0	3.4	2.8	4.0	3.2	4.6	3.2	7.0	4.0	3.0	3.4	3.0	3.2	3.2

Figure No. 25: Trend of Biological Oxygen Demand (BOD) levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (2 of 2)



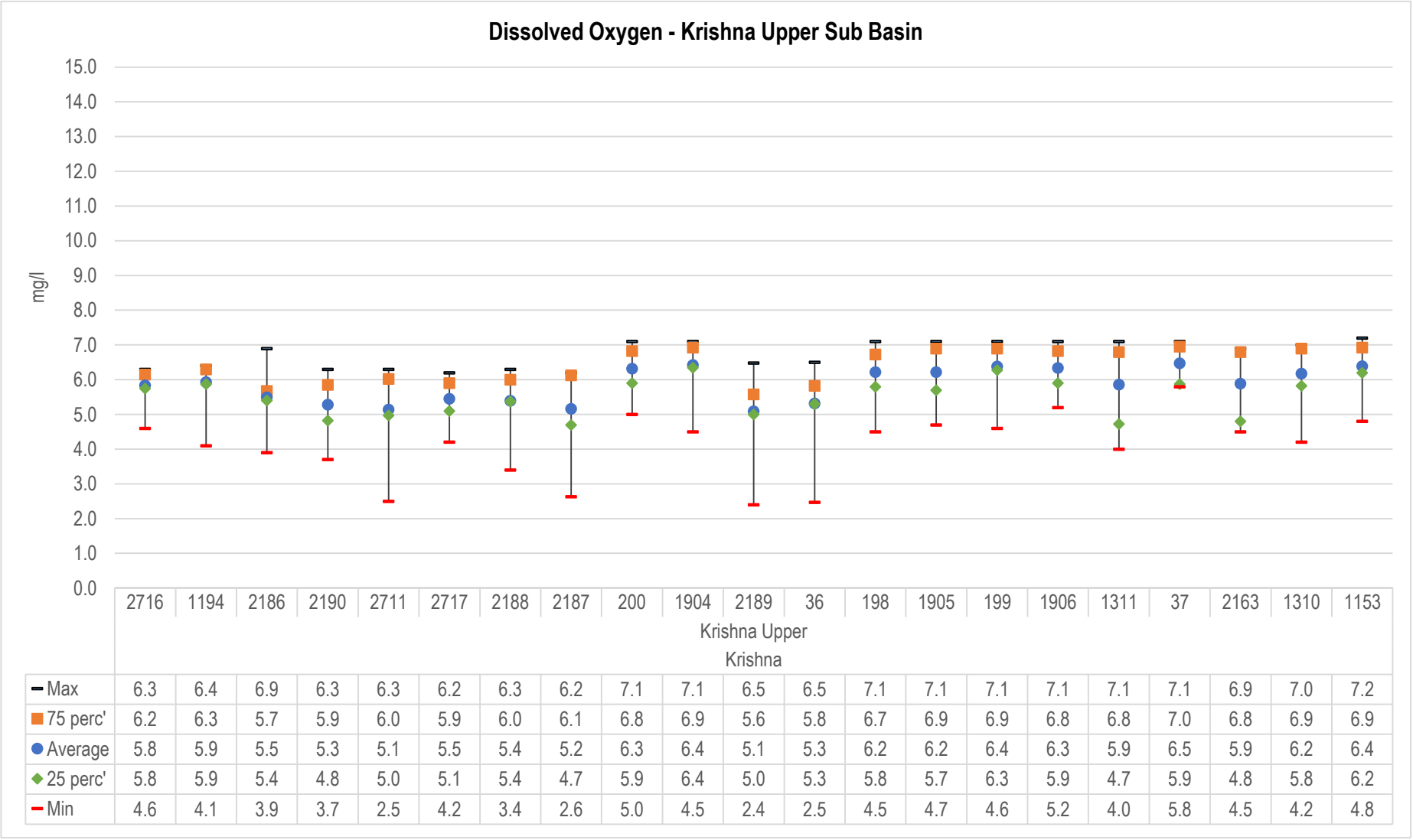
	1463	2683	2655	2715	2682	2195	2677	1191	2665	2681	1192	2656	195	2789	1911	1912	1188	2705	28
	Bhima Upper Krishna																		
Max	9.0	8.0	8.5	8.4	9.0	8.7	8.4	8.5	8.6	8.9	8.5	8.6	8.2	7.4	8.7	8.7	8.4	8.1	8.7
75 perc'	8.2	7.7	8.2	8.4	8.3	8.2	8.0	8.2	8.4	8.3	8.2	8.1	8.1	7.4	8.4	8.3	8.3	8.0	8.4
Average	7.9	7.6	7.9	7.8	8.1	8.0	7.6	7.9	8.1	8.2	7.9	7.9	7.8	7.4	8.2	8.2	8.1	7.9	8.1
25 perc'	7.5	7.6	7.5	7.3	7.9	7.7	7.4	7.6	7.8	8.1	7.7	7.7	7.5	7.4	7.9	8.0	8.0	7.7	7.9
Min	7.0	6.9	7.2	7.3	7.3	7.1	7.1	7.1	7.4	7.6	7.1	7.2	7.3	7.4	7.7	7.5	7.9	7.6	7.7

Figure No. 26: Trend of pH levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (2 of 2)



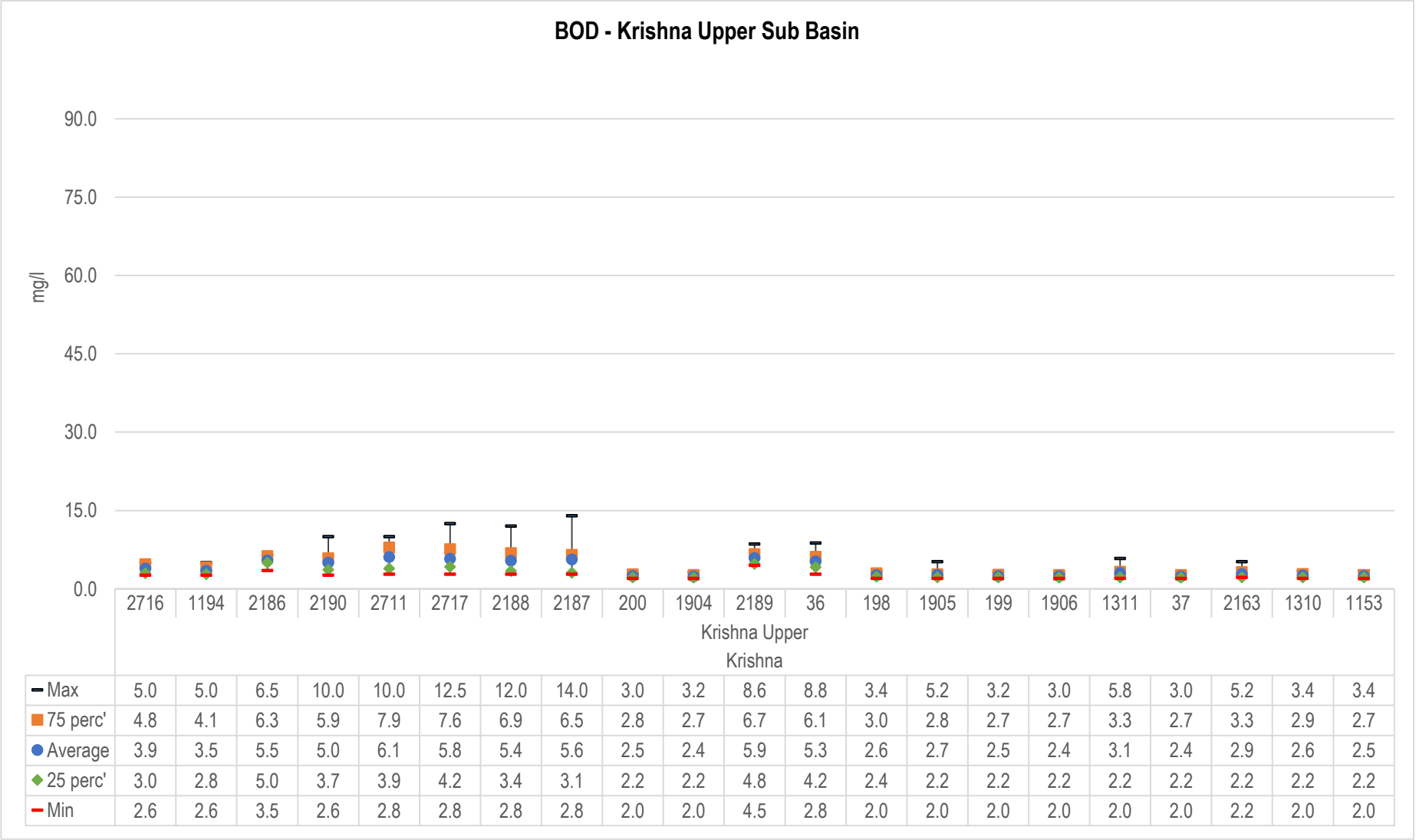
	1463	2683	2655	2715	2682	2195	2677	1191	2665	2681	1192	2656	195	2789	1911	1912	1188	2705	28
Max	35.0	25.0	20.0	30.0	95.0	50.0	20.0	80.0	0.0	35.0	45.0	2.0	22.0	275.0	225.0	275.0	70.0	40.0	20.0
75 perc'	32.5	18.3	17.8	30.0	67.5	47.5	20.0	60.0	0.0	33.8	43.8	2.0	7.0	275.0	20.0	38.8	55.3	32.8	17.0
Average	28.3	13.7	13.3	30.0	55.0	45.0	17.8	51.7	0.0	27.2	42.5	2.0	6.1	275.0	40.5	60.3	40.5	25.5	13.3
25 perc'	25.0	11.0	11.0	30.0	35.0	42.5	16.3	37.5	0.0	25.0	41.3	2.0	2.0	275.0	10.0	23.8	25.8	18.3	10.0
Min	20.0	2.0	2.1	30.0	30.0	40.0	14.0	35.0	0.0	13.0	40.0	2.0	2.0	275.0	5.0	7.0	11.0	11.0	4.0

Figure No. 27: Trend of Fecal Coliform levels recorded at WQMS at Bhima upper sub basin -Krishna Basin (2 of 2)



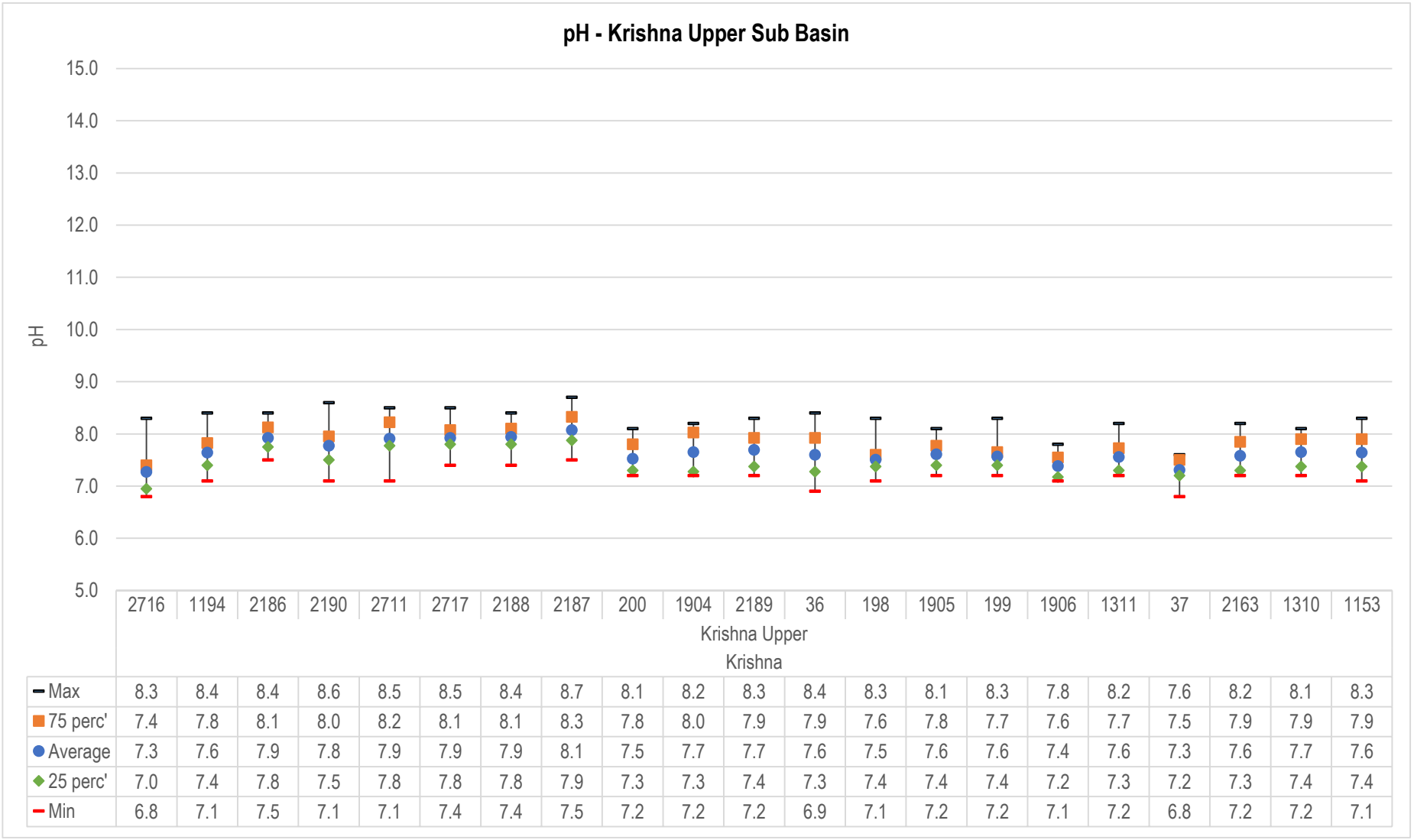
	2716	1194	2186	2190	2711	2717	2188	2187	200	1904	2189	36	198	1905	199	1906	1311	37	2163	1310	1153
Max	6.3	6.4	6.9	6.3	6.3	6.2	6.3	6.2	7.1	7.1	6.5	6.5	7.1	7.1	7.1	7.1	7.1	7.1	6.9	7.0	7.2
75 perc'	6.2	6.3	5.7	5.9	6.0	5.9	6.0	6.1	6.8	6.9	5.6	5.8	6.7	6.9	6.9	6.8	6.8	7.0	6.8	6.9	6.9
Average	5.8	5.9	5.5	5.3	5.1	5.5	5.4	5.2	6.3	6.4	5.1	5.3	6.2	6.2	6.4	6.3	5.9	6.5	5.9	6.2	6.4
25 perc'	5.8	5.9	5.4	4.8	5.0	5.1	5.4	4.7	5.9	6.4	5.0	5.3	5.8	5.7	6.3	5.9	4.7	5.9	4.8	5.8	6.2
Min	4.6	4.1	3.9	3.7	2.5	4.2	3.4	2.6	5.0	4.5	2.4	2.5	4.5	4.7	4.6	5.2	4.0	5.8	4.5	4.2	4.8

Figure No. 28: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Krishna upper sub basin -Krishna Basin



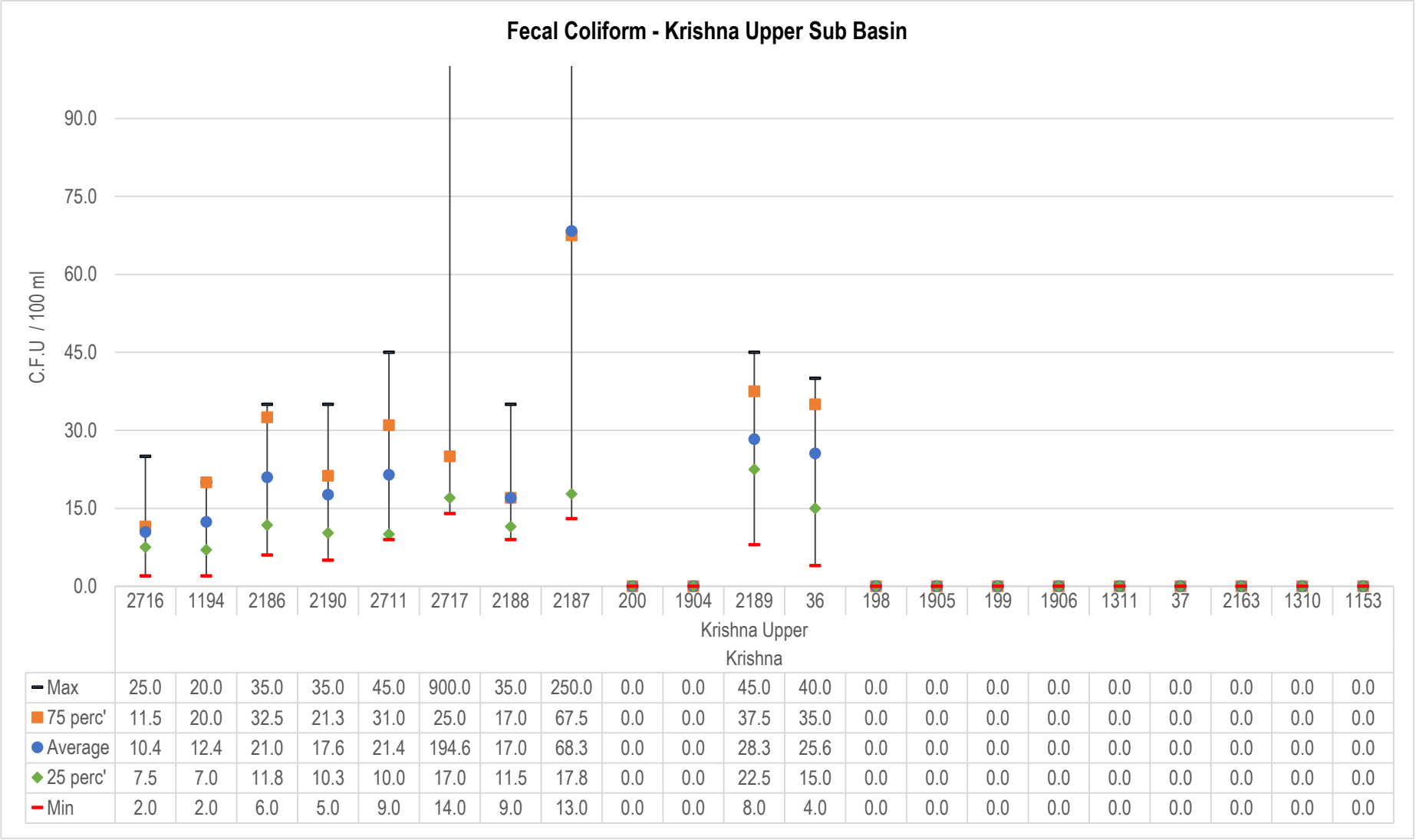
	2716	1194	2186	2190	2711	2717	2188	2187	200	1904	2189	36	198	1905	199	1906	1311	37	2163	1310	1153
Max	5.0	5.0	6.5	10.0	10.0	12.5	12.0	14.0	3.0	3.2	8.6	8.8	3.4	5.2	3.2	3.0	5.8	3.0	5.2	3.4	3.4
75 perc'	4.8	4.1	6.3	5.9	7.9	7.6	6.9	6.5	2.8	2.7	6.7	6.1	3.0	2.8	2.7	2.7	3.3	2.7	3.3	2.9	2.7
Average	3.9	3.5	5.5	5.0	6.1	5.8	5.4	5.6	2.5	2.4	5.9	5.3	2.6	2.7	2.5	2.4	3.1	2.4	2.9	2.6	2.5
25 perc'	3.0	2.8	5.0	3.7	3.9	4.2	3.4	3.1	2.2	2.2	4.8	4.2	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Min	2.6	2.6	3.5	2.6	2.8	2.8	2.8	2.8	2.0	2.0	4.5	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0

Figure No. 29: Trend of Biological Oxygen Demand (BOD) levels recorded at WQMS at Krishna upper sub basin - Krishna Basin



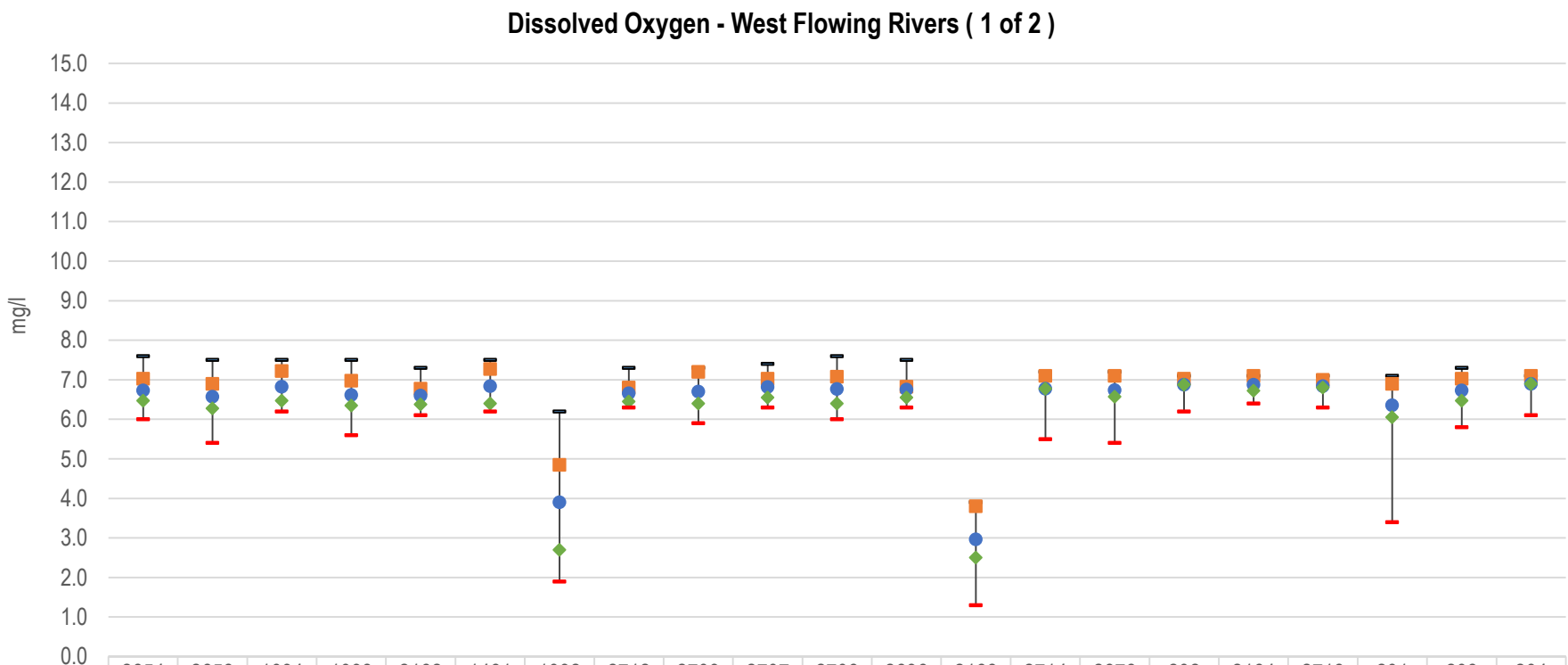
	2716	1194	2186	2190	2711	2717	2188	2187	200	1904	2189	36	198	1905	199	1906	1311	37	2163	1310	1153
Max	8.3	8.4	8.4	8.6	8.5	8.5	8.4	8.7	8.1	8.2	8.3	8.4	8.3	8.1	8.3	7.8	8.2	7.6	8.2	8.1	8.3
75 perc'	7.4	7.8	8.1	8.0	8.2	8.1	8.1	8.3	7.8	8.0	7.9	7.9	7.6	7.8	7.7	7.6	7.7	7.5	7.9	7.9	7.9
Average	7.3	7.6	7.9	7.8	7.9	7.9	7.9	8.1	7.5	7.7	7.7	7.6	7.5	7.6	7.6	7.4	7.6	7.3	7.6	7.7	7.6
25 perc'	7.0	7.4	7.8	7.5	7.8	7.8	7.8	7.9	7.3	7.3	7.4	7.3	7.4	7.4	7.4	7.2	7.3	7.2	7.3	7.4	7.4
Min	6.8	7.1	7.5	7.1	7.1	7.4	7.4	7.5	7.2	7.2	7.2	6.9	7.1	7.2	7.2	7.1	7.2	6.8	7.2	7.2	7.1

Figure No. 30: Trend of pH levels recorded at WQMS at Krishna upper sub basin -Krishna Basin



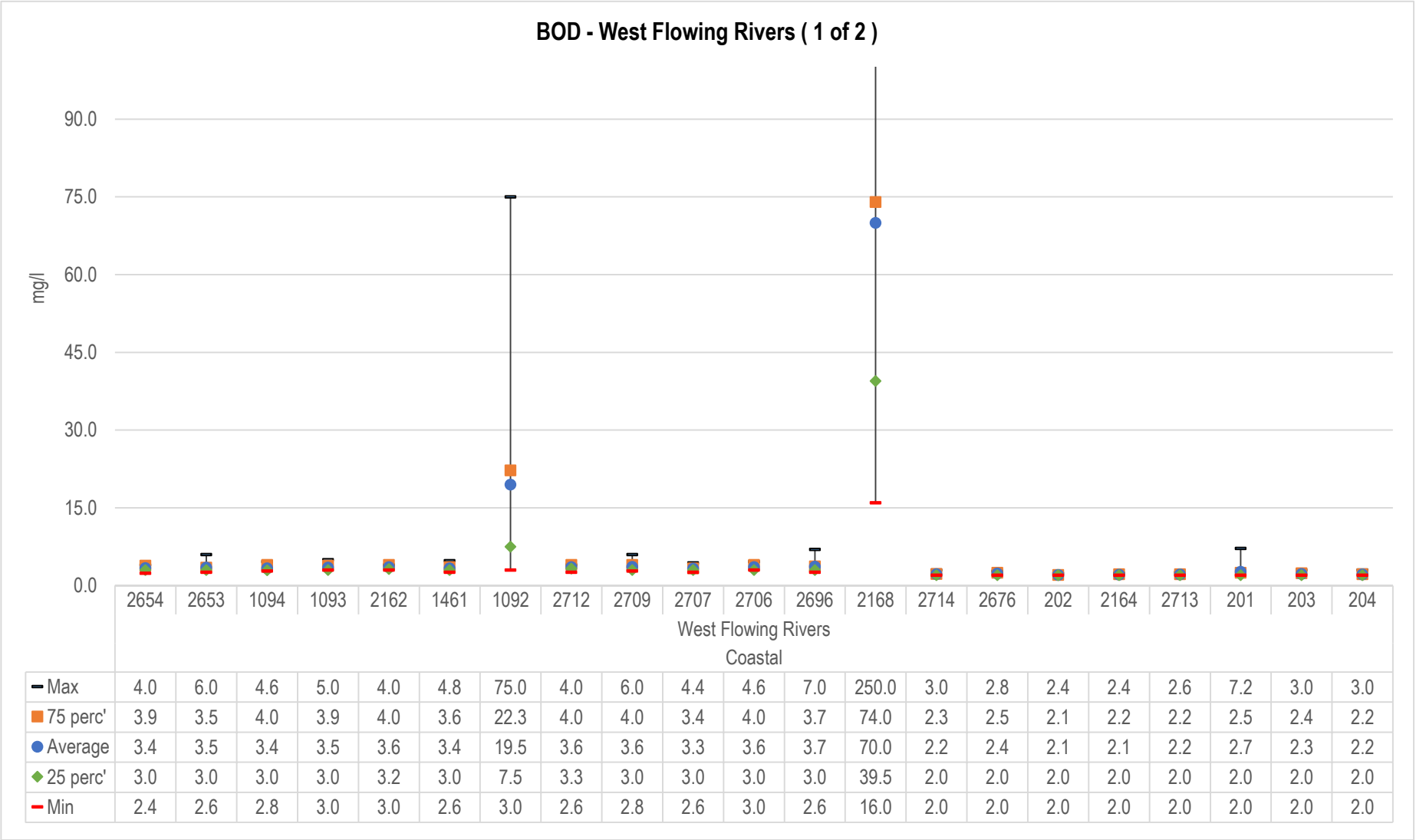
	2716	1194	2186	2190	2711	2717	2188	2187	200	1904	2189	36	198	1905	199	1906	1311	37	2163	1310	1153
Max	25.0	20.0	35.0	35.0	45.0	900.0	35.0	250.0	0.0	0.0	45.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	11.5	20.0	32.5	21.3	31.0	25.0	17.0	67.5	0.0	0.0	37.5	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	10.4	12.4	21.0	17.6	21.4	194.6	17.0	68.3	0.0	0.0	28.3	25.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	7.5	7.0	11.8	10.3	10.0	17.0	11.5	17.8	0.0	0.0	22.5	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min	2.0	2.0	6.0	5.0	9.0	14.0	9.0	13.0	0.0	0.0	8.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure No. 31: Trend of Fecal Coliform recorded at WQMS at Krishna upper sub basin -Krishna Basin



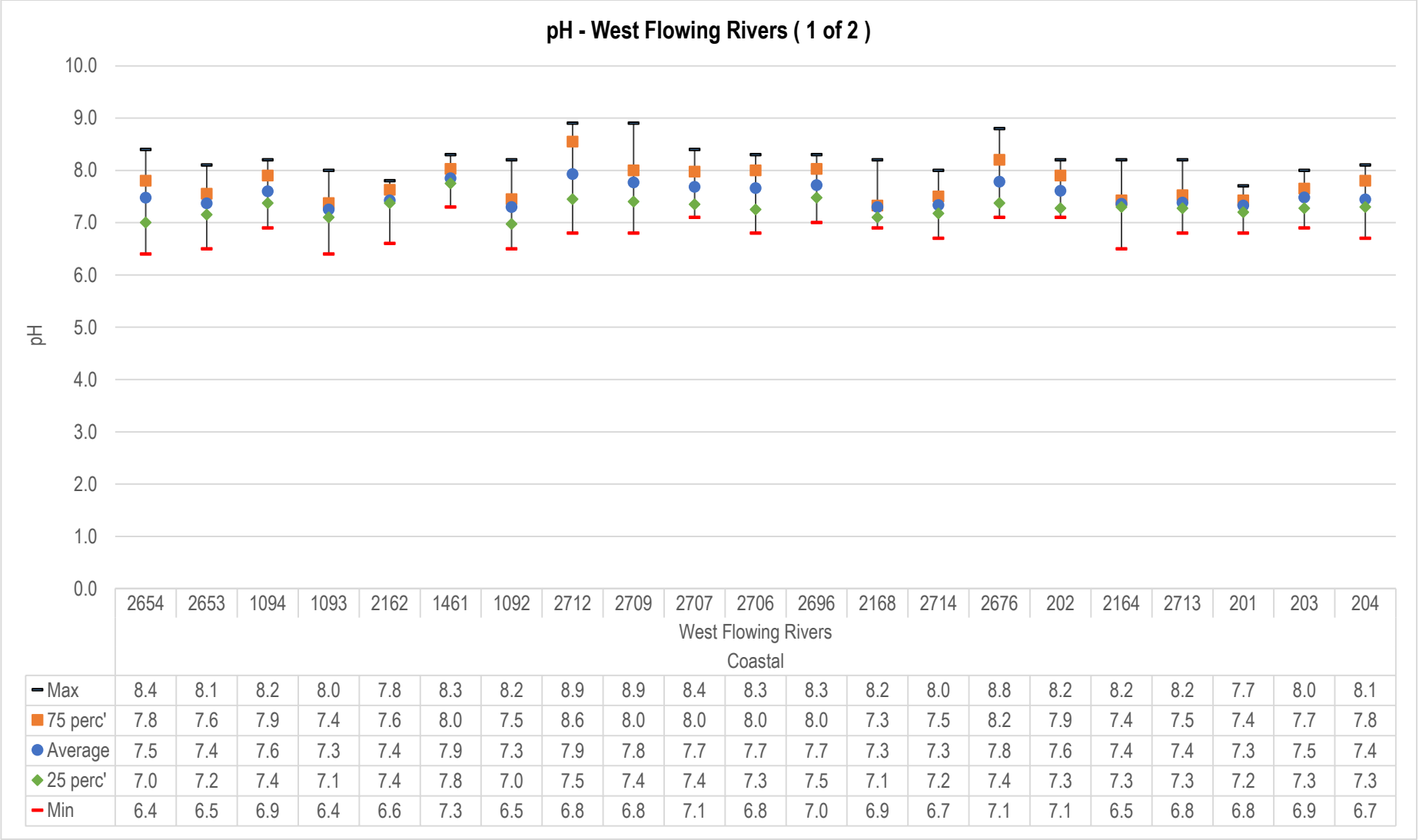
	2654	2653	1094	1093	2162	1461	1092	2712	2709	2707	2706	2696	2168	2714	2676	202	2164	2713	201	203	204
Max	7.6	7.5	7.5	7.5	7.3	7.5	6.2	7.3	7.3	7.4	7.6	7.5	3.9	7.2	7.2	7.1	7.1	7.1	7.1	7.3	7.1
75 perc'	7.0	6.9	7.2	7.0	6.8	7.3	4.9	6.8	7.2	7.0	7.1	6.8	3.8	7.1	7.1	7.0	7.1	7.0	6.9	7.0	7.1
Average	6.7	6.6	6.8	6.6	6.6	6.8	3.9	6.7	6.7	6.8	6.8	6.8	3.0	6.8	6.7	6.9	6.9	6.8	6.4	6.7	6.9
25 perc'	6.5	6.3	6.5	6.4	6.4	6.4	2.7	6.5	6.4	6.6	6.4	6.6	2.5	6.8	6.6	6.9	6.7	6.8	6.1	6.5	6.9
Min	6.0	5.4	6.2	5.6	6.1	6.2	1.9	6.3	5.9	6.3	6.0	6.3	1.3	5.5	5.4	6.2	6.4	6.3	3.4	5.8	6.1

Figure No. 32: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at West flowing s (Coastal basin) (1 OF 2)



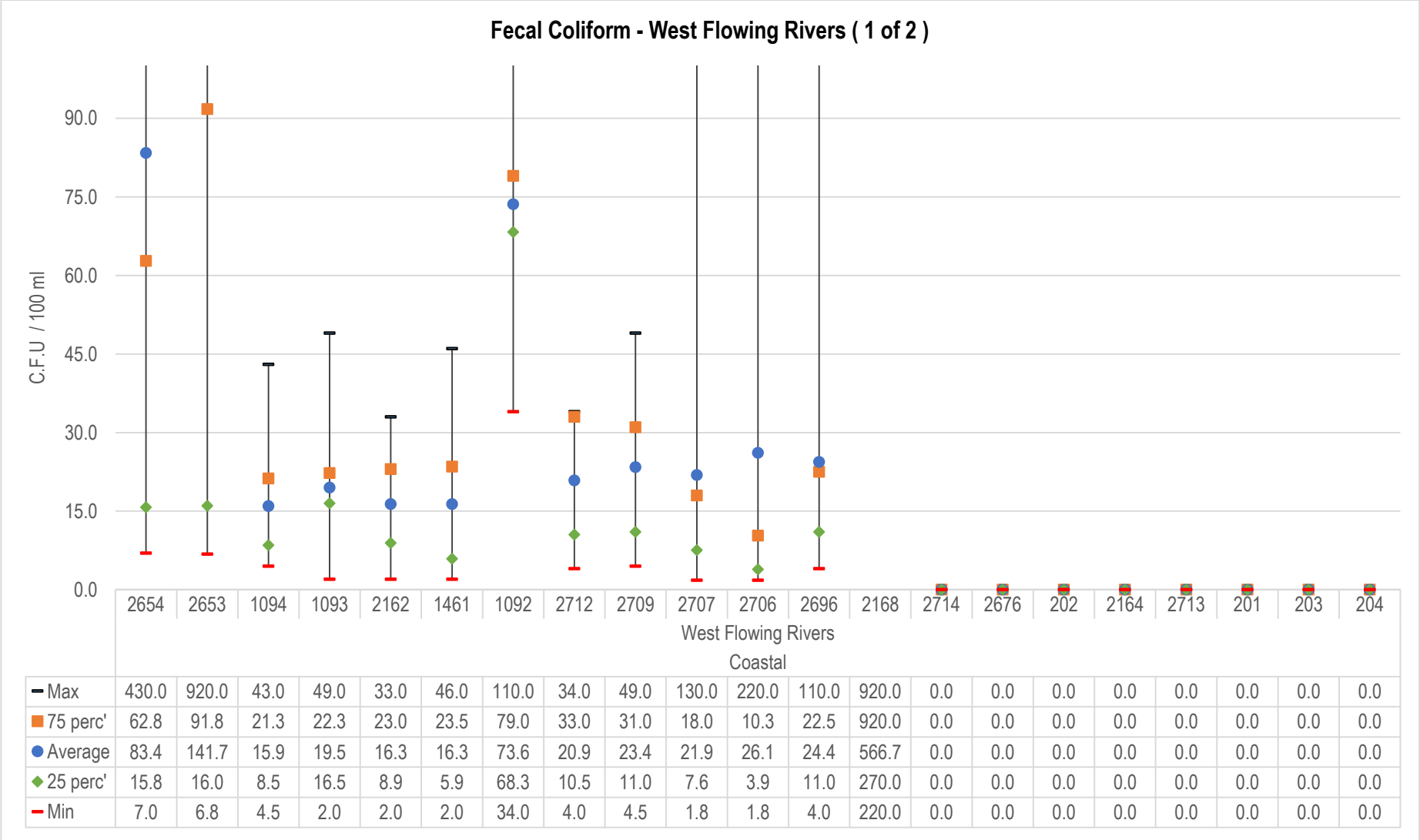
	2654	2653	1094	1093	2162	1461	1092	2712	2709	2707	2706	2696	2168	2714	2676	202	2164	2713	201	203	204
Max	4.0	6.0	4.6	5.0	4.0	4.8	75.0	4.0	6.0	4.4	4.6	7.0	250.0	3.0	2.8	2.4	2.4	2.6	7.2	3.0	3.0
75 perc'	3.9	3.5	4.0	3.9	4.0	3.6	22.3	4.0	4.0	3.4	4.0	3.7	74.0	2.3	2.5	2.1	2.2	2.2	2.5	2.4	2.2
Average	3.4	3.5	3.4	3.5	3.6	3.4	19.5	3.6	3.6	3.3	3.6	3.7	70.0	2.2	2.4	2.1	2.1	2.2	2.7	2.3	2.2
25 perc'	3.0	3.0	3.0	3.0	3.2	3.0	7.5	3.3	3.0	3.0	3.0	3.0	39.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Min	2.4	2.6	2.8	3.0	3.0	2.6	3.0	2.6	2.8	2.6	3.0	2.6	16.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Figure No. 33: Trend of Biological Oxygen Demand (BOD) levels recorded at WQMS at West flowing riverss (Coastal basin) (1 of 2)



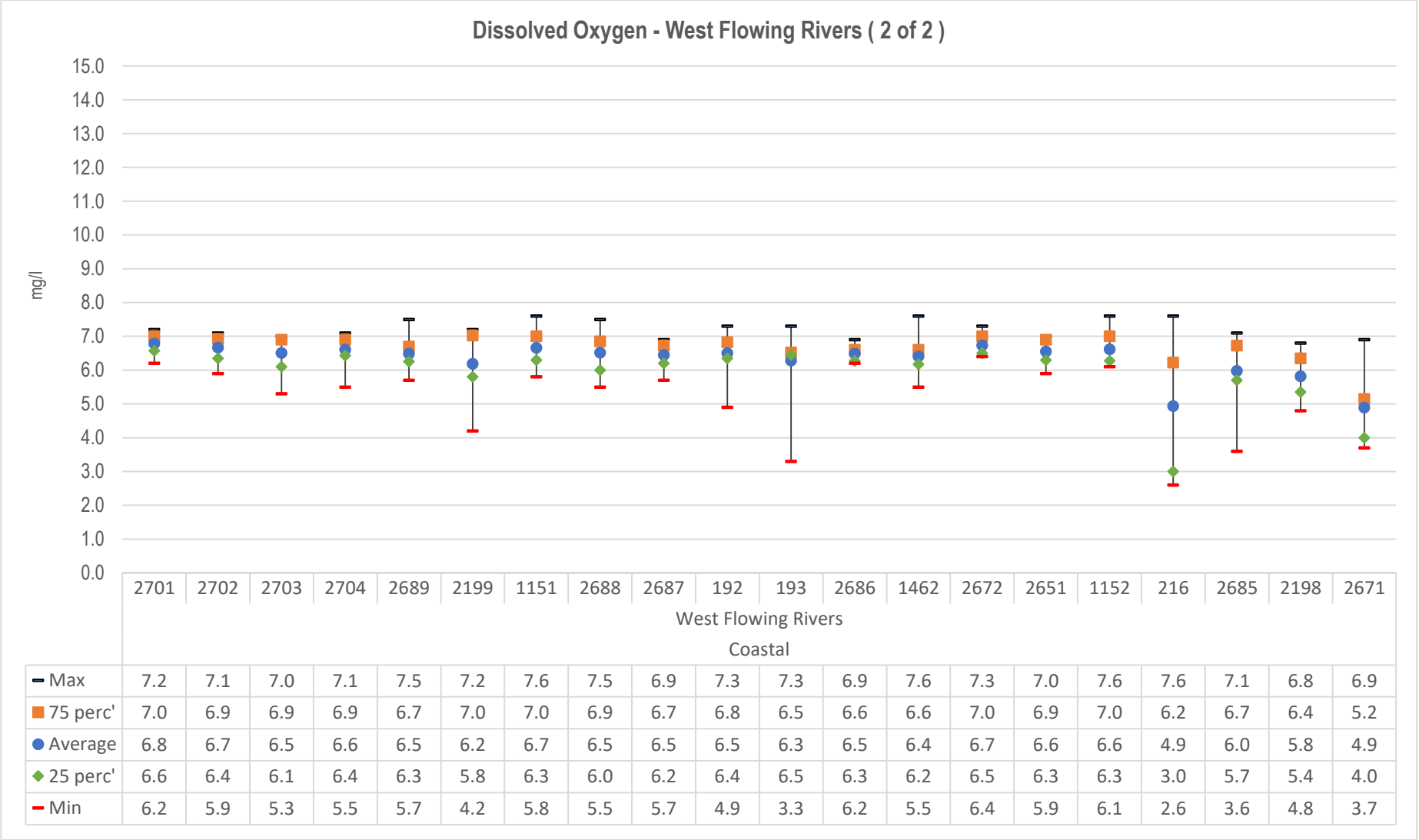
	2654	2653	1094	1093	2162	1461	1092	2712	2709	2707	2706	2696	2168	2714	2676	202	2164	2713	201	203	204
	West Flowing Rivers																				
	Coastal																				
Max	8.4	8.1	8.2	8.0	7.8	8.3	8.2	8.9	8.9	8.4	8.3	8.3	8.2	8.0	8.8	8.2	8.2	8.2	7.7	8.0	8.1
75 perc'	7.8	7.6	7.9	7.4	7.6	8.0	7.5	8.6	8.0	8.0	8.0	8.0	7.3	7.5	8.2	7.9	7.4	7.5	7.4	7.7	7.8
Average	7.5	7.4	7.6	7.3	7.4	7.9	7.3	7.9	7.8	7.7	7.7	7.7	7.3	7.3	7.8	7.6	7.4	7.4	7.3	7.5	7.4
25 perc'	7.0	7.2	7.4	7.1	7.4	7.8	7.0	7.5	7.4	7.4	7.3	7.5	7.1	7.2	7.4	7.3	7.3	7.3	7.2	7.3	7.3
Min	6.4	6.5	6.9	6.4	6.6	7.3	6.5	6.8	6.8	7.1	6.8	7.0	6.9	6.7	7.1	7.1	6.5	6.8	6.8	6.9	6.7

Figure No. 34: Trend of pH levels recorded at WQMS at West flowing rivers (Coastal basin) (1 of 2)



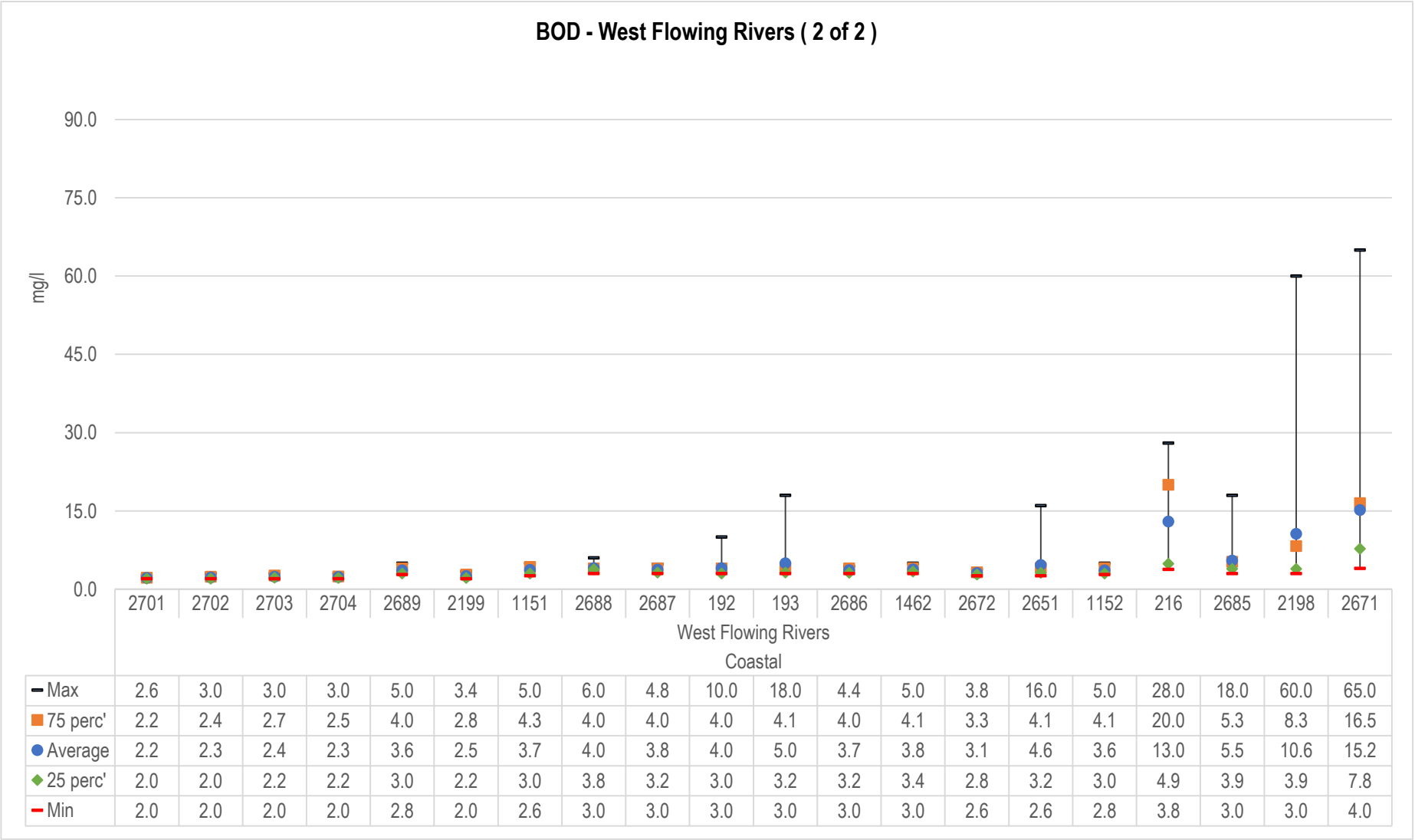
	2654	2653	1094	1093	2162	1461	1092	2712	2709	2707	2706	2696	2168	2714	2676	202	2164	2713	201	203	204
Max	430.0	920.0	43.0	49.0	33.0	46.0	110.0	34.0	49.0	130.0	220.0	110.0	920.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	62.8	91.8	21.3	22.3	23.0	23.5	79.0	33.0	31.0	18.0	10.3	22.5	920.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	83.4	141.7	15.9	19.5	16.3	16.3	73.6	20.9	23.4	21.9	26.1	24.4	566.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	15.8	16.0	8.5	16.5	8.9	5.9	68.3	10.5	11.0	7.6	3.9	11.0	270.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min	7.0	6.8	4.5	2.0	2.0	2.0	34.0	4.0	4.5	1.8	1.8	4.0	220.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure No. 35: Trend of Fecal Coliform recorded at WQMS at West flowing rivers (Coastal basin) (1 of 2)



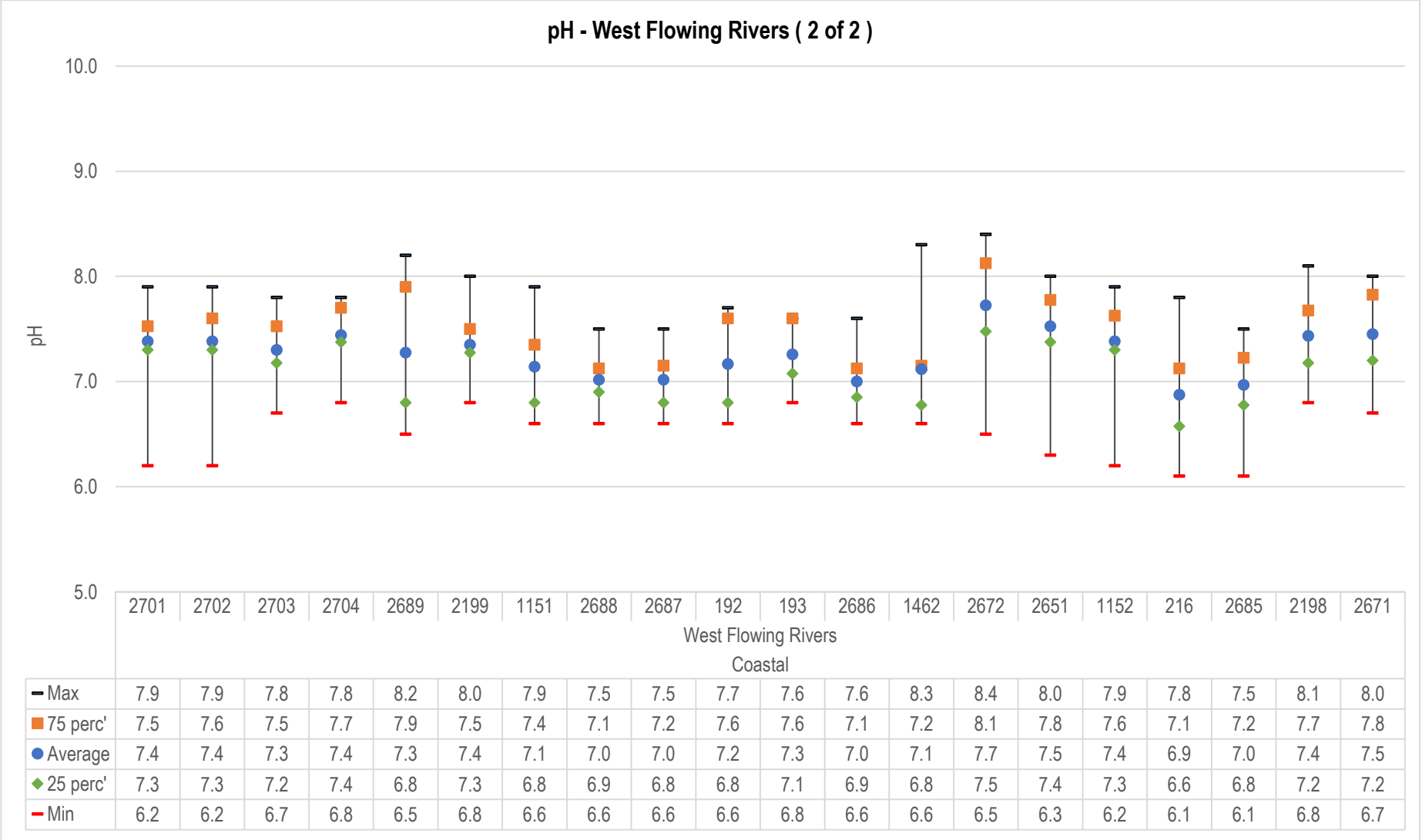
	2701	2702	2703	2704	2689	2199	1151	2688	2687	192	193	2686	1462	2672	2651	1152	216	2685	2198	2671
Max	7.2	7.1	7.0	7.1	7.5	7.2	7.6	7.5	6.9	7.3	7.3	6.9	7.6	7.3	7.0	7.6	7.6	7.1	6.8	6.9
75 perc'	7.0	6.9	6.9	6.9	6.7	7.0	7.0	6.9	6.7	6.8	6.5	6.6	6.6	7.0	6.9	7.0	6.2	6.7	6.4	5.2
Average	6.8	6.7	6.5	6.6	6.5	6.2	6.7	6.5	6.5	6.5	6.3	6.5	6.4	6.7	6.6	6.6	4.9	6.0	5.8	4.9
25 perc'	6.6	6.4	6.1	6.4	6.3	5.8	6.3	6.0	6.2	6.4	6.5	6.3	6.2	6.5	6.3	6.3	3.0	5.7	5.4	4.0
Min	6.2	5.9	5.3	5.5	5.7	4.2	5.8	5.5	5.7	4.9	3.3	6.2	5.5	6.4	5.9	6.1	2.6	3.6	4.8	3.7

Figure No. 36: Trend of Dissolved Oxygen (DO) levels recorded at WQMS at West flowing riverss (Coastal basin) (2 of 2)



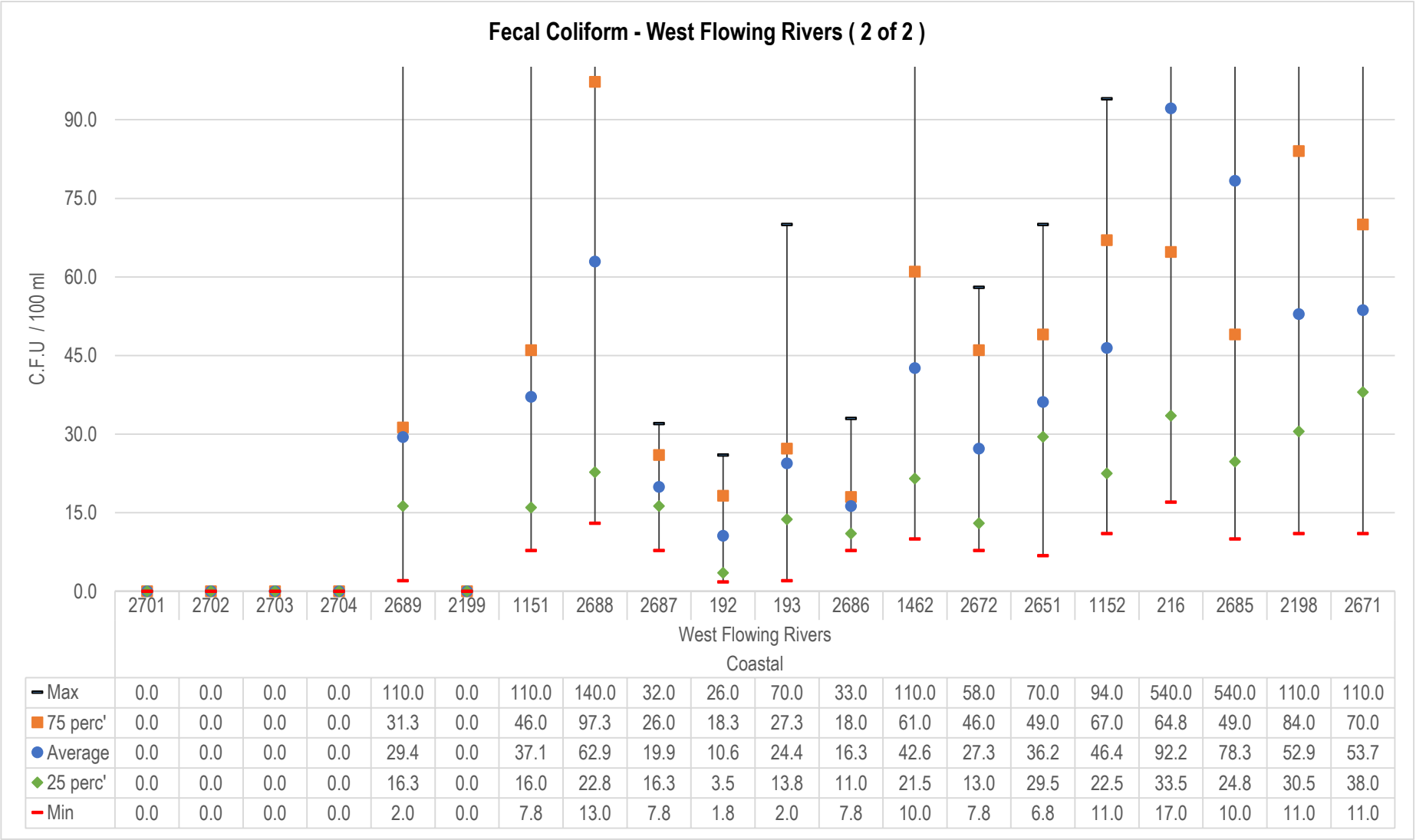
	2701	2702	2703	2704	2689	2199	1151	2688	2687	192	193	2686	1462	2672	2651	1152	216	2685	2198	2671
Max	2.6	3.0	3.0	3.0	5.0	3.4	5.0	6.0	4.8	10.0	18.0	4.4	5.0	3.8	16.0	5.0	28.0	18.0	60.0	65.0
75 perc'	2.2	2.4	2.7	2.5	4.0	2.8	4.3	4.0	4.0	4.0	4.1	4.0	4.1	3.3	4.1	4.1	20.0	5.3	8.3	16.5
Average	2.2	2.3	2.4	2.3	3.6	2.5	3.7	4.0	3.8	4.0	5.0	3.7	3.8	3.1	4.6	3.6	13.0	5.5	10.6	15.2
25 perc'	2.0	2.0	2.2	2.2	3.0	2.2	3.0	3.8	3.2	3.0	3.2	3.2	3.4	2.8	3.2	3.0	4.9	3.9	3.9	7.8
Min	2.0	2.0	2.0	2.0	2.8	2.0	2.6	3.0	3.0	3.0	3.0	3.0	3.0	2.6	2.6	2.8	3.8	3.0	3.0	4.0

Figure No. 37: Trend ofBiological Oxygen Demand (BOD) levels recorded at WQMS at West flowing rivers (Coastal basin) (2 of 2)



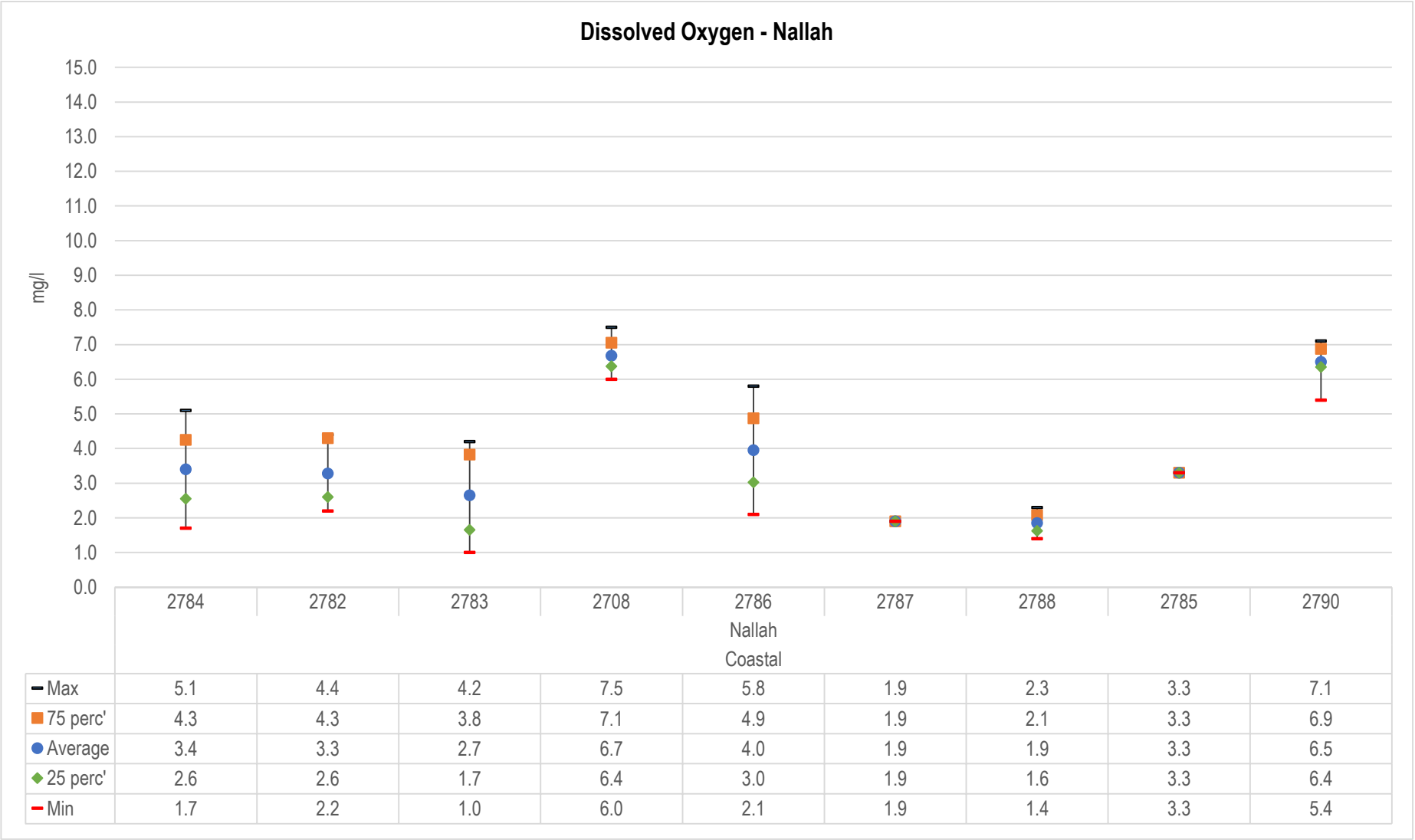
	2701	2702	2703	2704	2689	2199	1151	2688	2687	192	193	2686	1462	2672	2651	1152	216	2685	2198	2671
Max	7.9	7.9	7.8	7.8	8.2	8.0	7.9	7.5	7.5	7.7	7.6	7.6	8.3	8.4	8.0	7.9	7.8	7.5	8.1	8.0
75 perc'	7.5	7.6	7.5	7.7	7.9	7.5	7.4	7.1	7.2	7.6	7.6	7.1	7.2	8.1	7.8	7.6	7.1	7.2	7.7	7.8
Average	7.4	7.4	7.3	7.4	7.3	7.4	7.1	7.0	7.0	7.2	7.3	7.0	7.1	7.7	7.5	7.4	6.9	7.0	7.4	7.5
25 perc'	7.3	7.3	7.2	7.4	6.8	7.3	6.8	6.9	6.8	6.8	7.1	6.9	6.8	7.5	7.4	7.3	6.6	6.8	7.2	7.2
Min	6.2	6.2	6.7	6.8	6.5	6.8	6.6	6.6	6.6	6.6	6.8	6.6	6.6	6.5	6.3	6.2	6.1	6.1	6.8	6.7

Figure No. 38 : Trend of pH levels recorded at WQMS at West flowing s (Coastal basin) (2 of 2)



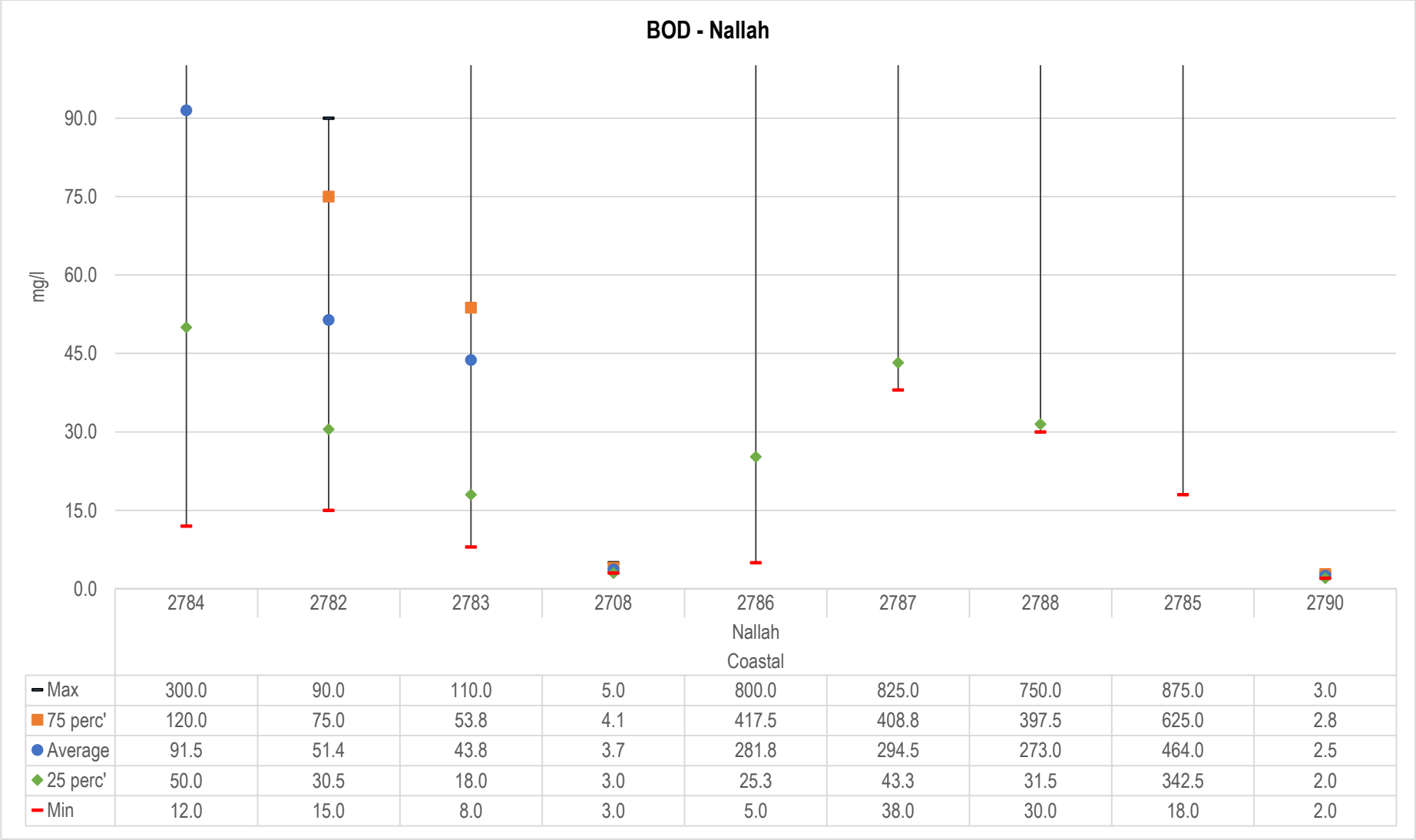
	2701	2702	2703	2704	2689	2199	1151	2688	2687	192	193	2686	1462	2672	2651	1152	216	2685	2198	2671
Max	0.0	0.0	0.0	0.0	110.0	0.0	110.0	140.0	32.0	26.0	70.0	33.0	110.0	58.0	70.0	94.0	540.0	540.0	110.0	110.0
75 perc'	0.0	0.0	0.0	0.0	31.3	0.0	46.0	97.3	26.0	18.3	27.3	18.0	61.0	46.0	49.0	67.0	64.8	49.0	84.0	70.0
Average	0.0	0.0	0.0	0.0	29.4	0.0	37.1	62.9	19.9	10.6	24.4	16.3	42.6	27.3	36.2	46.4	92.2	78.3	52.9	53.7
25 perc'	0.0	0.0	0.0	0.0	16.3	0.0	16.0	22.8	16.3	3.5	13.8	11.0	21.5	13.0	29.5	22.5	33.5	24.8	30.5	38.0
Min	0.0	0.0	0.0	0.0	2.0	0.0	7.8	13.0	7.8	1.8	2.0	7.8	10.0	7.8	6.8	11.0	17.0	10.0	11.0	11.0

Figure No. 39: Trend of Fecal Coliform recorded at WQMS at West flowing rivers (Coastal basin) (2 of 2)



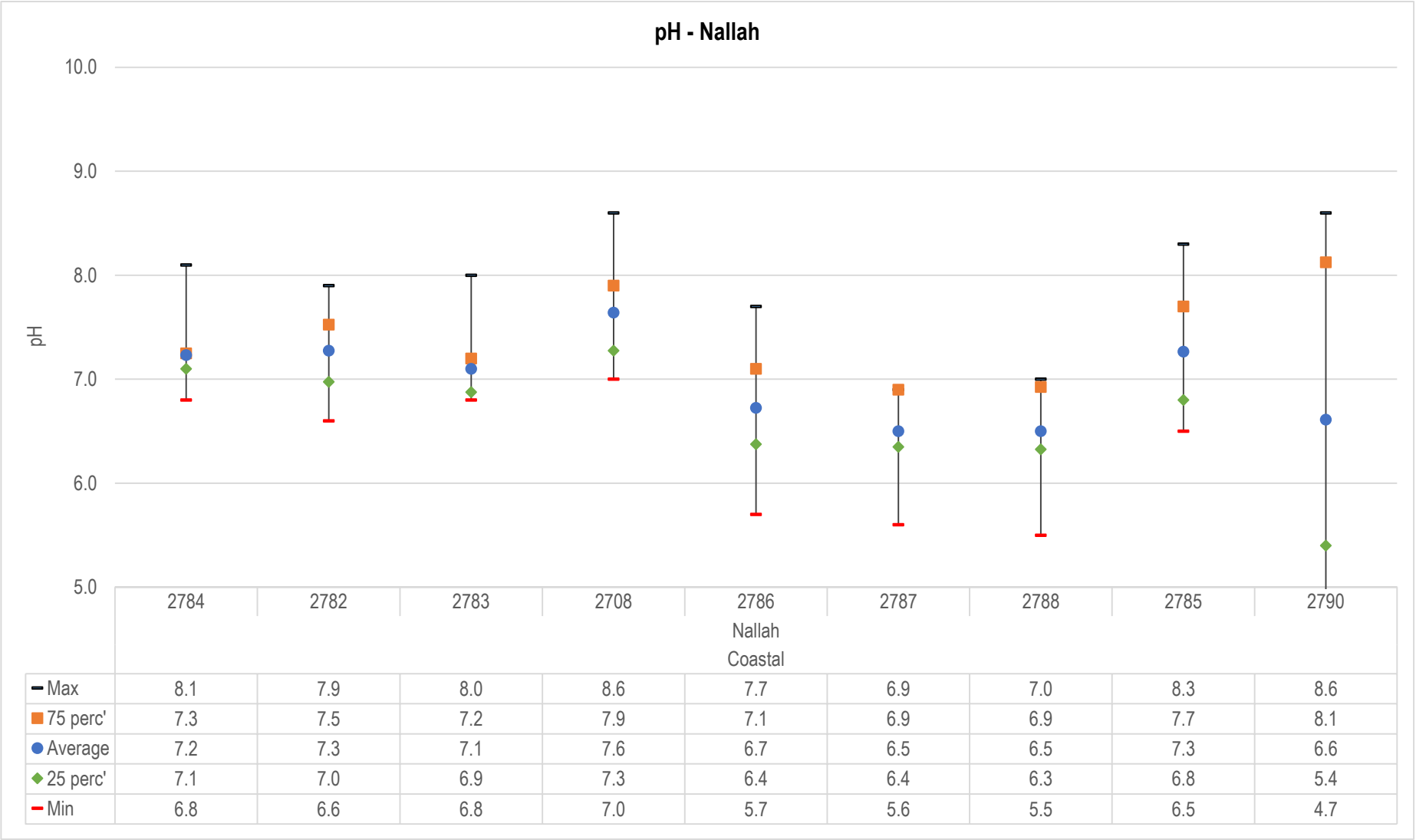
	2784	2782	2783	2708	2786	2787	2788	2785	2790
	Nallah								
	Coastal								
Max	5.1	4.4	4.2	7.5	5.8	1.9	2.3	3.3	7.1
75 perc'	4.3	4.3	3.8	7.1	4.9	1.9	2.1	3.3	6.9
Average	3.4	3.3	2.7	6.7	4.0	1.9	1.9	3.3	6.5
25 perc'	2.6	2.6	1.7	6.4	3.0	1.9	1.6	3.3	6.4
Min	1.7	2.2	1.0	6.0	2.1	1.9	1.4	3.3	5.4

Figure No. 40 : Trend of Dissolved Oxygen (DO) levels recorded at WQMS at Nallah (Coastal basin)



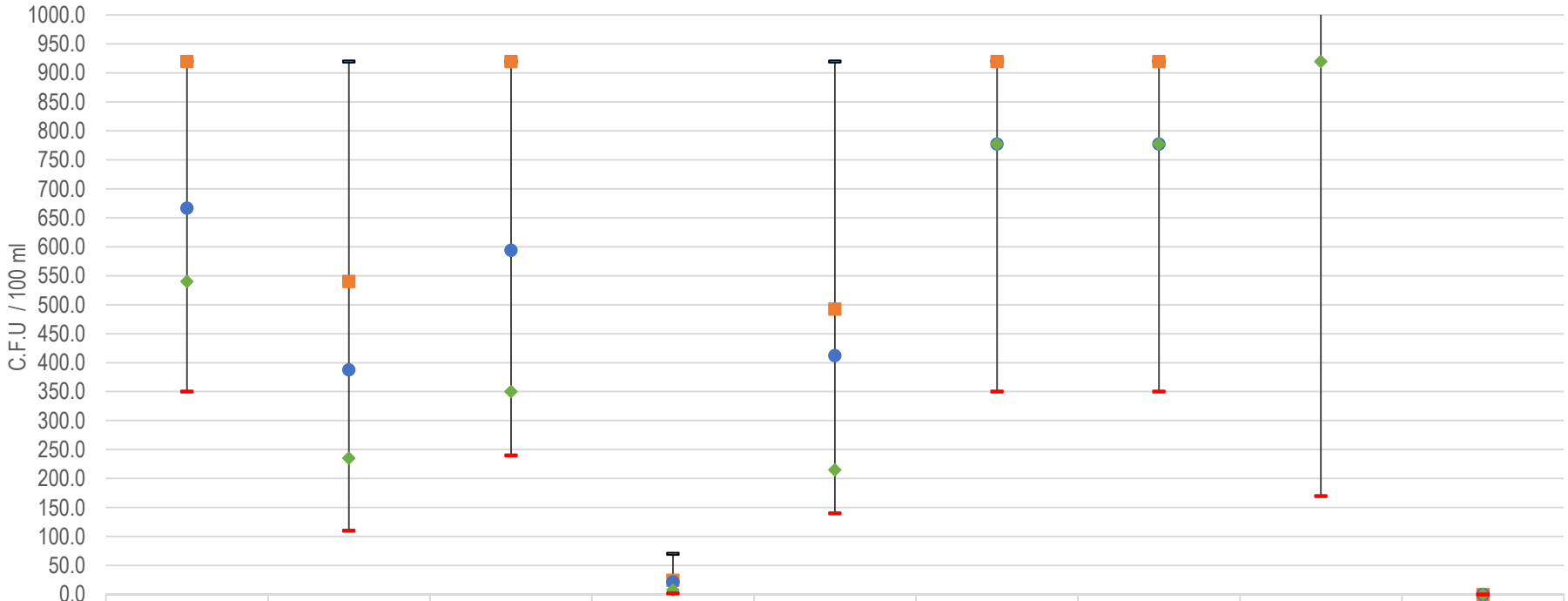
	2784	2782	2783	2708	2786	2787	2788	2785	2790
					Nallah				
					Coastal				
Max	300.0	90.0	110.0	5.0	800.0	825.0	750.0	875.0	3.0
75 perc'	120.0	75.0	53.8	4.1	417.5	408.8	397.5	625.0	2.8
Average	91.5	51.4	43.8	3.7	281.8	294.5	273.0	464.0	2.5
25 perc'	50.0	30.5	18.0	3.0	25.3	43.3	31.5	342.5	2.0
Min	12.0	15.0	8.0	3.0	5.0	38.0	30.0	18.0	2.0

Figure No. 41 : Trend of Biological Oxygen Demand (BOD) levels recorded at WQMS at Nallah (Coastal basin)



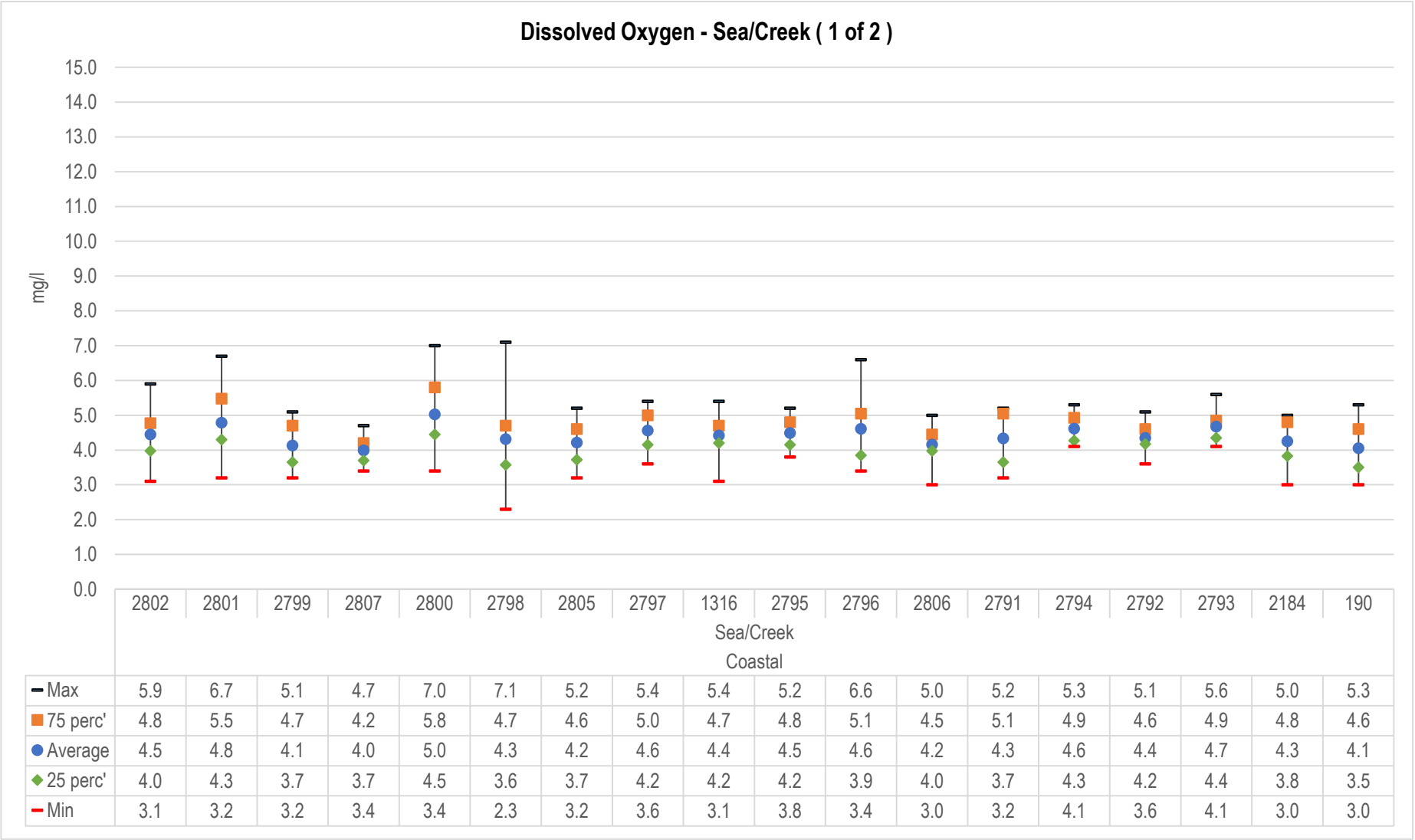
	2784	2782	2783	2708	2786	2787	2788	2785	2790
	Nallah								
	Coastal								
Max	8.1	7.9	8.0	8.6	7.7	6.9	7.0	8.3	8.6
75 perc'	7.3	7.5	7.2	7.9	7.1	6.9	6.9	7.7	8.1
Average	7.2	7.3	7.1	7.6	6.7	6.5	6.5	7.3	6.6
25 perc'	7.1	7.0	6.9	7.3	6.4	6.4	6.3	6.8	5.4
Min	6.8	6.6	6.8	7.0	5.7	5.6	5.5	6.5	4.7

Figure No. 42: Trend of pH levels recorded at WQMS at Nallah (Coastal basin)



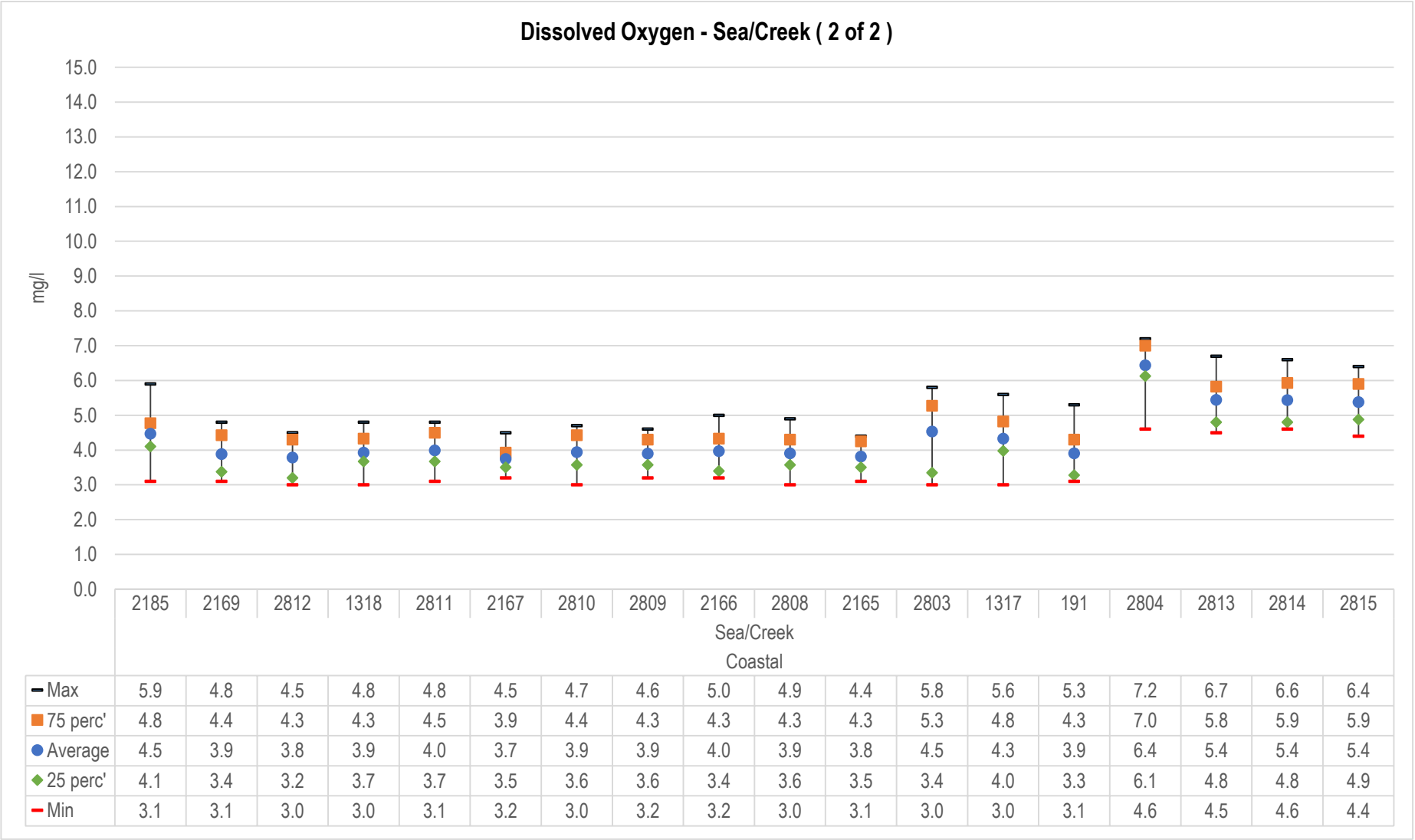
Nallah Coastal	2784	2782	2783	2708	2786	2787	2788	2785	2790
Max	920.0	920.0	920.0	70.0	920.0	920.0	920.0	1600.0	0.0
75 perc'	920.0	540.0	920.0	24.5	492.5	920.0	920.0	1600.0	0.0
Average	666.7	387.5	594.2	21.7	412.5	777.5	777.5	1052.5	0.0
25 perc'	540.0	235.0	350.0	7.8	215.0	777.5	777.5	920.0	0.0
Min	350.0	110.0	240.0	1.8	140.0	350.0	350.0	170.0	0.0

Figure No. 43: Trend of Fecal Coliform levels recorded at WQMS at Nallah (Coastal basin)



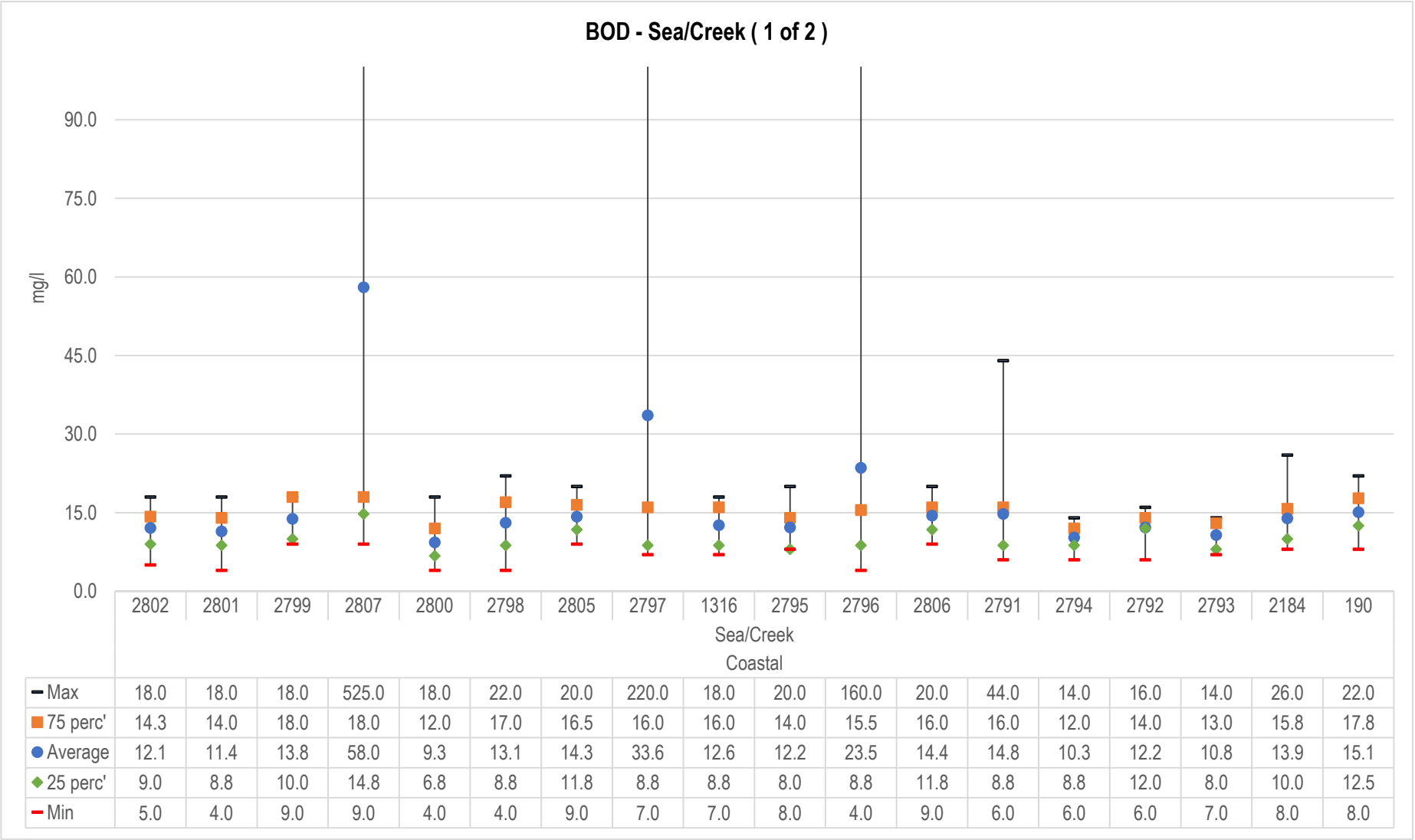
	2802	2801	2799	2807	2800	2798	2805	2797	1316	2795	2796	2806	2791	2794	2792	2793	2184	190
Max	5.9	6.7	5.1	4.7	7.0	7.1	5.2	5.4	5.4	5.2	6.6	5.0	5.2	5.3	5.1	5.6	5.0	5.3
75 perc'	4.8	5.5	4.7	4.2	5.8	4.7	4.6	5.0	4.7	4.8	5.1	4.5	5.1	4.9	4.6	4.9	4.8	4.6
Average	4.5	4.8	4.1	4.0	5.0	4.3	4.2	4.6	4.4	4.5	4.6	4.2	4.3	4.6	4.4	4.7	4.3	4.1
25 perc'	4.0	4.3	3.7	3.7	4.5	3.6	3.7	4.2	4.2	4.2	3.9	4.0	3.7	4.3	4.2	4.4	3.8	3.5
Min	3.1	3.2	3.2	3.4	3.4	2.3	3.2	3.6	3.1	3.8	3.4	3.0	3.2	4.1	3.6	4.1	3.0	3.0

Figure No. 44: Trend of Dissoved Oxygen (DO) levels recorded at WQMS monitoring sea and creek water (1 of 2)



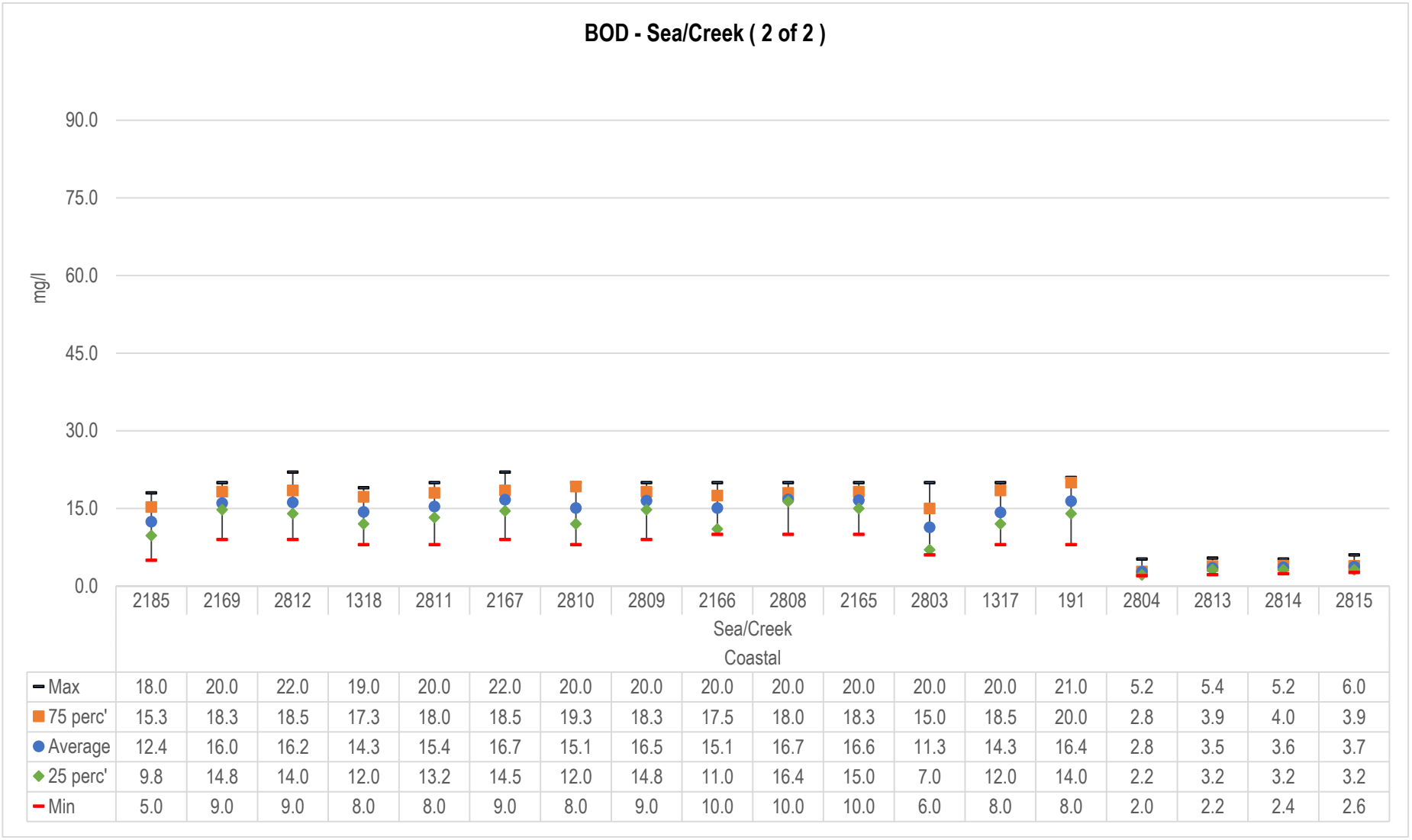
	2185	2169	2812	1318	2811	2167	2810	2809	2166	2808	2165	2803	1317	191	2804	2813	2814	2815
Max	5.9	4.8	4.5	4.8	4.8	4.5	4.7	4.6	5.0	4.9	4.4	5.8	5.6	5.3	7.2	6.7	6.6	6.4
75 perc'	4.8	4.4	4.3	4.3	4.5	3.9	4.4	4.3	4.3	4.3	4.3	5.3	4.8	4.3	7.0	5.8	5.9	5.9
Average	4.5	3.9	3.8	3.9	4.0	3.7	3.9	3.9	4.0	3.9	3.8	4.5	4.3	3.9	6.4	5.4	5.4	5.4
25 perc'	4.1	3.4	3.2	3.7	3.7	3.5	3.6	3.6	3.4	3.6	3.5	3.4	4.0	3.3	6.1	4.8	4.8	4.9
Min	3.1	3.1	3.0	3.0	3.1	3.2	3.0	3.2	3.2	3.0	3.1	3.0	3.0	3.1	4.6	4.5	4.6	4.4

Figure No. 45: Trend of Dissoved Oxygen (DO) levels recorded at WQMS monitoring sea and creek water (2 of 2)



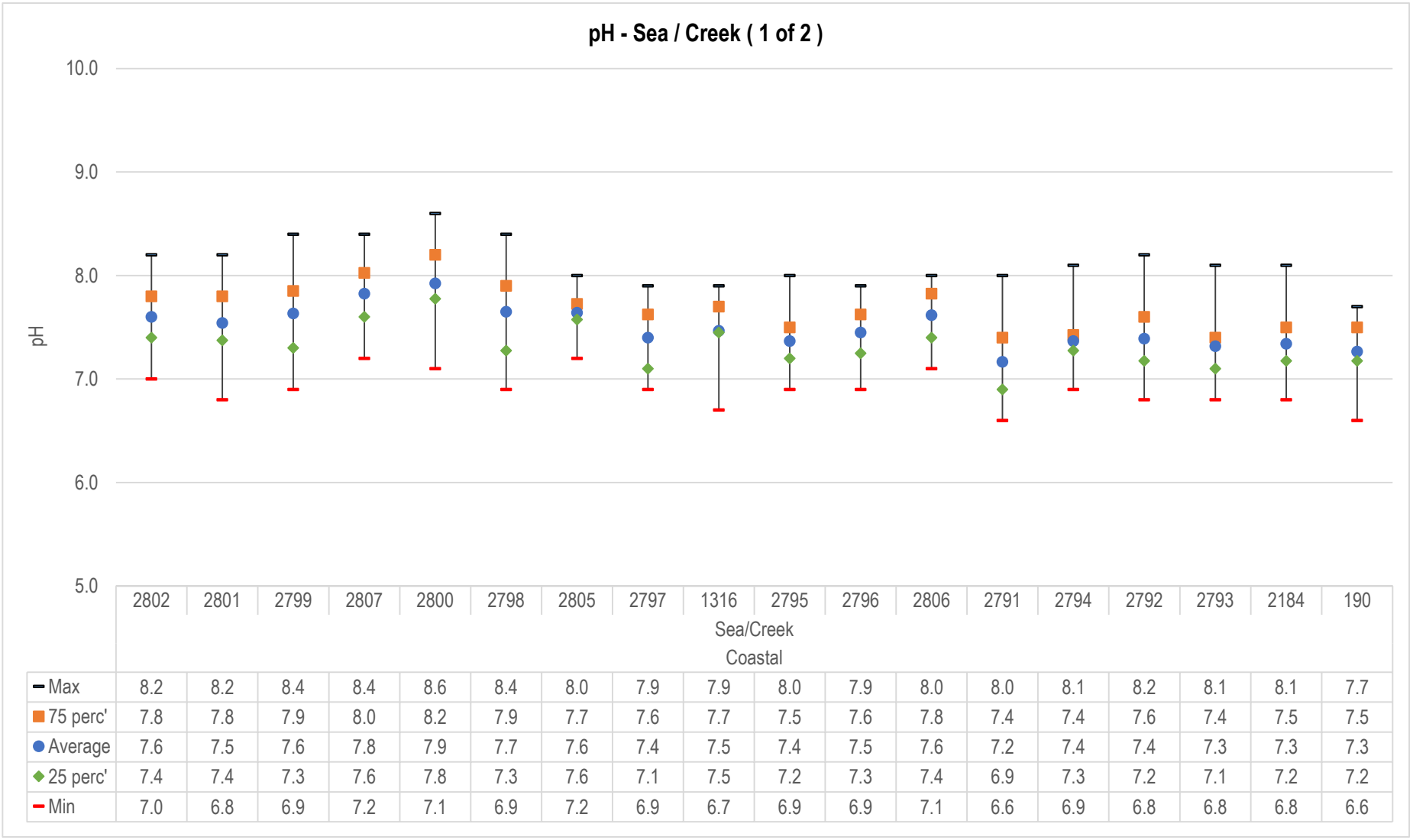
	2802	2801	2799	2807	2800	2798	2805	2797	1316	2795	2796	2806	2791	2794	2792	2793	2184	190
Max	18.0	18.0	18.0	525.0	18.0	22.0	20.0	220.0	18.0	20.0	160.0	20.0	44.0	14.0	16.0	14.0	26.0	22.0
75 perc'	14.3	14.0	18.0	18.0	12.0	17.0	16.5	16.0	16.0	14.0	15.5	16.0	16.0	12.0	14.0	13.0	15.8	17.8
Average	12.1	11.4	13.8	58.0	9.3	13.1	14.3	33.6	12.6	12.2	23.5	14.4	14.8	10.3	12.2	10.8	13.9	15.1
25 perc'	9.0	8.8	10.0	14.8	6.8	8.8	11.8	8.8	8.8	8.0	8.8	11.8	8.8	8.8	12.0	8.0	10.0	12.5
Min	5.0	4.0	9.0	9.0	4.0	4.0	9.0	7.0	7.0	8.0	4.0	9.0	6.0	6.0	6.0	7.0	8.0	8.0

Figure No. 46: Trend ofBiological Oxygen Demand (BOD) levels recorded at WQMS monitoring sea and creek water (1 of 2)



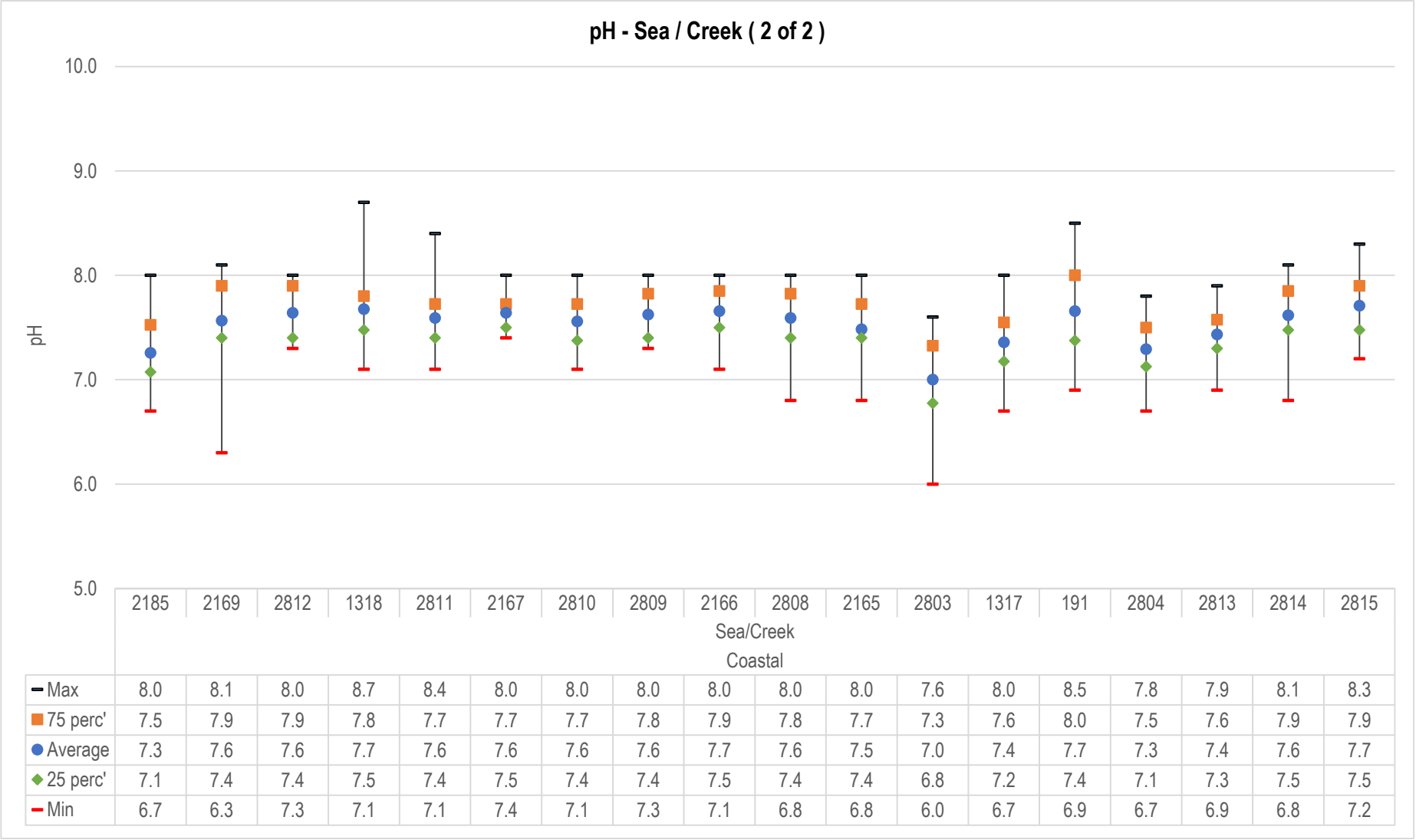
	2185	2169	2812	1318	2811	2167	2810	2809	2166	2808	2165	2803	1317	191	2804	2813	2814	2815
Max	18.0	20.0	22.0	19.0	20.0	22.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	21.0	5.2	5.4	5.2	6.0
75 perc'	15.3	18.3	18.5	17.3	18.0	18.5	19.3	18.3	17.5	18.0	18.3	15.0	18.5	20.0	2.8	3.9	4.0	3.9
Average	12.4	16.0	16.2	14.3	15.4	16.7	15.1	16.5	15.1	16.7	16.6	11.3	14.3	16.4	2.8	3.5	3.6	3.7
25 perc'	9.8	14.8	14.0	12.0	13.2	14.5	12.0	14.8	11.0	16.4	15.0	7.0	12.0	14.0	2.2	3.2	3.2	3.2
Min	5.0	9.0	9.0	8.0	8.0	9.0	8.0	9.0	10.0	10.0	10.0	6.0	8.0	8.0	2.0	2.2	2.4	2.6

Figure No. 47: Trend ofBiological Oxygen Demand (BOD) levels recorded at WQMS monitoring sea and creek water (2 of 2)



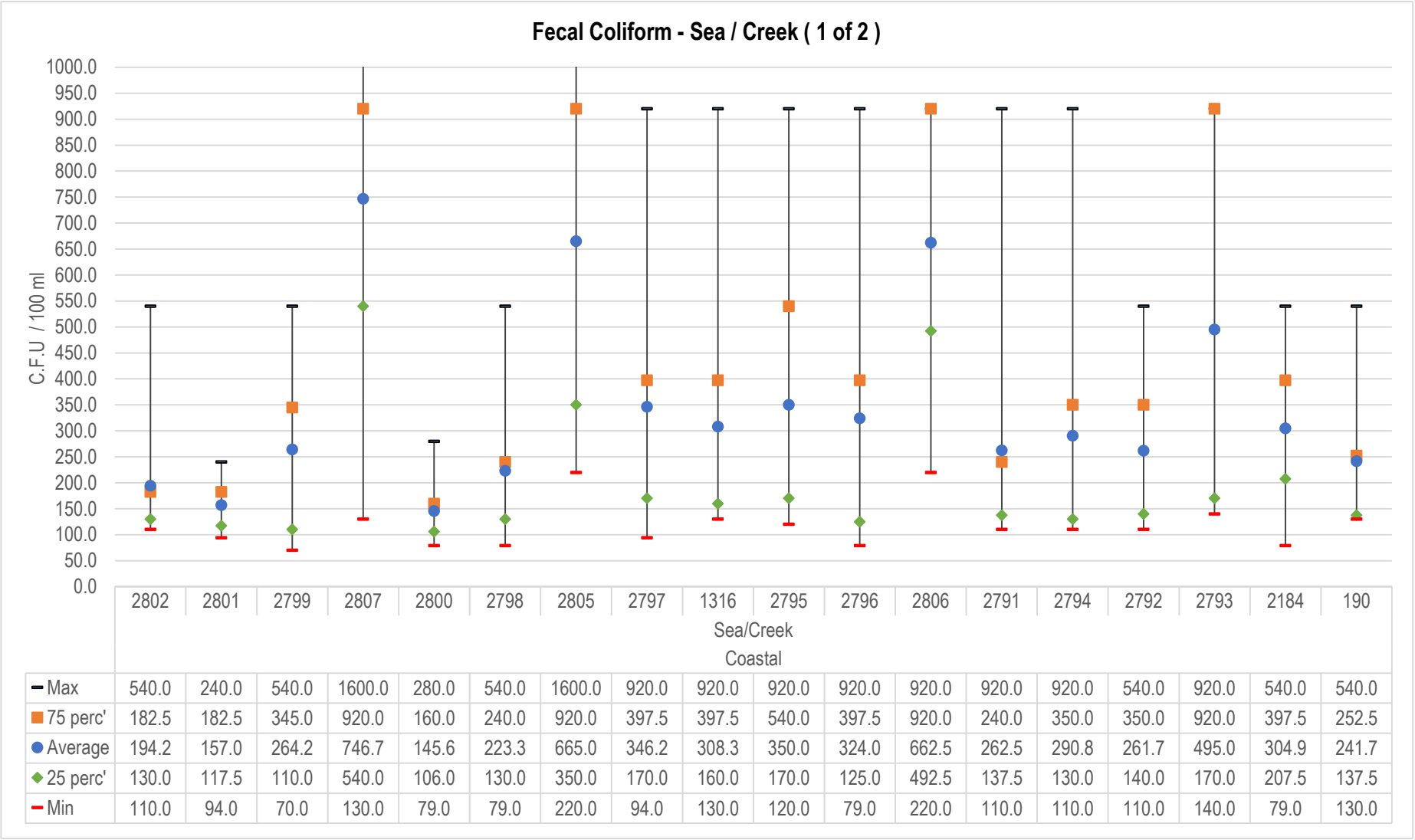
	2802	2801	2799	2807	2800	2798	2805	2797	1316	2795	2796	2806	2791	2794	2792	2793	2184	190
	Sea/Creek																	
	Coastal																	
Max	8.2	8.2	8.4	8.4	8.6	8.4	8.0	7.9	7.9	8.0	7.9	8.0	8.0	8.1	8.2	8.1	8.1	7.7
75 perc'	7.8	7.8	7.9	8.0	8.2	7.9	7.7	7.6	7.7	7.5	7.6	7.8	7.4	7.4	7.6	7.4	7.5	7.5
Average	7.6	7.5	7.6	7.8	7.9	7.7	7.6	7.4	7.5	7.4	7.5	7.6	7.2	7.4	7.4	7.3	7.3	7.3
25 perc'	7.4	7.4	7.3	7.6	7.8	7.3	7.6	7.1	7.5	7.2	7.3	7.4	6.9	7.3	7.2	7.1	7.2	7.2
Min	7.0	6.8	6.9	7.2	7.1	6.9	7.2	6.9	6.7	6.9	6.9	7.1	6.6	6.9	6.8	6.8	6.8	6.6

Figure No. 48: Trend of pH levels recorded at WQMS monitoring sea and creek water (1 of 2)



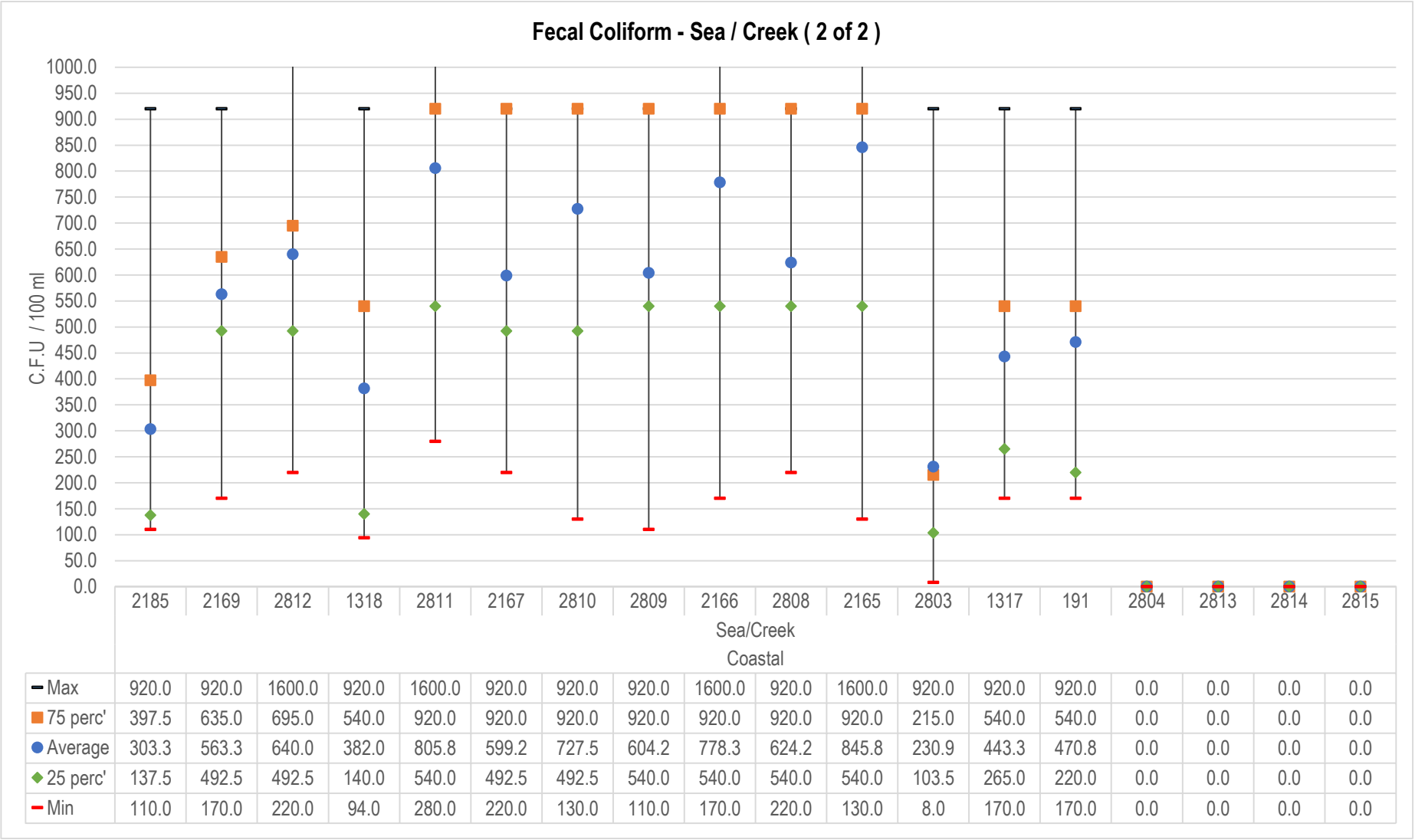
	2185	2169	2812	1318	2811	2167	2810	2809	2166	2808	2165	2803	1317	191	2804	2813	2814	2815
Max	8.0	8.1	8.0	8.7	8.4	8.0	8.0	8.0	8.0	8.0	8.0	7.6	8.0	8.5	7.8	7.9	8.1	8.3
75 perc'	7.5	7.9	7.9	7.8	7.7	7.7	7.7	7.8	7.9	7.8	7.7	7.3	7.6	8.0	7.5	7.6	7.9	7.9
Average	7.3	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.7	7.6	7.5	7.0	7.4	7.7	7.3	7.4	7.6	7.7
25 perc'	7.1	7.4	7.4	7.5	7.4	7.5	7.4	7.4	7.5	7.4	7.4	6.8	7.2	7.4	7.1	7.3	7.5	7.5
Min	6.7	6.3	7.3	7.1	7.1	7.4	7.1	7.3	7.1	6.8	6.8	6.0	6.7	6.9	6.7	6.9	6.8	7.2

Figure No. 49: Trend of pH levels recorded at WQMS monitoring sea and creek water (2 of 2)



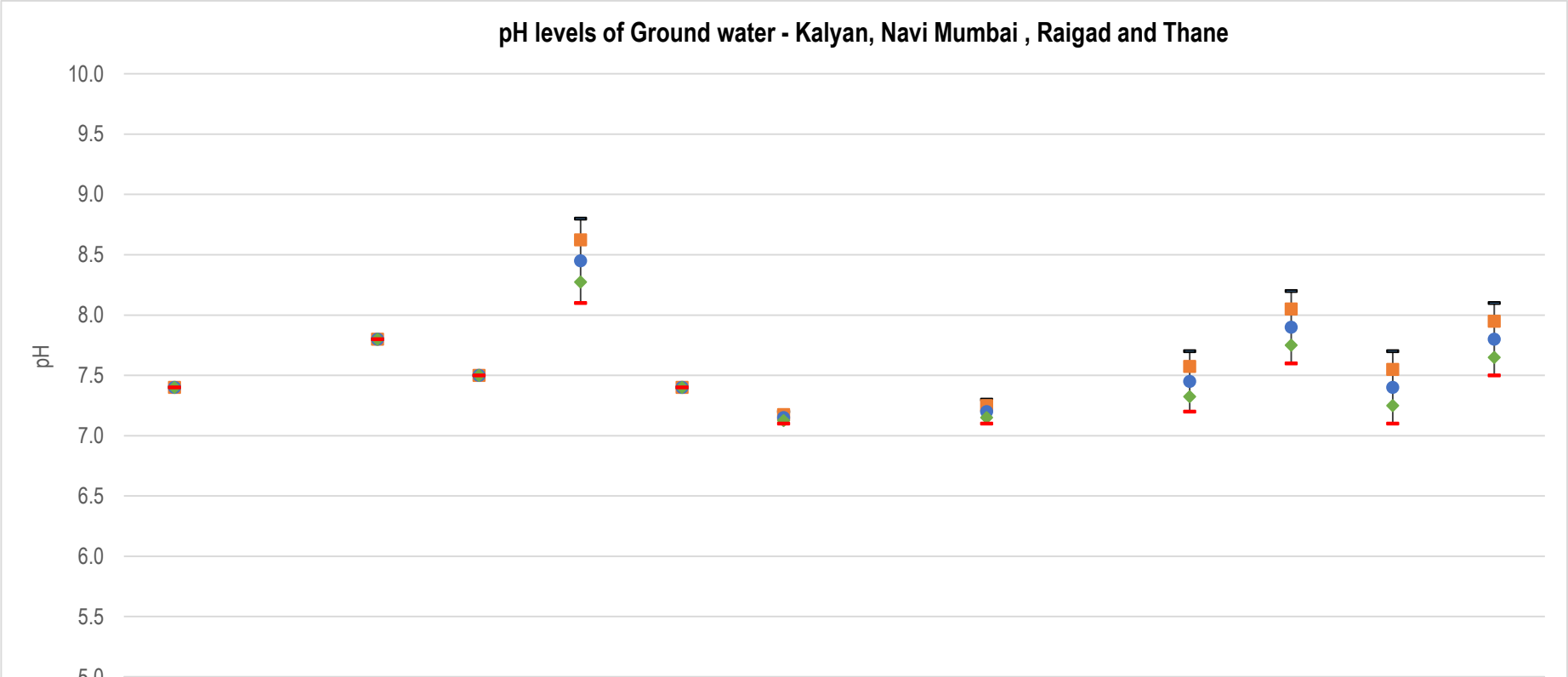
	2802	2801	2799	2807	2800	2798	2805	2797	1316	2795	2796	2806	2791	2794	2792	2793	2184	190
Max	540.0	240.0	540.0	1600.0	280.0	540.0	1600.0	920.0	920.0	920.0	920.0	920.0	920.0	920.0	540.0	920.0	540.0	540.0
75 perc'	182.5	182.5	345.0	920.0	160.0	240.0	920.0	397.5	397.5	540.0	397.5	920.0	240.0	350.0	350.0	920.0	397.5	252.5
Average	194.2	157.0	264.2	746.7	145.6	223.3	665.0	346.2	308.3	350.0	324.0	662.5	262.5	290.8	261.7	495.0	304.9	241.7
25 perc'	130.0	117.5	110.0	540.0	106.0	130.0	350.0	170.0	160.0	170.0	125.0	492.5	137.5	130.0	140.0	170.0	207.5	137.5
Min	110.0	94.0	70.0	130.0	79.0	79.0	220.0	94.0	130.0	120.0	79.0	220.0	110.0	110.0	110.0	140.0	79.0	130.0

Figure No. 50: Trend of Fecal coliform levels recorded at WQMS monitoring sea and creek water (1 of 2)



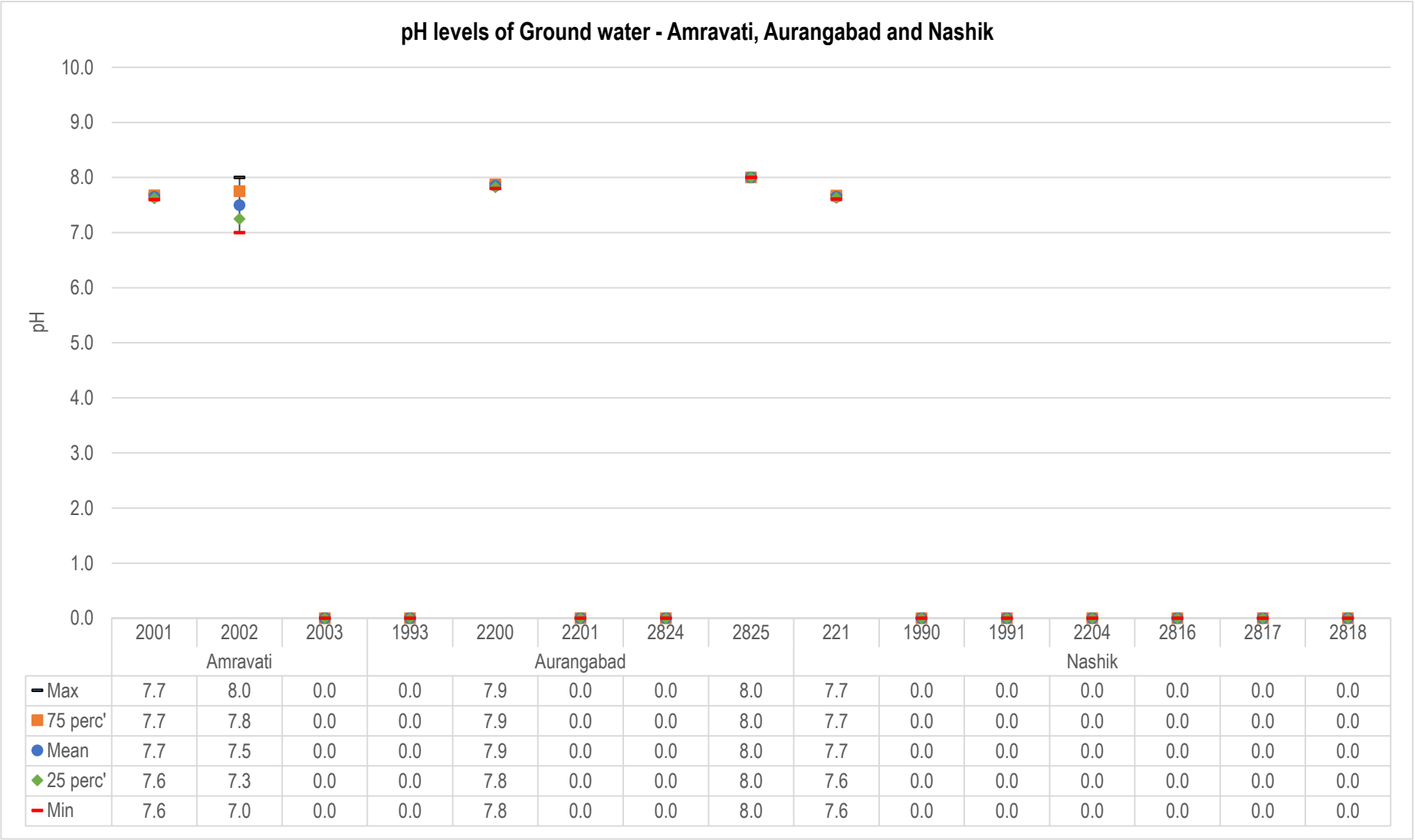
	2185	2169	2812	1318	2811	2167	2810	2809	2166	2808	2165	2803	1317	191	2804	2813	2814	2815
Max	920.0	920.0	1600.0	920.0	1600.0	920.0	920.0	920.0	1600.0	920.0	1600.0	920.0	920.0	920.0	0.0	0.0	0.0	0.0
75 perc'	397.5	635.0	695.0	540.0	920.0	920.0	920.0	920.0	920.0	920.0	920.0	215.0	540.0	540.0	0.0	0.0	0.0	0.0
Average	303.3	563.3	640.0	382.0	805.8	599.2	727.5	604.2	778.3	624.2	845.8	230.9	443.3	470.8	0.0	0.0	0.0	0.0
25 perc'	137.5	492.5	492.5	140.0	540.0	492.5	492.5	540.0	540.0	540.0	540.0	103.5	265.0	220.0	0.0	0.0	0.0	0.0
Min	110.0	170.0	220.0	94.0	280.0	220.0	130.0	110.0	170.0	220.0	130.0	8.0	170.0	170.0	0.0	0.0	0.0	0.0

Figure No. 51: Trend of Fecal coliform levels recorded at WQMS monitoring sea and creek water (2 of 2)



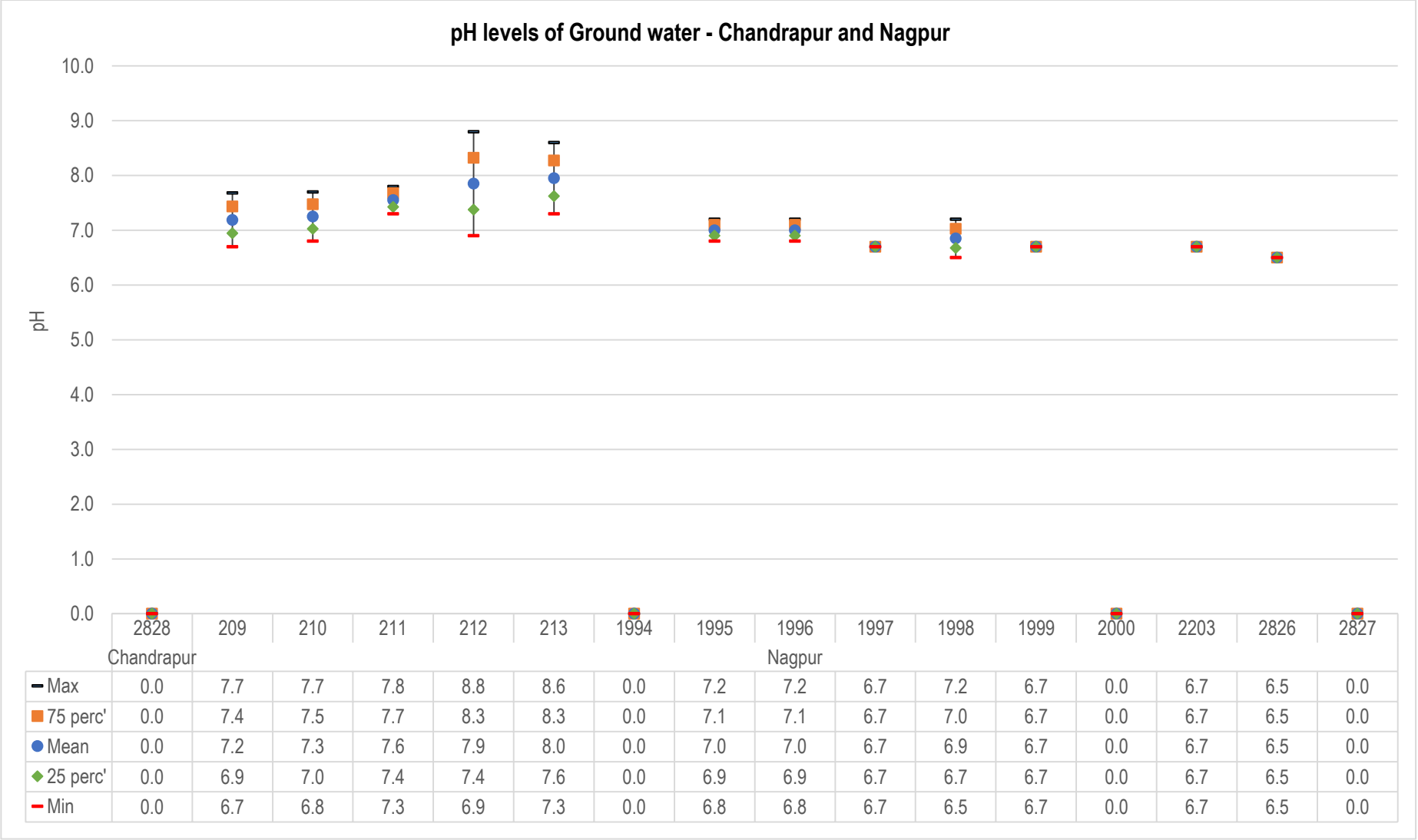
	205	206	207	208	214	215	217	218	1989	1984	1985	1986	1987	1988
	Kalyan				Navi Mumbai		Raigad			Thane				
Max	7.4	0.0	7.8	7.5	8.8	7.4	7.2	0.0	7.3	0.0	7.7	8.2	7.7	8.1
75 perc'	7.4	0.0	7.8	7.5	8.6	7.4	7.2	0.0	7.3	0.0	7.6	8.1	7.6	8.0
Mean	7.4	0.0	7.8	7.5	8.5	7.4	7.2	0.0	7.2	0.0	7.5	7.9	7.4	7.8
25 perc'	7.4	0.0	7.8	7.5	8.3	7.4	7.1	0.0	7.2	0.0	7.3	7.8	7.3	7.7
Min	7.4	0.0	7.8	7.5	8.1	7.4	7.1	0.0	7.1	0.0	7.2	7.6	7.1	7.5

Figure No.52: Parametric values of pH recorded at WQMS monitoring ground water at Kalyan, Navi Mumbai, Raigad and Thane.



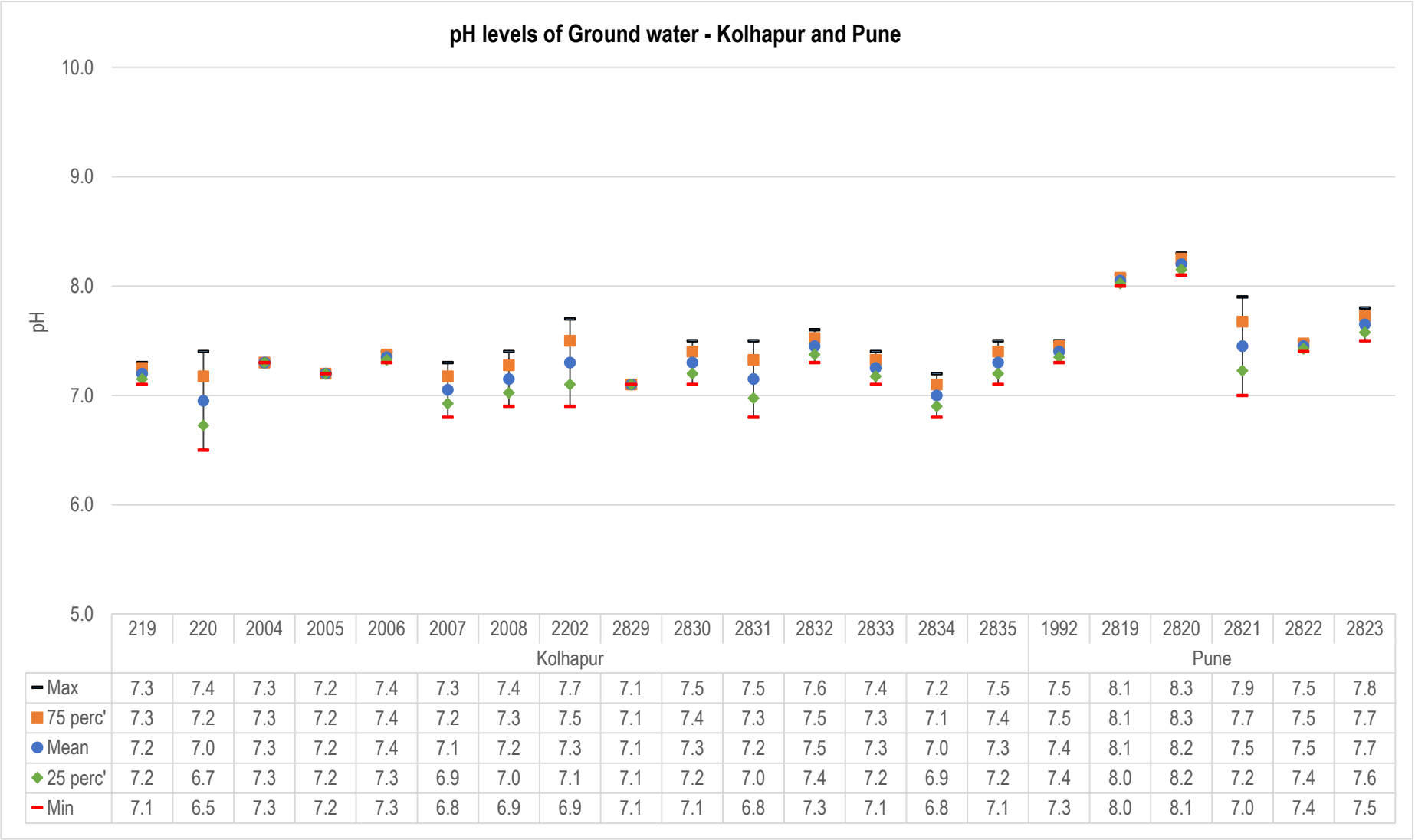
	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
	Amravati			Aurangabad					Nashik						
Max	7.7	8.0	0.0	0.0	7.9	0.0	0.0	8.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	7.7	7.8	0.0	0.0	7.9	0.0	0.0	8.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
Mean	7.7	7.5	0.0	0.0	7.9	0.0	0.0	8.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	7.6	7.3	0.0	0.0	7.8	0.0	0.0	8.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0
Min	7.6	7.0	0.0	0.0	7.8	0.0	0.0	8.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0

Figure No.53: Parametric values of pH recorded at WQMS monitoring ground water at Amravati, Aurangabad and Nashik.



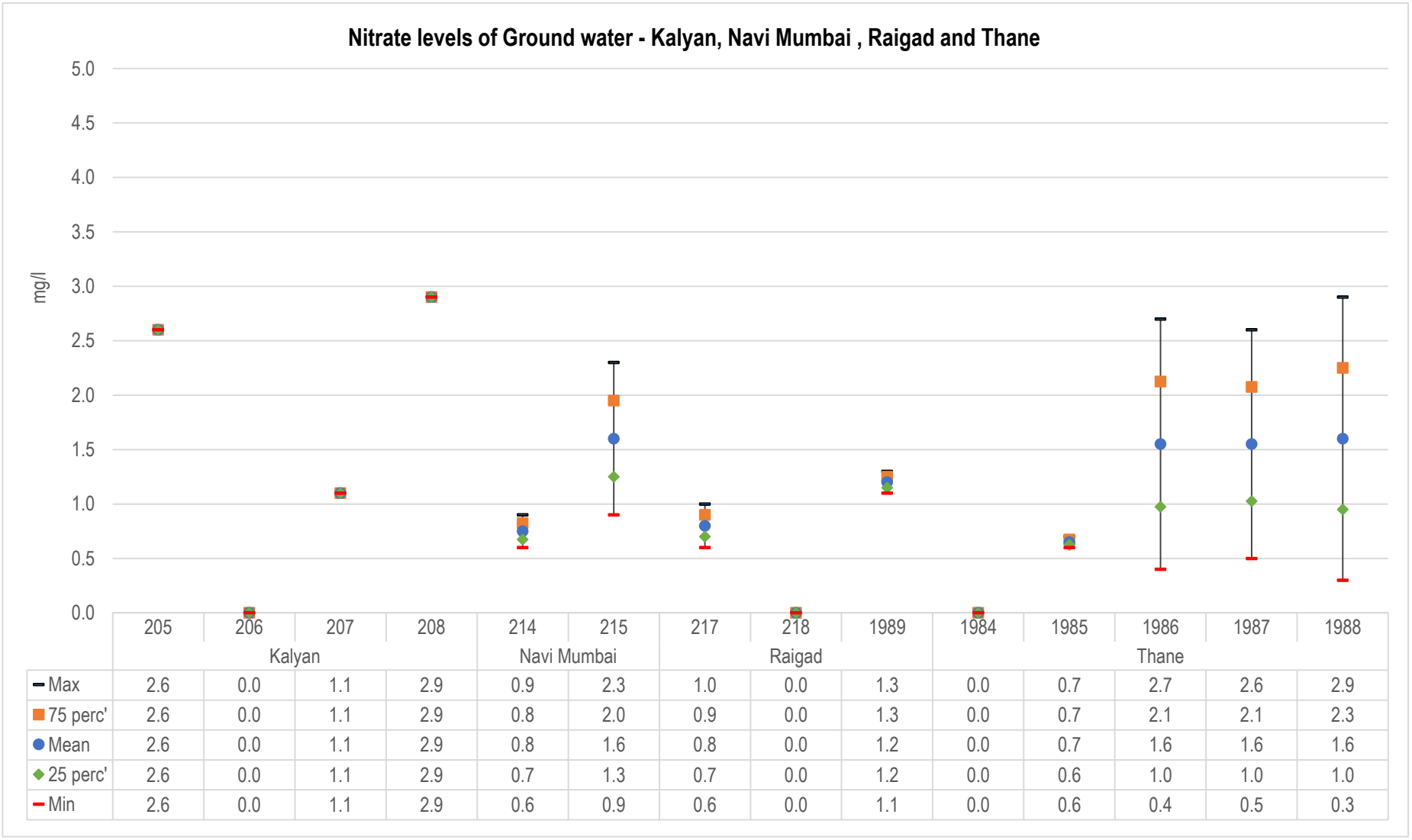
	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
	Chandrapur						Nagpur									
Max	0.0	7.7	7.7	7.8	8.8	8.6	0.0	7.2	7.2	6.7	7.2	6.7	0.0	6.7	6.5	0.0
75 perc'	0.0	7.4	7.5	7.7	8.3	8.3	0.0	7.1	7.1	6.7	7.0	6.7	0.0	6.7	6.5	0.0
Mean	0.0	7.2	7.3	7.6	7.9	8.0	0.0	7.0	7.0	6.7	6.9	6.7	0.0	6.7	6.5	0.0
25 perc'	0.0	6.9	7.0	7.4	7.4	7.6	0.0	6.9	6.9	6.7	6.7	6.7	0.0	6.7	6.5	0.0
Min	0.0	6.7	6.8	7.3	6.9	7.3	0.0	6.8	6.8	6.7	6.5	6.7	0.0	6.7	6.5	0.0

Figure No.54: Parametric values of pH recorded at WQMS monitoring ground water at Chandrapur and Nagpur.



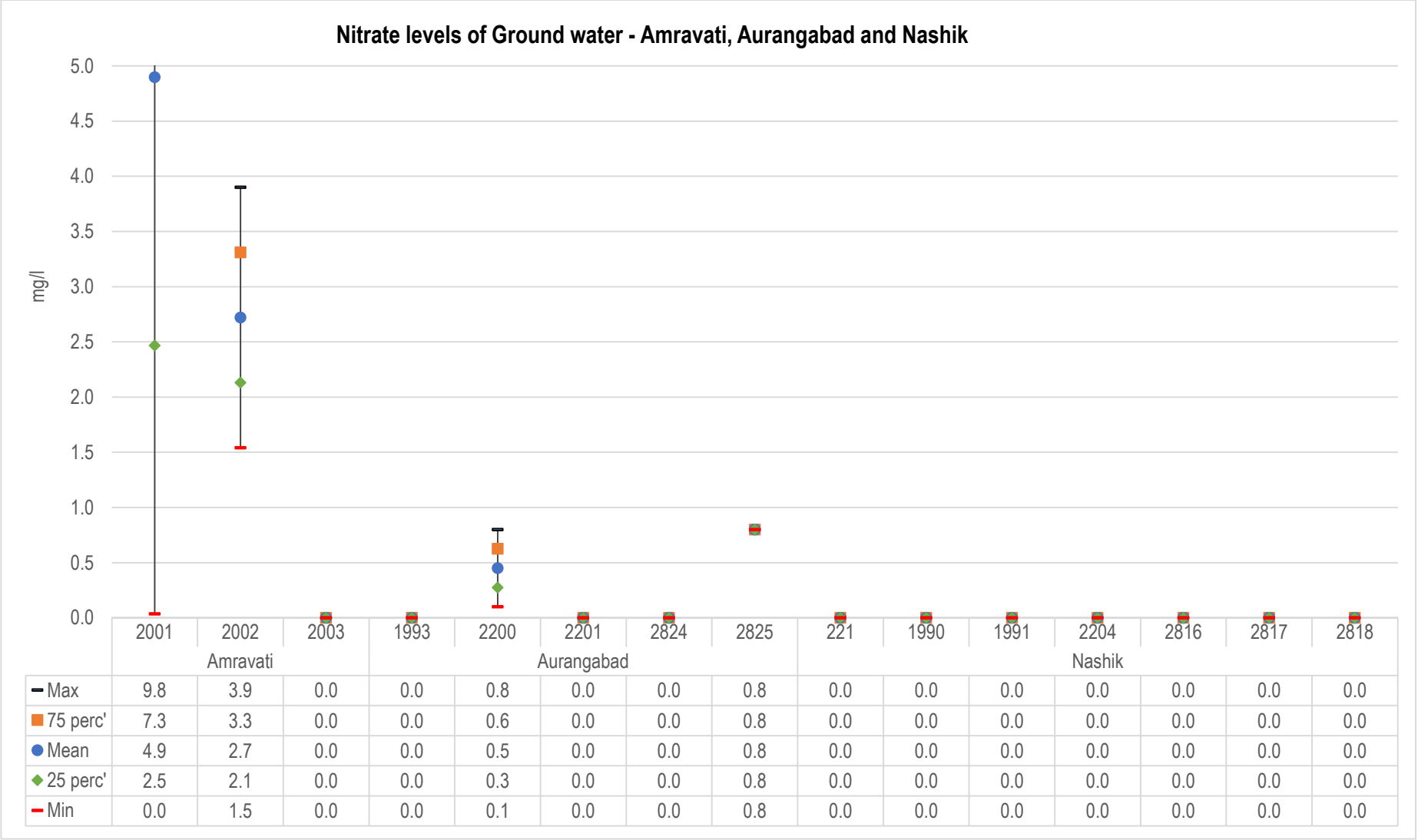
	Kolhapur															Pune					
	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	2823
Max	7.3	7.4	7.3	7.2	7.4	7.3	7.4	7.7	7.1	7.5	7.5	7.6	7.4	7.2	7.5	7.5	8.1	8.3	7.9	7.5	7.8
75 perc'	7.3	7.2	7.3	7.2	7.4	7.2	7.3	7.5	7.1	7.4	7.3	7.5	7.3	7.1	7.4	7.5	8.1	8.3	7.7	7.5	7.7
Mean	7.2	7.0	7.3	7.2	7.4	7.1	7.2	7.3	7.1	7.3	7.2	7.5	7.3	7.0	7.3	7.4	8.1	8.2	7.5	7.5	7.7
25 perc'	7.2	6.7	7.3	7.2	7.3	6.9	7.0	7.1	7.1	7.2	7.0	7.4	7.2	6.9	7.2	7.4	8.0	8.2	7.2	7.4	7.6
Min	7.1	6.5	7.3	7.2	7.3	6.8	6.9	6.9	7.1	7.1	6.8	7.3	7.1	6.8	7.1	7.3	8.0	8.1	7.0	7.4	7.5

Figure No.55: Parametric values of pH recorded at WQMS monitoring ground water at Kolhapur and Pune



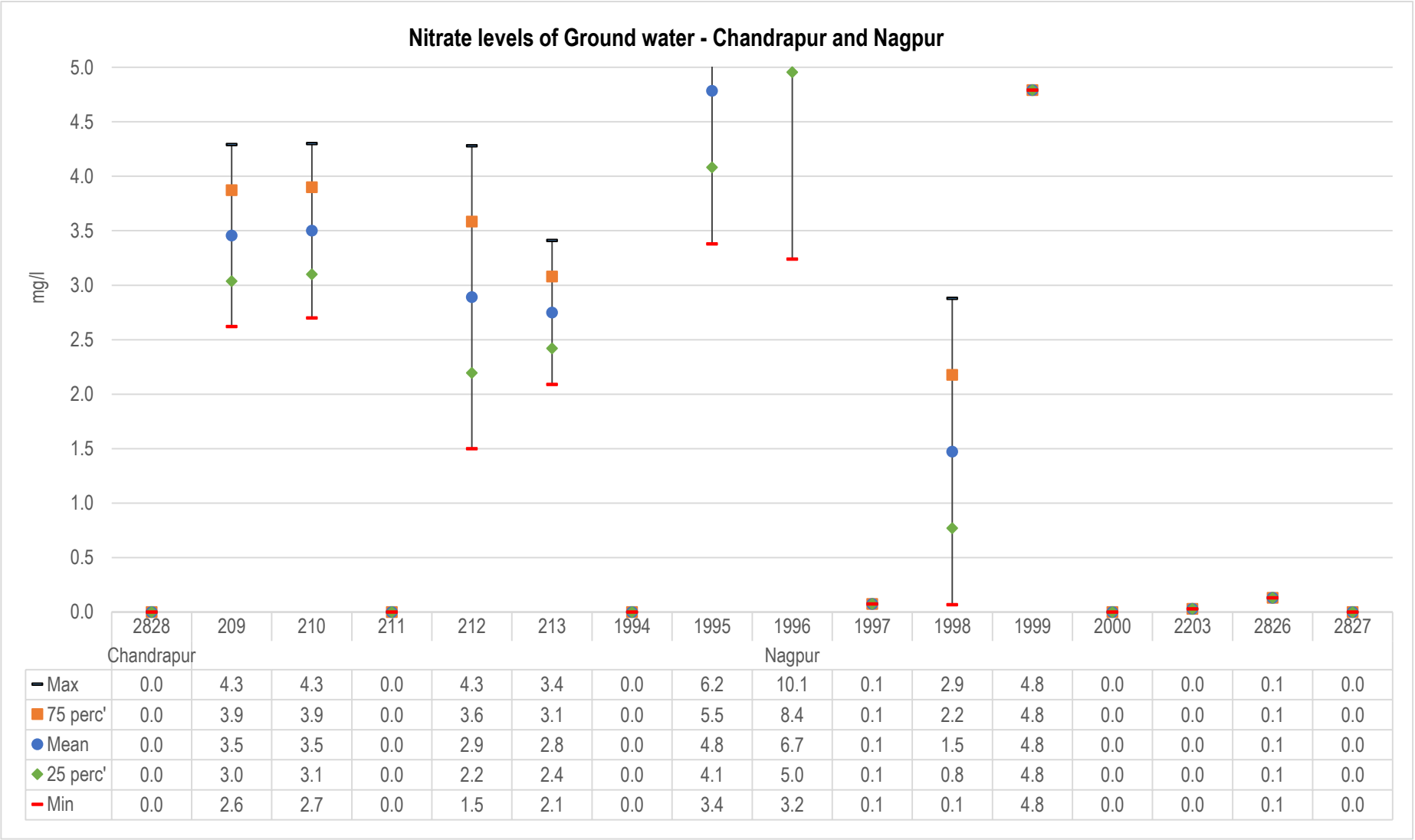
	205	206	207	208	214	215	217	218	1989	1984	1985	1986	1987	1988
	Kalyan				Navi Mumbai		Raigad			Thane				
Max	2.6	0.0	1.1	2.9	0.9	2.3	1.0	0.0	1.3	0.0	0.7	2.7	2.6	2.9
75 perc'	2.6	0.0	1.1	2.9	0.8	2.0	0.9	0.0	1.3	0.0	0.7	2.1	2.1	2.3
Mean	2.6	0.0	1.1	2.9	0.8	1.6	0.8	0.0	1.2	0.0	0.7	1.6	1.6	1.6
25 perc'	2.6	0.0	1.1	2.9	0.7	1.3	0.7	0.0	1.2	0.0	0.6	1.0	1.0	1.0
Min	2.6	0.0	1.1	2.9	0.6	0.9	0.6	0.0	1.1	0.0	0.6	0.4	0.5	0.3

Figure No.56: Parametric values of Nitrate recorded at WQMS monitoring ground water at Kalyan, Navi Mumbai, Raigad and Thane.



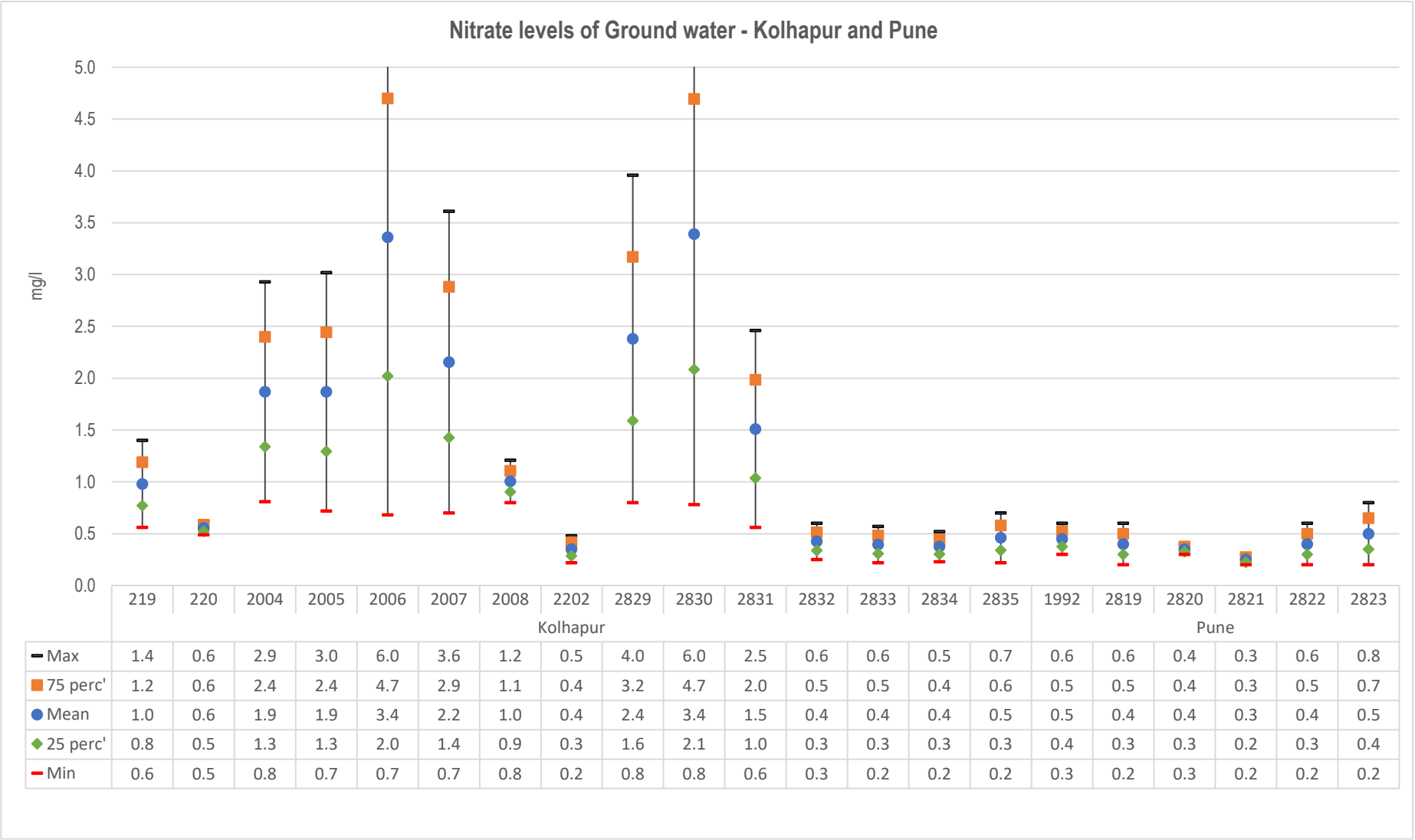
	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
	Amravati			Aurangabad					Nashik						
Max	9.8	3.9	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	7.3	3.3	0.0	0.0	0.6	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean	4.9	2.7	0.0	0.0	0.5	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	2.5	2.1	0.0	0.0	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min	0.0	1.5	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure No.57: Parametric values of Nitrate recorded at WQMS monitoring ground water at Amravati, Aurangabad and Nashik.



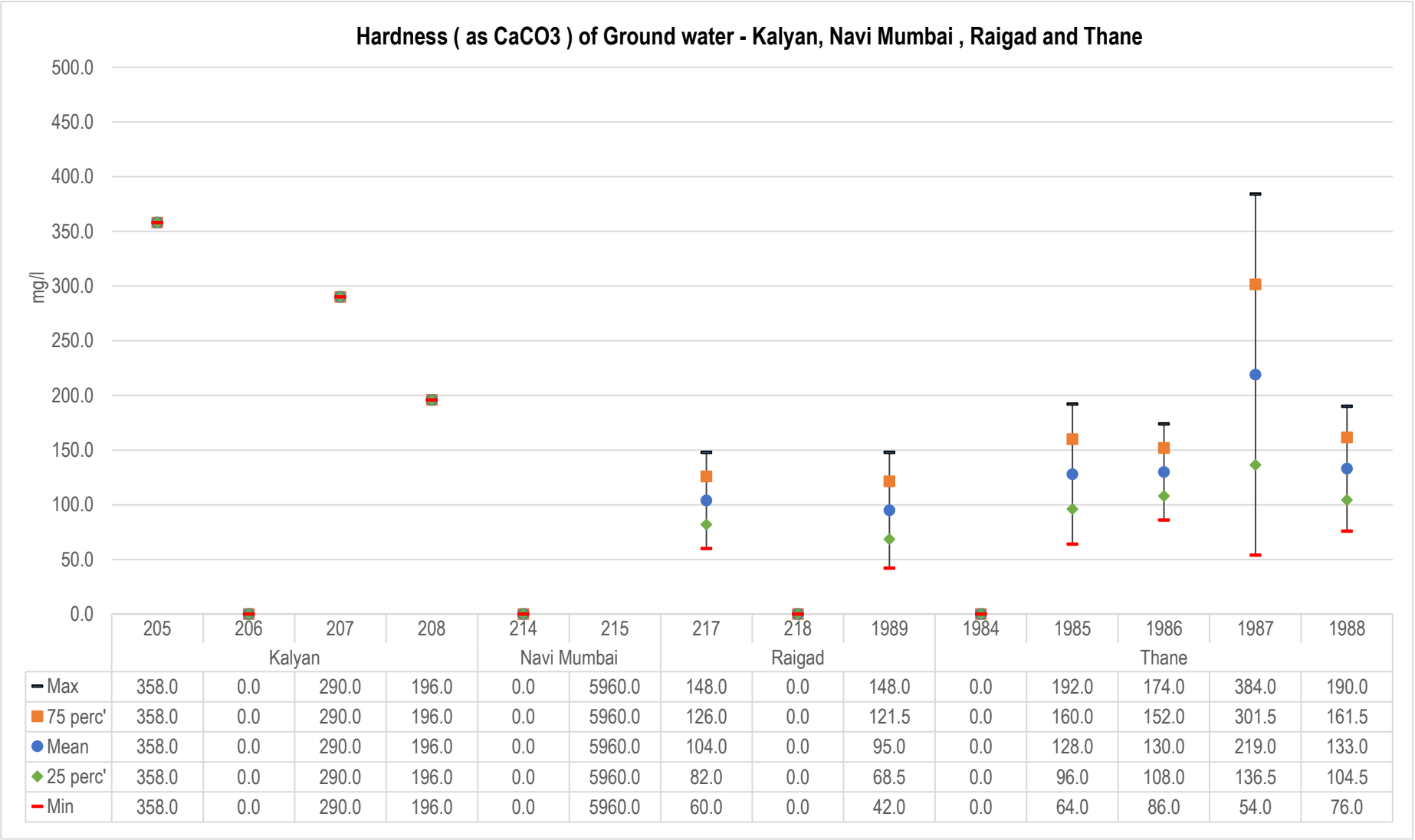
	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
	Chandrapur								Nagpur							
Max	0.0	4.3	4.3	0.0	4.3	3.4	0.0	6.2	10.1	0.1	2.9	4.8	0.0	0.0	0.1	0.0
75 perc'	0.0	3.9	3.9	0.0	3.6	3.1	0.0	5.5	8.4	0.1	2.2	4.8	0.0	0.0	0.1	0.0
Mean	0.0	3.5	3.5	0.0	2.9	2.8	0.0	4.8	6.7	0.1	1.5	4.8	0.0	0.0	0.1	0.0
25 perc'	0.0	3.0	3.1	0.0	2.2	2.4	0.0	4.1	5.0	0.1	0.8	4.8	0.0	0.0	0.1	0.0
Min	0.0	2.6	2.7	0.0	1.5	2.1	0.0	3.4	3.2	0.1	0.1	4.8	0.0	0.0	0.1	0.0

Figure No.58: Parametric values of Nitrate recorded at WQMS monitoring ground water at Chandrapur and Nagpur.



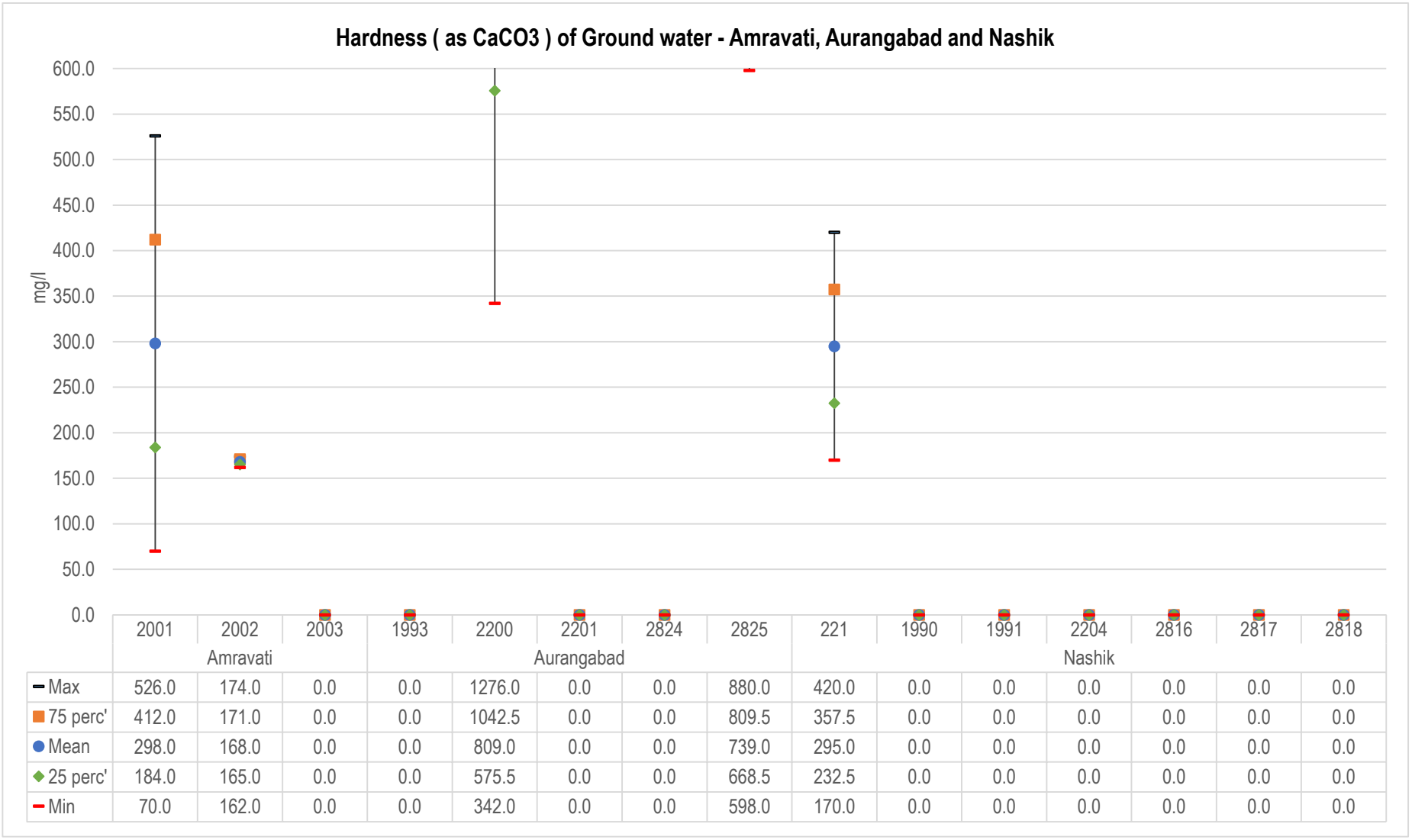
	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	2823
	Kolhapur															Pune					
Max	1.4	0.6	2.9	3.0	6.0	3.6	1.2	0.5	4.0	6.0	2.5	0.6	0.6	0.5	0.7	0.6	0.6	0.4	0.3	0.6	0.8
75 perc'	1.2	0.6	2.4	2.4	4.7	2.9	1.1	0.4	3.2	4.7	2.0	0.5	0.5	0.4	0.6	0.5	0.5	0.4	0.3	0.5	0.7
Mean	1.0	0.6	1.9	1.9	3.4	2.2	1.0	0.4	2.4	3.4	1.5	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.4	0.5
25 perc'	0.8	0.5	1.3	1.3	2.0	1.4	0.9	0.3	1.6	2.1	1.0	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.4
Min	0.6	0.5	0.8	0.7	0.7	0.7	0.8	0.2	0.8	0.8	0.6	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2

Figure No.59: Parametric values of Nitrate recorded at WQMS monitoring ground water at Kolhapur and Pune.



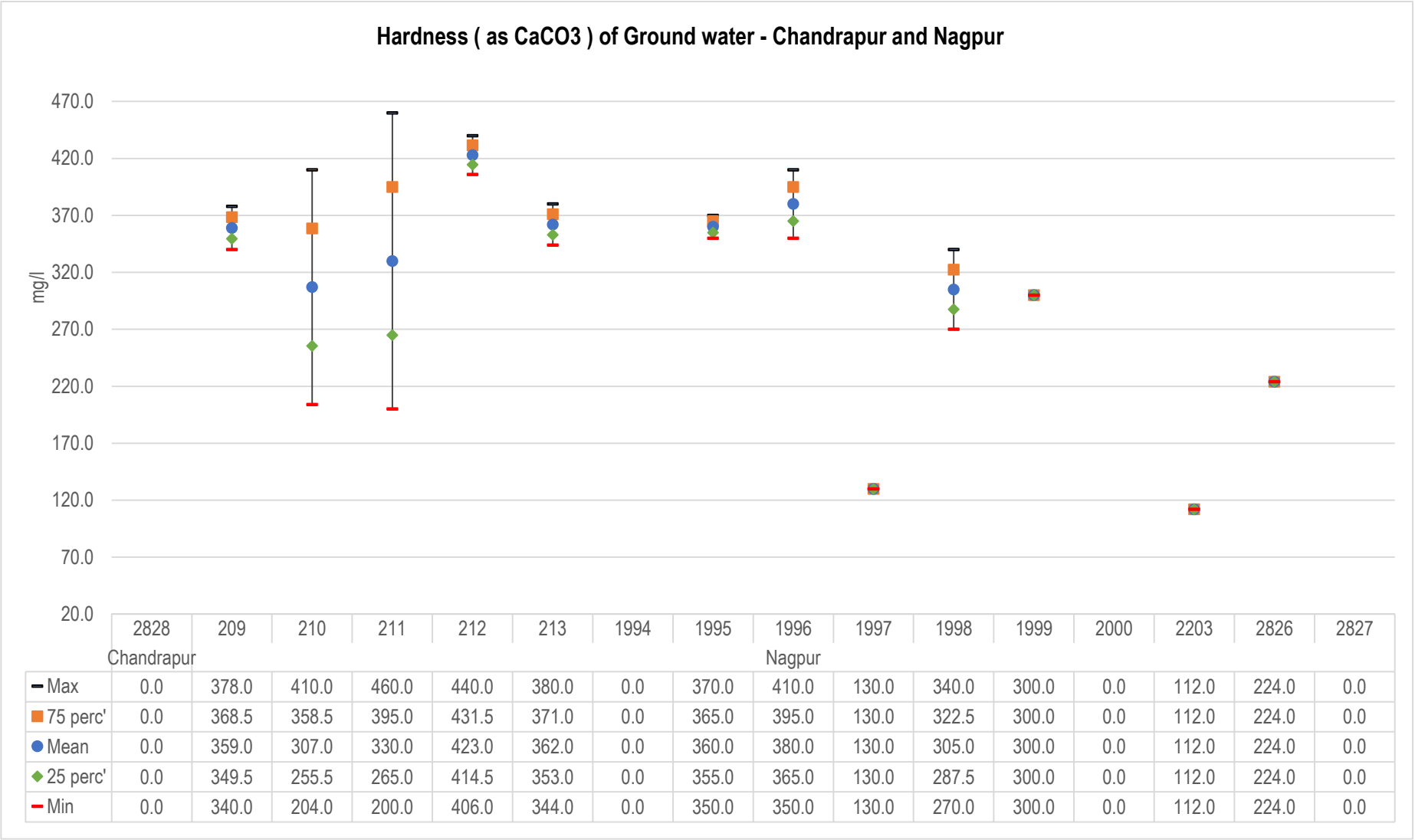
	205	206	207	208	214	215	217	218	1989	1984	1985	1986	1987	1988
	Kalyan				Navi Mumbai		Raigad			Thane				
Max	358.0	0.0	290.0	196.0	0.0	5960.0	148.0	0.0	148.0	0.0	192.0	174.0	384.0	190.0
75 perc'	358.0	0.0	290.0	196.0	0.0	5960.0	126.0	0.0	121.5	0.0	160.0	152.0	301.5	161.5
Mean	358.0	0.0	290.0	196.0	0.0	5960.0	104.0	0.0	95.0	0.0	128.0	130.0	219.0	133.0
25 perc'	358.0	0.0	290.0	196.0	0.0	5960.0	82.0	0.0	68.5	0.0	96.0	108.0	136.5	104.5
Min	358.0	0.0	290.0	196.0	0.0	5960.0	60.0	0.0	42.0	0.0	64.0	86.0	54.0	76.0

Figure No.60: Parametric values of Hardness at CaCo3 recorded at WQMS monitoring ground water at Kalyan, Navi Mumbai, Raigad and Thane.



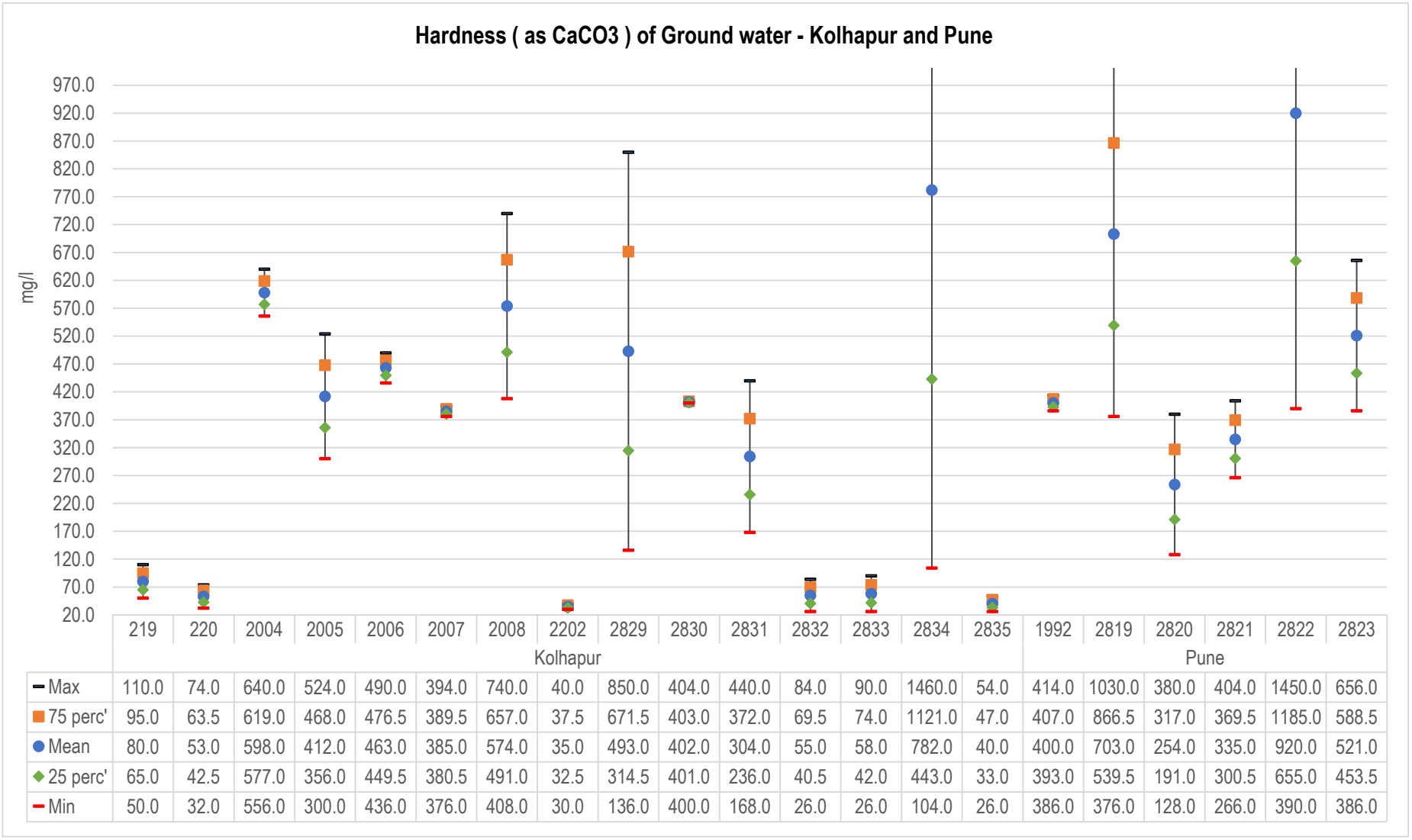
	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
	Amravati			Aurangabad					Nashik						
Max	526.0	174.0	0.0	0.0	1276.0	0.0	0.0	880.0	420.0	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	412.0	171.0	0.0	0.0	1042.5	0.0	0.0	809.5	357.5	0.0	0.0	0.0	0.0	0.0	0.0
Mean	298.0	168.0	0.0	0.0	809.0	0.0	0.0	739.0	295.0	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	184.0	165.0	0.0	0.0	575.5	0.0	0.0	668.5	232.5	0.0	0.0	0.0	0.0	0.0	0.0
Min	70.0	162.0	0.0	0.0	342.0	0.0	0.0	598.0	170.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure No. 61: Parametric values of Hardness at CaCo3 recorded at WQMS monitoring ground water at Amrawati, Aurangabad and Nashik.



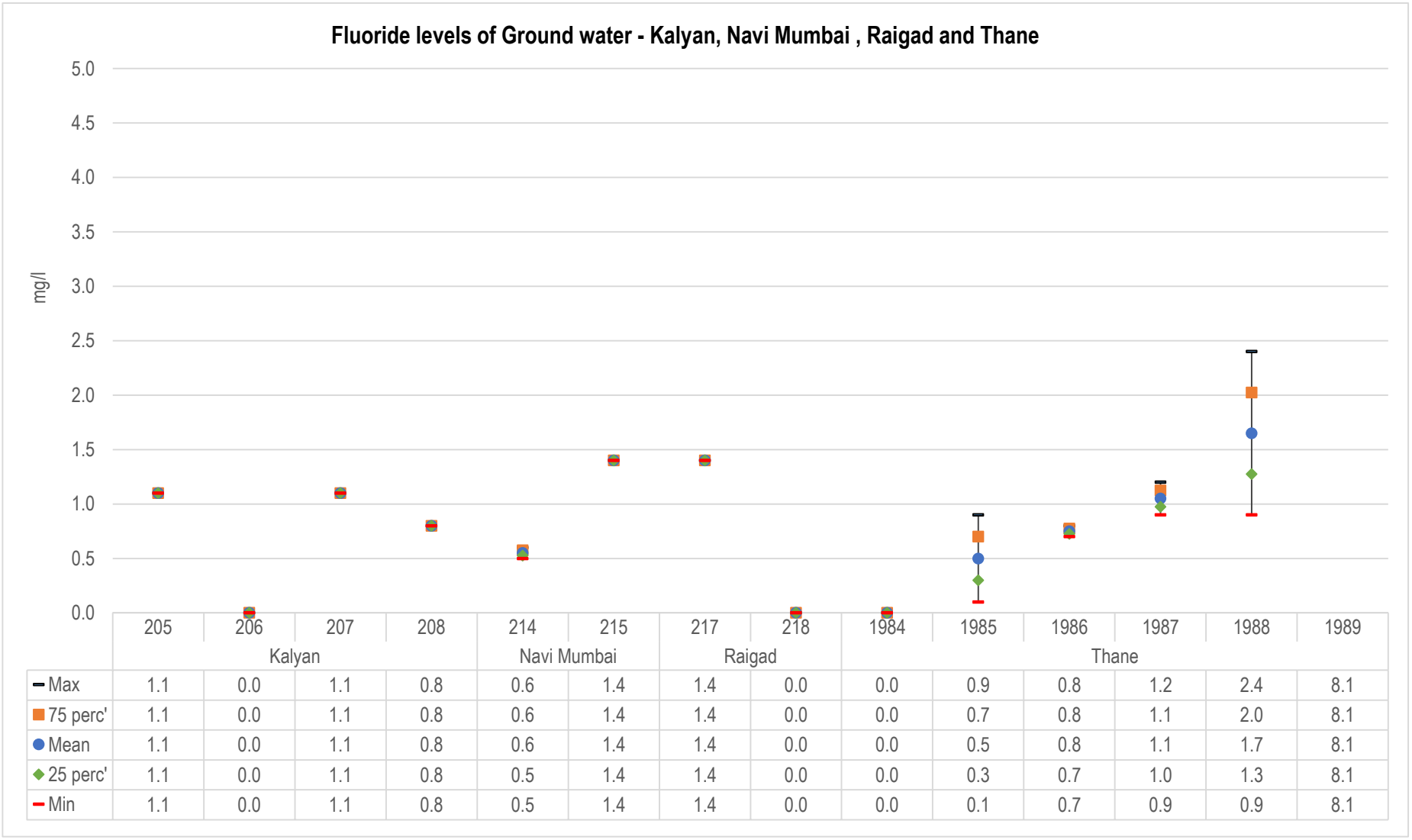
	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
	Chandrapur								Nagpur							
Max	0.0	378.0	410.0	460.0	440.0	380.0	0.0	370.0	410.0	130.0	340.0	300.0	0.0	112.0	224.0	0.0
75 perc'	0.0	368.5	358.5	395.0	431.5	371.0	0.0	365.0	395.0	130.0	322.5	300.0	0.0	112.0	224.0	0.0
Mean	0.0	359.0	307.0	330.0	423.0	362.0	0.0	360.0	380.0	130.0	305.0	300.0	0.0	112.0	224.0	0.0
25 perc'	0.0	349.5	255.5	265.0	414.5	353.0	0.0	355.0	365.0	130.0	287.5	300.0	0.0	112.0	224.0	0.0
Min	0.0	340.0	204.0	200.0	406.0	344.0	0.0	350.0	350.0	130.0	270.0	300.0	0.0	112.0	224.0	0.0

Figure No. 62: Parametric values of Hardness at CaCo3 recorded at WQMS monitoring ground water at Chandrapur and Nagpur.



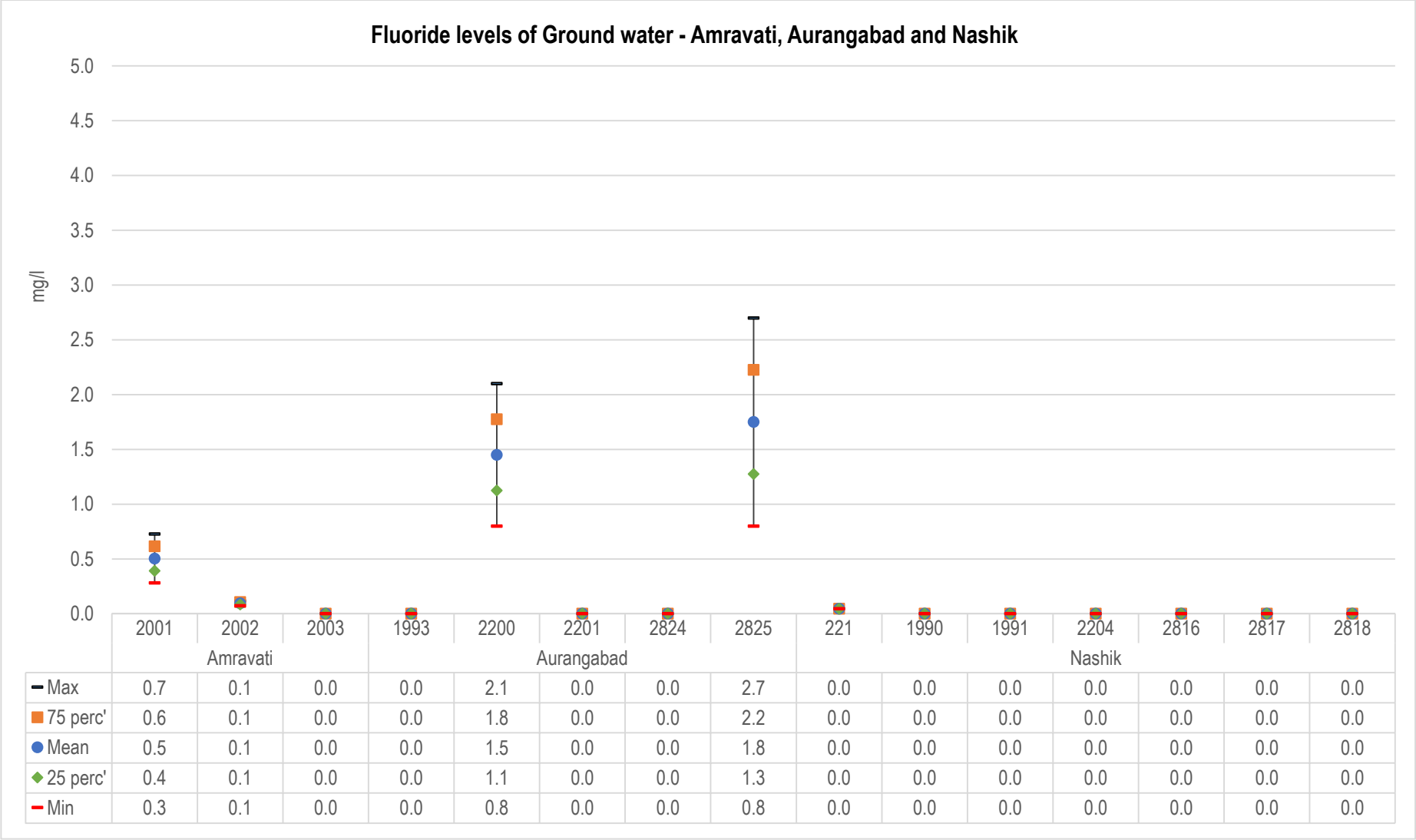
	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	2823
	Kolhapur															Pune					
Max	110.0	74.0	640.0	524.0	490.0	394.0	740.0	40.0	850.0	404.0	440.0	84.0	90.0	1460.0	54.0	414.0	1030.0	380.0	404.0	1450.0	656.0
75 perc'	95.0	63.5	619.0	468.0	476.5	389.5	657.0	37.5	671.5	403.0	372.0	69.5	74.0	1121.0	47.0	407.0	866.5	317.0	369.5	1185.0	588.5
Mean	80.0	53.0	598.0	412.0	463.0	385.0	574.0	35.0	493.0	402.0	304.0	55.0	58.0	782.0	40.0	400.0	703.0	254.0	335.0	920.0	521.0
25 perc'	65.0	42.5	577.0	356.0	449.5	380.5	491.0	32.5	314.5	401.0	236.0	40.5	42.0	443.0	33.0	393.0	539.5	191.0	300.5	655.0	453.5
Min	50.0	32.0	556.0	300.0	436.0	376.0	408.0	30.0	136.0	400.0	168.0	26.0	26.0	104.0	26.0	386.0	376.0	128.0	266.0	390.0	386.0

Figure No. 63: Parametric values of Hardness at CaCo3 recorded at WQMS monitoring ground water at Kolhapur and Pune.



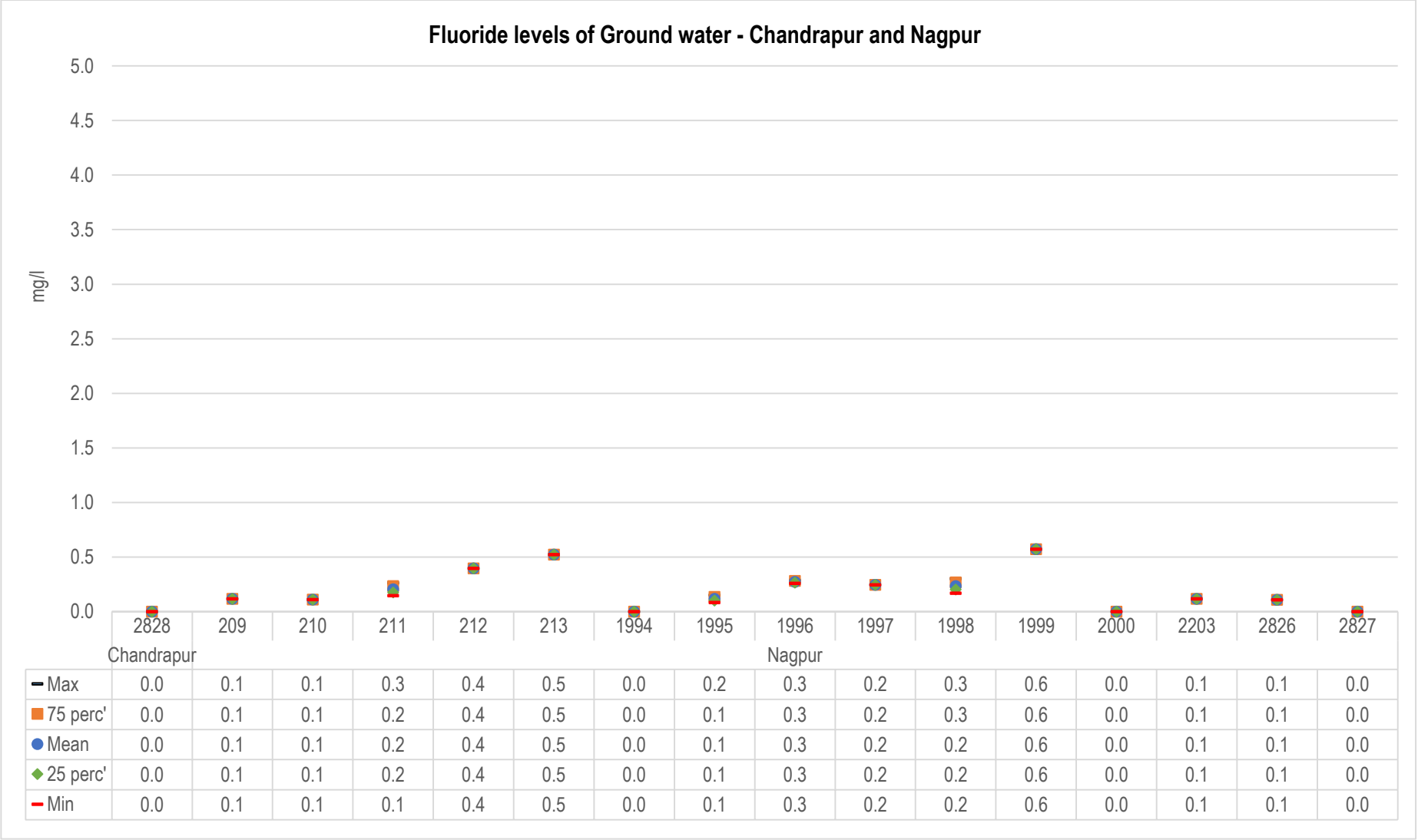
	205	206	207	208	214	215	217	218	1984	1985	1986	1987	1988	1989
	Kalyan				Navi Mumbai		Raigad		Thane					
Max	1.1	0.0	1.1	0.8	0.6	1.4	1.4	0.0	0.0	0.9	0.8	1.2	2.4	8.1
75 perc'	1.1	0.0	1.1	0.8	0.6	1.4	1.4	0.0	0.0	0.7	0.8	1.1	2.0	8.1
Mean	1.1	0.0	1.1	0.8	0.6	1.4	1.4	0.0	0.0	0.5	0.8	1.1	1.7	8.1
25 perc'	1.1	0.0	1.1	0.8	0.5	1.4	1.4	0.0	0.0	0.3	0.7	1.0	1.3	8.1
Min	1.1	0.0	1.1	0.8	0.5	1.4	1.4	0.0	0.0	0.1	0.7	0.9	0.9	8.1

Figure No. 64: Parametric values of Fluoride recorded at WQMS monitoring ground water at Kalyan, Navi Mumbai, Raigad and Thane



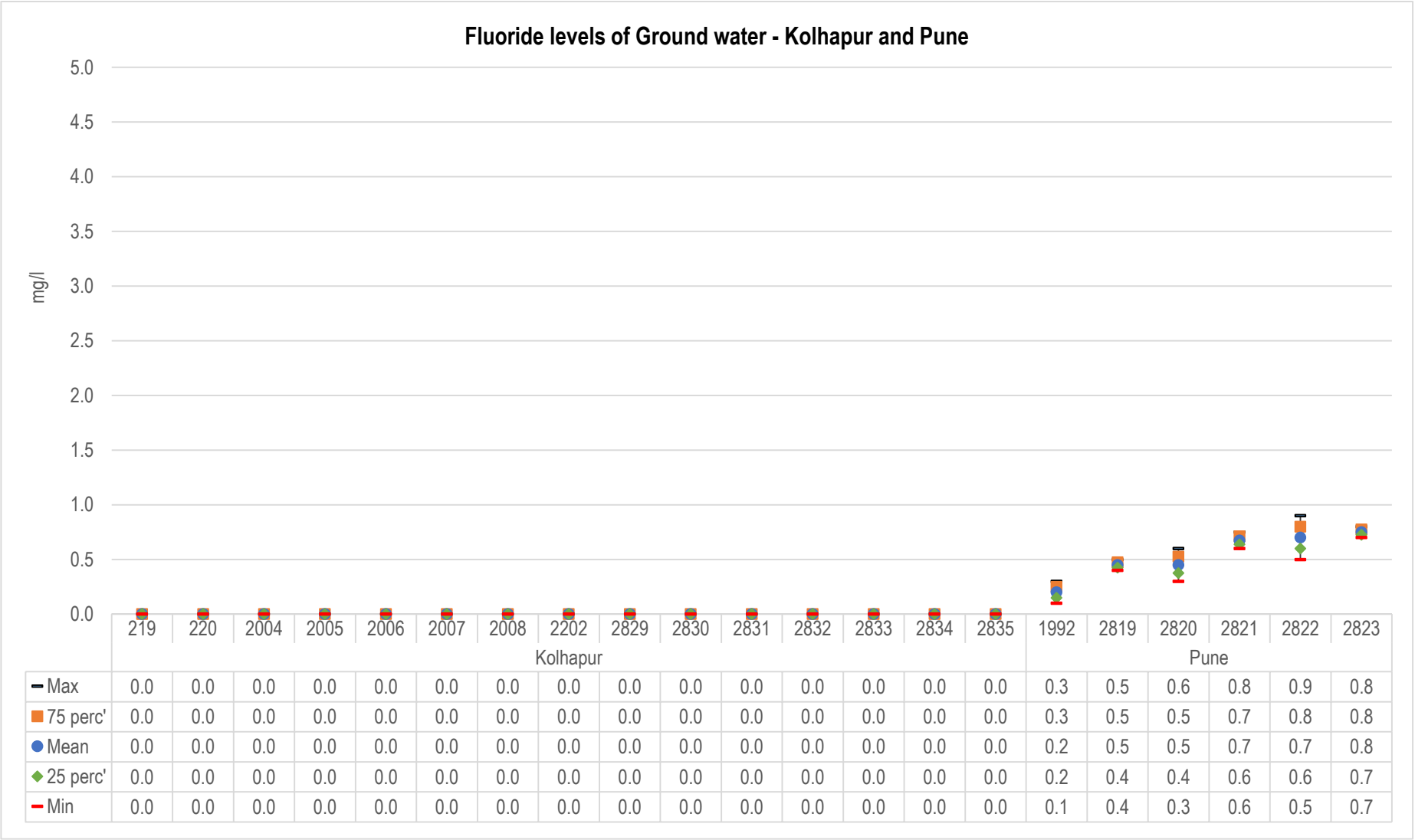
	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
	Amravati			Aurangabad					Nashik						
Max	0.7	0.1	0.0	0.0	2.1	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75 perc'	0.6	0.1	0.0	0.0	1.8	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean	0.5	0.1	0.0	0.0	1.5	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 perc'	0.4	0.1	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min	0.3	0.1	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure No. 65: Parametric values of Fluoride recorded at WQMS monitoring ground water at Amravati, Aurangabad and Nashik



	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
	Chandrapur						Nagpur									
Max	0.0	0.1	0.1	0.3	0.4	0.5	0.0	0.2	0.3	0.2	0.3	0.6	0.0	0.1	0.1	0.0
75 perc'	0.0	0.1	0.1	0.2	0.4	0.5	0.0	0.1	0.3	0.2	0.3	0.6	0.0	0.1	0.1	0.0
Mean	0.0	0.1	0.1	0.2	0.4	0.5	0.0	0.1	0.3	0.2	0.2	0.6	0.0	0.1	0.1	0.0
25 perc'	0.0	0.1	0.1	0.2	0.4	0.5	0.0	0.1	0.3	0.2	0.2	0.6	0.0	0.1	0.1	0.0
Min	0.0	0.1	0.1	0.1	0.4	0.5	0.0	0.1	0.3	0.2	0.2	0.6	0.0	0.1	0.1	0.0

Figure No. 66: Parametric values of Fluoride recorded at WQMS monitoring ground water at Chandrapur and Nagpur.



	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	2823
	Kolhapur															Pune					
Max	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	0.3	0.5	0.6	0.8	0.9	0.8
75 perc'	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	0.3	0.5	0.5	0.7	0.8	0.8
Mean	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	0.2	0.5	0.5	0.7	0.7	0.8
25 perc'	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	0.2	0.4	0.4	0.6	0.6	0.7
Min	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	0.1	0.4	0.3	0.6	0.5	0.7

Figure No. 67: Parametric values of Fluoride recorded at WQMS monitoring ground water at Kolhapur and Pune.

Annex II– RO wise summary of WQI in 2016-17

The Maharashtra State government in 1981 adopted the Water (Prevention and Control of Pollution) Act 1974 and under this MPCB (Maharashtra Pollution Control Board) was established in the year 1981.

The main functions of MPCB are:

- To plan a comprehensive program for the prevention, control or abatement of pollution and secure executions thereof,
- To collect and disseminate information relating to pollution and the prevention, control or abatement thereof,
- To inspect sewage or trade effluent treatment and disposal facilities, and air pollution control systems and to review plans, specification or any other data relating to the treatment plants, disposal systems and air pollution control systems in connection with the consent granted,
- Supporting and encouraging the developments in the fields of pollution control, waste recycle reuse, eco-friendly practices etc.
- To educate and guide the entrepreneurs in improving environment by suggesting appropriate pollution control technologies and techniques
- To create public awareness about clean and healthy environment and attending the public complaints regarding pollution.

Being a highly industrialized, populated and urbanized state, Maharashtra has numerous sources which lead to water pollution, which have deteriorated the water quality of many, seas, creeks, drains ground water and so on. Release of sewage, industrial waste water, and dumping of solid waste are the three major causes of water pollution.

Hence, to keep a constant vigilance MPCB has established 12 RO (Regional Offices) across the state to check and regulate the pollution levels with necessary control measures. MPCB implements a range of environmental legislation in the state and functions under the administrative control of Environment Department, Government of Maharashtra.

The following section presents the RO wise highlights on the status of the water quality monitoring network for the year 2015-16 and presents the gist of the water quality index for the respective stations for months of May and December.

RO – Amravati

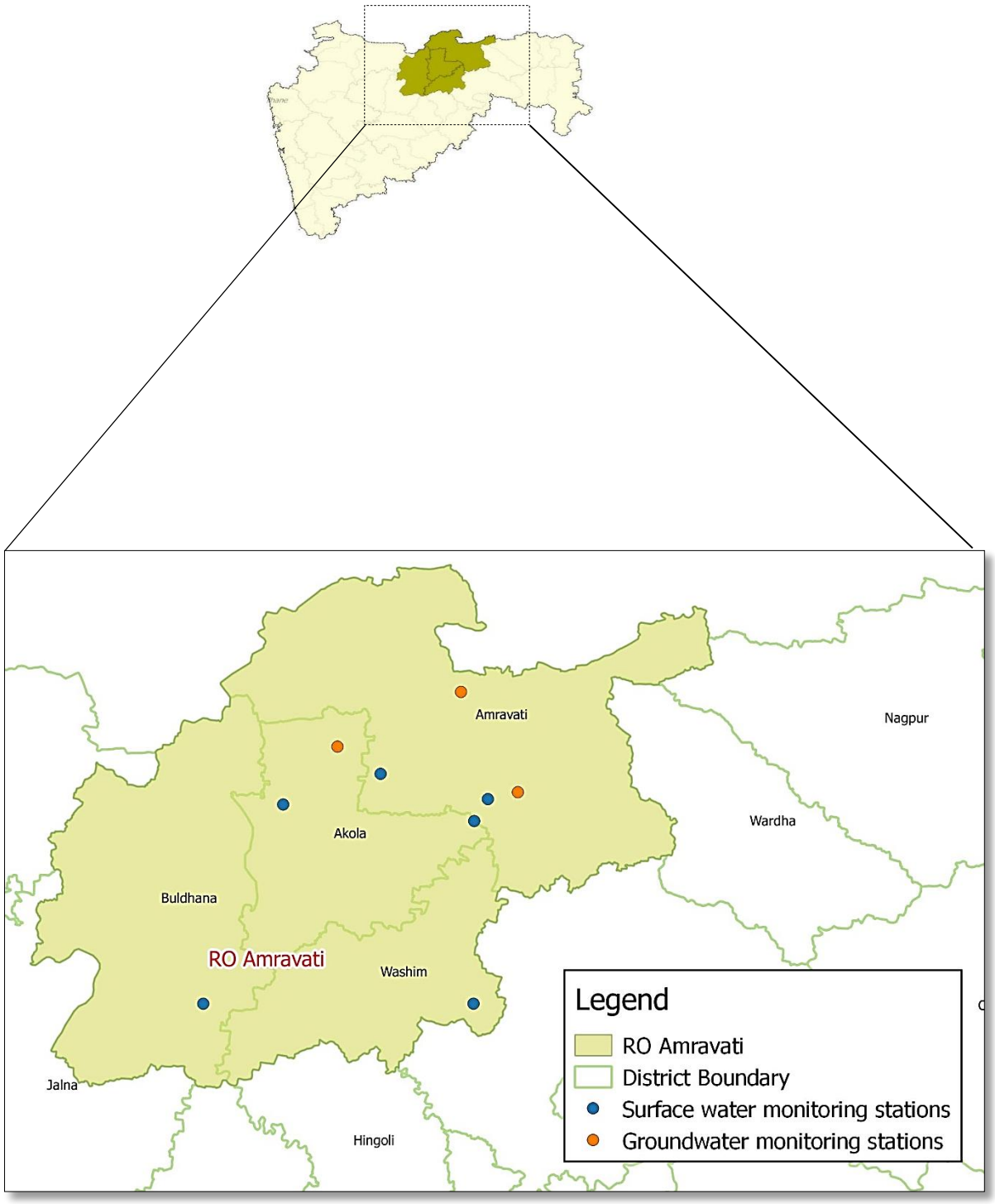

Amravati
Nagpur
Akola
Wardha
Buldhana
RO Amravati
Washim
Jalna
Hingoli
Legend
RO Amravati
District Boundary
Surface water monitoring stations
Groundwater monitoring stations

Table No. 30: Water quality Index for surface and ground water monitoring at Amravati-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/ Oct	Average	District	Taluka	Village
SW	1913	Amravati	Purna River at Dhupeshwar at U/s of Malkapur Water works	69	72	70	Akola	Akola	Malkapur
SW	2155	Amravati	Purna River at D/s of confluence of Morna & Purna at Andhura village			70	Akola	Balapur	Andura
SW	2675	Amravati	Morna River at D/s of Railway Bridge	59	74	63	Akola	Akola	Akola
SW	2695	Amravati	Pedhi River near Road Bridge at Dadhi-Pedhi village	49	69	62	Amravati	Chandur Bazar	Asegaon
SW	2697	Amravati	Penganga River near water supply scheme of Umarkhed MC	64	58	60	Yavatmal	Umarkhed	Belkhed
SW	2698	Amravati	Penganga River D/s of Isapur Dam	60	58	59	Yavatmal	Pusad	Isapur
SW	2699	Amravati	Penganga River at Mehkar-Buldana Road Bridge			70	Buldana	Mehkar	Mehkar
SW	2700	Amravati	Purna River near Achalpur-Amravati Road Bridge, Asegaon			70	Amravati	Chandur bazaar	Asegaon
GW	2001	Amravati	Tube well at water treatment plant of M.C.Achalpur near Post Office.	164	79	121	Amravati	Achalpur	Paratwada
GW	2002	Amravati	Bore well Opp. Gajanan Maharaj Temple at Anjangaon road.	69	12	41	Akola	Akot	Anjangaon
GW	2003	Amravati	Dug well at Plot No- 4, Street No. 49-C, at Nehru Bal Udyan Azad Maidan, owned by Yavatmal M.C.				Yavatmal	Yavatmal	Nehru Bal Udyan Azad Maidan

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		Not collected

RO – Aurangabad

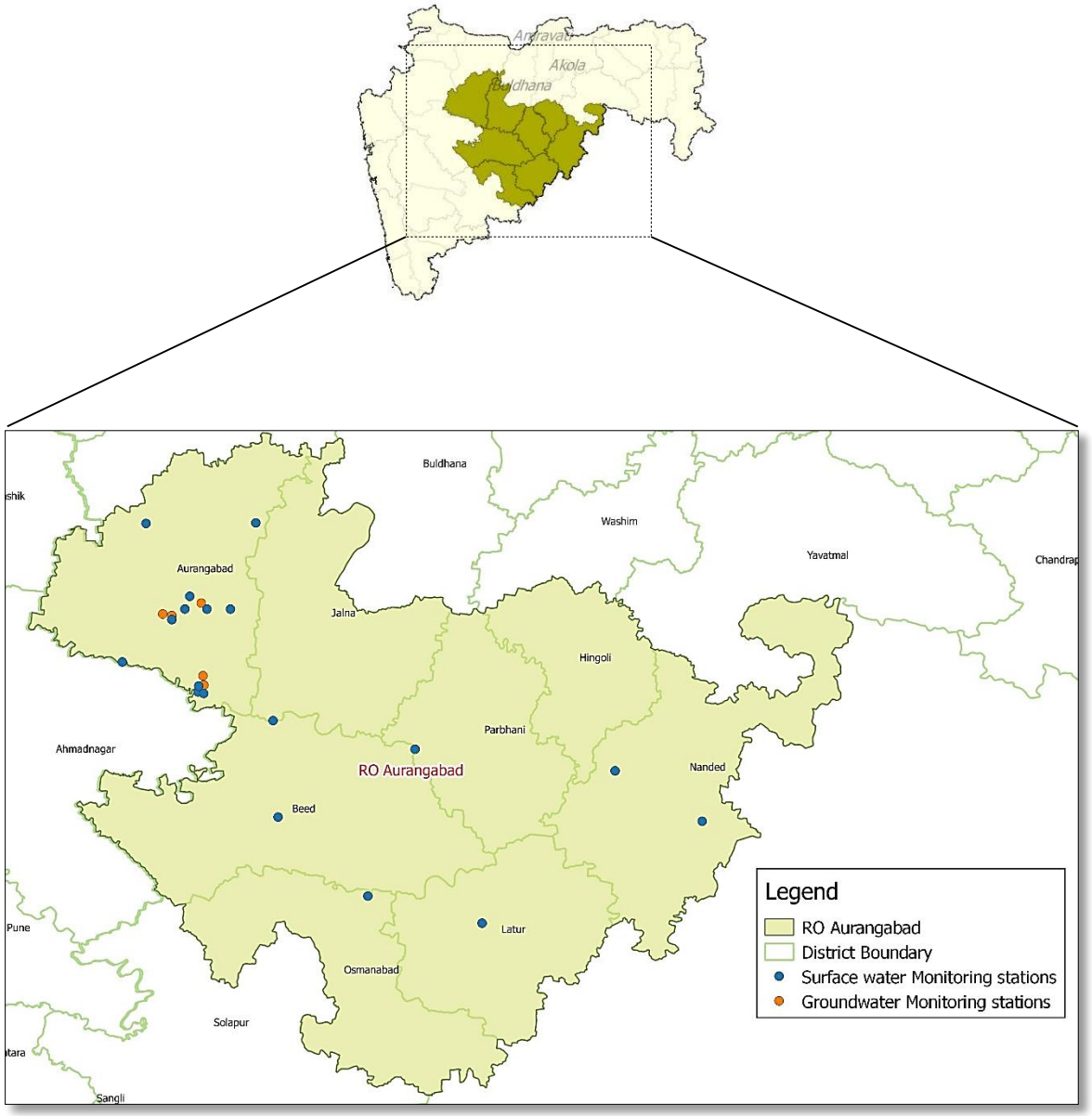


Table No. 31: Water quality Index for surface and ground water monitoring at Aurangabad-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	12	Aurangabad	Godavari River at Dhalegaon		92	81	Parbhani	Pathari	Dhalegaon
SW	178	Aurangabad	Kannad - D/S of Kannad near Bridge		84	82	Aurangabad	Kannad	Kannad
SW	179	Aurangabad	Sillod - D/S of Sillod near bridge at bhavan		82	81	Aurangabad	Sillod	Sillod
SW	180	Aurangabad	Aurangabad - Near Holly cross bridge	80	60	67	Aurangabad	Aurangabad	Aurangabad
SW	181	Aurangabad	Aurangabad - Near Patoda Village	77	65	65	Aurangabad	Aurangabad	Aurangabad
SW	182	Aurangabad	Aurangabad - Near Chikhalthana Bridge		65	68	Aurangabad	Aurangabad	Aurangabad
SW	183	Aurangabad	Aurangabad - At Sukhna Dam	78	81	76	Aurangabad	Aurangabad	Aurangabad
SW	184	Aurangabad	Aurangabad - Harsool Dam	80	81	81	Aurangabad	Aurangabad	Aurangabad
SW	1209	Aurangabad	Godavari River at Raher	82	84	83	Nanded	Nayagaon	Raher
SW	1210	Aurangabad	Godavari River at Intake of pump house	80	82	84	Nanded	Nanded	Vishnupuri
SW	1312	Aurangabad	Godavari river at Jaikwadi Dam, Paithan	81	83	85	Aurangabad	Paithan	Paithan
SW	2157	Aurangabad	Godavari River at Latur Water intake near pump house	80	84	82	Osmanabad	Kalumb	Dhamegaon
SW	2158	Aurangabad	Godavari River at Paithan U/s of Paithan Intake pump house	83	85	85	Aurangabad	Paithan	Jayakwadi
SW	2159	Aurangabad	Godavari River at D/s of Paithan at Pathegaon bridge	83	84	84	Aurangabad	Paithan	Pathegaon
SW	2160	Aurangabad	Godavari River at U/s of Aurangabad Reservoir Kaigaon Tokka near, Kaigaon Bridge	83	86	85	Aurangabad	Gangapur	Kaigaon
SW	2161	Aurangabad	Godavari River at Jalna Intake water pump house Shahagad	84	80	82	Jalna	Ambad	Shahabad
SW	2657	Aurangabad	Bindusara River at Beed, near Intake water pump house at Dam		82	83	Beed	Beed	Paligaon
SW	2673	Aurangabad	Manjra River at D/s of Latur, near Latur-Nanded Bridge	Not collected	85	85	Latur	Latur	Bhatkheda
GW	1993	Aurangabad	Dug well at Pandarpur, Gangapur, Aurangabad				Aurangabad	Gangapur	Pandharpur
GW	2200	Aurangabad	Bore Well at Katpur, Near Z.P.School	137	310	224	Aurangabad	Paithan	Katpur
GW	2201	Aurangabad	Dug Well at Ranjangaon				Aurangabad	Gangapur	Ranjangaon
GW	2824	Aurangabad	Dug Well at Naregaon				Aurangabad	Aurangabad	Naregaon
GW	2825	Aurangabad	Bore Well at Wahegaon, near Zilla Parishet School	244	242	243	Aurangabad	Paithan	Wahegaon

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad	Dry	Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected

RO – Chandrapur

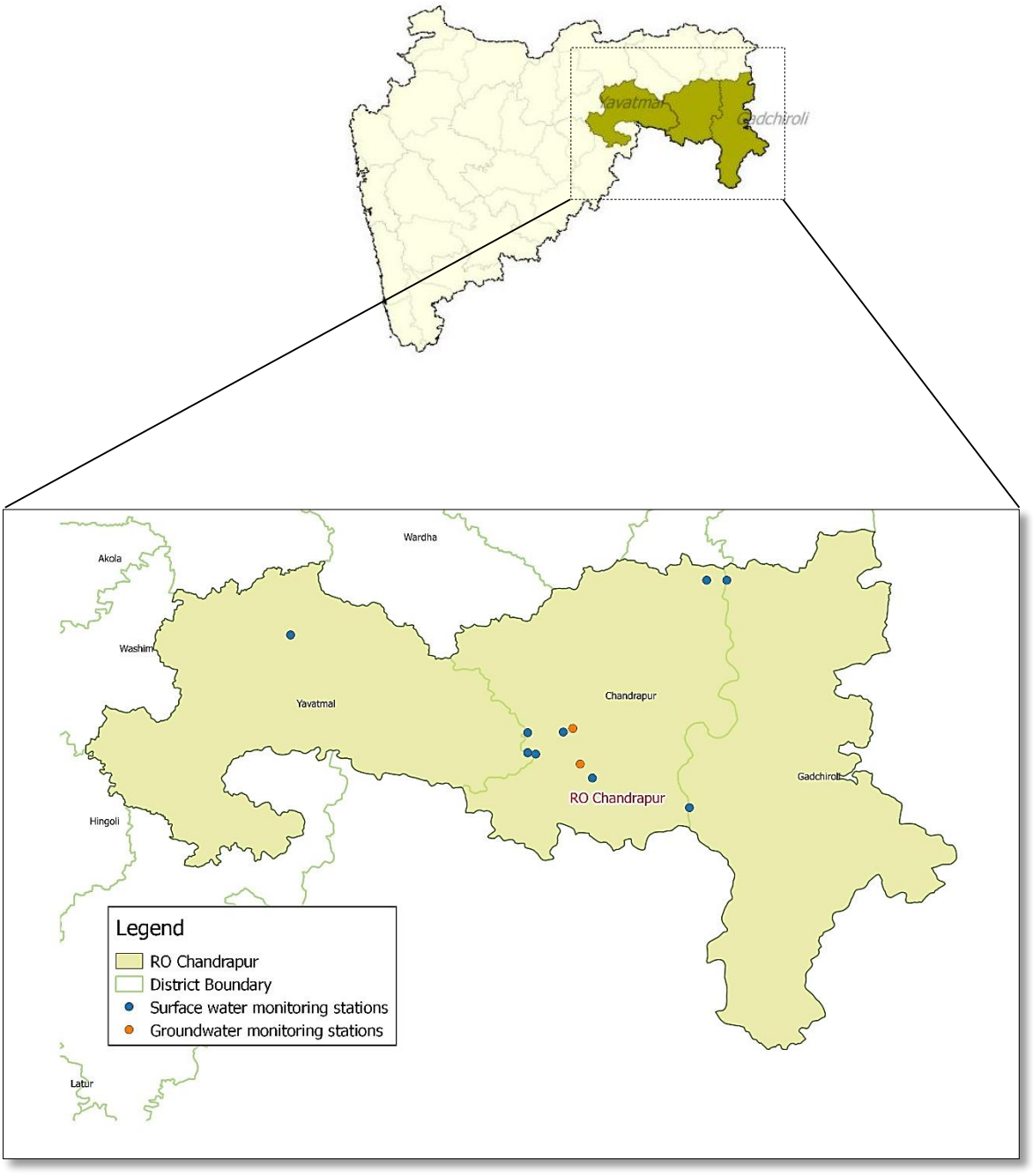


Table No. 32: Water quality Index for surface and ground water monitoring at Chandrapur RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	11	Chandrapur	Wainganga River at Ashti	62	56	62	Chandrapur	Gondpipri	Ashti
SW	1212	Chandrapur	Wardha river at Rajura bridge	62	60	57	Chandrapur	Chandrapur	Rajura
SW	2156	Chandrapur	Wardha River at confluence point of Penganga & Wardha	64	58	58	Yavatmal	Wani	Jugad
SW	2174	Chandrapur	Wardha River at D/s of ACC Ghuggus	62	57	57	Chandrapur	Chandrapur	Ghuggus
SW	2175	Chandrapur	Wainganga at U/s of Gaurav Paper Mills near Jack Well	60	57	61	Chandrapur	Chandrapur	Bramhpuri
SW	2176	Chandrapur	Wainganga River at D/s of Gaurav Paper Mills Near Jackwell	61	55	58	Chandrapur	Chandrapur	Bramhpuri
SW	2719	Chandrapur	Wardha River at D/s of Erai River	60	56	58	Chandrapur	Chandrapur	Hadasti
SW	2720	Chandrapur	Wardha River at U/s of Erai River	61	59	61	Chandrapur	Chandrapur	Hadasti
SW	2721	Chandrapur	Wardha River at U/s of ACC Ghuggus	64	61	60	Chandrapur	Chandrapur	Ghuggus
GW	2828	Chandrapur	Dug Well near Jilla Parishad Primary School Visapur	Not collected	Not collected	Not collected	Chandrapur	Ballarpur	Visapur
GW	1994	Chandrapur	Dug well At TPS Durgapur near Naseeb Kirana {} general Store.	Not Collected	Not collected	Not collected	Chandrapur	Chandrapur	Durgapur

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data

RO – Kalyan

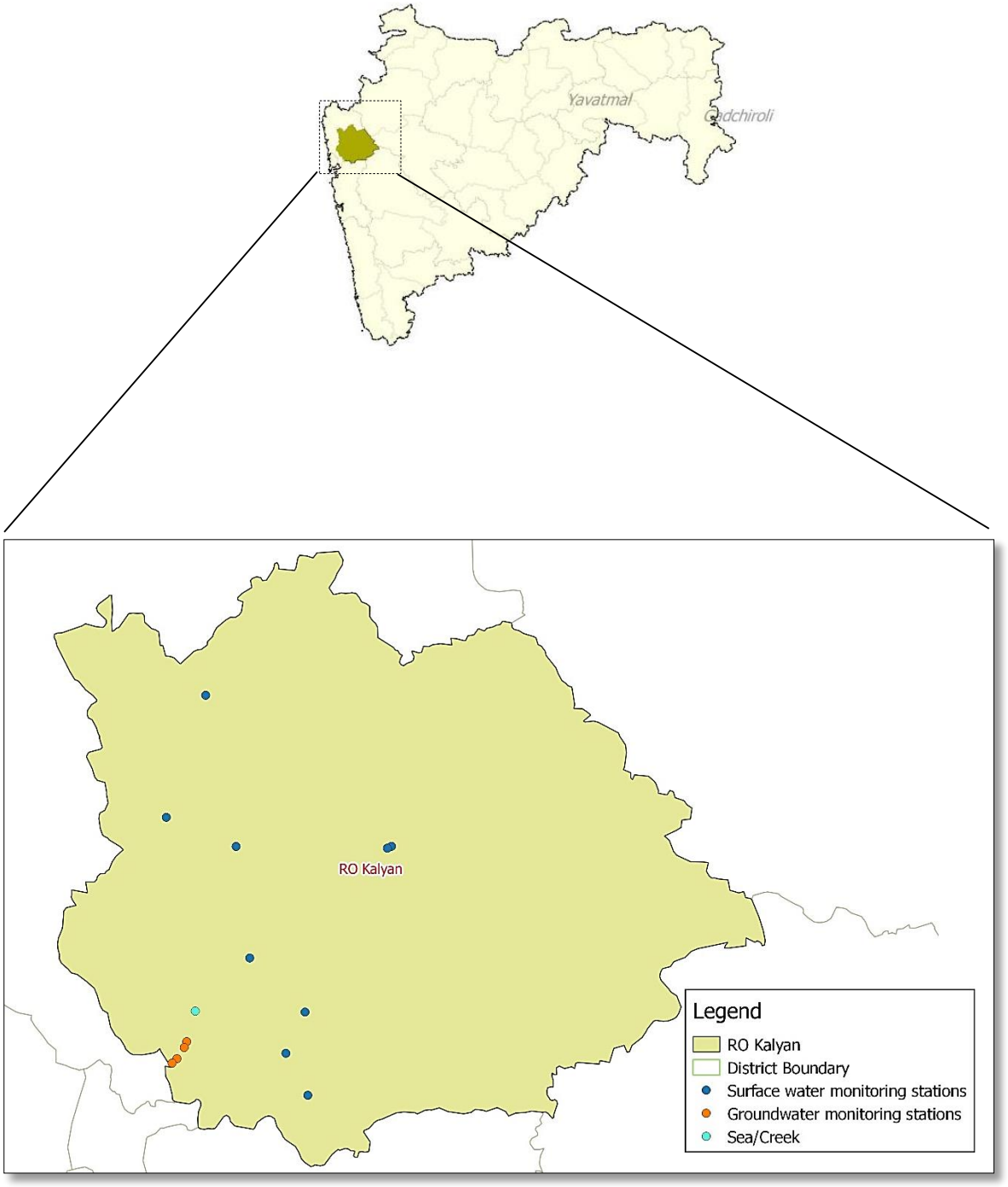

Yavatmal
Gadchiroli
RO Kalyan
Legend
RO Kalyan
District Boundary
Surface water monitoring stations
Groundwater monitoring stations
Sea/Creek

Table No. 33: Water quality Index for surface and ground water monitoring at Kalyan-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	1092	Kalyan	Kalu River at Atale village	63	53	54	Thane	Kalyan	Atale
SW	1093	Kalyan	Ulhas river at U/s of NRC Bund	82	77	82	Thane	Kalyan	Mohane
SW	1094	Kalyan	Ulhas River at U/s of Badlapur water works	82	86	82	Thane	Ambernath	Kulgaon
SW	1461	Kalyan	Bhatsa river at D/s of Pise Dam	81	84	82	Thane	Bhiwandi	Pise
SW	2162	Kalyan	Ulhas River at Jambhul water works	85	80	84	Thane	Ambernath	Jambhul
SW	2653	Kalyan	Bhatsa River at D/s of Liberty Oil Mills	81	79	78	Thane	Shahapur	Satne
SW	2654	Kalyan	Bhatsa River at D/s of Liberty Oil Mills	79	81	79	Thane	Shahapur	Satne
SW	2709	Kalyan	Tansa River near road bridge	79	79	79	Thane	Wada	Dakewali
SW	2712	Kalyan	Vaitarna River near Road Bridge	76	Not collected	80	Thane	Wada	Gandhare
Saline	2791	Kalyan	Ulhas Creek at Reti Bunder, D/s of Kalyan-Bhiwandi Bridge	61	55	53	Thane	Kalyan	Kalyan
GW	205	Kalyan	Dug well opp. KAMA office, MIDC Ph-I, Dombivali	Not Collected	174	174	Kalyan	Dombivali	MIDC,Dombivali
GW	206	Kalyan	Dug well near Mamta Hospital, Milap Nagar, Dombivali	Not Collected	Closed	Closed	Kalyan	Dombivali	MIDC,Dombivali
GW	207	Kalyan	Dug well at pimpleshwar Temple, MIDC Ph-II, Dombivali	Not Collected	115	115	Kalyan	Dombivali	MIDC,Dombivali
GW	208	Kalyan	Dug well addjusent to M/S. Altra pure chem., Sr. No. 45, Hissa No. 3, MIDC Ph-II, Dombivali.	Not Collected	82	82	Kalyan	Dombivali	MIDC,Dombivali

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data

RO – Kolhapur

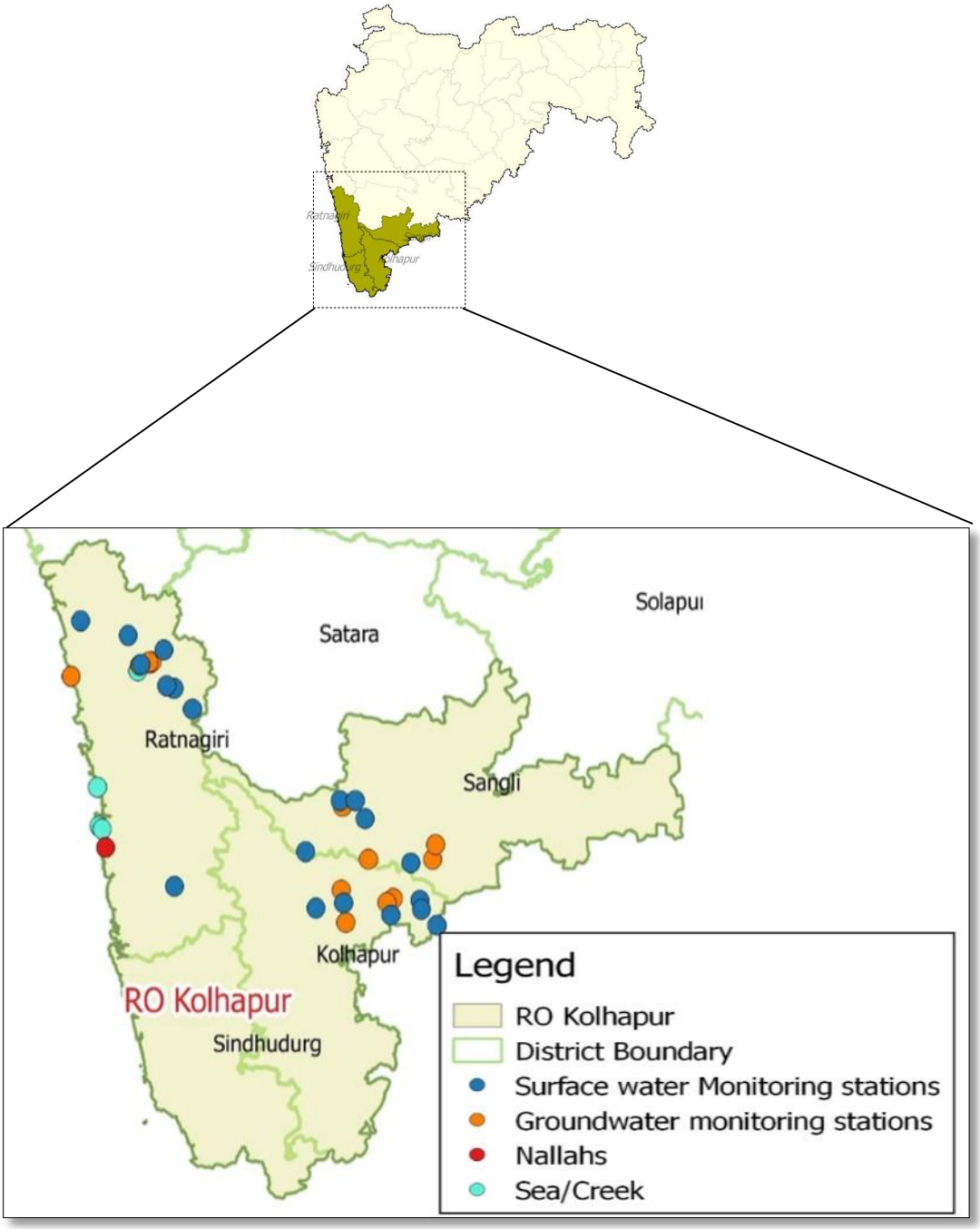

Satara
Solapur
Ratnagiri
Sangli
Kolhapur
RO Kolhapur
Sindhudurg
Legend
RO Kolhapur
District Boundary
Surface water Monitoring stations
Groundwater monitoring stations
Nallahs
Sea/Creek

Table No. 34 Water quality Index for surface and ground water monitoring at Kolhapur-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	37	Kolhapur	Krishna River at Maighat, Sangli	65	68	66	Sangli	Miraj	Gawali gally
SW	198	Kolhapur	Bahe KT Weir, Bahe, Taluka - Walwa, District - Sangli	63	65	64	Sangli	Walwa	Bahe
SW	199	Kolhapur	Borgaon KT Weir, Borgaon, Taluka - Walwa, District - Sangli	65	69	64	Sangli	Walwa	Borgaon
SW	200	Kolhapur	Mangle Bridge, Mangle, Taluka - Shirala, District - Sangli	66	64	64	Sangli	Shirala	Mangle
SW	201	Kolhapur	Sonpatra River At Kotwali Village, Taluka - Khed, District - Ratnagiri	67	66	65	Ratnagiri	Khed	Kotwali
SW	202	Kolhapur	Vashisti River At Khadpoli, Taluka Chiplun, District - Ratnagiri	66	64	65	Ratnagiri	Chiplun	Khadpoli
SW	203	Kolhapur	Jagbudi River, D/S of Khed City, Taluka - Khed, District Ratnagiri	66	65	66	Ratnagiri	Khed	Khed City
SW	204	Kolhapur	Jog river at Dapoli, Taluka Dapoli, District - Rantnagiri		64	65	Ratnagiri	Dapoli	Dapoli
SW	1153	Kolhapur	Krishna River at Rajapur Weir	66	65	63	Kolhapur	Shirol	Rajapur
SW	1310	Kolhapur	Krishna River at Kurundwad	67	64	63	Kolhapur	Shirol	Narshingwadi, Kurundwad
SW	1311	Kolhapur	Panchganga River at Ichalkaranji near MIDC intake well	66	63	61	Kolhapur	Hatkan angale	Shiradhwad (Ichalkaranji ghat)
SW	1904	Kolhapur	Panchganga River at U/s of Kolhapur town near Balinga Pumping Station	67	64	63	Kolhapur	Karvir	Balinga
SW	1905	Kolhapur	Panchaganga river at D/s of Kolhapur town at Gandhi nagar near NH-4 bridge and MIDC intake well	68	63	63	Kolhapur	Kolhapur	Uchegaon
SW	1906	Kolhapur	Krishna river at Walwa, D/s of Islampur near Vithal Temple	66	66	65	Sangli	Walwa	Walwa
SW	2163	Kolhapur	Panchganga River at Shirol near Shirol intake well	66	63	62	Kolhapur	Shirol	Shirol
SW	2164	Kolhapur	Vashishti River at U/s of Three M Paper Mills near M/s Multifilms Plastic Pvt Ltd	68	65	66	Ratnagiri	Chiplun	Kherdi
SW	2676	Kolhapur	Muchkundi River at Waked Ratnagiri near M/s Asahi India Glass	67	61	64	Ratnagiri	Lanja	Waked
SW	2713	Kolhapur	Vashishti River at D/s of Three M Paper Mills near Chiplun water intake Jackwell	66	68	66	Ratnagiri	Chiplun	Kherdi
SW	2714	Kolhapur	Vashishti River at U/s of Pophali near Konphansawane Bridge	65	66	65	Ratnagiri	Chiplun	Pophali
Nalla	2790	Kolhapur	Pimpal-Paneri Nalla at Ratnagiri near Finolex Industries	56	57	59	Ratnagiri	Ratnagiri	Yahganigaon
Saline	2804	Kolhapur	Karambavane Creek at Chiplun	61	66	64	Ratnagiri	Chiplun	Karambavane
Saline	2813	Kolhapur	Sea Water at Ganapatipule	60	58	60	Ratnagiri	Ratnagiri	Ganapatipule
Saline	2814	Kolhapur	Sea Water at Bhagwati Bunder, Ratnagiri near Ultra Tech Cement Jetty	60	56	59	Ratnagiri	Ratnagiri	Mirkarwada
Saline	2815	Kolhapur	Madvi Sea Water at Ratnagiri near Jodhale Maruti Temple	63	57	58	Ratnagiri	Ratnagiri	Madvigaon
GW	2004	Kolhapur	Bore well at Parvati Industrial Estate, Yadrav, Kolhapur	158	182	170	Kolhapur	Shirol	Yadrav
GW	2005	Kolhapur	Bore well at Khanjirenagar, Kolhapur	152	112	132	Kolhapur	Hatkan angale	Khanjirenagar
GW	2006	Kolhapur	Bore well at Shinoli near M/s Aqua Alloy Steel.	135	157	146	Kolhapur	Chandgad	Shinoli

GW	2007	Kolhapur	Bore well at Savali, near Gram Panchayat office.	128	145	136	Sangli	Miraj	Savali
GW	2008	Kolhapur	Dug well at Sambarwadi, owned by Shri. Kishan Hali Rajput.	132	191	161	Sangli	Miraj	Sambarwadi
GW	2202	Kolhapur	Dug Well at Ghane Kunt, near Awashi, onwed by shri Rajendra Amre	25	23	24	Ratnagiri	Khed	Ghane Kunt
GW	2829	Kolhapur	Bore Well at MIDC Shiroli near M/s. Pratibha Enterprises	56	198	127	Kolhapur	Hatkan angale	Shiroli
GW	2830	Kolhapur	Bore Well at MIDC Gokul Shirgaon	135	101	118	Kolhapur	Karvir	Gokul-Shirgaon
GW	2831	Kolhapur	Dug Well at Sakharali near MIDC Islampur near Krishna Milk Industry	140	117	128	Sangli	Walwa	Sakharali
GW	2832	Kolhapur	Dug Well No.1 at Brahmanwadi-Anjanwel, owned by Shri Vaidya	38	20	29	Ratnagiri	Guhagar	Anjanwel
GW	2833	Kolhapur	Dug Well No.1 at Group Gram Panchayat at Arketwadi, near Masjid	24	35	29	Ratnagiri	Khed	Arketwadi
GW	2834	Kolhapur	Dug Well No.2 at Arketwadi	497	36	267	Ratnagiri	Khed	Arketwadi
GW	2835	Kolhapur	Dug Well No.2 at owned by Group Gram Panchayat, Brahmanwadi-Anjanwel	28	19	23	Ratnagiri	Guhagar	Anjanwel
GW	219	Kolhapur	Commen well Water At Patwardhan, Lote, Taluka - Khed, District - Rantnagiri	27	62	44	Ratnagiri	Khed	Lote
GW	220	Kolhapur	Dugwell backside Excel India At Chalkewadi, Taluka - Khed, District - Ratnagiri.	33	19	26	Ratnagiri	Khed	Chalkewadi

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data

RO – Mumbai

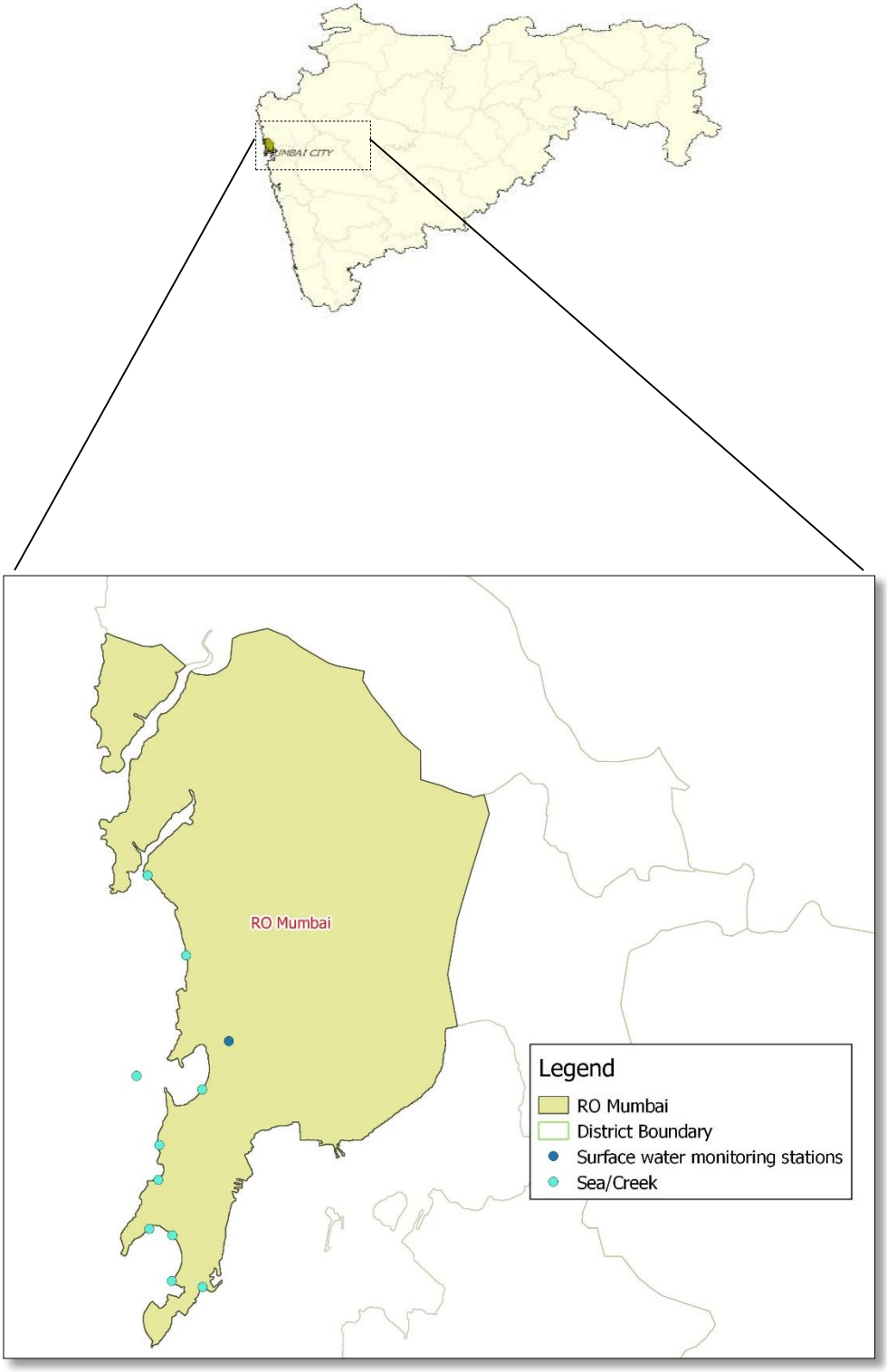

MUMBAI CITY
RO Mumbai
Legend
RO Mumbai
District Boundary
Surface water monitoring stations
Sea/Creek

Table No. 35: Water quality Index for surface and ground water monitoring at Mumbai-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
Saline	1318	Mumbai	Mahim creek at Mahim Bay	51	46	50	Mumbai	Bandra	Mahim
Saline	2165	Mumbai	Sea Water at Gateway of India	48	41	47	Mumbai	Colaba	Colaba
Saline	2166	Mumbai	Sea Water at Charni Road Choupathy	47	45	47	Mumbai	Mumbai	Girgaon
Saline	2167	Mumbai	Sea Water at Worli Seaface	54	44	47	Mumbai	Worli	Worli
SW	2168	Mumbai	Mithi River at near bridge	31	27	32	Mumbai	Bandra	Mahim
Saline	2169	Mumbai	Sea Water at Varsova Beach	52	47	47	Mumbai	Andheri	Versova
Saline	2808	Mumbai	Sea Water at Nariman Point	49	44	47	Mumbai	Colaba	Colaba
Saline	2809	Mumbai	Sea Water at Malabar Hill	51	44	48	Mumbai	Mumbai	Walkeshwar
Saline	2810	Mumbai	Sea Water at Haj Ali	55	50	48	Mumbai	Worli	Worli
Saline	2811	Mumbai	Sea Water at Shivaji Park (Dadar Choupathy)	50	44	48	Mumbai	Dadar	Dadar
Saline	2812	Mumbai	Sea Water at Juhu Beach	50	50	47	Mumbai	Santacruz	Juhugaon

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad	Dry	No Data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	No data

RO – Nagpur

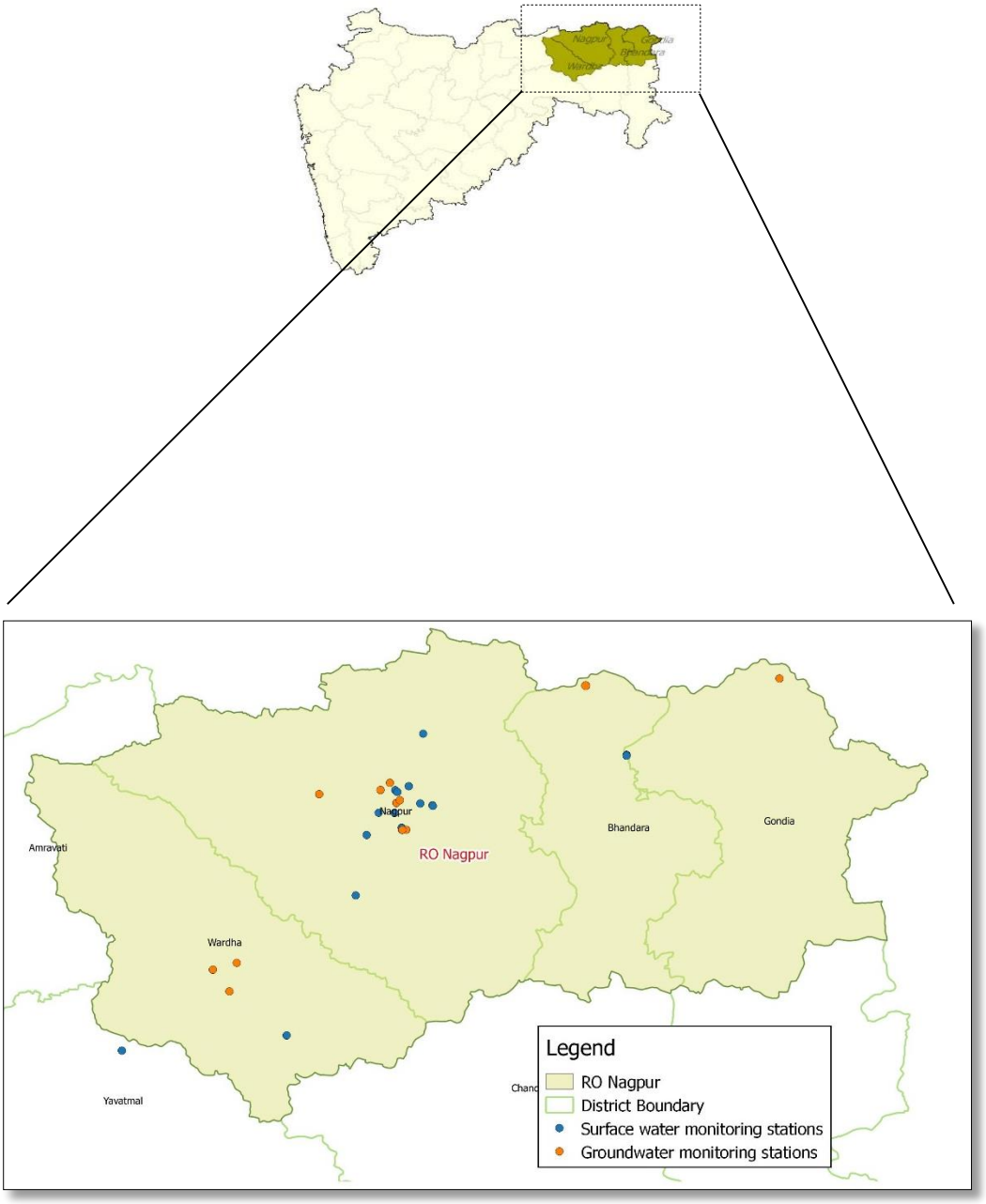

Nagpur
Amravati
Wardha
Yavatmal
Bhandara
Gondia
RO Nagpur
Legend
RO Nagpur
District Boundary
Surface water monitoring stations
Groundwater monitoring stations

Table No. 36: Water quality Index for surface and ground water monitoring at Nagpur-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	185	Nagpur	Nag River Near, Ambazari Lake, Nagpur	78	74	71	Nagpur	Nagpur	Nagpur
SW	186	Nagpur	Nag River Near, Bhandewadi Bridge, Nagpur	34	51	38	Nagpur	Nagpur	Nagpur
SW	187	Nagpur	Nag River Near, Asoli Bridge, Bhandara Road, Nagpur	39	40	40	Nagpur	Nagpur	Nagpur
SW	188	Nagpur	Pill River Near, Wanjra Layout Kamptee Road, Nagpur	62	56	41	Nagpur	Nagpur	Nagpur
SW	189	Nagpur	Pill River Near, Mankapur on Koradi Road, Nagpur	59	46	45	Nagpur	Nagpur	Nagpur
SW	1315	Nagpur	Wardha River at Pulgaon Railway Bridge	65	Not collected	70	Wardha	wardha	Pulgaon
SW	1908	Nagpur	Kolar river before confluence with Kanhan river at Waregaon Bridge	75	68	72	Nagpur	Kamptee	Waregaon
SW	1909	Nagpur	Kanhan river at D/s of Nagpur	69	Not collected	69	Nagpur	Kuhi	Agargaon
SW	1910	Nagpur	Wainganga river after confluence with Kanhan river	74	Not collected	72	Nagpur	Kuhi	Ambhora
SW	2170	Nagpur	Kanhan River (Wainganga basin) at U/s of M/s Vidharba Paper Mill	84	76	77	Nagpur	Parseoni	Sinora
SW	2171	Nagpur	Kanhan River (Wainganga basin) at D/s of M/s Vidharbha Paper Mills	79	73	72	Nagpur	Parseoni	Sinora
SW	2172	Nagpur	Wainganga River at D/s of Ellora Paper Mill	76	70	66	Bandara	Tumsar	Tumsar
SW	2173	Nagpur	Wainganga River at U/s of Ellora Paper Mills	71	75	69	Bandara	Tumsar	Tumsar
SW	2722	Nagpur	Wena River at U/s of Mohata Mills, nearby Brigde on Hinganghat Wadner Road	82	Not collected	78	Wardha	Hingang hat	Hinganghat
SW	2723	Nagpur	Wena River at D/s of Mohata Mills, near Bridge on Hinganghat-Wadner Road	75	Not collected	71	Wardha	Hingang hat	Hinganghat
GW	1995	Nagpur	Gram Panchayath Dug well , Near Balaji Gajbhiye House, Khaperkheda	103	112	107	Nagpur	Saoner	Khaperkheda(Ward No.4)
GW	1996	Nagpur	Gram Panchayath Dug well , Near Jagadamba G M S Mandir Sahakari Sanstha	136	103	120	Nagpur	Kamptee	Koradi
GW	1997	Nagpur	Bore well near Primary Health Centre, Raipur(Hingna)		40	40	Nagpur	Hingna	Raipur
GW	1998	Nagpur	Gram Panchayat Dug well near Gram Panchayat Office, Brahmni	83	86	85	Nagpur	Kalmesh war	Brahmni

GW	1999	Nagpur	Bore well Near Gram Panchayat,Changera.		106	106	Gondia	Gondia	Changera
GW	2000	Nagpur	Dug well near Sarode Kirana Store, Bhandewadi, Nagpur	Closed	Closed	Closed	Nagpur	Nagpur	Bhandewadi
GW	2203	Nagpur	Hand Pump in the premises of Z.P.Primary School		41	41	Wardha	wardha	Bhugaon
GW	2826	Nagpur	Dug Well near Railway Station, Cottaon Market		71	71	Wardha	wardha	Wardha
GW	2827	Nagpur	Bore Well near Railway crossing at Dongi Buzurg	Closed	Closed	Closed	Bandara	Tumsar	Dongri-Buzurg
GW	209	Nagpur	Bore well near Pardhi House, Bhandewadi, Nagpur	71	113	92	Nagpur	#N/A	Bhandewadi
GW	210	Nagpur	Bore well near Dearao Kale House, Bhandewadi, Nagpur	56	136	96	Nagpur	#N/A	Bhandewadi
GW	212	Nagpur	Grampanchayat Mhasala, Dugwell On Nalla At Mhasala, Taluka - Kamptee, District - Nagpur	128	151	139	Nagpur	Kamptee	Mhasala
GW	213	Nagpur	Grampanchayat Kawtha, Dugwell At Kawtha, Taluka - Kamptee, District - Nagpur	132	134	133	Nagpur	Kamptee	Kawtha

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data	Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data	Not collected

RO – Nashik

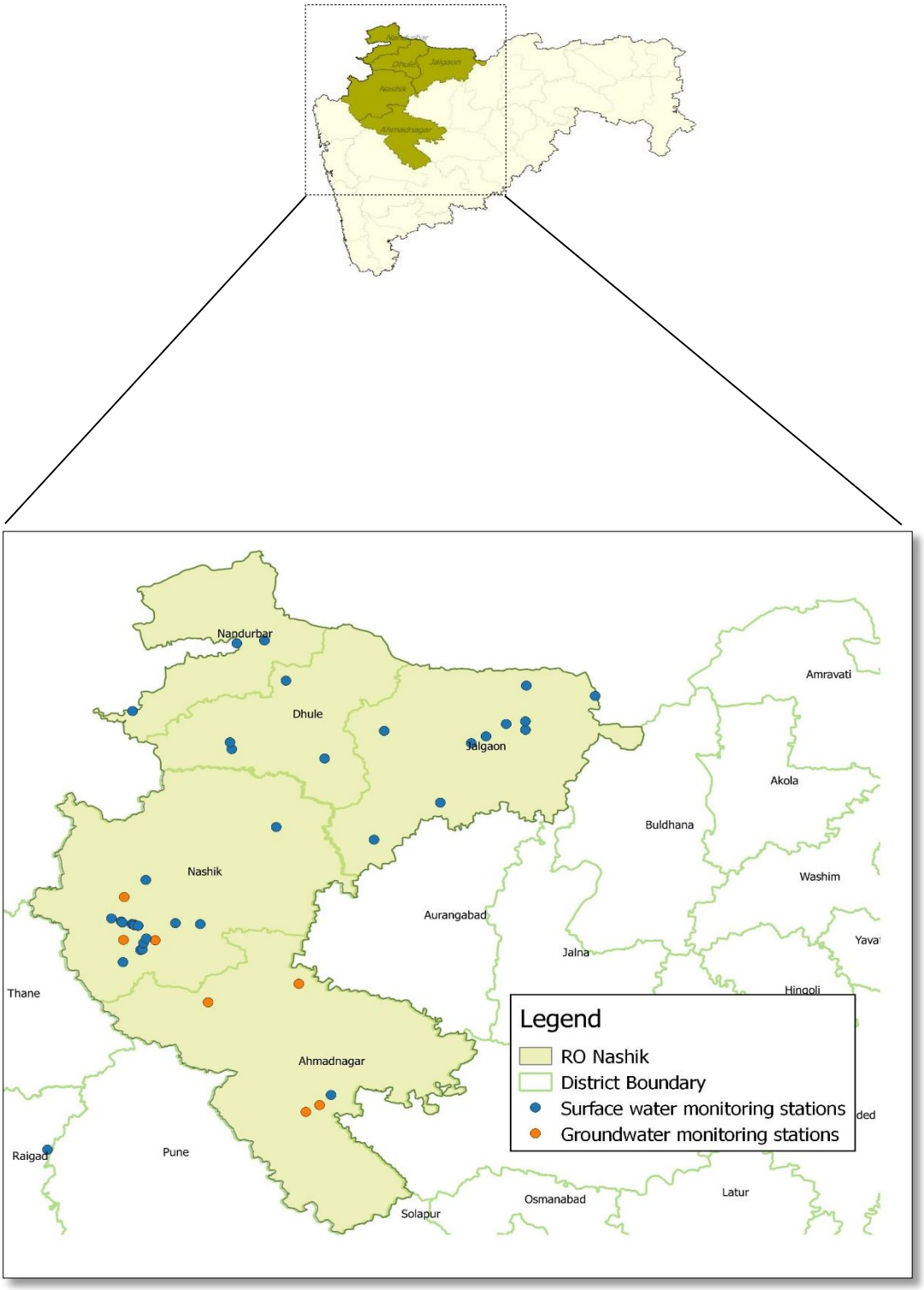

Dhule
Jalgaon
Nashik
Ahmadnagar
Nandurbar
Dhule
Jalgaon
Nashik
Aurangabad
Thane
Ahmadnagar
Raigad
Pune
Solapur
Osmanabad
Latur
Jalna
Buldhana
Akola
Amravati
Washim
Hingoli
Legend
RO Nashik
District Boundary
Surface water monitoring stations
Groundwater monitoring stations

Table No. 37: Water quality Index for surface and ground water monitoring at Nashik -RO – 2016-17

Type	Station code	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	194	Kadwa River at Awankhed Village, Taluka - Dindori, District - Nashik	91	92	88	Nashik	Dindori	Awankhed Village
SW	195	Sina River Bridge At Burudgaon Road, A/P Ahmednagar, Taluka & District Ahmednagar	76	55	60	Ahmednagar	Ahmednagar	Burudgaon
SW	196	Lowki Nalla At Khedi, Taluka & District - Jalgaon	83	49	65	Jalgaon	Khedi	Khedi
SW	197	Moti Nalla before Confluence with Panjara river Dhule, Taluka & District - Dhule	40	70	54	Dhule	Dhule	Dhule
SW	1095	Godavari River at U/s of Gangapur Dam	81	92	88	Nashik	Nashik	Gangapur
SW	1096	Godavari River at Panchavati at Ramkund	75	65	80	Nashik	Nashik	Panchavati
SW	1211	Godavari River at Nashik D/s of near Amardham	66	80	79	Nashik	Nashik	Gadgebaba Maharaj Nagar
SW	1251	Tapi River at Bhusawal	81	91	86	Jalgaon	Bhusawal	Bhusawal Railway Colony
SW	1252	Girna river at Jalgaon at intake of Girna pump house		92	81	Jalgaon	Jalgaon	Girna pump house area
SW	1253	Girna river at Malegaon at Malegaon road bridge		91	84	Nashik	Malegaon	Malegaon
SW	1313	Tapi River at Ajnad	85	92	85	Jalgaon	Raver	Ajnad
SW	1314	Tapi river at Ubad village near Gujrat border	87	90	86	Nandurbar	Shahada	Ubad
SW	1907	Rangavali river at D/s of Navapur near Rangavali bridge		90	88	Nandurbar	Navapur	Navapur
SW	2177	Godavari River near Someshwar Temple	77	88	83	Nashik	Nashik	Someshwar
SW	2178	Chikhali Nalla Meets Godavari River		64	72	Nashik	Nashik	Chikhali
SW	2179	Godavari River at Hanuman Ghat	70	89	80	Nashik	Nashik	Nashik city
SW	2180	Godavari River at near Tapovan	89	82	80	Nashik	Nashik	Tapovan
SW	2181	Godavari River at Kapila -Godavari confluence point	93	83	82	Nashik	Nashik	Tapovan
SW	2182	Godavari River at Saikheda	85	89	87	Nashik	Niphad	Saikheda
SW	2183	Godavari River at Nandur-Madhameshwar Dam	90	92	87	Nashik	Niphad	Nandur
SW	2652	Amravati River D/s of Dondaicha			87	Dhule	Dhule	Dondaicha
SW	2658	Bori River D/s of Amalner			83	Jalgaon	Jalgaon	Amalner
SW	2659	Burai River before confluece to Tapi River			90	Dhule	Dhule	Mukudas

SW	2660	Darna River at Chehedi pumping station	89	92	89	Nashik	Nashik	Chehedi
SW	2661	Darna River at Aswali (Darna Dam)	89	90	89	Nashik	Igatpuri	Aswali
SW	2662	Darna River at MES site Pumping station	87	92	88	Nashik	Nashik	Bhagur
SW	2663	Darna River at Bhagur Pumping station near Pandhurli Bridge	92	91	87	Nashik	Nashik	Bhagur
SW	2664	Darna River at Sansari	89	89	88	Nashik	Nashik	Sansari
SW	2666	Gomai River D/s of Shahada			90	Dhule	Dhule	Shahada
SW	2667	Hiwara River D/s of Pachora			83	Jalgaon	Jalgaon	Pachora
SW	2670	Kan River near Sakri water works			89	Dhule	Dhule	Sakri
SW	2674	Mor River near Padalshe			86	Jalgaon	Jalgaon	Padalashe
SW	2684	Panzara River near Panzarakan SSK Ltd		88	87	Dhule	Dhule	Panzare
SW	2689	Patalganga River at Gagangiri Maharaj Temple	82	73	80	Raigad	Khalapur	Khopoli
SW	2710	Titur River D/s of Chalisgaon			84	Jalgaon	Jalgaon	Chalisgaon
SW	2718	Waghur River at Sakegaon before Confluence with Tapi River			86	Jalgaon	Jalgaon	Sakegaon
GW	1990	Bore well at BMW Site , Burudgaon	Closed	Closed	Closed	Ahmadnagar	Ahmednagar	Burudgaon
GW	1991	Bore well at MSW Site, Pathardi, Nashik				Nashik	Nashik	Pathardi
GW	2204	Dug well at Gunjalwadi, Sangamner near Primary Health Care Center.				Ahmadnagar	Sangamner	Gunjalwadi
GW	2816	Dug Well of Mr. Sampat Walunj, near M/s. Mahajeet Clayton				Nashik	Nashik	Shinde village
GW	2817	Bore Well at Chitali near Wagh vasthi				Ahmadnagar	Rahata	Chitali
GW	2818	Bore Well at M/s. Spectron Ethers Rasegaon near Siddeshwar Mahadev Mandir		Not collected	Not collected	Nashik	Dindori	Rasegaon
GW	221	well water of Bappaji, Akolner, Ahmadnagar, Nashik	74	96	85	Nashik	Ahmadnagar	Akolner

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad	No Data	Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking	No data	Not collect

RO – Navi Mumbai

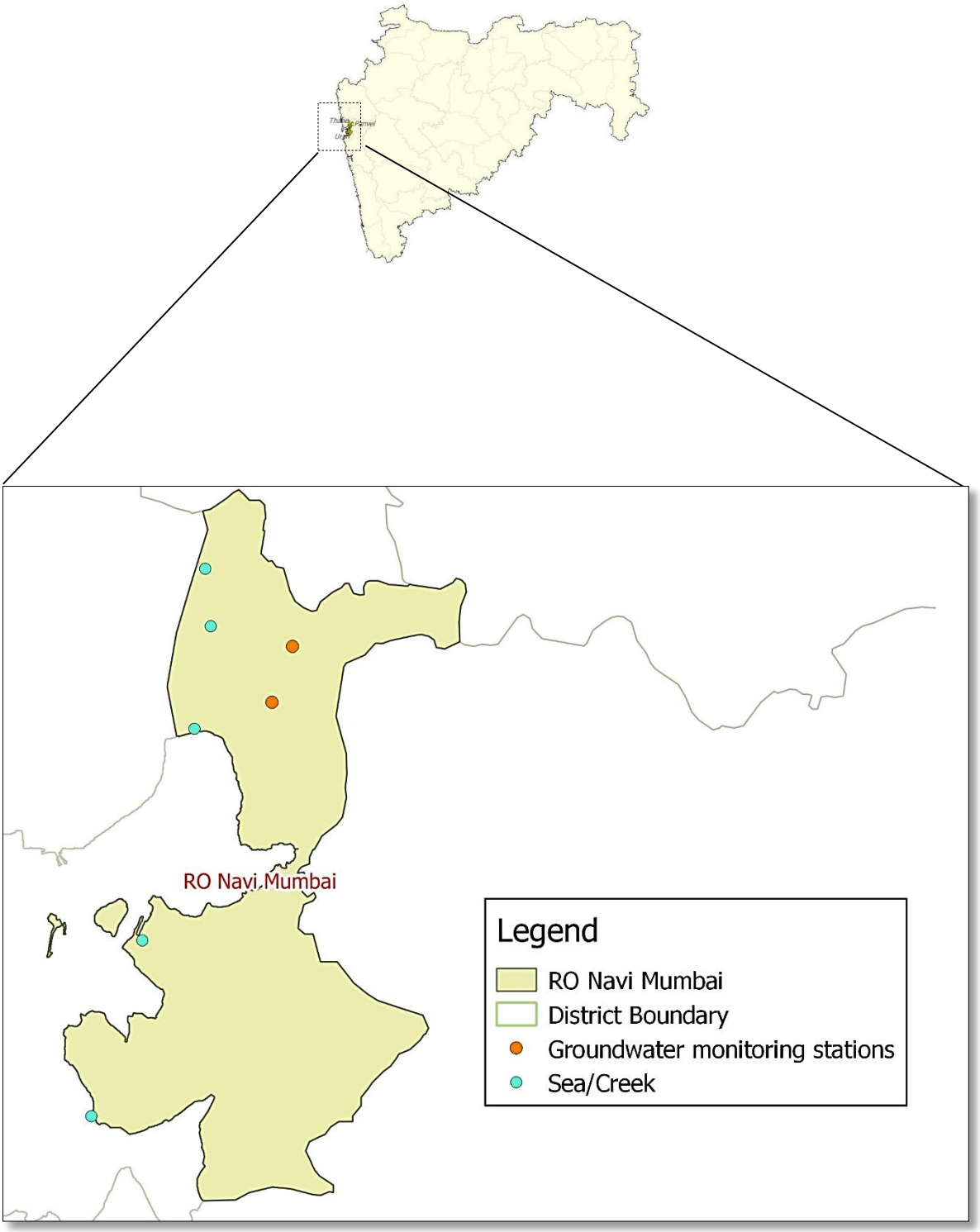


Table No. 38: Water quality Index for surface and ground water monitoring at Navi Mumbai-RO – 2016-17

Type	Station code	Regional Office	Station Name	April	Dec/Oct	Average	District	Taluka	Village
Saline	190	Navi Mumbai	TTC Creek At Ghansoli Jetty	49	50	53	Thane	Thane	Ghansoli
Saline	191	Navi Mumbai	Arabian Sea behind ONGC Uran	46	47	48	Raigad	Uran	Uran
SW	216	Navi Mumbai	Kasardi River near Ganesh Ghat	68	39	62	Raigad	Panvel	Taloja
Saline	1317	Navi Mumbai	Thane creek at Elephanta Island	50	50	52	Raigad	Uran	Gharapuri , Elephanta Island
Saline	2184	Navi Mumbai	Vashi Creek at Airoli Bridge	52	52	53	Thane	Thane	Airoli
Saline	2185	Navi Mumbai	Vashi Creek at Vashi Bridge	75	54	56	Thane	Thane	Vashi
GW	214	Navi Mumbai	Borewell at TTCWMA, Mahape	37	50	43	Thane	Thane	TTCWMA ,Mahape
GW	215	Navi Mumbai	Well water at Turbhe Store, Turbhe	3662	27	1845	Thane	Thane	Turbhe

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data	Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data	Not collected

RO – Pune

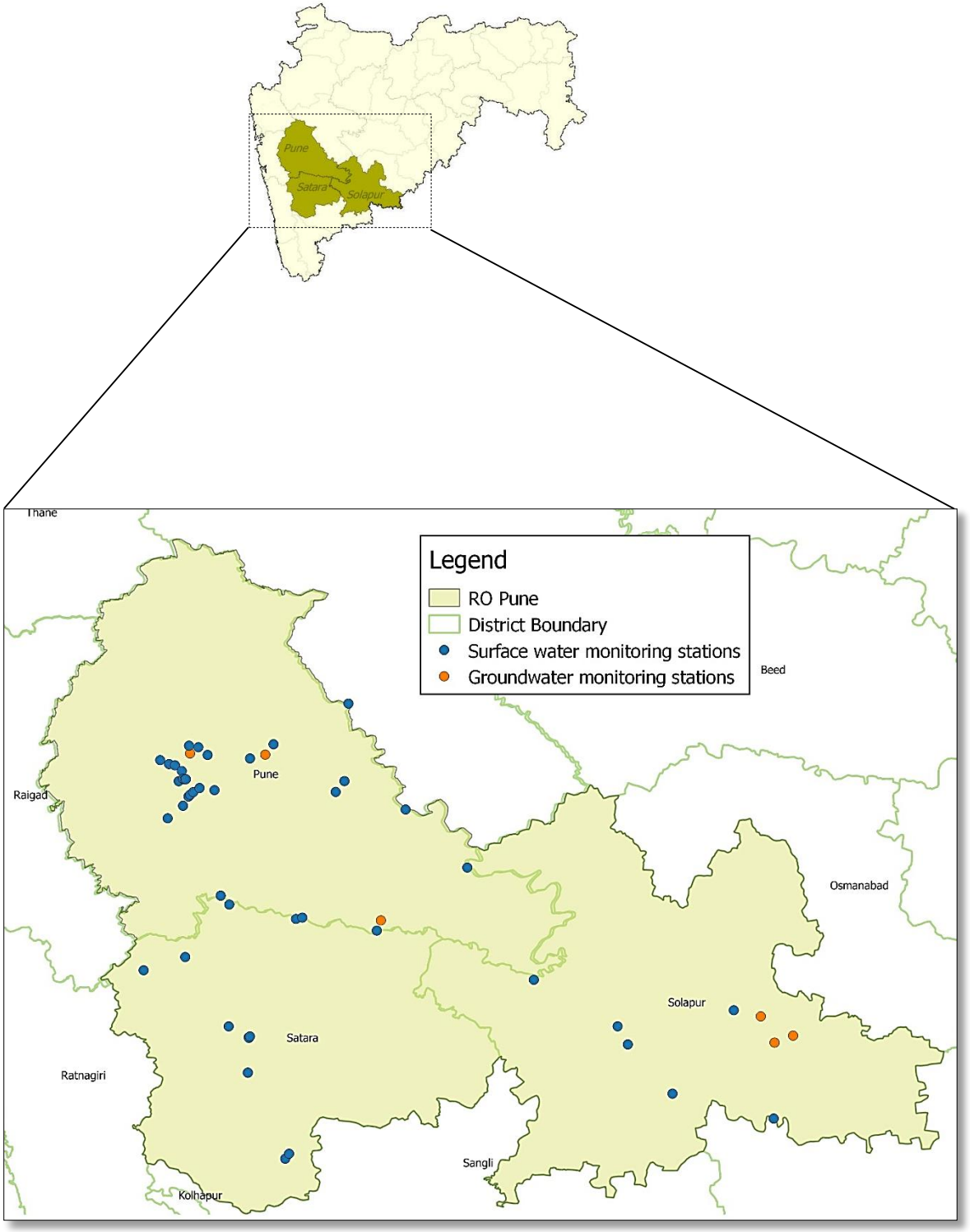

Pune
Satara
Solapur
Legend
RO Pune
District Boundary
Surface water monitoring stations
Groundwater monitoring stations
Thane
Beed
Raigad
Pune
Osmanabad
Solapur
Satara
Ratnagiri
Sangli
Kolhapur

Table No. 39: Water quality Index for surface and ground water monitoring at Pune-RO – 2016-17

Type	Station code	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	28	Bhima River at Takli	67	73	67	Solapur	South Solapur	Takali
SW	36	Krishna River at Krishna Bridge, Karad	53	79	66	Satara	Karad	Karad
SW	1188	Bhima River at Narshingpur near Sangam Bridge after confluence with Nira			67	Solapur	Malshiros	Narsingpur
SW	1189	Bhima river at Pune(Mutha river) at U/s of Vithalwadi near Sankar Mandir	53	22	45	Pune	Haweli	Vithalwadi
SW	1190	Bhima river at D/s of Bundgarden, Pune	34	23	43	Pune	Haweli	Yerwada
SW	1191	Bhima river after confluence with Mula-Mutha at Pargaon near Vasant Bandara	43	35	52	Pune	Daund	Pargaon
SW	1192	Bhima river at Daund near Mahadev temple	40	51	49	Pune	Daund	Daund
SW	1194	Krishna river at Dhom Dam	67	85	70	Satara	Mahabaleshwar	Wai
SW	1463	Nira river at Sarola bridge	48	62	58	Pune	Bhor	Sarola
SW	1911	Chandrabhaga river at U/s of Pandharpur town	69	69	72	Solapur	Pandarpur	Gursale
SW	1912	Chandrabhaga river at D/s of Pandharpur town near Vishnupant Mandir	58	70	62	Solapur	Pandarpur	Gopalpur
SW	2186	Venna River at Varya, Satara	73	75	64	Satara	Satara	Varye
SW	2187	Krishna River at Kshetra Mahuli Satara	54	69	60	Satara	Mahuli	Kshetra Mahuli
SW	2188	Krishna River at Krishna-Venna Sangam, Mahuli	77	77	64	Satara	Mahuli	Mahuli
SW	2189	Koyna River at Karad	55	72	64	Satara	Karad	Karad
SW	2190	Krishna River at Wai	70	66	68	Satara	Wai	Wai
SW	2191	Mutha River at Sangam Bridge Near Ganpathi Ghat	30	20	41	Pune	Pune	Shivaji Nagar
SW	2192	Mula-Mutha River at Mundhwa Bridge	36	24	46	Pune	Haweli	Mundhawa
SW	2193	Mula River at Aundh Bridge -Aundgaon	47	25	47	Pune	Haweli	Aundhgaon
SW	2194	Mula River at Harrison Bridge near Mula -Pawana Sangam	38	23	44	Pune	Haweli	Bopodi
SW	2195	Nira River at D/s of Jubilant Organosis Pune	38	47	46	Pune	Baramati	Nimbut
SW	2196	Pawana River at Sangavigaon, Pune	40	32	45	Pune	Haweli	Sangavigaon
SW	2197	Indrayani River at D/s of Alandigaon, Pune	45	57	57	Pune	Haweli	Alandigaon
SW	2655	Bhima River at Koregaon near Koregaon Bridge, Pune	60	55	58	Pune	Shirur	Koregaon
SW	2656	Bhima River Backwater of Ujani Dam near raw water pump house	72	57	58	Pune	Indapur	Kumbargaon
SW	2665	Ghod River at Shirur, Pune		46	48	Pune	Shirur	Shirur
SW	2668	Indrayani River at D/s of Moshi village		Not collected	55	Pune	Haveli	Moshi

SW	2669	Indrayani River at U/s of Moshigaon, Pune	70	44	59	Pune	Haweli	Moshigaon
SW	2677	Mula-Mutha River at D/s of Theur, Pune	48	51	49	Pune	Haweli	Theur
SW	2678	Mutha River near Veer Savarkar Bhavan	30	23	40	Pune	Pune	Pune M.C
SW	2679	Mutha River at Deccan Bridge, Pune	33	22	39	Pune	Pune	Deccan
SW	2680	Mutha River at Khadakvasla Dam Pune	62	67	63	Pune	Haweli	Kadakvasla
SW	2681	Nira River at Sangavi	57	61	56	Satara	Phaltan	Sangavi
SW	2682	Nira River at U/s of Jubilant Organosis Pune	58	59	52	Pune	Baramati	Nira(Datta ghat)
SW	2683	Nira River at Shindewadi	54	84	64	Satara	Khandala	Shindewadi, Shirwal
SW	2690	Pawana River at Kasarwadi Pune	39	33	44	Pune	Haweli	Kasarwadi
SW	2691	Pawana River at Dapodi Bridge at Pawana-Mulla Sangan Pune	41	30	44	Pune	Haweli	Dapodi
SW	2692	Pawana River at Ravet Weir, Pune	62	54	60	Pune	Haweli	Ravet
SW	2693	Pawana River at Chinchwadgaon, Pune	43	62	49	Pune	Haweli	Chinchwadgaon
SW	2694	Pawana River at Pimprigaon, Pune	42	22	45	Pune	Haweli	Pimprigaon
SW	2705	Sina River near Laboti till naka Solapur			78	Solapur	Mohal	Laboti
SW	2711	Urmodi River at Nagthane Satara	56	75	63	Satara	Satara	Nagthane
SW	2715	Vel River at Shikrapur, Pune			49	Pune	Shirur	Shikrapur
SW	2716	Venna River at Mahabaleshwar	74	80	74	Satara	Mahabaleshwar	Mahabaleshwar
SW	2717	Venna River at Mahuli	42	73	59	Satara	Satara	Mahuli
SW	2789	Nalla at D/s of Alkai Mandir, Solapur			70	Solapur	Malshiras	Aklai
GW	2823	Bore Well at Shete Vasti near old Tuljapur Road	205	142	173	Solapur	Solapur	Shete vasthi, Tuljapur Naka
GW	1992	Dug well at MSW Site,owned by Shri.Dattu Kondiba Borate at Borate Vasthi.	126	125	125	Pune	Haveli	Moshi
GW	2819	Dug Well Owned by Shri Deshmukh	310	133	221	Pune	Baramati	Malegaon
GW	2820	Dug Well Owned by Shri Shivaji Baban Darekar	51	132	92	Pune	Shirur	Sanaswadi
GW	2821	Bore Well at Bale Railway Station premises Owned by Shri Digambar Joshi	96	222	159	Solapur	North Solapur	Dahegaon
GW	2822	Bore Well near Chincholi	414	133	273	Solapur	Mohol	Chincholi

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		No Data	Not collected
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		No data	Not collected

RO – Raigad

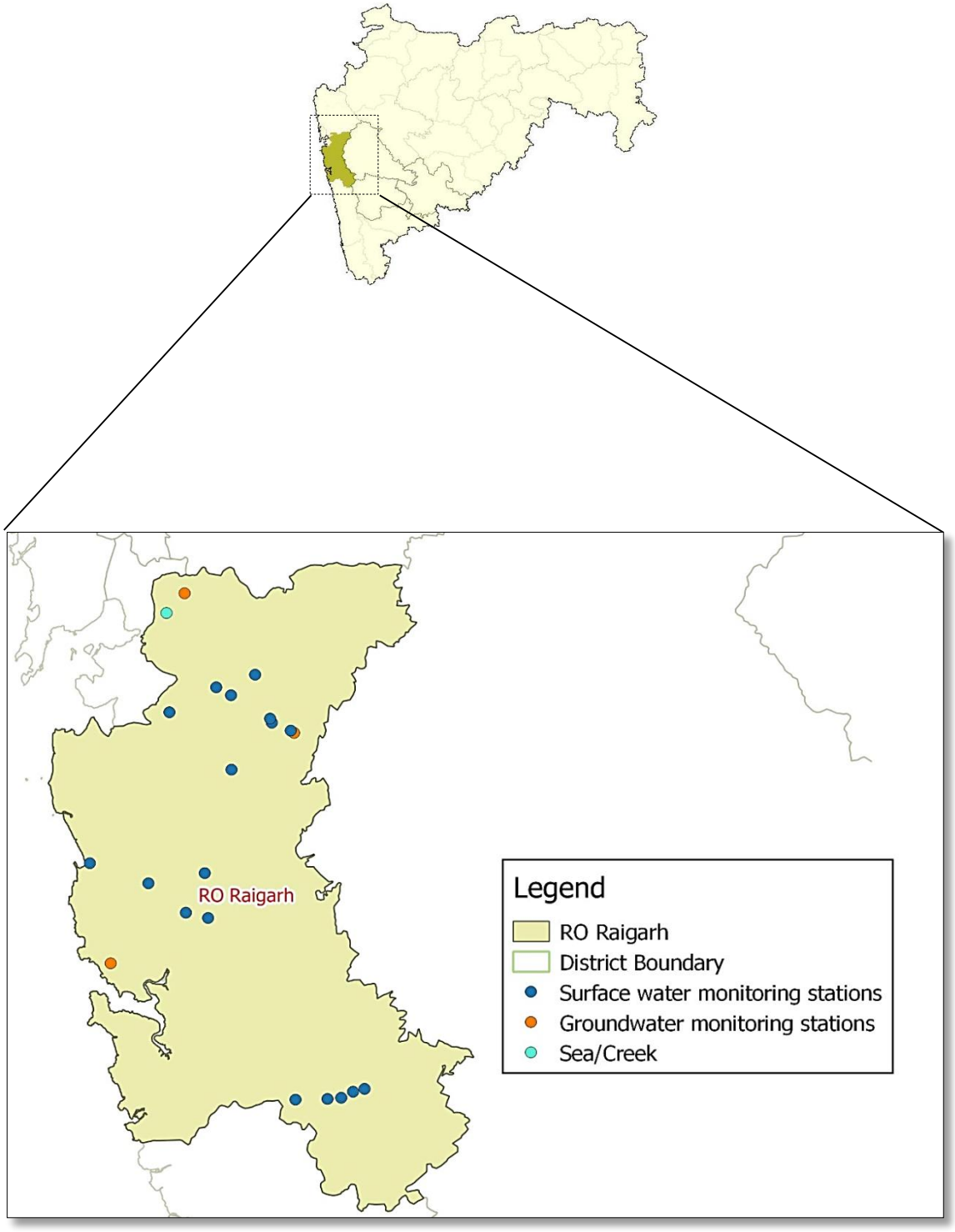

RO Raigarh
Legend
RO Raigarh
District Boundary
Surface water monitoring stations
Groundwater monitoring stations
Sea/Creek

Table No. 40: Water quality Index for surface and ground water monitoring at Raigad RO – 2016-17

Type	Station code	Station Name	April	Dec/Oct	Average	District	Taluka	Village
SW	192	Morbe Dam, Taluka - Khalapur, District - Raigad	83	87	83	Raigad	Khalapur	Khalapur
SW	193	Balganga River, Village Ransai, Taluka - Khalapur, District - Raigad	86	90	81	Raigad	Khalapur	Ransai
SW	1151	Patalganga River at Shilphata Bridge	82	75	80	Raigad	Khalapur	Khopoli
SW	1152	Kundalika River at Roha Bridge	80	84	79	Raigad	Roha	Roha
SW	1462	Patalganga near intake of MIDC water works(Turade w/w)	81	73	78	Raigad	Khalapur	Turade
SW	2198	Kundalika River at Are Khurd (Saline Zone)	76	73	70	Raigad	Roha	Are Khurd
SW	2199	Savitri River at Ovale village	63	53	64	Raigad	Mahad	Ovale
SW	2651	Amba River at D/s of Waken Bridge	82	79	78	Raigad	Roha	Waken Phata
SW	2671	Kundalik River near Salav Bridge (Saline Zone)	59	83	61	Raigad	Roha	Salav
SW	2672	Kundalika River at Dhatav at Jackwell	78	85	80	Raigad	Roha	Dhatav
SW	2685	Patalganga River at D/s of Kharpada Bridge	68	45	74	Raigad	Khalapur	Kharpada
SW	2686	Patalganga River at Vyal pump house	86	79	83	Raigad	Khalapur	Vyal
SW	2687	Patalganga River at Khalapur pumping house	84	80	82	Raigad	Khalapur	Khalapur
SW	2688	Patalganga River at Savroli Bridge	78	75	77	Raigad	Khalapur	Savroli
SW	2701	Savitri River Jackwell at Upsa kendra	67	60	66	Raigad	Mahad	Nangalwadi
SW	2702	Savitri River at Shedav Doh	66	60	66	Raigad	Mahad	Shedav Dov
SW	2703	Savitri River at Dadli Bridge	64	64	65	Raigad	Mahad	Dadli
SW	2704	Savitri River at Muthavali village	64	64	65	Raigad	Mahad	Muthavali
Saline	2803	Panvel Creek at Kopra Bridge	65	43	58	Raigad	Panvel	Kopra
GW	1989	Bore well at MWML Site at Taloja	135	49	92	Raigad	Panvel	Karawla- Taloja
GW	217	Borewell water at village Milgaon, Taluka - Khalapur, District - Raigad.	46	50	48	Raigad	Khalapur	Milgaon
GW	218	Borewell water near MSW site, Murud - Janjira.	Closed	Closed	Closed			Murud Janjira

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		Not collected	No data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		Not collected	No data

RO – Thane

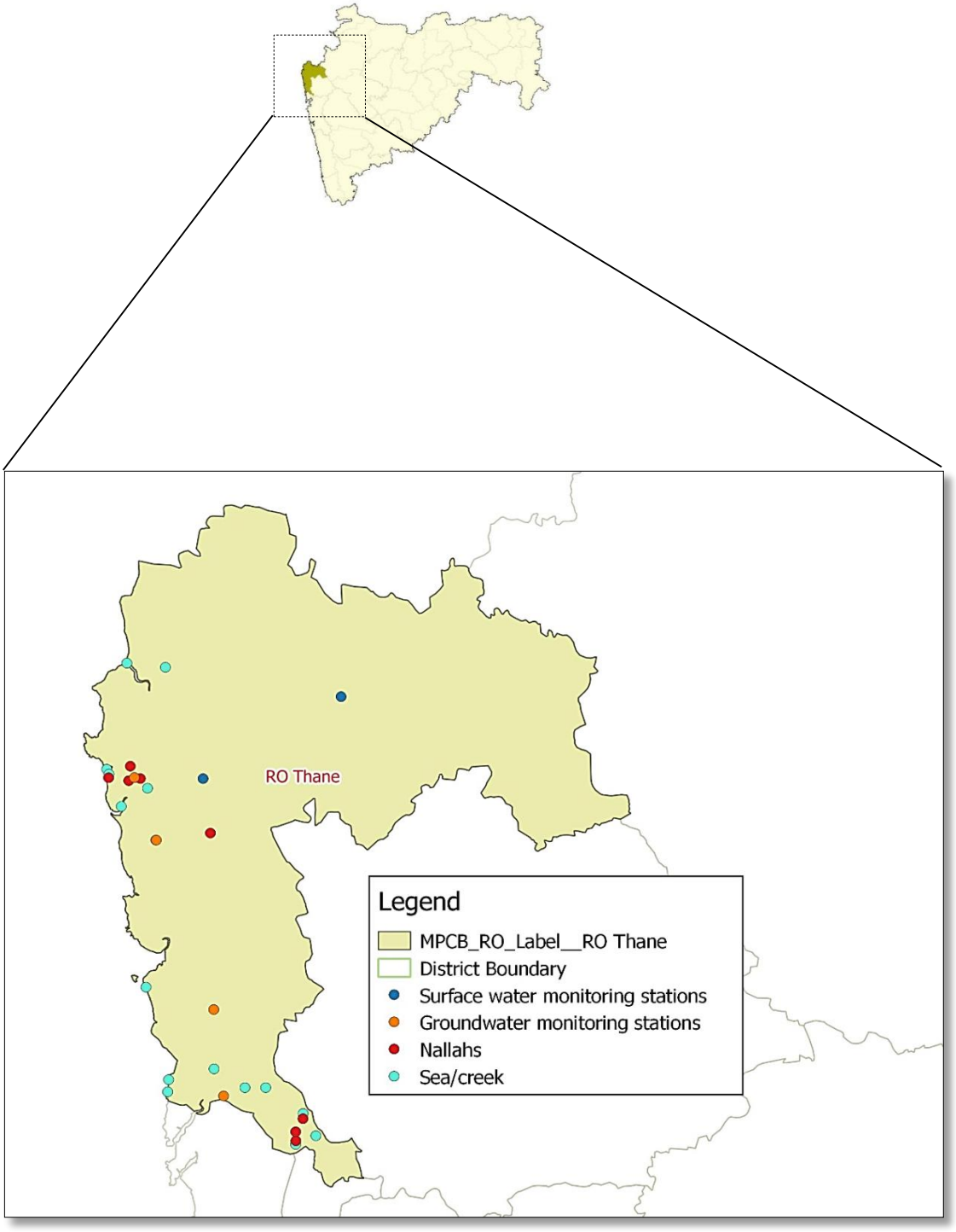

RO Thane
Legend
MPCB_RO_Label__RO Thane
District Boundary
Surface water monitoring stations
Groundwater monitoring stations
Nallahs
Sea/creek

Table No. 41: Water quality index for surface and groundwater monitoring at Thane RO -2016-17

Type	Station code	Regional Office	Station Name	April	Dec/ Oct	Average	District	Taluka	Village
Saline	1316	Thane	Bassein creek at Vasai Fort, Thane	58	46	55	Thane	Vasai	Bassein
SW	2696	Thane	Pelhar dam	83	74	80	Thane	Vasai	Pelhar
SW	2706	Thane	Surya River U/s of Surya Dam	82	85	83	Thane	Vikramgad	Dhamni
SW	2707	Thane	Surya River at MIDC pumping station	84	83	83	Thane	Palghar	Garvashet
Nalla	2708	Thane	Surya River at Intake of Vasai-Virar water scheme	77	82	82	Thane	Palghar	Masvan
Nalla	2782	Thane	Rabodi Nalla	54	32	35	Thane	Thane	Rabodi
Nalla	2783	Thane	Colour Chem Nalla	56	28	36	Thane	Thane	Majiwada
Nalla	2784	Thane	Sandoz Nalla	27	26	30	Thane	Thane	Sandozbaug
Nalla	2785	Thane	BPT Navapur	28	24	26	Palghar	Palghar	Navapur
Nalla	2786	Thane	Tarapur MIDC Nalla, near sump No1			37	Palghar	Palghar	MIDC Tarapur
Nalla	2787	Thane	Tarapur MIDC Nalla			24	Palghar	Palghar	MIDC Tarapur
Nalla	2788	Thane	Tarapur MIDC Nalla near sump-III			26	Palghar	Palghar	MIDC Tarapur
Saline	2792	Thane	Ulhas Creek at Mumbra Reti Bunder	62	52	55	Thane	Thane	Mumbra
Saline	2793	Thane	Thane Creek at Kalwa Road Bridge	62	53	56	Thane	Thane	Kalwa
Saline	2794	Thane	Ulhas Creek at Kolshet Reti Bunder	60	57	58	Thane	Thane	Kolshet
Saline	2795	Thane	Ulhas Creek at Gaimukh at Nagla Bunder on Ghod Bunder Road	62	53	56	Thane	Thane	Nagla
Saline	2796	Thane	Ulhas Creek at Versova Bridge	56	47	55	Thane	Vasai	Versova

Saline	2797	Thane	Bhayander Creek at D/s of Railway Bridge at Jasal Park Choupathy	59	52	54	Thane	Bhayander	Navghar
Saline	2798	Thane	Kharekuran Murbe Creek	61	47	54	Thane	Palghar	Kharekuran
Saline	2799	Thane	Dandi Creek	59	46	52	Thane	Palghar	Dandi
Saline	2800	Thane	Sarwali Creek	69	49	60	Thane	Palghar	Sarwali
Saline	2801	Thane	Savta Creek	57	57	59	Thane	Dahanu	Savta
Saline	2802	Thane	Dahanu Creek at Dahanu Fort	57	51	56	Thane	Dahanu	Danugaon
Saline	2805	Thane	Arnala Sea	50	45	50	Thane	Vasai	Arnala
Saline	2806	Thane	Uttan Sea at Bhayander	51	46	49	Thane	Bhayander	Uttan
Saline	2807	Thane	Navapur Sea	50	43	45	Thane	Palghar	Navapur
GW	1984	Thane	Bore well at M/s Tata Iron {} Steel Co. Ltd, S-76	Closed	Closed	Closed	Thane	Palghar	MIDCTarapur, Industrial Estate, Tarapur
GW	1985	Thane	Dug well at 5 Star Industrial Estate	31	64	47	Thane	Mira-Bhayander	Kashimira
GW	1986	Thane	Bore well at Motapada	42	93	68	Thane	Dahanu	Motapada
GW	1987	Thane	Bore well at Vasai	39	201	120	Thane	Vasai	Gokhiware
GW	1988	Thane	Bore well at Gharatwadi, Palghar	65	97	81	Thane	Palghar	Aliyali

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad		Not collected	No data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking		Not collected	No data

Annex III – List of Pending Writ petitions

List of writ petition / PIL pending before the honb'le high court of judicature Mumbai , Nagpur, Aurangabad7 bench				
Sr No	**Name of the parties**	**Pil no.**	**Region**	**Subject matter**
1	Vikas Raghunath Patil V/s. The State of Maharashtra & Ors	21204 of 2010	Pune	River of Indrayani
2	Lalit Vathade V/s MPCB	85/2015	Aurangabad	Bank of Panzra
3	Bombay Environment Action Group V/s. Union of India	Writ Petition no. 4564/88		Regarding pollution of Patalganga
4	Shri Prakash Jadhav	Writ Petition no. 3366/08	Nagpur	Wardha, Painganga & Wainganga major water polluting sources.
5	Daattatraya Hari Mane V/s. The state of Maharashtra & Ors	183/2012	Kolhapur	Pollution of Panchganga
6	Narsinh S/o Laxmanrao Jadhav V/s. The State of Maharashtra & Ors	130/2014	Aurangabad	Sukhna and Kham
7	Shri Atal Dubey v/s MCGM & Ors	PIL 27/2016	Mumbai	Issue to water logging in the city of Mumbai including Mithi river pollution

Application Pending National Green Tribunal Wz, Pune, Regd . Pollution Matters Before Ngt, Nagpur & Pune				
Sr No.	**Name Of The Parties**	**Application / Appeal No.**	**Region**	**Subject Matter**
1	Court In Own Motion V/s. The State of Maharashtra & Ors	114/2014	Nagpur	Pollution in Vidarbha Region
2	M/s. Janardhan Kundlikrao Pharande & Anr V/s. M.O.E.F & Ors	07/2014 (wz)	Pune	Regarding Nira Pollution
3	Mrs. Indu Gupta & Ors V/s. Goel Ganga Group & Ors	39/2015	Pune	Regarding Ram Nadi Pollution
4	Subhash Ramkrishna Patil V/s. MPCB	55/2015	Pune	Reg. RRZ policy
5	Chief Executive Officer,Zilha Parishad, Ahmednagar v/s Commissioner Municipal Corpn,Ahmednagar	110/2015	Pune	Regarding water pollution in Seena river
6	Akhil Bhartiya Mangela Samaj v/s MPCB &Ors	64/2016	Pune	Regd.Discharge of untreated effluent into Arbian sea at Navapur
7	Shewalewadi Gram Panchayat v/s Pune Municipal Corpn & Ors	37/2016	Pune	Not to release untreated sewage water in river bed
	Shaikh Rashid Charitable Foundation ,Malegaon v/s Union of India & Ors	232/2016	Nagpur	To take immediate steps for preventing water pollution in the rivers due to dumping of municipal solid waste

Annex IV– List of Polluted Stretches across Maharashtra

Priority Rank					
1	**2**	**3**	**4**	**5**	**Non polluted**
Mithi		Morna	Bhima	Amba	Krishna
		Mula	Ghod	Amravati	Panchganga
		Mula-Mutha	Godavari	Bhatsa	Kan
		Pawana	Indrayani	Bindusara	Savitri
			Kanhan	Chandrabhaga	Vashishti
			Nira	Darna	
			Pedhi	Girna	
			Purna	Gomai	
			Urmodi	Hiwara	
			Vel	Koyna	
			Wardha	Kundalika	
				Manjra	
				Mor	
				Mutha	
				Panzara	
				Patalganga	
				Pelhar	
				Penganga	
				Rangavali	
				Sina	
				Surya	
				Tapi	
				Ulhas	
				Vaitarna	
				Venna	
				Waghur	
				Wainganga	
				Wena	

Note: BOD less than 3mg/l are considered as non polluted

Observations:

The overall increase in water quality is recorded as:

- Only 1 (Mithi) is noted to be in Priority 1 category in the year 2016-17.
- No river is recorded in Priority 2.
- Priority 3 records decrease in number of rivers from 6 rivers (2015-16) to 4 rivers.
- As for priority 4 the number of stretches have decrease from 18 (2015-16) to 11 in the year 2016-17.
- The number of rivers in priority 5 have increase from 10 river to 28 rivers.
- Total 5 rivers were observed to be non polluted

The decrease in number of polluted stretches categorised under from Priority 3 and 4, and increase in number of polluted stretches in Priority 5 indicates improvement in river water quality.

Annex V – Status of Sewage Treatment in Municipal Corporations of Maharashtra

	Name of Municipal Corporation	Class	District		Sewage Generation MLD	Sewage Treatment MLD	Percentage Treatment (%)	Disposal	Type of Treatment
1	Ahmednagar Corporation	B	Ahmednagar	Seena	60	0	0	Open Nalla	-
2	Akola Corporation	D	Akola	Morna - Tapi	48	0	0	Morna	No any treatment facility i.e. STP not provided.
3	Amravati Corporation	D	Amaravati	Pedhi - Tapi	92	30.5	33.15	Amba Nalla to Pedhi	ASP
4	Aurangabad Corporation	D	Aurangabad	Godavari	107	9	8.41	Sukhna Dr. Salim ali Lake Kham	ASP, SBR
5	Bhiwandi-Nizampur Corporation	D	Thane	Creek	84	17	20.24	Kamavari Creek	
6	Chandrapur Corporation	D	Chandrapur	Irai - Wardha	30	30	100	Erai	
7	Dhule Corporation	D	Dhule	Panjara	48	0	0	Panzara	-
8	Jalgaon Corporation	D	Jalgaon	Tapi	48	0	0	Nalla to Girna	-
9	Kalyan-Dombivli Corporation	D	Thane	Creek	200	30	15	Ulhas creek	Primary Clarifier
10	Kolhapur Corporation	D	Kolhapur	Panchganga	96	43.5	45.31	Panchaganga	Primary, Trickling Filter, SBR

	Name of Municipal Corporation	Class	District		Sewage Generation MLD	Sewage Treatment MLD	Percentage Treatment (%)	Disposal	Type of Treatment
11	Latur Corporation	D	Latur	Manjara	24	0	0	Local Nalla to Manjara	-
12	Malegaon Corporation	C	Nashik	Mousam & Girana	28	0	0	Mausam Local to Girna	-
13	Mira-Bhayander Corporation	C	Thane	Creek	93	3.5	3.76	Creek	Primary,
14	Municipal Corporation of Grater Mumbai	A	Mumbai	Creek	2671	2028	75.93	Marine outfall Malad Creek Thane Creek Gorai Creek	Partly Primary Treatment (Bar Screen, Grit Chamber/sedimentation). And Partly Primary Treatment followed by Aerated Lagoons
15	Nagpur Corporation	B	Nagpur	Nag	345	85	24.64	Nag	Full fledged STP based on ASP with bio gas generation
16	Nanded-Waghala Corporation	D	Nanded	Godavari	48	38	80	Local Nalla to Godavari	1) Bondar STP- Anaerobic Lagoons, Facultative Tank. 2) Elichpur STP- ASP
17	Nashik Corporation	A	Nashik	Godavari	280	210	75	Godavari Darna	UASB Reactor & ASP
18	Navi Mumbai Corporation	C	Thane		280	230	82.14	Creek	SBR

	Name of Municipal Corporation	Class	District		Sewage Generation MLD	Sewage Treatment MLD	Percentage Treatment (%)	Disposal	Type of Treatment
19	Parbhani Corporation	D	Parbhani	Purna - Godavari	10	0	0	Godavari	-
20	Pimpri-Chinchwad Corporation	C	Pune	Mula, Pavana and Indrayani	291	230	79.03	Pawana	SBR
21	Pune Corporation	B	Pune	Ram	744	567	76.21	Mutha	ASP, SBR
				Mula				Mula	
				Mutha				Ram	
22	Sangali-Miraj Kupwad Corporation	D	Sangali	Krishna	52.5	27	68.57	Krishna	Primary + Oxidation Pond
23	Solapur Corporation	D	Solapur	Seena	88	0	0	Nalla to Seena	-
24	Thane Corporation	C	Thane	Creek	350	120	34.29	Thane creek	SBR
25	Ulhasnagar Corporation	D	Thane	Creek	90	28	31.11	Waldhuni	Primary Clarifier
26	Vasai Virar Region Corporation	D	Thane	Creek	175.4	0	0	-	-
	Total			**Total**	**6382.9**	**3726.5**	**58.38**		

Status of Sewage Treatment in A class Municipal Council in Maharashtra					
Sr No.	**A Class Municipal Council**	**Effluent Generated**	**Effluent treated (MLD)**	**Treatment (%)**	**Disposal**
1	Achalpur	8.5	0	0	Local nalla to chandrabhaga
2	Bhusaval	11.4	0	0	Nalla to Tapi
3	Wardha	18	0	0	Dham
4	Gondia	18.28	0	0	Weinganga
5	Ichalkaranji	32	14	37.35%	Panchganga
6	Ambernath	30	28	93.33%	Local nalla to Waldhuni
7	Barshi	15	0	0	Lendi nalla
	Total	**133.18**	**42**	**1.3068**	

	Status of Sewage Treatment in B – Class Council in Maharashtra				
Sr No.	B-Class Municipal Council	Effluent generated (MLD)	Effluent treated (MLD)	Treatment (%)	Disposal
1	Anjangaon	2.28	0	0.00%	Local nalla to Sahanura
2	Warud	2.4	0	0.00%	Local nalla to Wardha
3	Washim	4	0	0.00%	Local nalla to Katepurna
4	Karanja	4	0	0.00%	Local nalla to Wardha

	Status of Sewage Treatment in B – Class Council in Maharashtra				
5	Akot	0.8	0	0.00%	local nalla to Purna
6	Buldhana	0.62	0	0.00%	Local nalla to Penganga
7	Khamgoan	0.886	0	0.00%	local nalla to Purna
8	Shegoan	4	2	50.00%	Local nalla to Mann
9	Malkapur	0.5	0	0.00%	Local nalla to Nalganga
10	Chikhali	0.485	0	0.00%	Local nalla to Penganga
11	Sangamner	3.8	0	0.00%	Pavara
12	Kopargaan	7	0	0.00%	Darna and Nandur Madhmeshwar Dam
13	Shrirampur	2.5	0	0.00%	Bhandadara Dam
14	Pochara	32	0	0.00%	Girna
15	Amalner	3.15	0	0.00%	Bori
16	Chalisgoan	7.21	0	0.00%	Girna
17	Sawadha	0.57	0	0.00%	Tubewell
18	Chopada	3.2	0	0.00%	Tapi
19	Shirpur	32	0	0.00%	Karanvada Tapi and dam
20	Daudai	18	0	0.00%	Tapi and Amravati
21	Nandurbar	45	0	0.00%	Chivan and Jharali dam
22	Kamthi	8	0	0.00%	Kanhan
23	Hinganghat	1.53	0	0.00%	Wena r
24	Umred	4.5	0	0.00%	Aam
25	Bhandara	13.52	0	0.00%	Weinganga
26	Tumsar	6.35	0	0.00%	Weinganga
27	Chiplun	7	0	0.00%	Vashishthi
28	Vita	4.87	0	0.00%	Krishna
29	Islampur	9	0	0.00%	Krishna
30	Khudgoan Badlapur	18	0	0.00%	Ulhas
31	Gangakhed	2	0	0.00%	Godavari

	Status of Sewage Treatment in B – Class Council in Maharashtra				
32	Hingoli	4.2	0	0.00%	Kayadhu
33	Wasmat	2.5	0	0.00%	Ughadi
34	Degalura	15	0	0.00%	Sharaj nalla
35	Udgir	5.4	0	0.00%	Local nalla to lendhi
36	Osmanabad	5.3	0	0.00%	Local nalla to Bhogawati
37	Dhaud	4.2	0	0.00%	Bhima
38	Baramati	4.2	0	0.00%	Kanha
39	Pandharpur	12	15	100.00%	Irrigation
	Total	**301.971**	**17**	**1.5**	

Status of Sewage Treatment in C class Municipal Council Nagar in Maharashtra					
Sr No.	**C-Class Municipal Council**	**Effluent generated (MLD)**	**Effluent treated (MLD)**	**Treatment (%)**	**Disposal**
1	Chandur Railway	1.8	0	0.00%	Local Nalla to Wardha
2	Chilakhadara	0.4	0	0.00%	Local Nalla to Chandrabhaga
3	Daryapur	2	0	0.00%	Local Nalla to Chandrabhaga
4	Chandur Bazaar	1.2	0	0.00%	Local Nalla to Purna
5	Dhamangaon Railway	1.8	0	0.00%	Local Nalla to Wardha
6	Sedurajana Ghat	1.6	0	0.00%	Local Nalla to Wardha
7	Morshi	3.2	0	0.00%	Local Nalla to Wardha
8	Mangarularpir	2.4	0	0.00%	Local Nalla to Wardha
9	Risod	1.6	0	0.00%	Local Nalla to Penganga
10	Murtizapur	0.388	0	0.00%	Local Nalla to Purna
11	Patur	0.22	0	0.00%	Local Nalla to Bordi

Status of Sewage Treatment in C class Municipal Council Nagar in Maharashtra					
12	Balapur	0.39	0	0.00%	Local Nalla to Mann
13	Telhara	0.18	0	0.00%	Local Nalla to Purna
14	Jalgoan Jamod	0.26	0	0.00%	Local Nalla to Purna
15	Mehekar	0.377	0	0.00%	Local Nalla to Penganga
16	Deulgoan raja	1.4	0	0.00%	Local Nalla to Amana
17	Sindkhed Raja	0.13	0	0.00%	Local Nalla to Khadakpurna
18	Nandura	1.5	0	0.00%	Local Nalla to Gyan ganga
19	Lonar	0.2	0	0.00%	Lendhi/Ambar Lake to Lonar dam
20	Alibaug	4.4	0	0.00%	Sea
21	Khopoli	5.6	0	0.00%	Patalganga
22	Pen	4.8	0	0.00%	Bhogeshwari
23	Murud -Janjhira	1.3	0	0.00%	Sea
24	Satana	1.47	0	0.00%	Local nalla to Girna
25	Nandagoan	1.2	0	0.00%	Local nalla to Girna
26	Sinnar	4.3	0	0.00%	Local nalla to Darna
27	Bhagur	0.87	0	0.00%	Local nalla to Darna
28	Tribakeshwar	1	0.7	70.00%	Local nalla to Godavari
29	Yeola	2.8	0	0.00%	Local nalla to Palkhed dam
30	Manmad	6	0	0.00%	Local nalla to Waghad dam
31	Igatpuri	4.2	0	0.00%	Local nalla to Darna
32	Shrigonda	1.9	0	0.00%	Local nalla to Ghod canal
33	Pathardi	2	0	0.00%	Local nalla to Jayakwadi dam
34	Rahata	6	0	0.00%	Local nalla to Darna dam
35	Rahuri	2.7	0	0.00%	Mula dam
36	Devlali pravaha	3	0	0.00%	Mula dam
37	Erandol	9.1	0	0.00%	Local Nalla to Anjani and Girna
38	Parola	3.49	0	0.00%	Local Nalla to Bori

Status of Sewage Treatment in C class Municipal Council Nagar in Maharashtra					
39	Raver	11	0	0.00%	Local Nalla toTapi
40	Faizpur	0.7	0	0.00%	Local Nalla to Suki
41	Yawal	0.28	0	0.00%	Local Nalla to Borewell
42	Dharangaon	8.4	0	0.00%	Local Nalla to Anjani /Tapi
43	Jamner	11	0	0.00%	Local Nalla to Kang
44	Bhadgaon	9.5	0	0.00%	Local Nalla to Girna
45	Navapur	10.02	0	0.00%	Local Nalla to Rangawali
46	Shahada	12	0	0.00%	Local Nalla to Gomati
47	Taloda	12	0	0.00%	Local Nalla to Vihiri
48	Arvi	0.41	0	0.00%	Bakadi
49	Pulgoan	0.36	0	0.00%	Wardha
50	Deoli	0.15	0	0.00%	Yashoda
51	Sindhi	0.15	0	0.00%	Wena
52	Wadi	1	0	0.00%	Nag
53	Tiroda	3.4	0	0.00%	Weinganga
54	Paoni	3.41	0	0.00%	Weinganga
55	Kurundwad	0.8	0	0.00%	Panchganga
56	Kagal	2.4	0	0.00%	Irrigation
57	Gadhinglaj	2.4	0	0.00%	Irrigation
58	Murgud	0.64	0	0.00%	Irrigation
59	Malkapur	0.2	0	0.00%	Irrigation
60	Panhala	0.45	0	0.00%	Irrigation
61	Wadgoan	0.9	0	0.00%	Irrigation
62	Jaisinghpur	4.64	0	0.00%	Irrigation
63	Tasgoan	2.63	0	0.00%	Irrigation
64	Ashta	2.1	0	0.00%	Krishna
65	Jaat	1.5	0	0.00%	Irrigation
66	Purna	1.45	0	0.00%	Local Nalla to Thuna

Status of Sewage Treatment in C class Municipal Council Nagar in Maharashtra					
67	Selu	2.1	0	0.00%	Local Nalla to Dudhana
68	Jintur	0.537	0	0.00%	Local Nalla to Ullti
69	Pathri	2.2	0	0.00%	Local Nalla to Godavari
70	Manvat	0.66	0	0.00%	Local Nalla to Laghu lake
71	Sonpeth	0.3	0	0.00%	Local Nalla to Weinganga
72	Kalamnuri	1.8	0	0.00%	Local Nalla to Weinganga
73	Ausa	3.6	0	0.00%	
74	Ahmedpur	1.8	0	0.00%	Local Nalla to Manyara
75	Nilanga	1.7	0	0.00%	
76	Kalamb	1.55	0	0.00%	Local Nalla to Manjara
77	Murum	1.25	0	0.00%	Local Nalla to Benitura
78	Naldurg	1.2	0	0.00%	Local Nalla to Bori
79	Tuljapur	1.9	0	0.00%	Local Nalla to Bori
80	Paranda	1	0	0.00%	Local Nalla to Sinna
81	Bhum	1.3	0	0.00%	Local Nalla to Banganga
82	Umerga	2.4	0	0.00%	Local Nalla to Benitura
83	Paithan	2.4	1.7	0.00%	Local Nalla to Godavari
84	Kannad	2.4	1.7	0.00%	Local Nalla to Shivana
85	Sillod	3	2.2	0.00%	Local Nalla to Dudhana
86	Gangapur	1.5	1.1	0.00%	Local Nalla to Godavari
87	Vaijapur	2.6	1.85	0.00%	Local Nalla to Godavari
88	Khuldabad	0.9	0.65	0.00%	Local Nalla to Godavari
89	Indapur	2.4	0	0.00%	Bhima
90	Jejuri	2.4	0	0.00%	Kahna
91	Saswad	4	0	0.00%	Kahna
92	Bhor	0.9	0	0.00%	Neera
93	Wai	4.8	0	0.00%	
94	Karmala	1.4	0	0.00%	Irrigation

Status of Sewage Treatment in C class Municipal Council Nagar in Maharashtra					
95	Akkalkot	0.4	0	0.00%	Irrigation
96	Mangalwedha	1.22	0	0.00%	Irrigation
97	Kurduwadi	1.45	0	0.00%	Local Nalla
98	Dudhani	0.56	0	0.00%	Irrigation
99	Maidargi	0.77	0	0.00%	Irrigation
100	Junnar	2.2	0	0.00%	Mina
	Total	**251.662**	**9.9**	**0.7**	

Status of Sewage Treatment in A class Nagar Panchayat in Maharashtra					
Sr No.	**A Class Municipal Council**	**Effluent Generated (MLD)**	**Effluent treated (MLD)**	**Treatment (%)**	**Disposal**
1	Warora	4.5	0	0	Local nalla to Wardha
2	Yavatmal	8.69	0	0	Local nalla to Jamwadi lake
3	Jalna	18.5	0	0	Local Nalla
4	Beed	11	0	0	Local Nalla
5	Satara	12.8	0	0	
	Total	55.49	0	0	

	Staus of Sewage Treatment in B class Nagar Panchayat in Maharashtra				
Sr No.	**B class Nagar Panchayat**	**Effluent generated (MLD)**	**Effluent treated (MLD)**	**Treatment (%)**	**Disposal**
1	Dahanu	4	0	0.00%	Nalla
2	Palghar	2.4	0	0.00%	Nalla
3	Ratnagiri	८.८	0	0.00%	Sea
4	Ballarpur	8.4	0	0.00%	Local nalla to Wardha
5	Bhadrawati	2.1	0	0.00%	Local nalla to Wardha

	Staus of Sewage Treatment in B class Nagar Panchayat in Maharashtra				
6	Pusad	4.02	0	0.00%	Local nalla to Pus
7	Wani	4.11	0	0.00%	Local nalla to Nirguda
8	Gircholi	2.8	0	0.00%	Local nalla to Weinganga
9	Ambajogai	5	0	0.00%	Local Nalla
10	Karad	10.5	7.5	40.00%	Irrigation
11	Phaltan	5	0	0.00%	Girna
12	Talegoan	8.5	0	0.00%	Indrayani
	Total	65.63	7.5	0.4	

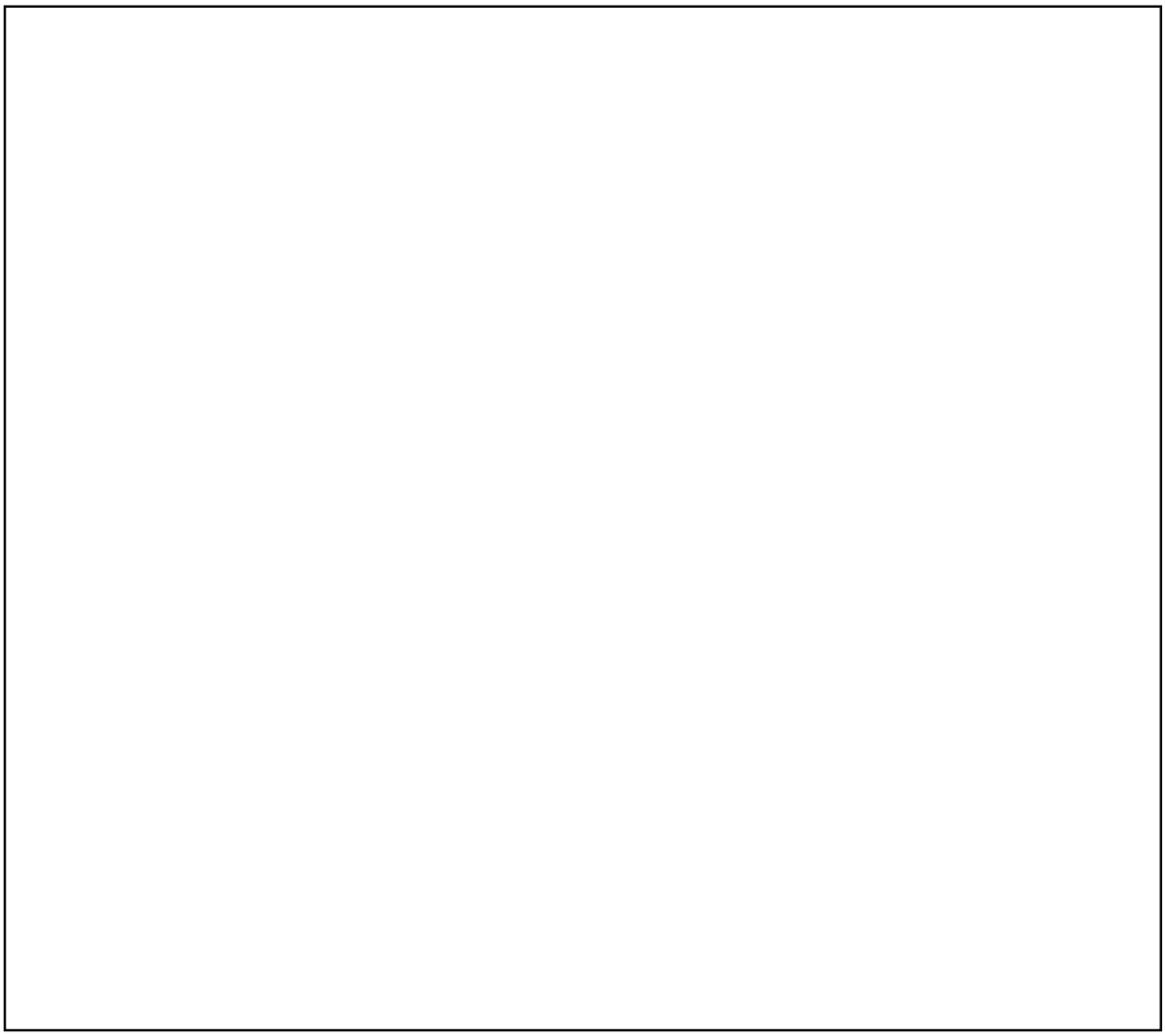
Status of Sewage Treatment in C- Class Nagar Panchayat in Maharashtra					
Sr No.	C- Class Nagar Panchayat	Effluent generated (MLD)	Effluent treated (MLD)	Treatment (%)	Disposal
1	Matharen	1.1	0	0.00%	Matheran valley
2	Karjat	4.8	0	0.00%	Ulhas
3	Roha nagar	2.8	0	0.00%	Kundalika
4	Shrivardhan	1.09	0	0.00%	Sea
5	Panvel	18	0	0.00%	Panvel creek
6	Jawhar	1.5	0	0.00%	Creek
7	Katol	5.6	0	0.00%	Local Nalla
8	Khapa	0.61	0	0.00%	Local Nalla
9	Narkhed	1.4	0	0.00%	Kolar
10	Ramtek	0.835	0	0.00%	Local Nalla
11	Kalmeshwar	2.2	0	0.00%	Local Nalla
12	Saoner	4	0	0.00%	Kanhan

Status of Sewage Treatment in C- Class Nagar Panchayat in Maharashtra					
13	Mohapa	0.52	0	0.00%	Local Nalla
14	Mowad	0.56	0	0.00%	Kolar
15	Khed	2.5	0	0.00%	Jagbudi
16	Malvan	0.5	0	0.00%	Sea
17	Sawantwadi	2.5	0	0.00%	Palankande lake
18	Rajapur	2.0	0	0.00%	Arjuna
19	Rajura	2.1	0	0.00%	Local Nalla to Wardha
20	Mul	1.4	0	0.00%	Local Nalla to Mul
21	Bramhapuri	2.8	0	0.00%	Local Nalla to Weinganga
22	Dwarka	1.82	0	0.00%	Local Nalla to Kupati
23	Digras	2.02	0	0.00%	Local Nalla to Penganga
24	Pandharkavda	1.99	0	0.00%	Local Nalla to Khoni
25	Ghatanji	1.16	0	0.00%	Local Nalla to Waghali
26	Ner Nawabpur	1.5	0	0.00%	Local Nalla to Weinganga
27	Loha	0.5	0	0.00%	Nalla
28	Kandhar	0.5	0	0.00%	Nalla
29	Mudkhed	1.6	0	0.00%	Nalla
30	Dharmabad	2.5	0	0.00%	Nalla

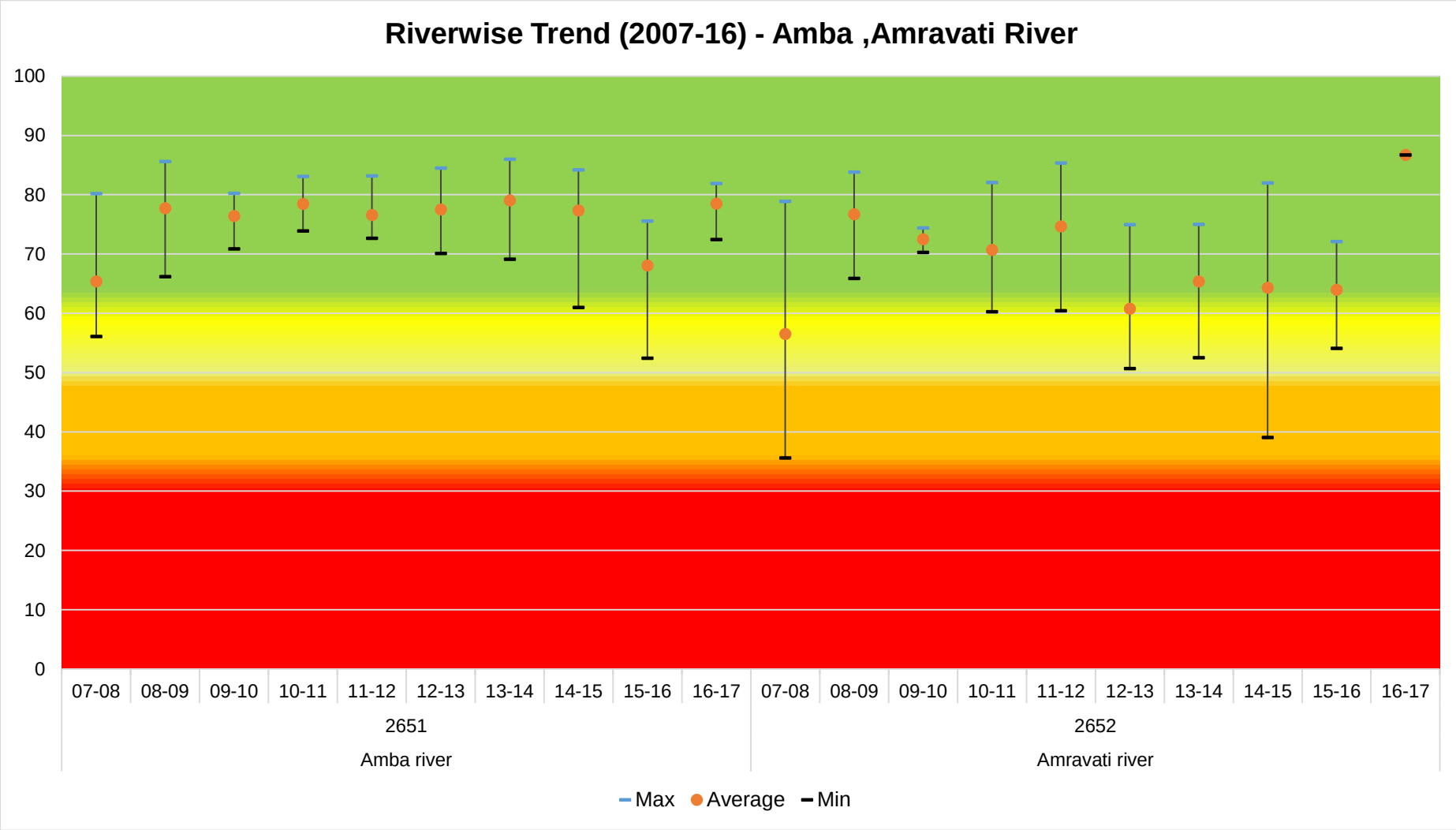
Status of Sewage Treatment in C- Class Nagar Panchayat in Maharashtra					
31	Bhokar	20	0	0.00%	Nalla
32	Hadgoan	0.35	0	0.00%	Nalla
33	Mukhed	12	0	0.00%	Nalla
34	Kinwat	0.3	0	0.00%	Nalla
35	Kundalwadi	0.5	0	0.00%	Nalla
36	Biloli	1	0	0.00%	Nalla
37	Ambad	2.5	0	0.00%	Local Nalla
38	Bhokardan	0.7	0	0.00%	Local Nalla
39	Partur	2.3	0	0.00%	Local Nalla
40	Dharur	1.4	0	0.00%	Local Nalla
41	Georai	2.2	0	0.00%	Local Nalla
42	Majalgoan	2.8	0	0.00%	Local Nalla
43	Mahabaleshwar	6	2.5	90.00%	Irrigation & Hotel gardening
44	Panchgani	0.975	1.3	90.00%	Irrigation & Hotel gardening
45	Rahimatpur	0.8	0	0.00%	
46	Mhaswad	2.1	0	0.00%	
47	Sangola	1.79	0	0.00%	Local Nalla

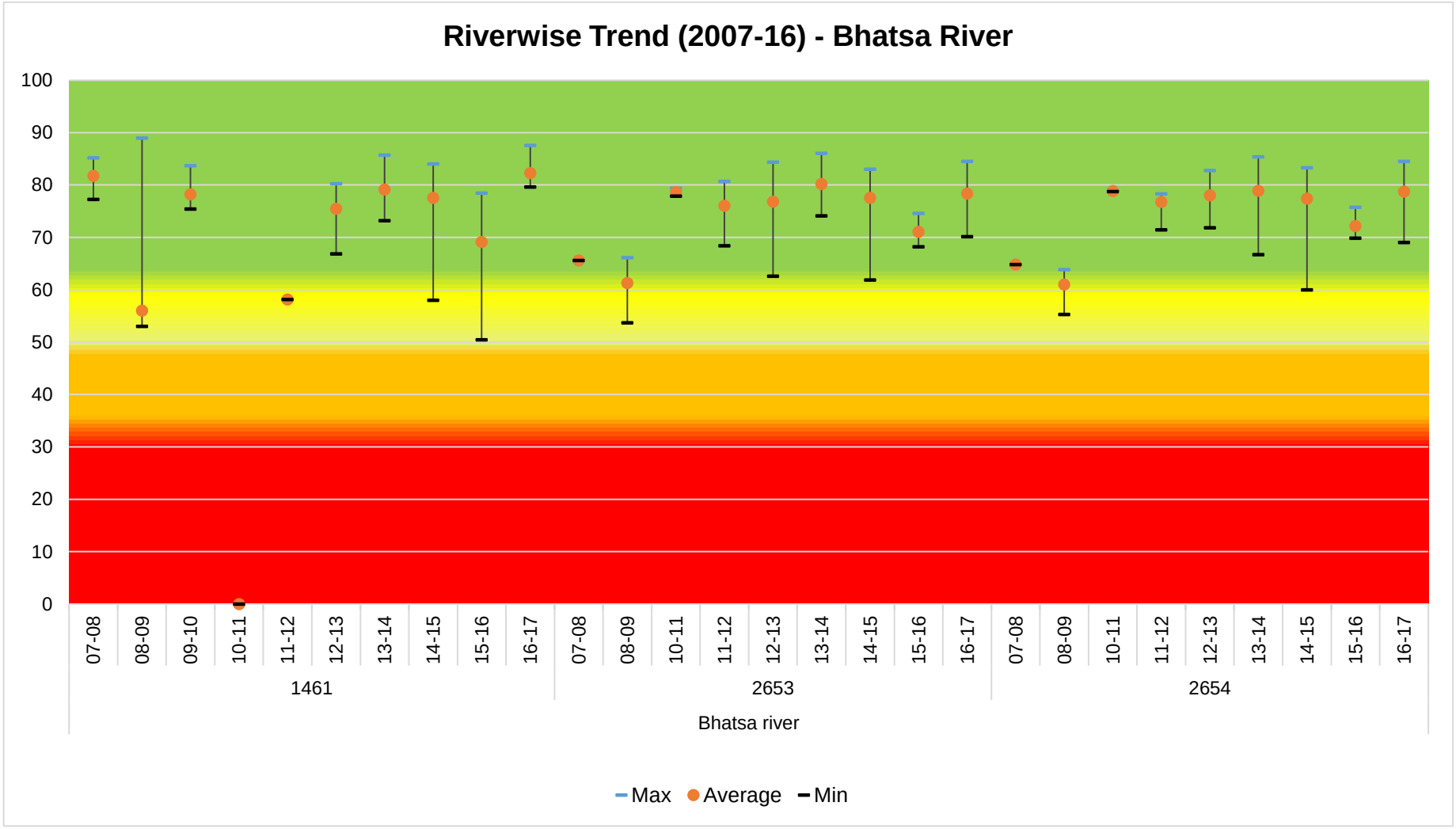
Status of Sewage Treatment in C- Class Nagar Panchayat in Maharashtra					
48	Lonavala	18	3.69	20.50%	Indrayani
49	Alandi	2.5	0	0.00%	Indrayani
50	Shirur	3.5	3.5	100.00%	Ghodnadi
51	Uran	2.8	0	0.00%	Uran creek
52	Vengurla	2.5	0	0.00%	Sea
53	Umar khed	2.04	0	0.00%	Local Nalla to Penganga
54	Wadsa-Desaiganj	8.4	0	0.00%	Local Nalla to Weinganga
55	Umri	0.3	0	0.00%	Nalla
56	Mahad	3.3	0	0.00%	Savitri
	Total	**173.46**	**10.99**	**3.005**	

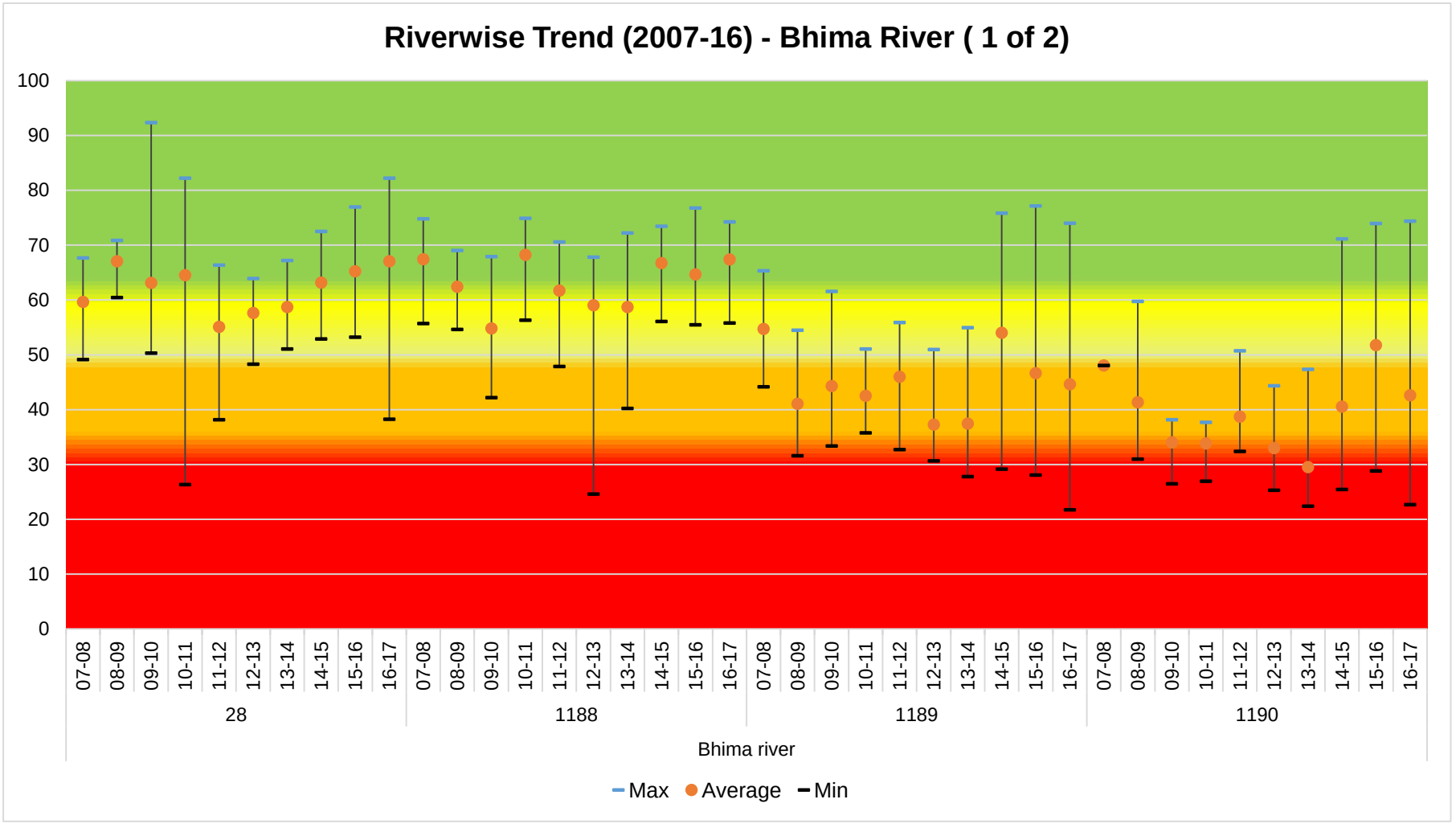
Annex VI – Data Sets of Water Quality Monitored in 2016-17

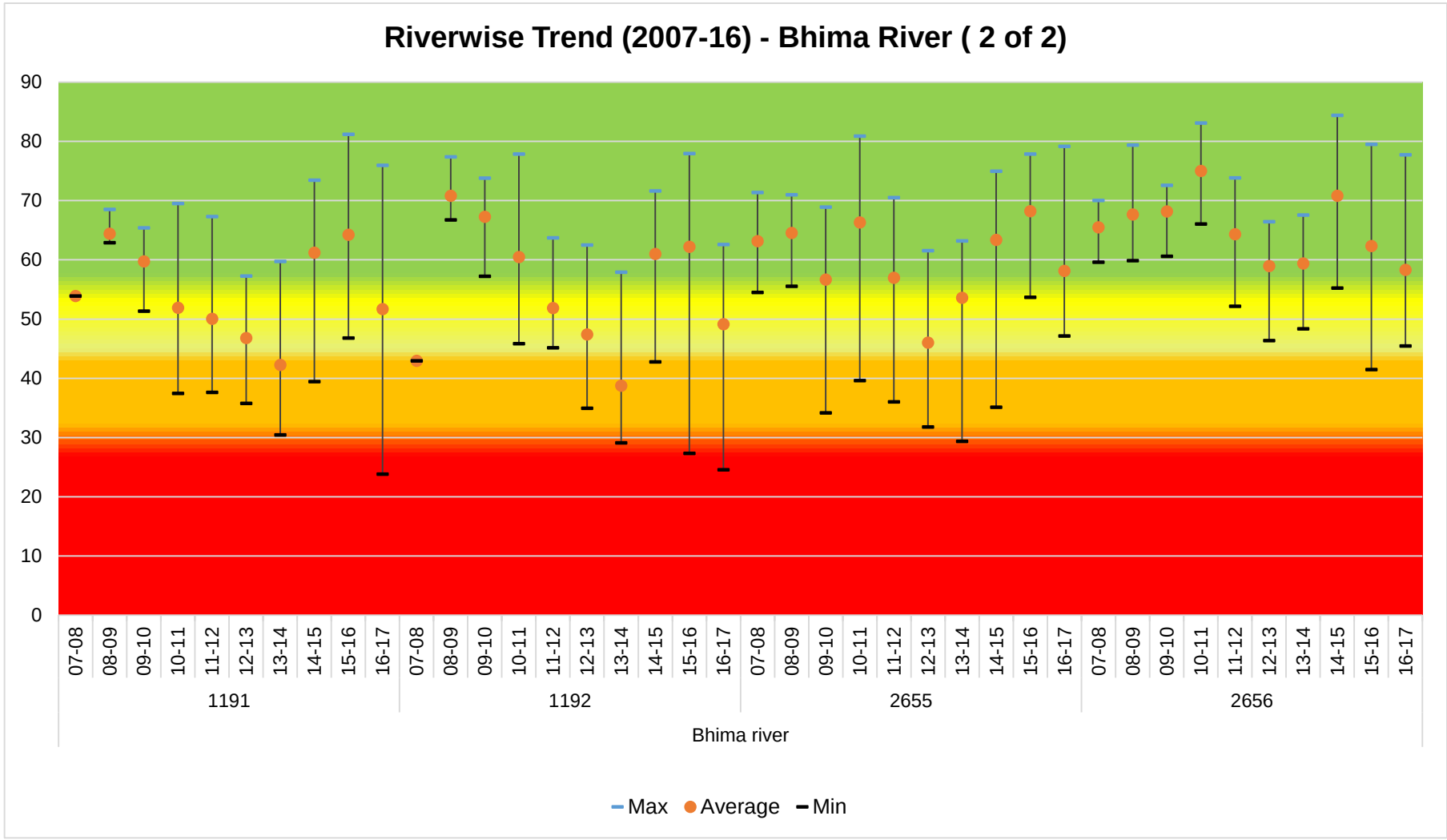


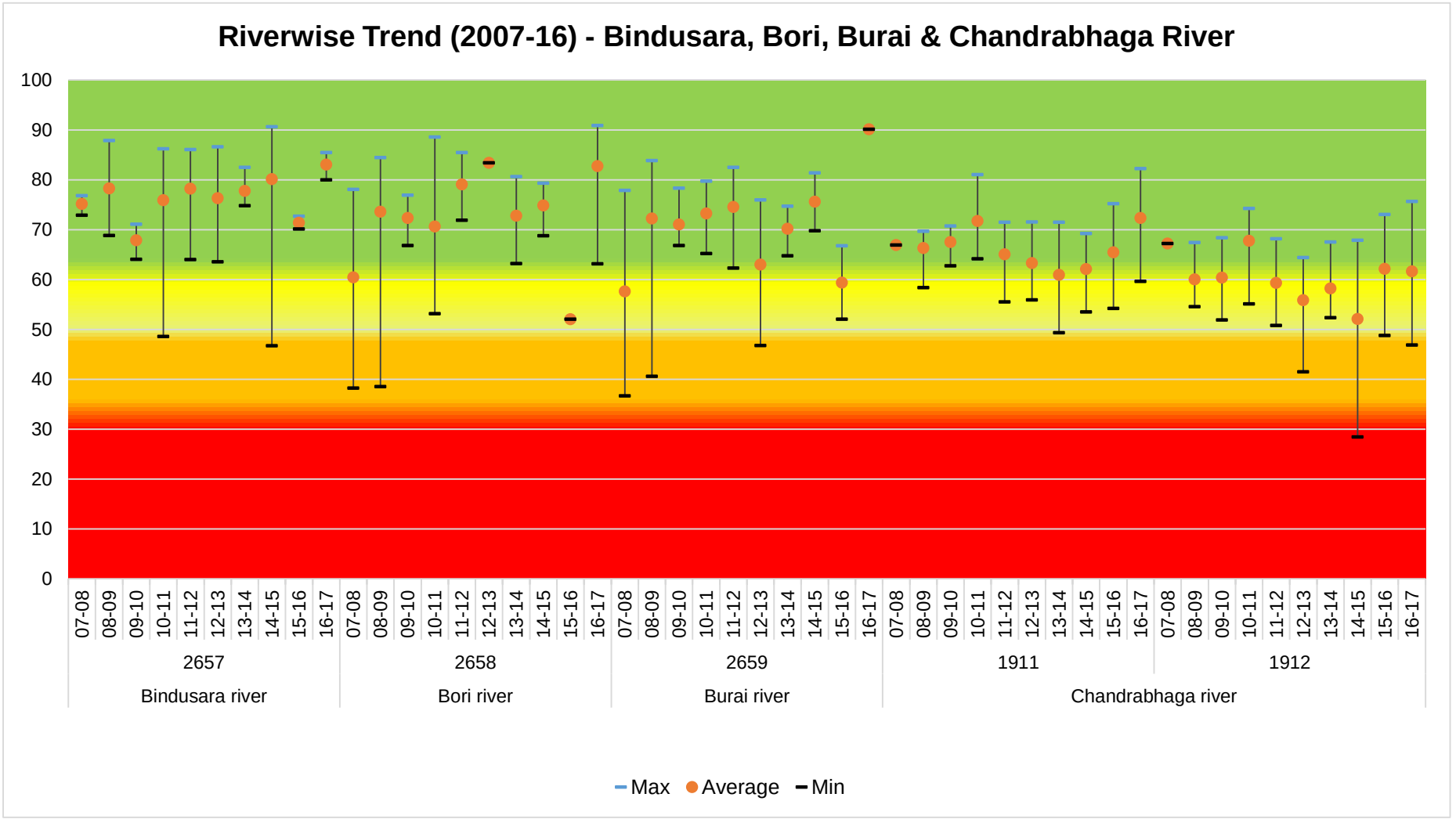
Riverwise trend of WQI (2016-17)

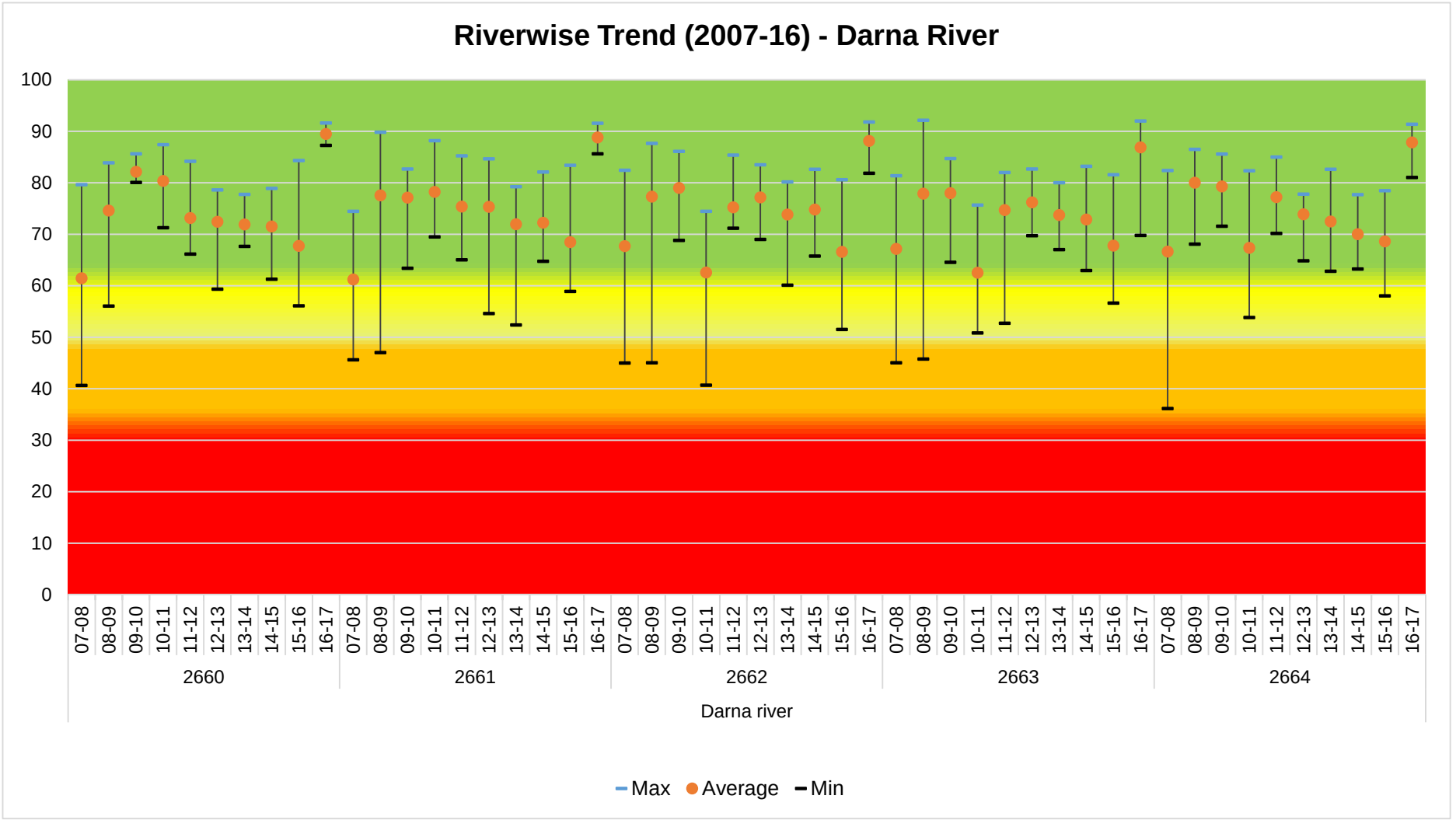


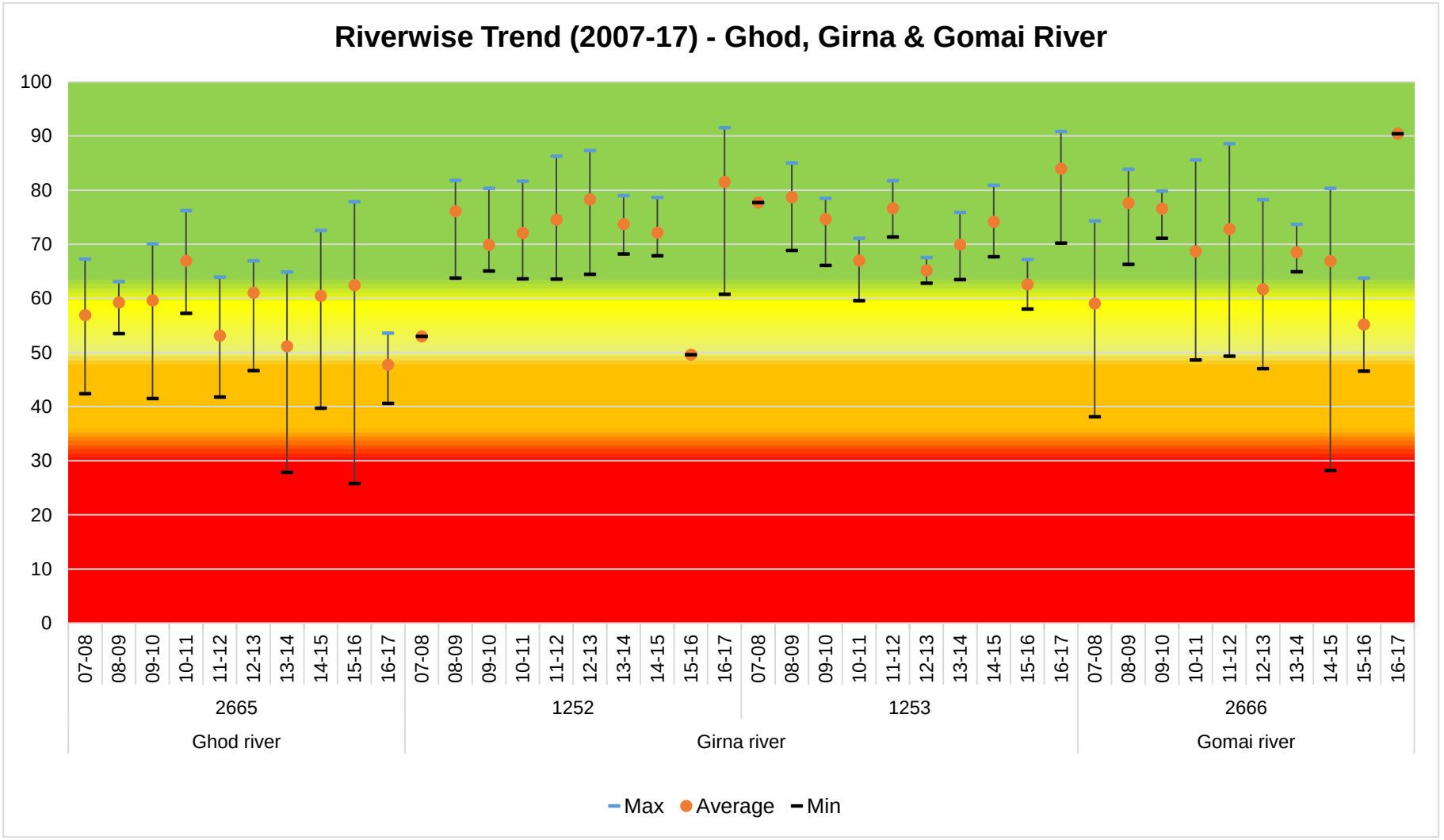

Riverwise Trend (2007-16) - Bhatsa River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1461
2653
2654
Bhatsa river
Max
Average
Min

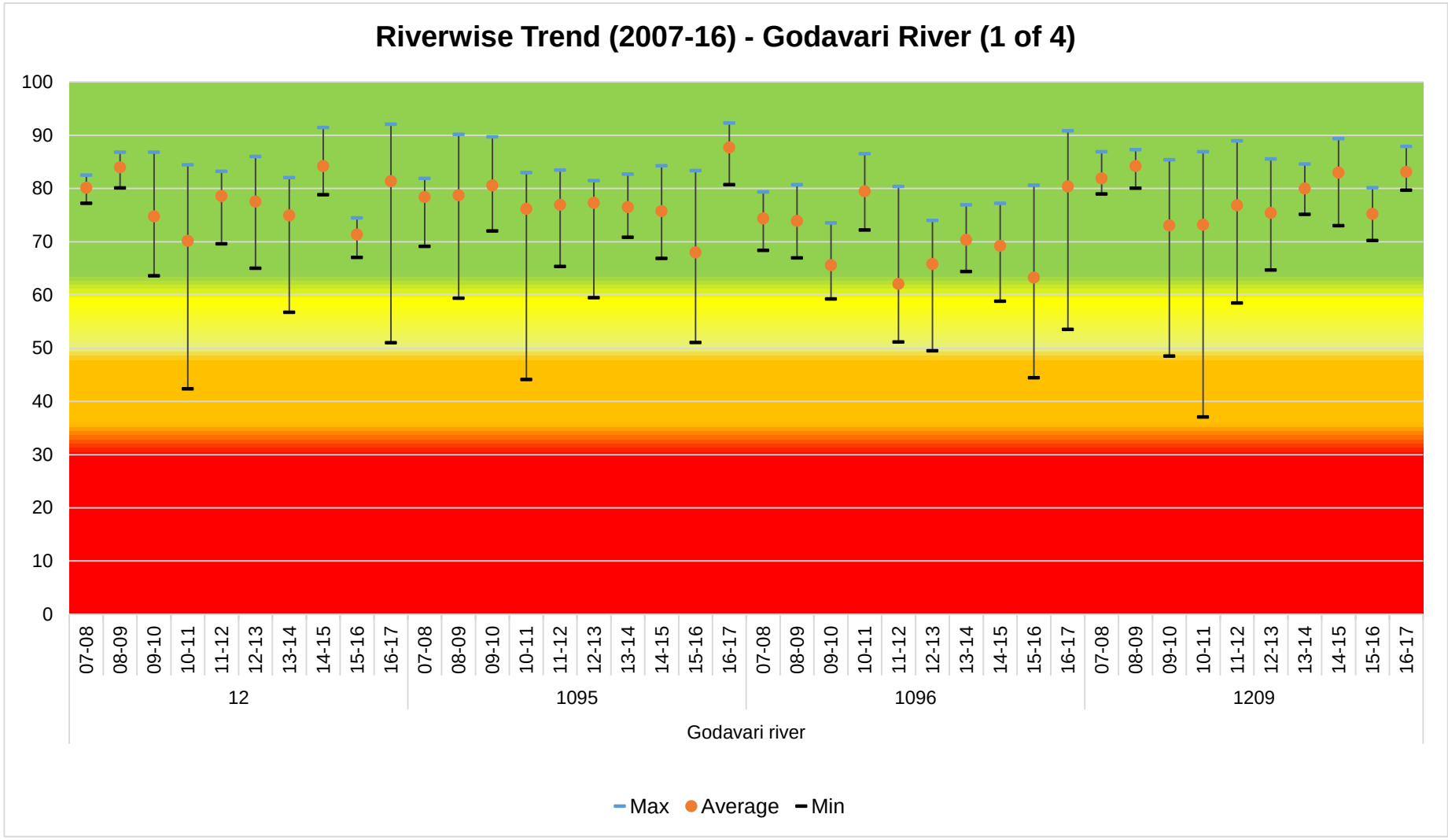

Riverwise Trend (2007-16) - Bhima River (1 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
28
1188
1189
1190
Bhima river
Max
Average
Min

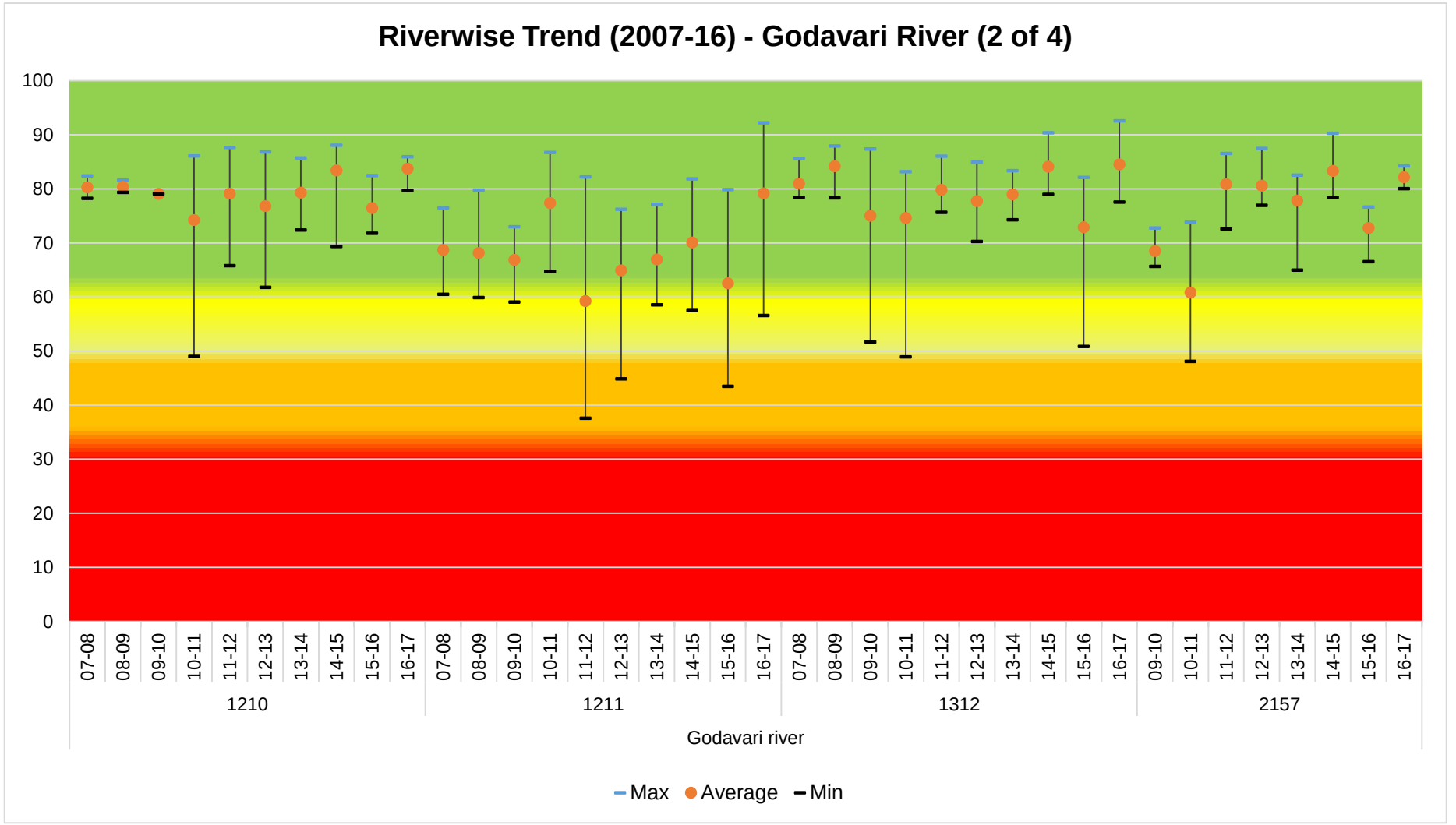

Riverwise Trend (2007-16) - Bhima River (2 of 2)
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1191
1192
2655
2656
Bhima river
Max
Average
Min

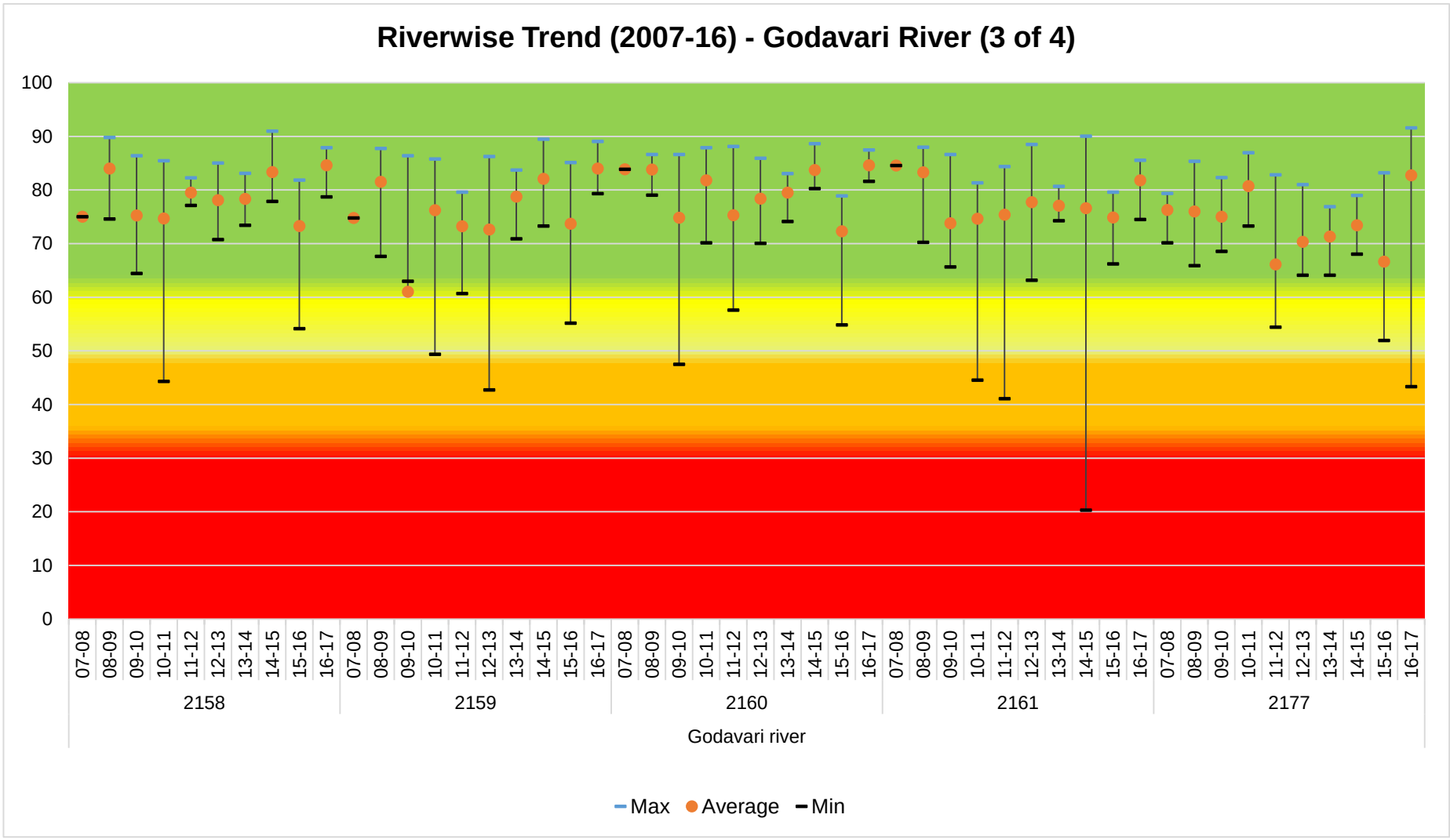

Riverwise Trend (2007-16) - Bindusara, Bori, Burai & Chandrabhaga River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2657
Bindusara river
2658
Bori river
2659
Burai river
1911
1912
Chandrabhaga river
Max
Average
Min

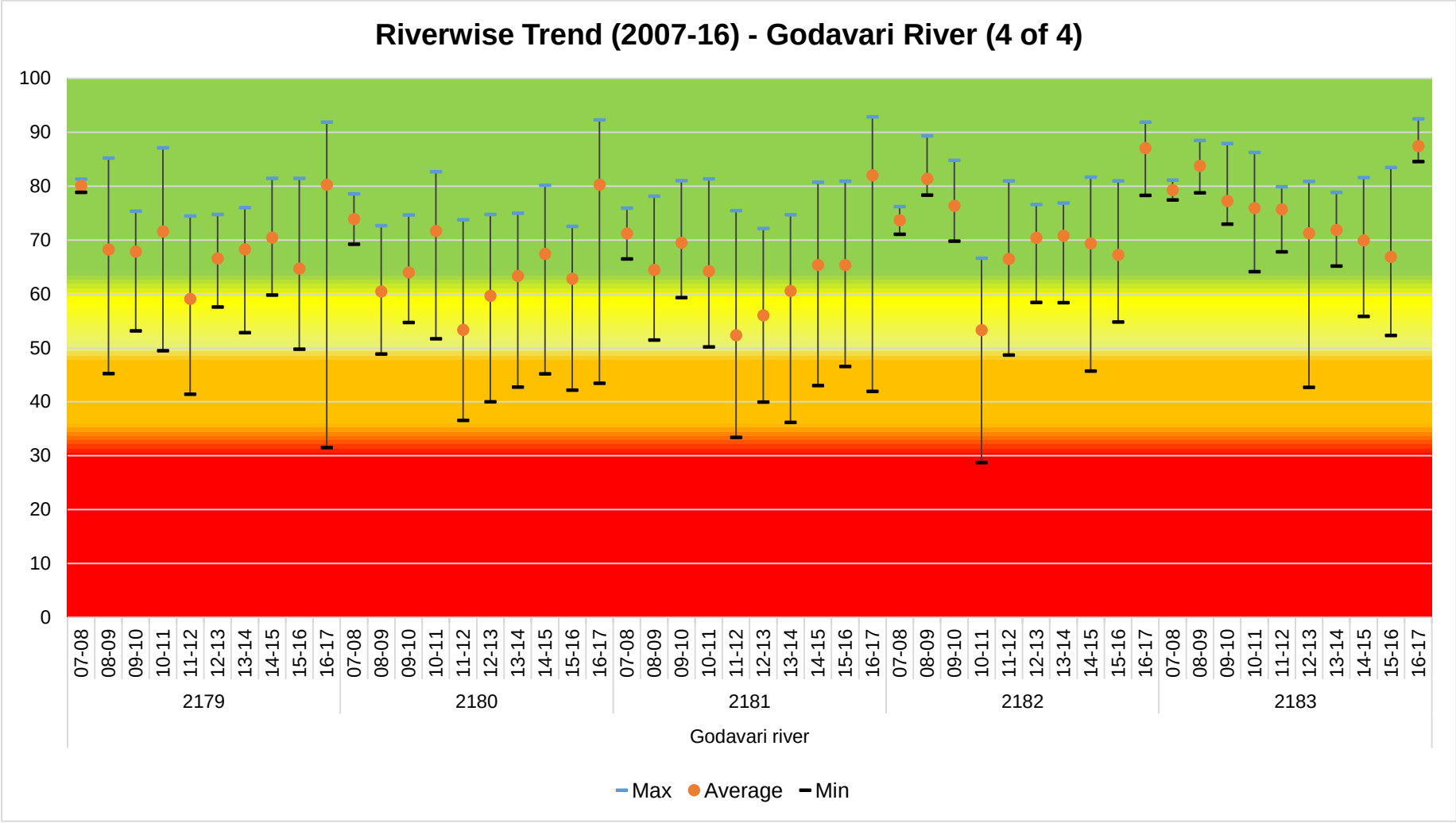

Riverwise Trend (2007-16) - Darna River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2660
2661
2662
2663
2664
Darna river
Max
Average
Min

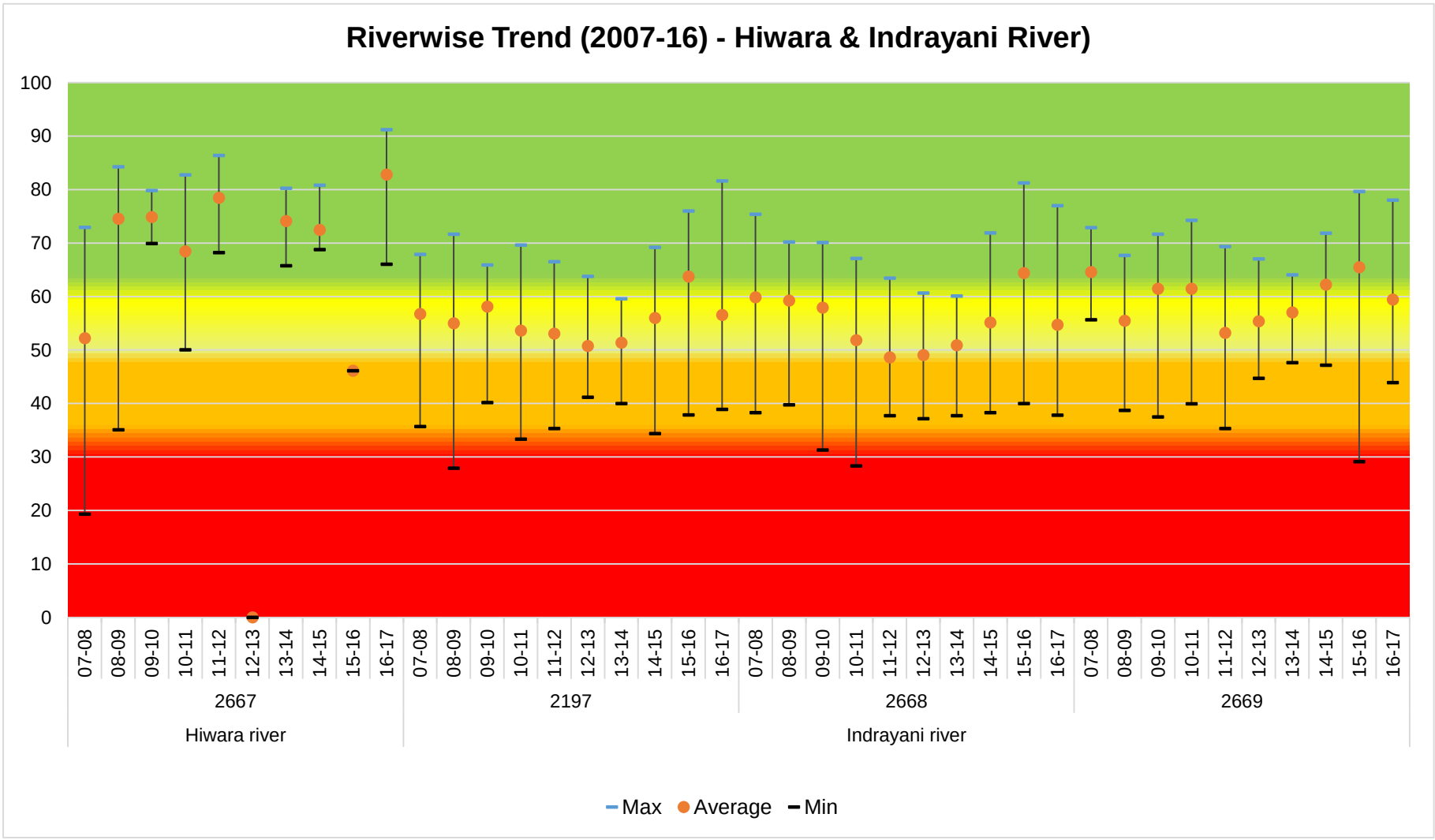

Riverwise Trend (2007-17) - Ghod, Girna & Gomai River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2665
Ghod river
1252
1253
Girna river
2666
Gomai river
Max
Average
Min

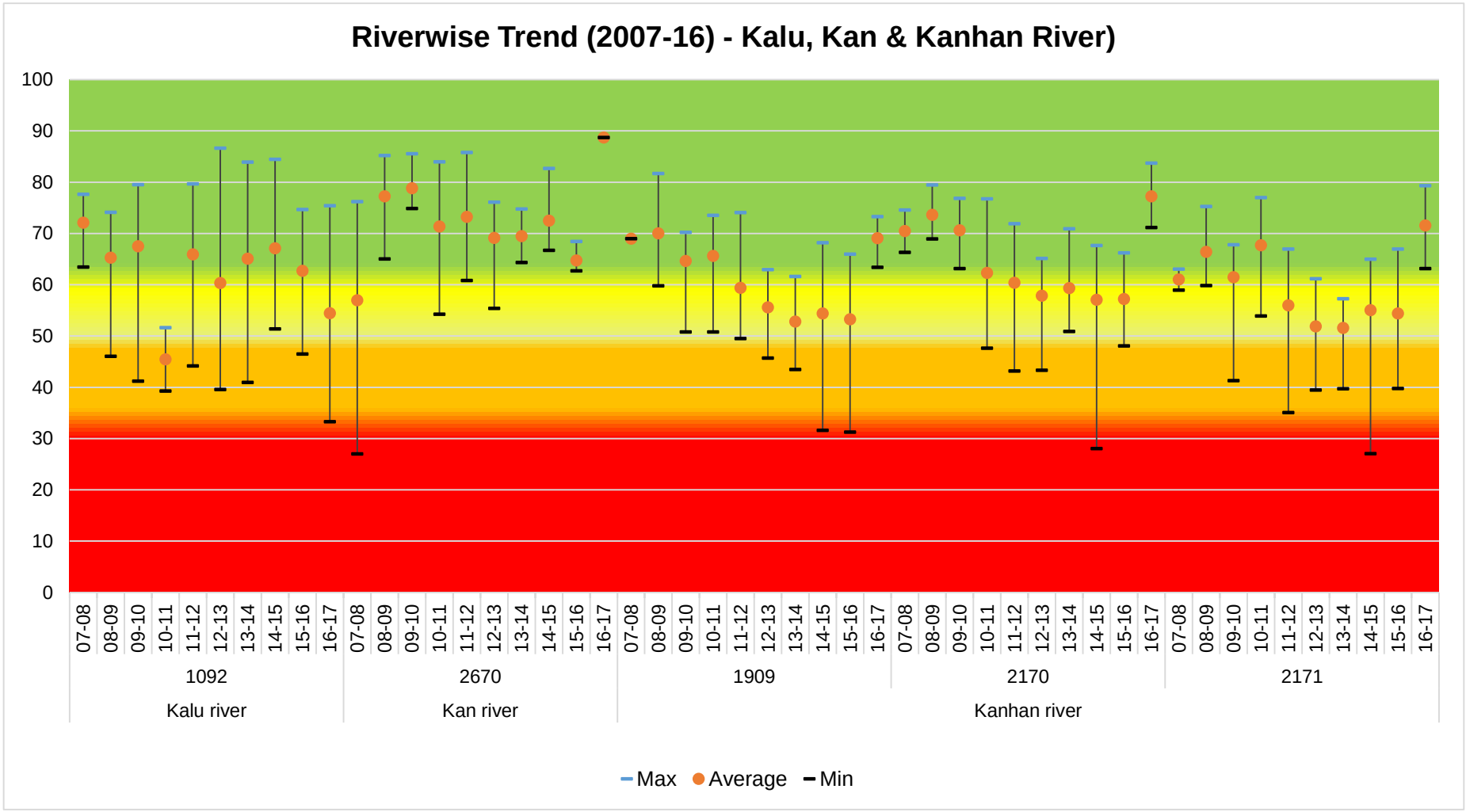

Riverwise Trend (2007-16) - Godavari River (1 of 4)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
12
1095
1096
1209
Godavari river
Max
Average
Min

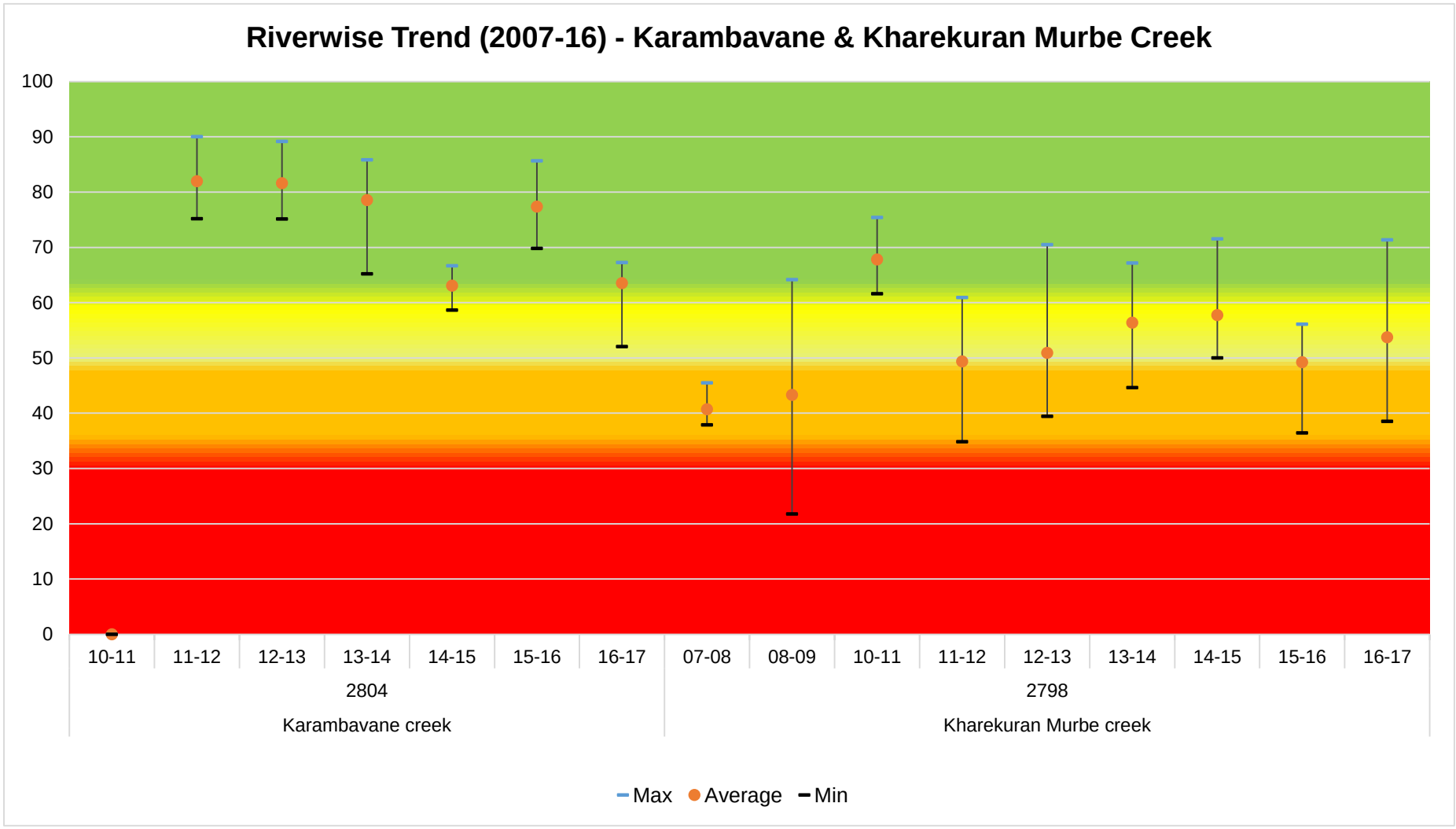

Riverwise Trend (2007-16) - Godavari River (2 of 4)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1210
1211
1312
2157
Godavari river
Max
Average
Min

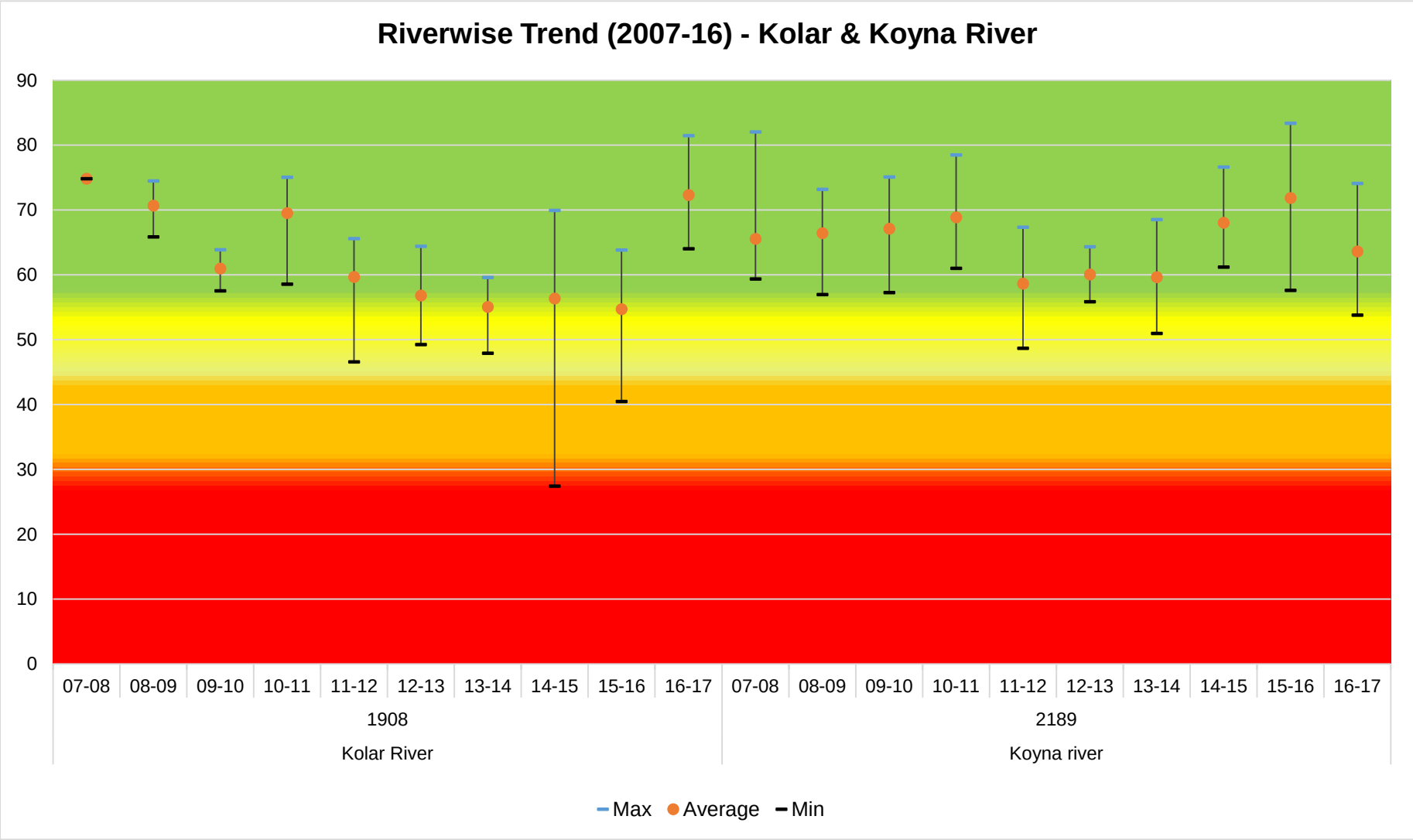

Riverwise Trend (2007-16) - Godavari River (3 of 4)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2158
2159
2160
2161
2177
Godavari river
Max
Average
Min

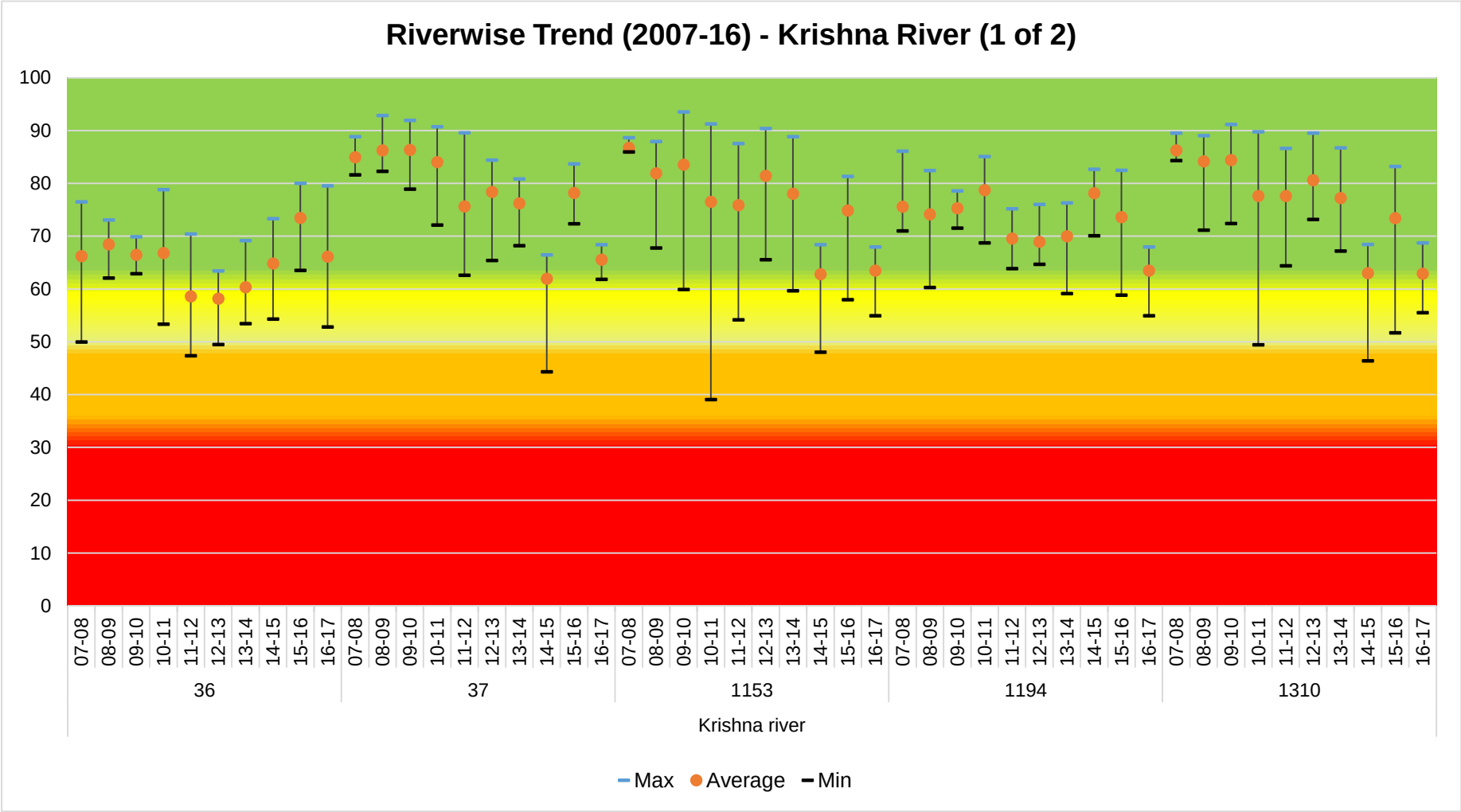

Riverwise Trend (2007-16) - Godavari River (4 of 4)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2179
2180
2181
2182
2183
Godavari river
Max
Average
Min

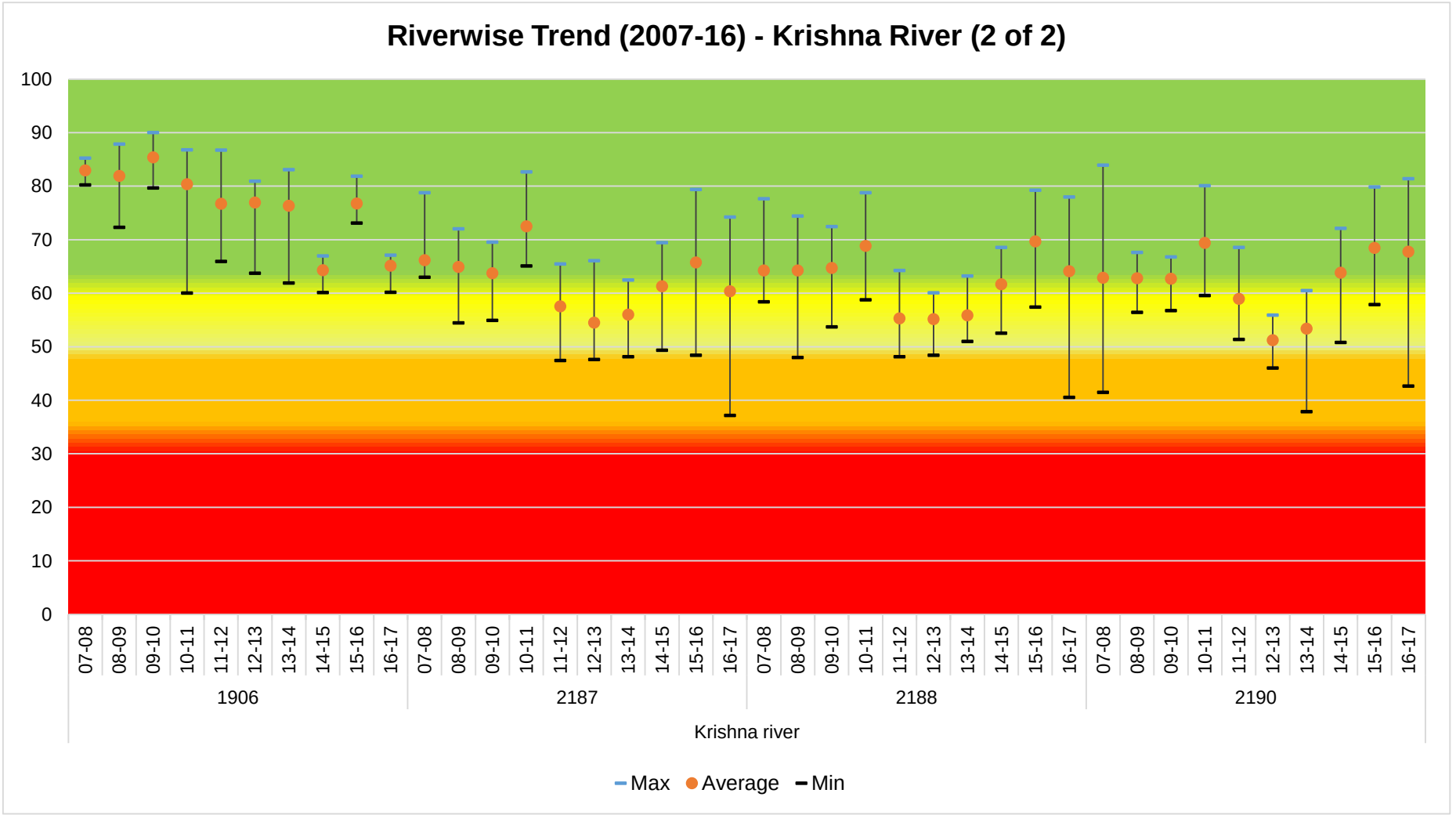

Riverwise Trend (2007-16) - Hiwara & Indrayani River)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2667
2197
2668
2669
Hiwara river
Indrayani river
Max
Average
Min

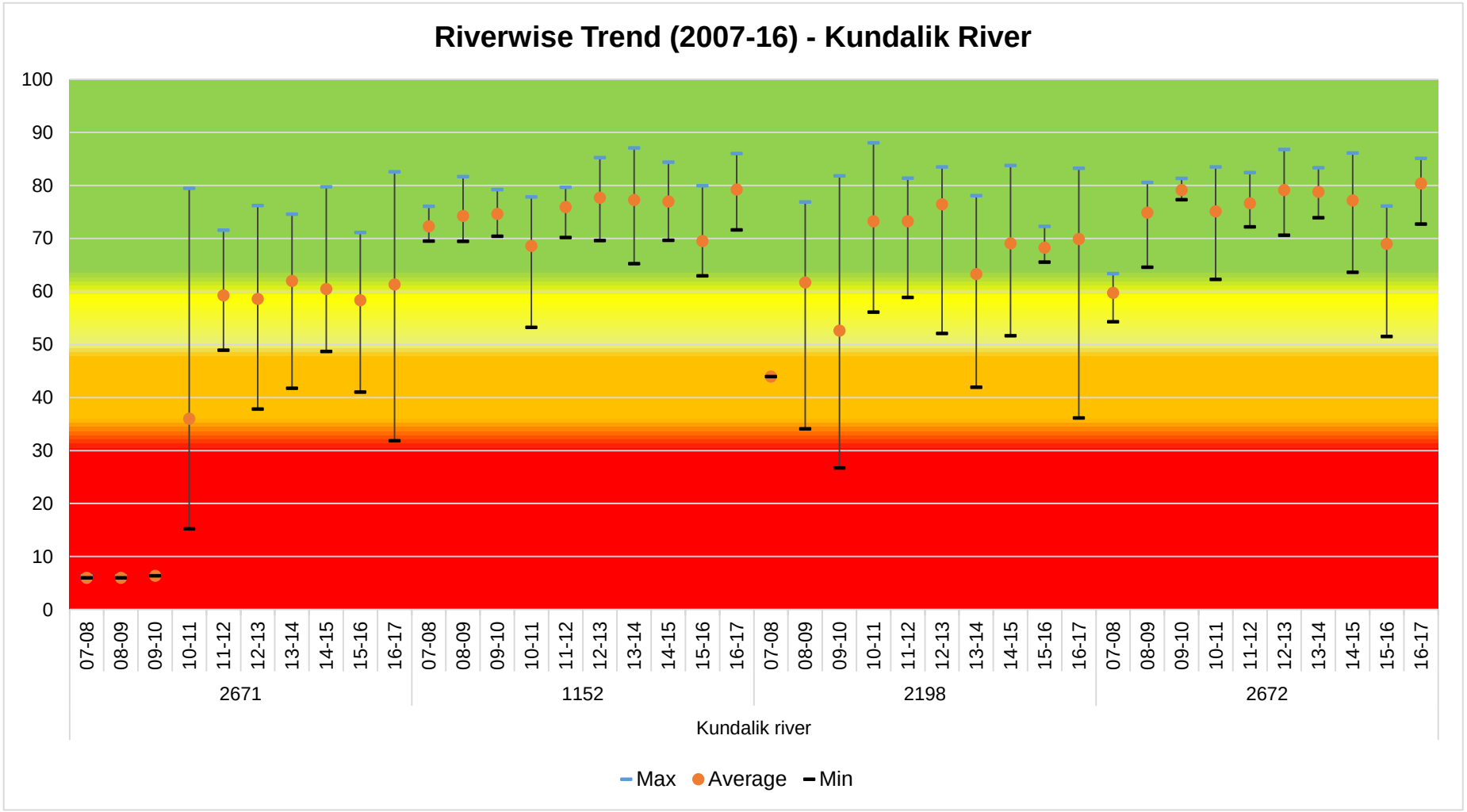

Riverwise Trend (2007-16) - Kalu, Kan & Kanhan River)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1092
Kalu river
2670
Kan river
1909
2170
2171
Kanhan river
Max
Average
Min

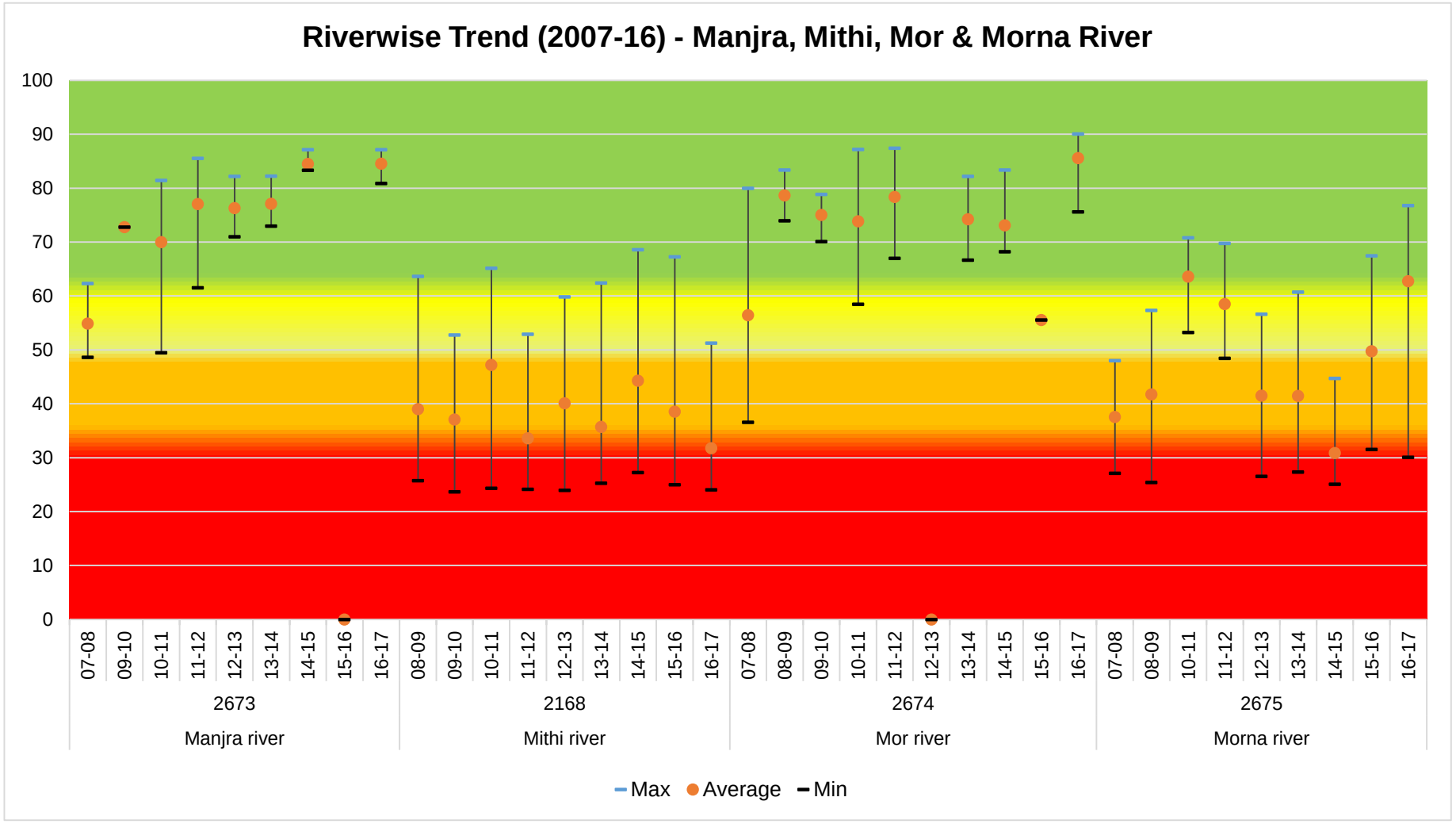

Riverwise Trend (2007-16) - Karambavane & Kharekuran Murbe Creek
100
90
80
70
60
50
40
30
20
10
0
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2804
Karambavane creek
2798
Kharekuran Murbe creek
Max
Average
Min

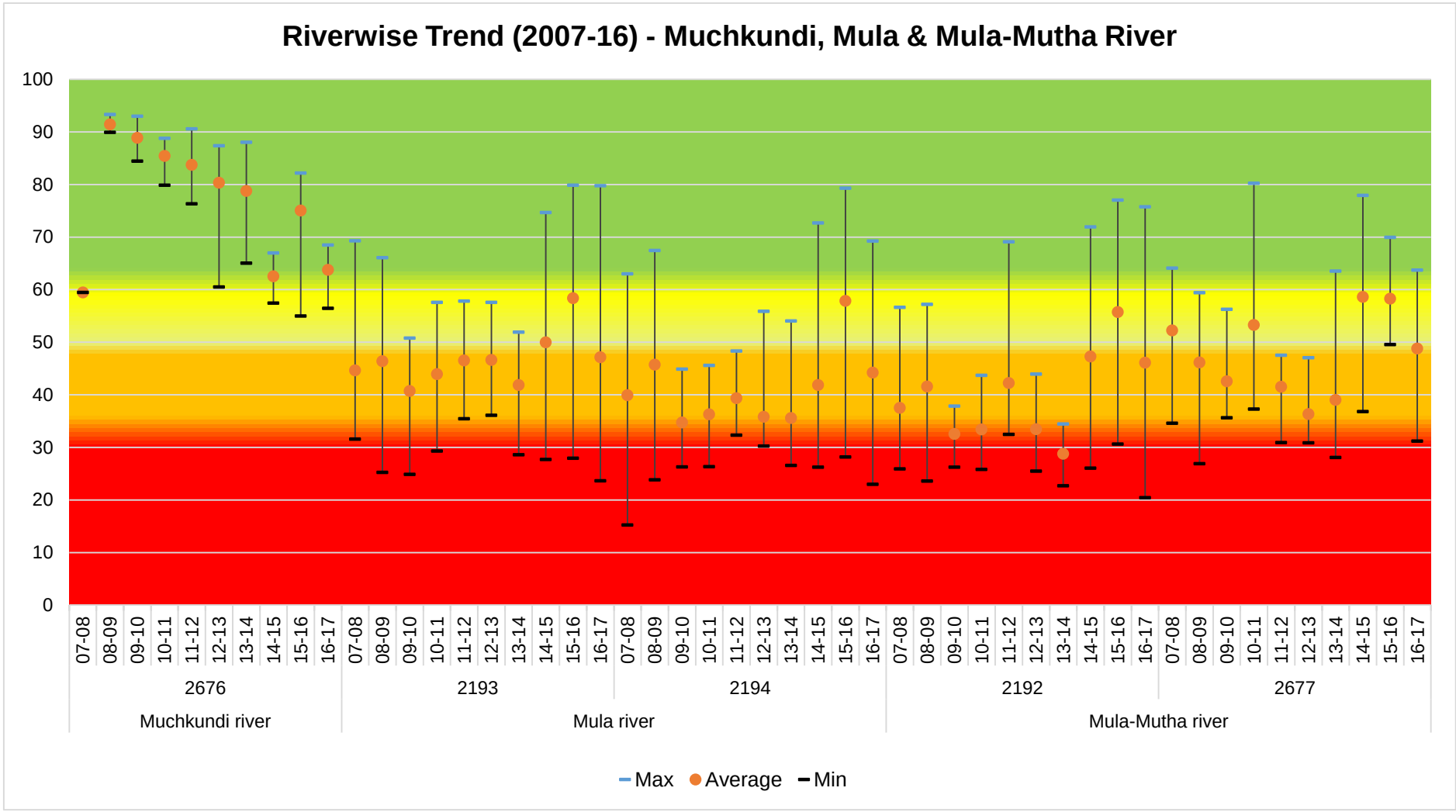

Riverwise Trend (2007-16) - Kolar & Koyna River
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1908
Kolar River
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2189
Koyna river
Max
Average
Min

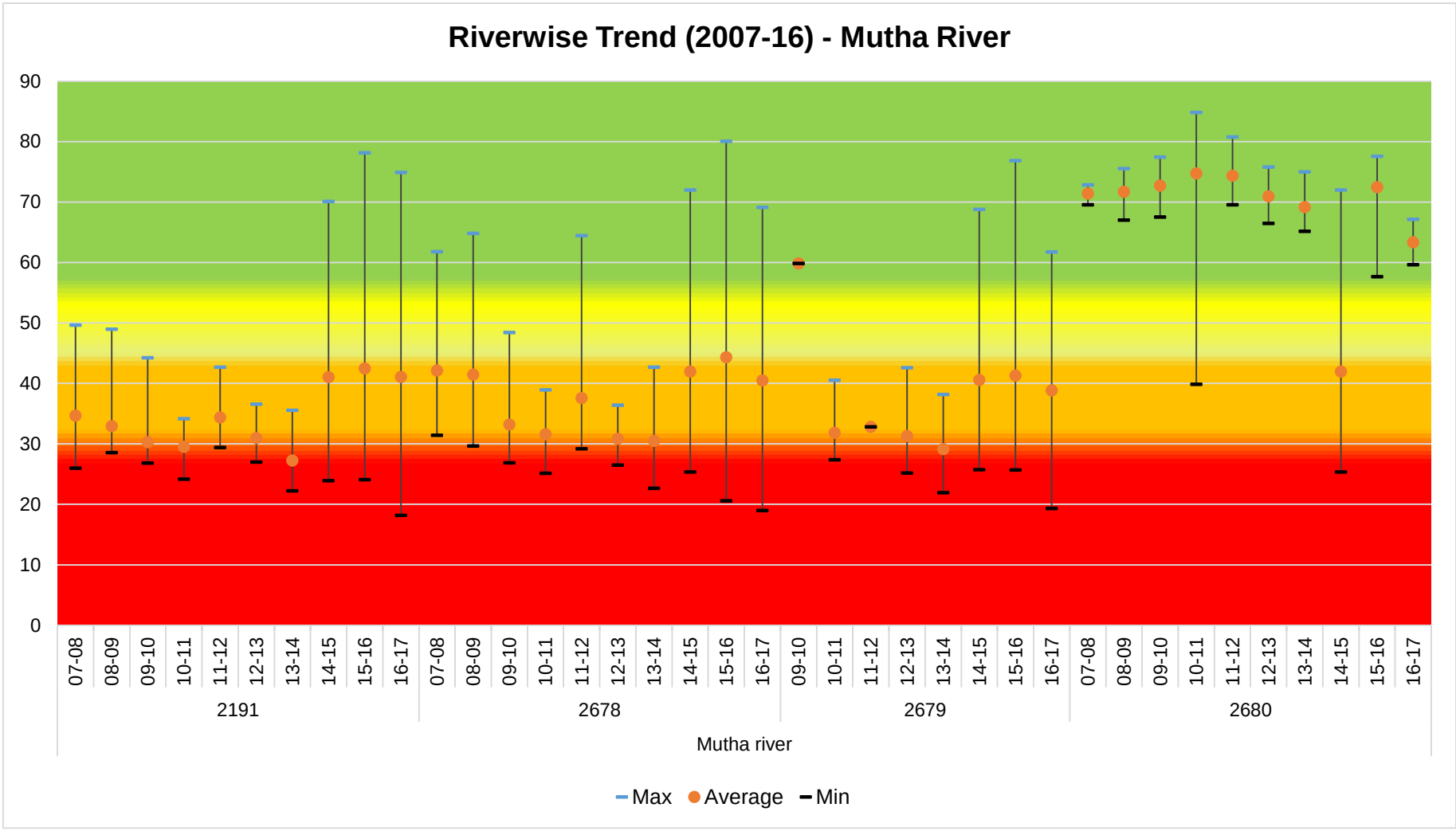

Riverwise Trend (2007-16) - Krishna River (1 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
36
37
1153
1194
1310
Krishna river
Max
Average
Min

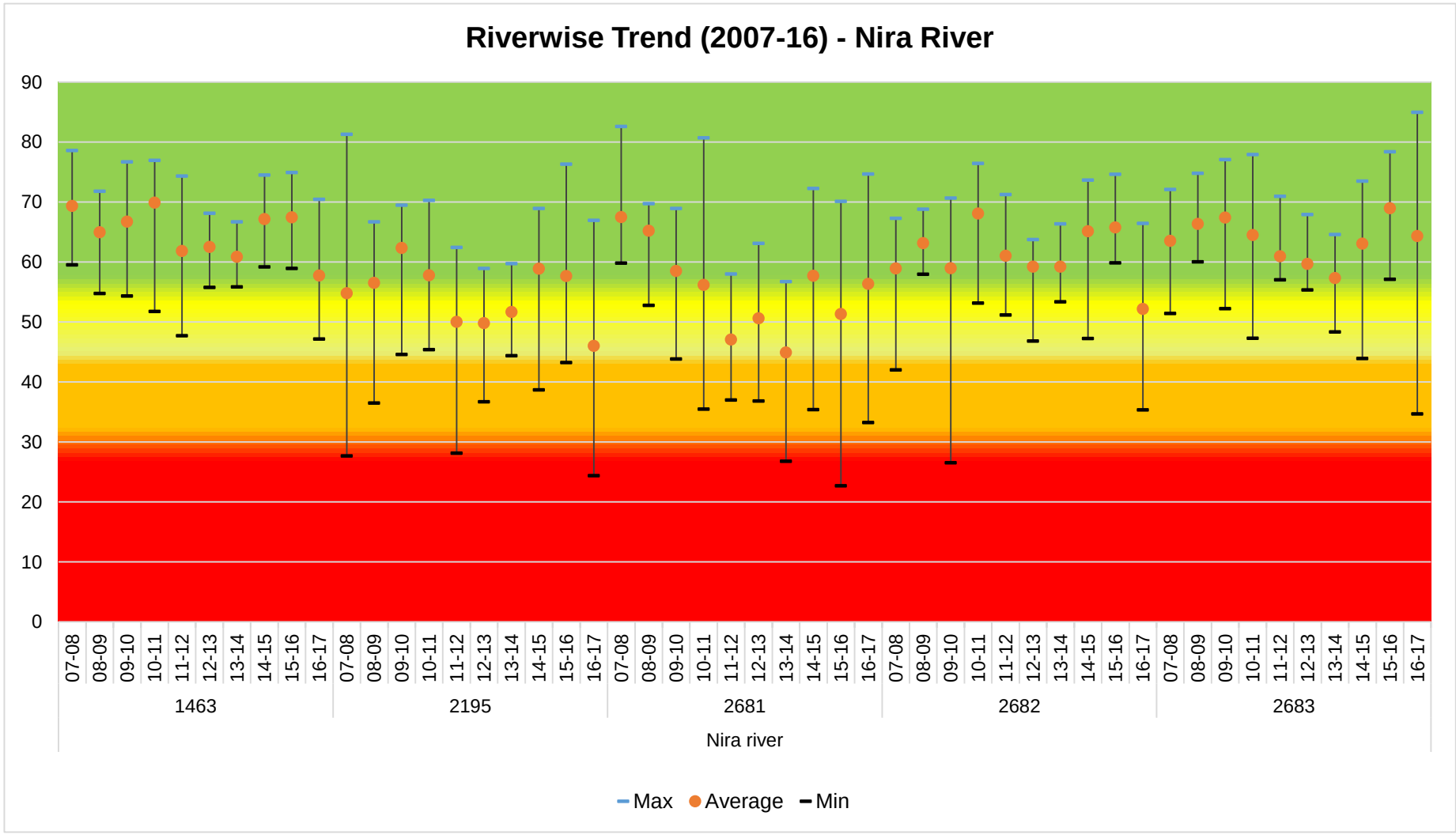

Riverwise Trend (2007-16) - Krishna River (2 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1906
2187
2188
2190
Krishna river
Max
Average
Min

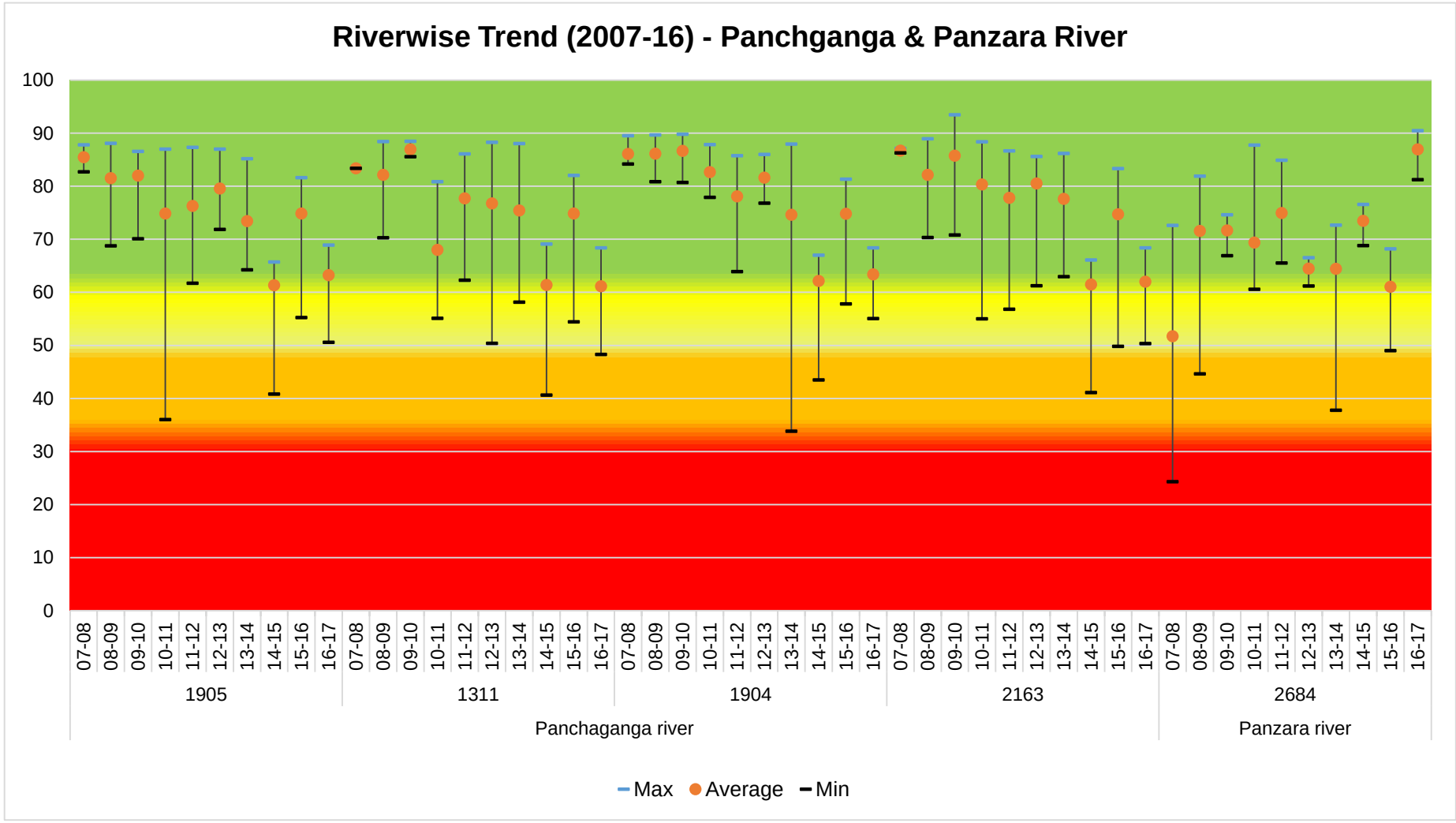

Riverwise Trend (2007-16) - Kundalik River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2671
1152
2198
2672
Kundalik river
Max
Average
Min

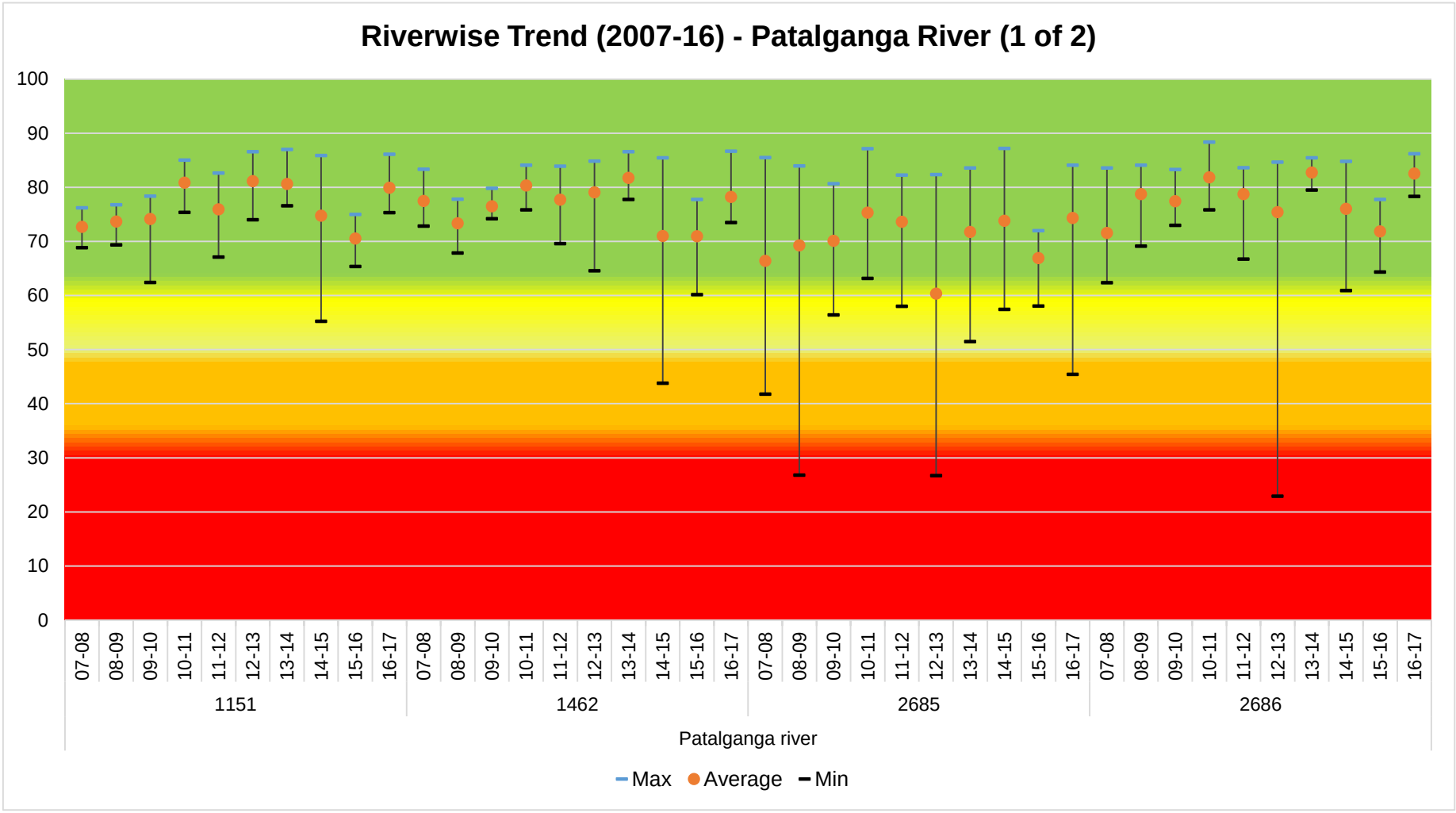

Riverwise Trend (2007-16) - Manjra, Mithi, Mor & Morna River
100
90
80
70
60
50
40
30
20
10
0
07-08
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2673
Manjra river
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2168
Mithi river
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2674
Mor river
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2675
Morna river
Max
Average
Min

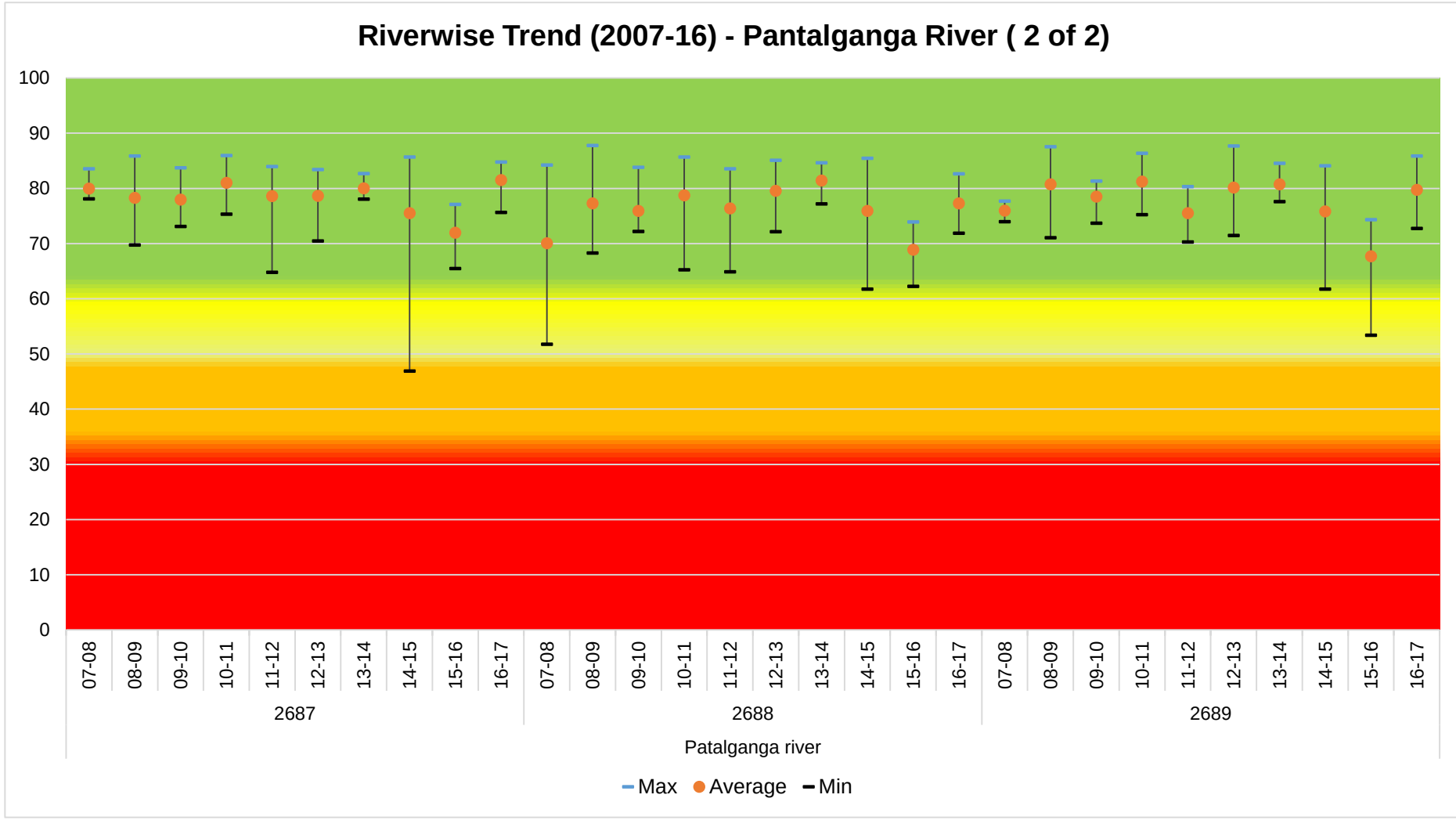

Riverwise Trend (2007-16) - Muchkundi, Mula & Mula-Mutha River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2676
Muchkundi river
2193
2194
Mula river
2192
2677
Mula-Mutha river
Max
Average
Min

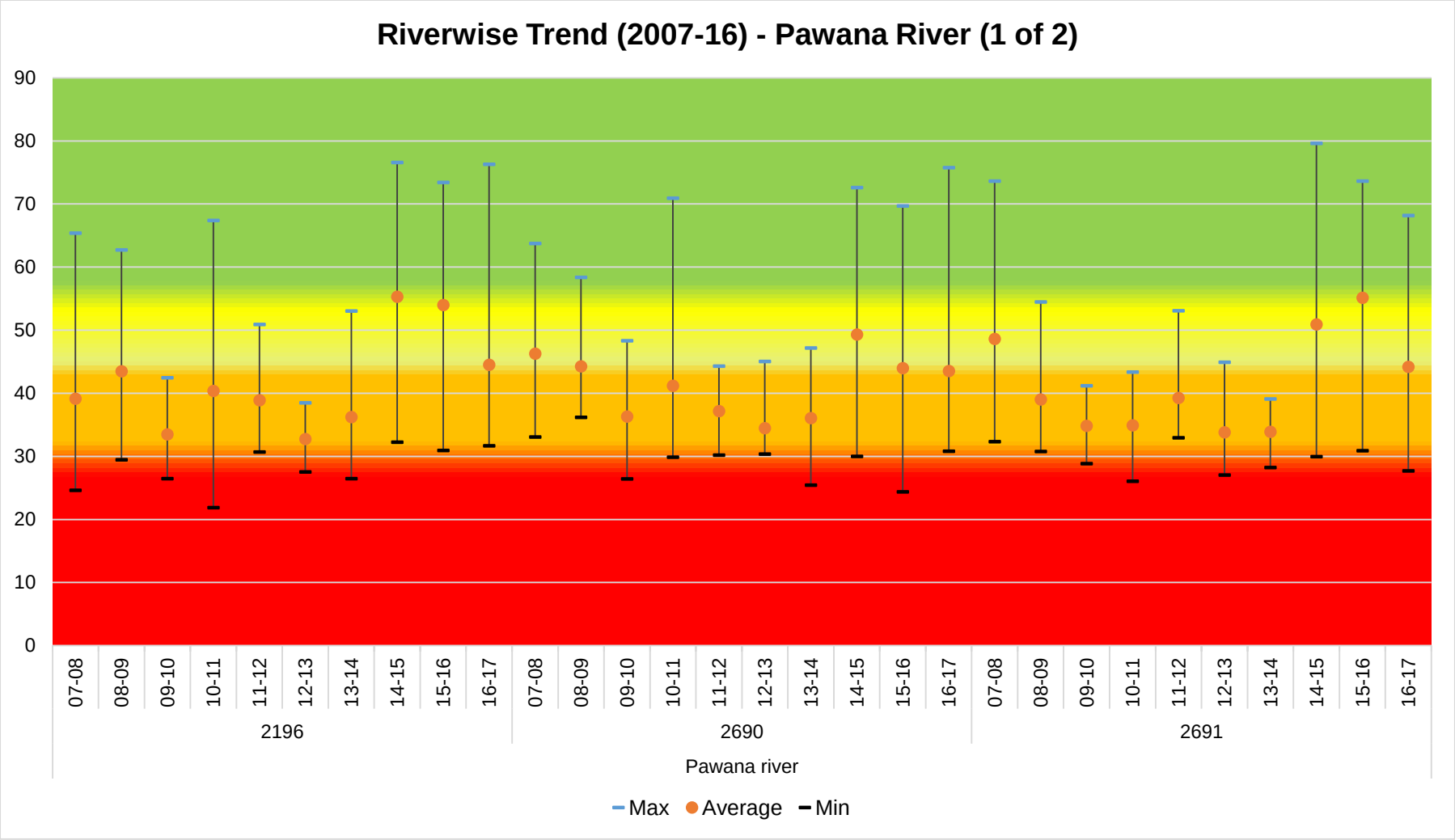

Riverwise Trend (2007-16) - Mutha River
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2191
2678
2679
2680
Mutha river
Max
Average
Min

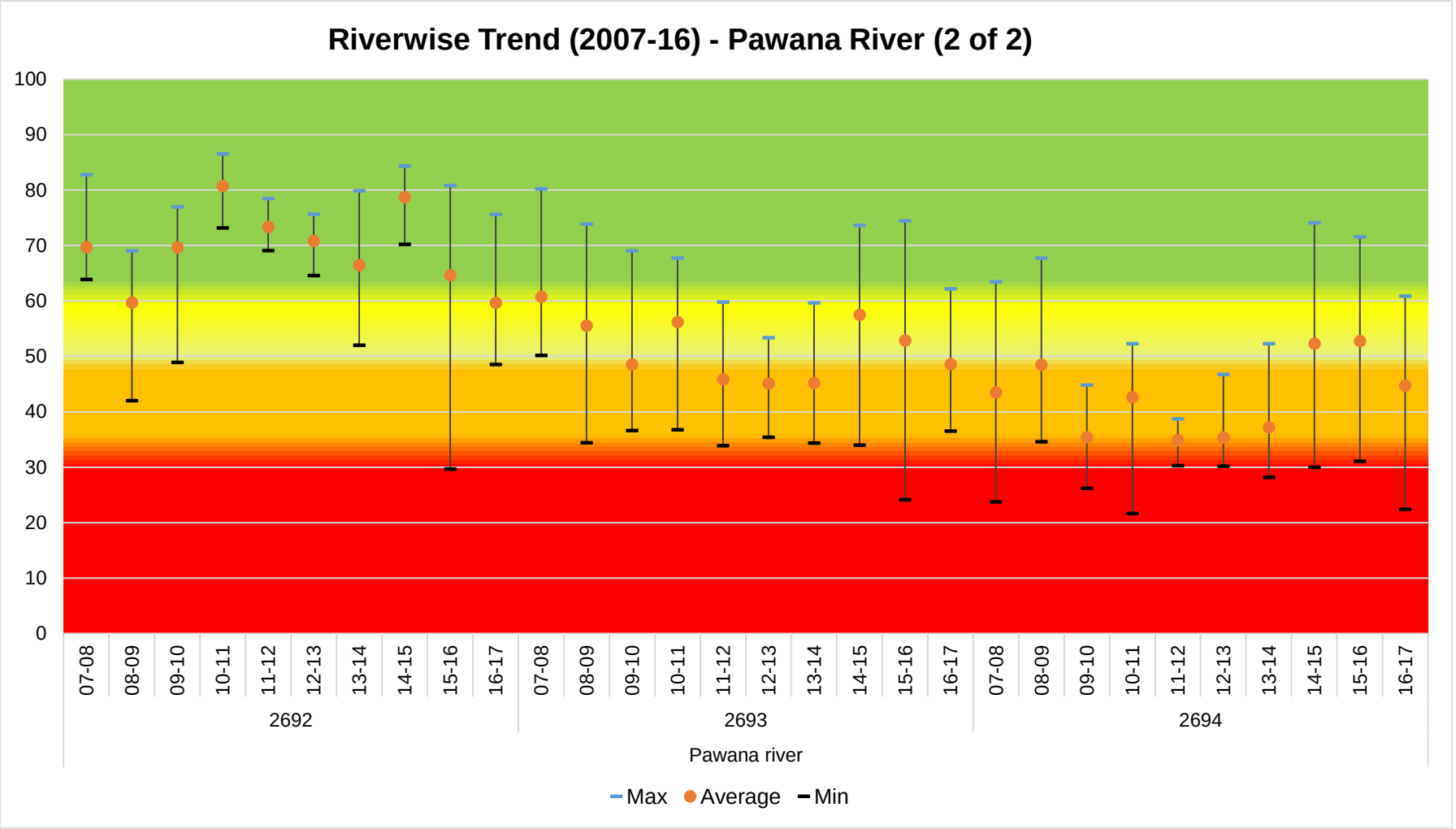

Riverwise Trend (2007-16) - Nira River
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1463
2195
2681
2682
2683
Nira river
Max
Average
Min

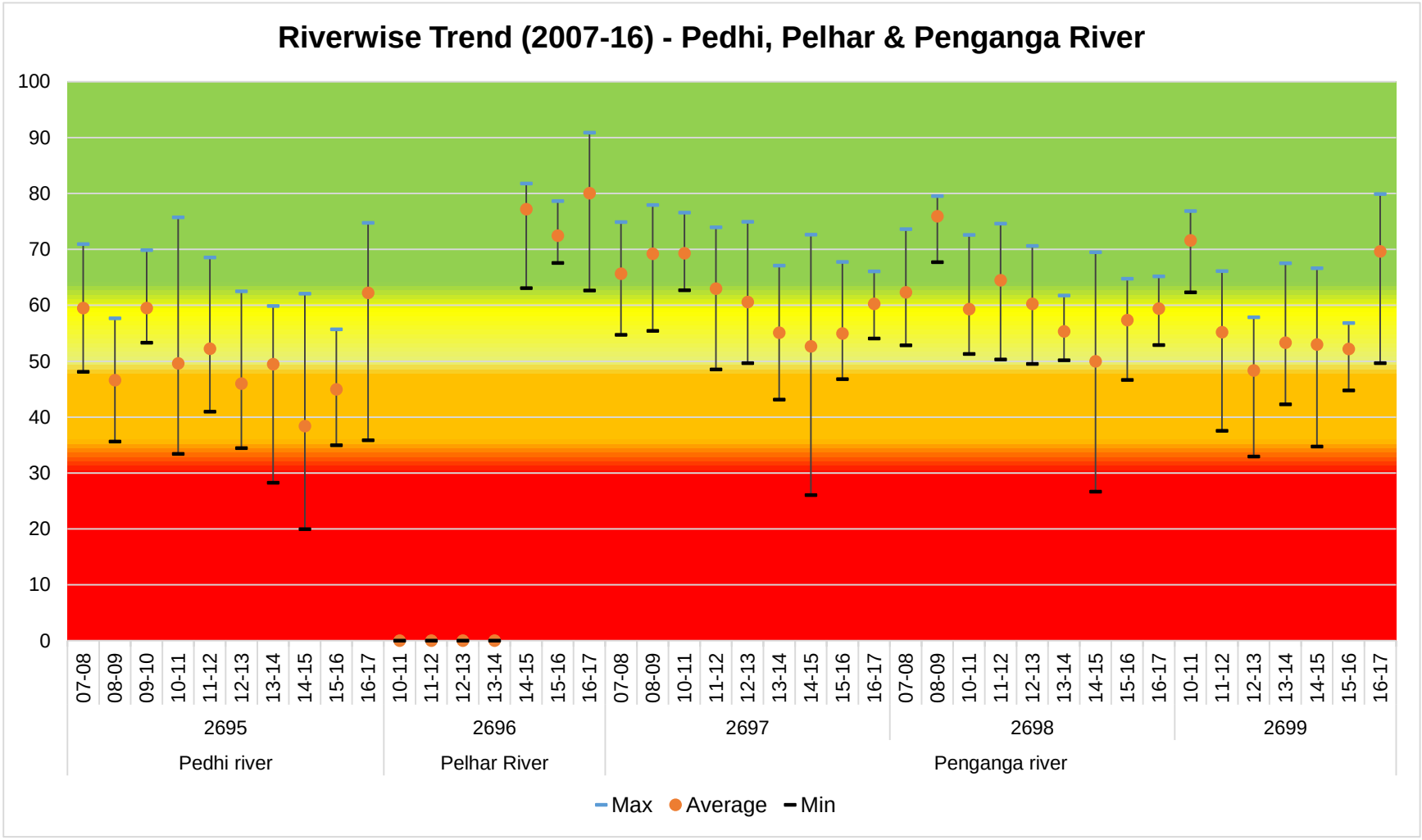

Riverwise Trend (2007-16) - Panchganga & Panzara River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1905
1311
1904
2163
2684
Panchaganga river
Panzara river
Max
Average
Min

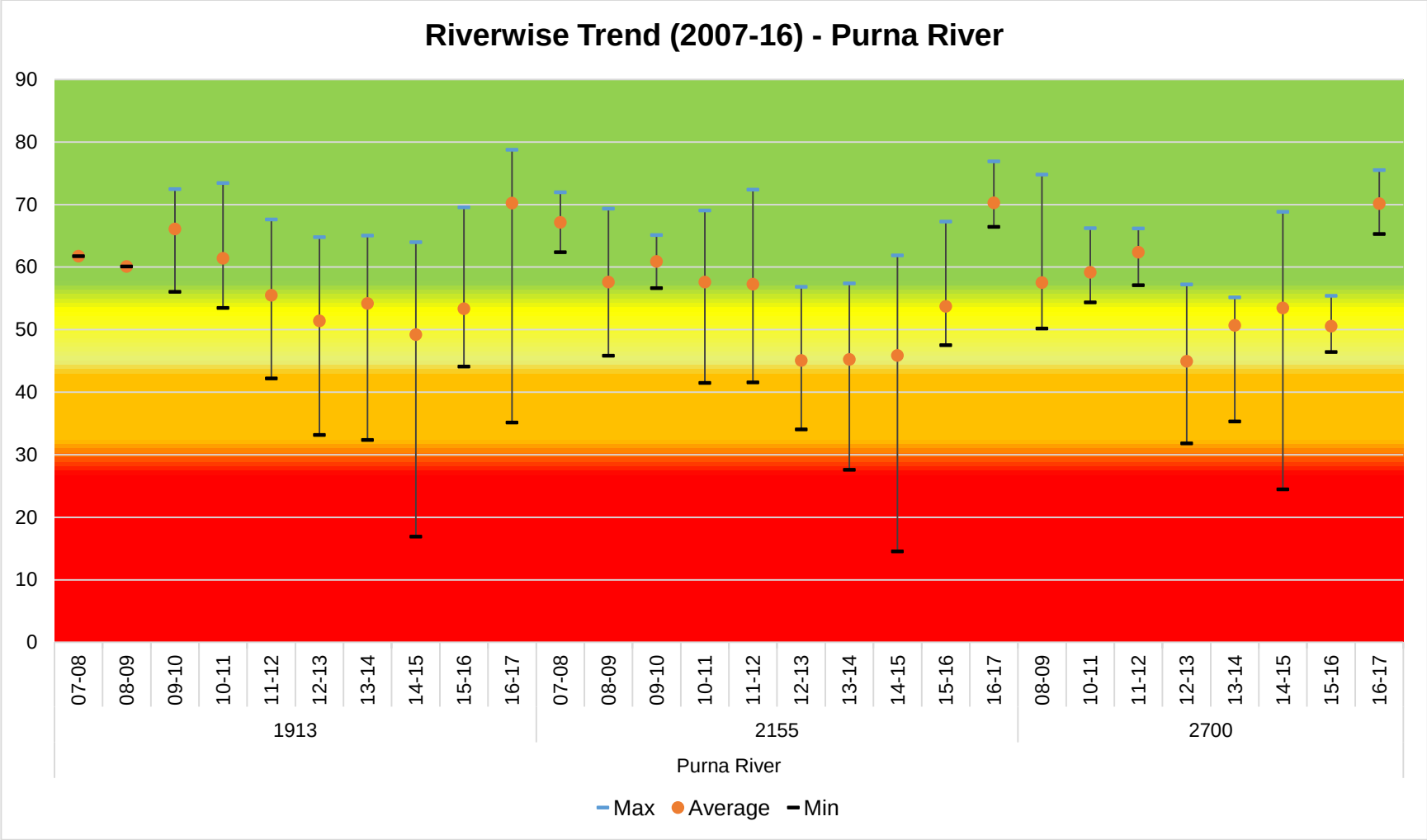

Riverwise Trend (2007-16) - Patalganga River (1 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1151
1462
2685
2686
Patalganga river
Max
Average
Min

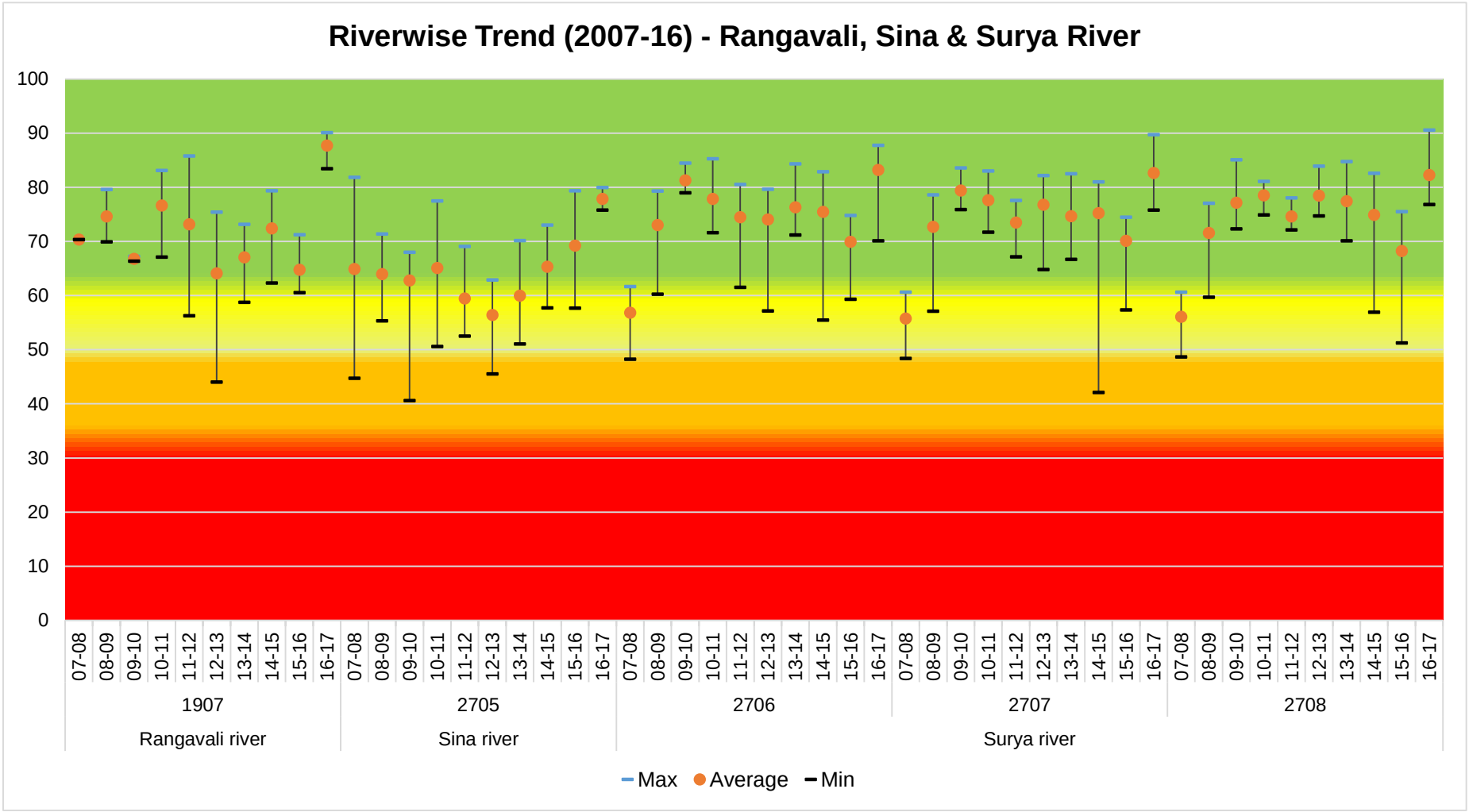

Riverwise Trend (2007-16) - Pantalganga River (2 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2687
2688
2689
Patalganga river
Max
Average
Min

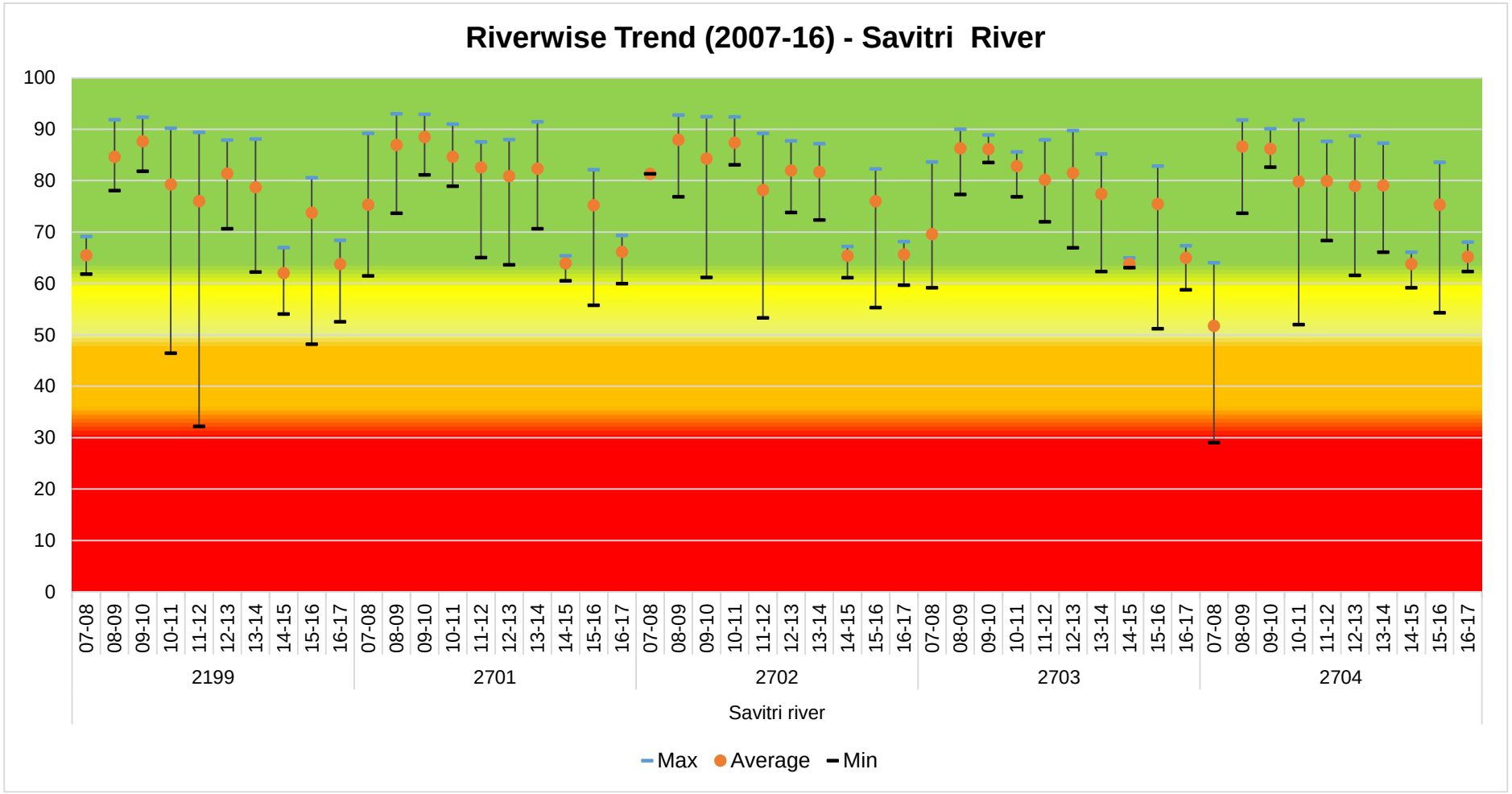

Riverwise Trend (2007-16) - Pawana River (1 of 2)
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2196
2690
2691
Pawana river
Max
Average
Min

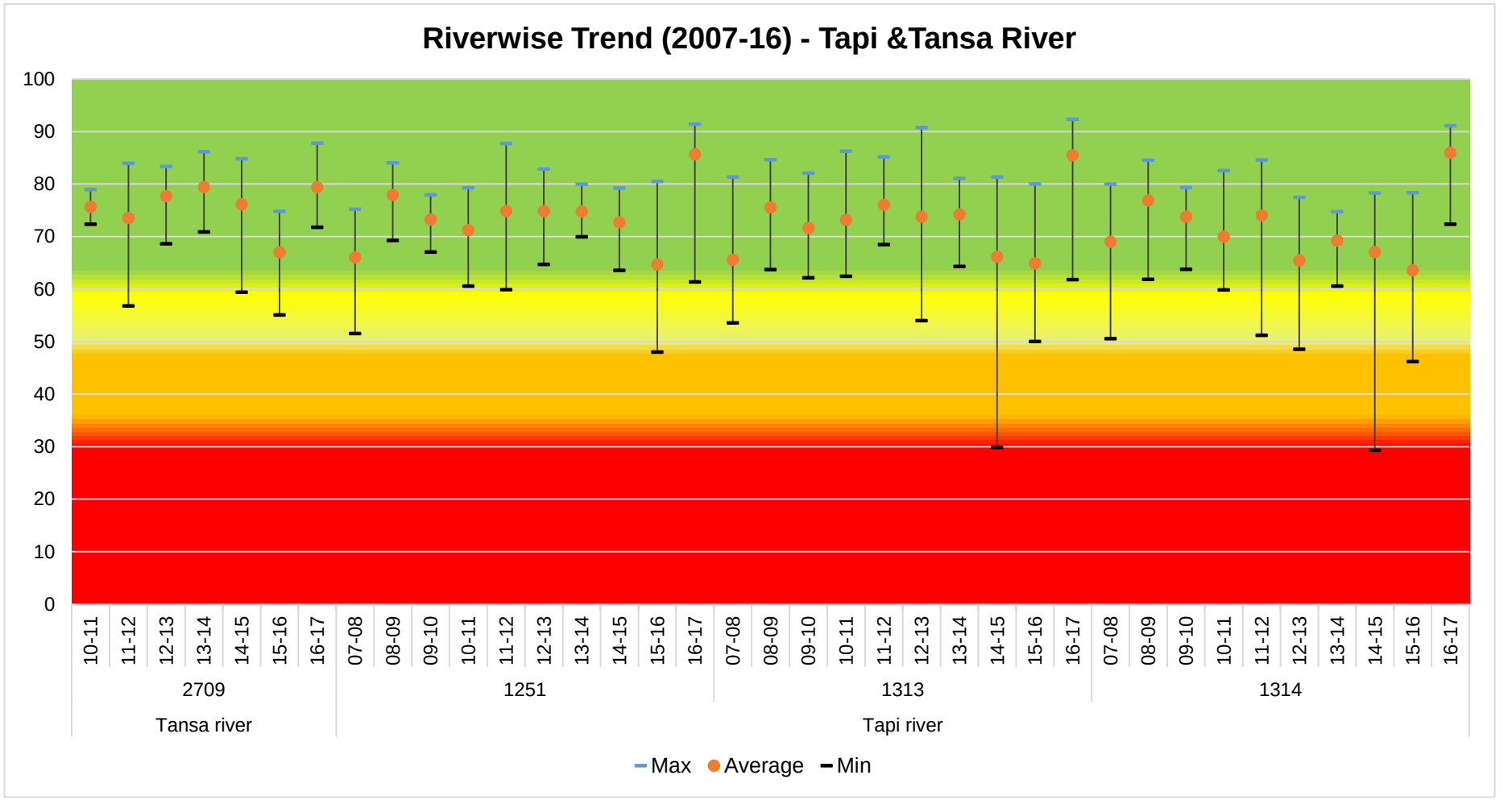

Riverwise Trend (2007-16) - Pawana River (2 of 2)
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2692
2693
2694
Pawana river
Max
Average
Min

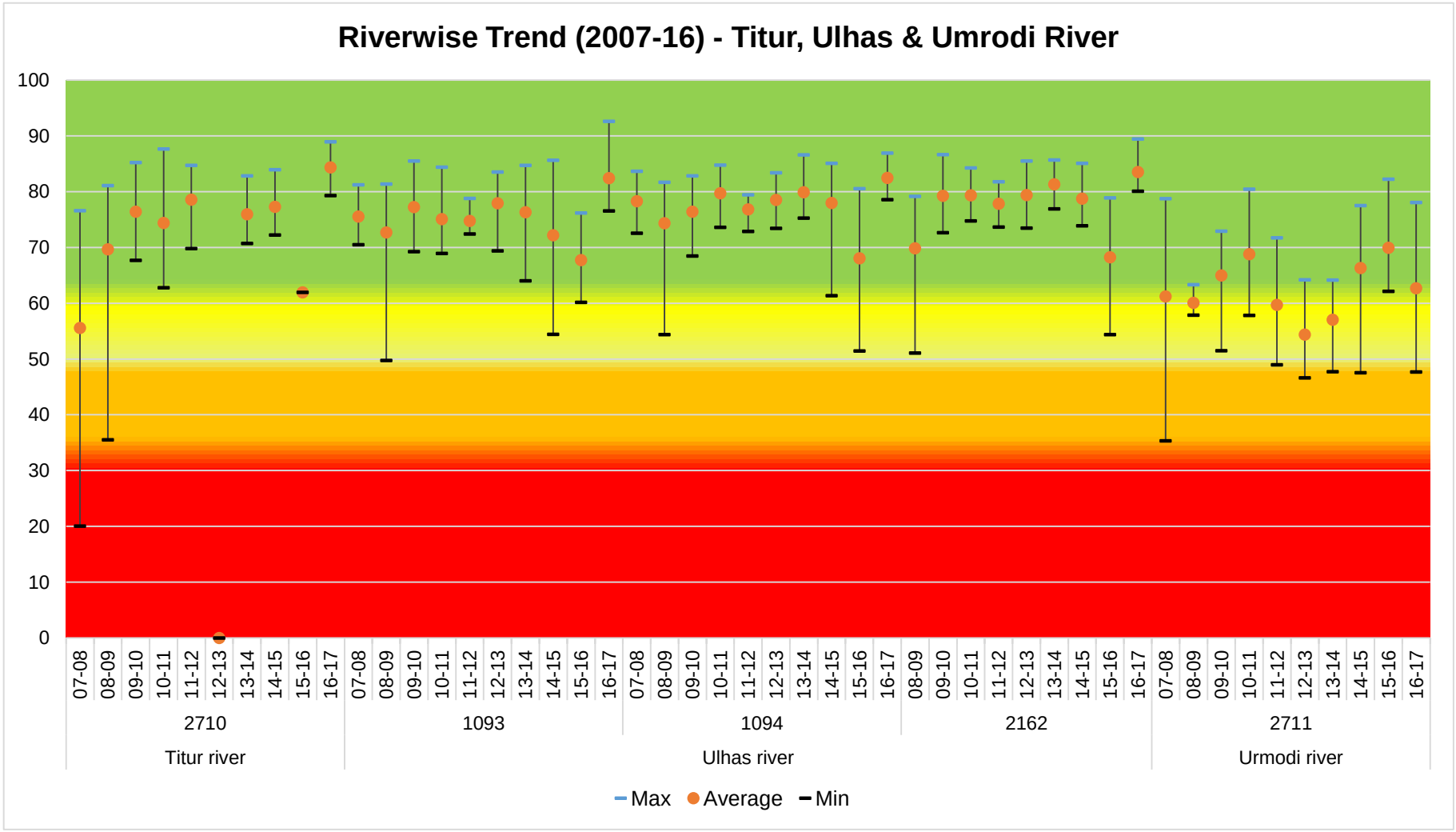

Riverwise Trend (2007-16) - Pedhi, Pelhar & Penganga River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2695
Pedhi river
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2696
Pelhar River
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2697
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2698
Penganga river
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2699
Max
Average
Min

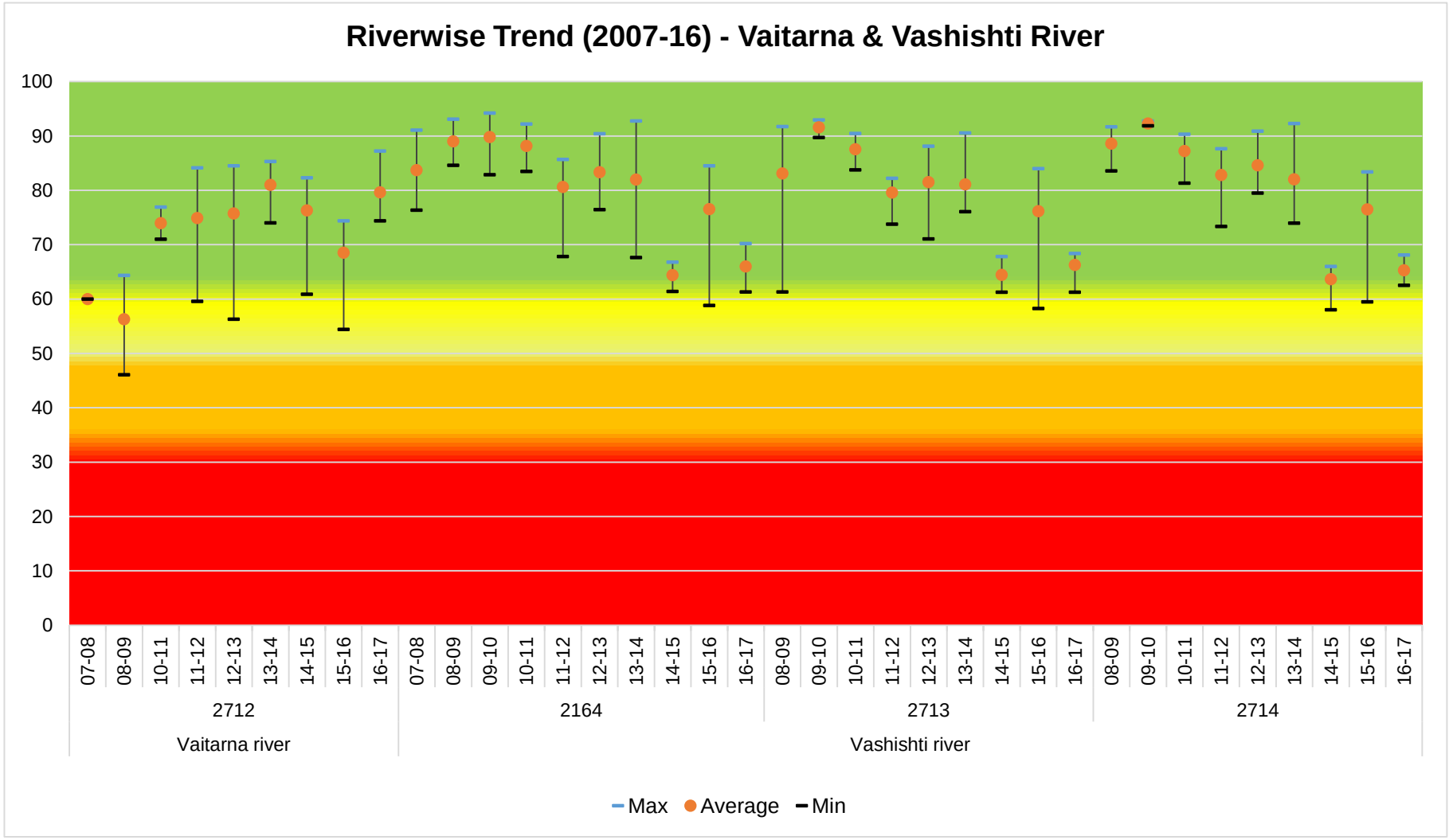

Riverwise Trend (2007-16) - Purna River
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1913
2155
2700
Purna River
Max
Average
Min

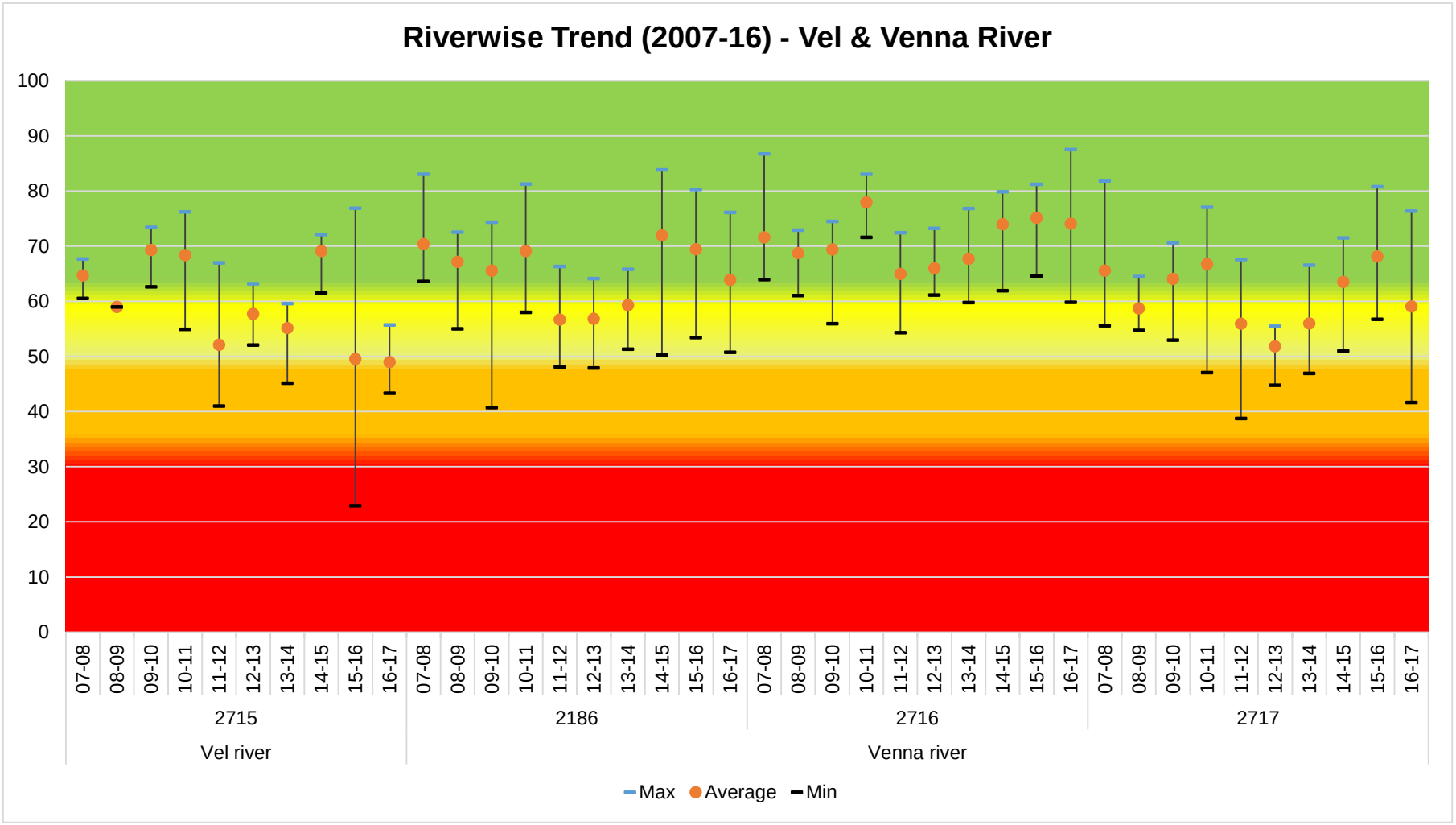

Riverwise Trend (2007-16) - Rangavali, Sina & Surya River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1907
Rangavali river
2705
Sina river
2706
2707
Surya river
2708
Max
Average
Min

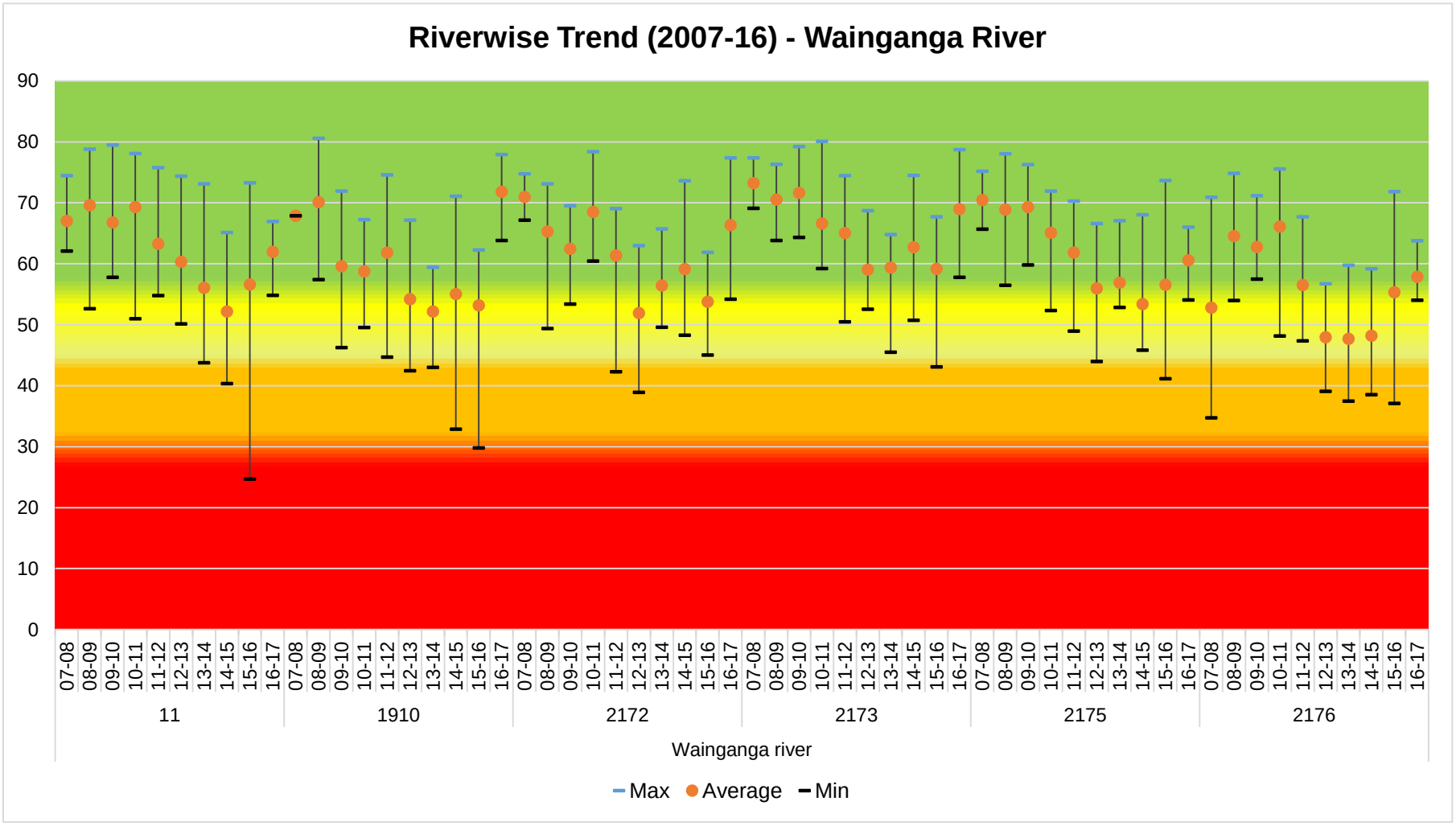

Riverwise Trend (2007-16) - Savitri River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2199
2701
2702
2703
2704
Savitri river
Max
Average
Min

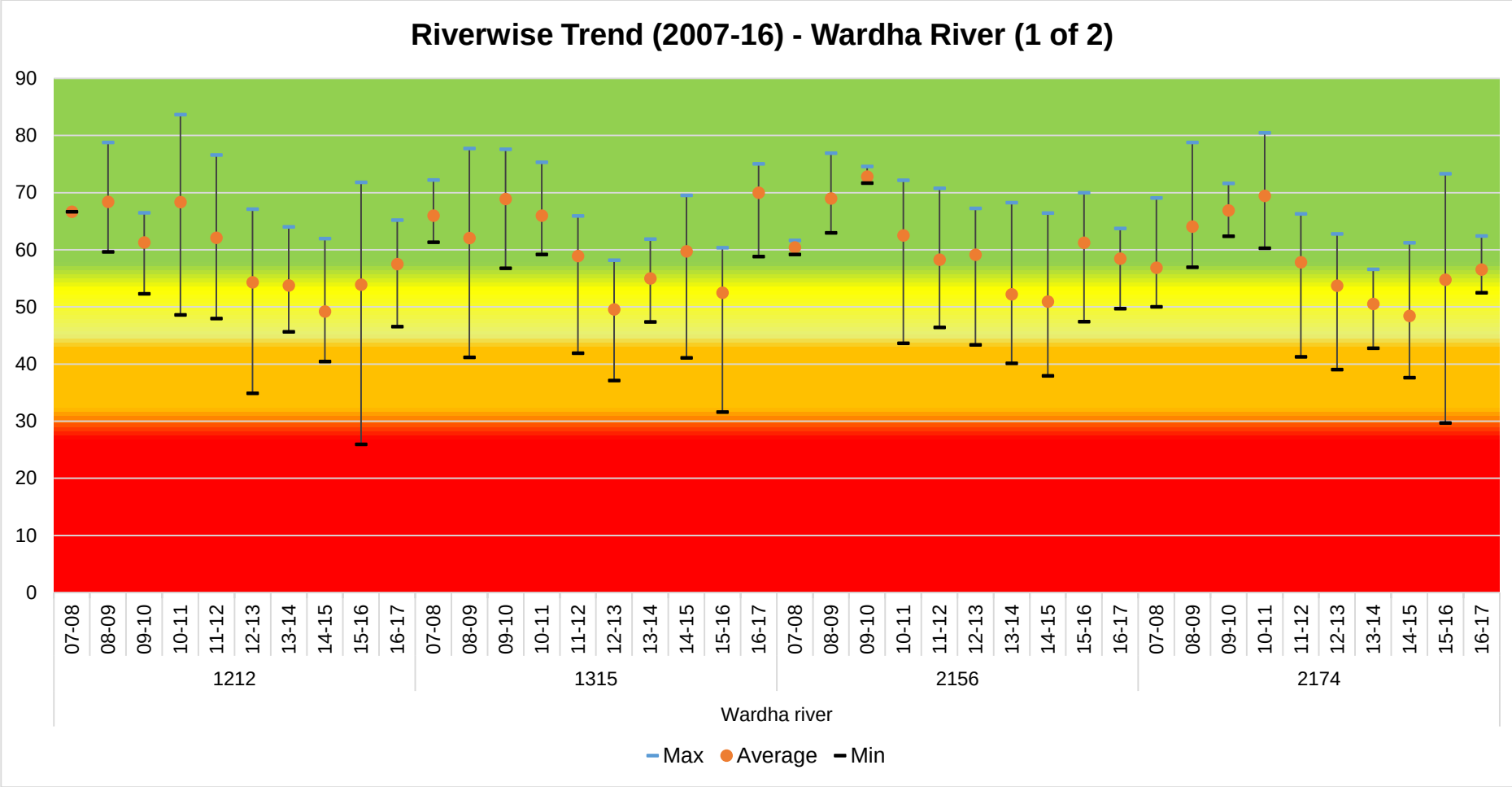

Riverwise Trend (2007-16) - Tapi &Tansa River
100
90
80
70
60
50
40
30
20
10
0
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2709
1251
1313
1314
Tansa river
Tapi river
Max
Average
Min

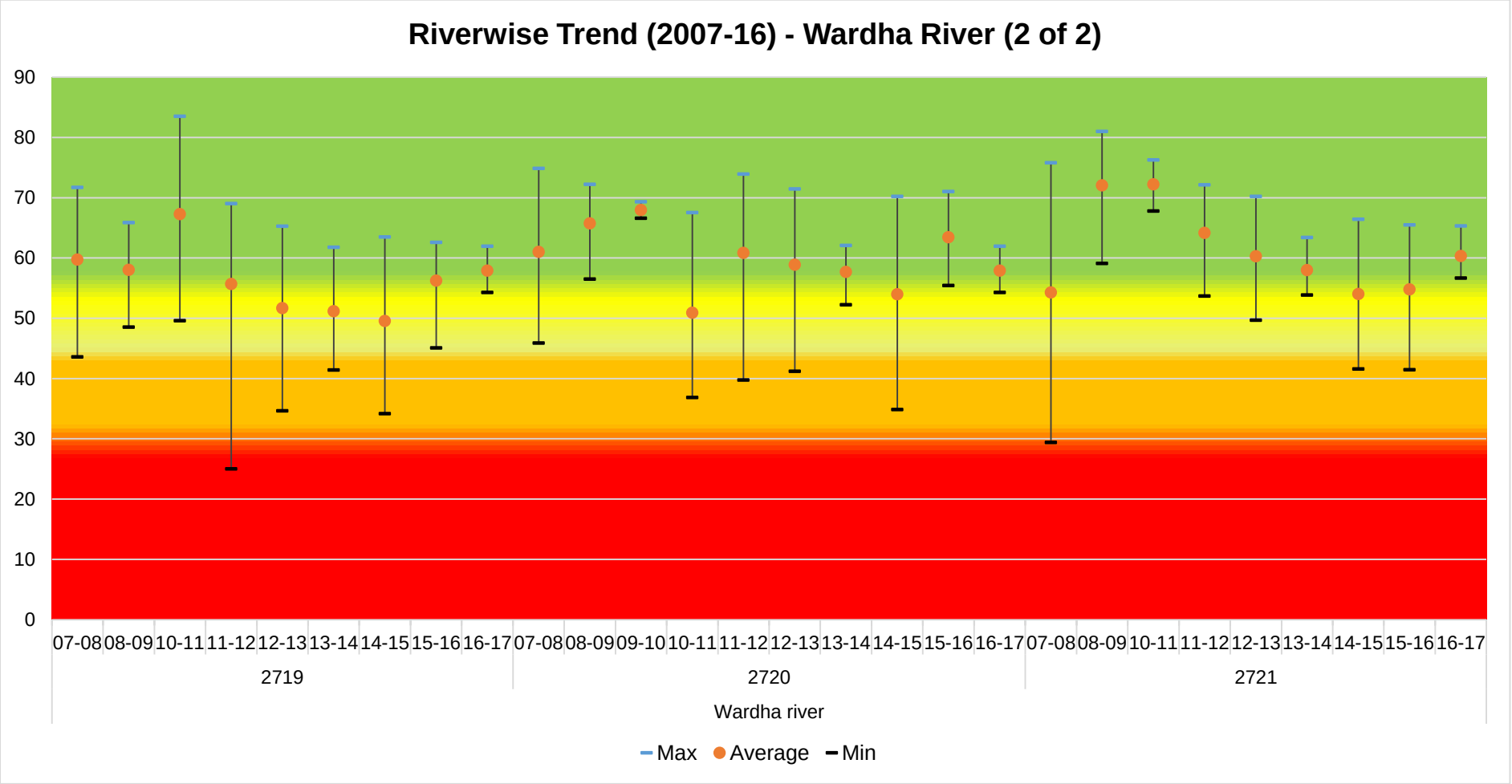

Riverwise Trend (2007-16) - Titur, Ulhas & Umrodi River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2710
Titur river
1093
1094
Ulhas river
2162
2711
Urmodi river
Max
Average
Min

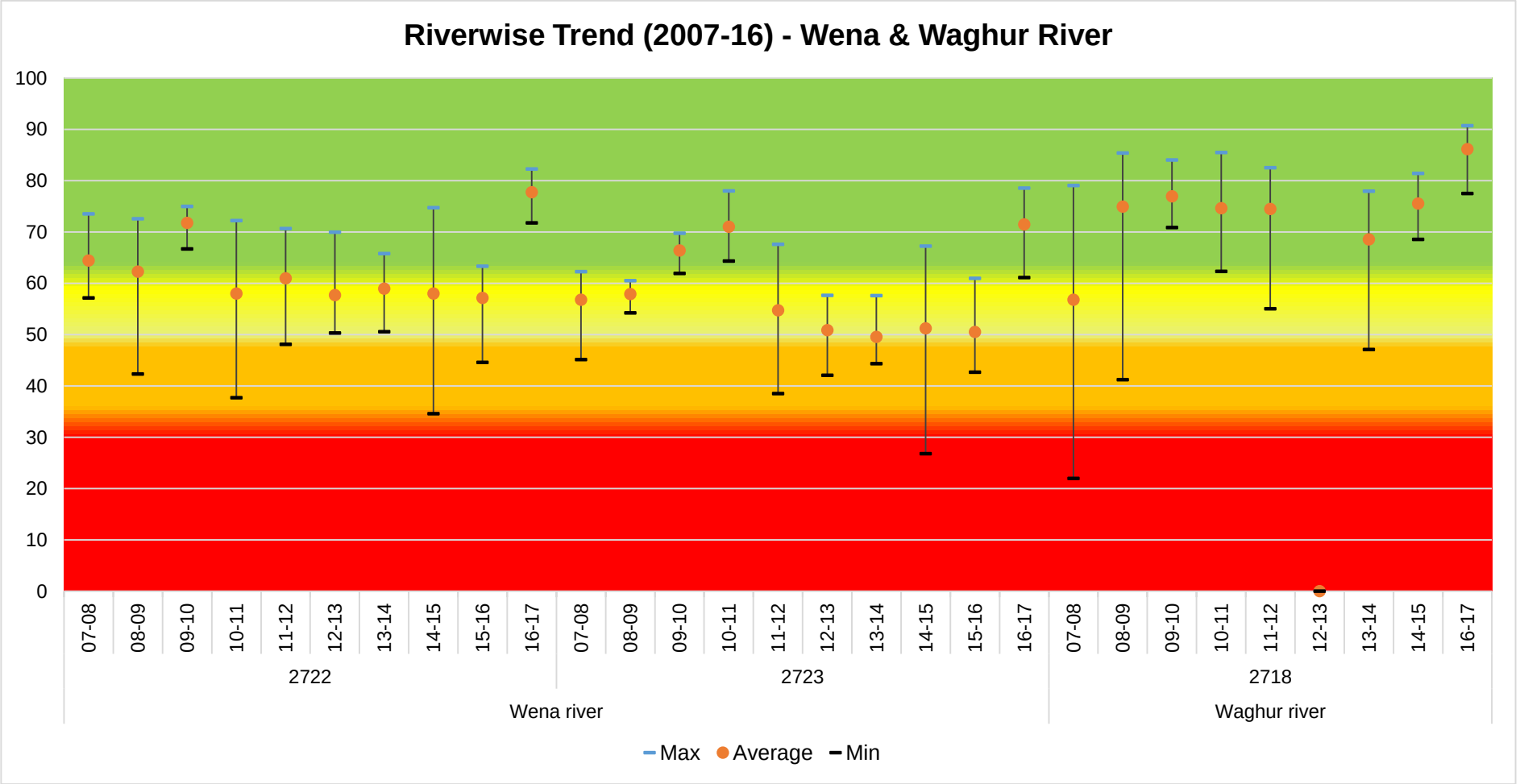

Riverwise Trend (2007-16) - Vaitarna & Vashishti River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2712
Vaitarna river
2164
2713
Vashishti river
2714
Max
Average
Min


Riverwise Trend (2007-16) - Vel & Venna River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2715
Vel river
2186
2716
Venna river
2717
Max
Average
Min


Riverwise Trend (2007-16) - Wainganga River
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
11
1910
2172
2173
2175
2176
Wainganga river
Max
Average
Min

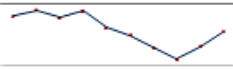
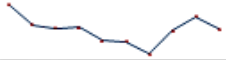
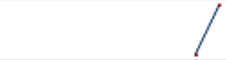
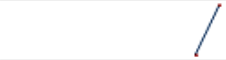

Riverwise Trend (2007-16) - Wardha River (1 of 2)
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
1212
1315
2156
2174
Wardha river
Max
Average
Min


Riverwise Trend (2007-16) - Wardha River (2 of 2)
90
80
70
60
50
40
30
20
10
0
07-08 08-09 10-11 11-12 12-13 13-14 14-15 15-16 16-17 07-08 08-09 09-10 10-11 11-12 12-13 13-14 14-15 15-16 16-17 07-08 08-09 10-11 11-12 12-13 13-14 14-15 15-16 16-17
2719
2720
2721
Wardha river
Max
Average
Min


Riverwise Trend (2007-16) - Wena & Waghur River
100
90
80
70
60
50
40
30
20
10
0
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
2722
2723
2718
Wena river
Waghur river
Max
Average
Min

Station wise Trend in WQI (2007-17)

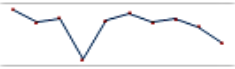
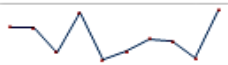
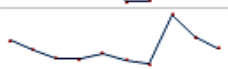
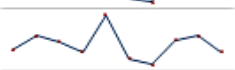
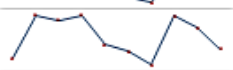
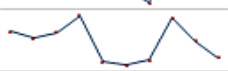
Surface water Trend of WQI -2016-17

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
11	68	70	67	69	63	61	56	52	57	62		Quality Deteriorated	-1.08
12	80	84	75	70	79	78	75	84	71	81		No Significant Change	0.19
28	80	68	63	65	55	58	59	63	65	67		Quality Deteriorated	-2.23
36	81	68	66	67	59	58	51	65	73	66		Quality Deteriorated	-2.50
37	70	86	86	84	76	78	76	62	78	66		No Significant Change	-0.88
178									68	82		Quality Improved	2.42
179										81			#DIV/0!
180									60	67		Quality Improved	1.40
181									62	65		No Significant Change	0.58
182									63	68		No Significant Change	0.94
183									58	76		Quality Improved	3.49
184									66	81		Quality Improved	2.51
185									51	71		Quality Improved	4.14
186									32	38		Quality Improved	2.18
187									33	40		Quality Improved	2.37

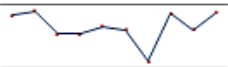
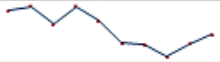
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
188									38	41		Quality Improved	1.20
189									47	45		No Significant Change	-0.57
192									72	83		Quality Improved	1.81
193									71	81		Quality Improved	1.51
194									62	88		Quality Improved	4.42
195									48	60		Quality Improved	2.93
196									59	65		Quality Improved	1.22
197									50	54		Quality Improved	1.14
198									78	64		Quality Deteriorated	-2.40
199									78	64		Quality Deteriorated	-2.34
200									77	64		Quality Deteriorated	-2.23
201									79	65		Quality Deteriorated	-2.51
202									79	65		Quality Deteriorated	-2.35
203									79	66		Quality Deteriorated	-2.29
204									78	65		Quality Deteriorated	-2.16

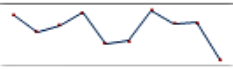
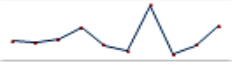
For calculation of CAGR: Refer Pg no.23

Station Code	07--08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
216									65	62		No Significant Change	-0.62
1092	72	65	68	45	66	70	65	67	63	54		Quality Deteriorated	-3.45
1093	76	73	77	76	75	78	76	72	68	82		Quality Improved	1.10
1094	78	74	76	80	77	79	80	78	68	82		No Significant Change	0.65
1095	78	79	81	76	77	77	77	76	69	88		Quality Improved	1.41
1096	74	74	66	79	63	66	70	69	63	80		No Significant Change	0.98
1151	73	74	74	71	76	81	70	75	71	80		Quality Improved	1.19
1152	72	74	75	69	76	78	77	77	70	79		Quality Improved	1.15
1153	87	82	84	76	76	81	78	63	75	63		Quality Deteriorated	-3.84
1188	67	62	55	68	62	59	59	67	65	67		No Significant Change	-0.01
1189	55	42	44	43	46	37	37	54	47	45		Quality Deteriorated	-2.52
1190	48	41	34	34	39	33	30	70	52	43		Quality Deteriorated	-1.60
1191	54	64	60	52	81	47	42	61	64	52		No Significant Change	-0.51
1192	43	71	67	71	52	47	39	70	62	49		Quality Improved	1.70
1194	76	74	75	79	70	69	70	78	74	70		No Significant Change	-0.88

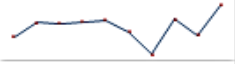
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
1209	82	84	73	73	77	75	61	83	75	83		No Significant Change	0.19
1210	80	80	80	74	79	77	79	83	76	84		No Significant Change	0.53
1211	69	68	67	77	59	65	67	80	63	79		Quality Improved	1.79
1212	67	68	61	68	63	54	54	49	54	57		Quality Deteriorated	-1.83
1251	66	78	73	71	75	75	75	73	65	86		Quality Improved	3.26
1252	53	77	70	73	74	78	74	73	50	81		Quality Improved	5.54
1253	78	79	75	67	77	65	70	74	63	84		No Significant Change	0.97
1310	86	84	84	78	78	70	77	63	73	63		Quality Deteriorated	-3.87
1311	83	82	87	69	78	77	75	61	75	61		Quality Deteriorated	-3.80
1312	81	84	75	75	80	78	79	85	73	85		No Significant Change	0.54
1313	66	76	72	73	76	74	74	66	65	85		Quality Improved	3.37
1314	69	77	74	70	75	65	69	68	64	86		Quality Improved	2.76
1315	66	62	69	66	59	50	55	60	52	70		No Significant Change	0.73
1461	82	57	78		58	75	79	78	69	82		No Significant Change	0.08
1462	77	73	76	81	78	80	82	31	71	78		No Significant Change	0.12

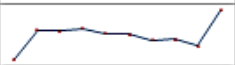
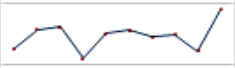
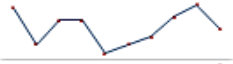
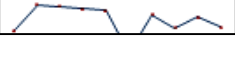
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
1463	69	65	67	70	62	63	71	67	67	58		Quality Deteriorated	-2.26
1904	86	86	87	83	78	82	75	62	75	63		Quality Deteriorated	-3.75
1905	86	82	82	75	76	80	73	61	75	63		Quality Deteriorated	-3.70
1906	83	82	85	80	77	77	76	64	77	65		Quality Deteriorated	-2.98
1907	70	75	67	77	73	65	67	72	65	88		Quality Improved	2.79
1908	75	71	61	70	60	57	55	56	55	72		No Significant Change	-0.43
1909	69	70	65	66	59	56	53	54	53	69		No Significant Change	-0.03
1910	68	70	60	59	62	54	52	55	53	72		No Significant Change	0.71
1911	67	66	68	72	65	63	80	62	65	72		No Significant Change	0.98
1912	67	60	60	68	59	56	58	52	62	62		Quality Deteriorated	-1.08
1913	62	60	67	61	55	51	54	49	53	70		Quality Improved	1.63
2155	67	58	61	58	57	46	45	46	54	70		No Significant Change	0.57
2156	60	69	73	62	58	59	52	51	61	58		No Significant Change	-0.41
2157			69	61	61	81	78	83	73	82		Quality Improved	2.29
2158	76	84	75	75	79	79	78	83	73	85		Quality Improved	1.42

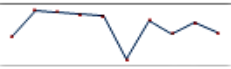
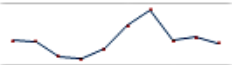
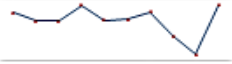
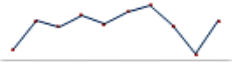
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2195	55	57	62	58	61	50	52	59	58	46		Quality Deteriorated	-2.16
2196	39	43	33	60	39	33	36	55	54	45		Quality Improved	1.62
2197	57	55	58	54	54	71	51	56	64	57		No Significant Change	-0.05
2198	44	62	53	73	73	76	63	70	68	70		Quality Improved	5.96
2199	65	85	88	79	76	81	79	63	74	64		No Significant Change	-0.33
2651	65	78	76	78	77	78	80	77	69	78		Quality Improved	2.32
2652	56	77	72	80	75	31	65	64	64	87		Quality Improved	5.50
2653	66	61		79	76	77	61	78	72	78		Quality Improved	2.24
2654	65	61		79	77	78	79	77	72	79		Quality Improved	2.46
2655	63	65	57	66	57	46	54	63	68	58		Quality Deteriorated	-1.04
2656	65	68	68	75	64	59	59	41	62	58		Quality Deteriorated	-1.44
2657	75	78	68	76	78	76	78	41	71	83		Quality Improved	1.26
2658	60	74	72	80	80	83	73	75	53	83		Quality Improved	4.01
2659	58	72	72	73	75	63	40	76	59	90		Quality Improved	5.74
2660	61	75	82	8	73	72	72	71	68	89		Quality Improved	4.81

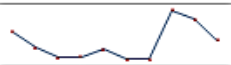
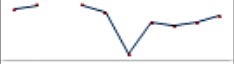
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2661	61	78	77	78	75	75	72	72	68	89		Quality Improved	4.77
2662	68	77	79	63	75	77	74	75	67	88		Quality Improved	3.36
2663	67	78	78	62	75	76	74	73	68	87		Quality Improved	3.26
2664	67	80	79	67	77	74	72	70	69	88		Quality Improved	3.52
2665	57	59	60	67	54	61	51	60	62	48		Quality Deteriorated	-2.20
2666	59	78	77	69	73	62	69	67	55	90		Quality Improved	5.40
2667	52	75	75	68	78		75	72	46	83		Quality Improved	5.93
2668	60	59	58	52	49	49	61	55	64	55		Quality Deteriorated	-1.12
2669	65	55	61	61	53	55	57	62	65	59		Quality Deteriorated	-1.03
2670	57	77	79	71	73	69	70	73	65	89		Quality Improved	1.61
2671		5	6	36	59	59	62	61	58	61		Quality Improved	38.02
2672	60	75	79	75	77	79	79	77	69	80		Quality Improved	3.77
2673	55		73	81	78	76	77	85		85		Quality Improved	5.55
2674	56	79	75	74	78		74	74	56	86		Quality Improved	5.33
2675	38	42		64	59	41	41	71	50	63		Quality Improved	6.63
2676	59	91	89	85	84	31	79	63	75	64		No Significant	0.88

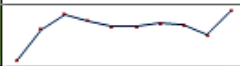
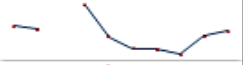
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2676	59	91	89	85	84	31	79	63	75	64		No Significant Change	0.88
2677	52	46	43	53	42	36	39	59	58	49		No Significant Change	-0.85
2678	42	41	33	32	38	51	60	42	44	40		No Significant Change	-0.52
2679			60	32	33	31	29	71	41	39		Quality Deteriorated	-5.26
2680	71	72	73	75	74	51	69	42	72	63		Quality Deteriorated	-1.49
2681	68	65	59	56	48	60	45	58	51	56		Quality Deteriorated	-2.24
2682	59	63	59	68	61	59	59	65	66	52		Quality Deteriorated	-1.51
2683	64	66	67	65	50	60	57	64	69	64		No Significant Change	0.16
2684	52	72	72	69	75	65	64	74	62	87		Quality Improved	6.70
2685	66	69	70	75	74	81	72	74	67	74		Quality Improved	1.43
2686	72	79	77	82	79	75	83	76	72	83		Quality Improved	1.81
2687	80	78	78	82	79	79	80	76	72	82		No Significant Change	0.24
2688	70	77	76	79	76	80	81	76	69	77		Quality Improved	1.23
2689	23	81	79	81	76	81	81	76	68	80		Quality Improved	16.71
2690	46	44	36	41	37	34	37	49	44	44		No Significant Change	-0.76

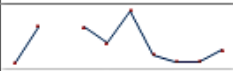
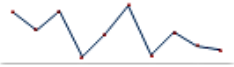
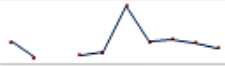
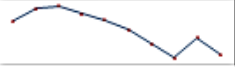
For calculation of CAGR: Refer Pg no.23

Station Code	07--08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2691	49	40	35	35	39	34	34	60	55	44		Quality Deteriorated	-1.18
2692	70	60	70	80	73	60	66	79	65	60		Quality Deteriorated	-1.93
2693	61	55	49	56	46	46	45	57	53	49		Quality Deteriorated	-2.75
2694	43	48	35	43	35	35	37	52	53	45		No Significant Change	0.36
2695	60	47	60	50	52	46	49	38	45	62		No Significant Change	0.56
2696								77	72	80		No Significant Change	0.46
2697	66	69		69	63	30	55	53	55	60		Quality Deteriorated	-1.07
2698	62	76		59	64	21	55	50	57	59		No Significant Change	-0.59
2699				72	55	48	53	53	52	70		No Significant Change	-0.35
2700		58		59	62	45	81	53	51	70		Quality Improved	2.51
2701	75	87	89	85	83	40	82	64	75	66		Quality Deteriorated	-1.61
2702	81	88	84	87	78	82	82	65	76	66		Quality Deteriorated	-2.65
2703	70	86	86	83	50	81	77	64	75	65		No Significant Change	-0.85
2704	52	87	86	80	80	79	80	64	75	65		Quality Improved	2.93
2705	65	64	63	66	59	56	60	65	69	78		Quality Improved	2.30

For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2706	57	73	81	78	74	74	76	75	70	83		Quality Improved	4.88
2707	56	73	79	78	73	77	75	75	70	83		Quality Improved	5.04
2708	57	72	77	78	75	78	77	75	68	82		Quality Improved	4.72
2709				76	74	78	79	76	67	79		No Significant Change	0.60
2710	56	70	76	74	79		76	77	62	84		Quality Improved	5.35
2711	61	60	66	69	60	54	58	66	70	63		No Significant Change	0.30
2712	60	56		74	75	76	81	76	69	80		Quality Improved	3.60
2713		83	92	88	80	82	82	64	76	66		Quality Deteriorated	-2.80
2714		89	92	87	83	85	82	64	77	65		Quality Deteriorated	-3.74
2715	65	59	69	68	52	58	55	69	50	49		Quality Deteriorated	-3.41
2716	72	69	69	78	65	66	68	74	75	74		No Significant Change	0.42
2717	66	59	65	67	56	52	56	64	68	59		Quality Deteriorated	-1.29
2718	57	75	77	75	74		69	76	51	86		Quality Improved	5.33
2719	60	58		67	56	52	51	50	56	58		No Significant Change	-0.39
2720	62	66	68	51	80	59	58	54	63	61		No Significant Change	-0.06

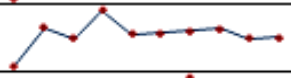
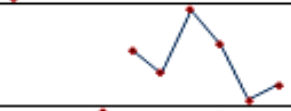
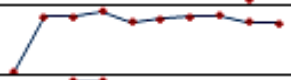
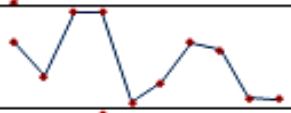
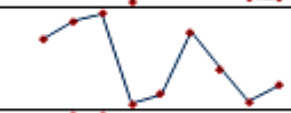
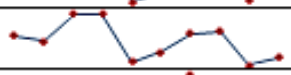
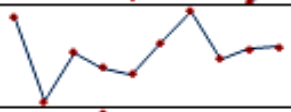
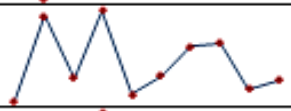
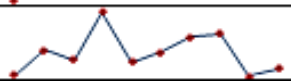
For calculation of CAGR: Refer Pg no.23

Station Code	07–08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		Quality	CAGR %
2721	54	73		72	64	81	58	55	55	60		Quality Improved	1.32
2722	64	62	72	58	81	58	59	59	57	78		Quality Improved	2.38
2723	57	58	66	71	55	80	50	51	50	71		Quality Improved	2.92
2782	21	33	41	24	30	28	26	42	38	35		Quality Improved	6.41
2783	21	42	58	28	32	33	29	43	36	36		Quality Improved	6.67
2784	55	44	56	26	41	60	27	42	33	30		Quality Deteriorated	-7.35
2785	19	24		24	24	22	27	26	28	26		Quality Improved	4.20
2786	19	20		18	23	26	39	46	31	37		Quality Improved	8.47
2787	20	18		21	43	24	35	39	31	24		Quality Improved	2.50
2788	34	13		16	19	80	33	36	32	26		Quality Deteriorated	-3.32
2789	71		52	46	30	43	80	47	46	70		No Significant Change	-0.19
2790	79	87	88	83	79	73	65	56	69	59		Quality Deteriorated	-3.61

For calculation of CAGR: Refer Pg no.23

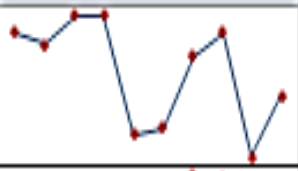
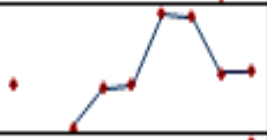
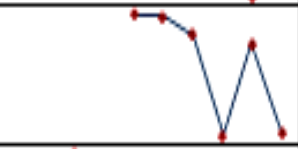
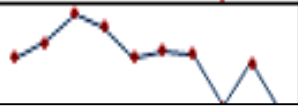
Saline water Trend of WQI -2016-17

Mumbai District

District	Station Code	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	Trend	Quality	CAGR %
Mumbai	2809	41	53	46	54	51	48	55	55	45	48		Quality Improved	2.02
Mumbai	2811	36	52	47	60	49	50	51	52	48	48		Quality Improved	3.73
Mumbai	2810					51	49	54	51	47	48		No Significant Change	-0.75
Mumbai	2167	0	53	54	59	48	51	53	55	48	47		Quality Deteriorated	-1.58
Mumbai	2165	55	50	60	60	46	49	55	54	47	47		Quality Deteriorated	-2.17
Mumbai	2169		54	57	58	45	46	55	50	45	47		Quality Deteriorated	-1.69
Mumbai	2166	54	52	60	60	46	49	54	55	45	47		Quality Deteriorated	-1.58
Mumbai	1318	53	44	49	48	47	51	54	49	50	50		No Significant Change	-0.79
Mumbai	2812	44	57	47	58	45	48	52	53	46	47		No Significant Change	0.86
Mumbai	2808	46	52	49	60	49	51	54	55	46	47		No Significant Change	0.39

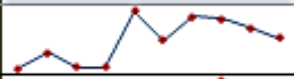
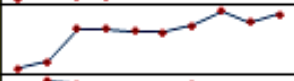
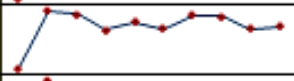
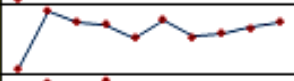
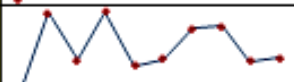
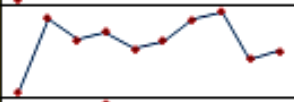
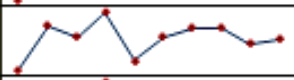
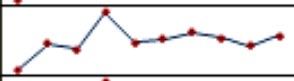
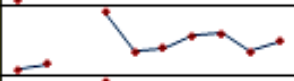
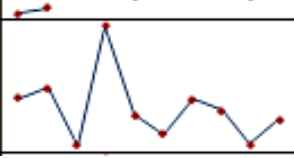
For calculation of CAGR: Refer Pg no.23

Ratnagiri & Raigad District

District	Station Code	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	Trend	Quality	CAGR %
Raigad	1317	57	56	59	59	49	50	55	57	48	52		Quality Deteriorated	-1.10
Raigad	2803		56		47	55	55	70	69	58	58		No Significant Change	0.52
Raigad	191									48	48		Quality Improved	15.63
Ratnagiri	2804					82	82	79	63	77	64		Quality Deteriorated	-3.13
Ratnagiri	2813	75	79	87	83	75	77	76	62	74	60		Quality Deteriorated	-2.76

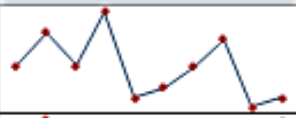
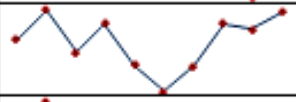
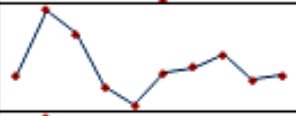
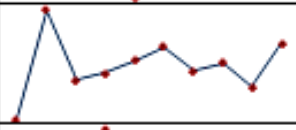
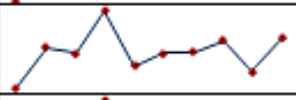
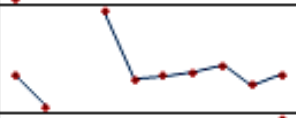
For calculation of CAGR: Refer Pg no.23

Thane District (1 of 2)

District	Station Code	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	Trend	Quality	CAGR %
Thane	2791	43	48	43	43	63	52	61	60	57	53		Quality Improved	2.73
Thane	2800	44	46	56	56	55	55	56	61	57	60		Quality Improved	3.80
Thane	2795	44	60	59	55	57	55	59	59	55	56		Quality Improved	2.89
Thane	2185	44	59	56	55	52	56	52	53	54	56		Quality Improved	2.89
Thane	2796	48	62	54	63	53	55	60	60	54	55		Quality Improved	1.58
Thane	2806	38	59	53	55	50	52	59	61	47	49		Quality Improved	3.46
Thane	2797	43	58	55	63	47	54	58	58	52	54		Quality Improved	2.76
Thane	2802	42	53	50	66	53	55	57	55	52	56		Quality Improved	3.55
Thane	2798	41	43		68	49	51	56	58	49	54		Quality Improved	3.52
Thane	1316	58	59	51	67	55	53	57	56	52	55		No Significant Change	-0.60

For calculation of CAGR: Refer Pg no.23

Thane District (2 of 2)

District	Station Code	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	Trend	Quality	CAGR %
Thane	2805	56	62	56	65	50	52	55	60	48	50		Quality Deteriorated	-1.32
Thane	2793	53	57	52	55	50	47	50	55	54	56		No Significant Change	0.73
Thane	2792	55	63	60	54	51	55	56	57	54	55		No Significant Change	-0.01
Thane	2794	52	61	55	55	57	58	56	56	54	58		Quality Improved	1.44
Thane	2801	49	57	56	64	54	56	56	58	52	59		Quality Improved	2.18
Thane	2799	52	42		72	51	52	53	55	49	52		No Significant Change	0.10
Thane	190									52	53		No Significant Change	0.33

For calculation of CAGR: Refer Pg no.23

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

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